

Freight Rail Modal Annex

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1 Executive Summary

The fundamental challenge to securing the freight rail network is to protect against a constantly changing, unpredictable threat environment without impeding the continuous movement and free flow of commerce. While there is no specific threat or intelligence points to freight rail transportation, the potential exists for using the freight rail system as a target for terrorism or as a delivery system for a weapon of mass effect.

The efficient operation of our critical interstate freight rail network requires a uniform nationwide approach to railroad security. The Department of Homeland Security (DHS) will continue to work with its private sector, and Federal, State, and local partners to achieve the transportation sector goals outlined in this document.

The freight rail mode will continue to apply the National Infrastructure Protection Plan (NIPP) risk management framework for developing programs and initiatives to enhance the protection of Critical Infrastructure and Key Resources (CI/KR). As outlined in chapter 1 of the Transportation Sector-Specific Plan (TSSP), the transportation sector identified three goals to help achieve the sector vision of a “secure, resilient and efficient transportation network.” The freight rail mode will focus on these goals when identifying key assets and will evaluate consequence, vulnerability, and threat information to adequately assess risks facing the system. Initial security gaps have been identified, and security programs have been developed and implemented to mitigate these risks. The government continuously evaluates security gaps in freight rail, as in all modes. Mitigation strategies are updated as gaps are identified.

The freight rail mode supports the TSSP goals and objectives through these tools: (1) high-threat urban area rail corridor assessments and comprehensive reviews, (2) inspections/implementation surveys, and (3) industry reporting of baseline data. These tools provide the government with sufficient domain awareness to determine programmatic priorities. As outlined in the NIPP, emphasis will be placed on continuous improvement to enhance protection of freight rail CI/KR.

2 Overview of Mode

2.1 Vision of Mode

The freight rail mode's vision is to protect the Nation's freight rail network from terrorist or criminal attacks and prevent terrorists or other criminals from using freight rail conveyances and their cargoes as weapons of mass effect to attack the public or critical infrastructure.

2.2 Description of Mode

Since the early 19th century, freight railroads have been a principal carrier for moving freight in the United States. U.S. freight railroads are the world's busiest, moving more freight than any other rail system in the world. U.S. railroads operate more than 140,000 miles of track and earn \$42 billion in annual revenues. The U.S. railroads are vital to our economy, national defense, and public health. Forty percent of all intercity freight goes by rail, including 64 percent of the coal electric utilities use.

As of 2004, there were 558 common carrier freight railroads operating in the United States. Railroads are classed based on operating revenue. Class I¹ railroads have revenues of at least \$289.4 million. Seven railroads met this benchmark in 2004. Class I carriers comprise just 1 percent of freight railroads, but account for 70 percent of the industry's mileage operated, 89 percent of its employees, and 93 percent of its freight revenue. Class I railroads operate in many different states and largely concentrate, though not exclusively, on long-haul, high-density, intercity traffic lines.

The remaining 551 railroads are divided into two groups—the Regional and the Short Line railroads. Regional railroads are defined as operating at least 350 miles of railroad and earning between \$23.1 million and \$289.3 million annually in operating revenue. The Short Line railroads traditionally have even lower mileage and revenues below \$23.1 million. Short Line railroads can be further divided into local line-haul railroads and switching/terminal railroads. Switching and terminal carriers perform primarily switch service or terminal service, as applicable, in cities that are served by more than one carrier. Terminal railroads are often owned by one or more of the Class I railroads. In most major metropolitan areas, a loss of service from the belt railroad, a type of Short Line, or terminal railroad would severely hamper interchange operations between eastern and western rail Class I carriers.

Railroads provide critical support to the Department of Defense (DOD) Strategic Rail Corridor Network (STRACNET), which includes more than 30,000 miles of rail line and provides the backbone for transporting DOD shipments.

Freight railroads concentrate on hauling bulk commodities and large quantity shipments over long distances. Based on volume, railroads transport 12.7 percent of the Nation's goods. Most railroad revenue and tonnage comes from hauling coal, chemicals and allied products, nonmetal minerals, food and kindred products, and transportation equipment (automobiles). Most of the commodities present little or no target value for terrorists. However, as accidents such as the January 2005 Graniteville, SC train derailment demonstrated, the release of TIH materials (for example chlorine, ammonia, and sulfur dioxide) can cause devastating and lethal consequences. In South Carolina, the ruptured tank car carrying chlorine caused 9 deaths, treatment of 75 people for chlorine exposure, and the evacuation of over 5,400 people within a 1

¹ Five of the Class I railroads are U.S.-owned: the BNSF Railway (BNSF); CSX Transportation (CSX); Union Pacific (UP); Kansas City Southern (KCS); Norfolk Southern (NS); two are owned by Canadian Companies: Canadian Pacific (CP); and Canadian National (CN).

mile radius for several days. Likewise, a deliberate terrorist attack against TIH materials in transportation poses serious risks of fatalities and injuries.

According to the U.S. Department of Transportation's Bureau of Transportation Statistics, hazardous materials (HAZMAT) traverse more than 72 trillion ton-miles on rail. HAZMATs are essential to the functioning of the economy and society. They fuel motor vehicles, purify drinking water, and heat and cool homes and offices. Other HAZMATs are used for farming and medical applications, for manufacturing, mining, and other industrial processes.

Railroads are also one link in the U.S. intermodal supply chain. Over the past ten years, intermodal traffic has been the fastest growing rail traffic segment. Today, there are 9.2 million intermodal rail shipments annually. An increasing number of the intermodal transfers from the maritime mode to freight rail are international movements. These shipments have either a North American destination or a European destination. The United States' use of foreign shippers and foreign consignees using the United States as a "land bridge" is a current practice that is continuing to grow.

In addition to being part of the overall cargo system, the freight rail system has its own closed intercarrier system whereby carriers transfer cars to and from one another to efficiently transport goods across the United States. This system is facilitated by interchange agreements, joint services, and voluntary access agreements allowing a carrier to operate over the tracks of another railroad. The government's role here is to assist in providing a safe, secure, and cost-effective transportation system for the Nation, while preserving competition.

