



TEMA

STATE OF TENNESSEE

2016 Wildfires Observations and Lesson Learned

Patrick C Sheehan, Director
Tennessee Emergency Management Agency

June 27, 2018

A Few Highlights Prior to State of Emergency

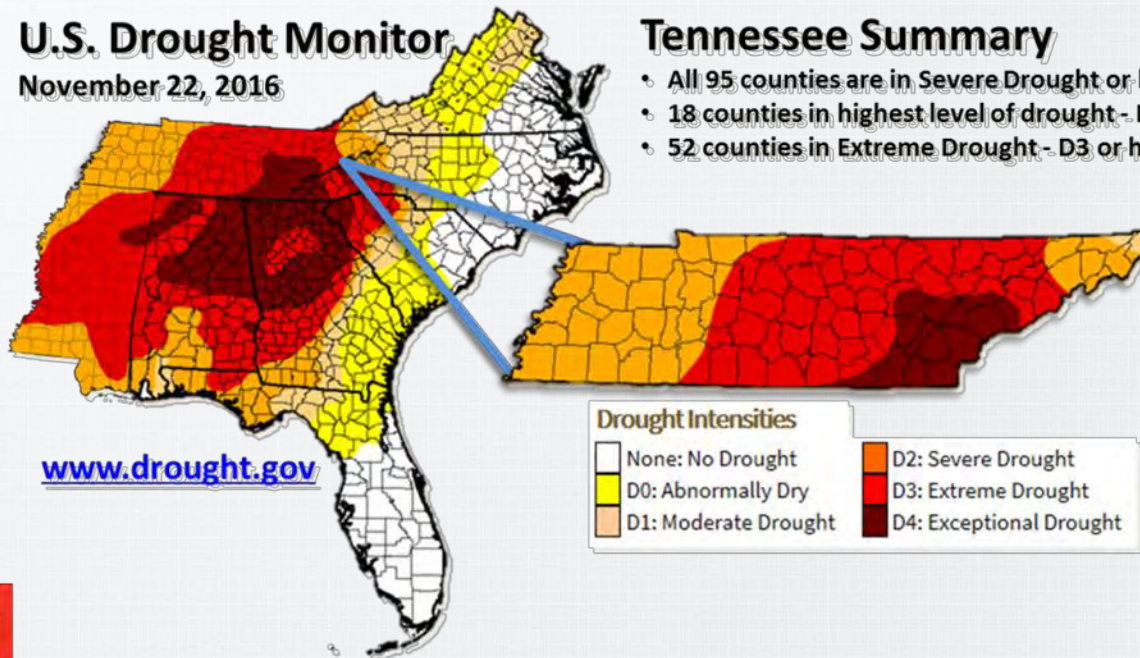
October 27, 2016 – TEMA began hosting coordination calls for local partners

As of Nov. 1, 2016 there have been 1,013 fires burning a total of 25,229 acres in TN



U.S. Drought Monitor

November 22, 2016



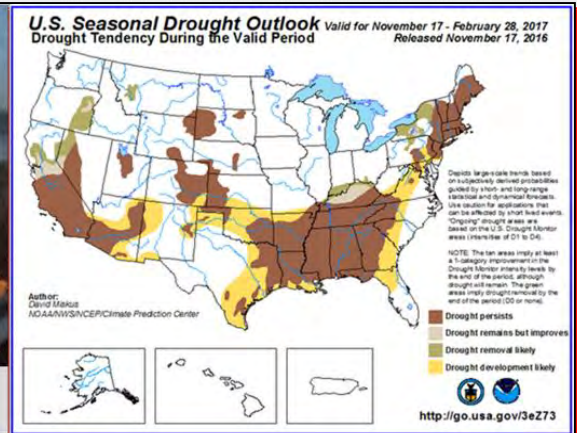
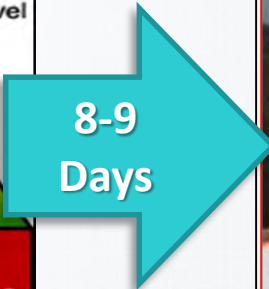
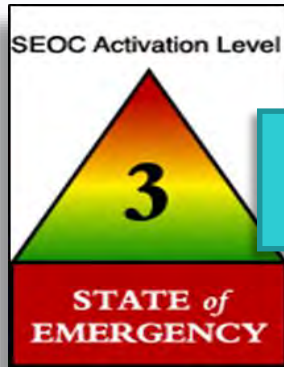
Tennessee Summary

- All 95 counties are in Severe Drought or higher
- 18 counties in highest level of drought - D4
- 52 counties in Extreme Drought - D3 or higher

Drought Intensities

None: No Drought	D2: Severe Drought
D0: Abnormally Dry	D3: Extreme Drought
D1: Moderate Drought	D4: Exceptional Drought

November 10: State of Emergency



TEMP*
activated at
1900 CST on
10 Nov 2016

Approved Fire Management Assistance Grants (FMAG)

- Smith Mtn Complex – **Nov 10**
- Flippers Bend Fire – **Nov 12**
- East Miller Cove Fire – **Nov 19**

*Tennessee
Emergency
Management
Plan (TEMP)



Smoke from wildfires – 12 Nov 2016 – NASA with notations by <http://wildfiretoday.com/>

November
27

Sunday, November 27

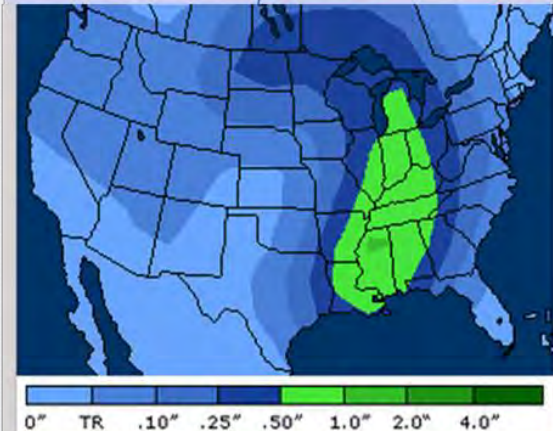
Why is Sunday important to an event that happened Monday? All of the same factors were in place with one very critical difference: **who was in Gatlinburg.**

Avg. Pop. of Gatlinburg on Sunday, November 27: **40,000**

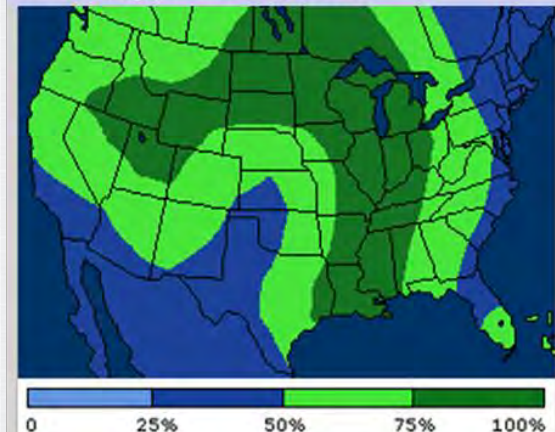
Avg. Pop. on Monday, November 28 (pre-event): **14,000**

Weather Graphic
Issued **Nov 27**

Precipitation Amount – Monday, Nov. 28, 2016 <http://www.accuweather.com>



Precipitation Probability – Monday, Nov. 28, 2016



Responding and Supporting Agencies and Organizations

- TEMA
- Agriculture-Division of Forestry
- Army & Air National Guard
- Commerce and Insurance-Fire Marshall
- Labor and Workforce Development
- Department of Corrections
- Department of Environment & Conservation
 - State Parks
- Department of General Services
- Department of Health
- Tennessee Highway Patrol
- Department of Safety and Homeland Security
- Department of Human Services
- Tennessee Bureau of Investigation
- American Red Cross
- Civil Air Patrol
- Tennessee Valley Authority
- Tennessee Wildlife Resource Agency
- U.S. Department of Interior
 - National Parks Service
 - U.S. Forestry
- U.S. Highway Administration
- Housing and Urban Development
- Salvation Army
- Department of Economic and Community Development
- Tennessee Department of Financial Institutions
- Tennessee Department of Transportation
- Department of Children Services
- Department of Veterans Services
- Tennessee Housing Development Agency
- Volunteer Tennessee
- Volunteer Active in Disasters
- National Weather Service
- Sevier County Emergency Management
- Fire Departments from throughout east and middle Tennessee

November

28

Monday, November 28



Photos of damage from the Chimney Tops 2 Fire in Gatlinburg from Nov 28-29, 2016



SEOC Activation Fall 2016

Nov 30

SitRep Graphic

Reported Storm
Damage Nov 29-30

Chimney
Tops 2 Fire



Pigeon Forge: Dealing with flare-ups and transitioning to recovery. Residents are all accounted for.

