

GIS Preparedness for Incident Management and Coordination

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National Geospatial Preparedness Summit

Introduction



Assessing Public Safety GIS Maturity: CARAT Online Self-Assessment

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Capability and Readiness Assessment Tool (CARAT)

What is CARAT?

- A **resource portal** that shows how GIS can be applied to the public safety mission
- **Provides examples** of how GIS can be used to support common tasks
- **Progresses** from “crawl” to “walk” to “run”

Situational Awareness [« BACK TO CARAT HOME](#)

A common operating picture is a web based platform for fusing, analyzing and viewing key information sources decision makers need to plan for, respond to and recover from emergency incidents. Public safety professionals are often called upon to make rapid decisions in critical circumstances based on the best available information at the time. This usually requires the synthesis of data from many different sources. A law enforcement official responding to a homicide in a vacant structure might need to fuse multiple sources of data to determine the incident history in the location of the building. A fire officer responding to smoke showing in a warehouse needs to decide quickly whether to send his firefighters into the building or mount a defensive attack. Responding officers to either of these scenarios might need to know the building construction type, who might be in the structure, whether there are open warrants at that location, whether repeat calls have come from the location, etc. A well designed common operating picture can provide such information when, where and to whom it is needed.


<p>CRAWL</p> <p>Paper mapping is often the first product a Public Safety agency uses to gain insight into Situational Awareness. Many times, agencies will develop basemaps and/or preplan products that they will then use to mark up during an incident. This information can be communicated with other units by taking photos of the maps and sending them, or (more commonly), delivering the mark ups to a GIS Specialist supporting the incident in order to capture the information and begin to transfer it to other field and command and control elements.</p>	<p>WALK</p> <p>The next phase of the Situational Awareness map is a web map that is able to be updated by the GIS specialist supporting the incident. This map is an improvement because it speeds the information distribution to those that need it by removing the artificiality of data creation and re-digitization seen in the paper map creation process.</p>	<p>RUN</p> <p>Situational Awareness at its pinnacle is much more than layers on a map describing the current situation. It becomes a well-organized fabric of data that is very selectively contributing to the picture. It is a system that understands the user, his or her context and role, and tailors information to that person (in that place). It is more accurately described at this level as Decision Support rather than a Common Operating Picture. It is integrated with CAD, RMS, AVL and Staffing/Resource systems. It is also interactive and updated with field units. As an example, the National Interagency Fire Center uses the Enterprise Geospatial Portal (EGP) this way. It combines all strategic and tactical information into once system used by all levels of response and overhead.</p>
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EXAMPLE: NOAA MAPS POLLUTION RESPONSE

EXAMPLE: FEMA MAPS 2013 COLORADO FLOODS

EXAMPLE: NIFC USES DATA TO FIGHT FIRES

MORE RESOURCES



HENNEPIN COUNTY TRANSPORTATION MAP

This map provides Hennepin County's residents and visitors an up-to-date comprehensive picture of what is taking place on roads within its borders.

