

# Incident Symbology Technical Implementation Guidance Version 2.0

## I. Overview




This document provides technical guidance for GIS Professionals to use in implementing NAPSG’s Incident Symbology Framework, Guideline, and Symbol Sets. Users should first review the Incident Symbology Framework, Guideline, and Operational Implementation Guidance prior to using this document.

For background, NAPSG’s Incident Symbology Framework and Guideline is a set of symbol guidelines for use by all public safety agencies, disciplines, and levels of government. The Guideline serves as a flexible and scalable framework for using and developing map symbols to consistently communicate mission critical incident information. Listed below are the key elements of the Guideline and Framework that apply to nearly all of the symbols included in the supporting symbol sets.

- Symbol shape
- Color (or lack of color)
- Line or outline type
- Icon
- Other unique features or modifiers

## II. How do you determine which symbol to use?

The first step in any symbology effort is to determine which feature that you wish to symbolize on a map. Next, you need to evaluate what you are communicating, whether it is operationally relevant or whether it’s something to display on a basemap for situational awareness purposes. For example, the symbols below illustrate the location of a hospital, however, each symbol for hospital is used in different contexts.

		
Symbol common when showing the location of a hospital. More reflective for a basemap.	Symbol showing that the hospital is involved with the current operation of an incident, such as the “Destination Hospital” or “Trauma Center” for incident.	Symbol showing the hospital as part of critical infrastructure or points of interest information. This is intended to show the status.

## III. What formats are the symbols available in?

The NAPSG Incident Symbol Sets are available and ready to use for your map. The formats include Portable Network Graphic (.png), scalable vector graphics (SVG), True Type Font (.ttf), and Style Sheets. PNG files are good for web mapping, as well as for desktop mapping, but may pose some limitations, such as:




- When scaled it can become pixelated
- It can’t be customized within the application

#### IV. When and how do I create or modify a symbol?









If you are not able to find a particular symbol in the symbol sets provided by NAPSG or in another standard symbol set, you may need to consider creating or modifying a symbol to meet your needs using the NAPSG Incident Symbology Framework and Guideline. Begin by walking through a few questions.

1. **Is the symbol you are mapping for reference (i.e., basemap information) or for operational decision making?**
  - a. If it is more for reference use a symbol suitable for base map cartography
  - b. If operational use NAPSG's Incident Symbology Guideline

2. **What is the "Base" or "Root" category?** This determines your base shape that you should use to create or modify a symbol.

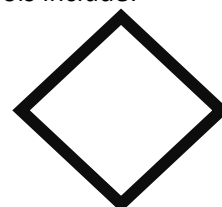
- a. Is it a feature that is related to the function and operations of an incident? If yes...
  - i. Use a **fully transparent Circle** if it is an incident resource, location of equipment, location for emergency personnel to congregate. 
  - ii. Use a **fully transparent Rectangle** if it is the location of the person or group involved in the structure of the National Incident Management System. 
  - iii. Use a **fully transparent Oval** if the feature is a unit that is functioning at an incident. For example, this can be a fire engine, task force, law enforcement patrol, etc. If possible, it should reflect the location of the personnel associated with that unit instead the vehicle. 

- b. **Is it a feature that is used to mitigate an incident?** Are the features present before the incident happens? If yes... then use symbols with a color background, for example:

- i. Use either a Green Square or Triangle if it is a feature used to access inside a building, a separate floor, or geographic area. 
- ii. Use a Red or Dark Brown Triangle, if it is an alarm or feature used to control an alarm. 
- iii. Use a Blue Triangle if it is a feature that that shuts off chemicals or other products. 
- iv. Use a Gray Flat Diamond if it is a detector, 
- v. Use a Red or Dark Brown Flat Diamond if it is a fire suppression system. 
- vi. Use a Purple Triangle if it is a ventilation feature. 
- vii. Use of Red Circle if it is a feature that supports fire suppression such as a fire department connection. 
- viii. Use a Gray Square if it is a location or feature within a building. 

- c. **Is it a specific feature that can result in harm to the public and/or responders?** It may or may not be a pre-existing threat or hazard before the incident occurs. If this is the case, use a Diamond shape to represent your hazard. Some categories of hazard symbols include:

- i. Access Hazards
- ii. Human Caused Threats and Hazards
- iii. Natural Hazards
- iv. Hazardous Materials
  1. DOT Placarding



2. NFPA 704  
v. Specific Hazards

- d. If you are showing a feature related to Critical Infrastructure then use a Rectangle with rounded corners.