Gatlinburg: Seven (7) confirmed fatalities and hundreds of destroyed structures. Searches 50% complete for the estimated 15,500 acre fire area. All fires reported out.

10-15 homes damaged in Sequatchie near the Marion border

Meigs County reported damages and two fatalities (unconfirmed)

McMinn County Deerfield Estates Community (Athens) on SR 307 has reported multiple injuries and structural damage to homes. NWS has confirmed an EF-2 tornado in the area.

Polk County: Two (2) confirmed fatalities. 20 homes reported destroyed, hundreds of trees down, and Ocoee Community Post Office destroyed



NOTE: This information is from 30 November SitRep

State, Federal and NGO Agencies Involved

- **TENNESSEE EMERGENCY MANAGEMENT AGENCY**
 - 100 personnel engaged at local (direct to counties), regional (East RCC), and state level (SEOC) providing resource coordination, support organization, technical and operational advice, and management of State Agency and non-governmental partners responding to both the wildfire impacted and severe storm / tornado impacted counties
- **AGRICULTURE – DIVISION OF FORESTRY**
 - 54 state personnel worked on the Chimney Tops 2 fire; this includes staff from East TN, Cumberland and West TN Districts;
 - Crews and equipment from multiple states as far away as Alaska were brought in through the state-to-state forestry compacts
- **MILITARY DEPARTMENT (ARMY & AIR NATIONAL GUARD)**
 - 200 personnel engaged in wildfire support in Sevier County with aerial fire suppression, the transporting of firefighting personnel on scene, conducting door-to-door welfare checks, removing debris, and supported donations centers.
 - (2) UH-60s and (1) LUH-72 and multiple crews
 - Bambi water drops
 - Buckets of Water Dropped: 1,091 (927,350 gallons)
 - Reconnaissance missions
 - Cumulative Man Days: 1,400
- **COMMERCE & INSURANCE**
 - **Fire Marshal**
 - 8 fire investigators, 10 consumer services personnel, and 12 insurance personnel supported the fire mutual system, licensing requirements, and direct services in the field for survivors in Sevier County
 - Supported the State EOC for duration of response operations
 - **Insurance**
 - Staff coordinated one-stop shop for staff and insurance companies to be there for those impacted
 - Coordinated an unprecedented level of information sharing from insurance companies to assist with disaster analysis
 - The information sharing enabled TEMA, C&I, National Guard and Sevier County to conduct groundbreaking and innovative damage and impact analysis and mapping

State, Federal and NGO Agencies Involved

- **HEALTH**

- 35 State and Metro Regional personnel providing direct support in the field coordinate medical EMS missions, providing direct medical treatment, fatality management, and family assistance program support
 - Nurses supported shelters, including flu and tetanus shots for responders and sheltered
 - Vital Statistics Center supported replacement birth certificates

- **EMERGENCY MEDICAL SERVICES**

- 11 ambulance strike team members directly deployed providing medical transport
- Coordinated ambulances and staging areas, provided a Mobile Operations Center and a Mobile Morgue for Medical Examiner

- **SAFETY AND HOMELAND SECURITY**

- Provided mobile license unit to Sevier county to assist citizens

- **HIGHWAY PATROL**

- 56 personnel on strike teams immediately engaged to support evacuations and warnings
- 50 personnel worked on welfare checks in Sevier, McMinn, and Polk counties, also provided traffic control

- **ENVIRONMENT & CONSERVATION**

- Up to 36 personnel provided tactical information and field support in the SEOC and another 15 personnel in field offices
- Continuing to provide technical expertise on debris, waste and environmental impacts
- Mobile air monitoring, debris site permitting, and food facility inspections

- **STATE PARKS**

- 36 personnel engaged in direct firefighting in Sevier County with 2 personnel providing reconnaissance and 5 assisting with welfare checks.

- **GENERAL SERVICES**

- 6 personnel worked at the SEOC to identify resources and support emergency purchases for all state agencies engaged in response

State, Federal and NGO Agencies Involved

- **HUMAN SERVICES**
 - Support and coordination of shelter operations, human needs, and family assistance in Sevier County
 - Case managers to assist with applications for nutrition assistance
 - Coordinating the Human Services Branch of the State EOC
- **GENERAL SERVICES**
 - 6 personnel worked at the SEOC to identify resources and support emergency purchases for all state agencies engaged in response
- **LABOR AND WORKFORCE DEVELOPMENT**
 - Mobile Unemployment Coaches
 - Unemployment claims processing and reemployment assistance
- **TDOT**
 - Provided roadway and debris clearance, traffic control, and signage support throughout all events
- **TBI**
 - 30 agents in Sevier County with 17 analysts provided investigative work
 - Opened and closed over 200 missing persons cases via 1-800-TBI-FIND
 - Processed multiple scenes

State, Federal and NGO Agencies Involved

- **TOURIST DEVELOPMENT**
 - 2 personnel in the SEOC researched and contacted lodging options for survivors, and providing disaster information to Tennessee Welcome Centers and supported the lodging of first responders
- **FINANCE AND ADMIN**
 - STS- GIS services and other IT support
 - Grant administration advisory support
- **CORRECTIONS**
 - Staff at SEOC providing coordination support for law enforcement emergency services function
- **WILDLIFE RESOURCES**
 - 15 personnel supported law enforcement in wellness and search operations, and traffic control

State, Federal and NGO Agencies Involved

- **Volunteer Tennessee**
 - Coordinated with VOAD to support donation centers, (multiple facilities), call centers, volunteer reception center, MARC and thousands of volunteer hours and dollars
 - Provided meals and snacks to responders and residents
- **AMERICAN RED CROSS**
 - 6 personnel managing shelter operations in the SEOC and dozens of volunteers helping with mass care and shelter operations in counties
 - Operated multiple shelters with up to 1,212 shelters (Nov. 29)
 - Provided disaster mental health volunteers, visits, case work and health services to clients
- **CIVIL AIR PATROL**
 - 4 personnel provided reconnaissance flights and photo support (photos of impacted areas) (wildfire/tornado)
 - Assisted with the donations and volunteer hotline
- **TENNESSEE VOLUNTARY ORGANIZATIONS ACTIVE IN DISASTERS**
 - Donation and volunteer coordination at the SEOC and in the field

State, Federal and NGO Agencies Involved

- **TENNESSEE VALLEY AUTHORITY**
 - Supporting operations at SEOC coordinating information for power grid infrastructure and electricity restoration statuses
- **FIREFIGHTING RESOURCES IN THE FIELD**
 - 400 personnel (would grow to over 1000) and over 200 pieces of equipment / apparatuses deployed to Sevier County for firefighting from approximately 148 departments from throughout middle and eastern Tennessee. These resources were coordinated by TEMA's ESF-4 comprised of personnel from C&I's Fire Marshal's Office and partners of the Fire Mutual Aid System, including TCSA and local fire chiefs.
- **Communications (TEMA and Others – including Private Sector)**
 - TEMA coordinated and AT&T donated a cache of 30 cell phones for response
 - AT&T provided mobile cell tower equipment, other communications assets and shared assets to improve communications in Sevier County
 - Verizon Mobile provided a cell tower on wheels
 - TEMA Communications provided multiple caches and installations of interoperable communications equipment

YOU ARE NOT READY

- Prisoners of our past
 - Curse of Experience
 - Curse of Knowledge
- Importance of Imagination
- Pre-Mortems
- If something CAN happen it WILL happen

Leverage Other Partners

- Rotarians
- Dolly Parton Foundation
- Other agencies
 - Civil Air Patrol
 - Air National Guard Battle Damage and Geospatial Analysts
 - GIS personnel
 - Insurance (thanks to the leadership of Commissioner Julie Mix McPeak)

