GISCorps Volunteer
Deployment Handbook

August 2007

Revision History

#	Date	By	Description
0.01	28/05/07	D. Haley	New version from original submitted by volunteer committee.
0.02	06/06/07	S. Elhami	from Dianne and Dick's version, all additions and modifications in red
0.03	27/06/07	D. Haley	Continuing from Shoreh's version with the edits
0.04	10/07/07	D. Haley	Minor grammatical and format changes. Added more links to sites.
0.05	16/07/07	D. Haley	Incorporated revisions suggested by Core Committee members.
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In Appreciation

Introduction

A program of the Urban and Regional Information Systems Association (URISA), GISCorps coordinates short term, volunteer GIS services to underprivileged communities worldwide. Our services support humanitarian relief, community development, local capacity building, health and education. GISCorps coordinates the recruitment process and the final selection of its volunteers; after both parties have been introduced to each other and have agreed to work with one another, our recruitment role ends. GISCorps will continue to monitor the status of the mission, communicating with volunteers and representatives of the partner agency, and request feedback from all concerned at the conclusion of the mission.

GISCorps is run by a Core Committee who e-meet monthly but e-communicate daily. As of June 2007, GISCorps has of over 1,100 enlisted volunteers. They reside in 47 countries over five continents and are natives of 57 countries. The US volunteers come from all 50 states. To date, GISCorps has implemented 20 missions around the world, and has contributed over 5,100 volunteer working hours.

Mission Statement

Operating under the auspices of URISA, GISCorps coordinates short term, volunteer based GIS services to underprivileged communities.

Vision & Goals

GISCorps volunteers' services will help to improve the quality of life by:

- Supporting humanitarian relief.
- Enhancing environmental analysis.
- Encouraging/fostering economic development.
- Supporting community planning and development.
- Strengthening local capacity by adopting and using information technology.
- Supporting health and education related activities.

GISCorps implements URISA's vision of advancing the effective use of spatial information technologies.

GISCorps makes available highly specialized GIS expertise to improve the well being of developing and transitional communities without exploitation or regard for profit.

GISCorps coordinates the open exchange of volunteer GIS expertise cooperatively among and along with other agencies.

GISCorps strengthens the host community's spatial data infrastructure through implementation of the best and most widely accepted GIS practices.

GISCorps fosters the development of professional organizations in host communities to help sustain and grow local spatial expertise.

GISCorps benefits:
- Communities in need
- GISCorps volunteers and their communities
- URISA
- GISCorps' partner organizations

- Spatial Information Technologies
- Global professional networking

Purpose of the Volunteer Deployment Handbook

The GISCorps Volunteer Deployment Handbook is provided by GISCorps as a source of general information for future volunteers, and serves as a general reference for deployment guidelines. The handbook describes the various types of missions to which GISCorps volunteers may be deployed, categorizing the missions broadly as Remote or On-site. The basic information within this document provides examples of possible living conditions, fundamental personal and professional necessities required, and illustrates the GIS environments that a volunteer may encounter. It is not intended to be all-encompassing, but to provide a basic framework for the volunteer to build upon in order to have a successful deployment.

Code of Ethics

The GIS Code of Ethics, approved by the URISA Board of Directors in April 2003, is intended to provide guidelines for GIS (geographic information system) professionals. It should help professionals make appropriate and ethical choices. It should provide a basis for evaluating their work from an ethical point of view. By heeding this code, GIS professionals will help to preserve and enhance public trust in the discipline.

All GISCorps volunteers are asked to, and expected to adhere to the GIS Code of Ethics. The complete Code of Ethics can be found on the URISA web site at
http://www.urisa.org/about/ethics.

Organizing Principles and Policies

The Principles and Policies of GISCorps can be found at http://www.giscorps.org/gc_policies.php

Remote Deployments

Remote deployments are those which do not require the volunteer to leave their home or work environment. In almost all remote cases, volunteers will use their own hardware and software, and connect with the partner agency representative(s) via email, online phone systems such as Skype or Google Talk, and FTP sites.

Similar to an On-Site mission, the details and duration of a remote mission are clarified at the beginning of the project. The volunteer is responsible for tracking the time that she/he spends on the project so it can be reported at the end of the mission.

