Emergency Management GIS Data & Coordination:
Lessons Learned & How We All Can Be Better Prepared
for Future Disasters

Ashlee Llewellyn, GISP
Information Technology Services Dept.
Ashlee.Llewellyn@countyofnapa.org

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CALIFORNIA

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A Commitment to Service

Disclaimer: All images are a snap-shot in time, their information are not necessarily indicative of current standings.

GIS Emergency Response

- Data Used for Our Agency's Efforts

- Obstacles Encountered

- Action Items

- Looking Ahead: Data Sharing Efforts Between Agencies

Disasters cross jurisdictional boundaries!

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Emergency Operation Center

- County's Essential Data Used
  - Road Blocks & Closures
  - Building Footprints / Addresses / Population
  - Damage Assessment Tags

- Others' Essential Data Used
  - Fire Perimeters (GeoMAC)
  - Burn Scar Aerials (Digital Globe/Sonoma County/ESRI)
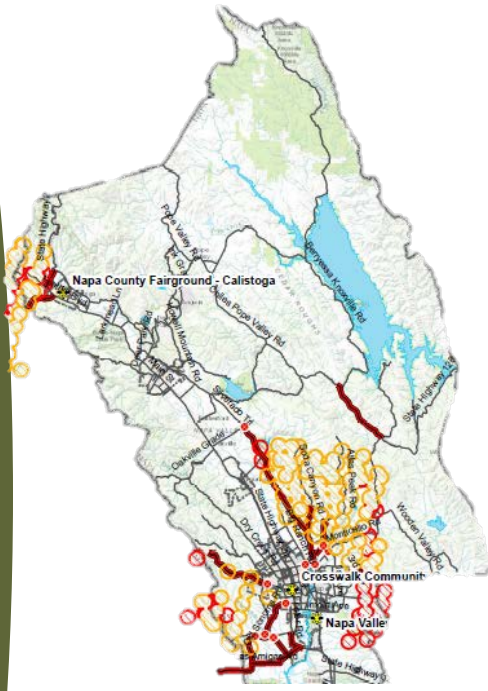
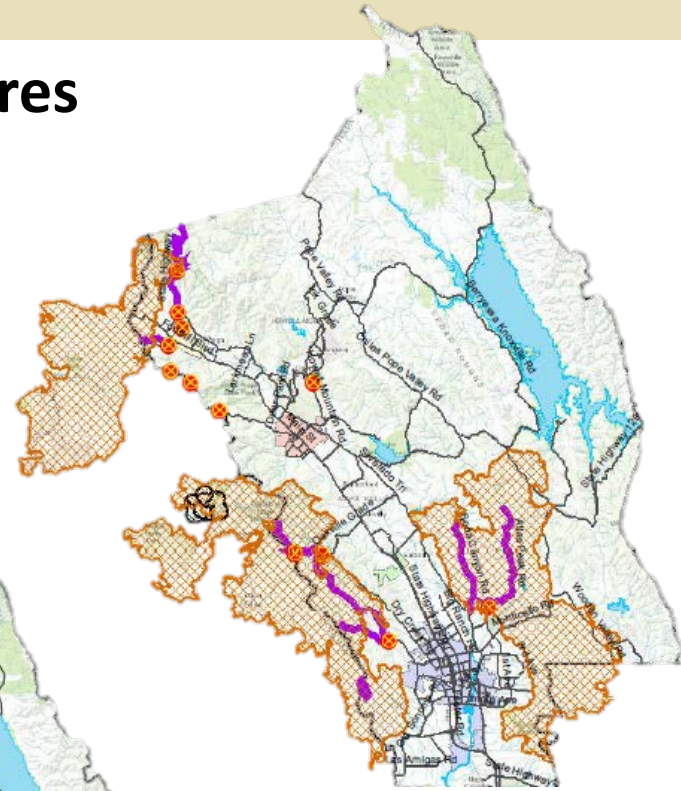- County's or Others'?
  - Property value (Zillow v Assessor)

Emergency Operation Center

Road Closures

Start of event

Height of event

Near-end of event

Emergency Operation Center

CURRENT DAMAGE ASSESSMENT COUNTS
NAPA COUNTY FIRE COMPLEX, 2017

RED TAGS

1,187 🚩

(count includes commercial and residential structures, main structures, outbuildings, & accessory structures)

