

RESOURCES FOR SOURCE WATER PROTECTION

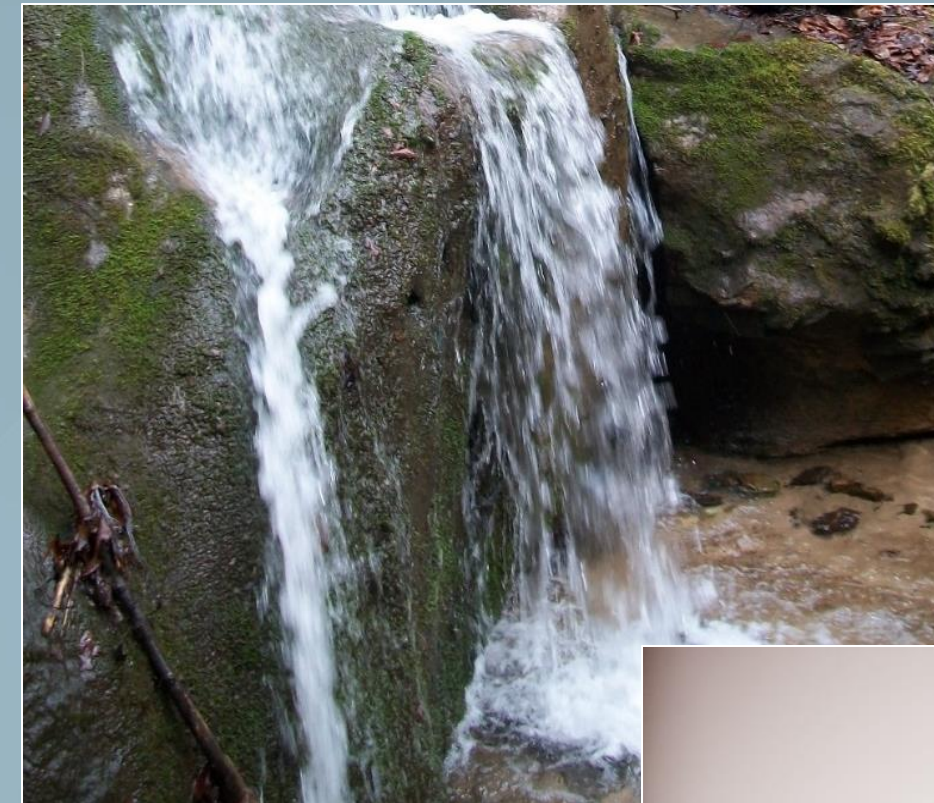
Allan Shingleton and Dale Booth
KY Division of Water
Watershed Management Branch
April 2025

PRESENTATION OUTLINE

Objectives: Introduce the DOW
Source Water Assessment &
Protection Program (KSWAPP)

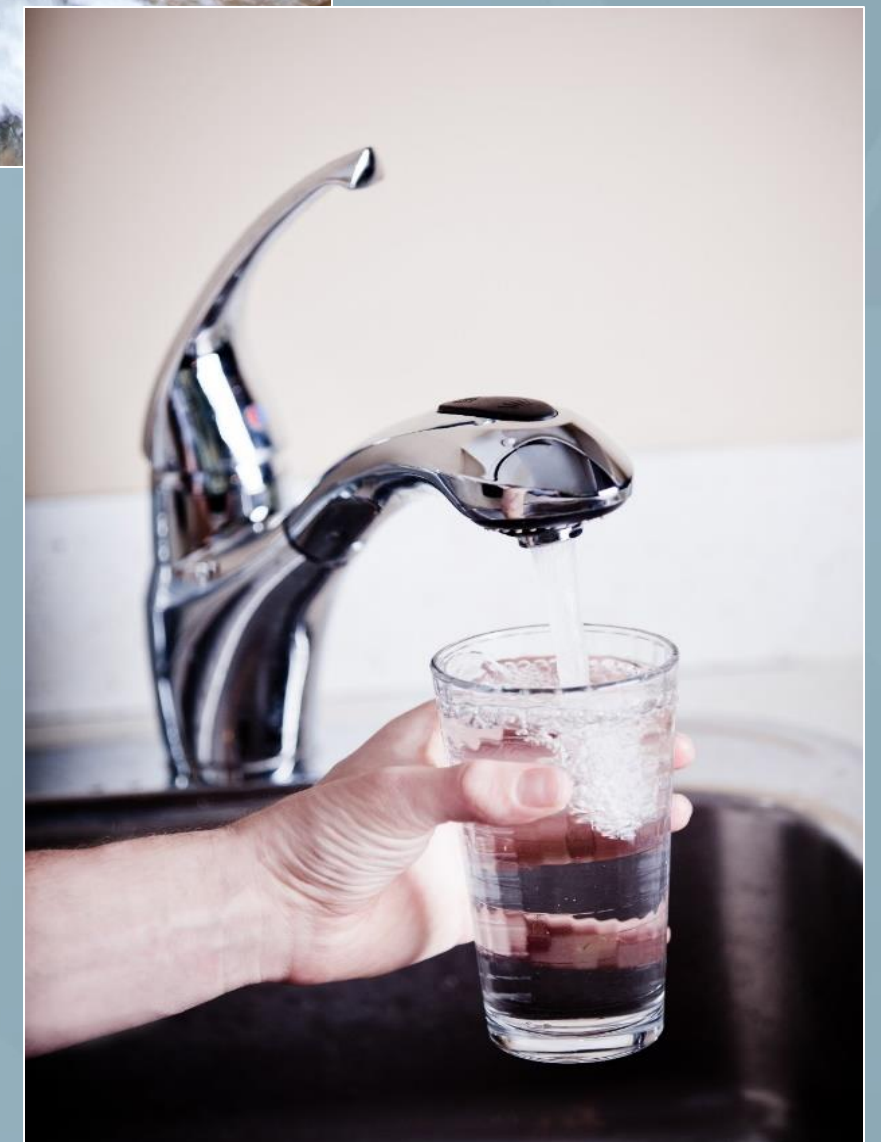
Share tools, answer questions, and
generate interest in Source Water
Protection Planning

- Basics of the Source Water
Protection Program
- How to think about SWP and get a
plan started
- Resources for SWP planning



Clean
Water

From
Source
To Tap!



WHERE DOES KENTUCKY GETS ITS DRINKING WATER?

SURFACE WATER

Public Water Systems

4.0 Million Served



GROUNDWATER

Private Wells

~250,00 Served

Public Water Systems

1.5 Million Served



Private Wells

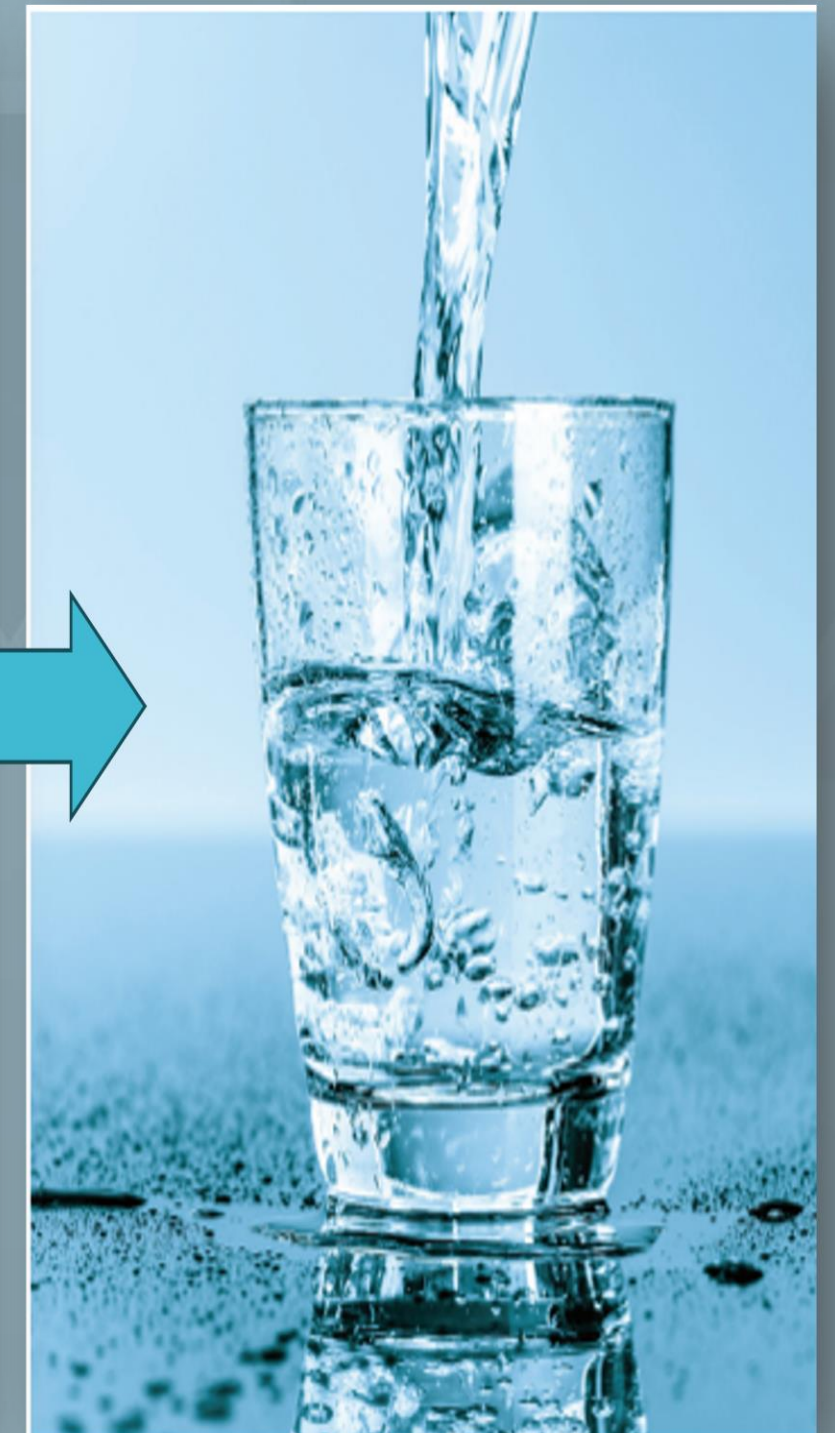


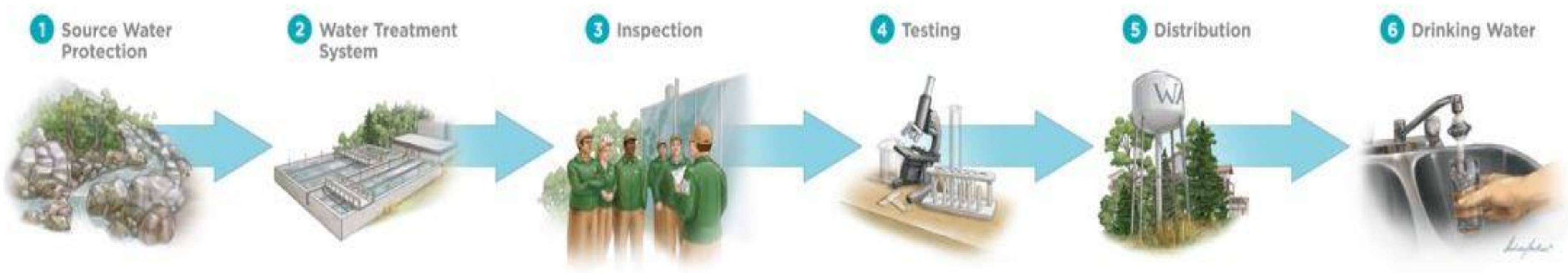
Public Water Systems

WHAT IS **SOURCE WATER?**

Untreated water from rivers, streams, lakes/reservoirs, or aquifers that is used to supply public drinking water.