Remote Deployments could occur in Emergency and Non-Emergency Response related missions, both domestic and international, although remote missions for Non-Emergency projects in North America are rare.

The following links provide examples of GISCorps volunteers' Remote missions:

- UNHCR (International, Non-Emergency): http://www.giscorps.org/unhcr.php
- Seeds India & MapAction (International, Emergency): http://www.giscorps.org/field_info.php
- Washington Parish, Louisiana (North America, Emergency): http://giscorps.org/deploy3.php

On-Site Deployments

On-Site deployments could occur in Emergency and Non-Emergency Response related missions, both domestic and international, although On-Site missions for Non-Emergency projects in North America are rare.

GISCorps volunteers are selected based on their ability to work independently, adapt to the working environment quickly, interact with other GIS and non-GIS professionals, and maintain professionalism at all times. They are also selected because of their technical capabilities and should expect those skills and capabilities to be challenged during their deployment. GIS is a technology used to solve problems in a variety of professions. In some cases, GIS services may not have previously been integrated into the business processes of an organization, and therefore may become a challenge.

The following general guidelines and information apply to all deployments regardless of the location or the type of the deployment. Note also that these may not apply in all deployments.

General Expectations

- Possible extended work hours (12–16-hour shifts, day and night).
- Potential language barriers.
- Possible shared living conditions.
- Possible stressful working conditions.
- Relocation upon arrival (away from home base or initial deployment site).
- Potential uncomfortable living conditions (sleeping on the ground, presence of dust and smoke, showers may not be available, and food as arranged by the hosting agency or organization).
- Working directly with other disaster response personnel, which may include agency, contract, military, or prison crews (not applicable to all) (in Emergency related missions).
- Cultural differences.
- Understanding and acknowledging challenging local customs. You are a guest in an agency with a long established culture and politics.
- Your professional abilities may not be fully realized or incorporated as you feel they should be.
- You may not immediately feel welcomed and trusted by those who need your help.
- Pace of work will vary and may be uncoordinated.

What Not To Expect

- Luxury accommodations
- Electricity, plumbing, air conditioning may not exist or be available
- Internet access
- Hardware, software or supplies. Abundance of printers, plotters, CDs, paper, etc.
- Cultural similarities
- Business as usual.

What Makes a Good Volunteer

- **Flexibility:** The assignment requirements may change before or after deployment. You need to be willing to scrap the carefully prepared script and do what needs to be done.
- **Adaptability:** Living conditions including food, housing, and transportation arrangements will vary with the nature of the deployment location and whether it is an emergency or non-emergency deployment. In most cases, hosts provide the best that they can. It is important to

accept and appreciate what is provided, and to be willing to experience it. **GISCorps will not deploy personnel into areas known to be dangerous or hazardous**, but that does not necessarily mean that conditions will be normal or that hazards will not be encountered. GISCorps depends on the group or agency receiving assistance to provide for basic amenities. Basic amenities do not necessarily include a hotel room. Provision of basic amenities <u>usually</u> means that there will be a safe place to sleep and food will be provided. A volunteer must be willing to adapt and embrace cultural differences. Working conditions will also vary with location. The power for equipment may range from normal electrical circuits to noisy generator power. There may or may not be phones, Internet, or cell phone service. Reliance on some of these services may seem basic but should not be assumed.

- **Commitment:** Commitment to stay with the project through its completion; to establish trust from the host agency; to put the short term goals of host agency at the forefront yet without compromising long term goals for technology sustainability; and commitment to adjust your expectations according to field situations.
- **Some knowledge of the place of deployment:** Even minimal knowledge of the history, culture, politics, and social environment that you will experience can make the visit much more enjoyable, and will go a long way in your success (or lack thereof) with your sponsor.

Some Technical Requirements

These requirements vary from one mission to another.
- Effectively use the GIS software requested by the partner agency.
- Work with a variety of spatial data types (raster and vector) including knowledge of various data types.
- Understand Global Positioning System (GPS) data collection methods and be able to download, process, and incorporate the data.
- Understand the concepts of geo-coding with multiple forms of data.
- Understand a variety of projections and datums including geographic coordinates (latitude/longitude) and be able to re-project data in multiple formats.
- Answer questions requiring basic GIS analysis functions, such as clipping, erasing, intersecting, or summarizing areas.
- Troubleshoot hardware and software problems to keep the GIS equipment operational. This may include basic software installs, ensuring the license managers are functioning, installing print drivers, or connecting a plotter to a computer.
- Communicate effectively with people both external to and within GISCorps and the agencies or groups it is supporting by explaining technical issues/concerns, training others in basic map reading and exchanging technical information.

