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Hazardous Materials Transportation Security: Highway and Rail Modes

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name redacted
Analyst in Science and Technology
Resources, Science, and Industry Division

Note: Paul Rothberg, who has retired from CRS, is the author of this report. Randy Peterman is the CRS analyst who currently handles issues covered by this report.

Hazardous Materials Transportation Security: Highway and Rail Modes

Summary

Hundreds of thousands of trucks and railroad tank cars transport tons of hazardous materials (hazmat) daily. There is virtually an unlimited number of ways that these shipments are at risk from attack by terrorists. By implementing a "layered" system of measures affecting shippers, carriers, and drivers, many in the public and private sectors seek to reduce associated security risks. This system involves incident prevention, preparedness, and response. A major challenge is to increase cost effectively the security of these shipments, especially those that pose the most danger to the public, while still meeting, to the extent possible, the transportation requirements of commerce. The 109th Congress is considering legislation, such as H.R. 3, H.R. 153, H.R. 909, H.R. 1109, and H.R. 1414, and S. 230, which includes provisions intended to promote hazmat transportation security.

The Departments of Transportation (DOT) and Homeland Security (DHS) have taken numerous actions to enhance the security of hazmat transportation. For example, DOT requires shippers and carriers to implement security plans regarding specified hazmat transportation. DOT grants encourage states to conduct inspections of trucks transporting hazmat. Also, DOT has contacted thousands of companies seeking to improve their security programs, and also has established communication links with industry. DHS conveys threat information to law enforcement and industry, and conducts vulnerability assessments. DHS administers a grant that provides training and the communications infrastructure which facilitates truck drivers and others to report safety and potential security concerns. DHS seeks to determine whether commercial drivers pose a security threat necessitating denial of their hazmat endorsement on their commercial drivers licenses. Despite these efforts, there remain many vulnerabilities in the current layered system of hazmat transportation security measures. At a cost, much more could be done to expand the scope, strengthen the rigor, and accelerate the pace of the federal role in this area.

H.R. 153 and H.R. 1109 include a provision that would require the DHS to prepare a vulnerability assessment of freight rail transportation and to identify security risks that are specific to the transportation of hazmats by rail. H.R. 153 would provide grants to address threats pertaining to the security of hazmat transportation by rail. H.R. 909 would establish a research program intended to advance security measures for hazmat transportation. H.R. 3, which the House has passed, includes a provision intended to ensure that Mexican- and Canadian-domiciled truck drivers transporting specified hazmat loads in the United States are subject to a background check similar to that required of U.S. drivers. Other options include increased security awareness training for state truck inspectors and certain employees of truck leasing companies, and requiring enhanced security plans and communication systems for carriers of high hazard materials shipments beyond those now required. Each of these options poses costs that need to be evaluated within the context of other investments. This report deals only with hazmat security in surface transportation and will not be updated.

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Clare Brigidini, of the Resources, Science, and Industry Division, provided editorial and research assistance.

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The Challenge and Reality

Introduction

Hundreds of thousands of trucks and rail tank cars transport tons of hazardous materials (hazmat) daily. These cargoes have the potential to be instruments or targets of terror. Hazmat shipments can be attacked or hijacked by terrorists. Intercepted hazmat shipments that are poisonous, infectious, radioactive, flammable, or explosive can be used to harm large groups of people. Also, hazmats can be maliciously released to attack buildings and critical infrastructure. The Department of Transportation (DOT) asserts that security threats specifically targeting hazmat transportation are real and ongoing.[1]

The security of such shipments, especially those that can be used as weapons of mass destruction, is attracting much attention by the transportation community, governmental officials, emergency responders, and terrorists. Many in the public and private sectors seek to reduce risk by establishing a "layered" or reinforcing system of measures affecting companies, drivers, and shipments. This system involves incident prevention, preparedness, and response. Inspection of commercial drivers and vehicles, regulation of the security aspects of transportation operations (including routing), security-oriented training of employees, and planning and training for emergency response are key activities. A major challenge is to cost effectively increase the security of these shipments, especially those that pose the most danger to the public, while still meeting, to the extent possible, the transportation requirements of commerce.

This report provides a general overview of hazmat transportation security and focuses on the federal role. The report first summarizes an array of key governmental activities that might be encompassed in a layered system of security enhancements. This theoretical system is then compared to a summary of the status of current federal governmental efforts. More specifically, the report outlines illustrative key actions taken by the DOT and the Department of Homeland Security (DHS) to promote hazmat security in surface transportation. The report then summarizes some concerns associated with the federal effort in promoting hazmat transportation security, specifically commenting on the adequacy of some DHS and DOT efforts,

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[1] DOT Docket No. RSPA -02-12064 (HM-232). Hazardous Materials Security Requirements for Offerors and Transporters of Hazardous Materials. Final Rule. March 25, 2003; 68 FR 14510.

as well as routing, pre-notification, and research concerns. Finally, the report presents ten options that might be considered to further strengthen hazmat transportation security.

This report does not address private sector efforts to promote hazmat security, and does not cover the special security measures associated with the transportation of high-level nuclear shipments. Furthermore, this report deals only with hazmat security in the rail and highway modes.

Theory and Reality

There is virtually an unlimited number of ways that the hazmat transportation system is at risk from attack by terrorists. Rail track or signals can be sabotaged, tank trucks and rail cars can be attacked, and poisonous gases can be released. Estimates indicate that there are over one million hazmat shipments per day in the United States. Simply put, there are too many points of vulnerability to *ensure* security during hazmat transportation. Nevertheless, decision makers are asking: What is the Federal Government doing to promote hazmat transportation security? What are the shortcomings of the current security safeguards? Are the DOT and the DHS taking prudent, timely, and cost effective measures to promote hazmat transportation security? And, what other effective measures could these Departments implement at a reasonable cost? This report provides insight into each of these areas of concern.

Instead of ensuring security, a "layered approach," which marshals different reinforcing measures to promote hazmat security, is gradually being deployed. This system includes private sector initiatives underpinned or supplemented with governmental efforts such as research, outreach, directives, advisories, and regulations. This layered approach does not absolutely ensure security, but it enhances security by marshaling different approaches.

The Theory. What are some key governmental components that might be included in a layered system of security measures? In theory, initiatives that might be implemented include in-depth and reliable background checks or security threat assessments of drivers transporting certain loads of hazmat; special permits required for carriers of high-hazard materials to ensure that they have achieved specified levels of safety and security; effective and definitive security-oriented training requirements for hazmat employees; and requirements for adequately enforced, carefully designed security plans and procedures for certain hazmat transportation operations. Such a system would be overseen by a cadre of federal and state inspectors. Also, planning and training grants might be obligated to help prepare emergency responders in case there is a release of hazmat. Grants to train and enable the transportation community to alert officials to possible terrorist threats might also be included in this theoretical system. Routing of high hazard shipments might be designed to appropriately balance safety, security, emergency response, and operational or logistical concerns.

