

Northeast Corridor Railroad Information Sharing Project

FINAL REPORT

*For the New Jersey Office of Homeland Security and
Preparedness and The Northern New Jersey Newark/Jersey
City Urban Area Security Initiative*

March 13, 2012

Submitted by



TETRA TECH

EXECUTIVE SUMMARY

In October of 2011, the Northern New Jersey, Newark, Jersey City Urban Area Security Initiative (NJUASI) and the New Jersey Office of Homeland Security and Preparedness (NJOHSP) contracted Tetra Tech EM Inc. (Tetra Tech) to examine and report on the status of information sharing within the rail sector operating within the Northeast Corridor (NEC, or the corridor). The NJUASI, NJOHSP, and All Hazards Consortium (AHC) desire to provide assistance integrating the regional planning aspects of rail and other modes of transportation in order to conduct proper pre-planning activities, maintain situational awareness, and provide an appropriate, coordinated response. The objective of the project was to examine and document operational and intelligence communication and information-sharing methods, along with the associated challenges that rail operators on the Northeast Corridor may face during an incident.

Methodology

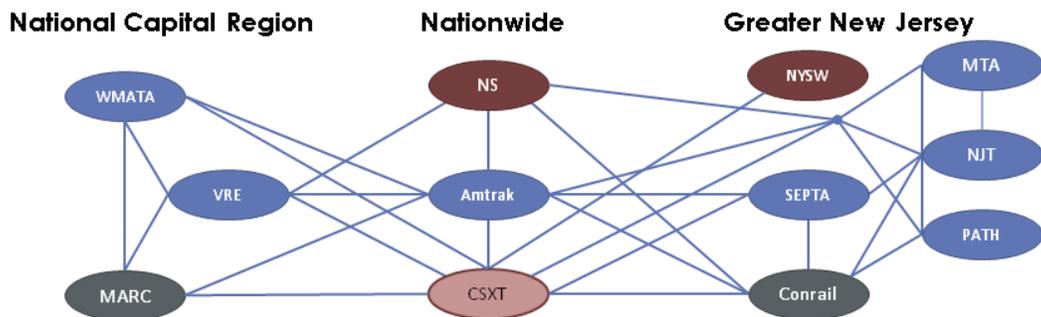
For this project, Tetra Tech was assigned the following tasks: (1) conduct a literature review; (2) identify and interview up to 14 stakeholders; and (3) summarize findings in a report. The literature review process was performed to identify national trends and emerging practices within the transportation industry, with a primary focus on rail operations. Tetra Tech interviewed personnel from NEC railroad operators and other industry stakeholders to identify communication and information sharing challenges. The information learned from the experts within each organization helped formulate observations and recommendations found later in this report. The operators and stakeholders include:

- Amtrak
- Association of American Railroads
- Conrail
- CSX Transportation
- Federal Railroad Administration Region 1
- Metropolitan Transportation Authority (MTA) specifically related to Metro North operations,
- New Jersey Transit (NJT),
- New York Susquehanna and Western Railway (NYSW, also known as Susie Q),
- Norfolk Southern (NS),
- Port Authority Trans Hudson (PATH),
- Southeastern Pennsylvania Transportation Authority (SEPTA),
- Washington Metropolitan Transportation Authority (WMATA, also known as DC Metrorail or Metro),
- Virginia Railway Express (VRE)

Communication Findings

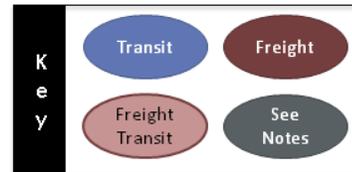
Within the rail industry, information is shared on a minute-by-minute basis to ensure the safe movement of trains. Dispatch centers are in constant communication with their external counterparts to transfer trains from one system to another. These dispatch centers may also interact with internal and external entities to share information related to specific incidents. The importance of a single piece of information depends upon the duty of the individual receiving the information and functional capability the organization employs. Information valuable to an individual in operations may not be valuable to an intelligence unit director.

Railroad Communication and Interaction Diagram



NOTES

1. Diagram is not all-encompassing, it depicts the most common interactions through operations on rails, at stations, or along shared right-of-ways.
2. Conrail is owned by joint venture of CSXT and NS.
3. MTA Metro North West-of-Hudson service is contracted to NJT.
4. MARC operations are contracted to Amtrak and CSXT.
5. CSXT operates both freight and passenger (MARC) service.
6. Amtrak is the only nationwide railroad operator of those listed; however, CSXT and NS operate in more than 20 states in the eastern United States.



MARC – Maryland Area Regional Commuter Rail
 MTA – Metropolitan Transportation Authority Metro North Railroad
 NJT – New Jersey Transit
 NS – Norfolk Southern
 NYSW – New York, Susquehanna and Western Railroad

PATH – Port Authority Trans-Hudson
 SEPTA – Southeastern Pennsylvania Transportation Authority
 VRE – Virginia Railway Express
 WMATA – Washington Metropolitan Area Transportation Authority

Relative Importance of Information

Following the interview process, Tetra tech staff identified that each agency has their own perception of what information is most important, based upon their organizations capabilities. Agencies with robust intelligence capabilities required information sharing in different forms than those who rely on outside organizations to provide actionable reporting. This interview process also identified that the most beneficial information sharing currently takes place based upon pre-existing professional relationships built over years of interaction. These methods of sharing rely heavily on the use of phone calls and email sharing between individuals and not necessarily the entire region. Overall, information required to perform the various tasks

assigned to railroad employees (operations, safety, security, law enforcement, intelligence) varies with the assigned job functions.

Selected Observations and Recommendations

Below are select observations from the findings detailed later in this report:

- Related to intelligence, the most valuable information is often shared via an informal method, such as a phone call.
- The internal capability of an individual stakeholder influences their need or reliance on external organizations.

Select recommendations:

- Identify or develop an awareness program for non-railroad-sector stakeholders and interested parties.
- Develop a formal communications guide to assist with timely information sharing.