Deployment Supplies

While housing and meals may be pre-arranged, the volunteer should plan to be as self-reliant and self-sufficient as possible. Do not *assume* meals will be arranged; the volunteer might need to use local currency to purchase food as available. The volunteer should also be prepared to provide a wide range of items, both personal and technical, if necessary. As with all travel, there are a number of things that the volunteer should have with them. These lists are not intended to be complete for every volunteer or type of deployment, but are intended to assist the volunteer in starting their preparations. While in many cases there may be locations where supplies are available for purchase, there may also be areas of deployment where no stores are open and supplies are being used by locals. Packing light will help with mobility. A backpack or camping bag is preferable to larger pieces of luggage.

	Types of personal gear to bring		**Toiletry and personal items**

☐ Changes of clothes - consider carefully		☐ Tooth brush/paste	
☐ Pants		☐ Soap/shampoo	
☐ Shirts		☐ Deodorant	
☐ Hat		☐ Insect repellent	
☐ Sturdy shoes and/or boots		☐ Toilet paper (small personal supply)	
☐ Shower shoes		☐ Comb/brush	
☐ Jacket / rain gear		☐ Sunscreen	
☐ Undergarments		☐ Eye drops/contact solution	
☐ Socks		☐ Earplugs	
☐ Towel and washcloth			

Additional Items

☐ Identification
☐ Money and a credit card
☐ Water resistant packs for id, papers, money, passports, etc.
☐ Sunglasses/extra glasses
☐ Sleeping bag
☐ Flashlight
☐ Extra batteries
☐ Battery/wind-up alarm clock
☐ Cell phone - with outlet & car chargers
☐ Camera - digital and /or disposable
☐ Small emergency kit /snake bite kit
☐ Quick food (energy bars) or snacks
☐ vial of bleach to disinfect water or other items
☐ Small vial of hand sanitizer <2 oz for airline travel
☐ backup/replacement batteries for cell phone

Medicines

☐ Prescriptions - Carry enough of any Prescription Meds to cover at least two times the expected deployed time (in the event of a delay in return).

Over the Counter – do not assume that cold medicines, etc. will be available. PLAN AHEAD;
☐ Ibuprofen/aspirin
☐ Topical antibiotic cream
☐ Hydrocortisone
☐ Benadryl
☐ Anti-diarrhoea tablets
☐ Vitamins

Electronic Equipment

Some deployments may require the volunteer to provide their own software and equipment. GISCorps will attempt to notify volunteers of the requirements before deployment. In these cases, it is important that the volunteer ensure they have with them all items necessary for a successful deployment. The type of equipment to bring will be dictated by the type of deployment/response. Volunteers are reminded to check with their cell phone provider ahead of time to set up special calling plans to/from the deployment site.

The following list can be used by a volunteer as the basis to start a personal checklist.

Hardware	• PC or laptop with CD writer, USB ports, and sufficient RAM to run GIS software
	• Appropriate connection cables (extra cables and long cables), hubs, power supplies, international power converters
	• External portable hard drive (suggested)
	• GPS Receiver
Software	• Standard current version of commercial off-the-shelf (COTS) GIS software installed on the computer and operational. Bring software CD-ROM for re-installs (much easier to reload than it is to download)
	• A variety of printer drivers for various popular printers and plotters

	• Any required dongles (including sentinel keys or hardware keys) for appropriate licensing
	• Any appropriate data disks the volunteer may have or have downloaded
Power	• Internet connection method and service
Media	• USB jump (thumb) drives/memory sticks
	• Blank CDs/DVDs

Potential Safety and Health Hazards to Consider Prior To Deployment

- Uncomfortable weather conditions (sun, heat, humidity) and toxic working conditions (standing water, mould)
- Indigenous insects, snakes, rodents, mosquitoes
- Compromised tap water
- Fatigue, stress, heat related illness
- Unstable walking terrain, debris, potholes, mud
- Exposure to new elements causing allergies, sunburn, cuts, abrasions, infections
- Excessive noise
- Potential unknown chemicals
- Electrical hazards, fires, gas leaks
- Unsanitary conditions

Persons who have mould allergies should consider the humid environmental conditions that might occur with disasters like hurricanes.

