CONTRACTOR'S FINAL REPORT

A Guide to Updating Highway Emergency Response Plans for Terrorist Incidents

Prepared For
The American Association of State Highway and Transportation Officials' Security Task Force

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Forward: How to Use This Document

This document has an Executive Summary and two main components: Part I, Background and Context, and Part II, Guidance for Updating State Plans, described by Chapter below:

Executive Summary: This chapter presents an overview of the entire Guide that focuses mainly on justifying the need for updating emergency response plans in light of emerging terrorist threats using weapons of mass destruction (WMD). This chapter will be most useful to mid-senior level managers without day-to-day emergency management responsibilities who wish to gain an understanding about re-thinking emergency response.

PART I: BACKGROUND AND CONTEXT

Chapter 1 – Introduction: This chapter provides details on the emerging terrorist threat. It also explains the rationale for this Guide, its focus, and target audience.

Chapter 2 – Existing (or Pre-9/11) State and DOT Emergency Response: This chapter describes, in general terms, existing emergency management planning practices and standard documents of state emergency management agencies and state Departments of Transportation (DOTs). It also discusses the general response roles and responsibilities of state DOTs. Most states are in the process of updating their statewide and DOT plans in light of September 11, 2001 (9/11), and, for the most part, they will build on plans and approaches in use prior to 9/11.

Chapter 3 – The Expanded Terrorist Threat: This chapter discusses how the standard view of the terrorist threat has changed since 9/11. This chapter discusses changes in emergency management and response for terrorist WMD incidents. A new set of challenges to emergency response is posed by the various types of WMD that may be part of terrorist threats. It suggests new strategies in response to the characteristics of WMD. This chapter also describes changes in the institutional relationships – Federal, state and local – that are likely to take place in the event of a terrorist incident, as compared with those assumed for natural and human-caused disasters. This section explains the characteristics of WMD insofar as their characteristics imply modifications to the all-hazards-based responses typically in place.

PART II: GUIDANCE FOR UPDATING STATE PLANS

Chapter 4 – Thinking Through Highway Emergency Response Strategies in the New Threat Context: This chapter offers specific process guidance, in a checklist format, as to how state DOTs can update their emergency response plans. It also describes generic highway emergency response strategies typically used by state DOTs that may be utilized for emergency response to terrorist incidents. This section also discusses key resource issues with regard to highway emergency response and provides some preliminary guidance.

Executive Summary

The Expanded Terrorist Threat

The experience of September 11, 2001 (9/11) has again shown that terrorists – armed with weapons of mass destruction (WMD) and determined to harm large numbers of the civilian population – can successfully attack targets in the United States. Although the nation's highway departments (referred to as "state DOTs" in this document) may be reasonably prepared for playing a key role in "normal" disasters, WMD in the hands of terrorists introduces new considerations such as the following:

- People are the intended target.
- Advance warnings are unlikely.
- Multiple simultaneous attacks are possible.
- Emergency responders may be targets.
- The weapons may introduce serious and long-lasting hazards.
- The weapons may introduce large-scale damage or contamination to critical equipment and facilities.
- Public reaction is unpredictable.

Challenges for State DOTs

The introduction of WMD also signals the need for some modifications to the existing set of agency roles and responsibilities:

- Law enforcement and national security agencies will play a larger role in a terrorist incident. State DOT personnel will need to understand the different relationships inherent during and after a terrorist WMD incident.
- If an incident occurs on or near a highway, state DOT personnel may be first or early responders. Therefore, basic training may be needed in identifying possible signs and consequences of terrorist incidents for appropriate actions including the consideration of their own safety.
- Specific traffic control regimes may be needed to evacuate people or to establish emergency access. Preplanning strategies, signage and equipment may be appropriate together with capitalizing on Intelligent Transportation Systems (ITS) and traveler information resources.
- Some resources may become unavailable for use if contaminated. Having procedures and equipment in place for decontamination becomes more important. Medical treatment and facilities could be overwhelmed quickly.
- Response resources may be required far beyond those originally anticipated, especially where a WMD is used that initially leaves few distinguishing marks. State DOT response resources need to be available but may also need to be protected as the consequences spread.
- Addressing public concerns is critical. Panic and uncontrolled flight are possible, and controls may need to be quickly put into effect. A comprehensive public information strategy is necessary. Where highways are concerned, state DOT

personnel will be expected to provide information, e.g., through variable message signs to motorists evacuating an area.

Most state DOTs provide support functions in the existing emergency plans of state emergency management agencies. These all-hazard statewide plans have proven to be robust tools for natural disasters. However, the 9/11 experience has indicated the need to update and modify these statewide plans, including the supporting emergency operations plans of the state DOTs. New and continuing challenges include:

- Absence of interoperable and reliable communications among agencies.
- Lack of familiarity with the roles and personnel of other agencies.
- Responding to the introduction of Federal security agencies and crime scene factors.
- Unfamiliarity with Incident Command System practices of public safety agencies.
- Protection of first responders from biological, chemical and radiological hazards.
- Need for specific operations regimes such as evacuation and emergency access.
- Capitalizing on Intelligent Transportation Systems technology for traffic control and communications.

These challenges constitute some of the key agenda items in tailoring current state DOT emergency response plans to the new reality of terrorism.

About This Guide

This Guide provides preliminary guidelines for planning for enhanced emergency response to terrorist incidents, especially those involving WMD. The Guide has been developed for the American Association of State Highway and Transportation Officials (AASHTO) Security Task Force, in cooperation with the Federal Highway Administration (FHWA), under a grant from the National Cooperative Highway Research Program (NCHRP), which is administered by the Transportation Research Board of the National Research Council (TRB). The research agency performing the research and writing this Guide is the firm of Parsons Brinckerhoff (PB).

This Guide builds on existing emergency management practice. All states have basic emergency management plans (often following a standard Federal model) that outline how states will organize their efforts as well as assisting local governments in responding to, recovering from and mitigating the impacts of a disaster. State DOT roles are laid out via their participation as directed in one or more emergency support functions such as Transportation and Public Works and Engineering. The state DOT's emergency operations plan details how it will carry out its emergency response functions in terms of organization, reporting relationships, communications, mobilization of personnel and equipment, traffic control and other activities.

This Guide was written using the following assumptions:

Primary Focus: Assisting state DOTs in planning for highway emergency response during or following a terrorist incident either on or off the highway system.

Primary Function: To support the process of updating the department's current emergency response plans and procedures.

Primary Target Audience: The state DOT staff directly responsible for maintenance and updating of the department's emergency management plans, programs and related activities.

State DOT Roles: Presumes traditional state DOT roles with heightened emphasis on items such as DOT first response responsibilities, the need for large-scale movement of people under hazardous conditions, and the use of technology for enhanced system surveillance and management.

Emergency Management Context: Recommends building on the existing institutional relationships, roles, plans and procedures, using the all-hazards framework and modifying it when necessary to incorporate appropriate WMD responses, and working closely with the state emergency management agency and others to ensure coordinated responses.

Information Sources: Sources for this Guide include the best relevant practice from state DOTs, especially those that cope with major emergencies such as hurricanes or earthquakes, the lessons learned in the aftermath of the terrorist attacks on New York and Washington, DC, and other pertinent emergency management documentation.

Organization of This Guide

This Guide is divided into two main parts. Part I, Background and Context, provides information on current emergency management and the new terrorist threat faced by the United States. Those interested in this background information should read Chapter 2 and Chapter 3.

Part II, Guidance for Updating State Plans, or Chapter 4 provides specific process guidance for updating existing DOT plans, procedures, roles, and activities in a checklist format. It suggests the most critical issues, indicates the key considerations to pursue with external entities, and identifies the areas in which the existing plans and procedures may require modification in light of the characteristics of terrorism scenarios. This part includes checklists designed to help state DOTs focus on where modifications and updates may be required in their plans and procedures. Those already familiar with current emergency management thinking and the terrorist threat may want to move immediately to Part II.

Appendix A contains a sheet for comments on this document. The National Cooperative Research Program (NCHRP) and the American Association of State

Highway and Transportation Officials (AASHTO) invite your comments on this document.

Part I. Background and Context

1. Introduction

1.1 The Expanded Terrorist Threat

Terrorism is not new to the United States, but the attacks on the World Trade Center on September 11, 2001 (9/11) riveted attention on terrorism in a profound way – particularly on the use of weapons of mass destruction (WMD) and a possible "campaign" of violence against civilians on American soil. While prior terrorist incidents caused increased attention to terrorism, e.g., the bombings at the World Trade Center in 1993 and the Oklahoma City Federal Building in 1995, the response was not on the same scale we have witnessed after 9/11.

At the state level, terrorism has been considered as a type of emergency. Many state emergency management plans and DOT emergency operations plans had terrorism annexes before 9/11; however, 9/11 focused a renewed interest and concern in their adequacy.

The unanticipated and destructive use of heavily-fueled wide-body commercial jetliners under the control of suicidal terrorists has raised a new consciousness of the power and potency of weapons of mass destruction, and their potential use in the United States. Public agencies now perceive a heightened need to deal urgently with this newer arsenal of threats, which includes:

- Conventional explosives
- Nuclear/radiological, e.g., nuclear bombs, radiation-releasing devices
- Biological, e.g., viruses, toxins
- Chemical, e.g., poison gases

WMD threats bring characteristics that may be quite different from conventional emergencies. It is both the possible scale of the threat and the differences in the terrorist threat that generate the need for modifications to existing emergency plans and procedures. Table 1 below shows some of the differences between terrorist and non-terrorist incidents:

Table 1: Similarities and Differences Between Terrorist WMD and Other Significant Emergencies

Similarities	Differences
• Mass casualties • Damage to infrastructure • With or without warning • Evacuation or displacement of citizens	• Caused by people on purpose • Will always be treated as crime scenes • May not be immediately recognizable as terrorist incidents • May not be single incidents • Place responders at higher risk due to WMD characteristics and possible planned secondary incidents • May result in widespread contamination of critical equipment and facilities • May have delayed or long-lasting effects • May expand geometrically in scope • May cause strong public reaction

Source: FEMA Web Site, Senior Officials' Workshop on Weapons of Mass Destruction

1.2 About This Project and Guide

This Guide has been created because of the need for guidance on how to deal with the new terrorist threat described in the above section. Given the urgency of the need, this guidance is based on materials that were readily available. On-going state emergency plan updates and related research will provide the basis for future updates of this initial material.

As this Guide often references the need for state DOTs to know and understand their vulnerabilities, readers should obtain the companion guide entitled, A Guide to Highway Vulnerability Assessment for Critical Asset Identification and Protection. That guide is designed to help state DOTs determine where their significant vulnerabilities are and then to take appropriate steps to minimize those vulnerabilities. Of course, minimizing vulnerabilities also requires planning for a quick and effective response to a terrorist incident.

Guide's Focus

This Guide focuses on planning for response to terrorist incidents and not on the actual response itself. The Guide treats highways from two perspectives: (1) where highways and/or related facilities and infrastructure are a target of the attack, or (2) are used in the response to the attack. As the Guide is highway-centric, the Guide is of primary interest to highway agencies and departments of transportation, especially those at the state level (referred to as "state DOTs").

The Guide is meant to assist state DOTs in updating their existing plans to better prepare for responding to a terrorist incident. The focus is also on planning for *response* – as opposed to *recovery* (which is typically a longer-term effort). For purposes of this Guide, emergency response means the immediate, short-term actions

taken immediately after a terrorist incident. Such responses may be oriented towards saving lives, minimizing injury, saving property and laying the groundwork for recovery. Given the nature and characteristics of WMD, response (as well as recovery) could be protracted. In general, however, the Guide will focus on planning for immediate, short-term responses to be taken during or immediately after a terrorist incident.

This Guide provides process guidance for updating existing plans, procedures, systems and training in a checklist format. It suggests the most critical issues, indicates the key considerations to pursue with external entities, and identifies the areas in which the existing plans and procedures may require modification in light of the characteristics of terrorism scenarios. It is based on the most relevant emergency response experience, some of which is derived from natural or industrial disaster response, special event management, or other incident management experience. The guidance provides process suggestions, rather than prototype plan elements, given the early stages of thinking about WMD response and the variations among regional settings.

Relationship to Typical State Emergency Management Procedures

Emergency response plans and procedures are part of an institutionalized process involving Federal, state and local emergency management agencies with related plans and procedures. Most states use an all-hazards approach to emergency response, meaning that response plans and procedures are predicated on significant and appropriate commonality among responses to different hazards. **This Guide strongly recommends building on the existing institutional relationships, roles, plans and procedures, using the all-hazards framework and modifying it when necessary to incorporate appropriate WMD responses.** The Guide recognizes that state DOTs are part of an overall organization under the command of other agencies and that the DOTs must operate within such relationships as well as manage their own internal procedures.

It should be noted that there are a wide variety of settings both within and among states that require that guidance in this Guide be at an appropriate level of general applicability. This is consistent with the typical conventions of emergency management planning. Also, each state may face different risks and vulnerabilities and may respond in related but different ways to terrorist WMD threats.

