NFPA 1600
Standard on
Disaster/Emergency
Management and
Business Continuity
Programs

2000 Edition



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#### **NFPA 1600**

#### Standard on

#### Disaster/Emergency Management and Business Continuity Programs

#### 2000 Edition

This edition of NFPA 1600, Standard on Disaster/Emergency Management and Business Continuity Programs, was prepared by the Technical Committee on Disaster Management, and acted on by the National Fire Protection Association, Inc., at its November Meeting held November 14–17, 1999, in New Orleans, LA. It was issued by the Standards Council on January 14, 2000, with an effective date of February 11, 2000, and supersedes all previous editions.

This edition of NFPA 1600 was approved as an American National Standard on February 11, 2000.

#### Origin and Development of NFPA 1600

The NFPA Standards Council established the Disaster Management Committee in January 1991. The committee was given the responsibility to develop documents relating to preparedness for, response to, and recovery from disasters resulting from natural, human, or technological events.

The first document that the committee focused on was NFPA 1600, *Recommended Practice for Disaster Management*. NFPA 1600 was presented to the NFPA membership at the 1995 Annual Meeting in Denver, CO. That effort produced the 1995 edition of NFPA 1600.

For the 2000 edition, the committee incorporated a "total program approach" for disaster/emergency management and business continuity programs in its revision of the document from a recommended practice to a standard. The committee provided a standardized basis for disaster/emergency management planning and business continuity programs in private and public sectors by providing common program elements, techniques, and processes. The committee expanded provisions for enhanced capabilities for disaster/emergency management and business continuity programs, both before and after a disaster, so that the impacts would be mitigated, while protecting life and property.

The document was developed in cooperation with representatives from the Federal Emergency Management Agency, the National Emergency Management Association, and the International Association of Emergency Managers. This coordinated effort expanded the title of the document to include both disaster and emergency management, as well as information on business continuity programs. The chapters were expanded to include additional material relating to disaster/emergency management and business continuity programs. The appendix material was also expanded to include additional explanatory material.

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NOTE: Membership on a committee shall not in and of itself constitute an endorsement of the Association or any document developed by the committee on which the member serves.

**Committee Scope:** This Committee shall have primary responsibility for documents on preparedness for, response to, and recovery from disasters resulting from natural, human, or technological events.

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NOTICE: An asterisk (\*) following the number or letter designating a paragraph indicates that explanatory material on the paragraph can be found in Appendix A.

#### Chapter 1 Introduction

- **1-1\* Scope.** This standard establishes a common set of criteria for disaster management, emergency management, and business continuity programs herein after referred to as the *program*.
- 1-2 Purpose. The purpose of this standard is to provide those with the responsibility for disaster and emergency management and business continuity programs the criteria to assess current programs or to develop, implement, and maintain a program to mitigate, prepare for, respond to, and recover from disasters and emergencies.

#### 1-3 Definitions.

- **1-3.1\* Approved.** Acceptable to the authority having jurisdiction.
- **1-3.2\* Authority Having Jurisdiction.** The organization, office, or individual responsible for approving equipment, materials, an installation, or a procedure.
- **1-3.3 Business Continuity Program.** An ongoing process supported by senior management and funded to ensure that the necessary steps are taken to identify the impact of potential losses, maintain viable recovery strategies and recovery plans, and ensure continuity of services through personnel training, plan testing, and maintenance.
- **1-3.4 Damage Assessment.** An appraisal or determination of the effects of the disaster on human, physical, economic, and natural resources.
- **1-3.5 Disaster/Emergency Management Program.** A program that implements the mission, vision, and strategic goals and objectives as well as the management framework of the program and organization.
- **1-3.6 Entity.** A governmental agency or jurisdiction, private or public company, partnership, nonprofit organization, or other organization that has disaster/emergency management responsibilities.
- 1-3.7 Impact Analysis (Business Impact Analysis, BIA). A management level analysis that identifies the impacts of losing the entity's resources. The analysis measures the effect of resource loss and escalating losses over time in order to provide the entity with reliable data upon which to base decisions on hazard mitigation and continuity planning.
- **1-3.8 Incident Management System.** The combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure with responsibility for the management of assigned resources to effectively accomplish stated objectives pertaining to an incident.

- **1-3.9 Mitigation.** Activities taken to eliminate or reduce the degree of risk to life and property from hazards, either prior to or following a disaster/emergency.
- **1-3.10 Mutual Aid Agreement.** A pre-arranged agreement developed between two or more entities to render assistance to the parties of the agreement.
- **1-3.11 Preparedness.** Activities, programs, and systems developed prior to a disaster/emergency that are used to support and enhance mitigation of, response to, and recovery from disasters/emergencies.
- **1-3.12 Recovery.** Activities and programs designed to return the entity to an acceptable condition.
- **1-3.13 Response.** Activities designed to address the immediate and short-term effects of the disaster/emergency.
- 1-3.14 Shall. Indicates a mandatory requirement.
- **1-3.15 Should.** Indicates a recommendation or that which is advised but not required.
- **1-3.16 Situation Analysis.** The process of evaluating the severity and consequences of an incident and communicating the results.
- **1-3.17 Standard.** A document, the main text of which contains only mandatory provisions using the word "shall" to indicate requirements and which is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions shall be located in an appendix, footnote, or fine-print note and are not to be considered a part of the requirements of a standard.

#### **Chapter 2 Program Management**

- **2-1\* Policy.** The entity shall have a written program policy that defines the following:
- (1) The enabling authority
- (2) Vision and mission statement, goals, objectives, and milestones
- (3) Management policies and procedures
- (4) Applicable legislation, regulations, and industry codes of practice
- (5) Program budget and management schedules
- **2-2\* Program Coordinator.** The program coordinator shall be appointed by the entity and shall be authorized to administer and keep current the program in consultation with the Disaster/Emergency Management Program Committee.

#### 2-3\* Program Committee.

- **2-3.1\*** The program committee shall be established by the entity in accordance with its policy.
- **2-3.2** The committee shall include the program coordinator and others who have the appropriate expertise and knowledge of the entity and the authority to commit resources from all key functional areas within the entity and shall solicit applicable external representation from public and private entities.
- **2-3.3** The committee shall advise the program coordinator on the program activities.
- **2-4 Program Assessment.** A comprehensive assessment of the program elements listed in Chapter 3 shall be conducted periodically to determine the overall effectiveness of the program.

