Chapter 13: Security

Introduction

Security is one of the planning factors that must be considered in the metropolitan transportation planning. The importance of security in the planning process has gained prominence in recent years. Several national and regional research efforts have been created to address the transportation security issue in more depth, but MPO work in this area is still limited.

This chapter is a first step by the BMPO to address transportation security in more depth in the Bend area. It covers the following:

- The context for transportation security;
- A discussion of the potential role of the BMPO in transportation security planning;
- Bend area modal security data, where available; and
- Recommendations for further BMPO security work.

The chapter addresses security across all modes of transportation.

National Background

Security and the Metropolitan Transportation Planning Process
Safety and security are closely related, although distinct, aspects of all transportation modes. The ideal situation is that all elements of the multi-modal transportation system are both safe and secure. That, however, is not always the case and plans must be made for prevention and readiness to address possible security issues.

A recent study summarizes the evolving awareness: “Prior to September 11th…security issues were not an issue in most state and MPO surface transportation planning processes. Transportation Improvement Programs...did not contain allocations for security related issues. Agencies are now faced with determining how security concerns should be integrated into how we plan, design, implement and operate transportation facilities and services. Is security simply another goal for our transportation system that can be integrated into our planning similarly to how we accommodate safety concerns today, or does addressing security require more radical changes including such actions as redefining organizational structures, modifying basic planning processes and developing or refining planning methods, models and tools?”

It concludes: “Over the next several years, security considerations will result in changes in how transportation is planned, designed, implemented and operated. Transportation goals, planning processes, databases, analytical tools, decision-making considerations, and organizational structures will change due to security concerns. Transportation will be on the front line in responding to security risks. The response to security concerns

will cross jurisdictional and functional lines and be among the most complex and important challenges to transportation professionals. While it may be too early to begin changing our long-range infrastructure network plans in response to security risks, there will be changes in spending priorities in the near term and most probably over a longer period of time “

Definitions

The simplest distinction between safety and security is that safety problems, typically vehicle crashes, are unpremeditated events. As such, they may be caused driver error or impairment, adverse weather, a temporary hazard in the right-of-way, poor infrastructure or vehicle design. By contrast, security events always connote a negative intention, whether committed by an individual or a group. In number, attacks on transportation systems are few, with the vast majority of security breaches being committed by non-political individuals. But attacks, when they do occur, can be much more dramatic, harm many people, and require much more effort to address. Figure 13-1 provides a description of various types of security problems that can arise in transportation systems.

Figure 13-1 Types of Transportation Security Problems

Event	Description
Aggravated Assault	An unlawful attack by 1 person upon another for the purpose of inflicting severe or aggravated bodily injury. This type of assault usually is accompanied by the use of a weapon or by means likely to produce death or great bodily harm.
Arson	To unlawfully and intentionally damage, or attempt to damage, any real or personal property by fire or incendiary device.
Burglary	The unlawful entry of a structure to commit a felony or a theft. This includes offenses known locally as burglary, unlawful entry with intent to commit a larceny or felony, breaking and entering with intent to commit a larceny and all attempts at these offenses.
Larceny/Theft	The unlawful taking, carrying, leading or riding away of property from the possession or constructive possession of another. This includes pocket picking, purse snatching, thefts from motor vehicles, thefts of motor vehicle parts and accessories, theft of bicycles, theft from buildings, theft from coin operated devices or machines, and all other theft not specifically classified.
Trespass	To unlawfully enter land, a dwelling or other real property.
Vandalism	The willful or malicious destruction, injury, disfigurement or defacement of any public or private property, real or personal, without consent of the owner or person having custody or control by cutting, tearing, breaking, marking, painting, drawing, covering with filth, or any other such means as may be specified by local law.
Terrorism	The willful or malicious destruction, injury, disfigurement or defacement of any public or private property by domestic or foreign nationals for the purpose of making a political impact.

Source: Adapted from *National Transit Database*

Creation of the Department of Homeland Security

The Department of Homeland Security (DHS) was created in 2003. The DHS inherited the professional workforce, programs and infrastructure of the Coast Guard, Customs Service, Immigration and Naturalization Service, and the Transportation Security Administration among others. Collectively, these public servants are responsible for protecting the nation's transportation systems and supervising the entry of people and goods into the United States. This is no easy task given that 730 million people travel on commercial aircraft each year. Additionally, 11.2 million trucks and 2.2 million rail cars cross into the U.S. each year. Also, 7,500 foreign flagships make 51,000 calls in U.S. ports annually.