The Reality. As discussed in detail in the next section and summarized in **Table 1** below, the DOT and DHS have taken numerous actions intended to increase the security of specified hazmat shipments.

Table 1. Summary Status of DOT and DHS Efforts[2]

Activity	Status
Security threat assessments of specified commercial drivers, including in-depth background checks	DHS administers. Initial process implemented, first cycle of fingerprint-based checks likely to be completed during 2010, evolving program, challenges remain
Special hazmat permits for certain carriers	DOT requires for specified highway carriers, but relatively new process
Security-oriented training regulations	DOT requires
Security plans	DOT requires for specified hazmat carriers and shippers, but specificity and criteria for plans could be substantially enhanced resulting in additional costs to some companies
Routing requirements	A variety of routing requirements exist, but no comprehensive national routing system for all hazmat shipments that requires evaluations and tradeoffs of detailed safety, security, logistics, and economic costs and benefits
Grants to improve planning for and emergency response to hazmat releases	DOT administers
Grant to improve communications and reporting of safety and potential security concerns	DHS administers
Comprehensive security-oriented audits	DOT's primary emphasis remains on safety. Compliance with DOT's hazmat transportation regulations pertaining to security is now enforced primarily by DOT personnel. DHS does not have permanent field capability in this area dedicated full-time to cargo inspection, but DHS does conduct a few assessments of high risk corridors in the rail mode.

Source: Congressional Research Service

[2] Any driver, person, or regulated entity that might be subject to safety or security regulations or directives (including those pertaining to hazmat transportation, chemical or biological materials or agents determined by the Secretary of Health and Human Services or the Attorney General as being a threat to the national security of the United States), the commercial drivers license, or the hazmat endorsement, should not rely on this report, but instead should consult and follow official and current regulatory information or directives.

In sum, DOT and DHS have: administered millions of dollars of various types of grants to assist state inspectors, industry, and emergency responders; spent millions of dollars planning and implementing programs and issuing security-oriented proposals or regulations; and required the transportation industry and commercial hazmat drivers to spend much larger sums to comply with federal requirements. Through these and other actions described in detail later in this report, DOT and DHS, working with industry, are creating a layered system of security measures. Whether the scope, rigor, and pace of these actions is adequate or not is subject to debate.

Survey of Illustrative DOT and DHS Activities

DOT and DHS both have important responsibilities in promoting hazmat transportation security. Presented below is a survey of illustrative DOT and DHS activities. Although this discussion presents each of these department's activities under separate headings, it is important to remember that they do consult with each other and seek to coordinate activities.

DOT Activities

The Homeland Security Act of 2002 (P.L. 107-296) states that the DOT Secretary is to prescribe regulations for the safe transportation, including security, of hazmats in intrastate, interstate, and foreign commerce. DOT maintains that addressing security concerns should be part of an overall strategy to manage the risk of hazmats during transportation. Different modal administrations in DOT have conducted an array of activities to promote hazmat transportation security. Among the most significant actions are DOT's visits to thousands of hazmat carriers and issuance of the security planning and training regulations and permit requirements mentioned below. DOT's Federal Motor Carrier Safety Administration (FMCSA), Federal Railroad Administration (FRA), and the Pipeline and Hazardous Materials Safety Administrations (PHMSA) are key participants in promoting the security of hazmat transportation in the surface mode.[3]

FMCSA has influenced security efforts through direct contacts with industry, enhanced regulatory requirements, grants to state motor carrier safety officers, diverse training, and operational testing of security measures. For example, this agency has conducted more than 37,000 visits to hazmat trucking companies to provide technical assistance intended to enhance the security of their operations. Since April 2003, FMCSA has conducted more than 850 security contact reviews during which its specialists seek to determine whether a motor carrier's security plan and security training procedures comply with federal regulations. Enforcement actions have resulted from these reviews. Furthermore, FMCSA requires trucking

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[3] Many of DOT's hazmat responsibilities were previously conducted by the Research and Special Programs Administration (RSPA). This agency within DOT no longer exists, and RSPA's hazmat responsibilities were transferred to the Pipeline and Hazardous Materials Safety Administration (PHMSA).

companies transporting shipments of certain "highly" hazardous materials to obtain a special hazmat safety permit.[4] FMCSA has stated that the permit is needed because certain highly hazardous materials, should they be released in crashes or attacked by terrorists, would be more dangerous than some other hazmats. FMCSA also has provided enforcement grants to border states to enhance inspection of hazmat shipments entering the United States. Also, FMCSA sponsored an evaluation of a variety of technologies intended to enhance security, e.g., systems to track trucks transporting hazmats and ways to stop these vehicles in case of hijack. More specifically, FMCSA supported an operational test involving about 100 trucks equipped with an array of security-oriented technologies. This "on the road" experiment assessed the costs and benefits of various security enhancing technologies and communication systems to ascertain opportunities for further advances. Also, this agency issued a "Guide to Developing an Effective Security Plan for the Highway Transportation of Hazardous Materials," which was developed by Battelle and TotalSecurity.US.[5]

In addition, FMCSA has provided training to its safety specialists to increase their knowledge of the federal transportation security regulations. This DOT modal administration is also delivering a short course to police officers entitled "Trucks and Terrorism." The course is intended to help police officers recognize a suspicious activity pertaining to a trucking operation, (e.g., shipping oranges into Florida during their orange harvesting season), or a suspicious action of a driver that may indicate a terrorist intent. FMCSA has developed an extensive communications/notification system, as well, that reaches hundreds of thousands of drivers and thousands of companies regarding possible security threats and other security-related information. FMCSA has warned industry of heightened security situations and provides alerts regarding specific vehicles or shipments.

DOT's Pipeline and Hazardous Materials Safety Administration (PHMSA), formerly part of the Research and Special Programs Administration (RSPA), requires each regulated entity (person or company) which offers or transports in commerce specified hazmats to develop and implement security plans.[6] Some in industry

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[4] For additional information see for example: [http://www.fmcsa.dot.gov/rulesregs/fmcsr/final/04-14654_HazMat_Safety_Permits.htm] FMCSA states a motor carrier must meet certain conditions to receive this special permit, including "A motor carrier must have a satisfactory security program in place and must be registered with [PHMSA]. A satisfactory security program consists of: (1) A security plan as prescribed in 49 CFR part 172, subpart I; (2) a means of communication that will enable the vehicle operator to contact the motor carrier during the course of transportation; and (3) a means of providing hazardous materials employees with security training as required in 49 CFR part 172."