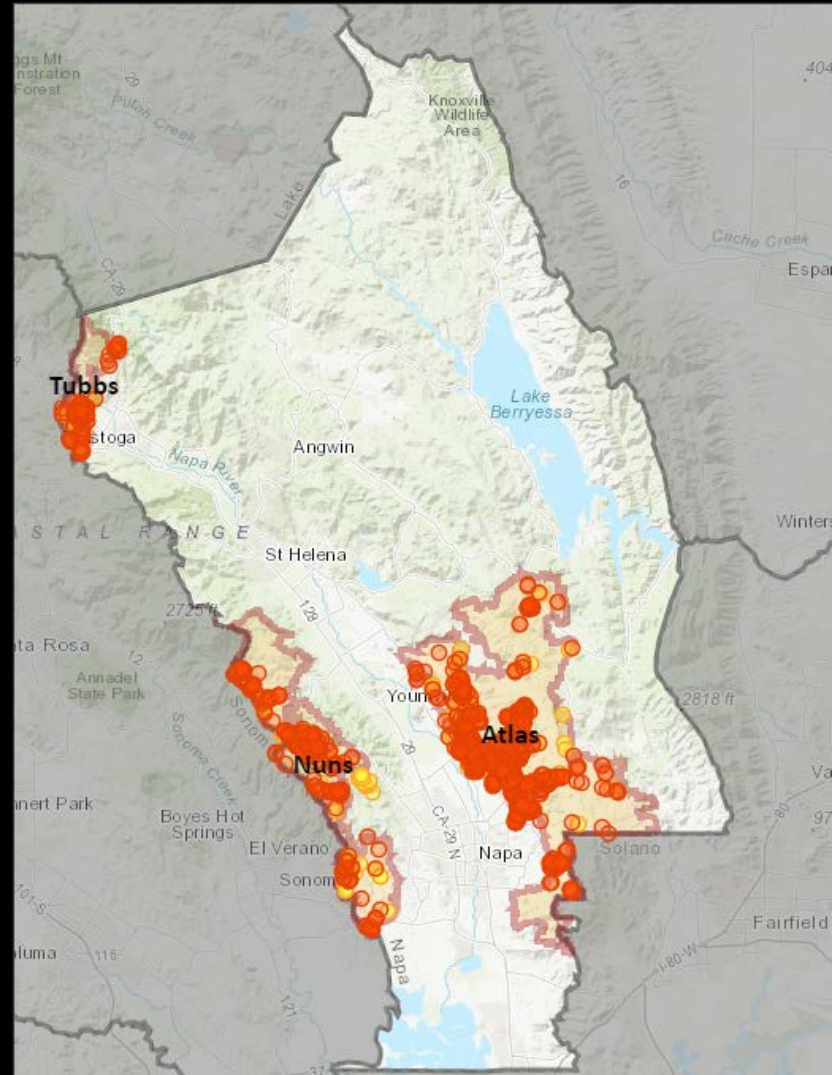Last update: 8 hours ago

YELLOW TAGS

148 🚩

(count includes commercial and residential structures, main structures, outbuildings, & accessory structures)

Last update: 8 hours ago

TOTAL ACRES BURNED:

69,873

(based on Cal Fire fire perimeters, clipped to county boundary)

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Recovery Operations "Center"