Freight Rail Statistics²

- ❑ **Class I carriers generate 93 percent of freight revenues and employ 89 percent of railroad workers**
- ❑ **1.6 million HAZMAT originations in the United States and Canada annually**
- ❑ **1.2 million tank cars originations annually**
- ❑ **Liquefied Petroleum Gas (LPG) 85,198 tank car shipments (2003)**
- ❑ **Chlorine 30,254 tank car shipments (2003)**
- ❑ **Anhydrous ammonia 30,687 tank car shipments (2003)**
- ❑ **Food and agricultural commodities 407 million tons (2003)**
- ❑ **Miles of railroad operated More than 140,000**
- ❑ **Freight cars in service 642,405**
- ❑ **Locomotives in service 22,548**

2.3 Government Coordinating Council (GCC)/Sector Coordinating Council (SCC) Structure and Process

As outlined in the Freight Rail Government Coordinating Council's (FRGCC) charter, the objective of the FRGCC is to coordinate security strategies and activities; establish policies, guidelines, and standards; and develop program metrics and performance criteria for the freight rail mode. Specifically relating to developing the TSSP modal implementation plan, the FRGCC will identify security needs and outline programs, policies, and procedures in the plan and work to address any gaps. The FRGCC will complete this work by creating working groups to address specific issues. The FRGCC will meet every 2 months. The FRGCC will offer to meet

² The statistics listed come from the AAR *Railroad Facts* 2005 Edition and the AAR and Bureau of Explosives *Annual Report of Hazardous Materials Transported by Rail* July 2005 Edition.

with the Freight Rail Sector Coordinating Council (FRSCC) quarterly to address critical issues, or as necessary as critical issues develop.

The FRSCC is the industry counterpart to the FRGCC and was established in mid-2006. The FRGCC will work with the FRSCC to build strong partnerships to address the common vision of securing the Freight Rail sector.

GCC Membership

Department of Homeland Security

Transportation Security Administration (TSA)

- Transportation Sector Network Management

Office of Infrastructure Protection (IP)

- Office of Grants and Training
- Office of State and Local Government Coordination

U.S. Coast Guard (USCG)

U.S. Customs and Border Protection (CBP)

Department of Transportation (DOT)

- Federal Railroad Administration (FRA)
- Pipeline and Hazardous Materials Safety Administration (PHMSA)
- Surface Transportation Board

Department of Justice

- Federal Bureau of Investigation

Department of Defense

- Assistant Deputy Under Secretary of Defense (Transportation Policy)

SCC Membership

- Association of American Railroads (AAR)
- American Short Line and Regional Railroad Association (ASLRRA)
- Amtrak
- Anacostia and Pacific
- BNSF Railway Company
- Canadian National
- Canadian Pacific Railway
- CSX Transportation
- Genesee & Wyoming
- Iowa Interstate Railroad Ltd
- Kansas City Southern Railway Company
- Metra
- Norfolk Southern
- RailAmerica
- Union Pacific Railroad Company
- Wheeling & Lake Erie Railway

3 Implementation Plan

3.1 Goals, Objectives, and Programs/Processes

DHS has outlined three goals for the transportation sector. Each goal is supported by objectives that assist in focusing the mode's programs and initiatives to meet that specific goal.

3.1.1 Freight Rail Sector Goals and Objectives

Goal 1: Prevent and deter acts of terrorism using or against the transportation system

Most freight rail security programs are currently designed to promote Goal 1. DHS programs are designed to provide the government with maximum domain awareness, thus allowing the best possible risk analysis. A thorough and accurate risk analysis allows us to meet Goal 1 by identifying and mitigating vulnerabilities through layered protective measures.

Objectives

Implement flexible, layered, and effective security programs using risk management principles. The freight rail sector will develop and implement layered security programs using risk management principles (discussed in Chapters 3 through 7 of the TSSP). DHS and DOT have programs in place to assess the risk to the freight rail sector at both the system and asset level.

- **High Threat Urban Area (HTUA) Rail Corridor Assessments.** These assessments focus on the assessing the vulnerabilities of high-population areas where TIH materials are moved by rail in significant quantity. Assessments are conducted by teams comprised of subject matter experts from TSA, FRA, PHMSA, IP, the affected railroads, and State and local homeland security officials. Each assessment may consist of four phases: (1) request for information to carrier, (2) scoping visit, (3) "Boots on Ground" assessment, and (4) tabletop exercises with the carrier. These assessments aid DHS and DOT in identifying critical control points (areas of high consequence and vulnerability) at each location. The critical control points are reviewed using current threat scenarios, and mitigation strategies are proposed. After completing the assessment, the team prepares a summary of each corridor and a freight rail hazard analysis. The assessments provide site-specific mitigation strategies and lessons learned as well as tactics that can be modified for use at the corporate or national level. The results of the HTUA assessments supported the development of the Recommended Security Action Items issued by DHS and DOT on June 23, 2006.
- **Comprehensive Reviews (CR).** Comprehensive Reviews are a larger scale, more encompassing version of the HTUA rail corridor assessments. The CRs provide a thorough evaluation of the security of a specific rail corridor and a comparative analysis of risk across transportation modes and critical infrastructure sectors in the specific geographic area. Team members include response and recovery officials from all levels of government and DHS personnel in order to gain additional perspective and effectively target security grant dollars.
- **Corporate Security Reviews (CSR).** The CSR program is an "instructive" review of a company's security plan and procedures that provides the government with a general understanding of each freight railroad's ability to protect its critical assets and its methods for protecting HAZMAT under its control. Teams of government experts analyze the railroad's security plan for sufficiency, determine the degree that mitigation

measures are implemented throughout the company, and recommend additional mitigation measures. The team may also conduct site visits of operations, including critical bridges, tunnels, operations centers, and yards. The company's critical asset list is also discussed to gain an understanding of its "criticality" determination. Specific mitigation strategies are tied to identified vulnerabilities and are discussed with company officials.

