

Information was crucial to every aspect of the WTC event. Its existence, availability, quality, and distribution clearly affected, sometimes dramatically, the effectiveness and timeliness of the response and recovery efforts. Different kinds of information were pertinent to different elements of activity and different audiences and users (see table below). We summarize those information needs briefly here to provide a backdrop for the lessons learned from this unprecedented event.

Crisis-Related Information Needs			
Information for Preparedness	Information for Immediate Response	Information for Recovery and Restoration of Services	Information for the Public
<ul style="list-style-type: none">Physical, social, and economic attributes of the communityLikely threats and vulnerabilitiesResources and capabilities for responseAction and coordination plans for foreseeable eventsBusiness continuity plans	<ul style="list-style-type: none">Immediate and ongoing assessment of damage and dangerKnowledge about continuing or ancillary threatsAvailability and capability of response assetsDeployment and coordination of responders	<ul style="list-style-type: none">Nature and extent of damage to infrastructure and servicesIdentification and assessment of needs and problemsAvailability and capabilities of recovery and restoration assets in the wider communityDeployment and coordination of assets and status of recovery	<ul style="list-style-type: none">Immediate and emerging threats to civilians and guidance for personal protectionOngoing advisement of continuing threats and what to doOngoing advisement of recovery and restoration activitiesContinuing awareness and education

Information for preparedness

Emergency preparedness is most commonly understood in terms of the readiness of response organizations. However, preparedness also extends to the information needs of the community at large, including non-emergency government agencies, businesses, and nonprofit organizations.

Physical, social, and economic attributes of the community

Information about the community is needed to answer the basic question – "What is at risk?" Emergency managers, first responders, and public safety organizations all need detailed, current information about the physical, social, and economic attributes of the communities they serve. For example, information needs in urban areas like New York City include detailed data about the physical structures and public spaces, utilities, transportation systems, landmarks, population densities, and neighborhood characteristics. For all communities, the location, condition, and physical distribution of commercial assets, health care facilities, military installations, public buildings, historic sites, and access and egress routes are all critically important. Information about physical geography plays an equally important role.

Likely threats and vulnerabilities

Given the nature of the community in all its dimensions, this kind of information specifies in what ways it is subject to threats or likely natural hazards. It tells which parts of the community (in economic, social, and physical terms) are more or less likely to withstand predictable attacks and why. Threat information is also important to the community at large. It is needed to educate residents, government agencies, and businesses about the possible vulnerabilities.

Resources and capabilities for response

An emergency demands the ability to employ any number of resources and capabilities, both local and remote. Emergency managers need to know about the existence, location, availability, and detailed characteristics of resources likely to match their needs. Businesses and public agencies need to know and understand their own

capabilities and where to go for assistance. Government, in particular, needs information suitable for informing community members about how to protect themselves and where to go for information and advice in a specific event.

Action and coordination plans for foreseeable events

Each emergency management organization has a "play book," an outline of potential events and decisions that trigger the activation and operation of a response. These plans usually involve many different organizations playing specialized, but interacting roles. While the plan is never fully accurate for any given event, its development process involves the participants in building the framework for an essential coordination strategy. Clear and well-understood roles and lines of authority and responsibility for action are all necessary parts of effective plans.

Business continuity plans

Every organization has people, facilities, data, equipment, and other assets to protect in the event of an emergency. Large organizations generally have some form of disaster recovery plan, but all organizations regardless of size need fully developed, continually updated business continuity plans that can be activated to keep them in operation or restore them to operation in minimal time at reasonable cost.

Information for immediate response

When a disaster or emergency occurs, preparedness information is called into action, but additional information specific to the event and its context becomes of paramount importance. This combination of information allows responders and emergency managers to take immediate rescue action and to secure the disaster site from further damage.

Immediate and ongoing assessment of damage and danger

First responders and emergency managers need immediate, accurate, detailed information about the event and the damage it caused. Information needs at the time of the event center on immediate and impending damage to physical infrastructure, as well as the location and condition of victims and risks to first responders. This is a highly dynamic information need – the information emanating from the assessment needs to be continually updated to effectively direct response efforts and to minimize the danger to the responders themselves.

Knowledge about continuing or ancillary threats

The terrorist attack in New York initially appeared to be an accident, but was quickly recognized as part of a deliberate, coordinated effort. Emergency managers, public safety officers, and political leaders at every level of government needed immediate access to an array of information channels and sources that might reveal additional threats. They also needed ways to evaluate that information for decision making and action.