Type: **Web Map**
Last Modified: **September 7, 2016**

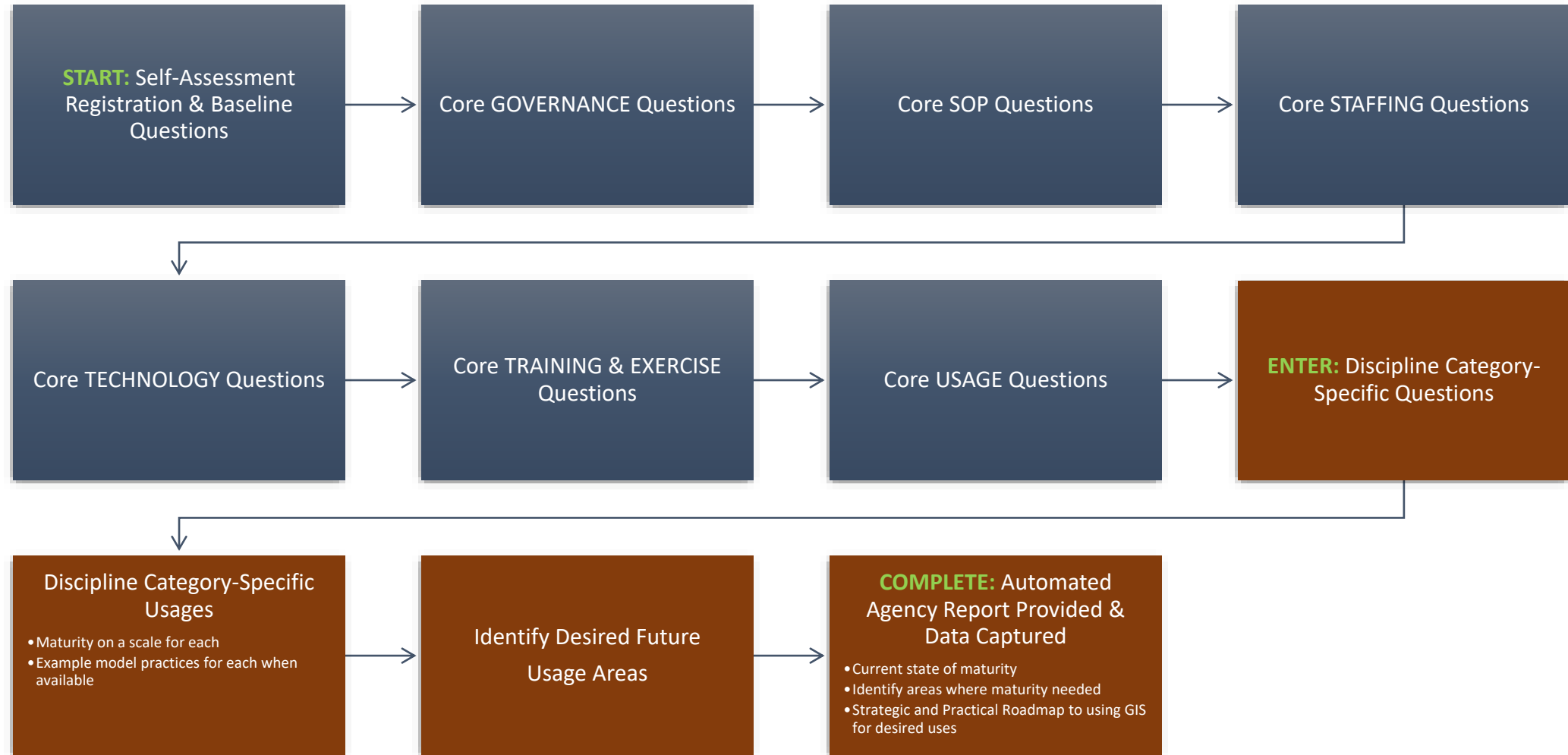
The Evolution of CARAT

- Help organizations build a **solid foundation**
- Provide **more fidelity**
 - Expand current Crawl, Walk and Run
- Be more **discipline specific**
- Assess **overall maturity**
 - Geospatial Continuum
- **Guide the user** through the process

The Geospatial Continuum



The User's Pathway



CARAT Online Self-Assessment

www.napsfoundation.org/carat/

- Online Public Beta
- More Disciplines In Development

Pilot Phase – Current

- Emergency Management
- Fire/Hazardous Materials
- Emergency Medical Services

End of 2016 – 2017

- Law Enforcement
- Intelligence and Fusion Centers
- Search and Rescue

2017 - Future

- Mass Care
- 911-Dispatch
- Medical and Public Health
- Animal Emergency Response
- Public Works
- Hazard Mitigation
- Critical Transportation

Capability and Readiness Assessment Tool

[« BACK TO CARAT HOME](#)



Watch how GIS is being used in the public safety industry.