[5] [http://www.fmcsa.dot.gov/safetyprogs/hm/Security_Plan_Guide.pdf]

[6] According to PHMSA, the security plan must include an assessment of possible transportation security risks for shipments of specified hazmats and appropriate measures to address such risks. The plan must include various components, including measures: to confirm job application information provided by specified employees, to "...address the (continued...)

consider DOT's rule on security plans to be overly broad in its applicability. Some are concerned that DOT's assessment of whether a company's security plan meets federal requirements is too subjective.[7] This DOT regulation covers a wide array of companies, including those offering or transporting a load of hazmat that needs to be placarded. Thus this regulation covers much of the hazmat industry. According to a spokesman, the DOT has chosen not to be too prescriptive in its security plan regulation and instead, within the general framework of what is required, expects each company to develop and implement appropriate measures tailored to its specific operating conditions and commodities being transported.[8]

PHMSA also requires that security awareness training must be provided by a specified date to all hazmat employees, and that employees of companies required to prepare a security plan must receive training on the plan.[9] (FMCSA, FRA, and PHMSA inspectors are seeking to promote compliance with these regulations, and state that they are bringing enforcement actions against companies that are not in compliance with the security regulations.) Also, PHMSA has issued a framework for risk management applicable to the transportation of hazardous materials. The product, designated as the "Risk Management Self-Evaluation Framework (RMSEF)", is intended to help companies develop hazmat security plans.[10] PHMSA also administers a grant program that provides training to emergency responders dealing with spills of hazmat.

Primarily as a result of industry efforts, underpinned by actions taken in partnership with DHS and DOT, railroad security has tightened since 9/11. With respect to hazmat transportation by rail, the FRA is participating in various government and private sector efforts to conduct a review and security risk assessment of hazmat shipments through various major metropolitan areas. FRA has

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[6] (...continued)
assessed risk that unauthorized persons may gain access to the hazardous materials covered by the security plan or transport conveyances being prepared for transportation of the hazardous materials covered by the security plan," and to "...address the assessed security risks of shipments of hazardous materials covered by the security plan en route from origin to destination, including shipments stored incidental to movement."

[7] Personal communication with various hazmat industry officials, 2004.

[8] Personal communication with DOT, 2005.

[9] For example, a PHMSA regulation states that by a certain date: "...each hazmat employee must receive training that provides an awareness of security risks associated with hazardous materials transportation and methods designed to enhance transportation security. This training must also include a component covering how to recognize and respond to possible security threats. After March 25, 2003, new hazmat employees must receive the security awareness training required by this paragraph within 90 days after employment." Also, a PHMSA regulation states: "By December 22, 2003, each hazmat employee of a person required to have a security plan in accordance with subpart I of this part must be trained concerning the security plan and its implementation. Security training must include company security objectives, specific security procedures, employee responsibilities, actions to take in the event of a security breach, and the organizational security structure." For additional information see for example: 49 CFR §172.704 Training requirements.

[10] [http://hazmat.dot.gov/riskmgmt/rmsef/rmsef.htm]

provided technical advice to the DHS on tank cars and hazmat transportation. Also FRA conducts hazmat training for first responders that deals with possible toxic releases due to security or safety issues. FRA has participated in hazmat security exercises that focused on response to terrorist strikes affecting all transportation modes. In addition, FRA has conducted more than 1,200 inspections of shippers and railroads to check for compliance with DOT's hazmat security regulations. FRA's inspection and oversight of rail bridges and track have direct relevance to security concerns. Also, FRA provides intelligence sharing with the railroads on security matters.

DHS Activities

The DHS is the lead federal department concerned with promoting homeland security. DHS activities are wide ranging and may directly or indirectly affect transportation security in general, and sometimes hazmat transportation security in particular. This Department seeks to reduce threats to transportation infrastructure and operations and improve associated federal response to these threats. For example, DHS conducts threat determinations, assesses vulnerabilities and risk, and issues information warnings and advisories, as well as develops various security plans and strategies. Also, DHS has issued a standardized management plan for incident response. This Department operates the Homeland Security Operations Center, which serves as the primary, national-level center for real-time threat monitoring and situational awareness, domestic incident management, and related information sharing efforts. DHS also runs the Homeland Security Information Network-Protected Critical Infrastructure Information Program, which is a communications and alert notifications link allowing federal, state, and local officials to exchange information rapidly that pertains to all security issues, including hazmat transportation security.

DHS also administers a multi-faceted research and development (R&D) program focused on a broad range of security-oriented technologies or systems, some of which have direct bearing on transportation of hazmats. Some areas of research or technology development include technology to track hazmat shipments; improved detection of nuclear materials; improved emergency response strategies; and characterization and reduction of the vulnerability posed by toxic industrial materials in transport. Sometimes DHS R&D is conducted in close cooperation with DOT. For example, DHS and the FRA have supported research to examine how breaches of tank cars caused by small arms fire might be detected.

The Transportation Security Administration (TSA) is the key agency within DHS that affects transportation security. The Aviation and Transportation Security Act provides this agency with broad responsibility and authority for security in all modes of transportation, including the authority to develop policies and strategies for dealing with threats to transportation security and to enforce security-related regulations. TSA maintains that under this authority, it may "...identify a security threat to a mode of transportation, develop a measure for dealing with that threat, and

enforce compliance with that measure."[11] DHS and DOT agree that they share responsibility for hazmat transportation security. In a memorandum of understanding (MOU) regarding broad transportation security responsibilities and communications, DOT acknowledges that DHS has primary responsibility for transportation security, and that DOT supports DHS by providing technical assistance and helping DHS with its security policies, when possible. DOT retains statutory authority and responsibility for such matters as transportation of hazmat (including security).

TSA's primary emphasis has been on aviation security; with much less attention and money directed at surface transportation concerns. Thus, in terms of resources invested, TSA states that it "...has been unable to place the focus on hazmat transportation security that is warranted."[12] TSA's activities intended to promote hazmat transportation security are not concentrated in one office, but are part of the responsibility of several of its offices. TSA maintains that this structure is intended to maximize resources and program effectiveness.

TSA uses a variety of different approaches seeking to improve the security of hazmat shipments. These include planning, communications, research, and training activities. One of TSA's earlier planning activities was to develop a document called the "Sector Specific Plan (SSP) for Transportation," which is part of the broader National Infrastructure Protection Plan. The SSP is intended to: (1) identify participants in the transportation sector, their roles and relationships, and means of communication; (2) identify critical transportation assets; (3) assess transportation sector vulnerabilities and prioritize assets; (4) identify protective programs; (5) measure security performance; and (6) prioritize research and development to advance security technologies.[13] Hazmat transportation security, however, is not considered as a separate transportation activity under the SSP, but rather this area is encompassed under various modal portions of the plan. For security and other reasons, this draft plan has not been released to the public.