The DHS is responsible for protecting the movement of international trade across US borders, maximizing the security of the international supply chain, and for engaging foreign governments and trading partners in programs designed to identify and eliminate security threats before these arrive at U.S. ports and borders.

Intelligent Transportation Systems

In the past decade, federal transportation programs have been developed that focus on information technology to address various problems. These programs, collectively known as Intelligent Transportation Systems (ITS), can make a major contribution toward transportation security.[1] ITS projects can assist in all phases of security.

Key National Issues

Aviation

In recent years, many restrictions came into place on both commercial and general aviation. One of the most significant changes was upgraded passenger screening at all commercial airports. Other changes include implementation of new security technologies at the nation's airports[2]. Many other upgrades are still being developed and will be implemented in the coming years.

Highways

One of the DHS's goals is ensuring that the security of drivers and cargo on the highway system are not compromised. Officials with the Federal Motor Carrier Safety Administration (FMCSA) are charged with reviewing security measures with motor carriers and shippers that may be the target of terrorist attack. Its mission is to increase the level of awareness of hazardous materials carriers to terrorist threats. FMCSA field staff will be providing information in the form of recommendations and suggestions, except those regulatory requirements affecting the actual movement of hazardous materials. Highlights of the Security Talking Points are outlined below. These recommendations may not apply to all carriers, based on their size and scope of operation. Additionally, this list is not all-inclusive and will be changed based on future priorities to address potential threats.

[1] It is also true that because of ITS installations dependence on computers and electrical power, these systems are also more vulnerable to security threats than are many other transportation elements.
[2] See http://www.tsa.gov/public/display?theme=44&content=09000519800ac831

FMCSA will recommend to carriers that a security plan be developed and implemented. These plans should include:

- Personnel Security
- Hazardous Materials and Package Control
- En Route Security
- Technical Innovations
- Management Prerogatives
- Communications
- Reassessment Based Upon Current Conditions

FMCSA also recommends that management encourage input and participation in the development and implementation of these security programs. For more information, visit the Federal Motor Carrier Safety Administration website (http://www.fmcsa.dot.gov).

Transit

By law, up to one (1) percent of urbanized funds / formula funds for transit may be used for safety and security. To date, much of the focus has been on Greyhound and other intercity bus systems. Security grants are being used to enhance security for intercity bus operations by focusing on driver protections; improved monitoring and communications with over-the-road buses; implementing and operating passenger and baggage screening programs; assessing critical security needs and vulnerabilities; and training transportation personnel to recognize and respond to criminal attacks and other potential threats, as well as in improving evacuation procedures.

The security threat to bus operations, however, is not limited to intercity services. A report prepared in 2001 discusses the fact that transit-related attacks are nothing new: "Contemporary terrorists have made public transportation a new theater of operations…an individual or a group calling itself "Sons of the Gestapo" derailed a passenger train in Arizona in 1995…extremists (in 1997)..plotted suicide bombings in New York's subways."[3]

Most of these reports depict a level of activity that had not been encountered in the U.S. In today's global society, however, no country can consider itself immune from terrorism, while the traditional crimes of assault and vandalism must also be handled. A summation of security risks for modes using the surface transportation network is shown in Figure 13-2.

[3] *Protecting Public Surface Transportation Against Terrorism and Serious Crime: An Executive Overview* by Brian Michael Jenkins, Mineta Transportation Institute (MTI Report 01-14) Jose State University, October 2001

Figure 13-2 Scenarios Considered in the U.S. DOT Vulnerability Assessment (Partial List)

Physical Attacks	
• Bomb at bridge approach • Series of small explosives on highway bridge • Single small explosive on highway bridge • Series of car bombs on adjacent bridges • Bomb at pipeline compressor stations • Bomb detonated at pipeline storage facility • Bomb detonated on pipeline segment	• Bus bombing • Deliberate blocking of highway-rail grade crossing • Bomb detonated on train in rail station • Vandalism of track structure & signal system • Bombing of rail bridge • Explosives attack on multiple rail bridges
Chemical Attacks	
• Physical attack on railcar carrying toxics	
Cyber Attacks	
• Cyber attack on highway traffic control system • Cyber attack on pipeline control system	• Sabotage of train control system • Tampering with rail signals • Cyber attack on train control center

Source: National Research Council, *Improving Surface Transportation Security, A Research and Development Strategy*, Washington D.C: National Academy Press, 1999.