Current priorities are based on the asymmetrical threat to the freight rail system focusing on the consequence calculation. The greatest consequence comes from weaponizing the freight rail conveyance itself, by using a loaded TIH³ rail car as a weapon of mass effect. This would most likely be accomplished by attaching an improvised explosive device (IED) to an unattended, standing TIH car in a HTUA⁴ or to a car that would enter an HTUA. A less likely scenario, also using the transportation system as a weapon delivery system, is using an intermodal container to deliver a weapon of mass effect to a major target city. In this scenario, a container is loaded with a weapon of mass effect and shipped to a U.S. destination. The container is carried via the freight rail system to its target.

In coordination with the railroads, TSA, FRA, and PHMSA developed a comprehensive list of performance-based Security Action Items (SAI)⁵ to foster an enhanced security posture in the freight rail mode in general, and in transporting TIH materials in particular. Based on the findings from the HTUA rail corridor assessments, operational practices that enhance the security of TIH shipments were identified and compiled into a list of SAIs. These practices are recommended and voluntary. They provide a basis for driving standardized security measures throughout the industry and address system security, access control, and en route security. DHS and DOT issued the SAIs to industry on June 23, 2006. Almost all SAIs were developed in concurrence with the railroad industry.

TSA and FRA developed Supplement No. 1 to the SAIs listed above. The Government issued Supplement No. 1 to industry on November 21, 2006. The action items addressed in Supplement No. 1 concern the security of the transportation of TIH in HTUAs and cover four main areas:

1. The establishment of secure storage areas for rail cars carrying TIH materials
2. The expedited movement of trains transporting rail cars carrying TIH materials
3. The positive and secure handoff of TIH rail cars at points of carrier interchange and at points of origination and delivery
4. The minimization of unattended, loaded tank cars carrying TIH materials

These four areas should be addressed in TSA recommended site-specific security plans.

Built into Supplement No. 1 is a strategy to reduce the risk of transporting bulk TIH through HTUAs. The strategy includes the freight railroads providing TSA with baseline data on unattended, standing, loaded, TIH cars. TSA is analyzing this data in order to reduce the risk from TIH in transportation by 50% by the end of 2008. As with the original SAIs, Supplement No. 1 is recommended and voluntary.

³ TIH are materials that are "so toxic to humans as to pose a hazard to health during transportation." See 49 CFR §173.115 (c)(1) (2005). Examples of TIH include chlorine, anhydrous ammonia, ethylene oxide, and fuming sulfuric acid.

⁵ Issued June 23, 2006; and November 21, 2006 and February 12, 2007. These can be found on TSA's website. www.tsa.gov. The DHS designated HTUAs can also be found at the TSA website.

Increase vigilance of freight rail workers. The Federal Government places a high premium on security training for front line personnel. PHMSA requires security awareness training for HAZMAT employees. Training must include recognizing and responding to possible security threats and in-depth security training.⁶ FRA enforces this provision and measures their effectiveness on a regular basis. Additionally, the Federal Government provides voluntary standards through the distribution of professional quality training packages to rail carriers that supplement existing industry security training programs.

TSA is establishing a series of employee training courses focused on supplementing industry programs. Training will be coordinated with industry security personnel prior to issuance. DHS plans to issue a “train the trainer” video course to train HAZMAT employees who work with railroad cars to look for and identify IEDs attached to rail cars, engines, or adjacent equipment. TSA is planning to release other supplementary training material including a security awareness training package for operational employees and security awareness training for all railroad employees.

Enhance information and intelligence sharing among freight rail security partners. TSA provides industry with threat information daily after a thorough analysis of open source information. TSA distributes relevant freight rail intelligence to railroad stakeholders. Communications between government and industry are supported through two important programs: the GCCs and SCCs, and Homeland Security Information Network (HSIN).⁷

The Federal Government maintains good intra-governmental relationships and strong government ties with industry. TSA has signed two memorandums of understanding (MOU) annexes with its DOT counterparts. The annex with PHMSA was signed on August 9, 2006. The annex with FRA was signed on September 28, 2006. Each annex addresses communications between agencies.

Mechanisms are in place at the industry level to share information. The AAR uses three mechanisms to share information with its membership and the ASLRRRA membership: the Surface Transportation Information-Sharing and Analysis Center (ST-ISAC), the Railway Alert Network (RAN), and the AAR Security Operations Center Implementation Plan. The AAR Operations Center is the hub of the Railway Alert Network; the ST-ISAC is linked to the AAR Operations Center and provides physical and cyber threat and warning information. The FBI National Joint Terrorism Task Force Railroad Police Liaison (RPL) reports directly to the seven Class I railroad police chiefs on terrorism and intelligence matters having relevance to rail operations.

Goal 2: Enhance resiliency of the U.S. transportation system

The freight railroads have undertaken efforts to enhance the resiliency of the freight rail transportation system. After 9/11, the AAR developed a Security Management Plan that serves as both a National plan and a template for developing railroad's own individual security plans. The AAR plan encompasses the principles of threat assessment and risk assessment to cover the entire railroad industry. It supports objective one of Goal 2 as the plan provides a management strategy to reduce the risk associated with key nodes, links, and flows of the network. The AAR plan supports objective two in establishing a system to gain quick intelligence and respond quickly to all-hazards events, which enhances the capacity for rapid and flexible response and recovery.

⁶ 49 CFR § 172.704 (a)(4), (5).

⁷ See appendix A of the TSSP for further discussion.

Additionally, the plan outlines countermeasures, derived from a risk assessment of the entire network, that span across all railroad functions. Some of these countermeasures include permanent changes to procedures and operations such as restricted access to facilities, increased tracking of certain shipments, enhanced employee security training, and cyber security improvements at certain threat levels.

