# KIHSSE

18 - 20 February 2019 | Jumeirah Messilah Beach Hotel State of Kuwait

**Theme: Transforming HSE Culture for a Resilient Future**

## Continuity of Operations through Intelligence & Resilience

**Presented by**


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International Association of Fire Chiefs

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Strategic Advisor
International Association of Fire Chiefs

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Director, National & Federal
National Alliance for Public Safety GIS Foundation

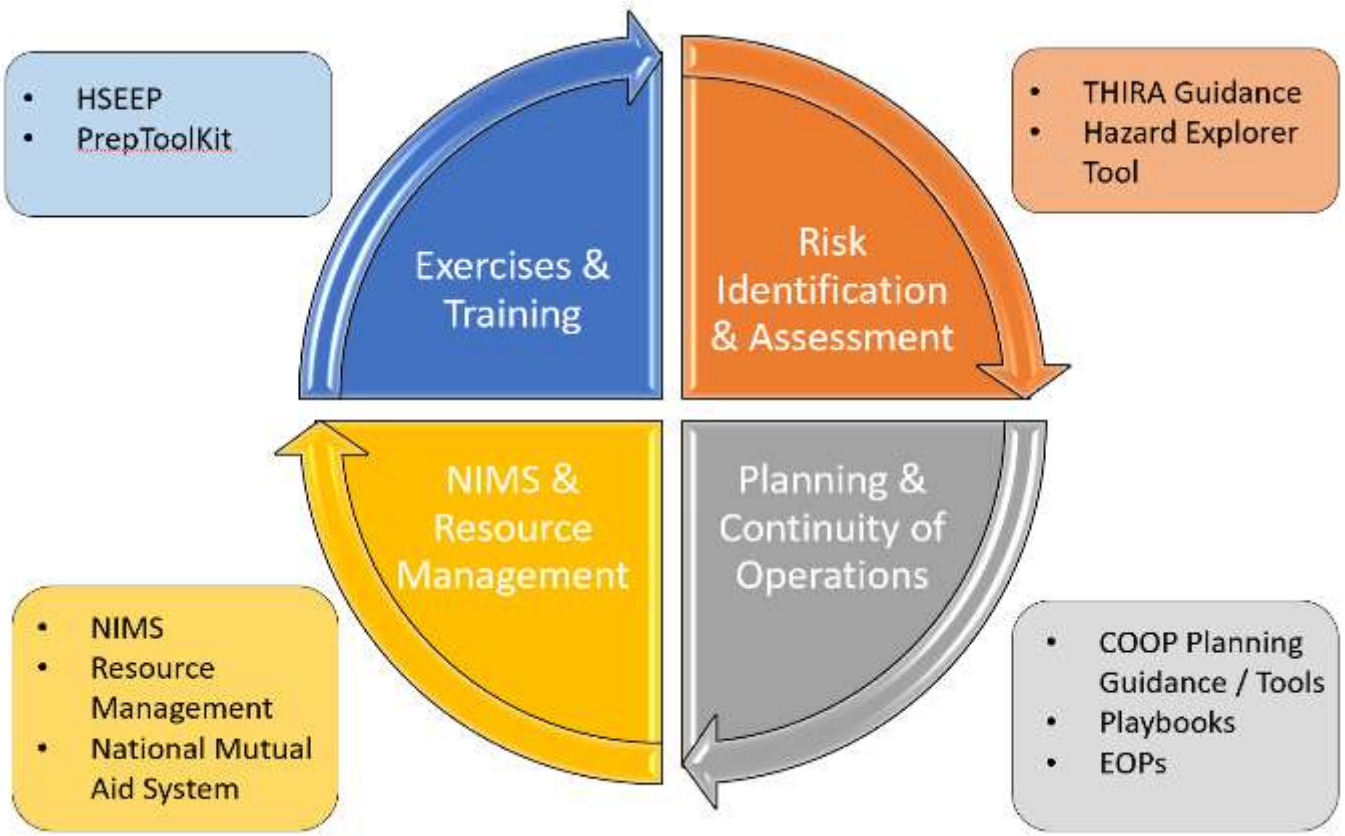

GPSS
Global Public Safety Solutions

# CONTINUITY OF OPERATIONS THROUGH INTELLIGENCE & RESILIENCE

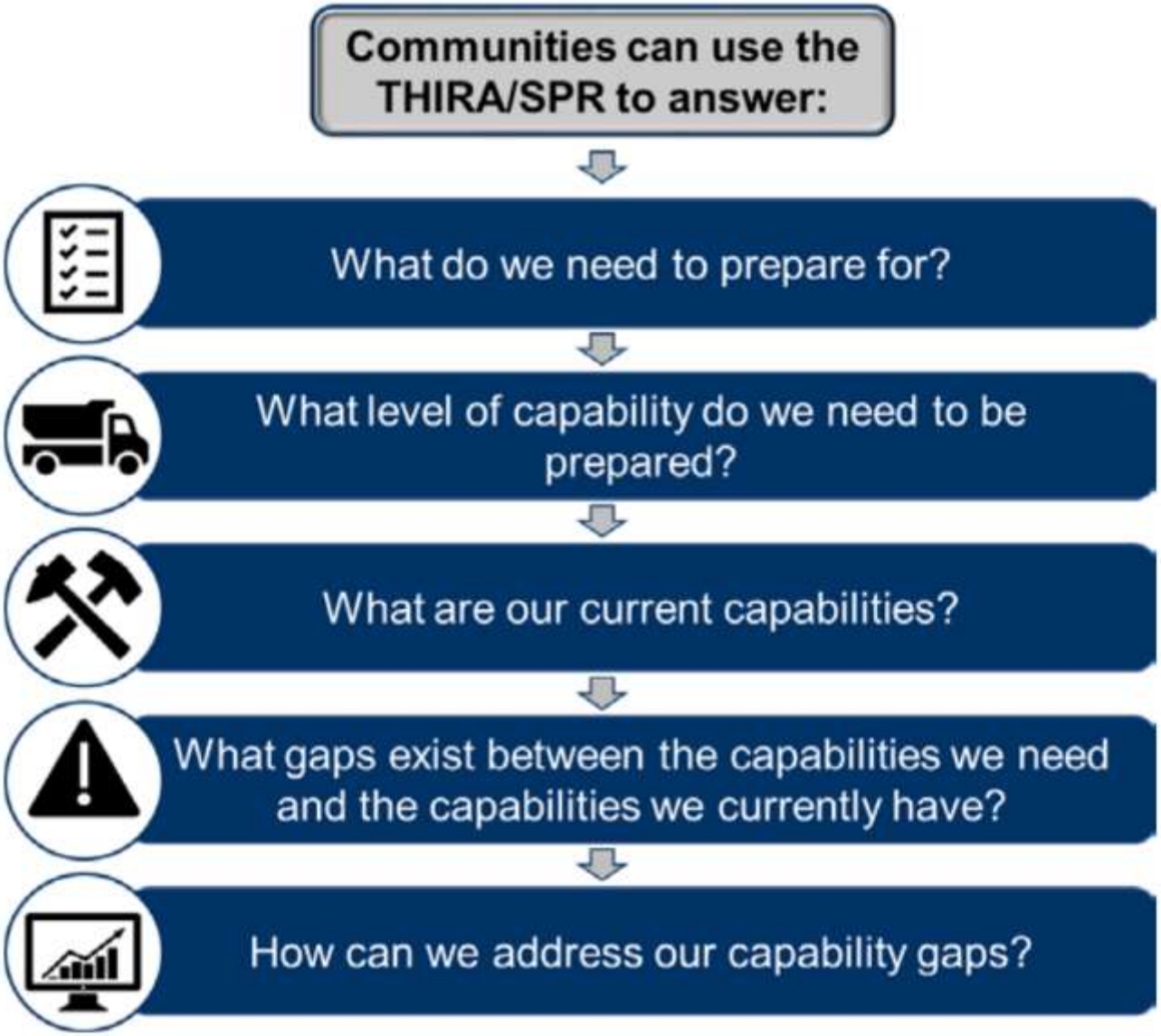
- ✓ **Discuss and provide case studies on Consequence Management best practices**
- ✓ **How to develop comprehensive, effective and reliable COOP playbooks**
- ✓ **An overview of the National Incident Management System (NIMS) used to protect organizations from unexpected disasters and business disruptions**
- ✓ **Overview of the IAFC National Mutual Aid System and who this system may be deployed internationally**
- ✓ **Use of Geographic Information Systems (GIS) systems intelligence applications**

19 FEB 2019
State of Kuwait

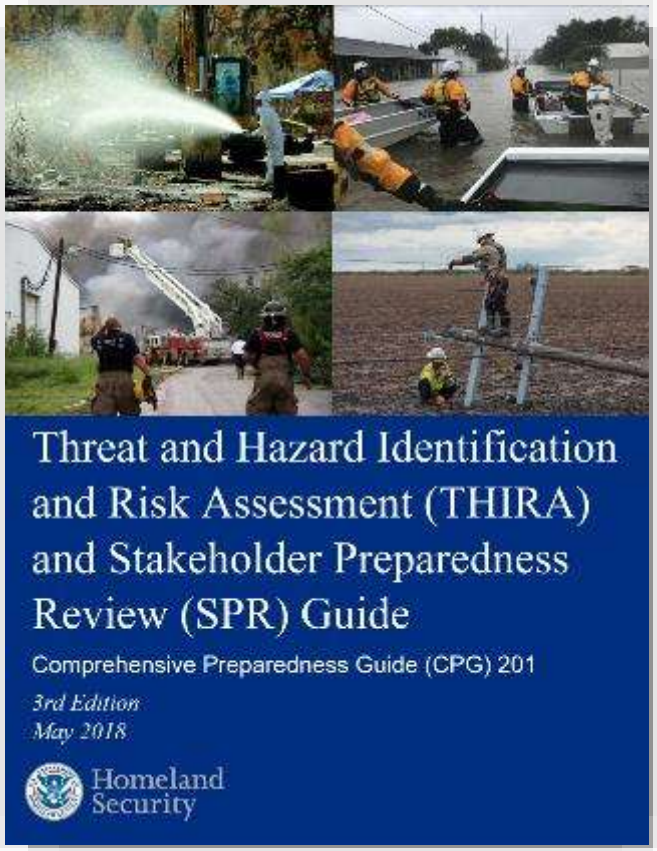
# PREPAREDNESS RESILIENCE



# THREAT HAZARD IDENTIFICATION AND RISK ASSESSMENT

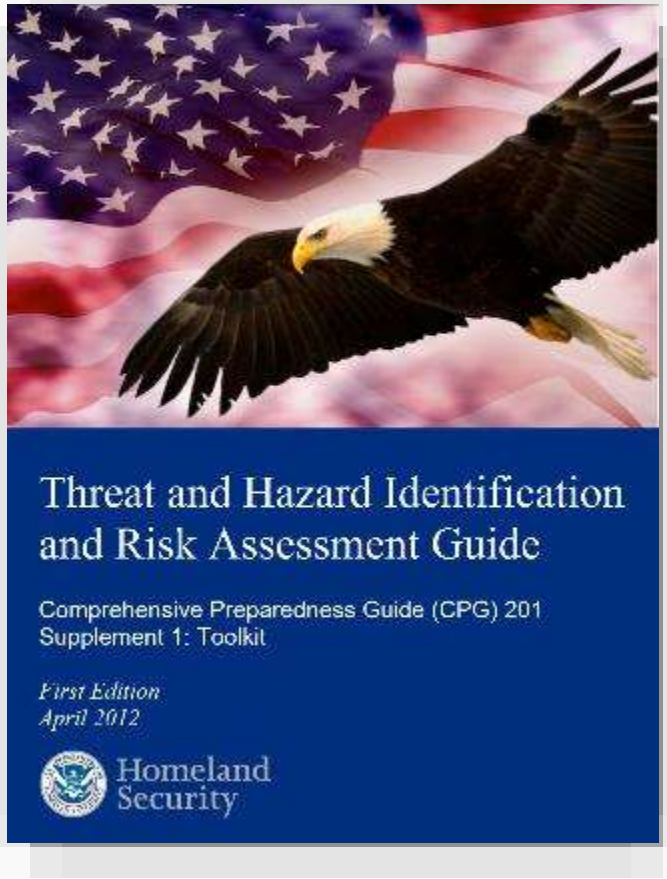

Communities can use the THIRA/SPR to answer:
What do we need to prepare for?
What level of capability do we need to be prepared?
What are our current capabilities?
What gaps exist between the capabilities we need and the capabilities we currently have?
How can we address our capability gaps?

# THIRA GUIDANCE




**Link:** https://www.fema.gov/media-library/assets/documents/165308

# THIRA TOOLKIT

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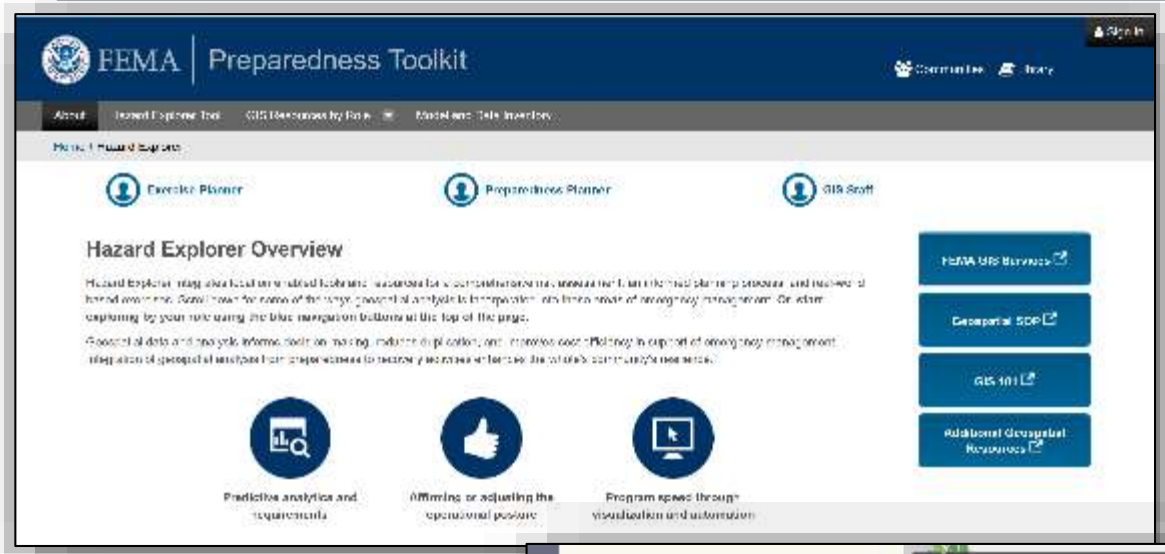
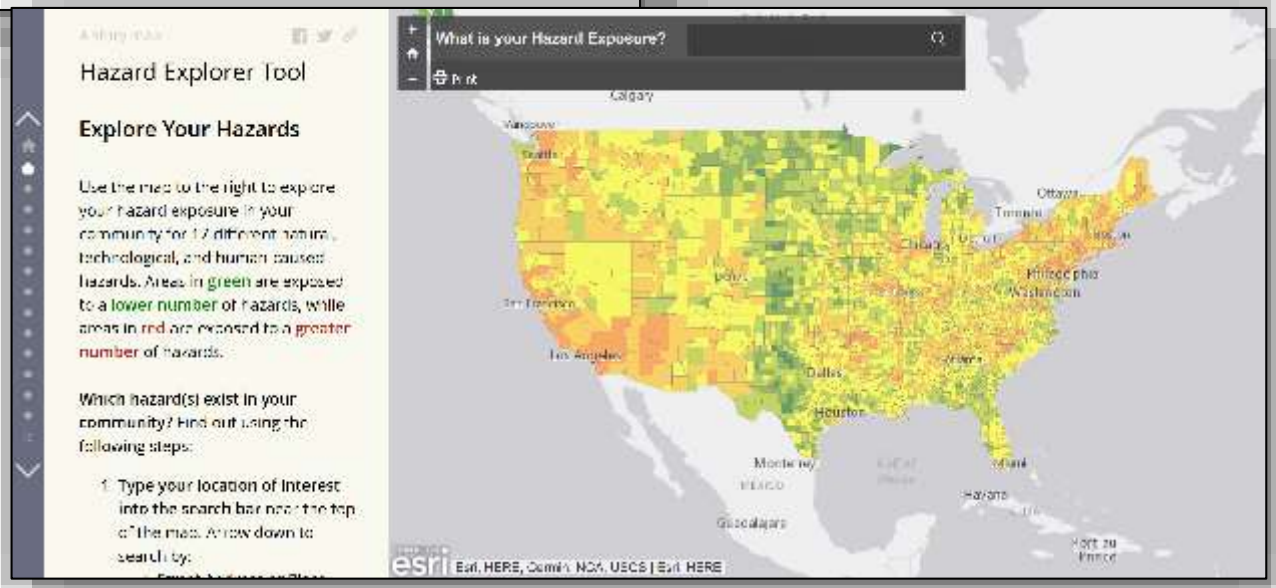
GPSS

# HAZARD EXPLORER TOOL




1. **Hazard Explorer Site -** https://preptoolkit.fema.gov/web/hazard-explorer

2. **Hazard Explorer Tool -** https://preptoolkit.fema.gov/web/hazard-explorer/hazard-explorer-tool

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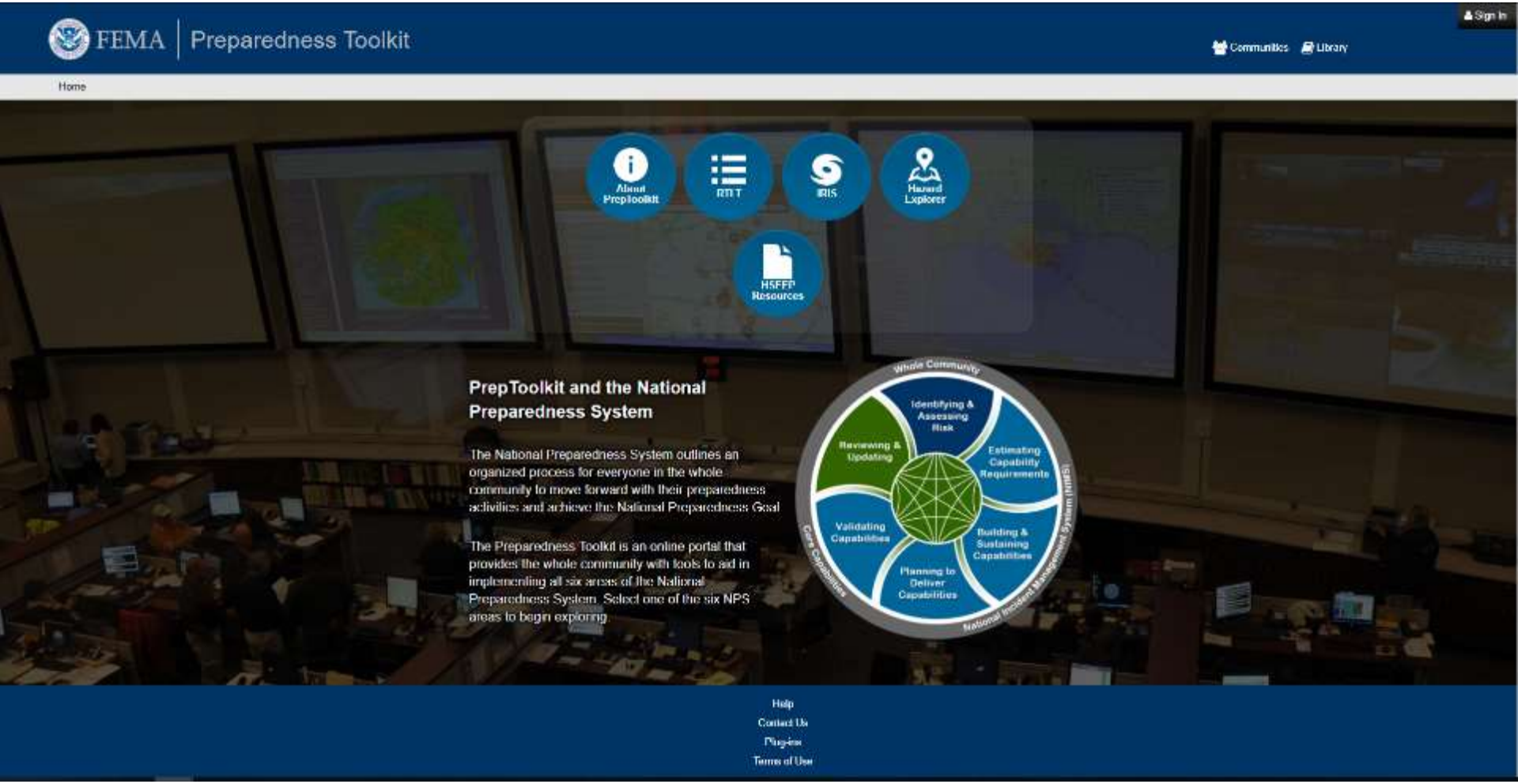
FEMA | Preparedness Toolkit
Sign In
Communities
Library
Home
About PrepToolkit
RTLT
IRIS
Hazard Explorer
HSEEP Resources
PrepToolkit and the National Preparedness System
The National Preparedness System outlines an organized process for everyone in the whole community to move forward with their preparedness activities and achieve the National Preparedness Goal.
The Preparedness Toolkit is an online portal that provides the whole community with tools to aid in implementing all six areas of the National Preparedness System. Select one of the six NPS areas to begin exploring.
Whole Community
Identifying & Assessing Risk
Estimating Capability Requirements
Building & Sustaining Capabilities
Planning to Deliver Capabilities
Validating Capabilities
Reviewing & Updating
Core Capabilities
National Incident Management System (NIMS)
Help
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Plug-ins
Terms of Use

FEMA | Preparedness Toolkit

Sign In

Communities Library

About | Hazard Explorer Tool | GIS Resources by Role | Model and Data Inventory

Home / Hazard Explorer / Hazard Explorer Tool

View In Full-Screen Mode

A story map

# Hazard Explorer Tool

FEMA

## Introduction and Purpose:

The National Exercise Program serves as the principal mechanism for examining the preparedness and readiness of the United States across the entire homeland security and management exercise. Communities design, coordinate, conduct, and evaluate exercises across the US as a part of their preparedness efforts.

This map journal serves as a tool to help you identify and evaluate potential exercise scenarios [illegible] hazard exposure, and other risk-related factors to support exercise planning. In this tool, you


DISCLAIMER: The information and data presented in this tool are meant as a general guide for narrowing an exercise location. The data sources in this tool are national-scale and are not meant to replace more detailed, local-scale data and analysis.

*Image Source: FEMA*

Help
Contact Us
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A story map

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This map journal serves as a tool to help you identify and evaluate potential exercise scenario locations, hazard exposure, and other risk-related factors to support exercise planning. In this tool, you will identify:

1. Which hazards exist near your location;
2. Where your population is most vulnerable; and
3. What infrastructure and resources would be most impacted in your selected scenario location.

The final output of this tool is a basic PDF map of your selected scenario location, as well as links to data sources that you can share with your GIS staff to conduct more in-depth analysis for use in planning and conducting your exercise.

How to use this tool:


DISCLAIMER: The information and data presented in this tool are meant as a general guide for narrowing an exercise location. The data sources in this tool are national-scale and are not meant to replace more detailed, local-scale data and analysis.

*Image Source: FEMA*

A story map

# Hazard Explorer Tool

## Explore Your Hazards

Use the map to the right to explore your hazard exposure in your community for 17 different natural, technological, and human-caused hazards. Areas in **green** are exposed to a **lower number** of hazards, while areas in **red** are exposed to a **greater number** of hazards.

**Which hazard(s) exist in your community?** Find out using the following steps:

1. **Type your location of interest into the search bar** near the top of the map. Arrow down to search by:
   - Street Address or Place
   - US National Grid (What is USNG?)
   - County Name

2. **Click within your area of interest.** A pop-up window will appear that indicates hazard exposure for that area. Note which hazards are marked 'Yes', indicating exposure to that hazard in your community.

3. For any hazard(s) that you are exposed to, **click on its name in the list below to further explore** potential impact and risk-factors in your community.