Target Audience within State DOTs

This Guide has been developed principally for middle management state DOT staff charged with the development of emergency management plans and procedures for state DOTs (and perhaps to a lesser extent local DOTs charged with highway response responsibilities). This audience may already be familiar with the existing emergency response plans and procedures in their state and agency. **If not already familiar, this Guide highly recommends becoming familiar with existing state and state DOT emergency management plans and procedures so that they may be used as a foundation for further planning.**

The Guide also provides sufficient background so that other DOT managers and operations personnel can understand its intent and context within the broader

emergency management context. Early chapters (Chapter 2 and Chapter 3) provide background on typical state and DOT emergency management procedures, as well as describe the new threats posed by terrorist use of WMD. Chapter 4, Thinking Through Highway Emergency Response Strategies in the New Threat Context, provides specific process guidance, in a checklist format, for updating or modifying state DOT emergency operations plans. Those readers familiar with the new terrorist threat and who are already in the process of updating state DOT emergency operations plans may choose to begin with Chapter 4. State emergency management personnel may also find this Guide useful in working with their state DOT counterparts to determine the highway response to terrorist incidents.

Appendix A contains a sheet for comments on this document. The National Cooperative Research Program (NCHRP) and the American Association of State Highway and Transportation Officials (AASHTO) invite your comments on this document.

2. Existing (or Pre-9/11) State and DOT Emergency Response

2.1 Standard Emergency Management Thinking

Some fundamental principles underlie today's emergency management thinking. Those include:

- Public agencies that have to address significant emergencies should have an emergency management plan(s) in place.

- Those agencies that face a range of emergencies, e.g., natural, human-caused, should develop an all-hazards approach, meaning that the same fundamental approach should be taken to address any type of emergency. However, some emergencies may require a modified or expanded approach. In those instances, additional annexes are often added to the basic emergency management plan. Plans specific to terrorism are often found in an annex.

- Agencies should view emergency management as a cycle of four related components:
  - Mitigation: Steps taken in advance to reduce the potential loss from a hazard.
  - Preparedness: Steps taken in advance to facilitate the response and recovery after a hazard event.
  - Response: Steps taken during or immediately after a hazard event to save lives and property.
  - Recovery: Steps taken to restore the affected areas to their normal status. During the course of recovery, mitigation steps should be considered to reduce the future consequences of a similar hazard event.

- Typically, most response agencies use the Incident Command System or ICS. This system provides responders with a flexible tool for directing, controlling and coordinating resources dedicated to incident response. ICS applies a common organizational structure that can be contracted or expanded as the response effort changes in nature. It also provides a common set of management principles to help standardize response efforts. The concept of Unified Command is often associated with ICS. Unified Command involves enabling all agencies with responsibility for the incident to help manage an incident by establishing a common set of incident objectives and strategies. While most common in the law enforcement and fire communities, the application of ICS and Unified Command concepts has broad application, e.g., to a state DOT incident management program.

2.2 Current State Emergency Management Plans

All states have statewide all-hazards emergency management plans that tend to follow the structure of the FEMA-established Federal Response Plan. However, state plans are different from the Federal Response Plan because they address some critical operational response functions that are not the responsibility of the Federal Government. Also, state plans must address the provisions for obtaining Federal

assistance and clarify the linkage between the state Emergency Operations Plan, Federal Response Plan, and local government Emergency Operations Plans.

Statewide emergency plans are developed by the state's emergency management agency and generally include the following components:

1. Basic Plan – The Basic Plan section of the overall emergency management plan outlines how the state will assist local governments in responding to, recovering from, and mitigating the impact of a disaster. It addresses areas such as the responsibilities of the various levels of government, method of operations, financial management policies, and continuity of government. The Basic Plan also addresses recovery issues to ensure a rapid and orderly implementation of rehabilitation and restoration programs for persons and property affected by a disaster.

2. Emergency Support Functions (ESFs) – Most emergency management plans contain annexes that organize the state agencies into separate emergency support functions. In many states, this section is structured after the ESFs outlined in the Federal Response Plan, as follows:

   - ESF #1 – Transportation
   - ESF #2 – Communications
   - ESF #3 – Public Works and Engineering
   - ESF #4 – Firefighting
   - ESF #5 – Information and Planning
   - ESF #6 – Mass Care
   - ESF #7 – Resource Support
   - ESF #8 – Health and Medical Services
   - ESF #9 – Search and Rescue
   - ESF #10 – Hazardous Materials
   - ESF #11 – Food
   - ESF #12 – Energy

   Several states also include additional ESFs, such as Security and Law Enforcement, Military Support, Donations and Volunteers, Direction and Control, Financial Management, Recovery, Damage Assessment, and Evacuation and Movement.

   Each ESF section describes – at a general level – the mission, policies, concept of operations, and responsibilities of the primary and support agencies involved in the implementation of key response functions.

3. Hazard-Specific Annexes – Some state emergency management plans include annexes that describe event-specific missions, policies, concepts of operations, and responsibilities. The existing Federal Response Plan contains a single Terrorism annex. Some states also have a Terrorism annex although most of these annexes were developed prior to 9/11. Some states also have additional hazard-specific annexes, such as Radiological Incidents and Wildfire Operations.

2.3 State DOTs' Support Role

State DOTs are not the lead emergency management players. They are designated to provide specific support functions in major emergencies, including terrorist incidents.

As shown in Table 2 below, the state DOT typically leads the Transportation ESF and Public Works and Engineering ESF, while supporting several other ESFs.

Table 2: Typical DOT Responsibilities for Emergency Support Functions

Emergency Support Function	Primary Responsibility	Support Responsibility
1. Transportation	✓	
2. Communications		✓
3. Public Works and Engineering	✓*	✓*
4. Firefighting		✓
5. Information and Planning		
6. Mass Care		
7. Resource Support		✓
8. Health and Medical Services		
9. Search and Rescue		
10. Hazardous Materials		✓
11. Food		✓
12. Energy		

* Some state DOTs lead the Public Works and Engineering ESF, while others only support this effort.

2.4 Typical DOT Emergency Response Plans

Many state DOTs have developed internal emergency operations plans (EOPs) that guide highway-related services in support of emergency preparedness and response efforts. These operations plans include general procedures that mirror state emergency management plans and indicate the DOT's roles.

DOT EOPs typically contain a general section that mirrors the state emergency management plan and is likely to include discussion of:

- Authorities
- Conditions and hazards
- Planning assumptions
- Concept of operations
- Roles and responsibilities

The EOPs also often contain certain sections or annexes that address responsibilities and activities at a greater level of detail including responsibilities within the department. Typical plans/annexes include:

- Operations Center Plans:
  - Emergency Operations Manual
  - Assignment, Notification, and Responsibilities of DOT Representatives to State and County Emergency Operations Centers
  - Emergency Operations Center Activation Plan
  - Emergency Operations Center Procedures Manual
  - Continuity of Operations Plan for Transportation Management Centers (TMCs)
  - TMC Incident Management Operations Guidelines

- Resource Management Plans:
  - Emergency Communications Plan
  - Emergency Equipment Plan
  - Emergency Facilities Plan
  - Emergency Transfer of DOT Resources
  - Year 2000 Contingency Plan

- Traffic Management Plans:
  - Emergency Highway Traffic Regulation Plan
  - Evacuation Traffic Management Plan
  - Incident Management Plan

- Hazard-Specific Plans:
  - Earthquake Preparedness Plan
  - Radiological Incident Emergency Procedures
  - Hazardous Materials Emergency Procedures
  - Hurricane Emergency Procedures
  - Snow/Ice Emergency Procedures
  - Terrorism Emergency Procedures
  - Mass Gathering Event Procedures and Responsibilities

2.5 State DOT Response Roles and Responsibilities

Within an all-hazards framework, state DOTs have been designated with certain transportation-oriented responsibilities. The functions are typically set forth in the state emergency management plans and often detailed in DOT emergency operations plans as described above. These functions have been determined in anticipation of a range of potential emergencies including natural disasters, e.g., hurricanes/floods, storms, earthquakes, and human-caused disasters, e.g., hazardous materials accidents, nuclear explosions, biological incidents. The functions can be summarized in terms of a set of transportation roles and include:

<u>First Response</u>

- Assist with evacuation of persons from immediate peril.
- Transport materials, personnel, and supplies in support of emergency activities. Assistance may include transporting resources from state agencies, from local governments from other parts of the state, or from private commercial companies.

- Assist in the design and implementation of alternate transportation services, such as mass transit systems, to temporarily replace transport capacity lost to disaster damage.
- Assess the condition of highways, bridges, tunnels and other components of the state's transportation infrastructure and:
  - Close those determined to be unsafe;
  - Post signing and barricades;
  - Notify law enforcement and emergency management personnel;
  - Protect, maintain and restore critical transportation routes and facilities; and
  - Develop detour routings as appropriate.
- Assess and report impacts to airports, ports, and marine facilities in the disaster area.
- Conduct aerial reconnaissance and photographic missions, provided resources are available.
- Provide hazardous materials containment response and damage assessment.
- Coordinate roadway clearance activities and prioritize and perform emergency repairs in the disaster area. Assist local governments in related repair activities.
- Remove and/or assist in debris removal and disposal, as appropriate, to provide emergency access to disaster areas or to assist in eliminating health and safety problems associated with debris.
- Coordinate state agency efforts in support of utility restoration.
- Issue permits required to repair/restore utility lines or pipes that are immediately adjacent to, or run over or under state highways.
- Provide needed equipment and/or technical assistance in support of the restoration of critical public works.

Concept of Operations

- Implement DOT emergency functions for the prioritization and/or allocation of state resources necessary to maintain and restore the state's transportation infrastructure.
- Provide all available and obtainable transportation resource support including:
  - Transportation equipment, e.g., passenger and utility vans, trucks and/or trailers; aircraft, aircrews, and ground and operations personnel and communications for transportation of emergency officials;
  - Transportation facilities, e.g., vehicle repair facilities, equipment, and personnel; fleet parking and storage areas to be used for staging, parking, and storage of emergency vehicles; motor pool and vehicle service facilities and personnel for refueling and servicing emergency vehicles;
  - Vehicular traffic management and control signs and devices e.g., barriers, cones, of various types;
  - Vehicular traffic flow data and information from permanent and temporary monitoring sites.
- Assign personnel to emergency operations center(s) to coordinate with and assist law enforcement agencies and other agencies involved in evacuation efforts.

System Surveillance and Management

- Monitor and control transportation systems and infrastructure, and coordinate transportation activities with other agencies (local, state, and Federal).
- Provide traffic control assistance.
- Assist state and local government entities in determining the most viable available transportation networks to, from, and within the disaster area and regulate the use of those networks for the movement of people, equipment, supplies, records, etc.
- Identify specific traffic management actions to maintain a smooth flow for evacuation routes and transport of emergency resources, including traffic control points, barricade plans, and potential one-way/reverse lane operations.
- Provide any highway clearances and waivers required to expedite the transportation of high-priority materials and the evacuation of personnel during periods of declared emergencies.
- Coordinate the closure of high-risk roadways such as bridges, tunnels, or flood-prone sections of roadway.

Agency Communications

- Provide communications resources in support of statewide operations

Public Information

- Provide information on road closures, infrastructure damage, debris removal, and restoration activities related to highway systems and facilities.
- Provide real-time traffic counter data and traffic reports for roads within the affected area or on roads leading into the area.
- Assign appropriate personnel at key disaster sites to oversee operations and to provide consistent, verified public information to emergency management agencies, public information officers, and the media. When evacuation plans have been implemented, inform motorists which routes and intersections will lead to host shelters.

3. The Expanded Terrorist Threat

3.1 Terrorist WMD Incidents Require Different Responses

In non-terrorist incidents, local and state governments are typically expected to respond first. In terrorist incidents with warning, the Federal Government may deploy resources ahead of time. However, most terrorist WMD incidents will unfold such that local and state agencies respond first. Given the fact that highway facilities could be the primary or secondary target of a terrorist incident, or that highways will quickly be used for response purposes, state DOT personnel may well be first or early responders. Therefore, state DOT responders need to be aware of the characteristics of a terrorist WMD incident and the need to handle that incident somewhat differently than for a natural disaster. Table 3 below reflects some possible changes in response to a WMD incident vis-à-vis other types of disasters.

Table 3: Characteristics of a Terrorist WMD Incident and Possible Changes in Response

Possible Characteristics of Terrorist WMD Incident	Possible Change in Response
Caused by people on purpose	Law enforcement and national security agencies will play a larger role in a terrorist incident. Coordination and understanding of respective agency roles will be critical. DOT personnel will need to understand the different relationships inherent during or after a terrorist WMD incident.
Will always be treated as crime scenes	Law enforcement agencies will want to control and preserve certain elements of the crime scene, which may affect response by other agencies. DOT personnel need to understand how to effectively work with law enforcement agencies so both the DOT and law enforcement agencies can perform their respective roles and responsibilities.
May not be immediately recognizable as terrorist incidents	If an incident occurs on or near a highway, DOT personnel may be first or early responders. Therefore, those who may be first or early responders need basic training in identifying possible signs and consequences of terrorist incidents for early recognition. Once having recognized the marks of a WMD incident, they need to take appropriate actions including the consideration of their own safety.