#### **Chapter 3 Program Elements**

**3-1\* General.** The program shall include the following elements, the scope of which shall be determined by the hazards affecting the entity. These elements shall be applicable to the phases of mitigation, preparedness, response, and recovery.

#### 3-2 Laws and Authorities.

- **3-2.1** The program shall comply with applicable legislation, regulations, and industry codes of practice.
- **3-2.2\*** The entity shall implement a strategy for addressing needs for legislative and regulatory revisions that evolve over time.

#### 3-3\* Hazard Identification and Risk Assessment.

- **3-3.1\*** The entity shall identify hazards, the likelihood of their occurrence, and the vulnerability of people, property, the environment, and the entity itself to those hazards. Hazards to be considered at a minimum shall include, but shall not be limited to, the following:
- (1) Natural events
- (2) Technological events
- (3) Human events
- **3-3.2\*** The entity shall conduct an impact analysis to determine the potential for detrimental impacts of the hazards on items including but not limited to the following:
- (1) Health and safety of persons in the affected area at the time of the incident (injury and death)
- (2) Health and safety of personnel responding to the incident
- (3) \*Continuity of operations
- (4) Property, facilities, and infrastructure
- (5) Delivery of services
- (6) The environment
- (7) \*Economic and financial condition
- (8) Regulatory and contractual obligations
- (9) Reputation of the entity

#### 3-4 Hazard Mitigation.

- **3-4.1** The entity shall implement a strategy to eliminate hazards or mitigate the effects of hazards that cannot be eliminated.
- **3-4.2\*** The mitigation strategy shall be based on the results of hazard identification and risk assessment, impact analysis, program assessment, operational experience and costbenefit analysis.
- **3-4.3** The mitigation strategy shall consider, but not be limited to, the following:
- (1) The use of appropriate building construction standards
- (2) Hazard avoidance through appropriate land-use practices
- (3) Relocation, retrofitting, or removal of structures at risk
- (4) Removal or elimination of the hazard
- (5) Reduction or limitation of the amount or size of the hazard
- (6) Segregation of the hazard from that which is to be protected
- (7) Modification of the basic characteristics of the hazard
- (8) Control of the rate of release of the hazard
- (9) Provision of protective systems or equipment
- (10) Establishment of hazard warning and communication procedures
- (11) Redundancy or duplication of critical systems, equipment, information, operations, or materials

#### 3-5\* Resource Management.

- **3-5.1** The entity shall establish program performance objectives for each hazard identified in Section 3-3. The program performance objectives established shall consider, but not be limited to, the following:
- Personnel, equipment, training, facilities, funding, expert knowledge, materials, and the time frames within which they will be needed
- (2) Quantity, response time, capability, limitations, cost, and liability connected with using the involved resources
- **3-5.2** An assessment shall be conducted to identify the resource capability shortfalls and the steps necessary to overcome any shortfalls.
- **3-5.3** A current inventory of internal and external resources shall be maintained.
- **3-5.4** The assessment shall address voluntary donations, where appropriate.
- **3-5.5\*** The need for mutual aid shall be determined and agreements established. Mutual aid agreements shall be referenced in the appropriate program plan.

#### 3-6 Planning.

**3-6.1** A program shall include the development of plans in accordance with Section 2-1. An emergency management program shall include, but shall not be limited to, a strategic plan, an emergency operations plan, a mitigation plan, and recovery plans.

#### 3-6.2\* Plans.

- **3-6.2.1\*** The strategic plan shall define the vision, mission, goals, and objectives of the program as it relates to the policy of the entity as defined in Section 2-1.
- **3-6.2.2** An emergency operations/response plan assigns responsibilities to organizations and individuals for carrying out specific actions at projected times and places in an emergency or disaster.
- **3-6.2.3** The mitigation plan shall establish interim and long-term actions to eliminate hazards or to reduce the impact of those hazards that cannot be eliminated.
- **3-6.2.4\*** Once a recovery strategy has been chosen, a recovery plan shall be developed and shall identify the short-term and long-term priorities, processes, vital resources, acceptable time frames, and procedures for restoration of services, facilities, programs, and infrastructure.
- **3-6.2.5** A continuity of operations plan shall identify the critical and time-sensitive applications, processes, and functions to be recovered and continued, as well as the personnel and procedures necessary to do so, such as business impact analysis, business continuity management, and so on.

#### 3-6.3 Common Plan Elements.

- **3-6.3.1** The functional roles and responsibilities of internal and external agencies, organizations, departments, and individuals during mitigation, preparedness, response, and recovery shall be identified.
- **3-6.3.2** Lines of authority for those agencies, organizations, departments, and individuals shall be established or identified.

#### 3-7 Direction, Control, and Coordination.

- **3-7.1** The entity shall develop the capability to direct, control, and coordinate response and recovery operations.
- 3-7.2\* An incident management system shall be utilized.
- **3-7.3\*** The specific organizational roles, titles, and responsibilities shall be identified for each incident management function as specified in the emergency operations plan.
- **3-7.4** A mechanism shall be identified to determine the level of implementation of the incident management system according to the magnitude of the incident and the capabilities of the entity.
- **3-7.5** The incident management system shall be communicated to and coordinated with appropriate authorizations and resources identified in Section 3-5.
- **3-7.6** The entity shall establish applicable procedures and policies for coordinating response, continuity, and restoration activities with appropriate authorities and resources while ensuring compliance with applicable statutes or regulations.

#### 3-8 Communications and Warning.

- **3-8.1\*** Communications systems and procedures shall be established and regularly tested to support the program.
- **3-8.2** The entity shall develop and maintain a reliable capability to alert officials and emergency response personnel. The system developed shall be capable of issuing a warning of an actual or impending emergency to those potentially affected.
- **3-8.3** An emergency communications and warning process/procedure shall be developed and periodically tested to alert customers or citizens, or both, of an actual or impending emergency.

