# Geospatial Intelligence at the Environmental Protection Agency

Casey McLaughlin, GISP

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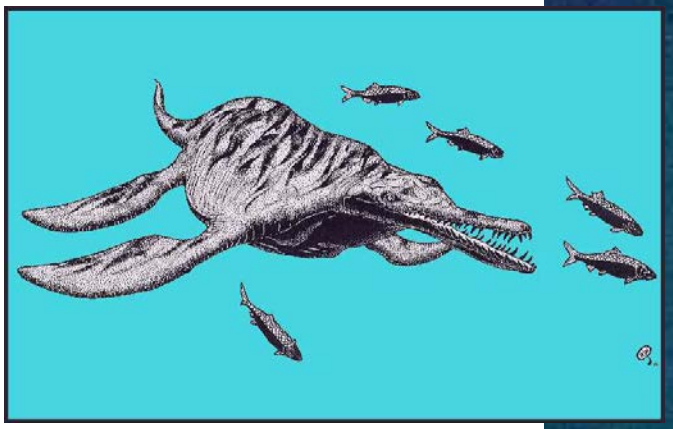
http://blog.epa.gov/bigbluethread

GIS DAY 2012

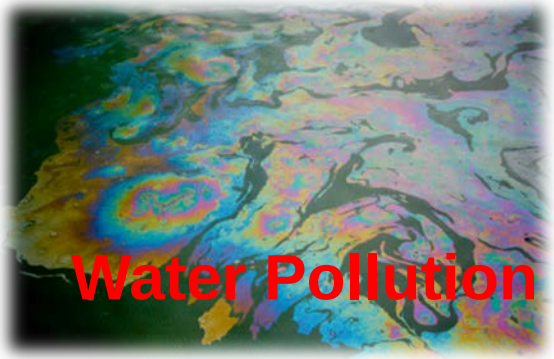
# Kansas Was an Ocean



# What is EPA?

**“Protect Human Health and the Environment”**

- Develop and Enforce Regulations
- Give Grants
- Study Environmental Issues
- Sponsor Partnerships
- Teach People About the Environment
- Publish Environmental Information



# Cartography Roots

**Today:**

- EPA
- Whats GeoSpatial
- National Projects
- What we do regionally

http://nationalmap.gov/ustopo/history.html

# EPA Cleans up Waste

LEAD-SAFE EPA CERTIFIED FIRM

NAT-19444-1

# Geospatial Intelligence

**Geospatial Intelligence:**

*it is the means by which data and information are collected, manipulated, geospatially reasoned, and disseminated to decision-makers.*

http://codes.lp.findlaw.com/uscode/10/A/I/22/IV/467

***"We don't do GIS, we do spatial IT on the spatial web"***

Paul Ramsey
"Spatial IT and the Spatial Web" at FOSS, 2012

***"The map as Information Ecology"***

Blaise Aquera Y Arcas
Microsoft Bing Maps Architect

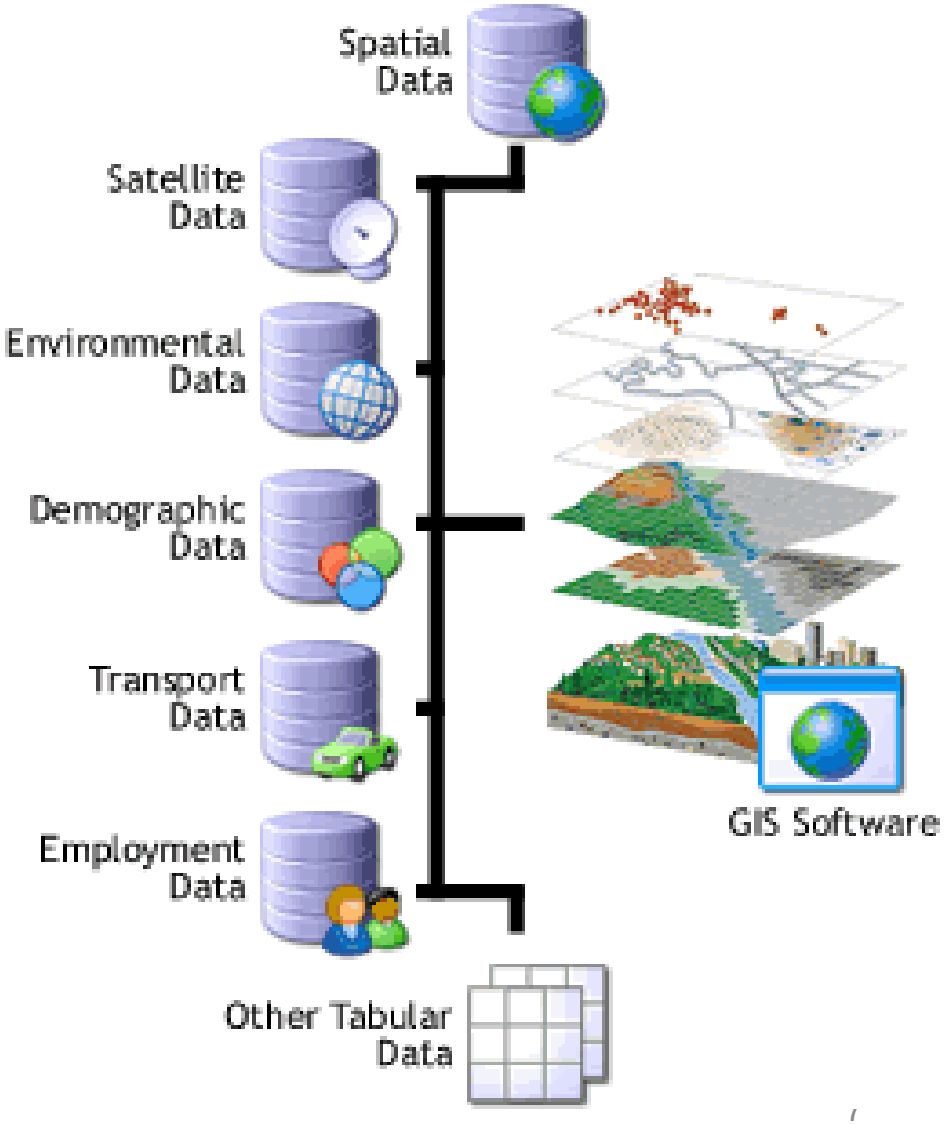
***"Earth is the metaphor for organizing information"***

Michael Goodchild
Author and Professor

# Geospatial Intelligence

GIS is evolving

**Data into Decisions**



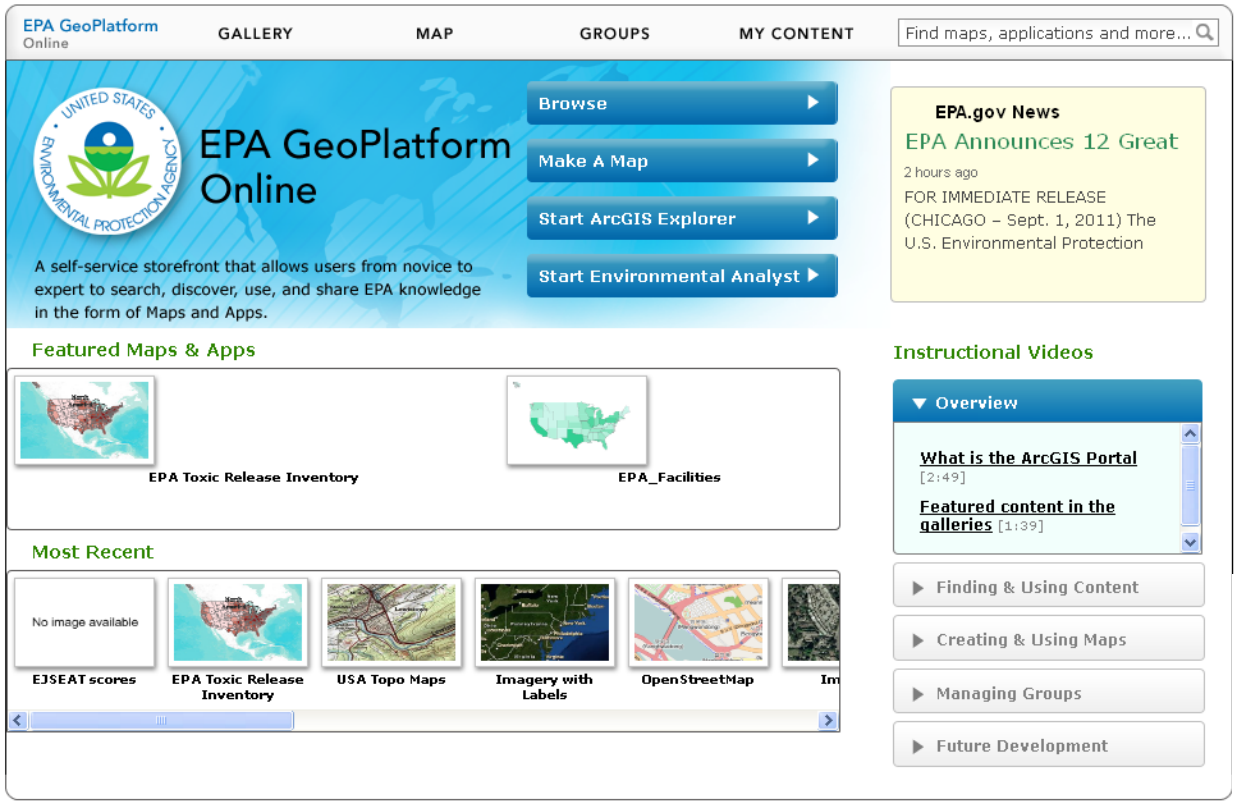
# National Activities

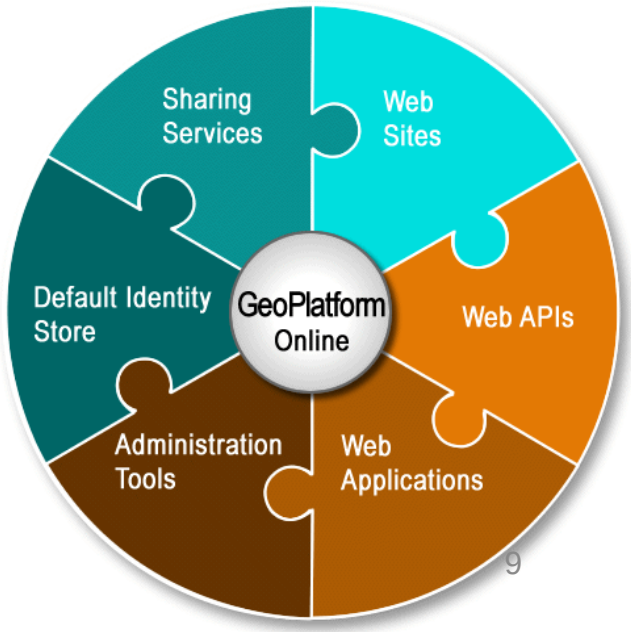
**Geospatial Information from Washington D.C. out**

- 18k spread across 10 regions and many offices
- Standard Map Interfaces
- Data Discovery
- Transparency

