Geo-Enable Your Plans: From Binders to Interactive Web-Based Plans

November 12, 2019

National Alliance for Public Safety GIS (NAPSG) Foundation

napsgfoundation.org | @napsgfoundation
Objectives

• Become familiar with the concepts and advantages of Deliberate and Crisis Action Geo-enabled plans.

• Gain insight into different types of plans and approaches for geospatial integration.

• Test the process of developing a Geospatial Game Plan to inform geo-enabled plan development.

• Gain best practices and lessons learned from geospatial practitioners and thought leaders who have developed and garnered support for geo-enabling information and plans for their organizations.
Agenda

• What is geo-enabling and what is the real-world problem they can solve?
• Typical Emergency Management Plans
  • Deliberate and Crisis (Incident) Action Plans
  • Geospatial Analysis and Integration
  • Panel Discussion: The Planning Process for Geo-Enabling – Eva Cante and Ian Purcell, FEMA R1 and Rob Long, FEMA Office of the Administrator
• Developing a Geospatial Game Plan for Implementation and Readiness
  • Core Information Requirements, by:
    • Community Lifeline / Hazard / Timeline / Audience / Method of Delivery
    • Engaging Mission Partners
• Transitioning from Deliberate to Crisis Action Plans
  • Presentation: Matt Welshans, FEMA N-IMAT
  • Presentation: Jason Ray, FL Division of Emergency Management
  • Presentation: Eric Shreve, AZ Department of Emergency and Military Affairs
• Where to Start?
Key Links

• This session has been Geo-Enabled! View the interactive version during the session. http://bit.ly/2NCs50j

• Know of any Geo-Enabled Plans? Please share them with the group! https://arcg.is/1zmaSj0 or
Why Geo-Enabling?

What is the real-world problem?

- **Unwieldy Text Documents**
  - Plans are often massive text documents that sit in a binder or PDF.
  - Time-consuming to read in its entirety.
  - Result: Staff and Mission Partners *may* only be “familiar” with their specific role and responsibilities.

- **Currency**
  - Immediately outdated when printed.

- **What you see is what you get**
  - Limited ability to dig deeper and conduct further analysis.
  - Format precludes cross-pollination with other relevant plans or neighboring jurisdictional plans.

- **Limited accessibility**
  - Binder in-hand.
  - Rich data used and produced as a result are viewable in static tables and map images.
  - Single audience – External (Everyone) or Internal.
Geo-Enabling

What can geo-enabling do?

- **Pull out key information with the ability to dig deeper**
  - Information **lives** in a **dynamic** environment.
  - Distilled content can be viewed and consumed rapidly
  - Result:
    - Staff and Mission Partners become familiar with their and their mission partner roles.
    - Informed Public
- **Currency.**
  - Data and information can be **updated continuously.**
- **What you see is more than just the plan’s findings or assigned roles.**
  - Ability to dig deeper and **conduct further analysis** – What if XYZ changes, then what?

- ✓ **Supports immediate socialization and transition to operations when needed**
- ✓ **Updated based data** (buildings, population) & Live Feeds (forecasted storm path)
- ✓ **Informs course of action analysis**
Typical Plans

Emergency Management Plans

• **Deliberate** = Blue Skies
  - **Hazard Mitigation** – Process to understand risks from natural hazards and develop long-term strategies that will reduce the impacts of future events on people, property, and the environment.
  - **Threat Hazard Identification Risk Assessment (THIRA)/Stakeholder Preparedness Review (SPR)** - Common risk assessment process that helps the whole community to understand its risks and estimate capability requirements to address those risks.
  - **Debris Management** - Plan for coordinating and managing debris removal operations that prepares a jurisdiction to restore public services and ensure public health and safety in the aftermath of a disaster.
  - **Emergency Operations Plans** - describes a government-level approach to emergency operations.

• **Crisis Action** = Grey Skies
  - **Incident Action Plans** - Produced from the incident action planning process and defines the incident objectives for the next operational period of an incident.

• **Others?** Sheltering, Mass Casualty, Evacuation, ...?
Hazard Mitigation Plans

Areas for Geospatial Integration

• **Create an Outreach Strategy** – Target neighborhoods with increased risk

• **Review Community Capabilities** – Conduct an assessment of existing plans, policies, studies, and programs to further inform the mitigation actions that will be identified through the planning process.