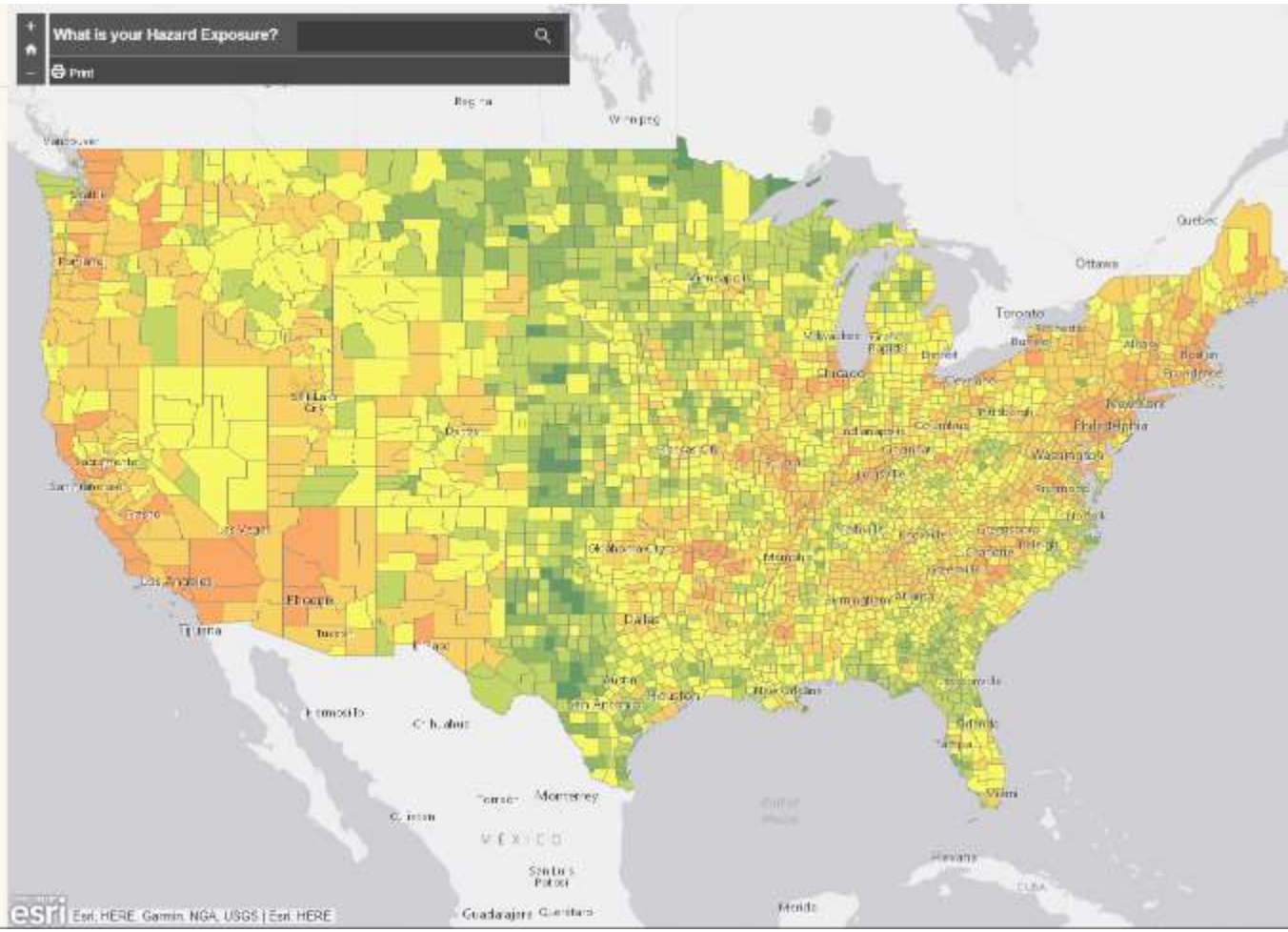
Animal Disease Outbreak

Earthquake

Flood

Hazardous Materials Release

Hurricane



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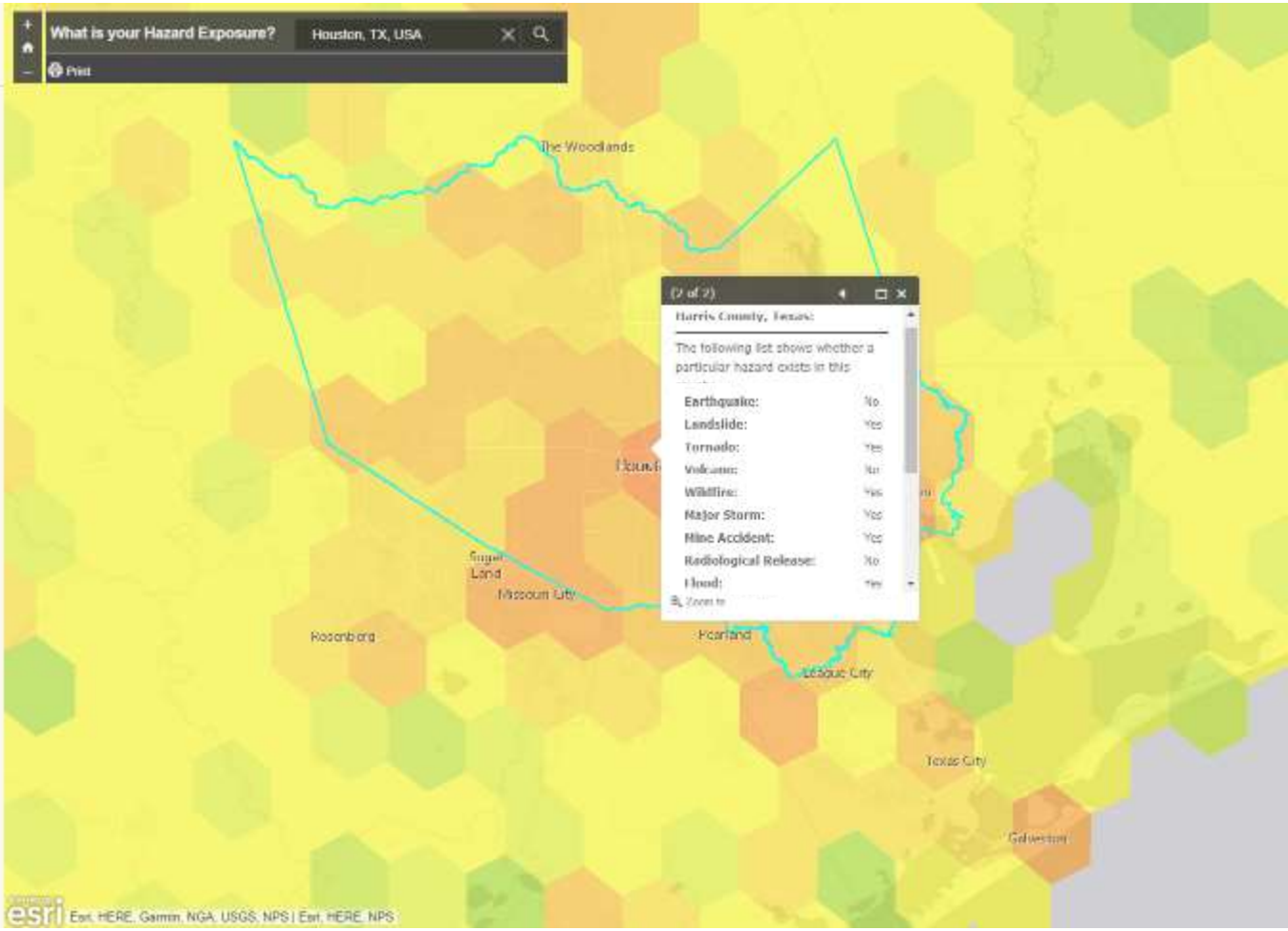


A story map

# Hazard Explorer Tool

## Flood Hazard Exposure

Go Back to Explore Other Hazards

Open the Flood Hazard App in Full Screen

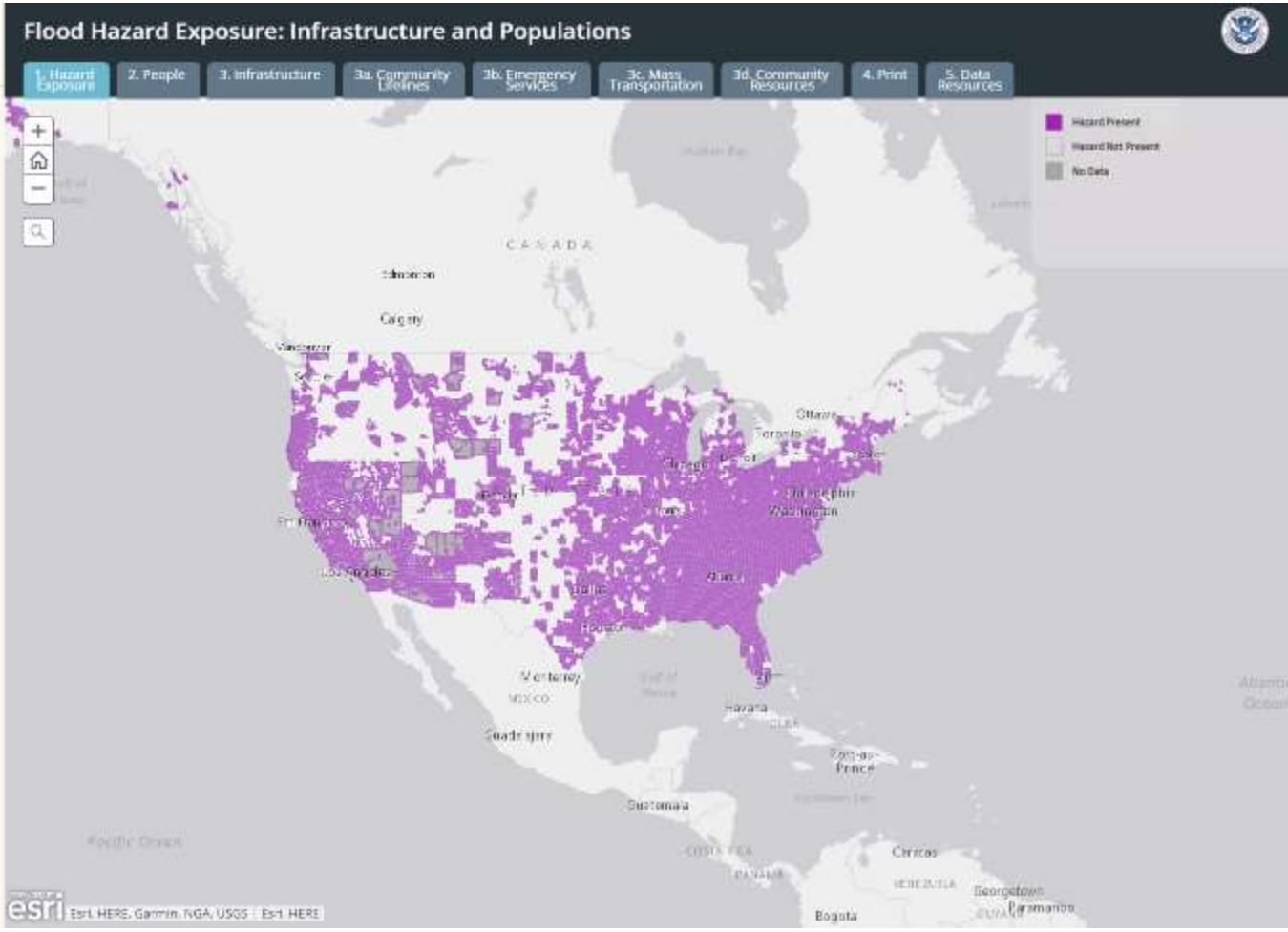
Now, we'll explore in more depth where the flood hazard exists, vulnerable populations that could potentially be impacted, and the presence of infrastructure.

1. **Flood Hazard Exposure.** Select the magnifier tool on the map to the right to zoom back into your community of interest and view this hazard in more detail.

2. **Vulnerable Populations.** Next, explore where people are most vulnerable to this hazard.
   - **Select the Vulnerable Populations tab.** Re-enter your location of interest in the search bar at the bottom-left corner of the map.
   - **View the total population and the top 25th percentile** of the vulnerable population. Counts are for the total visible map area.

Population Summary button

3. **Infrastructure.** Select the magnifier tool on the Infrastructure tab to zoom back into your community of



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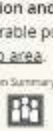

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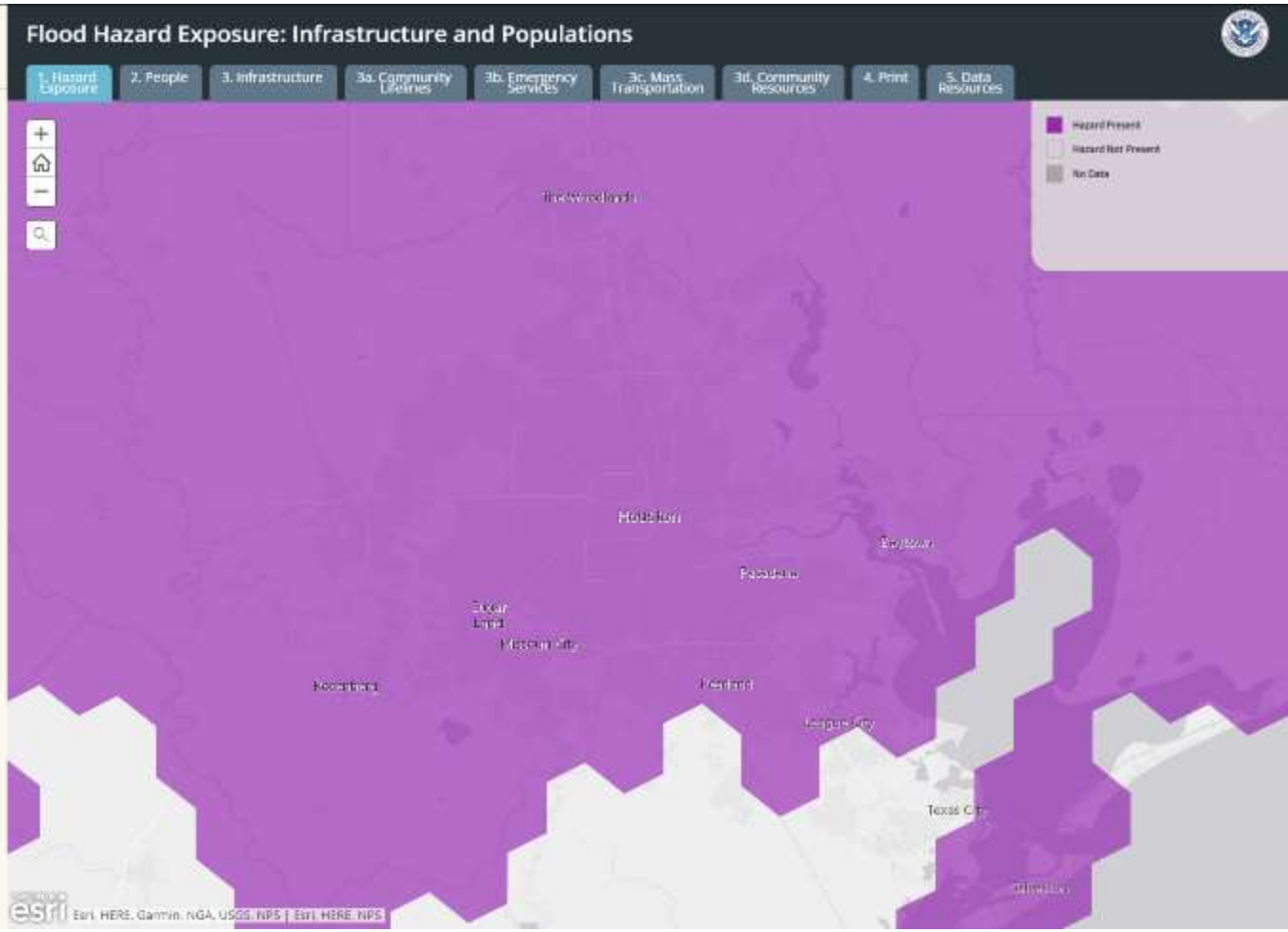

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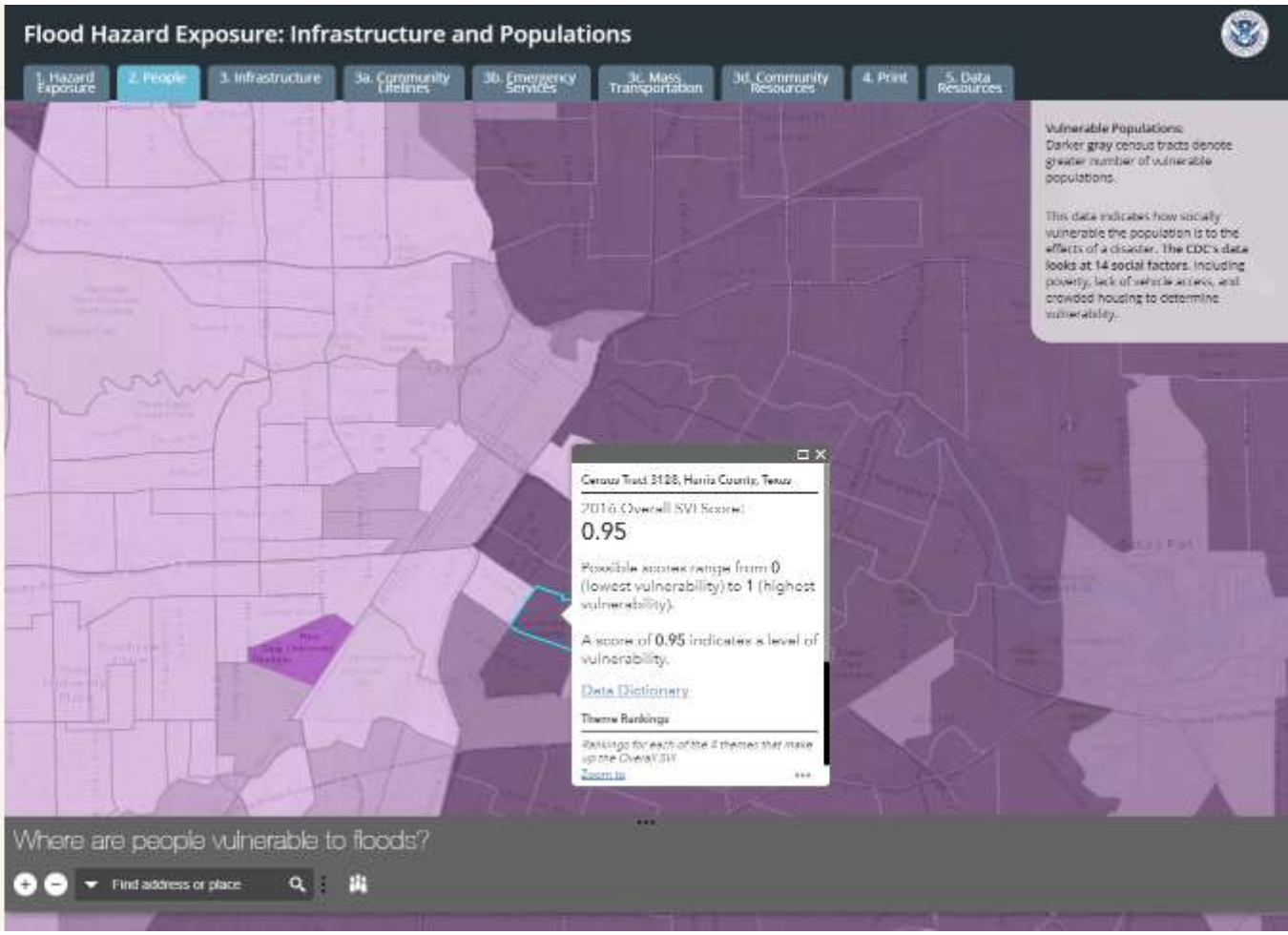

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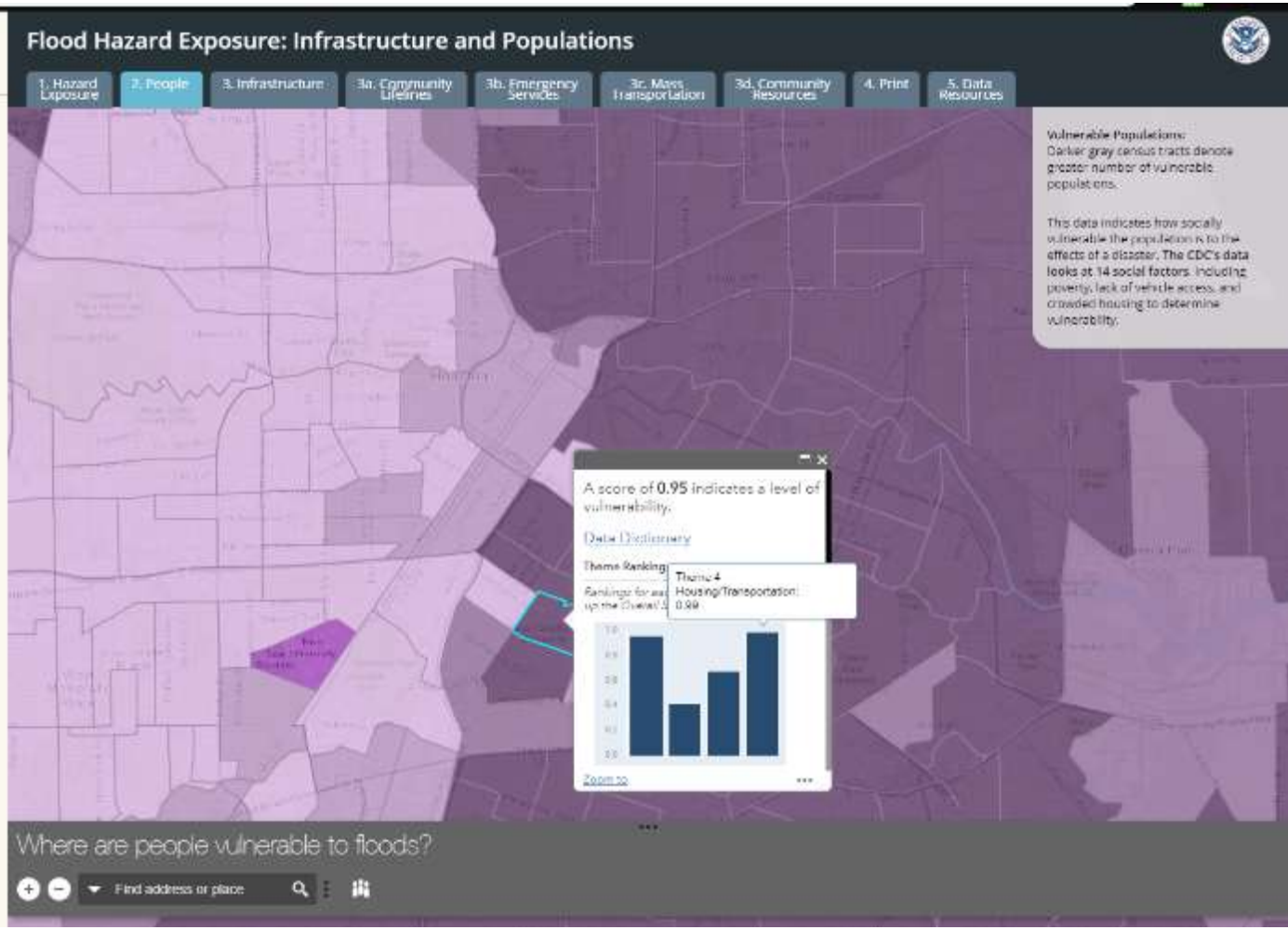

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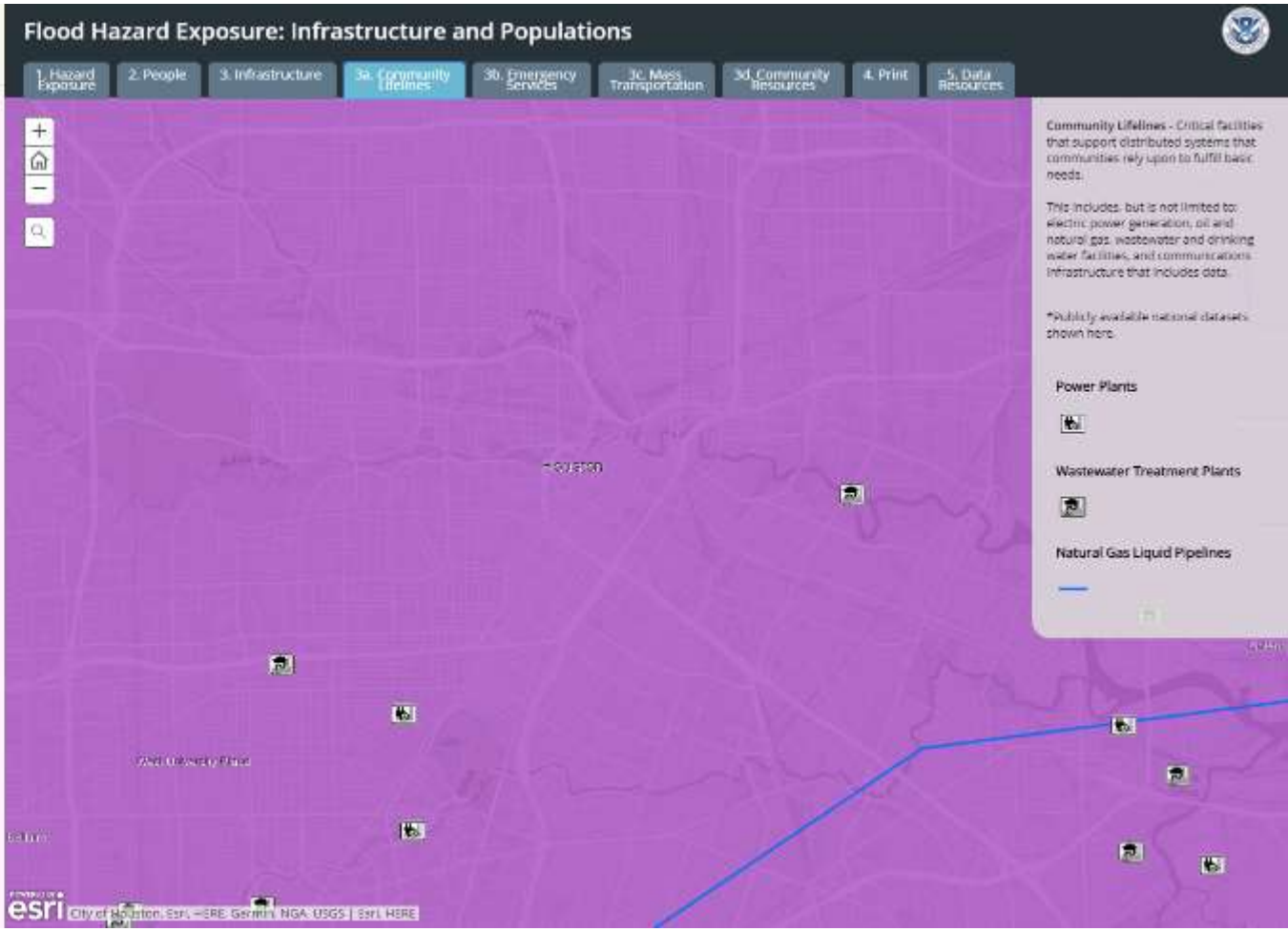

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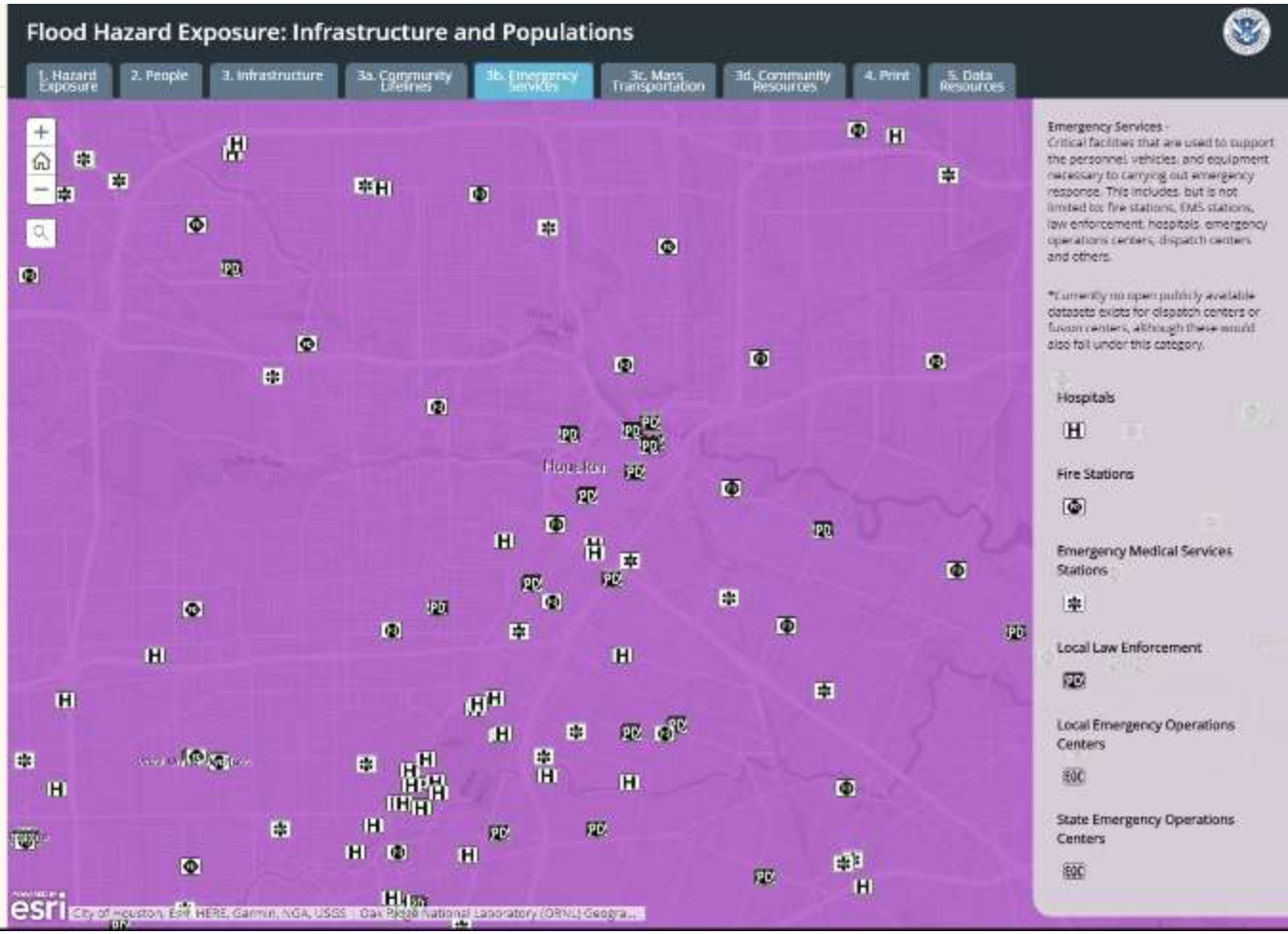

