Credits

- Created through the National Alliance for Public Safety GIS Foundation's (NAPSG) partnership with the National States Geographic Information Council (NSGIC) and funded by the DHS Geospatial Management Office

- Developed by work groups from the private sector and from local, state and Federal officials
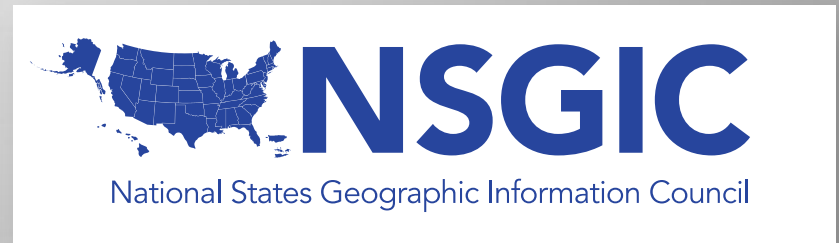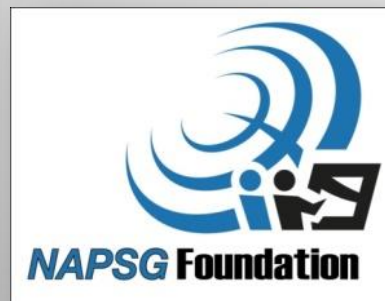
❖ Developed by peers with <u>Real World Experience!</u>

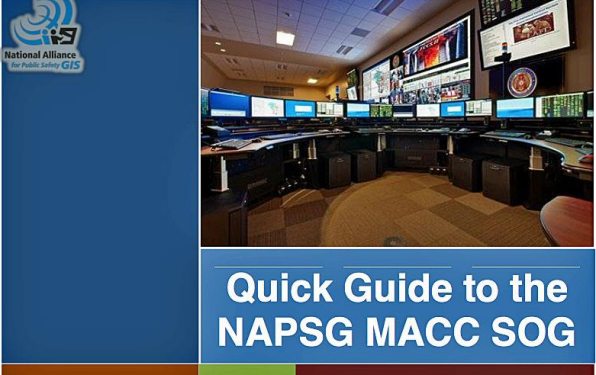❖ Work Group make up

- 20+ Members – Local, State, Federal, and Private Sector

❖ Work Group members' role ("The Brains")

- Input for ideas, experiences, examples
- Reviewer – provide edits/comments
- Active participant

❖ My role ("The Brawn")

- Project manager
- Writer
- Editor

❖ Geospatial Standard Operating Guidance for MACC's (2012)

❖ SOG Quick Guide (2012)

❖ SOG Supplements

- Wild Fire SOG (2013)
- Coastal Oil Spills SOG (2013)
- Coastal Storm SOG (2014)
- Tornado SOG (2015)

Quick Guide to the NAPSG MACC SOG

What is the Standard Operating Guidance document for Multi-Agency Coordination Centers?

The Geospatial Operating Guidance for Multi-Agency Coordination Centers (MACCs) document proposes a set of guidelines for coordinating geospatial emergency response efforts. These guidelines are intended to serve as a shared foundation, encouraging improved communication and collaboration among GIS and other emergency response staff. This is a living document that provides a starting point to produce guidelines for the organization and management of geospatial data, map creation and output within MACCs. It is anticipated that this document will be updated as more and more local agencies adopt GIS operating procedures for emergency management and provide lessons learned back to the NAPSG Foundation.

NAPSG Foundation

National Alliance for Public Safety GIS Foundation

Geospatial Standard Operating Guidance for Multi-Agency Coordination Centers

Version 3.0
September 2012

❖ Set of guidelines to coordinate geospatial response efforts

❖ Template, provides you with ideas

❖ Easy format to modify to meet your needs & be consistent with other governments

❖ Answers the questions:

- Why use GIS?

- How do you get started?

- What else should you be doing?