TABLE OF CONTENTS

EXECUTIVE SUMMARY..... I

TABLE OF CONTENTS.....IV

SECTION I: INTRODUCTION..... 1

 Purpose.....1

 Scope.....1

 Objective.....1

 Methodology.....2

SECTION II: DISCUSSION OF FINDINGS..... 4

 Involved Parties.....4

 Stakeholder Groups4

Freight Railroads.....4

Passenger Railroads5

Railroad Trade Associations5

 Stakeholder Organization Principles.....6

 Task Forces and Other Regional Information Sharing Entities.....6

 Communication and Perspective7

 Factors Influencing the Relative Importance of Information.....9

 Functional Capabilities.....9

Common Internal Capability.....10

 Summary11

SECTION III: OBSERVATIONS AND RECOMMENDATIONS..... 13

 Observations13

Observations for Information13

 Recommendations to Support Specific Observations14

REFERENCE LIST 18

APPENDIX A – Literature Review

SECTION I: INTRODUCTION

In October of 2011, the Northern New Jersey, Newark, Jersey City Urban Area Security Initiative (NJUASI) and the New Jersey Office of Homeland Security and Preparedness (NJOHSP) contracted Tetra Tech EM Inc. (Tetra Tech) to examine and report on the status of information sharing within the rail sector operating within the Northeast Corridor (NEC, or the corridor). This report summarizes Tetra Tech's findings for the Northeast Corridor Railroad Information Sharing Project. This project is the first of several projects being coordinated by the All Hazards Consortium (AHC) to increase planning integration in the transportation sector in order to ensure economic resiliency throughout the region.

Purpose

The purpose of the Northeast Corridor Railroad Information Sharing Project is to support rail owners and operators in providing regional and cross-organization continuity of operations during emergency events that have the potential to cause major NEC interruptions. The NJUASI, NJOHSP, and AHC desire to provide assistance integrating the regional planning aspects of rail and other modes of transportation in order to conduct proper pre-planning activities, maintain situational awareness, and to provide an appropriate, coordinated response.

Scope

This project focused on the railroad operators along Amtrak's NEC in New Jersey. Because the NEC is a vital regional asset, and operators outside of this region affect and transit the corridor, Tetra Tech was tasked to seek input from freight and rail transit agencies west of the Hudson River at New York City and south through the National Capital Region (NCR). **Figure 1** - Project Segment of Northeast Corridor, depicts the geographical area examined. The operators north of this defined boundary were not contacted and were therefore not part of the process.

Objective

The objective of the project was to examine and document operational and intelligence communication and information-sharing methods, along with the associated challenges that rail operators on the Northeast Corridor may face during an incident.

Tetra Tech analysts were specifically tasked to identify whether railroad operators communicate, how they communicate, when and why communications are initiated, and what types of information is shared during the communication process. The project was focused not on specific scenario-based contingency plans for specific incidents, but on identifying the communication process as a whole. The outcome includes documentation of the process and the identification of opportunities to succeed.

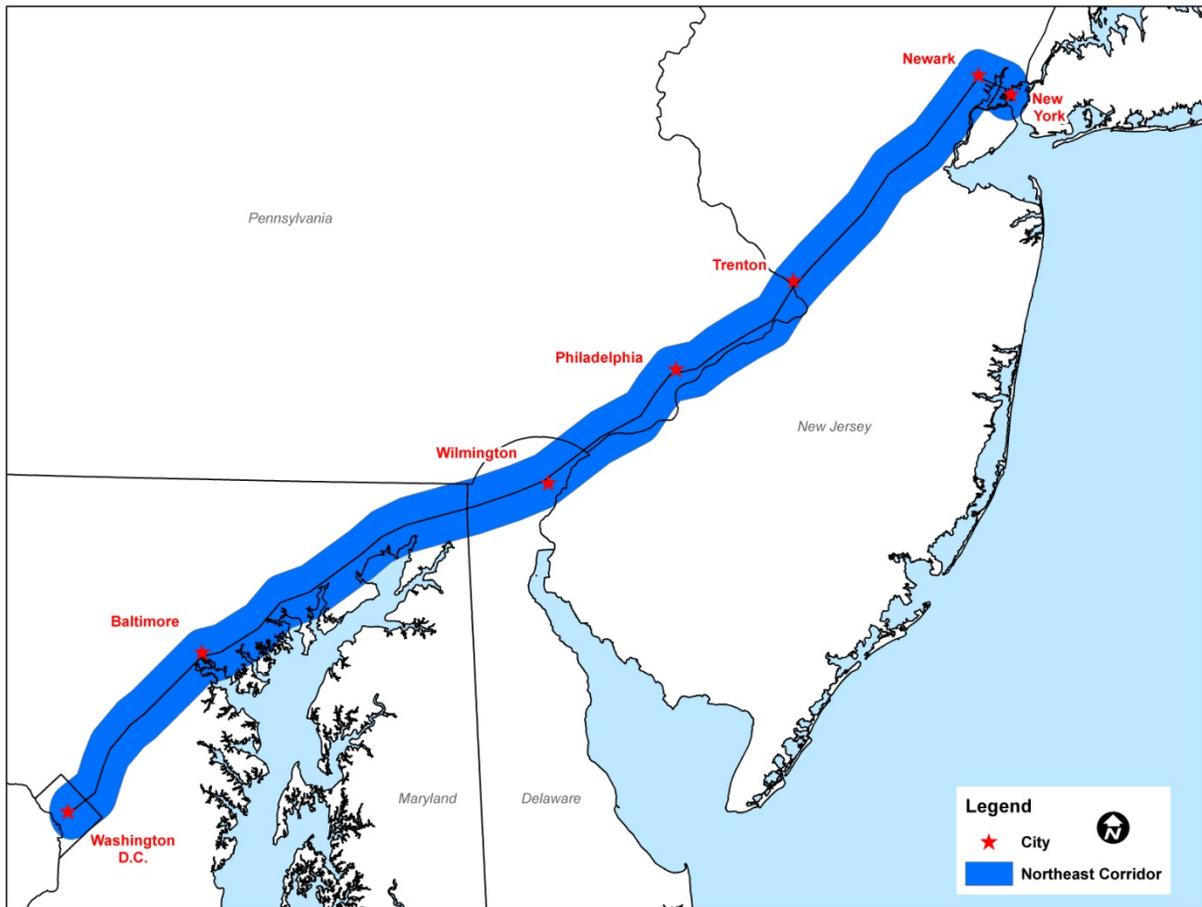


Figure 1 - Project Segment of Northeast Corridor

Methodology

For this project, Tetra Tech was assigned the following tasks: (1) conduct a literature review; (2) identify and interview up to 14 stakeholders; and (3) summarize findings in a report. The literature review process was performed to identify national trends and emerging practices within the transportation industry, with a primary focus on rail operations. Documents included in the literature review include U.S. Government Accountability Office reports; U.S. Department of Homeland Security and associated agency reports and notifications; trade association white papers and information documents; literature produced as part of Amtrak’s System Safety Program; the Northeast Operating Rules Advisory Committee (NORAC) Operating Rules; and various federal, state, and local planning documents. The summary of these document reviews is included in this report as **Appendix A**. Specific observations reference these reviewed documents and interviews.