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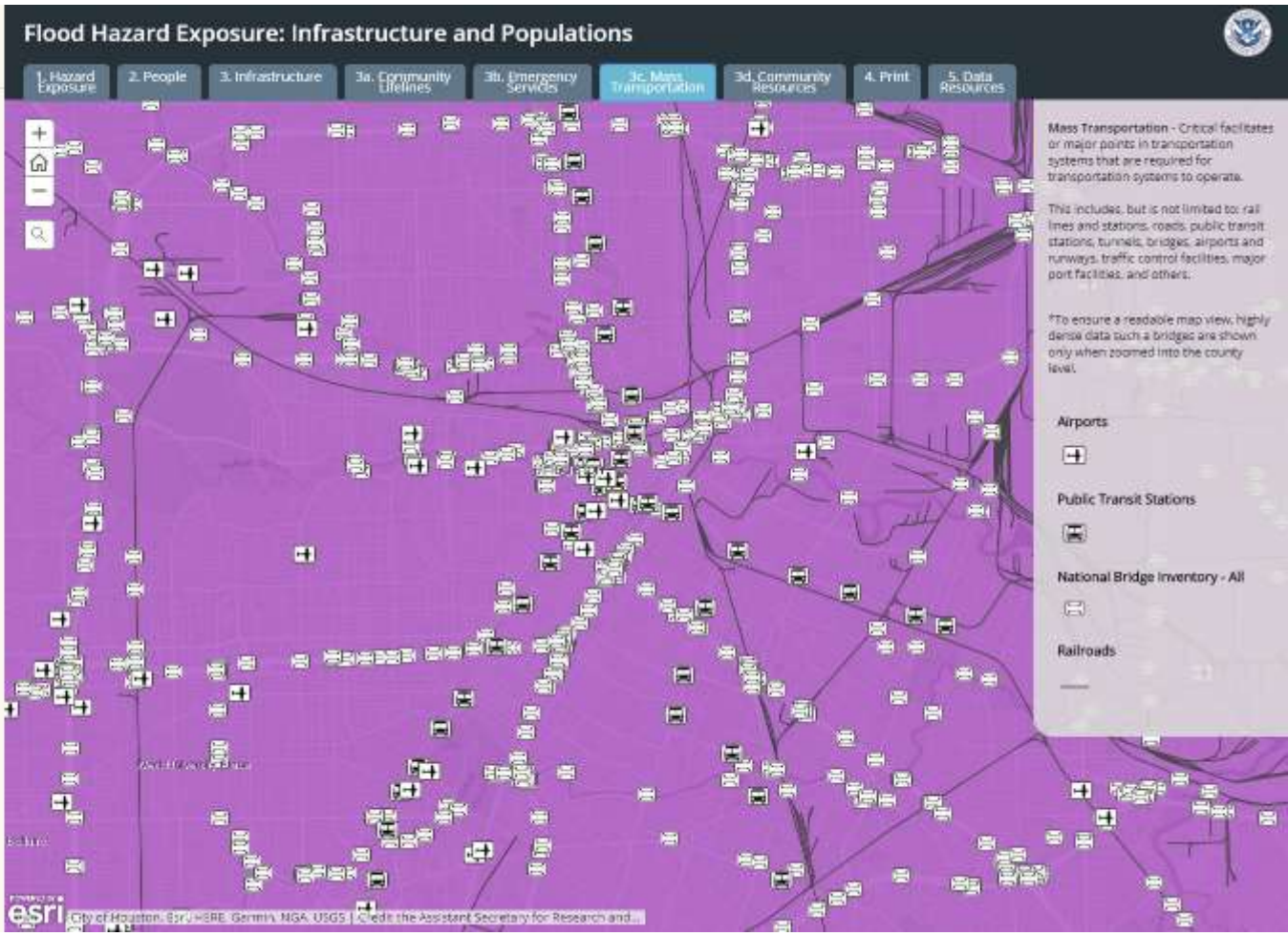

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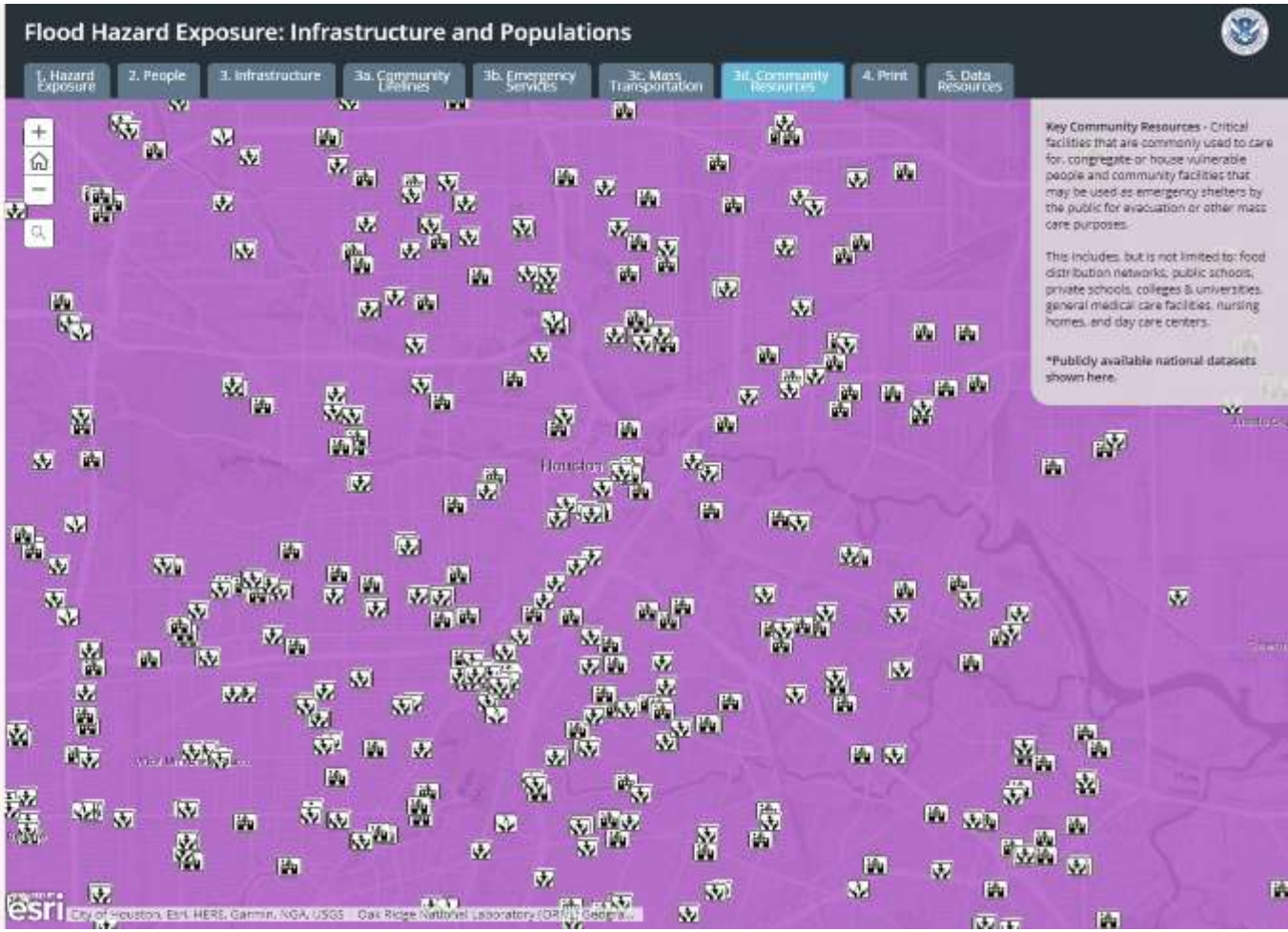


A story map

# Hazard Explorer Tool

4. **Customize your map(s) to print.** Once you have selected your area of interest, create a map (or maps) that will help you begin developing your scenario and planning your exercise. There are a number of tools at the bottom of the map to the right that can help you do this:
   - Select the **Customize for Print** tab.
   - The "Layer List" tool can be used to turn on/off layers in the map. Choose which layers you want to show in your final map(s).

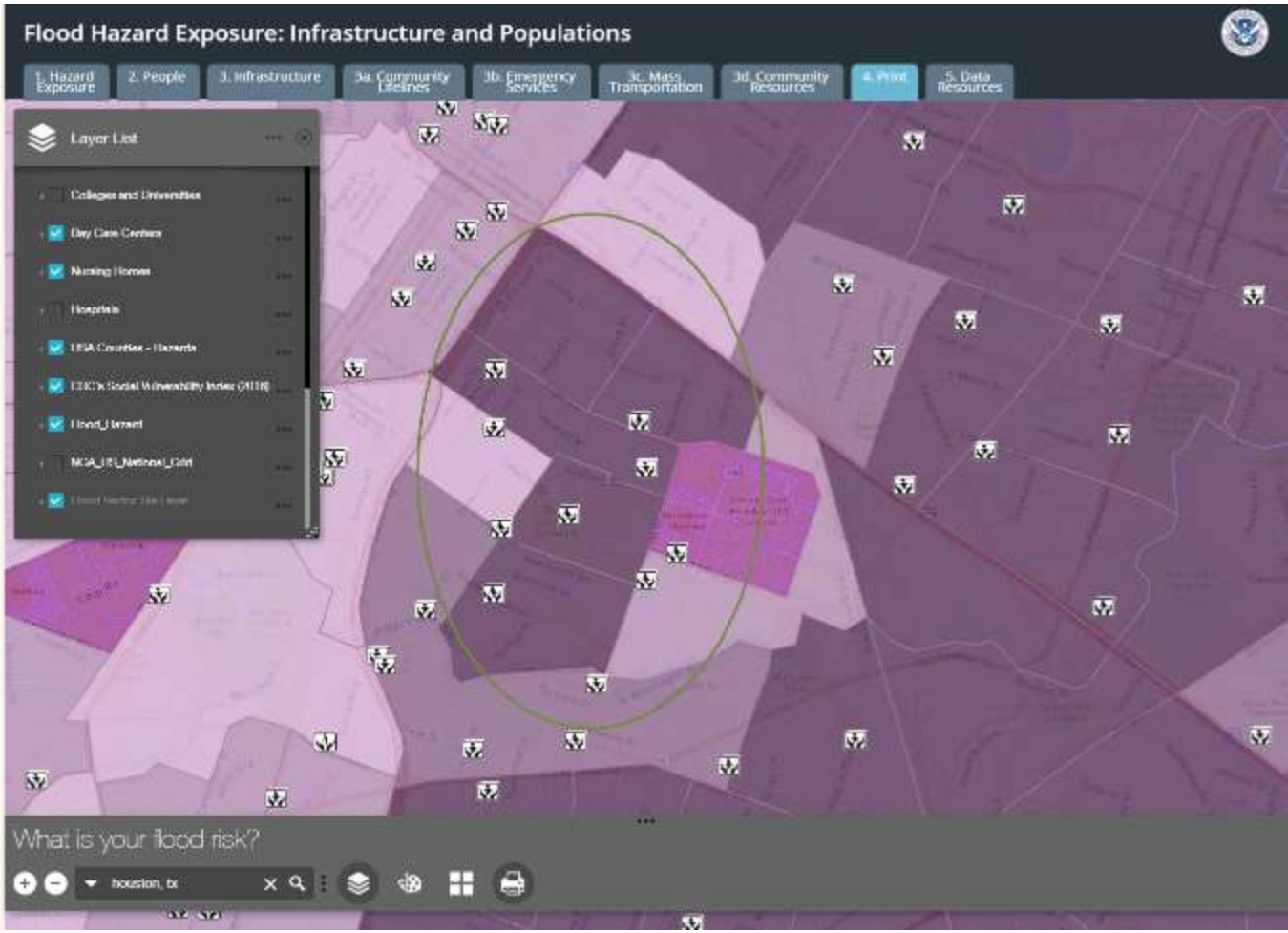
     Layer List button
   - The "Draw" tool allows you to annotate the map with drawings, text, etc.

     Draw button
   - The "Basemap" tool allows you to change the background map.

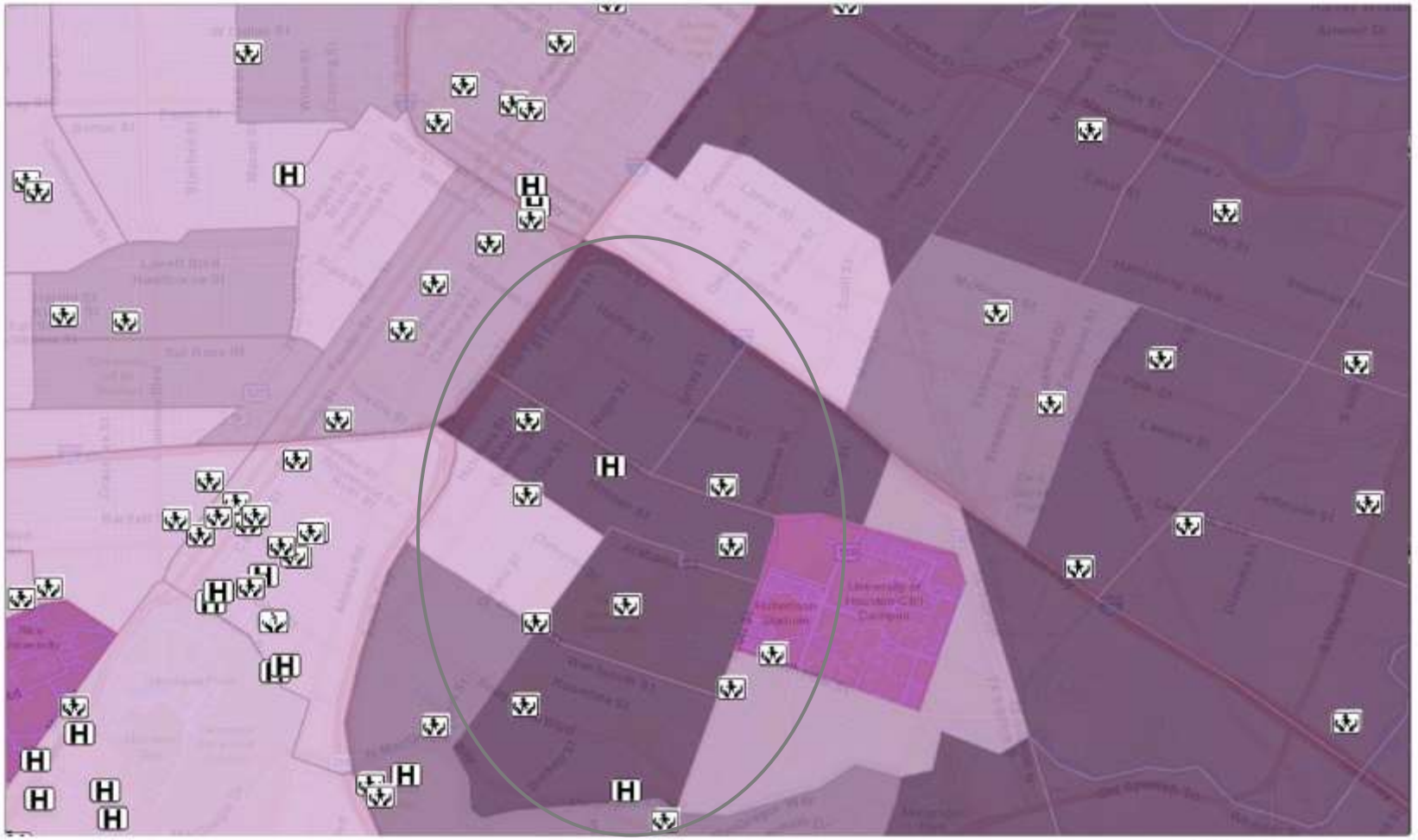
     Basemap button
   - Once you are satisfied with your map(s), use the "Print" tool to export the map to a PDF. Make sure to save this map, as it will help you as you move forward in the exercise process.

     Print button

5. You should now have a broad sense of the flood risk in your community, as well as an initial exercise scenario location map for use in the exercise planning process. In



# Exercise Location: Flood Scenario



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## Hazard Explorer Tool

- The "Draw" tool allows you to annotate the map with drawings, text, etc.

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Print button

5. You should now have a broad sense of the flood risk in your community, as well as an initial exercise scenario location map for use in the exercise planning process. In addition, **if you have your own GIS capability and want to produce additional products, use the final tab (5) to access the data** sources used in this tool.

Go Back to Explore Other Hazards

Facebook Twitter Share

# Flood Hazard Exposure: Infrastructure and Populations

1. Hazard Exposure | 2. People | 3. Infrastructure | 3a. Community Lifelines | 3b. Emergency Services | 3c. Mass Transportation | 3d. Community Resources | 4. Print | 5. Data Resources

Home Gallery Map Scene Groups Sign In

## Flood Data Links

Overview Content Members

Data sources related to flooding.

owned by tari.martin_FEMA

Join This Group

Share

### Description

An in-depth description of the group is not available.

### Details

Created: July 24, 2016
Viewable by: Everyone (public)
Contributions: Members

3 3

### Latest Content

View All Group Content

Flood Vector Layer
by tari.martin_FEMA
Created: Jul 24, 2016
Updated: Feb 14, 2019
View Count: 9

FEMA National Flood ...
by tari.martin_FEMA
Created: Jul 24, 2016
Updated: Feb 14, 2019
Number of Downloads: 4

HIFLD Open Data Hom...
by tari.martin_FEMA
Created: Jul 23, 2016
Updated: Feb 5, 2019
Number of Downloads: 8

### Owner

tari.martin_FEMA

### Tags

Advanced Technology Integration, PrepToolKit, Flood

# DISCUSSION

1. How do you currently identify and assess risk?

2. How is the THIRA model and guidance applicable to the GCC?

3. Would a solution like the Hazard Explorer Tool improve your company/agency risk assessment?

# PREPAREDNESS RESILIENCE

# PLANNING AND CONTINUITY OF OPERATIONS

1. COOP Planning Guidance and Tools
2. COOP Model Playbooks
3. Emergency Planning

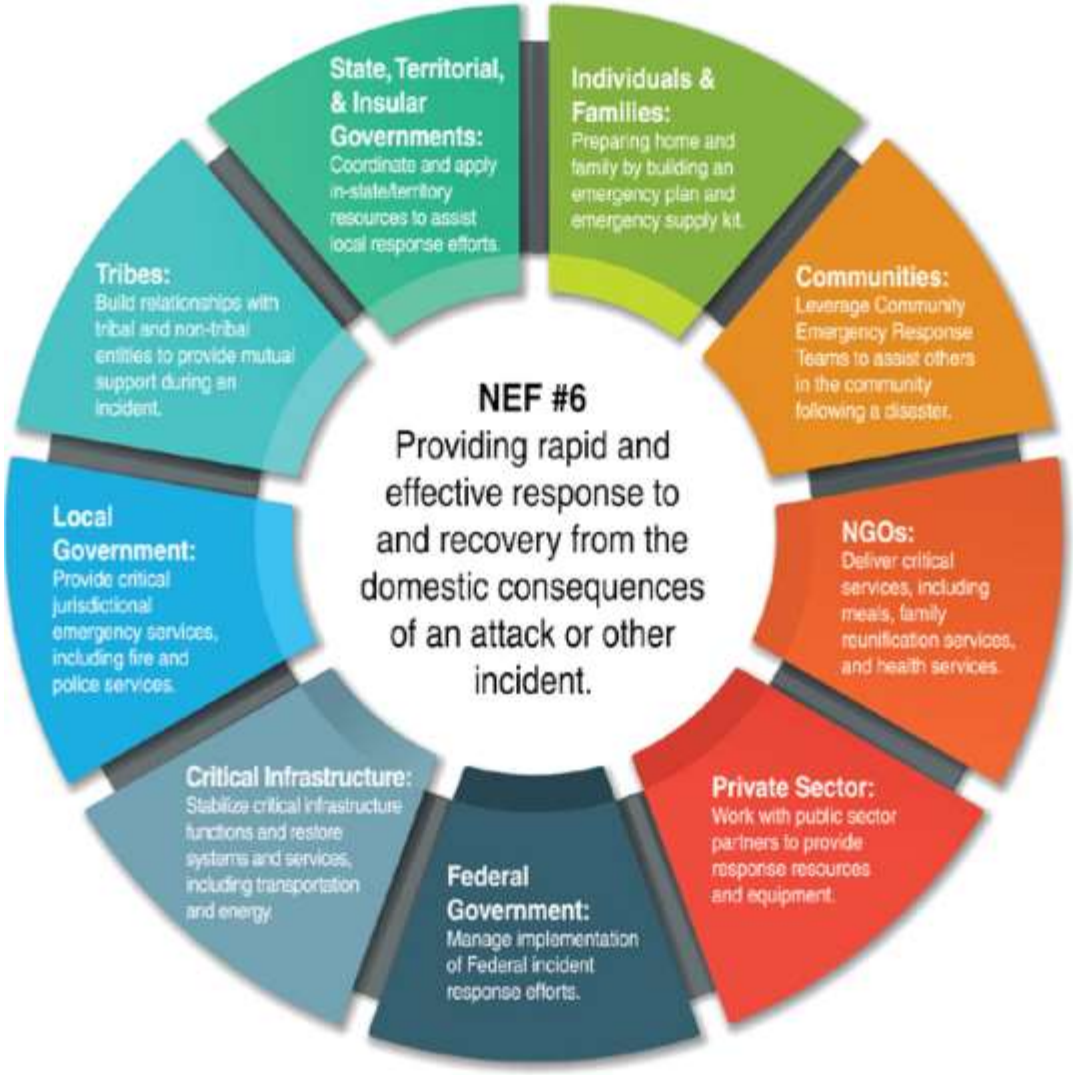
# CONTINUITY PLANNING POLICY

- **Presidential Policy Directive-40**, *National Continuity Policy*, outlines the policy of the United States to maintain a comprehensive and effective continuity capability by ensuring a coordinated effort within and among the executive, legislative, and judicial branches of the government at all levels.

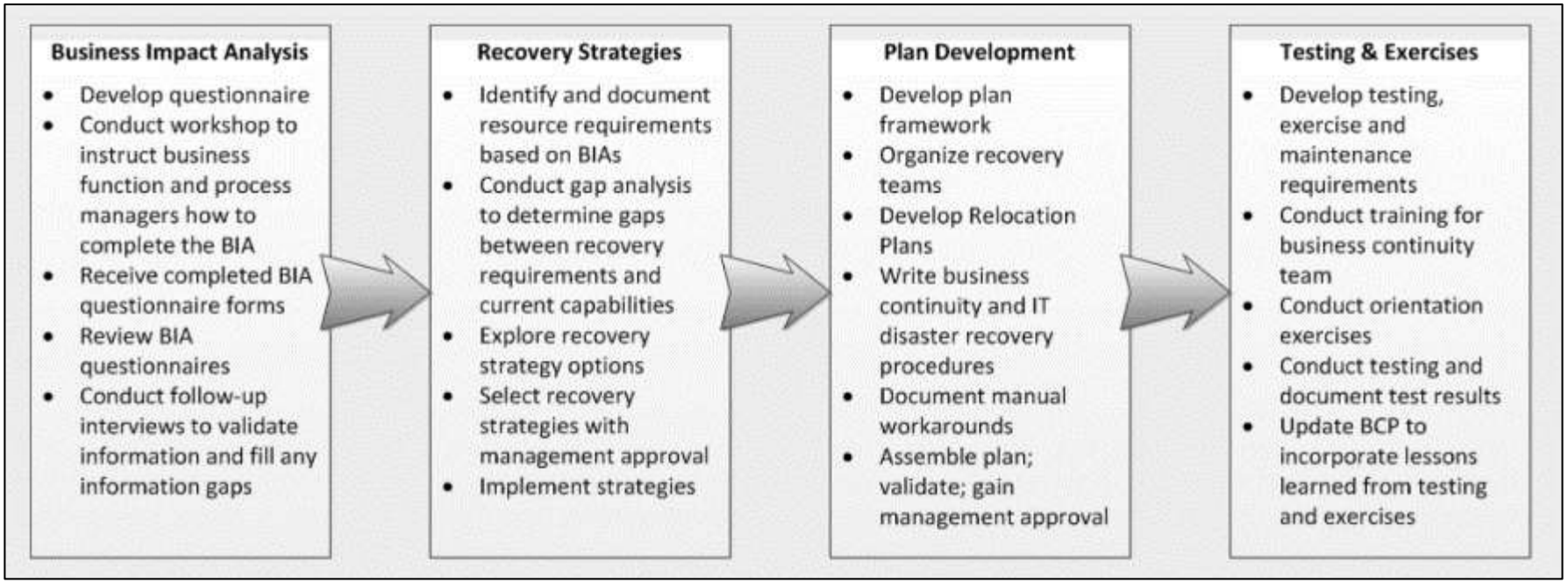
- **Federal Continuity Directive 1** implements requirements establishes the framework, requirements, and processes that support the development of continuity programs.

- **Federal Continuity Directive 2** provides direction and guidance to Federal Executive Branch Departments and Agencies to assist in validation of Mission Essential Functions and Primary Mission Essential Functions.