Some Members of Congress are particularly interested in vulnerability assessments. Several bills introduced in the109th Congress, including H.R. 153 and H.R. 1109, include provisions that would require the DHS to prepare a vulnerability assessment of freight rail transportation and to identify security risks that are specific to the transportation of hazmats by rail.

With respect to promoting hazmat security, TSA is involved in several information-focused activities. For example, TSA routinely communicates with industry representatives and state officials about security threats. Often on a weekly basis, TSA has conducted numerous briefings for various stakeholders, including the

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[11] Department of Transportation and Department of Homeland Security. Hazardous Materials: Enhancing Rail Transportation Security for Toxic Inhalation Hazard Materials: Notices. Federal Register. August 16, 2004: 50989.

[12] Written communication from TSA, 2005.

[13] Statement of Stephen McHale, Deputy Administrator, TSA on Transportation Security before the Subcommittee on Infrastructure and Border Security Select Committee on Homeland Security, May 12, 2004, [http://www.tsa.gov/public/display?theme=47&content=09000519800a612f].

hazmat industry, to inform interested parties on relevant security activities and concerns.

TSA sponsors an array of outreach and training activities that are intended to promote hazmat transportation security. For example, TSA/DHS has provided about $41 million to the American Trucking Associations' Highway Watch® Program. This program trains truck drivers and various highway workers to identify and report safety incidents and potential security threats that occur on roadways. Funds from this program are also used to link transportation professionals with law enforcement, first responders, and the intelligence community via TSA's Transportation Security Operations Center. Participants in this program report "...safety hazards and potential terrorist-related activity in the transportation industry, providing a rich source of threat-related human intelligence that is analyzed and channeled to law enforcement, national security agencies, and industry."[14] Since June 2004, the Highway Watch® Call Center has responded to more than 1,415 calls of which more than 200 were reports of suspicious activity that "...could be construed as possible pre-operational surveillance, probing or otherwise abnormal activity within the highway community."[15] Highway Watch® has trained almost 50,000 participants from all areas of the highway community and plans to train over 450,000 during 2005. The Highway Watch® Information Sharing and Analysis Center (ISAC) issues "Be-On-the-Look-Out (BOLO)" alerts, suspicious incident reports, various analytical reports, and emergency traffic routing advisories.

TSA's role in hazmat security is evolving and many of its efforts are conducted with the direct support of, or in consultation with, the DOT. For example, on August 16, 2004, TSA and RSPA (now PHMSA) issued a request for comments and information on the feasibility and impacts of initiating security enhancements regarding rail shipments of toxic-by-inhalation (TIH) materials. Both agencies are examining the need for possible "hardening" of aspects of the rail transportation system for TIH materials and the costs and benefits of these measures.

For example, these agencies are considering whether to revise temporary storage requirements applicable to rail tank cars transporting TIH materials; and whether to require removal of identifying marks, names, stenciling, placards, or other content indicators from rail tank cars used to transport TIH materials. An issue is whether alternative means of hazard communication are practicable that would concurrently promote safety, emergency response and security. Some fear that existing communication requirements could help a terrorist or criminal identify a potential target for harm; but many in the emergency response community want DOT to continue to require its hazards communications system. TSA has sponsored a study that bears on this issue.

Also, TSA and PHMSA are considering how the security plans pertaining to TIH materials required by PHMSA might be improved, and whether and how

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[14] Written communication from the Highway Watch® Program, 2005.

[15] Ibid.

specific criteria for these plans might be required to more adequately address security risks. It remains uncertain what actions either TSA and/or PHMSA will take as a result of this August 16, 2004 initiative and when such actions might occur.

This August 16, 2004 regulatory announcement suggests that TSA intends to take a much more definitive role in promoting the security of these materials in the rail mode. More specifically, "DOT and DHS's focus on rail is only the first phase in an interdepartmental multi phase effort to assess and secure the transportation of TIH in all transportation modes to create an end-to-end secure TIH supply chain."[16]

In addition, TSA was tasked by the Homeland Security Council to conduct rail-corridor assessments in eight high threat areas. Experts from industry, FRA, and others under TSA's leadership conduct these analyses which typically include vulnerability assessments, analysis of freight operations, and buffer zone protection studies. As a result of this process, TSA provides recommendations to industry and governmental officials in the corridor and tries to get cooperation and buy-in from various stakeholders to implement the necessary improvements.[17] TSA has completed its assessment of the Washington, DC corridor, and states that it has made progress on assessing corridors in Ohio and New Jersey. Based on discussions with the railroad industry and TSA, DHS has not provided any direct funding to any railroad to improve its security infrastructure in any of these corridors.[18] TSA, however, states that there have been security enhancements as a result of the rail corridor assessments.

TSA also is managing a pilot project to test various truck tracking technologies and plans to develop, test, and evaluate a prototype for a centralized truck tracking center.[19] Researchers plan to examine questions regarding the interoperability of various technologies and the linking of various alerting and information systems between a truck tracking center and a government intelligence center. TSA also provided FMCSA with funds to help that agency formulate its hazmat carrier permit program, which was previously mentioned. TSA is initiating a security awareness

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[16] Department of Transportation and Department of Homeland Security. Hazardous Materials: Enhancing Rail Transportation Security for Toxic Inhalation Hazard Materials: Notices. Federal Register August 16, 2004: 50989.

[17] Personal communication with TSA, 2004.

[18] Personal communications with TSA and railroad industry spokesman, 2005.

[19] As specified in a solicitation issued in 2005, "The Transportation Security Administration intends to competitively seek offers to accomplish the following: (1) Identify, test and evaluate at least three technically different, but commercially available solutions to track trucks in all 50 states; (2) Develop, test and evaluate a prototype for a centralized truck tracking center; (3) Develop, test and evaluate a non-proprietary universal interface system or set of protocols that will allow alerts and tracking information to be transmitted from all commercially available tracking systems to a prototype truck tracking center; (4) Evaluate the feasibility of utilizing the developed universal set of protocols or interface system to pass truck tracking information between a truck tracking center and a 24-hour government intelligence operations center; (5) Provide an independent analysis of the recommendations and validate the results of (2), (3), and (4)."

program for the truck leasing/rental industry. One of the purposes of this effort would be to increase the sensitivity of counter employees to possible security risks, such as illegal transport of hazmat, posed by someone seeking to rent a truck with terrorist intent.