Possible Characteristics of Terrorist WMD Incident	Possible Change in Response
May not be single incidents	Responders need to consider the possibility of additional terrorist incidents as they respond to an earlier incident(s). Different incidents could have multi-dimensional characteristics and consequences. As DOT personnel may be first or early responders, they need to be trained to consider the risks of secondary terrorist incidents.
Place responders at higher risk due to WMD characteristics and possible planned secondary incidents	In general, responders will need to be better trained and equipped to address the higher risk posed by a terrorist incident. It is possible that responders themselves may be targets of incidents, as terrorists will attack responders to further slow and confuse response efforts.
May result in widespread contamination of critical equipment and facilities	Geographic areas may need to be quickly closed to all but designated emergency response personnel. Some resources may become unavailable for use if contaminated. Having procedures and equipment in place for decontamination becomes more important. Medical treatment and facilities could be overwhelmed quickly. If a highway or related facility becomes contaminated, some DOT personnel will need to know how to operate in that contaminated environment or, at a minimum, know how to direct contractors, e.g., so debris removal can occur.
May have delayed or long-lasting effect	Response resources may be required far beyond those originally anticipated, especially where a WMD is used that leaves few distinguishing marks initially. DOT response resources need to be available but may also need to be protected as the consequences spread.
May expand geometrically in scope	Same as above.
May cause strong public reaction	Addressing public concerns is critical. Panic and uncontrolled flight are possible, and controls may need to be quickly put into effect. A comprehensive public information strategy is necessary. Where highways are concerned, state DOT personnel will be expected to provide information, e.g., through variable message signs, to motorists evacuating an area.

The table above indicates that many existing state DOT emergency operations plans and procedures for highway response do not fully capture the different nature of a

terrorist incident versus other potential disruptions to the highway system, e.g., special events, natural disasters.

3.2 Early Identification of WMD Threat Characteristics Is Critical

As the table above notes, understanding the characteristics of WMD can be critical. Terrorism per se is not new. Governments have had to respond to terrorism for centuries. Several definitions of terrorism may be found. Below is one in the United States Government Interagency Domestic Terrorism Concept of Operations Plan:

> ***Terrorism includes the unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives.***

While terrorism is not new, the power of terrorist weapons and/or the capability to deliver those weapons has rapidly expanded in the last half-century. Thus, the terrorists now have weapons with massive destructive capabilities. Under U.S. law, WMD are defined as:

- Any destructive device including any explosive, incendiary, or poison gas:
  - Bomb
  - Grenade
  - Rocket having a propellant charge of more than four ounces
  - Missile having an explosive or incendiary charge of more than one-quarter ounce
  - Mine
  - Devices similar to any of the devices described above
- Any weapon that is designed or intended to cause death or bodily injury through the release, dissemination, or impact of toxic or poisonous chemicals, or their precursors
- Any weapon involving a disease organism; or
- Any weapon that is designed to release radiation or radioactivity at a level dangerous to human life.

(Source: 18 USC (United States Code) Sections 2332a and 921(a)(4)(A))

More generally, WMD are divided into four categories:

- Conventional explosives
- Nuclear/radiological, e.g., nuclear bombs, radiation-releasing devices
- Biological, e.g., viruses, toxins
- Chemical, e.g., poison gases

Sometimes, the latter three WMD are referred to as NBC weapons. Alternatively, nuclear and radiological weapons may be separated and other acronyms applied, e.g., CBRN for chemical, biological, radiological and nuclear weapons. As the threat of WMD usage by terrorists increases, more time, attention and resources are being expended to better define what they are and the threat they pose.

The use of WMD poses new and different threats to state agencies including departments of transportation. For years, states have dealt with multiple types of emergencies, the most far-reaching involving large natural disasters. In the aftermath of 9/11, state DOTs are far more aware of other types of human-caused disasters that could have more far-reaching effects than any natural disaster they have yet had to address. Incidents involving different WMD may have diverse effects on people and property. Table 4 below highlights some of the key consequences and distinguishing marks of several types of WMD:

Table 4: Possible Distinguishing Signs of a WMD Incident

WMD	Possible Distinguishing Signs
Conventional Explosives (e.g., detonation of fuel oil-fertilizer bomb, military-type explosives, etc.)	• Casualties • Impacts mostly local to explosion • Structural collapses • Exposure to dust and hazardous building materials, e.g., asbestos • May be used to spread harmful radiological or chemical materials
Chemical (e.g., dispersion of pesticides, mustard gas, chlorine gas, cyanide, tear gas, etc.)	• Unexplained deaths and illness • Impacts mostly local to release but may be some distribution via, e.g., wind beyond release site • May be marked by unusual clouds, haze, mist, odors, tastes, droplets, etc. • May be persistent in environment
Biological (e.g., dispersion of viruses, bacteria, toxins, fungus, etc.)	• Unexplained deaths and illness possibly beginning a day or more after an incident • Immediate impacts mostly local to release but may be expanded distribution through human transmittal • Possible persistence in environment • Possible geographic contamination
Radiological (e.g., dispersion of radioactive material by non-nuclear explosion or pressurized gas)	• Unexplained deaths and illness • Impacts mostly local to release but may be some distribution via, e.g., wind beyond release site • Persistence in environment • Geographic contamination Also: • Conventional explosives used for dispersal may cause impacts too
Nuclear (e.g., nuclear detonation with radioactive fallout)	• Large-scale infrastructure destruction • Extensive radioactive fallout • Long-term persistence in environment • Geographic contamination

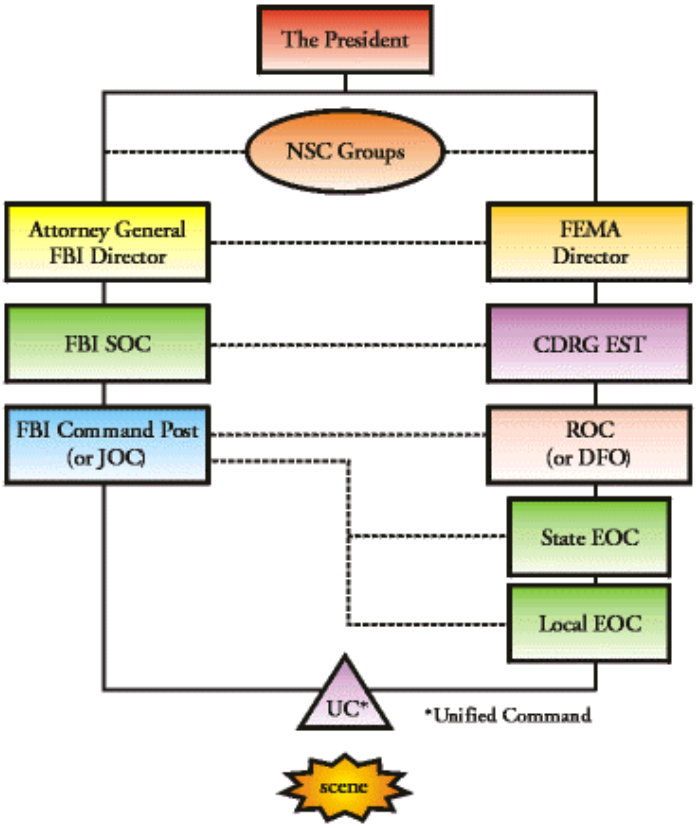
3.3 Institutional Relationships for Responding to Terrorist Incidents Differ

As the characteristics of a WMD incident need to be understood so they can be identified, understanding the institutional relationships in an emergency is also critical, even more so in a terrorist incident where typical incident command and response players may be different and where there is no lead-time for preparation or planning such as there may be for other types of emergencies, e.g., floods, hurricanes.

For terrorist incidents, Federal, state, and local governments participate in the response activities. Typically, the Federal Government leads the efforts to anticipate, prevent, and resolve the threat ("crisis management"), whereas state and local governments have primary authority in responding to the consequences of terrorism, such as measures to protect public health and safety and restore government services ("consequence management").

From a Federal perspective, Presidential Decision Directive (PDD)-39 is the primary document that organizes the roles of Federal agencies. It designates the Federal Bureau of Investigation (FBI) as the lead agency in crisis management to prevent and/or respond to a potential or actual terrorist incident. According to this directive, the Federal Emergency Management Agency (FEMA) is responsible for the consequence management aspect of any incident. Further definition of Federal agency roles is provided in the United States Government Interagency Domestic Terrorism Concept of Operations Plan.

Figure 1 below shows, at a high level, the different groups that may be involved in responding to terrorist incidents.



Legend

NSC	National Security Council
SOC	Strategic Operations Center
JOC	Joint Operations Center
CDRG	Catastrophic Disaster Response Group
EST	Emergency Support Team
ROC	Regional Operations Center
DFO	Disaster Field Office
EOC	Emergency Operations Center
UC	Unified Command

command
coordination

Source: FEMA web site

Figure 1: Relationships Between Terrorist Response Organizations

Overall terrorist incident command may initially be under the leadership of fire or police departments, state emergency management agencies, or others. However, it is likely that the Federal Government will become quickly involved to augment and assist the state consequence management effort, which can create a whole new dynamic for state and local responders. At the state level, the Governor and other senior decision makers will also become quickly involved.

Terrorism Threat Levels

After 9/11, the need for some type of uniform terrorism threat level system to enable improved threat communications between the many institutional players became apparent. Prior to 9/11, many states had some type of threat level notification system, and the Federal Government had several such systems. However, the need to have one system at the national level to communicate security threats became imperative as confusion reigned in the aftermath of 9/11, as the Federal Government issued repeated threat level warnings but with insufficient information for many jurisdictions to understand and take appropriate action. State and local personnel found themselves confused by the Federal warnings.

To eliminate this issue, the Office of Homeland Security has developed, as of this writing, a new, five-level threat notification Homeland Security Advisory System (HSAS) that is going through a formal comment period. The proposed system attempts to clarify

what the Federal Government means when it issues a certain threat level notification. Figure 2 below is a graphic showing the five-level system:

Level of Risk: Associated Color

Severe:	Red
High:	Orange
Elevated:	Yellow
Guarded:	Blue
Low:	Green

Figure 2: Proposed Homeland Security Advisory System (HSAS)

The HSAS provides a national framework for communicating the nature and degree of terrorist threats between government officials and the citizens they represent. The HSAS uses a variety of factors to assess the threat, such as:

- Is the threat credible?
- Is the threat corroborated?
- Is the threat specific and/or imminent?
- How grave is the threat?

In response to the HSAS, the U.S. Department of Transportation (USDOT) has developed a Land Transportation Security Contingency Plan. This Plan identifies a set of protective measures to be taken by law enforcement and security entities with regard to Federal transportation departments, agencies and facilities. The Draft list of protective measures – 10-15 per threat level – specifies actions to be taken by responsible Federal officials. The measures are a mixture of protective, mobilization, communication and contingency actions, some of which overlap with the type of emergency response preparations discussed in Part II of this Guide.

As the Federal threat advisory system and the associated contingency plan measures become institutionalized, state emergency management agencies are likely to develop or adopt parallel approaches. State DOTs are likely to be involved in many of the measures and so need to be involved in the development of their own systems to match the Federal system.

3.4 Lessons Learned – Implications of WMD for Emergency Response

The experiences of 9/11 in New York City and the Washington, DC areas represent the most recent and largest scale terrorism incident involving weapons of mass destruction. A brief outline of some of the key emergency response experiences of state transportation organization on 9/11 is presented in Appendix C.

The 9/11 experience, in conjunction with the 1993 World Trade Center (WTC) and 1995 Oklahoma City bombings and the recent deadly anthrax contamination incidents, pose new challenges for counter-terrorism and emergency response. In each of the above cases, the terrorists were deliberately aiming at people as well as at important symbolic and functional targets. Notwithstanding their terrible consequences, these incidents also provide useful lessons for those that must plan for enhanced emergency response in case of future incidents. In the above incidents, much of the existing emergency response apparatus worked well. However, there were some important lessons learned, many flowing out of the scale of the incidents:

- *Absence of interoperable and reliable communications among agencies*. The combination of system overloads, destruction of communication lines and centers, and incompatible technologies among public safety and transportation agencies emphasizes the dangers inherent in institutional isolation. It is clear that a concerted effort at interoperable communications systems for both data and voice are an essential component of improved emergency response – as well as key to improved incident management in general.

- *Lack of familiarity with the role and personnel of other agencies.* Paper protocols are no substitute for face-to-face familiarity with agency partners where unanticipated circumstances call for quick, on-the-scene cooperative judgments and action. It is clear that joint training and regular exercises are an essential and continuing requirement for maximum effectiveness.

- *Responding to the introduction of Federal security agencies and crime scene factors.* Terrorist incidents – by law – introduce Federal security agencies with specific priorities into the incident command context. The site of the terrorist act may be treated as a crime scene with special access restrictions; Federal agents and the military may require the use of on-scene communications as was the case when the Virginia Department of Transportation (VDOT) control center adjacent to the Pentagon became a military command center on 9/11.

- *Unfamiliarity with Incident Command System (ICS) practices of public safety agencies*. Public safety agencies in charge of the 9/11 response utilized an incident command structure as they do for most major incidents. This approach clarifies the chain of command and allocates key responsibilities. Not all transportation agencies are equally experienced with ICS.

- *Need for specific operations regimes such as evacuation and emergency access.* Public reaction in both New York and Washington, DC on 9/11 included a large amount of self-evacuation as people strove to leave the affected area and unite with

their families. In both the New York and Washington, DC areas, multi-modal transportation resources were mobilized in an ad-hoc fashion to accommodate these demands. The need for a more organized approach to evacuation and emergency access was clearly demonstrated.

- *Protection of first responders from biological, chemical and radiological hazards*. The history of terrorist incidents suggests the need for more attention to the protection of first responders including their ability to recognize threat types so as to avoid hazards, and to avail themselves of personal protection equipment, hazard detectors and decontamination facilities. Terrorist access to a wider range of weapons indicates the need to consider a wider range of hazards.

- *Capitalizing on Intelligent Transportation Systems (ITS) technology for traffic control and communications*. In New York, TRANSCOM's multi-agency communications capability proved its value in keeping multiple agencies up to date regarding post-incident travel conditions. At the same time, the ITS traffic management features were used to accommodate the need for reverse flows and special emergency access in and out of Manhattan and the Washington, DC area.