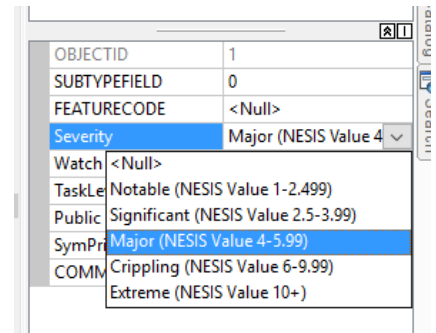


## V. Modifiers

After the base symbol is determined, several modifiers can be applied to enhance the effectiveness of the symbol.

### A. Color Ramping

A color ramp can be applied to any of the emergency hazard symbols as a secondary modifier to indicate the 1) severity of an event, or 2) risk level predicted. Color ramping should be applied consistently using the standardized RGB or HEX values outlined below. The color ramp is from no severity or risk (clear), low severity or risk (green), low to medium severity or risk (blue), medium severity (yellow), medium to high severity or risk (orange), high severity or risk (red), extreme severity or risk (purple or near black). This color ramp can be applied to any black and white symbol that has an associated standard for severity, risk, and operational status.



Provided below is a table that provides the specific color indicators, descriptions, RGB values, and HEX codes for each. The colors, RGB values, and HEX codes should be used consistently when applying color to black and white symbols, and if creating new symbols that use color.

Description/Examples for Use	Color	RGB	HEX
No severity or risk; Normal Operations/Status	White	255,255,255	#FFFFFF
Low severity or risk; No Damage; Open Status	Green	0,172,58	#00AC3A
Low to medium severity or risk; Alert/Action Notice	Blue	35,122,207	#237ACF
Medium severity or risk; Moderate damage	Yellow	255,215,24	#FFD718
Medium to High severity or risk; Watch Notice;	Orange	255,137,24	#FF8918
High severity or risk; Warning Notice; Severe Damage; Closed Status	Red	255,24,30	#FF181E
Extreme severity or risk; Highest category possible.	Purple	237,26,252	#ED1AFC

It should be noted that color is a secondary treatment that is not required and may not be consumable to all people. This color ramp supports standardization in the application of color for incident symbols where it is already being used as a modifier.

### B. Dashed and Dotted Lines

Dashed and dotted lines should indicate something that is either:

- Planned
- Temporary
- Anticipated
- Warning or Watch

In the incident geodatabases, the STATUS field is recommended to be used for the rendering of the outline symbol.

In the emergency symbols category, the Watch or Warning field is used to change the value of feature.

### C. Icon or Interior Abbreviation

The interior of the symbol next uses either an icon or abbreviation to represent the type of feature. Since the NAPSG symbology framework covers such a broad array of symbols, there are some key criteria that the icon or abbreviation needs to follow:

- The graphic needs to be readily recognizable.
- The acronym needs to be applicable to the audience of the map.
- The abbreviation can communicate feature type or relative name of feature.

For example, if a map is showing units with an oval frame indicating a fire engine, it is reasonable to have the oval filled with a fire engine graphic, an abbreviation of the apparatus (e.g., E19) or both.