Objectives

Manage and reduce risk associated with key nodes, links, and flows within critical transportation systems to improve overall network survivability. Freight rail security priorities are determined on the basis of risk. Risk is a function of threat, vulnerability, and consequence. As outlined in Chapter 3 of the TSSP, freight rail policy, like all of transportation policy, is primarily driven by considerations of consequence or measures of loss of life and human injury, economic losses, and restoration costs. The most important freight rail security objective is reducing the risk of TIH cars in transportation. This objective has been further narrowed to minimizing the aggregate number of hours loaded, unattended TIH cars stand in high-threat urban areas (HTUAs).⁸ Further security objectives will be defined as government and private-sector initiatives lower the risk from TIH cars.

The Federal Government implements risk-based measures to improve the redundancy and/or robustness of key nodes, links, and flows through CSRs supplemented with the same programs as Goal 1. The reviews provide a corporate operations snapshot and the ability to identify vulnerabilities or chokepoints in an individual carrier's system. CSRs supplement freight rail programs that are centered on prevention and deterrence, making key nodes more robust. Redundancy is already built into the freight rail system, therefore, additional programs focused on resiliency and redundancy must be closely examined to ensure they are cost effective in meeting the security goal they are designed to achieve.

Enhance the capacity for rapid and flexible response and recovery to all-hazards events. The freight rail sector relies on sophisticated planning and practices that supplement local first responders to quickly recover from an all-hazards event. The railroad industry has a long history of planning for and responding to natural and man-made disasters, and has systems in place to respond and recover quickly to all events. Railroads have contracted with specialist companies for re-railing equipment and responding to and cleaning up hazardous materials spills. Redundancy is already built into the freight rail system; railroads have plans in place, including use of alternate routes if track or other infrastructure is damaged, to initiate recovery as soon as possible. Railroads have in place mutual help agreements as part of their business continuity plans. For example, one railroad was able to rebuild more than five miles of bridge over Lake Pontchartrain in just 16 days after it was destroyed by Hurricane Katrina in 2005.

Goal 3: Improve the cost-effective use of resources for transportation security

Objectives

Align sector resources with the highest priority security risks using both risk and economic analyses as decision criteria. By identifying the current baseline level of risk for freight rail transportation focusing on type of cargo and route and determining how current and

⁸ HTUA. DHS chose to use the high-threat urban areas designated by DHS under the Urban Area Security Initiative for 2006 as an initial starting point for focusing resources since these areas have large populations and had conducted risk assessments that DHS determined posed sufficient risk to warrant awarding the areas federal security grant dollars. HTUAs that do not support TIH rail traffic, such as San Diego and Honolulu, are not included in measures that cover TIH rail transportation.

potential programs will lower that baseline risk, the Federal government will be able to effectively align limited resources with the highest priority security risks. Working through the Freight Rail Transportation, Chemical, and Energy GCCs and SCCs, economic considerations of the industry are taken into account.

DHS Office of Infrastructure Protection (IP) issues Protective Measures Reports that describe likely terrorist objectives, methods of attack, and corresponding protective measures and their implementation in accordance with the Homeland Security Advisory System (HSAS). IP has determined measures specific for freight rail systems at each level of the HSAS that can be quickly disseminated if the threat requires or in the event of an incident.

Ensure robust sector participation in the development and implementation of public sector programs for freight rail protection. The Federal Government maintains close partnerships with the freight rail industry and with key representatives from the shipping industry. The Federal Government uses the FRGCC and FRSCC for partnership efforts and intends to reach out to other SCCs as appropriate. These outreach efforts provide recommendations regarding security standards and processes. When developing mandatory standards, the government, whenever possible, uses traditional notice and comment rulemaking, allowing the general public to provide the government with valuable feedback on operational feasibility, usefulness of the proposal, and cost.

Ensure coordination and enhanced risk-based prioritization of research, development, testing, and evaluation efforts. The Federal Government is pursuing long-term research efforts aimed at improving the transportation security of HAZMAT by rail. DOT is researching the crashworthiness of HAZMAT tank cars, which may lead to revised safety standards that will likely have residual security benefits. The AAR tank car committee is also considering crashworthiness. DOT and DHS, in cooperation with the railroad, tank car, and chemical industries, are conducting research on materials, such as protective coatings that might resist certain forms of attack—specifically, the amounts and impacts of explosives, incendiary devices, and stand-off weapons necessary to breach a rail tank car carrying HAZMAT. Release scenarios, source terms, plume modeling, and risk characterization are being pursued to better understand the consequences of an event. DOT, in coordination with DHS, is testing a cooperative HAZMAT transportation research program, with a strong security component, to bring together the varied stakeholders in government, industry, and the public to help define and pursue a common research agenda.

3.1.2 Private Sector Programs and Processes

In the aftermath of September 11, the freight rail industry undertook important security measures to mitigate and address vulnerabilities, largely of its own initiative. The industry initiative produced voluntary guidelines that enhanced security in freight rail transportation and assist in meeting the security goals and objectives of the sector. The Federal Government will continue to support the private sector's security investments through its own programs and initiatives and will continue to engage industry in the SCC process to ensure a comprehensive strategy for freight rail security.

AAR Terrorism Risk Analysis and Security Management Plan

After 9/11, the AAR developed a security plan for transporting freight in North America. Given that security at that time was primarily focused on loss prevention, after implementation, the AAR plan raised the security baseline in the U.S. The AAR plan served as the first building block for freight rail security for TSA at its creation in 2002. The Federal Government has been

building and raising the baseline ever since. The AAR plan can also serve as a template for rail carrier-specific security plans.

The Emergency Response Training Center at the Transportation Technology Center, Inc. (TTCI)

TTCI offers advanced emergency response training at its Colorado facilities and at customer locations worldwide. The TTCI is owned by DOT's FRA and operated by Transportation Technology Center, Inc., a for-profit subsidiary of the AAR. The curriculum is based on Occupational Safety and Health Administration, National Fire Protection Association, Federal Emergency Management Agency National Preparedness Directorate and the Department of Transportation requirements.

