



## Forum Breakout Topic

### Indiana Geospatial Water Resources

- Indiana Department of Natural Resources, Division of Water Geospatial Resources
- Existing Indiana Statewide NHD, WBD, NWI Data, and Example of County Hydro Data
- The Future of 3D Hydrography Mapping at USGS
- Next Steps for Indiana's Hydrography?



# Indiana Department of Natural Resources

Division of Water  
Geospatial Resources

**DNR Division of Water's  
Homepage:  
(in.gov)**

The screenshot shows the homepage of the Indiana Department of Natural Resources (DNR) Division of Water. The browser address bar displays <https://www.in.gov/dnr/water/>. The page features a dark green header with the DNR logo and the text "Indiana Department of Natural Resources". A search bar is located in the top right corner. The main content area is a large banner image of a flooded residential area with the text "Division of Water" and "Is your site in a floodplain?". Below the banner is a navigation bar with five buttons: "Contact Us", "Permits", "Well Records", "Floodplain Portal", and "Flood Insurance". The bottom section contains four columns of links under the headings "Floodplain & Permits", "Water Rights & Use", "Resource Assessments", and "Community Assistance".

**Division of Water**  
Is your site in a floodplain?

**Contact Us** **Permits** **Well Records** **Floodplain Portal** **Flood Insurance** **Statutes & Rules**

**Floodplain & Permits**

- [Division of Water Online Research Center \(DoWORC\)](#)
- [Engineering Service Center](#)
- [FEMA's No-rise Requirements](#)
- [Floodplain Management in Indiana Quick Guide](#)
- [Floodplain Portal](#)

**Water Rights & Use**

- [Driller/Pump Installer Licensing & Education](#)
- [Great Lakes Compact](#)
- [Ground Water Rights Emergency Regulation](#)
- [Significant Water Withdrawal Facility Registration](#)

**Resource Assessments**

- [Aquifer Systems Mapping](#)
- [Basin Studies](#)
- [Ground Water Basics](#)
- [Groundwater Level Monitoring Program](#)
- [Monthly Water Resource Summary](#)
- [Potentiometric Surface Mapping](#)
- [Water Availability](#)

**Community Assistance**

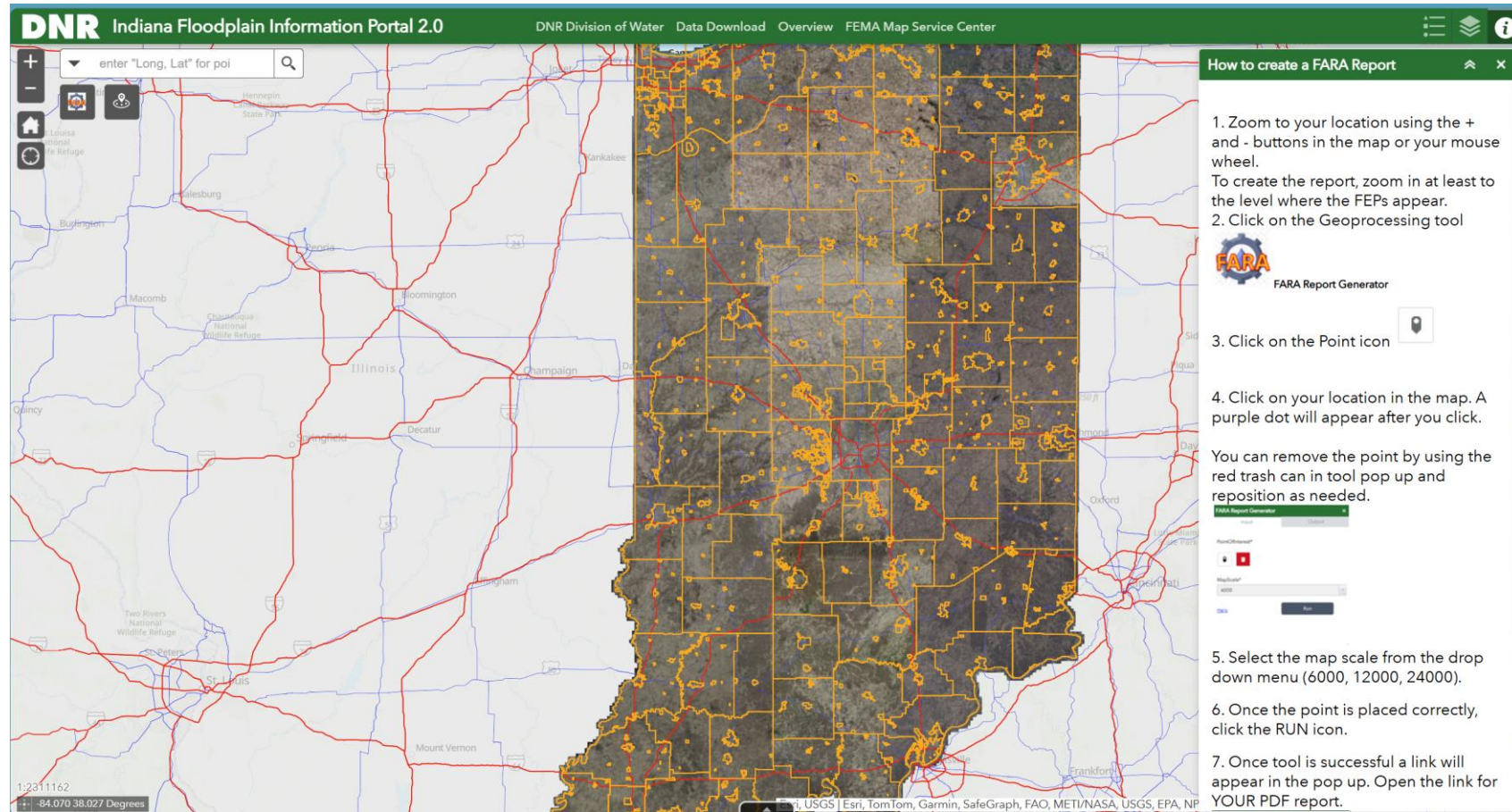
- [Conservancy Districts](#)
- [Dikes, Dams and Levees Regulations](#)
- [Division Benchmarks](#)
- [Email Newsletters](#)
- [Indiana Erosion Along Lake Michigan](#)
- [Living with Dams](#)
- [River Basin Commissions](#)



# Indiana Department of Natural Resources

Division of Water  
Geospatial Resources

**DNR Division of Water's  
Indiana Floodplain Information Portal  
(INFIP) 2.0  
([arcgis.com](https://arcgis.com))**



**DNR Indiana Floodplain Information Portal 2.0** DNR Division of Water Data Download Overview FEMA Map Service Center

enter "Long, Lat" for poi

**How to create a FARA Report**

1. Zoom to your location using the + and - buttons in the map or your mouse wheel. To create the report, zoom in at least to the level where the FEPs appear.
2. Click on the Geoprocessing tool

**FARA**  
FARA Report Generator

3. Click on the Point icon
4. Click on your location in the map. A purple dot will appear after you click. You can remove the point by using the red trash can in tool pop up and reposition as needed.

**FARA Report Generator**

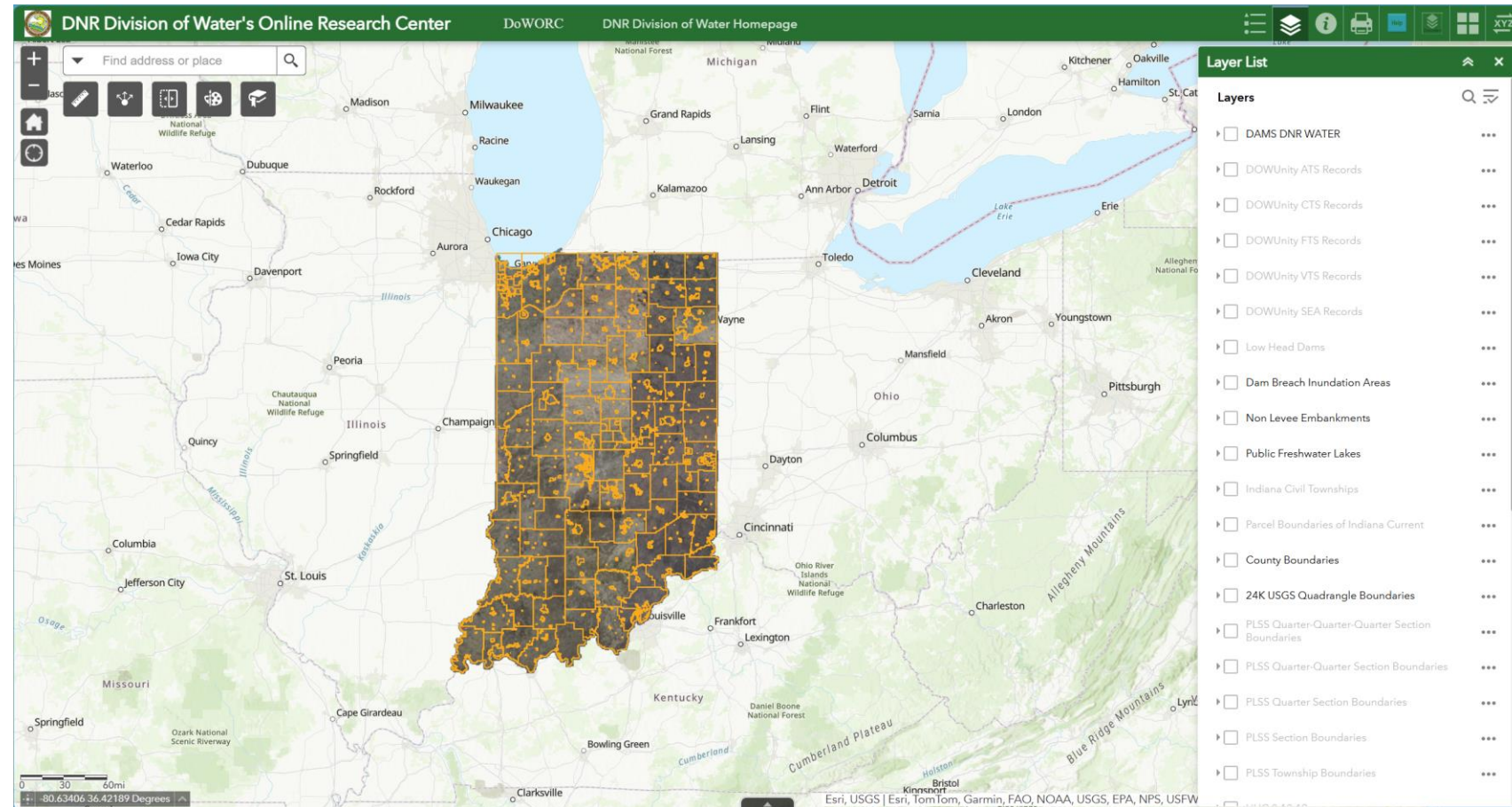
Scale: 6000, 12000, 24000

5. Select the map scale from the drop down menu (6000, 12000, 24000).
6. Once the point is placed correctly, click the RUN icon.
7. Once tool is successful a link will appear in the pop up. Open the link for YOUR PDF report.