We're going to segue into GIS for a moment



Segue: Notes from our GIS Team and Ad Hoc Working Group

1. Federal and Local GIS Resources

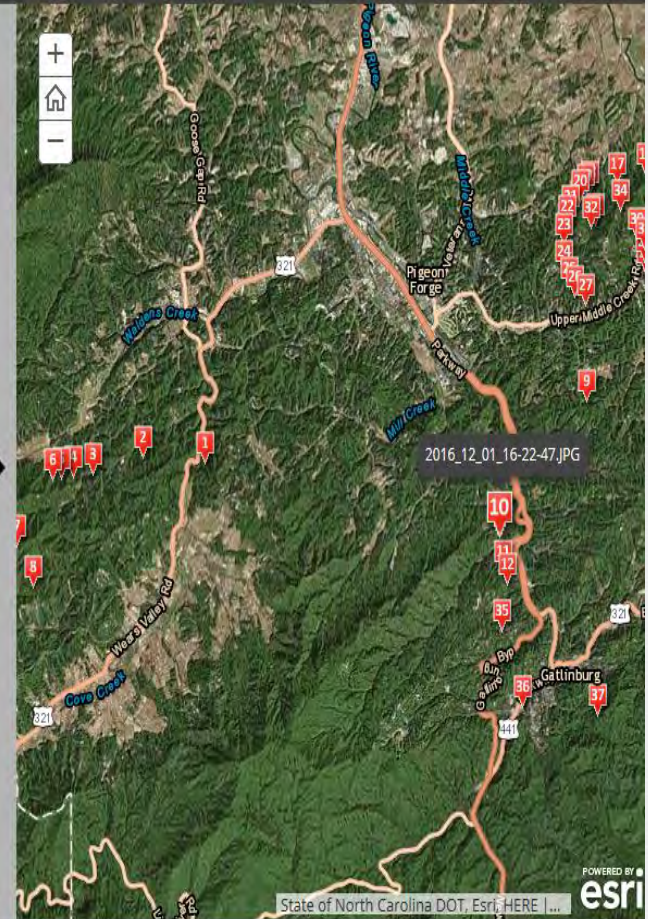
- Proactive Understanding
- Be ready to Utilize Multiple tools (Preset Tools, Apps, Maps and Templates)
- Update credentials regularly and Setup Notifications if there is an ability to


CAP photos 12

Dec. 01, 2016

Switch to builder mode

TEMA



-  2016_12_01_16-22-47.JPG
-  2016_12_01_16-23-04.JPG
-  2016_12_01_16-23-10.JPG
-  2016_12_01_16-28-34.JPG
-  2016_12_01_16-28-53.JPG
-  2016_12_01_16-29-03.JPG
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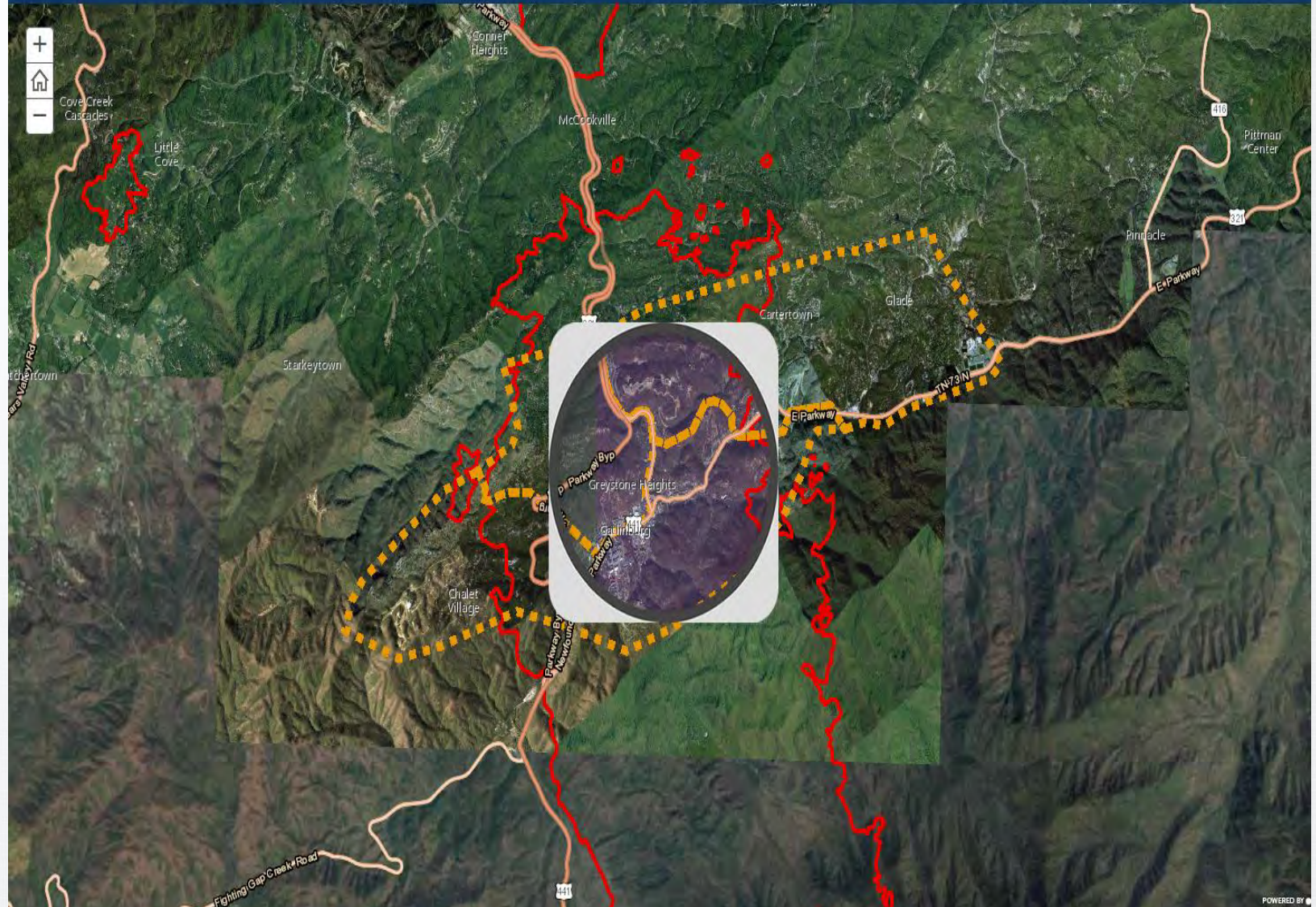


2016 Wildfire_Gatlinburg

compare pre and post imageries

Switch to builder mode

TEMA



POWERED BY

- Update credentials regularly and Setup Notifications if there is ability to. Add to your calendar otherwise

DigitalGlobe | EVW

Homeland Infrastructure Foundation-Level Data (HIFLD)

DHS.GOV | DHS.GIT | FGDC.GOV | HIFLD

HIFLD Open Data

This site provides National foundation-level geospatial data within the open public domain that can be useful to support community preparedness, resiliency, research, and more. The data is available for download as CSV, KML, Shapefile, and accessible via web services to support application development and data visualization.

For updates about HIFLD data, along with known shapefile conversion issues, please access the HIFLD notifications page located [here](#).

Find Data

Search HIFLD Open

Internet Explorer 9 and 10 will no longer be supported as of April 1, 2017.

GIS Projects

Elevation | LIDAR

DIRM

TIPS

TNEMP

The Tennessee Information for Public Safety (TIPS) Project

Using GIS Data Layers to Benefit the Public Safety Agencies of Tennessee

The Tennessee Information for Public Safety (TIPS) product is a comprehensive dataset that contains various Geographic Information System (GIS) data layers benefiting public safety agencies within state and local government. The core layers in this product are street centerlines, address points, and ESN boundaries. To sustain the long term use of these GIS data layers in a variety of State and local GIS applications, appropriate data maintenance roles and responsibilities must be established. Working with the Tennessee Emergency Communications Board (TECB), STS-GIS Services is under contract to help facilitate the maintenance of the TIPS product. Working with local emergency communication districts and TrueNorth Geographic Technologies, STS-GIS Services will be consuming locally updated geometry and tabular information (street addresses, names, etc.) and integrating these local updates into a single, consolidated and standardized statewide dataset. Moreover, data quality is based on the ability of STS-GIS Services to develop and adhere to specific data maintenance standards. The following documents and links provide more information on the specific street centerline and addressing standards that STS-GIS Services and local districts will use to maintain this statewide database.