#### 3-9\* Operations and Procedures.

- **3-9.1** The entity shall develop, coordinate, and implement operational procedures to support the program.
- **3-9.2** Particular attention shall be paid to considerations of life safety.
- **3-9.3** Standard operating procedures shall be established and implemented for response to those credible hazards identified in Section 3-3.
- **3-9.4** A recovery situation analysis shall be conducted that includes a damage assessment and the identification of resources needed to support recovery operations.
- **3-9.5** Procedures shall be established for maintaining the continuity of response activities that must continue into recovery and mitigation.
- **3-9.6** Procedures shall be established for continuity of management/government.

#### 3-10 Logistics and Facilities.

- **3-10.1** The entity shall establish procedures to locate, acquire, distribute, and account for services, personnel, resources, materials, and facilities procured or donated to support the program.
- **3-10.2\*** A facility capable of supporting response and recovery operations shall be established, equipped, periodically tested, and maintained.

#### 3-11 Training.

- **3-11.1** The entity shall perform an assessment of training needs and shall develop and implement a training/educational program to support the program. The training and education program shall comply with all applicable regulatory requirements. (*See Appendix B.*)
- **3-11.2** The objective of the training shall be to create awareness and enhance the skills required to develop, implement, maintain, and execute the program.
- **3-11.3** Frequency and scope of training shall be identified in the program.
- **3-11.4** Personnel shall be trained in the entity's incident management system.
- **3-11.5** Records shall be maintained documenting training conducted.

#### 3-12 Exercises, Evaluations, and Corrective Actions.

- **3-12.1** The entity shall evaluate program plans, procedures, and capabilities through periodic reviews, testing, post-incident reports, performance evaluations, and exercises.
- **3-12.2\*** Exercises shall be designed to test individual essential elements, interrelated elements, or the entire plan(s).
- **3-12.3** Procedures shall be established to ensure that corrective action is taken on any deficiency identified in the evaluation process and to revise the appropriate program plan.

## 3-13 Crisis Communications, Public Education, and Information.

- **3-13.1\*** The entity shall develop procedures to disseminate and respond to requests for pre-disaster, disaster, and post-disaster information, including procedures to provide information to the media and deal with their inquiries.
- **3-13.2** Where the public is potentially impacted by a hazard, a public education program shall be implemented.
- **3-14\* Finance and Administration.** The entity shall develop financial and administrative procedures to support the program before, during, and after an emergency or a disaster.

#### Appendix A Explanatory Material

Appendix A is not a part of the requirements of this NFPA document but is included for informational purposes only. This appendix contains explanatory material, numbered to correspond with the applicable text paragraphs.

- A-1-1 The disaster/emergency management and business continuity community is comprised of many different entities including the government at federal, state, and local levels; business and industry; non-governmental organizations; and individual citizens. Each of these entities has its own focus, unique missions and responsibilities, varied resources and capabilities, and operating principles and procedures. Each entity can have its own definition of disaster. Examples of disaster definitions used by entities include the following:
- An occurrence or imminent threat to the entity of widespread or severe damage, injury, or loss of life or property resulting from natural or human causes

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- (2) An emergency that is beyond the normal response resources of the entity and would require the response of outside resources and assistance for recovery
- (3) A suddenly occurring or unstoppable developing event that
  - Claims loss of life, suffering, loss of valuables, or damage to the environment
  - b. Overwhelms local resources or efforts
  - c. Has a long-term impact on social or natural life that is always negative in the beginning

**A-1-3.1 Approved.** The National Fire Protection Association does not approve, inspect, or certify any installations, procedures, equipment, or materials; nor does it approve or evaluate testing laboratories. In determining the acceptability of installations, procedures, equipment, or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure, or use. The authority having jurisdiction may also refer to the listings or labeling practices of an organization that is concerned with product evaluations and is thus in a position to determine compliance with appropriate standards for the current production of listed items.

A-1-3.2 Authority Having Jurisdiction. The phrase "authority having jurisdiction" is used in NFPA documents in a broad manner, since jurisdictions and approval agencies vary, as do their responsibilities. Where public safety is primary, the authority having jurisdiction may be a federal, state, local, or other regional department or individual such as a fire chief; fire marshal; chief of a fire prevention bureau, labor department, or health department; building official; electrical inspector; or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the authority having jurisdiction. In many circumstances, the property owner or his or her designated agent assumes the role of the authority having jurisdiction; at government installations, the commanding officer or departmental official may be the authority having jurisdiction.

#### A-2-1 Sample Policy Statements.

#### (a) Sample Private Sector Policy Statement.

#### I. Purpose and Scope

It is \_\_\_\_\_\_ 's policy to conduct its operations with the highest regard for the safety and health of its employees and the public and for the protection and preservation of property and the environment. \_\_\_\_\_\_ 's business continuity program is a coordinated function encompassing the areas of safety and health, fire protection, environmental control, security, training, public affairs, communications, quality control maintenance, and operations. The program provides an effective state of readiness to respond to, prepare for, mitigate, and recover from a range of credible or potential emergencies/disasters at its facilities. Such capability is considered a fundamental responsibility of this \_\_\_\_\_.

Program procedures provide a clear, concise description of the overall disaster/emergency response entity. They designate responsibilities, demonstrate interface between organizations, and describe notification procedures necessary to cope with all aspects of disasters. Planning documents are available that contain detailed program requirements.

#### II. General Data

Disaster/emergency management and business continuity encompasses the areas of personnel training and acquisition of resources as well as the evaluating and testing of plans and procedures to mitigate and prepare for credible disasters. Should a disaster occur, the appropriate plan provides for effective response and rapid recovery.

Effective response includes those actions in areas such as warning, personnel safety, property protection, security, and restoration taken to prevent or minimize the effects of a disaster. Once a disaster has occurred, every effort will be taken to safely ameliorate the situation. Facility response plans provide for the implementation of program requirements.

Chief Executive Officer

#### (b) Sample Public Sector Policy Statement.

Government at all levels has the responsibility to plan for and respond to disasters resulting from hazards that are known to threaten the jurisdiction. In view of this fact, the local government has established a program to provide overall planning and coordination for emergencies. The program coordinator is the (insert title), and duties are further delegated to department directors and the program committee.

Disasters might require the local government to operate in a manner different from normal day-to-day routines and might seriously overextend local government resources. This program plan provides specific guidance to local government departments during disasters. The plan also serves as an indicator of local government capability; if the local government is unable to provide adequate coverage for a particular resource or potential hazard, alternate sources or contingency plans should be developed within political and budgetary constraints.