[TAKE THE CARAT ONLINE SELF-ASSESSMENT](#)

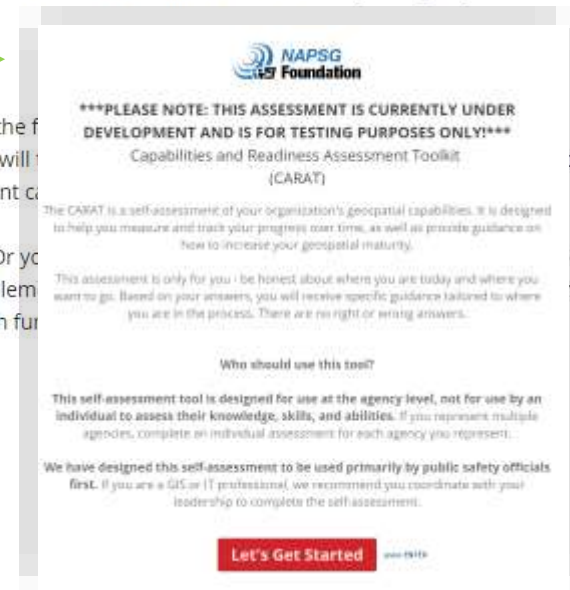


What is CARAT? The Capability and Readiness Assessment Tool (CARAT) is a tool created by NAPSG Foundation. It is designed to serve as a roadmap for public safety officials and GIS practitioners interested in learning how GIS can be applied to the public safety mission and/or in building GIS to support their agencies' work.

Where should I start? Assessing your current capabilities is a good place to start, and a great way to monitor the progress of your agency. Our online self-assessment will guide you through the steps to determine your maturity in 6 common areas. This is an agency wide assessment of capabilities, not a personal assessment. Use this tool to find out where you have current gaps, then continue below to address the common workflows of your agency.

How should I approach a specific task? Simply look through the topics under the Recovery. When you see the function that you are interested in, click on it. You will level you want to review and a short description will help you identify your current

You may have a basic capability, and just need to understand what to do next. Or you "crawl". Each function will have an example that shows how a real agency is implementing a list of resources below the descriptions that shows you current examples of each function.



Questions?

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Build SOGs for Your Agency

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How to Make GIS Successful in Operations

Use it throughout your preparedness efforts

- Include GIS staff and use GIS analyses to inform the development of your THIRA
- Use your local data, software, and tools to conduct analysis that supports your agencies planning process.
 - Integrate the results from the analyses into building pre-plans, mitigation, emergency response, and catastrophic plans.
- Share your plans that contain your GIS analyses with neighboring jurisdictions to enable effective mutual aid planning and regional catastrophic planning.
- Use GIS to inform locating, scenario development, and conduct of your exercises.
 - Incorporate your agency's GIS SOP or SOG into your exercise objectives.
- Incorporate your GIS-based decision support tools intended for use in incident operations in all of your training
- Use GIS-based tools to support day-to-day functions

