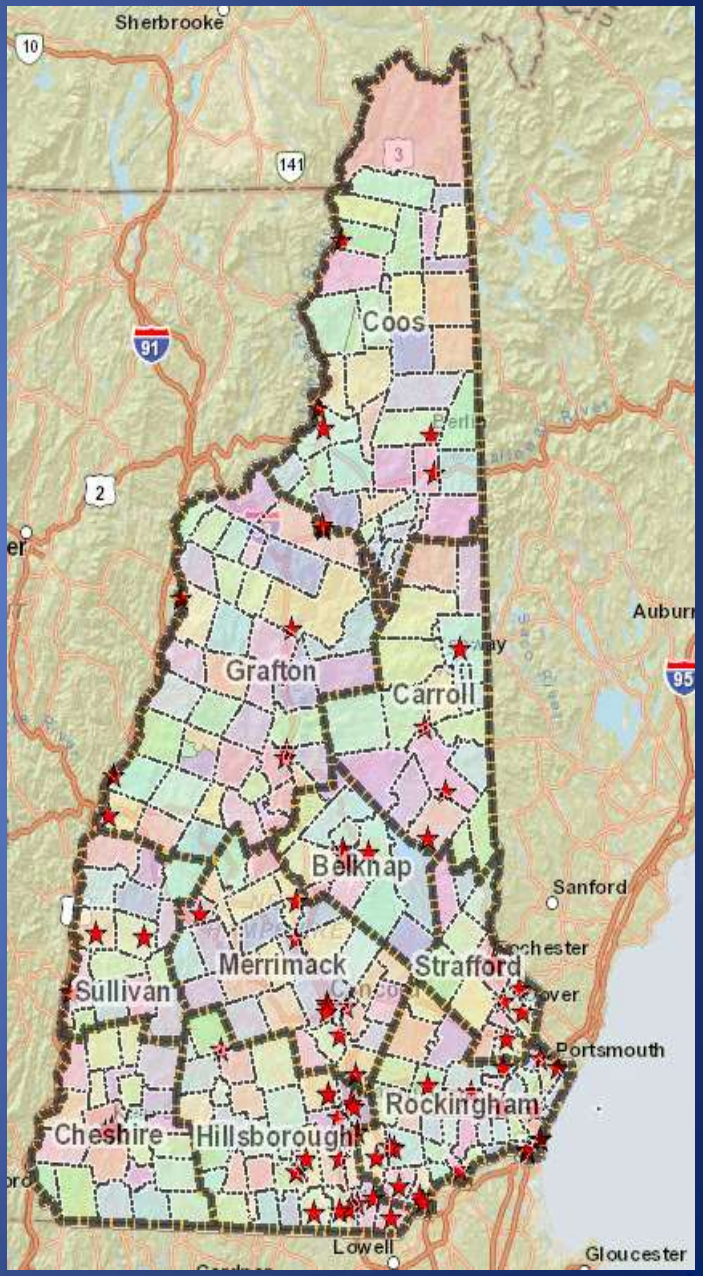
New Hampshire IT Council GIS Collaboration

April 29, 2016

Concord, NH

Division of Emergency Services and Communications (DESC)

- Operates NH E9-1-1 System
- Interacts with 234 Cities and Towns to maintain statewide Master Street Address Guide (MSAG), Street Address Guide (SAG), and Telephony Databases
- Maintains Communication Linkage with 70-24 Hour Dispatch Centers
- Provides GIS data and Mapping services to local, regional and state, Police, Fire and EMS agencies
- Provides GIS support to State Emergency Operations Center (SEOC)
- Operates NHVIEWW



GIS in New Hampshire Government

- Alive and productive
- A comprehensive business tool for agencies to utilize in achieving their:
  - Legislative mandates
  - Executive goals
  - Overall Service to Citizens and Visitors of NH
- Ahead of many states
  - without the headlines!

GIS Coordination among State Agencies

- Public Utilities Commission
  - Data Migration to GIS (Telecom, Electric, Gas)
- HSEM-Hazard Mitigation
  - Integrating and Migrating Federal, State, Regional and Local Hazard Mitigation Data into GIS
- NH Trails Bureau
  - Trail Data Collection and Mapping
- NH Forest and Lands
  - Fire Tower Map Modernization
  - State Park Addressing
- NHDOT
  - Shared statewide imagery purchase 2010 and 2015
  - Joint Development of a Road Closure application
- DHHS
  - Geocoding Services and web service hosting
- Department of Corrections
  - Parole and Probation Layer
- Department of Environmental Services
  - Dams
  - Drinking Water Systems
  - Waste Water Treatment Facilities
- Department of Revenue
  - Provides Statewide parcel layer to multiple agencies
- NH Executive Branch
  - Health Care Access for State Employee contract negotiations
- NH National Guard
  - NH Military Location Safety & Security

GIS Coordination among Local Agencies

- 234 Cities and Towns plus 25 Unincorporated Areas
  - Road and address data and maps
  - Special Event/Purpose Maps
  - Training and Exercise support
  - Coordination with NHDOT and Local Nodal Map synchronization
- Public Safety Dispatch Centers
  - Road and address data and maps
  - Special Event/Purpose Maps
  - Radio Transmitter Analysis
  - Mutual Aid Coordination maps
- Local School Districts
  - Exchange of Floor Plans and assisting Schools with the development of Emergency Response Locations(ERL's)
    - Which zone of the school is the emergency call originating from?
- Regional Planning Commissions
  - When authorized by the Town

Emergency Operations Center Support

- Create visual display of situations/conditions
  - Power Outages
    - Developed method to display accurate power outages by town and company.
  - Tornado Path
  - Schools Closed
  - Roads Closed
    - Developed Road Closure Application that uses 9-1-1 Roads to accurately create a road closure map
    - Used during hurricane outages to provide PUC with roads closed due to trees and wires down to facilitate faster restoration

NHVIEWW

- NH Visual Information and Emergency Watch/Web
- A Geographic Information System (GIS) that integrates various data repositories, owners and services into a data store with web based visualization and analytical tools
- Designed to answer the question….. WHERE?
- Built on a platform address points, critical infrastructure and key resources