3.5 Modifications in Emergency Response Plans and Programs

The overlay of terrorism and WMD on the existing emergency management context introduces a number of new considerations. As noted above, those considerations include:

- New awareness of terrorist WMD threat after 9/11
- Terrorist WMD incidents require different responses
- Early identification of WMD threat characteristics is critical
- Institutional relationships for responding to terrorist incidents will differ

Existing transportation strategies embodied in existing plans may need to be adjusted for characteristics such as scale, additional responder risks, crime scene management, and other factors related to the use of WMD. The need for special transportation responses, e.g., evacuation, quarantining, may be introduced. A set of new hazards for first responders must be a consideration. These and other issues suggest the need to consider appropriate modifications and/or improvements that may be appropriate to the WMD context. The following Chapter lays out specific issues and suggestions for addressing those issues unique to terrorist WMD incidents.

Part II. Guidance for Updating State Plans

4. Thinking Through Highway Emergency Response Strategies in the New Threat Context

A key issue for states following the 9/11 attacks is determining their vulnerability or risk. Identifying these vulnerabilities or risks may be critical to developing some aspects of revised plans and procedures for highway emergency response. Some states may not see their risks or vulnerabilities from a terrorist WMD incident as that different from other risks; however, other states are acting on the basis that there is a difference. In order for state DOTs to be ready to respond to terrorist incidents, their managers need to go through a process of exploring the nature of terrorist incidents and exploring how they can best ready their departments for response. This involves both looking outside the department to the state's Governor and those agencies tasked with emergency management. It also entails looking inward to the department itself to determine where changes need to be made within the department to enhance emergency response when needed.

Given a state's policy regarding the terrorism threat, there may be a greater or lesser need to update existing plans, procedures, programs, facilities/equipment, training, etc. Emergency management activities are highly institutionalized with standard authorities, chains of command, and other standard procedures. The emergency response documents are written in a standard form with common terminology. **Modification of existing plans and procedures for WMD response purposes should, in most cases, work within these existing frameworks.** For purposes of working across agency lines, new emergency response documents should be created using similar form and terminology where possible.

This Guide recommends remaining within the standard all-hazards approach to emergency response, which includes certain standard considerations and procedures long established in emergency management experience. There may be portions where both the statewide emergency management plan and state DOT emergency operations plan need to address the particulars of terrorist incidents; some of these particulars may not be reflected in existing all-hazards emergency management plans. Specific annexes or other documents dealing with terrorism-specific issues can then be included to the extent necessary.

Furthermore, **in order to stretch resources, this Guide also recommends that resources used to prepare for terrorist incident responses should be allocated, where possible, to planning and other preparedness efforts that enable the Department to respond to a range of emergencies rather than just terrorism.** For example, installation of surveillance cameras may enhance the response to a terrorist incident but it can also improve day-to-day operations of the highway system or operations during a natural disaster.

State DOTs can also look to practices and experiences that can provide guidance for emergency response to terrorist incidents, for example:

- Standard emergency management
- Incident management (as already applied by many highway agencies)
- Planning for non-terrorist, technological disasters, e.g., Y2K, nuclear power plant evacuations
- Planning for natural disasters, e.g., hurricanes, earthquakes, floods
- Lessons learned from 9/11 and other terrorist incidents

In addition, when the research team interviewed states as part of the process of developing this Guide, all stressed the following:

- Interoperable, reliable and redundant communications are essential to response.

- State DOT personnel need to become more familiar with standard emergency management planning and practices, e.g., Incident Command System, and more proactive in addressing emergencies.

- Many highway personnel, who may be first or early responders to a terrorist incident, are not prepared to adequately respond due to lack of training, equipment, etc.

- The Federal Government, especially the military, can play significant roles that state and local governments need to anticipate.

- Transportation plans and transportation management centers need to be fully integrated into state planning for emergencies.

The guidance provided below takes elements from all of the above.

4.1 Guidance Suggestions

In the following pages, there are checklists designed to help state DOTs focus on where modifications and updates may be required in their plans and procedures. The checklists are divided into two broad topic areas:

- Internal arrangements: These checklists focus on the DOT's internal organization and preparedness for a response to a terrorist incident. This topic area focuses on modifications to the DOT's organization, responsibilities, procedures, communications, equipment, training and other critical areas.

- External relationships: These checklists focus on the state DOT's role within the larger emergency management framework of a state. This topic area focuses on issues that the state DOT may wish to take up with the other major players in the state emergency planning process. While the checklists are focused on relationships within the state government, the state DOT may also need to interact

with local governments that may be the first responders throughout a terrorist incident as well as the Federal Government that might also intervene.

The Internal Arrangements and External Relationships categories are then broken down further into relevant topics:

- Planning, training and exercising
- Roles and responsibilities
- First response
- Concept of operations
- System surveillance and management
- Agency communications
- Public information.

While there may appear to be some overlap in terms of the issues raised and process suggestions made in the following checklists, this is because similar issues may need to be raised both externally and internally. The issues, however, will be addressed to different players in emergency management planning – those inside and those outside the state DOT. Given the unique characteristics of a terrorist WMD incident, this distinction becomes more important.

4.1.1 Internal Arrangements: Planning, Training and Exercising

Brief Description:

Assumptions regarding the situation(s) that might be faced by DOTs during or following terrorist incidents involving WMD and special requirements for planning and training in relationship to those assumptions

Existing DOT Program Area (where issue addressed in existing DOT programs):

DOT *Emergency Operations Plan* – Situation Description section covering:

- Emergency/Disaster Conditions and Hazards
- Planning Assumptions
- DOT's emergency management planning, training and exercise programs

Program Modification Considerations:

- ❑ Has the DOT done a thorough analysis of potential vulnerabilities and risks including those relating to the threat of a terrorist incident?
- ❑ Has the DOT determined what might be unique outcomes of a terrorist incident, and has it provided this information to its response personnel for planning purposes?
- ❑ Does the DOT understand the state's threat level structure and made planning assumptions relative to varying levels of threat?
- ❑ Has the DOT updated its plans to reflect the planning assumptions relative to a terrorist incident?
- ❑ Has the DOT trained adequately for a terrorist incident?
- ❑ Do key employees know and understand their roles?
- ❑ Do key employees understand the possible consequences of a terrorist incident?
- ❑ Do key employees know their counterparts within other functional groups in the DOT (e.g., construction, public information, operations) and have they worked, trained or exercised together?
- ❑ Do key employees understand the Incident Command System?
- ❑ Are key employees aware or trained to handle WMD-related hazards?
- ❑ Do employees know how to protect themselves?
- ❑ Are key employees aware that terrorist incident scenes will be subject to crime scene management requirements?

Process Suggestions:

- ❑ Undertake a thorough analysis of potential highway and related transportation facility vulnerabilities and risks relating to terrorist incidents. (Note: This may include attacks against highways as well as attacks elsewhere but which will impact highways, e.g., where there is a need for evacuation.)
- ❑ Identify high risk or vulnerable terrorist targets within the DOT. Develop appropriate plans to protect those potential targets if the risk is deemed sufficiently high or the consequences sufficiently severe. Determine whether the DOT has the resources in place to protect those targets.
- ❑ Ensure DOT's emergency response personnel are aware of possible unique outcomes of terrorist incidents that may impact highway response.
- ❑ As appropriate, build planned responses for the different levels and types of threat.
- ❑ As a start, ensure that DOT response personnel, including senior managers, have some type of appropriate awareness training if they have not already received it.

- Determine what further types of training will be required for effective response. In addition, determine what unique training DOT personnel may need that may not be offered elsewhere. If possible, obtain the resources to develop the training. Conduct the training.
- Determine whether the DOT could benefit from exercising its response personnel for terrorist incidents. If possible, obtain the resources to conduct the exercises. Conduct the exercises.

4.1.2 Internal Arrangements: Roles and Responsibilities

Brief Description:

Allocation of response roles and responsibilities within DOTs including statutory and any other guiding authorities and any limitations on activities

Existing DOT Program Area (where issue addressed in existing DOT programs):

DOT *Emergency Operations Plan* – Responsibilities section

DOT *Emergency Operations Plan* – Policy section covering:

- Authorities
- Responsibilities
- Limitations

Program Modification Considerations:

- Under what policies, e.g., internal delegations of authority, does the DOT normally operate?
- Are there additional DOT authorities that might be invoked following a terrorist incident?
- Does the DOT have in place the necessary authorities to respond?
- Are DOT policies clear in terms of responsibilities for DOT organizational components and personnel?
- Are there any limitations on the actions or activities of DOT organizational components and personnel?
- Do normal DOT tables of organization apply following a terrorist incident? If not, how are responsibilities allocated differently?
- Are the responsibilities clearly articulated throughout the DOT?

Process Suggestions:

- Review DOT policies, plans, procedures and other guidance to determine response roles in the event of a terrorist incident. Determine how roles may differ from other types of emergencies. Understand how the direction and control of a response may change within DOT.
- Ensure DOT's internal response responsibilities in the event of a terrorist incident are clearly defined and articulated. If they are not, take the steps necessary to do so.
- As necessary, establish one or more departmental task forces to address terrorist incident responses and any requirements for additional elaboration on standing policies and authorities. Convey this need to DOT leadership or other appropriate parties within the department.
- Determine whether the authority provided to DOT offices, districts and personnel correlates with the responsibilities assigned to them. If not, determine what can be done to provide proper authority for effective action in a terrorist incident.
- Test the adequacy of policies relating to DOT response in DOT exercises.
- Understand typical DOT roles within the state Incident Command System (ICS) structure. Ensure DOT personnel understand and are prepared to effectively play their roles within the ICS structure.

4.1.3 Internal Arrangements: First Response

Brief Description:

The detection and verification of an emergency, and notification of responsible DOT personnel and others

Special requirements for terrorism event-related equipment in relationship to WMD

Special requirements for vulnerable or other transportation facilities in relationship to WMD

Existing DOT Program Area (where issue addressed in existing DOT programs):

DOT *Emergency Operations Plan*

DOT Operations and Capital programs

Program Modification Considerations:

- Are DOT personnel trained to detect and verify a terrorist incident involving WMD or are they knowledgeable about contacting other agencies to assist in verification.
- Are there procedures in place to notify key responders and other DOT personnel when emergencies occur?
- Are there methods in place to determine the nature of the situation so that DOT personnel can be prepared for what they are likely to encounter?
- Does the DOT have established relationships with state and local first responders?
- Do DOT personnel understand the Incident Command System and how it might be applied in response to a terrorist incident?
- Are the DOT personnel properly equipped and credentialed, e.g., with proper ID cards, to perform their roles?
- Does the DOT have the equipment in place to respond to a terrorist incident?
- Does the DOT know where its assets are, and can those assets be deployed quickly?
- Is there heavy equipment available to move debris, etc.?
- Is there available personal protection equipment to protect DOT personnel?
- Are there available hazard detection devices?
- Are there means and the equipment to decontaminate exposed DOT personnel?
- Is there a need to pre-position equipment?
- Is there a need to limit access to certain facilities during response, e.g., bridges, tunnels, control centers?
- Will there be a need for quick assessment of damage to infrastructure, and is the state DOT prepared to do that?

Process Suggestions:

- Ensure surveillance can quickly be applied to high-profile/high-risk structures, such as bridges, tunnels, highways, and overpasses, using existing monitoring equipment, e.g., CCTV, where possible.
- Consider utilization of DOT personnel to provide surveillance of high-profile/high-risk structures.
- Ensure that plans include procedures for limiting access to security and other government agencies, e.g., close access ramps, install concrete barriers at security installations and facilities that house command centers.
- Ensure rapid availability and utilization of DOT assets by developing: (1) an inventory of the DOT's vehicles, equipment, and facilities, (2) an assessment of those assets that

could potentially be affected by different types of emergencies, and (3) associated procedures for utilizing assets in responding to emergencies.

- ❑ Evaluate special equipment needs for first response utilizing the inventory of all DOT vehicles, equipment, and other supplies that could be used to respond to a terrorist incident, e.g., portable variable message signs (VMS) and highway advisory radio (HAR) for traffic control, cones and barricades for access restrictions, fuel and construction vehicles for debris management and rescue activities.
- ❑ Consider updating or developing regional or district-by-district emergency transportation management plans in response to potential terrorist incident consequences.
- ❑ Identify staffing resources needed for 24x7 operations.
- ❑ Assemble personnel call-out lists and contact numbers including backup personnel (see below). Ensure the personnel call-out lists and contact numbers are readily available and that there is a procedure for using those lists to notify DOT responders.
- ❑ Evaluate special equipment needs for DOT staff, as well as other special services, and develop Memoranda of Understanding where necessary for access to needed resources (see below).

Personnel Call-out Lists

These could vary from basic, district-specific contact lists identifying personnel responding to incidents within a geographic area, to detailed and comprehensive manuals or guides. These resources can speed response and reduce incident duration by providing responders and dispatch personnel with a consolidated, readily available data source. The initial list could include event-related roles, geographic agency responsibility, radio frequencies, talk groups, primary and backup phone numbers, and fax numbers. It would identify key personnel and pager numbers for 24-hour contact. Organization charts would also be helpful. Personnel and agency contact lists could be expanded into Incident Management Team Resource Guides by cataloging equipment, material, and the availability of personnel with special skills. The next step would be to identify a wide variety of potential incidents or freeway emergencies that may require the services of specialty contractors or government agencies. Once prepared, the guide would be distributed to all the response agencies and their dispatch centers. A regular update schedule should be established.