Current Production

- [Status Map](#)

GIS Information

- [Tennessee Information for Public Safety \(TIPS\) Product Specifications v5.0 \(3/2011\)](#)

Problems Logging In? | Contact DG at info@digitalglobe.com or 1-866-810-2297 if you have problems logging in.

Document

EVW

EVW

EVW

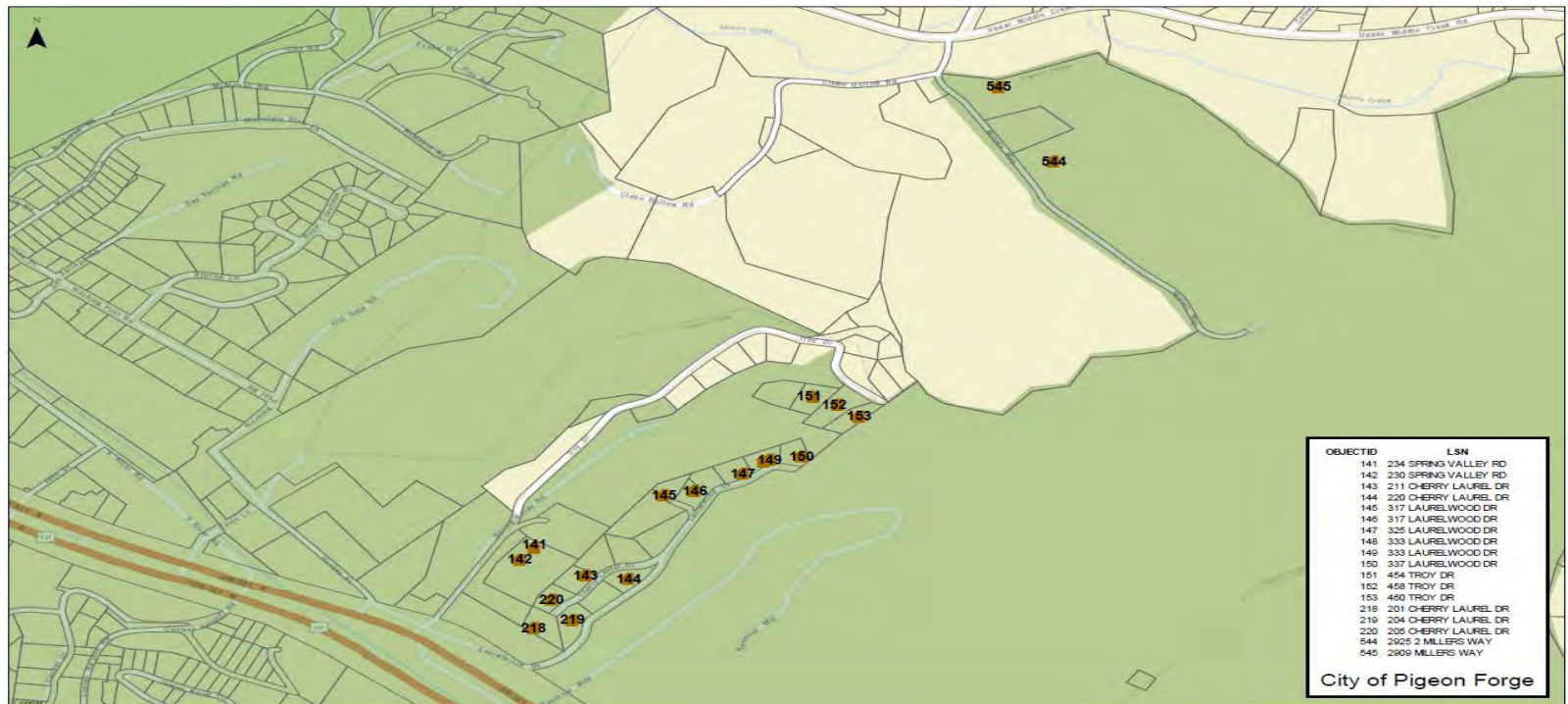
ImageConnect.biz

2. Connection and Usability

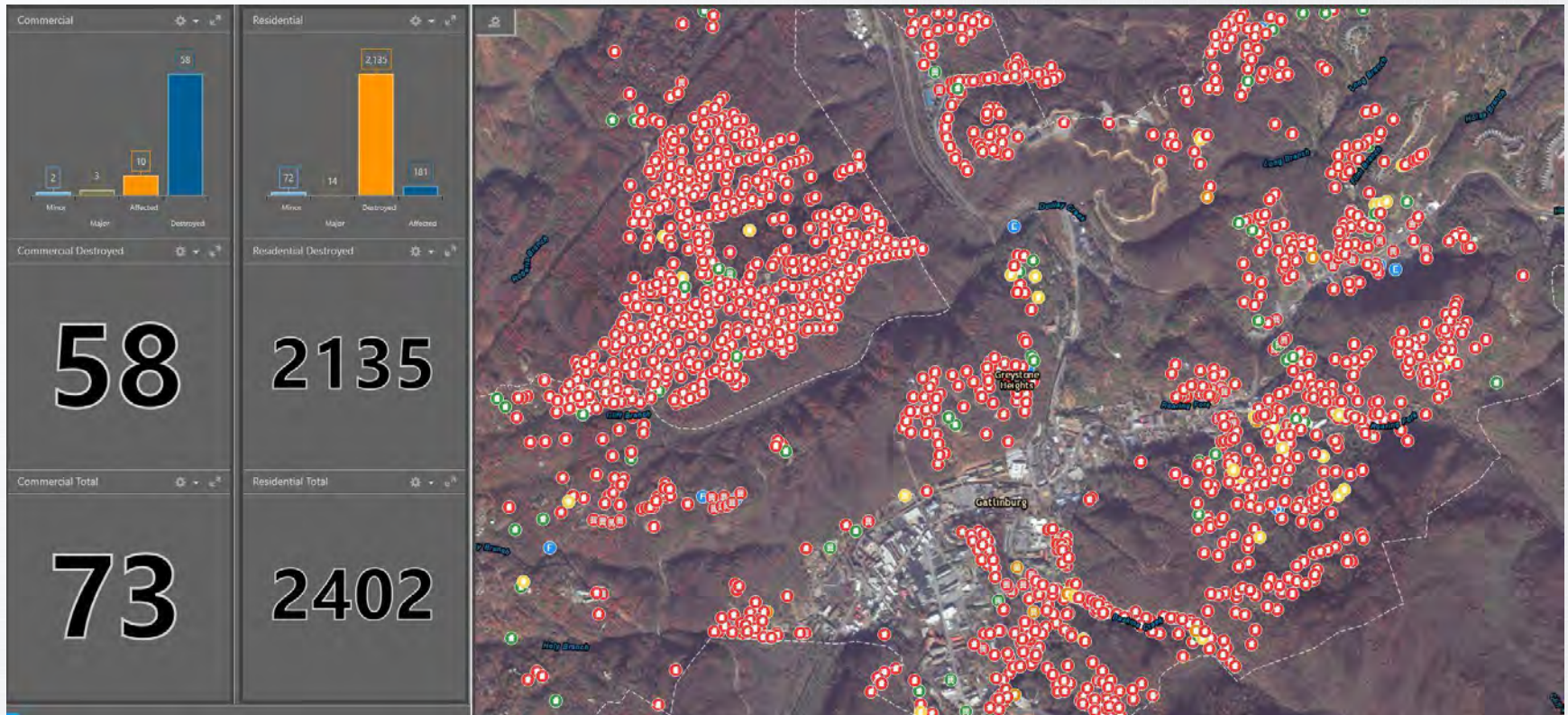
- Accessibility to Resources (FEMA, NGA, USGS, DOE Eagle-I, HSIP/HIFLD data...Local NG911, Property data, Damage Assessment....)
- Experience of different GIS data models (vector, raster and 3D)
- Knowledge of Local GIS data
- Shareable Environments (AGOL, S/FTP, Google Drive, GIS Server and Email)

3. Continuous Support

- Continuous Support for Local
- Support for Public Assistance Section



Sevier County





About



Legend

Sevier County Structure Status

This interactive map provides the status of individual structures. More information will be added as data is processed. These assessments do not evaluate soundness of structures.