Strict personal hygiene is essential. Use of alcohol-based hand sanitizers is recommended.

International

International deployments demand specific requirements, whether for Emergency or Non-Emergency related missions. However, for an Emergency Response mission, *time may not be on your side relative to vaccinations*. Your doctor's office or a travel clinic is a key place to ask what immunizations are recommended for your travel. You can also research this yourself via The Center for Disease Control; refer to http://www.cdc.gov/.

Please check with the local authorities to verify immunizations required for travel. You need to accept responsibility for deployment and the potential illnesses and hazards present. Natural disasters often displace or agitate local wildlife, canines, etc. Be aware.

Most International deployments are located in developing countries. By definition, the economic and social structure will be strained and proper planning and awareness of one's surroundings will be needed. Be advised that GISCorps will have coordinated with the host agency and secured living arrangements, food and transportation.

A valid passport is required. It can take a number of weeks to obtain a passport, although it may be possible to expedite the process. Contact your local passport agency for information.
- For volunteers who are US citizens, refer to http://travel.state.gov/passport/get/first/first_832.html for passport information. Up to 10 weeks will be needed; expedited requests will take 2 weeks.
- For volunteers who are Canadian citizens, refer to http://www.passport.gc.ca/index.aspx?lang=e for passport information.

- Volunteers of other nationalities will need to refer to the agency that is responsible for issuing passports for that country.

The volunteer will have a contact person(s) from the hosting agency and this person will ensure that the volunteer's stay will be as safe and comfortable as possible. However, the volunteer should make themselves aware of the basics of local customs and culture, and the political landscape. Be aware that GISCorps volunteers are goodwill ambassadors, representing GISCorps at all times.

Tips for Traveling Abroad

- Ensure you have a signed, valid passport and the required visas. Complete the emergency information page of your passport.
- Read the Consular Information Sheets (and Public Announcements or Travel Warnings, if applicable) for the countries you plan to visit.
- Familiarize yourself with the local laws and religious and social customs of the countries to which you are traveling. While in a foreign country, you are subject to its laws.
- Make 2 copies of your passport identification page. This will facilitate replacement if your passport is lost or stolen. Leave one copy at home with friends or relatives. Carry the other with you in a place separate from your passport.
- Leave a detailed itinerary and the numbers or copies of your passport or other citizenship documents with family or friends at home so that you can be contacted in case of an emergency.
- Do not leave your luggage unattended in public areas. Do not accept packages from strangers.
- Prior to your departure, register with the nearest embassy or consulate of your country of residence. Registration will make your presence and whereabouts known in case it is necessary to contact you in an emergency.
- To avoid being a target of crime, try not to wear conspicuous clothing and expensive jewelry. Do not carry excessive amounts of money or unnecessary credit cards.
- In order to avoid violating local laws, deal only with authorized agents when you exchange money or purchase art or antiques.
- If you get into trouble, contact the nearest embassy of your country of residence.

Money Matters
Exchanging currency in a foreign country should be approached with forehand knowledge of exchange rates. Be advised that visibly used money (torn, ripped, wrinkled) may sometimes not be exchanged in some countries. If possible, ask your bank for newer paper currency. The exchange rates may sometimes depend on the condition of the money. There will be an officially sanctioned rate for the host country's currency but this rate is not guaranteed at all exchange locations such as hotels, restaurants and shops. A savvy traveler will know the official rate beforehand and be able to recognize, and not fall prey to, inflated rates. Exchange rates will also vary greatly depending on where you go within the deployed city. The airport exchange rate may be the highest rate when compared to that at a local bank or hotel. Do not work with black market individuals promising exceptional returns on the dollar; stick with authorized agents. Not only do you risk losing a lot of money, you risk criminal prosecution.

There are many exchange rate calculators on the Internet such as
http://www.oanda.com/convert/classic

Depending on your destination, US dollars may be more desired by locals than their home currency, given the stability of the dollar. For this reason, US currency may yield a higher exchange rate than travelers' checks. Determine the local policy regarding this; some local

governments prefer that commerce is completed with local currency that has been converted at an official location.

