

NAPSG Symbolology Working Group

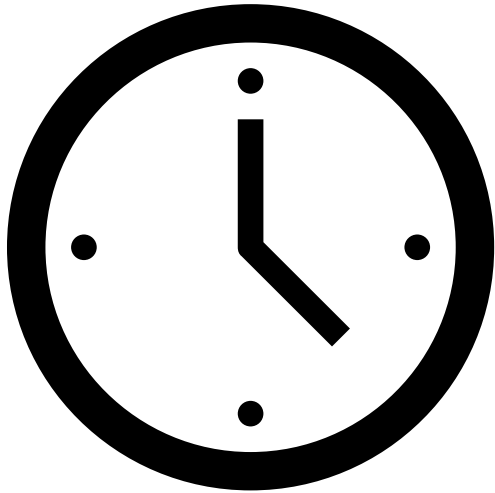


November 14, 2019

Hosted by National Alliance for Public Safety GIS (NAPSG) Foundation

napsgfoundation.org | [@napsgfoundation](https://twitter.com/napsgfoundation)

Agenda



- 1:00 Introductions
- 1:10 Mission, Background, & Recent Updates
- 1:45 Symbology Working Group: Membership & Impact
- 2:00 Incident Symbology Framework & Guideline
- 2:20 Break
- 2:30 Post-Incident Review
- 3:00 Content Needs & Feedback
- 3:30 Usage Needs & Feedback

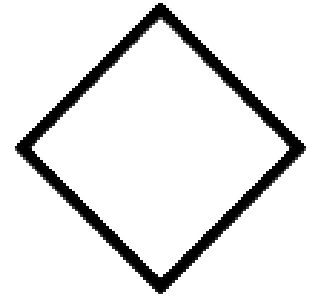
Introductions

- Name
- Agency or Organization
- (If you're willing) the reason you chose to come to this session

Mission, Background, & Recent Updates

Purpose of NAPSG Symbology

- Consistently communicate incident information on maps
- Gain efficiencies in mutual aid planning, readiness, and response
- Enhance operational coordination across agencies, jurisdictions, and all levels of government
- Address needs for first responders for daily preparedness efforts and incident response
- **Common Incident Language through Common Symbols**