• **Conduct a Risk Assessment**
  • Describe Hazards
  • Identify Community Assets
  • Analyze Risk
  • Summarize Vulnerability

• **Develop a Mitigation Strategy** – Models and analysis to mitigate impacts from future events
Hazard Mitigation Plans

Areas for Geospatial Integration

Approved plan required to receive certain disaster assistance funding. Will likely have a large GIS component. GIS analysis and outputs will form base maps used pre and during an emergency evacuation area.
Hazard Mitigation Plans

City of Tulsa Hazards

Welcome to the City of Tulsa’s Hazard Mitigation Plan Website. The purpose of the website is to educate the public and provide information to help the public prepare for the disasters that affect Tulsa.

The Tulsa Hazard Mitigation Plan analyzed 12 classes of hazards. Of these: Drought, hail, lightning, extreme heat, winter storm impact, and earthquakes do not have mappable elements. They are not presented here, please see the plan for more information.

How to use the Website

The tools and navigation buttons are shown below:

Viewer Hazard Tab:

The Hazard Mitigation Plan Viewer has divided the data for Tulsa’s hazards into individual tabs. A click on any tab will take the user to the datasets and information available for that particular hazard.

Navigation Buttons:

This is the general navigation toolbar. The user can use a scroll mouse to zoom in or out of the Viewer and point and drag the cursor to pan around the map. The + and - tools zoom in or out one level based on positive (zoom in) or negative (zoom out). The home button returns map to original extent when the Viewer first opens.

GPS Locator Button:

This button is the GPS location to locate the map user at their location. If accessing from a mobile device, location services will have to be turned on for their web browser for the GPS location feature to work.

Address Search Tool:

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Address Search Tool:
• **Identify the Threats and Hazards of Concern**
  • What Natural, Technological, and Human-Caused hazards that could impact our community

• **Give the Threats and Hazards Context**
  • If they occurred, what impacts would those threats and hazards have on a community?

• **Establish Capability Targets**
  • Based on those impacts, what capabilities should our community have?

<table>
<thead>
<tr>
<th>Natural</th>
<th>Technological</th>
<th>Human-Caused</th>
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</thead>
<tbody>
<tr>
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<td>Airplane Crash</td>
<td>Biological Attack</td>
</tr>
<tr>
<td>Animal Disease</td>
<td>Dam Failure</td>
<td>Chemical Attack</td>
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<tr>
<td>Animal Disease</td>
<td>Levee Failure</td>
<td>Explosion</td>
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<tr>
<td>Disease Outbreak</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drought</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earthquake</td>
<td>Mine Accident</td>
<td>Radiological Attack</td>
</tr>
<tr>
<td>Epidemic</td>
<td>HAZMAT</td>
<td>Sabotage</td>
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<td>Flood</td>
<td>Power Failure</td>
<td>School and workplace violence</td>
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<tr>
<td>Hurricane</td>
<td>Radiological Release</td>
<td></td>
</tr>
<tr>
<td>Landslide</td>
<td>Train Derailment</td>
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<td>Pandemic</td>
<td>Urban Conflagration</td>
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<tr>
<td>Volcanic Eruption</td>
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<tr>
<td>Wildfire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Winter Storm</td>
<td></td>
<td>(severe weather)</td>
</tr>
</tbody>
</table>
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Debris Management

A Guide to Recycling Disaster Debris - New Orleans, La., July, 29, 2008 — This boulevard in the Lakeview area served as a staging area for debris collection following Hurricane Katrina. In nearly three after the hurricane hit, approximately 58.8 million cubic yards of debris had been collected in Louisiana. Photo courtesy of FEMA: Greg Henshal.
Debris Management

Source: https://ibtsonhand.org/resource/guide-recycling-disaster-debris/
Debris Management

Areas for Geospatial Integration

• Forecasting the types and quantities of debris generated by potential disaster
  • Land use and geography
  • Historical data
  • Similar Jurisdictions
  • Remote Sensing / Imagery
  • Modeling
    • USACE (hurricane)
    • FEMA Hazus-MH
    • EPA I-WASTE

• The debris clearance and collection activities necessary to meet the debris management needs
  • Priorities, Response Operations, Recovery Operations

• Identification of debris management sites
  • Landfills – permitted waste
  • Potential Temporary Sites
  • Environmental Considerations

• Requirement for Contracted Services
  • Establish process to monitor activities, e.g., debris loading sites, debris management sites, debris disposal sites.

