

Lesson 2: Identifying Resources and Processes

Lesson Overview

Lesson 2 provides information about the resources and processes you will use as a GISP. It reviews different components of the ICS organization and the GIS unit, identifies key GIS doctrine, and identifies various GIS systems, tools, and data sources.

This lesson should take approximately 15 minutes to complete.

Learning Objectives

By the end of this lesson, you will be able to:

- Recognize how GIS supports other components in a JFO
- Identify key GIS doctrine and materials
- Identify FEMA GIS systems and tools
- Recognize authoritative data sources

Tying It Back to the Job

This lesson aligns with the following PTB Behavior/Activity:

- Ensure readiness for assignment prior to deployment.

Incident Command System Structure

As a new GISP, one of your first items of business is get a sense of how the organization is structured and find out who you'll be working with. This lesson will help you do that.

Let's start with an overview of the incident management structure you'll be working within.

All FEMA incident management activities are organized according to the Incident Command System (ICS) structure. Under the leadership of the Unified Coordination Group (UCG), a FEMA Joint Field Office (JFO) includes the following four Sections: Operations, Planning, Logistics, and Finance & Administration. The Geospatial Information Unit (GIU) is organized within the Planning Section.

Joint Field Office

The Joint Field Office (JFO) is the primary Federal incident management field structure. It is a temporary Federal facility established to provide a central point for Federal, State, tribal, and local governments and private sector and nongovernmental organizations with responsibility for incident oversight, directions, and/or assistance to effectively coordinate and direct

prevention, preparedness, response, and recovery actions. Typically, the JFO is located at or near the incident area of operations.

Unified Coordination Group (UCG)

The Unified Coordination Group (UCG) at the incident has the primary responsibility to manage the incident. All other levels of the FEMA Chain of Command support the UCG. The UCG is comprised, at a minimum, of the Federal Coordinating Officer (FCO) and State Coordinating Officer (SCO) and any and all major stakeholders such as Tribal governments, Local jurisdictions, or the private sector.

Operations Section

The Operations Section is responsible for all tactical incident operations and implementation of the Incident Action Plan (IAP). The Operations Section coordinates operational support with on-scene incident management efforts and supervises the resources needed to accomplish incident objectives.

Planning Section

The Planning Section is responsible for the collection, evaluation, and dissemination of operational information related to the incident, and for the preparation and documentation of the Incident Action Plan (IAP), functional plans, Advanced Operational Plans (AOPs), strategic plans, and Situation Reports. The Planning Section also maintains information on the current and forecasted situation and reports on the status of resources assigned to the incident. The Planning Section prepares and documents Federal support actions and develops a number of plans.

Geospatial Information Unit

The Geospatial Information Unit (GIU) is responsible for producing all incident specific geospatial products (such as maps, reports, and GIS data). The GIU works closely with other units in the Planning Section to develop the products that are needed to support all phases of the incident (prevention, protection, mitigation, response and recovery).

The use of GIS products and analysis helps provide context for decision makers and gives them a clearer picture of what is occurring at the incident level (i.e., better situational awareness of the incident).

Logistics Section

The Logistics Section is responsible for providing facilities, services, and materials for the incident. This section also orders resources and develops the Transportation, Communications, and Medical Plans.

Finance & Administration Section

The Finance / Administration Section is responsible for all administrative and financial considerations surrounding an incident, including: financial management, monitoring, and tracking of all Federal costs relating to the incident and the functioning of the JFO.

GIU Mission and Responsibilities

As a new GIS Specialist, it's also important to be familiar with your Unit's mission and responsibilities.

What is the Mission of the GIU?

The mission of the GIU is to produce high-quality geospatial products, data and services in support of emergency management. Geospatial products and information play a key role in FEMA's preparation for and response to incidents.

What are the Responsibilities of the GIU?

GIU responsibilities include the following:

- Generating geospatial products
- Managing geospatial data
- Ensuring compliance with established policies and protocols
- Providing geospatial coordination and customer service
- Operating specialized hardware and software applications

GIU Positions

Now let's take a look at the staff members within the GIU.

Who Staffs the GIU?