❖ The approach for successful use of GIS

❖ How to find useful information

❖ Lessons learned
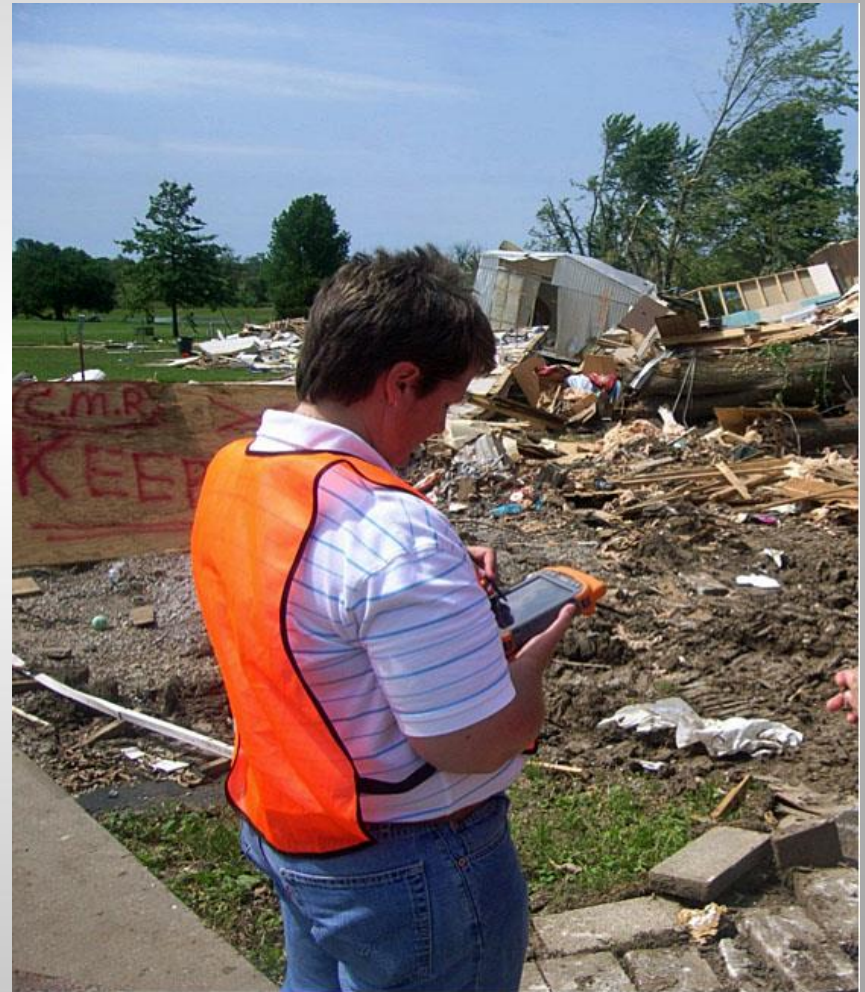
❖ Emergency Managers

  ○ What can they get from GIS? (What's in it for them?)

❖ GIS Professionals (first timers – veterans)

  ○ What do they need to know about emergency management?

  ○ What do they need to do to insure that GIS is successful?

❖ What kinds of questions can GIS answer?

❖ What is GIS?

❖ What are the resources needed?

❖ What are the keys for the successful use of GIS?

Emergency Workers Comb Through a Destroyed Building, May 20, 2013

Before and After the Tornadoes in Illinois

❖ Have a GIS team & have them trained in ICS

❖ Meet with your GIS team

- Explain the issues that you encounter
- Learn how GIS can meet your needs
- Relay your timing needs
- Integrate the use of GIS into your workflow
- Integrate the use of GIS into drills/scenarios

❖ Meet with Emergency Managers

- ○ Find out their major needs

- ○ Identify where GIS can assist them and the time frame it can be done in

- ○ Decide what provides the greatest value for the emergency managers & agree on a delivery schedule

❖ Standardize your products where practical

❖ Practice/test to insure your team can deliver

❖ Work with the emergency managers to integrate these products w/briefings & workflow

- Test products/delivery cycle during scenario exercises
- Modify as required

❖ Establish a system for tracking/reporting progress of standardized and ad hoc products

❖ Save/archive products as PDF's w/date & time

❖ Hold GIS coordination calls

What Else is in the SOG?

