

NFPA®

951

Guide to Building and Utilizing Digital Information

2016



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NFPA®951

Guide to

Building and Utilizing Digital Information

2016 Edition

This edition of NFPA 951, *Guide to Building and Utilizing Digital Information*, was prepared by the Technical Committee on Data Exchange for the Fire Service. It was issued by the Standards Council on November 14, 2015, with an effective date of December 4, 2015, and supersedes all previous editions.

This edition of NFPA 951 was approved as an American National Standard on December 4, 2015.

Origin and Development of NFPA 951

In 2007, at the recommendation of the late Bill McCammon, NFPA Treasurer, a letter was advanced by the Metro Fire Chiefs Association (a joint section of the NFPA and the IAFC) and signed by six of the major international fire service organizations, requesting that the NFPA Standards Council embark on an effort to develop a standard on “data exchange” for fire departments.

As described in the letter, the purpose of the new standard would be to enable a higher level of technology penetration in the fire service to enhance data sharing and analytic capability. The issue was framed to support effective communication and information management on a routine basis and to enhance situational awareness before, during, and after disasters.

This information exchange need was identified as particularly critical with respect to the following:

- (1) The ability to exchange geographic information between local systems and evolving regional and national systems to support such functions as vulnerability/risk assessment and coordinated incident management
- (2) The requirements of evolving mutual aid and resource exchange programs
- (3) The requirements for participation in systems designed to monitor local, regional, and national preparedness levels during times of high risk
- (4) Fire and emergency service access to and utilization of critical infrastructure data collected and distributed through national systems

The effort was initiated to enhance the analysis of organizations, promote exchange of concepts and data development, focus on GIS systems efforts with an industry-wide perspective rather than a “one-off,” per-organization approach, and streamline and maintain comprehensive inducements to invest in data systems for the digital age. Solicitation of members was approved by the Standards Council, and subsequent industrywide response created the membership necessary to draft code-type and scope documents. Efforts by that group at the initial meeting, held at the IAFC headquarters in Fairfax, Virginia, resulted in the Standards Council creating a committee and approving efforts to create a standard on Fire Service Data Exchange (NFPA 950) in 2008.

The new Technical Committee, Data Exchange for the Fire Service, met several times between November 2008 and February 2011 and produced a draft, approved by the Standards Council, to go out for public input in the Fall 2014 cycle. The 2015 edition of NFPA 950, *Standard for Data Development and Exchange for the Fire Service*, was its inaugural edition.

NFPA 951, *Guide to Building and Utilizing Digital Information*, was developed as a companion piece to NFPA 950. NFPA 951 offers guidance to organizations in building NFPA 950-compliant systems. This effort was undertaken in tandem with NFPA 950 and developed concurrently, thus maintaining consistency throughout the documents. This first edition of NFPA 951 is intended to be a building block for data integration in the fire service.

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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 that establish frameworks to 1) provide for the identification, development, management, and exchange of essential data; and 2) enhance an inter-operable geospatial data environment for fire and emergency services. This includes documents that establish criteria for and promote the exchange and use of data in common formats critical to the support for decision making in all phases of administration, planning, prevention, preparedness, mitigation, response, and recovery.

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NFPA 951

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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 Annex A.

A reference in brackets [] following a section or paragraph indicates material that has been extracted from another NFPA document. As an aid to the user, the complete title and edition of the source documents for extracts in mandatory sections of the document are given in Chapter 2 and those for extracts in informational sections are given in Annex B. Extracted text may be edited for consistency and style and may include the revision of internal paragraph references and other references as appropriate. Requests for interpretations or revisions of extracted text shall be sent to the technical committee responsible for the source document.

Information on referenced publications can be found in Chapter 2 and Annex B.

Chapter 1 Administration

1.1 Scope.

1.1.1* The intent of this guide is to provide guidance in the development and integration of information systems to facilitate information sharing and use. The resulting information systems should be designed to support a communications pathway for all relevant components of the national preparedness and response framework.

1.1.2* This guide provides information for the development of consistent methods, processes, and tools to capture, utilize, and share data within scalable information systems. This framework supports and sets the stage for effective data exchange at all operational levels and components.

1.1.3 The intent of this guide is to provide a framework and environment consistent with NFPA 950 that results in an information system for computer aided dispatch (CAD), record management systems (RMS), geographic information systems (GIS), and other associated data systems in common use by fire and emergency service organizations.

1.2 Purpose. The purpose of this guide is to help public safety users envision, plan, build, and maintain an operable, and scalable information system.

1.2.1 A standard approach is essential to manage, use, maintain, and exchange data. This guide assists fire and emergency service organizations in establishing a vision for information management within their organization.

1.2.2 Technology planning is an essential step in creating an integrated information management environment. NFPA 950 mandates a methodology for a step-by-step process for technology planning. This guide recommends a framework for the governance and oversight needed to establish an effective planning process based on NFPA 950.

1.2.3 To create an information system, the authority having jurisdiction (AHJ) must understand the specific requirements for the interoperable use of the data. NFPA 950 sets forth the overarching technical standards these requirements must satisfy. The information in this guide assists the agency in creating a flexible and scalable system that supports data sharing.

1.2.4 This guide provides references and resources for fire and emergency service organization personnel to help identify applications of and uses for data to improve the organization's ability to perform fire prevention, damage mitigation, emergency response, and recovery from emergency incidents.