# NATIONAL ESSENTIAL FUNCTIONS
## FOUNDATION OF CONTINUITY



# BUSINESS CONTINUITY PLANNING

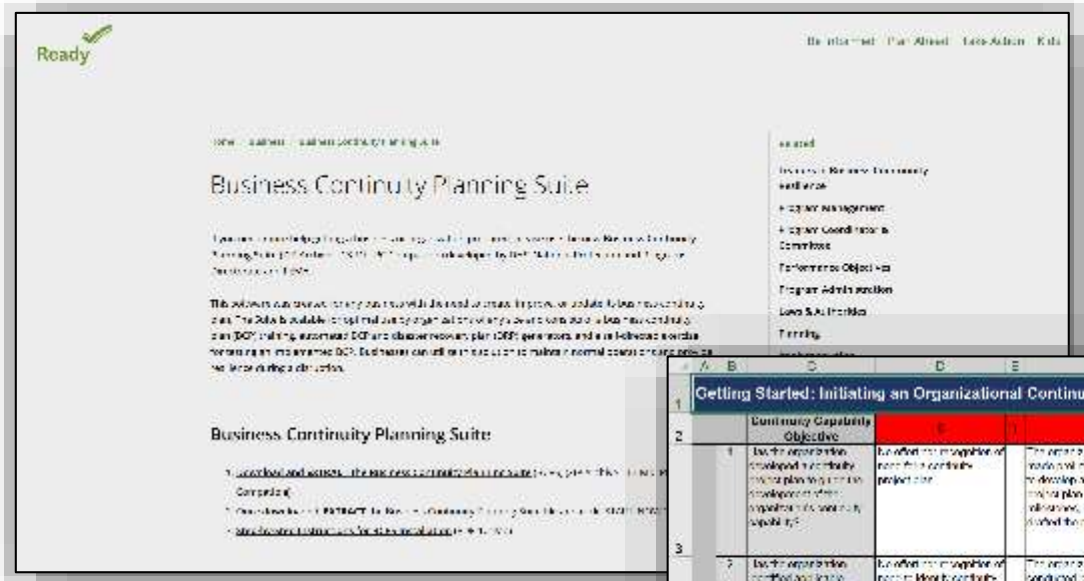


# BUSINESS CONTINUITY PLANNING

- Conduct a business impact analysis to identify time-sensitive or critical business functions and processes and the resources that support them.
- Identify, document, and implement to recover critical business functions and processes.
- Organize a business continuity team and compile a business continuity plan to manage a business disruption.
- Conduct training for the business continuity team and testing and exercises to evaluate recovery strategies and the plan.

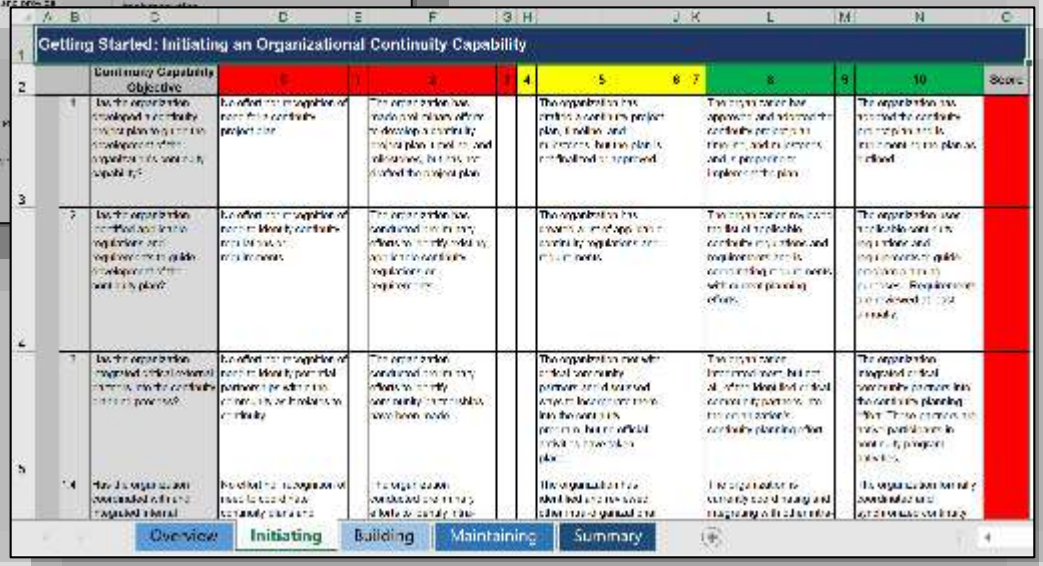
# BUSINESS CONTINUITY TOOLS

## Business Continuity Planning Suite




Link: https://www.ready.gov/business-continuity-planning-suite

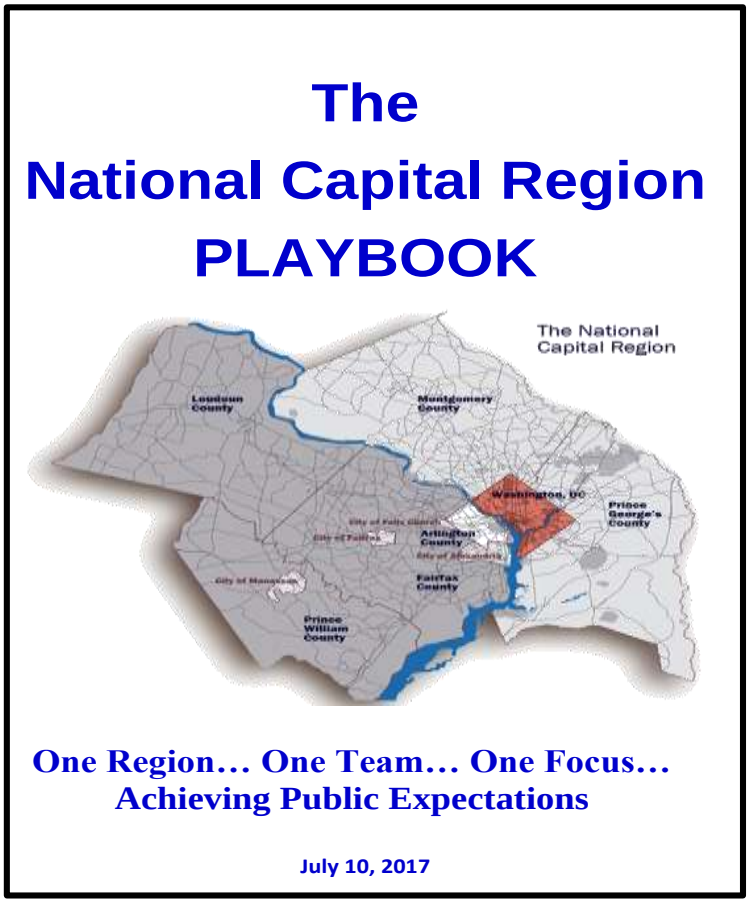
## Continuity Assessment Tool



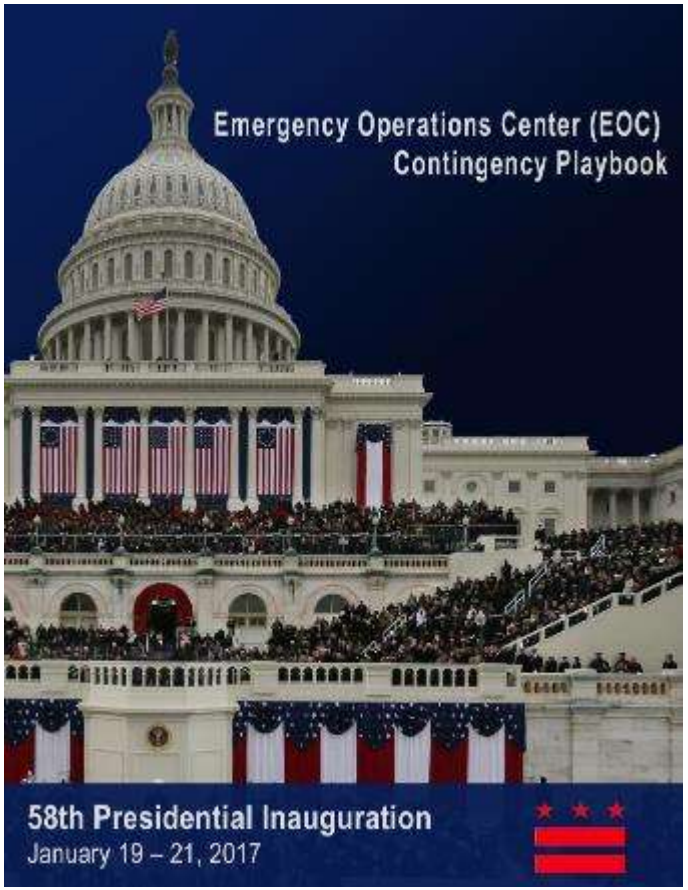

Link: https://www.fema.gov/media-library/assets/documents/158679

# CONTINUITY PLAYBOOKS

## Regional Playbooks




## Special Event Playbooks



# PLANNING

## Preparedness

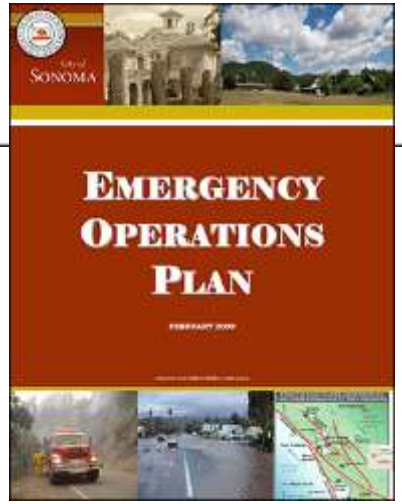
Continuity of Operations Plans

Continuity Playbooks

Emergency Operations Plan

Crisis Communications Plan

IT Disaster Recovery Plan




## Readiness

Watch Desk

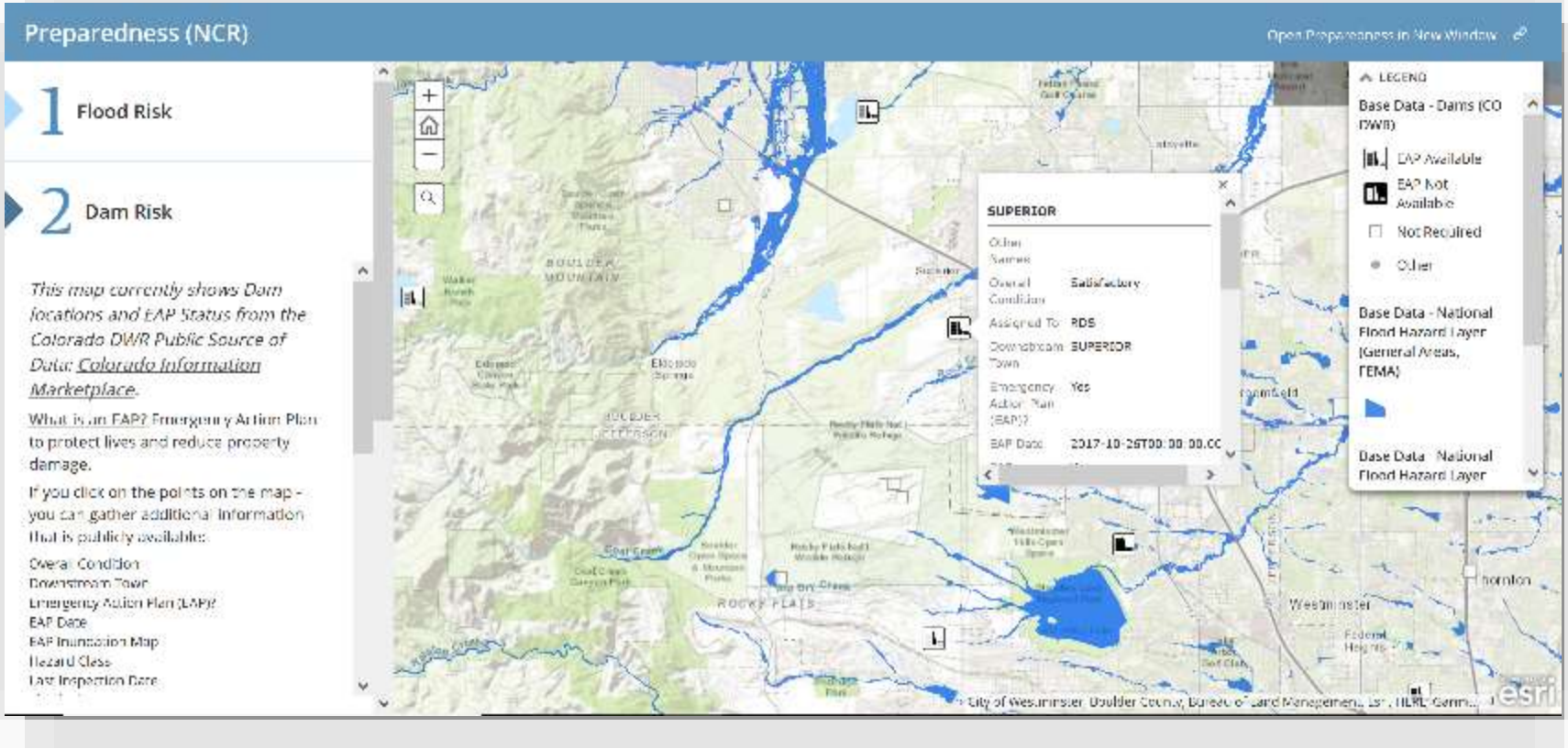
Daily Monitoring


## Response

Crisis Action Plans

Incident Action Plans

# MODEL BEST PRACTICE




https://www.arcgis.com/apps/MapSeries/index.html?appid=408534ed8d1d4af7bcdfd38a254ee53e

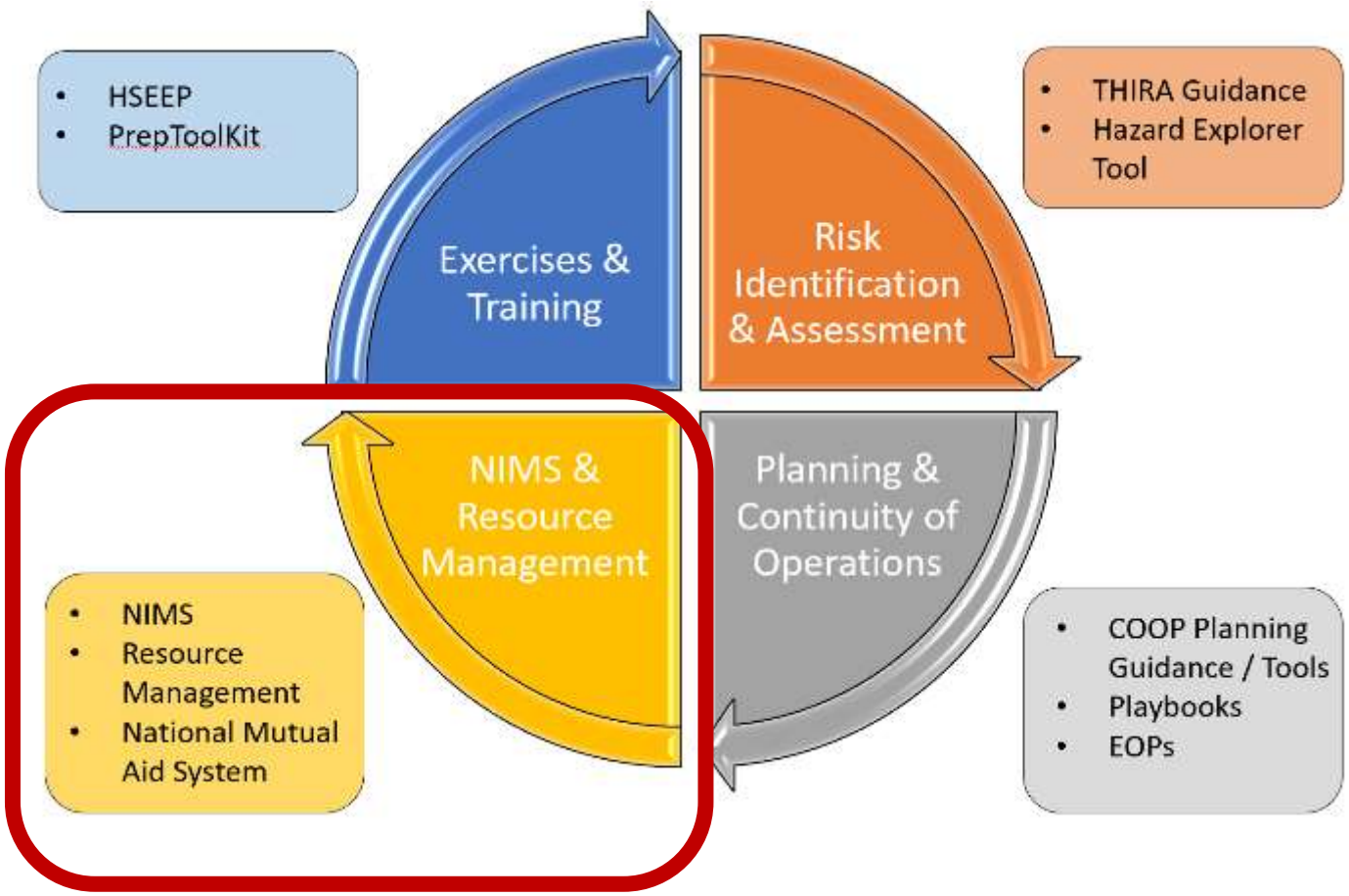
# DISCUSSION

1. How do you currently do business continuity planning?

2. Which of these continuity guidance and tools are most application?

3. How would you adapt these resources to support enhanced continuity planning?

# PREPAREDNESS RESILIENCE



# NIMS: STRUCTURES OF RESPONSE

## NIMS AND CONTINUITY OF OPERATIONS: PUTTING THE COMPONENTS OF RESPONSE TOGETHER WHEN IT COUNTS

# STRUCTURES OF RESPONSE

## NIMS AND CONTINUITY OF OPERATIONS: PUTTING THE COMPONENTS OF RESPONSE TOGETHER WHEN IT COUNTS

## Considerations & Issues

1. What are the NIMS Guiding Principles? Do they still "make sense" for all hazards?

2. How do NIMS Management Characteristics and the ICS organization "work together"?

# STRUCTURES OF RESPONSE

## NIMS AND CONTINUITY OF OPERATIONS:
## PUTTING THE COMPONENTS OF RESPONSE TOGETHER WHEN IT COUNTS

## What is NIMS?

# STRUCTURES OF RESPONSE

## NIMS AND CONTINUITY OF OPERATIONS: PUTTING THE COMPONENTS OF RESPONSE TOGETHER WHEN IT COUNTS

## NIMS…

- ✓ 2004, the Department of Homeland Security released the National Incident Management System (NIMS)
- ✓ Required by Homeland Security Presidential Directive HSPD-5, Management of Domestic Incidents and HSPD-8 Preparedness
- ✓ HSPD-5 established and designated the National Integration Center (NIC) Incident Management Systems Division as the lead federal entity to coordinate NIMS compliance and ensure that NIMS remains an accurate and effective management tool

GPSS

# STRUCTURES OF RESPONSE

## NIMS AND CONTINUITY OF OPERATIONS:
## PUTTING THE COMPONENTS OF RESPONSE TOGETHER WHEN IT COUNTS

## NIMS: Guiding Principles

# STRUCTURES OF RESPONSE

## NIMS AND CONTINUITY OF OPERATIONS: PUTTING THE COMPONENTS OF RESPONSE TOGETHER WHEN IT COUNTS

## NIMS: Guiding Principles

***A basic premise of the NIMS and National Response Framework (NRF) is that incidents should be managed at the lowest jurisdictional level possible***

**The National Response Framework (NRF) presents the guiding principles that provide the structure and mechanisms to ensure effective Federal support of state, tribal, and local related activities.**

GPSS

## NIMS: Guiding Principles

### ✓Flexibility

**NIMS components are adaptable to any situation, from planned special events to routine, local incidents, to incidents requiring the activation of interstate mutual aid, to those requiring coordinated Federal assistance. Some incidents require multiagency, multijurisdictional, and/or multidisciplinary coordination. Flexibility in NIMS allows it to be scalable and, therefore, applicable for incidents that vary widely in terms of geography, demographics, climate, and culture.**

## NIMS: Guiding Principles

### ✓Standardization

Coordination and standardization are essential to effective incident management. NIMS contains standard organizational structures that improve integration and connectivity among jurisdictions and organizations. NIMS presents standard practices that allow incident managers to work together more effectively and foster cohesion among the various organizations involved in an incident. NIMS also includes common terminology, which fosters effective communication among jurisdictions and organizations involved in managing an incident.

## NIMS: Guiding Principles

### ✓Unity of Effort

**Unity of effort means coordinating activities among various organizational representatives to achieve common objectives. Unity of effort enables organizations with jurisdictional authority or functional responsibilities to support each other while allowing each participating agency to maintain its own authority and accountability.**

# STRUCTURES OF RESPONSE

## NIMS AND CONTINUITY OF OPERATIONS: PUTTING THE COMPONENTS OF RESPONSE TOGETHER WHEN IT COUNTS

## What NIMS is...

- ✓ Comprehensive, nationwide systematic approach to incident management
- ✓ Core set of doctrine, concepts, principles, terminology and organizational processes for all hazards
- ✓ Essential principles for a common operating picture and interoperability of communications and information management
- ✓ Standardized resource management procedures for coordination among different jurisdictions and organizations
- ✓ Scalable and applicable for all incidents

# STRUCTURES OF RESPONSE

## NIMS AND CONTINUITY OF OPERATIONS:
## PUTTING THE COMPONENTS OF RESPONSE TOGETHER WHEN IT COUNTS

## What NIMS is not..

- ✓ A response plan
- ✓ Only used during large-scale incidents
- ✓ Only applicable to certain emergency management / incident response personnel
- ✓ Only the Incident Command System (ICS)
- ✓ Only an emergency management system

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# STRUCTURES OF RESPONSE

## NIMS AND CONTINUITY OF OPERATIONS: PUTTING THE COMPONENTS OF RESPONSE TOGETHER WHEN IT COUNTS

## Key NIMS Component: Standardization

- ✓ Standardized organizational structures
- ✓ Improve integration and connectivity among jurisdictions and disciplines
- ✓ Allow those who adopt NIMS to work together
- ✓ Foster cohesion among various response organizations


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# STRUCTURES OF RESPONSE

## NIMS AND CONTINUITY OF OPERATIONS: PUTTING THE COMPONENTS OF RESPONSE TOGETHER WHEN IT COUNTS

## Key NIMS Component: Interoperability

**Ability of emergency personnel to interact and work well together:**

- ✓ Communications Systems
- ✓ Information Technology
- ✓ Common Terminology
- ✓ Plain Language

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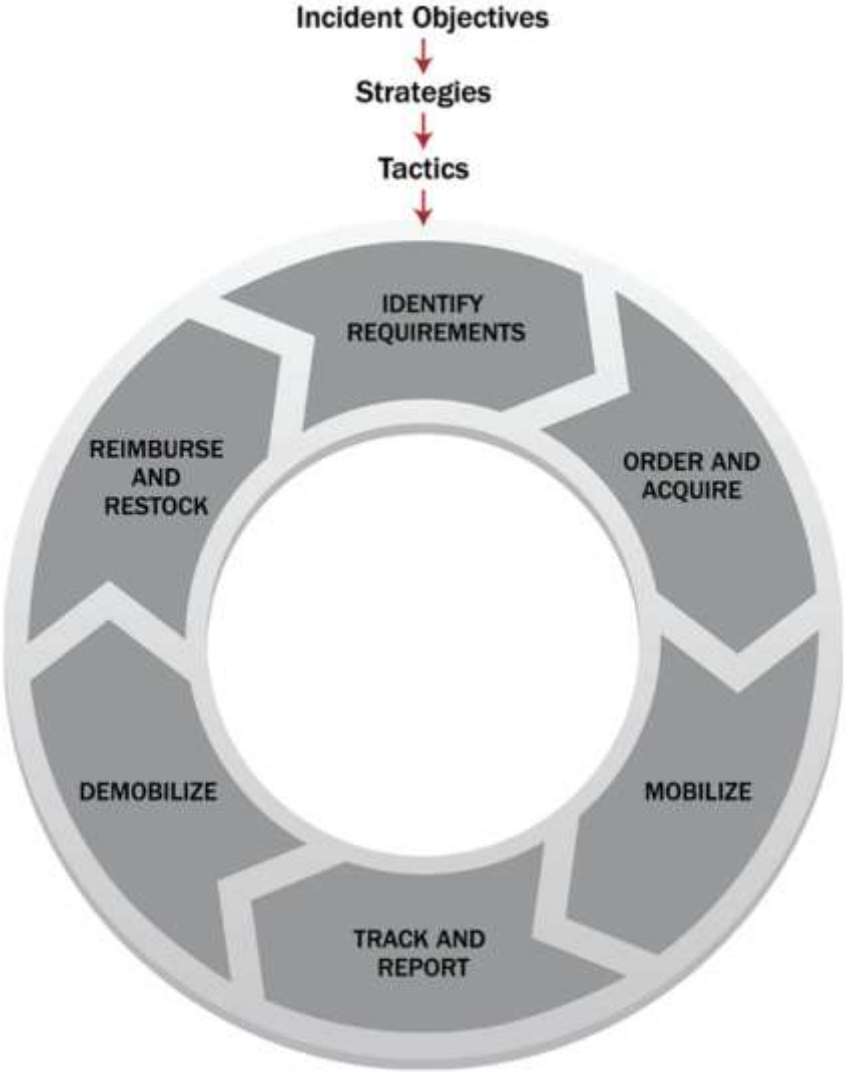
# NIMS RESOURCE MANAGEMENT



# STRUCTURES OF RESPONSE

## NIMS AND CONTINUITY OF OPERATIONS: PUTTING THE COMPONENTS OF RESPONSE TOGETHER WHEN IT COUNTS

## Key NIMS Component: Resource Typing & Credentialing



# STRUCTURES OF RESPONSE

## NIMS AND CONTINUITY OF OPERATIONS: PUTTING THE COMPONENTS OF RESPONSE TOGETHER WHEN IT COUNTS

## NIMS Management Characteristics and ICS:

**The Incident Command System (ICS) is based on the following 14 proven NIMS management characteristics, each of which contributes to the strength and efficiency of the overall system:**

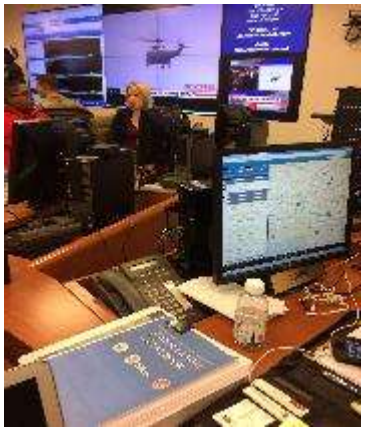
1. Common Terminology
2. Modular Organization
3. Management by Objectives
4. Incident Action Planning
5. Manageable Span of Control
6. Incident Facilities and Locations
7. Comprehensive Resource Management
8. Integrated Communications
9. Establishment and Transfer of Command
10. Unified Command
11. Chain of Command and Unity of Command
12. Accountability
13. Dispatch/Deployment
14. Information and Intelligence Management

# STRUCTURES OF RESPONSE

## NIMS AND CONTINUITY OF OPERATIONS: PUTTING THE COMPONENTS OF RESPONSE TOGETHER WHEN IT COUNTS

## NIMS & ICS: All Hazards; All Events

- ✓ Local Incidents
- ✓ Regional Incidents
- ✓ State and National Incidents
- ✓ Planned Events
- ✓ Multi-Disciplinary Issues



# STRUCTURES OF RESPONSE

## NIMS AND CONTINUITY OF OPERATIONS: PUTTING THE COMPONENTS OF RESPONSE TOGETHER WHEN IT COUNTS

## NIMS: 2018 Refresh

1. Reiterates concepts and principles of the original 2004 version and the updated 2008 version;
2. Reflects and incorporates lessons learned from exercises, real world incidents, and policy updates;
3. Reflects progress in resource typing and mutual aid and builds a foundation for the development of a national qualification system;

## NIMS: 2018 Refresh

4. Clarifies that NIMS is more than just the Incident Command System (ICS) and that it applies to all stakeholders with roles in incident management across all five mission areas (Prevention, Protection, Mitigation, Response, and Recovery);
5. Explains the relationship among ICS, the Center Management System (CMS) for operations centers and coordination centers, and Multiagency Coordination Groups (MAC Groups); and

# STRUCTURES OF RESPONSE

## NIMS AND CONTINUITY OF OPERATIONS: PUTTING THE COMPONENTS OF RESPONSE TOGETHER WHEN IT COUNTS

## NIMS: 2018 Refresh

6. Enhances information management processes to improve data collection plans, social media integration, and the use of geographic information systems (GIS).