Source Water Protection is a common sense and critical protective barrier that mitigates potential risks to and actual impacts on drinking water sources.



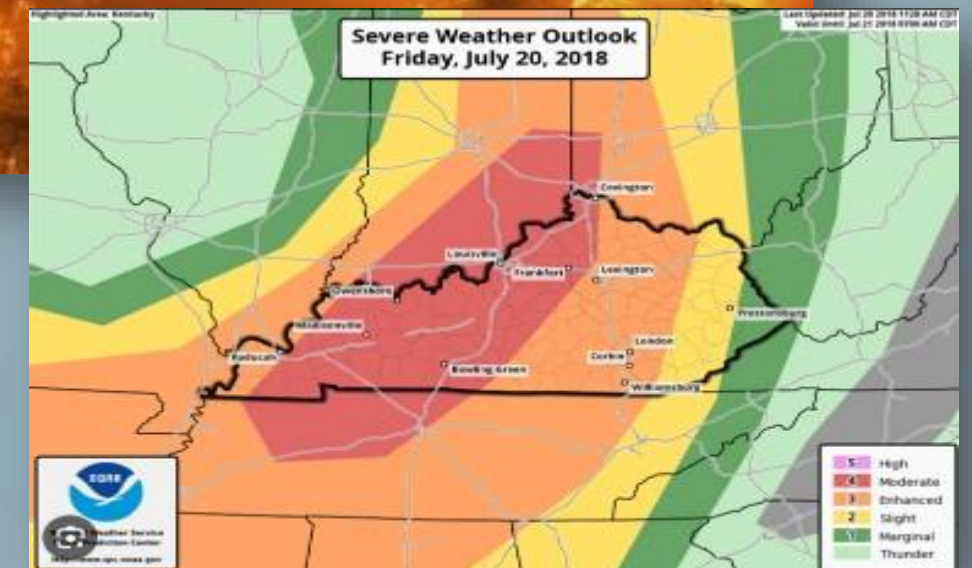
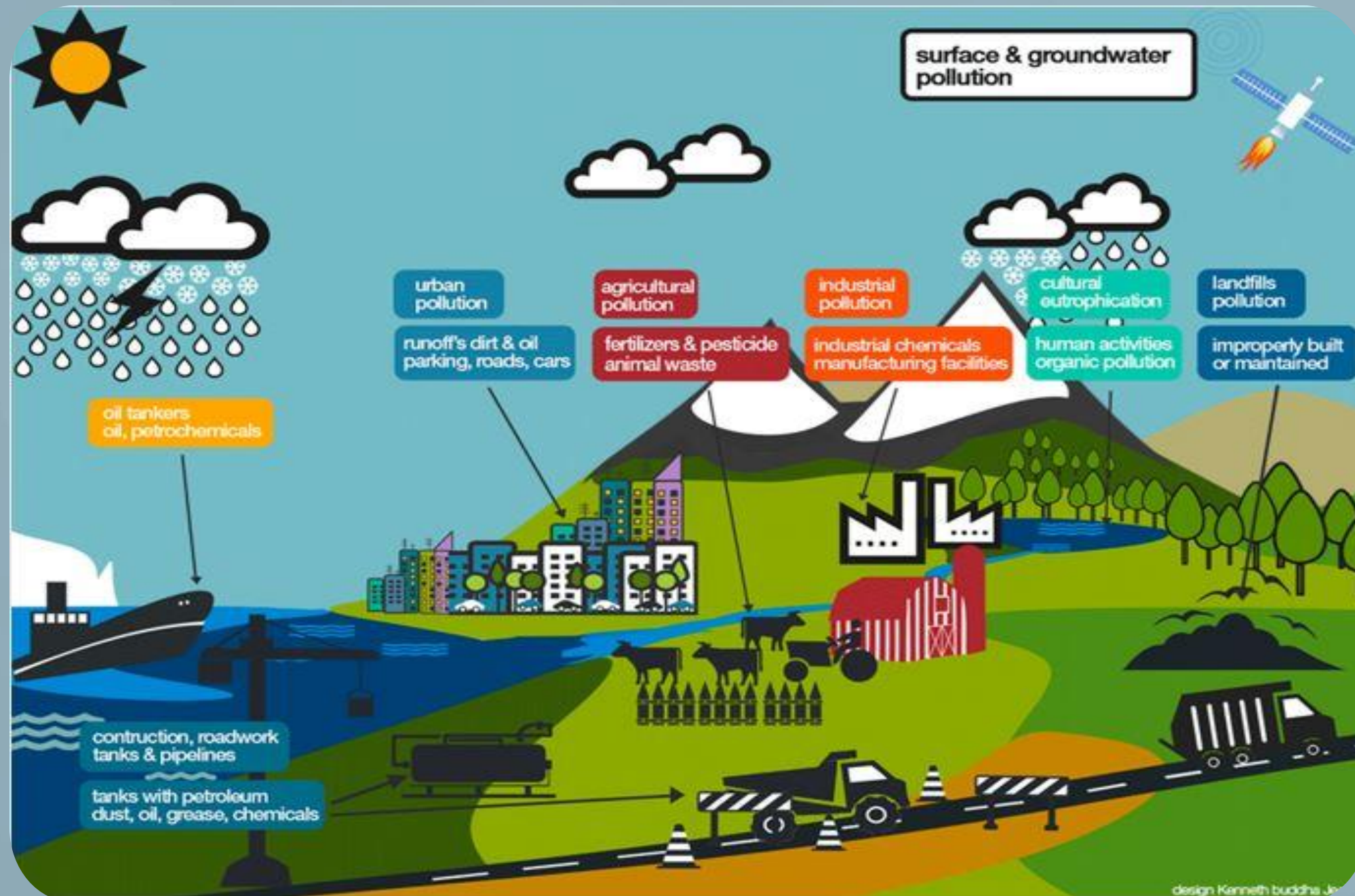


MULTI BARRIER APPROACH **TO SAFE DRINKING WATER**

- Source water protection is the first line of defense in a multi-barrier approach
- Less expensive to prevent than treat a loss in water quality or find another source
- Minimize public health risks and uncertainties associated with emergent or unregulated contaminants
- Better prepare for future changes in drinking water standards and regulations



RISKS TO SOURCE WATER



SOURCE WATER PROTECTION IN KENTUCKY



FEDERAL REGULATION

Safe Drinking Water Act (SDWA) 1986 & 1996 amendments and requires many actions to protect drinking water and its sources—rivers, lakes, reservoirs, springs, and ground water wells.



STATE STATUTE & REGULATION

KRS 151 Water resources policy & 401 KAR 4:220 Water supply planning



WELLHEAD PROTECTION PROGRAM (WHPP)

Approved in 1992
Phase I & II Assessment &
5-Year Updates



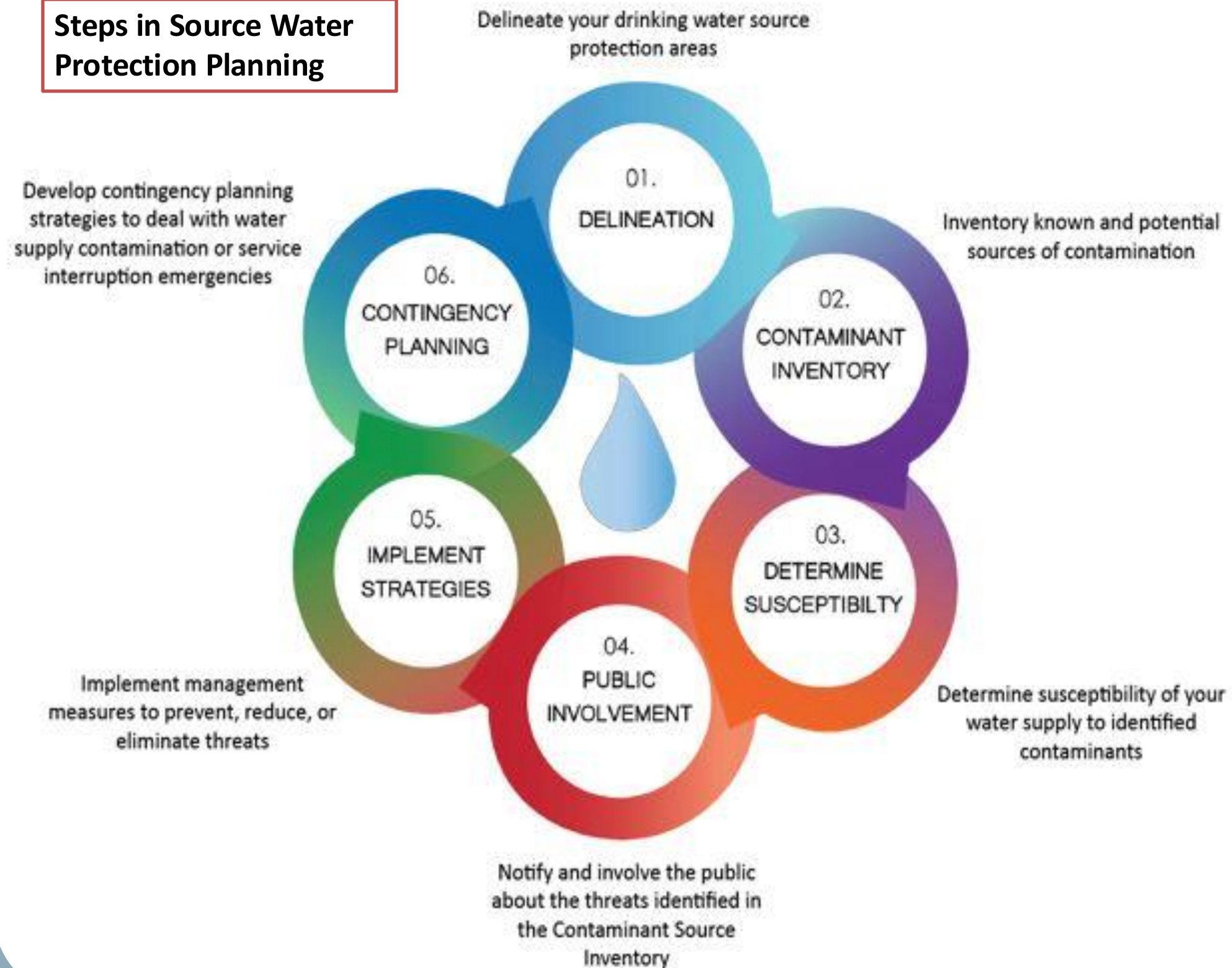
SOURCE WATER ASSESSMENT & PROTECTION PLANS (SWAPP)