GOAL

1 Address…….used in separate state agency databases (15 Elm St, apartment 1, Lancaster, NH)

15 Elm St
DRA

15 Elm St-Apt A
Voter Registration List

15 Elm Rd
DOC

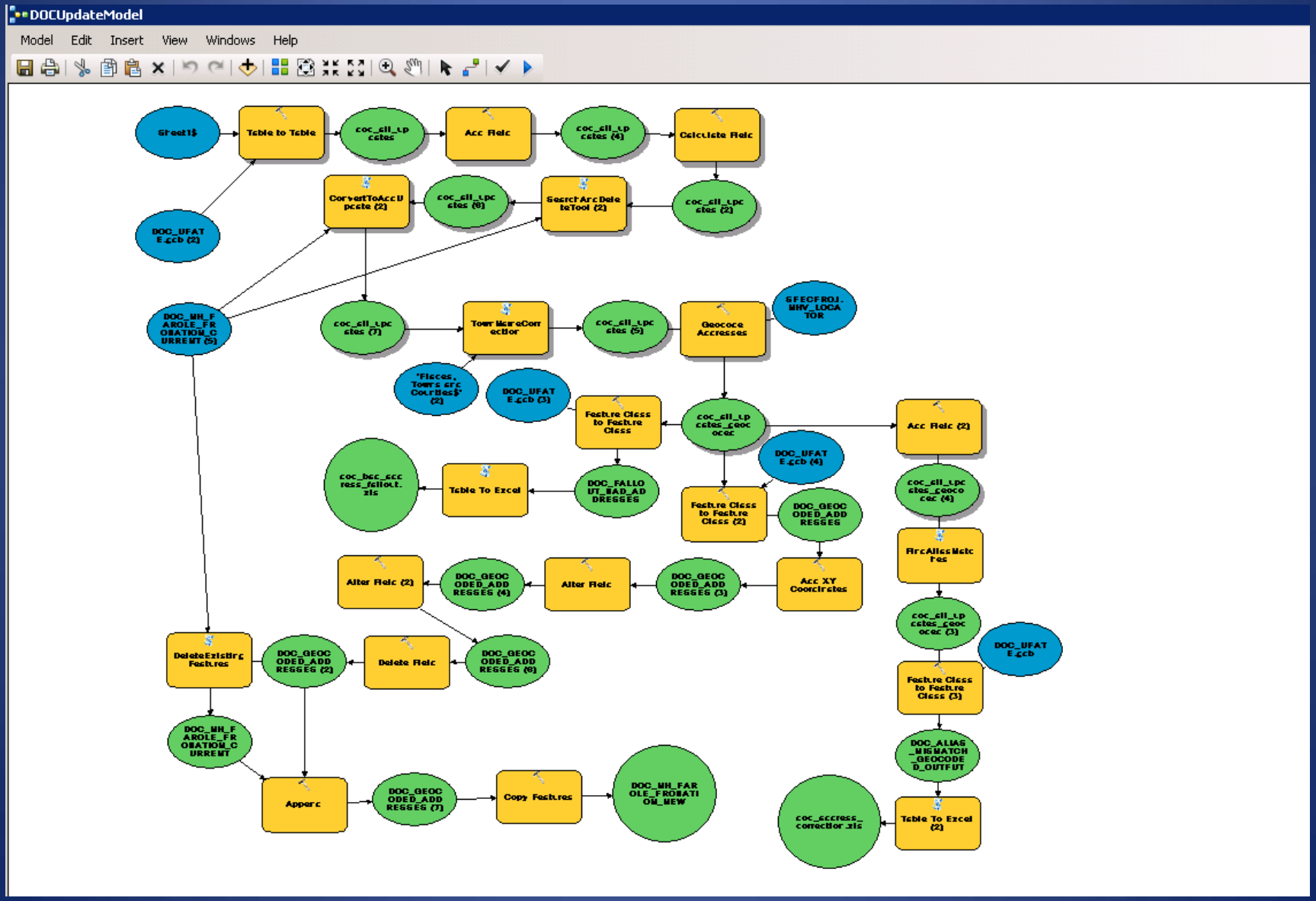
15,1 Elm Street
DOS offender registry

15-1 Elm
DMV

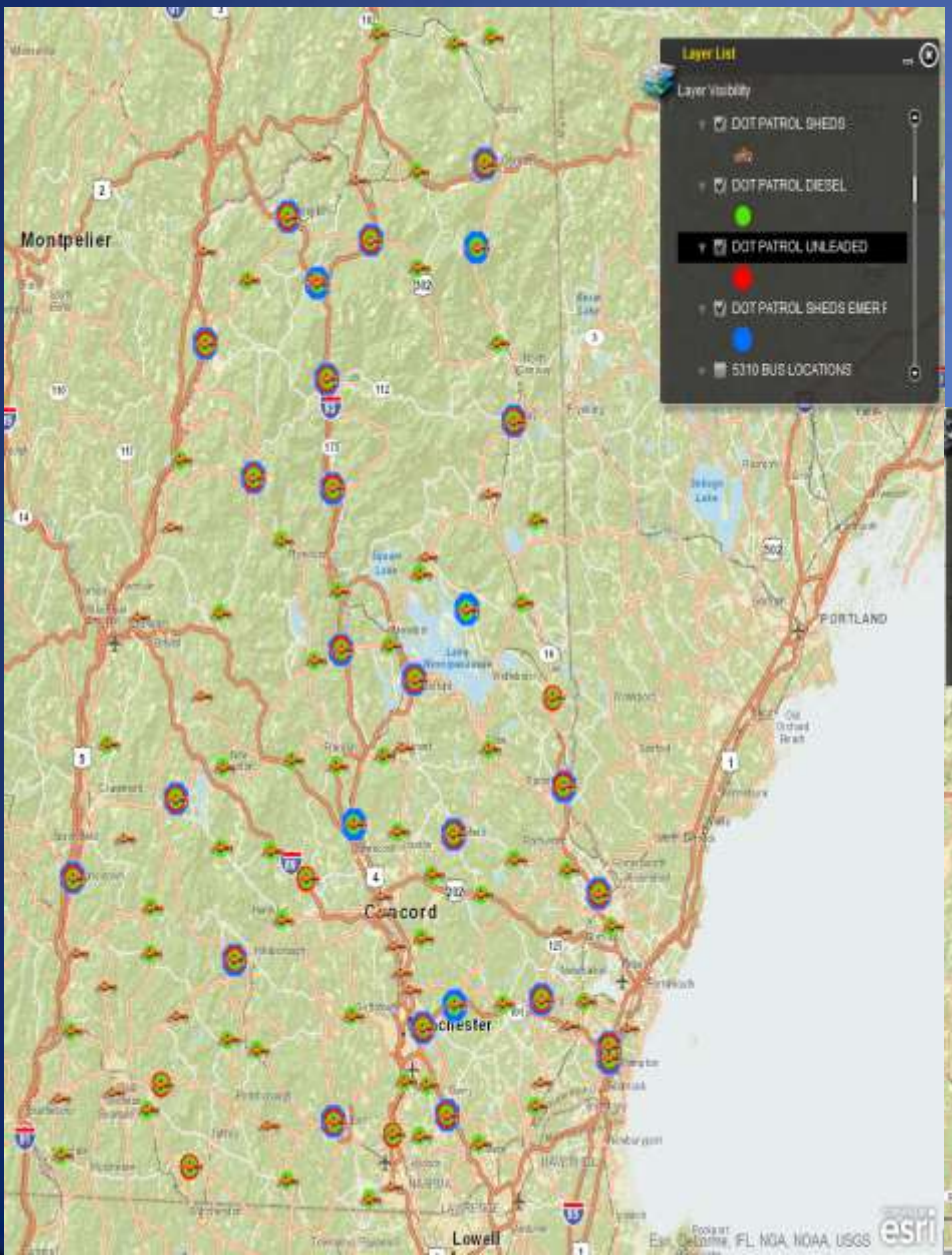
15 Elm St, Apt 1
DHHS Medicaid

15 Elm St-Unit 1
9-1-1 Database

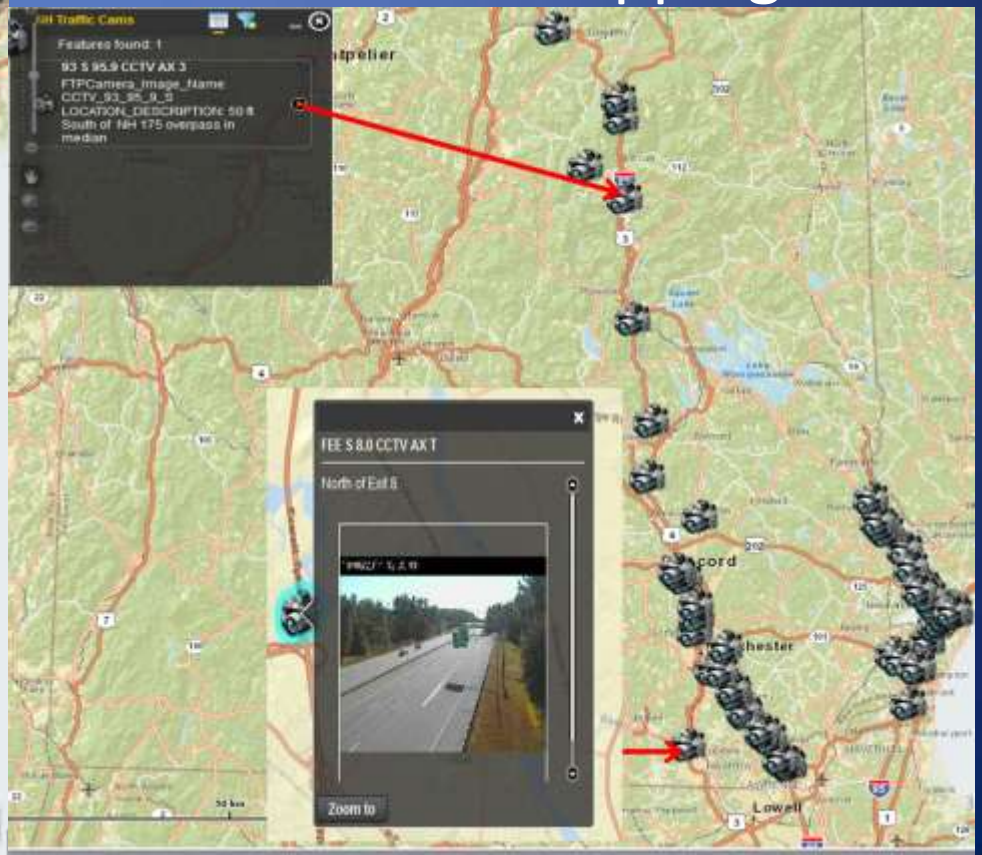
Automated Address GeoProcessing Models



ESF-1 Transportation



- DOT Summer and Winter Maintenance Layer-Active
- Traffic Camera Integration
- Road Closure Mapping