The Potential Role of the MPO in Transportation Security Planning

Despite the requirements in prior legislation to address security, most MPOs did little security planning until recent years. One writer sums up the overall safety and security environment: "Prior to September 11th most concerns were focused on how best to include safety considerations in the transportation planning process. For example, many MPOs and DOTs have fairly advanced methodologies for selecting projects to be included in the Transportation Improvement Program (TIP) or Statewide Transportation Program (STIP)…From a sample of 13 MPOs, it was not uncommon for safety concerns to represent 10 to 20 percent of the point allocation for highway projects, but little recognition was given to security issues…Also, it was found that safety and security were frequently ignored in the prioritization of transit, intermodal, or enhancement projects...One interesting issue is how security measures can be defined and quantified for project selection."[4]

Recommended Approach to Transportation Security Planning

A Transit Cooperative Research Program (TCRP) report[5] as well as many other sources group security planning into four subject areas:

- Prevention activities;
- Preparation activities;
- Response activities; and
- Recovery activities.

[4] *The Role of Security in the Surface Transportation Programming Process* by Frederick J. Wegmann, Ph.D. and Jerry Everett, University of Tennessee

[5] TCRP International Transit Studies Program. *Safety and Security Issues at All-Bus Systems in Small to Medium Sized Cities in Western Europe.* Research Results Digest, June 2003.

The first two of the four security steps, prevention and preparation, are the primary focus for MPOs; while transportation systems and facilities, particularly transit systems, may be called upon to help move personnel in response to a security event, such a response will be coordinated by a higher level of government. Transportation agencies are unlikely to take the lead in such situations. Furthermore, Response and Recovery are operational activities not appropriately addressed in the Metropolitan Transportation Plan.

Nevertheless, Prevention and Preparation may require substantial resources, both for training and for capital purchases, and these projects and programs, with their costs, should be considered and ranked in the MTP.

One writer raises questions about how the new focus on security will be dealt with: "Are existing planning tools and models altered? Is the process amended to incorporate security? Is security another goal to add to the list along with subsequent objectives and performance measures? Can one simply screen all the jargon in plans and replace the term safety with safety/security, or is there a distinct difference? Do security concerns merit changes in organizational charts, and how do the security responsibilities get spread across the federal, state, regional and local agencies involved in delivering transportation planning? Is security something that gets addressed in the public participation part of planning? How do the financial commitments to security initiatives get evaluated and how are tradeoffs made to reflect security concerns? And, is it premature to draw conclusions about how security impacts transportation planning?"[6]

This writer offers five "Simplified Planning Process Steps:"

1. Goal Development
2. Conditions Assessment
3. Needs Assessment
4. Project Identification
5. Project Programming

The same writer addresses the funding priorities that are central to an MPO's work: "Investment Priorities -- Speculation has centered on whether security risks will have an influence on public attitudes toward transportation investments. Some have suggested that the economic value of transportation is being recognized, and this will aid efforts to increase investment in transportation. Others anticipate a renewed interest in having transportation choices; specifically enhanced funding for rail modes. Still others worry that diversions of dollars to enhance security will detract from capacity improvements...Transportation investment priority changes could result from a number of considerations."[7] Transportation resource pressures resulting from security concerns could include:

[6] *Security Considerations in Long-Range Transportation Planning: A White Paper for the Arizona Department of Transportation* by Steven E. Polzin, P.E. Ph.D. for Cambridge Systematics

[7] *Security Considerations in Transportation Planning: A White Paper* by Steven E. Polzin, P.E. Ph.D. for the Southeaster Transportation Center

- Diversion of resources to security needs outside of transportation programs
- Diversion of funds to operating security enforcement/policing/planning/training
- Diversion of funds to capital investments in security (barriers, fencing, etc.)
- Use of funds to support network redundancy/connectivity
- Use of funds to support modal choice/redundancy
- Diversion of funds to design changes/enhancements to increase security.