Click or tap on the links below to zoom to specific communities and on the map for more specific information.



Bookmarks

Gatlinburg

Cobbly Nob

Pigeon Forge

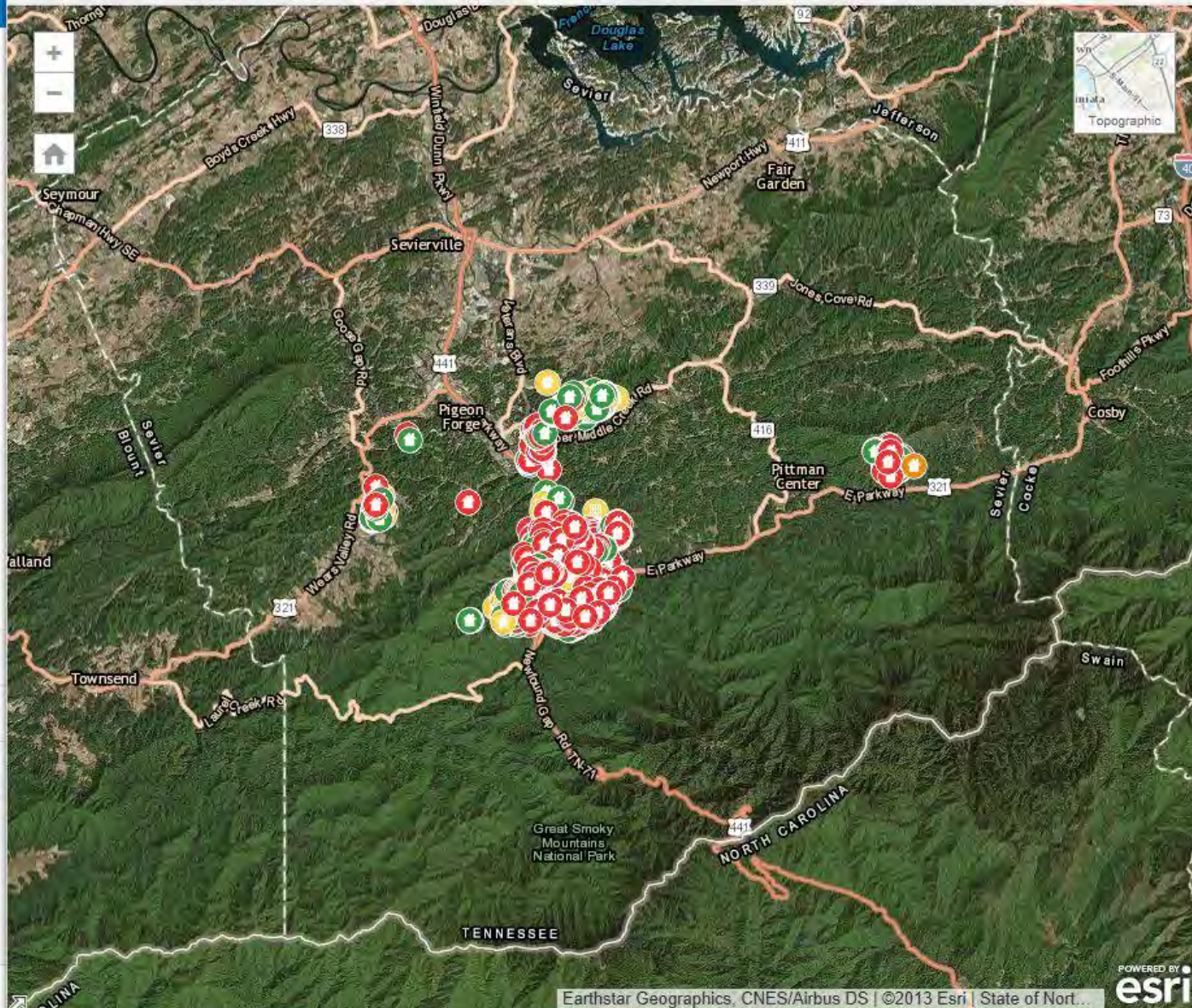
Wears Valley

Shell Mountain