For the interview portion of the project, Tetra Tech identified specific railroad operators from the following agencies:

- Amtrak (one representative from Philadelphia and one from Amtrak Headquarters)
- Conrail, CSX Transportation (CSXT)
- Metropolitan Transportation Authority (MTA) specifically related to Metro North operations
- New Jersey Transit (NJT)
- New York Susquehanna and Western Railway (NYSW, also known as Susie Q)
- Norfolk Southern (NS)
- Port Authority Trans Hudson (PATH)
- Southeastern Pennsylvania Transportation Authority (SEPTA)
- Washington Metropolitan Transportation Authority (WMATA, also known as DC Metrorail or Metro)
- Virginia Railway Express (VRE).

Following the identification of appropriate corporate, agency, and association representatives, Tetra Tech conducted in-person and telephone interviews in order to develop an understanding of the communications process. The representatives of these entities were personnel in communications, emergency planning, intelligence, law enforcement, operations, and security. At the suggestion of Conrail and NS representatives, and with the consent of NJOHSP, Tetra Tech interviewed a representative from the railroad trade organization the Association of American Railroads (AAR), and the administrator from Region 1 of the Federal Railroad Administration (FRA). The information learned from the experts helped formulate observations and recommendations found later in this report.

This interview process was developed to solicit information in a non-judgmental manner. Because the purpose of the project was to examine the communication pathways rather than critique plans, policies, or procedures, the Tetra Tech project management team, with consent of NJ OHSP, decided these items would not be requested for review. In addition to documenting the communications channels, Tetra Tech analysts developed a relationship diagram to visually depict which entities interact most frequently. The Railroad Communication and Interaction Diagram, listed as **Figure 3**, is depicted on page 8.

The final task of the project is the preparation of this report. Contained herein are the findings from the interviews, the concerns and suggestions from stakeholders, the recommendations from analysts, and other reports reviewed as part of this project. Specific recommendations and rationales regarding future actions are found in the Observations and Recommendations section of this report.

SECTION II: DISCUSSION OF FINDINGS

This section will define the parties involved in the project, identify stakeholders and their groups, and discuss the communication and information sharing process.

Involved Parties

The parties involved with the project include the NJOHSP and NJUASI as clients, the All Hazards Consortium (AHC) as a regional planning and coordination body consisting of states from North Carolina through New York,; and the stakeholder groups defined below.

Stakeholder Groups

The stakeholders identified during this process are categorized into the following four groups discussed in the sections below: (1) freight railroads, (2) passenger railroads, and (3) railroad trade associations. The history, business models, and missions of these stakeholder categories are different, yet all converge at the common point of desiring to positively affect the safety of the general public. Cooperation and sharing of information between these entities is critical to the success of the shared mission. Additionally, each stakeholder differs in the functional capabilities performed in-house, which results in various preferences and values being assigned to information and data.

Freight Railroads

Two of the most common services provided by railroads are the movement of freight and the movement of passengers. Freight railroads are classified by their annual revenue and miles of track operated, with the largest categorized as Class I railroads. A total of seven Class I freight railroads—defined by generating revenues in excess of \$401 million a year—operate in the United States; two operate within the NEC. In total, Class I railroads generated over \$56 billion in revenue during 2010. The seven Class I railroads own and operate over 95,000 miles of the more than 140,000 miles of rail lines in the United States. According to 2010 annual reports, the most recent reports available at the time of this report, CSX had \$10.6 billion in operating revenue with NS having \$9.5 billion operating revenue.

The two Class I freight railroads operating within the NEC are CSXT and NS. CSXT is in the unique position of being both a freight and passenger operator in the portion of the NEC covered by this project. CSXT and NS co-own Conrail. The shared asset regions of Philadelphia, New Jersey, and Detroit are under Conrail's operational control.

NYSW is the only Class II railroad interviewed during this process. NYSW does not operate on the NEC; however, they do share rights-of-way and run parallel with other operators in the region. The interview with NYSW provided an outside perspective to the NEC and the information sharing that occurs.

Passenger Railroads

Passenger railroads include national, commuter, and rapid transit operations. Amtrak operates both national and commuter services. The transit agencies offer various services; however, the focus for the project was limited to the rail operations.

Amtrak

From Washington DC through New Jersey, the NEC rail system is owned and maintained by Amtrak. Amtrak provides infrastructure construction and maintenance services, as well as dispatching services. Both Amtrak and CSXT provide service and operations for the Maryland Area Regional Commuter (MARC) train service under contract with the Maryland Transit Administration.

According to the Amtrak National Fact Sheet from 2010, "Amtrak operates a nationwide rail network, serving more than 500 destinations in 46 states and three Canadian provinces on more than 21,200 miles of routes, with more than 20,000 employees. It is the nation's only high speed intercity passenger rail provider, operating nearly 60% of its trains at top speeds in excess of 90 mph [miles per hour]¹."

Transit Agencies

The majority of the interviews conducted throughout the project were with representatives from transit agencies with rail operations. These transit systems in the region consist of light rail through high-speed rail operations. Providers include MTA Metro North, NJT, PATH, SEPTA, Metrorail, and VRE. The focus of these interviews with representatives from various modes of rail operations was the interaction, coordination, and information sharing between all rail operators in the region. Because of their operations, history, and infrastructure, the Federal Railroad Administration (FRA), the Federal Transit Administration (FTA), or both may regulate individual transit systems. According to each transit agency's website, the combined daily ridership of NJT commuter rail, DC Metrorail, and SEPTA exceeds 1,000,000 trips a day.