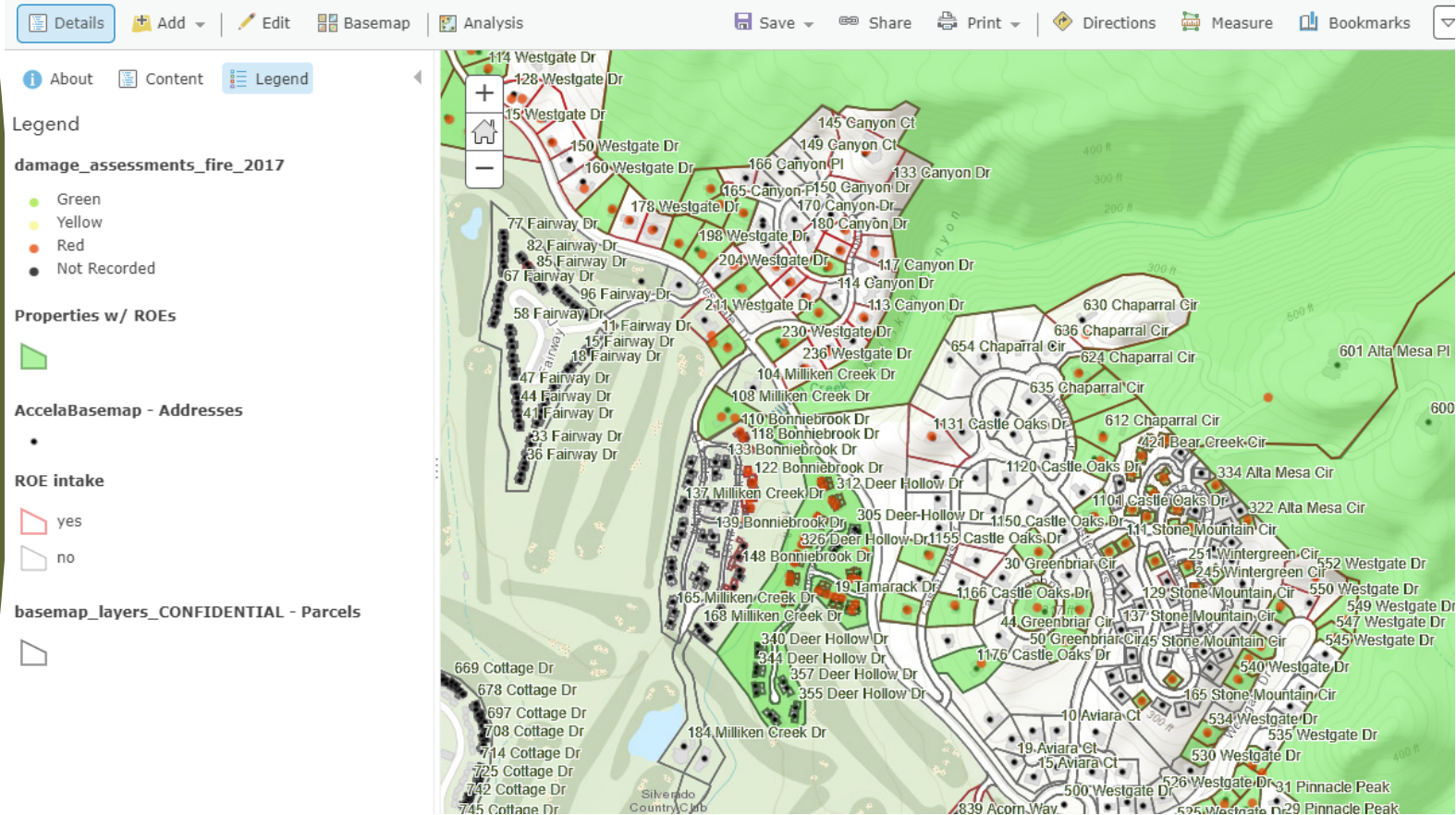- County's Essential Data Used
  - Building Footprints / Addresses
  - Damage Assessments (County)
  - Right-of-Entry/Debris & Ash Removal

- Others' Essential Data Used
  - Burn Scar Satellite Imagery
  - CalFire's Damage Inspections (DINS)

- Others' Resources
  - Additional User Accounts (ESRI)

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Recovery Operations "Center"

Obstacles Encountered

- Catering to Our Population/Infrastructure
  - **Static:** GeoMAC's Fire Perimeter Map Service (scalability)
  - **Interactive:** Heavy internal server traffic
    - Moved to AGOL (better load balance)
    - Permissions

- Resources
  - Ca. Dept. of Tech. Provided Assistance

- Data Locating & Processing
  - Coordinating with other agencies to not duplicate efforts
  - Burned Area Reflectance Classification (LiDAR)

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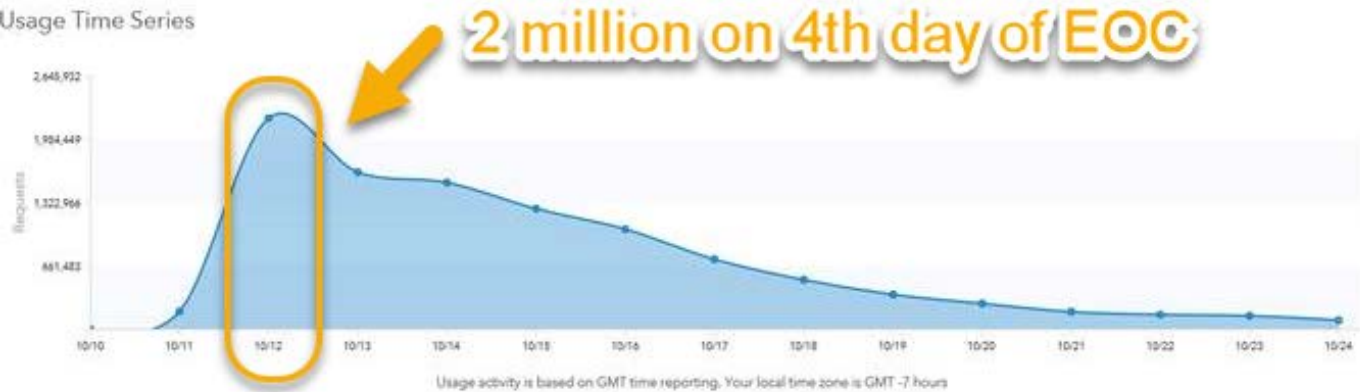# Obstacles Encountered