- US EPA Geoplatform
- FRS and Envirofacts
- Environmental Data Gateway

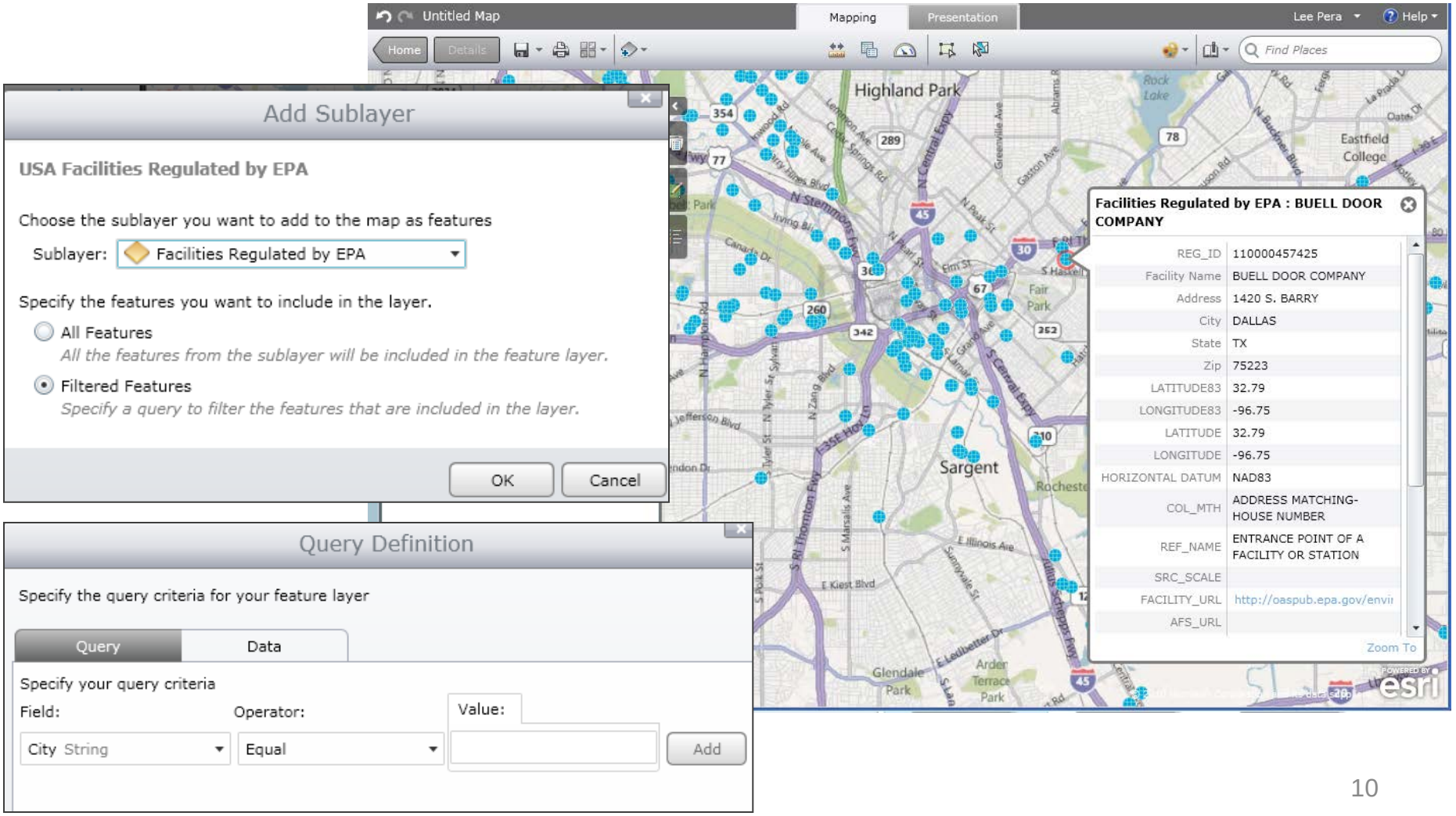
# EPA'S GeoPlatform



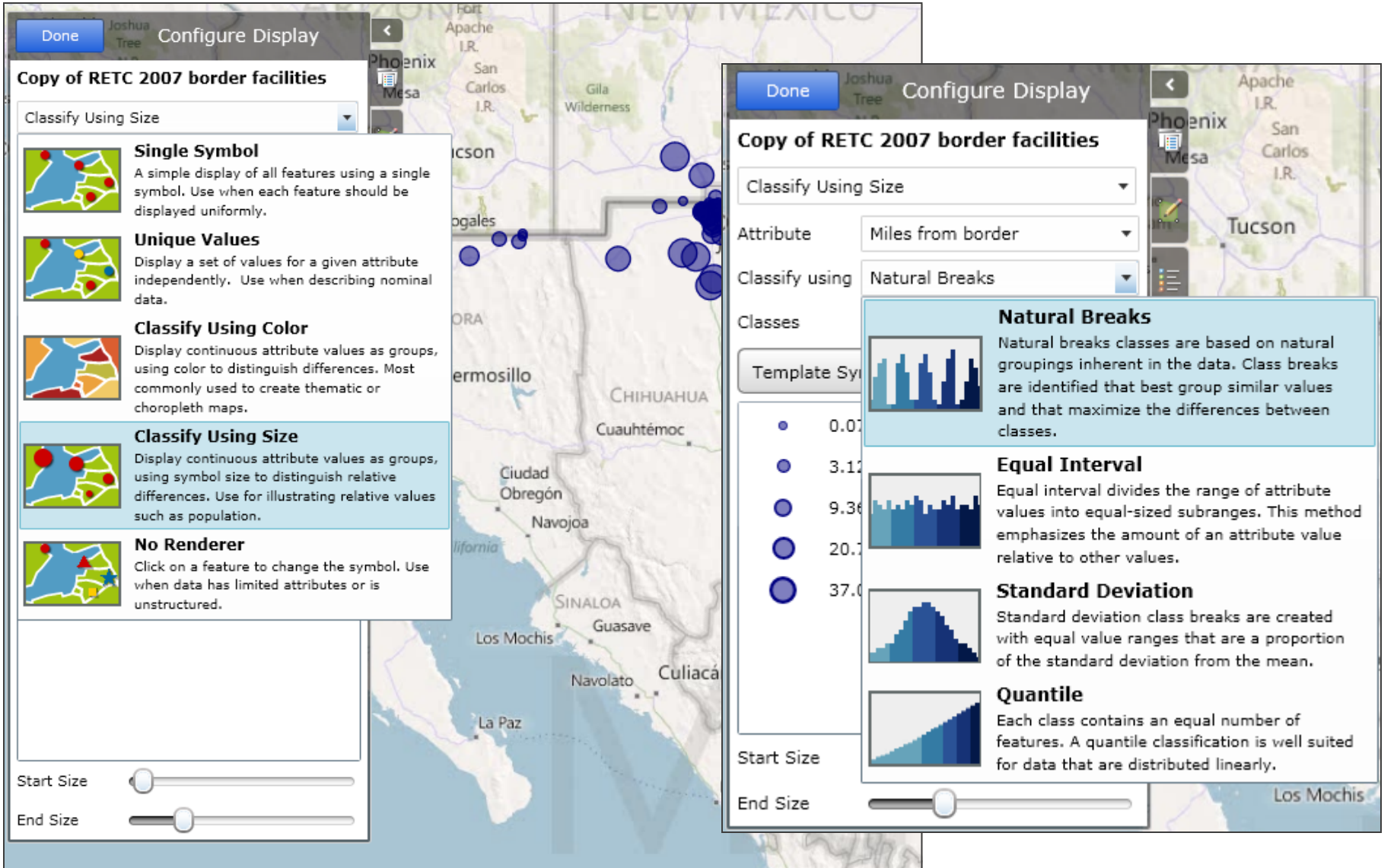



# EPA'S GeoPlatform

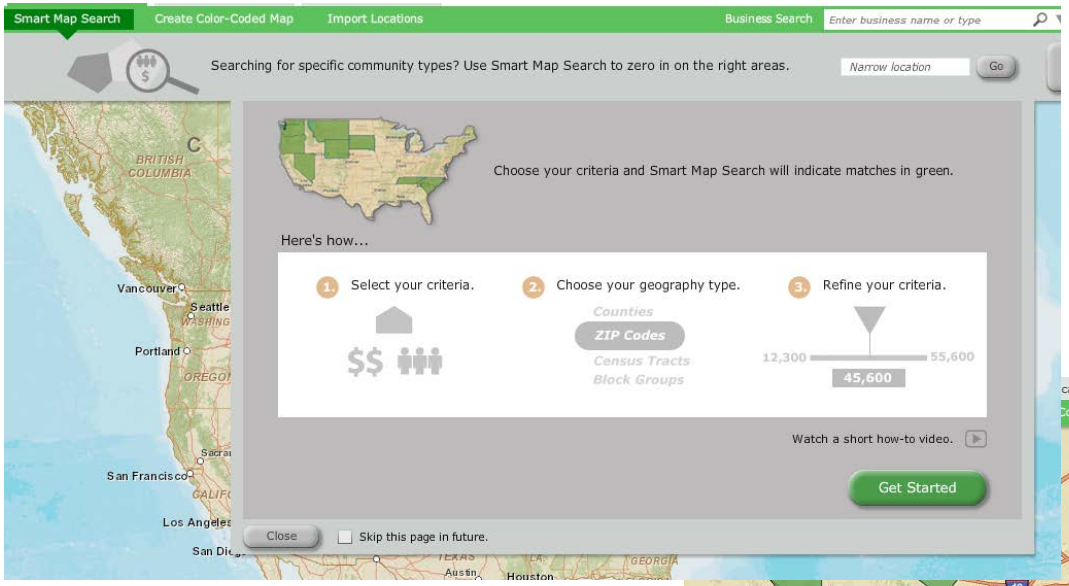
## Online Collaboration

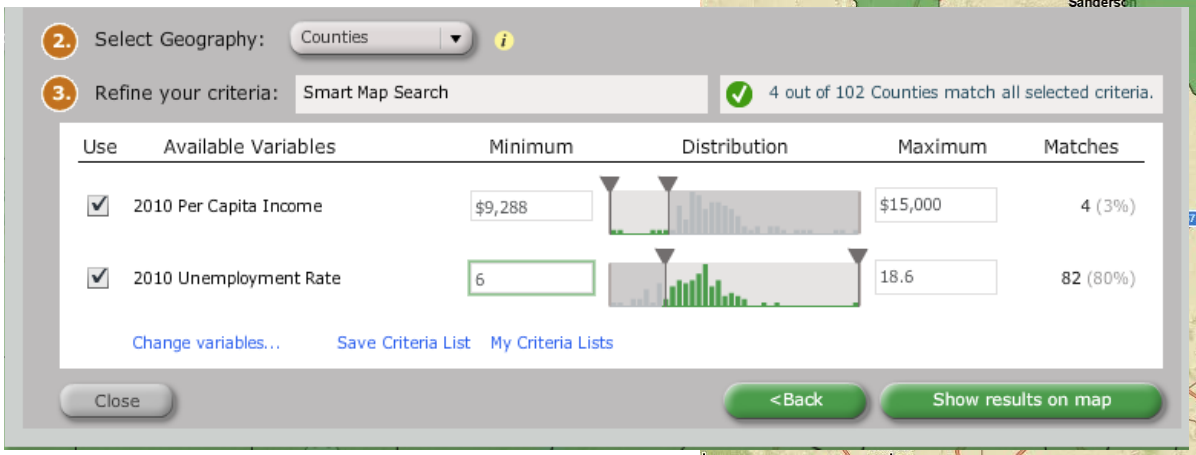


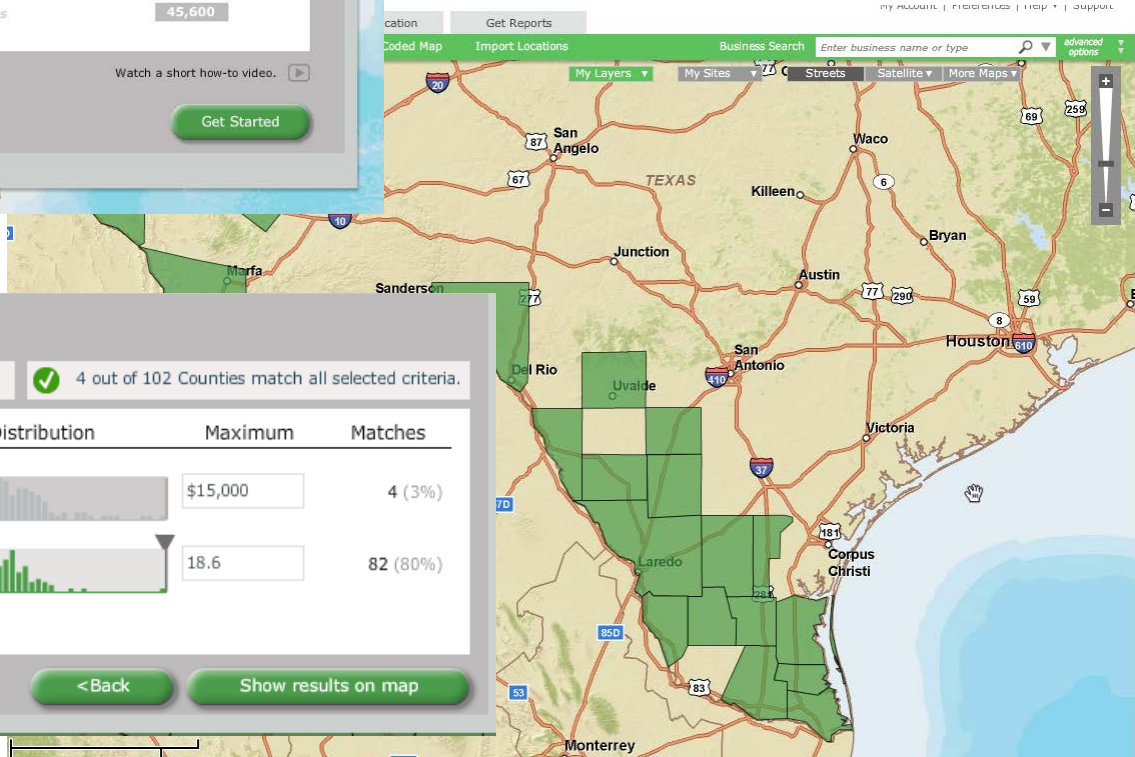
# Users have many options for classifying and displaying data



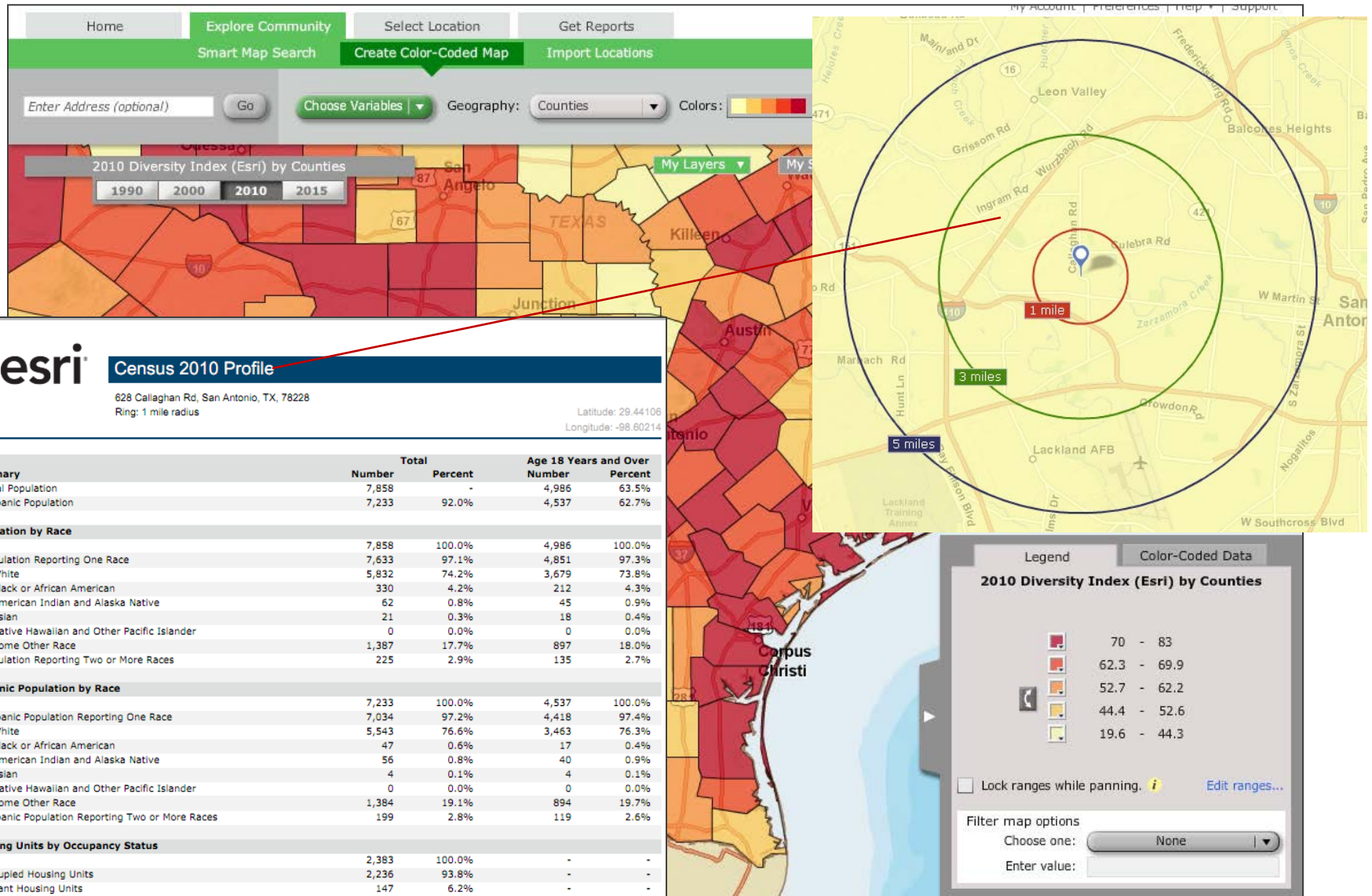
**Environmental Analyst** allows users access to a wealth of ESRI custom data, Census data, and EPA data in order to query across diverse datasets and target areas that meet users' criteria.