The goal is to get the right information to the right people at the right time.

Passenger rail entities vary in history, reason for creation, and the age of their operations. Multiple reasons contributed to the downfall of commuter rail service and the railroads that operated them until the 1980s. Currently, operations exist under state and metropolitan authorities and are funded through the collection of fares and public subsidies. Websites of the transit operators provide information related to the history of the different authorities and their creation, including the creation of the VRE in 1992; the DC Metrorail in 1976; and PATH, which initiated operations 1907.

Railroad Trade Associations

All railroad operators interviewed for this project belong to at least one of three industry organizations: the Association of American Railroads (AAR) (www.aar.org), the American Public Transportation Association

¹ Amtrak, *National Fact Sheet: FY 2010*.

(APTA) (www.apta.com), or the American Short Line and Regional Railroad Association (ASLRRA) (www.aslrra.org). Railroad association membership of NEC rail service providers is depicted in **Figure 2**. These industry organizations represent the interests of their members to legislative bodies and government regulators. In addition to their representation of members to government entities, these organizations play an important role in the development of railroad standards, communications, safety research, security recommendations, and information sharing. The AAR and the APTA partner to produce the Transit and Rail Intelligence Awareness Daily Report (TRIAD), discussed in the Literature Review included as **Appendix A** of this report.

Figure 2: Railroad Trade Association Membership

	AAR	APTA*	ASLRRA
Amtrak	Member	Member	-
CSXT	Member	Member	-
MTA Metro North	Affiliate Member	Member	-
NS	Member	Member	-
NYSW			Member
NJT	Affiliate Member	Member	-
PATH		Member	-
SEPTA		Member	-
VRE	Affiliate Member	Member	-
WMATA		Member	-
Conrail	Conrail co-owners (CSXT and NS) are members of AAR and APTA.		-

*APTA has 25 membership categories. If an entity is a member of any, they have been included on this table.

Stakeholder Organization Principles

In researching the stakeholders, Tetra Tech reviewed railroad operator websites and found that safety was almost always the guiding principle of the organization, whether operating a for-profit freight railroad, a passenger service railroad, or railroad trade association. Reliability and value are the second most commonly identified principles. Railroads are in the business of delivering cargo and passengers safely, reliably, and for the best value possible. These principles guide the organizations and influence their operations.

Task Forces and Other Regional Information Sharing Entities

The NEC, from the Washington DC metropolitan area through New York City, includes many coordinating, emergency management, security, intelligence, and law enforcement groups. Some examples include the Urban Area Security Initiatives (UASI) of four major metropolitan areas along the NEC: New York City, Northern New Jersey Newark/Jersey City, Philadelphia, and the National Capital Region. Other entities involved include the Federal Bureau of Investigation (FBI) and their Joint Terrorism Task Forces (JTTF) and the Department of Homeland Security agencies including the Federal Emergency Management

Agency (FEMA) and the Transportation Security Administration (TSA). Additionally, intelligence committees are organized by entities such as New York Police Department (NYPD), Amtrak, and other organizations. The functions supported by emergency management agencies exist in almost every local and county jurisdiction, as well as at the state level. State and regional fusion centers receive incoming information and intelligence reports and produce outgoing intelligence reports of their own. All of these agencies are charged with planning for emergencies, responding to incidents, and providing for public safety.

Communication and Perspective

The objective of this project was to examine and document communication and information-sharing challenges that stakeholders encounter throughout the NEC.

As professionals, we know and understand that during the communications process, information is exchanged by the initiation of a message from a sender via a communication pathway (written, verbal, and non-verbal body language); the receiver collects the information provided and interprets the meaning, possibly providing feedback. The following factors influence the way the sender presents the information and the way the receiver interprets the information:

- Trust
- Technical content
- Degree of understanding by the sender of what the receiver values as important
- Feedback from the receiver
- Environmental conditions at the sender and receiver locations

The perceived value of a single piece of information may vary according to the information required by a division or unit to complete a task.

These factors are applicable when developing an understanding of what information is important, to whom, and when within the region examined.

Personnel interviewed agreed that effective communication and information sharing is important, although the specific information that is most valuable differs based on the stakeholder group's mission and the functional capabilities within an individual organization. For example, the information an intelligence director finds most valuable may not coincide with information a train dispatcher finds most valuable at any given point in time.

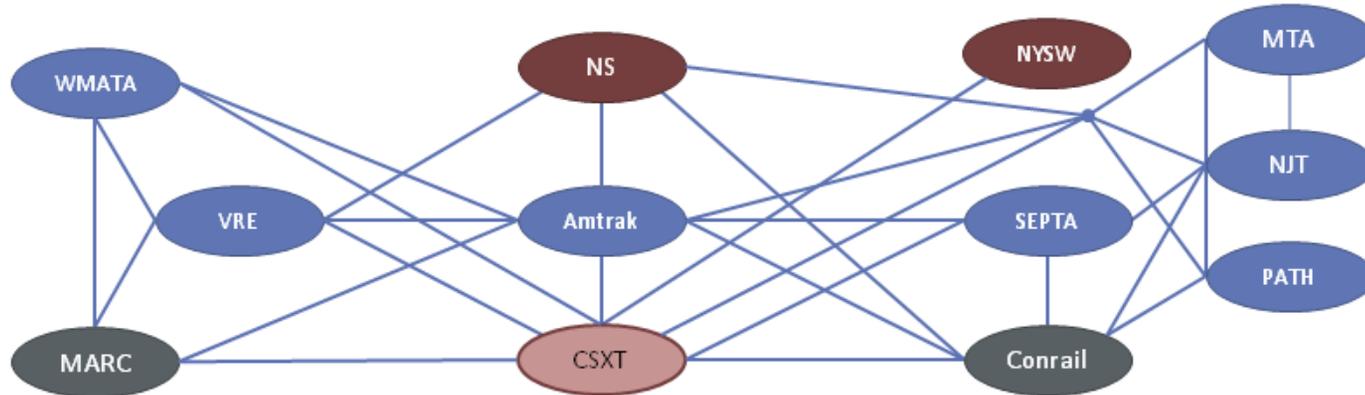
Internal and external communications occur between functional units, transit agencies, companies, government agencies, and railroad trade associations. Written and verbal information, such as security alerts, intelligence data and associated finished products, and incident response information are transmitted by multiple entities with individuals often receiving the same information from many sources. The Railroad Communication and Interaction Diagram, **Figure 3**, depicts the frequent, daily, operational communication interactions between railroad operators. The frequency and interaction between specific