TIH Shipping Industry Partners

After 9/11, Responsible Care® companies took the lead in quickly adopting the Responsible Care® Security Code, an aggressive facility security program, to further protect chemical facilities, chemical transportation systems, communities, and products. Implementation of the Responsible Care Security Code is required of all American Chemistry Council (ACC) members and Responsible Care Partners. Under the Security Code—which addresses facility, cyber and transportation security—companies conduct comprehensive facility security vulnerability assessments, implement security enhancements, and obtain independent verification of facility enhancements. Implementing the Code follows a strict timeline and requires mandatory periodic progress reports. Freight railroads that adhere to the AAR Security Management Plan are deemed compliant with the American Chemistry Council's Responsible Care Security Code.

Additionally, the Chlorine Institute (CI) developed the *Chlorine Rail Transportation Security Management Plan* to assist members and their customers in developing security plans to protect chlorine tank cars. When it became evident that a similar document was needed for all poison inhalation (PIH)⁹ tank cars, CI and the ACC used the CI Rail Plan to develop the *Responsible Care® Value Chain Implementation Guidance: Transportation of PIH Materials by Rail* (ACC/CI PIH Plan). This plan is designed to provide guidance developing a seamless security program between chemical shippers, chemical customers, and the railroads. It is compatible with the AAR's Security Management Plan.

Transportation Community Awareness and Emergency Response (TRANSCAER)

TRANSCAER is a voluntary national outreach effort that focuses on assisting communities to prepare for and respond to a possible HAZMAT transportation incident. TRANSCAER members are volunteer representatives from the chemical manufacturing, transportation, distribution, and emergency response industries, as well as the government. Each year, at hundreds of sites nationwide, TRANSCAER provides thousands of emergency responders and local officials, unique, hands-on training using actual transportation equipment.

Railway Alert Network (RAN)

The RAN is controlled by the AAR Operations Center, which links Federal National security and military personnel, and major customer associations, with the freight railroads on a 24x7 basis. The ST-ISAC, also a 24x7 facility, is also linked to and supports the RAN. The freight railroad industry is linked to the law enforcement community through individual railroad police departments and through the National Joint Terrorism Task Force, where a railroad police officer resides. The system as a whole is used to research, receive, analyze, and transmit

⁹ PIH and TIH are synonymous.

security information that supports AAR decision making relative to appropriate AAR alert level actions.

AAR Operations Center

The AAR Operations Center collects, analyzes and disseminates information on physical threats to railroad operations. It operates the RAN through which AAR declares appropriate AAR freight railroad security alert levels. The ST-ISAC collects, analyzes, and disseminates information on physical and cyber threats. It is linked to the AAR Operations Center and ST-ISAC members. The AAR Operations Center operates at, or can operate at, the secure level to address intelligence and information sharing issues.

3.1.2 Other Initiatives and Pilot Programs

Building on these previous efforts, all sector security partners will continue working together to develop an overarching portfolio of risk-based security programs and countermeasures to improve the freight rail mode's risk profile and achieve the mode's goals and objectives. The following describes current initiatives and pilot programs with the goal each is intended to support.

Intrusion Detection

Department/Agency: TSA and FRA

Goal: Enhance resiliency of the U.S. transportation system

Critical freight rail infrastructure includes railroad tracks, bridges, and tunnels. TSA and FRA are looking at various technologies to identify trespassers on rail bridges and tunnels to deter terrorist intelligence gathering and to prevent placing a foreign object into the system. Ground penetrating radar is being investigated to determine substructure problems along railroad track. Radar could also be used for detecting bombs or other foreign objects introduced into the system.

Security Situational Awareness

Department/Agency: DOT

Goal: Improve the cost-effective use of resources for transportation security

FRA has funded the John A. Volpe National Transportation Systems Center's (Volpe Center) concept for a situation display that could inform transportation operators, emergency management officials, and policymakers of key interrelationships and status of critical systems, particularly transportation systems. The concept evolves from two sources: the application of situation displays to crosscutting transportation problems and the need for comprehensive tools to address the complexity of homeland security issues. FRA and the National Aeronautics and Space Administration (NASA) currently sponsor the Transportation Security Situation Display (TSSD). TSSD involves a public-private partnership among the Volpe Center, the City of New York Office of Emergency Management, and Silicon Graphics Federal, Inc. TSSD is designed as a multi-use tool that supports situational awareness, command and control operations, planning, simulations, research, training, and re-analysis of past events. Once operational, it is expected to have three-dimensional urban imagery with data visualization, zoom capabilities, and high-spatial resolution.

Railroad Vehicle and Cargo Inspection System (Railroad VACIS®)

Department/Agency: CBP

Goal: Prevent and deter acts of terrorism using or against the transportation system

The Railroad VACIS® is unique; it is the only available method for non-invasive inspection of loaded and moving railroad cars. It uses a proprietary gamma ray imaging technique requiring a very low radiation dose. This technique compares favorably against older techniques using X-rays for large object inspection. It can be operated without a special protective building or similar enclosure, which increases the system's simplicity and decreases the purchase price. The Railroad VACIS® is capable of inspecting trains traveling at speeds of between 1 and 7 miles per hour (mph). As the rail cars move through the gamma beam, their images are individually saved, along with RFID data and a digital video snapshot of the car identification (ID) number. The Railroad VACIS® operator can view the images as they are acquired and make appropriate decisions to further inspect the rail cars if necessary.

