

Final Report
Transportation Security and Preparedness
for Terrorism

Arnold M. Howitt, P.I.

HVDR15-3

The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the information presented herein. This document is disseminated under the sponsorship of the Department of Transportation, University Transportation Centers Program, in the interest of information exchange. The U.S. Government assumes no liability for the contents or the use thereof.

Technical Report Documentation Page

| | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------------------|------------------------------|
| 1. Report No. HVDR15-3 | 2. Government Accession No. | 3. Recipient's Catalog No. | |
| 4. Title and Subtitle Transportation Security and Preparedness for Terrorism | | 5. Report Date March 2004 | |
| | | 6. Performing Organization Code HVD | |
| 7. Author(s) Arnold M. Howitt | | 8. Performing Organization Report No. | |
| 9. Performing Organization Name and Address Kennedy School of Government 79 JFK Street Cambridge, MA 02138 | | 10. Work Unit No. (TRAIS) | |
| | | 11. Contract or Grant No. DTRS99-G-0001 | |
| 12. Sponsoring Agency Name and Address New England (Region One) UTC Massachusetts Institute of Technology 77 Massachusetts Avenue, Room E40-278 Cambridge, MA 02139 | | 13. Type of Report and Period Covered Final Report (UTC Year 15) | |
| | | 14. Sponsoring Agency Code | |
| 15. Supplementary Notes Supported by a grant from the US Department of Transportation, University Transportation Centers Program | | | |
| 16. Abstract Although September 11, 2001 significantly elevated the status of domestic preparedness as an issue of national concern, attention has focused almost exclusively on aviation security to the exclusion of other fields within and beyond transportation. Congress has taken major actions, each time paying little if any attention to land-based transportation. Funding has been allocated primarily to states and sometimes directly to cities who may, in turn, sub-allocate funding to transportation. In only a few instances has funding gone directly to transit or highway operating agencies. This paper draws from interviews in three major metropolitan areas that feature significant mass transit systems. Based on these case studies, it is apparent that the divide between the traditional domestic preparedness clique of institutions is incorporating transportation stakeholders inconsistently, in fits and starts. With limited funding or political pressure, progress has been very slow. Hard work by some federal agencies, such as FTA and FHWA as well as national groups such as the American Public Transportation Association, has helped to raise awareness and share best practices. With reauthorization of TEA-21 still uncertain at the conclusion of this research and shortly after serious attacks on transportation facilities in Spain and Russia, this report can only suggest that preparation activities will continue at the local level awaiting greater attention by the federal government and congress. | | | |
| 17. Key Words transit, transportation, security, critical infrastructure, emergency preparedness, transportation security administration, homeland security, funding, terrorism | | 18. Distribution Statement | |
| 19. Security Classif. (of this report) | 20. Security Classif. (of this page) | 21. No. of Pages 4 | 22. Price \$70,000 |

Final report
UTC Project 15-3
Protecting America's Transportation System
Arnold M. Howitt, Principal Investigator
March 2004

Objectives

The tragic events of September 11, 2001, raised America's awareness of global terrorism and, as a function of how the attacks were carried out, placed special attention on transportation and aviation security in particular. In the weeks and months that followed, efforts to increase homeland security were widespread. In almost every case, however, very little attention was paid to ground transportation issues. The purpose of this research was to characterize the task of protecting ground transportation systems, especially urban mass transit services but also intercity highways and railroads, and identify the factors that affected how those facilities were being secured in the wake of September 11th.

Method

The research for this project was case study based. Recognizing that domestic preparedness involved institutions at local, state, and national levels of government, three case studies were selected that featured large and complex metropolitan areas with major urban transit systems: Boston, Massachusetts; Chicago, Illinois; San Francisco/Bay Area, California. In some cases, as in Boston, the city dominated the state's agenda. In other cases, such as San Francisco, the city was one of many major concerns for the state in question.

In each case study, interviews were conducted with personnel of transportation and security agencies, to gain both perspectives. In most cases, each perspective was represented at each level of government. A complete listing of interview subjects is included in the appendix.

Because of the significant federal role in homeland security, a set of interviews was also conducted in Washington, DC and at the Volpe National Transportation Laboratory in Cambridge, Massachusetts. These interviewees, from organizations such as the Transportation Security Administration, American Public Transportation Association, and American Association of State Highway and Transportation Officials, provided a national perspective to complement the local and state perspectives gathered in each site visit to the case studies.

During the period of the study, the United States congress enacted and debated several key pieces of relevant legislation. Federal agencies, such as the newly-created Department of Homeland Security, took major actions that also significantly affected the field of transportation security. For these reasons, the research also involved ongoing surveillance of legislative and administrative developments.

Findings

The field of domestic preparedness has matured rapidly in the last few years, pre-dating the attacks of September 2001 but certainly accelerated by that event. Several paradigms have been established within the field and those frame this discussion. First and foremost, preparedness is based on three principals: deter and protect against potential attacks; respond in real time to attacks or other emergencies; and, recover over a medium- to long-range time period to an event.

