Improving Transportation Response and Security Following a Disaster

THE CHANGING NATURE OF TERRORISM PRESENTS NEW CHALLENGES FOR PUBLIC TRANSPORTATION AGENCIES. THE TRANS RESPONSE PLAN FOR THE SAN FRANCISCO, CA, USA, BAY AREA WAS DEVELOPED TO COORDINATE TRANSPORTATION PROVIDERS' RESPONSE TO A MAJOR EARTHQUAKE, BUT HAS EXPANDED INTO EMERGENCY PREPAREDNESS FOR TERRORISM.

BY NANCY W. OKASAKI

BACKGROUND

In October 1989, the Loma Prieta Earthquake struck the San Francisco, CA, USA, area. It caused the collapse of the Cypress Freeway in Oakland, CA, the San Francisco–Oakland Bay Bridge and the Embarcadero Freeway in San Francisco.

In October 1991, fire in the densely populated hillsides near the Oakland-Berkeley, CA, border destroyed more than 2,400 housing units and required the evacuation of nearly 10,000 people.

In 1995, heavy rains caused major flooding in the northern coastal communities of Marin County and Sonoma County, leading to the evacuation of local residents. Immediately after the terrorist attacks of September 11, 2001, the closure of three international airports forced the evacuation of thousands of travelers.

What do all these disasters have in common? Each incident adversely impacted the San Francisco Bay Area's multimodal transportation system and required transportation providers to coordinate a response, both with each other and in regard to the broader emergency.

More important, each situation is a reminder that the ever-changing shape of natural disasters and man-made acts of terrorism will always present new challenges for public transportation agencies and place new responsibilities on transportation personnel.

THE BAY AREA SCENE

With a population of more than 6 million, the San Francisco Bay Area is the fifth-largest metropolitan area in the United States. Bay Area residents fill 3 million jobs scattered throughout a setting that encompasses nine counties touching San Francisco Bay. Home to 101 municipalities, the region has a land mass of 7,179 square miles and is connected by eight toll bridges that crisscross the bay waters.

The Bay Area's transportation network boasts 1,400 miles of highways, 308 miles of car pool lanes, 19,000 miles of arterial streets and 9,860 miles of transit routes. The mass transit system includes 25 bus systems, six rail systems and six commuter ferry lines that together transport almost 1.7 million riders on an average weekday.

METROPOLITAN TRANSPORTATION COMMISSION

The Metropolitan Transportation Commission (MTC) was created by the California legislature in 1970 both to develop a regional transportation plan for the nine Bay Area counties and to program state and federal transportation funds. MTC's mission has expanded over the years.

Since 1998, acting as the Service Authority for Freeways and Expressways, MTC has managed the region's freeway service patrol and call box programs. In addition, acting as the Bay Area Toll Authority, MTC began administering toll revenues and overseeing the toll bridge capital improvement program in 1998.

In short, MTC oversees the efficiency and effectiveness of the region's entire transportation system and is committed to maintaining this network—knowing that a safe, secure system is crucial to the region's economic vitality and that any threat to this intricate system can result in serious financial losses for the area.

It is in this context that MTC and its partners became actively engaged in transportation emergency response and developed the Trans Response Plan (TRP).

CALIFORNIA'S STANDARDIZED EMERGENCY MANAGEMENT SYSTEM

California's Office of Emergency Services (OES) was established to coordinate the emergency activities of all state agencies. The coastal region is one of

three designated administrative regions. It covers the 16 coastal counties of northern California, which include the nine Bay Area counties under the jurisdiction of MTC.

Following the Oakland Hills fire, use of the Standardized Emergency Management System (SEMS) was required by law. As its names implies, SEMS provides a standard management system that is interchangeable from agency to agency, expandable from small events to large events and applicable at all levels of government.

The framework for SEMS consists of four basic elements: the incident command system (ICS), the multi-agency coordination system, the California mutual aid agreement and the operational area concept. The ICS element of SEMS is organized around four basic units—plans, operations, logistics and finance—under the incident commander.

The planning unit collects, evaluates and documents information to develop short- and long-term plans; the operations unit develops a coordinated tactical response to the disaster; the logistics unit provides facilities, services, personnel and equipment to support the response; and the finance unit tracks all costs and other administrative aspects not handled by the other functions. All units report to the incident commander, who controls the resources and manages the overall response activities.

DEVELOPMENT OF SAN FRANCISCO'S TRANS RESPONSE PLAN

Since the Loma Prieta Earthquake in 1989, MTC, transit agencies and the California Department of Transportation (Caltrans) have been working together to be better prepared for the next major disaster. Following the earthquake, a task force composed of representatives from OES, Caltrans and Bay Area transit operators (including rail, bus and ferry), airports and seaports held a series of workshops to focus on transportation recovery and restoration. These workshop discussions led to the development of TRP.

TRP sets out a framework for a comprehensive and coordinated response by San Francisco Bay Area transportation providers to any major earthquake or disaster in the region. Integrated with SEMS, TRP establishes the functions, responsibilities and procedures for developing and implementing a multimodal disaster response.

The levels of emergency response under SEMS integrate city emergency operating centers to county operational areas and OES. Participating agencies utilize ICS in their emergency operating centers. Mutual aid is coordinated with county operational areas and MTC through the TRP process. TRP is part of the coastal region OES's planning unit.