Preparation Checklist

NAPSG's Capability and Readiness Assessment Tool (CARAT) – http://www.napsgfoundation.org/carat/

APPENDIX 1: GIS PREPARATION CHECKLIST

This checklist was based on a National Research Council report titled *Successful Response Starts with a Map: Improving Geospatial Support for Disaster Management*, which was published by The National Academies Press.

Integration

☐ Does your incident command post (ICP) have geospatial technology available?
☐ Do you have a permanent workspace or office for your geospatial team?
☐ Have you met with the emergency managers/responders to determine their geospatial needs for coastal storms?
☐ Have you published a list of and schedule for the delivery of standard geospatial products for based on those needs?
☐ Is the use of geospatial information integrated into your emergency management operations and used in emergencies?
☐ Do your written standard operating procedures include the use of geospatial information in your workflow and decision-making processes?
☐ Do you know the name of your state GIS coordinator?
☐ Do you have contact information for the state GIS coordinator and his or her backup?
☐ Have you established agreements with adjoining jurisdictions and with state and federal governments to share data and products?
☐ Have you established agreements with adjoining jurisdictions and with state and federal governments that determine what data and tools will be used during an emergency?
☐ Have you developed agreements between geospatial professional teams at the municipal, state, and federal levels that identify the roles that each level will play and who will produce what in order to avoid duplication of effort during a large event?
☐ Have you worked with the state GIS coordinator to develop an inventory with around-the-clock contact information for GIS coordinators, their emergency management counterparts, and their respective backups in each county or major municipality in your state?
☐ Has this information been distributed to the emergency management community and the GIS coordinators in each county or major municipality in your state?

Human Resources

☐ Do you have a designated geospatial team that is regularly deployed during coastal storm?
☐ Have you developed an organizational structure for your team that defines the roles of team members (manager, liaison, and technical support staff)?
☐ Does your organization have a geospatial team (away team) that you can deploy to incident sites to assist in emergency response?
☐ Have you developed a secure web site to distribute this information to authorized users?

Data Suggestions

Recommended Datasets (Gathered Prior to the Event) Continued:

Transportation
- ✓ Purpose: Identify access routes to the incident, evacuation routes, and other related transportation reference points. Support routing of public vehicles (evacuation/avoidance).
  - Roads
  - Evacuation routes
  - Bridges and tunnels
  - Railway lines and stations
  - Bus, subway and light rail lines and stations
  - Ferry lines and terminals
  - Airports
  - Helicopter landing zones
  - Transportation resources - buses, school buses (with wheelchair access), ambulances

Population
- ✓ Purpose: Identify impacted and at-risk populations.
  - Population data/U.S. Census
  - Nighttime population vs. daytime population
  - Seasonal population (where applicable)
  - Businesses
  - At-need population (schools, day care, nursing homes, assisted care facilities, universities, hospitals/clinics, urgent care, mental health and correctional facilities, etc.)

Public Safety Data
- ✓ Purpose: Identify public safety and incident command facilities
  - Fire stations
  - Police stations
  - EMS
  - EOC's (local, State, Federal)
  - Public Safety Answering Points (PSAPs)/911 Call Centers
  - Shelters (shelters, shelters allowing pets, animal shelters)
  - Staging areas
  - Incident command post
  - Evacuation zones

Search and Rescue
- ✓ Purpose: Define and train with a grid that can scale for local, regional, state and Federal search and rescue teams.
  - United States National Grid (USNG)
  - Data packaged on hard drive or other portable device to provide to Search and Rescue Teams from out of the area.

Version 7.0 – July 2015

Tornado Geospatial Standard Operating Guidance for Multi-Agency Coordination Centers