Sevier County

Sevier County Structure Status

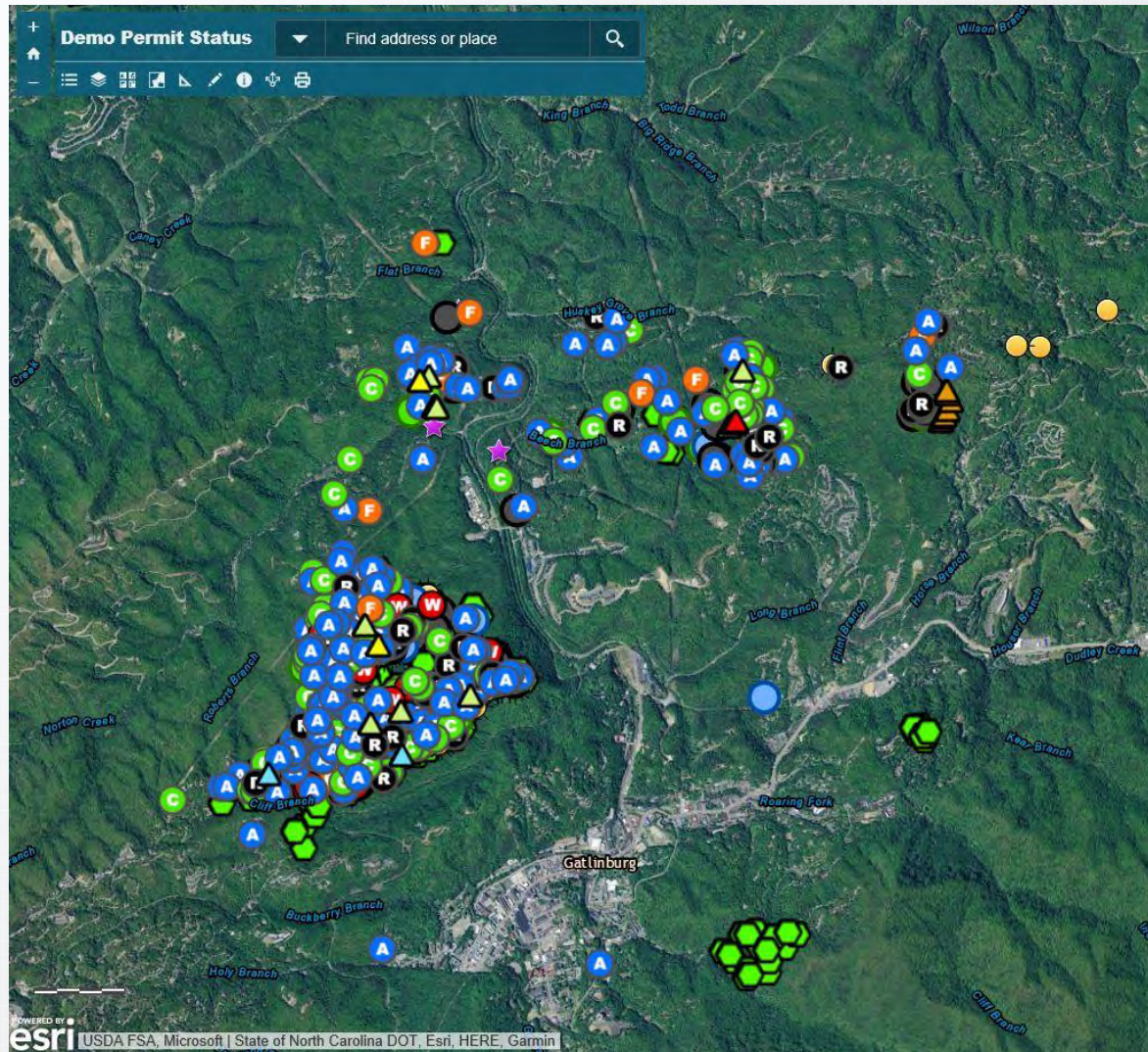
Find address or place



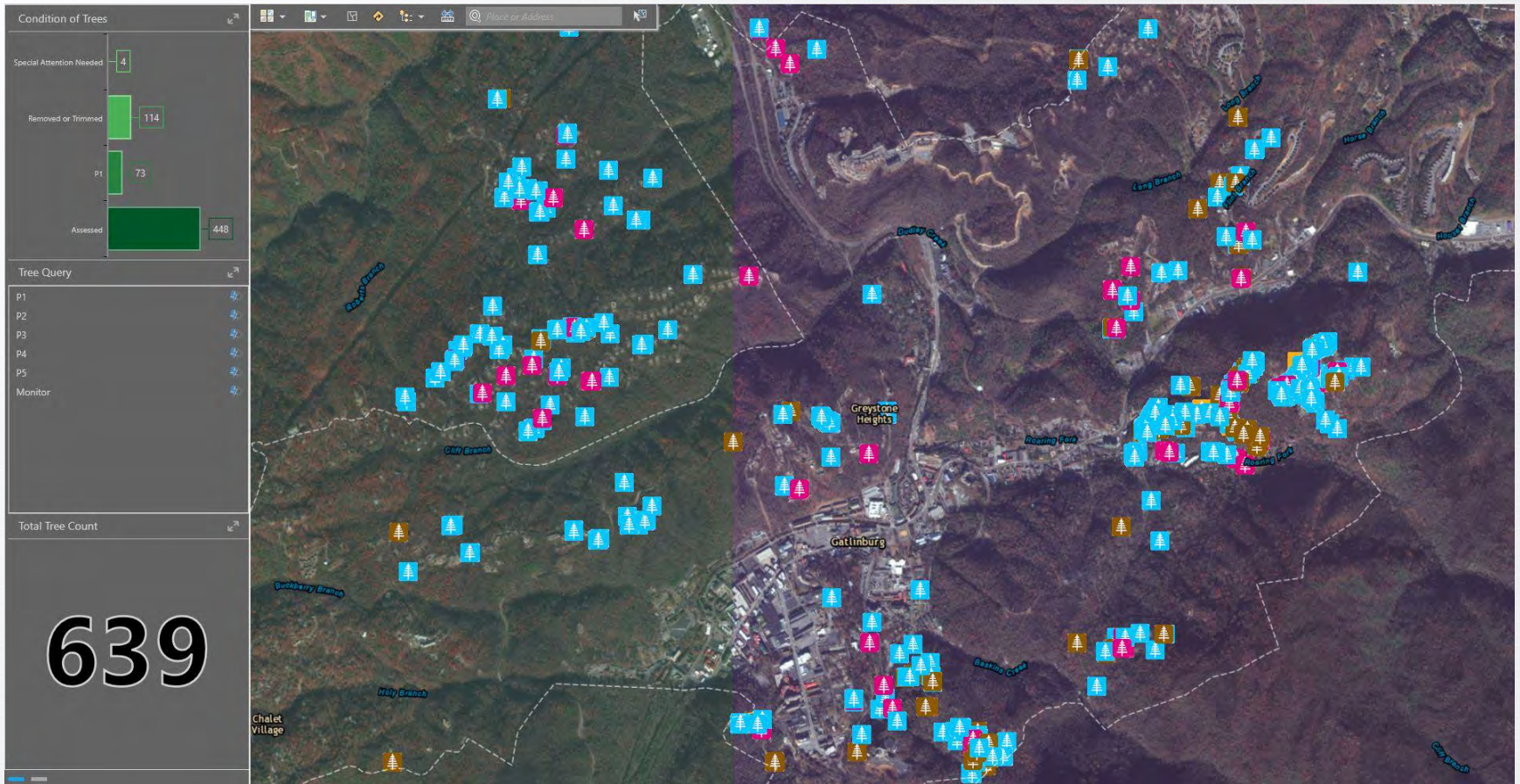
Earthstar Geographics, CNES/Airbus DS | ©2013 Esri | State of North...