# Users can then create custom reports and maps comparing variables across geographies




esri

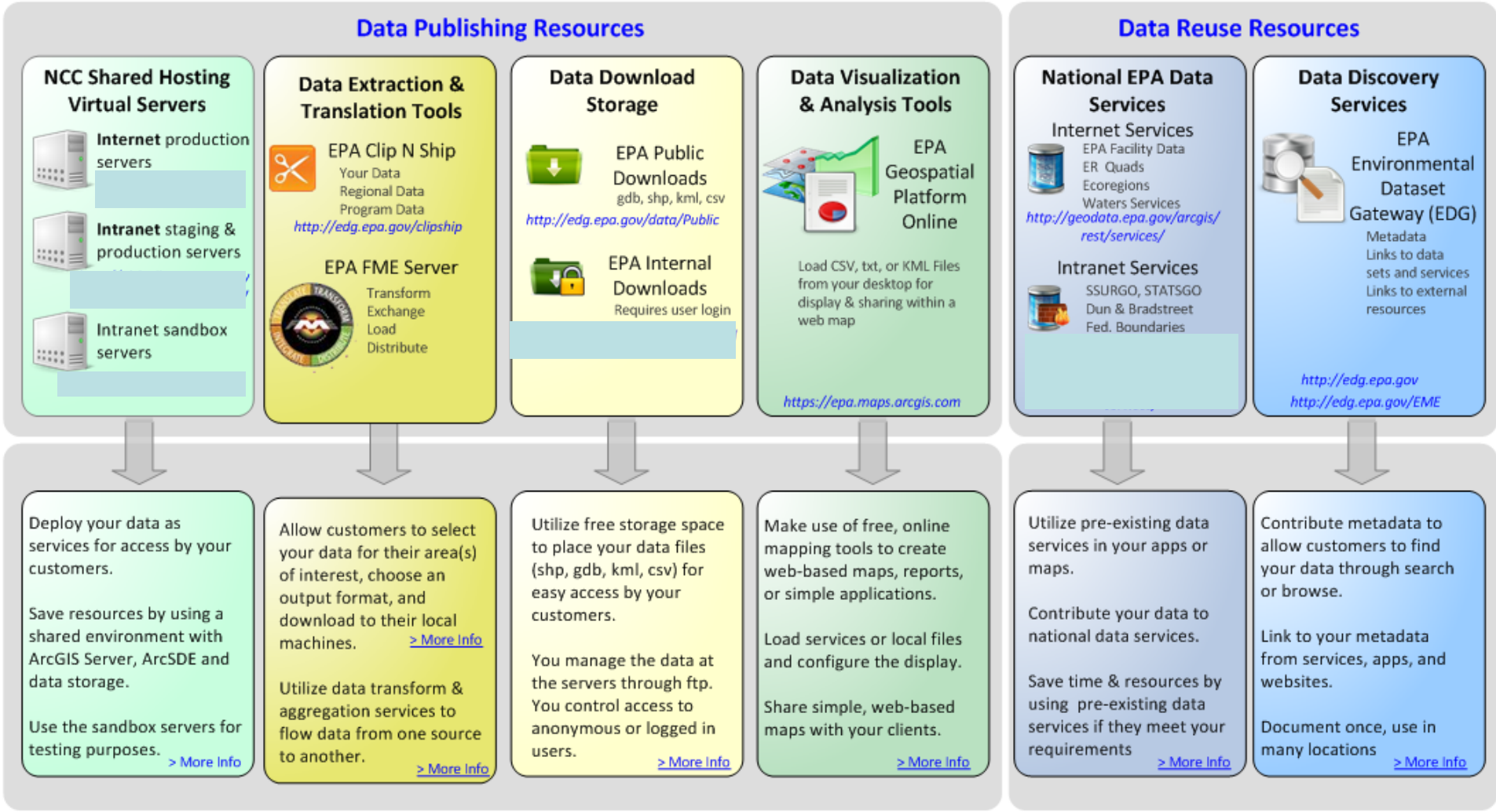
## Census 2010 Profile

628 Callaghan Rd, San Antonio, TX, 78228
Ring: 1 mile radius

Latitude: 29.44106
Longitude: -98.60214

| Summary | Total Number | Total Percent | Age 18 Years and Over Number | Age 18 Years and Over Percent |
|---|---|---|---|---|
| Total Population | 7,858 | - | 4,986 | 63.5% |
| Hispanic Population | 7,233 | 92.0% | 4,537 | 62.7% |
| **Population by Race** | | | | |
| Total | 7,858 | 100.0% | 4,986 | 100.0% |
| Population Reporting One Race | 7,633 | 97.1% | 4,851 | 97.3% |
| White | 5,832 | 74.2% | 3,679 | 73.8% |
| Black or African American | 330 | 4.2% | 212 | 4.3% |
| American Indian and Alaska Native | 62 | 0.8% | 45 | 0.9% |
| Asian | 21 | 0.3% | 18 | 0.4% |
| Native Hawaiian and Other Pacific Islander | 0 | 0.0% | 0 | 0.0% |
| Some Other Race | 1,387 | 17.7% | 897 | 18.0% |
| Population Reporting Two or More Races | 225 | 2.9% | 135 | 2.7% |
| **Hispanic Population by Race** | | | | |
| Total | 7,233 | 100.0% | 4,537 | 100.0% |
| Hispanic Population Reporting One Race | 7,034 | 97.2% | 4,418 | 97.4% |
| White | 5,543 | 76.6% | 3,463 | 76.3% |
| Black or African American | 47 | 0.6% | 17 | 0.4% |
| American Indian and Alaska Native | 56 | 0.8% | 40 | 0.9% |
| Asian | 4 | 0.1% | 4 | 0.1% |
| Native Hawaiian and Other Pacific Islander | 0 | 0.0% | 0 | 0.0% |
| Some Other Race | 1,384 | 19.1% | 894 | 19.7% |
| Hispanic Population Reporting Two or More Races | 199 | 2.8% | 119 | 2.6% |
| **Housing Units by Occupancy Status** | | | | |
| Total | 2,383 | 100.0% | - | - |
| Occupied Housing Units | 2,236 | 93.8% | - | - |
| Vacant Housing Units | 147 | 6.2% | - | - |

# National Projects



# FRS and Envirofacts

Envirofacts allows you to search multiple environmental databases for facility information, including toxic chemical releases, water discharge permit compliance, hazardous waste handling processes, Superfund status, and air emission estimates.

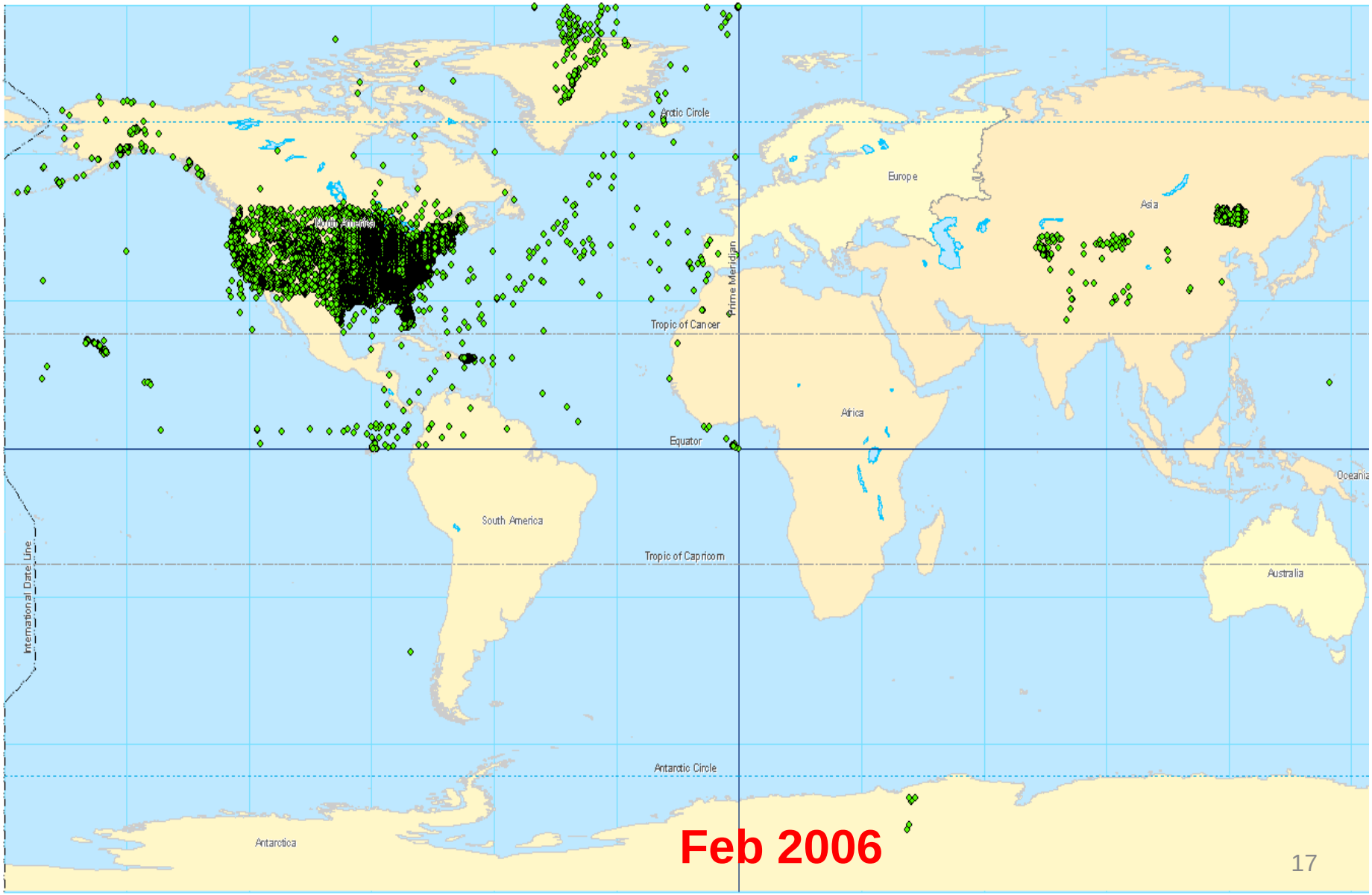
***Envirofacts communicates facility locations and delivers facility information to interested users***

# FRS and Envirofacts

## The Agency Repository of Places of Environmental Interest

- Creates a single, integrated set of facility identification information
  - Environmental Interests
  - Locational Coordinates
  - Affiliation
- Provides links to EPA's media information systems
- Conforms to the Data Standard
- Verifies the quality of data, including the linkages to EPA and State systems

# FRS and Envirofacts



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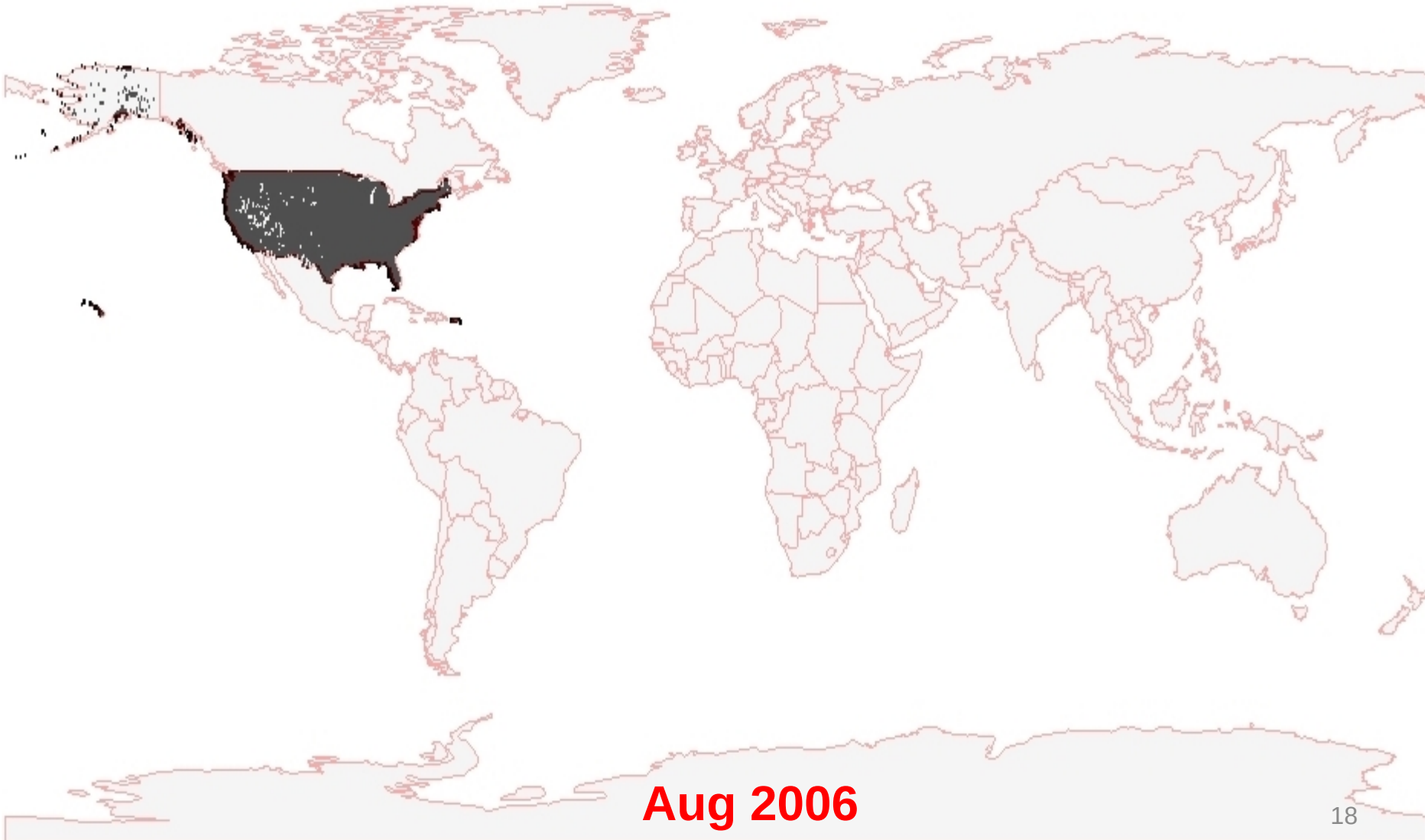
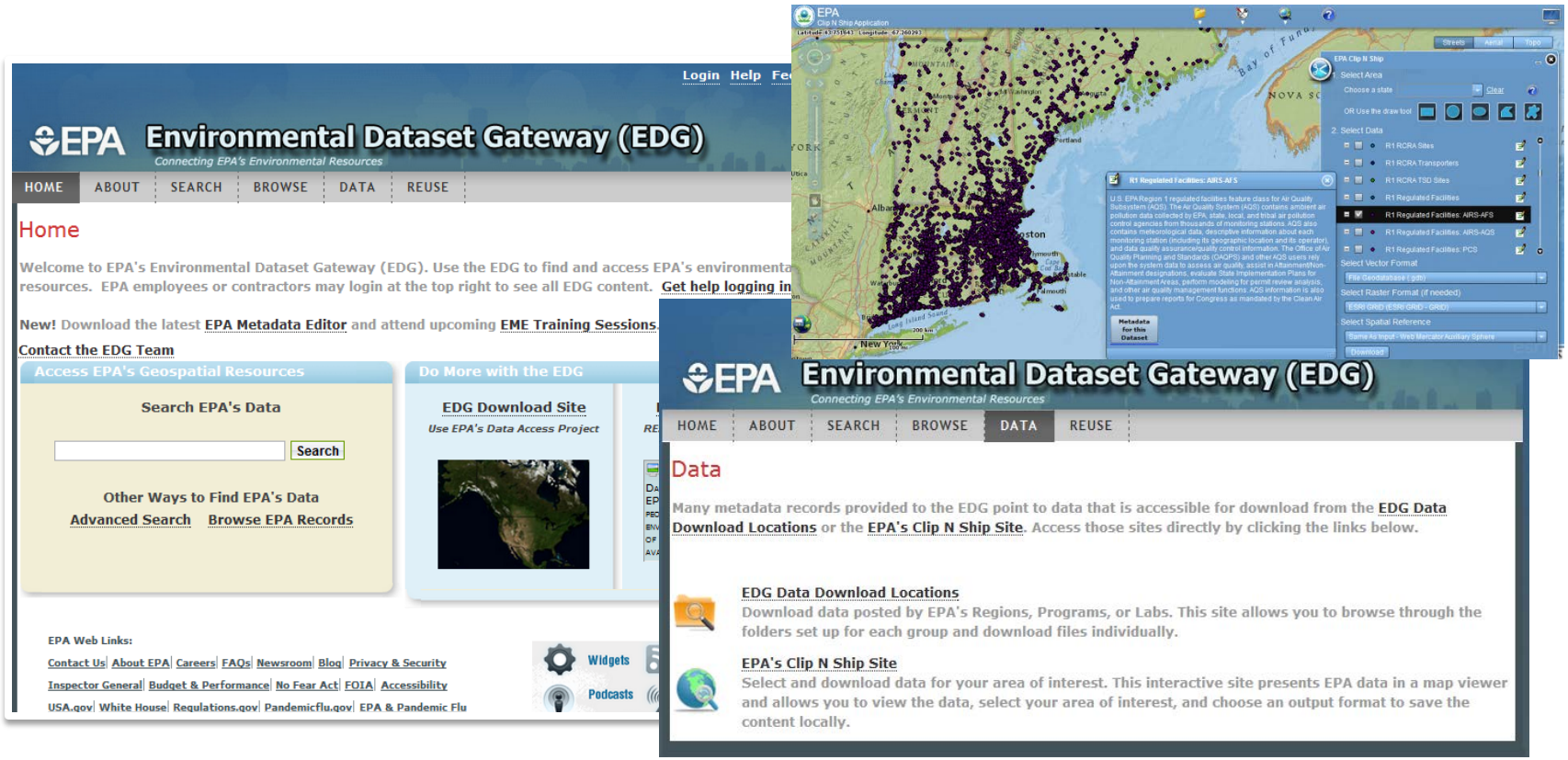