Standing Orders

EXAMPLE - GIS TEAM STANDING EXAMPLE - GIS TEAM STANDING ORDERS TORNADO – PRE-IMPACT

T-6 Month Crosscheck	
Tasks:	**Responsible/Complete**
Work with emergency managers to develop a GIS presence/GIS Team within the EOC	GIS Team Leader
Review historical tornado data for your area and state including damage/loss data	GIS Team
Review checklist (Appendix 1) and CARAT (http://www.napsgfoundation.org/carat/). Determine deficiencies and establish action plan to overcome them. Work with the GIS Team and the emergency managers to address deficiencies	GIS Team Leader
Meet with the Director of Emergency Management Operations and first responders to define their needs and incorporate the use of GIS products into their planning, operational response and recovery efforts for tornadic events. Agree on GIS products to be provided	GIS Team Leader
Establish a schedule for GIS product delivery that matches emergency management needs	GIS Team Leader
Locate appropriate base data	GIS Analyst
Establish data and product sharing agreements/protocols with State and appropriate local governments where required	GIS Team Leader
Work with emergency managers and first responders to identify the best ways to obtain data from "boots on the ground" on the tornado path and post tornado impacts	GIS Team Leader
Develop data collection forms and methodologies (both paper and digital). Establish separate data collection teams to provide data on the storm path and evaluating storm impacts. Insure that data on storm impacts is aligned with FEMA requirements (see Figure 26)	GIS Analyst
If feasible, determine how to quickly obtain imagery of impacted sites	GIS Team Leader
If feasible, determine how to use social media sites to receive data	GIS Team Leader
Develop templates to provide GIS products within the product delivery schedule	GIS Analyst
Develop system for distribution of "scheduled" products to emergency managers and first responders	GIS Team Leader
Develop a system for requesting and tracking all GIS products	GIS Team Leader
Determine where the data should be stored for easy access. (Storage should be on-site as well as offsite (cloud) for backup)	GIS Team Leader
Study crowd sourcing inputs. Decide how they could/should be used to obtain actionable data	GIS Analyst
Develop map books for your community/region/state. Work with the first responders to determine the best method and material to use for initial deployment.	GIS Analyst

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Damage Assessment

FEMA DAMAGE CLASSIFICATION			VISIBLE IMAGERY BASED CLASSIFICATION				HISTORICAL HOUSEHOLD INSPECTION DAMAGE TOTALS
DAMAGE LEVEL	OBSERVED DAMAGE (Structure)	OBSERVED DAMAGE (Area)	Roof Covering	Roof Diaphragm	Collapsed Walls	Other Considerations	Total FEMA Verified Loss
A — Affected	Some damage to the structure and contents, but still habitable.	Generally spuerficial damage to solid structures (loss of tiles or roof shingles).	Up to 20%	None	None	Gutters and/or awning; loxx of vinyl or metal siding. Garage doors collapse inward; failure of porch or carport.	Available IA inspection indicated FEMA Verified Loss (FVL) of greater than $0 and less than $5,000.
MI — Minor	Home is damaged and uninhabitable, but may be made habitable in short pperiod of time with repairs.	Solid structures sustain exterior damage (e.g., missing roofs or roof segments).	>20%	Up to 20%	None	Nonstructural damage to exterior roof components, damage to chimney to include tilting, fallen, cracks.	Available IA inspection indicated FEMA Verified Loss (FVL) of greater than $5,000 and less than $17,000.
MA — Major	Substantial failure to structural elements of residence (e.g. walls, floors, foundation), dwelling is uninhabitalbe and requires extensive repairs. The dwelling is unusable in its current condition and cannot be made habitable in a short perior of time.	Some solid structures are destroyed; most sustain exterior and interior damage (roofs missing, interior walls exposed); most mobile homes and light structures are destroyed.	>20%	>20%	Some exterior walls are collapsed.	Major damage to structural elements of roof, walls, or faoundation to include crumbling, bulging, collapsing. Shifting of residence on foundation more than six inches.	Available IA inspection indicated FEMA Verified Loss (FVL) of greater than $17,000.
D — Destroyed	Total loss of structure, structure is not economically feasible to repair, or complete failure of two or more major structural components (e.g., collapse of basement walls/foundation, walls or roof).	Most solid and all light or mobile home structures destroyed.	>20%	>20%	Majority of the exterior walls are collapsed.	Total collapse of walls or roof.	Available IA inspection flagged the structure as "Destroyed".

❖ Training
- ICS
- Current software and data/models
- FEMA on-line training

❖ Exercises
- Engage in exercises within the GIS team
  - Learn roles
  - Insure that they have proper access to relevant data and models
  - Develop speed ("The need for speed!")
- Engage in exercises within the entire EOC
  - Feature GIS ingests and the delivery of standardized GIS products and special requests throughout the scenarios.
  - After each training scenario, identify where things went well, where they need improvement, and how those improvements will be achieved!