Hazards



Infrastructure



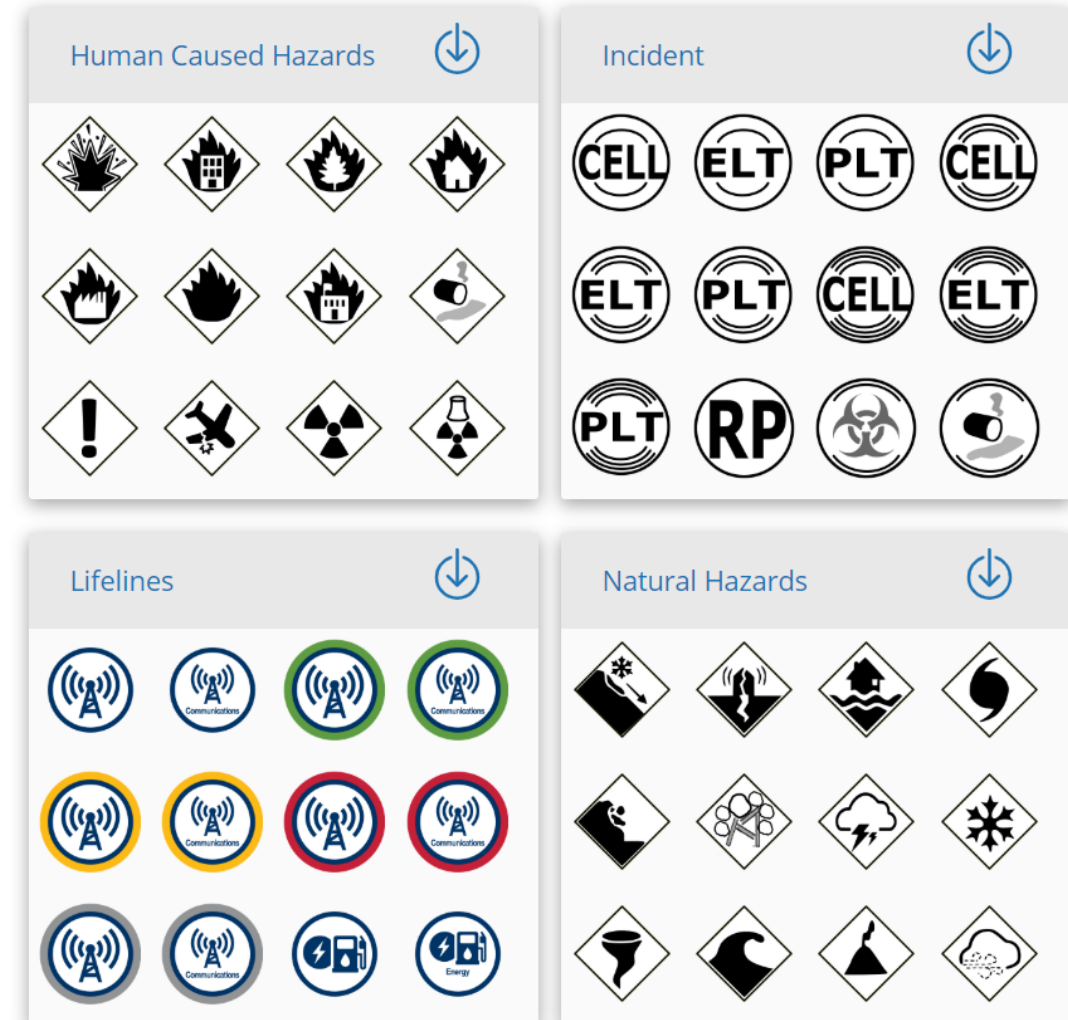
Public Alert

Key Terminology

- **Symbology** – the study or interpretation of symbols
- **PNG** – Portable Network Graphic is a raster graphics file format that supports lossless data compression
- **SVG** – Scalable Vector Graphic is an XML-based vector impact format for two-dimensional graphics with support for interactivity and animation
- **Style Sheet** – A file that provides style and layout information within an XML or HTML document.

Symbol Library Tool Capabilities

- Example Geodatabase Schema
- Example REST Features Services for Symbols by Group
- Symbols organized into commonly understood groups to form ‘Symbol Packages’.
Packages contain symbols in the following formats for flexibility and scalability:
 - STYLE File
 - Fonts
 - SVG (Scalable Vector Graphic)
 - PNG 16, 32, 64, 256
- Ability to create customized “symbol packages” by selecting several individual symbols

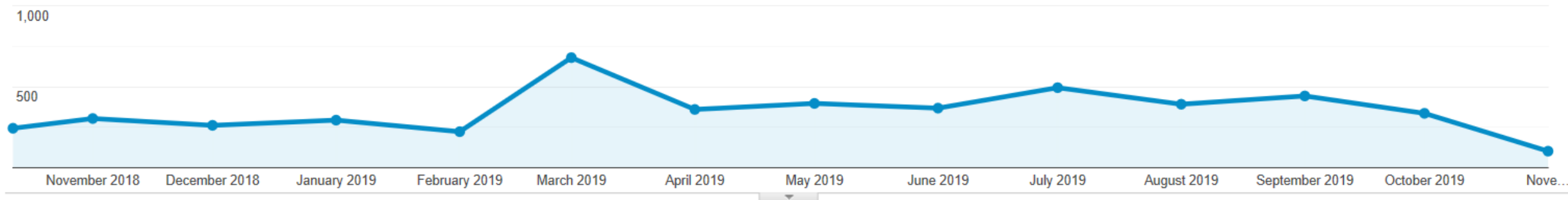


Symbol Library Volume and Usage

- 940+ symbols across 13 categories

- Access Hazards
- Hazard
- Hazardous Materials
- Human Caused Hazards
- Incident
- Infrastructure
- Lifelines
- Natural Hazards
- NIMS Positions
- Preplan
- Public Alert
- Resources
- Lifelines

- 3,400+ unique users in past 12 months



History

2008

- Formed Incident Symbolology Working Group

Support NIMS, ICS, and facility pre-incident planning

2009

- Released first symbol set and framework

2010-2011

- Worked w/ first responder agencies to implement symbolology.