The accomplishment of program goals and objectives depends on the development and maintenance of competent program staff, adequate funding, and the familiarization of other local government personnel with their disaster responsibilities and this plan. It is hereby directed that review of this plan and overall disaster responsibilities by all local government department directors and the program committee be accomplished prior to July 1, annually, or as indicated through plan activation or exercise. Thorough familiarity with this plan will result in the efficient and effective execution of disaster responsibilities and in better service to the citizens.

Government entities complying with this plan should not be liable for injury, death, or loss of property except in cases of willful misconduct or gross negligence.

**A-2-2** It is not the intent of this standard to restrict the users to program coordinator titles. It is recognized that different entities use various forms and names for their program coordinator that performs the functions identified in the standard. An example of a title for the public sector includes disaster/emergency manager, and an example of a title for the private sector includes business continuity manager.

A-2-3 Members of the program committee should be appointed with the clear understanding that the appointment is long term and the objective is to minimize turnover of committee members to maintain an effective committee. Within the private sector, representatives can include, but are not limited to, information technology, plant operations, transportation, maintenance, engineering, personnel, public relations, environment, legal, finance, risk management, health and safety, security, and fire fighting/rescue. Within the public sector, representatives can include, but are not limited to, police, fire, emergency medical services, engineering, public

works, environmental protection, public health, finance, education, disaster/emergency management, legal, airport, port authorities, and the military (e.g., the National Guard). When determining the representation on the committee, consideration should be given to public sector representation on a private sector committee and vice versa. This will help to establish a coordinated and cooperative approach to the program.

A-2-3.1 Though the program coordinator, appointed by the entity, has the final authority in deciding the course of the program through its day-to-day administration, it is assumed that major decisions will be made in consultation with the program committee. The task of the program committee is to ensure the preparation, implementation, and evaluation of and to keep current the program. The program coordinator and the program committee need to be in agreement concerning priorities and resource allocation in the day-to-day operations of the program. Decisions made and actions taken in the day-today administration of the program crucially affect the ultimate implementation of the program in times of disaster. Therefore, because the program committee is composed of those representing key functional areas, both within and external to the entity, it is imperative that the program coordinator and the program committee consult together on important administrative matters to ensure the goals of the program are indeed met.

**A-3-1** Key program elements cross boundaries during each of the four phases of disaster/emergency management. Each element should be considered in relation to each of the four phases.

**A-3-2.2** If through exercise or incident analysis, program evaluation, and corrective action, limitations in the necessary laws and applicable authorities are discovered, a formal process should exist to amend them.

In the case of public entities, consideration should be made for periodic review of existing legislation to determine whether adequate flexibility exists to accommodate evolving programmatic policy or if new legislation should be developed and introduced through a legislative initiative. This is particularly relevant as program requirements change to comply with changing roles and relationships in and among varying levels of government.

For example, the entity might have the appropriate authority to conduct disaster/emergency operations but lack authority to take action prior to an event to mitigate the occurrence or the recurrence of a disaster/emergency. In other cases, additional authorities could be needed to generate the necessary revenue to sustain a viable program, and additional authority could be required to create a standing contingency fund to adequately support a disaster operation.

In the private sector, the governing factors can be industry codes of practice or regulations rather than statutory restrictions. A process should be established for periodic review of industry practices for compliance with the strategy, goals, and objectives of the entity. Evolving best practices should be incorporated into industry codes as applicable.

A-3-3 A complete risk assessment will identify the range of possible risks that have or might impact the entity or surrounding area, or both. The system should address, and the entity should be prepared to manage, disasters from the most to least serious within the identified range.

**A-3-3.1** The hazard identification and risk assessment determines "what" can occur, "when" (how often) it is likely to occur, and "how bad" the effects could be. For certain of the

hazards identified, it will be determined after this preliminary analysis that it is not necessary to carry out a full analysis. These are hazards for which no further action is required.

The hazard identification should include, but is not limited to, the following types of potential hazards:

- (1) Natural events
  - a. Drought
  - b. Fire (forest, range, urban)
  - c. Avalanche
  - d. Snow/ice/hail
  - e. Tsunami
  - f. Windstorm/tropical storm
  - g. Hurricane/typhoon/cyclone
  - h. Biological
  - i. Extreme heat/cold
  - j. Flood/wind-driven water
  - k. Earthquake/land shift
  - l. Volcanic eruption
  - m. Tornado
  - n. Landslide/mudslide
  - o. Dust/sand storm
  - p. Lightning storm
- (2) Technological events
  - a. Hazardous material release
  - b. Explosion/fire
  - c. Transportation accident
  - d. Building/structure collapse
  - e. Power/utility failure
  - f. Extreme air pollution
  - g. Radiological accident
  - h. Dam/levee failure
  - i. Fuel/resource shortage
  - i. Strike
  - k. Business interruption
  - l. Financial collapse
  - m. Communication
- (3) Human events
  - a. Economic
  - b. General strike
  - c. Terrorism (eco, cyber, nuclear, biological, and chemical)
  - d. Sabotage
  - e. Hostage situation(s)
  - f. Civil unrest
  - g. Enemy attack
  - h. Arson
  - i. Mass hysteria
  - j. Special events

There are a number of methodologies and techniques for risk assessment that range from simple to complex. These techniques include, but are not limited to, the following:

- (1) What-if
- (2) Check list
- (3) Hazop, hazard, and operability studies
- (4) Failure modes and effect analysis
- (5) Fault tree
- (6) Failure-logic diagrams
- (7) Dow and bond indices
- (8) Event tree analysis
- (9) Human reliability analysis
- (10) Capability assessment readiness for state and local governments

APPENDIX A **1600**–9

**A-3-3.2** The impact analysis is a broad description and quantification of a potential event that can impact an entity. This analysis should give a clear idea of what hazards are most likely to occur, what entity functions or services are affected, and what actions will most effectively protect them.

Within the impact analysis, the entity should consider the impact external to its area of influence that can impact the entity's ability to cope with a disaster. One example is the cascade effects of a hurricane. Direct impacts can include wind and flood damage. Secondary impacts can include communications, power, and transportation disruptions, both inside and outside the direct impact area.