# STRUCTURES OF RESPONSE

## NIMS AND CONTINUITY OF OPERATIONS: PUTTING THE COMPONENTS OF RESPONSE TOGETHER WHEN IT COUNTS

## NIMS: Does it Work?


# GIS TO IMPROVE CRISIS RESPONSE PLANNING

**JEFF DULIN, STRATEGIC ADVISER**

**INTERNATIONAL ASSOCIATION OF FIRE CHIEFS**

Everything will be a Sensor in the Future

Everyone needs to be ready

# HOW WILL WE UNDERSTAND THIS DATA !

- Human Collected
- Sensors
- Base Layer Data
- Atmospheric Conditions
- Data from Artificial Intelligence

# Challenges of Data In Crisis

Multi-Agency Integration “Different Priorities”

Crisis Response “My Hair Is On Fire”

Data Collection & Analysis In Different Ways

Access To Data In A Timely Manner

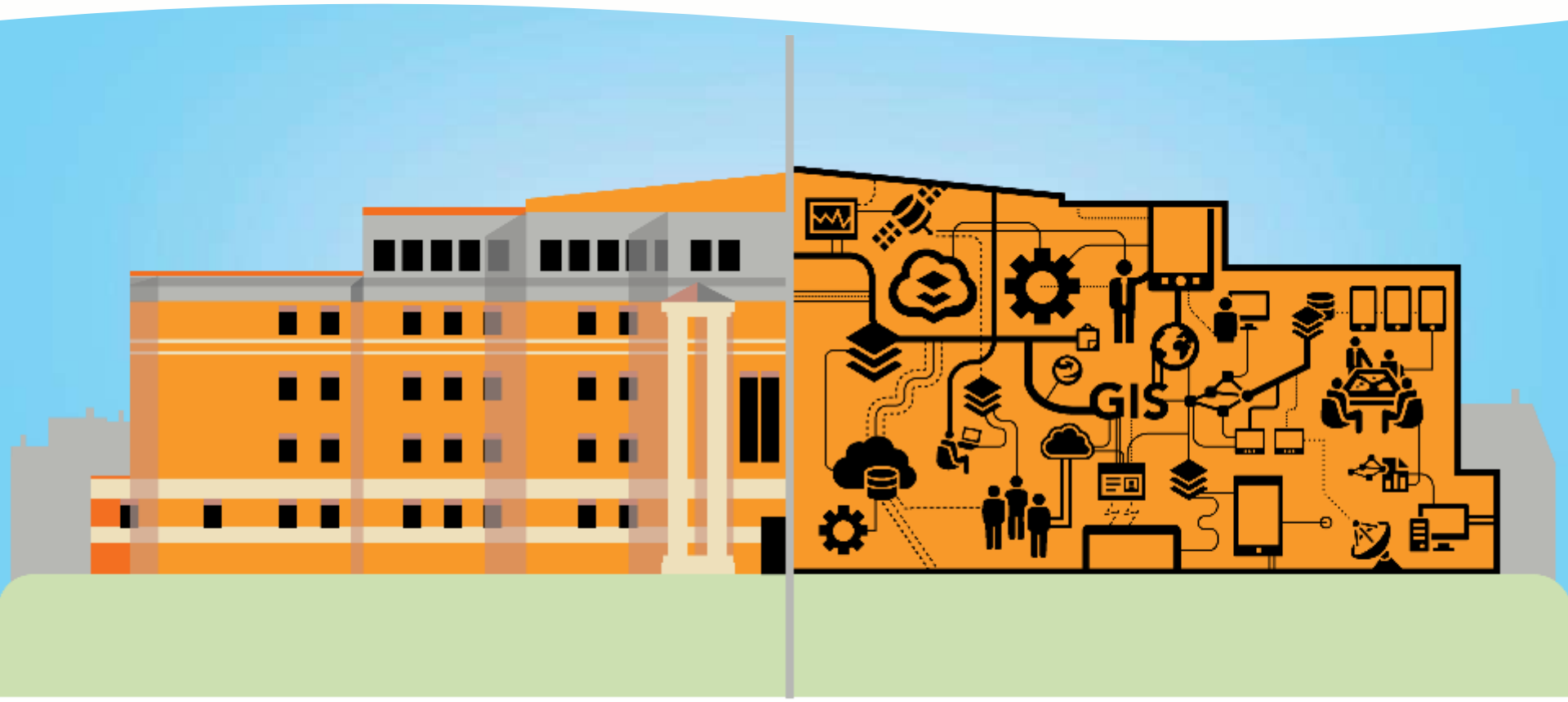
Resource Management “Using Things Wisely”

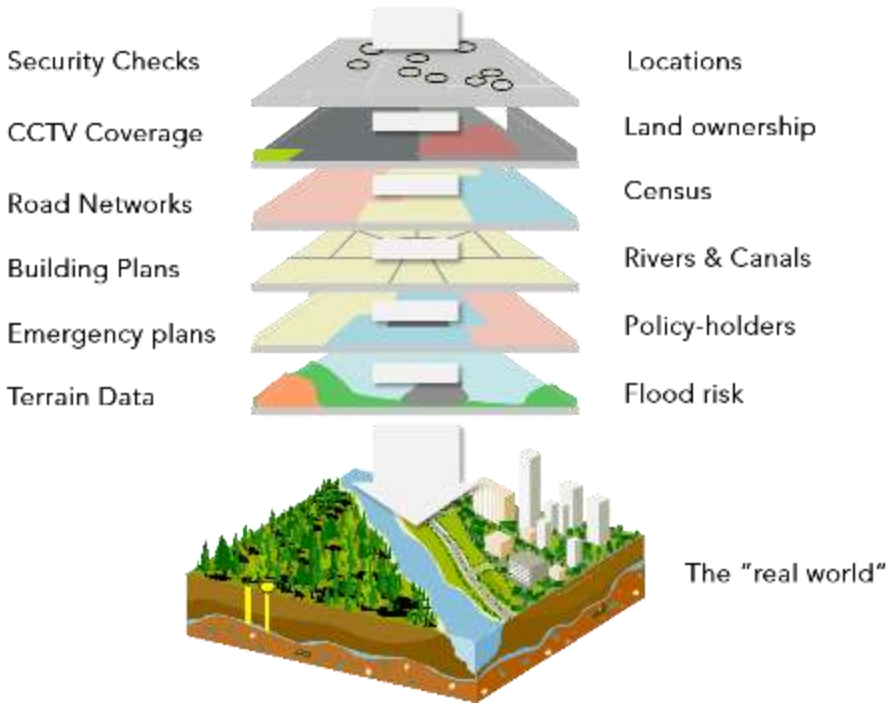
Where Am I, What Is Around Me, What Is Happening, & How Do These Things Effect Each Other!

# WHAT INFORMATION DO WE NEED TO PLAN TO PROVIDE IN A CRISIS

- Who
- What
- When
- **Where**

# GIS IS A "SYSTEM OF ENGAGEMENT USED FOR PLANNING & REAL-TIME EVENTS"






# GIS IS MORE THAN JUST A MAP

# GIS IS DATA IN MANY FORMS & ABOUT MANY THINGS!

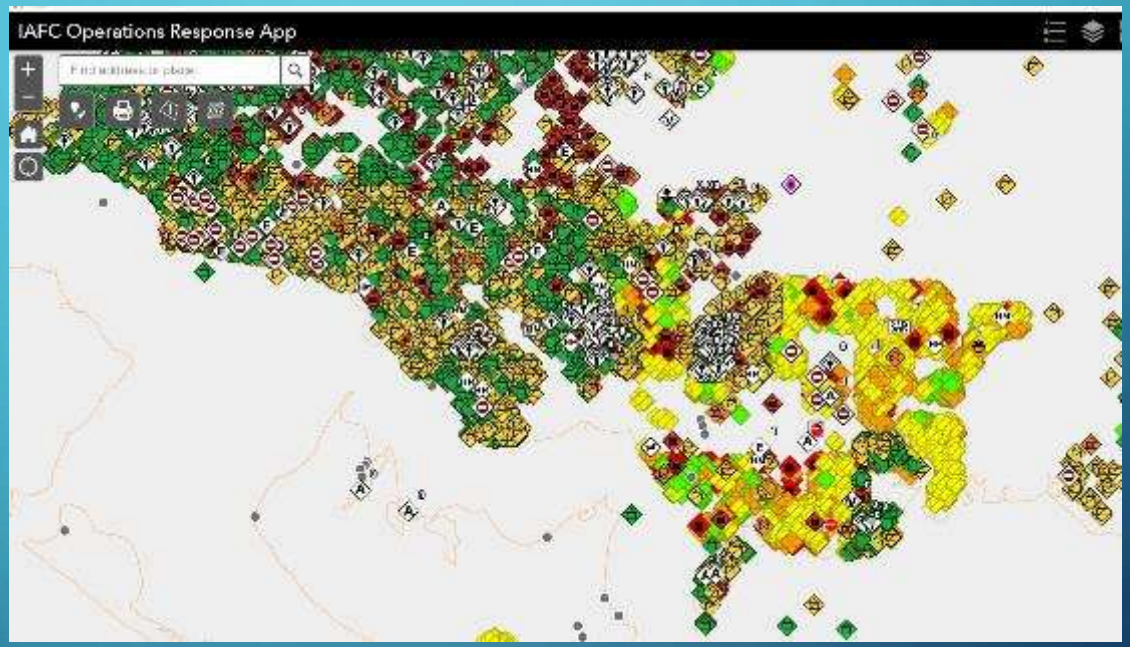
# GIS provides deep insights for greater efficiency during Crisis.


Esri World Geoc
Huntsville
The Woodlands
Houston
Sugar Land
Rosenberg
Texas City
Galveston
Fort Polk
Lafayette
190
185
73
30mi
15R VQ 30150 53152 USNG
Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS | US Bure


SURVEYS COMPLETED
26
RESCUES MADE
8
ADDITIONAL RESCUE
1
IAFC Harvey Search and Rescue Survey Data
Not Rescued
Rescued
Harvey Rescue Workers
Not Working
On Break
Working
ENTRIES BY UNIT
RESCUES BY METHOD
IAFC Harvey Search and Rescue
Pick up point *
Unit *
Rescued *
Yes
No
Rescue Method
Refusal *
Additional Rescue Needed *

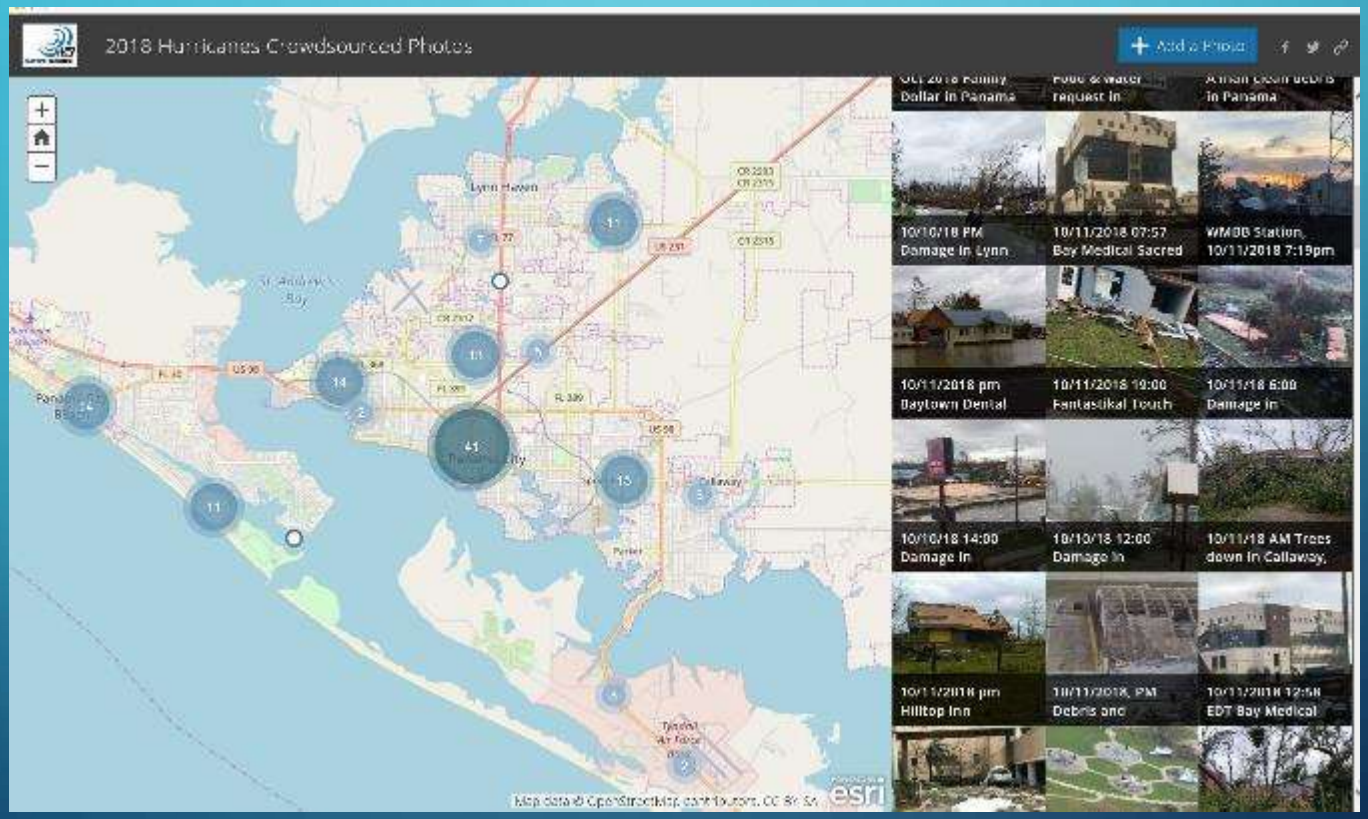
# GIS DATA SHOULD TELL A STORY

?

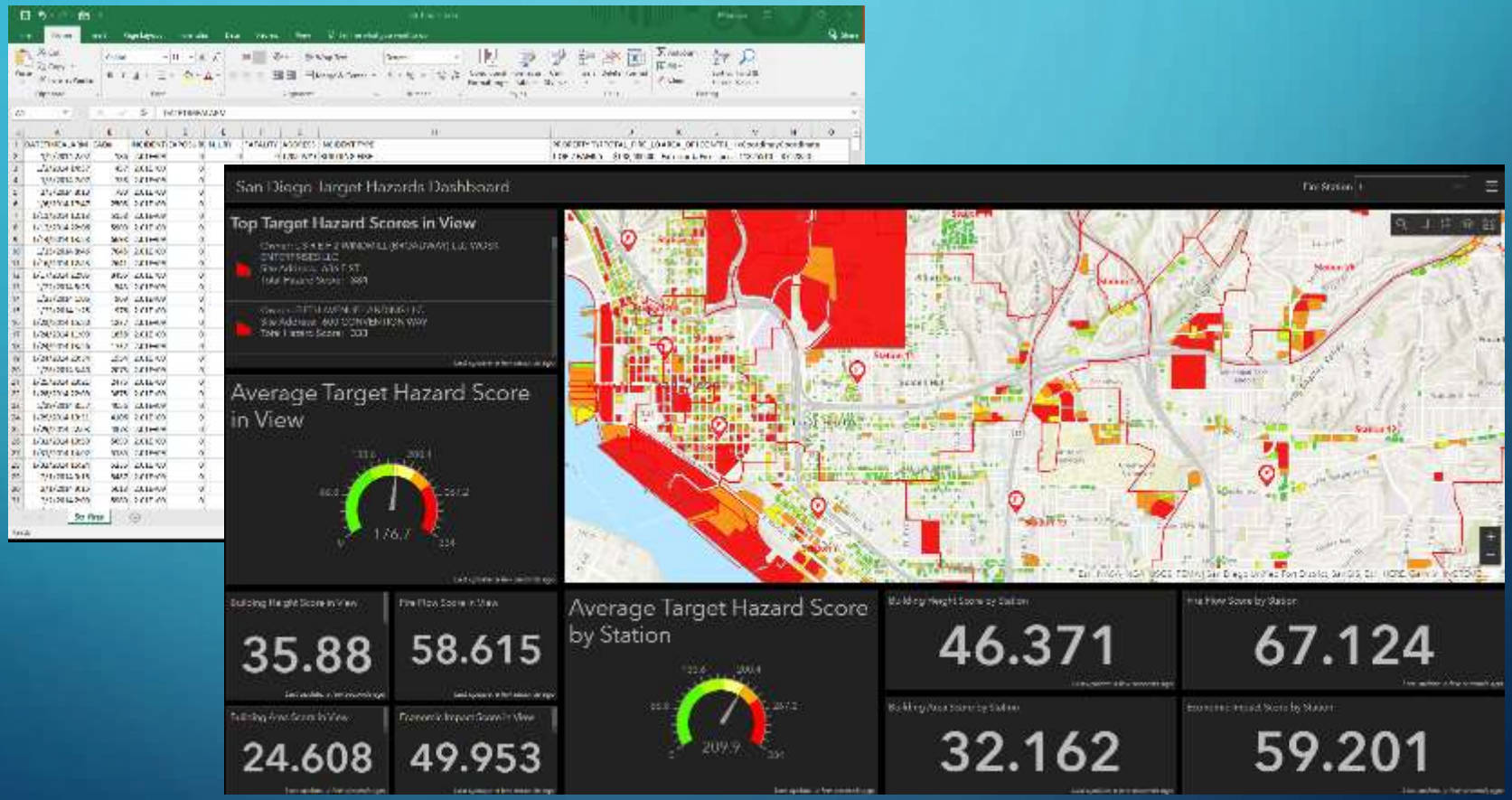


# DATA WITHOUT CONTEXT IS JUST NOISE !

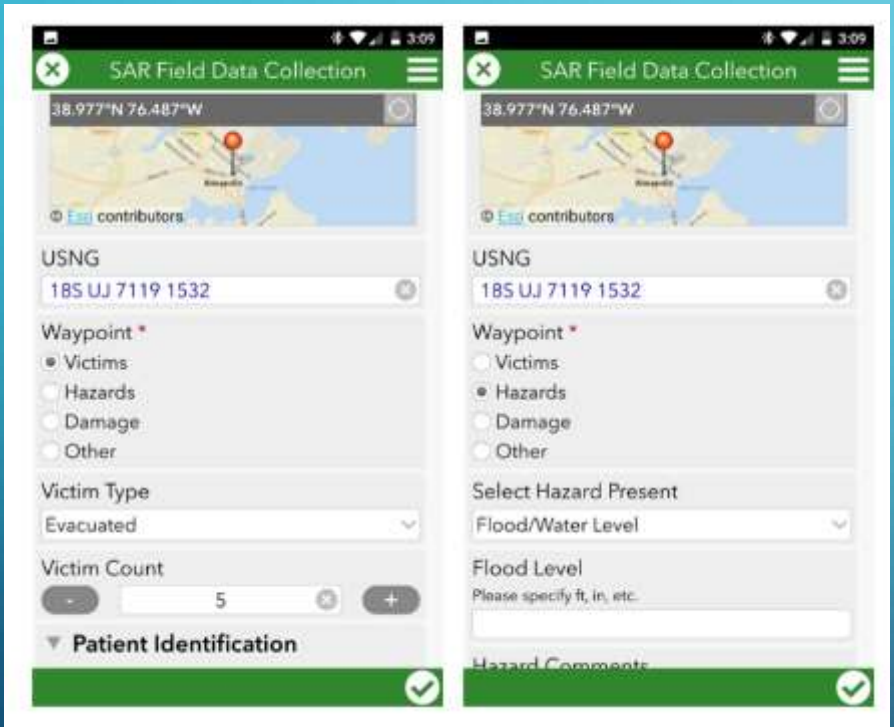
# ENGAGE WITH CITIZENS THROUGH CROWDSOURCING LET THEM HELP TELL THE STORY



# DATA FROM SPREADSHEETS VS THIS



# EASY TO USE MOBILE APPS FOR FIELD DATA COLLECTION




# GIS SUPPORTS THE PLANNING FOR RESILIENCY BY

- Providing Historical Records that can be compared to present day.
- Used to help predict consequences from cascading events by showing in interdependencies.
- Paints the same picture to everyone at the same time for easy deconfliction.
- Allows planners to run modeling against known and un-know scenarios.

# GIS Requirements for Crisis Response Planning

**In order to support Public Safety Missions, GIS must provide:**

***Agility*** **– The ability to change and modify when required**

***Flexibility*** **– The ability to expand (scale) and retract as required**

***Easy to Use*** **– Usable by operations personnel**

# Successful GIS Deployment Patterns

**GIS Needs to be Embedded into the Daily Operation**

**Defined Workflows**

**Content / Data Management Strategy**

**Continuous User Engagement**

**Mission Specific App's**

**Policies & Procedures**

**Organizational Leadership Support**

*Be Ready, Be Well Informed Of Your Community Ahead Of Time*

## Summary

It's Not So Much About the Technology

Leadership

Governance

Standard Operating Procedures

Training and Exercises

Good People Do Good Things,

Great People Do Great Things!


**THANK YOU**


NMAS
Request. Locate. Deploy.

powered by:


esri
THE SCIENCE OF WHERE


JUVARE

# Background

- International Association of Fire Chiefs (IAFC) developed and operated Mutual Aid Net application serving 18 states and 9,640 agencies since 2012.
- The architecture and technology was old and lacked GIS foundation.
- IAFC asked Juvare and ESRI to help them "update" Mutual Aid Net and "Bounce Forward" with a next generation mutual aid solution with latest Crisis Management and GIS Technologies.
- It went live September 2018, replacing Mutual Aid Net



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# Who are the companies behind NMAS?

- The new home of WebEOC is the nations leading Crisis and incident management platform
- Since 1873, the IAFC has advocated for the fire industry and their leaders
- The global market leader in GIS since 1969
- All three organizations are the acknowledged leaders in their respective industries
- NMAS is a collaborative project leveraging many decades of experience from each group



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# What is the National Mutual Aid System (NMAS)?