Railroad Communication and Interaction Diagram

National Capital Region

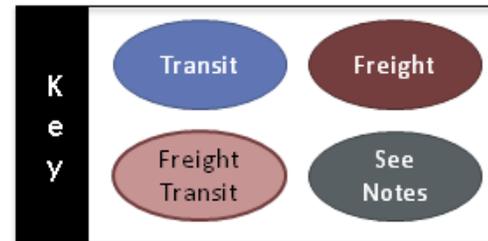
Nationwide

Greater New Jersey



NOTES

1. Diagram is not all-encompassing, it depicts the most common interactions through operations on rails, at stations, or along shared right-of-ways.
2. Conrail is owned by joint venture of CSXT and NS.
3. MTA Metro North West-of-Hudson service is contracted to NJT.
4. MARC operations are contracted to Amtrak and CSXT.
5. CSXT operates both freight and passenger (MARC) service.
6. Amtrak is the only nationwide railroad operator of those listed; however, CSXT and NS operate in more than 20 states in the eastern United States.



MARC – Maryland Area Regional Commuter Rail
 MTA – Metropolitan Transportation Authority Metro North Railroad
 NJT – New Jersey Transit
 NS – Norfolk Southern
 NYSW – New York, Susquehanna and Western Railroad

PATH – Port Authority Trans-Hudson
 SEPTA – Southeastern Pennsylvania Transportation Authority
 VRE – Virginia Railway Express
 WMATA – Washington Metropolitan Area Transportation Authority

Figure 3 - Railroad Communication and Interaction Diagram

operators is largely dictated by the geographic location of a particular railroad. Tetra Tech analysts defined the geographic locations as the National Capital Region, Nationwide, and Greater New Jersey. The model is not all-inclusive, as personnel from each of these entities have business relationships with counterparts outside of the region in which they are depicted.

Figure 3 begins to represent the complexity of the operational areas and the entire NEC. The network of rails, where operators constantly cross from one owner's track to another owner's track, requires reliable, coordinated communication to conduct daily operations in a safe manner. Freight and passenger trains operate on each other's rails. Trains operating on the tracks of another owner are controlled by the track owner. Transition from one owner's system to another requires that the train dispatchers coordinate movement. Both freight and passenger trains operate across shared infrastructure assets, such as bridges, requiring the owner of a bridge to communicate with external train operators. A specific example of this is a Conrail bridge spanning the Delaware River near Philadelphia. The bridge has two sets of parallel tracks where one set of track is Conrail's and the other is passenger service operated by NJT. Conrail dispatchers must communicate bridge lifts with NJT dispatchers. Similarly, PATH contracts the operation of a bridge in northern New Jersey to Conrail, who owns and operates an adjacent bridge. The daily movement of trains across rails, bridges, and into stations requires communication from one operator to another throughout the entire region.

Within the rail industry, information is shared on a minute-by-minute basis to ensure the safe movement of trains. Dispatch centers are in constant communication with their external counterparts to transfer trains from one system to another. These dispatch centers may also interact with internal and external entities to share information related to specific incidents.

Factors Influencing the Relative Importance of Information

The functional capability of individual organizations and their specialized divisions or units are factors in identifying what information is important, when it is important, and why a particular functional group finds the information valuable. Each functional group performs different tasks, requiring different types of information. An organization's capability to perform specific functions will help shape the type of information the organization desires overall; however, individual divisions will require different information to perform their assigned roles. When analyzing information, value will be assigned based on how the information gathered relates to accomplishing the task appointed to an individual or group. The perceived value of a single piece of information may vary according to the information required by a division or unit to complete a task.

Functional Capabilities

The internal functional capability of a single entity lends perspective to the types of information valued by that entity. The functional capabilities of the stakeholder groups include, but are not limited to:

- Core Functional Capabilities
 - Communications
 - Railroad operations
 - Security
- Supporting Functional Capabilities
 - Emergency management
 - Law enforcement
 - Hazardous materials response team
 - Intelligence analysis and production

The most important piece of information is the one not received in time.

Each stakeholder organization supports one or more of these capabilities. The internal capabilities of an organization also have an impact on the value they place on external information sources and intelligence products.

Common Internal Capability

Focusing on the operational stakeholder groups, primary internal capabilities are the functions that each group can perform with their employees or contracted services. The common internal capabilities including communications, railroad operations and security, and functions supporting capabilities are described in the following sections.

Communications

The communications function is universal to all stakeholder groups. Communication is the effective exchange and understanding of information. Each stakeholder group identified has the capability to call, fax, and e-mail the others. Some stakeholder groups maintain police communication centers, train dispatch centers, fusion centers or intelligence units, and/or mobile communications capabilities to support operations. In addition to communication technology, internal and external communications plans, policies, and procedures are found to be equally important.

Considering that the communication of information is both external and internal, operations-related information appears to be most commonly transmitted externally. Other transmitted external information addresses law enforcement and intelligence information sharing. The transmissions may be in the form of a shared “finished” intelligence product that an organization such as NJT shares with local police and other regional railroad stakeholders, including transit agencies, the FBI, and the Transportation Security Operations Center (TSOC, also known as the Freedom Center). Other examples include the AAR, APTA, and TSA sharing the TRIAD report.

Internal communication examples include intelligence division reports to their law enforcement and security co-workers. These law enforcement divisions may support specialized teams, such as hazardous materials response or tactical response units.

The information that is valuable depends on the assigned duties of individuals and the units or divisions in which they operate. The Chief of Safety and Security may find information related to intrusion detection critical, possibly more important than information presented in law enforcement be-on-the-lookout alerts shared with internal and external law enforcement officials. Responsibility, perspective, and timing are the key variables affecting the types of information individuals find important.