# Indiana Department of Natural Resources

Division of Water  
Geospatial Resources

**DNR Division of Water's –  
Online Research Center  
([arcgis.com](https://arcgis.com))**

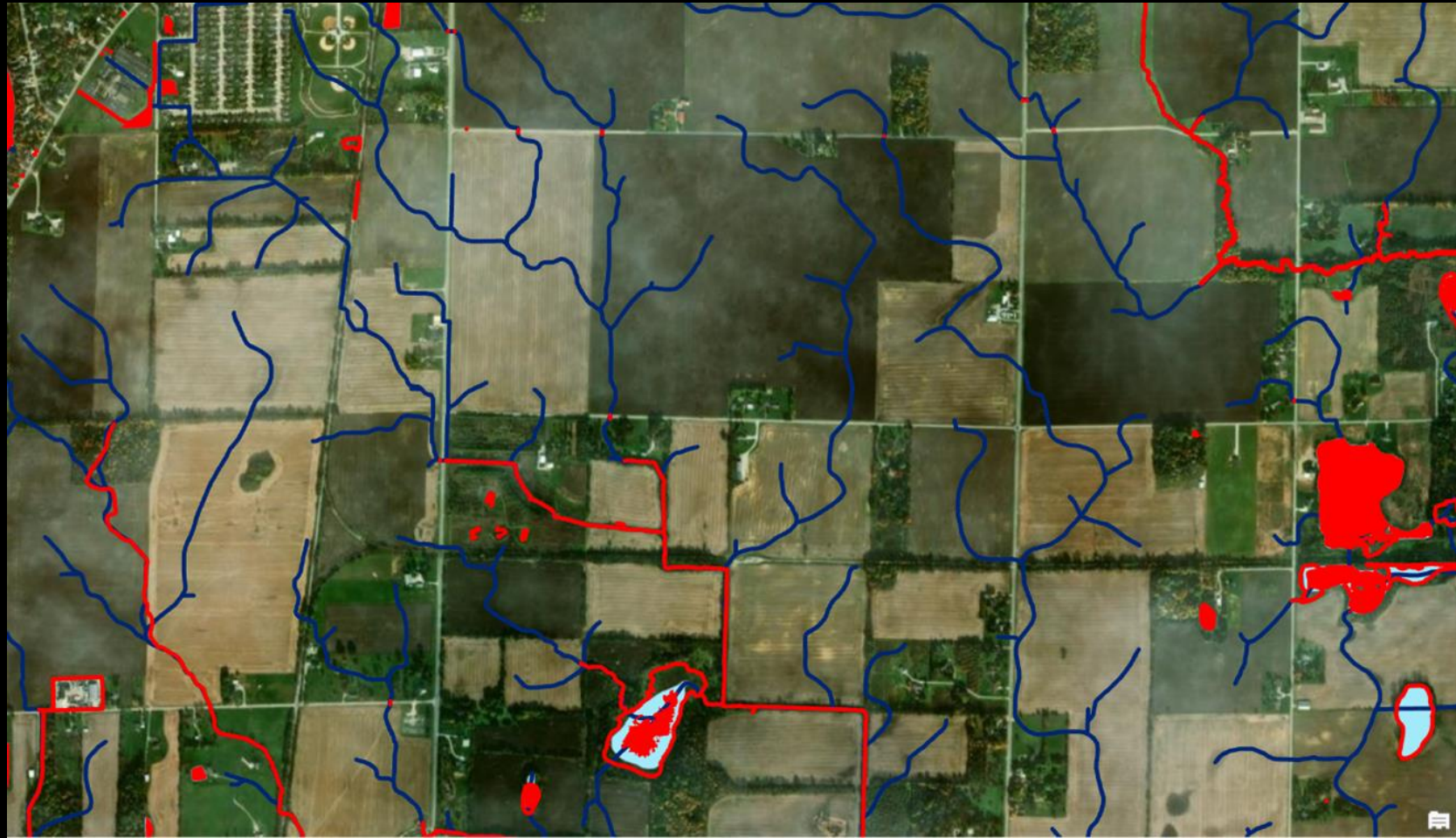




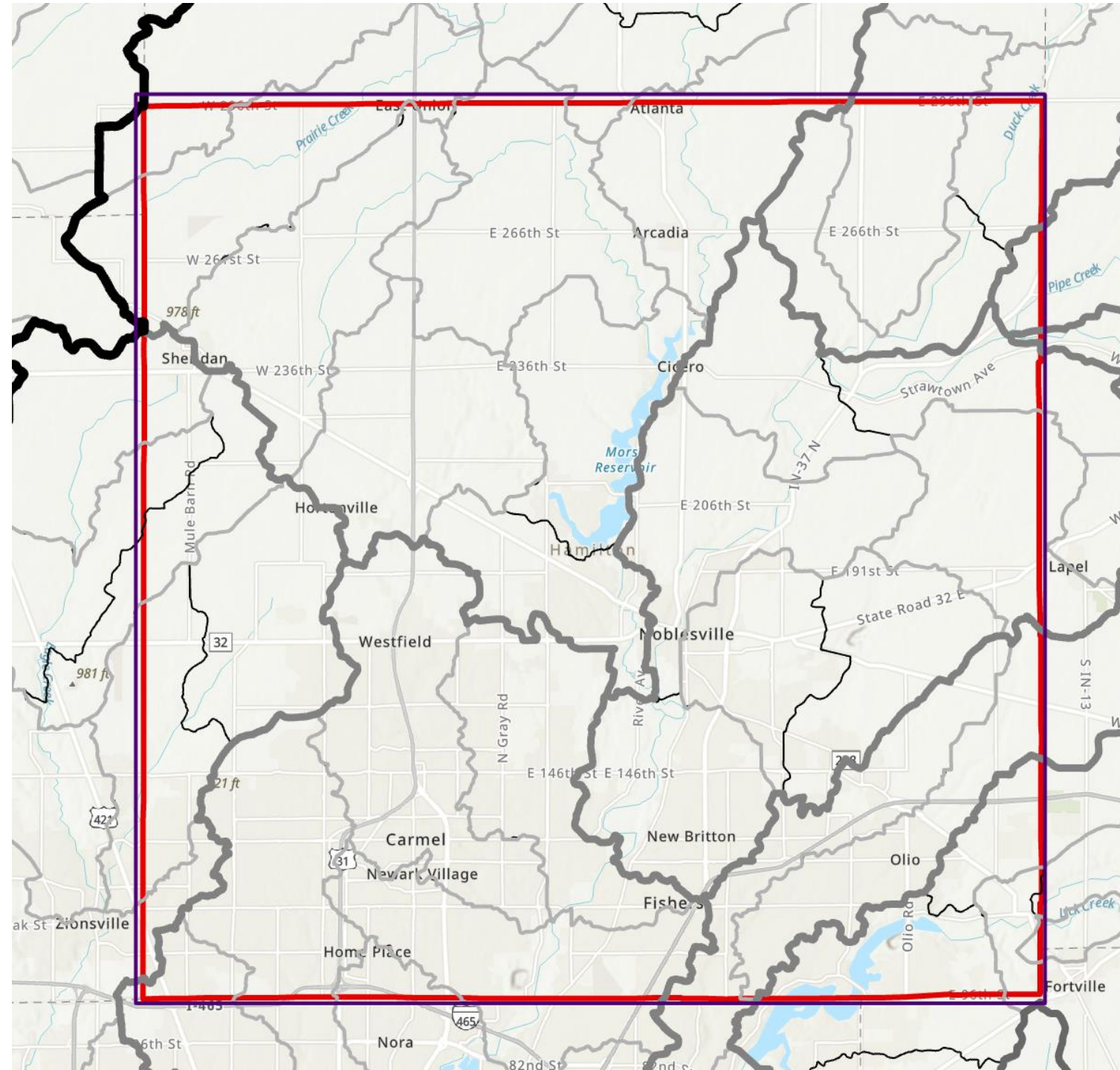
# Existing Indiana Statewide NHD, WBD, NWI Data, and Example of County Hydro Data (Hamilton County, IN)

IGIC Geospatial Coordinators Forum

October 1, 2024



# State of Indiana, Existing Hydrography Mapping (WBD)



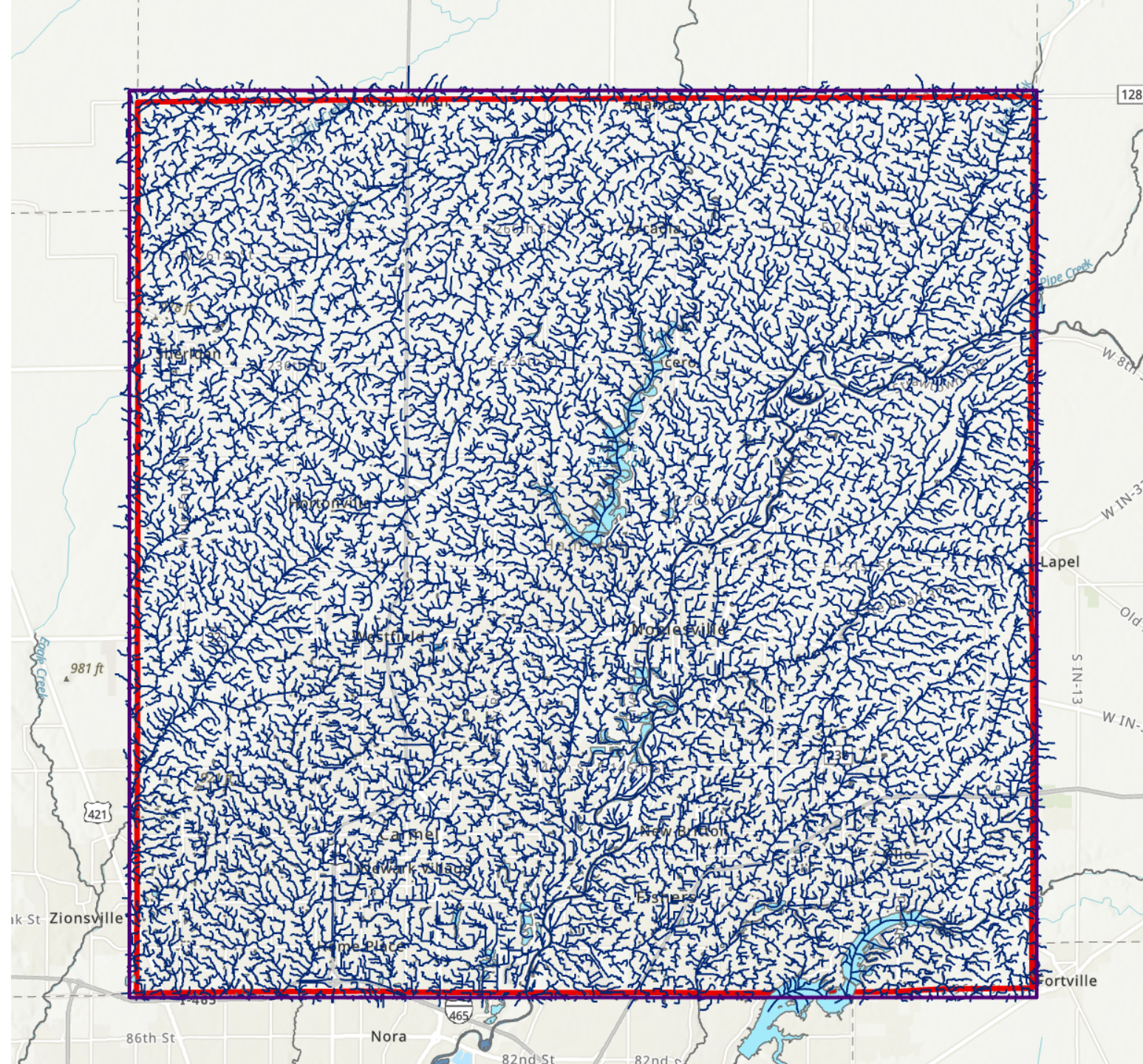


# State of Indiana, Existing Hydrography Mapping (NHD)

**Local-Resolution NHD Mapped from  
2011-2014 QL3 Lidar and 1-Foot Pixel  
Orthoimagery**

**Scale 1"=100'**

**Resolution: 6 AC Catchment**



## Key use cases and applications of the National Wetlands Inventory (NWI):

- 1. Wetland Conservation and Management:** The NWI plays a crucial role in the conservation and management of wetland ecosystems
- 2. Regulatory Compliance:** Wetlands are protected under various federal, state, and local regulations. NWI data helps ensure compliance with laws such as the Clean Water Act and the National Environmental Policy Act
- 3. Environmental Planning and Land Use:** The NWI is used in land use planning and environmental impact assessments
- 4. Research and Science:** The NWI data serves as a valuable resource for researchers, scientists, and educators studying wetland ecosystems
- 5. Habitat Management and Restoration:** The NWI data assists in identifying and prioritizing areas for habitat management and restoration initiatives
- 6. Climate Change Adaptation:** Wetlands play a crucial role in climate change mitigation and adaptation

# The National Wetlands Inventory (NWI)

The National Wetlands Inventory (NWI) is a program developed and maintained by the U.S. Fish and Wildlife Service (USFWS) to map, classify, and provide information on the status and trends of wetlands across the United States. It is considered the most comprehensive inventory of wetland resources in the country.