ESF 3 Public Works and Engineering

Environmental Hazard Data-NHDES

NHDES GIS DATA

2626 Active Dams

136 High Hazard

161 Significant Hazard

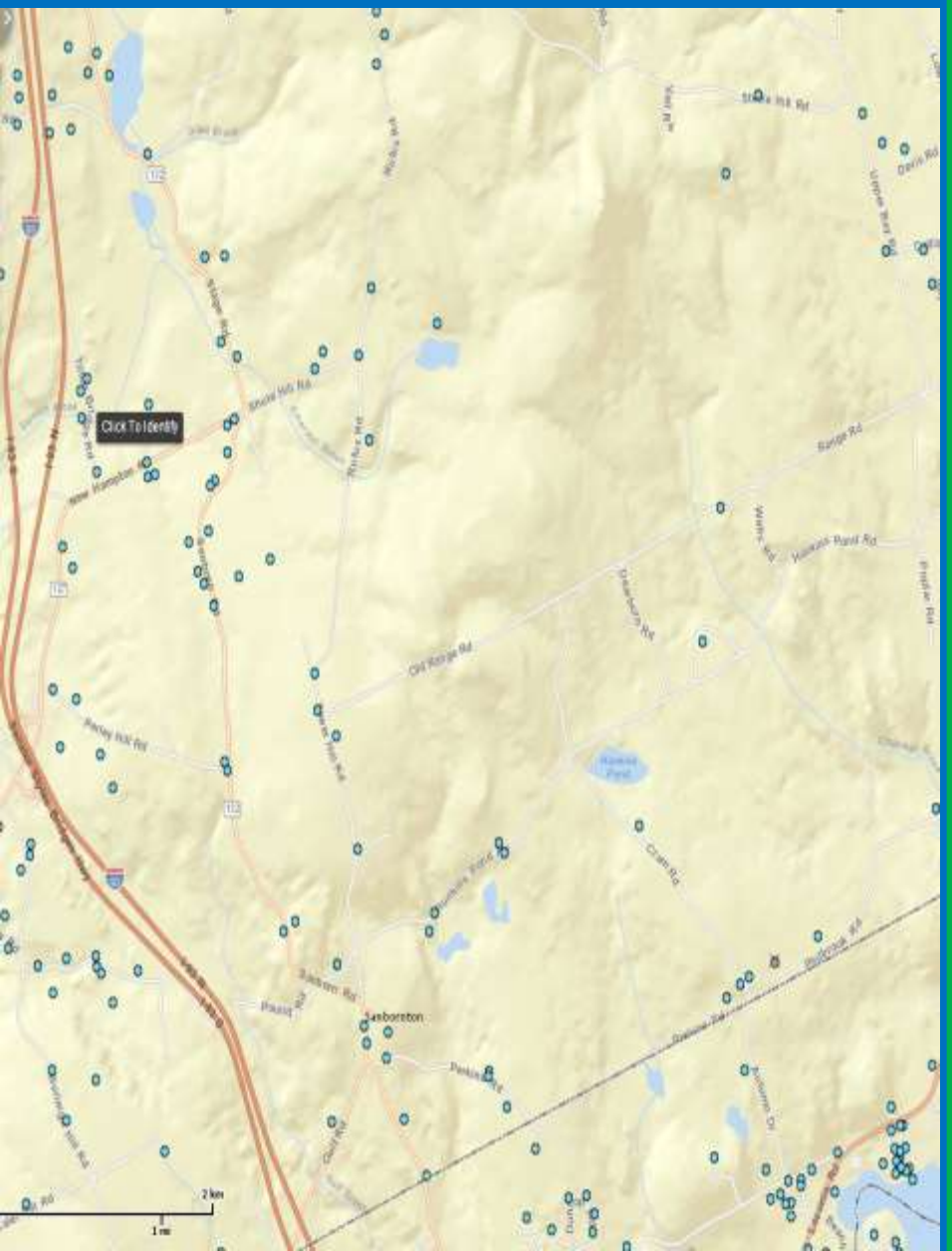
532 Low Hazard

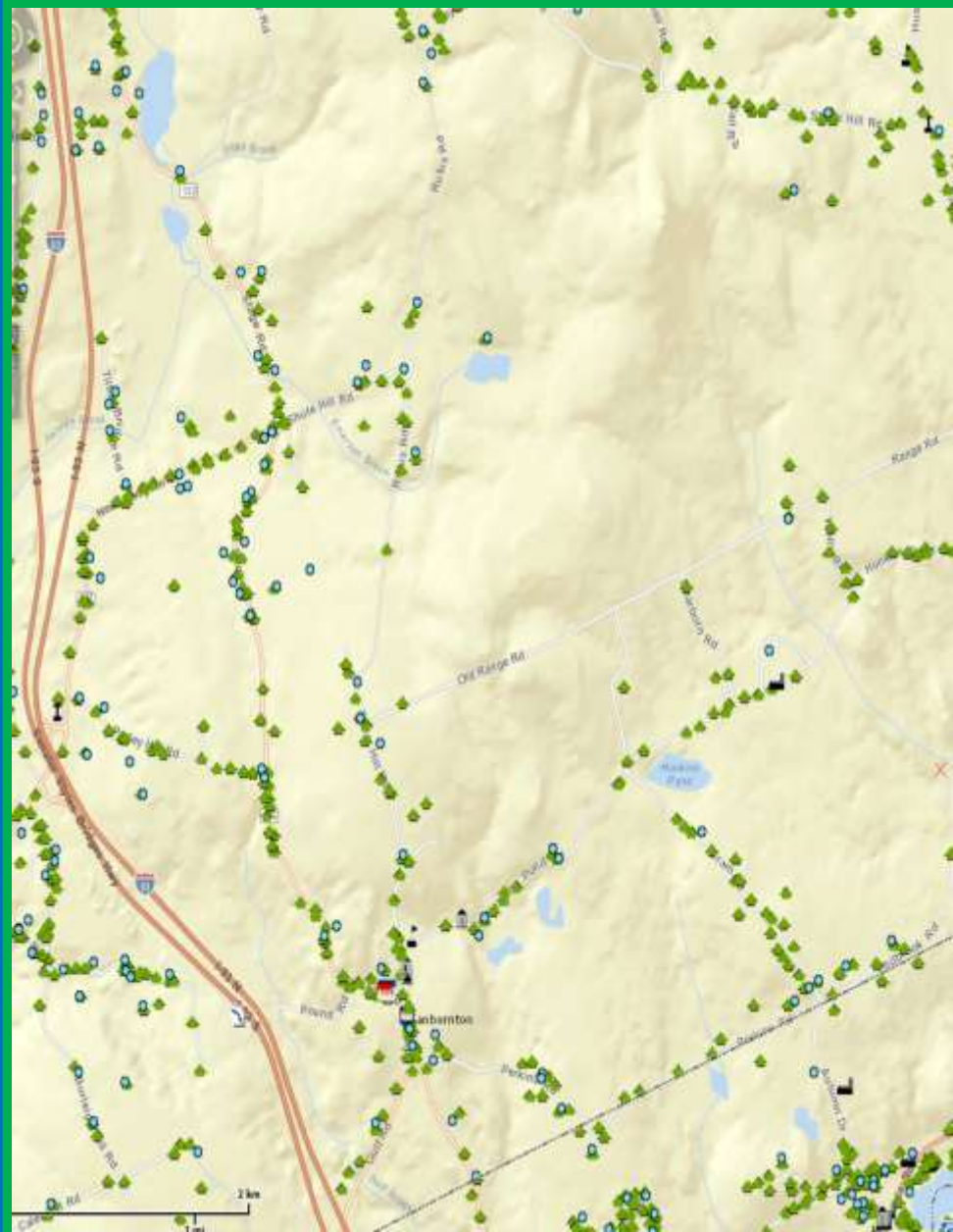
1797 Non-Menace

Pittsfield Mill Pond Dam

Inundation Projection-42 addresses

Well Inventory vs Addresses

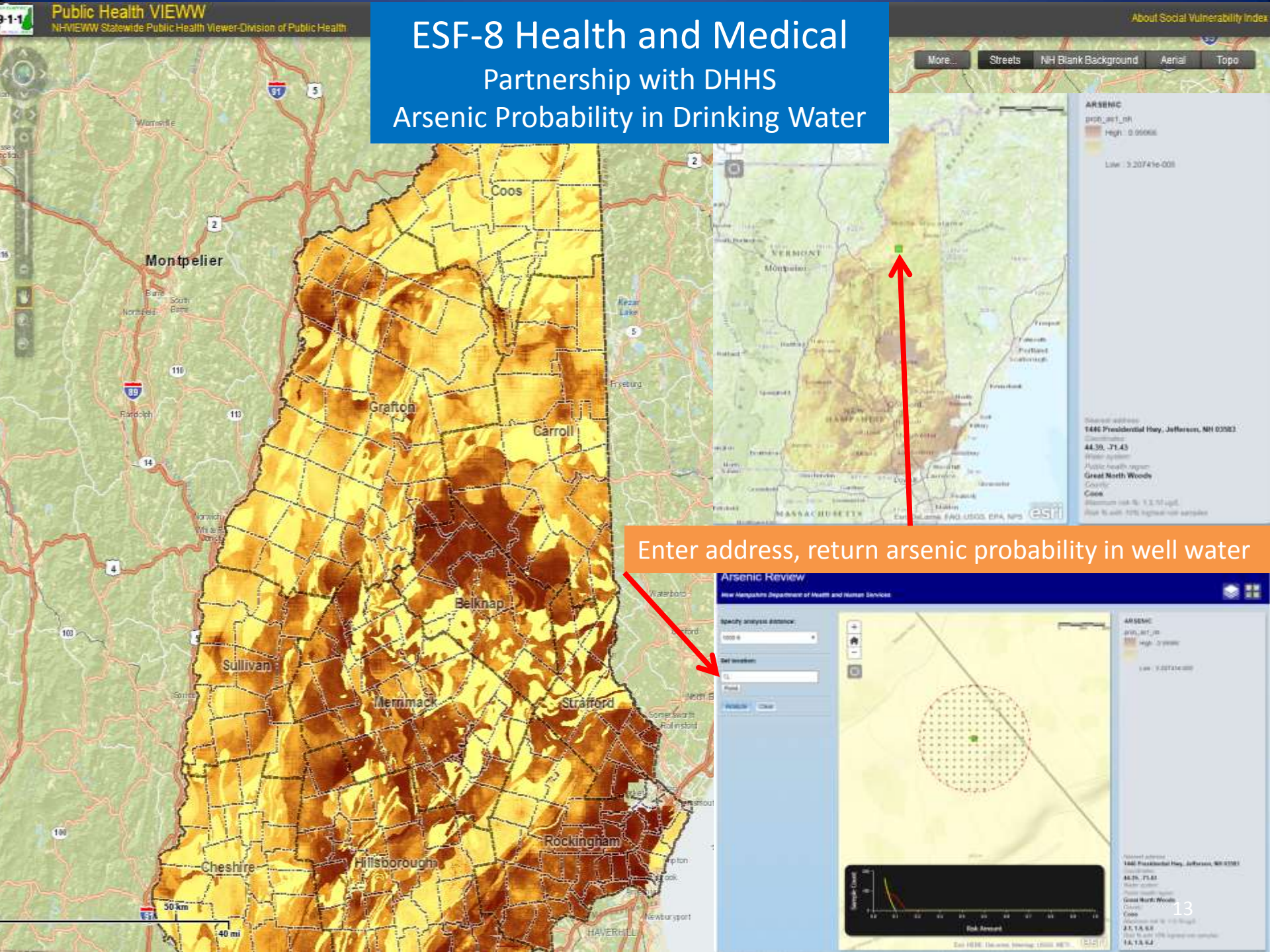




ESF-8 Health and Medical

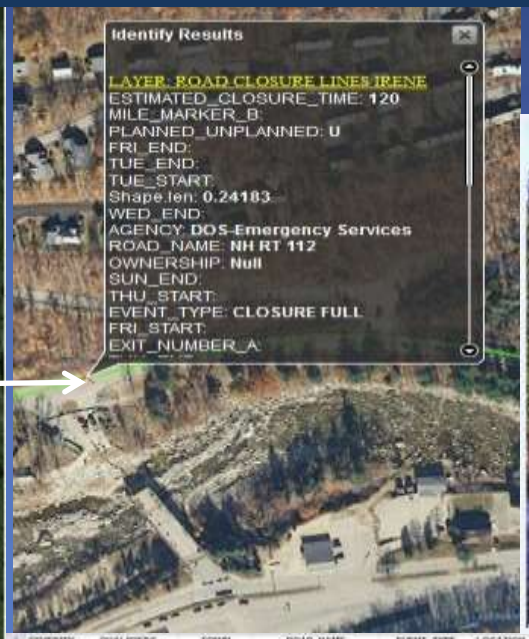
Partnership with DHHS

Arsenic Probability in Drinking Water



Hurricane Irene Road Closures

NHVIEWW Road Closures
Documenting and Viewing Statewide Road Closures

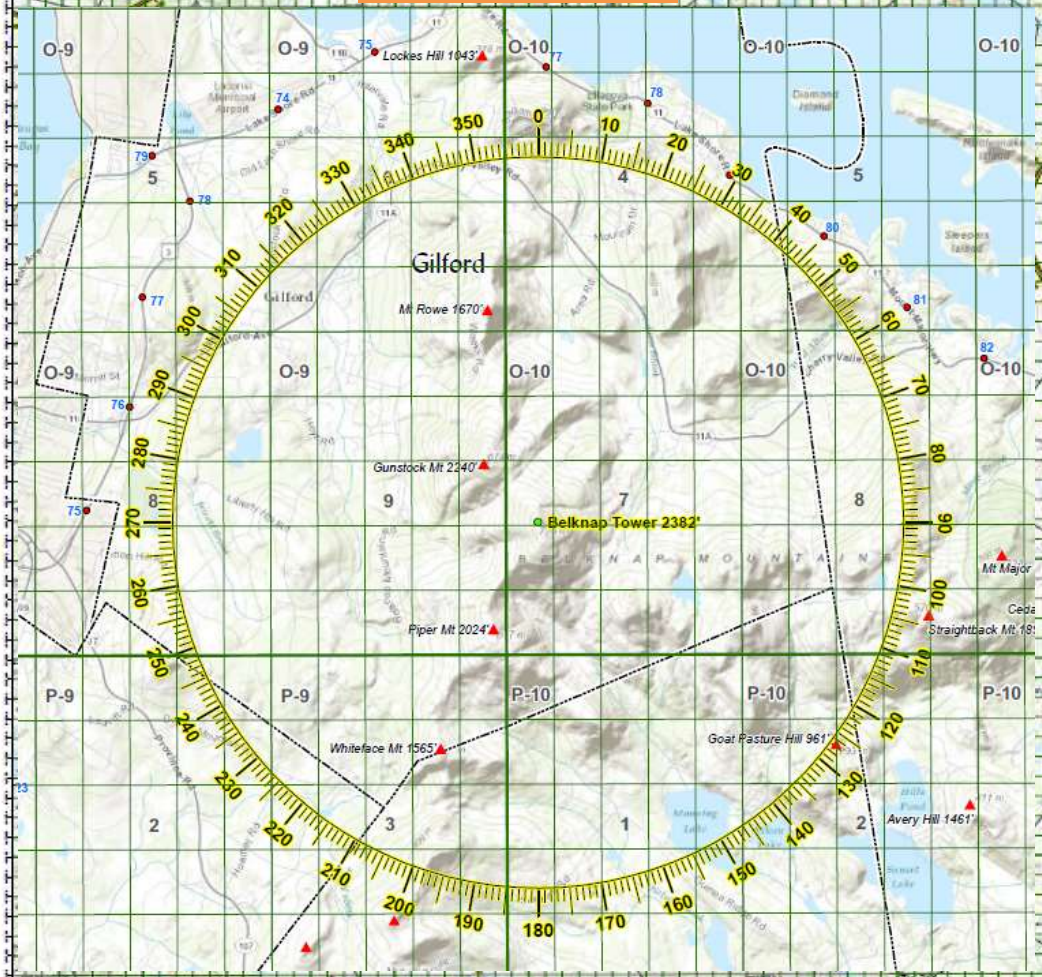


Bridge to Loon Mtn

	SEVERITY	QUALIFIERS	TOWN	ROAD_NAME	EVENT_TYPE	LOCATION_TYPE	START_DATE_TIME	END_DATE_TIME	BRIEF_DESCRIPTION
1	CLOSED	Wires down	Allenstown	GRANITE ST	CLOSURE FULL	ROAD	10/29/2012 20:21		2012/10/29 16:59:51 Power lines down in road
2	CLOSED	Tree down\Wires down	Alstead	ALSTEAD CENTER RD	CLOSURE FULL	ROAD	10/29/2012 21:05		10/29/2012 16:18:41 Tree on wires across road
3	CLOSED	Tree down\Wires down	Amherst	HOLLY HILL DR	CLOSURE FULL	ROAD	10/29/2012 21:53		webeoc tree and wires down
									10/29/2012 17:34:19 Reason for Closure or Restriction Tree and wires down
5	CLOSED	Tree down\Wires down	Amherst	HOLLY HILL DR	CLOSURE FULL	ROAD	10/29/2012 21:49		
6	CLOSED	Tree down\Wires down	Amherst	DEERWOOD DR	CLOSURE FULL	ROAD	10/30/2012 0:34		webeoc 2022 trees/wires
7	CLOSED	Tree down\Wires down	Amherst	PINEWOOD DR	CLOSURE FULL	ROAD	10/30/2012 0:37		webeoc 2023 trees/wires
8	CLOSED	Tree down\Wires down	Amherst	BLUEBERRY HILL RD	CLOSURE FULL	ROAD	10/30/2012 0:38		webeoc 2021 trees/wires
									Large trees and wires down 10/29/2012 17:30:06
9	CLOSED	Tree down\Wires down	Bennington	US RT 202	CLOSURE FULL	ROUTE	10/29/2012 23:51		
10	CLOSED	Wires down\Tree down	Bristol	LAKEVIEW AVE	CLOSURE FULL	ROAD	10/30/2012 0:33		webeoc 2015 tree and powerlines down
