

Incident Symbology Framework, Guideline, and Operational Implementation Guidance Version 3.0

I. Guideline Background

Every day, police, fire fighters, 9-11 dispatchers, emergency managers, and other emergency responders use maps to plan for, mitigate against, respond to, and recover from real world incidents. It is imperative that these maps are quickly and accurately understood so that they can be used to make mission critical decisions in high stress environments. Ultimately, they aid in saving lives and changing the outcomes for survivors. Key to making maps effective decision support tools is the use of consistent symbols that are clearly understood by all to communicate critical incident information.

Additionally, maps are more routinely shared to the public by public safety agencies to inform of a current emergency or forecasted event, to deliver evacuation or shelter-in-place orders, and to alert or warn of any number of public safety concerns. Maps provided during an emergency need to be clear and indicate a call-to-action. The key to communicating effectively to the public, particularly during often stressful times, is to use consistency symbology and color schemes that communicate safety or danger and labelling to reinforce important information.

While national and international standards fulfill many symbol needs, there still exist gaps in incident symbols and the supporting frameworks. The National Alliance for Public Safety GIS (NAPSG) Foundation has been working with the U.S. Department of Homeland Security (DHS) to bridge these gaps by developing a standardized incident symbology framework, guideline, and symbol set for use at the incident level on maps, in geographic information systems (GIS), and other decision support tools. The Framework builds on best practices for delivering information clearly to first responders and the public.

NAPSG Foundation's incident symbology efforts are focused on developing and promulgating the use of a standardized national guideline that is voluntary and can be readily adopted and used since it was created by and for emergency responders. The incident symbology framework, guideline, and symbol set are intended to aid in the process of standardizing symbols used on map products during incident planning and operations. **This document is the Incident Symbology Framework and Guideline for use in developing and applying map symbols to consistently communicate incident information.**

II. Standardized Color Ramp

Color Ramp Overview

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 / risk level predicted, 2) Operational Status, or 3) Call to Action (Evacuation Zone). Color ramping should be applied consistently using the standardized RGB or HEX values outlined below. Note: 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.

Severity of an event, or risk level predicted

Industry standards exist for displaying hazard or risk by the authoritative source for those hazard models or forecasts. Where there is no color ramp standard, the above ramp for severity or risk should be used which follows widely accepted conventions. Green = Good, Red or Purple = Bad or Really Bad; Yellow or Orange = Something is Happening.

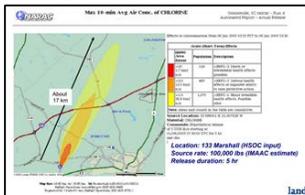
Best Practice: Less is more. Whenever possible use the Stop Light Method (Green/Yellow/Red). The additional colors should be used when necessary but can add to confusion to the public or laymen. This color ramp can be applied to any line, polygon or black and white point symbol that has an associated standard for severity or risk.

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

Polygon Examples: Severity / Risk

Industry Standard

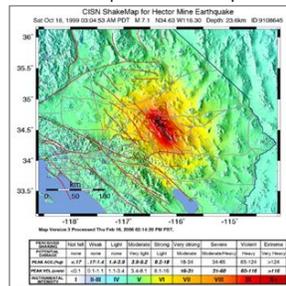
National Atmospheric Release Advisory Center (NARAC) – Hazardous Release