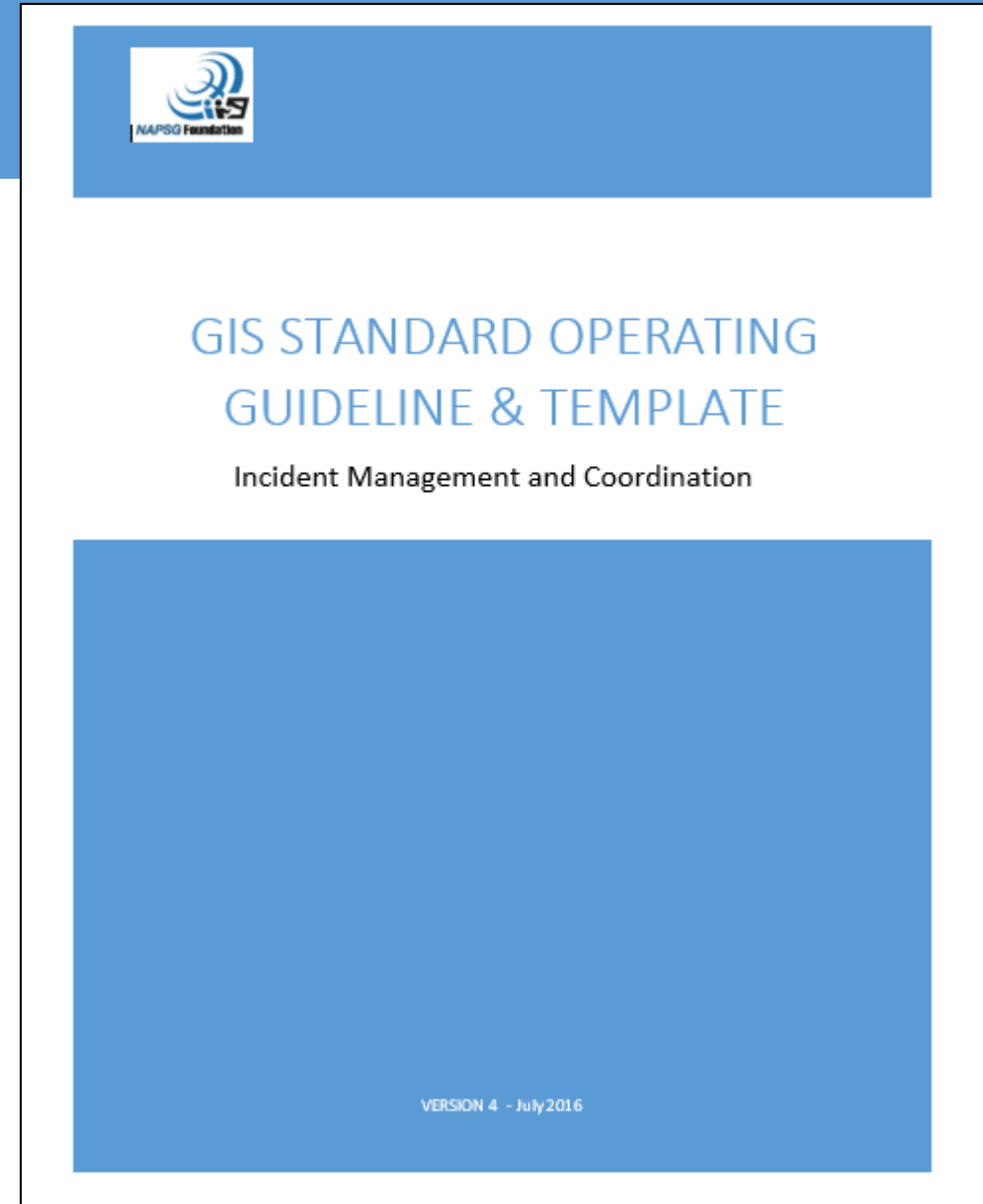
Resources Available

Guidance and Template for:

- Incident Management & Coordination
- Supplements for Specific Event Types
 - Tornado
 - Coastal Storms
 - Wildfire
 - Oil Spill

Publically available at:

<https://www.napsgfoundation.org/all-resources/standard-operating-guide-templates/>



Why Use NAPSG's Guidance and Template

- Serves as a template for an agency-level GIS Standard Operating Procedures involving incident management and/or incident support.
- Helps to supports agency creation, preparation, coordination, and dissemination of GIS services and products for use during emergency events.

Objectives

- Provide key background on incident management and coordination structures
- Facilitate adoption and implementation of existing public safety and homeland security geospatial-related standards and guidelines
- Achieve consistency in staffing of GIS positions supporting incident management and coordination
- Provide consistent guidance on key GIS supplies and tools for incident management and coordination
- Drive consistency in data and mapping protocols
- Determine and document protocols for data and map dissemination, and sharing via web applications
- Provide guidance on data and map sharing practices with external contacts

Why Establish GIS SOPs/SOGs

- **Make GIS successful in Operations**
 - Its not about how many cartographically perfect maps can be made.
 - It is about understanding decision maker information requirements at all levels and creating the actionable analysis and tools that best support decision making.



NAPSG Foundation

Developing GIS Staffing Strategies

National Geospatial Preparedness Summit

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Information Management

Florida Division of Emergency Management



THE FLORIDA DIVISION OF EMERGENCY MANAGEMENT

During a time of disaster

- Governments may declare a “State of Emergency”
- in Florida, county government may declare a “State of Emergency”
 - as well as the Governor declaring through an executive order that certain counties of the state are under a “State of Emergency”



State of Emergency

A typical Governor's executive order may include...