11	CLOSED	Wires down\Tree down	Candia	CHESTER RD	CLOSURE FULL	ROAD	10/30/2012 0:57		webeoc trees and wires in roadway
12	CLOSED	Tree On Wires	Chester	HAVERHILL RD	CLOSURE FULL	ROAD	10/29/2012 23:11		webeoc 1952
13	CLOSED	Tree down\Wires down	Chichester	BEAR HILL RD	CLOSURE FULL	ROAD	10/30/2012 0:25		webeoc 2012 multiple trees and wires down
14	CLOSED	Wires down\Tree down	Concord	CARTER HILL RD	CLOSURE FULL	ROAD	10/29/2012 20:20		2012/10/29 16:00:43 Tree down with wires Closed
15	CLOSED	Tree down\Wires down	Concord	OAK HILL RD	CLOSURE FULL	ROAD	10/29/2012 21:26		from webeoc tree down with wires
									10/29/2012 18:04:42 Reason for Closure or Restriction Tree down with wires
16	CLOSED	Tree down\Wires down	Concord	SNOW POND RD	CLOSURE FULL	ROAD	10/29/2012 22:21		webeoc 1952 tree on fire on primary line
17	CLOSED	Tree On Wires	Cornish	NH RT 120	CLOSURE FULL	ROUTE	10/30/2012 1:23		10/29/2012 16:20:38 Reason for Closure or Restriction Tree in road with wires
18	CLOSED	Tree down\Wires down	Danbury	SHELDON RD	CLOSURE PARTIAL	ROAD	10/29/2012 22:26		Pole, wires,transformer down in road. Transformer leaking fluid 10/29/2012 19:48:24
19	CLOSED	Tree down\Wires down	Danbury	HIGH ST	CLOSURE FULL	ROAD	10/29/2012 23:48		2012/10/29 14:55:50 Down transformer tree poles broken Wires across the Road
20	CLOSED	Tree down\Wires down	Deerfield	NH RT 107	CLOSURE FULL	ROUTE	10/29/2012 19:48		webeoc 1917 tree into wires
21	CLOSED	Tree On Wires	Deerfield	NH RT 43	CLOSURE FULL	ROUTE	10/30/2012 1:02		webeoc 2108 treelines across road
22	CLOSED	Wires down\Tree down	Deerfield	GRIFFIN RD	CLOSURE FULL	ROAD	10/30/2012 1:29		input from webeoc trees in wires
23	CLOSED	Tree On Wires	Derry	CEMETERY RD	CLOSURE FULL	ROAD	10/29/2012 20:12		from webeoc tree and wires
24	CLOSED	Tree down\Wires down	Derry	GULF RD	CLOSURE FULL	ROAD	10/29/2012 20:31		
25	CLOSED	Tree down\Wires down	Derry	BEACON HILL RD	CLOSURE PARTIAL	ROAD	10/29/2012 21:02		
									10/29/2012 17:18:24 Wires across road
26	CLOSED	Wires down	Derry	NH RT 121	CLOSURE FULL	ROUTE	10/29/2012 21:19		