**A-3-3.2(3)** In order to maintain continuity of operations, the entity should establish critical functions and processes, their recovery priorities, and internal and external interdependencies so that recovery time objectives can be set.

A-3-3.2(7) An economic and financial impact analysis allows the quantification of the impacts without considering the cause of the disaster. This analysis is closely related to the process of defining critical functions or processes and helps decide where to place the emphasis in the planning efforts.

The analysis examines potential economic or financial loss resulting from disruption of the functions, processes, or services over time.

The purpose of an economic and financial impact analysis is to arrive at a general loss expectancy that demonstrates what is at risk and to guide measures to mitigate the effects of a disaster.

**A-3-4.2** The mitigation strategy should establish interim and long-term actions to reduce the risks from hazards.

**A-3-5** Resources for program administration as well as disaster operations should be specifically identified. These resources include, but are not limited to, the following:

- (1) The locations, quantities, accessibility, operability, and maintenance of equipment (e.g., heavy duty, protective, transportation, monitoring, decontamination, response)
- Supplies (e.g., medical, personal hygiene, consumable, administrative)
- (3) Sources of energy (e.g., electrical, fuel, generators)
- (4) Communications systems
- (5) Food, water, and ice
- (6) Technical information
- (7) Clothing
- (8) Shelter
- (9) Specialized personnel (e.g., medical, religious, volunteer organizations, disaster/emergency management staff, utility workers, morticians)
- (10) Specialized volunteer groups (e.g., Red Cross, amateur radio, religious relief organizations, charitable agencies)
- (11) External federal, state, and local agencies (e.g., Federal Response Plan and the Federal Radiological Emergency Response Plan (FRERP) agencies, state National Guards, private contractors)

A resource should be available in a timely manner and should have the capability to do its intended function. Restriction on the use of the resource should be taken into account, and application of the resource should not incur more liability than would failure to use the resource. Finally, the cost of the resource should not outweigh the benefit.

**A-3-5.5** Mutual aid agreements between entities are an effective means to obtain resources and should be developed whenever possible. Mutual aid agreements should be in writing, be

reviewed by legal counsel, be signed by a responsible official, define liability, and detail funding and cost arrangements. The term "mutual aid agreement" as used here includes cooperative assistance agreements, intergovernmental compacts, or other commonly used terms for the sharing of resources.

A-3-6.2 The extent of planning requirements will depend on the program's objectives and hazards, corporate culture and philosophy, regulations, and so forth. Types of plans include, but are not limited to, business continuity plans, communication plans, continuity of government plans, continuity of operations plans, disaster/emergency operation plans, disaster/emergency response assistance plans, disaster/emergency response plans, evacuation plans, field operating guides, mitigation plans, pre-incident plans, recovery plans, standard operating procedures (SOPs), and strategic plans. (See references listed in Appendix B.)

**A-3-6.2.1** The plan should be reviewed annually and updated as necessary. It should also be re-evaluated when any of the following occur:

- (1) Regulatory changes
- (2) New hazards are identified or existing hazards change
- (3) Resources or organizational structures change
- (4) After tests, drills, or exercises
- (5) After disaster responses
- (6) Infrastructure changes
- (7) Funding or budget-level changes

Strategic planning identifies the long-term recovery goals, using broad general statements of desired accomplishments. The objectives developed from these goals are tactical in nature, and include measurable activities that must be accomplished to meet those objectives.

**A-3-6.2.4** In developing plans, short-term goals and objectives should be established and should include, but not be limited to, the following:

- (1) Vital personnel, systems, operations, and equipment identified in Section 3-5
- (2) Priorities for restoration and mitigation
- (3) Acceptable downtime before restoration to a minimum level
- (4) Minimum resources needed to accomplish the restoration In developing plans, consideration should be given to long-

term goals and objectives, which should include, but not be limited to, the following:

- (1) The entity's strategic plan
- (2) Management and coordination of activities
- (3) Funding and fiscal management
- (4) Management of volunteer, contractual, and entity resources
- (5) Opportunities for disaster mitigation

A-3-7.2 In small incidents, incident management functions can be handled by one person, the incident commander. In disasters, an incident management system would be used to systematically identify management functions assigned to various personnel. The system used varies among entities and among jurisdictions within entities; however, it is always a systematic approach to incident management in which authority is delegated to perform various functions. Management functions no longer reside with one individual who could easily become overloaded with all the duties of management.

A-3-7.3 Where necessary, equivalent titles and functions should be cross-referenced.

- **A-3-8.1** Procedures should be established for the following:
- (1) Processing disaster/emergency calls
- (2) Conducting a situation analysis
- (3) Activating of the disaster/emergency management plan
- (4) Notifying personnel who have disaster or disaster/emergency management duties
- **A-3-9** Procedures should include, but not be limited to, the following:
- (a) Control of access to the area affected by the disaster/emergency.
- (b) Identification of personnel engaged in activities at the incident.
  - (c) Accounting for personnel engaged in incident activities.
- (d) Accounting for persons affected, displaced, or injured by the disaster/emergency.
  - (e) Mobilization and demobilization of resources.
- (f) Provision of temporary, short-, or long-term housing, feeding, and care of populations displaced by a disaster/emergency.
- (g) Recovery, identification, and safeguarding of human remains. The National Foundation for Mortuary Care has recommended practices for mass casualty events.
- (h) Provision for the mental health and physical well-being of individuals affected by the disaster/emergency.
- (i) Provision for managing critical incident stress. There are a number of public and private mental health programs that specialize in critical incident stress management. Psychological after-effects occur in three distinct stages, as follows:
- (1) In the first 24 hours, employees can react in two ways. They can exhibit symptoms of numbness or denial, be physically sick or anxious, or can withdraw from contact with others. Alternatively, they can increase performance and suppress their anxiety in order to deal with the demands of the immediate crisis.
- (2) During the first week as the initial reactions wear off, employees can begin to feel isolated or alienated, anxious about the future, or angry at the situation. They can also withdraw from contact with each other or can exhibit demanding behavior.
- (3) The long-term effects depend on how well employees have come to grips with the disaster/emergency. Employees who feel that the organization has responded well to both the disaster/emergency and to their individual needs will show more commitment to the organization and more hardiness to future demands. Employees who have not come to grips with the disaster/emergency will be more prone to burning out, working with low levels of commitment, or leaving the company.