## State:

**GIO** – Publish NWI data on IndianaMap?

**IDEM** – Clean Water Act (CWA). IDEM is responsible for protecting Indiana's environment, including wetlands. IDEM administers the state's regulatory programs, such as the 401 Water Quality Certification Program, which is designed to ensure that activities affecting wetlands comply with water quality standards and other regulations. Are there additional regulations at the state and local levels for wetland preservation, mitigation, or conservation? [\[LINK\]](#)

## Hamilton County:

**Survey Department** – Use as internal reference layer only, but often rely on boots on the ground to accurately determine wetland features. Survey office does not make public the NWI layer because it's so inaccurate and incomplete.

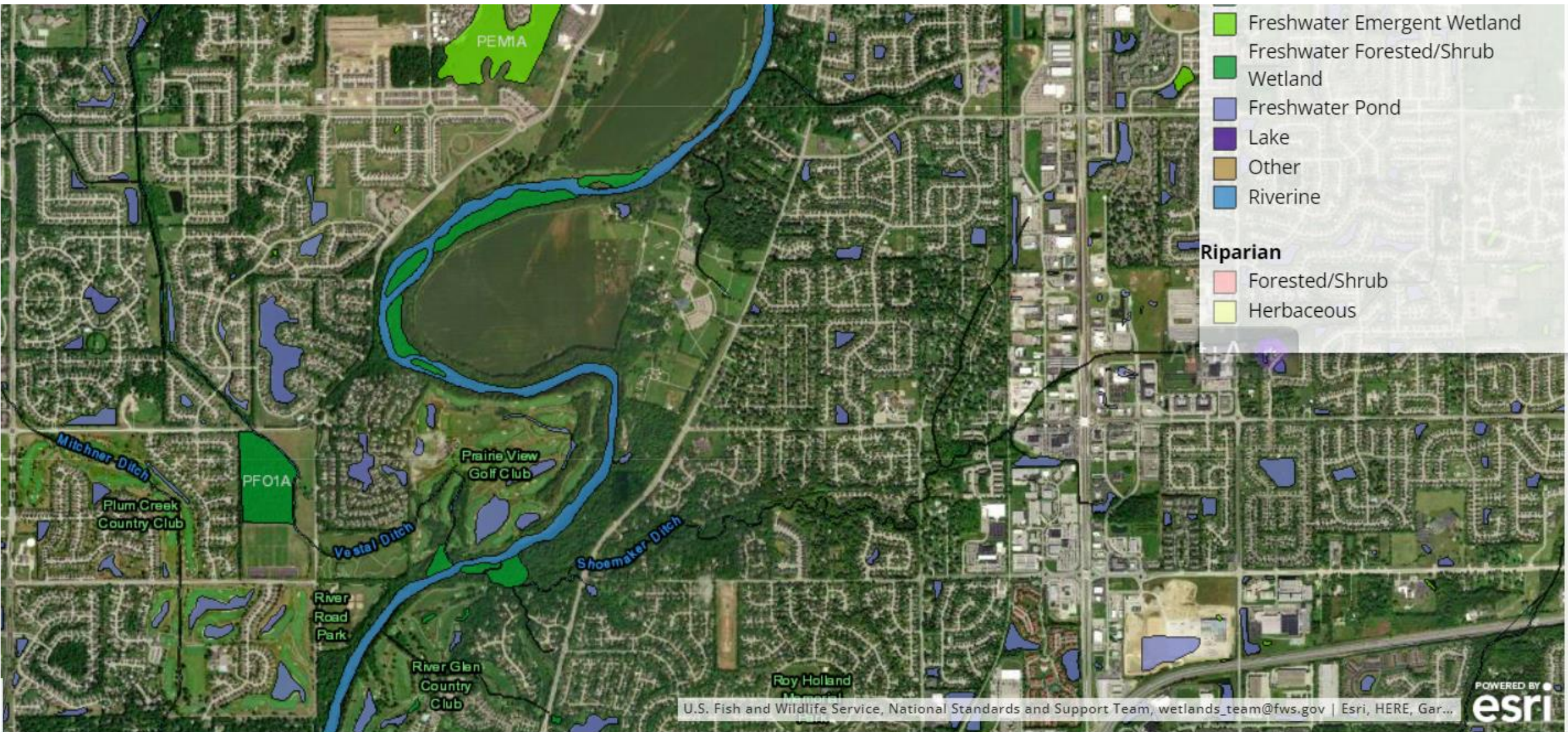
## Cities:

**Carmel** – Uses NWI layer as a guide, but uses county hydro, with soils data and vegetation coverage information from orthoimagery and field visits to more accurately identify and map wetlands extents. We have no way to share our local wetlands mapping updates back into NWI.

# How does Indiana State, County and Local Governments Currently Use NWI data?



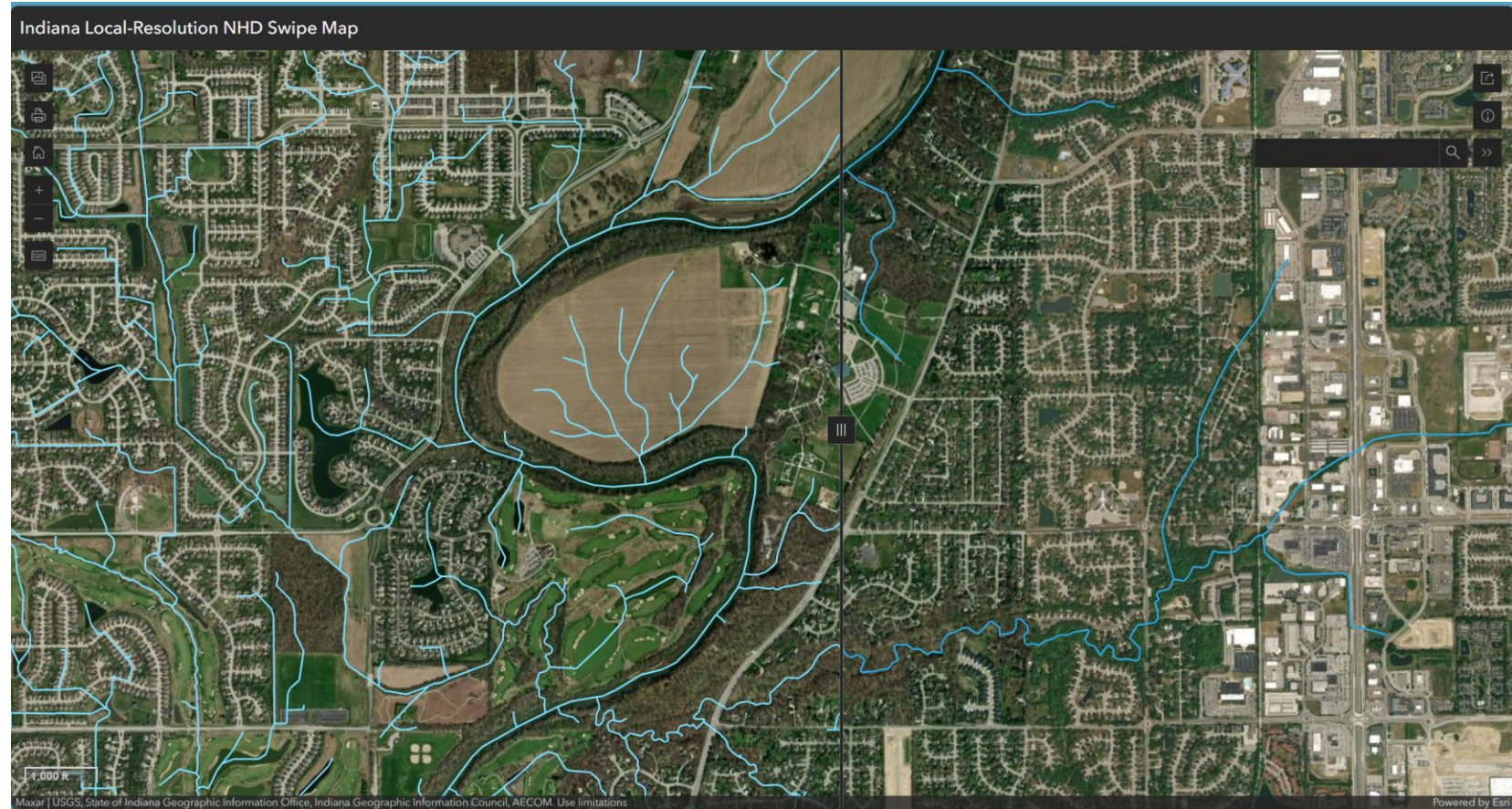






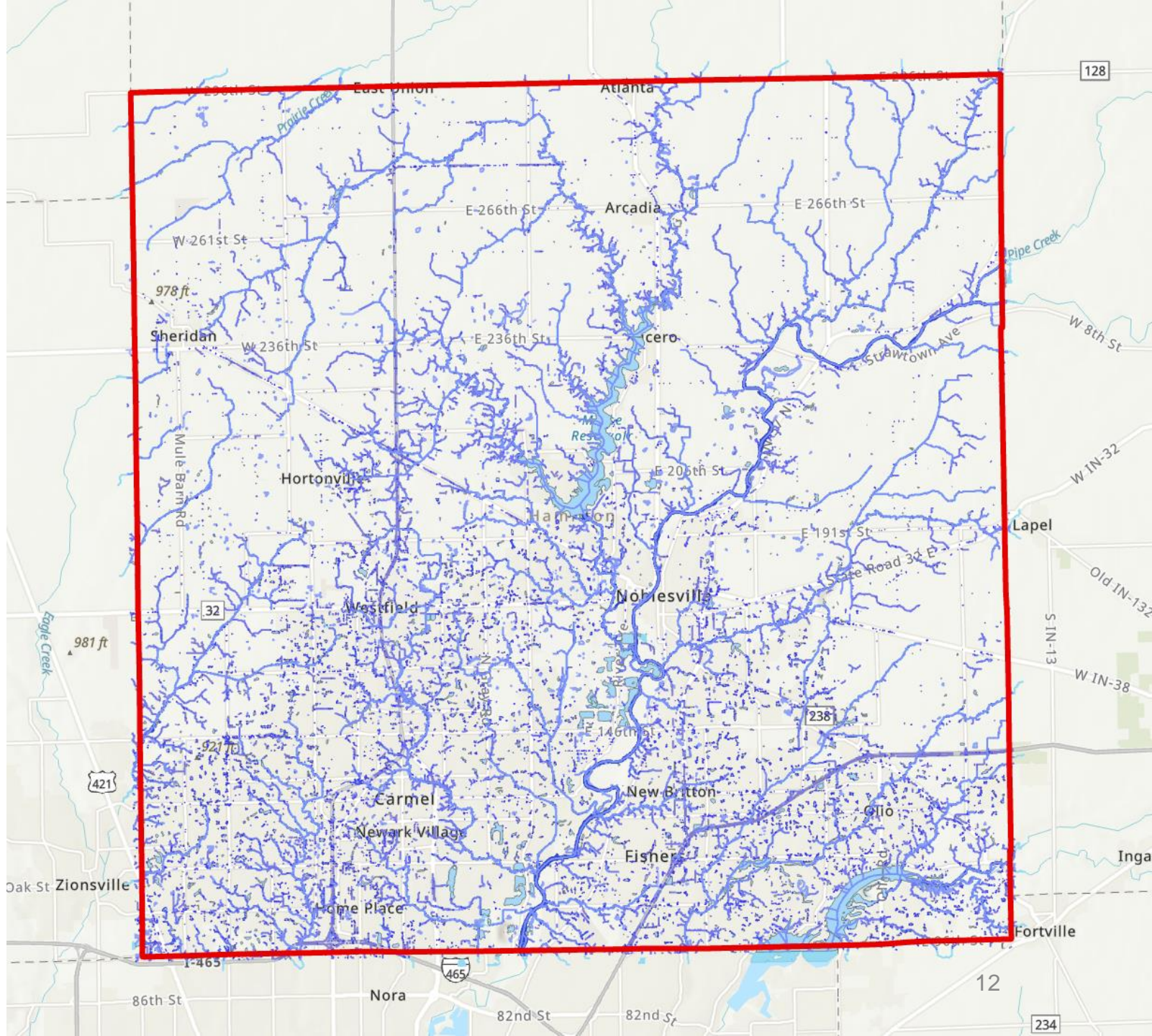
# State of Indiana, Existing Hydrography Mapping (NHD)