									10/29/2012 17:22:34 Reason for Closure or Restriction Power Line Hanging Across Road
27	CLOSED	Wires down	Derry	STARK RD	CLOSURE FULL	ROAD	10/29/2012 21:32		webeoc 1905 wires and trees
28	CLOSED	Tree down\Wires down	Derry	HAMPSTEAD RD	CLOSURE FULL	ROAD	10/29/2012 23:38		webeoc 1916 wires across rd
29	CLOSED	Wires down	Derry	KILREA RD	CLOSURE FULL	ROAD	10/29/2012 23:34		webeoc 1912 tree into wires
30	CLOSED	Tree On Wires	Derry	ENGLISH RANGE RD	CLOSURE FULL	ROAD	10/29/2012 23:48		from webeoc wires down 1709
31	CLOSED	Wires down	Dover	SUNSET DR	CLOSURE FULL	ROAD	10/29/2012 21:38		from webeoc wires and trees down 1710
32	CLOSED	Wires down\Tree down	Dover	OAK ST	CLOSURE FULL	ROAD	10/29/2012 21:32		from webeoc trees and wires 1713
33	CLOSED	Tree down\Wires down	Dover	MT VERNON ST	CLOSURE FULL	ROAD	10/29/2012 21:37		from webeoc large tree primary power lines two utility pole accross rd
34	CLOSED	Tree down\Wires down	Durham	DURHAM POINT RD	CLOSURE FULL	ROAD	10/29/2012 20:06		2012/10/29 16:04:52 Tree & Wires Down State DOT is Closing At This Time
35	CLOSED	Tree down\Wires down	Durham	NH RT 155A	CLOSURE FULL	ROUTE	10/29/2012 20:15		webeoc 1828
36	CLOSED	Wires down	Durham	WILLEY RD	CLOSURE FULL	ROAD	10/29/2012 22:33		
37	CLOSED	Tree down\Wires down	Durham	SUNNYSIDE DR	CLOSURE FULL	ROAD	10/29/2012 23:08		Closed due to trees and wires down
38	CLOSED	Tree down\Wires down	Epping	OLD NOTTINGHAM RD	CLOSURE FULL	ROAD	10/29/2012 23:48		Trees and wires down 10/29/2012 19:26:03
39	CLOSED	Tree down\Wires down	Goffstown	GRADY HILL RD	CLOSURE FULL	ROAD	10/29/2012 20:58		10/29/2012 16:48:21 tree on line arr on fire
40	CLOSED	Tree down\Wires down	Goffstown	GRADY HILL RD	CLOSURE FULL	ROAD	10/29/2012 20:58		10/29/2012 16:48:21 tree on line arr on fire
41	CLOSED	Tree down\Wires down	Goffstown	NH RT 114	CLOSURE FULL	ROUTE	10/29/2012 21:14		10/29/2012 17:09:44 Tree down in wires
42	CLOSED	Tree down\Wires down	Goffstown	BORY RD	CLOSURE FULL	ROAD	10/29/2012 21:09		Trees and wires down 10/29/2012 18:56:46