Tank Car Tracking Project

Department/Agency: TSA and FRA

Goal: Prevent and deter acts of terrorism using or against the transportation system

TSA is examining alternatives to single-car tracking to determine whether the necessary degree of detail and timeliness can be achieved by using existing rail car location management systems. Currently, most railroads and their customers track the location of the cars using wayside detectors and radio frequency identification (RFID) tags. This system, Automatic Equipment Identification (AEI), provides a historical record of the last reported location and a trip history of rail cars and locomotives. TSA has partnered with the FRA in a pilot project with RAILINC, a private data service provider, to obtain car location reports on an as requested basis. The project will provide the government with timely car location reports on all TIH and other selected HAZMAT cars. RAILINC manages the shipping and car location management data interchange for the Nation's freight railroads. It developed a suite of software called FreightScope to assist smaller railroads in managing rail car movement records. RAILINC has tailored the FreightScope reports to meet the government's safety and security information needs. TSA and FRA will be testing the informational and operational capability of the program during a pilot project.

National Capital Region Rail Pilot Project

Department/Agency: DHS

Goal: Enhance resiliency of the U.S. transportation system

The National Capital Region Rail Pilot Project (NCRPP) is an intelligent video-based security program that provides security enhancements along the District of Columbia rail corridor. This program will include two central projects: a virtual fence surrounding the area of concern and virtual gates at each entry point to the NCRPP. The NCRPP also includes intelligent video surveillance of rail lines through critical areas (as designated by DHS), as well as intruder detection software with the capability to identify unauthorized personnel. The system architecture will be flexible, allowing DHS to incorporate additional technologies into the project as they become available. These technologies include advanced biological and chemical warfare agent detectors currently in development. The system will provide a 24x7 monitoring capability in real-time streaming video, and, as directed by DHS, will infuse data and alarm information from the railroad's communication center and from other multiple remote locations.

3.2 Security Guidelines and Security Standards, and Compliance and Assessments Processes

Executive Order 13416 requires the identification of existing security guidelines and security requirements for each surface transportation mode. The following describes current regulations and any proposed regulatory action for freight rail security.

3.2.1 Security Guidelines and Security Standards

DOT Security Plan Regulation 49 CFR 172.800

Department/Agency: PHMSA and FRA

Goal: Prevent and deter acts of terrorism using or against the transportation system

DOT requires shippers and carriers of HAZMAT deemed to present a transportation security risk to develop and implement a security plan. The security plan must be based on an assessment of possible transportation security risks. Specific measures may vary commensurate with threat level.. At a minimum the plan must address personnel security, unauthorized access, and en route security. FRA reviews the security plans as part of its ongoing HAZMAT enforcement program. Government approval of security plans is not required; however, FRA enforcement personnel provide informal suggestions for improvement. DHS and DOT are considering revisions to security plan regulations.

48-Hour Rule 49 CFR 174.14

Department/Agency: PHMSA and FRA

Goal: Prevent and deter acts of terrorism using or against the transportation system

DOT requires each shipment of HAZMAT be forwarded “promptly and within 48 hours (Saturdays, Sundays, and holidays excluded)” after acceptance of the shipment by the railroad carrier.¹⁰ If only biweekly or weekly service is performed, the carrier must forward a shipment of HAZMAT in the first available train. Additionally, carriers are prohibited from holding, subject to forwarding orders, tank cars loaded with Division 2.1 (flammable gas), Division 2.3 (poisonous gas), or Class 3 (flammable liquid) materials. FRA enforces this provision.

Hazardous Materials: Enhancing Rail Transportation Safety and Security for Hazardous Materials Shipments Notice of Proposed Rulemaking (NPRM) published on December 21, 2006. 49 FR 76834

Department/Agency: PHMSA and FRA

Goal: Prevent and deter acts of terrorism using or against the transportation system

DOT in consultation proposed to revise the current requirements in the Hazardous Materials Regulations applicable to the safe and secure transportation of specified HAZMAT transported in commerce by rail. Specifically, it proposed to require rail carriers to compile annual data on specified shipments of HAZMAT. PHMSA proposed that data will be used to analyze safety and security risks along rail transportation routes where specified materials are transported, assess alternative routing options, and make routing decisions based on those assessments. PHMSA also proposed clarifications of the current security plan requirements to address en route storage and delays in transit and additional security inspection requirements for HAZMAT shipments.

¹⁰ 49 CFR § 174.14 and 174.16.

Rail Security NPRM published on December 21, 2006 49 FR 76852

Department/Agency: TSA

Goal: Prevent and deter acts of terrorism using or against the transportation system

TSA proposed to establish security requirements for rail transportation including certain shippers and receivers of specified categories and quantities of HAZMAT.¹¹ Specifically, TSA proposed requiring freight railroad carriers and fixed-site rail hazardous materials facilities shipping or receiving in HTUA specified categories and quantities of HAZMAT to appoint a security coordinator and report suspicious incidents.

TSA also proposed to clarify and extend the protections afforded by the sensitive security information (SSI) designation to certain information associated with the rail transportation proposal.

In addition, TSA proposed that freight railroad carriers and the affected rail hazardous materials facilities report to DHS, upon request, the location and shipping information of certain rail cars containing specified categories and quantities of HAZMAT. TSA proposed measures that would ensure a positive and secure exchange of custody and control of rail cars carrying specified categories and quantities of HAZMAT.

3.2.2 Compliance Processes

Compliance programs provide the Government with data on industry compliance rates, assist in determining whether security measures are effective at mitigating the identified vulnerabilities, aid in identifying vulnerabilities, and refine consequence measures. Beginning in October 2006, TSA Inspectors began conducting implementation surveys to measure carriers' voluntary adoption of security action items. In early 2007, TSA will begin inspecting for voluntary adoption of the supplemental security action items.

Government inspections for regulatory compliance and adoption of voluntary security action items provide the government with data on the state of railroad security at the facility level, as well as regionally and nationally. An important method to identify needed improvements in the freight rail mode is to obtain a risk baseline of standing, unattended TIH cars in HTUAs through industry reporting. Through this reporting, the government will monitor industry efforts to lower the risk baseline by 50 percent by the end of 2008 to meet a DHS priority goal. Throughout 2007-2008 the government will encourage practices that lower the number of standing, unattended TIH cars in HTUAs. If through government inspections and industry monitoring, the government determines that the risk reduction goal is not being met, the government will take stronger action, including strengthening voluntary security action items or issuing mandatory requirements.