Approved in 1997
Assessments Completed;
Only individual system
updates

KENTUCKY SOURCE WATER PROTECTION AND ASSISTANCE PROGRAM

KSWAPP

Steps in Source Water Protection Planning

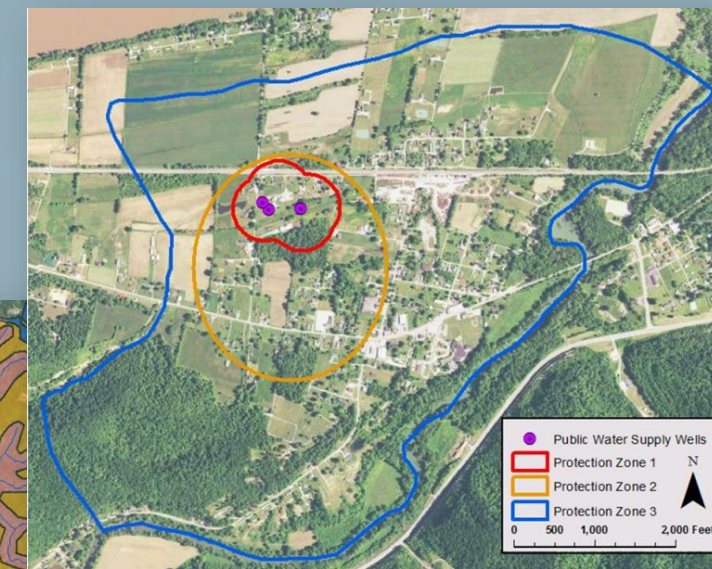
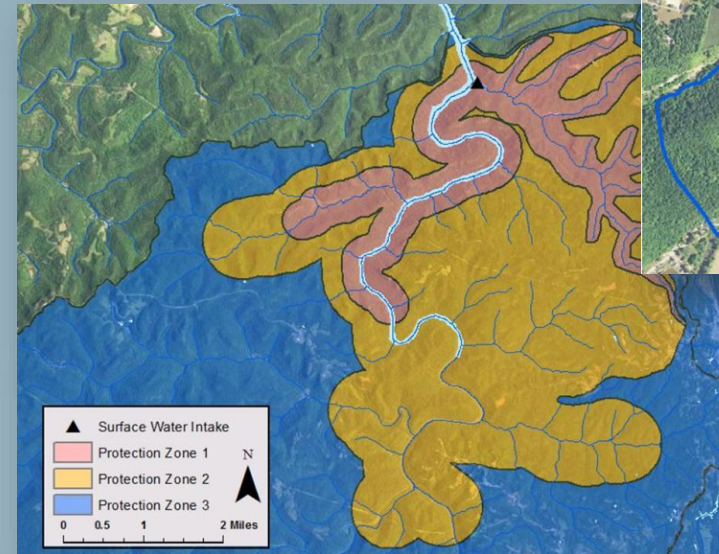


What We Do

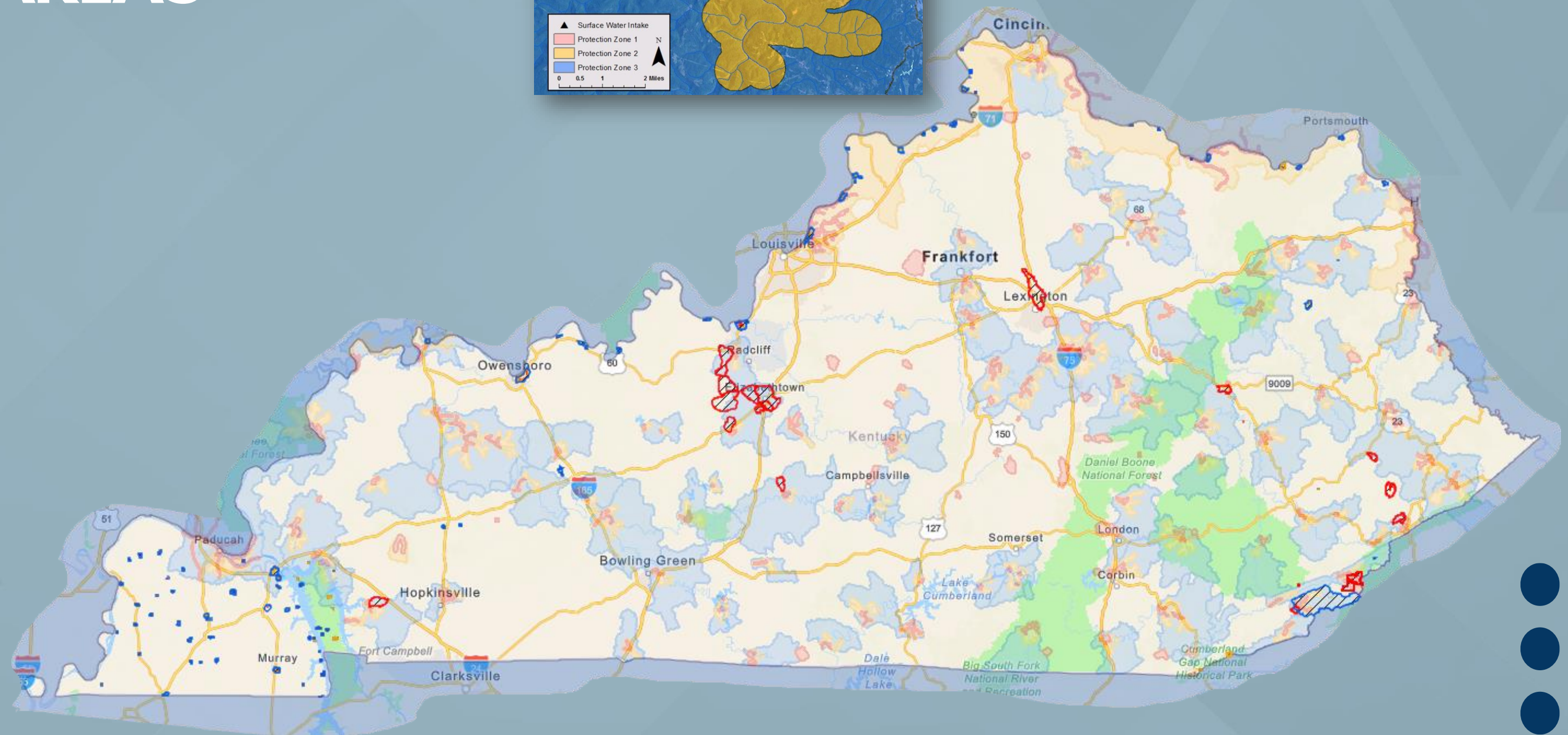
- Compliance Assistance
 - Wellhead Protection Plans
 - Surface Water Protection Plans
- Contaminant Source Inventories
- Implementation of Planning Strategies
- Funding for Source Water Protection
- Public Education and Outreach
- Facilitate Stakeholder Interactions



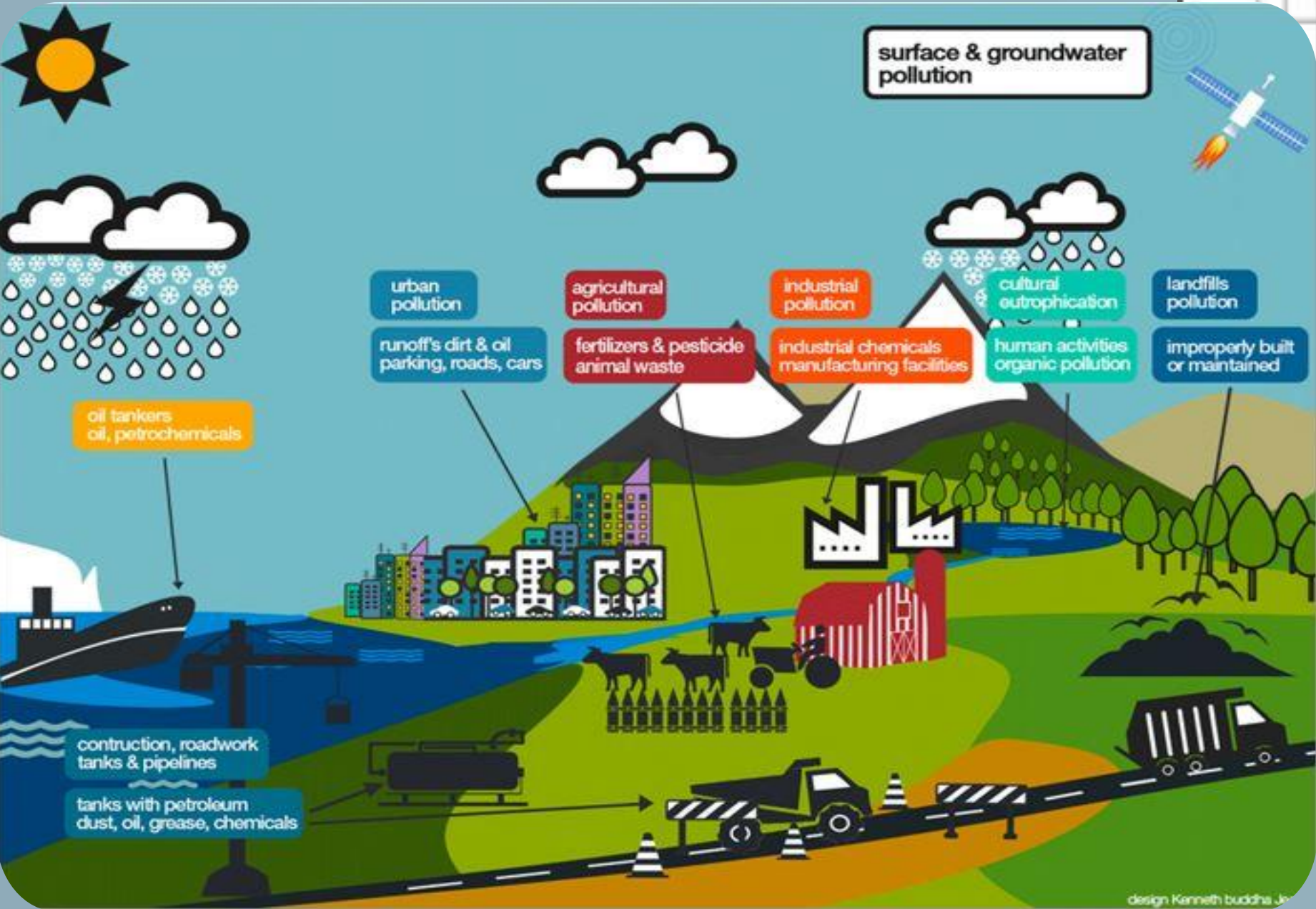
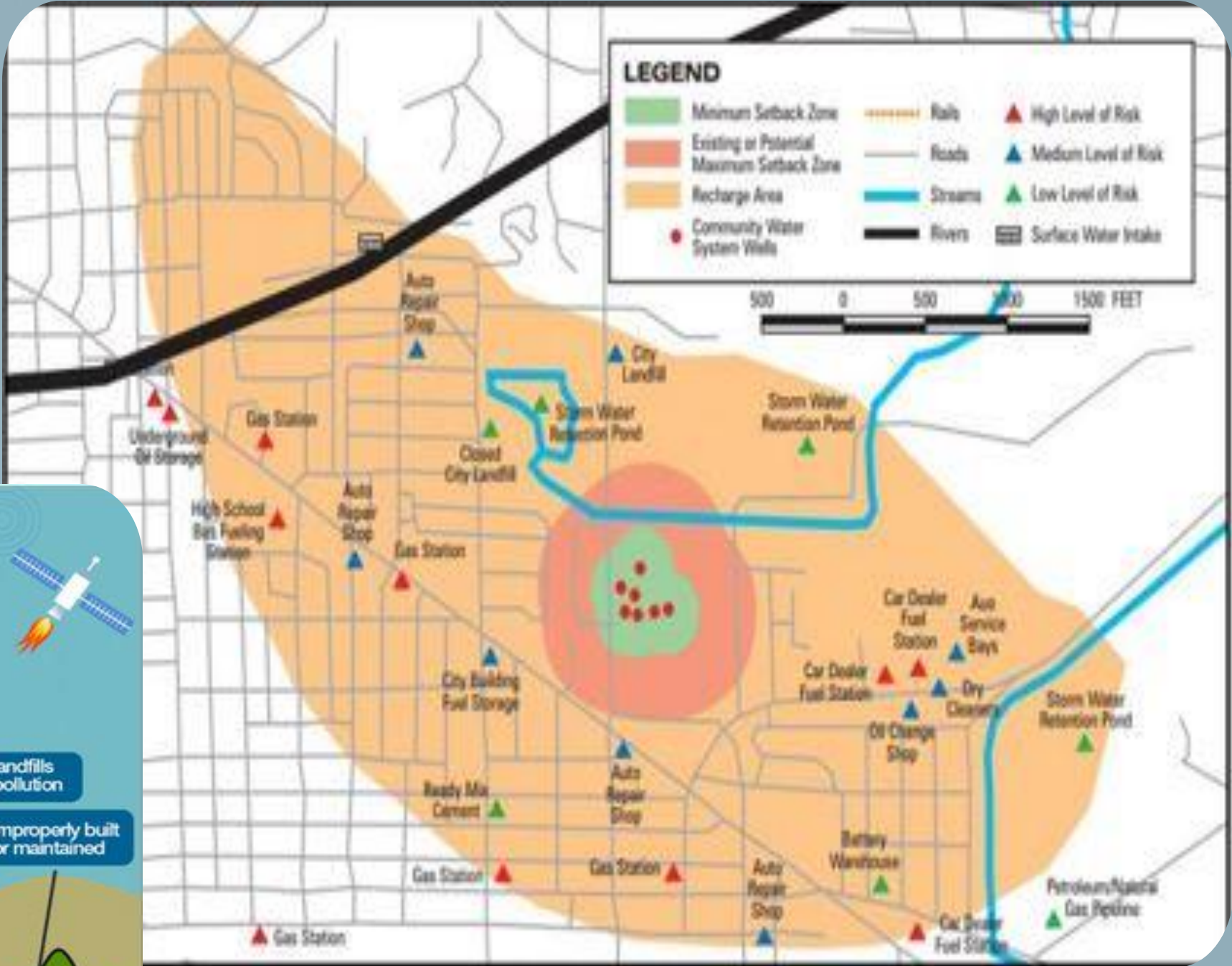
DELINEATE SOURCE WATER PROTECTION AREAS