• Public Information
  • Disseminate (Outgoing) and Collect Information (Incoming)
Debris Management

Local Example: Debris Removal Tracking - Carr Fire

Debris Reporting – ArcGIS Solutions for Emergency Management

https://arcg.is/zDeWe
Non-Emergency Management Plans

• Comprehensive Plan - A guide to decision-making about the natural and built environment
• Transportation
• Capital Improvement
• Historic Preservation
• ...?
NAPSG InSPIRE Summit
Region I Geo-enabling Plans
Geo-enabling Plans

- **Examples** - All Hazards Plan, Power Outage Incident Annex

- **Planning Stage** –
  - Understand the plan you’ve been asked to geo-enable
  - Understand your stakeholders needs (What vision might they have? Specific data sets? Tools?)

- **Design** –
  - StoryMap vs Dashboard vs Application – What will best bring the plan to life?
    - Seek ‘out of the box’ application templates before creating custom apps
  - Remember best practices
    - Should be user friendly and accessible
    - Does **NOT** need to be an all-in-one application

- **Develop!**

- **Stay engaged** with your stakeholder through the whole process!!
Transition to Crisis Action Plans

Real-World Problem – How do you develop decision support tools to answer the questions being asked at different phases of an incident?

During Preparedness “Blue Skies” - Starting with the data and analysis developed in your deliberate plans, work through the core information requirements and geospatial information needed to support each phase.

- Hazards - Where is there hazard potential?
- Impacts - Where are the most vulnerable populations, community lifelines? Thresholds for action?
- Resources – What do we have/need? Where is it?
Transition to Crisis Action Plans

Hurricane of 1938 Scenario

Scenario Journal

This journal presents the FEMA GeoFramework web map collection for hurricanes and hurricane-like events. This journal is presenting the information and analysis of the 1938 scenario for the 2016 revision of the FEMA Region 1 Hurricane Response Annex.

1. Hazard Overview
Geo-Enabling Plans

https://fema.maps.arcgis.com/apps/MapSeries/index.html?appid=fe8c84c4f1fe4a65bbe8c6314dee4a3e
(log-in required)
Incident Journal

• Still in beta phase
• Added lifelines in 2018 hurricane season
• Adaptable to various disaster types and sizes
• Various state and local data available on AGOL can also be brought in
• Updateable through Journal Creator Script (Josh Keller, R-X)
Transition to Crisis Action Plans

Modeling/Imagery/Damage Assessments

FEMA AOIs for Satellite Collection

Legend

USNG 1KMCellsWithPriorities SC
Collection_Priority_Weighted

\( \leq 1 \)

\( \leq 2 \)

\( \leq 3 \)

USNG1KMCellsWithPriorities NC
Collection_Priority_Weighted

\( \leq 1 \)

\( \leq 2 \)

\( \leq 3 \)

wmo_meteocean_tropicalcyclones_trackintensityfcsts_time
Atlantic, Central Pacific and Eastern Pacific Ocean Regions
Tropical Cyclone Track and Intensity Forecasts

- Hurricane Watch
- Hurricane Warning
- Tropical Storm Watch
- Tropical Storm Warning
Sample questions for creating a geospatial game plan for your agency.

<table>
<thead>
<tr>
<th>Lifeline</th>
<th>Core Info Need</th>
<th>Public First Responders</th>
<th>Emergency Managers</th>
<th>Operational Game Plan</th>
<th>Technical Game Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shelter Status</td>
<td>Where can I go to be safe?</td>
<td>Where do I take / direct evacuees?</td>
<td>Where are the evacuees? Do we have enough room?</td>
<td>Mass Care Lead and Red Cross will update the status of shelters.</td>
<td>The Master Feature Layer can be edited from web apps or Collector for ArcGIS (offline). The Hosted Feature Layer View, filtered for status = open, is embedded in the Public Information Map.</td>
</tr>
</tbody>
</table>
Topics