Fire Tower Map and Data Modernization

Belknap



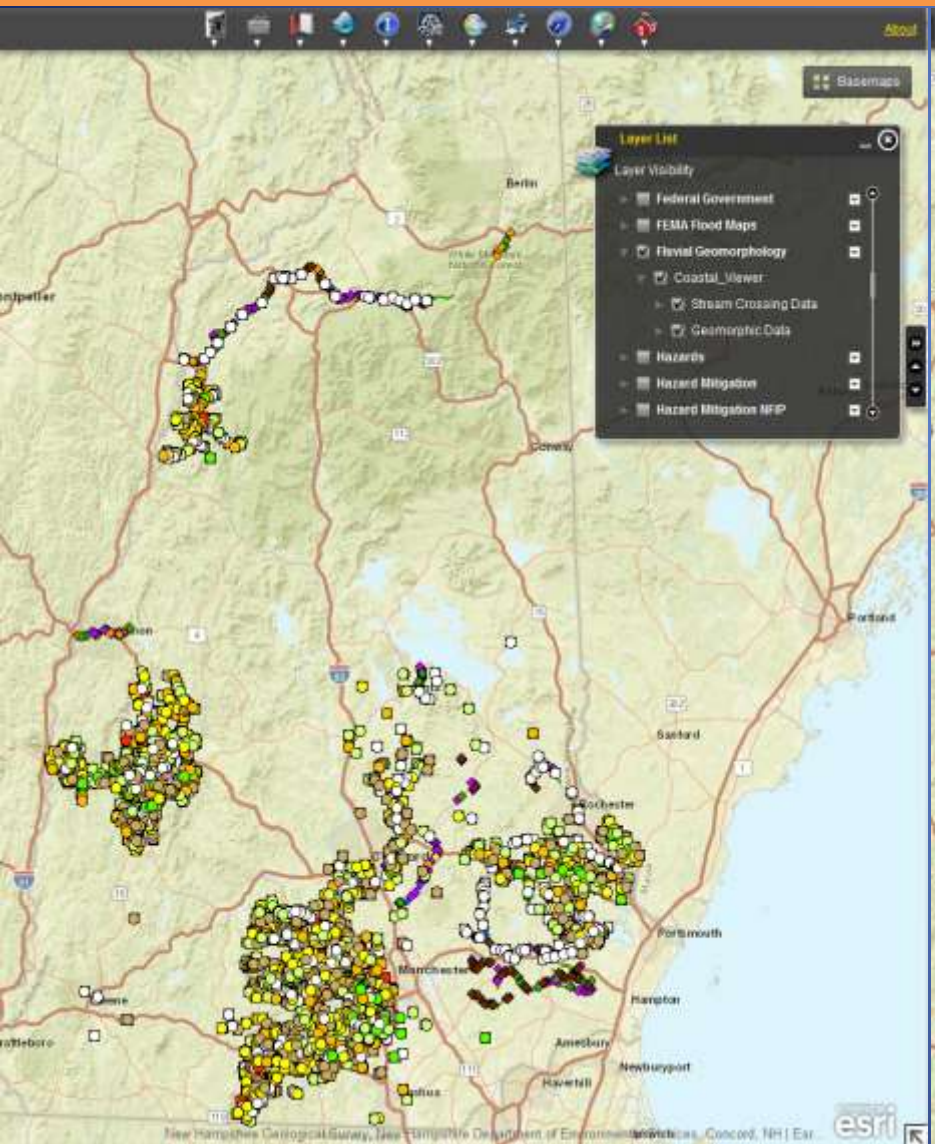
NH Forestry Grid (Quad/Block/Section) Digitized for use in paper and electronic maps

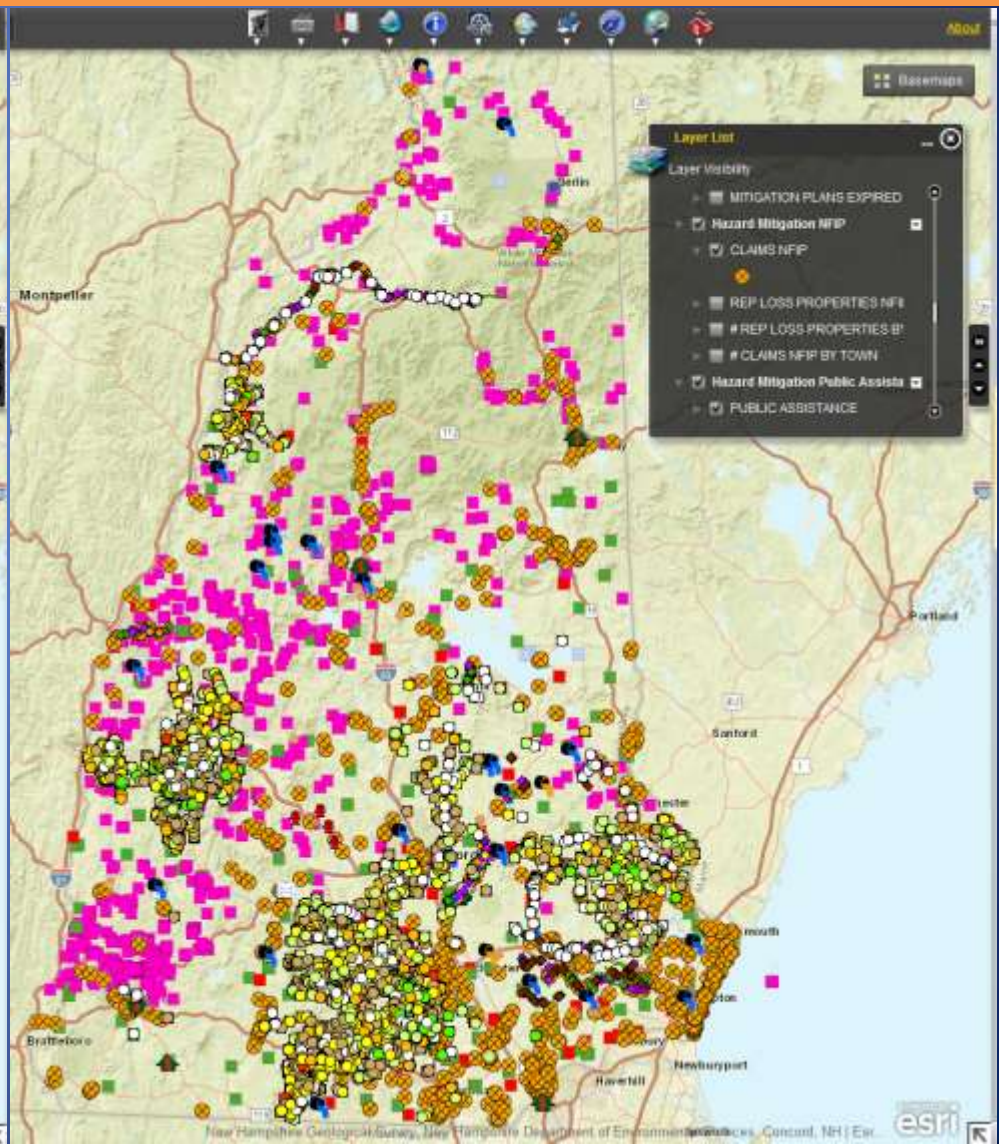
The power and efficiency of GIS and Public Safety

- Statewide Block and Section Grid
- Overlaid on Capital Area Dispatch
- Overlaid on Boscawen 9-1-1 Road Map
- 1 data grid used in multiple scales over single 9-1-1 data source

Dynamic Integration of Multi Agency data

Fluvial Geomorphology Map Service **&** Hazard Mitigation and Repetitive Loss Properties





NH Hazard Database Results

- Capacity to collect, manage, visualize and analyze hazard based mitigation data for the State of New Hampshire
- Provides a data and workflow model to tackle other relevant statewide data deficiencies
- Opens the door for more data driven decision making and advance awareness of situations as they unfold.