All of these symptoms are common after any crisis, personal or professional. They have the potential to disrupt operations long after the apparent crisis has passed.

**A-3-10.2** The facility should be capable of accommodating any combination of essential representatives who are identified in the entity's plan. The facility should have adequate work space, communications, and back-up utilities and should meet other basic human needs for each representative. Essential functions include gathering essential information capable

of providing centralized direction and control, and warning for response and recovery actions.

**A-3-12.2** Exercises should include but not be limited to tabletops, simulations, and full operational exercises. (*See Appendix B.*)

**A-3-13.1** The entity should establish and maintain a disaster/ emergency public information capability that includes, but is not limited to, the following:

- (1) A central contact facility for the media
- (2) A disaster/emergency information handling system
- (3) Pre-scripted information bulletins
- (4) A method to coordinate and clear information for release
- (5) The capability of communicating with special needs populations

This information can be accessed, both internally and externally, in many ways. There can be formal educational programs established to reach the populations that could be impacted by a disaster/emergency. In turn, these same populations might request information of the entity with regard to the hazards and the program in place. In both cases, the entity should establish procedures to disseminate this information to (or educate and inform) its own members and, if applicable, the public. Also, it should establish procedures to respond to internal and external requests for such information, which can be done through pamphlets, speakers bureaus, the internet, community meetings, newsletters, and so forth.

This information should be tailored to the appropriate audience or population. For example, internal members will need to know more about their role in the program. They will need to know how to respond, where to respond, and how to prevent or minimize the impact of the hazard. The public, on the other hand, will need to know how they will be notified of a disaster/emergency, the potential effect of the hazard, and how to protect themselves from the impact of the hazard.

- A-3-14 In addition to having sound financial and administration procedures for daily operations, it is equally important to have procedures in place that will allow an entity to expedite financial decision-making and ensure that proper accounting occurs. To develop proper financial and administration procedures, the following steps should be taken:
- (a) The financial department should be included as a member of the program committee. (See Section 2-3.)
- (b) The finance department should be actively involved with identifying, prioritizing, and purchasing internal and external resources. (See Section 3-5.)
- (c) The entity's financial opportunities or limitations should be identified within the strategic plan that defines the vision, mission, goals, and objectives of the program. (See 3-6.2.1.)
- (d) Procedures should be established to ensure that fiscal decisions can be expedited and will be in accordance with established authority levels and accounting principles. The procedures should include the following:
- Establishing and defining responsibilities for the program finance authority, including its reporting relationships to the program coordinator
- (2) Program procurement procedures
- (3) Payroll
- (4) Accounting systems to track and document costs

APPENDIX B **1600**-11

#### Appendix B Disaster/Emergency Management and **Related Organizations**

This appendix is not a part of the requirements of this NFPA document but is included for informational purposes only.

B-1 The following lists of organizations have been identified for informational purposes only and are not intended to be all inclusive. Inclusion on the list does not constitute an endorsement by NFPA or the Technical Committee.

#### B-1.1 Disaster/Emergency Management and Related Organizations in the United States

#### American Public Works Association (APWA)

2345 Grand Boulevard Kansas City, MO 64108 (816)472-6100 (816)472-1610 (fax)

Web Page: www.publicworks.ci.boulder.co.us

Newsletter: Yes (The APWA Reporter)

#### American Society for Public Administration (ASPA)

1120 G Street NW, Suite 700 Washington, DC 20005 (202)393-7878 (202)638-4952 (fax) Web Page: www.aspanet.org

Newsletter: Yes

#### Federal Emergency Management Agency (FEMA)

HO FEMA

Federal Center Plaza 500 C Street SW, Room 512 Washington, DC 20472 (202)646-3692 (202)646-4060 (fax) Web Page: www.fema.gov

Newsletter: No

#### FEMA National Emergency Training Center (NETC)

Chief, Emergency Management Division, EMI National Emergency Training Center (NETC)

16825 South Seton Avenue Emmitsburg, MD 21727 (301)447-1286 (301)447-1497 (fax)

Web Page: www.fema.gov/emi

Newsletter: No

#### International Association of Chiefs of Police (IACP)

515 N. Washington Street Alexandria, VA 22314 (703)836-6767 (703)836-4543 (fax) Web Page: www.theiacp.org Newsletter: Yes (IACP News)

# International Association of Emergency Managers (IAEM) (Formerly NCCEM) 111 Park Place

Falls Church, VA 22046-4513

(703) 538-1795 (703)241-5603 (fax)

Web Page: www.emassociation.org Newsletter: Yes (IAEM Bulletin)

#### **International Association of Fire Chiefs (IAFC)**

4025 Fair Ridge Drive, Suite 300 Fairfax, VA 22033-2868

(703)273-0911

(703)273-9363 (fax) Web Page: www.iafc.org Newsletter: Yes (On-Scene)

#### International City/County Management Association (ICMA)

Director Program Development 777 North Capitol Street NE, Suite 500 Washington, DC 20002-4201

(202) 289-4262 (202)962-3565 (fax) Web Page: www.icma.org Newsletter: Yes (ICMA Newsletter)

#### National Association of Counties (NACO)

440 First Street NW. Suite 800 Washington, DC 20001 (202)393-6226 (202)393-2630 (fax) Web Page: www.naco.org

#### National Association of Emergency Medical Technicians (NAEMT)

102 West Leake Street Clinton, MS 39056-4252 1(800)346-2368 (601)924-7325 (fax) Web Page: www.naemt.org Newsletter: Yes (NAEMT News)

#### National Emergency Management Association (NEMA)

P.O. Box 11910

Lexington, KY 40578-1910

 $(606)\overset{\circ}{2}44-8233$ (606)244-8239 (fax)

Web Page: www.nemaweb.org Newsletter: Yes (NEMA News)

### National Governors Association (NGA)

Committee Director, Justice and Safety Hall of the States

444 North Capitol Street Washington, DC 20001-1572 (202) 624-5300 (202)624-5313 (fax) Web Page: www.nga.org

Newsletter: Yes (The Governor's Bulletin)