- Digital Situation Report (WebEOC)
- Digital Incident Action Plan (WebEOC)
- Lifelines (WebEOC Board Development)
- WebEOC/GIS Integration (WebEOC Board to GIS Dashboard)
Main Situation Report Info
- Incident Name
- Activation Level
- Report Number
- Date Current
- Situation Overview
- Weather Conditions
- State Actions
- Executive Order(s)
- Operational Objectives
- File Attachments
- Images/Maps

Sections
- Narratives:
  - Operations
  - Planning
  - Logistics
  - Finance
  - Recovery

Approved by Section Chief

Updated by Planning Section

ESFs
Narratives by each ESF
Approved by Branch Manager

SERT Working Situation Report Board
Lock for Review
Review & Publish
SERT Published Situation Reports Board
Situation Report No. 8
2019 Dorian
The Florida State Emergency Response Team
State Emergency Operations Center Activation Level: 1
Reporting Period: 09/04/2019 07:00 hrs - 09/05/2019 19:00 hrs
Information Current as of 18:00 hrs

Current Situation
As of 1830 hrs EDT Wednesday, the eye of Hurricane Dorian was located about 115 miles west-northwest of Jacksonville, FL. Dorian continues to move to the north-northwest at 10 mph, parallel to the coast of Florida. Maximum sustained winds have increased to 110 mph (Category 3), but tropical storm force winds extend out 150 miles from the center and hurricane force winds 70 miles. Tropical storm conditions will continue along the coast of northeastern Florida, but have ended along the Space and Treasure Coast. By Sunday, all impacts from Dorian will end as the system moves northeast and exits the Carolinas. Some areas in extreme central Florida could see heavy Thursday, but overall winds will gradually return to normal. Tropical Storm and Storm Surge Warnings continue for Northwest Florida through this evening.

Conditions
Delays are the shelter occupancy for counties with open shelters as reported in WebEOC as of 1100 hrs.

<table>
<thead>
<tr>
<th>Incident Name</th>
<th>Stillrep #</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019 Dorian</td>
<td>8</td>
</tr>
<tr>
<td>2019 Dorian</td>
<td>7</td>
</tr>
<tr>
<td>2019 Dorian</td>
<td>6</td>
</tr>
<tr>
<td>2019 Dorian</td>
<td>6</td>
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<tr>
<td>2019 Dorian</td>
<td>5 (Corrected)</td>
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<tr>
<td>2019 Dorian</td>
<td>3</td>
</tr>
<tr>
<td>2019 Dorian</td>
<td>2</td>
</tr>
<tr>
<td>2019 Dorian</td>
<td>1</td>
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</table>

State Actions
The State EOC is active at a Level 1 with 24 hour staffing.

Executive Orders

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<tr>
<td>19-15</td>
<td>8/29/19</td>
<td>See info message 15 in WebEOC</td>
</tr>
<tr>
<td>19-15</td>
<td>8/29/19</td>
<td>See info message 165 in WebEOC</td>
</tr>
</tbody>
</table>

Operational Objectives

1. Ensure basic needs of Florida's residents and visitors. 2. Ensure the safety of responders. 3. Promote coordination between State, Local, and SERT Partners. 4. Continue to evaluate risk as storm track develops. 5. Evaluate resource needs and adjust operational planning assumptions. 6. Mobilize and deploy necessary human services and logistics support to counties. 7. Prepare to minimize economic impact of the affected areas and communities. 8. Keep stakeholder, responders, and the public informed of preparedness and response activities.

Human Services Branch

ESF-11 Food and Water

The ESF-11 is receiving resources from the FAS Division. Further, the ESF-11 is continuously updating damage projection models as needed and based on recent forecasts.

ESF-19 Volunteering and Donations

The ESF-19 is currently working with the FAS Division to distribute ESF-19 volunteers and donations as needed.
FDEM WebEOC – Incident Action Plan (IAP)

**Logistics, Finance, Recovery, Air Operations, ESFs**
- Submit Assignment List (ICS 204)
- Provide Status (Pending, In-Progress, Completed)

**Additional Forms**
- Cover Sheet (ICS 200), Incident Briefing (ICS 201), Incident Objectives (ICS 202), Radio Communications Plan (ICS 205), Safety Message (ICS 208), Daily Meeting Schedule (ICS 230)