- The next-generation evolution of IAFC's Mutual Aid Net
- A regional and national database of National Incident Management System (NIMS) typed resources for fires, natural and man-made disasters, and mass casualty incidents
- A solution to request and assign mutual aid within a state, across state lines, and potentially, across international borders
- A mutual-aid request notification system connecting emergency response agencies across a state or region
- A historical database of resource requests and deployments that can be used for reporting, analysis, and financial reimbursement



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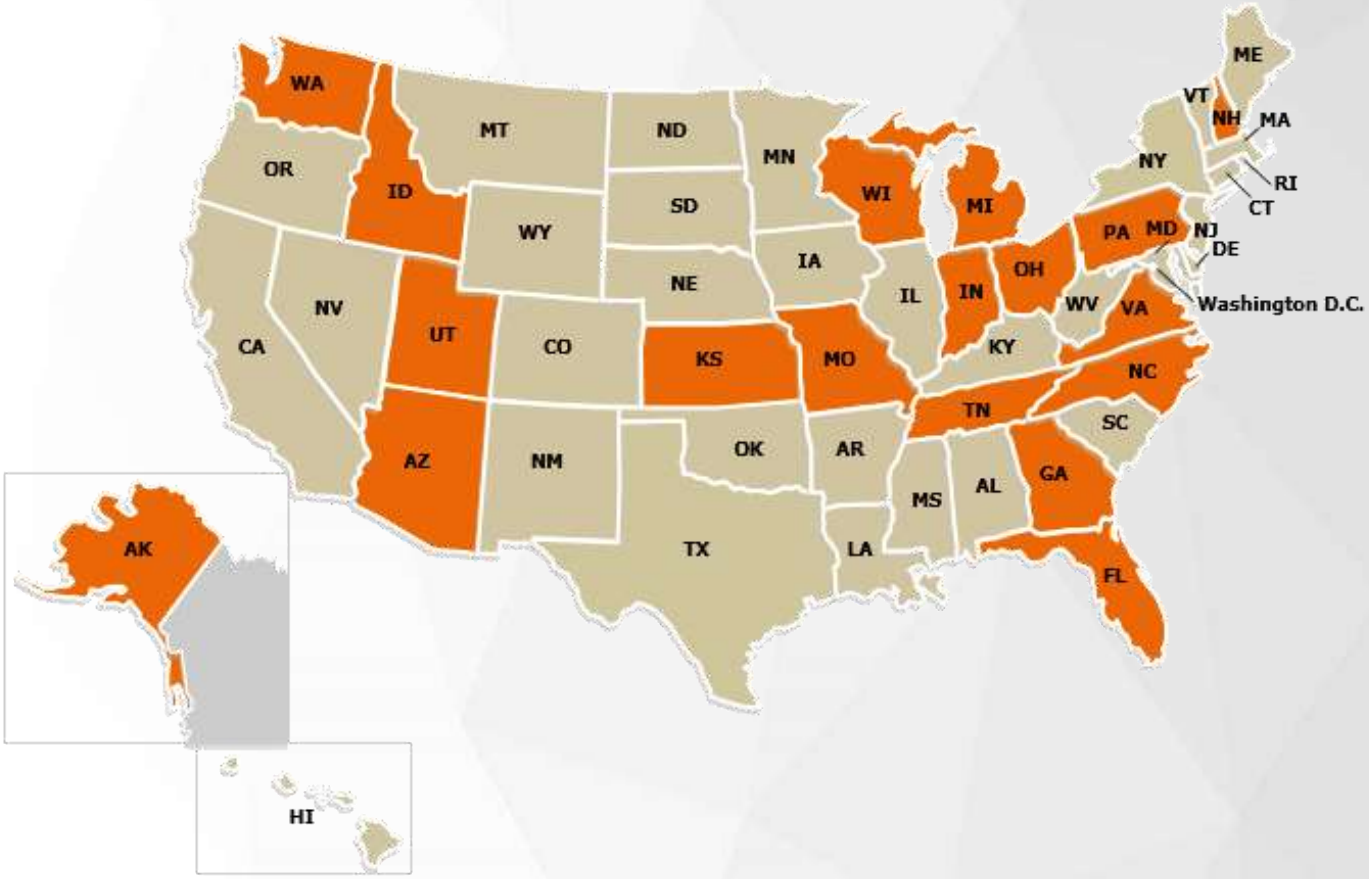
# Existing Mutual Aid Net (18 States)

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# Geo-Enable Mutual Aid


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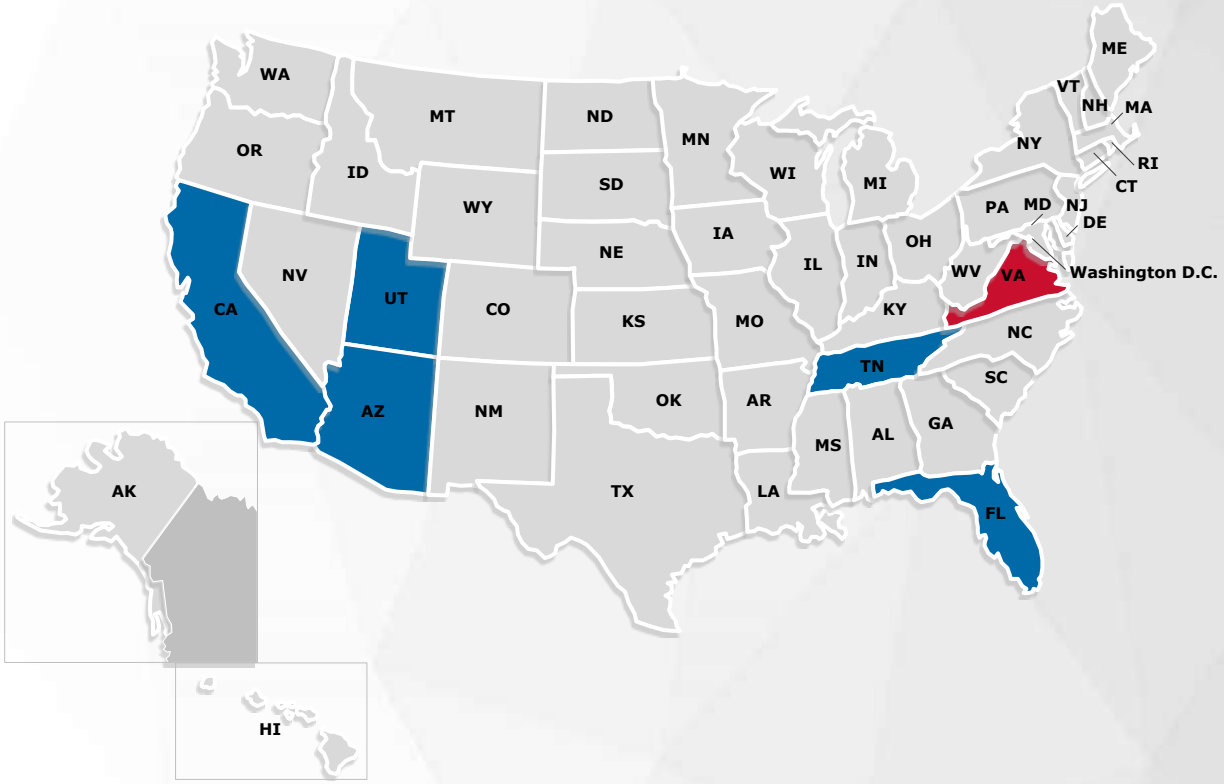
# NMAS Early Adopter States

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# Interoperability of Resources



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- Sports Bottle
- Polar Bottle
- NIKE
- Great Gear
- 321 STRONG
- Embrava
- Gatorade
- Pinnacle Mercantile
- Unity-Frankford
- Sports Water Bottles
- Sports Water Bottle
- Thermos
- Aquatix FlipTop Sport Bottle
- Liberty Bottleworks

**Sport Water Bottle Capacity**

- Under 10 Ounces
- 10 to 14 Ounces
- 15 to 19 Ounces
- 20 to 24 Ounces
- 25 to 29 Ounces
- 30 to 39 Ounces
- 40 Ounces & Above

**Water Bottle Features**

- Double Wall
- Leak Proof
- Flip Top
- Reusable
- Filter
- Infuser
- Wide Mouth
- Straw
- Bite Valve
- Pull Top

**Cycling Hydration Size**

★★★★☆ ~ 260

Best Seller

Hydro Flask Double Wall Vacuum Insulated Stainless Steel Leak Proof Sports Water Bottle, Wide Mouth with BPA Free Flex Cap

$29.94 - $99.99 prime

★★★★☆ ~ 5,300


Nalgene Tritan 32oz Wide Mouth BPA-Free Water Bottle

$5.90 - $190.70 prime

★★★★☆ ~ 6,079


CamelBak Podium Big Chill 25oz Insulated Water Bottle

$6.99 - $194.86 prime

★★★★☆ ~ 1,033

Gatorade Squeeze Water Sports Bottle

Under Armour Undeniable Squeeze


Best Sports Water Bottle - 32oz Large -

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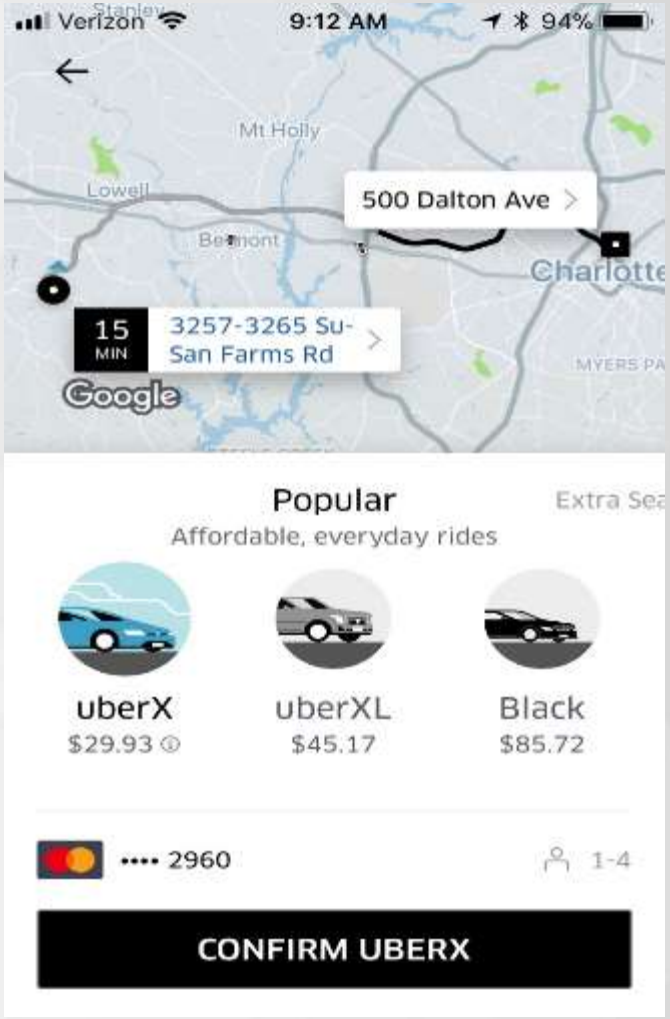
# Mapping, Routing, Tracking

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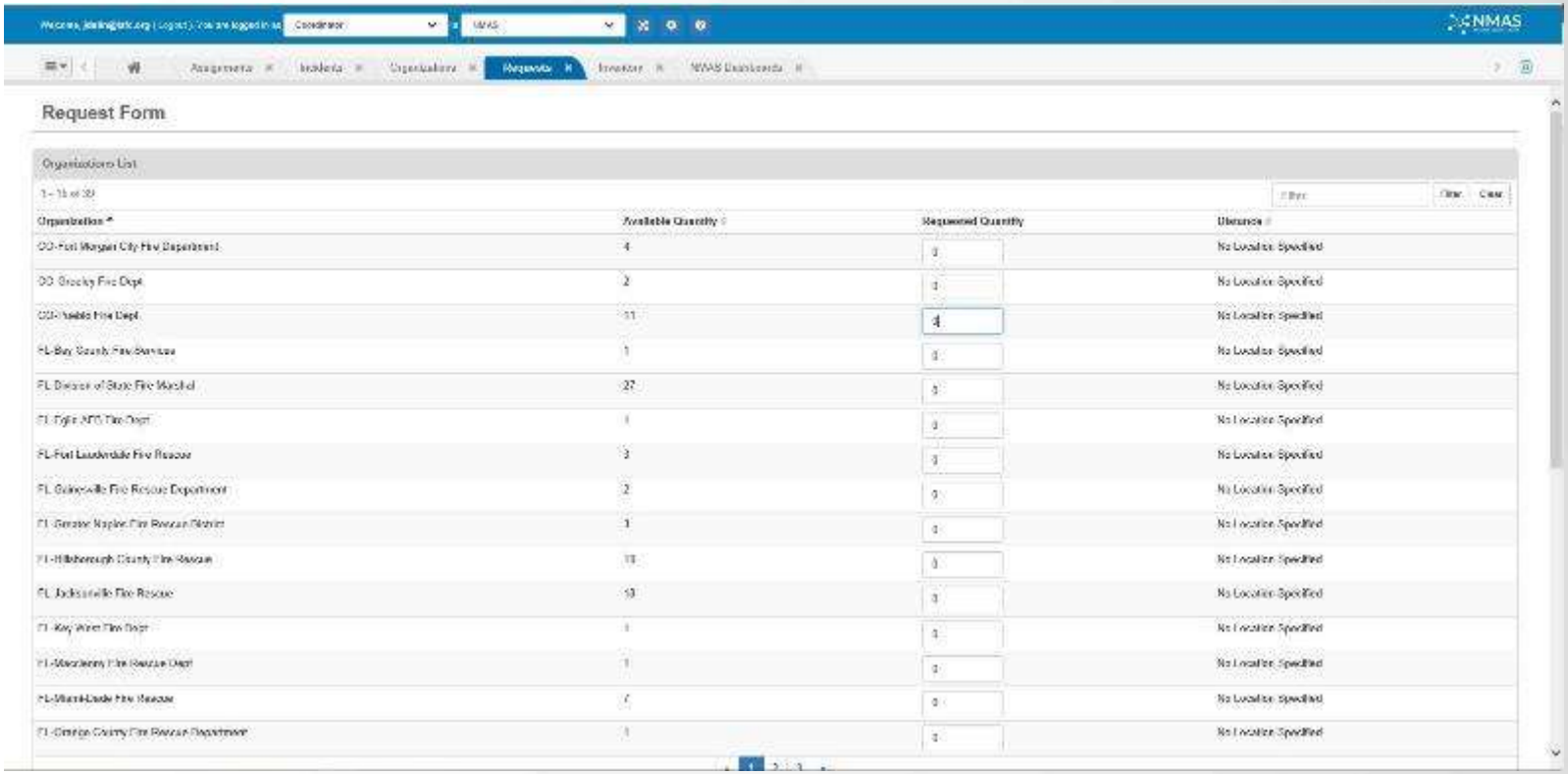


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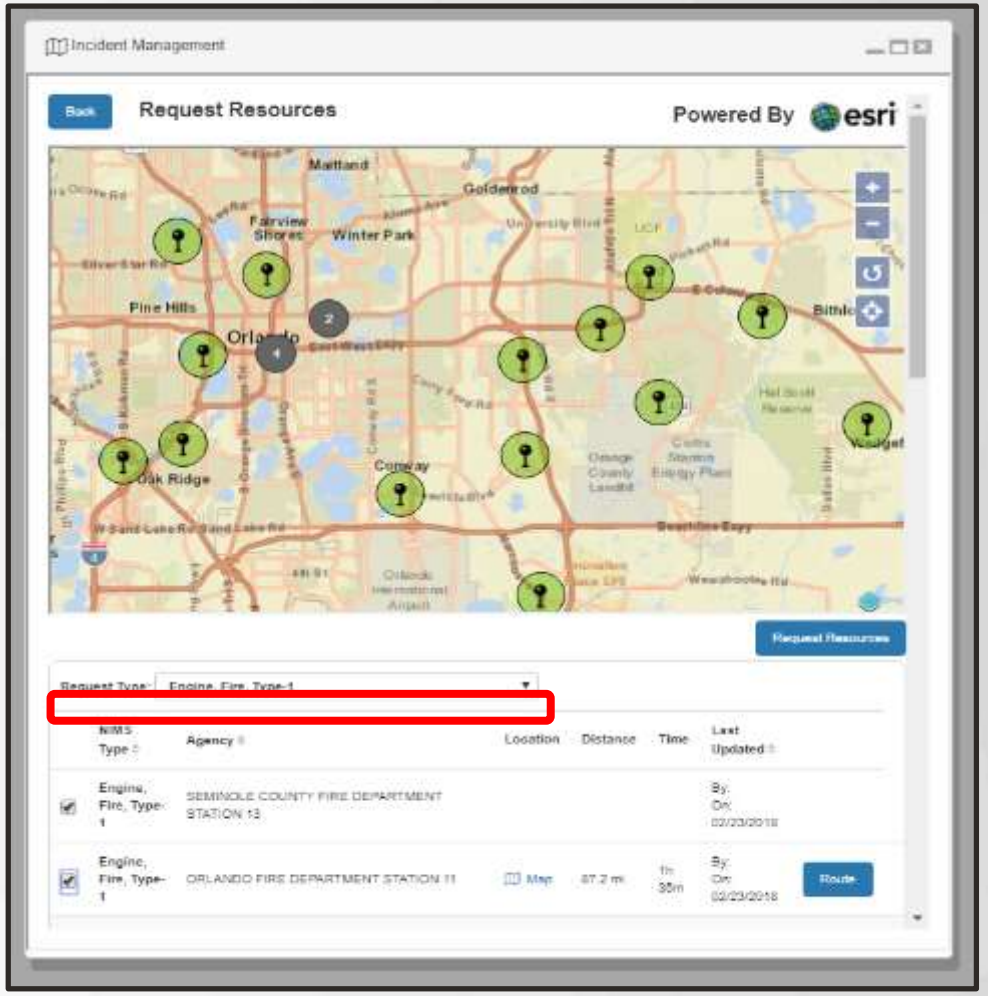
# Locate Resources

Select the type of resource you want from a drop down list and NMAS will display those resources in a list and on a map.

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# How is NMAS deployed

- Cloud-based solution that can be accessed by any authorized user with an industry standard browser
- Purchased as a subscription model in which one annual fee authorizes access for every fire department and other public safety agencies in a state for mutual aid purposes. State EM, State Fire Marshals, and State Fire Chief's Associations are target entities.
- Not a replacement for full-fledged incident management systems (WebEOC), can integrate with State WebEOC
  - This is also not a board or special WebEOC plugin
  - Integrates with existing ESRI ArcGIS Platforms



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# Architecture Overview

- NMAS System Components:
  - A single, Nationwide, NMAS instance exists to manage organizations, inventory, incidents, requests and assignments of all organizations in US
  - Directed by IAFC
  - Administered by Juvare
  - Hosted at Microsoft Azure
- System Integrations:
  - ESRI ArcGIS Online
  - IAFC "Helix" SSO (users must have a Helix account to authenticate)
  - SMS notifications (Twilio)



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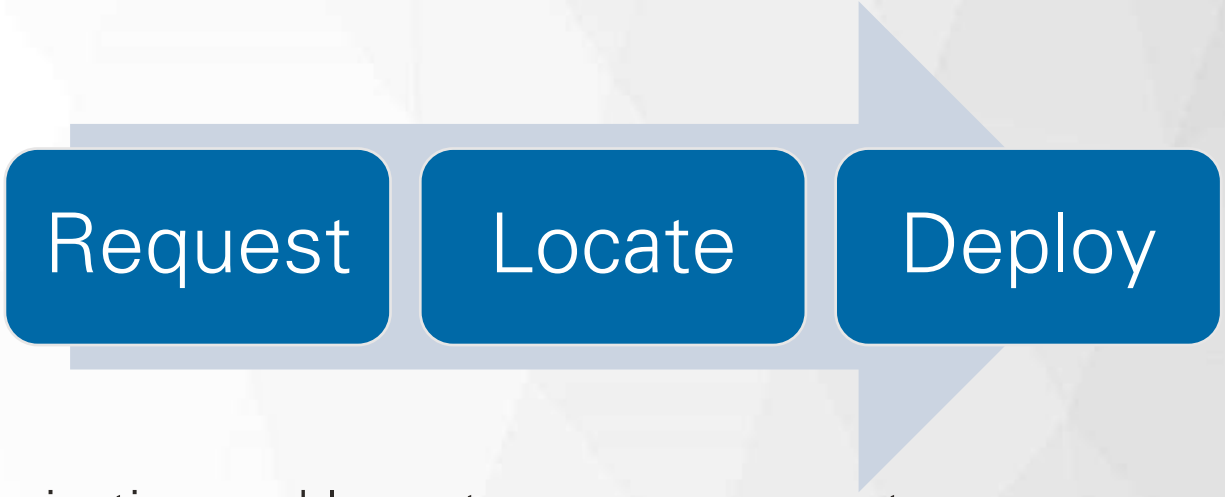
# Daily or Crisis Process




- Organization and Inventory are pre-event management
- Incidents are created, Locate your Resources needed
- Requests for Mutual Aid occur, Your partners Respond and can immediately Deploy
- Assignments manage the resource status

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# Economic Justification

- Reduce administrative burden and delay
- Minimize damage to life and property which are increasingly expensive. Quicker response and assets on scene.
- Potential reduced equipment spend. *"Just in time VS. Just in case"*
- Analytical trending of equipment use and easier financial reporting

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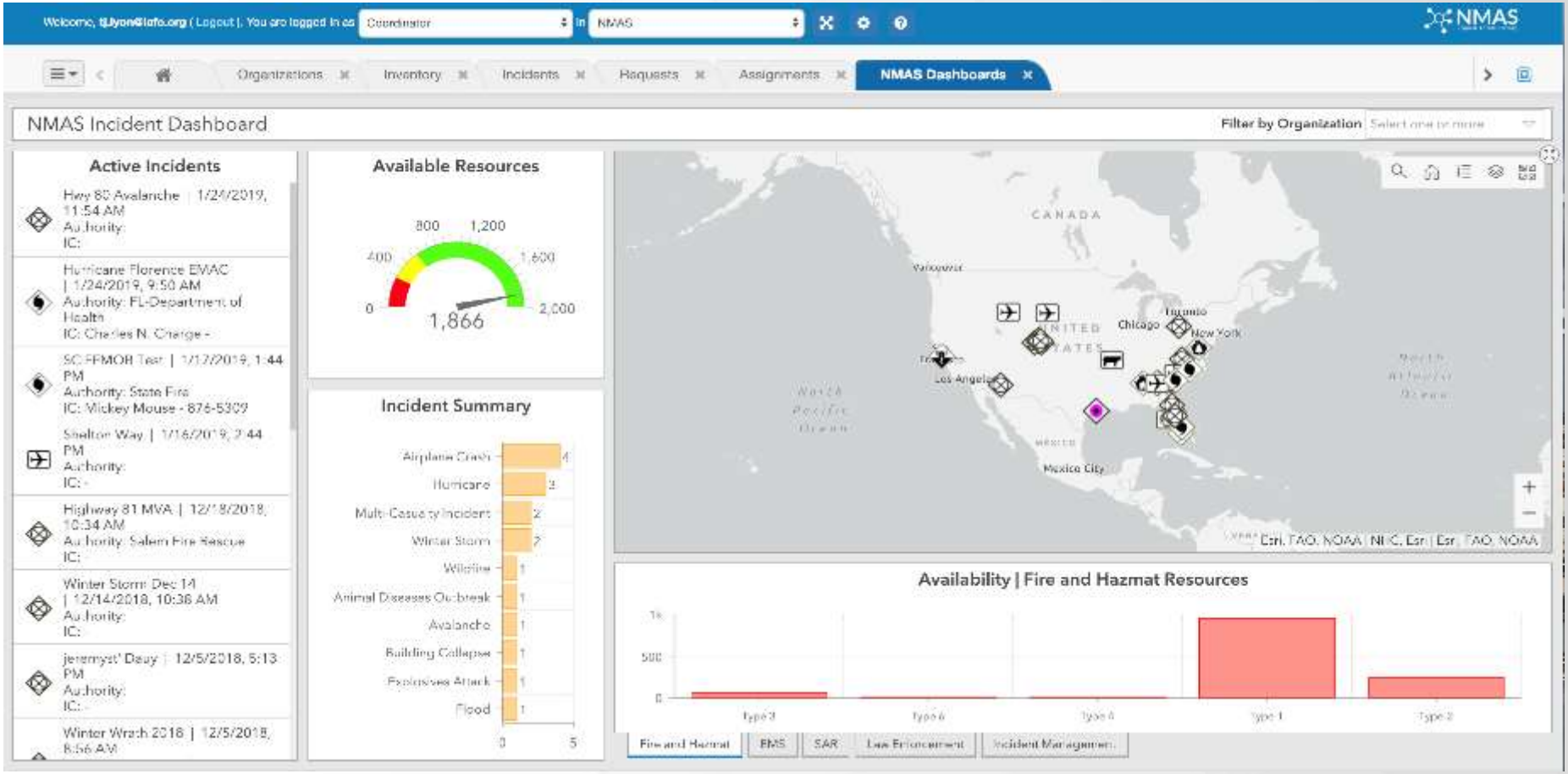


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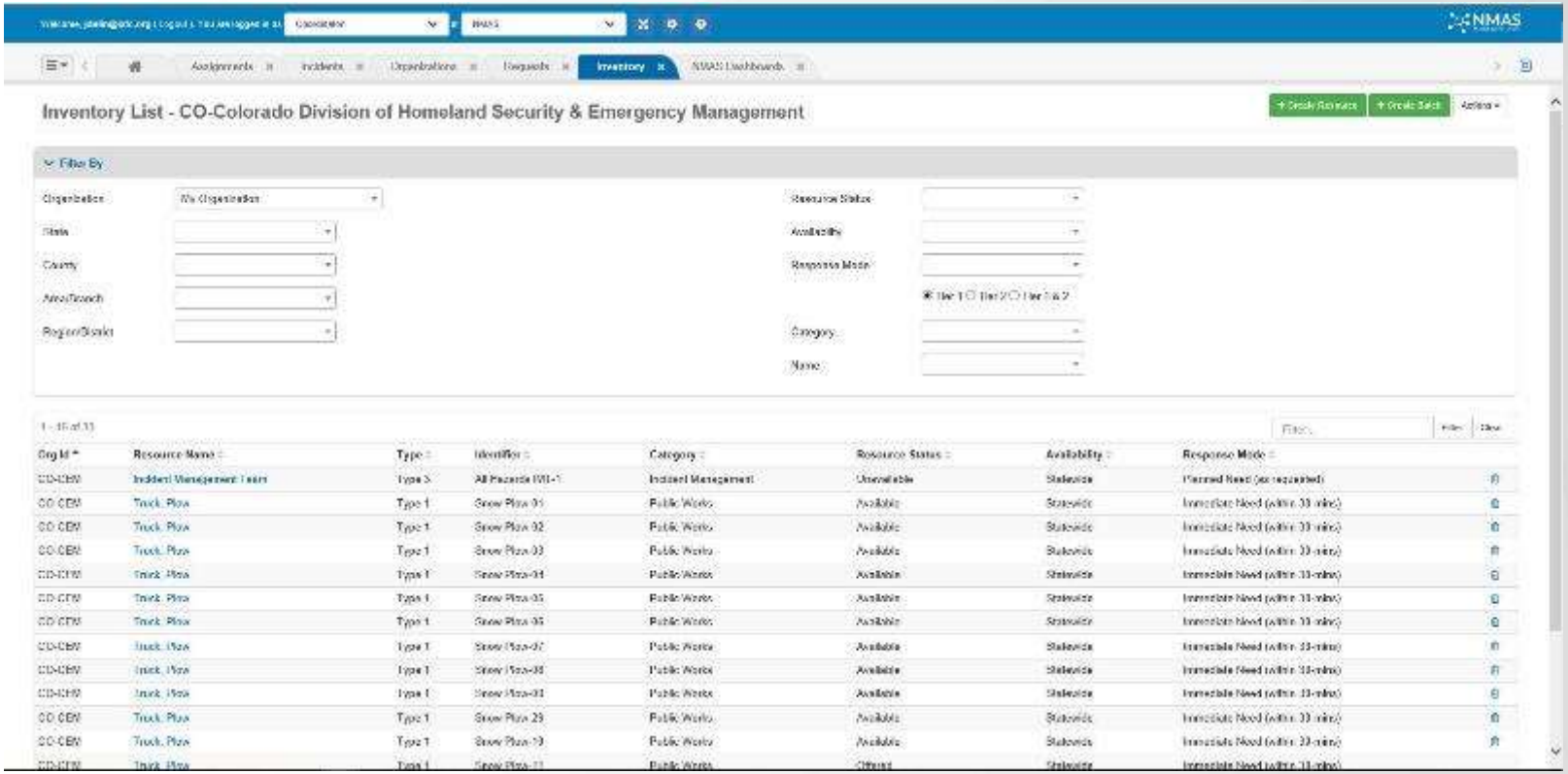
# Agency Inventory List