**Aug 2006**

# Environmental Data Gateway (EDG)

- Satisfying the Need for GIS Data
  - Data User Needs
    - Easily find and access data
    - Understanding what the data are all about
    - Finding data that contains the right content
    - Finding data in a  useful format
  - Data Provider Needs
    - Easy metadata management
    - Making data accessible to others
    - Providing documentation with data
    - Understanding who is using my data……

# Environmental Data Gateway (EDG)




(http://edg.epa.gov)

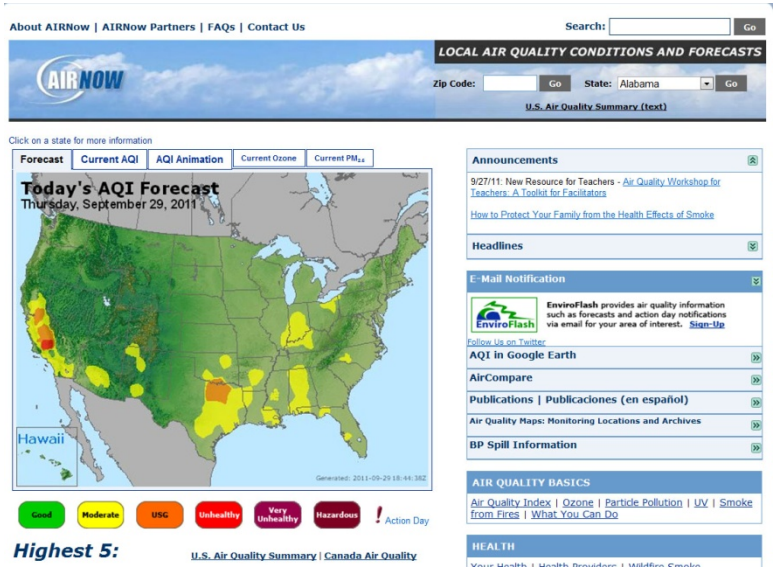
EPA

GEOSPATIAL PLATFORM
Resource Center
Show: Web Content Only
Help
Sign In
HOME
GALLERY
MAP
GROUPS
MY CONTENT
Find maps, applications and more...
Welcome to the
Geospatial Platform
The Geospatial Platform provides shared and trusted geospatial data, services, and applications for use by government agencies, their partners and the public
Featured Map:
NOAA Seamless Raster Nautical ...
Featured Maps
Explore featured maps and apps from all levels of government.
Collaborate in Groups
Work in public and private groups with others who share your interests and ideas.
Build Your Own Map
Create a map you can view anywhere on any device and share with anyone.

DATA.GOV
HOME
CATALOGS
STATE/LOCAL
FAQ
SUGGEST DATASE
DISCOVER.
PARTICIPATE.
ENGAGE.
Search the following Data.gov catalogs:
CSV
XML
KML
SHP
"RAW" DATA CATALOG
TOOL CATALOG
GEODATA CATALOG

NWQMC
NATIONAL WATER QUALITY MONITORING COUNCIL
Working Together for Clean Water

RECOVERY.GOV
TRACK THE MONEY
RECIPIENT REPORTED AWARDS MAP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Zip Code:
State: Alabama
U.S. Air Quality Summary (text)
Click on a state for more information
Forecast
Current AQI
AQI Animation
Current Ozone
Current PM2.5
Today's AQI Forecast
Thursday, September 29, 2011
Hawaii
Good
Moderate
USG
Unhealthy
Very Unhealthy
Hazardous
Action Day
Highest 5:
U.S. Air Quality Summary | Canada Air Quality
Announcements
9/27/11: New Resource for Teachers - Air Quality Workshop for Teachers: A Toolkit for Facilitators
How to Protect Your Family from the Health Effects of Smoke
Headlines
E-Mail Notification
EnviroFlash
EnviroFlash provides air quality information such as forecasts and action day notifications via email for your area of interest. Sign-Up
Follow Us on Twitter
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AirCompare
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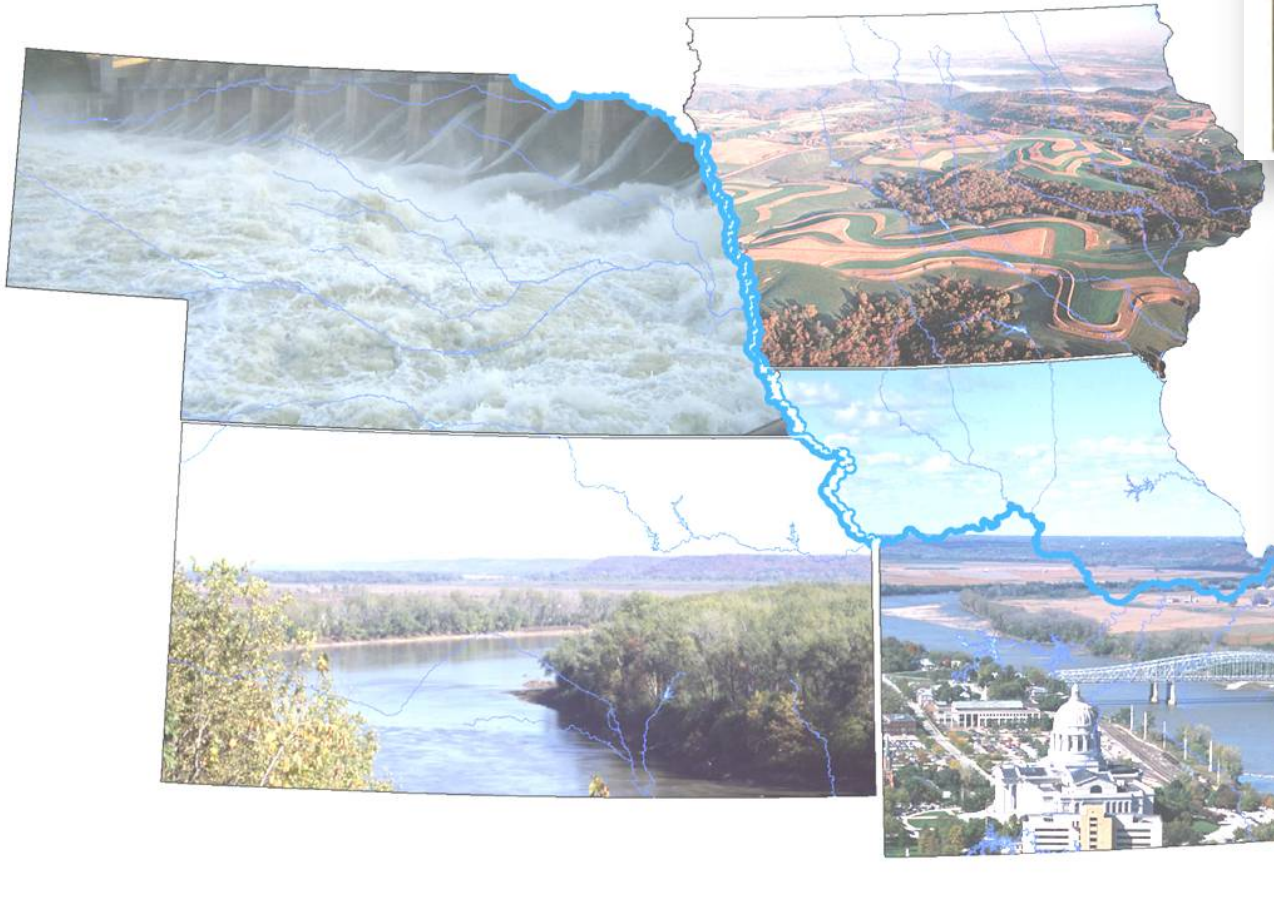
Air Quality Maps: Monitoring Locations and Archives
BP Spill Information
AIR QUALITY BASICS
Air Quality Index | Ozone | Particle Pollution | UV | Smoke from Fires | What You Can Do
HEALTH

# What we do regionally



Region 7 Offices

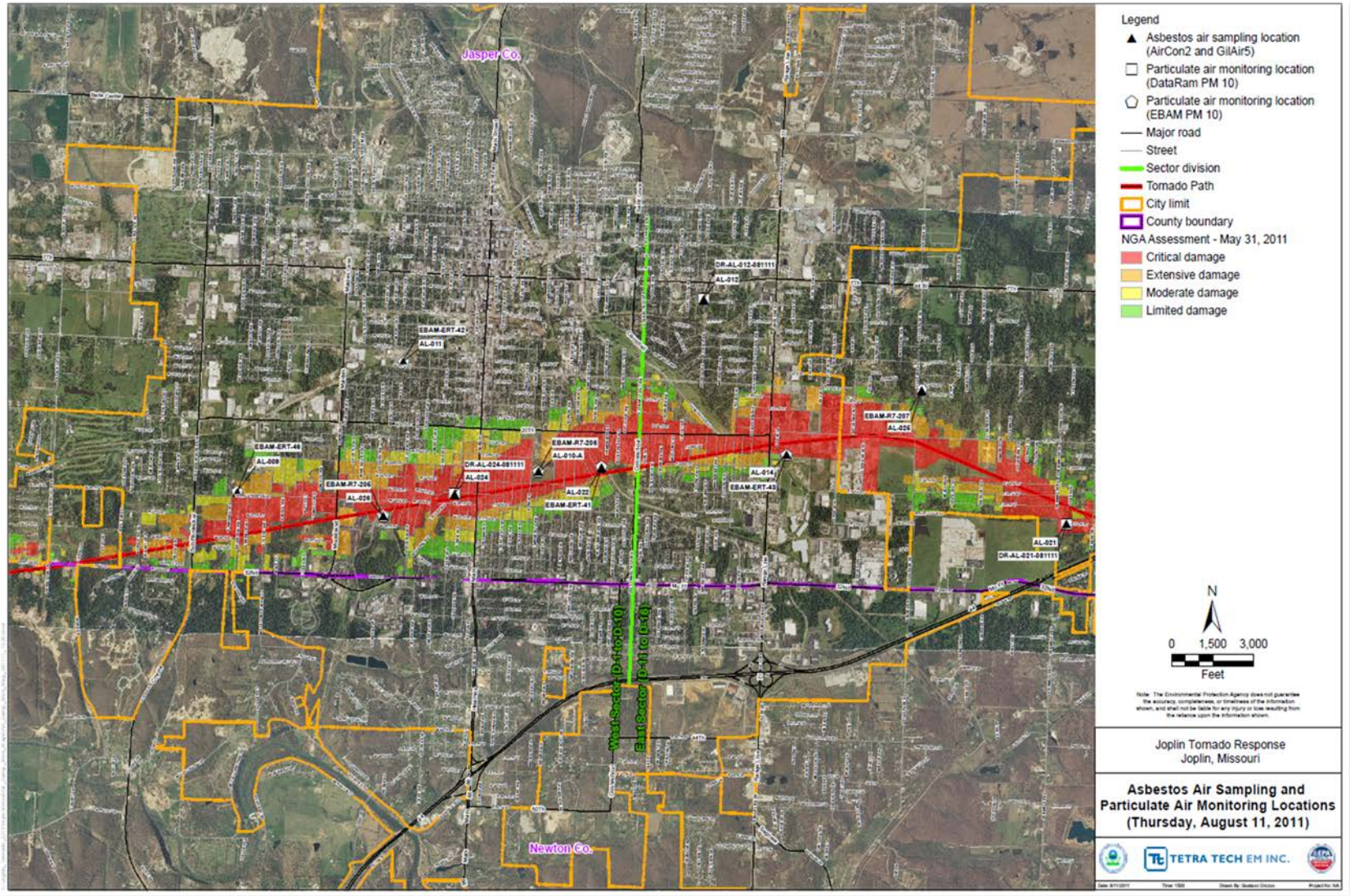
Science & Technology Center

Training & Logistics
Aka the “Cave”

# What we do regionally

Chem-Central Fire, Kansas City, Mo

# What we do regionally



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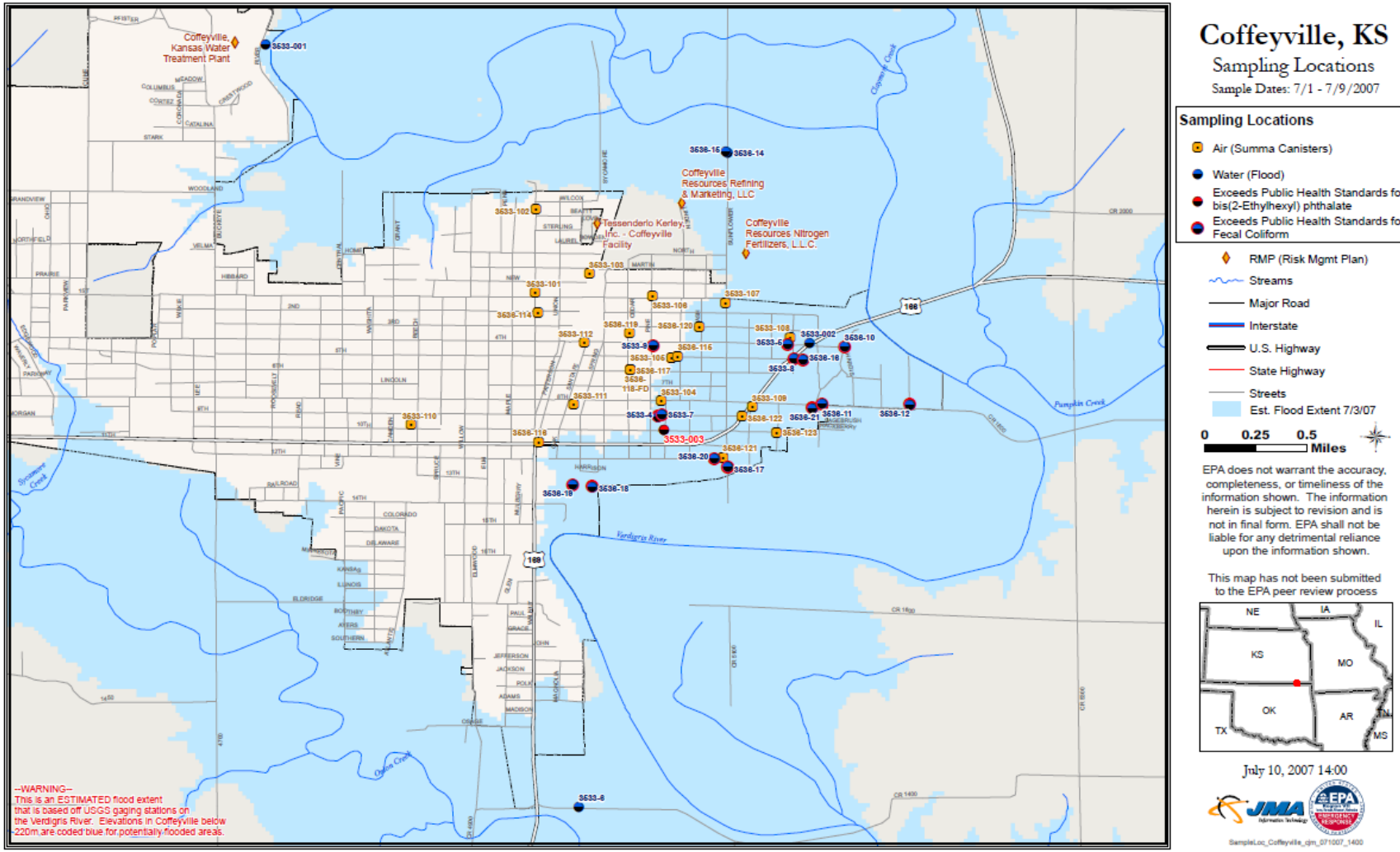
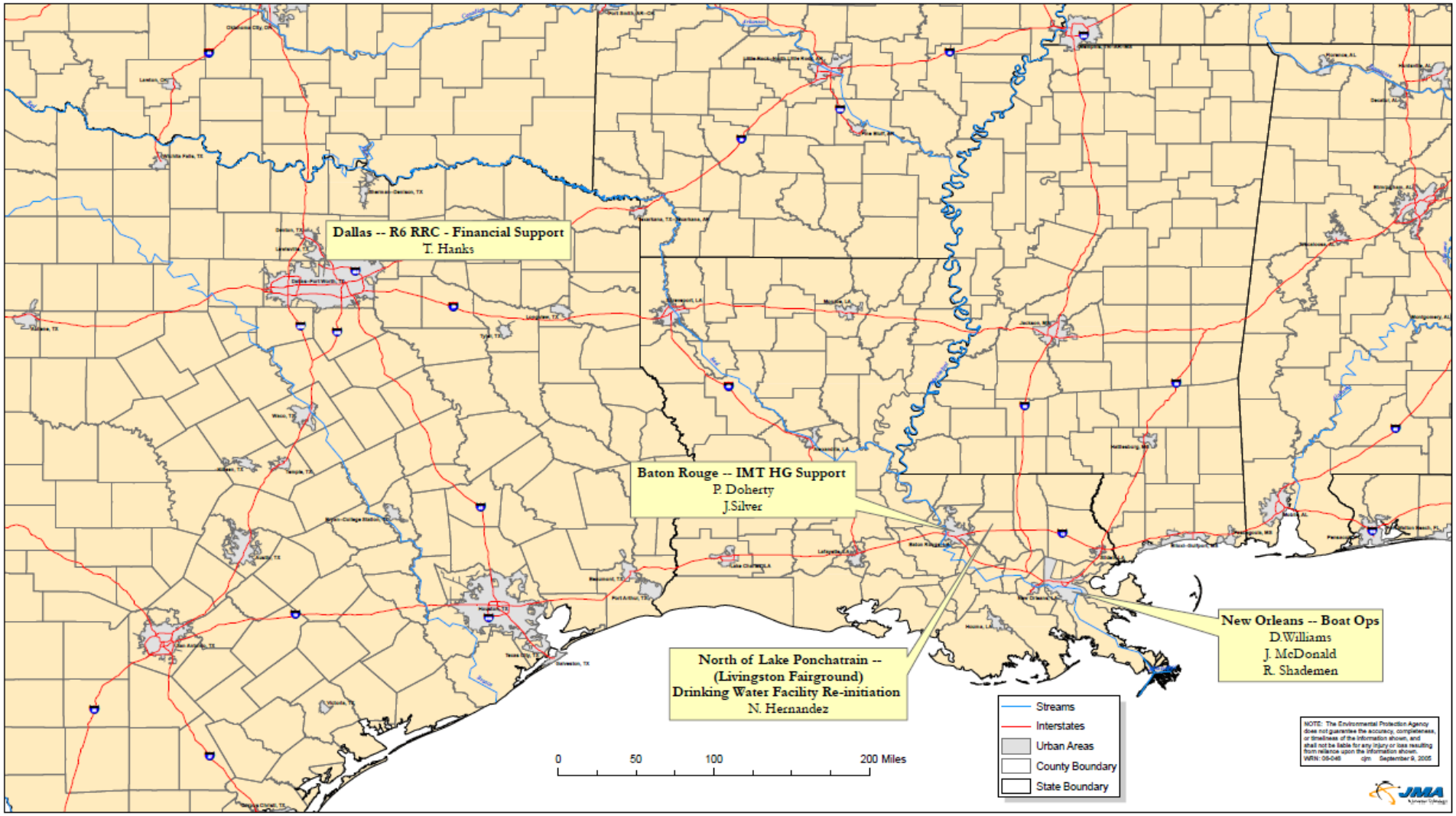