While housing and meals will normally be arranged for, the volunteer should plan to be as self-reliant and self-sufficient as possible. Do not assume meals will be arranged; the volunteer might need to use local currency to purchase food as available.

Health and Safety

One of the most important considerations when traveling abroad to developing countries is the potential for disease related illness. Drink bottled water or other drinks; tap water may be safe, but invariably will contain local micro-organisms that your body will not have had exposure to. Another important consideration is the local population of poisonous snakes, spiders, insects and animal predators.

The best and most reliable source for traveller's health information is found at the Centers for Disease Control web site (www.cdc.gov). There is a section for each region (Africa, Asia, South America, etc.), and information for each country. If you are selected for an assignment, print the appropriate list and take it to your Doctor to ensure that you receive all the right shots and medications.

If your own Doctor is not well versed in tropical or international medicine, or does not carry the vaccines needed, Universities in your area may have a "Travel Health Clinic" (or something similar) which provides these services for a nominal fee. These clinics are often associated with the Medical School of the University.

Schedule a visit to the doctor 4 to 6 weeks before your trip. Most vaccines take time to become effective in your body and some vaccines must be given in a series over a period of days or weeks. See your doctor even if it is less than 4 weeks before you leave; you might still benefit from shots or medications and other information about how to protect yourself from illness and injury while traveling. Ensure you are up to date on routine vaccinations. These vaccines are recommended to protect travelers from illnesses present in other parts of the world and to prevent the importation of infectious diseases across international borders.

Additional Information About Where You Are Going

There are several places to get information about travel to a foreign country.

For U.S. citizens, the first site may be the U.S. Department of State, at http://www.state.gov/. A page for Travel Advisories and Warnings covers areas for which the State Department has concerns about potential political, health, or other types of situations. There is also a country summary for every country in the world, outlining the current environment in each country.

The Canadian Government, the British Foreign Office, and the Australians also maintain sites similar to this for their citizens.

The CIA World Fact Book provides a country fact sheet for every country in the world. The Fact Book has significant information on the current political, economic and demographic environment for each country, the name of the U.S. Ambassador, location of the Embassy, name of the country's ambassador to the US, and location of the Embassy in the US, visa requirements, etc.

Various commercial guide books often have information on cultural, historical, and social aspects of a country, or cities and regions within countries. Among those that have been found to be

helpful are the Lonely Planet, and the Rough Guide series books. These list inexpensive options for food and lodging, and getting around (by bus, train, boat, as well as by car and airplane). In addition, they provide significant health and safety information. A volunteer can get a better understanding of what it might be like in a given place by reading these guides.

It is also recommended that you register your travel with the State Department, or similar agency in your country of residency or nationality. For more information on travel registration for US citizens, visit the travel registration website. Canadian citizens should visit http://www.servicecanada.gc.ca/en/goc/registration_canadians_abroad.shtml.

North America

While GISCorps deploys volunteers to Emergency Response related missions in North America, it rarely provides volunteers to Non-Emergency projects in this region. Therefore, this section will mainly focus on *Emergency Response* related missions.

It should also be noted that the majority of the guidelines listed in previous sections also pertain to Emergency Response related missions in North America and as such, volunteers need to thoroughly familiarize themselves with other sections in this document.

GISCorps' largest Emergency Response related deployment occurred immediately after Hurricane Katrina hit the coasts of Mississippi and Louisiana in September of 2005. This section will primarily include information and lessons learned from those deployments.

When serving on an Emergency Response related mission, the volunteer may be responsible for any/all of the following:

- Establish physical workspace.
- Gather what incident data you can; collect hard-copy maps already in use.
- Establish what coordinate system and units will be standard for the data.
- Establish and maintain a standardized file naming procedure.
- Establish and maintain a standardized filing structure for data storage.
- Insert existing base data into directory structure.
- Collect and maintain any additional data.
- Create new data as needed for incident operations:
    - o Incorporate data from GPS units and other sources.
    - o Digitize other incident data.
- Properly document data and archive work according to the FGDC Metadata standards.
- Properly consider the sensitive nature of some of the data collected and consider the Privacy Act when distributing or sharing data.
    - US Privacy Act http://www.usdoj.gov/oip/04_7_1.html
    - Canadian Privacy Act http://www.privcom.gc.ca/legislation/index_e.asp
    - Australian Privacy Act http://www.privacy.gov.au/ACT/privacyact/
- Transfer GIS data to and from various locations.