Special Services or Equipment

- Personal protection equipment
- Hazard contamination devices
- Highway construction, maintenance, and environmental contractors
- Traffic control contractors, barrier wall suppliers
- Trucking services, dumps, flatbeds, and roll-off dumpsters
- Heavy equipment rental, end loaders, cranes, street sweepers
- Truck tire and heavy equipment repair services
- Vehicle towing services
- Temporary staff
- Livestock handling, transportation, and rendering services
- Sand, soda, lime, and absorbents
- Grain loading equipment
- Portable toilets
- VMS and HAR for traffic control
- Cones and barricades for access restrictions
- Fuel and construction vehicles for debris management and rescue activities

4.1.4 Internal Arrangements: Concept of Operations (ConOps)

Brief Description:

Description of operational approach from DOT perspective to managing emergency response to terrorist events

Additions to emergency management plans that elaborate on specific functions

Existing DOT Program Area (where issue addressed in existing DOT programs):

DOT *Emergency Operations Plan* – Concept of Operations section covering:

- General Considerations
- Emergency Management Concepts
- Direction and Control
- Emergency Operations Facilities
- Response Activities
- Relations of Response Activities to Mitigation, Preparedness and Recovery

DOT *Emergency Operations Plan* – Special Annexes

Program Modification Considerations:

- ❑ Is the DOT ConOps written such that it adequately covers the unique characteristics of terrorism as well as other hazards?
- ❑ Does the ConOps clearly lay out emergency management concepts that may be somewhat different where terrorism is involved?
- ❑ Are overall response management and control responsibilities clear in the event of a terrorist incident?
- ❑ Does the ConOps contemplate a variety of possible responses to a terrorist incident?
- ❑ Is the state DOT prepared to handle or assist with specific responses such as:
    - Evacuation?
    - Diversion?
    - Quarantine?
    - Emergency access?
- ❑ Are roles and responsibilities specific to a terrorist incident clearly delineated?
- ❑ Is a separate annex required to describe terrorism-related operational concepts in greater specificity?
- ❑ Is there a need to develop and describe specialized protocols for transportation responses, e.g., traffic control, diversions?
- ❑ Is there a need for special consideration of terrorist incidents in different geographic locales, e.g., urban, suburban, and rural, with regard to highway responses?

Process Suggestions:

- ❑ Develop special transportation management plans if emergency management planning indicates a terrorist incident could invoke special requirements.
- ❑ Consider utilization of Freeway Incident Traffic Management (FITM) plans that were developed to divert traffic around a particular area as the result of a highway incident or accident for use at identified potential terrorist targets.
- ❑ Establish protocols regarding the use of public transit during emergency situations. This involves determining under what conditions public transit suspends or expands

operations. For example, if a decision is made to suspend operations, procedures need to be in place to handle the resulting outward-bound congestion on highways.

- Plan for the potential use of multiple forms of transportation for evacuation, such as public transit, school buses, taxi companies, and car rental agencies.
- Develop evacuation route plans showing the freeways and arterials to be used in the evacuation of traffic and people out of emergency areas. Ensure that evacuation plans address termination of work zone closures.
- Consider the feasibility of invoking reverse-laning to evacuate emergency areas and review factors such as: (1) decision-making criteria used to invoke the reverse-laning, (2) traffic modeling impacts, (3) staffing and resource requirements, and (4) implementation timelines for reverse-laning in each of the identified routes.
- Coordinate concurrent work zone activities so they do not all occur at the same time for parallel routes in case of a terrorist incident.
- Review other transportation planning documents for types of hazards/disasters that may have some applicability in responding to terrorist incidents. For example, a hurricane evacuation plan or nuclear evacuation plan might define several pre-planned detour routes that could be useful in evacuating a terrorist disaster area.
- Ensure that DOT traffic signal systems can be effectively adapted to the change in traffic flows that may occur after a terrorist incident.
- Ensure that the ConOps addresses utilization of maintenance groups and video monitoring equipment to provide surveillance for high-risk structures.

4.1.5 Internal Arrangements: System Surveillance and Management

Brief Description:

Full use of DOT command, control and surveillance technologies to assist in response

Existing DOT Program Area (where issue addressed in existing DOT programs):

DOT *Emergency Operations Plan* – Operations Center Coordination section

DOT Capital and Operations programs for communications, Intelligent Transportation Systems (ITS)

Program Modification Considerations:

- How can existing devices, e.g., cameras, variable message signs, be utilized in helping response?
- Is the deployment of ITS devices being planned with adequate consideration to responses to a terrorist incident?
- How can the flow of data and/or information be affected by a terrorist incident?
- Assuming there is more than one DOT operations center, what is the relationship of the centers in terms of response? Is there the ability to shift control depending on the locale of an incident?
- If there is only one DOT operations center, is there any way to provide redundant or backup services in the event a terrorist incident affects the primary operations center?
- Are the DOT centers secure or can they be secured during a terrorist incident?
- Should the capabilities of existing centers be expanded for security needs?
- Should more command, control and surveillance devices be deployed which can be controlled or monitored from the centers and add to response effectiveness?
- Do the DOT centers have simulation capability to quickly model traffic outcomes of a terrorist incident?

Process Suggestions:

- Conduct a capital facilities security review to determine the need for more high-tech and sustainable security measures, e.g., at Transportation Management Centers (TMCs). This could include reinforced building materials to minimize damage, and the increased use of ITS resources, e.g., CCTV, for better security and monitoring to prevent terrorism.
- Consider procuring (additional) portable ITS assets such as VMS and HAR to facilitate management of critical facilities where permanent infrastructure does not exist.
- Determine the resiliency of existing and planned ITS devices, e.g., cameras, VMS, HAR, and potential causes of failure that could occur during different types of terrorist incidents. Consider hardening equipment and/or developing backup mechanisms to be implemented during failure scenarios.
- Utilize DOT maintenance forces and activate/establish video monitoring equipment to provide surveillance of high-profile/high-risk structures, such as bridges, tunnels, highways, and overpasses. This may entail changes in job descriptions.
- Use DOT patrol and other vehicles as system probes, visually assessing roadway conditions and reporting back to the TMC.
- Use existing freeway and arterial management systems and resources to more effectively manage the affected freeway and arterial facilities during emergency conditions:

    - TMCs can invoke preplanned detour routes as appropriate. VMS and HAR can be used to manage traffic in the emergency area and implement detours.
    - Traffic control devices such as ramp meters and centrally controlled traffic signals can be placed in an emergency timing pattern to facilitate emergency traffic conditions or detours.
- Explore opportunities to bolster TMCs in preparation for emergency response situations. Some of these measures may include:
    - Cover larger geographic areas of the state
    - Supplement data with aerial camera links to the TMC
    - Implement robust communication links that are fail-safe
    - Establish additional backups and redundancies, perhaps at secondary locations, in case a primary location is affected by damage, power outages, or other issues
- Add additional simulation capabilities so that traffic outcomes of a terrorist incident can be modeled
- Consider assigning a Chief Information Officer trained in the Incident Command System for each shift in Transportation Management Centers so that all transportation information received is validated and passed on to all appropriate personnel.
- Where the state DOT controls the traffic signal systems, ensure that the signal systems can be readily re-timed in response to emergency needs such as rapid dispersion from the incident area.

4.1.6 Internal Arrangements: Agency Communications

Brief Description:

Special requirements for DOT center-to-center, center-to-field, field-to-field communications and general intra-agency communications

Existing DOT Program Area (where issue addressed in existing DOT programs):

DOT *Emergency Operations Plan* – Communications section

DOT Capital and Operations programs

Program Modification Considerations:

- Are existing communications resistant to WMD?
- Is there sufficient redundancy to provide adequate communications even in large-scale WMD incidents?
- Are DOT personnel equipped with adequate numbers of working and reliable communications devices?
- Are the communications links prone to a cyber-attack coincident with a terrorist incident that might disrupt communications?
- Are there adequate communications links between DOT centers?
- Are there procedures or protocols to permit and enable the exchange of data and/or information?

Process Suggestions:

- Assess the adequacy of existing voice and data communications systems in the event of a WMD incident. Determine where additional investments are required to provide redundancy and reliability.
- Implement secondary voice communications systems and robust data communications mechanisms to communicate with traffic control devices and public information dissemination systems. See below for examples.
- Conduct periodic drills and exercises to test and provide training in the use of communication systems for preparedness.

Examples of Different Communications Systems to Achieve Redundancy

- Statewide land-mobile radio communication systems
- State microwave telephone systems
- Satellite information systems
- Public telephone systems and facsimile operations
- Cellular telephone systems
- Vehicle scanners
- Auxiliary radio system
- Emergency radio system
- Computer systems
- Two-way direct-connect communications, e.g., NEXTEL, and two-way pagers
- Internet communications
- High priority telephone service for government agencies. For example:
  - Public Access Service – http://pas.ncs.gov/
  - Government Emergency Telecommunications Service – www.mobilein.com/gets.htm

4.1.7 Internal Arrangements: Public Information

Brief Description:

Use of DOT resources for information dissemination including public information personnel and traveler information systems

Existing DOT Program Area (where issue addressed in existing DOT programs):

DOT *Emergency Operations Plan* – Public information annex

Advanced Traveler Information Systems programs

Program Modification Considerations:

- Are DOT public information personnel part of departmental emergency management and well-briefed on emergency management procedures and information dissemination techniques following a terrorist incident?
- Does the DOT own advanced traveler information systems? How might these be used to convey information to the public during or following a terrorist incident?
- Are the advanced traveler information systems resilient to possible effects of a terrorist incident?
- Does the DOT have portable traveler information equipment that can be quickly deployed?

Process Suggestions:

- Ensure there are mechanisms to keep public information personnel abreast of the developing field response to a terrorist incident.
- Ensure that adequate redundancy and resiliency has been implemented for systems and communications mechanisms that provide traffic and highway status and conditions to the public, media, and other agencies during a terrorist incident.
- Utilize TMCs to facilitate and ensure information dissemination through the development of the following planning mechanisms:
    - Agreements with the media and ISPs for information sharing and dissemination
    - Planned messages for VMS and HAR for detour routing
    - Planned site locations for portable VMS placement to supplement normal dissemination mechanisms
- Have procedures for quickly invoking TMC information dissemination mechanisms, such as HAR, VMS, web pages, and telephone systems, to distribute emergency condition information and/or instructions to the public.

4.1.8 External Relationships: Planning, Training and Exercising

Brief Description:

Assumptions regarding the situation(s) that might be faced by a state during or following terrorist incidents involving WMD and special requirements for planning, training and exercising in relationship to those assumptions

Existing Program Area (where issue addressed in existing external programs):

State Emergency Management Plan
Annexes to the *State Emergency Management Plan* relating to Transportation and Terrorism
Local Emergency Management Plans
Federal Emergency Management Plans

Program Modification Considerations:

- Has the state made a thorough analysis of potential vulnerabilities and risks relating to the threat of a terrorist incident? Has the state considered Federal and local vulnerabilities and risks as well?
- Has the state provided guidance to the state DOT and other agencies on what might be unique outcomes of a terrorist incident so that the DOT and other agencies can plan against those outcomes?
- Does the state emergency management plan give adequate consideration to the DOT and the transportation response?
- Does the state have a standard transportation annex, often entitled Emergency Support Function (ESF) #1?
- Is ESF #1 adequate to support transportation responses to terrorist incidents?
- Does the state have annexes related to terrorism or other subjects that might provide useful direction in responding to a terrorist incident? If not, would a terrorism annex be useful to the DOT?
- Is there a need for one or more additional annexes to more fully cover the transportation response to, e.g., route-specific vulnerabilities, special high profile targets such as nuclear plants?
- Do the state's emergency planning assumptions match those of the DOT?
- Will the state conduct joint planning and exercising for a terrorist incident with its several agencies including the state DOT, local governments, volunteer organizations and others involved in response?
- Will the state provide training on terrorist incidents to response organizations including the state DOT?

Process Suggestions:

- Serve on statewide task forces addressing terrorist incident responses.
- Review the statewide emergency management plan including transportation and terrorism annexes to the state plan. Ensure the transportation and terrorism annexes are written so as to provide adequate guidance for highway responses. If the state has not developed such annexes, determine whether there is a need to do so. If so, convey the need to DOT leadership and, as appropriate, the Governor, state legislators, the state emergency management agency, and others.
- Review the state's emergency planning assumptions regarding terrorist incidents to ensure they reflect DOT's planning assumptions and vice versa. Recommend changes if needed.

- Determine what DOT or related facilities the state may have identified as higher risk or vulnerability terrorist targets. Determine what state emergency management personnel or others believe would be appropriate plans to protect those targets if necessary. If the state has not conducted a risk or vulnerability assessment, consider alerting DOT leadership and others to the need to do so. Relate the vulnerability assessment to activities the DOT might be expected to undertake.
- Check with state emergency managers about any specific guidance relevant to the DOT with regard to the unique outcomes of terrorist incidents.
- Determine what plans the state has to conduct joint planning and exercising for a terrorist incident with the DOT. If there are no plans, work with state emergency managers to develop exercises that would assist in preparing for adequate highway responses. If there are plans for exercises, contribute DOT expertise towards developing exercises that will test DOT's highway response capabilities.
- Determine what training the state, or other organizations such as the Federal Emergency Management Agency, provide that would be useful to DOT responders. Work with the state and/or other organizations to make the training available to DOT response personnel.
- Determine whether DOT response personnel have good working relationships with their counterparts in other response organizations. If not, determine how those relationships might be improved, e.g., through joint exercising and training.
- Determine what training will be required of DOT personnel to support the state emergency management effort including staffing emergency operations centers.
- Work with local governments to jointly plan, train and exercise for potential incidents.
- Work with the state military department to jointly plan, train and exercise. If there are Federal military facilities in the state, also plan, train and exercise with their personnel. (In most cases, coordination with the military will occur through the state emergency management agency.)