NH Power Outages Over November 2014

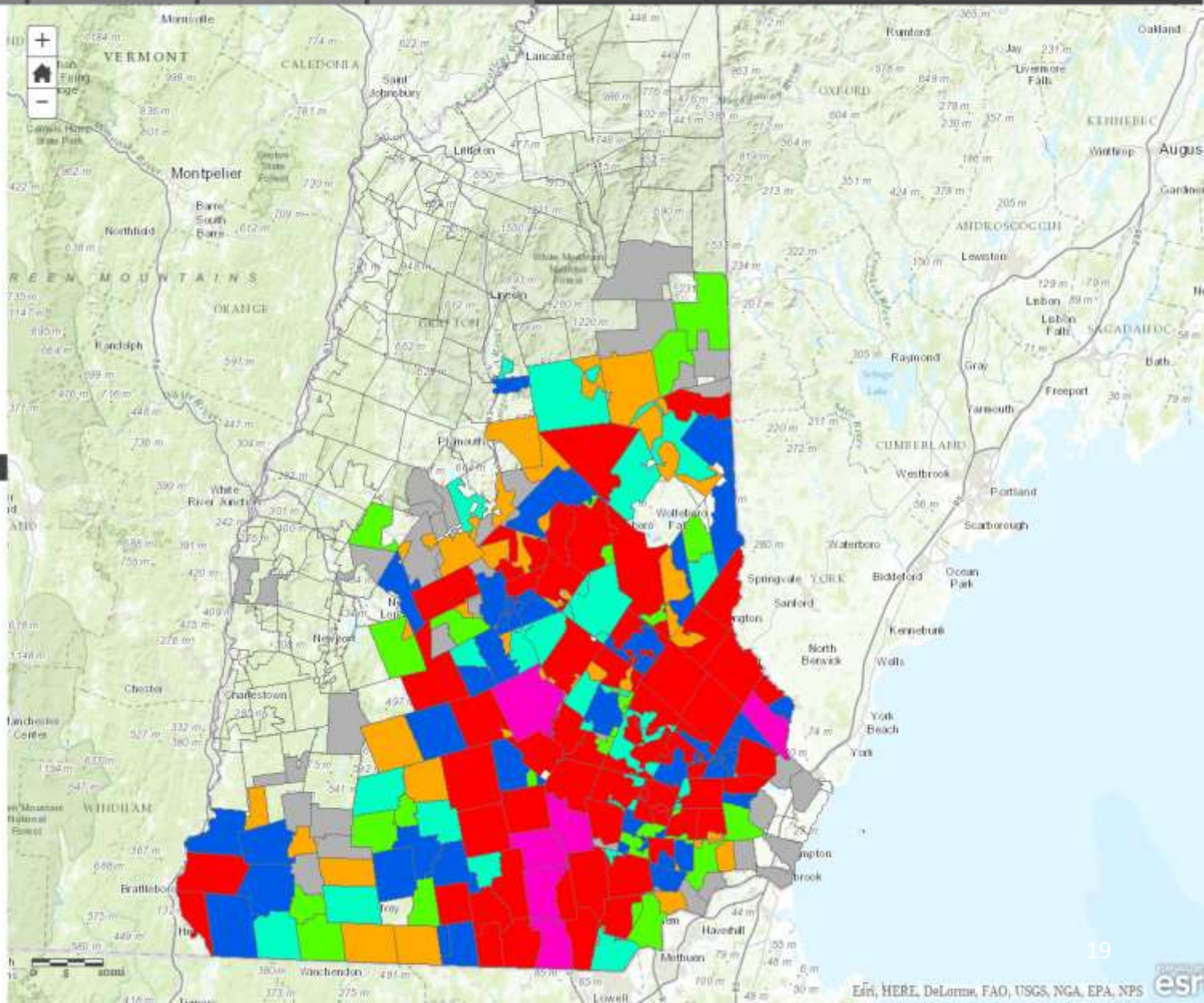
Thanksgiving 2014

Next Generation of Power Outage Display

11.27.2014 1000H | 11.27.2014 1300H | 11.27.2014 1435H | 11.28.2014 0730H | 11.28.2014 0940H | 11.28.2014 1315H | 11.28.2014 1450H | 11.28.2014 1700H

NH Outages 11.27.2014 1000 Hours

Clicking on a town polygon will provide a popup with detail information regarding the outages that occurred at this date and time, in that town.
Go To This Map On Portal



LEGEND

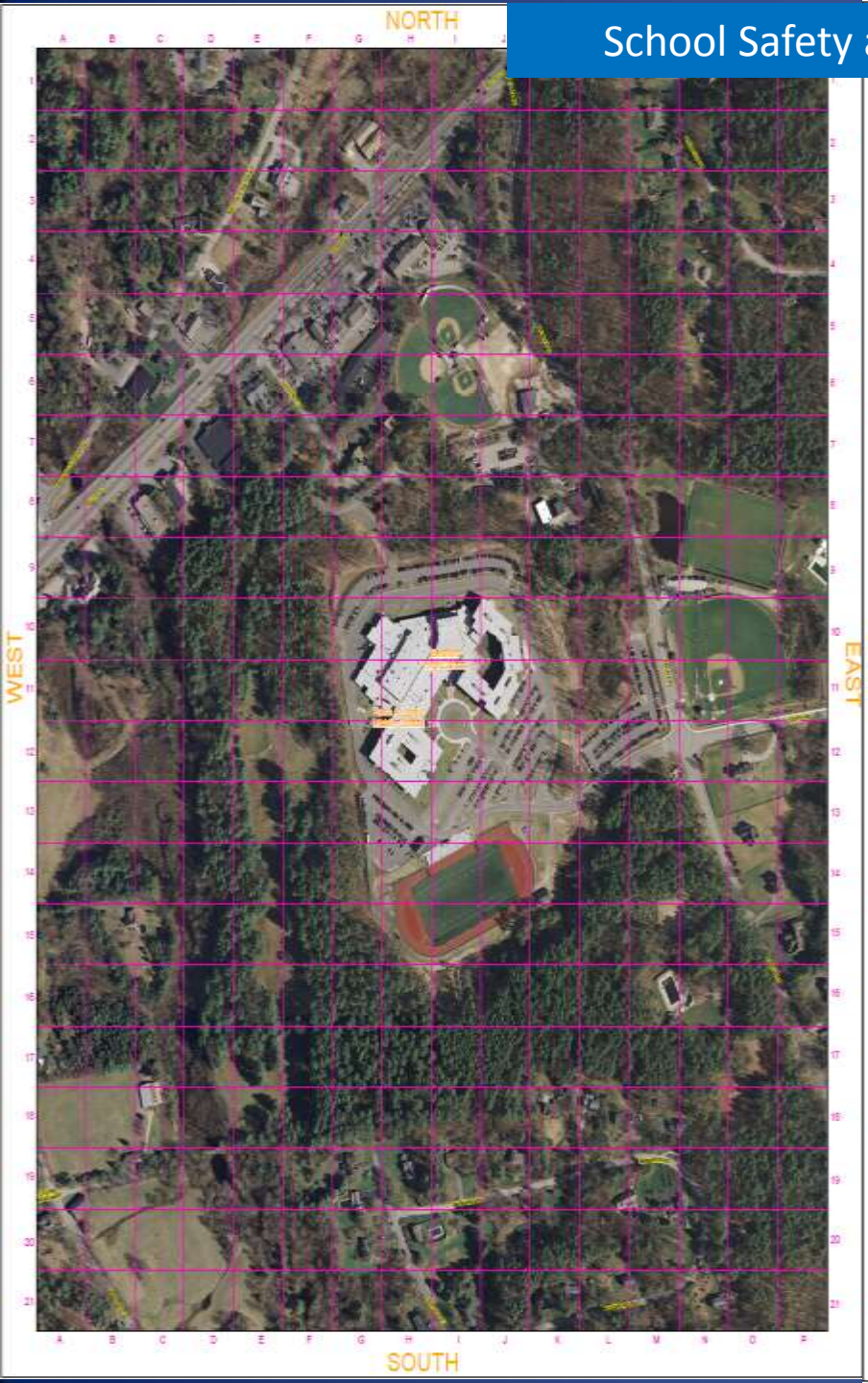
Power_Outages_Thanksgiving_Storm
Outages 11.27.2014 1300 Hours

- 0
- 1 - 20
- 21 - 100
- 101 - 250
- 251 - 500
- 501 - 1000
- 1001 - 5000
- 5001+

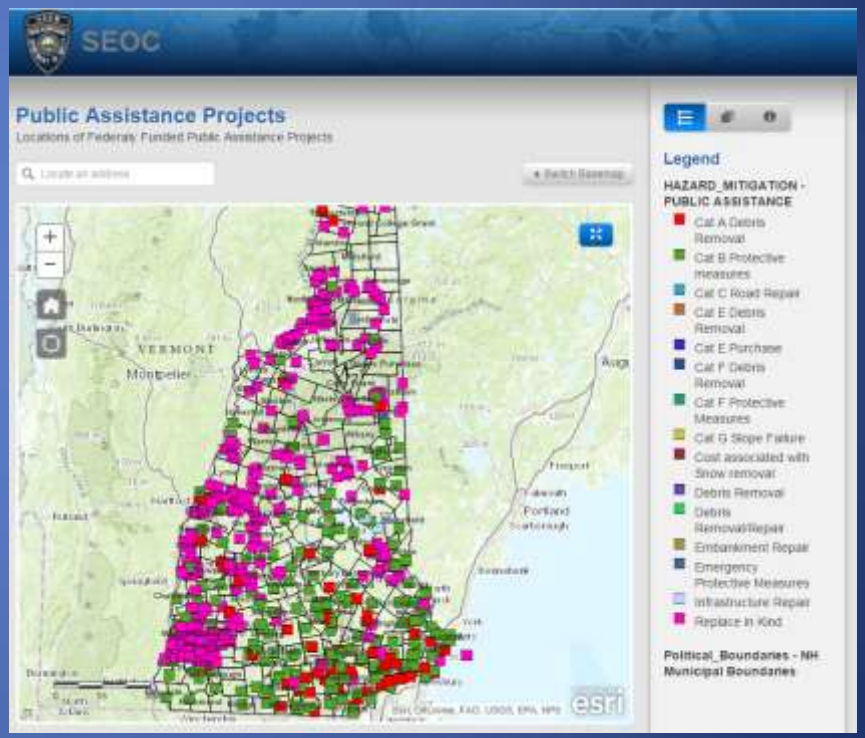
Where are we now?