Availability and capability of response assets

Emergency management plans enumerate the assets (organizations, material, protocols, etc.) that can be activated and deployed in any given situation. Detailed and current information is needed about each of these assets, down to details about the exact capabilities of individual pieces of equipment. Often these response resources come from outside the emergency management organization and are located at a considerable distance from the event itself. Consequently, activation protocols and detailed, accurate contact information are needed to bring these assets into play. Precious time and effort are saved by knowing exactly who to call in which organizations for what kind of help.

Deployment and coordination of responders

Most emergencies are managed through an incident command structure that assigns responsibility and authority to specific individuals and organizations for specific activities. This structure also enables tracking and monitoring of work already underway. Effective deployment and coordination depend on many kinds of information: from the

roles and capabilities of response and support organizations to the identity of individual responders; from information about physical and environmental hazards to the management of information about donations and volunteers. Smooth operation under pressure also depends on reaching agreement on roles and authority in advance of an emergency.

Information for recovery and restoration of services

Once the immediate crisis has passed, the task of recovery and restoration begins. In this phase different information needs come to the fore. These include the need for information to help the community return to normal, rebuild its lost assets, and strengthen its resilience for the future by feeding information back into preparedness.

Nature and extent of damage to infrastructure and services

The process of recovery and restoration demands information about damage to physical infrastructure, the built environment, and public and private services. To accurately assess damage and plan the recovery, detailed baseline information documenting the "before" situation is critical. Pre-established priorities for restoration give emergency crews a rough guide for early action, although these can be honored only to the extent that actual conditions allow. The interdependencies among these systems must also be understood, because steps taken to restore one system can affect, or even interfere with or undo, efforts to restore another.

Identification and assessment of needs and problems

The immensity of the event in New York generated needs no planner had anticipated: thousands of grieving families searching for loved ones, forensic and mortuary services beyond a scope anyone had envisioned, business interruptions for thousands of companies, and massive telecommunications failures. These and other community needs demanded immediate identification and assessment as to nature, scope, and duration.

Availability and capabilities of recovery and restoration assets

Routine public services such as sanitation and public health facilities are necessary resources and capabilities to be mobilized in the event of a disaster, but information about the existence of many other services also needs to be readily available. These include up-to-date contact lists for public, private, and nonprofit organizations likely to be called into service. Equipment and facility inventories are needed, as well as skills-based human resource inventories that can be called into action. In addition, those responsible for recovery and restoration need readily activated plans or templates for creating services and facilities on the fly.

Deployment of assets and status of the recovery

Once recovery and restoration are underway, managers and workers need information about deployment and coordination of activities and participants. Because so many factors are interdependent, a clear understanding of the role and activities of each player helps prevent inadvertent conflicts or redundancies and offers opportunities to take advantage of complementary capabilities. As the recovery progresses, accurate information about its status needs to extend to all the various components of activity. This information allows for temporary structures, activities, and restrictions to be gradually and logically reduced as the community returns to normal.

Information for the public

All of the foregoing information needs pertain to responders, emergency managers, service providers, and other formal organizations. A different set of information needs pertains to the public. Individuals alone, in families or in neighborhood groups, have both immediate and ongoing information needs. Public information must be distributed via multiple communication channels in order to reach the largest possible proportion of the affected population.

Threats to civilians and guidance for personal protection

As quickly as possible after the precipitating event, members of the public require accurate information from

authoritative sources about the status of the situation and guidance about what to do and what not to do in order to protect themselves.

Ongoing advice about continuing threats

As the event and response unfold, the public has need for continuing information about lingering or emerging threats to their safety and well-being, as well as ongoing advice about what they should and should not do for personal protection and to avoid interfering with response activities.

Ongoing advisement of recovery and restoration

As the event moves into the recovery stage, those affected must be instructed about the status and availability of infrastructure and public services. They also require clear information about services and assistance programs and how they can take advantage of them. As the recovery progresses, public information must encourage and guide people to return to normalcy.

Continuing awareness and education

Private citizens require information for preparedness, just as public agencies, businesses, and community organizations do. Individuals need this information to understand their likely vulnerability to known threats and to plan responses that will help them protect themselves without jeopardizing the safety of others.