❖ Communication

❖ Analysis

- What is needed?
- What is GIS best at?

❖ Agreement

- What will be delivered?
- When will it be delivered?

❖ Fulfillment

- "Walk the Talk"

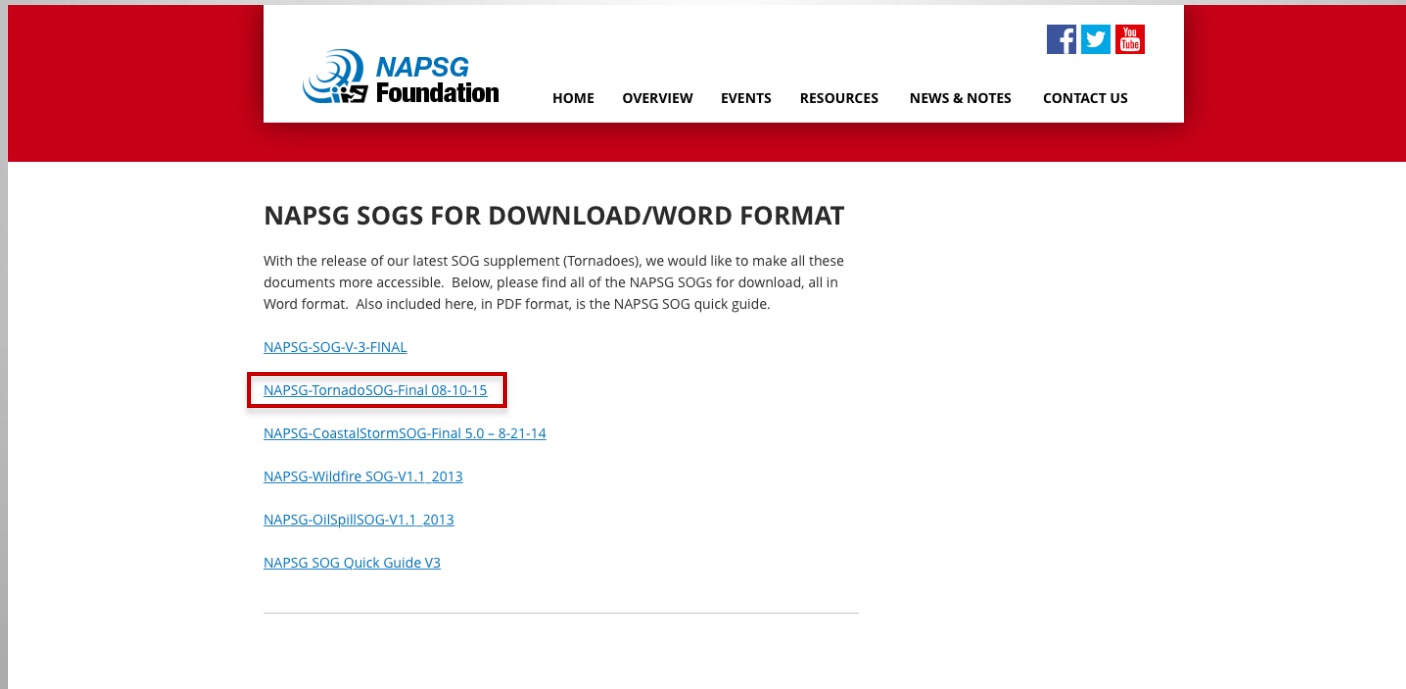**National Alliance for Public Safety GIS Foundation**

Geospatial Standard Operating Guidance for Multi-Agency Coordination Centers

SUPPLEMENT FOR TORNADOES

Where Can I Get the SOG's?
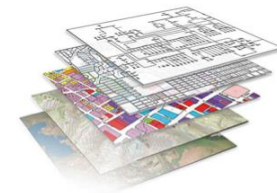
❖ ***<u>NO COST!</u>***

❖ Available for download via the NAPSG website: <u>http://www.napsgfoundation.org/resources/napsg-sogs-for-downloadword-format/</u>

Questions?

Also, feel free to follow up with me at:
bruce.oswald@gmail.com