Other parts of the DHS also affect various aspects of hazmat transportation security. For example, the U.S. Customs and Border Protection (CBP) is installing scanners that can detect radioactive materials as trucks drive out of marine terminals. CBP also has issued a rule requiring advanced notification of cargo (including chemical cargo) manifest data on specified shipments into and out of the country.[20] The Office for Domestic Preparedness in DHS conducts planning activities and provides training for those that might deal with a terrorist attack involving hazmat transportation.

TSA and Hazmat Drivers

TSA also assesses intelligence and other data seeking to identify persons who pose a threat to transportation security. With cooperation from the states, TSA is gradually implementing Section 1012 of the USA PATRIOT Act (P.L. 107-56). This provision seeks to reduce some of the security risks associated with hazmat transportation by requiring a security threat assessment of drivers with a hazmat endorsement on their commercial drivers license (CDL). This process, which includes immigration and database checks, may deter a terrorist from obtaining or keeping such an endorsement; nevertheless, the hazmat transportation system remains vulnerable to attack. Members of Congress are overseeing implementation of TSA's program, reviewing its financial impacts, and deciding whether to explicitly require in law a similar review of Canadian- and Mexican-domiciled drivers transporting specified hazmats into the United States. This provision is included in H.R. 3, which the House passed.[21]

During 2004 TSA screened 2.7 million commercial drivers with a hazmat endorsement by comparing drivers' names and other information to those on a variety of databases. These checks generated more than 100 leads that were sent to the FBI. TSA recognizes that the reliability of this process will be improved by incorporating a fingerprint-based criminal background check. For each of the next five years, TSA will put roughly 1/5 of the commercial drivers seeking to renew, obtain, and in some cases transfer, a hazmat endorsement through a more comprehensive threat assessment process, including a fingerprint-based records review. This complex process is underpinned by detailed federal regulations and state procedures that pose costs or uncertainties for drivers or carriers. Through its adjudication process, TSA will face the difficult task of quickly responding to many drivers appealing TSA's

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[20] [http://www.cbp.gov/xp/cgov/import/communications_to_industry/advance_info/]

[21] Section 4113 states: "No operator of a commercial motor vehicle (as defined in section 31101) licensed in Mexico or Canada may operate in the United States a commercial motor vehicle transporting hazardous material until the operator has undergone a background records check similar to the background records check required of operators of commercial motor vehicles licensed in the United States to transport hazardous materials."

initial decisions effectively denying their hazmat endorsement or seeking waivers from program standards. TSA conducts name-based checks periodically of drivers holding a hazmat endorsement on their license.

TSA and the states have faced many challenges in the development and implementation of this initiative. The complete program was originally planned to start in 2003, however, it was delayed several times. As of January 31, 2005, TSA has not permitted a state to issue a new hazmat endorsement with a CDL until a determination has been made that an applicant does not pose a security threat. Starting May 31, 2005, this TSA rule also applies to drivers seeking either to renew a CDL with this endorsement, or, in some cases, to transfer his/her license from one state to another.

Policy Issues Associated with Hazmat Transportation Security

There are several policy issues associated with the federal role in the security of hazmat transportation. These include concerns regarding the adequacy or impact of some federal hazmat transportation security efforts, limited inspector resources, routing, and planning and pre-notification of shipments, and research related to security technology.

Adequacy or Impact of Some Federal Hazmat Transportation Security Efforts

Despite the efforts and accomplishments of the DOT and DHS that were noted in the previous section, many vulnerabilities remain in the current layered system of hazmat transportation security. As discussed below, some of the federal efforts to promote security are just beginning to have an impact, and some of these impacts are rather limited in reach or scope.

FMCSA Activities. Starting in early 2005, FMCSA began issuing hazmat permits to carriers transporting specified high hazard materials. All carriers subject to the hazmat safety permit requirements (e.g., 49 CFR 385.403) are required to go through the permit process. Essentially, the first round of carriers should be considered for the permit within approximately the next 21 months as they register or renew their registration with FMCSA.[22] As this occurs, FMCSA will issue temporary permits and conduct compliance reviews on those carriers without a safety

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[22] FMCSA regulation states: "After the date following January 1, 2005, that a motor carrier is required to file a Motor Carrier Identification Report Form (MCS-150) according to the schedule set forth in Sec. 390.19(a) of this chapter, the motor carrier may not transport in interstate or intrastate commerce any of the following hazardous materials, in the quantity indicated for each, unless the motor carrier holds a safety permit..."

rating that meet other eligibility requirements for a hazmat permit. FMCSA's review is intended to check the compliance of these carriers with various FMCSA-issued safety regulations as well as PHMSA-issued hazmat security regulations. During the compliance review, FMCSA states that its safety specialists audit the certifications made by industry as part of the permit application. Or, FMCSA will issue the hazmat safety permit to those carriers with a satisfactory rating that otherwise meet the requirements for the permit. As previously indicated, FMCSA has already reviewed hundreds of hazmat carriers to check for their compliance with the PHMSA-issued regulations prior to January 1, 2005.

It is difficult to assess the impact of FMCSA's permit requirements on security because so few carriers have actually obtained the permit to date. FMCSA expects that eventually some 3,100 carriers will seek this permit. As of March 21, 2005, about 180 carriers had received permits, while 125 applications were rejected.[23] The financial penalties that can result from enforcement cases based on FMCSA's compliance reviews plus the legal consequences of falsifying certifications required to obtain the permit serve as two forces promoting compliance with PHMSA's security plan regulations. FMCSA maintains that increased security measures required as part of the permit program reduces the chance that the high hazard materials transported by the covered carriers could be used in a terrorist attack. Although this statement may be true, compliance with current federal security measures, which leave much discretion to industry regarding required measures to be taken, could still leave considerable vulnerability to attack, and also do not require constant 24/7 communications for high hazard shipments between a carrier and the driver.[24]

DHS Activities. As previously noted, TSA's role in hazmat transportation is evolving. Not surprisingly, some of TSA's efforts are just beginning to have an impact. For example, the fingerprint-based, security threat assessment that TSA

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[23] Personal communication with FMCSA, 2005.