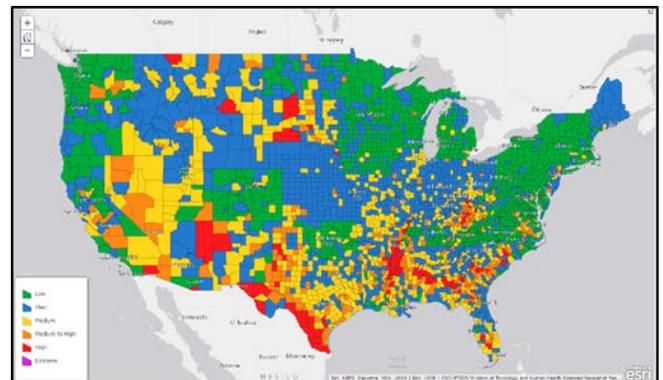
National Hurricane Center: Wind Swath



USGS: Earthquake Shake Map



Polygon / Areas



<p>Operational Status</p>	<p>When displaying base data (static/non-dynamic), the standard black and white point symbols should be used. Web Maps displaying a mix of base data and live data with operational status, should use the below conventions to clearly indicate what data is purely showing location vs operational status.</p> <p>Best Practice: Applying color to should be used on black and white symbols. A halo approach is recommended for symbols with complex or with limited white space.</p> <table border="1" data-bbox="402 436 1442 766"> <thead> <tr> <th>Operational Status</th> <th>Color</th> <th>Count</th> <th>Hex Code</th> </tr> </thead> <tbody> <tr> <td>Base Data (No Operational Status Information)</td> <td>White</td> <td>255,255,255</td> <td>#FFFFFF</td> </tr> <tr> <td>Status Unknown</td> <td>Green</td> <td>191,291,58</td> <td>#BFBFBF</td> </tr> <tr> <td>Open Status; No damage</td> <td>Green</td> <td>0,172,58</td> <td>#00AC3A</td> </tr> <tr> <td>Alert/Advisory; Moderate damage</td> <td>Yellow</td> <td>255,215,24</td> <td>#FFD718</td> </tr> <tr> <td>Severe Damage; Closed Status</td> <td>Red</td> <td>255,24,30</td> <td>#FF181E</td> </tr> </tbody> </table>	Operational Status	Color	Count	Hex Code	Base Data (No Operational Status Information)	White	255,255,255	#FFFFFF	Status Unknown	Green	191,291,58	#BFBFBF	Open Status; No damage	Green	0,172,58	#00AC3A	Alert/Advisory; Moderate damage	Yellow	255,215,24	#FFD718	Severe Damage; Closed Status	Red	255,24,30	#FF181E
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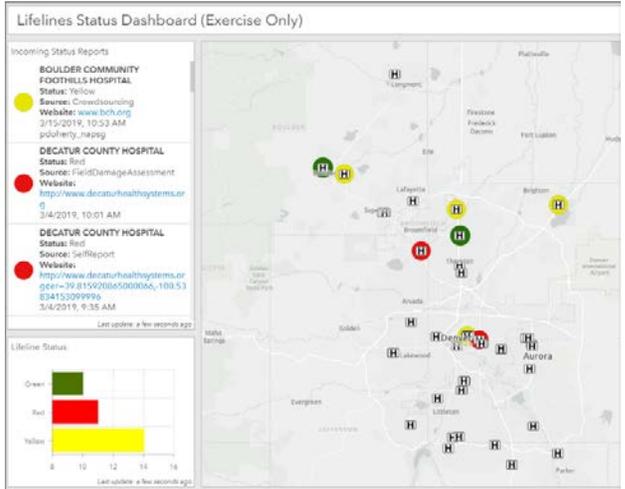
Color Ramp Applied

Symbol Examples



Halo Example: Update Community Lifeline Status (Health & Medical)