Core Functional Capabilities

Security functions include access control and asset protection, intrusion detection, protection of cargo and passengers, implementation of regulations, and other tasks that protect the core function of the railroad. Government agencies and railroad operators have a responsibility to implement measures affecting the security posture in the rail sector, since the security of the entire system is dependent upon the efficacy of the security measures in place at the weakest link. Operators are required to report suspicious activity to TSA through the TSOC. Incidents such as accidents, deaths, and vehicle and pedestrian strikes must be reported to the National Response Center, acting as an agent for the FRA. While most operational stakeholders perform all of these functions internally, some stakeholders rely on their contracted service providers to maintain or assist with this functional capability.

Supporting Functional Capabilities

Supporting functional capabilities are the functions an organization either has the capacity to perform with their employees and contractors or must rely upon external resources for performance. These functions include emergency management, law enforcement, hazardous materials (HazMat) response, and intelligence analysis and production. These various functions are not required to perform the core business function of the railroad, but augment the safety and security of personnel and the public. Individual railroad operators accomplish these tasks in various ways with the help of internal and external resources. The information required to perform these tasks is different from normal, daily, railroad operations.

Summary

In general, the most important information addresses the core business function of performing operations safely. Representatives from all functional capability groups stated that the most important method of sharing intelligence information is through established professional relationships and informal notification processes, such as a phone call between colleagues. Numerous intelligence-division individuals interviewed throughout this project stated that the *most important piece of information is the one not received in time*. Tetra Tech analysts found that because of the specific nature of an individual

organization's functional capabilities and the internal versus external reliance to perform functional capabilities, no single piece of information is universally critical to all job functions.

SECTION III: OBSERVATIONS AND RECOMMENDATIONS

Observations

The observations listed below are categorized as two types. The first type of observations listed is for information with no associated recommendations. The second type of observations listed will have associated recommendations, found in the Observation Recommendation section. The list below captures comments made by interview participants and the observations/analysis of the Tetra Tech staff assigned to the project.

Observations for Information

1. Railroad companies are primarily concerned with safe operations and movement of trains; their businesses rely on this capability and supporting information. Information directing that a train cannot continue safely is initially more important than information related to why train operations cannot continue, for how long, etc. The reason trains cannot move is a secondary concern to safe operations, important to specific groups for specific reasons. This scope of this project did not allow for discerning every reason or variable affecting the safe movement of trains.
2. The most valuable information is often shared via an informal method, such as a phone call. The informal communication between professional colleagues serves to add context and additional information to both official and unofficial information-sharing reports.
3. The internal capability of an individual stakeholder influences their need or reliance on external organizations. Depending on the specific functions supported, organizations with greater internal capabilities are not as reliant on external agencies.
4. Operators without an intelligence division rely on the TRIAD, Railway Alert Network notifications, and other finished intelligence products, including those from other transit and federal agencies.
5. Operators with intelligence divisions prefer access to raw intelligence reports in order to create actionable intelligence products specific to their entity. Finished intelligence products from external agencies are utilized for research and comparison.
6. Intelligence and information products shared by the TSA are not rail-sector specific and contain many pages of information most participants found unimportant.
7. Professional relationships and a level of trust appear to be major factors influencing information sharing in the intelligence community.
8. Communication occurs between railroad dispatch centers on a minute-by-minute basis to support the movement of trains. Other information sharing between operators appears to have more of an informal, yet effective, process.
9. Interview participants were all in agreement that even though the same information products are received multiple times from multiple sources, they would rather receive these reports many times than miss one report containing critical information.

10. When freight and passenger railroads share track, a federally mandated emergency operations plan must be written. The plan contains all pertinent contact information necessary for the various operators to communicate.
11. When transit systems cannot operate on a section of track, passengers are transported from one station around the interruption point, to either the next station where they are able to board a train, or to their final destination.
12. Freight railroads have a network of interconnecting track to provide access to delivery points. When an interruption is present on a freight system, railroads will use alternate routes to move their trains around the area of concern.

Recommendations to Support Specific Observations

In order to assist the NEC with improving the information sharing process, the following section documents specific observations and suggests recommendations based on the opinions of Tetra Tech analysts gained during the research and stakeholder interview process.

1. Overarching Recommendation

Should the stakeholder desire to continue with this project, Tetra Tech suggests that recommendations are addressed by a regional steering committee consisting of stakeholders from the rail sector and public safety organizations throughout the region. The specific observations below should be reviewed and a determination made about the validity of the observation and feasibility of the proposed recommendation(s). Consideration should be given to utilizing existing committees or groups.

2. **Observation:** Personnel outside of the rail sector may not have the proper level of awareness training to effectively interface with rail-sector personnel.

Analysis: Personnel in the rail sector utilize industry specific terminology and understand that different individuals within the industry interpret the meanings of these terms in various ways. The specific example provided was the term “derailment.” This term conjures thoughts in public safety personnel of a multi-train-car accident, possibly involving multiple victims or hazardous materials. The reality is that the term means all or part of a train has left the track. This event may include just one set of wheels being dislodged from under rolling stock.

Recommendation: The steering committee should identify or develop an awareness program for non-railroad-sector stakeholders and interested parties. The program should discuss core railroad operations and key terminology. The steering committee should ensure that topics related to misperception are addressed. The program should be compliant with National Incident Management System (NIMS) guidance.

Reference: Interviews with rail sector representatives

3. **Observation:** A formal communications guide may assist in assuring information and intelligence is shared appropriately throughout the region.

Analysis: Rail-sector representatives indicated that information related to daily operations is communicated constantly. Train movement, communications, and employee qualifications are among the topics published in the Northeast Operations Rules Advisory Committee's (NORAC) Operating Rules, 2008, 9th edition; however, these rules only cover issues related to operations along the NEC. The development of information and intelligence sharing guidelines would establish how rail operators are to share information and would identify the proper points of contact for appropriate organizations.