2012

- Expanded Incident Symbol Set and Framework

2015

- Conducted National Survey on needs and requirements
- Implemented findings

2016

- Developed initial ~100 HIFLD symbols, USAR Symbols, and IPAWS event code symbols
- Released first version of Symbol Library Tool

2017

- Developed additional ~50 HIFLD symbols
- Standardized framework for law enforcement

2018

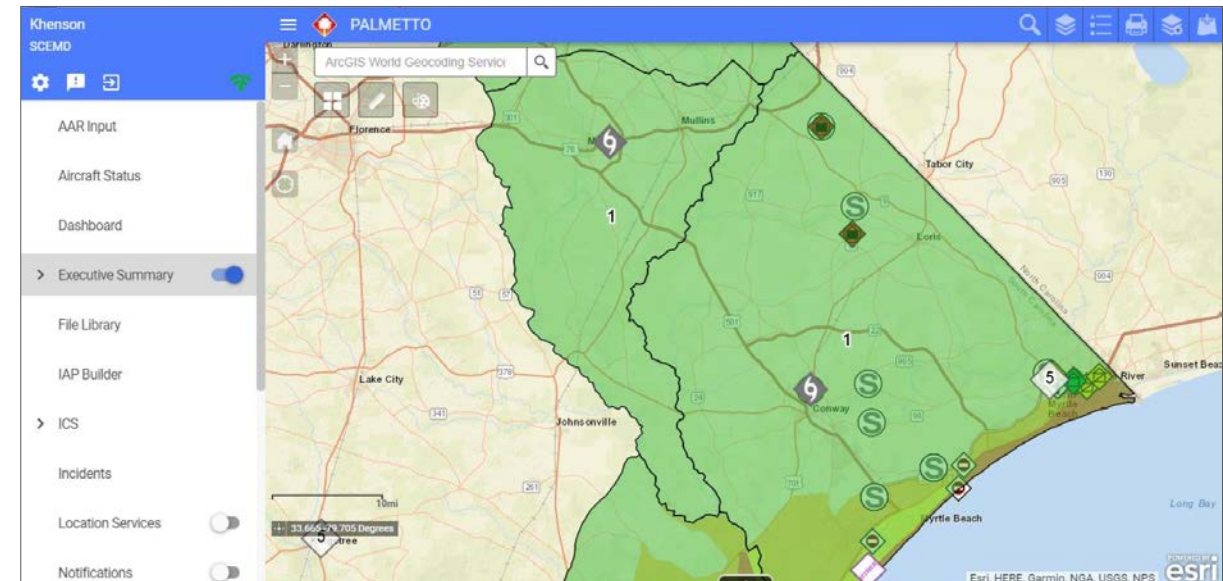
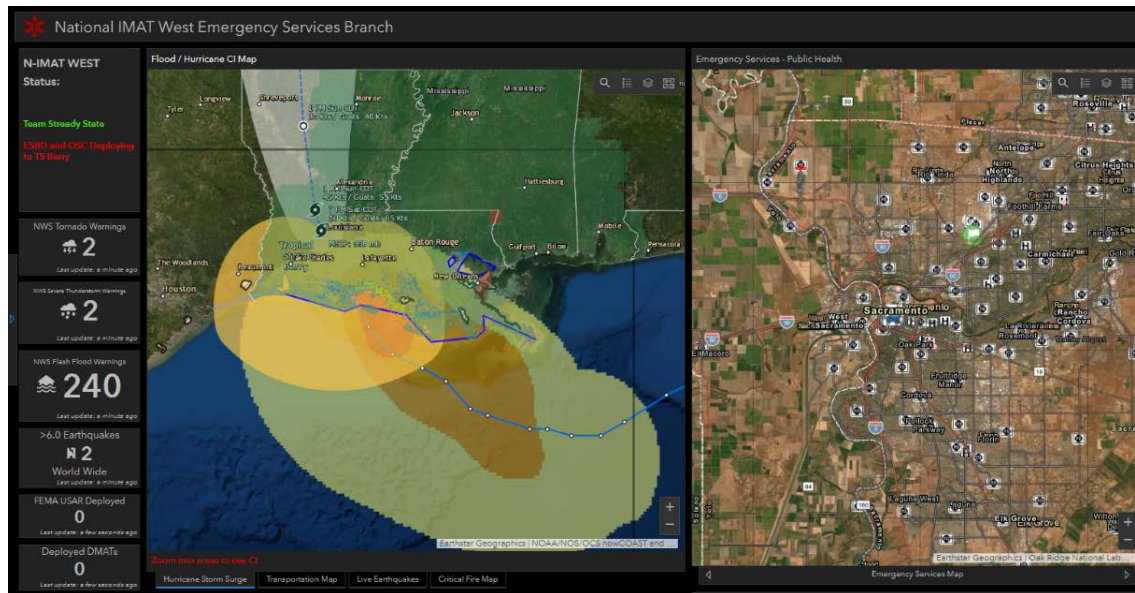
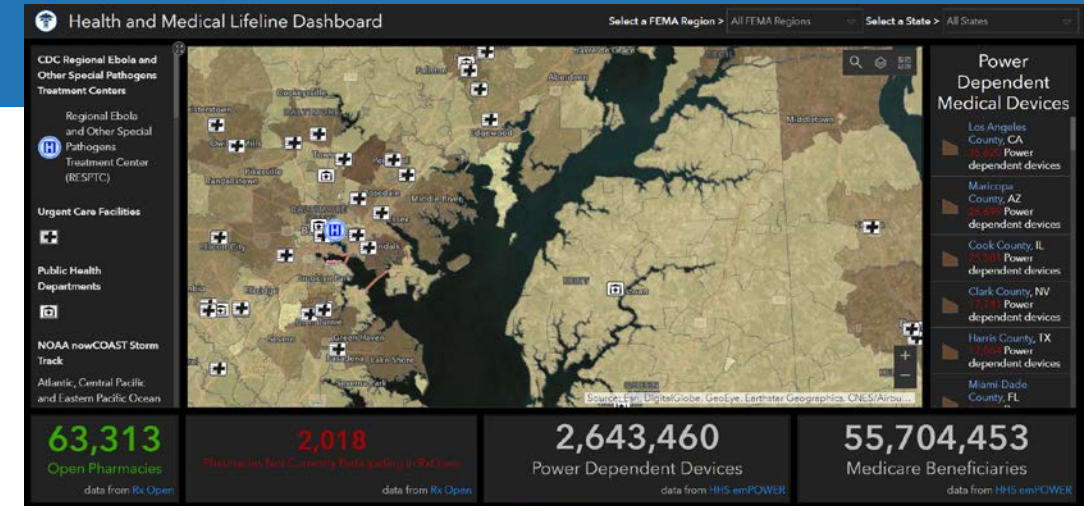
- Officially adopted by HIFLD Subcommittee