# What we do regionally

EPA Region 7

## EPA Region 7 Staff Deployed in Response to Hurricane Katrina
## September 9, 2005



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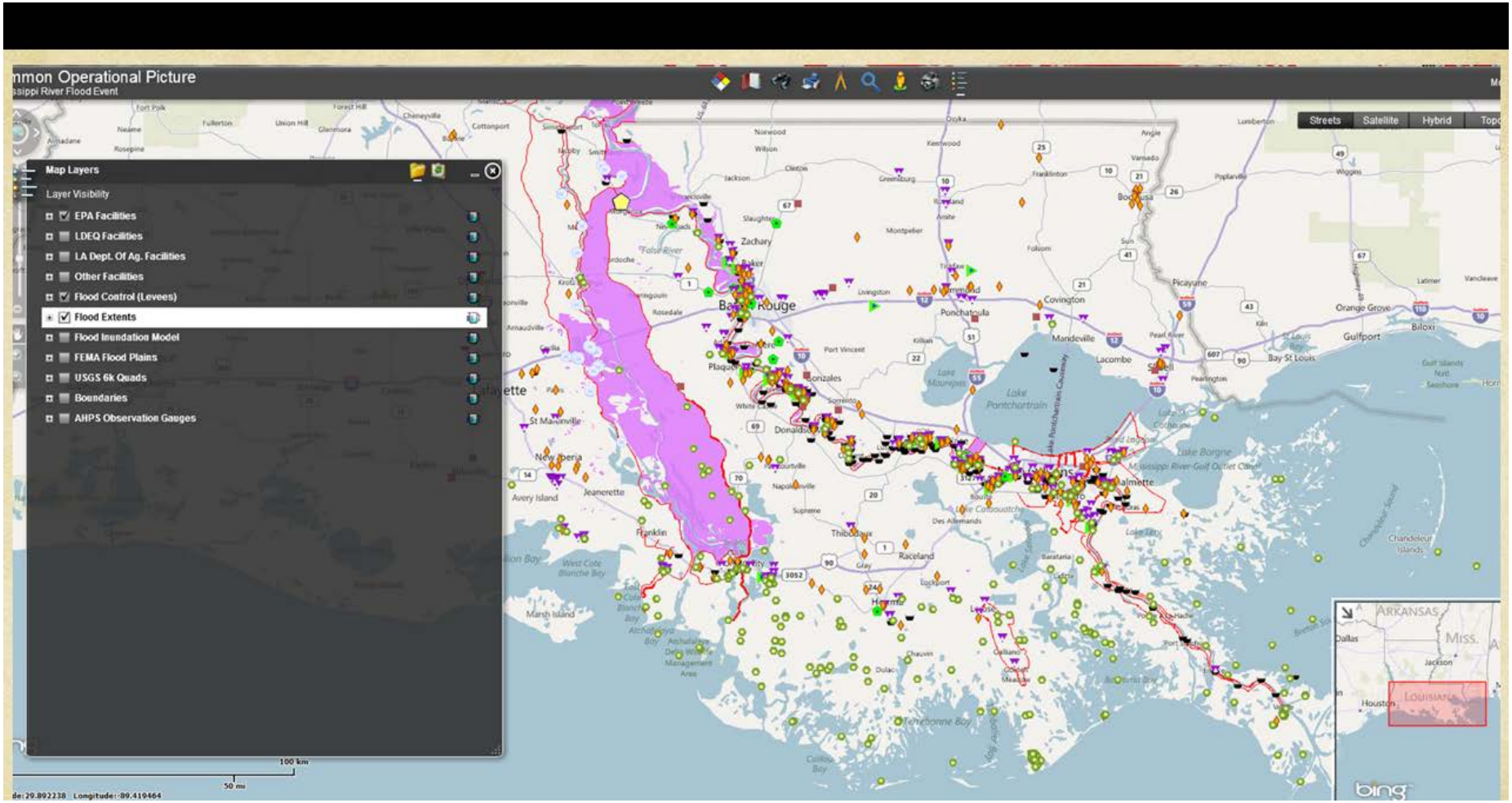

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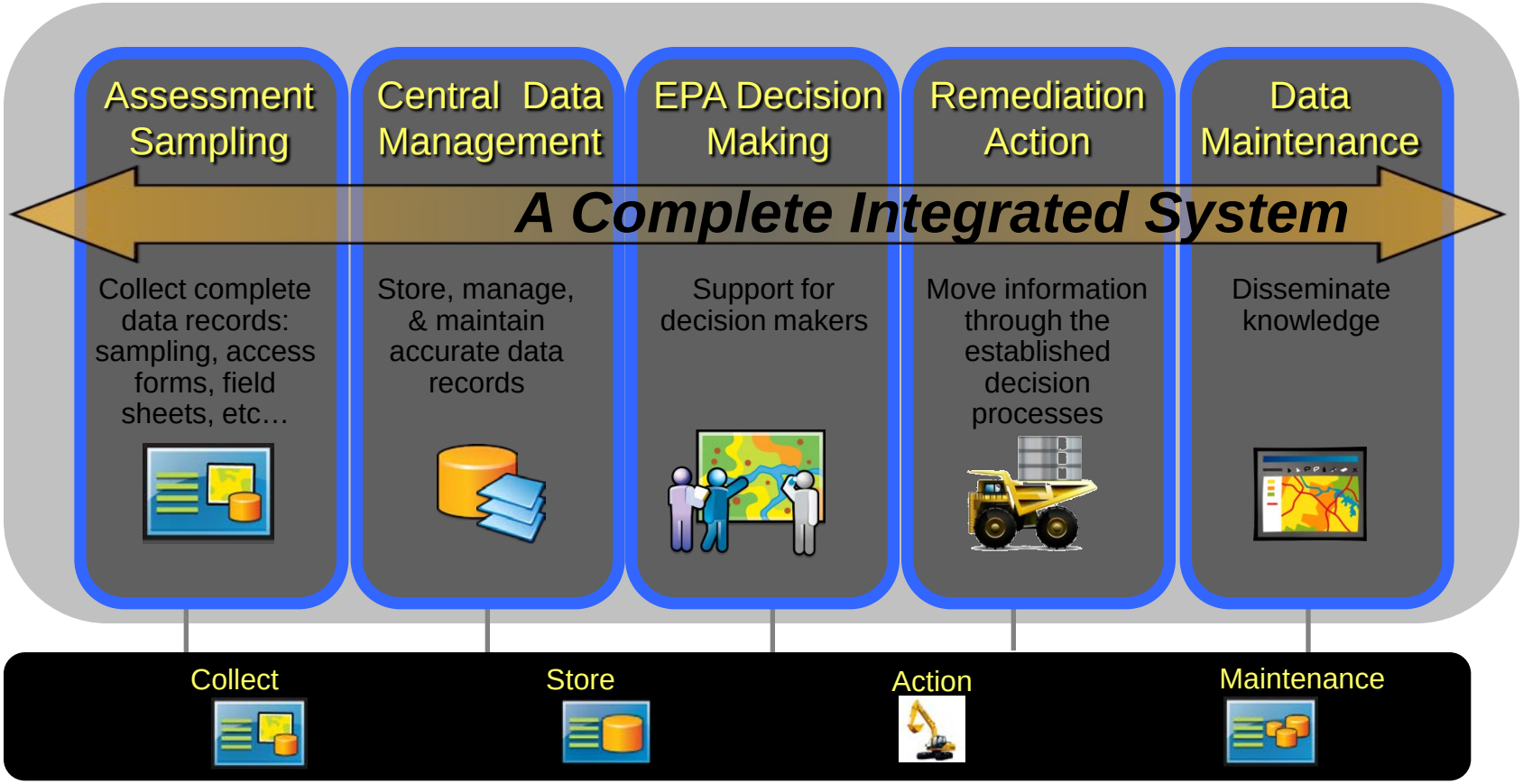
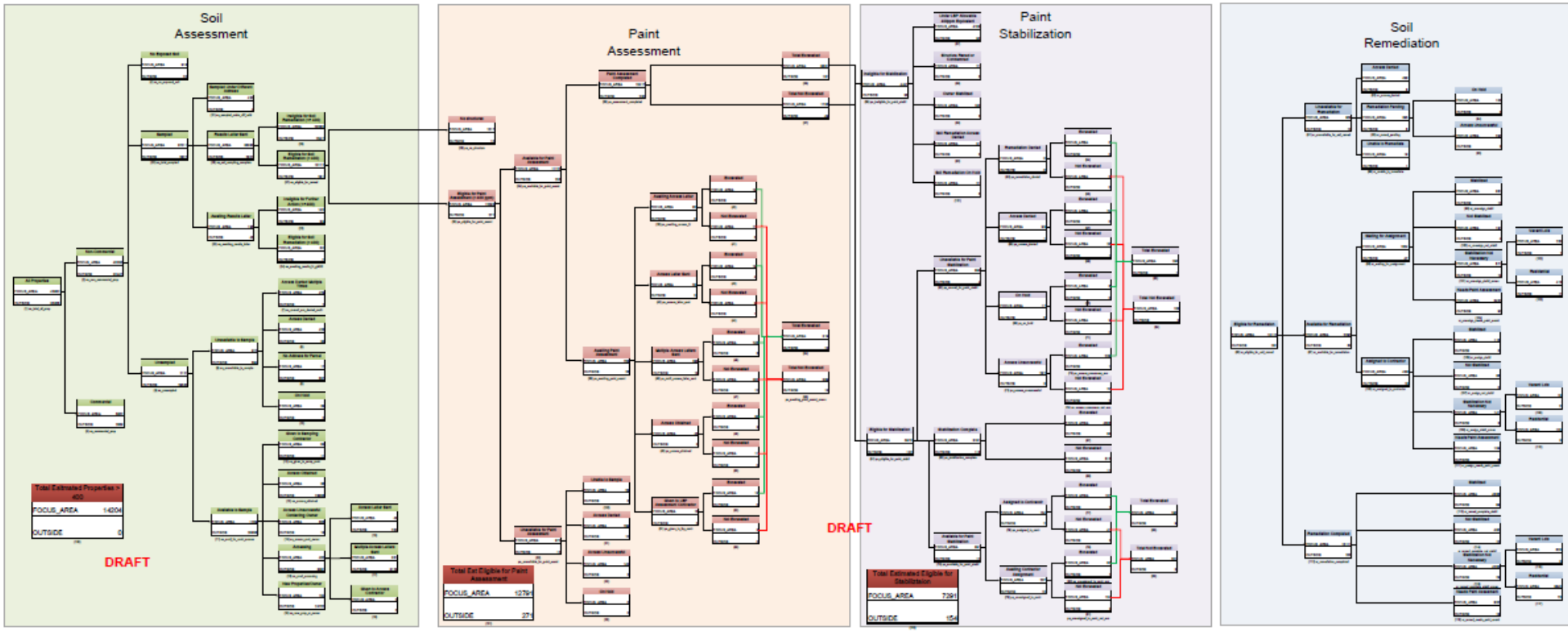



"Using **all the tools** at our disposal, including enforcement and compliance efforts, we will continue to focus on making safer, healthier communities."