1.2.5 This guide is a reference tool and job aid that provides practical guidance.

1.3 Application.

1.3.1 This guide was designed to be used by fire and emergency service organizations to develop an information structure and associated requirements and workflows common to fire protection delivery and management for emergency response and administrative use.

1.3.2 When implemented, this guide also creates an environment whereby fire and emergency service organizations will be able to identify best practices, internal and external to the agency, to ensure data operability in mutual and automatic aid environments.

1.3.3 The purpose of this guide is to describe for all levels of the organization the mechanisms for establishing a standards-based information management environment, which is an essential element for optimal functioning of fire and emergency service organizations. Effective information management is a key to be utilized in keeping fire fighters safe, improving outcomes, and satisfying performance metrics. An integrated information technology strategy that adheres to the specifications of NFPA 950 will accomplish these goals by achieving the following objectives:

- (1) Establish and maintain accurate and up-to-date understanding of operations and the events that affect them
- (2) Collect, organize, exchange, and discover through research relevant and authoritative information

- (3) Proactively support community fire planning needs and activities
- (4) Exchange information to establish data streams into and out of the field
- (5) Integrate data from multiple internal and external sources
- (6) Enable a higher level of collaborative decision making with other stakeholder partners
- (7) Maximize value from technology investments

1.3.4 To achieve an NFPA 950-compliant data environment, senior executive leadership must support the decision to implement the framework principles described in this guide. For many in the fire and emergency services, managing information technology is a new endeavor. Therefore, this guide is written to enhance knowledge of fundamental information management principles in the context of the work that is done in the fire and emergency services. It is intended to enhance the knowledge of all members of the organization, as well as related entities, which is essential for successful implementation. This allows leadership the framework for implementing the department's technology plan in the context of a shared vision.

1.3.5* NFPA 950 is a standard that identifies the critical building blocks of a fire and emergency service organization's information management system. The standard provides a common framework for all departments regardless of size, shape, and technological resource availability. Embracing this framework will provide the foundation as an organization begins to assess its particular landscape, analyze its specific technology requirements, and develop a plan that fits its unique environment.

1.3.5.1 Figure 1.3.5.1 provides a framework for how an organization-wide strategy for information management can support the entire organization. A wide range of players within an organization contribute data, perform analysis, and exchange important field intelligence. Utilization of these key elements provides the framework for organizations and their members to perform their mission effectively and will enhance the overall safety environment. These different functions within a fire and emergency service organization also have different requirements for data and applications. The integrated information management platform illustrated in Figure 1.3.5.1 will support all of these key elements and the ability to leverage their respective expertise, perspectives, and skills within this data environment.

1.3.5.2 Figure 1.3.5.1 illustrates the concept behind this guide and NFPA 950. It addresses the four fundamental ways information is used to support the goals of a public safety agency. These four categories are as follows (*additional information for each category is detailed in Chapter 4 and in A.1.3.5*).

- (1) Planning and analysis
- (2) Data management
- (3) Field operations
- (4) Situational awareness

Chapter 2 Referenced Publications

2.1 General. The documents or portions thereof listed in this chapter are referenced within this guide and should be considered part of the recommendations of this document.

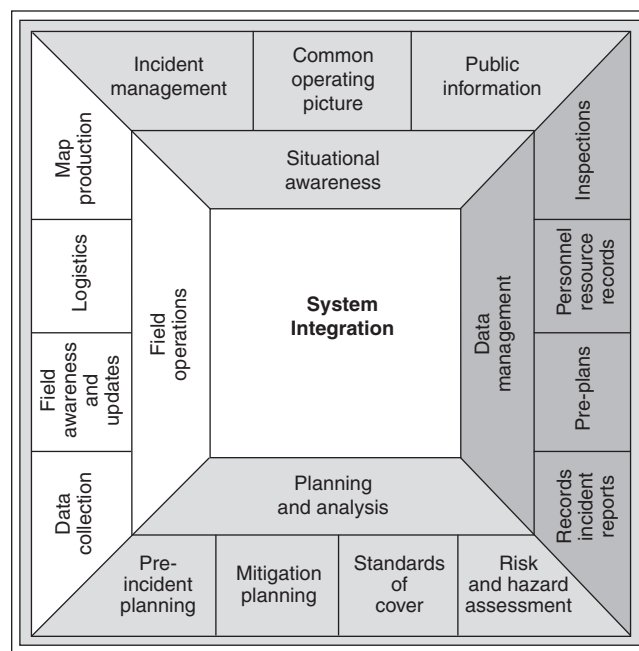


FIGURE 1.3.5.1 Information Systems Framework for Fire and Emergency Service Organizations.

2.2 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 950, *Standard for Data Development and Exchange for the Fire Service*, 2015 edition.

2.3 Other Publications.

Merriam-Webster's Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003.

2.4 References for Extracts in Advisory Sections.

NFPA 450, *Guide for Emergency Medical Services and Systems*, 2017 edition.

NFPA 950, *Standard for Data Development and Exchange for the Fire Service*, 2015 edition.

Chapter 3 Definitions

3.1 General. The definitions contained in this chapter apply to the terms used in this guide. Where terms are not defined in this chapter or within another chapter, they should be defined using their ordinarily accepted meanings within the context in which they are used. *Merriam-Webster's Collegiate Dictionary*, 11th edition, is the source for the ordinarily accepted meaning.

3.2 NFPA Official Definitions.

3.2.1 Approved. Acceptable to the authority having jurisdiction.

3.2.2 Authority Having Jurisdiction (AHJ). An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.