- “I designate the Director of the Division of Emergency Management as the State Coordinating Officer...and direct...to execute the State's Comprehensive Management Plan...”



State of Emergency (continued)

- “Direct all state, regional, and local government agencies...to identify personnel needed from those agencies to assist in meeting the needs created by this emergency, and to place all such personnel under the direct command and coordination of the State Coordinating Officer to meet this emergency...”



So Great...

- Under an Executive Order, as Technical Services Unit Leader at the State Emergency Operations Center, I can get any resource I need from anywhere within the state...
- Just put a mission in our statewide emergency management information system and problem solved!



The Reality...

Yeah, it just doesn't work like that...

- In 2004-2005 hurricane seasons, calls often went out through a GIS users group list serve for “volunteers” to staff the EOC
- At the time, I was working for another state agency, and I was instructed by my supervisor to not “volunteer”



Truth Is...

- They weren't volunteers! They were county and state government employees on the clock.
- With their agencies having to deal with how to handle overtime (offset hours or pay time-and-a-half) and balance workloads and priorities back at their regular jobs
- And other personnel issues...



My Approach

- FIRST - Go to the state agency GIS managers
 - Identify the number, hours, and skills needed
 - Through them find the able and willing
- SECOND - Go to the state agency Emergency Coordinating Officers
 - If needed, start working the system to request and receive approval for the resources



Remember, it is all about the money...

- In my opinion, everyone working in that EOC should be getting paid
- It is agency funds being expended
- You have to respect that and the decisions made
- Though federal disaster declarations may reimburse some later...



Keys to Success

- Have 1 generic login (or desk logins)
- Set up all workstations BEFORE the event
- Build Standard Operating Guidelines
- Produce standardized products
- Use industry-wide tools
- Build productivity tools
- Integrate GIS with systems



Keys to Success (continued)

- Use state agency GIS staff
 - They (usually) know the whole state!
 - Depending upon the type of disaster, use specific agencies (DOT for events with lots of road closures)
 - Don't think during all types of disaster you are going to get the most likely agency (DOF during wildfires)
- Exercise!
- Remember, you have a stick – use it wisely!



Can It Be Done Better?

Absolutely...

- Identify resources BEFORE the event/season
- Hold training and/or orientation
- Schedule teams to be “first-on-call” for certain periods of time



A Step in the Right Direction to Make It Better

- GIS professionals and staff that are dedicated to supporting the public safety mission require a unique combination of knowledge, skills, and abilities in order to effectively support emergency operations.
- Establishing minimum criteria and qualifications for GIS personnel and teams for the Nation is critical to building the Public Safety GIS Workforce.
- NAPSG developed the first version of Position Qualification Sheets & Resource Types/Packages for Public Safety GIS



Qualifications and Credentialing

Level	Position
Basic 1	Field Data Entry Technician
Basic 2	GIS Technician
Intermediate 1	GIS Analyst
Intermediate 2	GIS Team Leader
Advanced	GIS Supervisor

Resource Type: [GIS Map Support Team](#)

- <https://www.napsgfoundation.org/all-resources/qualifications-and-credentialing>



What Are Some Other Options?

- Emergency Management Assistance Compact
- GIS Corps
- Emergency GIS Response Teams



Emergency Management Assistance Compact

- The Emergency Management Assistance Compact (EMAC), established in 1996 stands today as the cornerstone of the nation's mutual aid system
- EMAC offers assistance during governor-declared states of emergency through a responsive, straightforward system that allows states to send personnel, equipment, and commodities to help disaster relief efforts in other states
- Virtual EMAC is also available
- <http://www.emacweb.org>



GIS Corps

- GISCorps, founded in 2003, is a program initiated by the Urban and Regional Information Systems Association ([URISA](#)) that offers volunteer GIS services
- Numerous projects have included disaster response within the US
- <http://www.giscorps.org>



Emergency GIS Response Team

- Texas Emergency GIS Response Team
- <http://www.texasegrrt.org>