[24] FMCSA states: "We are requiring companies holding safety permits to develop a communications plan that allows for the periodic tracking of the shipment. This may be accomplished either through phone calls or radio calls placed by the driver or through an electronic monitoring or tracking system. At a minimum, the communication plan must require contact from the driver or electronic tracking equipment at the beginning and end of transportation (during loading or unloading of a permitted material) or at the beginning and end of each duty period. If the driver is making the calls, he or she should make them during periodic rests (taken for reasons other than making the call), or at the beginning and end of each duty period while not operating the vehicle or obtaining necessary rest. If the company has any reason to suspect the shipment has been stolen, diverted, or otherwise off-route because of a lack or delay of contact from the [[Page 39353]] driver, or for other reasons, then the company should contact the Transportation Security Administration's (TSA) Transportation Security Coordination Center at [redacted] or [redacted]."
For additional details see DOT regulations, including [http://www.fmcsa.dot.gov/rules-regulations/administration/rulemakings/04-14654-hazmat-safety-permits.htm].

performs on CDL holders regarding their hazmat endorsement began in early 2005. The actual impact of this process on hazmat transportation security is difficult to determine, but most observers would agree that, at best, its impact will be rather limited in the broader scheme. TSA's threat assessment process may deter someone who may be a terrorist from obtaining or keeping a hazmat endorsement. But that person still can do harm using hazmats in transportation without first obtaining a hazmat endorsement. The questions could be asked: Is a terrorist likely to acquire or maintain a hazmat endorsement if they need to submit to a fingerprint check, an immigration status check, a criminal background review, and multiple-database name-only checks? Does the benefit of obtaining a hazmat endorsement overcome the potential risk of being uncovered as a terrorist? TSA's security threat assessment process, however, is not intended or designed to address all the vulnerabilities in the hazmat transportation system. In the war against terrorism, TSA's threat assessment process is viewed by some as a prudent measure, by others as a "feel good" measure; it is generally recognized, however, that this investment is inherently limited in its impact.

On the other hand, by not being able to obtain or keep such an endorsement, easy access to some parts of the hazmat transportation system can be reduced, thus making it more difficult to do harm. Also, TSA's security threat process may make it more difficult for a group of terrorists to organize a coordinated attack using hazmat. Furthermore, TSA's name-only based checks have generated more than 100 leads that were sent to the FBI, according to TSA.

The impact or reach of some of TSA's other efforts to promote hazmat security also is limited. To date, TSA has not issued a comprehensive set of regulations that requires the various key components of the hazmat transportation industry (e.g., all high hazard shippers and carriers) to implement a detailed system of security-oriented measures that meets specified criteria beyond those now required by DOT. There is little indication that the TSA plans to issue such comprehensive regulations, at least in the near-term, although this agency, working with DOT, may first strengthen requirements pertaining to TIH materials transported in the rail mode.

TSA notes that it has been working with the DOT on the issuance of certain security directives and guidance documents that would be designed to address the security risks associated with shipping and transporting certain types and quantities of hazmat. TSA maintains that before the agency issues "...any regulations or adopt standards for key components of the HAZMAT transportation industry, a detailed risk assessment and identification of system vulnerabilities should take place. Doing so will allow TSA to properly prioritize and focus their resources on those areas that are deemed to be most vulnerable and subject to terrorist acts."[25] It remains uncertain when TSA will issue new security directives or guidance documents pertaining to hazmat transportation security.

Also, DOT and DHS have not issued a final regulation that would result in a

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[25] Written communication from TSA, 2005.

national routing system governing all rail and highway hazmat shipments that requires local or state jurisdictions to take into account and evaluate various safety considerations, security risks, and logistical tradeoffs, and dictates specific routes and security-based procedures. More importantly, there is not a consensus that there should be such a routing system.[26] For certain events often involving large numbers of people, DHS states that it works cooperatively with industry to encourage appropriate measures to reduce risk associated with certain hazmat shipments in the impacted vicinity. For example, TSA may encourage industry to hold certain shipments for several hours away from certain populated areas.

Limitations of Federal and State Inspector Resources

Limited federal and state inspection of hazmat shipments also poses security concerns, especially in highly populated areas. Federal and state motor carrier specialists and railroad inspectors primarily focus on promoting compliance with applicable safety regulations. (In general, security problems can be much more difficult to detect than safety problems.) Funding limitations for inspector resources allow only a small percentage of the vehicles (tank trucks and tank cars) entering or near heavily populated areas to be checked. Many safety/regulatory inspectors are not equipped with the necessary technologies, e.g., radiation detection devices, that would help detect some potential security risks. The increased use of technology (e.g., radiation detectors) would enhance security, but there are associated costs. Furthermore, based on discussions with various participants in the commercial vehicle safety community, it appears that all inspectors funded by the Motor Carrier Safety Assistance Program (MCSAP) do not uniformly receive formal and detailed training on hazmat transportation security concerns and appropriate interrogatory techniques regarding this challenge. Nor are all state motor carrier inspectors trained policemen with full law enforcement responsibilities and arrest powers. FMCSA plans to conduct security awareness training for MCSAP personnel during FY2005. Furthermore, TSA notes that in its FY2005 appropriations the agency was given the authority to hire 100 inspectors primarily to promote security for passenger railroads. TSA maintains that it has some flexibility to use these personnel to conduct some cargo inspections as conditions arise.[27] DHS states that it has allocated funds that will be used to improve the security training of many groups, including state motor carrier inspectors.

There are other limitations. Many truck inspections occur away from heavily populated areas along the interstates. If more of these inspections occurred in highly populated areas, the effectiveness of such inspections as a security measure might be increased. Additional inspections of shipments in urban areas, although sometimes difficult to conduct, might reduce security vulnerabilities, especially if trucks with highly hazardous loads are found in locations that are not along intended delivery routes.

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[26] En route security, however, must be considered in the DOT-required security plans.

[27] Personnel communications with TSA, 2005.

Routing

The desire to enhance security has catalyzed renewed interest in the routing of hazmat shipments, especially for rail shipments near or through heavily populated areas.[28] Some have voiced concern over the possibility of terrorists attacking or hijacking shipments of chlorine and other hazmat. Federal, state, and local government agencies are evaluating impacts on safety, interstate commerce, transportation logistics, and security that would need to be considered as part of any proposal to reroute certain high hazards shipments permanently away from such locations. At least one jurisdiction, the District of Columbia, has enacted a law that was intended to have the net effect of temporarily prohibiting the transportation of certain hazmats through a part of its jurisdiction. While not an outright ban, the law requires that, except in cases of emergency, it shall be illegal in a specified zone to transport without a permit specified hazmat. The law authorizes the DC Department of Transportation to issue such permits upon a determination that there is no practical alternative route, which appears to be a stringent standard for review. This law has been challenged in federal court.

Many in the freight railroad industry do not want to provide municipalities or other local jurisdictions a definitive role in the routing of hazmat shipments. They fear that such a change in policy would lead to a proliferation of ordinances, higher transportation costs, and disruption of operations. There is concern that rerouting of such shipments away from highly populated areas could adversely affect the safety of less populated, remote communities; add trip miles for hazmat transporters; require travel over routes that have lower quality rail transportation infrastructure; encounter areas with less emergency response capability; or present other operational challenges for carriers.