--Lisa Jackson

# Lead Remediation Process Support



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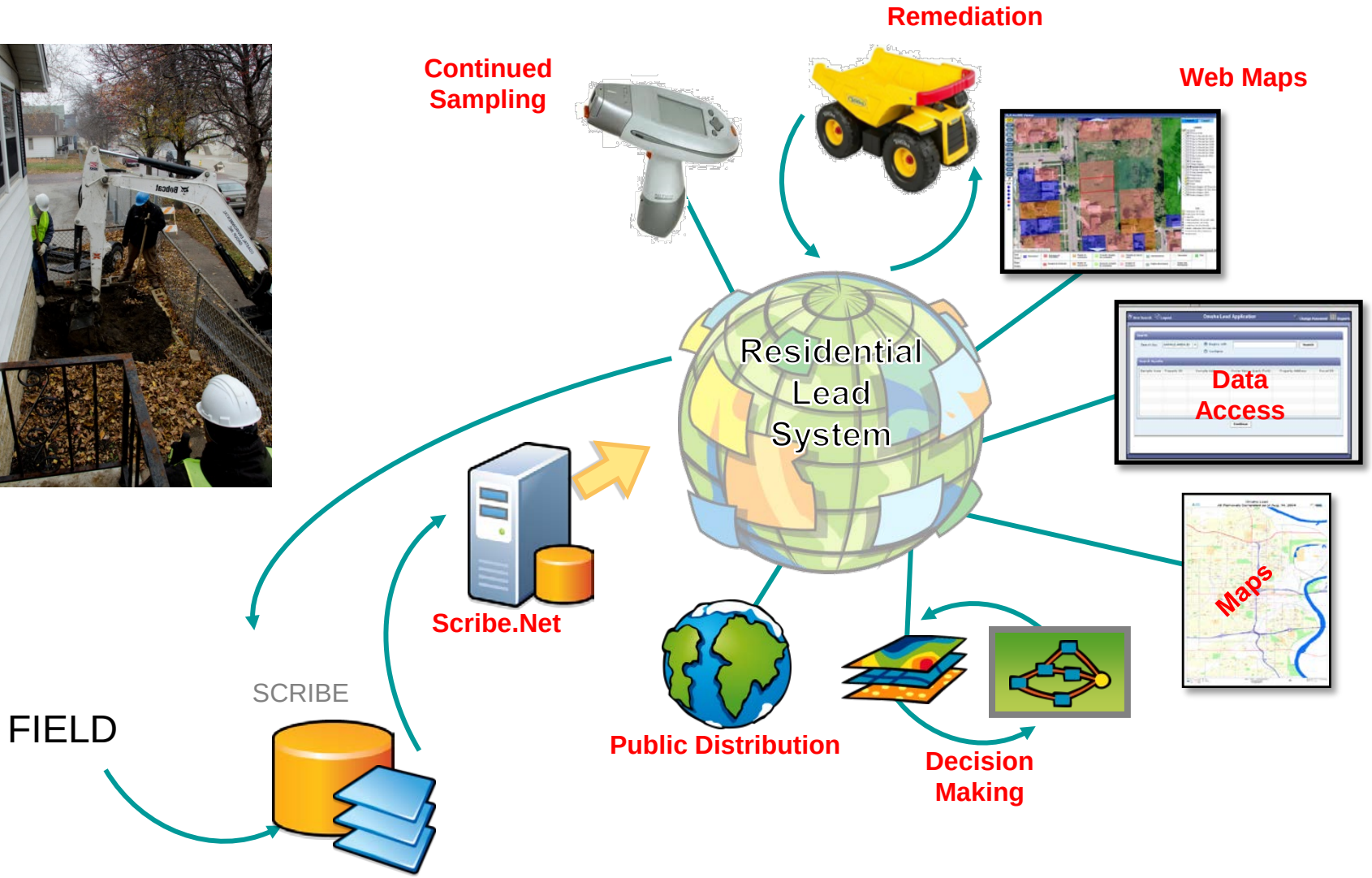

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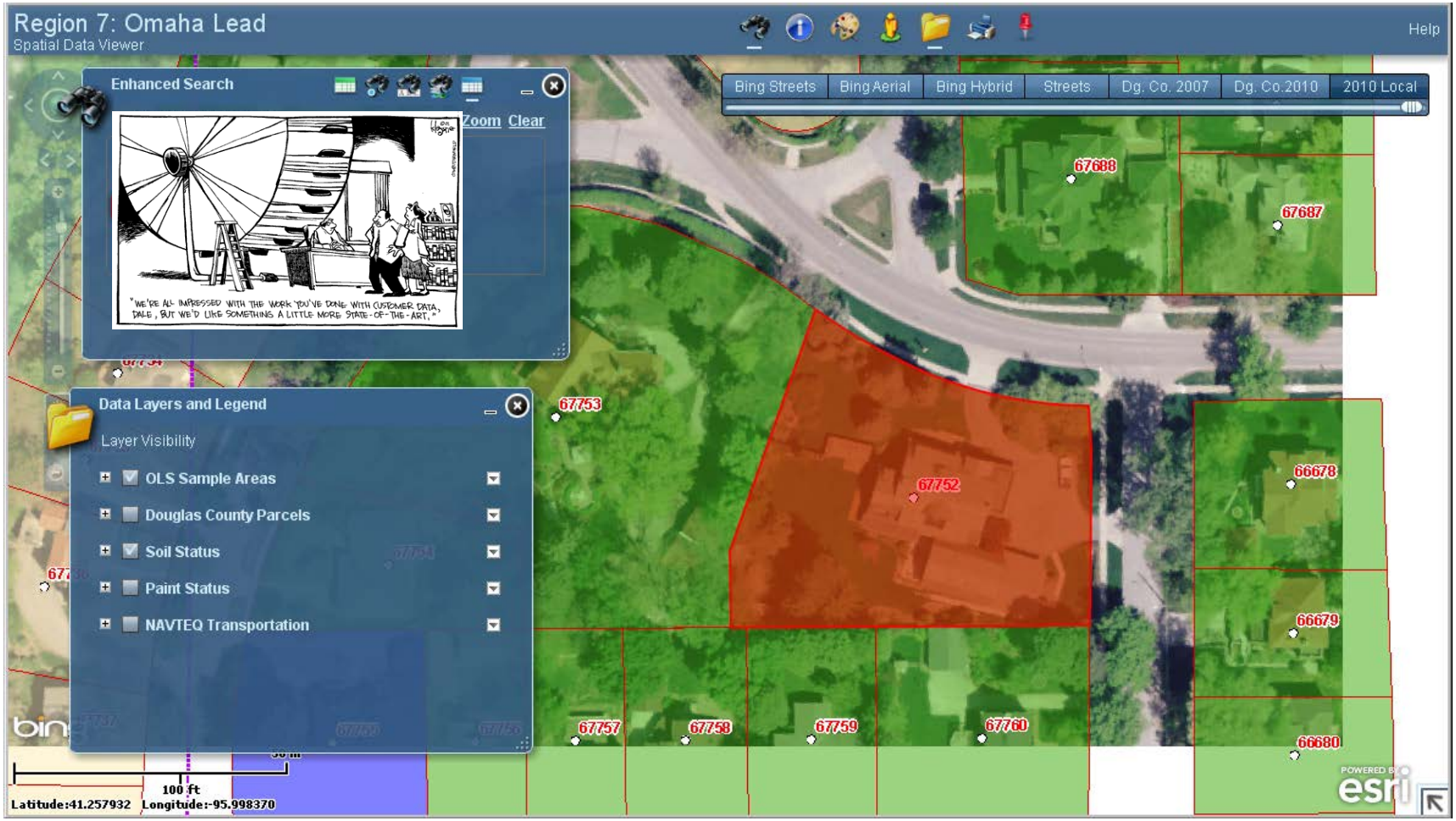

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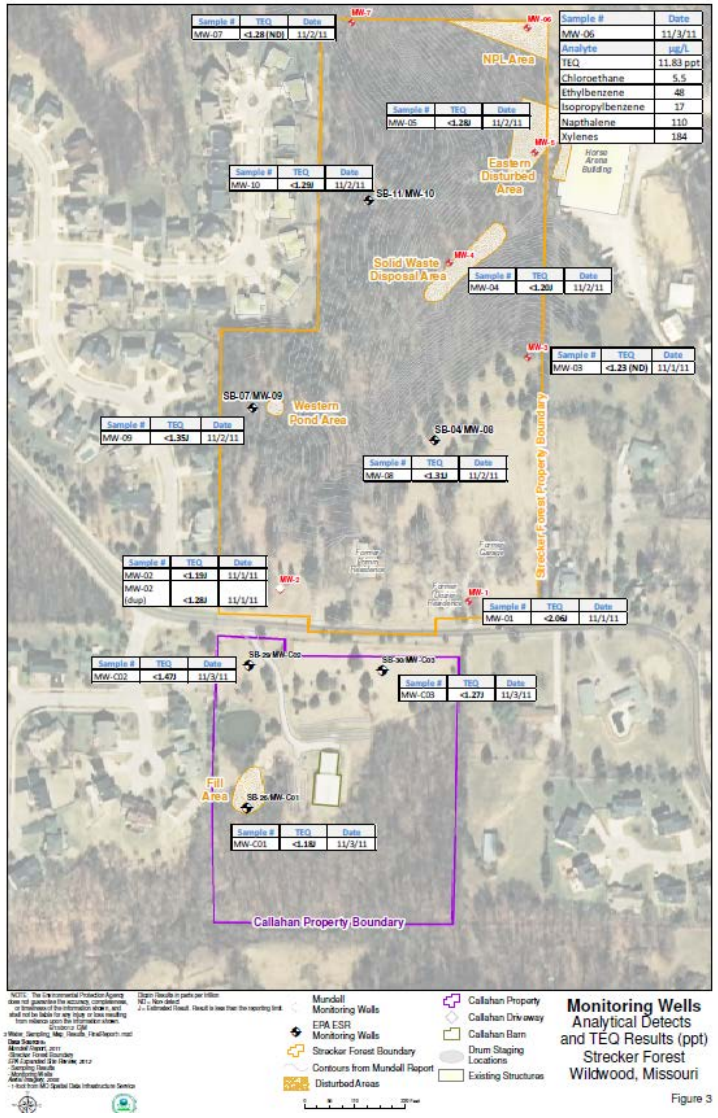


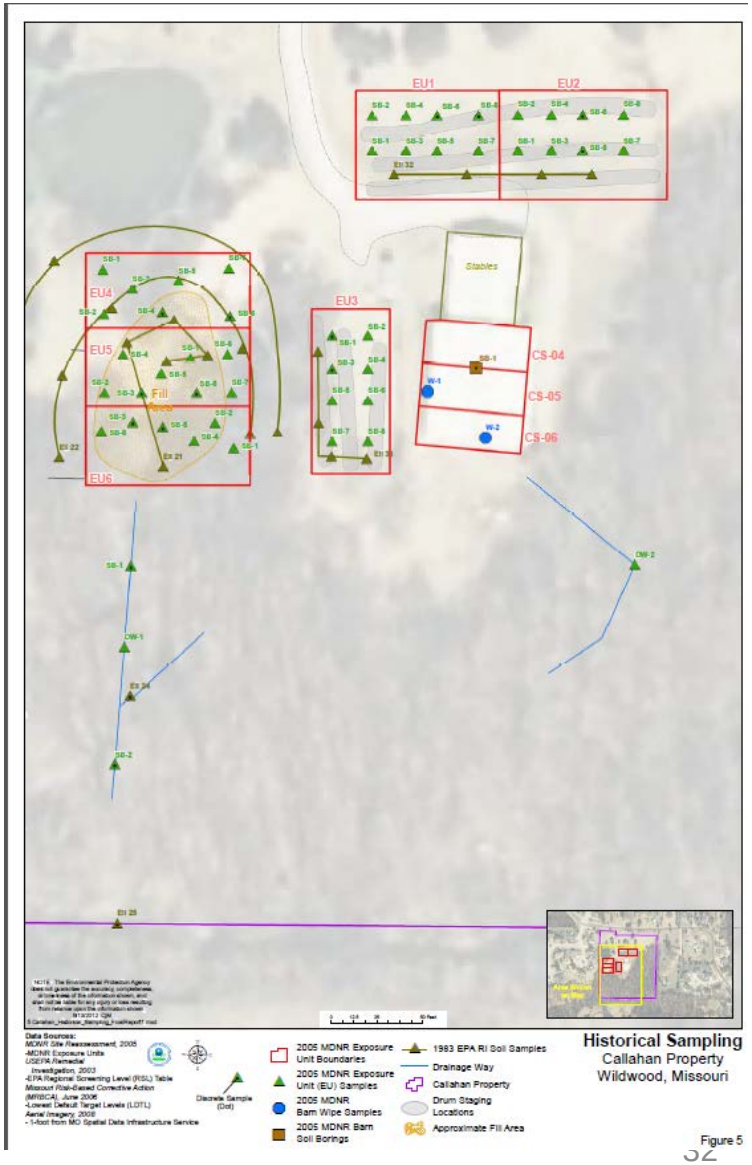

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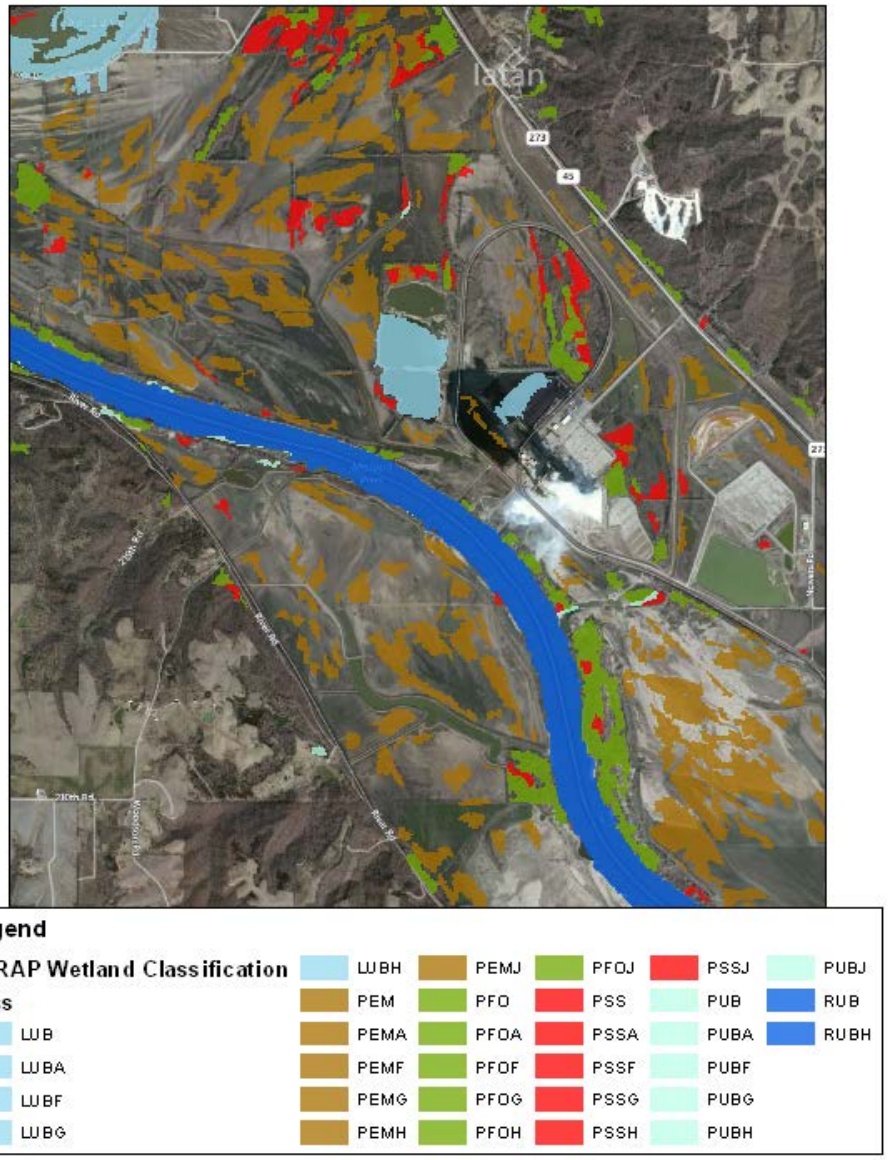