For a large-scale incident, the leader of the GIU at the JFO is generally the Geospatial Information Unit Leader (GIUL) who reports directly to the Planning Section Chief. In smaller disasters, the Unit may be led by a Geospatial Information Manager (GIMG). The GIUL/GIMG is supported by one or more Geospatial Information System Specialists (GISPs), and, when needed, Remote Sensing Specialists (RMSPs) as well.

While the GIU organizational structure is flexible, each position has a specific set of responsibilities which support organizational efficiency as well as unity of command.

Geospatial Information Unit Leader (GIUL)

- Supervises GIMGs, GISPs, and RMSPs, within his/her span of control
- Participates in intra-agency and multi-agency geospatial coordination with State, FEMA and NRF partners involved in geospatial activities
- Responsible for standing up and demobilizing the GIU
- Participates in the Incident Action Planning process

Geospatial Information Manager (GIMG)

- Reports to the GIUL
- Coordinates GIS requirements and supervises assigned GISP
- Prioritizes GIS production and activities within assigned area of responsibility
- Works with product requestors to properly define requirements and ensures the timely preparation and delivery of recurring and ad hoc GIS products
- Participates in the Incident Action Planning process

Geospatial Information Systems Specialist (GISP)

- Reports to the GIMG
- Collects data from internal and external stakeholders to develop and update geospatial products
- Integrate event-specific model output in coordination with authoritative sources
- Develop key geospatial products
- Participates in the Incident Action Planning process

Remote Sensing Specialist (RMSP)

- Responsible for the coordination of RS requirements, resources, and requests for the team
- Operates as task originator and collection manager for assets related to the operation
- Works with GIMGs to ensure imagery-derived products are delivered in a timely manner

GIS Support for Other Components of the JFO

As a GIS Specialist, you may be asked to provide products and services for a variety of different components within the JFO, such as:

- Unified Coordination Group (UCG)
- Operations Section

- Planning Section
- Logistics Section
- Finance & Administration Section
- Command Staff, including External Affairs

Unified Coordination Group (UCG)

A GISP may provide high level information for decision makers, such as impacted area or status of critical infrastructure or grant programs.

Operations Section

A GISP generally provides the most support to the Operations Section, including the production of products related to the grant programs or environmental impacts, response to the impacts of the incident to households and infrastructure, or other, specialized support, such as to Search and Rescue teams.

Planning Section

A GISP often supports the Planning Section's situational awareness responsibilities, incident action planning, and may also support resource tracking and provide visualizations.

Logistics Section

A GISP may provide support to facility layout and management, or to points of distribution.

Finance & Administration Section

A GISP may provide information to support disaster cost estimation process, or maps of the local commuting area circumference to provide information for disaster administration policies.

Command Staff, including External Affairs

A GISP may provide products related to External Affairs, including the Community Relations staff or to support requests from Congressional staffers. A GISP may also provide support to the Safety Officer, Chief of Staff or other Command Staff positions.

GIU Positions

As a GISP, it is important to be familiar with the doctrine that guides your work. Critical GIS doctrine is provided in the following documents. Taking the time to become familiar with the information in these documents will make the transition into a GIU much smoother.

Federal Interagency Geospatial Concept of Operations (GeoCONOPS)

- Documents current geospatial practice support the NRF and Stafford Act activities

- Identifies and aligns the geospatial resources required to support the Whole Community, NRF, ESF, and supporting Federal mission partners
- Intended to reduce redundancy and confusion and ensure efficient access to geospatial information for incident management

Geospatial Incident Management and Support Guide

- Provides an overview of National/Regional Incident Support positions as well as Incident-level positions during event response/recovery
- Describes how these positions work with each other during an incident

GIS Systems

When you check-in to a JFO, you will receive a laptop that includes all the software you need to perform your assigned duties. This will include standard GIS tools and software available to FEMA personnel.

In addition to the laptop, you will be given access to geospatial data, as well as access to the printers (including desk printers and large-format printers) you may need to produce your products.

For additional information about FEMA GIS enterprise tools, see the Geospatial Incident Management and Support Guide.

GIS Data Sources

As a GISP, one of your primary responsibilities will be to gather the data needed to complete your tasks. You will have a number of different data sources at your disposal as you do so.

Foundation-Level Data

Foundation-Level Data is a compilation of geospatial data layers characterizing domestic infrastructure, boundaries and other information for emergency preparedness, response and recovery communities.