Recommendation: A formal communication guide that contains the pertinent phone numbers, positions, and information that should be shared between all operators and public-sector stakeholders may assist in the development of relationships, trust, and a better understanding of events happening along the NEC that may affect operations for rail and public safety employees. The guidelines should be flexible to allow for open communication and to ensure that critical information that may fall outside the scope of a rigid procedure is still shared.

The communications guide should include appropriate parties from various railroad owners and operators, railroad trade associations, and public sector emergency response and planning agencies.

Reference: Interviews with stakeholder representatives. U.S. Government Accountability Office, *Rail Sector, TSA Improved Risk Assessment but Could Further Improve Training and Information Sharing*, June 14, 2011.

4. **Observation:** Access to raw intelligence is important to organizations employing intelligence analysis and production personnel.

Analysis: Intelligence unit personnel stated they are cleared for, and have a need to access, classified raw intelligence streams from various sources. These individuals have experienced challenges in accessing intelligence databases through the Homeland Secure Data Network (HSDN) because of the use of a "White List," which restricts access to many raw intelligence feeds and classified portals found on the Secure Internet Protocol Router Network (SIPRnet). The limiting features of the HSDN White List are applied to state and local law enforcement entities outside of an analyst's clearance level and need to know, the traditional factors to access classified material within the intelligence community. The HSDN White List inhibits the ability of the intelligence units to fully research, analyze, and produce classified products for cleared members

of the department's command staff. This has a down-stream impact to operational counterterrorism efforts in the protection of the nation's rail system.

Recommendation: State law enforcement officials should work with their rail-sector counterparts to ensure federal authorities provide access to the necessary information sources for public safety and law enforcement personnel in public transit agencies.

Reference: Interviews with stakeholder representatives

5. **Observation:** Regional coordination opportunities should be leveraged to eliminate duplication of effort, increase information sharing, develop a situational awareness and a better regional common operating picture, and maximize the return on project investments.

Analysis: Regional planning groups exist related to geographical locations and for specific infrastructure. The Delaware Valley Regional Planning Commission (DRVPC) is an example of a regional planning group while the I-95 Corridor Coalition focuses on a key piece of road infrastructure existing along the entire Atlantic Coast. These organizations conduct studies related to transportation, coordinate information flow, and perform planning tasks where coordination with a larger regional planning group may result in economies of scale and elimination of duplicative effort and expenditure.

Recommendation: The regional steering committee should reach out to other coordination and planning groups and coalitions to develop a process to understand each group's priorities and how they align with the information sharing, homeland security, and business continuity needs of the rail sector. If appropriate, a plan to integrate projects and priorities should be developed with these organizations.

These external parties should become part of the communications guide discussed in recommendation #3.

Reference: Interviews with stakeholder representatives.

6. **Observation:** No apparent system is in place whereby interested parties could develop a common operating picture along the NEC.

Analysis: Many systems produce data throughout the region related to transportation, public safety, and weather. Integrating the systems has been accomplished in at least two locations along the NEC. One of the systems is operated by the Metropolitan Area Transportation Operations Coordination (MATOC). The system was developed by the University of Maryland's Center for Advanced Transportation Technology Laboratory (CATT LAB). The other system identified belongs to the Delaware Valley Regional Planning Commission (DRVPC). The New

Jersey Department of Health and Human Services (DHHS) uses a system called Hippocrates to support health emergency response and preparedness. The NJ DHHS shares static and dynamic information with local, state, federal and private sector partners. The systems utilized by MATOC, DRVPC, and NJ DHHS view information in other state and regional systems and aggregate this information in one location, allowing for the development of a common operating picture.

Recommendation: Representatives from the regional steering committee should meet with MATOC, the University of Maryland CATT LAB, the DRVPC, and NJ DHHS to determine how their systems and experience integrating the information from multiple points may be assist the regional stakeholders in developing or accessing information to create a regional picture.

Reference: Interviews with stakeholder representatives.

REFERENCE LIST

Amtrak. National Fact Sheet: FY 2010.

Northeast Operating Rules Advisory Committee, NORAC Operating Rules, 9th Edition, 2008.

U.S. Government Accountability Office. *Rail Sector, TSA Improved Risk Assessment but Could Further Improve Training and Information Sharing*. June 14, 2011.

APPENDIX A:
LITERATURE REVIEW

Literature Review

Purpose

Tetra Tech, EM Inc. was tasked with providing a literature review of rail operations applicable to this project from multiple sources, including national and international sources. The areas of review included operational readiness, information and intelligence sharing, and planning documentation. This process focused on existing programs throughout the country, including federal, state, and local agencies that have published documentation regarding their process and/or response to rail operations. Tetra Tech reviewed multiple publications for common themes and important findings for this project. Of the documents reviewed, the following will provide highlights of what should be considered for further information.

Materials Reviewed

This literature review of rail operations included dozens of publications from sources ranging from educational theses to after action reviews. The following listing is a brief overview of the categories of documentation reviewed for this process. Within the subject areas, each finding provides additional links to the specific document used to develop that section. The categories of documents include:

- Academic theses
- After action reports (AARs)
- Federal, state, and local planning and guidance documentation
- Rail and surface transportation studies
- Trade associations white papers and information releases
- Agency policy & procedures

Document Reviews

The Tetra Tech research, combined with guidance from the stakeholder interview phase of the project, identified the following literature as pertinent to the transportation industry and this project.

[AMTRAK SYSTEM SAFETY PROGRAM, December 2007](#)

The purpose of the Amtrak System Safety Program document is to provide an overview of the steps the organization takes in the prevention of, response to, and recovery from incidents. This program is designed to facilitate a nationwide safety concept and objectives for all staff to protect the ridership of the Amtrak system.

A Guide to Emergency Response Planning at State Transportation Agencies, Transit Research Board, 2010

The Transit Research Board's 2010 Guide delivers information needed for senior management at state and local levels to assess emergency response plans related to transportation. This review presents emerging

practices within the transportation industry in areas of incident management, emergency response, and other programs required to plan for, respond to, and recovery from an emergency.

The Northeast Operating Rules Advisory Committee (NORAC)

NORAC releases a set of standardized operating rules to be adopted and followed by all full and associate members operating on the Northeast Corridor rail lines. The intent of these rules is to develop a set of common operating guidelines to increase the safety and security of rail operations.