2019

- Developed icons for 7 Community Lifelines and 28 Lifeline Components

Symbology in Action

- Hurricanes Dorian and Barry
 - National Incident Management Team Dashboard
 - State of South Carolina
- FEMA Community Lifeline Dashboard



Recent Updates: Symbols for Community Lifelines

- Developed **7 Community Lifeline symbols** and **28 Community Lifeline Component symbols** using NAPSG stakeholder feedback process
- Symbology Working Group for initial design and vetting
- Broader feedback sought via 20,000 Member network & social media campaign
- FEMA provided final review and approval
- Published base symbols and status (color) symbols - both with and without labels to Symbol Library Tool



Communications



Energy



Food, Water,
Shelter



Hazardous
Material



Health and
Medical



Safety and
Security

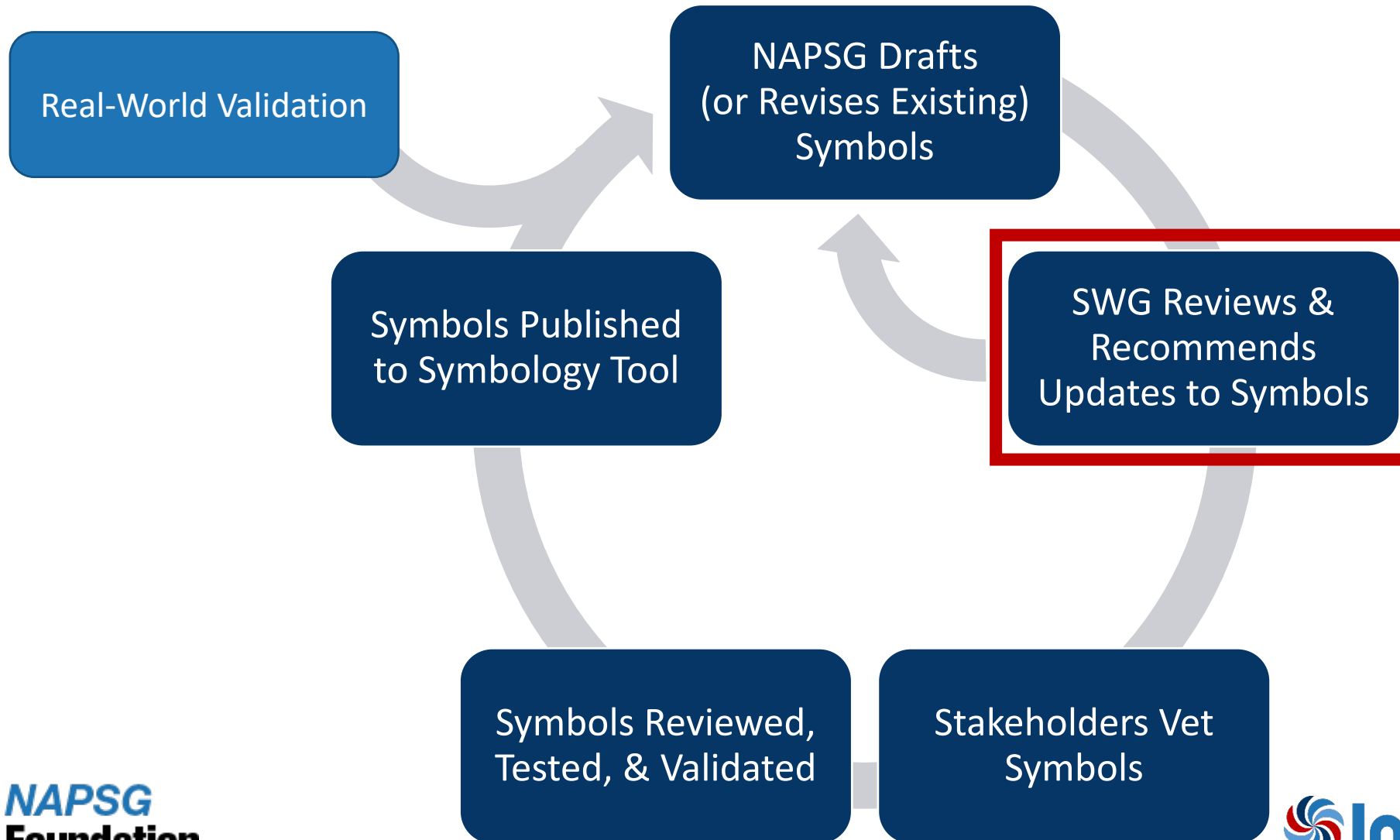


Transportation

Symbology Working Group

Membership & Impact

Symbol Development Process



Symbology Working Group Impact

- The Symbology Working Group heavily impacts symbol design.
- Examples:

Points of Distribution



Draft Option



Final Symbol

Health & Medical Lifeline



Draft Option

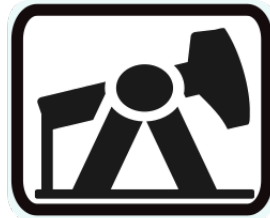


Final Symbol

Oil and Natural Gas Wells



Draft Option



Final Symbol

Communications Lifeline



Draft Option



Final Symbol

Interested in
Becoming an
SWG Member?

Visit **bit.ly/21hWf8u**

SCAN ME



Incident Symbology Framework & Guideline

Standards Philosophy: Challenges

- ✗ Different public safety disciplines adopt standards exclusively from specific Standards Developing Organizations (SDOs)
- ✗ SDO-based standards are sometimes not capable of rapid updating to meet evolving needs and requirements resulting from recent incidents and technology developments
- ✗ Many require users to purchase copies of standards, making implementation cost prohibitive
- ✗ Some SDOs require working group members to pay in order to participate in the process

Standards Philosophy: Solutions

- ✓ Participate in and support multiple SDO-based standards development and maintenance efforts across public safety disciplines and technology standards bodies
- ✓ Solicit stakeholder input that reflects a truly national perspective through focused and no-cost Task Forces and Working Groups
- ✓ Fill critical gaps that require more nimble and agile solutions and tools
- ✓ Develop and disseminate tools to the community that enable and expedite implementation

Why a Guideline?

