

# Pre-planning for critical infrastructure preparedness

Responders must be aware of their environment when mounting a response, says **Jennifer Smither**, who confirms that misunderstandings can cause problems

**C**RITICAL INFRASTRUCTURE AND key resources cannot be protected without pre-planning activities. In order to prevent disasters, or to respond effectively when disasters occur, local emergency services departments must gather detailed information about a site. A lack of understanding or clarity about any aspect of a critical asset could cause severe oversights or delays.

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■ **To protect their communities, emergency managers have to recognise certain facilities as essential or critical.**

These locations have special response requirements that must be addressed before a quick and effective response is possible. According to the *Arlington County After-Action Report on the Response to the September 11 Terrorist Attack on the Pentagon*, although local emergency responders recognised the Pentagon as a high-value, critical target, they were not prepared to work within the particular features of the building on September 11, 2001. While responding at the plane crash, EMS responders were unable to see what was happening in other parts of the massive structure, or in the central courtyard, making it difficult to maintain command and control. Fire responders were not aware of the Pentagon's roof structure, which hampered their ability to suppress the flames. To access the area within the central courtyard, responders on site had to cut the rear tiller cab from a fire truck so that it would fit under the building's overpasses. Since this incident, emergency managers have recognised the immediate need to gather specific site information so that responders arrive prepared with the knowledge and equipment they need to mitigate the incident.

In 2002, an electric fault caused a fire in a 120-foot (36.6m) concrete shaft at the Watts Bar Hydroelectric Plant in Tennessee. Within minutes, the fire shifted to the plant's control building, causing the staff members on duty to flee without time to gather plans and diagrams of the plant from the central office. Although fire and emergency responders

from seven departments and jurisdictions quickly converged at the plant, they had difficulty fighting and controlling the fire because they were unfamiliar with its layout. At first, they depended on hand-drawn maps and descriptions based upon information provided by the plant's employees. Eventually, the Tennessee Valley Authority, a multi-state corporation that provides power to the region, faxed plans it had on file to the responders. With these plans, the responders were able to more easily manage the fire and to prevent additional damage. Since this incident, the local response agencies in the area have worked closely with each other and the Tennessee Valley Authority to ensure they have plans and diagrams of all critical infrastructure in the area, especially hydroelectric plants. Through this co-operation, responders can be confident that they have the information they need to quickly and safely extinguish resource fires.

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■ **Immediately after the 9/11 attack on the World Trade Center (WTC) in New York City, the city's Office of Emergency Management (OEM) developed the Deep Infrastructure Group (DIG) to assess the damage to infrastructure beneath the rubble of the towers.**

The WTC complex rested upon five layers of subway tunnels, electricity and utility lines, storage tanks and water and gas pipes. Responders feared that the tower debris was unstable, which could cause a dangerous collapse during response operations. The DIG collected accurate data, blueprints, and geographic information system (GIS) maps of the underground infrastructure. The DIG first collected data from private and public organisations that had access to pre-incident maps and plans of the area. Analysts combined the disparate data into a single GIS database to create two- and three-dimensional maps, which included information on the debris field and nearby buildings, a smoke plume model, utility outages and other information, on demand, for specific areas. Once these maps

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were established and in use, DIG analysts added in damage information as it became available to create more accurate and complex maps to assist the emergency responders. These maps proved invaluable to the rescue effort, especially in locating the fuel source of underground fires.

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■ **To pre-plan for events, the City of Los Angeles collects information, including plans and diagrams, directly from facilities operators.**

Realising the importance of recognising all critical assets in the area, and prepared for any emergency, the City created the Asset Manager Questionnaire. This survey, which asset managers can access through a secure Internet site, collects information such as operating hours, points of contact, normal security procedures, emergency operations plans and the locations of essential pieces of equipment. Asset managers are also asked to attach plans, diagrams, photos, maps, and other visual information that could be helpful. Through this questionnaire, asset managers work directly with local emergency managers to assess the threat against the key resource and participate in its protection.

Through information gathering and co-operation, emergency services departments can ensure that they are ready to respond to any hazard. The act of collecting the information can create relationships between the facility operators and managers that can prove especially useful in the event of a disaster. Above all, participating in pre-planning activities creates awareness among everyone involved, leads to better preparedness, and provides information essential to response operations.

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