Communications

The volunteer needs to maintain timely and effective exchange of information among the Situation Unit and all affected agencies and organizations. When communicating with other technical staff from outside the incident, it is imperative that the volunteer maintain a professional demeanour when performing duties. Expect possible meetings with multiple agency personnel of any rank or title. When communicating within the incident, it is essential that the volunteer follow the established chain of command at all times. Most incident

communications, such as requests for materials, maps, or information, will be tracked by using a request form such as the one found in Appendix A. In remote deployments where a clear chain of command is not present, GISCorps volunteers should be wary of providing map or derivative products to persons, contractors or others posing as organizations who might take advantage of the situation.

Products

There are numerous types of products – hardcopy and softcopy - that might be needed or requested during an incident. Many of these may be one time requests, but there will be a core of products that will be requested. It is important to identify of those products, along with their delivery times and frequency, at the beginning of the mission or deployment.

Emergency Operation Centers (EOC) normally operate on some form of a 12 hour shift with some scheduled overlap time between shifts for a briefing period. This schedule should also apply to the GISCorps volunteers. GIS technology is a supporting tool for decision makers, and EOC shift changes are one of the many times GIS products are required. GISCorps volunteers should be prepared to facilitate the production of those products in any number of ways.

- Map and/or Data requests are best handled by establishing an order form. Refer to the example in Appendix A.
- Establish standards on data layers, Storage Format Type (i.e. Shapefile, file or personal geodatabase), Projection, and Metadata.
    - Develop Map Standards:
        - Map templates
        - Symbol Sets
        - Line Sets
    - Develop standards for Database schema:
        - Development of geodatabases and related tables, etc.
        - Integration with Access data tables
        - Conversion of Data from disparate sources - Excel, Word Tables, etc
- Develop standard products for update based on multiple requests.
- Data Generation:
    - Select appropriate data from existing datasets
    - Be prepared to generate data from paper or other non-digital sources.
- Data Analysis: development and running of analysis models or overlay analysis.
- Be prepared for various data collection techniques and methodologies in the field using GPS or paper forms.
- Be prepared to create Map Books/Grids.

Remember if you are in an emergency situation, and maps are urgently needed to disseminate information quickly, you might not be in a position to spend several hours creating a product of fine cartographic quality. Make sure the essential information with appropriate legends or marginalia are available to those who need it.

What Data Should a Volunteer Look For Upon Arriving At Their Deployment Location

In most cases, the project contact will provide a list of available and reliable datasets. In some cases volunteers may be asked to look for datasets. In those cases, look for datasets that are scale appropriate and as current and accurate as possible. These datasets could be obtained from various levels of government; local (city and county), state, regional, or federal.

Local Level Data

Parcel Dataset – Many emergency responders, including FEMA, will greatly benefit from detailed GIS datasets such as parcel data. In general, local governments (City/Town/County) are the best source for parcel datasets.

Address Point Layer – In addition to the local governments mentioned above, Emergency - 911 Computer Aided Dispatch (CAD) Systems might also be a source for this information. Address point data will be a great source for geo-coding, and in most cases superior to geo-coding against a road centerline.

Road Centerline – The best sources for this dataset are the local government and then the Emergency – 911 departments. Commercial datasets may also be available from companies such as TeleAtlas or Navteq. The road centerline should include address ranges to allow for geo-coding, and if not, it should include road names and road classifications that would enable the volunteer to group the roads as follows: Interstate Highways, US Highways, State Highways, County Roads, and detailed Urban Streets.

Administrative Boundaries – These include maritime boundaries, state, county, city, townships, state and federal lands (parks, forests, etc), local emergency response zones or jurisdictions for police, fire, EMS, etc. These datasets are sometimes available in CAD systems at Emergency – 911 departments or the local government offices.