**Comparing Indiana's (Legacy) High-Resolution NHD data and (Current) Local-Resolution NHD data [[LINK](#)]**



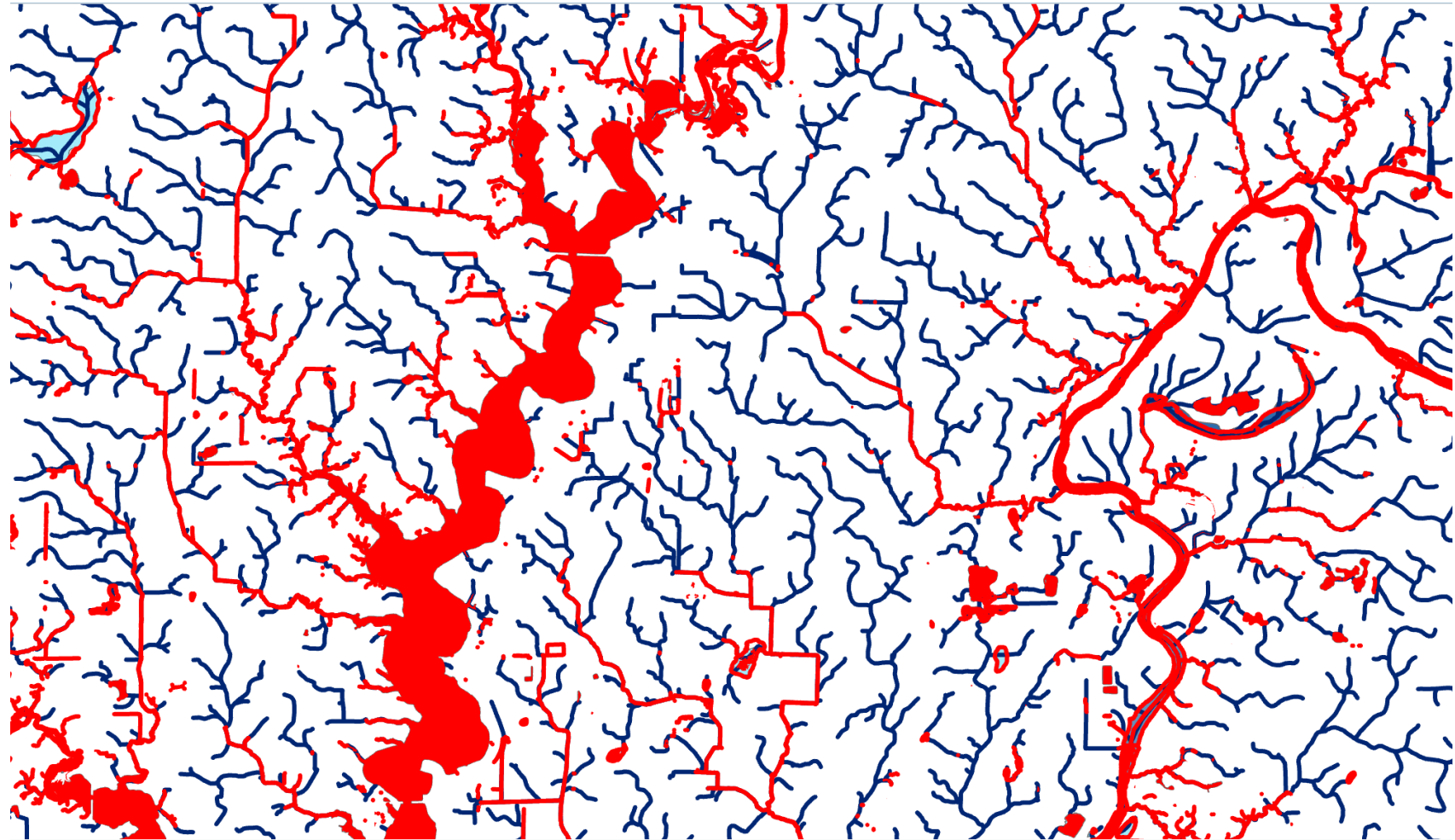


# Hamilton Co, Existing (2019) Hydrography Mapping

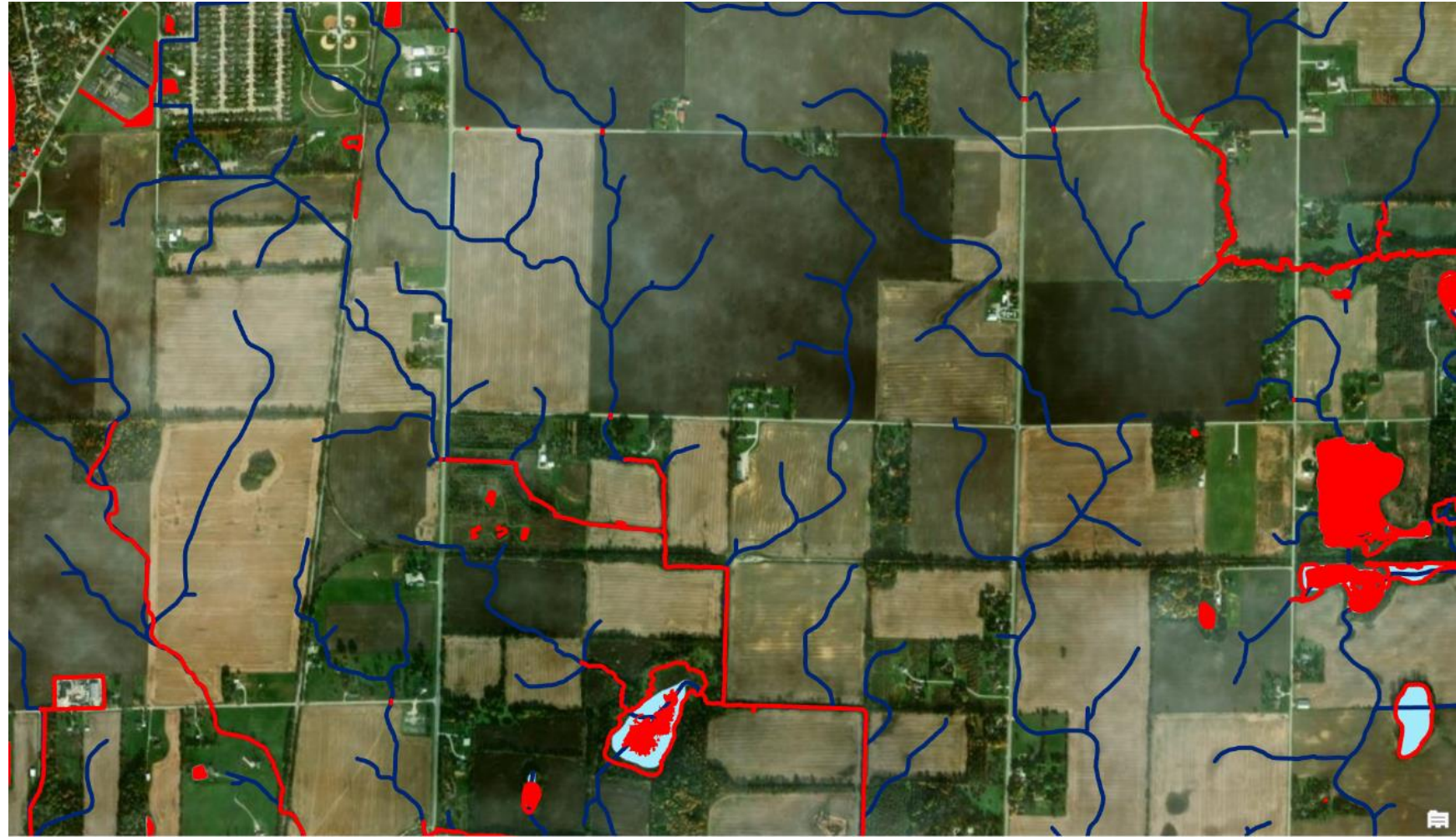




# Comparing Existing State of Indiana NHD & Hamilton County County Hydrography Mapping



# Comparing Existing State of Indiana NHD & Hamilton County County Hydrography Mapping

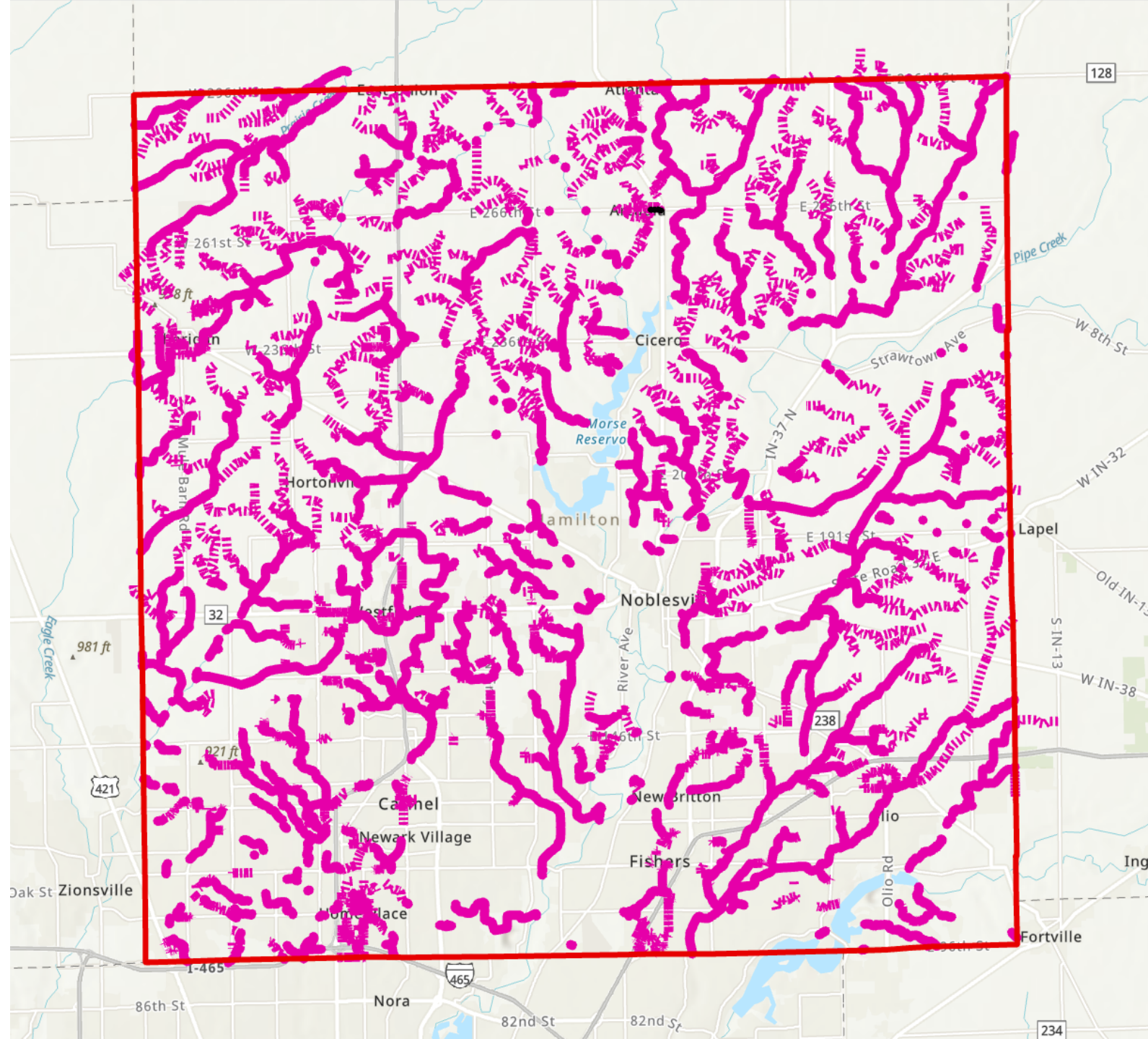




# Hamilton Co, Existing Legal Drains Mapping

## Other Local Government Hydro Features Inventoried and Mapped?

- Farm Drain Tiles?
- Culverts
- Basins (Subdivision, Custom, ...)
- Storm Sewer Networks
- Other?