- A guideline is flexible and scalable
- Creates a framework to standardize
- Allows for the creation of symbols where gaps exist

EXAMPLE: Public Alerts and Warnings

Reserved Shape 	The TRIANGLE is the reserved shape for any public alert and warning symbol. Public alert and warning symbols have three primary uses: 1) Integrated into wireless emergency alert content to provide a complimentary visual of the event type and/or action, as a means to optimize message content for people with disabilities and limited English proficiency 2) Use in public safety situational awareness applications to track where and when public alerts and warnings were issued during an event 3) Use in public information maps where public alerts and warnings were issued. Notes: • Most public alert and warning symbols apply the icon used in the emergency hazard symbol to achieve consistency in communicating incident information. • IPAWS live feed is publicly available for use in public safety mapping applications at: https://gii.dhs.gov/ags/rest/services/GEP/IPAWS/MapServer/0
Modifiers	The color of the triangle can be modified to indicate types of public alerts. Below is the color schematic for each alert type. The color values for each correspond to the RGB and HEX values above in section 3.  Statements  Watches  Warnings

What is this?

Wagon

Aid Car

Transport Unit

Medic

Squad

Unit

Truck

Rescue

Ambulance

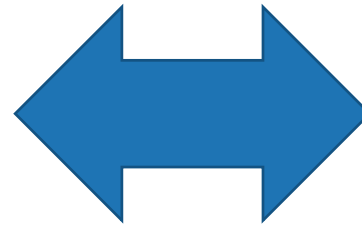
Rescue Ambulance



Same Information, Different Rendering

Storm Surge Scenarios

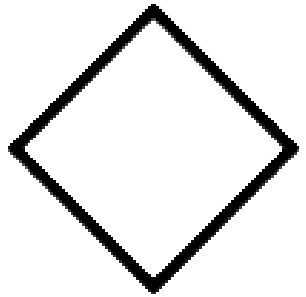
-  Category 1
-  Category 2
-  Category 3
-  Category 4
-  Category 5
-  Levee protected areas



Storm Surge Zones

-  Tropical Storm
-  Category 1
-  Category 2
-  Category 3
-  Category 4
-  Category 5

Hazards



- DIAMOND is the reserved shape for any emergency hazard
- Symbols are variable other than shape

Natural Hazards

Indicates natural hazard events



Flood



Earthquake



Fire

Access Hazards

Features that indicate restricted or limited access of people or vehicles



Narrow Access



Restricted Weight Access

Man Made Hazards

Indicates events that happen at locations related to man-made features. Intentional or accidental.



Radioactive Hazard



Child Abduction

HazMat Hazard

NFPA 704 symbols and DOT HazMat Placarding



NFPA 704



Explosives



Acids
Corrosives

Specific Hazard

Ad-Hoc symbols used for indicating a specific local hazard



Fall Hazard



Building
Collapse

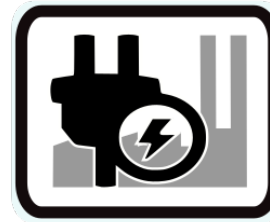
Infrastructure



- RECTANGLE with Rounded Corners is the reserved shape for any infrastructure
- Symbols are variable other than shape
- Based on HIFLD Infrastructure Layers
 - Not Exclusively HIFLD

Infrastructure

Represents critical fixed features or Critical Infrastructure Protection. Noted by rectangle with rounded corners.



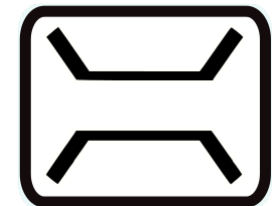
Electric Power
Generating Plants



Hospitals



American Red Cross
Chapter Facilities



Bridges

Public Alert



- TRIANGLE with Rounded Corners is the reserved shape for any Public Alert
- Symbols and color are variable