- Contributed to the DOT flyover of 2015 imagery
- Address processing, validation and correction for statewide data sets
  - Parole and Probation
  - DOS Offender Registry
  - Public Health surveillance data geocoding
- Providing data and analytical support to First Net tasking for New Hampshire

School Safety and Security Maps



Web Base Maps suitable for embedding in Agency Web Pages



NHVIEWW Agreements

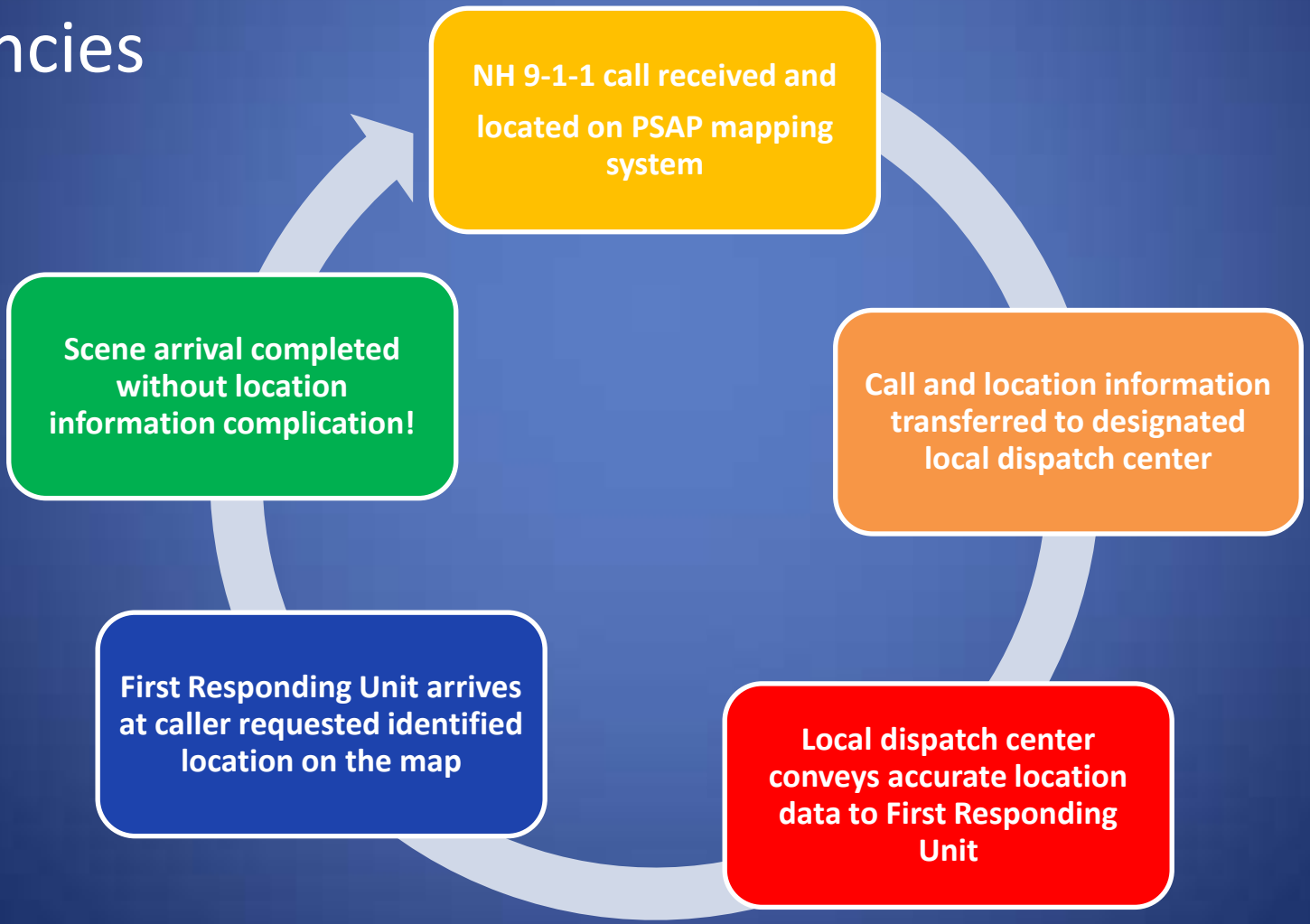
- Department of Health and Human Services
- Department of Corrections
- Department of Transportation
- Homeland Security and Emergency Management
- Division of State Police
- NH National Guard

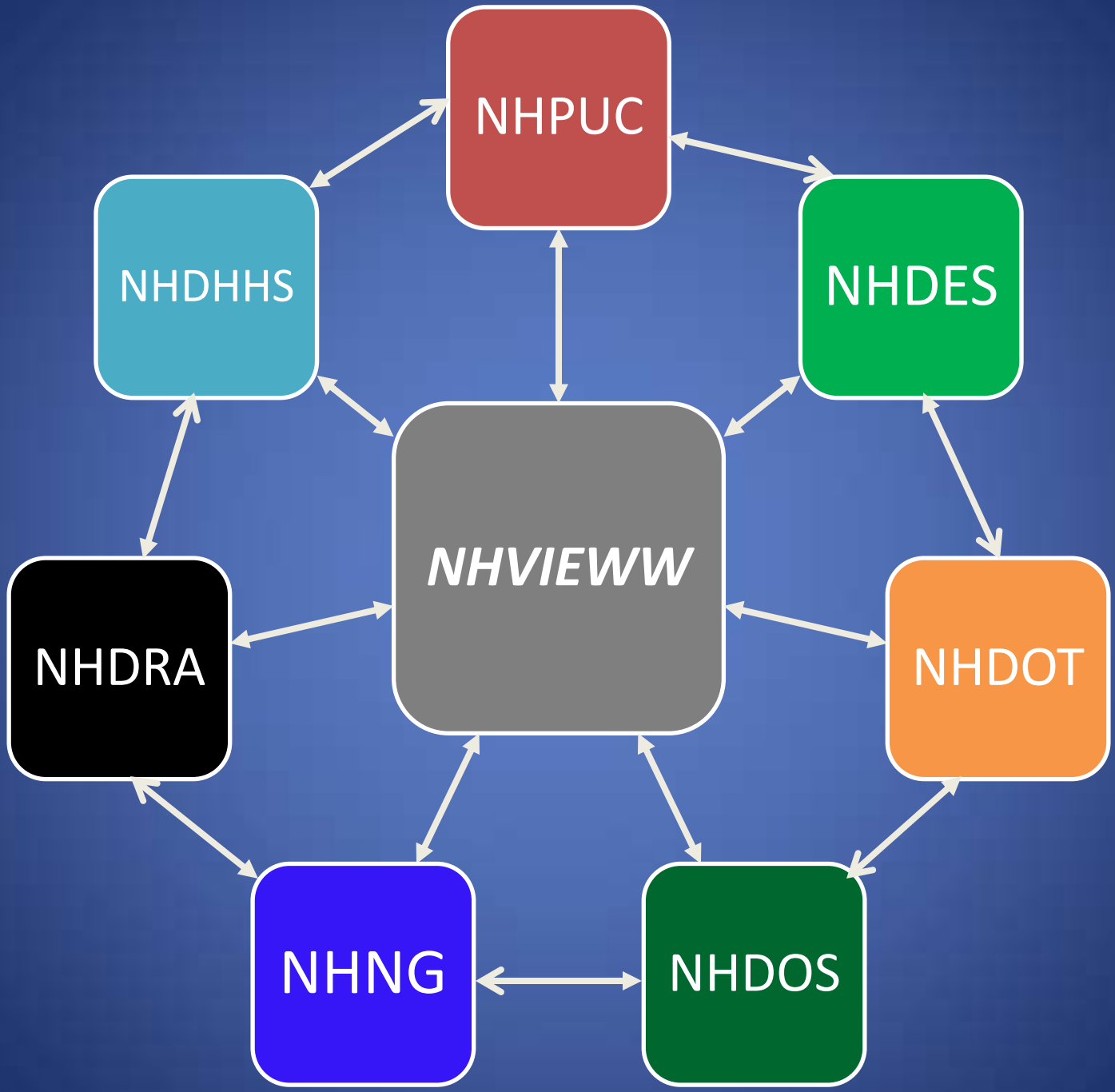
Conclusions

- There are mature GIS's in NH Agencies with talented professionals
- There is existing cooperation between agencies for maximum ROI
  - 2010 and 2015 NH Imagery Purchase
  - Many others described in this presentation
- Agencies without GIS are accessing and using their own data in Geographic form through NHVIEWW
  - Department of Corrections
  - Multiple Department of Safety Divisions
- Agencies are leveraging NHVIEWW services and infrastructure to improve data quality
- NHVIEWW is a flexible, scalable and affordable platform to support all agencies in:
  - Day to day internal operations
  - Public information and agency GIS data access goals

Conclusion

- We are here to assist local first responders in the New Hampshire 9-1-1 continuum and……..state agencies




NHPUC
NHDHHS
NHDES
NHVIEWW
NHDRA
NHDOT
NHNG
NHDOS

THANK YOU

Sean Goodwin

GIS Administrator

sgoodwin@e911.nh.gov

New Hampshire Department of Safety

Division of Emergency Services