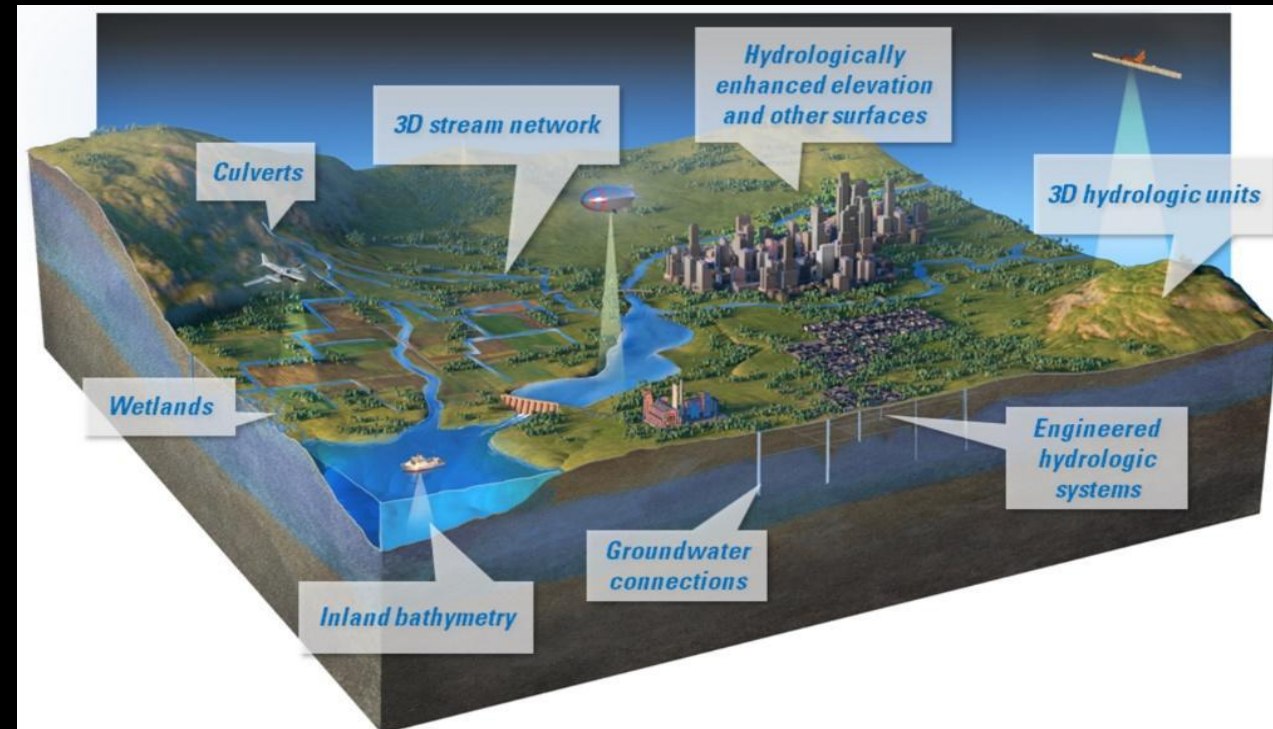




# The Future of 3D Hydrography Mapping at USGS

IGIC Geospatial Coordinators Forum

October 1, 2024





The USGS has halted (FROZE) Maintenance and Stewardship activities on the USGS NDH In December 2023

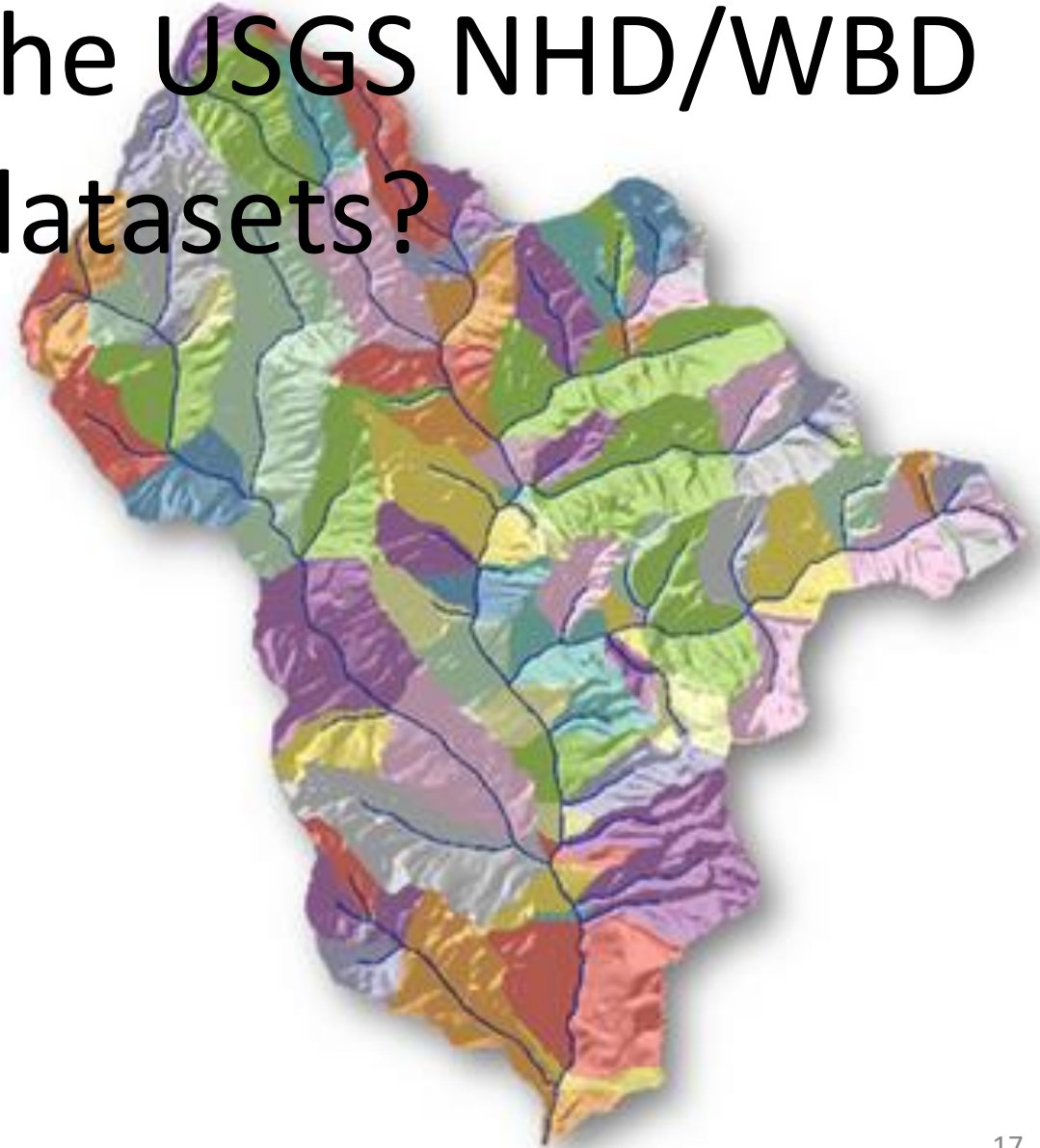
The USGS will halt (FREEZE) Maintenance and Stewardship activities on the USGS WBD in June 2024

The USGS will publish a static [archive] copy of the NHD & WBD in the Fall of 2023

The USGS created a static [archive] copy of the NHD and WDB to initially populate a 2D version of the 3DHP database in 2023-2024

As new EDH data is developed by HUC-8/10/12 areas, the USGS will validate and load these data into the 3DHP database replacing the legacy NHD data in that HUC

# What is the status of the USGS NHD/WBD datasets?





## State:

**GIO** – Publish Indiana’s Local-Resolution NHD/WBD Layers for internal use, and on IndianaMap

**IDNR** – Active End-Users [and Stewards] of NHD/WBD

**IDEM** – Currently maintains their own Medium-Resolution NHD/WBD for tracking Event [point] data

## County Example:

**Hamilton County Surveyors Office** - Do not use NHD/WBD due to its complexity. GIS uses hydrography layer generated in 2019 basemap update project. Surveyors Office uses custom layer showing mapping ~1,600 miles of Regulated Drains in the County.

## City Example:

**City of Carmel** - Use counties 2019 basemap base layer stream and waterbody network. Integrated with storm sewer network to support MS4 and tied into CityWorks. Also used for annual FEMA reporting requirements.

# How does Indiana State, County and Local Governments Currently Use NHD/WBD data?

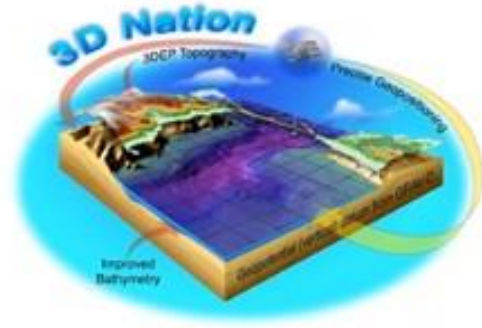




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# 3D National Topography Model (3DNTM)

Integrates elevation and hydrography datasets to model the Nation's topography in 3D



## 3D Hydrography Program (3DHP)

- Hydrography derived from/integrated with 3D Elevation Program data
- Connections to groundwater, wetlands, and engineered hydrography
- 3DHP Infostructure for data sharing as part of the Internet of Water



## Next Gen 3D Elevation Program (3DEP)

- New quality levels and refresh cycles
- Integration of inland bathymetry
- 3DEP Ecosystem for data and resource sharing
- Continual improvement with new technologies and approaches