4.1.9 External Relationships: Roles and Responsibilities

Brief Description:

Allocation of response roles and responsibilities within the state including statutory and any other guiding authorities and any limitations on activities

Existing Program Area (where issue addressed in existing external programs):

State Emergency Management Plan
Annexes to the *State Emergency Management Plan* relating to Transportation and Terrorism
Local Emergency Management Plans
Federal Emergency Management Plans

Program Modification Considerations:

- Under what authorities does the state act in a terrorist incident?
- Are the DOT authorities and responsibilities clearly articulated in the state emergency management framework, and is the DOT given the authorities to allow its effective response?
- Are there any limitations on DOT actions or activities in the state emergency management plan that might limit an effective response?
- Who will provide direction and control to the DOT in the event of a terrorist incident and will this differ from response roles for other emergencies?
- Review the roles of other state agencies in response to terrorist incidents. Determine where DOT may need to coordinate with these other agencies. Ensure DOT personnel know and understand their responsibilities vis-à-vis other agencies. If they do not, take steps to ensure they are aware of, and capable of fulfilling, these responsibilities.
- How might other agencies, e.g., state emergency management agency, law enforcement, military, health, play a different role vis-à-vis DOT following a terrorist incident versus another type of emergency?
- Understand the different role of the Federal Government and other state agencies, especially law enforcement and the military, during terrorist incidents. Ensure DOT personnel understand these different roles and are prepared to respond to, and respect, these differences.
- Is the transportation response role of regional and local governments clearly defined? Do state DOT personnel understand these roles and know their counterparts at regional and local governments?

Process Suggestions:

- As necessary, obtain policies, plans, procedures and other guidance relating to DOT authorities, responsibilities and limitations. Review and understand current policies, plans, procedures and other guidance relating to DOT emergency response activities.
- Review statewide plans to determine response roles in the event of a terrorist incident. Determine how roles may differ from other types of emergencies. Understand how the direction and control of a response may change.
- Discuss with state emergency management personnel any additional authorities, responsibilities and limitations that might apply following a terrorist incident.
- Once existing state policies are understood, relate those to DOT requirements for responding to a terrorist incident. Where those authorities or other policies need to be bolstered or more clearly articulated, convey the need to DOT leadership and, as appropriate, the Governor, state legislators, the state emergency agency, and others.

- Review the roles of other state agencies in response to terrorist incidents. Determine where the DOT may need to coordinate with these other agencies including other state, Federal and local agencies. Ensure the existing responsibilities vis-à-vis these agencies are clearly articulated. If they are not, alert DOT leadership, state emergency managers, and managers of the relevant response agencies.
- Understand the different role of the Federal Government during terrorist incidents. Discuss this different role with state emergency managers and/or Federal agencies as appropriate.
- Understand typical DOT roles within a state or local Incident Command System and whether these would change at all in the event of a terrorist incident.
- Determine whether the authority provided to the DOT correlates with the responsibilities assigned to the DOT by the state. If not, alert DOT leadership, state emergency managers, and managers of the relevant response agencies.

4.1.10 External Relationships: First Response

Brief Description:

The detection and verification of an emergency, and notification of responsible state and local personnel, including DOT personnel, and others

Special requirements for terrorism event-related equipment in relationship to WMD

Special requirements for vulnerable or other transportation facilities in relationship to WMD

Existing Program Area (where issue addressed in existing external programs):

State Emergency Management Plan
Annexes to the *State Emergency Management Plan* relating to Transportation and Terrorism
Local Emergency Management Plans
Federal Emergency Management Plans

Program Modification Considerations:

- Does the state's threat level notification structure enable DOT to prepare and then respond appropriately to a terrorist incident?
- Does the state have in place procedures to quickly detect terrorist incidents?
- Are there statewide procedures in place to notify key responders and other state personnel when emergencies occur?
- Are there clear statewide procedures regarding activation and shutdown of emergency operations centers and other emergency procedures?
- Are there methods in place to determine the nature of a terrorist incident so that state personnel can be prepared and forewarned for what they are likely to encounter?
- Do key employees at agencies that will coordinate with the state DOT know and understand their roles, as well as know their counterparts at the DOT?
- Do key state employees across the state understand the Incident Command System, and are they able to provide guidance to the state DOT and other agencies?
- Are key state employees aware of, or trained to handle, WMD-related hazards, and have they provided guidance to the state DOT and other agencies?
- Do key state employees know how to protect themselves from the effects of terrorist incidents, and have they provided guidance to the state DOT and other agencies?
- Are key state employees aware of crime scene management requirements, and have they provided guidance to the state DOT and other agencies?
- Does the state have requirements relative to certain facilities, e.g., added security, in the event of a response to a terrorist incident? Is it clear whether other state agencies or the DOT will be responsible for putting those special requirements into place?
- Will the state look to the DOT for quick assessment of damage to facilities and infrastructure, and, given the nature of a terrorist incident, could this necessitate special tools or equipment?
- Has the state articulated its likely equipment requirements to the state DOT?
- Given the state's requirements, is there a need to pre-position equipment?
- Will the state provide:
    - Personal protection equipment to protect DOT personnel?
    - The means and the equipment to decontaminate exposed DOT personnel?
    - Hazard detection devices?

- What additional requirements or requests for assistance in first response will come from regional and local governments, and how can the DOT respond?

Process Suggestions:

- Determine what procedures the state has in place to detect and/or verify terrorist incidents. Determine the role of the DOT in helping to detect and/or verify incidents given the presence of DOT personnel in multiple locations across a state. If a DOT role has not been considered by the state, the DOT may want to propose a role.
- Should DOT personnel detect and/or verify a terrorist incident, determine whether there are adequate reporting mechanisms to the appropriate state and local emergency management, law enforcement or other personnel. Conversely, determine whether the state has in place notification procedures that will quickly alert DOT personnel to terrorist incidents.
- Determine whether there are clear procedures that will provide DOT adequate notification that it should open its operations center(s), expand staff presence or, for example, point surveillance cameras in certain directions.
- Determine whether the state has procedures in place to notify DOT of the nature of a terrorist incident and what possible risks DOT personnel may encounter.
- Determine what emergency operations center(s) the state will be using in the event of a terrorist incident.
- Determine the role the state emergency management agency will expect the DOT operations centers to play in response to a terrorist incident.
- Determine whether the state will expect DOT personnel to immediately help staff the state emergency operations center(s).
- Check existing state plans regarding the use of DOT equipment in the event of a terrorist incident, e.g., front loaders for debris removal. Check with state emergency planners regarding their expectations that may not be reflected in existing plans.
- Check with state emergency management personnel with regard to the ability to effectively provide personal protective, decontamination, hazard detection and other equipment to DOT response personnel when needed. Determine whether the DOT will need to provide some of its own personal protection or other equipment. If so, determine whether these can be purchased with non-DOT funding.
- Determine whether the state or DOT has identified facilities that may need protection in the event of a terrorist incident and determine whether these needs for protection have been conveyed to state emergency management, law enforcement, National Guard or other personnel.
- Check existing state plans regarding special requirements regarding the use or protection of certain facilities during a response, e.g., posting guards around traffic operations centers. Check with state emergency planners regarding their expectations that may not be reflected in existing plans.
- Determine the responsibility for meeting any special requirements with regard to facilities with DOT personnel vis-à-vis other state personnel, e.g., state police.
- Determine what expectations the state has with regard to the DOT's ability to assess damage to highways and related infrastructure. Determine how assessment may be complicated following a terrorist incident, e.g., due to radiological contamination.
- Depending on the state's allocation of responsibilities for commercial vehicle inspections, have procedures in place to cooperate with law enforcement personnel in increasing commercial vehicle inspections with special emphasis on hazardous materials loads and drivers during a terrorist incident.
- In conjunction with State Police, investigate and remove suspicious or abandoned vehicles around bridges, tunnels, toll plazas, and on highways. Consider banning parking underneath bridges.

4.1.11 External Relationships: Concept of Operations (ConOps)

Brief Description:

Description of operational approach from statewide perspective to managing emergency response to terrorist incidents

Existing Program Area (where issue addressed in existing external programs):

State Emergency Management Plan
Annexes to the *State Emergency Management Plan* relating to Transportation and Terrorism
Local Emergency Management Plans
Federal Emergency Management Plans

Program Modification Considerations:

- Is the state ConOps written such that it adequately covers the unique requirements of highway response to a terrorist incident?
- Is the DOT role and its response responsibilities clearly spelled out in the ConOps or in the broader state emergency management plan?
- Does the state ConOps anticipate a range of specific highway operational responses such as:
  - Evacuation?
  - Diversion?
  - Quarantine?
  - Emergency access?
- Is a separate annex required to describe terrorism-related highway operational concepts in greater specificity?
- How do the regional and local governments fit into the DOT concept of operations? What is the DOT operational approach to assisting these levels of government?

Process Suggestions:

- Review and understand the state's method of characterizing threats and relate those to DOT planning.
- Considering the statewide purview of the ConOps and related plans, consider whether any requirements relating to highway responses to a terrorist incident are adequately addressed.
- Ensure that the DOT's operational roles and responses are articulated in the ConOps or other related plans.
- If the state ConOps articulates specific highway operational response, ensure that DOT emergency personnel are equipped and ready to implement those responses.

4.1.12 External Relationships: System Surveillance and Management

Brief Description:

Full use of state command, control and surveillance technologies to assist in response

Existing Program Area (where issue addressed in existing external programs):

State Emergency Management Plan
Annexes to the *State Emergency Management Plan* relating to Transportation and Terrorism
Local Emergency Management Plans
Federal Emergency Management Plans

Program Modification Considerations:

- Is the state emergency management agency aware of the full capability of state DOT surveillance, detection and communications capabilities?
- Should the capabilities of existing DOT centers be expanded to provide better statewide security?
- Can the DOT propose new uses of technology that will improve statewide emergency preparedness and response?
- Who controls the flow of data and/or information, e.g., can the state emergency operations center control DOT cameras?
- What is the relationship of the DOT center to other state and local emergency operations centers?
- Will personnel be exchanged between centers during an emergency, and are the personnel likely to be exchanged trained to carry out their responsibilities?
- Should the DOT emergency operations center be co-located with the state emergency operations center or other public safety centers?
- Should more command, control and surveillance devices be deployed which can be controlled or monitored from the centers and add to response effectiveness and statewide security?

Process Suggestions:

- Determine whether existing centers – both statewide and local DOT – have adequate capabilities to meet the planning assumptions. If not, determine what additional capabilities are required.
- Where shortfalls are identified in making the above determinations, develop action plans to remedy them.
- Determine how existing ITS can be utilized to assist the state in emergency response. If state emergency management personnel are not aware of existing capabilities, apprise them of these capabilities.
- Consider how existing and planned ITS might be better utilized to support response to terrorist incidents and determine whether it makes sense to make changes to better support response.
- Consider other uses of ITS or other technology that might improve the state's overall response posture. Discuss these with state emergency management personnel Determine whether funding or other deployment strategies should be prepared.
- Utilize existing TMCs as a component of a regional information clearinghouse. TMCs can monitor and report emergency response procedures internally as well as to operating partners and coalitions:
    - Traffic and roadway condition status

  - Incident management status
  - Status of coordinated efforts with police and emergency service providers
  - Reports from outside agencies on the status of their facilities
  - Conditions provided to and received from the media and information service providers (ISPs)
  - Status of TMC assets, equipment, and supplies that can be used in the emergency response
- Utilize TMCs to facilitate and ensure information dissemination through the development of institutional agreements and procedures between partnering agencies.
- Participate in the coordination of operational activities with internal functional groups and external operational partners. TMCs may provide the following, in line with the requirements of the state's and/or region's "emergency organization plan":
  - Communications links to regional facilities for internal operational coordination
  - Physical space for a command center or sub-command center for internal and/or external partners
  - Communications and operational coordination with other agencies/entities in the regional area, e.g., transit agencies
  - Communications of video and/or traffic condition status reporting to other regional facilities and the DOT's main office
  - Coordination with transportation maintenance and construction groups on issues related to lane closure, maintenance activities, work zones, etc. that may impact the emergency area or impact getting required resources to the scene
- Develop procedures to help ensure that responsible Federal, state or local crisis and consequence managers provide timely and important information to DOT transportation managers, and that there is a feedback mechanism so DOT transportation managers can inform these managers about transportation issues.
- During an emergency, determine the usable portions of the state transportation system and coordinate and control emergency highway traffic regulations in conjunction with the law enforcement (e.g., State Patrol), the military, the National Guard, and the Federal Highway Administration.
- Coordinate with other agencies that have control of traffic signal systems where there exists the possibility of large increases of traffic due to incidents on other roadways for regional incident management planning efforts. Consider including signal system technicians as part of the on-call process for nights and weekends if they were required to make timing changes related to incidents.
- Coordinate with regional and local agencies controlling traffic signal systems such that these systems can be quickly re-timed and coordinated in the event of a terrorist event.