#### State Guard Association of the United States (SGAUS)

Lothian, MD 20711 (301)261-9099 (phone and fax) Web Page: www.sgaus.org Newsletter: Yes (The Militia Journal)

### B-1.2 Disaster/Emergency Management and Related Organi-

zations in Canada

P.O. Box 206

#### Canada Coast Guard (CCG)

Ninth Floor 344 Slater Street Ottawa, Ontario Canada K1A 0N7 (613)998-1574 (613)990-2780 (fax) Web Page: www.ccg-gcc.gc.ca

#### Canadian Association of Chiefs of Police (CACP)

**Suite 1710** 130 Albert Street Ottawa, Ontario Canada K1P 5G4

(613) 233-1106 (613)233-6960 (fax) Web Page: www.cacp.org

#### Canadian Association of Fire Chiefs (CAFC)

1-2425 Don Reid Drive Ottawa, Ontario Canada K1H 1A4 (613) 728-2123 (613)728-6976 (fax) Web Page: www.cafc.org

#### **Canadian Transportation Agency (CTA)**

15 Eddy Street, 15th Floor

Hull, Quebec Canada K1A 0N9 (819)997-0344 (819)953-8353 (fax) Web Page: www.cta-otc.gc.ca

#### **Emergency Preparedness Canada (EPC)**

Jackson Building 122 Bank Street Ottawa, Ontario Canada K1A 0W6 (613)991-7077 (613)998-9589 (fax)

Web Page: www.epc-pcc.gc.ca **Environment Canada (EC)** 

25 Lower East Street, Suite 500 Hull, Ouebec

Canada J8X 4C8 (819)770-1380 (819)770-8479 (fax)

#### **Industrial Accident Prevention Association (IAPA)**

Carleton Technology & Training Centre

**Suite 3100** 

Carleton University 1125 Colonel By Drive Ottawa, Ontario Canada K1S 5R1 (613) 230-5313 (613) 230-1430 (fax) Web Page: www.iapa.on.ca

#### Transport Canada (TC)

**Business Centre** Place de Ville Tower C 330 Sparks Street Ottawa, Ontario Canada K1A 0N5 (613)990-2309 (613)954-4731 (fax) Web Page: www.tc.gc.ca

#### Transportation Safety Board of Canada (TSBC)

**Engineering Branch** Place du Centre

200 Promenade du Portage, 4th Floor

Hull, Quebec Canada K1A 1K8 (613) 998-8230 (613)998-5572 (fax) Web Page: www.tsb.gc.ca

#### **B-1.3** Academic Institutions **Arkansas Technical University**

**Building 211** 

**Emergency Administration** 

Russellville, AR 72801

#### Colorado State University

Hazards Assessment Laboratory

202 Aylesworth Hall 3890 Central Avenue Fort Collins, CO 80523 (970) 491-6653

#### **Memphis State University**

Center for Earthquake Research and Information

Memphis, TN 38152 (901)678-2007

Web Page: www.ceri.memphis.edu

#### St. Petersburg Junior College

Institute of Emergency Administration & Fire Science

P.O. Box 13489

St. Petersburg, FL 33733

#### Texas A&M University

Hazard Reduction & Recovery Center

College of Architecture

College Station, TX 77843-3137

(409) 845-4396

Web Page: www.hrrc.tamu.edu

#### U.C. Berkeley

**Business and Management Division** 

2223 Fulton Street Berkeley, CA 94720 (510) 642-4231

Web Page: www.Berkeley.edu/unex

#### University of Akron

Public Administration & Urban Studies

Akron, OH 44325-7904 (330) 972-7618

University of Colorado-Boulder

Natural Hazards Research/Applications Center Floodplain Management Resource Center

Campus Box 482 Boulder, CO 80309-0482

(303) 492-6818

Web Page: www.colorado.edu/hazards

#### University of Nebraska-Lincoln

International Drought Information Center Center for Agriculture and Meteorology

Lincoln, NE 68583-0728

(402) 472-3679

Web Page: http://enso.unl.edu/ndmc

#### University of North Texas

P.O. Box 13438 Denton, TX 76203-343 (940) 565-4267

Web Page: www.unt.edu/pais/insert/97-057.htm

#### **B-1.4** Nongovernment Organizations

#### **American Red Cross**

Area office

(Telephone book blue pages) Web Page: www.redcross.org

#### Association of State Dam Safety Officials (ASDSO)

450 Old Vine, 2nd Floor Lexington, KY 40507 (606) 257-5140 (606) 323-1958 (fax)

Web Page: http://members.aol.com/damsafety/homepage.htm

APPENDIX C **1600**–13

#### **Building Seismic Safety Council (BSSC)**

1201 L Street NW, Suite 400 Washington, DC 20005 (202)289-7800 (202)289-1092 (fax)

Web Page: www.bssconline.org

#### **Business Continuity Institute**

P.O. Box 4474 Worcester WR 657A United Kingdom 011-44-870-603-8783 011-44-870-603-8761 (fax) Web Page: www.thebci.org

#### Central U.S. Earthquake Consortium (CUSEC)

2630 East Holmes Road Memphis, TN 38118 (901)544-3570

Web Page: www.cusec.org

#### Chemical Manufacturers Association (CMA)

1300 Wilson Boulevard Arlington, VA 22209 (703)741-5000

Web Page: www.cmahq.com

#### **Disaster Recovery Institute International**

1810 Craig Road, Suite 125 St. Louis, MO 63146 (314)434-2272 (314)434-1260 (fax) Web Page: www.dr.org

#### International Association of Emergency Managers (IAEM)

111 Park Place

Falls Church, VA 22046-4513

(703)538-1795 (703)241-5603 (fax)

Web Page: www.emassociation.org

#### National Association of Contingency Planners (NACP)

National Headquarters 12461 Jacqueline Place Granada Hills, CA 91344 (818)360-4158 (818)832-9578 (fax)

#### National Institute of Building Science (NIBS)

Multihazard Mitigation Council 1090 Vermont Avenue NW, Suite 700 Washington, DC 20005

(202) 289-7800

Web Page: www.nibs.org

#### Oak Ridge National Laboratory (ORNL)

Emergency Management Center MS: 6206, P.O. Box 2008 Oak Ridge, TN 37831-6206 (615)576-2716

Wah Daga hat

Web Page: http://emc.ornl.gov

#### **Science Applications International Corporation**

Energy Systems Group 20201 Century Blvd., 3rd Floor Germantown, MD 20874 (301)353-1879

Web Page: www.saic.com

#### **Survive - The Business Continuity Group**

The Chapel, Royal Victoria Patriotic Building Fitzhugh Grove

London SW1835X United Kingdom 011-44-181-874-6266 011-44-181-874-6446 (fax)

#### Appendix C Additional Resources

This appendix is not a part of the requirements of this NFPA document but is included for informational purposes only.