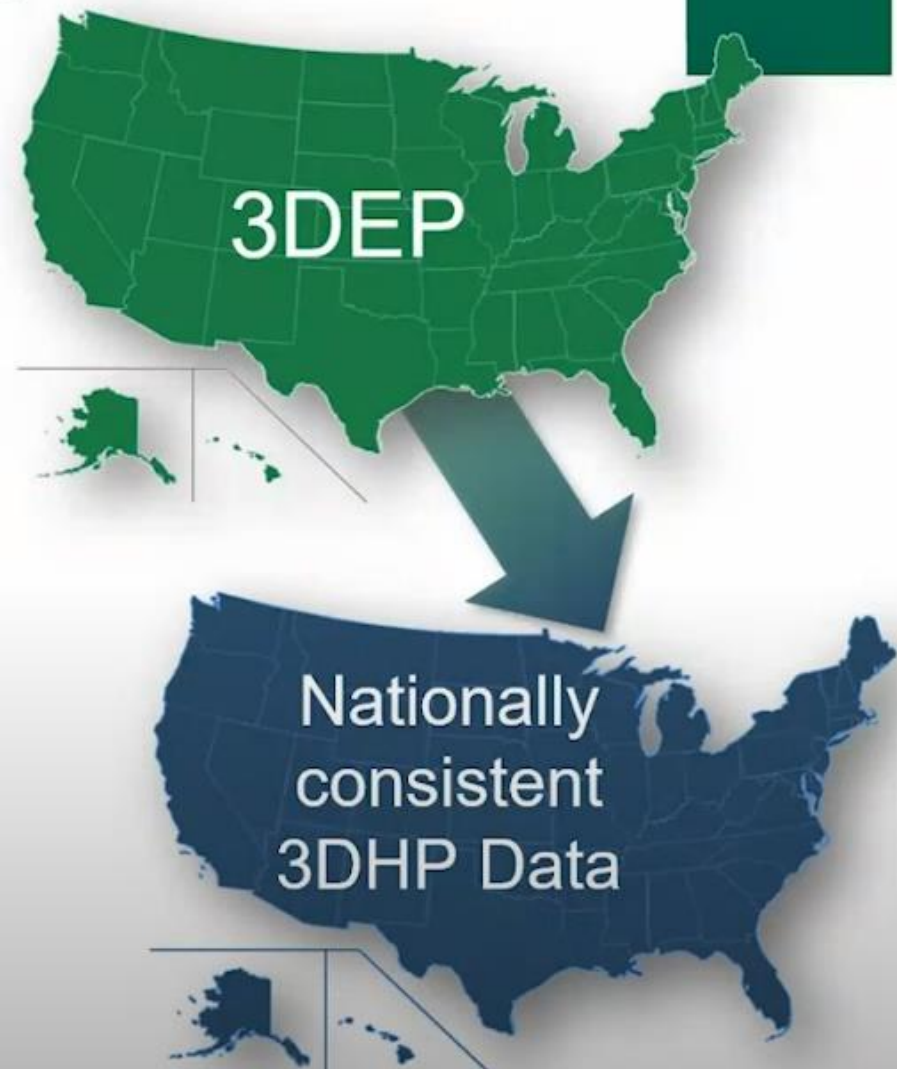
## Future Integrated 3D Model

- Research and develop a 3D data model to fully integrate 3DHP and next gen 3DEP
- Integrate other data from The National Map

# Hydrography Derived from Elevation Offers a Solution!

3DHP will provide national consistency while meeting local needs

- 3DHP to standardize hydrography data to align vertically, horizontally, and temporally with 3DEP data
- Build an Infostructure using the standardized hydrography as the to support the Internet of Water
- Develop a modernized data model/schema that supports uses from GIS to hydrologic modeling
- Include enhanced connections to other datasets that depict additional facets of the hydrologic cycle, such as wetlands, groundwater, and engineered hydrologic systems
- Data acquisition process to follow 3DEP Best Practices including coordinated governance
- Stewards continue to provide local knowledge on attributes and flagging issues on the geometry



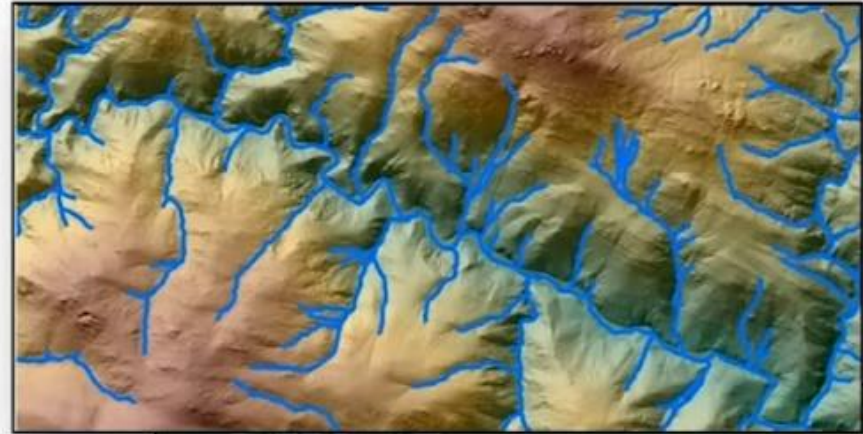


# 3DHP Data Overview

*A stack of interoperable hydrography data that are aligned by virtue of being derived from a common elevation source*

- Stream network including waterbodies
- Hydrologic units including catchments
- Descriptive attributes and derived attributes that assist with routing and analysis
- Hydroenforced/conditioned DEMs
- Additional data created during processing such as flow accumulation and flow direction

*Building on concepts from current hydrography products using the next generation of acquired data and accounting for more of the hydrologic cycle*





# 3DHP Data Enhancements

## Connections to water-related and other data

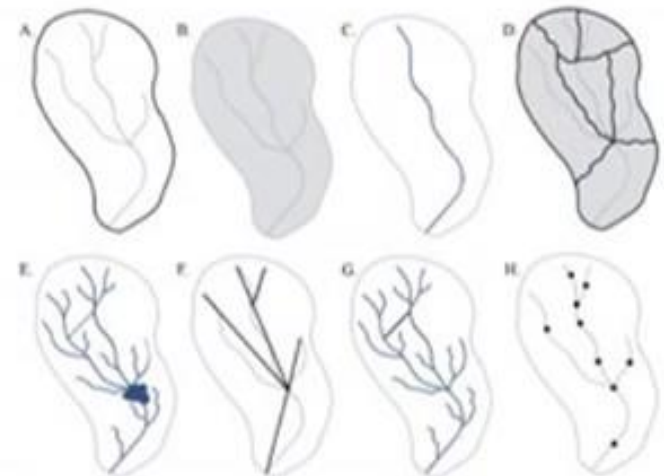
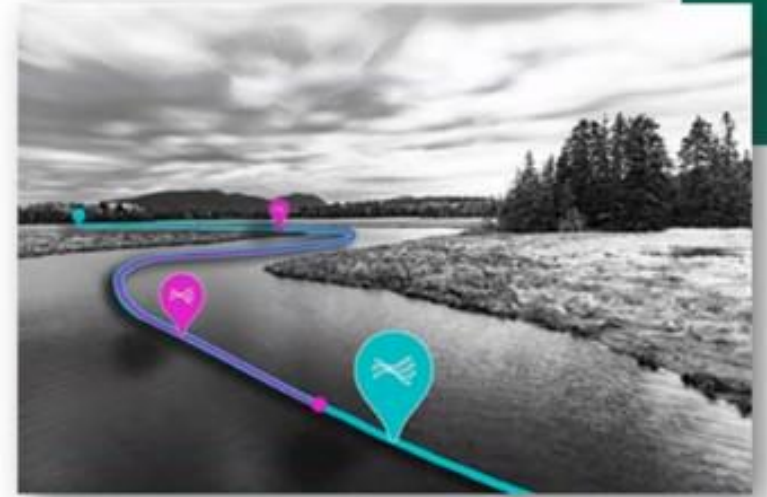
- Adding connections to groundwater
- Align with and National Wetlands Inventory - Working with FWS to understand how to improve mapping across these data
- Including engineered hydrologic systems
  - In particular, storm water systems in midsized to larger cities
  - Need more research into the "Goldilocks" level of storm system mapping
- Interoperability - Greater compatibility with other data such as surficial geology, soils, landcover, transportation networks, and other infrastructure





## 3DHP Data model

- Base **3DHP data model** on international standards as directed by the Geospatial Data Act of 2018
- Open Geospatial Consortium (OGC) WaterML2 Part 3: Surface Hydrology Features (HY\_Features) provides a conceptual model of hydrology features, especially catchments, and different realizations
  - Common vocabulary and terminology
  - Based on hydrologic features, as opposed to human features
- Promotes interoperability (NOAA-NWM, Canada, USGS)
- Supports multi-scale data product similar to WBD
- Additional data about features can be carried as addressed data, indexed to the core dataset



The EDH\*\* stream network will be derived from 3DEP 1-meter Digital Elevation Models (DEMs)\* with elevation values on each hydro line vertex to enable 3D analysis of the data.

\* **Hydrologically enhanced raster DEMs created** as a part of the stream network derivation process so that the flow of water across the surface is represented accurately

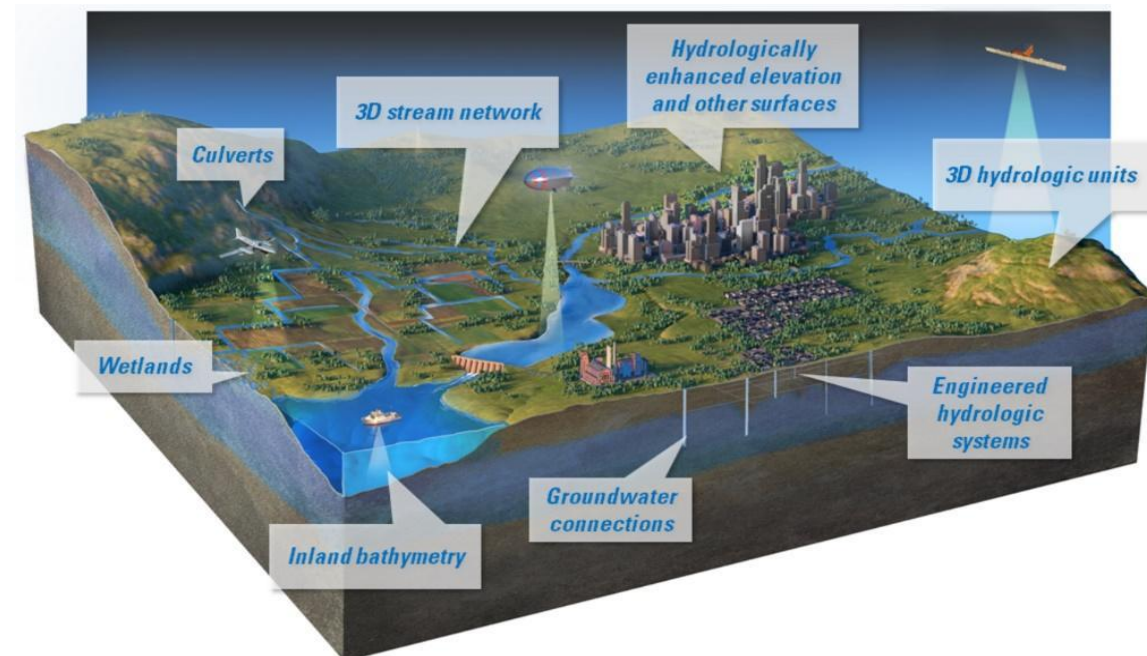
\*\* The EDH stream network is derived from elevation surfaces to form a drainage network

The completed EDH stream network will be submitted by the County to the USGS to publish it in the 3DHP\*\*\* Dataset

\*\*\* **The 3DHP Dataset will inherit key attributes of the NHD, WBD, and NHDPlus HR**, but also will include new attributes and links to other data such as the NWI, groundwater, and engineered hydrologic systems like stormwater networks.