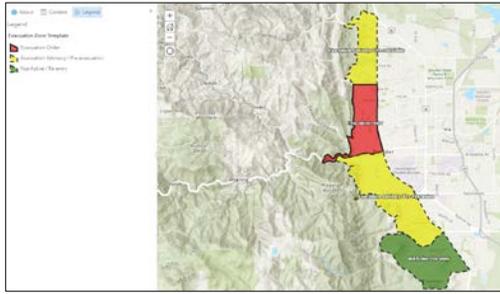
-  Green
-  Yellow
-  Red



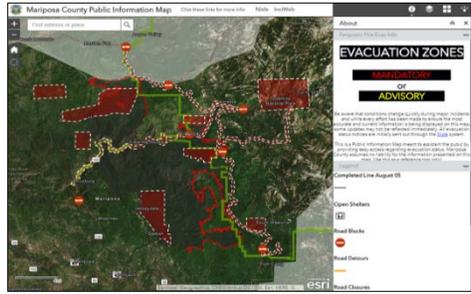
<p>Evacuation Zones</p>	<p>Evacuation Zones are a call to action. Stay, Be on Alert, or Go. The stop light approach is understood by the public and calls immediate attention to areas in red. Jurisdictions may choose to only show areas in yellow or red. Regardless of the approach, a secondary method such as labels provide another mechanism to reduce confusion. Solid lines for Mandatory Orders can also help distinguish from Green zones to mitigate challenges with color blindness.</p> <p>Best Practice: If possible, use applications that take map interpretation and guess-work out of the equation (Ex: Search by address) and integrate with existing notification systems.</p>
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Evacuation Zone Examples:

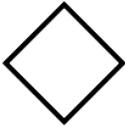
NAPSG Evacuation Zone Template



Example: Mandatory/Advisory showing only



III. Emergency Hazard Symbols

<p>Reserved Shape</p> 	<p>The DIAMOND is the reserved shape for any emergency hazard symbol. The location of any hazard that may cause harm, create social disturbance, and/or inhibit access to responders and the public. Hazards should be mitigated, observed, and/or avoided. Symbols are variable other than shape. The use of text within a symbol is avoided unless it is part of a widely used standard symbol(s) that is easily understood and interpreted.</p>			
<p>Sub-Category</p>	<p>Description</p>	<p>Symbol Examples</p>		
<p>Access Hazards</p>	<p>Features that indicate restricted or limited access of people or vehicles.</p>	 Blocked Access	 Narrow Access	 Restricted Weight Access
<p>Natural Hazards</p>	<p>Indicates hazards from events that naturally occur.</p>	 Earthquake	 Fire	 Flood
<p>Human-Caused Threats and Hazards</p>	<p>Indicates threats, hazards, and events that are human-caused, either intentional or unintentional.</p>	 Radioactive	 Child Abduction	
<p>Hazardous Materials</p>	<p>Standard NFPA 704 and Department of Transportation HazMat Placarding.</p>	 Acids/Corrosives	 NFPA 704	 Explosives
<p>Other Specific Hazards</p>	<p>Other symbols used for indicating a local specific hazard.</p>	 Fall Hazard	 Building Collapse	 Fire Load

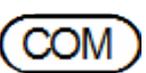
IV. Public Alerts and Warnings

<p>Reserved Shape</p> 	<p>The TRIANGLE is the reserved shape for any public alert and warning symbol. Public alert and warning symbols have three primary uses:</p> <ol style="list-style-type: none"> 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. <p>Notes:</p> <ul style="list-style-type: none"> • 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 	
<p>Modifiers</p>	<p>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.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  Statements </div> <div style="text-align: center;">  Watches </div> <div style="text-align: center;">  Warnings </div> </div>	
<p>Sub-Category</p>	<p>Description</p>	<p>Symbol Examples</p>
<p>IPAWS Event Code Alerts & Warnings</p>	<p>Symbols for specific IPAWS event codes for alerts and warnings.</p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  Tornado Watch </div> <div style="text-align: center;">  Evacuation Immediate </div> </div>
<p>Non-IPAWS Alert and Warnings</p>	<p>Symbols for alerts and warnings that do not have a specific corresponding IPAWS event codes and may be able to include tailored center icons.</p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  Residential Fire </div> <div style="text-align: center;">  Wildland Fire </div> </div>

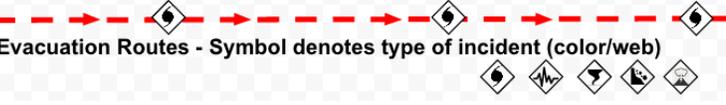
V. Infrastructure

<p>Infrastructure</p> 	<p>Represents critical fixed features, fixed points of interest, critical infrastructure. Reserved shape is a rectangle with rounded corners.</p>	<p>Examples:</p> <ul style="list-style-type: none"> • Hospital • Police Stations • Bridge • Rail Station • Pharmacies 	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; align-items: center; margin-bottom: 10px;">  <div style="margin-left: 10px;">Hospital</div> </div> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;">Bridge</div> </div> </div>
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VI. Incident Symbols