The rules found within the document are divided into 25 categories of procedures including signaling operations, safe train movement, employee actions and responsibilities, and actions following an accident. The use of a standardized procedure allows agencies to ensure they are working to increase safety and security processes that are based on an industry accepted standard. The NORAC rules are updated on a regular basis to ensure compliance with the most recent changes, technology, and new best practices within the industry.

United States Government Accountability Office Reports

- **DHS Could Improve Information Sharing through Streamlining and Increased Outreach, September 2010.** The United States Government Accountability Office (U.S. GAO) published the Public Security Information Sharing report, which focused on the improvement of information sharing through a centralized, streamlined outreach process. Through communication with 96 transit agencies or approximately 91% of the rail industry, the GAO report identifies the satisfaction of the transportation industry with the current level of information sharing from the federal government. Additionally the report identifies additional recommendations to improve transit agency satisfaction and ultimately the information sharing process.
- **TSA Improved Risk Assessment But Could Further Improve Training and Information Sharing, June 2011.** The U.S. GAO Rail Security document dated June 2011 is the reporting of interviews with seven of the largest freight carriers regarding risk assessment of the current rail industry within the United States. The document addresses the steps currently taken by the TSA at the federal level as well as the recommendations given to the rail industry as a whole. The document is broken out into three major areas of discussion, first the extent to which DHS has conducted risk assessment for the transportation sector as a whole, including the rail industry. Secondly, the available technology to enhance the security of the rail systems nationwide, followed by the efforts of the TSA regarding rail security training. Finally, the document addresses the satisfaction of the stakeholders within the industry with the information provided from the TSA.
- **Stakeholders Generally Satisfied but TSA Could Improve Analysis, Awareness, and Accountability, November 2011.** The November 2011 GAO report provides an overview of the transportation industry satisfaction with the information sharing being received through the Transportation Safety Administration (TSA). The study addresses the satisfaction of the

transportation industry, satisfaction of the method used to disseminate information, and the clarity of the TSA's role and responsibility. Following the presentation of data collected, the report identifies various recommendations to improve the TSA's information sharing process.

White House Surface Transportation Security Priority Assessment, March 2010

The White House Surface Transportation Security Priority Assessment study identifies recommendations to increase safety and security throughout the transportation system. This study provides ten areas of focus for stakeholders' input and review. The consensus of all stakeholders involved in the process provides the report with a set of priorities and recommendations in the area of transportation.

Nationwide Suspicious Activity Reporting Initiative Annual Report 2010

The Nationwide Suspicious Activity Reporting (SAR) Initiative Report provides an overview of the steps being employed by various federal agencies to increase law enforcement's ability to identify, report, evaluate, and share information to prevent acts of terrorism. The annual report evaluates an agency's progress against its target of nationwide coverage and major urban area fusion center participation, including recommendations on improving information flow through federal, regional, state, and local levels.

Additional Documents

In review of numerous documents and processes, it is clear that multiple information sharing processes are currently in place and include redundant messaging through a process of redistribution. Reporting during incidents and sharing of intelligence is generated through federal, regional, state, and private entities based on information that is supplied from a number of private and public organizations throughout the country.

The current information sharing process within the rail industry includes but is not limited to the following:

American Association of Railroads (AAR)

- Transit and Rail Intelligence Awareness Daily (TRIAD) – The TRIAD report is a daily 3-page report that provides an overview of issues that are brought to the attention of the agency. The information is taken from its raw form and, through the use of a small group of analysts, is generated into a more usable format for agencies that require non-classified, finished intelligence. This report is distributed to all members of the AAR and the Association of Public Transportation Association (APTA), as well as agencies who can justify their “need to know” the information that is being shared throughout the rail industry.
- Rail Alert Network (RAN) – The RAN is a breaking-news type of situational awareness report that is generated through the AAR. Subscribers and additional reporting agencies share information that requires an immediate release, as opposed to information that is processed in the TRIAD report. In similar fashion to the TRIAD, information is analyzed to deliver a factual document that provides finished product including recommendations to the end users. This report, like the

TRIAD, is distributed to subscribing agencies as well as agencies who can justify their need to know.

Transportation Security Administration (TSA)

- Transportation Security Operations Center (TSOC) report – The TSOC report was the subject of many of the interviews and is referenced in many documents, but no specific information has been reviewed regarding the content, frequency, and delivery method of this report.
- TSA (unofficial report) – A member of the TSA releases an email blast with current pertinent issues to the rail industry and other surface and general transportation industries. While useful in nature, the volume of information distributed can overwhelm entities without dedicated intelligence personnel. Several interviewees, but not all, reported the quantity of information, both transit and non-transit related, generated through this process becomes unmanageable, leaving little opportunity to analyze the information. The information provided does not follow a standardized timeframe of release; rather it provides a blast of information as deemed appropriate by the sender.

Department of Homeland Security

- Homeland Security Information Network (HSIN) The HSIN report is a federally generated report that provides subscribers with pertinent information that has been forwarded up to the federal level for processing. Many agencies found this report useful because it is not railroad-specific, but the format of the distribution prevents many users from benefiting from the product. The reporting program generates an email blast to notify users that new information has been posted, but does not allow them direct access to the content. In order to access the details of the message, users must log in to a secure federal server using an assigned password that must be changed regularly (approximately every 60 days). This process was noted as very cumbersome. Additionally, access to the secure service is not designed for use by mobile devices, so unless a user is sitting at his/her desk when the email is received, they will have to review it at a later date.

Summary

Common themes related to the transportation industry and communications were identified during the review of many documents, including those specifically highlighted in this report annex. Multiple U.S. GAO reviews identified and supported the need for an industry-wide common process of sharing information, communication, and coordination to ensure the industry is able to mitigate, respond, and recover from any incident or event. The documents specified above present additional information for consideration by any group or committee considering how to address observations in the main report. The primary focus of most of the reviewed documents specifies the need for a more structured information sharing process; however, Tetra Tech analysts heard clearly from interviewees that the communications guide needs to allow for flexibility in sharing, so that important information that should be transferred between stakeholders does not accidentally fall outside of the margins of the guidelines.