---

**ASSIGNMENT LIST (ICS 204): Complete**

<table>
<thead>
<tr>
<th>Incident Name</th>
<th>Hurricane Dorian</th>
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<tr>
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<tr>
<td>Time From</td>
<td>07:00</td>
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<tr>
<td>Date To</td>
<td>09/10/2019</td>
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<tr>
<td>Time To</td>
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</tr>
<tr>
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<td>Division/Group</td>
<td>ESF 08</td>
</tr>
<tr>
<td>Staging Area</td>
<td>EOC ESF Briefing Room</td>
</tr>
</tbody>
</table>

**Resources Assigned**

- Leader: Sam Cooke
- # of Persons: 12
- Contact (e.g., phone, pager, radio frequency, etc.): 850-245-4678
- Reporting Location, Special Equipment and Supplies, Remarks, Notes, Information: EOC ESF Briefing Room

**Work Assignments**

- Support the closure of special needs shelters and patient placement.
- Assist with return of patients to evacuated facilities.
- Coordinate with JMAA for post-impact assessments of facilities. Demobilize assets.

---

**Additional Forms**

- Cover Sheet (ICS 200)
- Incident Briefing (ICS 201)
- Incident Objectives (ICS 202)
- Radio Communications Plan (ICS 205)
- Safety Message (ICS 208)
- Daily Meeting Schedule (ICS 230)
Once individual template forms are completed the Plans Chief locks editing, submits for review and publishes.

Each daily published IAP is submitted to the IAP Published Board where each template is consolidated and can be converted to a PDF.

IAP is then printed and signed by the State Coordinating Officer.
FDEM WebEOC – Lifelines Board

- Currently being developed (Complete by May 2020 – Statewide Hurricane Exercise)
- **Goal** – Refine reporting sources and products to enhance situational awareness, best determine capability gaps, and demonstrate progress towards stabilization
- **Objective** - individual Counties report lifeline specific resources, concerns, shortfalls, limiting factors, disruptions, outages, actions, and statuses.
- **Develop** - Create new Boards to organize and aggregate information independently or populate from direct pulls of information residing in existing Boards.
  - For Example – Emergency Sites, Shelters, Port Status, Resource Tracking, and EEI Boards
- Based on reported information, capability gaps would drive County lifeline status and drive incident action planning. Integrate with GIS to visually represent Statewide County statuses by Lifeline.
### SERT Missions

<table>
<thead>
<tr>
<th>Entered On</th>
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<th>Parent MIssion #</th>
<th>Region/County</th>
<th>Requesting Agency</th>
<th>Requestor Name</th>
<th>Title</th>
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<th>Tasked To</th>
<th>Submitted To</th>
<th>Support Mission Corps/Team</th>
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<td>08/04/2019</td>
<td>15:34:20</td>
</tr>
</tbody>
</table>

**Total Missions:** 1395
ArcGIS Extension Plugin used to create hosted feature layers and made available directly in ArcGIS Online for use with Common Operation Platform, standalone web applications, and ArcGIS Pro for hard copy map products.

<table>
<thead>
<tr>
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<th>Board Name</th>
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<td>List - State Incident Management Teams</td>
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<td>sert_weboc</td>
<td>SERT - Shelters</td>
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<td>Details - Mobile</td>
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# Common Operation Platform

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<td>20 Cancelled, 10 Complete, 13 Enroute</td>
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<td>County Logistics Staging Areas</td>
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<td>County Points of Distribution</td>
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<td>Warehouse</td>
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</table>
Questions?

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SERT – Technical Services Branch Director/State GIS Manager
850-815-4730

THE FLORIDA DIVISION OF EMERGENCY MANAGEMENT
Web-Enabled Crisis (Incident) Action Plans

Real-World Problem – How do you develop decision support tools to answer the questions being asked at different phases of an incident?

• By Community Lifeline / Hazard / Timeline / for what Audience – What are the questions being asked at different phases of an emergency?