State Level data

In order to determine the datasets available at the state level, check out the National States Geographic Information Council's (NSGIC) web site at http://www.nsgic.org/. NSGIC has also placed a collection of Homeland Security/Emergency Management GIS Resources at http://www.nsgic.org/hottopics/geospatialpreparedness.cfm

Many other datasets may exist at the local, state, or federal level. They include:

- Fire stations and Police Stations - including information about the number of full-time, part-time, and volunteers.
- Fuel Stations.
- Grids – US National Grid, Local Grids (used for Search and Rescue).
- Major or detailed hydrography.
- 100 year FEMA floodplains, stream/river lines and polygons, and water body polygons. These should be available in two scales, one for state/regional type products and one for local level products.
- Hospitals - attributes related to number of beds, trauma care level available, etc.
- State and Local Emergency Operations Centers, including contact information.
- Schools - possible attributes for type of school (grade levels) and capacity.
- Other large public facilities - this would include buildings that might be used as evacuation centers or centers of operations for different groups. This would include convention centers, sports arenas, fairgrounds, community centers, etc.
- Water treatment plants.
- Waste water treatment plants.
- Water wells or water supply intakes.

Additional Data Sources

The **H**omeland **S**ecurity **I**nformation **P**rogram (HSIP Gold/Freedom) has nationwide coverage of Critical Infrastructure GIS data. HSIP national coverage data layers range from transportation and utilities infrastructure to public health and financial assets. Urban layers include airports, government installations, place names, landmarks, high-resolution imagery, elevation data and much more. As the datasets grew, the agency also developed Palanterra, a secure, Web-enabled COP (common operational picture) data viewer. License restrictions on several key infrastructure datasets prohibiting distribution outside of the federal government limited in the data that could be provided. To alleviate this limitation, NGA, DHS, USGS, and TGS have initiated a state outreach effort with state GIS coordinators (NSGIC - http://www.nsgic.org/states/index.cfm) where unlicensed data will be included in a new product, HSIP Freedom. HSIP Freedom will place state and local agencies on an even footing with federal homeland security agencies.

State and local government partners of DHS may access the HSIP Gold v.2 data for visualization via the DHS Integrated Common Analytical Viewer (iCAV) using their login credentials for the DHS Homeland Security Information Network (HSIN). You may login to iCAV at: https://icav.dhs.gov/.

The ESRI data DVD (ESRI data for world and US including business data) provides base mapping for areas that have no pre-existing data in GIS format.

Internet Based GIS Resources

There are a multitude of Internet based mapping resources. These can be useful, but are potentially limiting:

1. Many do not allow the upload of locally created data such as road closures, open gas stations, food and water distribution centers, or anything related to a current emergency. Google Earth is a notable exception, allowing for the use of KML format data within the professional edition.
2. The Internet must be available. Initial support should not be reliant upon the Internet. However, continued response and recovery is ideally suited for the Internet by providing wide access to information.

Palanterra – National Geospatial Intelligence Agency (NGA) and USGS have developed this collaborative project. Using *The National Map* coverage The Palanterra virtual geospatial intelligence environment enables relevant agencies to view HSIP data to support security event activities and disaster response**.**

Google Maps http://maps.google.com/maps

Google Earth http://earth.google.com/

Geospatial One Stop http://gos2.geodata.gov/wps/portal/gos/

GIS Data Depot http://data.geocomm.com/

National Geographic Map Machine http://plasma.nationalgeographic.com/mapmachine/

EPA Geodata Web Services http://geodata.epa.gov/

NOAA for coastal areas http://www.csc.noaa.gov/products/datasites/

The National Map http://nationalmap.gov/

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The National Map Hazards Data Distribution System
http://gisdata.usgs.gov/website/Disaster%5FResponse/ provides an online map interface that can be used to view USGS datasets that are part of The National Map. The site includes a viewer for Hurricane Katrina, and is the distribution site for all commercial imagery.

More detailed information on post Katrina emergency preparedness initiatives are placed in Appendix B.

Appendix A: Sample Map Request Form

M.E.M.A.
KATRINA MAP REQUEST

Date (dd/mm/yy) _____ Priority: _____

Requesting Agency: _____ Name: _____

Phone: _____ Email: _____

Date/Time needed: _____ Requestor's Building/Location _____

Description:

_____

_____

Area: Size:

___ Statewide   ___ Quantity   ___ E(3'x4')   ___ D(2'x3')   ___ 11x17   ___ 8x11
___ By County   ___ Quantity   ___ E(3'x4')   ___ D(2'x3')   ___ 11x17   ___ 8x11
___ Other   ___ E(3'x4')   ___ D(2'x3')   ___ 11x17   ___ 8x11
___ Digital Format   ___ PDF   ___ BMP   ___ Other   _____