4.1.13 External Relationships: Agency Communications

Brief Description:

Special communications requirements for DOT from and to Federal, state or local operations centers, from and to the field, and general inter-agency communications

Existing Program Area (where issue addressed in existing external programs):

State Emergency Management Plan
Annexes to the *State Emergency Management Plan* relating to Transportation and Terrorism
Local Emergency Management Plans
Federal Emergency Management Plans

Program Modification Considerations:

- Are existing state communications systems resistant to WMD?
- Is there sufficient redundancy to provide adequate statewide communications even in large-scale WMD incidents?
- Are DOT personnel equipped with adequate numbers of working communications devices, both mobile and otherwise, that are interoperable with other agencies, e.g., military, law enforcement, fire?
- Are there adequate communications links between state DOT operations centers and state and local emergency operations centers?
- Are there procedures or protocols to permit and enable the exchange of data and/or information?

Process Suggestions:

- Coordinate with other cognizant state agencies on a review of their communications system(s) relative to a terrorist incident and develop strategies to remedy any identified communications shortfalls within the state.
- Determine whether the state has thoroughly evaluated its communications system and its resistance to WMD incidents, especially that portion that ties to DOT facilities.
- Determine whether there is adequate redundancy in the state communications system such that communications between the DOT and other agencies can continue during or following a severe terrorist incident.
- Determine whether DOT personnel are equipped with a sufficient number of communications devices that will enable them to effectively communicate with personnel in other agencies following a terrorist incident.
- Determine whether the information systems that underpin the state communications system are reasonably protected against a cyber-attack, especially one aimed to preventing a coordinated response to a WMD incident.
- Determine whether the DOT emergency operations center(s) has effective and redundant voice and data communications links to the state and local EOC(s).
- Determine whether both voice and data can be effectively exchanged between centers following a terrorist incident.
- Determine what data the state may want to access for its response. Determine whether the state will want to control certain voice or data flows.

4.1.14 External Relationships: Public Information

Brief Description:

Use of Federal, state, local or other resources for information dissemination including public information personnel and various information systems

Existing Program Area (where issue addressed in existing external programs):

State Emergency Management Plan
Annexes to the *State Emergency Management Plan* relating to Transportation and Terrorism
Local Emergency Management Plans
Federal Emergency Management Plans

Program Modification Considerations:

- Does the state have a public information strategy in the event of a terrorist incident? Is there an annex that addresses public information in the state emergency management plan?
- What role does the DOT play in the state's information strategy?
- How does the state's public information strategy change in the event of a terrorist incident?
- Is there a means of real-time coordination and communication with those at the state and local levels who will be developing the public information implementation strategies and delivery?
- Does the state's public information delivery fall within the typical Incident Command System framework?

Process Suggestions:

- Review the existing state plans regarding the dissemination of public information. Determine what role the DOT would be expected to play in the event of a terrorist incident.
- Determine whether the DOT can provide for the information needs required by the state. If not, articulate a case for institutional changes or additional resources that might be necessary.
- If the DOT can provide more than the statewide plans currently anticipate, e.g., through the use of traveler information systems, then alert the state's emergency managers to those additional capabilities.
- Ensure there are means of real-time coordination and communication between the DOT public information officers and other state and local public information officers during a response to a terrorist incident.
- Ensure those within the DOT responsible for public information understand the Incident Command System and how public information is handled within that structure and what the DOT's role is likely to be.
- Participate in the implementation of regional groups responsible for gathering and disseminating comprehensive, real-time transportation information for affected agencies and the public.

A variety of regional coordinating groups have arisen around the country, often using Federal earmark funds. Some or all of these coordinating groups and related systems they control may prove useful in a terrorist incident.

- ARTIMIS (Cincinnati, OH)
- AzTech (Phoenix, AZ)
- Guidestar (Minnesota)
- I-95 Corridor Coalition (east coast)
- Partners In Motion (Washington, DC)
- TRANSCOM (NY-NJ-CT)
- TransGuide (San Antonio, TX)
- TranStar (Houston, TX)
- TravInfo (San Francisco/Oakland, CA)

4.2 Costing Response Strategies for the New Terrorist Threat

Modifying emergency response plans for terrorism and WMD will involve additional costs over and above those currently being expended by agencies in maintaining their current emergency response capability. Indeed, the National Governors Association (NGA) estimates that the states' first year security costs related to all infrastructures (including transportation) may reach $4 billion nationwide. Of this amount, $3 billion may be devoted to bio-terrorism preparedness and emergency communications, and the other $1 billion devoted to guarding critical infrastructure. Many of these costs will fall most heavily on public safety agencies. Nevertheless, the requirements for state DOT's support to a state's emergency management program can have significant impacts on state DOT budgets.

Table 5 indicates some of the major cost items to be considered for DOT emergency response planning for terrorist incidents.

Table 5: Key Expenditure Categories for Emergency Response Budgeting

Response Topic Areas	Possible Costs	Type of Cost

Planning, Training and Exercising	• Staff time*
	• Consultant assistance:
	  o Planning studies
	  o Training
	  o Exercise development
		• Operating

Roles and Responsibilities	• Staff time	• Operating

First Response	• Staff time
	• Contractor resources:
	  o Temporary staff or equipment (See next bullet)
	• Equipment:
	  o Personal protection equipment
	  o Hazard detection devices
	  o Decontamination facilities
	  o Heavy construction equipment
	  o Cones, barricades and other tools for access restriction
	  o Lighting
		• Operating
		• Capital

Response Topic Areas	Possible Costs	Type of Cost

Concept of Operations	• Staff time
	• Consultant assistance:
	  o Revised and/or new operational plans, e.g., evacuation route modeling
	  o Roadway re-design, e.g., with gates, ramp metering
	• Contractor resources:
	  o Reconfigure roadways to add emergency response options
		• Operating
		• Capital

System Surveillance and Management	• Staff time
	• Consultant assistance:
	  o Design and integrate new systems
	  o Plan and design protective countermeasures for infrastructure and facilities
	• Contractor resources:
	  o Install new systems and centers
	  o Construct protective countermeasures
	• New or upgraded operations centers
	• Surveillance systems:
	  o Closed circuit TV
	  o Other traffic detection equipment
	• Traveler information systems:
	  o Variable message signs
	  o Highway advisory radio
	  o Web servers
	• Adaptable traffic signal software and hardware
	• Simulation software
		• Operating
		• Capital

Agency Communications	• Staff time • Consultant assistance: o Plan and design new systems • Upgraded and/or new interoperable and redundant communications systems • Additional communications devices	• Operating • Capital
Public Information	• Staff time • Information dissemination mechanisms: o See traveler information systems under System Surveillance and Management	• Operating

* Among others, state DOT headquarters staff that might be involved could come from Operations, Maintenance, Engineering, Planning and Public Information. Senior-level management and other support offices such as Procurement and Legal Counsel may also need

to participate from time-to-time. Depending on the state, district-level staffs will have a greater or lesser role. State DOTs will have a greater or lesser need for consultant and contractor resources depending on their in-house staff capabilities and asset inventories.

Particularly costly items could include:

- Training and exercising (if comprehensively applied across the state DOT)
- Equipment (if requirements are substantial)
- Reconstruction of highway infrastructure (if required for rapid movement of people)
- System surveillance and management systems (if starting with minimal in-place investment)
- Agency communications systems (if existing systems must be replaced)
- Protective countermeasures (if extensively deployed at key infrastructure and facilities)

In addition, considerable staff time will be required to modify and update plans and to prepare the DOT for better response.

Many of the cost items associated with emergency response are already part of DOT budgets. For example, many state DOTs have already conducted training on terrorism. In another example, many DOTs have purchased and installed ITS devices. According to the Federal Highway Administration (FHWA), conventional traffic detection costs are averaging $40-50,000 per sensor with spacing varying from one-to-two miles depending on traffic expectations. Installation of video surveillance equipment (unidirectional) is averaging $60-80,000 per installation with one-to-two-mile spacing. Therefore, some unit costs may readily be determined. For others, additional research will be required.

The state DOTs have not typically had to consider the cost of items such as personal protection equipment. In one state, personnel protection equipment including suits, masks, boots, gloves, respirators and replacement filters with associated training are costing in the range of $400-500 per person. Some state DOTs may choose to buy such equipment; in other states, the decision will be made to have other agencies assume this responsibility. Clearly, costs will differ from state-to-state depending on the state's perceived needs for its security.

In order to stretch resources, this Guide recommends that resources used to prepare for terrorist incident responses should be allocated, where possible, to planning and other preparedness efforts that enable the Department to respond to a range of emergencies rather than just terrorism. For example, installation of surveillance cameras may enhance the response to a terrorist incident, but it can also improve day-to-day operations of the highway system or operations during a natural disaster.

4.2.1 Funding

State DOTs will be faced with the financial challenges of both capital and operating costs, including additional staffing costs, to meet heightened security requirements. These are serious issues in an era of flat Federal and state funding and constrained state agency personnel levels.

Security-related activities such as those discussed as part of modifications to existing emergency response capabilities may be potentially funded from both transportation and non-transportation sources – Federal and state.

Transportation Funds

Federal Funds – Most of the items indicated for potential emergency response expenditures would be eligible uses of the FHWA categorical programs, as they are related to traffic operations and management. For example, many states have used FHWA funds for ITS and related operations and management activities. The last major highway reauthorization law, the Transportation Equity Act for the 21st Century (TEA-21), continued the eligibility of capital cost items related to traffic management and ITS. Furthermore, while many state DOTs have been reluctant to use Federal aid for operating costs, guidance from FHWA has clarified that operating costs related to traffic monitoring, management and control including labor costs, administrative costs, cost of utilities and rent, and other costs associated with the continuous management and operations of traffic systems are eligible uses of Federal aid. Eligible uses of Surface Transportation Program (STP) and National Highway System (NHS) funding include both the capital and operating costs of these types of expenditures as per sections 1108 and 1106 of TEA-21.

State Funds – The operating costs of conventional state DOT emergency response activities are closely associated with traditional maintenance and traffic operations activities of state DOTs, and are substantially funded from state capital and maintenance sources. In some states, these sources are severely constrained.

Homeland Security Funds

Shortly after the events of 9/11, the Administration – through the newly established Office of Homeland Security – proposed Federal aid for homeland security. At the same time, Congress passed a $40 billion supplemental appropriation with $20 billion to be spent at the Administration's discretion. Expenditures to date have included funds for a wide range of preemptive security needs, intelligence upgrades and for recovery activities in New York City and Washington, DC. The remaining $20 billion is as yet unallocated.

These special appropriations by Congress are now administered principally through the Federal Emergency Management Administration (FEMA) and the U.S. Department of Transportation's Transportation Security Administration. The Administration's current budget includes significant funding for the new Transportation Security Administration's growing needs for airline security as well as over $3 billion for FEMA's Homeland Security activities. There are smaller programs at the Department of Justice as well.

Of potential greatest relevance to state DOTs are funds for first responders. Most of the proposed FEMA money would fund the President's First Responder Initiative. Grants for emergency planning and training would be administered through FEMA's new Office

of National Preparedness (ONP). The program is designed to provide state emergency management agencies and local first responders with grants for the following activities:

- Planning – Support state (generally the emergency management agencies) and local governments in developing comprehensive plans to prepare for and respond to a terrorist attack,

- Equipment – Allow state and local first responder agencies to purchase a wide range of equipment needed to respond effectively to a terrorist attack, including personal protection equipment, chemical and biological detection systems, and interoperable communications gear,

- Training – Train firefighters, police officers, and emergency medical technicians to respond and operate in a chemical or biological environment,

- Exercises – Support a coordinated, regular exercise program to improve response capabilities, practice mutual aid, and assess operational improvements and deficiencies.

Despite that fact that the types of activities funded by FEMA are similar to the potential needs of state DOTs in their emergency response capacity, none of these funds flow directly to state DOTs. In fact, no general funds have yet been appropriated for surface transportation infrastructure security purposes. Moreover, there is no clear policy yet at the Office of Homeland Security, FEMA or USDOT regarding the direct support of state DOT security-related activities.

Funding Strategies

Given the uncertainties relative to funding, the following is suggested for a state DOT updating and modifying its emergency response planning and preparedness:

- Assemble a working group to consider the costing and funding aspects of this effort
- Begin to determine the broad costs that might be associated with the effort
- Explore possible state DOT funds that might be utilized
- Explore possible Federal transportation funds that might be utilized
- Coordinate with other state agencies, especially the emergency management agency, with regard to available non-transportation funding
- Coordinate with other state and local agencies that may have available resources to determine whether the state DOT could use some of those resources or provide some of its own resources to leverage those of the other agencies (This might be particularly effective where the DOT has established relationships, e.g., with agencies with which the DOT coordinates for incident management activities.)
- Explain to state DOT leadership the need for additional resources
- Work with AASHTO and other transportation-related interest groups to educate state and congressional representatives on state DOT needs.

5. Appendices

A. NCHRP Contact for Comment and Follow-up on This Guide

Please provide the following information along with comments:

Last Name	*First Name*	*Position/Title*
Company/Organization Address		
City	*State*	*Zip Code*
E-Mail Address	( ) *Business Phone*	( ) *Fax Number*

Comments (use additional sheets as necessary):

THANK YOU!