Sevier County



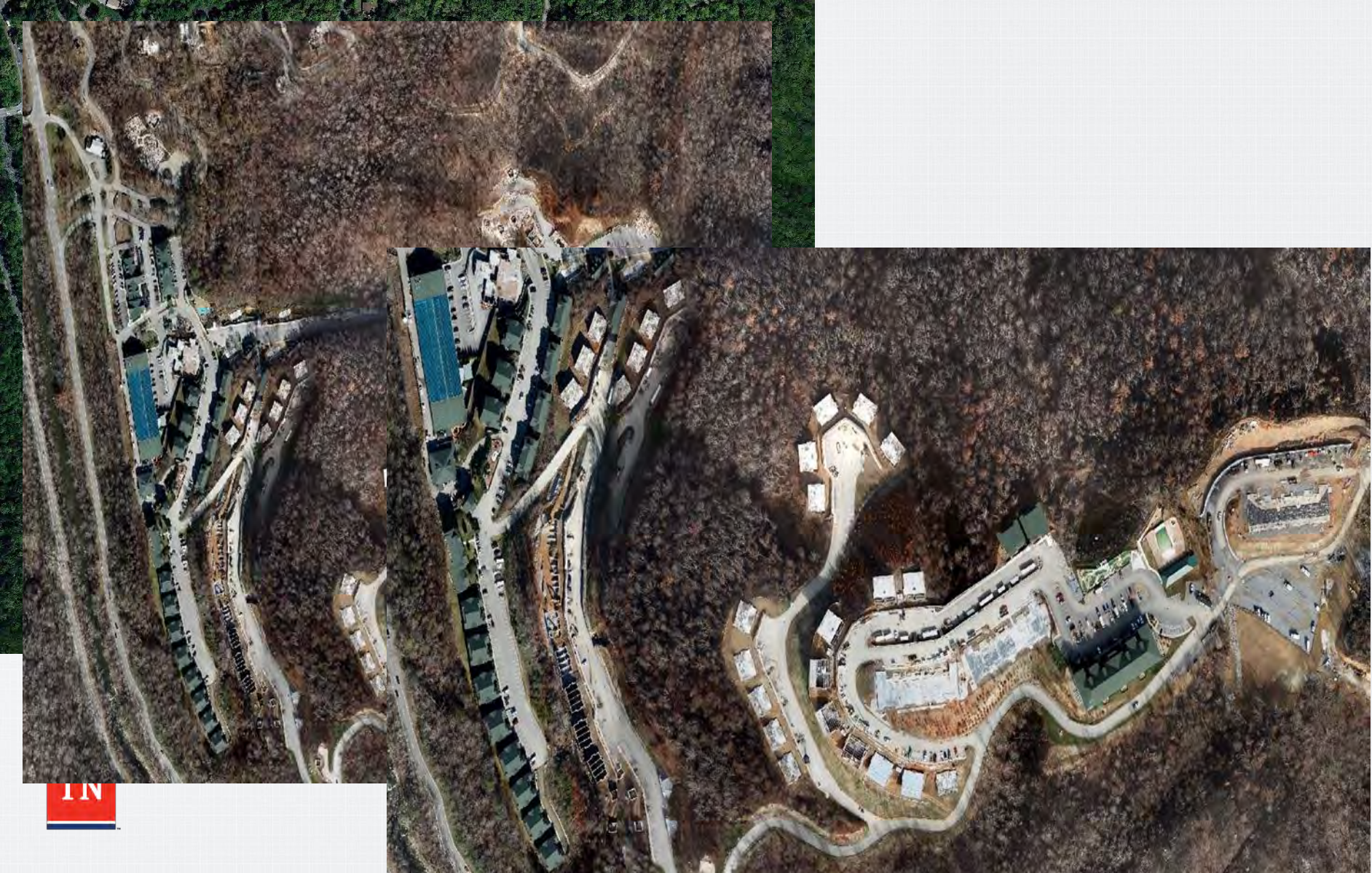
Sevier County



Sevier County – Before – Immediate – 2 month



West Gate



North Chalet Village



118 ISRG Response Snapshot

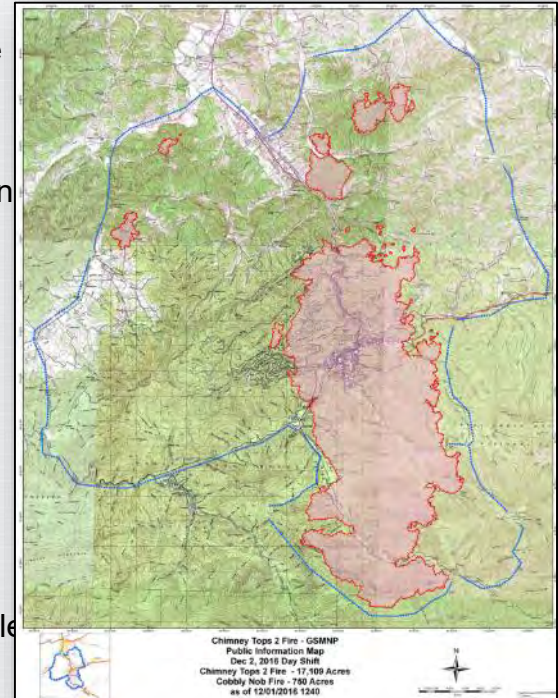
- **Background:**

- Located on Joint Base Berry Field in Nashville, TN / FEMA Region 4
- Federal mission is to provide full-spectrum target development and kinetic strike assessment support to warfighters
- Skillsets easily translate to provide support to JFHQ-TN/civilian entities in pre-disaster planning and post-disaster assessment and response efforts
- Collocated with TNARNG aviation unit, including 3 x UH-72s with MEP (Full Motion Video)



- **Timeline:**

- 01 Dec 16 – 118 ISRG representatives met with JFHQ-TN-JEOC/TEMA (MFR/PUMs in place to cover intel oversight)
- 02 Dec 16 – Maj Ellis (236IS/DO) in place at JFHQ-TN-JEOC; TSgt Keesee (118 ISRG) in place at Rocky Top Command Post in Gatlinburg; Products started flowing from 118 ISRG reach back support in Nashville
- 03 Dec 16 – SSgt Graham-Dean (118 ISRG) in place at Rocky Top Command Post in Gatlinburg; Refining RFIs/products as situation evolved
- 04 – 09 Dec – Reach back, on-site EOC support continue



- **Strengths:**

- Support from leadership; Liaisons at the EOCs were vital
- Interoperable with civilian agencies/platforms through available unclassified systems/commercial software
- Comm support (locally and in Gatlinburg)
- Trained and motivated airmen to step up
- Adapt on the fly; no flying assets, only commercial satellite imagery
- Support and imagery/information from USGS, ESRI, and NPS was invaluable



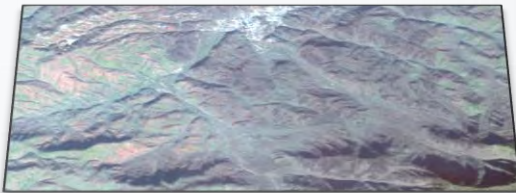
118 ISRG Gatlinburg Damage Assessments

General Methodology:

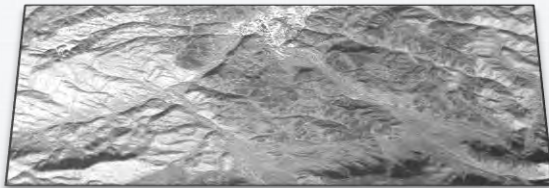
Vector Data



World View
Multispectral Imagery



World View
Panchromatic Imagery



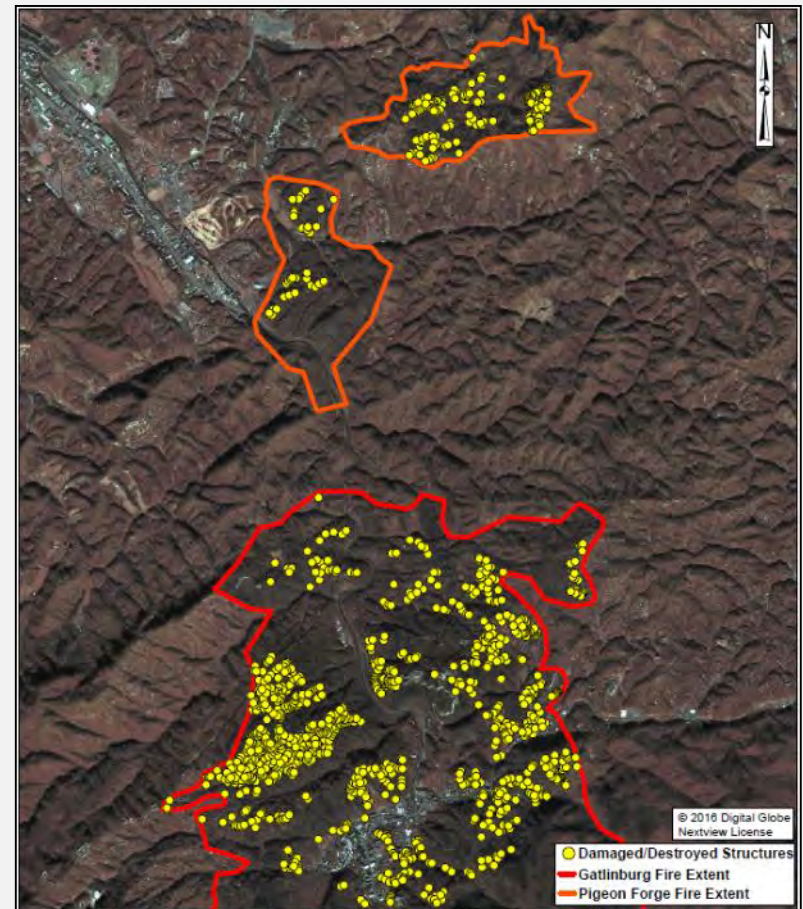
Shapefile

KML



06 Dec 16 Damage Assessment Total:

**1,292 Damaged/Destroyed Structures
for Entire Identified Fire Extent**





GATLINBURG, TN
GREYSTONE HEIGHTS ROAD DAMAGE
ASSESSMENT
 GEOS: 354309N 0833052W
 MGRS: 17SKV7255455715
 DOI: 01DEC2016



UNCLASSIFIED//
FOUO

ATTENTION: This document contains U.S. persons information which has been included consistent with all applicable laws, directives, and policies.

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➔ Destroyed Structure
➔ No Damage