He continues: “Post September 11th, actions suggest a variety of possible investment needs as a result of increased sensitivity to security risks. These needs range from near-term initiatives to conduct strategic planning and assessments to supporting enhanced enforcement levels such as those found at airports, to longer-term needs to alter the physical characteristics of individual transportation investments and the system or network of investments. Changes could range from rerouting roadway alignments from sensitive sites to removing trash containers from rail station platforms. Enhancements to ITS technology as a tool to utilize in incident prevention and incident response have been contemplated and simple design changes to enable additional vehicle inspection queues at border crossings or luggage and passenger scanning capacity at airports may be necessary. Revisiting the capability of our transportation network to handle special vehicles or military equipment in response to incidents or the exploration of modifications in our roadway network to more easily enable mass exodus from an urban area in response to a crisis are among the more complex and expensive strategies that might be pursued. Other major financial obligations could occur if decisions to change the connectivity or range of modal options in our transportation system were to move forward. Several interests, for example, have proposed major investments in high-speed rail in order to provide an alternative to dependency on air travel for longer distance trips. Additionally, certain travel behavior changes could result in different demands for transportation by various modes than are currently anticipated. This could result in changes in modal priorities, shifting geographic priorities, changes in project costs due to design or other security related changes, or other shifts in long-range transportation facility and service plans.”

Bend Area Modal Security Data

A summary of Bend area modal security information is shown in Figure 13-3:

Figure 13-3 Summary of Bend area Modal Security Information

MODE	PREVENTION	PREPARATION	RESPONSE	RECOVERY
Transit – Bend Area Transit and Dial-a-Ride	Drivers receive training.	Security enhancements will likely be included with new bus acquisitions.	BAT may assist in movement of people during response.	BAT resources may be part of regional or local recovery plan.
Bend Airport	TSA is working with general aviation airports to assist them in appropriate planning.			
Rail - BNSF	Procedures for derailments in place. Emergency response planning is carried out on an ongoing basis. Reporting systems are in place for unauthorized access to hazardous materials. Hiring practices seek to ensure security through personnel screening.	See Prevention	Emergency response plans in place including a procedure to cooperate with local emergency responders.	Recovery plan is in place.
Highway	ODOT is working with local and state emergency managers, Oregon State Police, USDOT and others to identify transportation facilities that may require special consideration in planning for response to terrorist incidents.	ODOT employees are required to take terrorism awareness training.	Phase 1 is to report concerns to law enforcement & to cooperate with law enforcement. Phase 2 (consequence mgmt) is described in the ODOT Emergency Operations Plan.	ODOT will continue to provide essential services to the public by identified critical business functions. Critical Business Functions are in the ODOT Emergency Operations Plan.
Pipe (gas) and Power (electrical) lines: Central Electric Coop, Pacific Power and Cascade Natural Gas	A failure to a portion of the transmission systems leading to outages can be isolated from the entire system. There are established rules for practical safeguarding of employees and the public during installation, operations, & maintenance of systems.	Emergency response plans are in place. The plans provide guidelines regarding responses to specific emergencies to protect life, property, and the environment. The plans must also comply with OSHA regulations. Each company coordinates with other response agencies.	Crews are on call 24 hours a day.	Crews are on call 24 hours a day.

Policies

- Work with local agencies and jurisdictions to evaluate transportation security incident data by mode and identify appropriate policy and program directions.
- Continue Intelligent Transportation Systems planning and project programming, particularly with a view to investments that will enhance security.
- Regularly review the MTIP scoring matrix and other specific funding program scoring matrices to ensure that security projects receive appropriate weighting and priority in the MTIP.
- Regularly review the project identification and prioritization process for the Regional Transportation Plan (RTP) to ensure that security receives adequate priority in the development of the long range project list.
- Identify transportation funding sources that are specifically targeted at security projects, so that the limited funds from conventional transportation sources are not inappropriately redirected to this area.
- Support, through planning and programming, the installation, operations, upgrades, and timely maintenance of system infrastructure, including ITS applications, to provide for improved security.
- Work with local agencies and jurisdictions to analyze the transportation network for redundancies in moving large numbers of people (e.g., modeling person and vehicle flows with major links removed or reversed, accommodating street closures, adaptive signal control strategies, impact of traveler information systems), and strategies for dealing with possible “choke” points.
- Work with local agencies and jurisdictions to analyze the transportation network for emergency route planning and identification of strategic gaps in the network.