<https://bit.ly/SWPViewer>

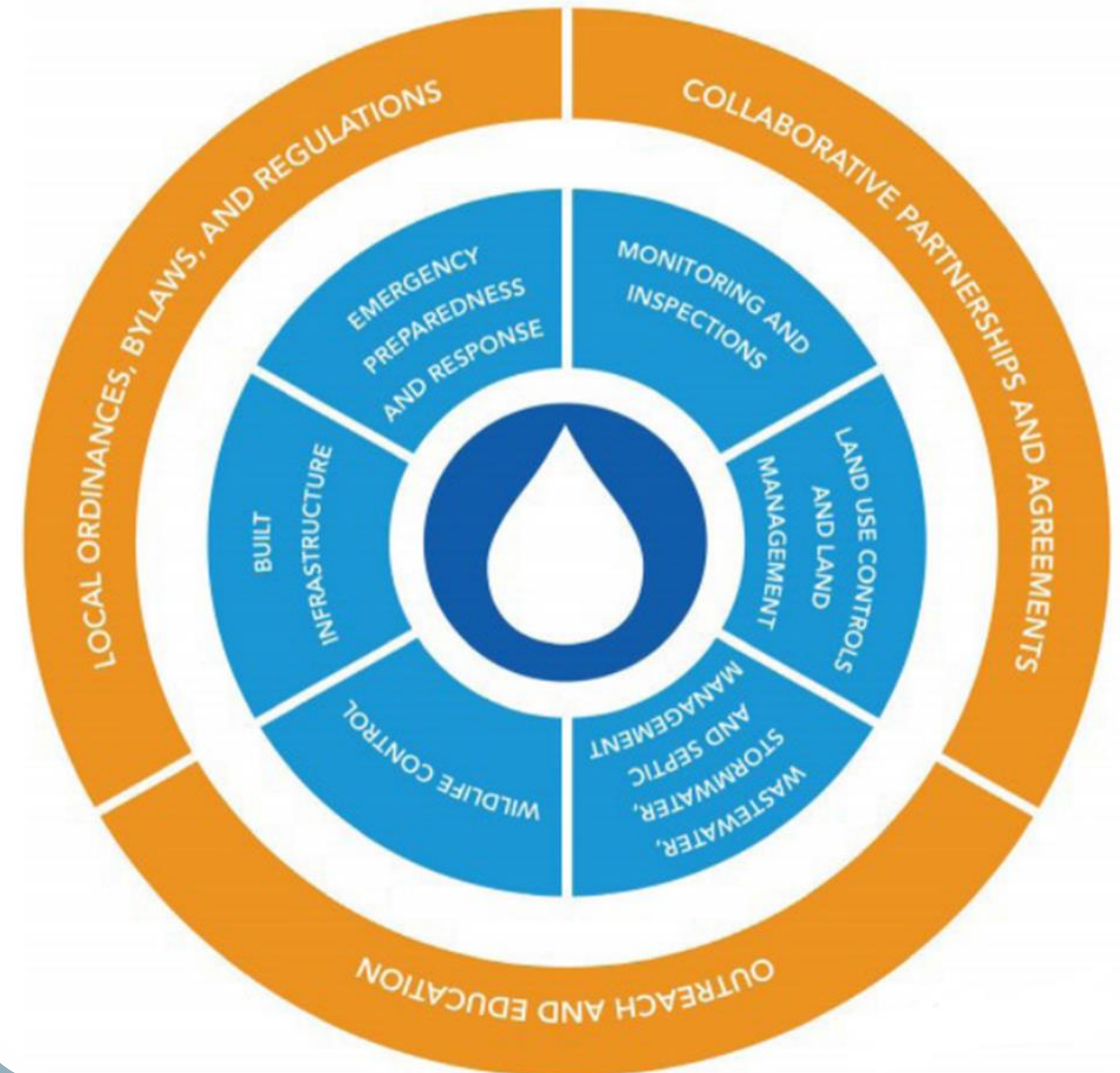


CONTAMINANT SOURCE INVENTORY & SUSCEPTIBILITY ANALYSIS



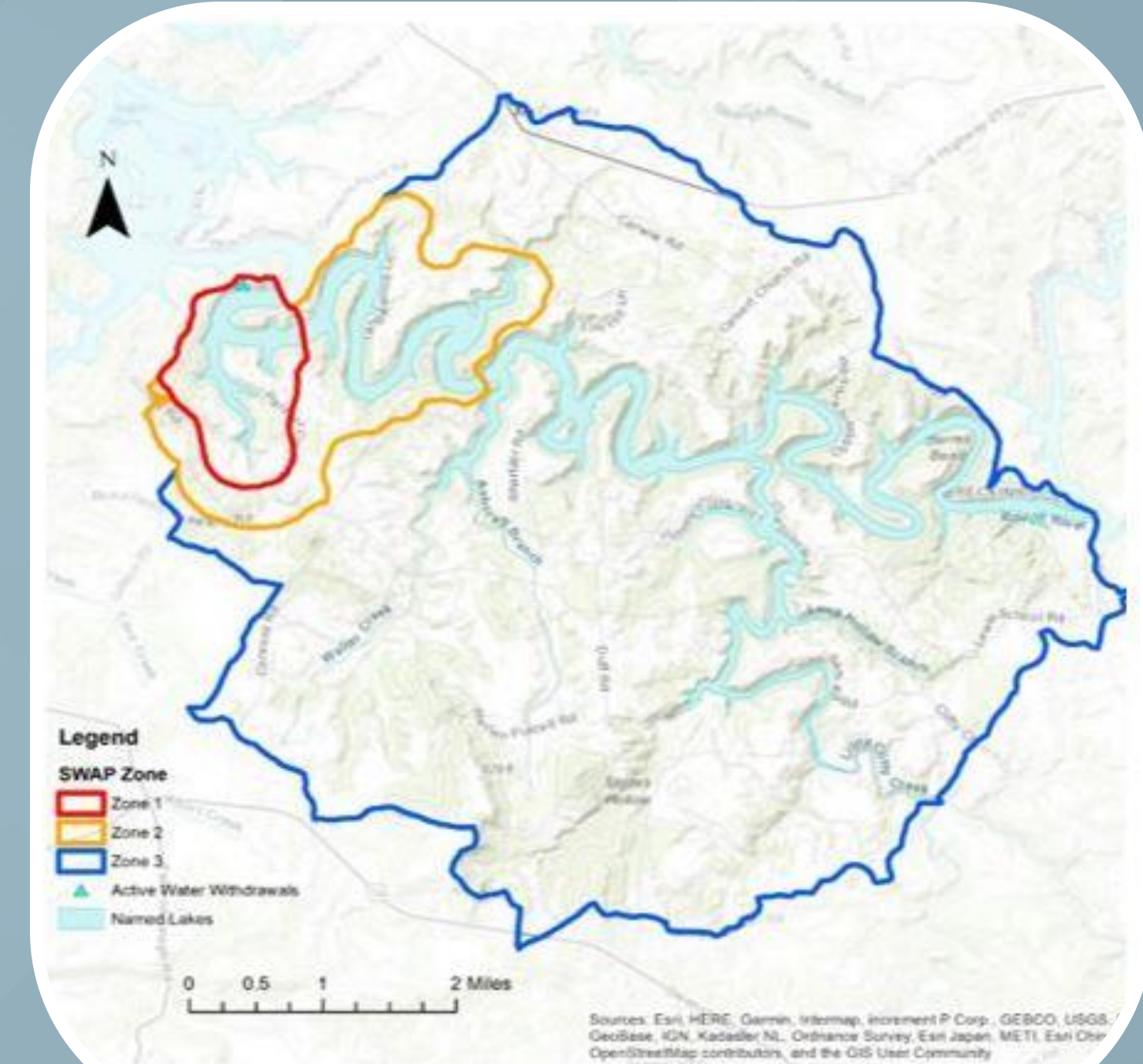
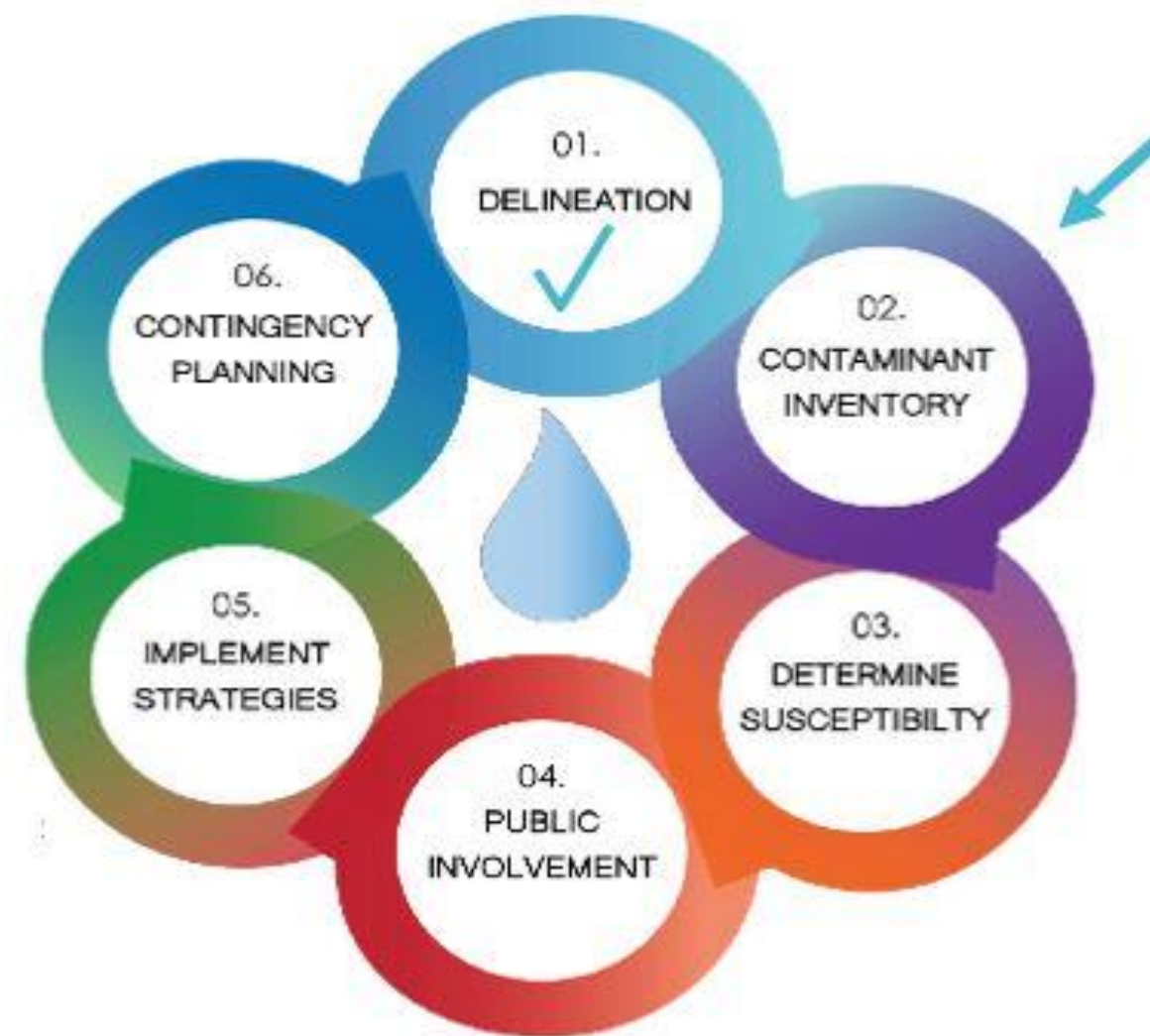
DEVELOP AND IMPLEMENT **MANAGEMENT STRATEGIES**