**C-1 NFPA Publications.** National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.

NFPA 99, Standard for Health Care Facilities, 1999 edition.

NFPA 130, Standard for Fixed Guideway Transit and Passenger Rail Systems, 2000 edition.

NFPA 424, Guide for Airport/Community Emergency Planning, 1996 edition.

NFPA 1403, Standard on Live Fire Training Evolutions, 1997 edition.

NFPA 1620, Recommended Practice for Pre-Incident Planning, 1998 edition.

#### C-2 Planning Information Resources (partial list)

#### **Business Continuity Institute (BCI)**

P.O. Box 4474 Worcester, WR 657A

United Kingdom

Reference: Professional Practice for Business Continuity Planners

011-44-870-603-8783

011-44-870-603-8761 (fax)

Email: thebci.org

Web Page: www.thebci.org

#### **Disaster Recovery Institute International**

1810 Craig Road St. Louis, MO 63146

Reference: Professional Practice for Business Continuity Planners

(314)434-2272 (314)434-1260 (fax) Email: driinfo.org Web Page: www.dr.org

#### Federal Emergency Management Agency (FEMA)

500 C Street SW

Washington, DC 20472

(202)646-2500 FEMA Publications

Web Page: www.fema.gov

Reference: State and Local Guide, Guide for All-Hazards Emergency

Operations Planning (SLG 101), 1996

Federal Response Plan (FRP)

 ${\it Capability Assessment for Readiness}~({\it CAR})$ 

Disaster Planning Guide for Business and Industry, 1993

NRT-1, *Hazardous Materials Emergency Planning Guide*, National Response Team, 1987.

NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants.

# International Association of Emergency Managers (IAEM) American Society of Professional Emergency Planners (ASPEP)

111 Park Avenue

Falls Church, VA 22046-4513 Reference: IAEM Bulletin (703)538-1795

2000 Edition

(703) 241-5603 (fax) Email: iaem@aol.com

Web Page: www.emassociation.org

#### Rothstein Catalog on Disaster Recovery

4 Arapaho Rd.

Brookfield, CT 06804-3104

Reference: (Industry Catalog ref. DR/BCP Textbooks, videos,

CDs for planning)
(203)740-7400
(203)740-7401 (fax)
Email: info@rothstein.com
Web Page: www.rothstein.com

# C-2.1 States, Territories, and Insular Areas Offices of Emergency Management Contact List

#### Alabama

#### **Emergency Management Agency**

5898 County Road 41, P.O. Drawer 2160

Clanton, AL 35046-2160

(205) 280-2201

(205) 280-2410 (fax)

#### Alaska

#### **Division of Emergency Services**

P.O. Box 5750

Fort Richardson (Anchorage), AK 99505-5750

(907) 428-7039

(907) 428-7081 (fax)

#### Arizona

#### **Division of Emergency Management**

5636 E. McDowell Road Phoenix, AZ 85008 (602) 231-6244 (602) 231-6356 (fax)

Web Page: www.state.az.us/es

#### Arkansas

#### **Department of Emergency Management**

P.O. Box 758 Conway, AR 72033 (501) 730-9750 (501) 730-9778 (fax)

#### California

#### **Governors Office of Emergency Services**

2800 Meadowview Road Sacramento, CA 95832 (916) 262-1816 (916) 262-2837 (fax)

#### Colorado

#### Office of Emergency Management

15075 S. Golden Road Golden, CO 80401-3979 (303) 273-1622 (303) 273-1795 (fax)

#### Connecticut

#### Office of Emergency Management

Department of Public Safety

360 Broad Street Hartford, CT 06105 (860) 566-3180 (860) 247-0664 (fax)

#### Delaware

#### **Emergency Management Agency**

165 Brick Store Landing Road

Smyrna, DE 19977

(302) 659-3362 (302) 659-6855 (fax)

#### District of Columbia

#### **Emergency Management Agency**

2000 14th Street NW, 8th Floor

Washington, DC 20009

(202) 727-3159

(202) 673-2290 (fax)

#### Florida

#### **Division of Emergency Management**

2555 Shumard Oak Boulevard Tallahassee, FL 32399-2100

(850) 413-9969 (850) 488-1016 (fax)

#### Georgia

#### Emergency Management Agency, S.E.

P.O. Box 18055

935 East Confederate Avenue Atlanta, GA 30316-0055

(404) 635-7000

(404) 635-7205 (fax)

Web Page: www.state.ga.us/GEMA/

#### Hawaii

#### **State Civil Defense**

3949 Diamond Head Road Honolulu, HI 96816-4495 (808) 733-4300 (808) 733-4287 (fax)

#### Idaho

#### Bureau of Disaster Services/Military Division

4040 Guard Street, Bldg. 600 Boise, ID 83705-5004 (208) 334-3460 (208) 334-2322 (fax) Web Page: www.state.id.bds

#### Illinois

#### **Emergency Management Agency**

110 E. Adams Street Springfield, IL 62701-1109 (217) 782-2700 (217) 524-7967 (fax) Web Page: www.state.il.us/EMA

#### Indiana

#### **Emergency Management Agency**

Department of Fire and Building Public Safety 302 W. Washington Street, Room E-208 Indianapolis, IN 46204

(317) 232-3986 (317) 232-3895 (fax)

#### Iowa

#### **Division of Emergency Management**

Hoover State Office Building, Level A

Des Moines, IA 50319-0113

(515) 281-3231

(515) 281-7539 (fax)

Web Page: www.state.ia.us/government/dpd/emd/index.htm

#### Kansas

# **Division of Emergency Management** 2800 S.W. Topeka Boulevard

Topeka, KS 66611-1287 (913) 274-1401 (913) 274-1426 (fax)