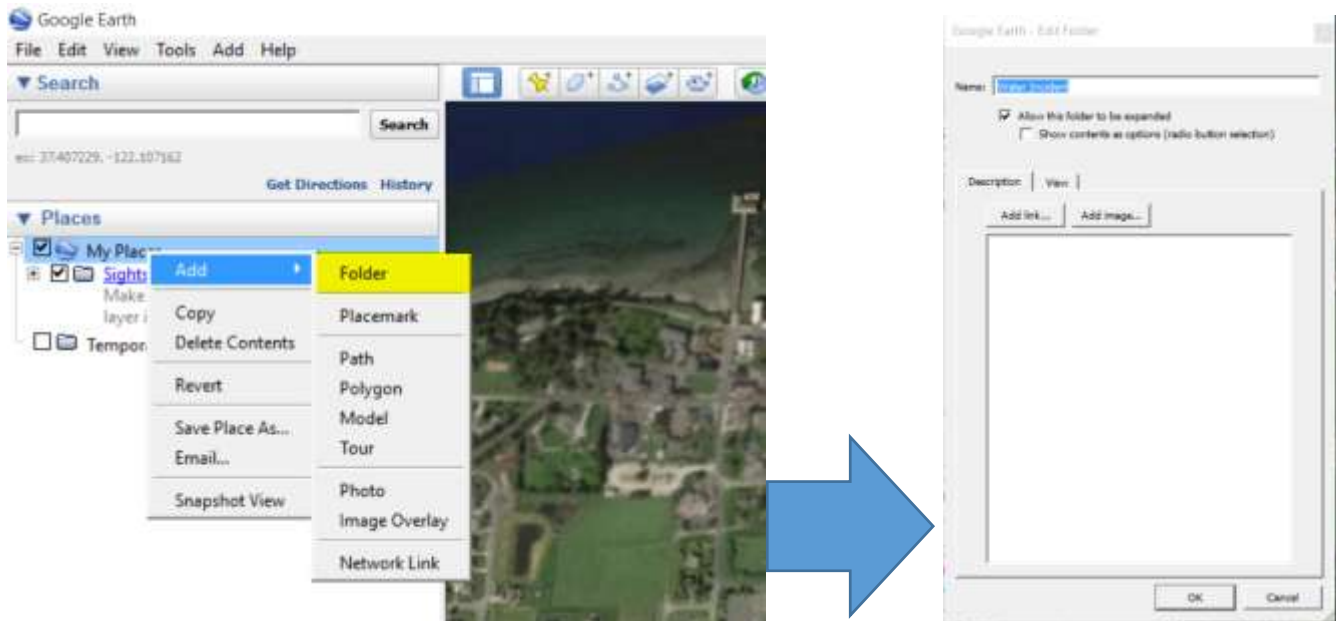
Most of the icons used in the point features are derived from open source locations (e.g., UN OCHA) or existing standards (e.g., NFPA).

SUBTYPEFIELD	0
FEATURECODE	<Null>
Severity	<Null>
Watch or Warning	<Null>
TaskLevel	<Null>
Public	Watch
SymPriority	Warning
COMMENTS	<Null>

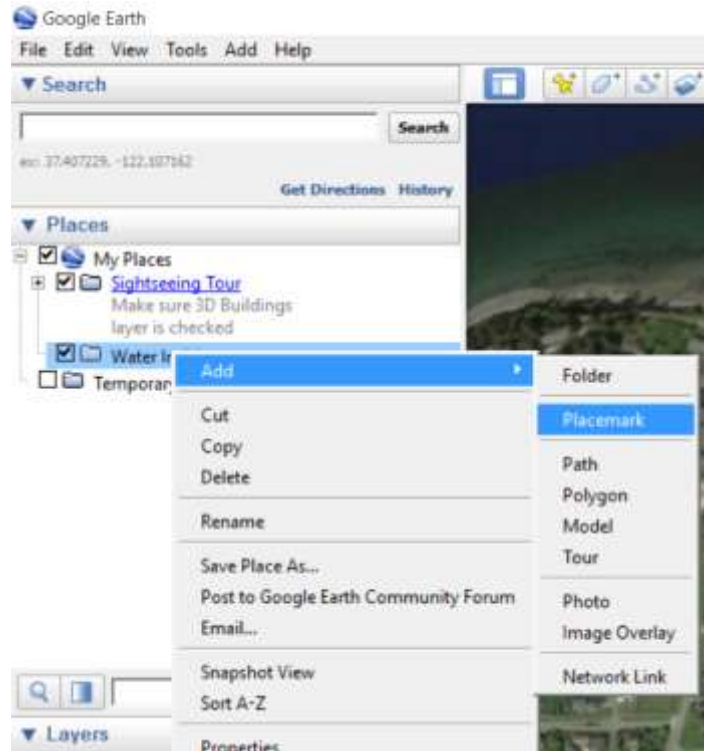
## VI. How do you use it on a web map

### A. Google Earth

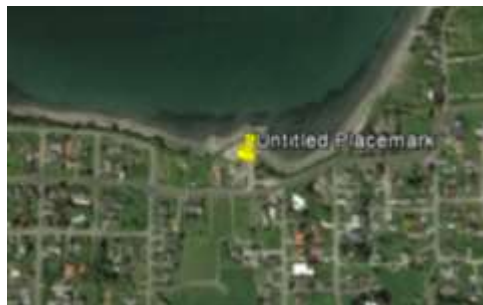
Google Earth is a viable platform for maintaining large amounts of geographic data when data is served through something like a Fusion Table. It is often most effective for managing and visualizing a smaller amount of information. Follow the steps below to apply the Incident Symbology in Google Earth.



Next add a **PLACEMARK (Point)** to the map

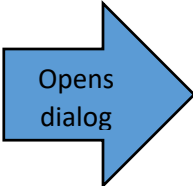


A placemark will be added to the center of the map. Move placemark with mouse to desired location.