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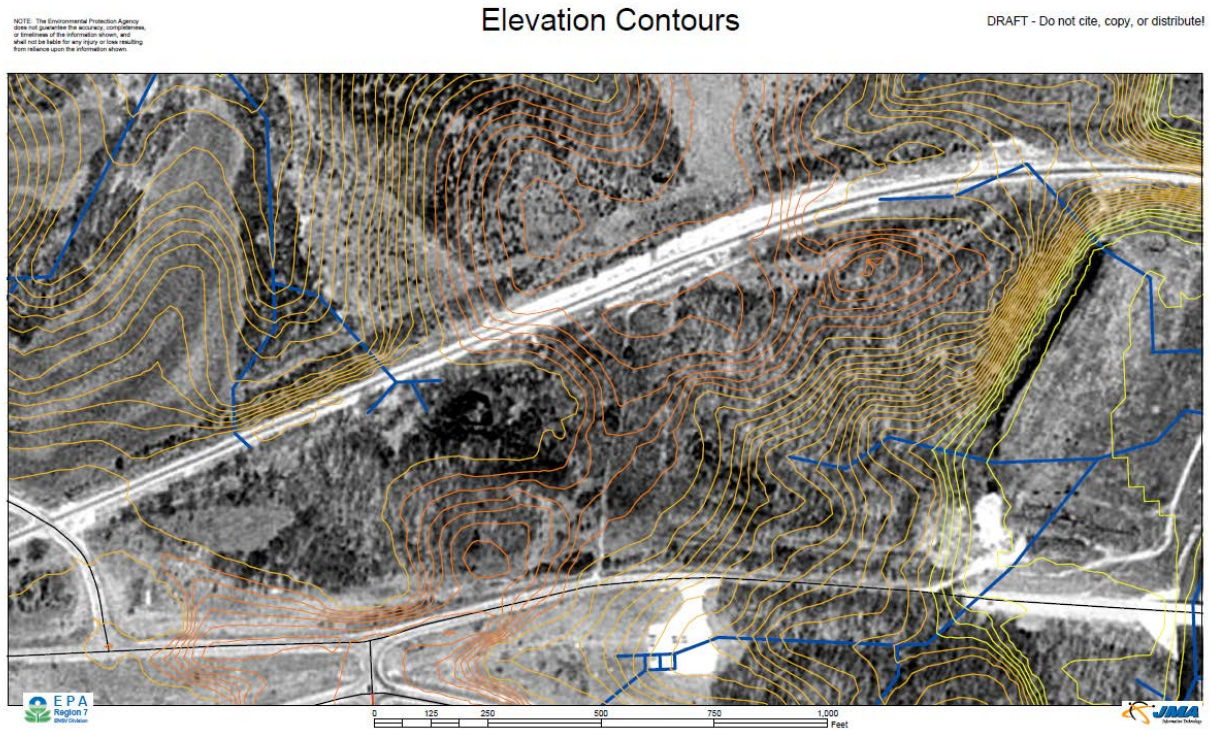

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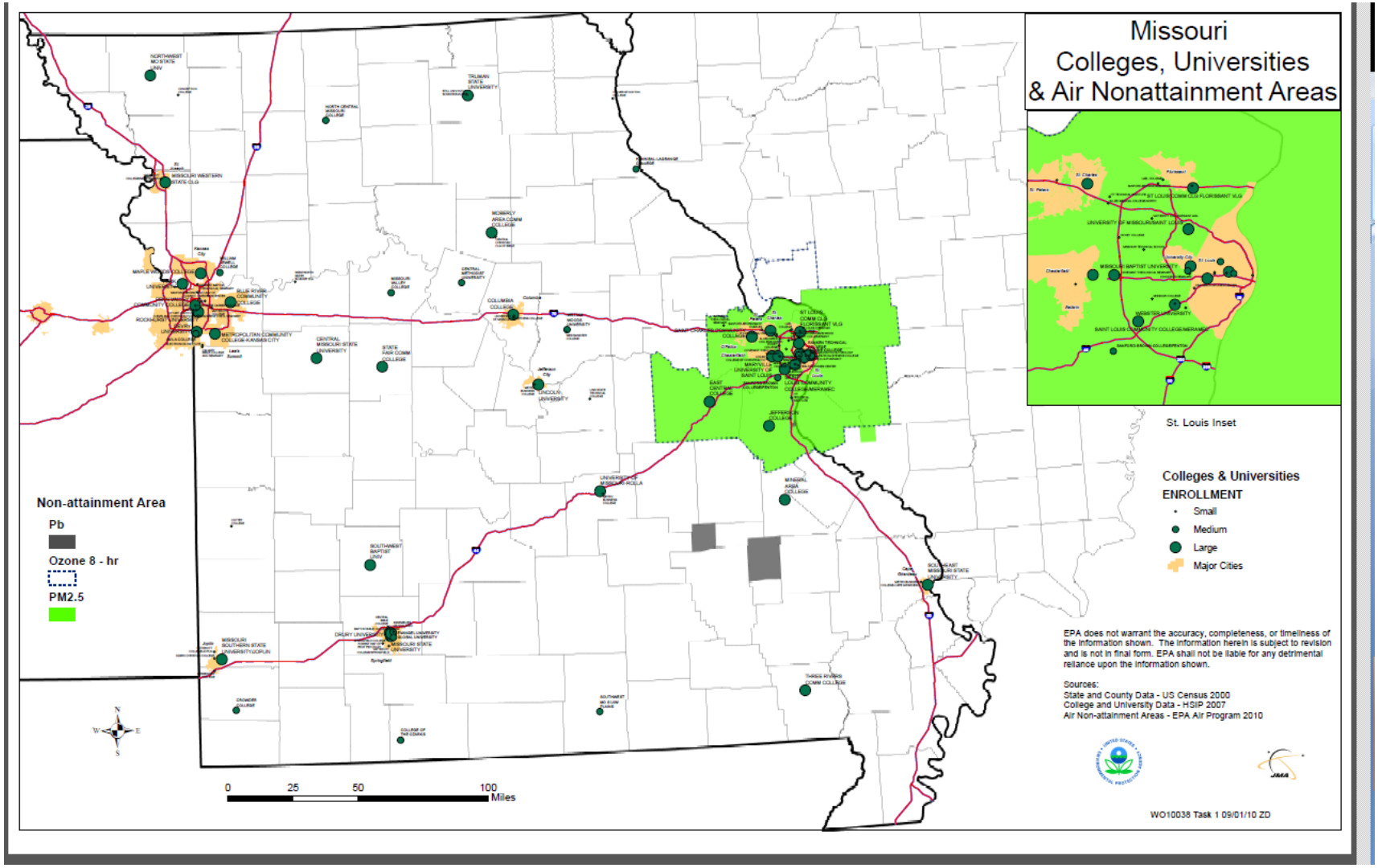

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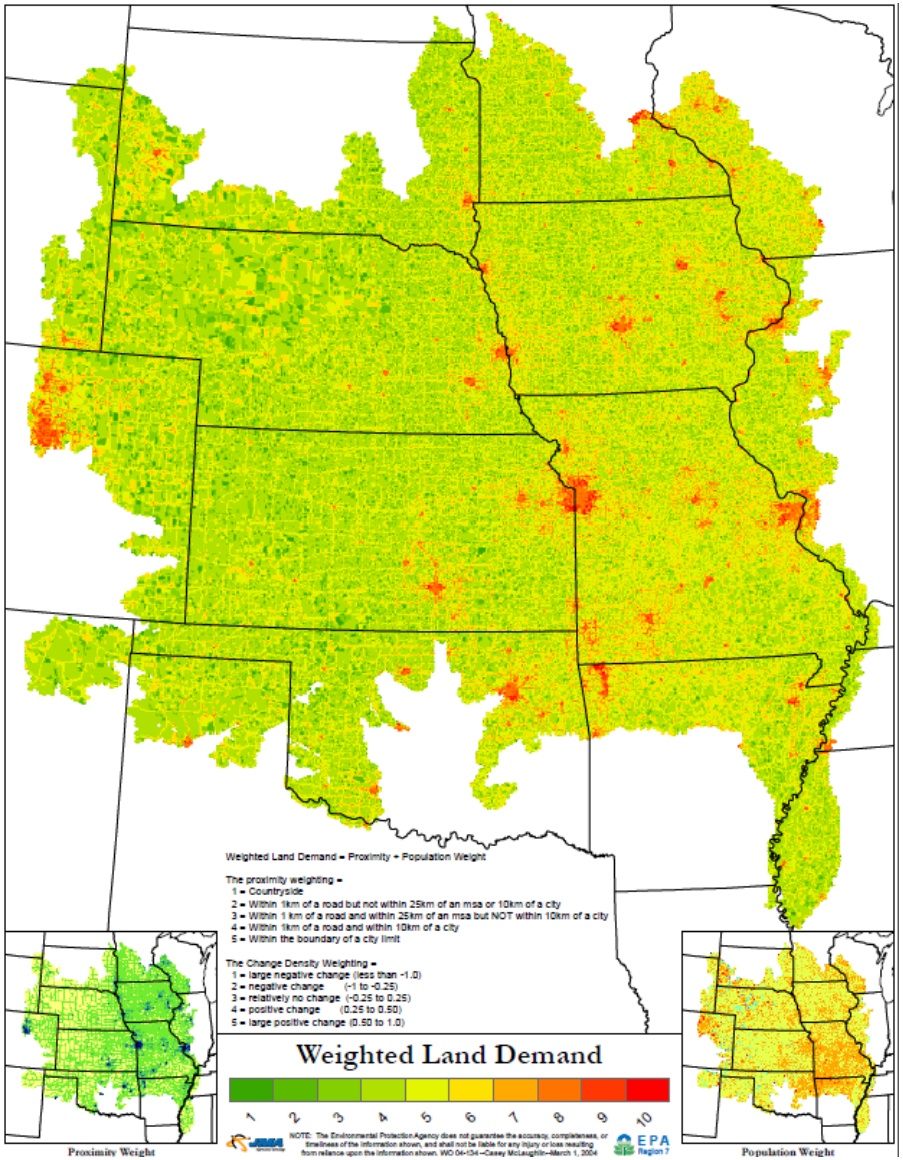


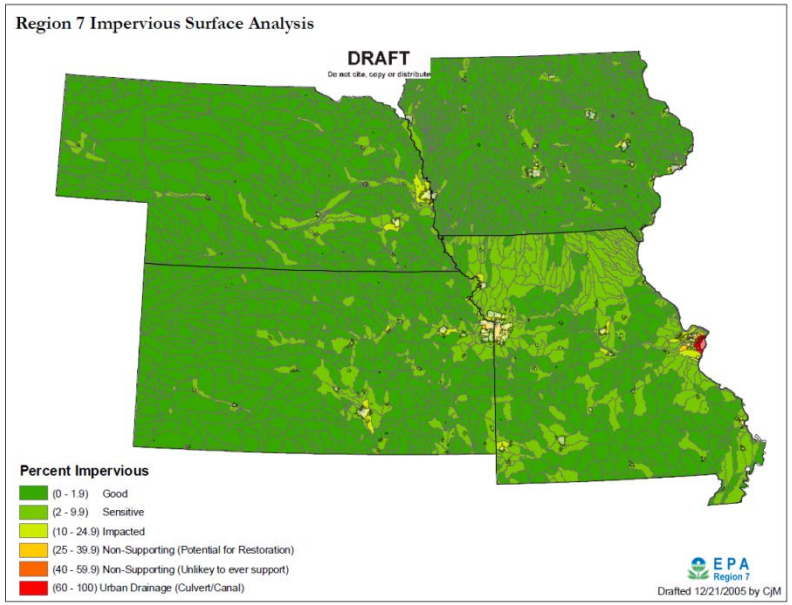


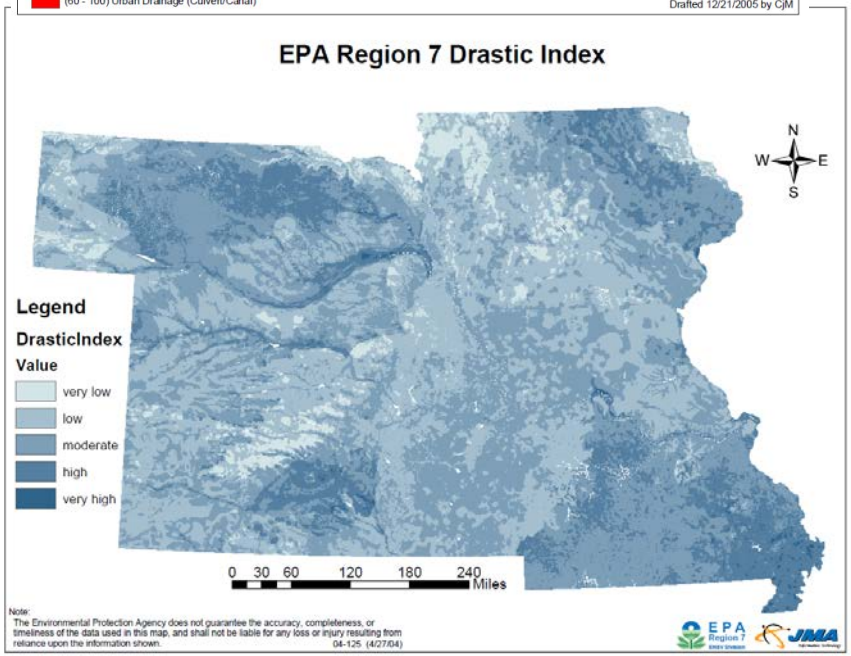

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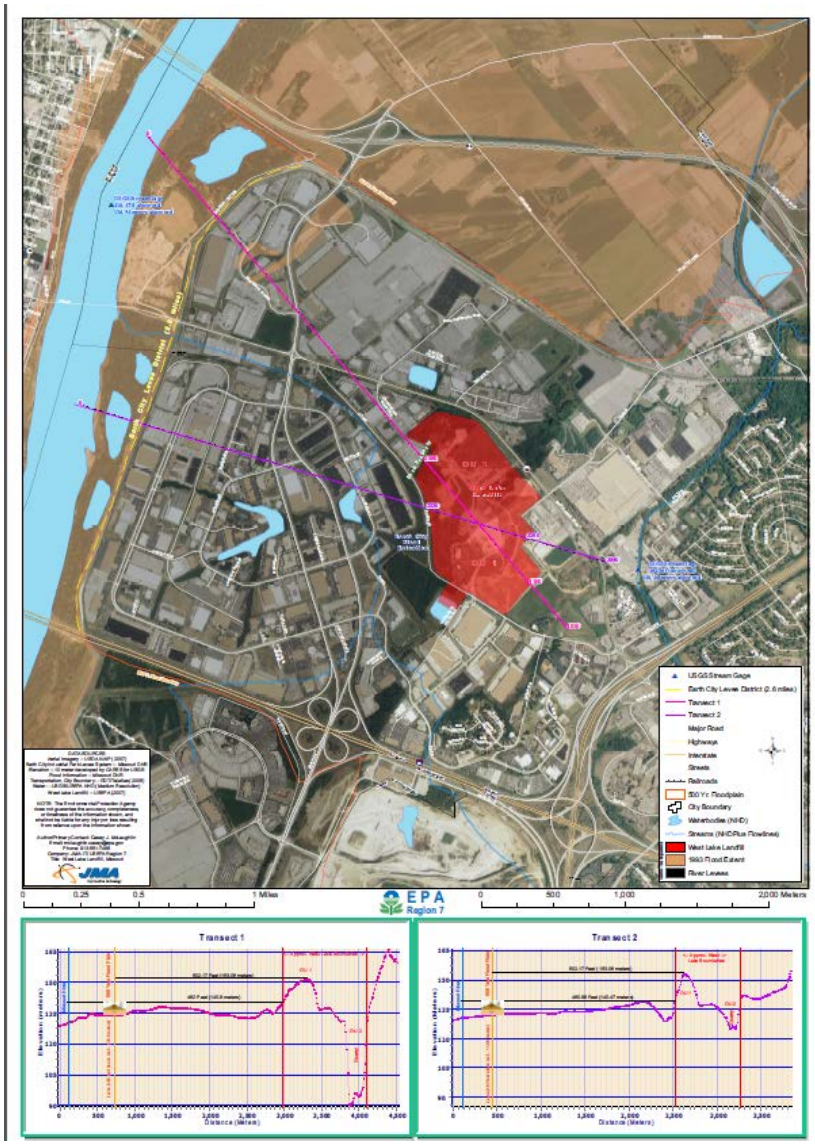