Within the field of transportation security, a project led by a panel of the National Academies of Science established another important framework for considering the vulnerability of transportation infrastructure and services. On one hand, transportation can be the target of an attack, as in the bombing of buses in Israel or the poison gas attacks on the Tokyo subway by the Aum Shinrykio cult. On another hand, transportation vehicles can be converted into the weapon of attack, as in the case of the aircraft on September 11th or the car bombs that have been used to attack various targets in Iraq during the U.S. occupation. And on a third hand, vehicles or infrastructure can be used as a vector of an attack, serving to transport perpetrators or biological/chemical agents.

Addressing transportation security essentially involves considering the interfaces of these two frameworks. The operator of a transit system, for example, seeks to deter or prevent attacks that would target its facilities, co-opt its vehicles as weapons, or utilize its infrastructure to distribute biological or chemical agents. The transit operator must also have plans in place in case any one of these scenarios should occur. If a subway station is attacked, for example, how will the rescue effort occur, who will be in charge, and how will victims and casualties be handled? And finally, transportation operators are especially sensitive to the recovery element, because they realize their central role in maintaining an urban region's economic vitality. In the wake of an attack, especially one against the transportation system, how do you keep the region moving so that commerce returns to normal as quickly as possible and the economic harm of an attack is minimized? These combinations are repeated and varied throughout the wide set of stakeholders in every metropolitan area.

The findings of this research suggest that while domestic preparedness is significantly constrained by scarce financial resources that mark recent years, ground transportation suffers from the overwhelming spotlight that shines on the aviation sector. Unfortunately, many interviewees felt that it would take a catastrophe directly related to rail or highway modes to draw resources for their protection. In the meantime, those responsible for securing transportation infrastructure and services face a major challenge.

Transportation systems are inherently open in order to encourage easy use for the mobility of people and goods and minimal cost and maximum efficiency. It is simply infeasible to create a screening system for mass transit that is comparable to what airports require of their passengers. Similarly, the highway network (and intercity rail networks, for that matter) are ubiquitous to the point of prohibiting any effective means of surveillance or other deterrence effort.

The result has been a steep prioritization of resources, doing what is possible for critical infrastructure – generally defined by a unit’s symbolic, economic or functional significance, such as a major bridge or tunnel. In almost every city and state, vulnerability assessments have been conducted as a requirement of state or federal funding or as a matter of good practice. These assessments have produced inventories of vulnerable infrastructure.

The task of being prepared for an event and its consequences – the “response” piece of the domestic preparedness triad – is another resource intensive task for transportation agencies but one for which some are better prepared. Because transportation figures prominently in the planning for most types of emergencies – evacuation plans in hurricane regions, for example, or redundant infrastructure in areas struck by earthquakes - response plans are sometimes highly developed. In areas where there are fewer national disasters or the nature of those disasters does not make transportation relevant, however, these plans are more embryonic.

In both cases – deterrence/protection and response – transportation agencies doing their best to address domestic preparedness have often met with a chilly welcome by “mainstream” emergency responders. Intelligence and law enforcement agencies, for example, sometimes do not recognize the relevance of a mass transit operator in homeland security. The consequences and remedies of this situation vary. One of the most sensitive symptoms of this pattern, however, is that the distribution of homeland security funding is less accessible for agencies, such as transportation entities, that are not recognized as mainstream emergency responders.

The resolution of this problem is complex. There is little precedent from higher levels of government; in Washington, Congress has done very little to fund ground transportation security because so much attention is focused on the high profile situation of aviation security. Within the Transportation Security Administration, the domination of aviation is readily apparent in the enabling legislation and in the organization structure. In the Office of Maritime and Land Security, where these issues are addressed, the maritime portion seems to dominate. There may be some reason for this, however, because ports and airports are more explicitly pertinent to the federal government’s duty for national security, where ground transportation is the domain of states and cities.

In the cities and states visited during this research, the models of success were generally based on effective interagency working groups, task forces, or committees. In general, there was an umbrella organization concerned with domestic preparedness, under which a transportation sub-committee exists. The most successful examples provided effective linkages among agencies, such as law enforcement and transportation, and between levels of government.

The needs expressed by members of the transportation community about security and by security professionals who are concerned about transportation generally begin with the need for capital investments. From surveillance equipment to emergency operating centers, capital needs appear infinite to many operators. At the same time however, the

highest item on the agenda of these transit and security agencies is often an operating expense: the training and preparation of their staffs through courses and simulations or drills. The costs of these efforts can be significant and the sources of funds small or nonexistent.

The future, especially the funding scenarios, appear lukewarm at best. The reauthorization of transportation funding legislation in Washington makes a few small concessions for security but leaves the burden almost entirely on separate authorizations and appropriations for homeland security. The administration's legislative proposal, known as SAFETEA, allowed security-related highway projects to be fully funded by the federal government and amended the definition of a capital transit project to include the operating expenses associated with training and simulations – a major objective of the transit industry.

For at least the near future, however, metropolitan areas and transit operators in particular will depend on homeland security grants that are generally sub-allocated by statewide and occasionally metropolitan committees. In this context, it is extremely important for transportation to be recognized as a part of the mainstream emergency response apparatus in city, region, or state.

Products

The product of this project has been the composition of several papers that have been presented at major national conferences (TRB, January 2004) and published by distinguished policy institutions, such as the Brookings Institute in their Transportation Reform Series. The principal investigator, Arn Howitt, has given numerous lectures on domestic preparedness in general and transportation security specifically.