Approaches To Source Water Protection



STARTING A PLAN

Example:
Grayson County Water District
Rough River Watershed



WATER QUALITY DATA

<https://watermaps.ky.gov>

Kentucky Division of Water (DOW) Water Maps Portal

A wide variety of water-specific web maps, applications, and services are being showcased from this Portal. DOW has compiled these maps as a service to our customers using information from various sources. DOW cannot ensure that the information is accurate, current or complete. Neither the information presented nor the maps themselves are official documents.

Portals, Viewers and Story Maps 2.0

Kentucky Energy and Environment Cabinet
Welcome to the Water Health Portal
Quick Links: [Map Tutorial](#) & [Water Words](#)

Home Integrated Report Restoration Resources Data Advisories Contact Us Help

Search

Results
Features displayed: 1 - 1/1

Lakes 2022: Rough River Lake

Stream Name: Rough River Lake
Assessment Unit ID: KY 1645
County: Breckinridge, Grayson
Basin: Green River

Assessment Summary
Basin Coordinator Page



Water Health Portal ▼



KY Watershed Explorer ▼



HAB Viewer ▼



Forestry - Special Use Waters ▼



Risk MAP Portal ▼



Well Driller Locator ▼



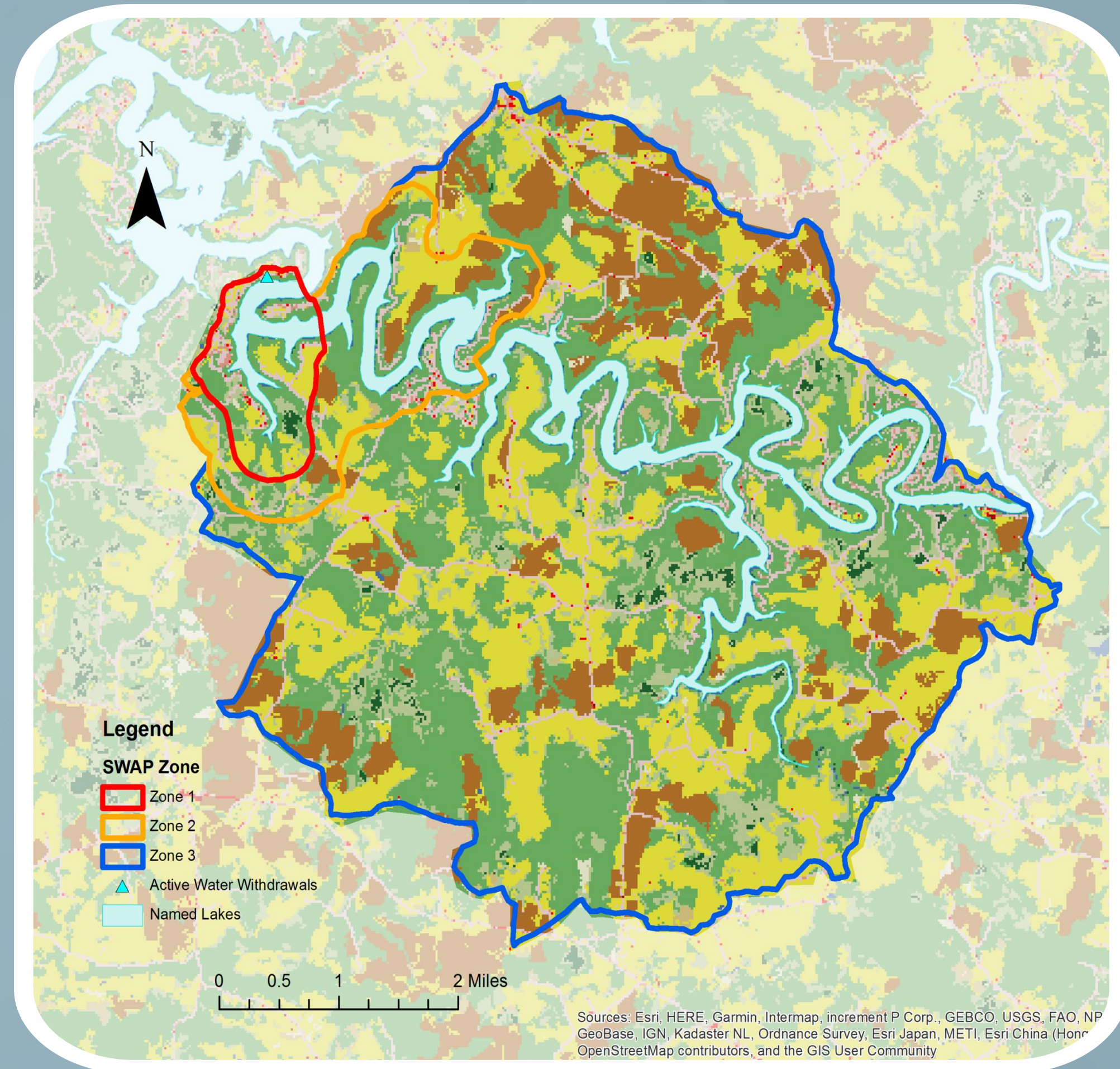
Dam Inundation Viewer ▼



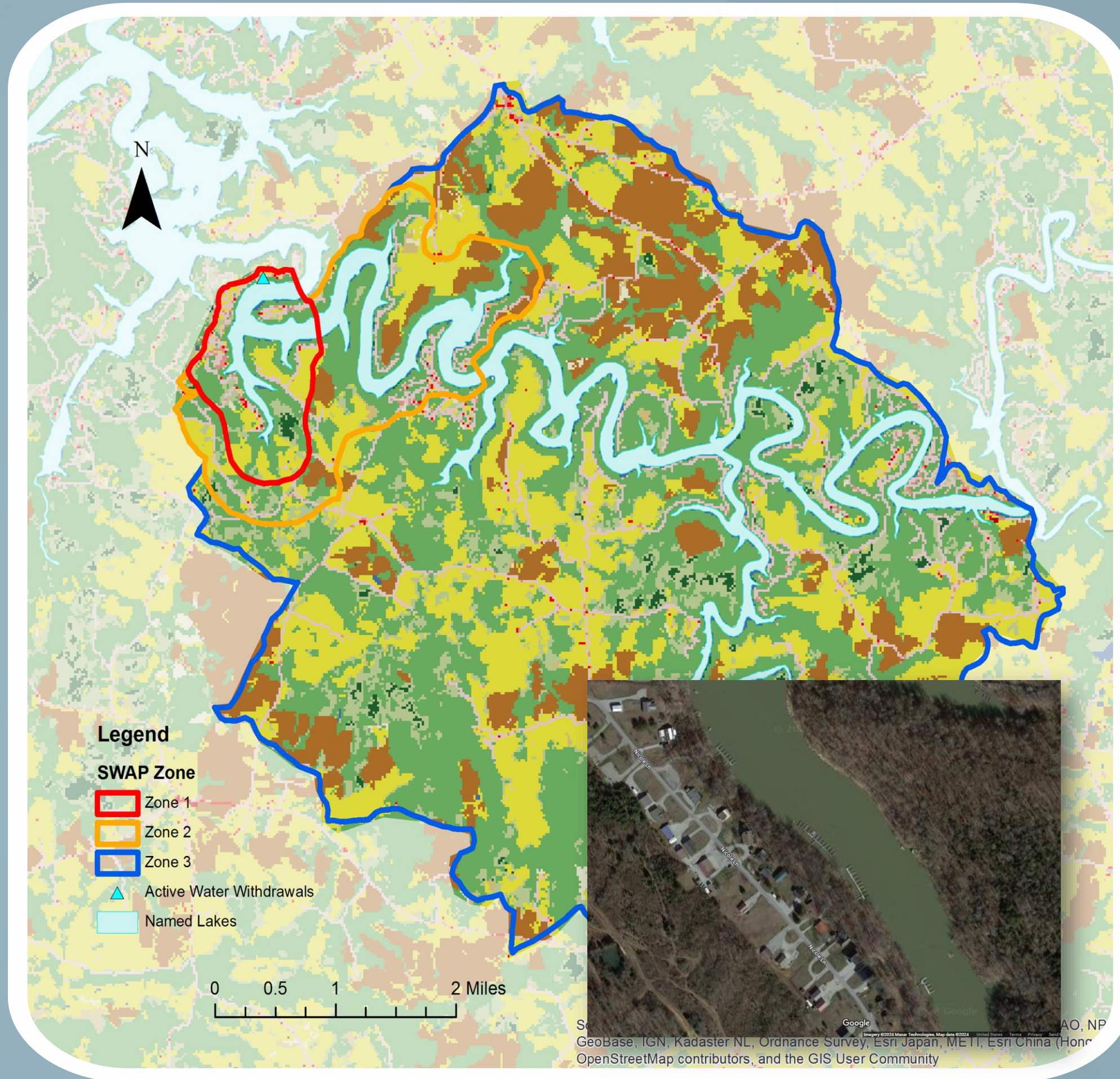
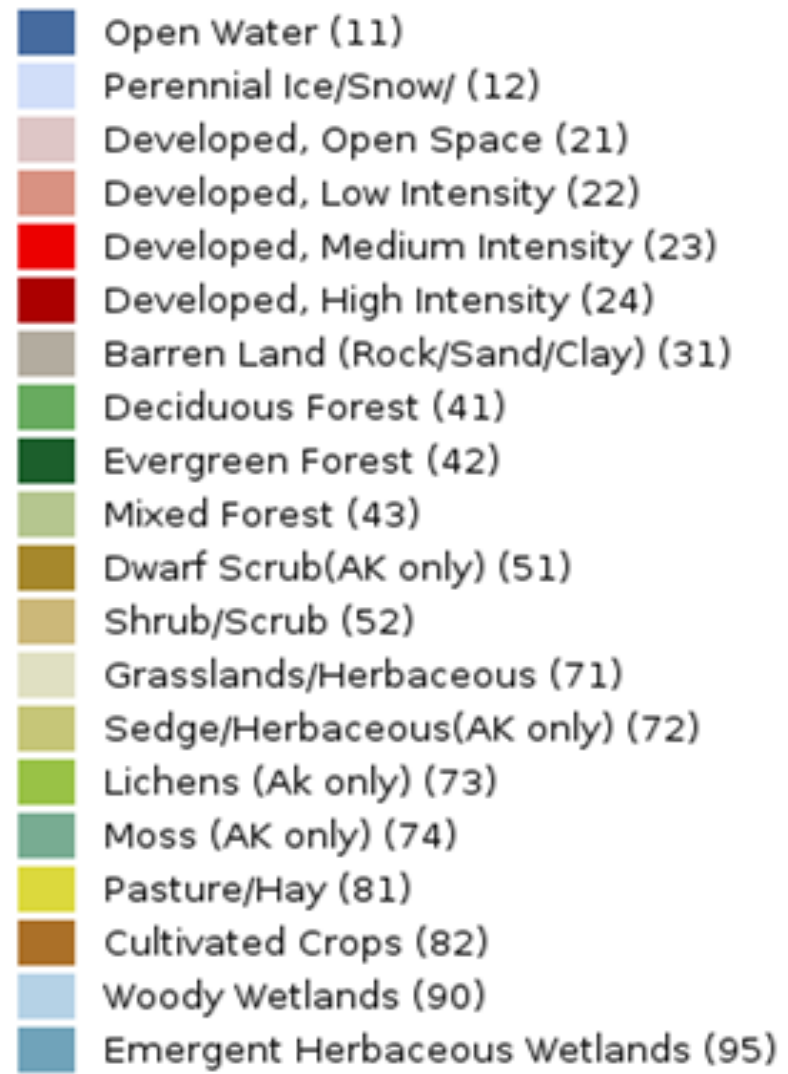
Special Waters Viewer ▼