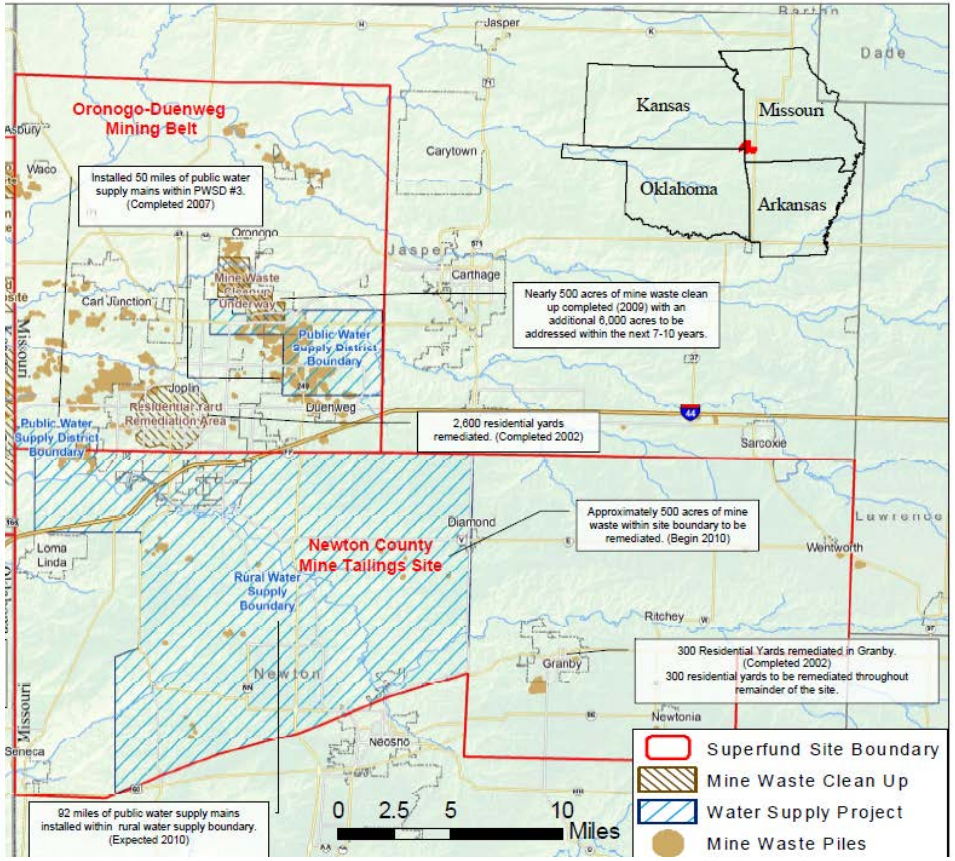

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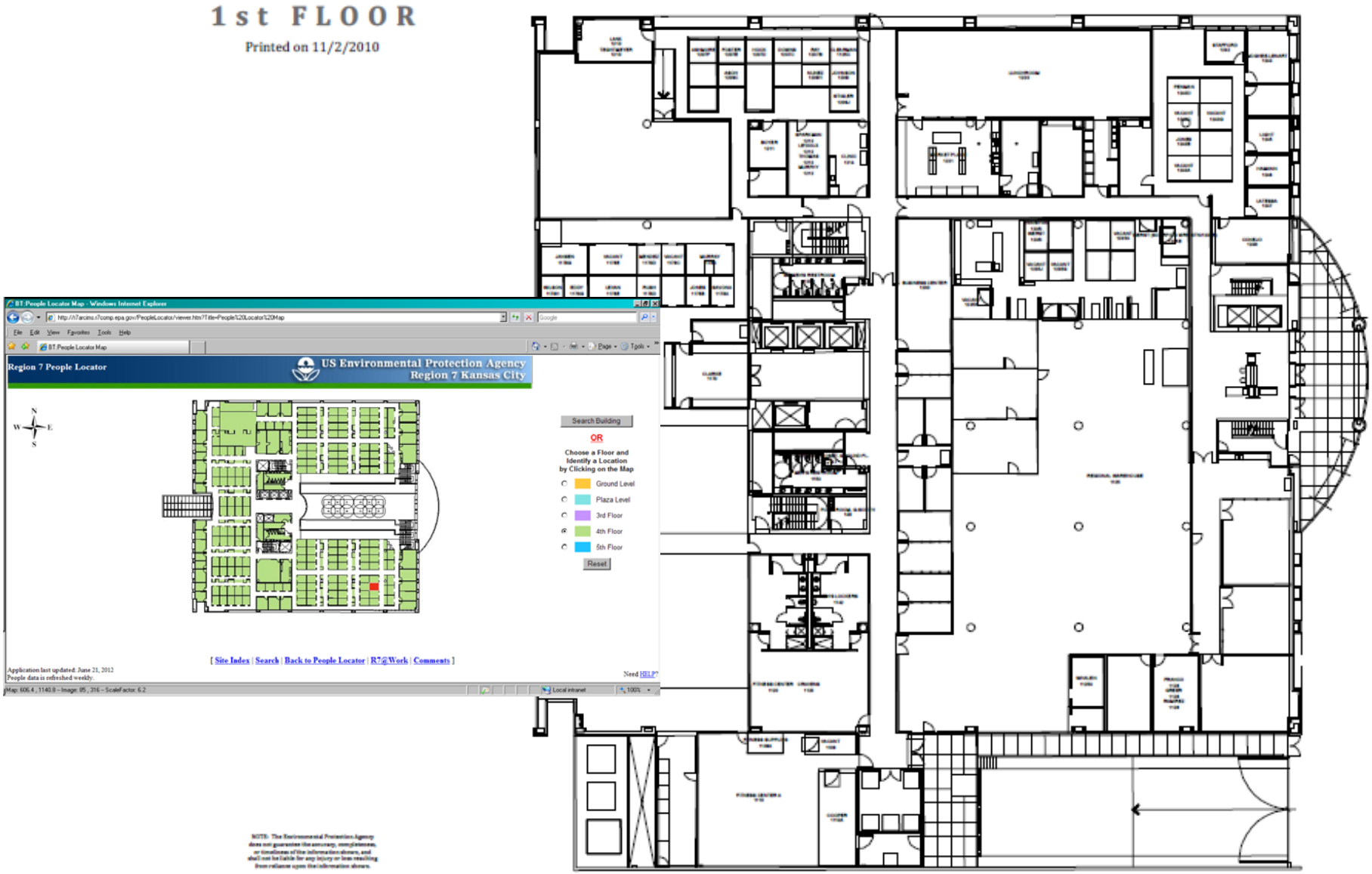

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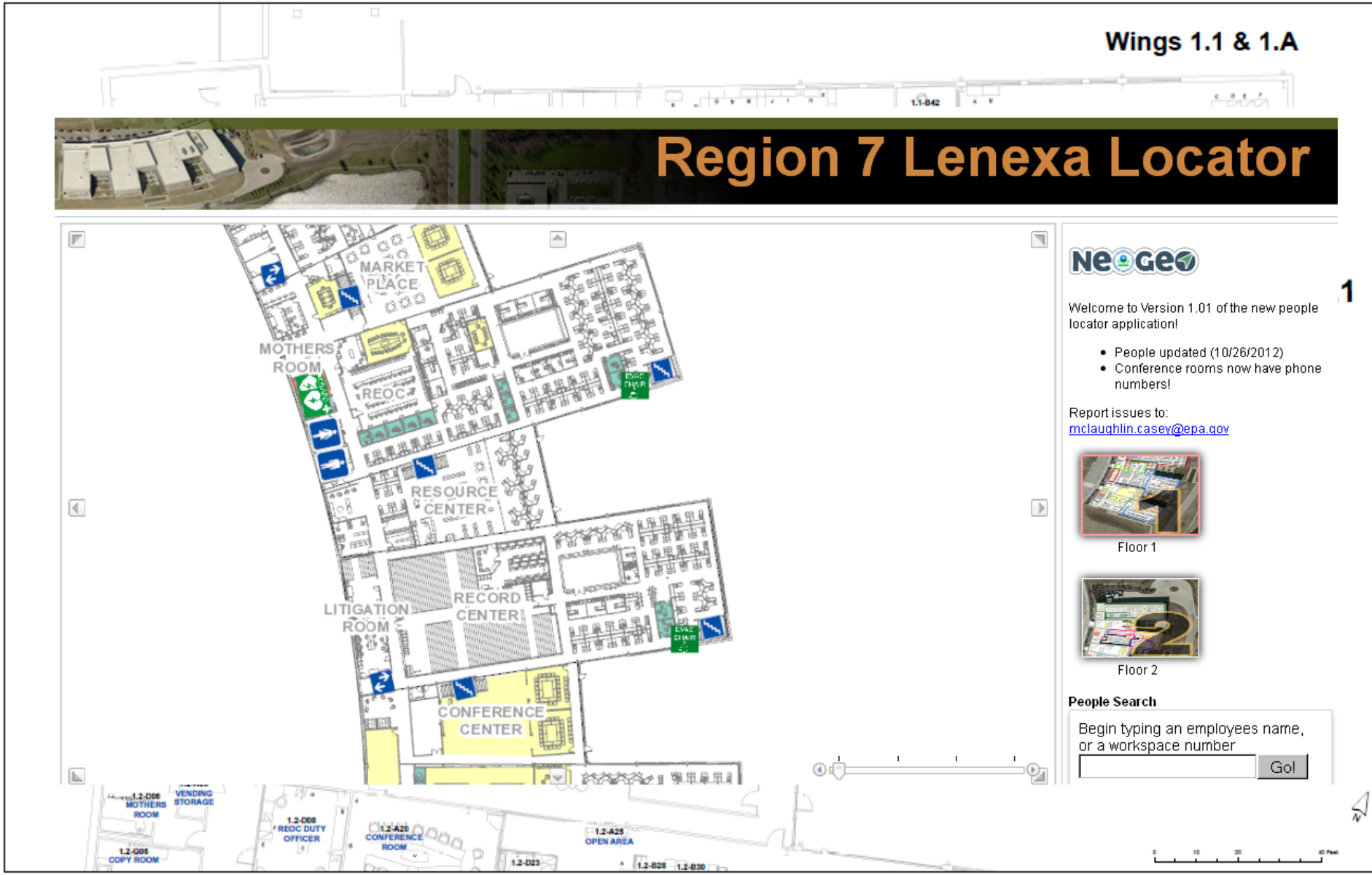
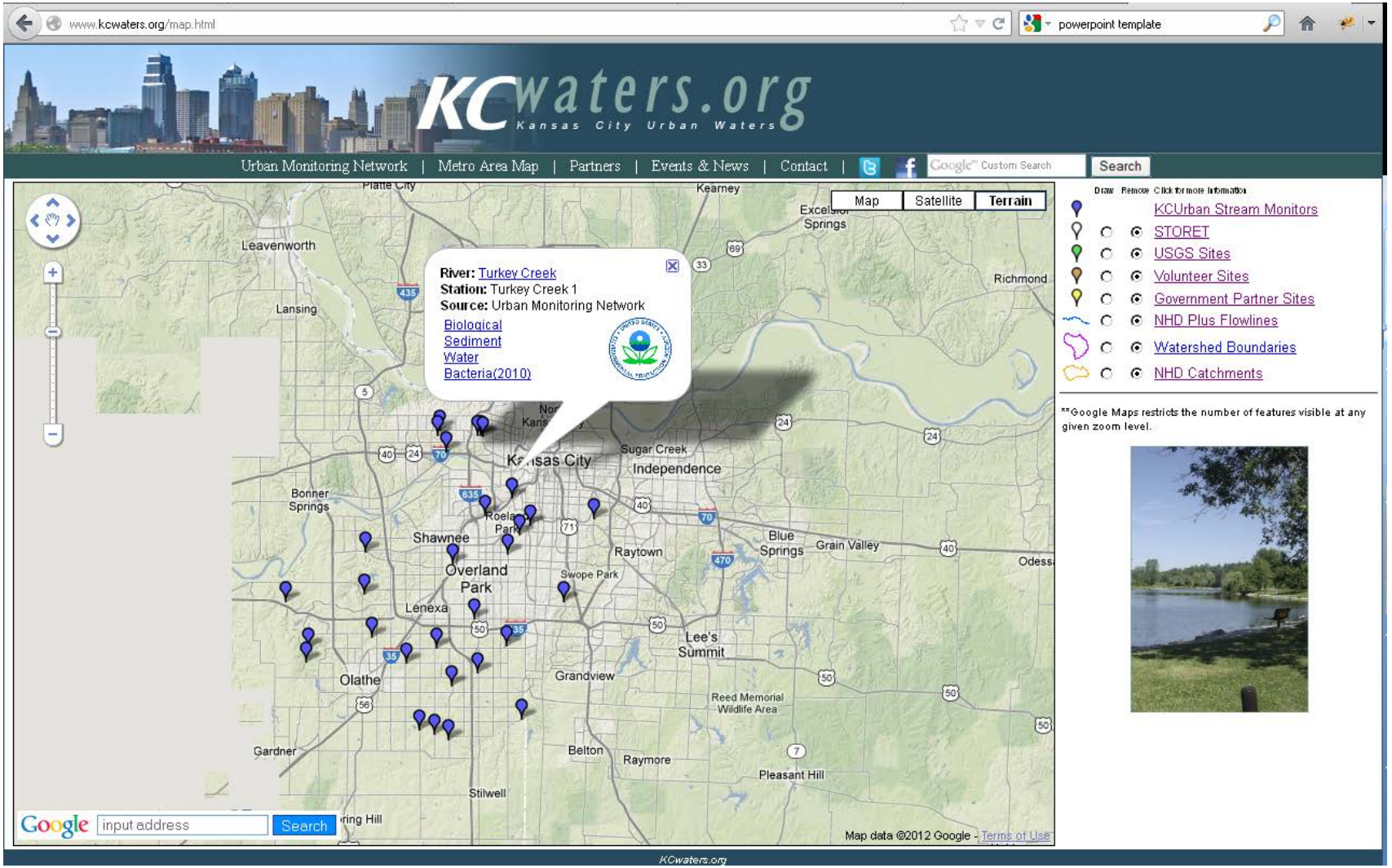


# Regional Water Quality Data and Communication

## What we do regionally



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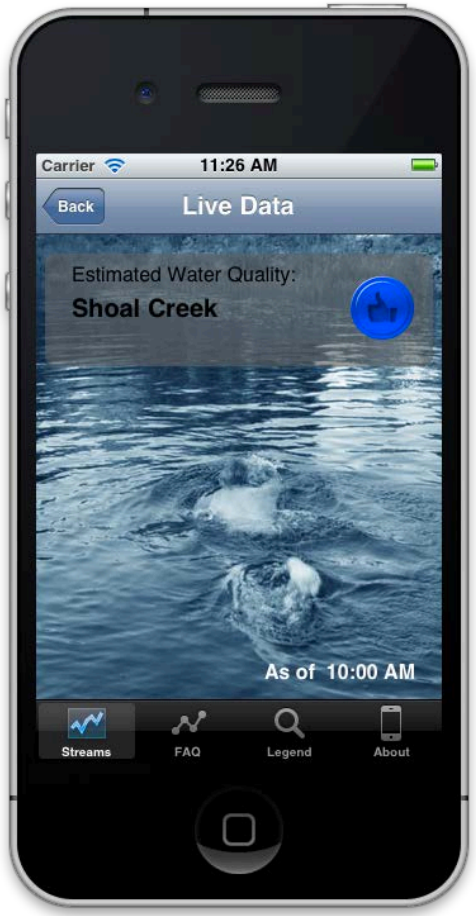

# What we do regionally

**What do I typically do?**

- Make sure stuff runs – web services, data, web, etc.
- Provide GIS guidance – answer questions!
- Program web interfaces – mostly data, some mapping
- Make Maps
- Communications
- Make/manipulate data – sort spreadsheets, look at imagery, geocode, etc
- Meta-Data and other data management

# Geospatial Intelligence at the Environmental Protection Agency

Casey McLaughlin, GISP

Mclaughlin.casey@epa.gov

**http://blog.epa.gov/bigbluethread**

GIS DAY 2012