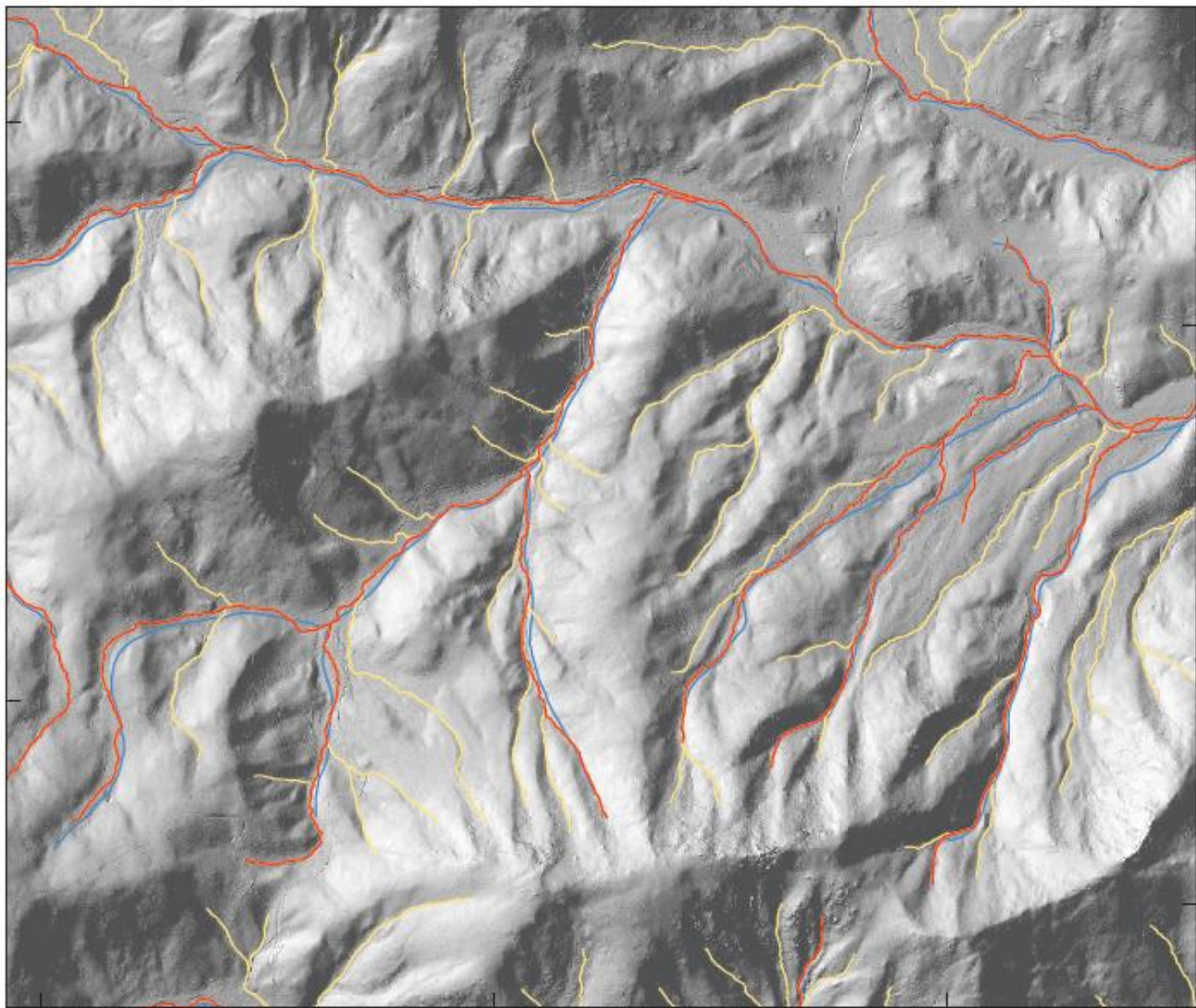
# What is 3DHP Elevation-Derived Hydrography (EDH)?

[\[LINK\]](#)

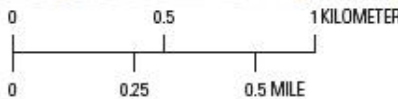




# What is 3DHP Elevation-Derived Hydrography (EDH)?



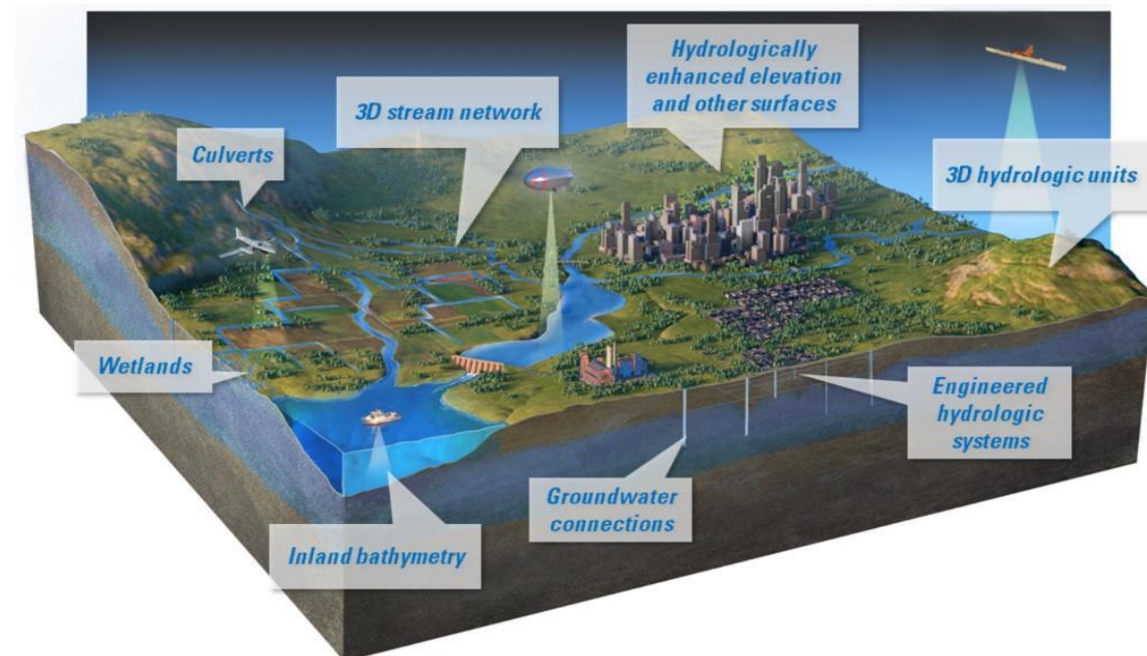
Base from U.S. Geological Survey digital data, various scales, various dates  
Universal Transverse Mercator projection, zone 17 N.  
North American Datum of 1983



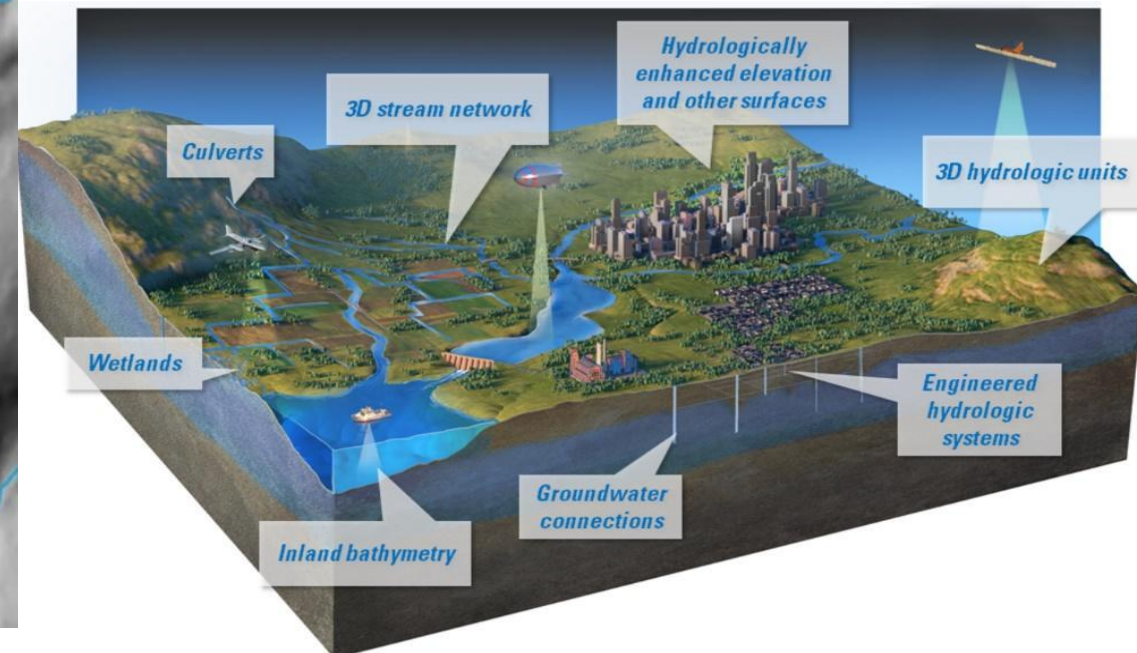
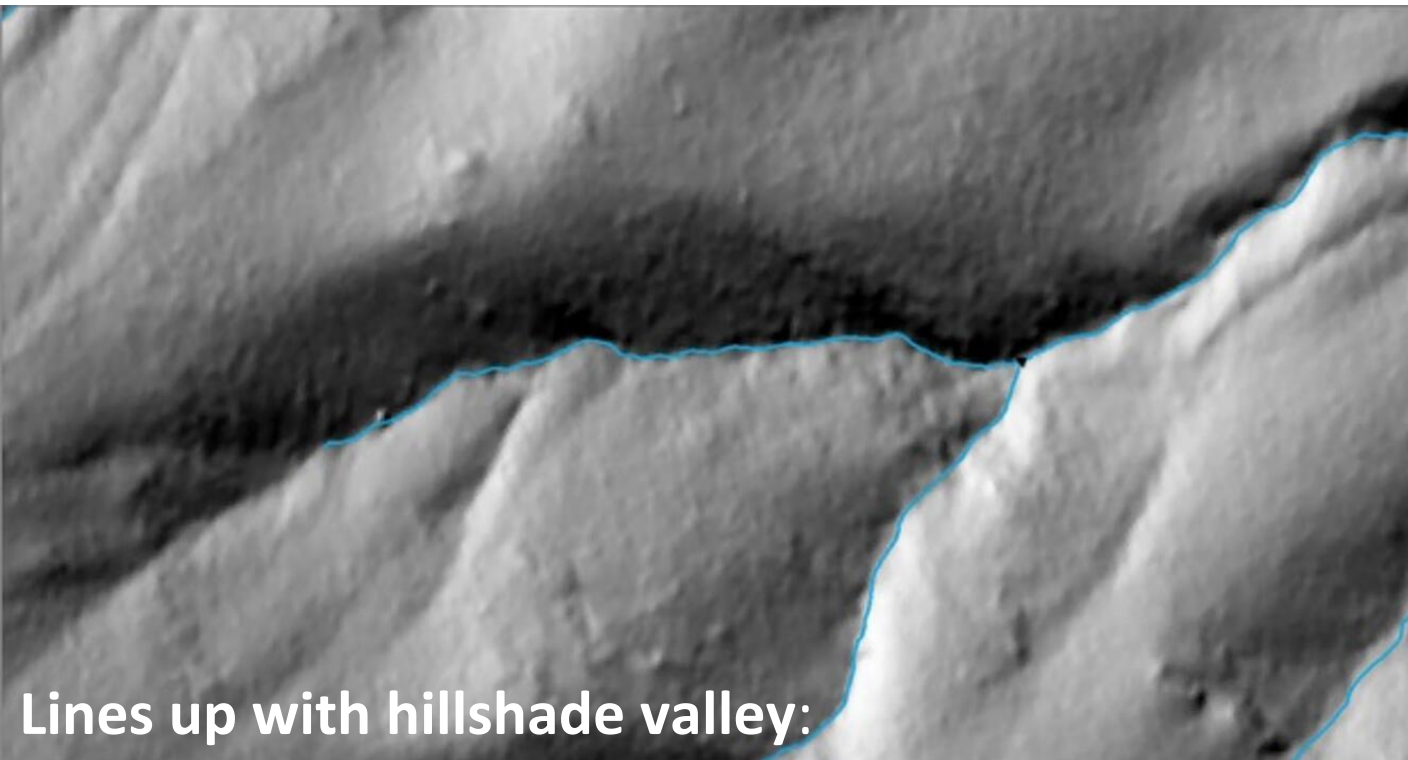
## EXPLANATION

[NHD, National Hydrography Dataset]

- Original NHDFlowline
- Elevation-derived hydrography
- Elevation-derived hydrography—Additional features