Layers

Health	Thematic	Planimetric	Hazus/Utilities
___ Ice	___ Closed Roads	___ Counties	___ Cell Towers/Buffers
___ Water	___ Population Density	___ Primary Roads	___ Transmission Lines
___ Food	___ Winds	___ Detail Roads	___ Power Outages
___ Hospitals	___ Inundation	___ Streams	___ Power Restored
___ MSAT	___ Damage Assessment	___ Cities	___ % Power
___ Care Centers	___	___ Bldg. footprints	___ Gas Stations
___ Healthcare	___	___ Contours	___
___	___	___	___
___	___	___	___

Completed By: _____

Date/Time: _____

Appendix B: Additional Emergency Response Information

Since hurricane Katrina, a number of initiatives have documented emergency response guidelines. Of these, the most notable are the National Response Plan (NRP), and the National Incident Management System (NIMS) which relies in part on the Incident Command System (ICS). These guidelines are being deployed to the local level from the Federal government by tying Homeland Security funding to the adoption and implementation of these guidelines. Following these guidelines is important in order to minimize confusion, delays and inefficient emergency response. GISCorps volunteers are encouraged to acquire a basic understanding of these principles, and thereby permit a more seamless integration into response and recovery operations at the local, state and national level.

National Response Plan (NRP)

The National Response Plan (www.dhs.gov/nationalresponseplan) establishes a comprehensive, national, all-hazards approach to domestic incident management across a spectrum of activities.

Download the National Response Plan

- **Quick Reference Guide to the National Response Plan** *(PDF, 27 pages - 315 KB)*
- Notice of Change to the National Response Plan *(PDF, 51 pages - 451 KB)*
- National Response Base Plan and Appendices *(PDF, 114 pages, 2MB)*
- Full Version *(PDF, 426 pages, 4MB)* including all annexes, "Emergency Support Function Annexes", "Support Annexes", and "Incident Annexes."
- Food and Agriculture Incident Annex, July 2006 *(PDF, 10 pages - 82 KB)*

Download Joint Field Office Standard Operating Procedures and Field Operations Guide
Updated - June 12, 2006
- Joint Field Office (JFO) Activation and Operations, Interagency Integrated Standard Operating Procedure *(PDF, 72 pages - 784 KB)*
- Joint Field Office (JFO) Activation and Operations, Interagency Integrated SOP Appendixes and Annexes *(PDF, 230 pages - 1.8 MB)*
- Joint Field Office (JFO) Field Operations Guide (FOG) *(PDF, 157 - 1.3 MB)*

FEMA Emergency Management Institute Independent Study

GISCorps volunteers interested in responding to emergency situations are encouraged to complete a series of Internet based training modules (no registration fee) (http://emilms.fema.gov/, or the Independent Study home page at http://training.fema.gov/IS/):

- *IS 100 - ICS Overview* (http://training.fema.gov/EMIWeb/IS/is100.asp) and *IS 700 - Introduction to the National Incident Management System* (http://training.fema.gov/EMIWeb/IS/is700.asp) are courses suggested prior to deployment.
- *IS 200 - ICS for Single Resources and Initial Action Incidents* (http://training.fema.gov/EMIWeb/IS/is200.asp)
- *IS 800.A – Introduction to the National Response Plan* (http://www.training.fema.gov/emiweb/IS/is800a.asp).

National Incident Management System

The NRP is predicated on the National Incident Management System (NIMS - http://www.fema.gov/emergency/nims/index.shtm). The NIMS is a nationwide template enabling government and nongovernmental responders to respond to all domestic incidents.

Incident Management Team Websites:

http://www.fs.fed.us/r5/fire/ciimt1/

http://www.fs.fed.us/r6/colville/WIMT/

http://www.wildlandfire.com/docs/IIMT.htm

Emergency Management Assistance Compact

EMAC, the Emergency Management Assistance Compact, is a congressionally ratified organization that provides form and structure to interstate mutual aid. Through EMAC, a disaster impacted state can request and receive assistance from other member states quickly and efficiently, resolving two key issues upfront: liability and reimbursement. EMAC information can be obtained at:

http://www.emacweb.org/

http://www.bt.cdc.gov/planning/emac/