LAND USE

- Open Water (11)
- Perennial Ice/Snow/ (12)
- Developed, Open Space (21)
- Developed, Low Intensity (22)
- Developed, Medium Intensity (23)
- Developed, High Intensity (24)
- Barren Land (Rock/Sand/Clay) (31)
- Deciduous Forest (41)
- Evergreen Forest (42)
- Mixed Forest (43)
- Dwarf Scrub(AK only) (51)
- Shrub/Scrub (52)
- Grasslands/Herbaceous (71)
- Sedge/Herbaceous(AK only) (72)
- Lichens (Ak only) (73)
- Moss (AK only) (74)
- Pasture/Hay (81)
- Cultivated Crops (82)
- Woody Wetlands (90)
- Emergent Herbaceous Wetlands (95)



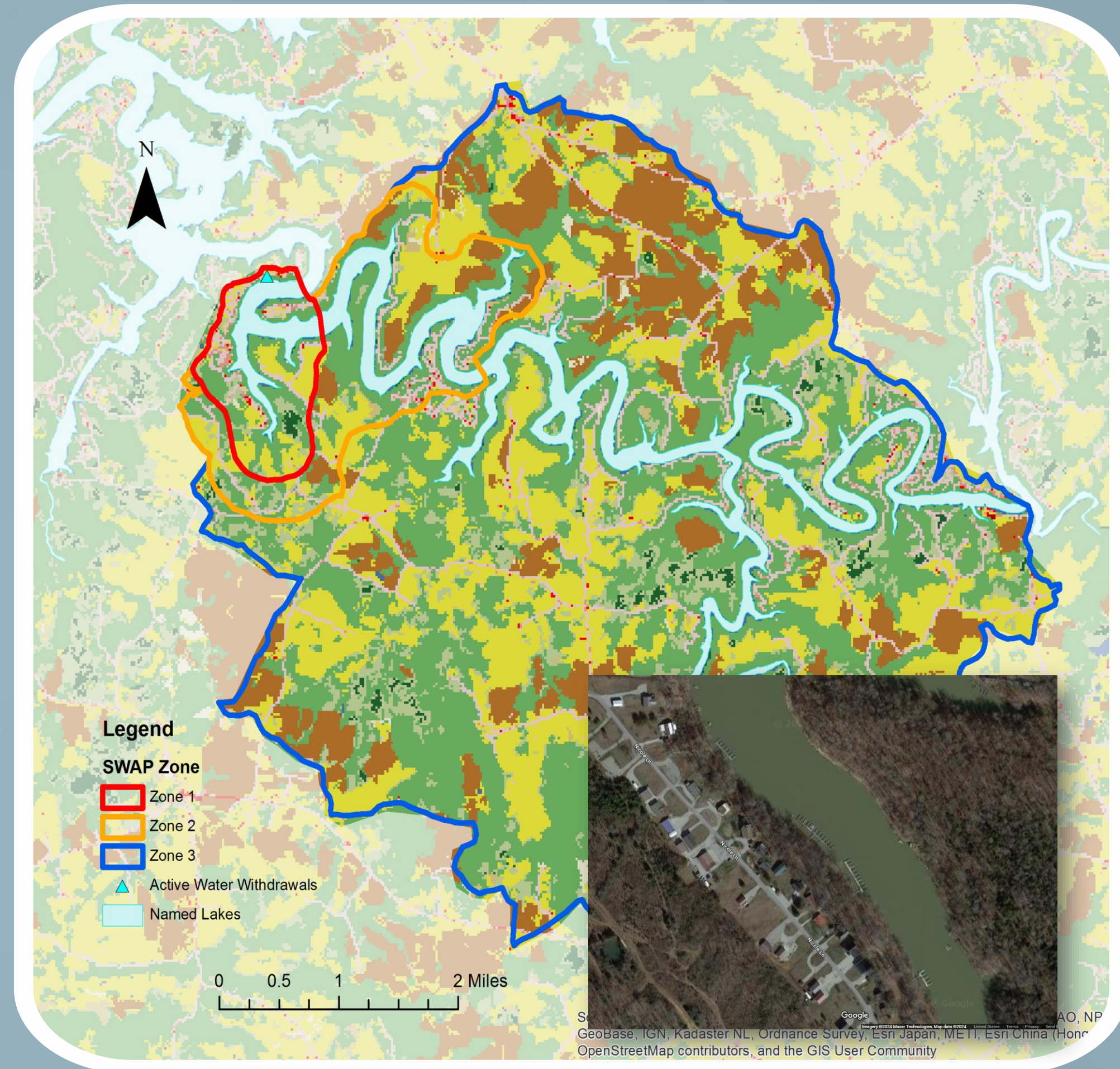
LAND USE



Is the area sewered or is the community using septic?

Assume at least 30% of the septic systems in a given community are failing or poorly maintained.


➡ Nutrients and bacteria



GEOLOGY AND POTENTIAL CONTAMINANTS

Kentucky Geological Survey Database (KGS)

- Well locations
- Karst prone areas
- <https://kgs.uky.edu/kgsweb/main.asp>



Kentucky Geological Survey
 Earth Resources—Our Common Wealth

[KGS Home](#) > [Data, Maps, & Pubs](#)
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Explore Kentucky Geologic Maps




Geologic Map Information Service
 Displays KGS-hosted geologic map data in a web browser. With this web map service, you can quickly zoom and pan to view the geologic map for an area of interest, overlay and identify other KGS data (water, oil and gas wells, coal, etc), view a detailed legend, and query and access information about the geologic units.

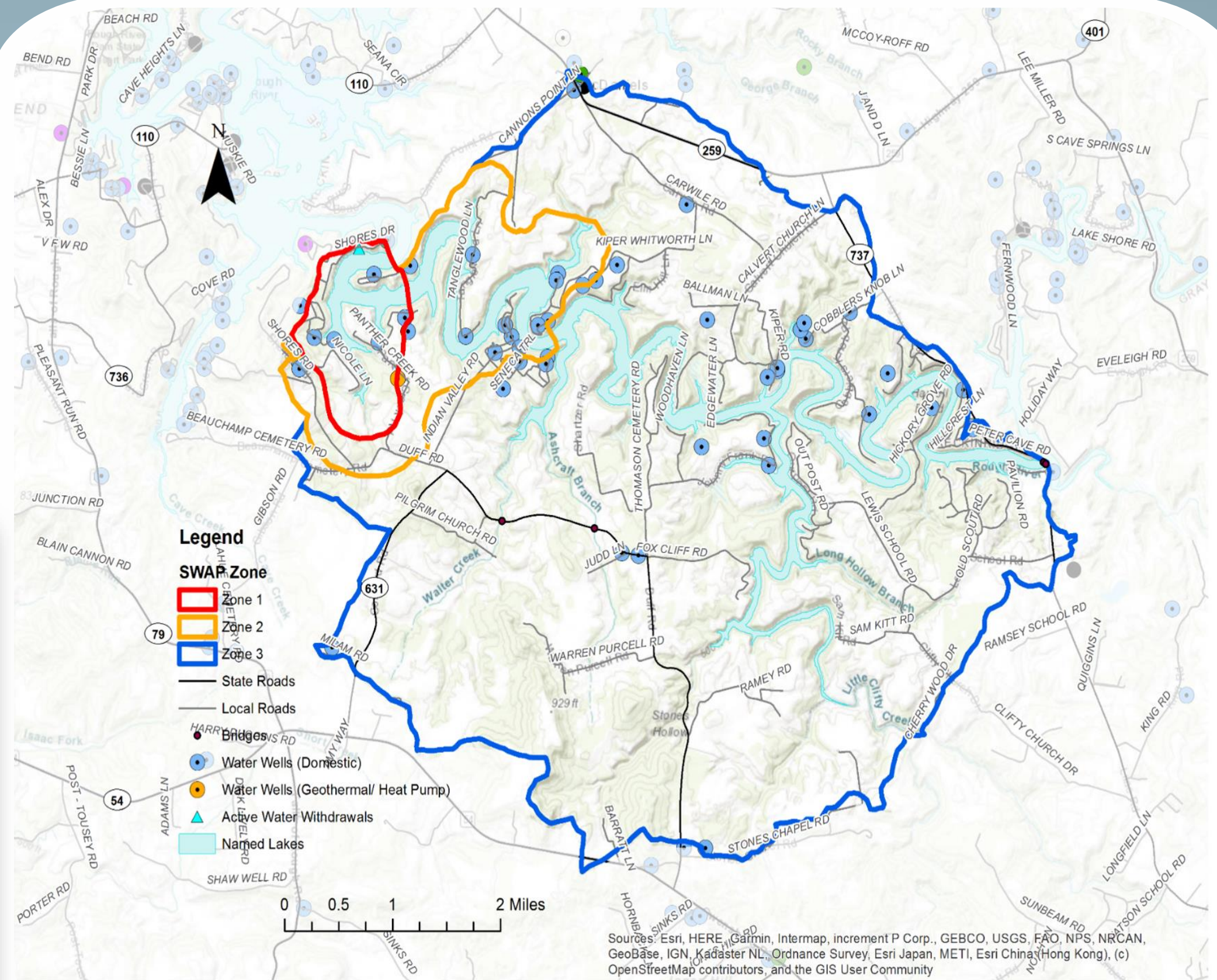


KGS GeoMobile
 A mobile web application that can be used in a variety of supported mobile devices (iPhone, Android, Blackberry, etc..) and tablets (iPad, Galaxy Tablet, Kindle Fire, etc...) for displaying Geologic formations, oil and gas fields and wells, mapped sinkhole outlines, and other geologic information. **Only a mobile web browser is needed to use this service** (no "app" to download). Users will need data access to use this service. GPS capability will enable zooming to your location.