• What are the information gaps? Engaging Mission Partners

• How can the Applications (Mobile, SA Viewer, Dashboards, Story Map Journals, etc.) be configured, tested and revised in advance by stakeholders?
Facilitated Discussion

Sample questions

<table>
<thead>
<tr>
<th>Lifeline</th>
<th>Core Info Need</th>
<th>Public</th>
<th>First Responders</th>
<th>Emergency Managers</th>
<th>Operational Game Plan</th>
<th>Technical Game Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shelter</td>
<td>Status</td>
<td>Where can I go to be safe?</td>
<td>Where do I take / direct evacuees?</td>
<td>Where are the evacuees? Do we have enough room?</td>
<td>Mass Care Lead and Red Cross will update the status of shelters.</td>
<td>The Master Feature Layer can be edited from web apps or Collector for ArcGIS (offline). The Hosted Feature Layer View, filtered for status = open, is embedded in the Public Information Map.</td>
</tr>
<tr>
<td>Road</td>
<td>Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landfill</td>
<td>Status</td>
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<td></td>
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</table>
Arizona ESF/RSF
Operations Dashboard

Arizona Department of Emergency and Military Affairs
(AZ DEMA)
Department of Emergency and Military Affairs

The Department’s mission is to provide military and emergency management capabilities to citizens of Arizona and the Nation
Whole Community

Ready, Responsive, Reliable
- Location Intelligence back in the day.
- Post it notes were used for updates to the board.
- Had data living on a server that never was utilized for operational purposes.
- The turnaround time to produce a map took several days.
- Inefficient workflows.
- By the time a map was printed the situation had changed.
Finding a solution that could alleviate the amount of static information PDFs & Screenshots sent through email.

Finding a way that could funnel/segment raw data into an Emergency Support Function (ESF).

As well as something that could fall along the roles and responsibilities of the State Emergency Response & Recovery Plan (SERRP).
Arizona ESF/RSF Operations Dashboard

- Location intelligence & analytics for a real-time operational view for emergency management activities in Arizona.

- The connector is a powerful tool because it allows the end-user/non-GIS users (Emergency Managers & Operational Personnel) to locate information and place it on a map to build a common operating picture in an Emergency Operations Center setting.

- The tool takes the burden off relying on the Situation Unit/GIS Group to populate data.
Arizona ESF/RSF Operations Dashboard

Big/Raw Data

AGOL/Apps/Maps/Dashboards

Package Visualization

Governor/Executive Staff/FEMA Region 9

Operations

Information Sharing

WebEOC

Crisis information/Boards/ICS Forms

PDFs/Spreadsheets/Static Reports

Ready, Responsive, Reliable
For this event having the data visualized as a metric or number allowed the audience to easily consume information.
- Was helpful for new resources/personnel entering the EOC to get caught up to speed.
- Briefing Executive/Policy Makers was more effective.
- Having a Status Dashboard allowed us to add additional datasets into one application.
  - Shelters
  - Warming Centers
  - County Infrastructure Status
Current Status/Road Map

- Completed our WebEOC rebuild (with Juvare).
- A majority of the boards have a geographical component to it.
  - (ICS - 214) Event Reporting
  - Countywide Infrastructure Status Board
  - Shelters
- Integrating more spatial data back into WebEOC.
  - Damage assessment via Collector & Survey123
  - Search and rescue missions
In Summary/Now What?

- Step 1 – **Connect the people** – relationships are key and reaching out to the appropriate agencies and jurisdictions is the place to start.
- Step 2 – **Connect the data** – make the data flow (like plumbing) and make sure the operationalize the key data that is needed for decision making.
- Step 3 – **Build the info products** - Configure information products / dashboards to support the larger story map.
- Step 4 – **Watch the information flow in the Story Map / Dashboard!!** And leverage the value that the increase information flow provides for more effective and efficient response, coordination, and situational awareness.

**Things to consider**
- Break out of silos to solve problems and create solutions.
- Leverage shared data.
- Eliminate manual processes.
- Create solutions for the “Whole Community”.

Ready, Responsive, Reliable
Questions?

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Where do you start?
Going from Concept to Implementation

### Communicating with data partners:
- Lead with your smallest, highest impact ask
- Be Transparent
- Be aware of what your ask triggers from their perspective
- Once you’re in, be ready to speak to:
  - Data Quality, Consistency, Fidelity to Purpose, Outcomes
- Close the deal
  - What do you need? Schedule Check-ins.
- Show what you did!

### Communicating with leadership:
- Demo, don’t explain, if possible
- Keep it Super Simple
- Handling leadership “idea fairy” suggestions
- Use anecdotes and singular facts to explain concepts and challenges
- Show what you did!
Thank you!