Measurement of Guidance Adoption

TSA uses two methods to measure industry adoption of the Security Action items—Implementation Surveys and traditional inspections.

TSA developed the Implementation Survey program to measure adoption with TSA-issued voluntary standards. Generally, implementation surveys are based on a uniform set of questions designed to illicit a standard set of data. Surveys are primarily conducted by Surface Transportation Security Inspectors (STSI).

¹¹ Loaded tank car of TIH, highway route controlled quantity of radioactive material, more than 2,268 kg (5,000 lbs.) quantity of Class 1.1, 1.2, or 1.3 explosives.

TSA also audits industry adoption of voluntary standards and security practices through traditional inspection methods of observation and examination of freight rail operations, infrastructure, conveyances and employees. Currently, TSA implementation audits focus on TIH transporters in HTUAs, and it plans to survey all HTUAs, Class I carriers, and most Short Line and Regional Carriers in 2007.

Regulatory Compliance

FRA has regulatory authority for freight and passenger rail safety. It employs rail inspectors that periodically monitor and enforce the implementation of safety and security regulations on these systems. PHMSA issues safety and security regulations for the transportation of hazardous materials including transportation by freight rail. Within DHS CBP enforces numerous regulations issued under various statutes, including, but not limited to, prohibiting illegal activity respecting aliens, importing and exporting goods, shipping, criminal law, and collecting duties. USCG enforces regulations related to shipping and navigable waters. TSA STSIs enforce regulations issued under TSA authority, including security directives issued for rail and mass transit. Security directives have the force of regulations and remain valid and effective until revised or superseded by subsequent action by TSA.

3.3 Grant Programs

Executive Order 13416 requires the alignment of security grants to assist in implementing security requirements and security guidelines. The Federal Government partnered with the Railroad and Research Foundation (RRF) and provided three grants in 2005 to find better ways to secure the transportation of TIH.

Secure Storage Areas (Safe Havens)

DHS provided \$1.5 million to develop performance standards and test a secure storage area prototype on railroad properties. The Safe Haven Concept tests combinations of people, processes, and technology security measures that will greatly reduce the likelihood of unauthorized access to rail cars containing TIH at fixed facilities and increase the security of TIH shipments en route. The requirement for the Safe Haven Concept is to define a secure storage area and develop potential solution sets that all entities—producers and consumers of TIH, rail carriers, and government officials—view as increasing the security afforded to TIH rail cars at fixed sites and during shipment.

Rail Corridor Risk Management Tool (RCRMT)

DHS provided \$3 million for development and delivery of a Rail Corridor Risk Management Tool (RCRMT). The RCRMT is a web-based risk management tool the railroad industry, the Federal Government, and other designated entities can use. Using commonly accepted risk management practices, the RCRMT will identify and quantify threat, consequence, and vulnerabilities to produce a definable level of risk. The RCRMT is compatible with the Rail Corridor HAZMAT Response and Recovery Tool (RCHRRT) and with the automatically integrating data the RCHRRT provides.

Rail Corridor HAZMAT Response and Recovery Tool

DHS provided \$500,000 for development and delivery of the tool. The RCHRRT is a web-based assessment tool that Federal, State, and local governments, and the railroad industry can use. Using a defined protocol and a Geographic Information System (GIS) interface, the RCHRRT will calculate route specific HAZMAT risks, assist in route selection decisions, and provide a risk

model to identify emergency response requirements. The RCHRRT is compatible with the RCRMT and with the automatically integrating data the RCRMT produces.

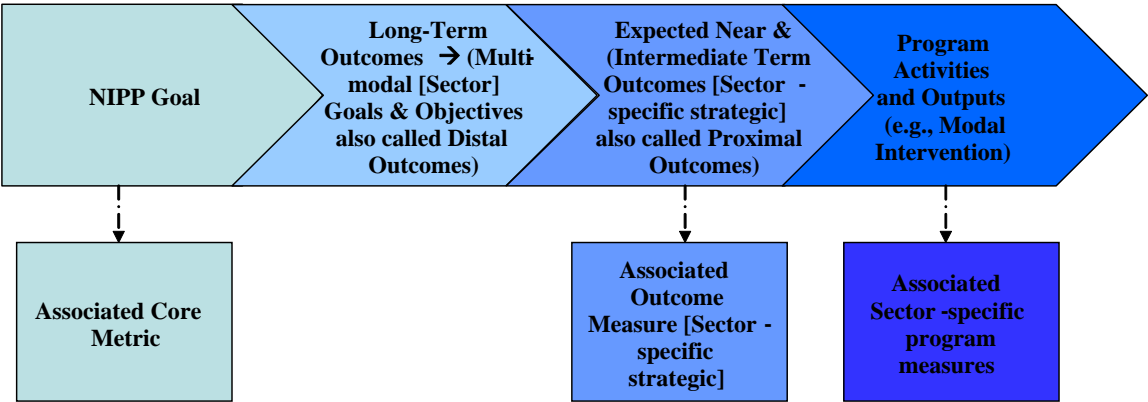
3.5 Metrics

An effective NIPP performance measurement program begins with the collaborative development of metrics to measure progress and performance. This section overviews the plan to implement a TSSP measurement program. Metrics that are developed will supply the data either to affirm that TSSP goals are being met or to show what corrective actions may be required. To be effective, the measurement program will require the cooperation of all modal GCCs and SCCs to provide accurate responses to the metrics being used to measure sector risk posture, SSP effectiveness in the sector, and security program effectiveness. To assess the effectiveness of information-sharing mechanisms on a regular basis, TSA will send quarterly questionnaires to the AAR and to the ASLRRRA.