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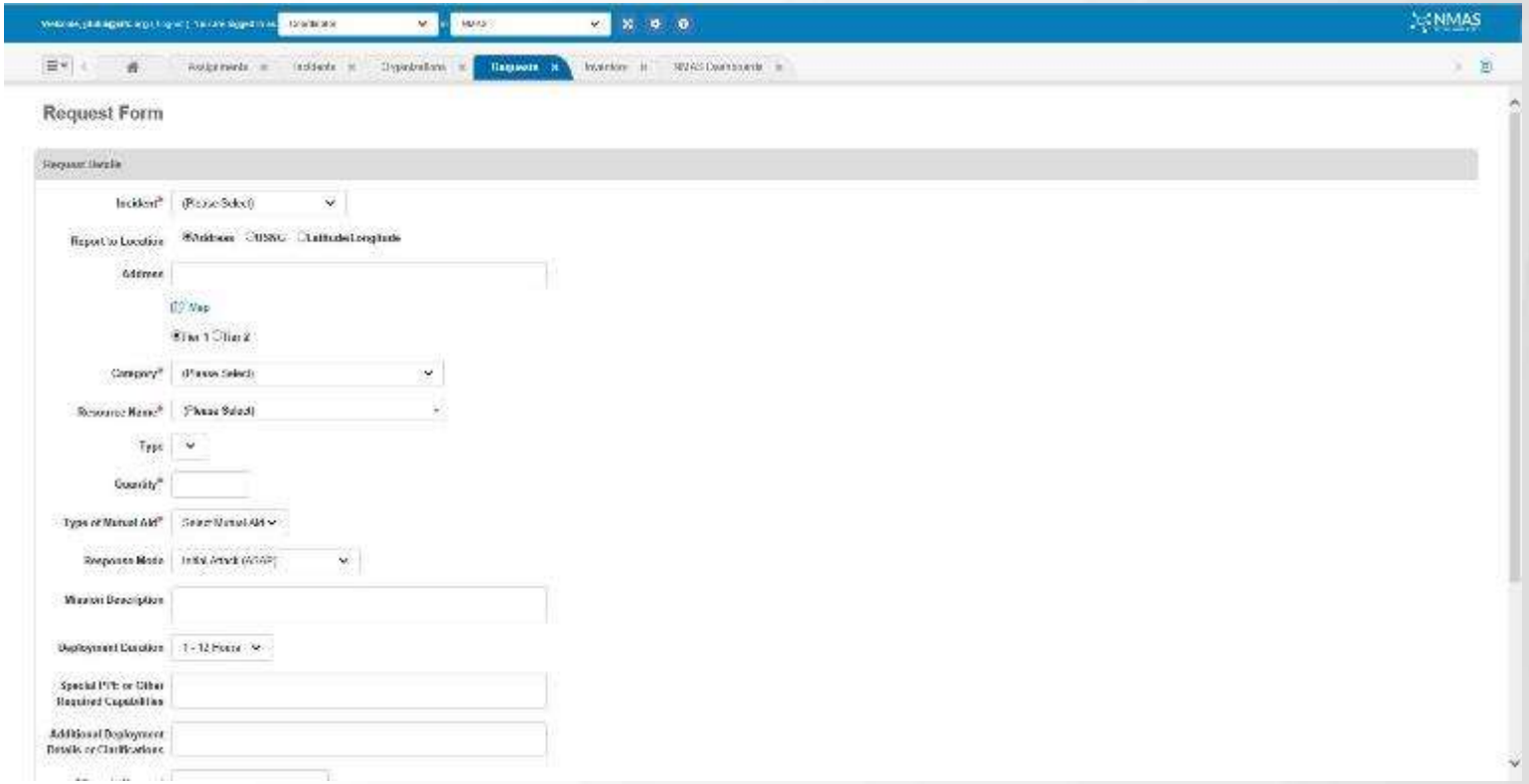
## Resource Request Form

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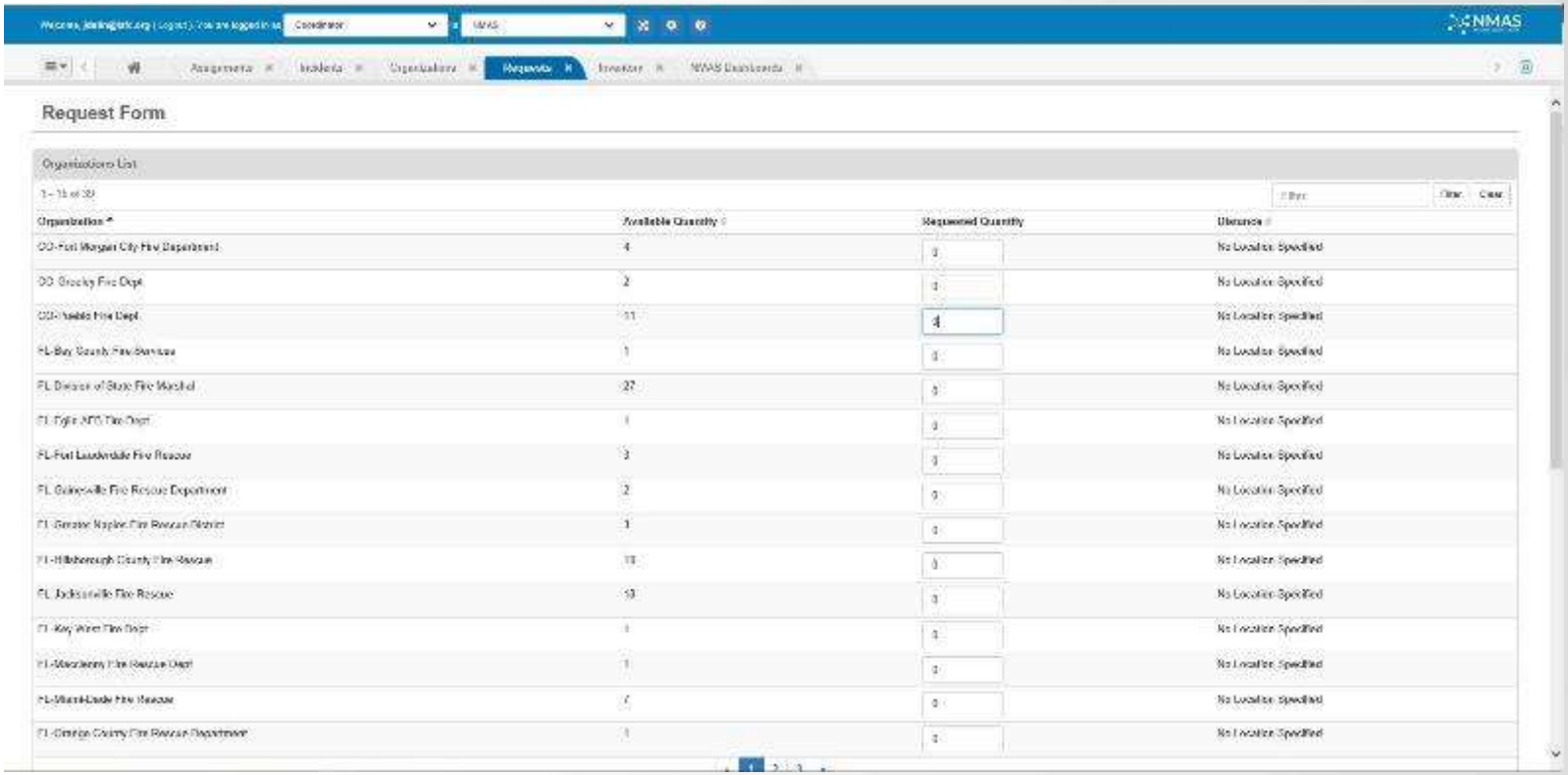
## Available Resources

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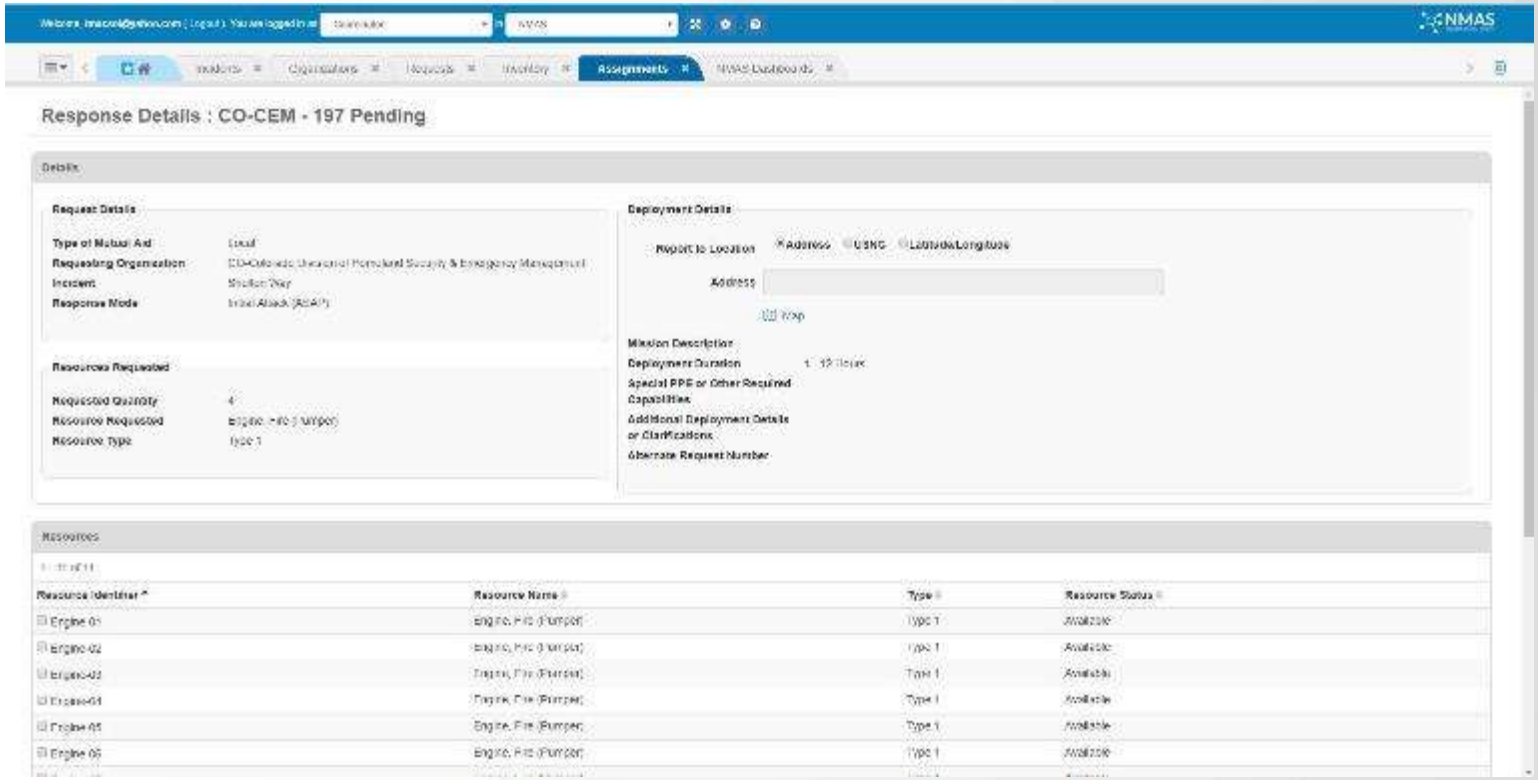
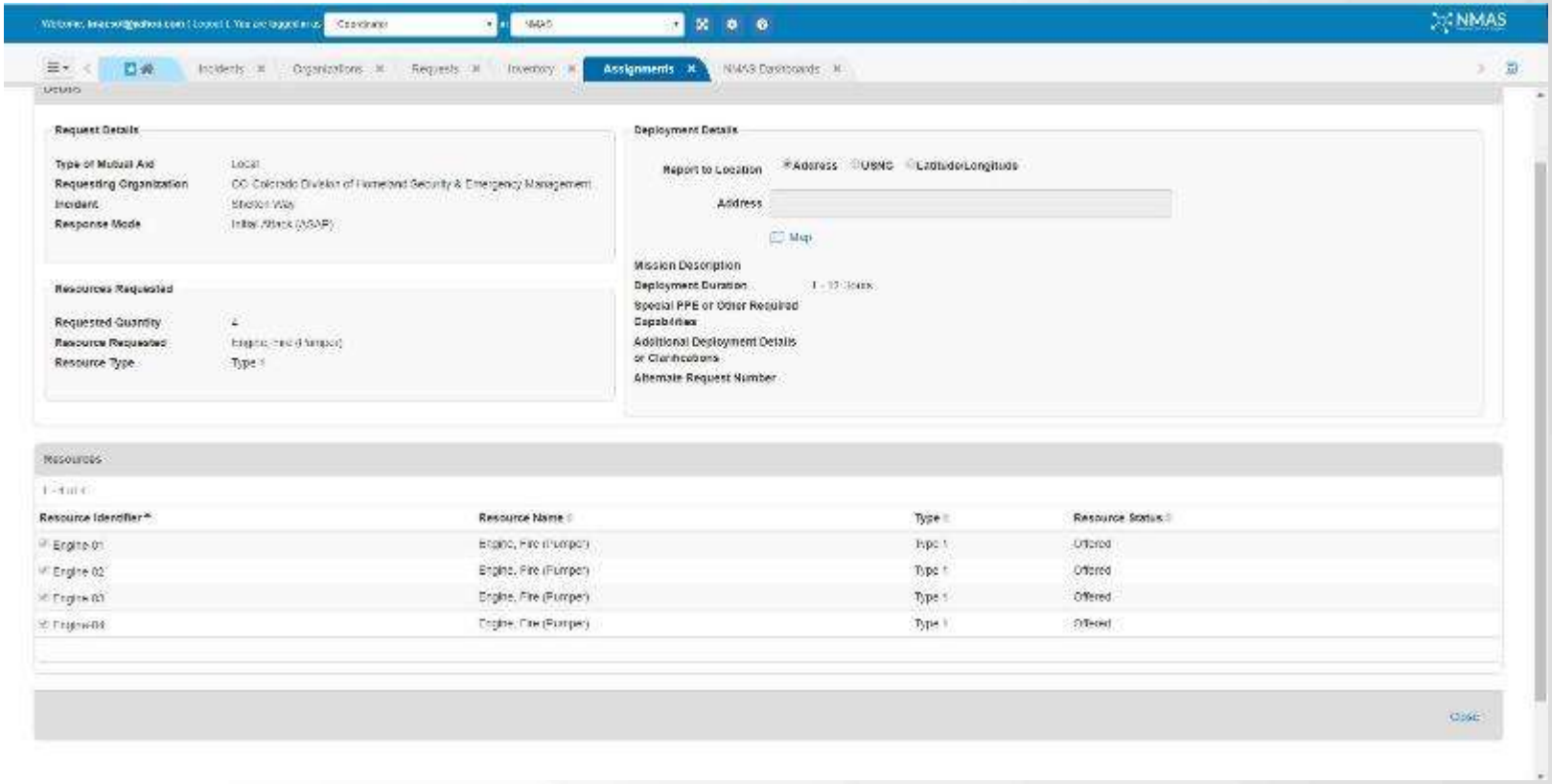
## Agency Requested



# Agency Submits Resources

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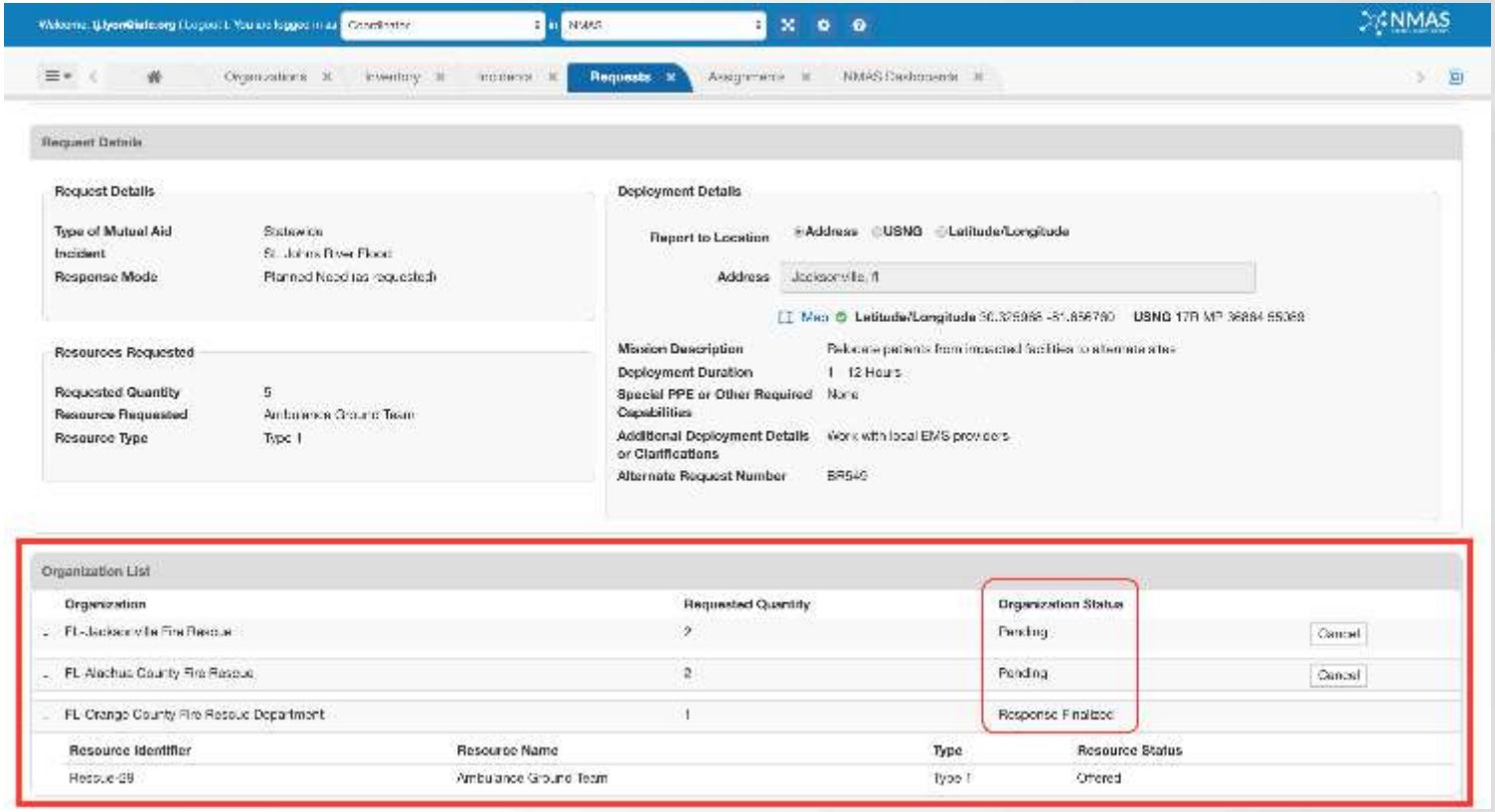
## NMAS tracks status of each response




NMAS
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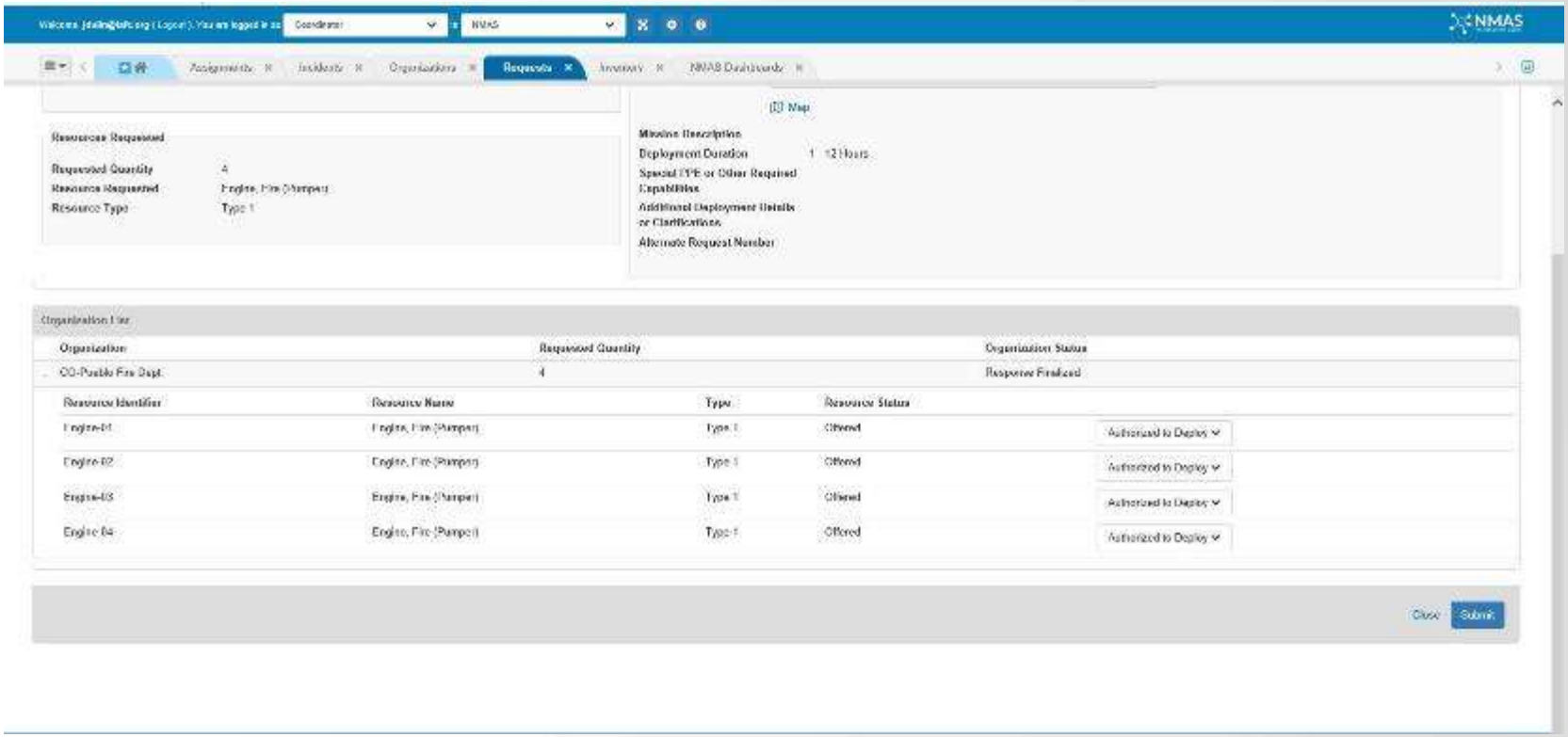
# Requesting Jurisdiction Authorizes to Deploy

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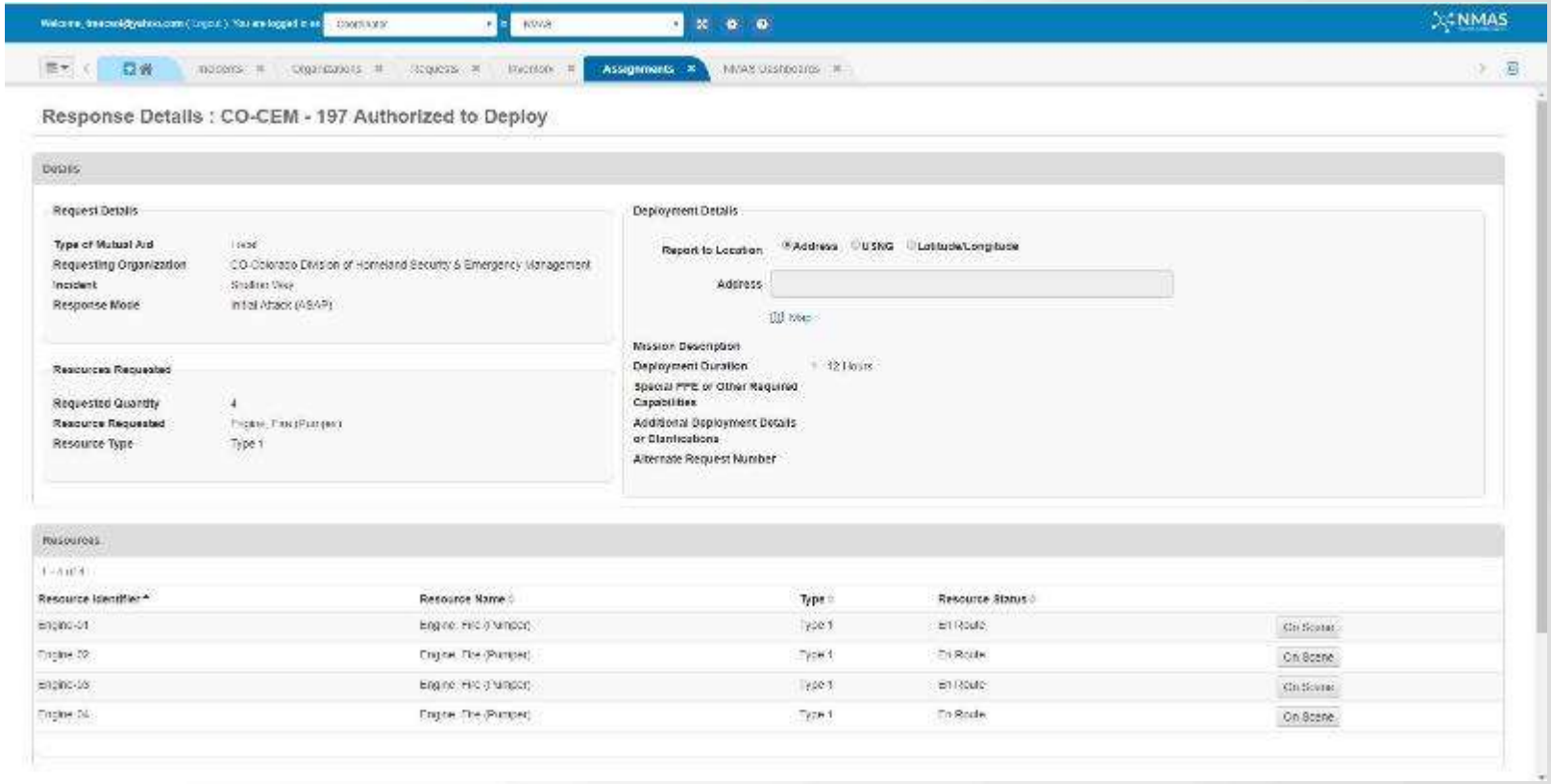
## Resources Check En Route

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## Resources Checked On Scene and Released



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# Resources Returned Home & Call Completed

Resources

1 - 4 of 4

| Resource Identifier * | Resource Name | Type | Resource Status |
|---|---|---|---|
| Engine 01 | Engine, Fire (Pumper) | Type 1 | At Home |
| Engine 02 | Engine, Fire (Pumper) | Type 1 | At Home |
| Engine 03 | Engine, Fire (Pumper) | Type 1 | At Home |
| Engine 04 | Engine, Fire (Pumper) | Type 1 | At Home |

1 - 3 of 3

Filter... Filter Clear

| Request Id | Incident Name | Requested # | Offered # | Resource Name | Type | Date/Time | Request Status |
|---|---|---|---|---|---|---|---|
| CO-CEM - 187 | Shelton Way | 4 | 4 | Engine, Fire (Pumper) | Type 1 | 01/13/2019 10:27:57 | Completed |
| CO-CEM - 183 | Shelton Way | 2 | 2 | Engine, Fire (Pumper) | Type 1 | 01/09/2019 11:12:42 | Completed |
| CO-CEM - 181 | Winter Wrath 2018 | 4 | 4 | Engine, Fire (Pumper) | Type 1 | 12/05/2018 09:17:25 | Completed |