Examples of foundation-level data sources include:

Homeland Security Infrastructure Program (HSIP) provides inclusive national dataset of integrated views of national infrastructure and critical asset information.

The **USGS National Map** is a collaborative effort of the United States Geological Survey (USGS) and other federal, state, and local agencies to improve and deliver topographic information for the United States. It provides "...a seamless, continuously maintained set of public domain geographic base information that will serve as a foundation for integrating, sharing, and using other data easily and consistently".

geodata.gov is an Internet-based capability that provides shared and trusted geospatial data, services, and applications for use by government agencies and partners.

State and Local Data

State and local data is a compilation of geospatial data layers characterizing domestic infrastructure, boundaries and other information produced by State and local government organizations. Sometimes data produced by State and local organizations is more accurate than Federally produced data.

Examples of State and local data sources include:

State Geospatial Departments which provide clearinghouses and central repositories for spatial data.

The **National States Geographic Information Council** (NSGIC) has created a tool for states and their partners, whose primary purpose is to track the status of GIS in use by state and local governments to aid the planning and building of Spatial Data Infrastructures. This tool is Ramona (also referred to as the GIS Inventory).

Incident-Specific Data

Incident-Specific Data is data unique to the event. Often this valuable information is the most accurate data for the incident, but communication of data can be difficult throughout organizational levels during response and recovery.

Examples of incident-specific data sources include:

Volunteered Geographic Information (VGI), the harnessing tools to create, assemble, and disseminate geographic data provided voluntarily by individuals.

FEMA data, including grant program data (Individual Assistance applicants, Public Assistance Project Worksheets, Mitigation grant locations); damaged area data, status of declarations and preliminary damage assessments, Federal teams and resources.

State data, including power status and damaged area data, State teams and resources.

Local data, including damaged area data, local teams and resources.

Recognizing Authoritative Data Sources

When collecting information, you have many possible sources to work with. While all information is valuable for establishing Situational Awareness, it is important to ensure that information is cross-checked with an authoritative data source.

What is an Authoritative Data Source?

An authoritative data source is a recognized or official data production source with a designated mission statement or source/product to publish reliable and accurate data for subsequent use.

Authoritative data falls into one of two categories:

- Rational Authority
- Expert Authority

Rational Authority

Rational Authority - Government agencies are by default the “authoritative” sources for data or services that they produce or have statutory responsibility for.

Examples of rational authorities include:

- USGS - Streams and river data
- USGS – National Elevation Datasets
- FEMA – FEMA Regional Offices
- FEMA - Hurricane Evacuation Routes

Expert Authority

Expert (scientifically) authoritative data is defined in terms of the various professions under which the standards and methodology for data are created.

Examples of expert authority include:

- Volunteered Geographic Information (VGI) such as imagery and information analysis
- Data and analysis provided by academia
- Studies conducted by recognized think tanks

Data sources can be either internal or external to the JFO.

Internal

Sources within the JFO include: FEMA, Emergency Support Functions (ESFs), State counterparts

External

External sources with the emergency management community include: FEMA Regional and national staff, Public/Private Utility providers such as ConEdison, Waste Management, etc.

Credible and Non-Credible Sources

Being able to quickly gather data that is both current and accurate is always a challenge. You will need to continuously evaluate your data sources since some will be more credible than others.

Credible Sources

A credible source is a source that offers “reasonable grounds for being believed.” It is important to establish a list of trusted, credible sources from which to obtain data to support geospatial production. While not considered “authoritative,” this mix of open sources, as well as official information providers should become a go-to constellation of data resources for geospatial data collection and exploitation within FEMA.

Non-Credible Sources

Sources that lack credibility should rarely be used, if ever, within FEMA official production and reporting; however, there will be certain occasions where the only source reporting a specific piece of data that fulfills an information gap will make its way into a product. Such data should always be caveated within the product, and, as soon as practical, follow-up research should be conducted to determine the validity of that specific piece of data.

Lesson Summary

This lesson presented the following topics:

- Recognize how GIS supports other components in a JFO
- Identify key GIS doctrine and materials
- Identify FEMA GIS systems and tools
- Recognize authoritative data sources

The next lesson explains how to get started in a JFO.