Questions have also been raised about the legal ability of state and local jurisdictions to impose such restrictions on transportation. A CRS report states, "Reviewing the relevant statues, including the Hazardous Materials Transportation Act and the Federal Railroad Safety Act, it would appear that state and local governments may be preempted from enacting legislation that would prevent or hinder the transportation of hazardous materials in interstate commerce." This same report also points out "...the Constitution's dormant, or "negative" Commerce Clause may also prevent a state or locality from imposing such a restriction as it could arguably be seen as imposing an undue burden on interstate commerce."[29]

On the other hand, some groups maintain that high hazard shipments which pose

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[28] H.R. 1414 calls for the DHS Secretary to issue regulations pertaining to the routing of extremely hazardous materials through or near an area of concern. The bill requires the DHS Secretary "...to determine whether or not the transportation could be made by one or more alternate routes at lower security risk and, if the Secretary determines the transportation could be made by an alternate route, the use of such alternate route, except when the origination or destination of the shipment is located within the area of concern."

[29] CRS Report RS22041, *Legal Issues Concerning State and Local Authority to Restrict the Transportation of Hazardous Materials by Rail*.

a distinct public health and safety threat ought to be permanently rerouted around high-profile and high-casualty targets. A catastrophic event caused by a well placed terrorist attack on certain high hazard shipments could kill thousands and endanger hundreds of thousands of people. The argument has been made that the number of rail cars to be rerouted is a relatively small number and that alternative train routes can be used. Some hazmat shipments have been voluntarily rerouted away from populated areas.

Public Citizen, a consumer advocacy group, maintains that little has been done since September 11, 2001, to secure hazmat transportation from terrorist attacks. This organization points out that the Bush Administration has not supported the rerouting of trains transporting hazmat away from heavily populated areas. Public Citizen maintains that train cars are particularly vulnerable to attack and that it is unclear when DOT and DHS will finalize new regulations to strengthen security affecting the rail mode. (This organization also maintains that "Government monitoring of trucks carrying hazardous material remains weak."[30] Public Citizen also asserts that there are major deficiencies in FMCSA's hazmat permit regulation, which was previously discussed.)

Planning and Pre-Notification

The Government Accountability Office (GAO) recommended that DHS and DOT jointly develop a risk-based plan that addresses the security of the nation's rail infrastructure and establish time frames for implementing security actions necessary to protect hazmat rail shipments. GAO recommended that in developing these plans, these agencies should address how much information should be disclosed to local communities regarding the types and quantities of hazmat passing through or stored in transit in these communities.[31]

Some Members of Congress want to increase the information provided to governmental entities. For example, S. 230 provides that "A State homeland security coordinator may, up to 12 times in a 12-month period, request from a rail carrier a comprehensive list of all hazardous materials scheduled to be transported through such State during any 6-month period." However, the bill specifies that "A railroad carrier submitting a list under this section shall not be required to include on such list information relating to the specific times, locations, or amounts of shipments of hazardous materials." Others assert that community officials and responders need to know much more about the materials transported through or close to their jurisdictions. On the other hand, opponents point out, with over an estimated one million hazmat shipments daily, a general prenotification requirement would be expensive, burdensome on industry, and an almost impossible task with so many shipments passing through so many different jurisdictions each day. Some claim that local responders would become overwhelmed with the quantity of information regarding these hazmat shipments, and that current emergency response planning and

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[30] Public Citizen. Homeland Unsecured. October 2004. pp. 63-67.

[31] GAO. Rail Safety and Security. April 2003. GAO-03–435. pp. 33-34.

training obviates the need for a universal pre-notification requirement.

Research

Compared to many other areas of transportation security research and development (R&D), it appears that relatively few federal dollars have been allocated to advance hazmat transportation security. Successful R&D could yield lower cost security systems and provide more effective technology to improve security.[32] As previously indicated, DOT has tested a variety of technologies to promote security, including tracking technologies and communication systems. DHS also conducts some research and pilot tests in this area. Additional research and testing might include work on the breaching of different containers transporting hazmats, the spill or dispersion patterns of different types of commodities, improved tracking and communication technologies, and increased knowledge about how different combinations of hazmats might react with each other and implications for security countermeasures and response. Such research requires substantial funds, but it could provide better information, strategies, and technologies to improve security and emergency response.

Some Members of Congress are particularly interested in the area of research and hazmat transportation security. For example, H.R. 909 calls for the establishment of a hazardous materials cooperative research program. The purpose of at least one of the studies to be conducted under the proposed program would be to provide an assessment of opportunities for integrating and supplementing safety and security measures for hazardous materials transportation. H.R. 153 and H.R. 1109 both authorize a research program that would, in part, be intended to: "...support enhanced security for transportation of hazardous materials by rail..."

Policy Options and Legislative Initiatives

Policy Options

The federal role in promoting the security of hazmat transportation is evolving.

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[32] Technology may be one means of reducing risk from terrorists at a reasonable cost. It is widely recognized that technology is an important aspect of most if not every security plan, but technology remains only one component of every security plan. An array of different technologies, such as vehicle (tractor and trailer and load) tracking systems, emergency and constant communication systems, remote shut-off systems, biometric and electronic driver verification systems, and improved fencing of freight areas, are being considered or are already deployed. In the hazmat transportation industry, some technologies have been deployed more widely than others. Investment in technology for security purposes is not simply a cost, but such an investment can add to the bottom line of a business. Security systems can be integrated with business operations. Technology that improves security can improve the productivity of a carrier or operation–e.g., the specific location of cargo can be determined and monitored to respond to customer requests, and losses from criminal activities might be reduced.

There are many additional measures that could be taken to enhance security, but each of these poses its own set of benefits and costs that need to be considered within the context of many policy factors, such as alternative uses of federal and industry resources, likelihood of effectively reducing the risks from terrorist attacks, and impacts on the operational efficiency and productivity of the surface transportation system.

Many different approaches and measures intended to improve hazmat transportation security are being considered. **Table 2** outlines several options, some of which are interrelated and overlap, and also summarizes selected advantages and disadvantages of each.

Table 2. Options Intended to Enhance Hazmat Transportation Security with Selected Advantages and Disadvantages

Options/ Approaches to Consider	Advantages/Disadvantages
1. Increase federal financial assistance to help governmental entities or the private sector pay for enhancements that promote hazmat surface transportation security. Legislation, such as H.R. 1109, has been introduced that would authorize the Secretary of Homeland Security to award grants directly to public transportation agencies for allowable capital security improvements, including tunnel protection systems; and chemical, biological, radiological, or explosive detection systems. H.R. 153 would authorize the Secretary of Homeland Security to award grants to hazmat shippers, freight railroads, and owners of rail cars used in the transportation of hazmat for multiple purposes, including to address threats pertaining to the security of hazmat transportation by rail.	✓Some supporters maintain that federal funds could supplement public-sector security enhancements; others favor support of either public or private sector initiatives. These supplemental funds could expedite infrastructure and operational enhancements to promote security. Federal funds could help pay for security measures that impose costs difficult to recover in the marketplace or those that exceed reasonable outlays by governmental jurisdictions. ✓Congress, however, faces the difficult task of allocating limited funds among many other security investments. Opponents could argue that the private sector should pay for security measures to protect its infrastructure.