TRANS RESPONSE PLAN IMPLEMENTATION

TRP focuses primarily on the transportation system's response and recovery following a major earthquake in the Bay Area. For instance, a magnitude 7.1 earthquake on the Hayward Fault in the San Francisco area could result in more than 1,600 road closures and damage to most toll bridges, major highways and thousands of homes and buildings.

Following a major earthquake or other disaster, California's OES will focus on life/safety issues and the food and shelter needs of the population. TRP consolidates information on damage to the transportation system and resources available for use in the response and also allows transportation agencies to serve people who want to return to their homes.

MTC'S TRANS RESPONSE PLAN FUNCTIONS

TRP assigns three roles to MTC: transportation information clearinghouse, disseminator of public information and interagency coordinator.

As the regional clearinghouse, MTC collects and analyzes each individual agency's damage and operating status to develop an ongoing regional transportation status report for all nine counties throughout the course of an emergency. The regional transportation status report then is distributed at regular intervals to transit agencies, the state OES, news media and other public information access venues so the traveling public can be informed as new events occur and situations change.

By compiling a centralized, comprehensive damage picture, the actions of OES and the Federal Emergency Management Agency can be coordinated with the region's priorities. MTC also is notified of possible broken "links" (where coordination is needed) and gets the involved agencies to address the need.

This regional coordination function then evolves into focusing on long-term alternatives, including the creation of new transit services and roadway options to substitute for inoperable highways and transit services and the coordination of new and surviving services to facilitate movement of emergency resources throughout the Bay Area.

TESTING THE SYSTEM

The response plan is tested through annual exercises. Tabletop exercises are held by individual agencies to problem-solve through discussions. Functional exercises engage participants in active communications during real-time but simulated situations.

Each year, MTC organizes a functional exercise that involves more than a dozen transportation agencies, airports, ports, county operational areas and the state OES. The extensive exercise sets up a detailed scenario in which each agency activates its emergency operating center and responds to scripted messages that simulators convey by phone. The simulation allows emergency center personnel to practice dealing with a concentrated variety of unexpected requests and problems.

The critique of each year's exercise identifies recommended actions for improvement for each participating agency. The exercise also provides valuable training and practice for all emergency operating center personnel, allowing them to identify weaknesses in their emergency procedures and training needs for their staff.

RESPONSE TO TERRORISM

Although TRP was designed primarily for an earthquake scenario, it is readily adaptable to improving transportation system response to any natural or man-made disaster. While specific events may vary, the emergency response and the protocol to be followed remain consistent.

Local transportation agency personnel help provide the initial assessment of a hazard and notify the appropriate first responders. Depending on the nature of the hazard, detection, correct identification and immediate response may require equipment and expertise from outside agencies.

The proper response (for example, to shelter in place versus evacuate the scene) requires coordination among the multiple responders. MTC and the transportation community then can help the traveling public respond appropriately.

During 2002–2003, Bay Area transportation providers have pursued an intense regimen of training and exercises to improve their ability to deter acts of terrorism and respond to acts that do occur. Transportation providers also have undertaken physical improvements to make all elements of the Bay Area's system less vulnerable to attack.

Several transit agencies have held both tabletop and functional exercises with local emergency responders to coordinate plans and develop personal relationships. MTC is sponsoring a series of tabletop exercises to test the Bay Area's ability to use TRP to coordinate a response to a terrorist attack. The issue of mass evacuation and the feasibility of contra-flow operation on major bridges and freeways have been discussed, as has the need for clear and consistent information for the traveling public.

As with earlier efforts in planning for earthquakes, managing response to a major transit terrorist incident calls for a multidisciplinary approach and an integrated operations plan to ensure coordination and cooperation among different agencies and jurisdictions involving all levels of government. However, terrorism response also includes threat identification and threat assessments that may require involvement from the Federal Bureau of Investigation and other intelligence organizations in addition to law enforcement.

Undertaking a risk assessment to determine vulnerabilities should be encouraged for all transportation providers while investigating new technologies to address terrorism and related security risks.

CONCLUSION

Because life/safety issues require the attention of emergency response personnel, it becomes imperative for transportation agencies to integrate emergency management, law enforcement and public health communities into the planning process.

Attending a recent convention of the American Association of State Highway and Transportation Officials, U.S. Transportation Secretary Norman Y. Mineta noted that "…our priorities have been dramatically recast since September 11… ensuring the safety and security of our transportation system is now first and foremost."

In other words, transportation no longer can be just about mobility or keeping traffic moving. It also must be about security and safety for the traveling public. Transportation providers have had to broaden their planning efforts to address safety and security. Through tabletop exercises based on scenarios such as weapons of mass destruction, we can provoke critical thinking for improving upon emergency operating plans. Exercises also will continue to build and sustain discipline and interagency relationships at every level to minimize interagency misunderstandings and foster cooperation. ■

NANCY W. OKASAKI

is an associate program coordinator for the Metropolitan Transportation Commission in Oakland, CA, USA, where she works in emergency response and security planning with transportation providers. She received a B.A. in social sciences from University of California at Berkeley.

Note: This feature originally was presented by the author at the ITE 2002 Spring Conference and Exhibit, held March 24–27, 2002 in Palm Harbor, FL, USA.