Click button to change icon



Opens dialog



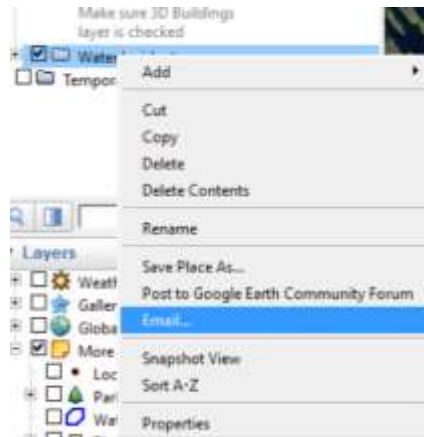
Click to change icon

Add url to image from web site or click browse to find image to use as icon



**B. Email Information**

It may be helpful to share your information by email with others in your agency or in other agencies. Right click on the folder and select Email

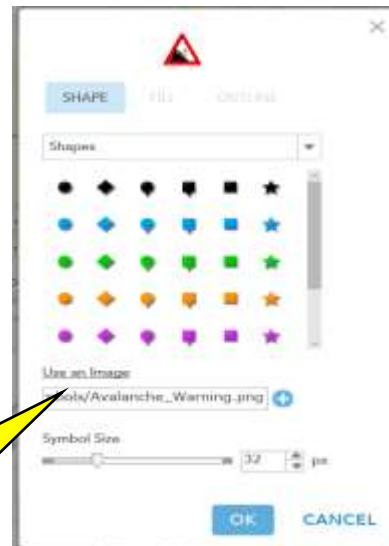


### C. Change Icon in ArcGIS.com

Since Arcgis.com is a cloud based application, you will need to have a URL link to that image. To change the symbol of a point feature



Click Change Symbol



Add the URL of the icon in this box then click plus



#### a. IPAWS Live Data Feed

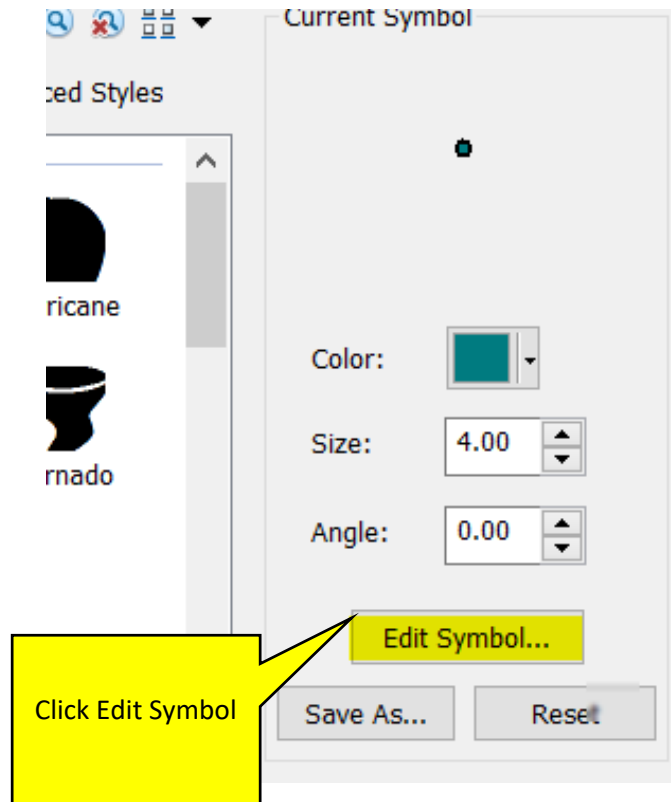
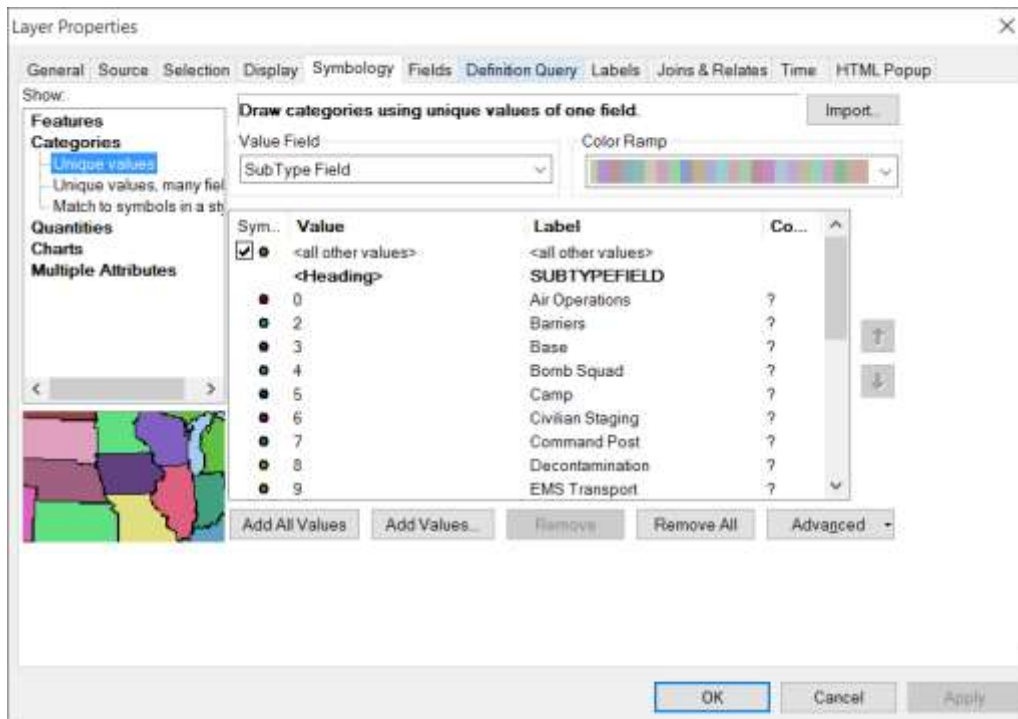
DHS provides a polygon rest endpoint map service for serving-up the Integrated Public Alerts & Warnings (IPAWS) live data feed. The service is available at:

<https://gii.dhs.gov/ags/rest/services/GEP/IPAWS/MapServer/0/>.

This Map Service contains live updates of Public Alert Warnings with information about the warning provided in the Pop-up Menu.

### D. ArcGIS Desktop

With ArcGIS Desktop, you can create or modify existing symbols by layering the true type fonts associated with the symbols. To create a symbol, follow the steps above in section IV of this document to assess what type of symbol you need to create. Then proceed to follow the steps outlined below.

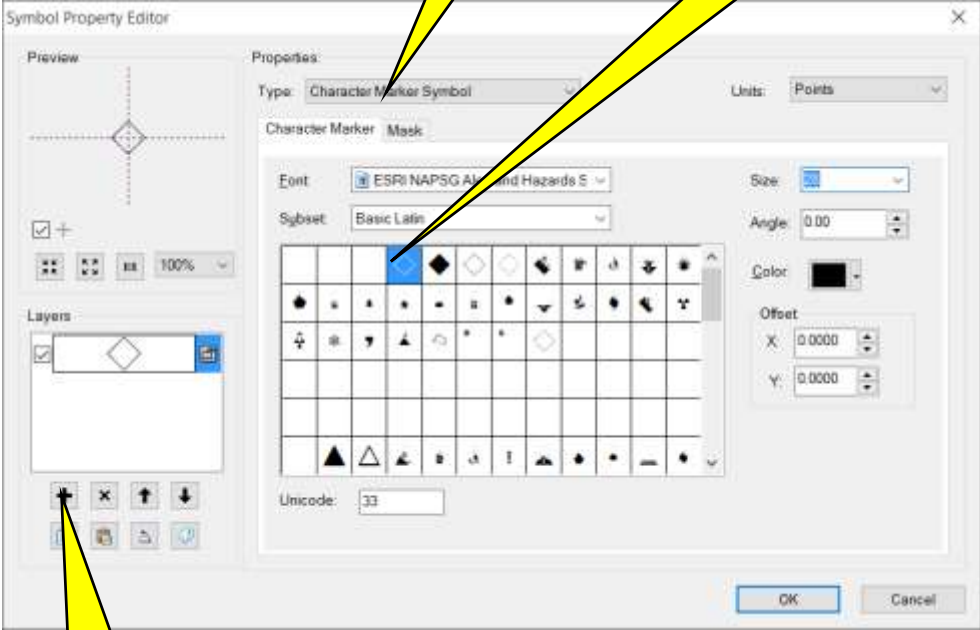


From here you can use Symbols Properties Editor to add fonts in a layered or complex fashion



Select Character Marker Symbol to use fonts

Select Base Shape that refers to your symbol you chose



Add additional fonts to layer on top of each other