Connect and Download Map Data



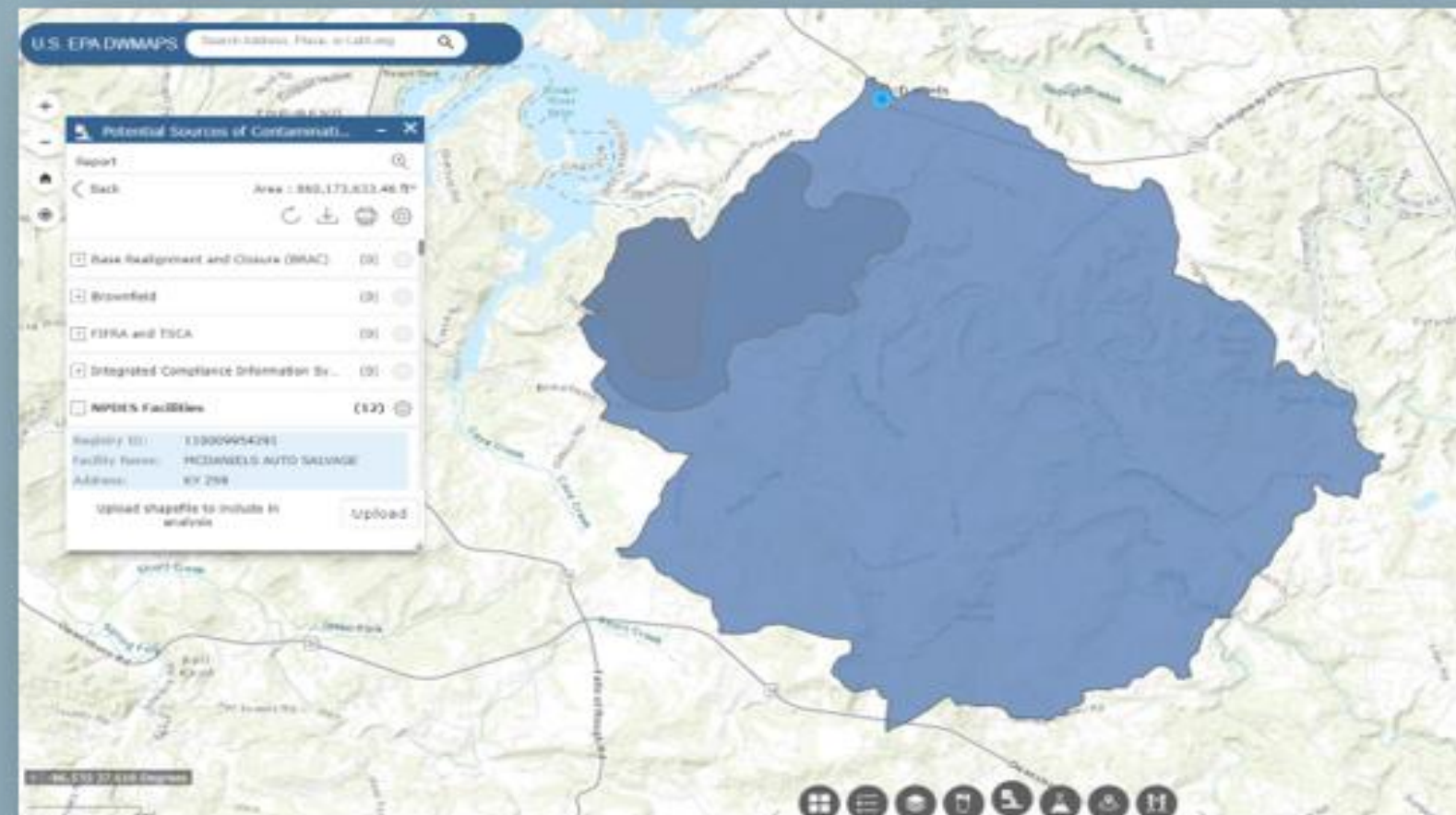
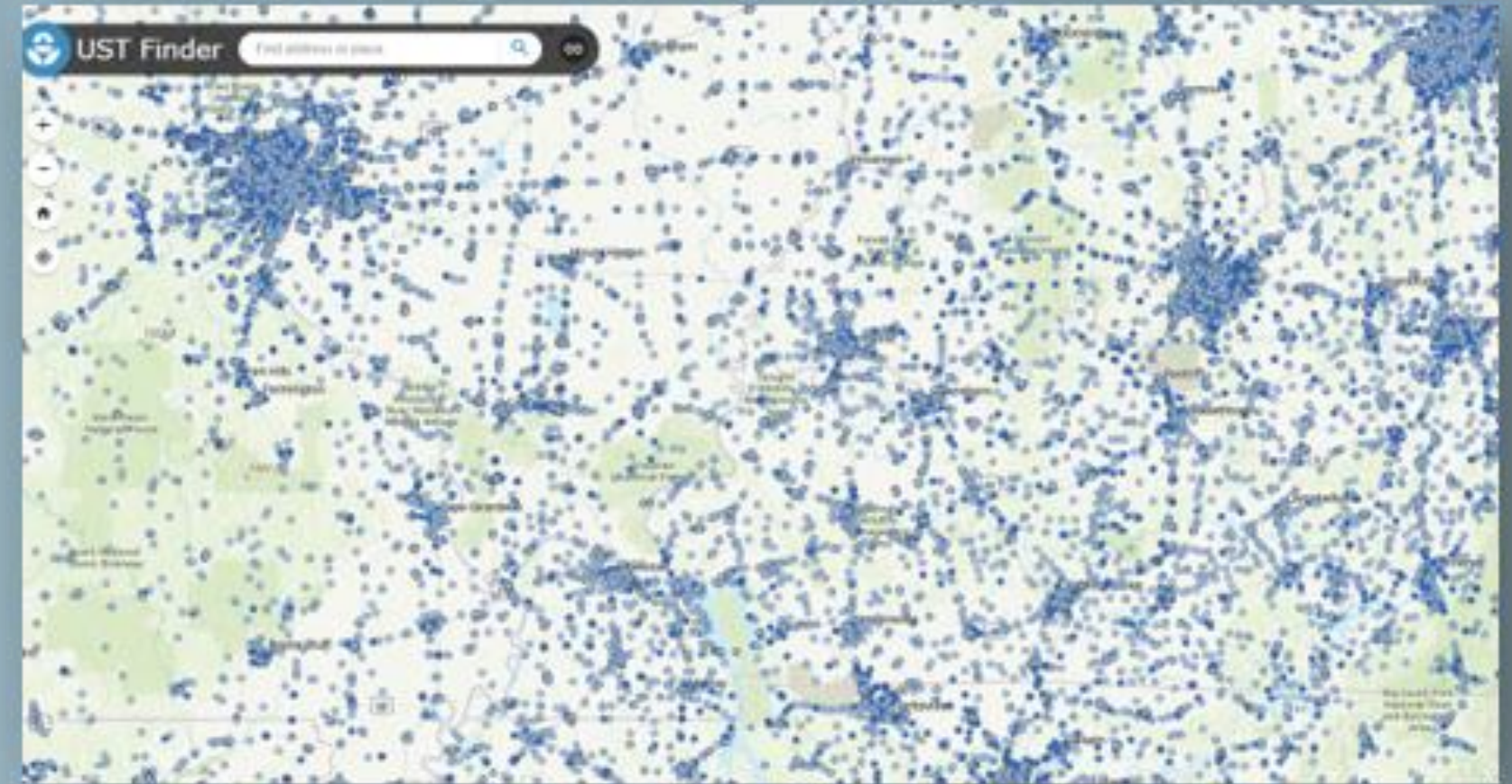
Download 1:24,000 Kentucky Geologic Map Data (via arcgis.com)
 Download an **ESRI map package** (from arcgis.com - for use in ESRI products such as ArcMap) of the 1:24,000 geologic map data for Kentucky. The data in the package is compatible with the **GeoSciML portrayal** view for geoscience data. The source of the data is the Kentucky Geological Survey map database and consists of mapped geologic units throughout Kentucky. These "DVGQ" data (**described in detail here**) were digitized as a part of a project supported by the USGS National Cooperative Geologic Mapping Program from 1996-2006 to digitize all 707 USGS 7.5-minute geologic quadrangles of Kentucky into vector format, and compile these data into 1:100,000 scale map sheets. These data are the same detailed geologic map data displayed on the geologic map service.



FEDERAL AND STATE DATABASES

EPA Tools:

- Underground Storage Tank Finder (UST finder)
 - Active status
 - # tanks
 - Capacity