Options/ Approaches to Consider	Advantages/Disadvantages
2. Require a background check or a security threat assessment of persons renting trucks and require security awareness training of personnel working for truck leasing companies.	✓Someone intent on doing harm could use a rented truck filled with hazmat as a weapon. Supporters point out that this provision is intended to reduce vehicle access to persons that pose a security threat. By increasing the security awareness of personnel working at a rental counter and by conducting a background check on the person seeking to lease such a vehicle, security risks might be reduced. ✓Those against such a proposal can point to the costs incurred in conducting a background check, uncertainty of payoff from these additional measures, and privacy concerns.
3. Require improved vehicle tracking mechanisms that can obtain the exact location in real-time of a truck transporting high hazard shipments; and require constant 24/7, two-way communication systems between drivers and carriers (or some other designated agent) to improve monitoring of all high hazard shipments.	✓Supporters assert that it would be useful if the location of high hazard shipments could be identified at all times and that communication systems be available on a 24/7 day basis. This information could be especially important in helping law enforcement and in determining if a vehicle were hijacked. ✓ Those against requiring improved tracking and communication systems for all high hazard shipments point to the costs that would be incurred. Such costs might be especially burdensome for small carriers. It would also be essential to ensure that information regarding the exact location of certain shipments did not get into the wrong hands.
4. Require rerouting of certain high hazard shipments as part of a national routing system that takes into account both safety and security concerns and tradeoffs.	✓ Supporters maintain that the risks of certain high hazard shipments is so great that these shipments should be rerouted away from heavily populated or high profile areas. Such routing decisions should be based on consideration of numerous factors, including security as well as safety. ✓Opponents point out that rerouting poses an array of difficulties that were previously discussed in the section dealing with routing. An additional challenge would be the complexity or difficulty of developing such national routing standards.

Options/ Approaches to Consider	Advantages/Disadvantages
5. Require security threat assessments for Canadian- and Mexican-domiciled hazmat drivers transporting specific hazmats into the United States.	✓Supporters point out that it makes little sense to require that U.S.-domiciled CDL holders transporting specified hazmat to go through a security threat assessment process and not to require the same for Canadian- and Mexican-domiciled drivers transporting specified hazmat into or out of the United States. ✓The international logistics or mechanics of conducting such security threat assessments would need to be worked out and, in some cases, may present certain challenges.
6. Require DHS and/ or DOT to issue specific directives or regulations meeting definitive performance-based criteria intended to enhance the security of certain high hazard shipments substantially beyond current security and training requirements, and provide DHS a dedicated and full-time field staff with audit capabilities to ensure compliance with such directives or regulations. H.R. 1414 would require the DHS Secretary to issue regulations pertaining to: physical security measures for extremely hazardous materials, such as the use of passive secondary containment of tanker valves and other technologies to ensure the physical integrity of pressurized tank cars used in transportation, additional security force personnel, and surveillance technologies and barriers; communications regarding the movement of such materials to concerned federal, state, and local law enforcement authorities, and terrorism response plans for shipments of extremely hazardous materials; as well as the use of currently available technologies and systems to ensure effective and immediate communication between transporters of extremely hazardous materials and all entities charged with responding to acts of terrorism involving shipments of extremely hazardous materials.	✓Supporters could assert that the risks of transporting certain high hazard materials is so great that additional and more rigorous security-oriented measures are needed, especially when these materials are transported through high profile or highly populated areas. ✓Opponents could argue that the costs of these additional measures have not been justified. It is partly a question of priorities and resources and evidence of the need for such actions versus the costs that would be imposed on industry.

Options/ Approaches to Consider	Advantages/Disadvantages
7. Provide "Good Samaritan" protection to anyone reporting a possible security threat regarding hazmat transportation.	✓Supporters point out that this option could provide some legal protection to those reporting suspicious activity. ✓Opponents note that "Good Samaritan" legal protection should be provided by state law.
8. Require hazmat employees working in the highway mode to be aware of the capabilities and functions of the Highway Watch® program as part of the federally required security training for hazmat employees.	✓Given the federal investment in the Highway Watch® program of about $41 million and its accomplishments to date, supporters assert that hazmat employees working in the highway mode should be required at least to be aware of the program and its capabilities to respond to security concerns or threats. ✓ On the other hand, some in industry do not favor additional training requirements that are federally-mandated.
9. Require all inspectors funded under the Motor Carrier Safety Assistance Program (MCSAP) to meet at least a performance-based or minimum level of training pertaining to basic security awareness and associated interrogatory techniques regarding hazmat transportation, and require states applying for MCSAP funds to address how their program promotes security and to ascertain whether their state needs to obtain additional radiological or chemical detection devices or additional security awareness training for their inspectors.	✓MCSAP officers are a key part of the first line of defense against the use of hazmat transportation as a weapon in the highway mode. Supporters assert that many MCSAP officers would benefit from additional training in hazmat transportation security awareness and interrogatory techniques. Not all MCSAP officers have radiological and other chemical detection devices. ✓Some of those concerned about this option maintain that the primary emphasis of MCSAP must continue to be on safety, and funds should be allocated accordingly. If MCSAP officers are to play a greater role in promoting security, then some assert that a systematic means to pay for this additional responsibility should be funded outside of the basic core MCSAP monies.
10. Maintain the status quo by simply letting DHS and DOT and industry gradually improve the security of hazmat transportation.	

Source: Congressional Research Service

Concluding Observation

Although there are many opportunities to further strengthen hazmat transportation security, satisfactorily addressing all of the points of vulnerability would be extremely costly. Depending upon the performance standards and scope of additional federal requirements, hundreds of millions of dollars or more could be required. And even after such investments, the hazmat transportation system would still be essentially an open system and not secure. Unless the costs of security enhancement could be recaptured, many companies would be unwilling to pay for additional investments in this area beyond those already implemented, especially in the absence of additional governmental regulation. Furthermore, additional security checks that cause substantial delays impose costs on commerce.

On the other hand, those seeking additional investments in security measures to protect the public point out that the costs of a well placed attack on an extremely hazardous shipment (e.g., a shipment of a toxic-by-inhalation gas) would be catastrophic. There are many options that DHS and DOT could pursue to reduce the chances of such an event. One key challenge is to identify those additional measures that are reasonable (i.e., cost effective). The timing of future actions remains uncertain, but some progress toward this objective is gradually being accomplished.