Usage details for the period:

Oct 10, 2017, 11:24:46 PM GMT - Oct 24, 2017, 11:24:46 PM GMT

Past 14 Days

Requests this Period
10,320,615

Avg Requests Per Day
737,186.79

Usage Time Series

2 million on 4th day of EOC

Usage activity is based on GMT time reporting. Your local time zone is GMT -7 hours

Obstacles Encountered

Sonoma Post Event Imagery Oct 14 2017

Overview

Digital Globe imagery collected on October 14, 2017

Tile Layer by karmstrong_SonomaMap

Created: Oct 15, 2017   Updated: Oct 15, 2017   View Count: 57,009

Description

Source imagery released via Digital Globe Open Data site.
https://www.digitalglobe.com/opendata/santa-rosa-wildfires/post-event

10.14.17 - 104001003356F400

Open in Map Viewer

Open in Scene Viewer

Open in ArcGIS Desktop

Details

Source: Map Service
Created from: Oct14, Tile Package
Size: 5,851 MB
★★★★★

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What does all of this mean
for future disasters?

What can _we_
do to better prepare?

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County After Action Items

- Hardware/Software
- Data
  - Update building, address, road/sign data
  - Sharing data
- Infrastructure / Maintenance
  - Script/batch files push data to EOC work stations
  - Prep Portal/AGOL framework
- Networking
  - CERT
  - People / Agencies / Workshops

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County After Action Items


```
EOC_Data.py - \\gissrvrprod04\c$\Utilities\EOC_Data\EOC_Data.py (2.7.13)                    —    □

File  Edit  Format  Run  Options  Window  Help

# ----------------------------------------------------------------------------
# The BAT file that executes this script should be scheduled using the Windows Ta
#  run under the Domain01\GISAdmin account

# Description: This script will export out all the data that is needed for the EO
# in the gdb found at D:\\workdata\EOC\EOC_Local.gdb
# ----------------------------------------------------------------------------

# Import arcpy module
import arcpy, datetime
import warnings
from arcpy import env
import os

try:
    # set the workspace
    eh_workspace = 'Database Connections/gis - env_mng.sde'
    lafco_workspace = 'Database Connections/gis - lafco.sde'
    lgim_workspace = 'Database Connections/gis - LGIM.sde'
    maingis_workspace = 'Database Connections/gis - maingis.sde'
    planning_workspace = 'Database Connections/gis - planning.sde'
    pw_workspace = 'Database Connections/gis - pw.sde'
    sheriff_workspace = 'Database Connections/gis - sheriff.sde'

    workspace = [eh_workspace, lafco_workspace, lgim_workspace, maingis_workspace,
    print "setting the workspace..."

    print "copying layers"
    for ws in workspace:

        arcpy.env.workspace = ws
        print "workspace " + ws
```

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Geospatial Networking

– National Alliance for Public Safety GIS Foundation

- Grassroots effort of multi-disciplinary/multi-level governmental participation (*monthly* meetings)

Federal Gov		**State Gov**		**Local Gov**	**Other**
USGS	CalOES	CDPH		County of Napa	San Jose Water
Nasa	CNG	CPUS		City of San Luis Obispo	Law Enforcement Coordination Center
Forest Service	SWRCB	Caltrans			Firescope
Homeland Security	DOC	CalFire / FRAP			
	DTSC	CA Universities			

- Goal: Develop metrics of success for sharing data

  – What data/types are being used?

  – What data/types agencies would like to have?

  – How data is being used (analyses, policy making, etc)?

  – Who to contact for the data/services?

  – <u>How to share data?</u>

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Workshop After Action Items

- Currently: Data at many different levels of government with differing capabilities and security concerns

  - » [HISN](#), [HIFLD](#), [DAART](#), [Caltrans QuickMap](#), [Fire EGP,](#) CalOES' AGOL, FEMA

- Centralized Data! We can dream right?

  - » Access: Easy to get credentials

  - » Organized: Easy to find data

  - » Metadata: Easily comprehensible data

  - » Data Types: consumable web services, shps, geopackages (gpkg), kmls

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Workshop Items to Explore

- How do we do create this data dream?
  - » To start: active contact list
  - » Security of sensitive data
  - » Standards and definitions of data
  - » Less "perishable" data (extend past the incident)
  - » Imagery sourcing (quality, timeliness, compression)
  - » Priority of needs
  - » Feedback mechanism
  - » Hosting of a centralized database (size and personnel)
  - » Champions to push at the strategic level

Data for Thought

Can you make your data more

understandable, organized, and/or

accessible/consumable

for inter-agency and cross-agency use

for the next disaster?

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