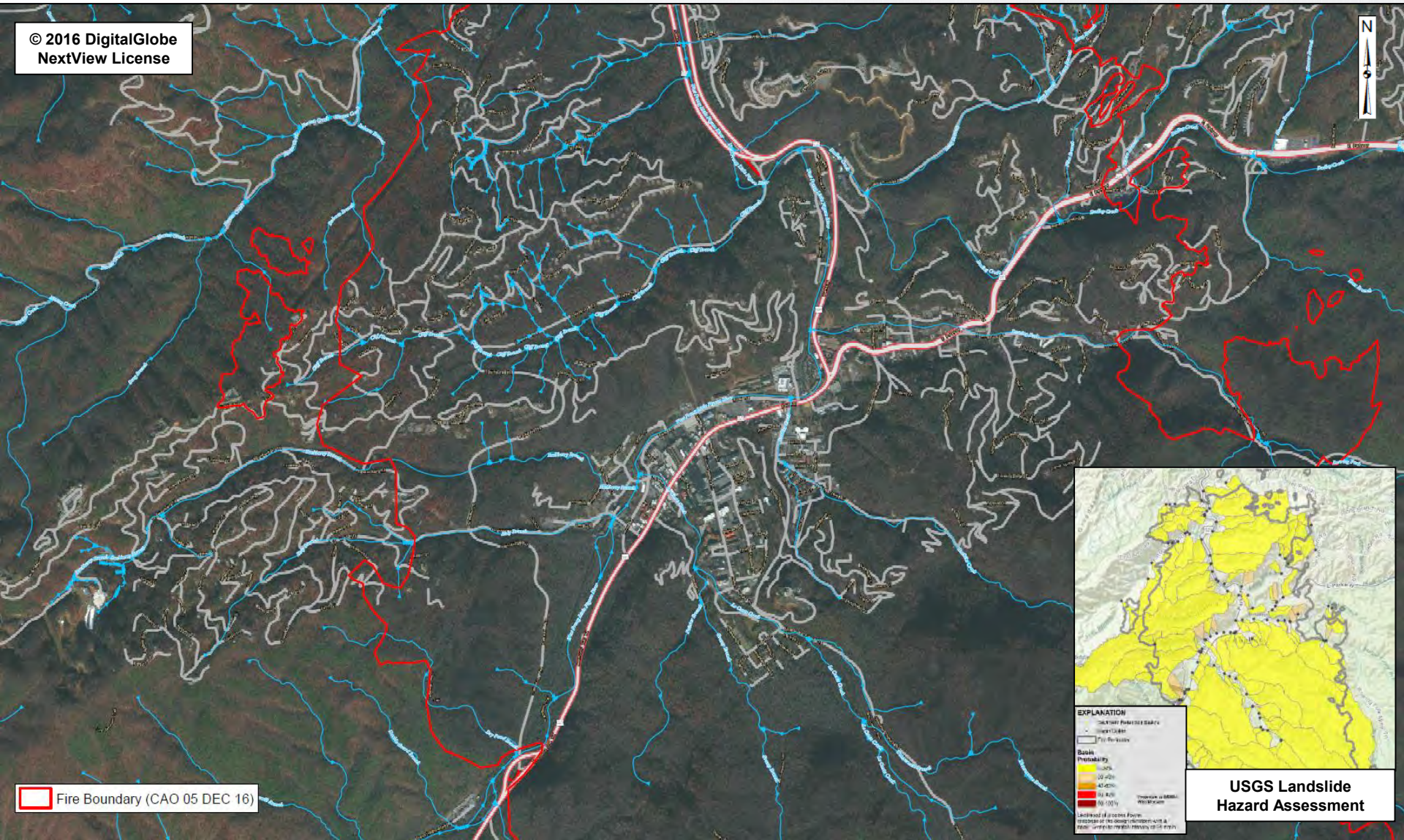
UNCLASSIFIED//
FOUO

Analyst Comment: Central Section of Greystone Heights Road is assessed as accessible/unobstructed. 10 structures observed; 8 structures assessed as destroyed and 2 structures assessed as no damage.

118 ISRG/IAA
 DSN: 844.8258/Comm: 615.660.8258

Looking at Next Order Effects

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Fire Boundary (CAO 05 DEC 16)



Commerce and Insurance

- **December 2, 2016 – Data call issued by Commissioner McPeak**
 - “Address for policyholders across Sevier County”
 - Specified format and data fields
 - Assured confidentiality
- **Insurance companies responded following Monday, December 5**
 - More than 30 insurance companies submitted data
- **Conference call with insurance companies that week**
 - Explained our goals
 - Offered to share information, maps, resources
 - Establish trust

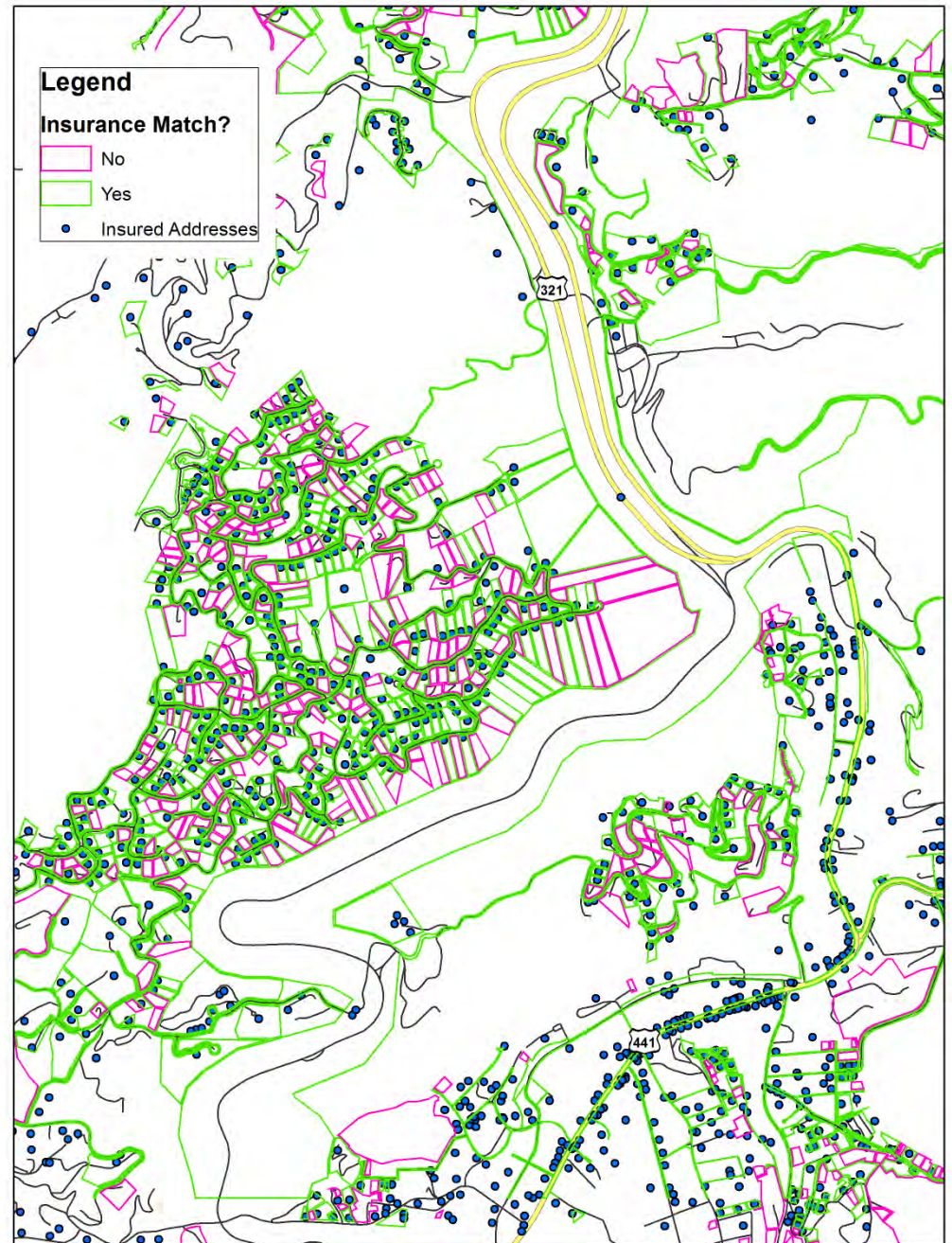
Commerce and Insurance



Commerce and Insurance



Commerce and Insurance



End of Segue

Long-Term Recovery

- Standing committees are rare
- We need better tools in place to enable rapid set up
- Need caseworkers
- Mountain Tough
 - Public Funding to Ensure All Aid / Donations Go to Eligible
- Leverage existing organizations for leadership / experience

Systems, Plans and Professionalism Matters

- Don't have to be perfect to make a difference
- Mutual Aid System let Tennesseans Answer the Call
 - Hundreds in just a couple of hours
- Early problems in staging area tied to lack of skill
 - Answer: get IMT team there to help manage
- *Professionalism doesn't mean paid

Relationships Matter

- New guy and the EMAT President
- Emergency Managers
 - TEMA District Coordinators and Regional Staff and County EMs
 - County EMs to County EMs
 - Fire Chiefs
 - Police Chiefs
- Community Leaders

There's no such thing as a “western” wildfire

- Conditions dictate what's possible
- The wildfire as it manifested on 28 November 2016 is a WAKEUP call
- Question your assumptions

Thing will go wrong

- This is something we all “know”
- Plan for redundancy
- Question your assumptions and what you know.
- Work to verify and close “open loops”
- Need to continue moving
- Keep your team / partners focused on next steps to avoid losing momentum or feelings of powerlessness
 - Focus on survivors
 - Focus on rebuilding, better

Find your Dolly Parton

- She's ours. Find your own.
- Generosity.
- Connection.
- Focus public attention.

Call to Action

- How easy is it for other's to work in your EOC? With you generally?
- Don't let what you know make you brittle and vulnerable
- Engage and be open
- The importance of standards
- Meet others where they are



Department of
Military

TEMA