The incident symbols typically consist of a clear or white background (to support being hand drawn when needed), with black outer shapes reserved for each sub-category.			
Sub-Category and Reserved Shape	Description	Example Uses	Symbols Examples
 <p>Fixed Incident Resources and Command Features</p>	Location of relatively fixed incident resources and command features that support the management of the incident.	<ul style="list-style-type: none"> Incident Management Landmarks Assembly points for responders 	 Camp  Base  Airstrip
 <p>Incident Command System</p>	Location of features that support the Incident Command System. These symbols are best used in dynamic maps where status information is routinely updated, but can be used in semi-static maps.	<ul style="list-style-type: none"> Task Forces and Strike Teams Groups and Divisions Sections Branches 	 Fire Branch  SAR Group  Incident Commander
 <p>Resource Symbols</p>	Symbols representing the semi-static to active location of a deployable resource, unit, or resource package.	<ul style="list-style-type: none"> Ambulances HazMat Entry Team Emergency Medical Task Force Incident Management Team Urban Search and Rescue Task Force 	 Water Tender  Communications Unit
Exposures	The side of a structure or building that is visibly impacted in an incident. Should be used to specify the precise location of an incident or impacted area.	Letters should be used to identify the visibly impacted area of a structure during an incident. "A", "B", "C", "D"	No specific examples. Use simple and clear text for indicating exposures.
Modifiers and Exceptions			
 <p>If a symbol is available in an existing standard, use it. You can modify with clear text to ease understanding.</p>	 <p>Icons can be used in the background to detail specific type of feature.</p>	 <p>Arrows can be used to indicate assembly points related to the specific symbol.</p>	

VII. Line Features

Line Shape	Description	Examples
Solid Line 	A solid line indicates that the feature is active.	 <p>Full Road Closure (color/web)</p> <p>Full Road Closure (b/w)</p>
Dashed Line 	A dashed line indicates that the feature is planned or temporary.	 <p>Emergency Routes (Ingress/Egress) (color/web)</p>
Icon on Line 	An icon on the line indicates the type of line feature it is.	 <p>Evacuation Routes - Symbol denotes type of incident (color/web)</p>
Arrow on Line 	The arrow on the line indicates the direction the action should proceed in.	

VIII. Pre-Incident Symbols

Pre-incident symbols are used in fire and law enforcement pre-incident planning or pre-planning in or around a specific building, facility, or other structure. Pre-incident symbols have a standardized background color to differentiate from incident symbols.					
Designated Shape and Color	Sub-Category	Description	Examples		
 Green	Access Point	Access point and ways to access a building or incident area	 Attic Access	 Knox or Key Box	 Stairway
 Red	Assessment Features	Alarms and other	 Control Panel with Burglar Alarm Modifier	 Fire Alarm Reset Panel	 Public Alert alarm symbol with red triangle with blue circle
 Blue	Utility Shutoffs	Location for utility shutoffs.	 Fuel Shutoff	 Gas Shutoff	 Compressed Natural Gas Shutoff.
 Gray for detector Red for fire suppression	Detection & Extinguishing Equipment	Detectors and building extinguishment systems	 Dry Chemical	 Duct Detector	 CO2 System
 Purple	Ventilation	Place to manage the exhaust of gases	 Smoke Vent	 HVAC System	 Vent Opening
 Red	Water Flow Control Valves and Water Sources	Water flow devices	 Dry Chemical Reel station with NFPA Icon	 Post Indicator Valve with NFPA Icon	 Fire Department Connection with NFPA Icon
 Gray	Equipment Rooms	Location of features	 Child Care (Standard icon)	 Electrical Room	 Fire Pump