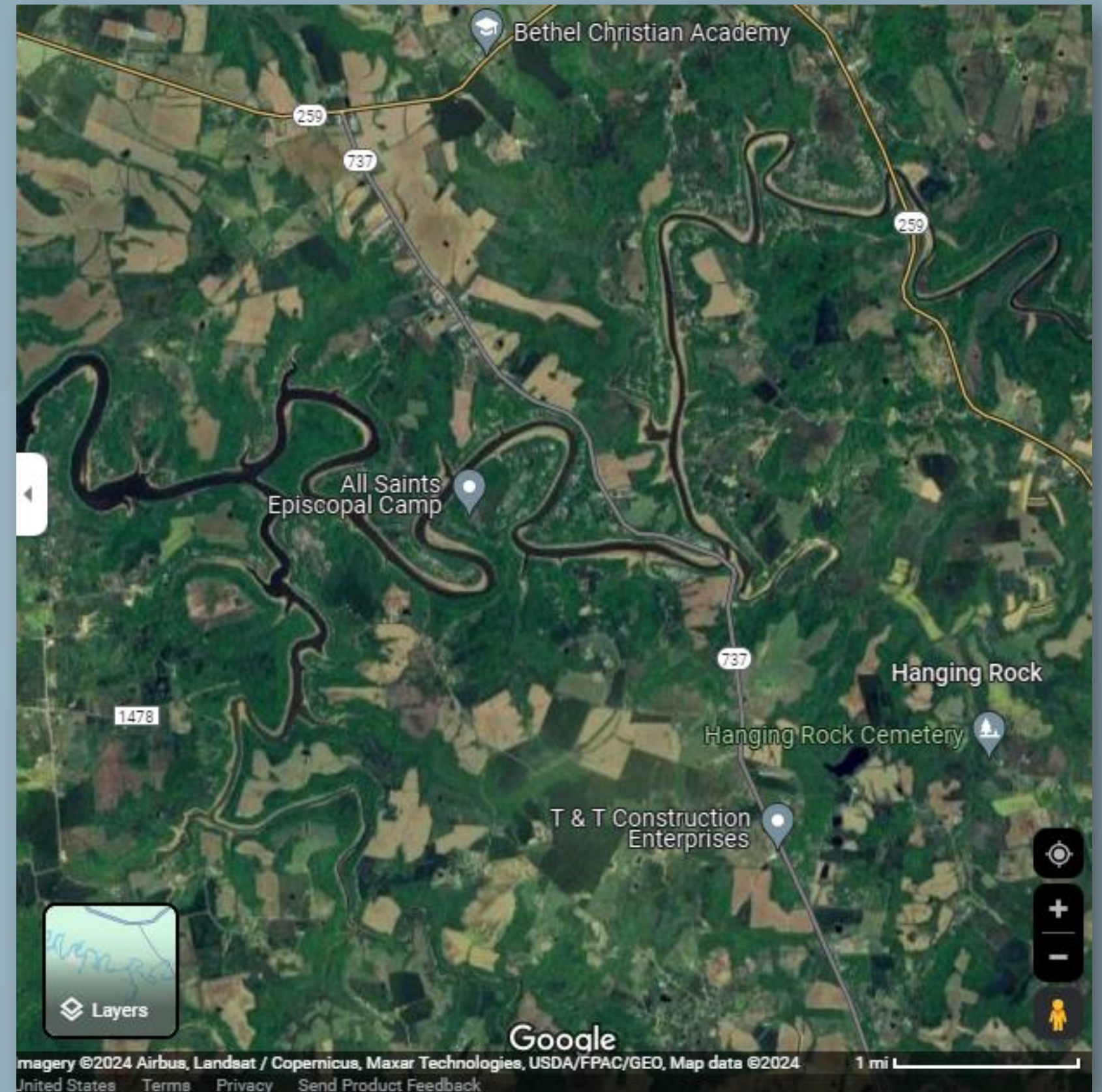


- Drinking Water Mapping Application to Protect Source Water (DWMAPS)
 - Customizable to area of interest
 - Pulls information from KPDES, RCRA, Superfund and others

LOCAL KNOWLEDGE

Explore your region – you know it better than any database!

- Windshield surveys
- Google Earth
- Reach out to community members
- Involving the community gives a sense of ownership and improves adoption of protection strategies



BUILDING A STRATEGY

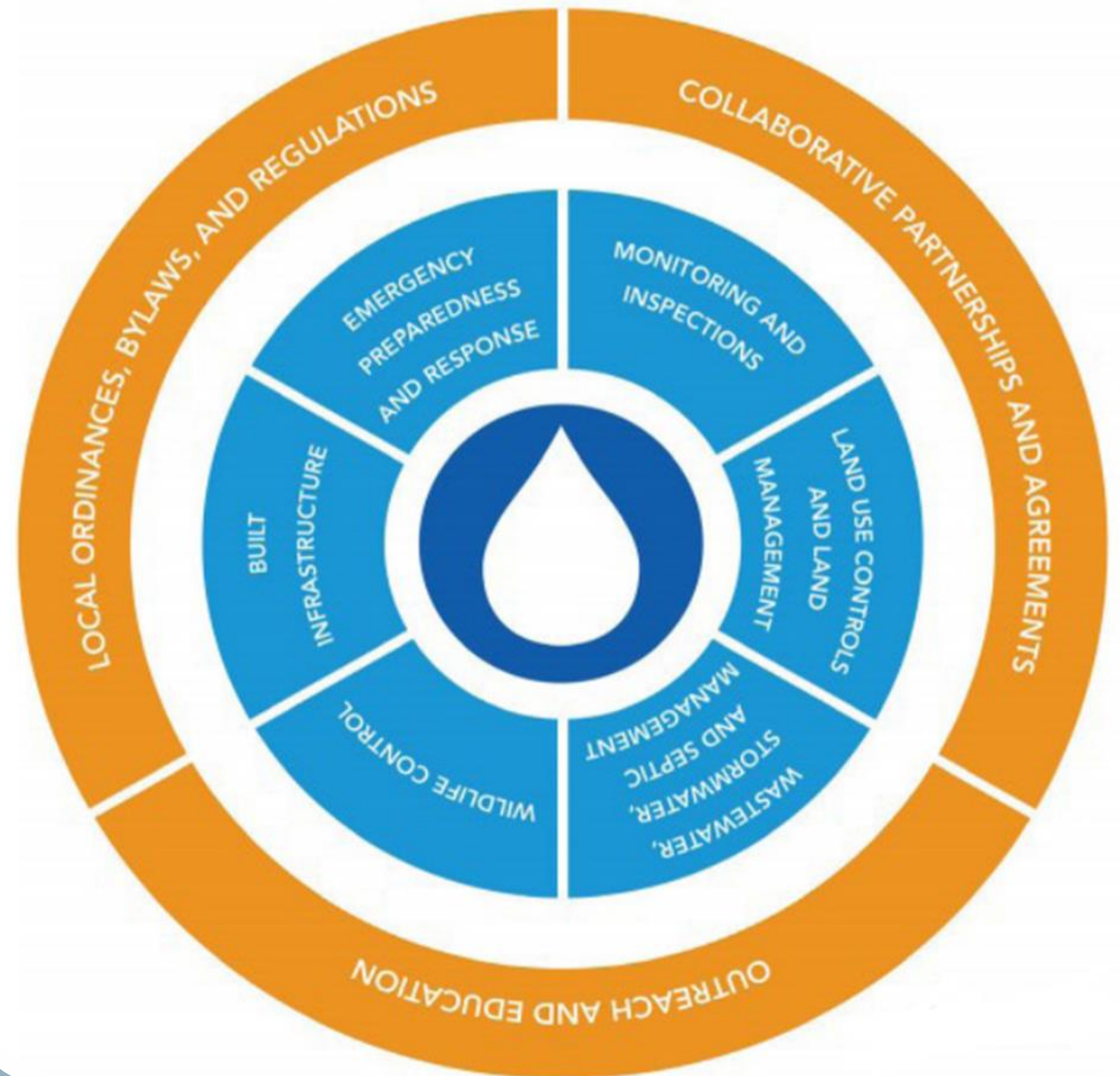
So you've identified Ag and Septic as your primary threats to Water Quality..... What now?

Protective strategies for SWP:

- Fencing cattle out of streams
- Cover crops
- Septic repair and replacement
- Installing new sewer lines
- Local ordinances to limit development near the water source
- Education and outreach to homeowners



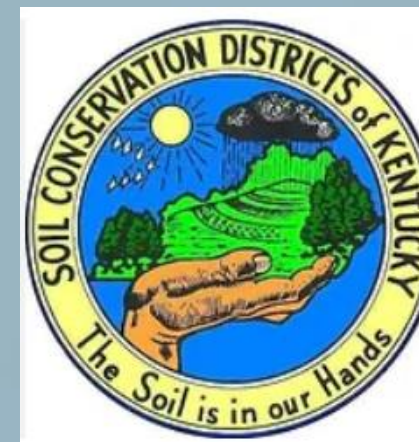
Approaches To Source Water Protection



PARTNERING FOR SUCCESS

Use your plan to enlist partners with similar goals:

- UK Extension
- National Resources Conservation Service
- Conservation Districts
- Area Development Districts
- Health Departments
- Kentucky Division of Water
- US Fish and Wildlife



DOW

SOURCE WATER PROTECTION WEBSITE

❑ SWP Resources

❑ Regulations

❑ Data & Mapping

❑ Assistance

❑ Partner Resources



<https://eec.ky.gov/Environmental-Protection/Water/Protection/Pages/SWP.aspx>

[Bit.ly/KYSWP](https://bit.ly/KYSWP)

TEAM KENTUCKY
ENERGY AND ENVIRONMENT CABINET

Environmental ProtectionNatural ResourcesEnergyNature PreservesAdministrative HearingsBuilding a Better KY

AirCompliance AssistanceEnforcementMastsWaterOnline ServicesBrownfieldsResources

SOURCE WATER PROTECTION

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What is Source Water Protection?

Source water protection is a common-sense approach to guarding public health by protecting drinking water supplies. Ensuring safe and adequate drinking water supplies requires maintaining the quality and availability of present and future water supply sources. In the long run it is less expensive and more protective of public health to prevent contamination than to treat water to meet health standards. Similarly, it is less expensive to protect and maintain existing sources than it is to develop new ones. New contaminants of concern continue to emerge, potentially requiring more costly treatment of source waters if they have not been adequately protected. Effective protection relies on the combined efforts of the federal and state agencies, water suppliers, municipalities, businesses, institutions and communities whose activities have the potential to affect the source.

Public Water Suppliers (PWS) in Kentucky utilize groundwater, spring and surface water resources to produce safe, reliable drinking water. A Public Water Supplier provides water for human consumption through pipes or other constructed conveyances to at least 15 service connections or serves an average of at least 25 people for at least 60 days a year. A public water system may be publicly or privately owned. Water Supply Protection programs have been developed to ensure that these sources are protected. The Safe Drinking Water Act (SDWA) provides the guidance and framework for these programs. Kentucky's programs are administered through the Wellhead Protection Program and Source Water Assessment and Protection Program, respectively. These programs require water suppliers to delineate the areas contributing to their water sources, determine their susceptibility to contamination, develop strategies to manage potential contaminants and plan for future use. Effective communication and community involvement are essential for source water planning to be successful.

The Division has developed a Story Map to showcase Source Water Protection programs in Kentucky. The Division has compiled and published a Source Water Protection Viewer as a service to the public and public water systems.

Wellhead Protection Program

Source Water Assessment and Protection Program

Source Water Protection Assistance Program

Programs and Resources

SWP Resources

Basics

Elements

Strategies

Planning Tools

Success Stories

Funding Opportunities

Regulations

Safe Drinking Water Act

KRS 151

401 KAR 4:220

Data & Mapping

DOW Water Maps Portal

Source Water Protection Viewer

KyGeoportal
Search using keywords 'DOW Wellhead Protection' or 'DOW SWAPP'

WRIS

Assistance

Groundwater Protection Plans

SWPAP

Watershed Planning

Nature-Based Solutions

FUNDING FOR **SOURCE WATER PROTECTION**



<https://bit.ly/SWPFunding>

Finding Funding:

- **EPA: Funding Integration Tool for Source Water (FITS)**

A one-stop-shop tool that explains how users can integrate various federal funding sources to support activities that protect sources of drinking water

Types of Funding

- **Clean Water State Revolving Fund (CWSRF)**
Funding for grey and green infrastructure projects to protect source water
- **CWSRF/Kentucky Source Water Protection and Assistance Program (SWPAP)**
Well abandonment for Public Water Systems deemed high priority
- **319(h) CWA Funding**
Funding for watershed planning and implementation projects
- **Sewer Overflow and Stormwater Reuse Municipal Grant (OSG)**
Funding for green infrastructure solutions for stormwater runoff for rural and disadvantaged communities



TECHNICAL ASSISTANCE

Kentucky Division of Water

Dale Booth
KSWAPP Coordinator
502.782.6895
Dale.Booth@ky.gov

Allan Shingleton
Water Supply Section Supervisor
502.782.6907
Allan.Shingleton@ky.gov

Kentucky Rural Water Association

Chloe Brantley
Source Water Specialist
270.843.2291
C.Brantley@krwa.org



<https://bit.ly/KYSWP>