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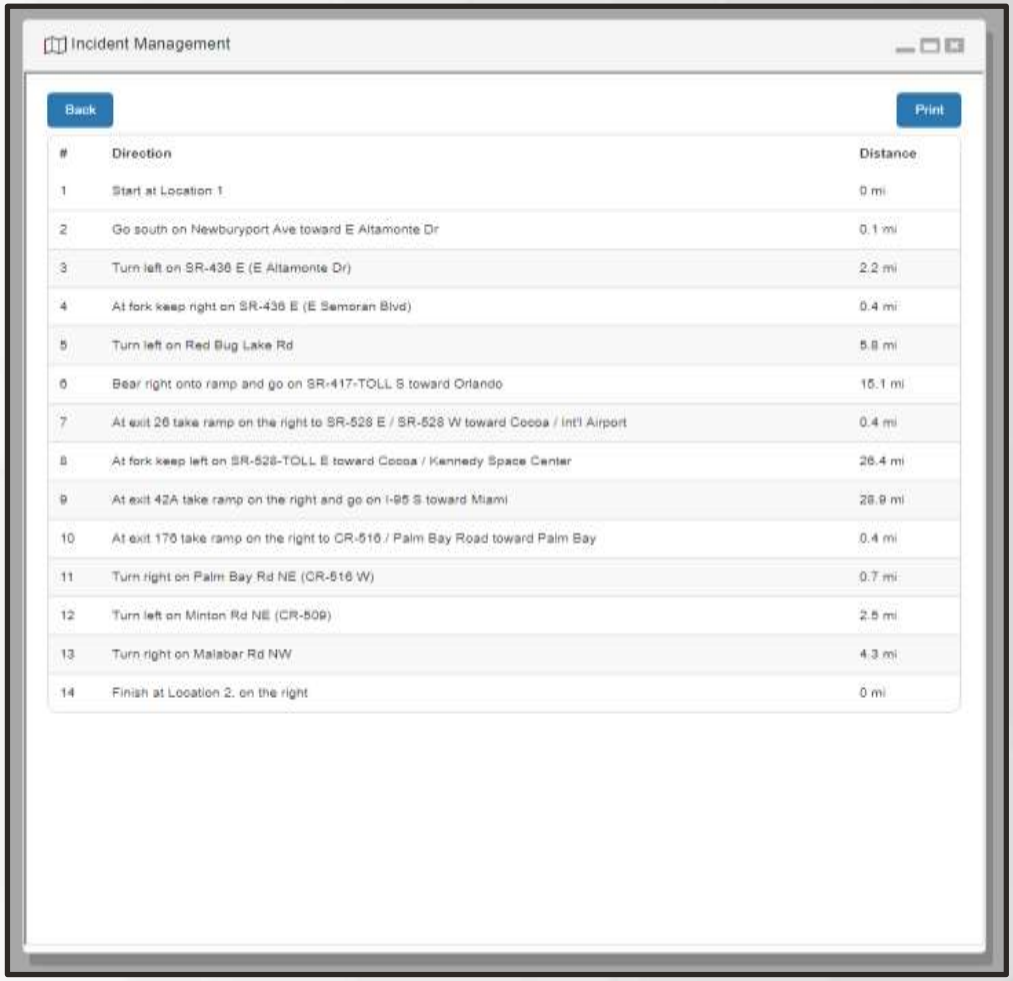
Resources are approved to deploy, with driving directions provided by NMAS and ESRI Workforce App.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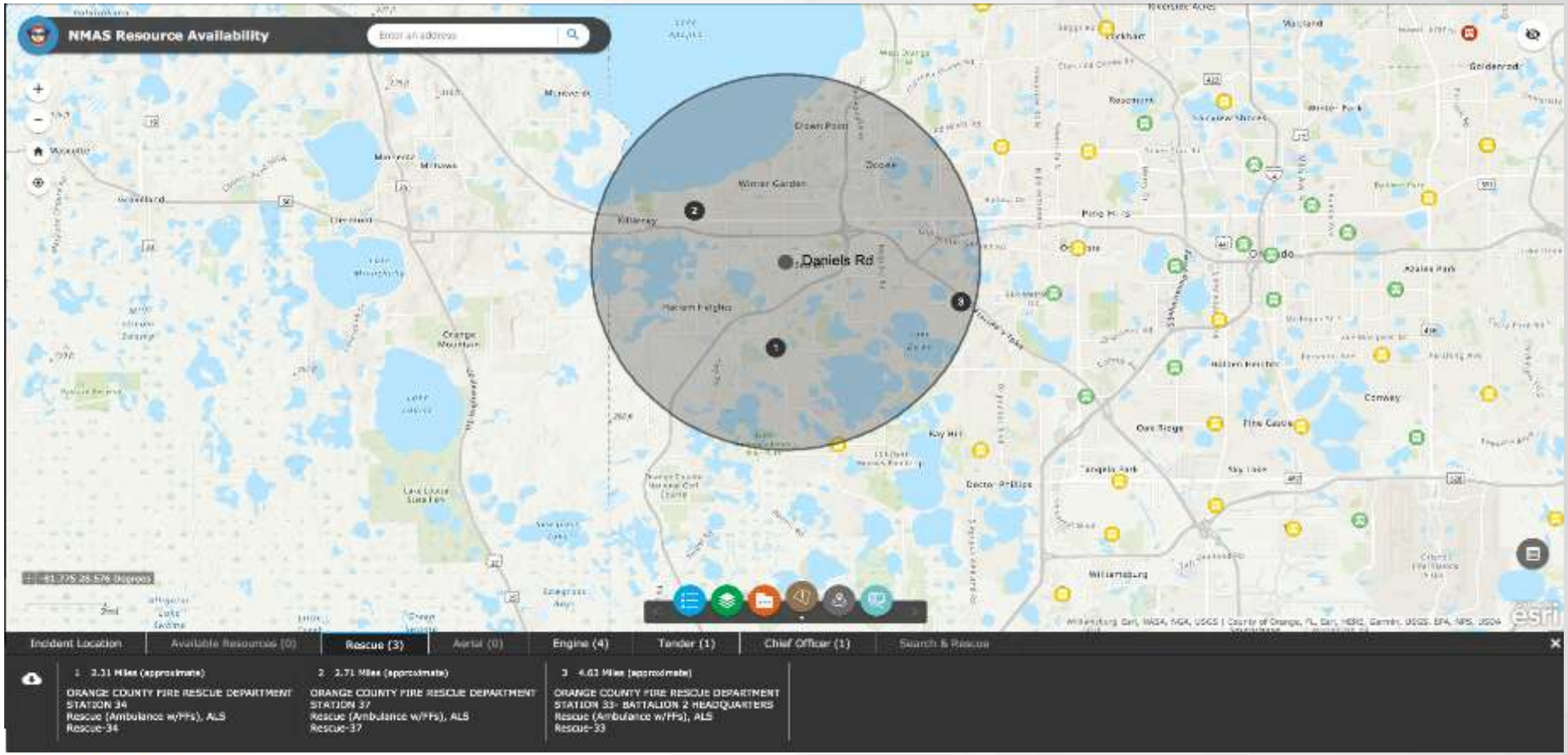
# ESRI Tools

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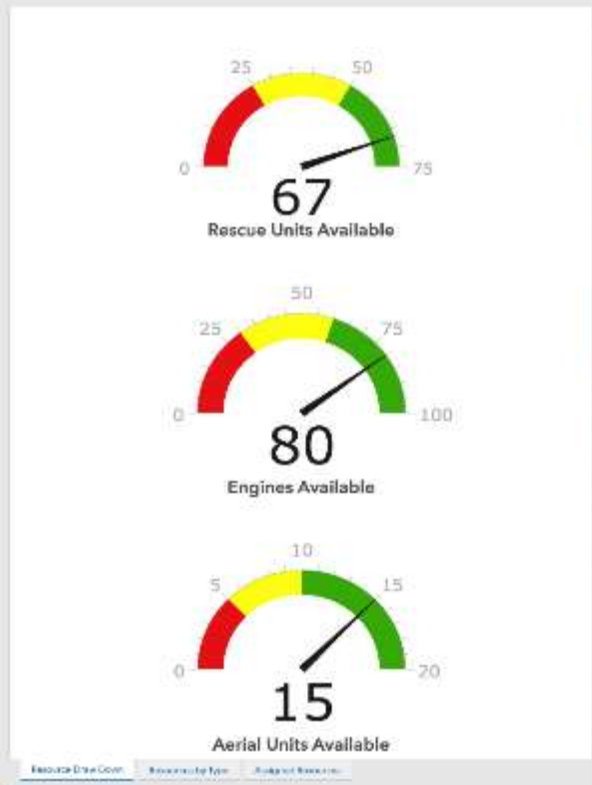
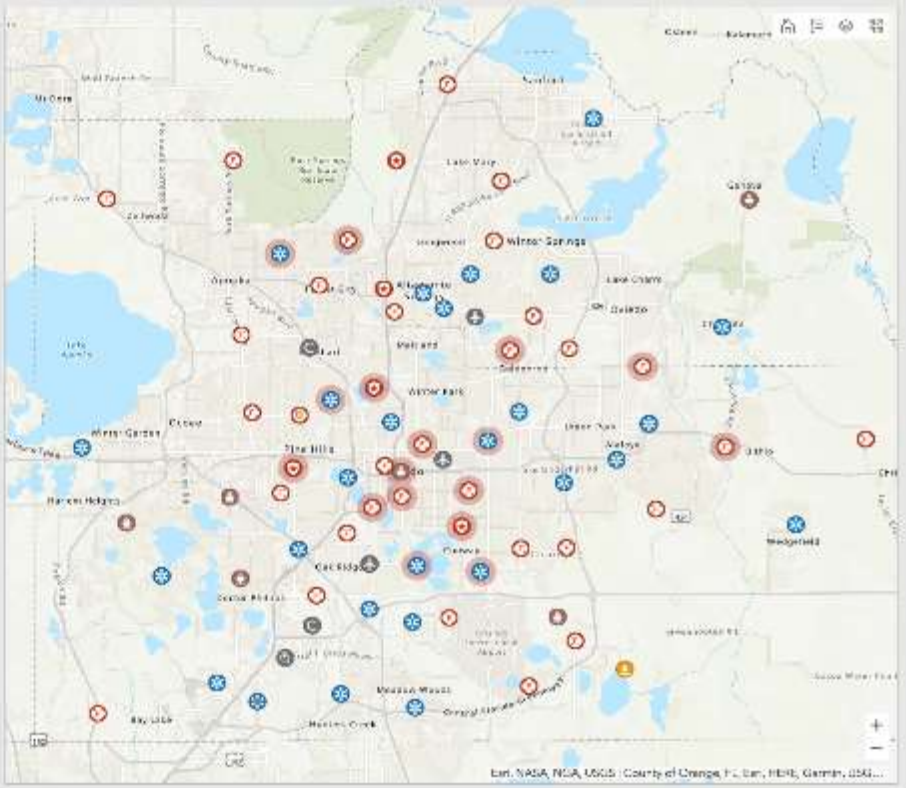
# Situational Awareness and Data Analytics



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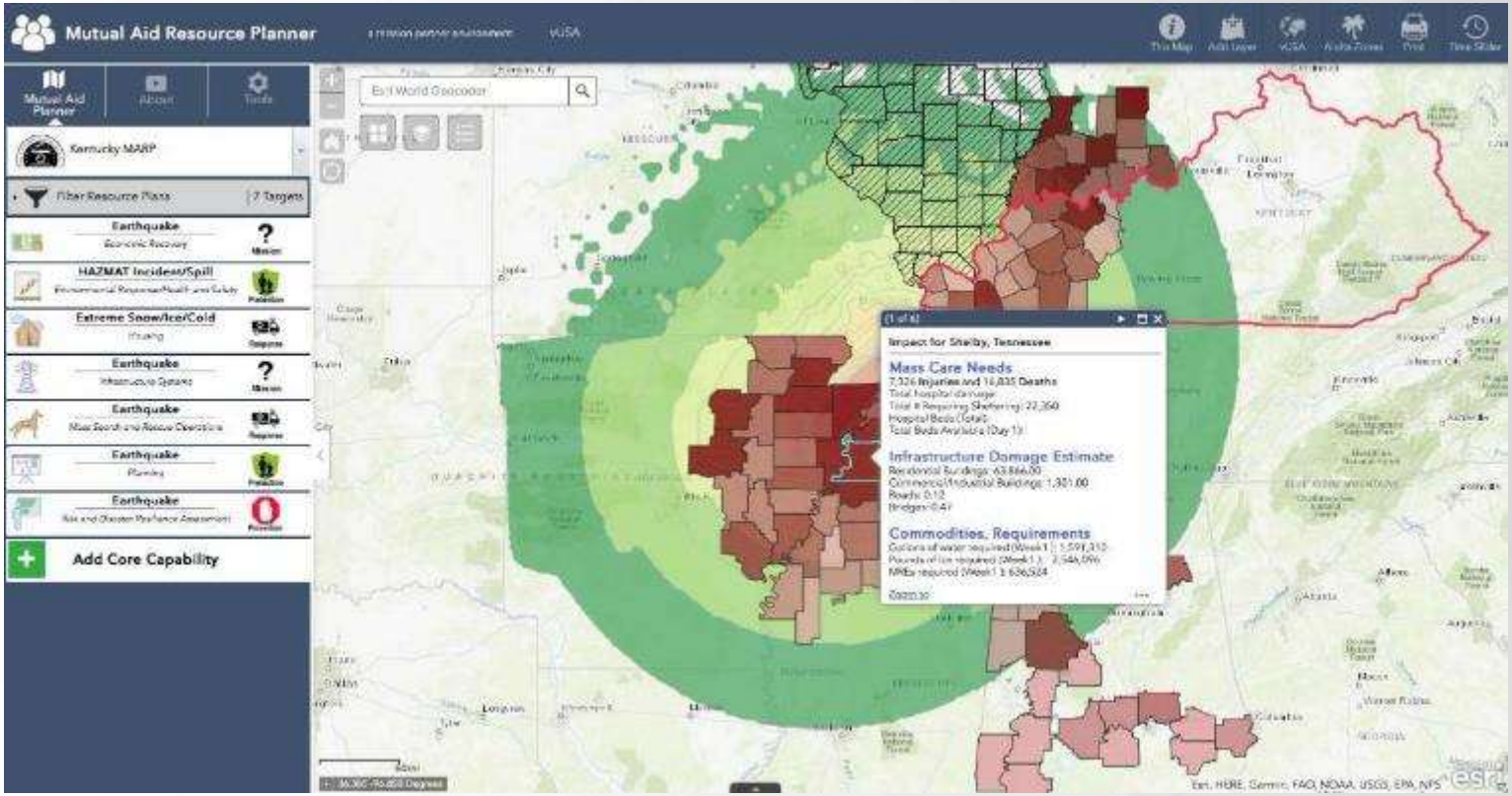
# Mutual Aid Resource Planning Tool- Turning Plans into Operations

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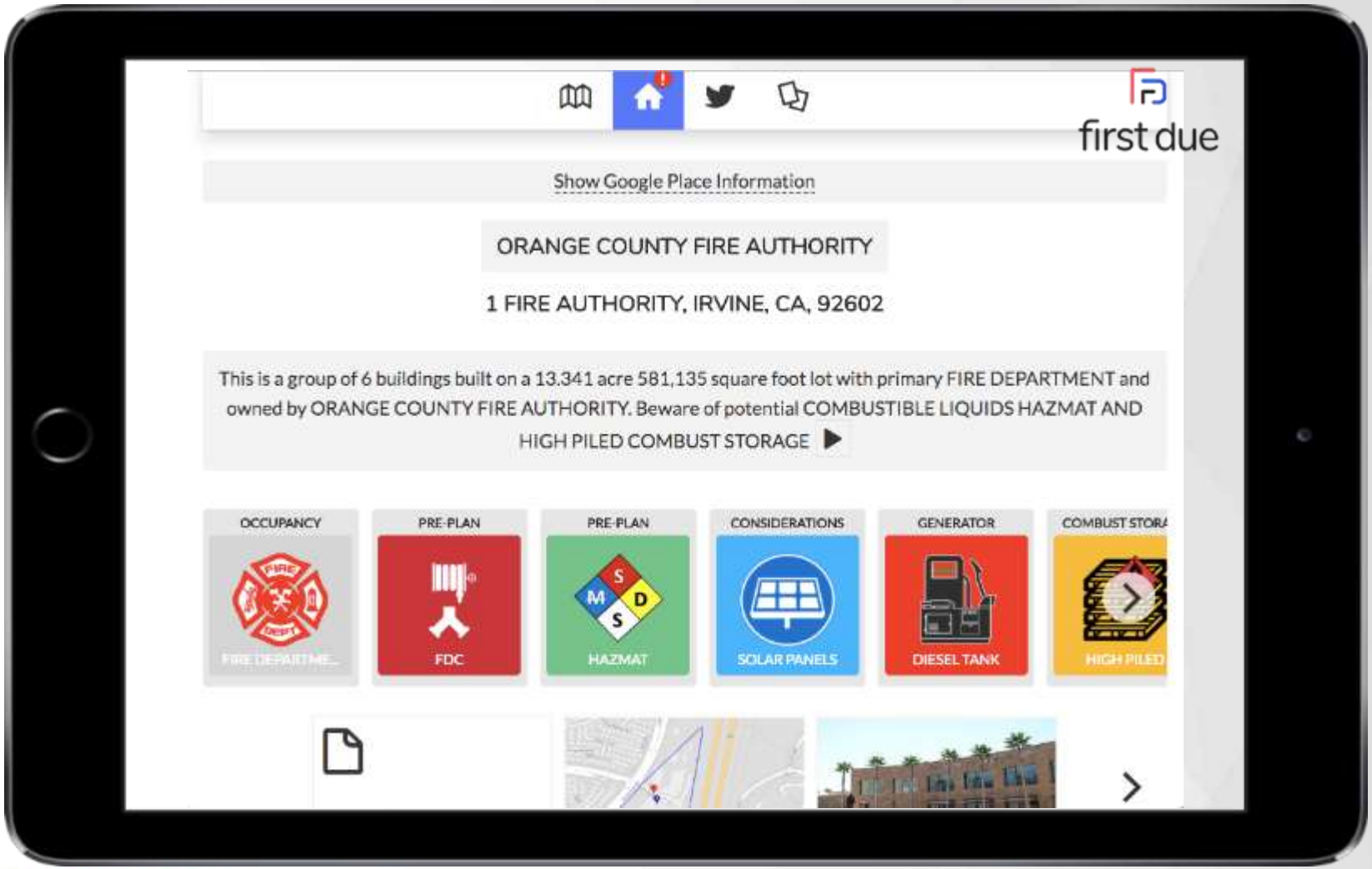


NMAS
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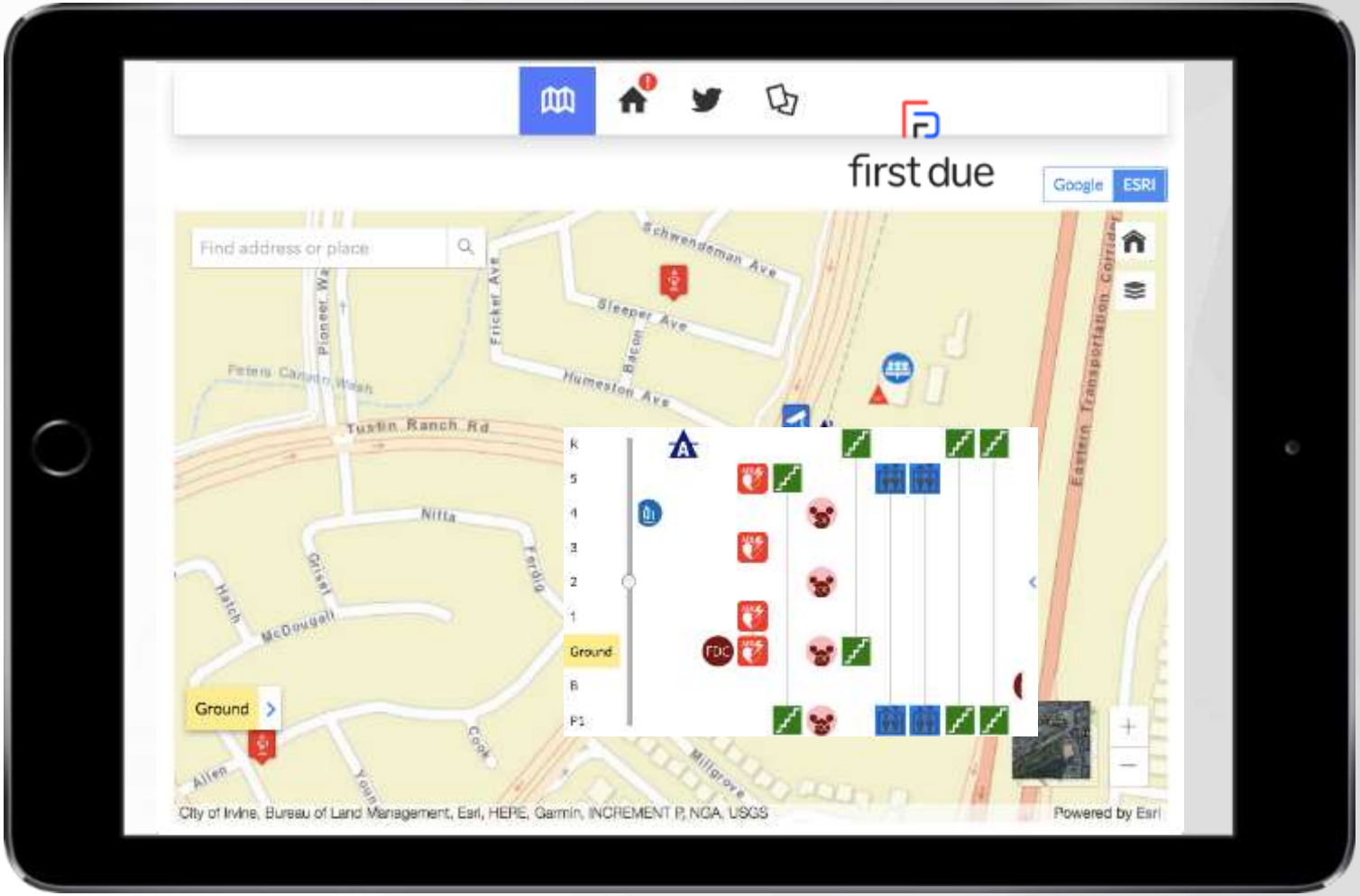


NMAS
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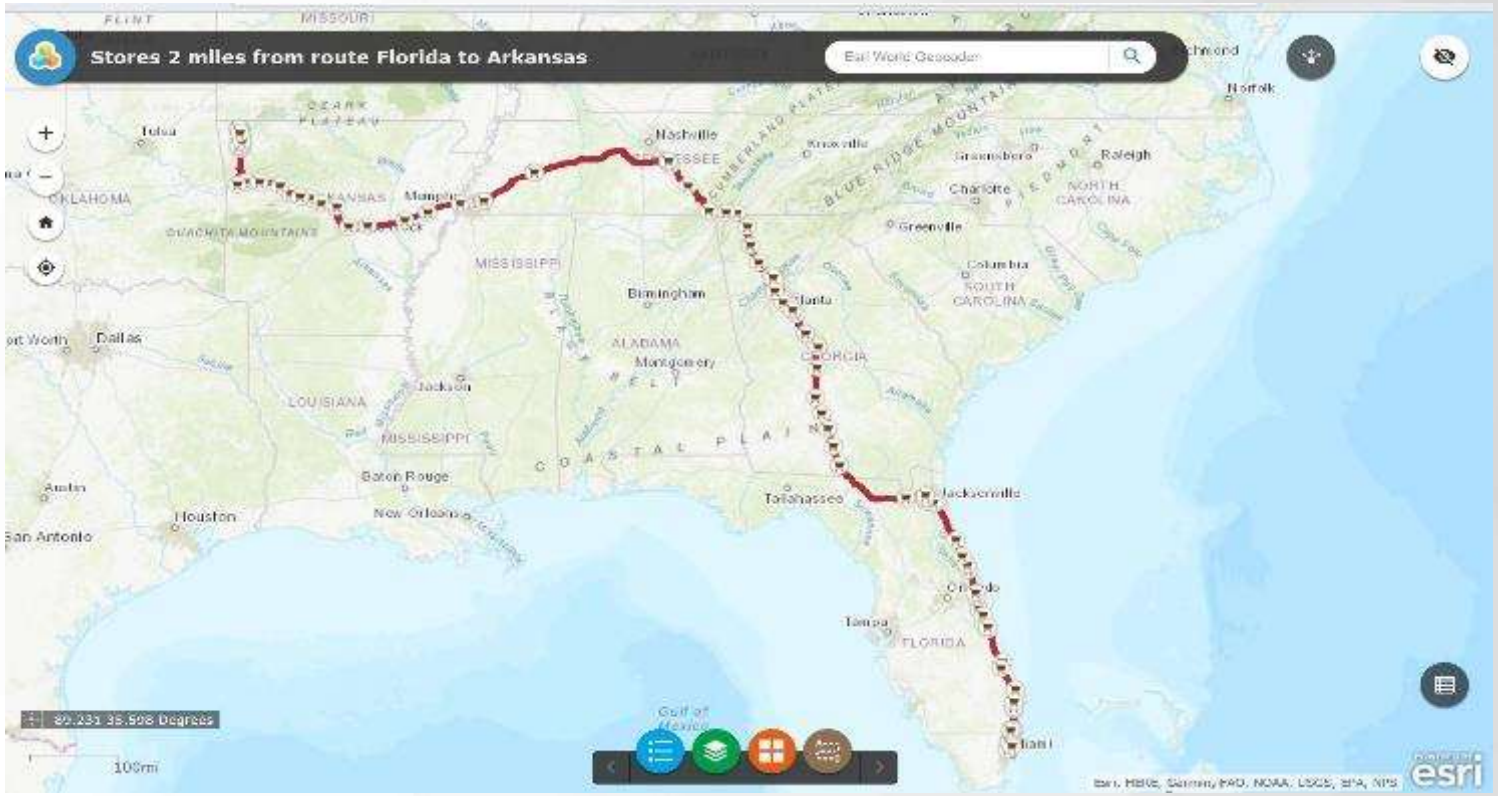
# Logistics Support through the power of GIS

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Contact:

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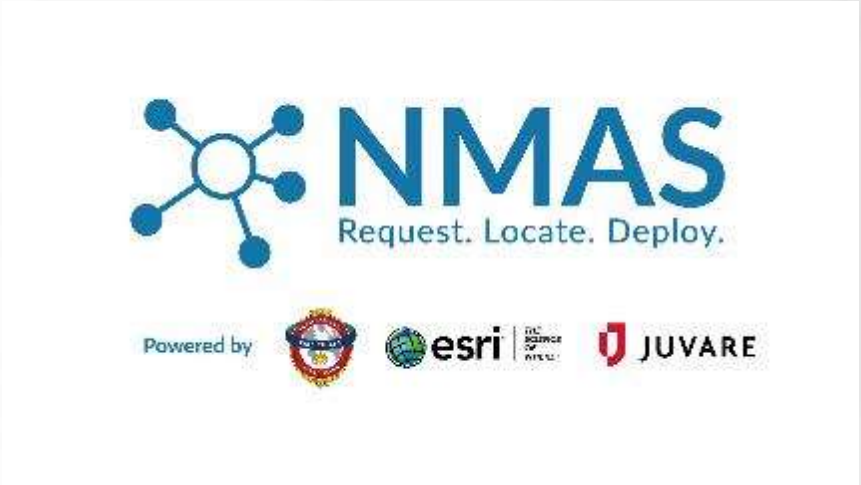
704-619-2714



# DISCUSSION

1. How would you apply NIMS principles and concepts in the GCC?

2. Do you know what response resources neighboring companies and agencies have to request in an emergency?

3. Would a system like NMAS help you to achieve a more efficient and effective response?

# PREPAREDNESS RESILIENCE