Please send your comments via e-mail or fax to:

PB Farradyne
Attention: Mr. David Yohanan
3200 Tower Oaks Boulevard
Rockville, MD 20852
Phone: (301) 816-1858
Fax: (301) 816-1884
E-Mail: Yohanan@pbworld.com

B. List of Acronyms

9/11	September 11, 2001
AASHTO	American Association of State Highway and Transportation Officials
APTA	American Public Transportation Association
CapWIN	Capital Area Wireless Integrated Network
CBRN	Chemical, Biological, Radiological and Nuclear
CCTV	Closed-Circuit Television
CDRG	Catastrophic Disaster Response Group
ConOps	Concept of Operations
DERA	Disaster Preparedness and Emergency Response Association
DFO	Disaster Field Office
DOD	Department of Defense
DOJ	Department of Justice
DOT	Department of Transportation
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPA	United States Environmental Protection Agency
ESF	Emergency Support Function
EST	Emergency Support Team
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Authority
FHWA	Federal Highway Administration
FITM	Freeway Incident Traffic Management
FMCSA	Federal Motor Carrier Safety Administration
FRP	Federal Response Plan
FTA	Federal Transit Administration
HAR	Highway Advisory Radio
HAZMAT	Hazardous Materials
HOV	High Occupancy Vehicle
HSAS	Homeland Security Advisory System
ICS	Incident Command System
ISP	Information Service Provider
ITS	Intelligent Transportation Systems
ITSA	Intelligent Transportation Society of America
JOC	Joint Operations Center
LEPC	Local Emergency Planning Committee
MDOT	Maryland Department of Transportation
MDSHA	Maryland State Highway Administration
MDTA	Maryland Transportation Authority
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
NBC	Nuclear, Biological, and Chemical
NCHRP	National Cooperative Highway Research Program
NEMA	National Emergency Management Association
NFPA	National Fire Protection Association
NGA	National Governors Association
NHS	National Highway System

NSC	National Security Council
ONP	Office of National Preparedness
PATH	Port Authority Trans-Hudson Corporation
PB	Parsons Brinckerhoff
PBF	PB Farradyne
PDD-39	Presidential Decision Directive 39
ROC	Regional Operations Center
RERP	Regional Emergency Response Plan
SAIC	Science Applications International Corporation
SLG	State and Local Guide
SOC	Strategic Operations Center
STP	Surface Transportation Program
TCRP	Transportation Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century
TEOC	Transportation Emergency Operations Center
TMC	Transportation Management Center
TRANSCOM	Transportation Operations Coordinating Committee
TRB	Transportation Research Board
UC	Unified Command
USC	United States Code
USDOT	United States Department of Transportation
USPHS	United States Public Health Service
VDOT	Virginia Department of Transportation
VDOT STC	VDOT Smart Traffic Center
VMS	Variable Message Sign
VOIS	Virginia Operational Information System
WMD	Weapons of Mass Destruction
WTC	World Trade Center
Y2K	Year 2000

C. 9/11 Case Studies

The consequences of WMD as described in Table 4 (Possible Distinguishing Signs of a WMD Incident) have varied and significant consequences for the transportation system. They may be indirect (used for evacuation or emergency access) or direct (damage or destruction), and they may introduce the need for new levels of control and surveillance. The experiences of the New York and Washington, DC regions with regard to transportation are instructive, although, as bad as they were, other terrorist scenarios could be far worse.

New York

The 9/11 incidents almost immediately involved transportation agencies from local to Federal levels of government. In New York, most of the major transportation facilities in Manhattan were closed within two hours of the first plane crash and in some cases minutes:

- All bridges and tunnels into and out of Manhattan
- Most local streets below Canal Street
- All airports in the region
- Subway service
- Intercity bus and rail.

Because of the nature of the 9/11 incidents, the top priority in the hours and days after the incidents was safety. Mobility for passenger and freight traffic was restricted as safety took priority. The primary goal of transportation officials was to support the needs of the police, fire and emergency rescue agencies, which included two actions:

- Allow priority access for emergency vehicles and personnel to and from the site.
- Give transportation agencies time to inspect their own facilities to ensure the safety of the facility from possible further attack.

The emphasis on safety over mobility contained within the existing emergency response plans of the regional transportation agencies allowed transportation personnel to quickly respond on their own. New York City Transit's Cortlandt Station, for example, began evacuation procedures within five minutes, and PATH (Port Authority Trans-Hudson) began emergency procedures within seven minutes of the first attack.

Some of the specific emergency response activities conducted by various transportation-related agencies/authorities in New York City included:

- Provided emergency traffic management (maintenance and protection of traffic) in New York City and outside New York City to support response activities, detours, morgue operations, etc. This included providing additional light sets, jersey barriers, portable variable message signs, cones, etc.
- Continued operations of transportation management centers
- Staffed Emergency Operations Centers:

  - State Emergency Operations Center in Albany, NY
  - New York City Office of Emergency Management Center after being totally re-established in a new location (was originally located in World Trade Center Building 7, which burned and later collapsed)
  - Department/agency/authority operations centers
- Conducted debris clearance activities
- Provided equipment, such as trucks and barriers, to New York City agencies with facilities outside of New York City
- Provided barriers to Stewart Air Base in Newburgh, NY
- Transported generators and other State agencies' equipment to staging areas and/or "ground zero"
- Issued overweight and oversized vehicle permits and routes
- Protected transportation facilities
- Constructed temporary haul roads
- Established additional and modified routes for ferry service, subways, buses, etc.
- Issued vehicle occupancy restrictions
- Conducted vehicle searches/inspections

TRANSCOM, a coalition of 18 transportation and public safety agencies in the New York-New Jersey-Connecticut metropolitan region that includes the New York, New Jersey, and Connecticut DOTs, also played a key role in the response activities. In providing coordination for regional transportation management, TRANSCOM alerted I-95 Corridor agencies of problems in the New York City region, and these agencies in turn used Highway Advisory Radio (HAR) and Variable Message Signs (VMS) on I-95 as far south as Delaware and as far north as New Haven, CT to flash alerts to avoid the New York City region. VMS were also used to communicate real-time information to travelers. Within two minutes of the decision to close the George Washington Bridge, the VMS component of the bridge's ITS package was able to alert motorists ten miles away of the bridge's closing. The information was also simultaneously provided via 1-800 telephone lines and electronically transmitted to TRANSCOM for broader dissemination.

Virginia

In Virginia, the Virginia Department of Transportation (VDOT) Statewide Transportation Emergency Operations Center (TEOC) was in the process of implementing a statewide terrorism alert via the Virginia Operational Information System (VOIS) in response to the New York attacks when the third aircraft flew directly over the VDOT Smart Traffic Center (STC) in Northern Virginia en-route to its impact at the Pentagon. With this impact, VDOT went to the highest state of readiness and responded to the incident. VDOT's response to the attack was based upon existing emergency plans, which are based on the all-hazards principle, thus being appropriate for a wide variety of circumstances. Immediate actions taken by VDOT after the attacks included the following:

- The TEOC augmented to full staffing and coordinated statewide information and activities throughout the incidents. The TEOC also assured adequate flow of

information to the State Emergency Operations Center (EOC) and the Governor's office.
- The Northern Virginia STC immediately took action to make itself available to the military as a command post for dealing with the Pentagon incident. Military personnel used the STC as a joint command post for the duration of the incident.
- VDOT augmented its Northern Virginia STC, Safety Service Patrol, and traffic control assets to facilitate clearance of the Washington, DC area. Traffic signal coordination, suspension of construction lane closures, and opening of High Occupancy Vehicle (HOV) lanes were immediately implemented.
- Essential rescue and recovery equipment requested by authorities at the Pentagon incident site was provided. This included 21 sets of portable lights to facilitate rescue work through the night at the Pentagon.

Maryland

In support of VDOT's response, the Maryland Department of Transportation (MDOT) directed the Maryland State Highway Administration (SHA) and Maryland Transportation Authority (MDTA) to keep as many people and as much equipment as possible on the roads. This was the operational cornerstone of MDOT's response. Personnel were also told to move stranded or abandoned vehicles, especially under bridges because of concern about bombs. SHA's Washington-area Transportation Operations Center supervisor was dispatched to the VDOT command center within 30 minutes of the Pentagon attack to help coordinate different traffic patterns and assist otherwise as needed. Several VMS were sent to Virginia to assist with road and ramp closures.

Traffic into Washington was detoured as Washington declared a state of emergency. Ramps were closed from interstates, and VMS alerted motorists to avoid the area. Traffic flow leaving Washington was facilitated by retiming signals for very heavy peak-period outbound traffic. The same was done in suburban Montgomery County which, under prior agreement, controls signals on the state system that are located within the county. HOV restrictions were removed, and motorists were alerted by overhead sign changes, Traveler's Advisory Radios, and the media.

East Coast

Throughout the East Coast Corridor, transportation agencies displayed messages on VMS alerting motorists to stay out of the New York region, as well as to avoid the Metropolitan Washington and downtown Baltimore regions, and stay alert for multiple road closings. Regional communications channels were kept open and on full alert to receive information and convey it to other agencies.

It is important to note that while the events of 9/11 were catastrophic and many successful response actions from area transportation agencies occurred, additional dangers could have also been present, e.g., biological, chemical, radiological to worsen the situation. These additional events would have most likely placed even more demands on the transportation community. Thus, additional preparation is still needed

to develop comprehensive plans to respond to a wide range of terrorism-oriented disaster scenarios.

D. Research Methodology

This project consisted of four main tasks to be completed within a short timeframe due to the pressing needs of state DOTs to obtain guidance on updating their emergency response plans. This Guide is viewed as initial guidance to be followed with updates over time as the state of the practice develops.

Task 1 – Review Current Practices

Given the limited duration of this project, the research team used several approaches to quickly obtain information on the current state of the practice. These included visiting or calling state emergency management and state DOT contacts, utilizing materials from the Internet and collecting other available materials from several contacts at organizations such as AASHTO and FHWA. AASHTO helped to jumpstart the information collection process by sending a letter to eleven state DOTs asking for their assistance. Key materials accessed through these processes included:

- State emergency management plans
- State DOT emergency operations plans
- Specific disaster annexes to state emergency plans
- Federal response plans, e.g., Federal Response Plan, Interagency Domestic Terrorism Concept of Operations Plan
- FEMA courses relative to terrorism, incident command system and weapons of mass destruction
- Checklists from the National Governors Association and American Public Transit Association
- Surveys from the U.S. Conference of Mayors and the National Emergency Management Association
- ITS America documents describing the ITS role in security

The appended bibliography (Appendix E) provides a list of documents or other reference sources collected for this project. Many of the documents used were in various stages of revision in response to the 9/11 attacks.

As part of the survey process, the research team identified eleven states for gathering information and collecting materials:

- California
- Delaware
- Florida
- Louisiana
- Maryland
- Minnesota
- New York
- Pennsylvania
- Texas
- Virginia
- Washington State

This selection was based on specific 9/11 experience or a history of certain natural disasters such as hurricanes, floods and earthquakes. The research team talked

directly with and/or collected materials from all of the above states. The research team also talked directly with most of the NCHRP panel members to obtain their input.

Key issues discussed included:

- Provision of statewide, DOT and representative local emergency management plans including terrorism and transportation emergency support function annexes
- How 9/11 affected agency thinking, and is the state and the DOT updating the emergency management plans to reflect that new thinking
- Perceived gaps in existing emergency response plans and how states or state DOTs are planning to fill those gaps
- Practices recommended as best practices with regard to emergency responses to terrorism
- The application of Intelligent Transportation Systems (ITS) to better respond to a terrorist incident.

In addition to canvassing states, the research team collected emergency management plan materials from several local governments. Overseas contacts were made, but few materials obtained.

The research team developed: (1) a memorandum detailing what it had learned, and (2) an outline for the draft Guide to be developed in Task 2. These two deliverables were provided to the NCHRP panel overseeing this project as well as to AASHTO for further dissemination to its Security Task Force. Comments were received and used in subsequent tasks.

Task 2 – Develop Draft Guide

Once current practice had been reviewed in Task 1, a draft Guide was developed based on the outline developed in Task 1. This draft was provided to the NCHRP panel as well as to AASHTO for further dissemination to its Security Task Force. Comments were received and used in subsequent tasks.

Task 3 – Test Utility of the Guide

The research project team identified four criteria to help select three states that might serve to test the draft Guide. Those criteria were:

- Ability to provide useful information
- Belief that the state would be willing to serve as a tester based on prior contacts
- Some relevant 9/11 experience among the three states
- Some geographic diversity

Using the above criteria, the team selected the following three states:

- Maryland
- New York
- Washington

The research team then followed the process below:

- Called contacts at the above states to request their assistance
- After all three states agreed, provided the states with the draft Guide
- Scheduled a conference call and/or meeting with the states
- Provided a standard list of questions to help guide the discussions
- Took notes of the discussions with the three states

The list of questions for the three states covered the following topics:

- Utility of the Guide for updating state plans
- Applicability of the Guide for its intended audience
- Coverage of key issues and other questions relating to substance
- Format of the Guide for usability

Discussion with the states took place as follows:

- Washington: Conference call on March 28, 2002
- New York: Conference call on April 2, 2002
- Maryland: Meeting on April 5, 2002

A memorandum was prepared detailing the findings from these interviews. Valuable feedback was obtained from these interviews and was used in refining the Guide in Task 4.

Task 4 – Refine Guide and Provide for Dissemination

Based on information and comments developed from earlier tasks, this current document, A Guide to Updating Highway Emergency Response Plans for Terrorist Incidents, has been developed. As this Guide is viewed as an interim product while the state of practice develops, NCHRP would appreciate comments on this Guide. Appendix A provides information on who to contact with comments.

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