Measurement Working Group. The Freight Rail Sector GCC (FRGCC) and invited measurement professionals will initially develop and report on metrics. Under the guidance of TSA’s lead measurement organization, the FRGCC will operationalize measures; establish data sources, data collection, and verification procedures; set measurement policy for the Freight Rail Modal Plan; and approve supporting procedures. This entity may also require standardization of certain measurement practices from data contributors across the freight rail transportation network. The FRGCC will communicate regularly with Transportation Sector GCC and the Freight rail SCC members and other affected SCCs to ensure that working group progress and plans are fully transparent and coordinated. In addition, work products of the Measurement Joint Working Group will be submitted, when appropriate, to the overarching Transportation Sector GCC/Transportation SCC for review.

Measures. The Outcome Monitoring methodology, as shown in figure 3-1, demonstrates working down from the national and multi-modal (sector) goals to determine outcomes and their respective measures.

Figure 3-1: Outcome Model



The Transportation Sector’s metrics have been segmented into two categories—core and sector-specific—which are composed of these types of measures:

1. Core: As discussed in chapter 6 of the TSSP, core NIPP metrics are common across all sectors and focus on measuring risk reduction progress in the sector. These measures are often descriptive statistics (counts).
2. Sector-specific: These metrics are used to gauge the overall effectiveness of the sector toward meeting TSSP goals and objectives. Ordinarily, these are outcome measures capable of quantifying the degree to which the SSP is “affecting” sector security. However, output measures are currently serving as proxies for the long-term outcome measures.
 - Reduce the risk associated with the transportation of TIH in HTUAs by 50% by the end of 2008.
 - Number of completed rail corridor assessments on DHS designated 2006 HTUAs.
 - Percentage of carrier adopted security action items.
 - Percentage of employees who have received security awareness training.

4 Program Management

A subgroup of the FRGCC will facilitate the coordination and periodic update of this modal plan. The FRGCC will meet quarterly to address Program Management issues. The FRGCC subgroup will coordinate reviewing and updating the plan with the FRSCC. The FRGCC will meet biannually with the FRSCC to address Program Management issues.

The following is an abbreviated work plan for 2007 and 2008. TSA programs listed in this section are largely funded through general operating expenses.

2007

- ❑ **High Threat Urban Area Rail Corridor Assessments**
Initiate Baltimore, MD and Philadelphia, PA
- ❑ **Comprehensive Reviews**
Chicago, IL
- ❑ **TIH Shipment Risk Reduction**
 - Set Baseline June 2007
 - Observe 25 percent reduction in the risk of TIH transportation by rail by end of 2007
- ❑ **Corporate Security Reviews**
 - All Class 1
- ❑ **Hazardous Materials: Enhancing Rail Transportation Safety and Security for Hazardous Materials Shipments NPRM (DOT/PHMSA)**
 - NPRM published December 21, 2006
 - Public comment period closed on February 20, 2007.
- ❑ **Rail Security NPRM (DHS/TSA)**
 - NPRM published December 21, 2006
 - Public comment closed on February 20, 2007.
- ❑ **Training Course for Railroad Employees—IED Identification Training Video;**
- ❑ **TIH Tracking**
- ❑ **Regulatory Compliance Inspections, Implementation Surveys, and Implementation Audits**

2008

- ❑ **High Threat Urban Area Rail Corridor Assessments**
Complete Baltimore, MD, and Philadelphia, PA
- ❑ **Corporate Security Reviews**
Additional HAZMAT carriers
- ❑ **Training Course for Railroad Employees – Security Awareness Training for all Employees**
- ❑ **TIH Shipment Risk Reduction**
 - Continue information collection from railroads
 - Observe 50 percent reduction in the risk of TIH transportation by rail—December 2008

- ❑ **TIH Tracking**
 - GPS analysis
- ❑ **Regulatory Compliance Inspections, Implementation Surveys, and Implementation Audits**

5 Security Gaps

Through a process of rail corridor assessments in high threat urban areas, corporate security reviews, and regulatory enforcement and guidance auditing, the Transportation Security Administration has determined that there are three main gaps that threaten the security of the freight rail transportation system and the Nation.

First, the presence of standing, unattended, loaded, toxic inhalation hazard cars in high threat urban areas presents a significant security gap. These cars pose the greatest risk to the freight rail network and surrounding communities. TSA has undertaken several efforts to close this gap including issuing the Security Action Items, the Rail Transportation Security Notice of Proposed Rulemaking, and Rail Corridor Assessments. Most importantly, TSA is partnering with Class I stakeholders to reduce the dwell times of these high risk cars in high threat urban areas through statistical analysis.

Second, there is a lack of robust standardized security planning at the corporate and facility level for all railroad operations. Although the Pipeline and Hazardous Materials Administration (PHMSA) of the Department of Transportation (DOT) has required security plans for shippers and carriers of all hazardous materials in placarded amounts since 2003.¹² Through its Corporate Security Review program, TSA is re-evaluating industry security plans and has identified many areas of needed improvement. TSA plans to close this gap through robust security measures, which could include possible rulemaking.

The third gap is in worker security awareness training. Employee training is essential to enhancing the security of the freight rail network because in most cases, railroad employees are the first line of defense against preventing and detecting acts of terrorism. There are shortcomings in security training, including non-HAZMAT workers, who handle rail cars or work at rail facilities. Again, PHMSA has security training requirements for hazmat employees.¹³ However, PHMSA regulations only require security awareness training¹⁴ and training related to the company security plan.¹⁵ TSA will continue to enhance the PHMSA regulation through the following steps. First, TSA is developing a training module on identifying improvised explosive devices (IED) attached to rail cars or rail infrastructure. This module will be distributed at no cost to railroads and chemical companies. Second, TSA will develop guidelines, and if necessary, regulations, that build upon current requirements. Third, TSA will also continue to develop training modules to support these standards.

¹² See 49 CFR § 172.800.

¹³ Hazmat employee is defined at 49 CFR § 171.8.

¹⁴ See § 172.704 (a)(4).

¹⁵ See § 172.704(a)(5).