Storm Surge

Warning

Symbol indicating a "Warning" event



Watch

Symbol indicating a "Watch" event



Statement

Symbol indicating a "Statement" event



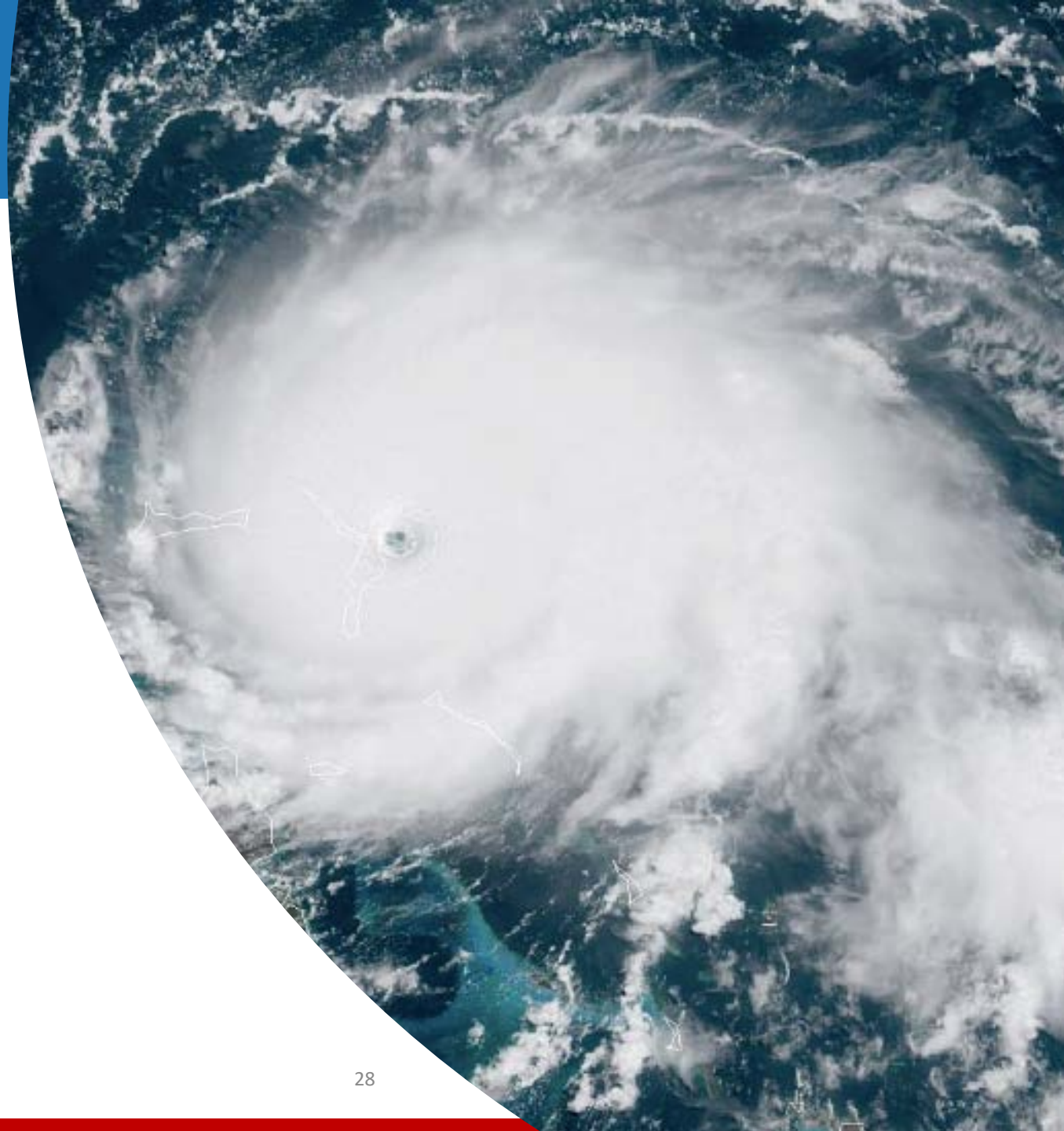
Break

Post-Incident Review

In recent disasters...

- Flooding in the Midwest (March 2019)
- M 7.1 Earthquake in California (July 2019)
- Hurricane Barry (July 2019)
- Hurricane Dorian (August - September 2019)
- Others

...what challenges or headaches did you face related to symbology?



Content Needs & Feedback

- **What challenges or headaches do you face related to symbology?**
 - What symbology needs do you have?
 - Have you encountered problems with existing symbols?
 - What non-disaster symbols are needed (e.g., special events)?
 - How can we better collect feedback and suggestions from the community?
 - Would a comment or voting mechanism be useful?
 - What should the vetting process be for suggested symbols?
 - What active symbology efforts should we collaborate with?
 - Current collaboration with DOD, EMSINA (International), FEMA, USAR community, etc.

Usage Needs & Feedback

- **What challenges or headaches do you face related to *using* symbology?**

Current delivery methods:

- Example Geodatabase Schema
- Example REST Features Services for Symbols by Group
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Thank you!

Charlotte Abel cabel@publicsafetygis.org

Chris Rogers crogers@publicsafetygis.org