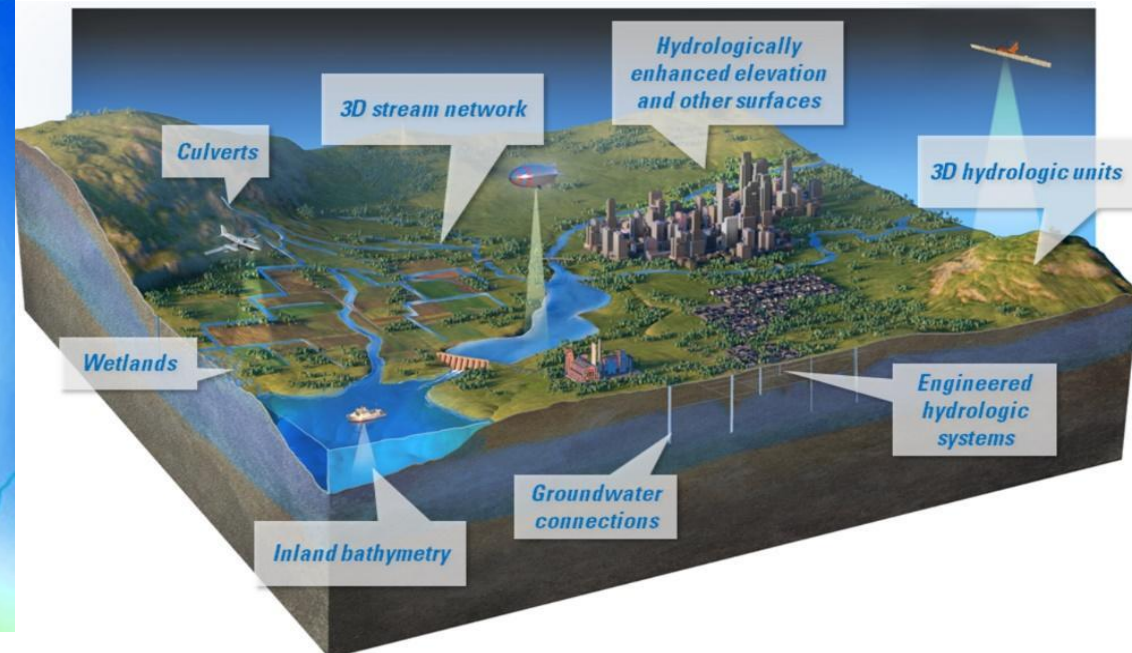
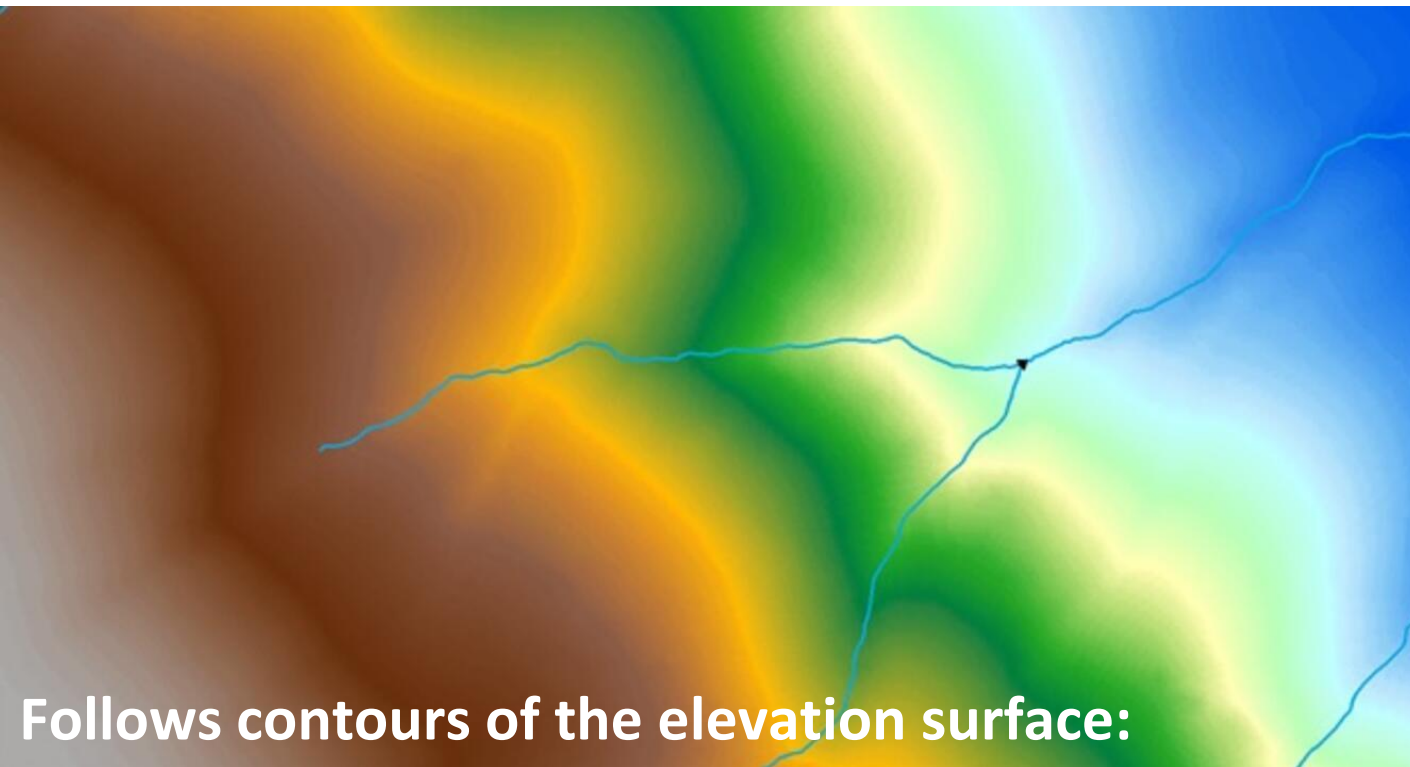


# What is 3DHP Elevation-Derived Hydrography (EDH)?

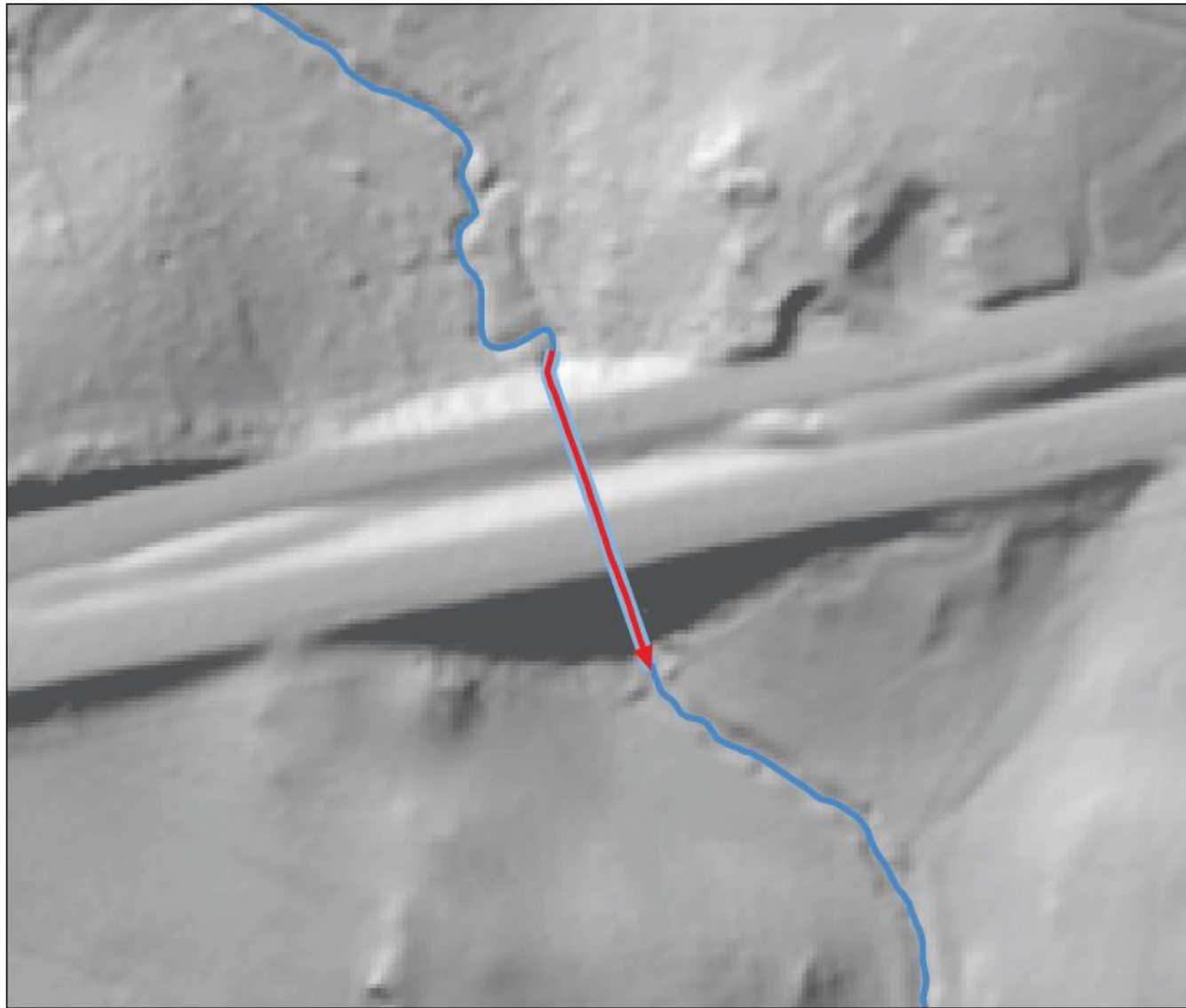




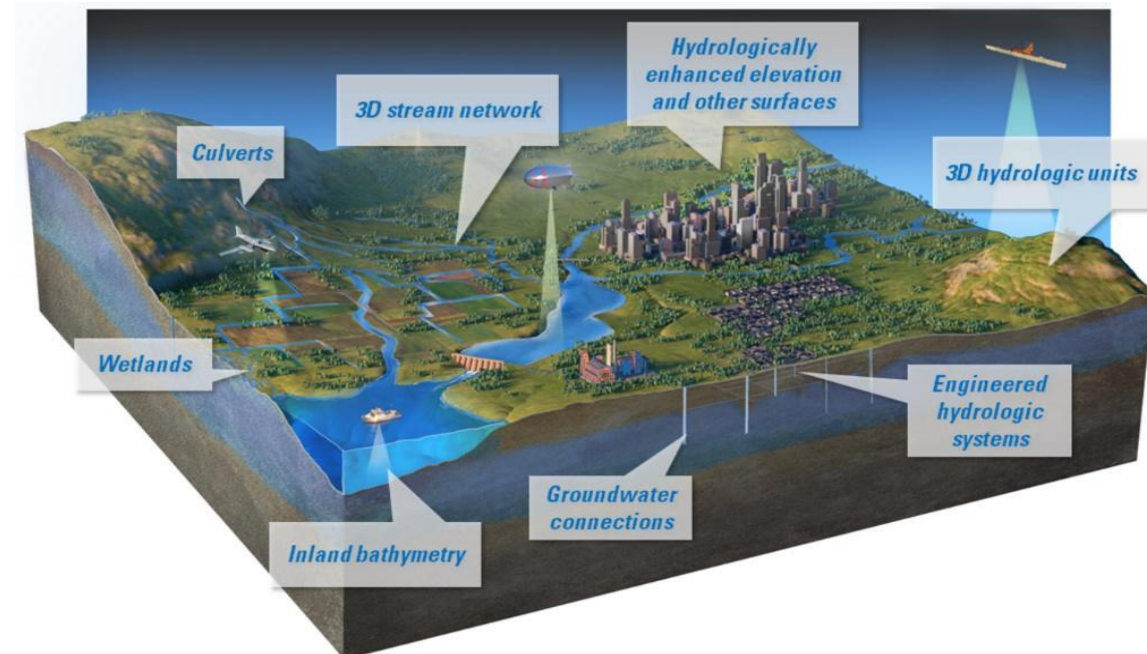
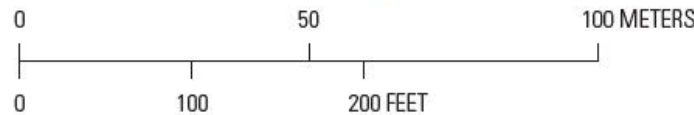
# What is 3DHP Elevation-Derived Hydrography (EDH)?



# What is 3DHP Elevation-Derived Hydrography (EDH)?



Base from U.S. Geological Survey digital data,  
various scales, various dates

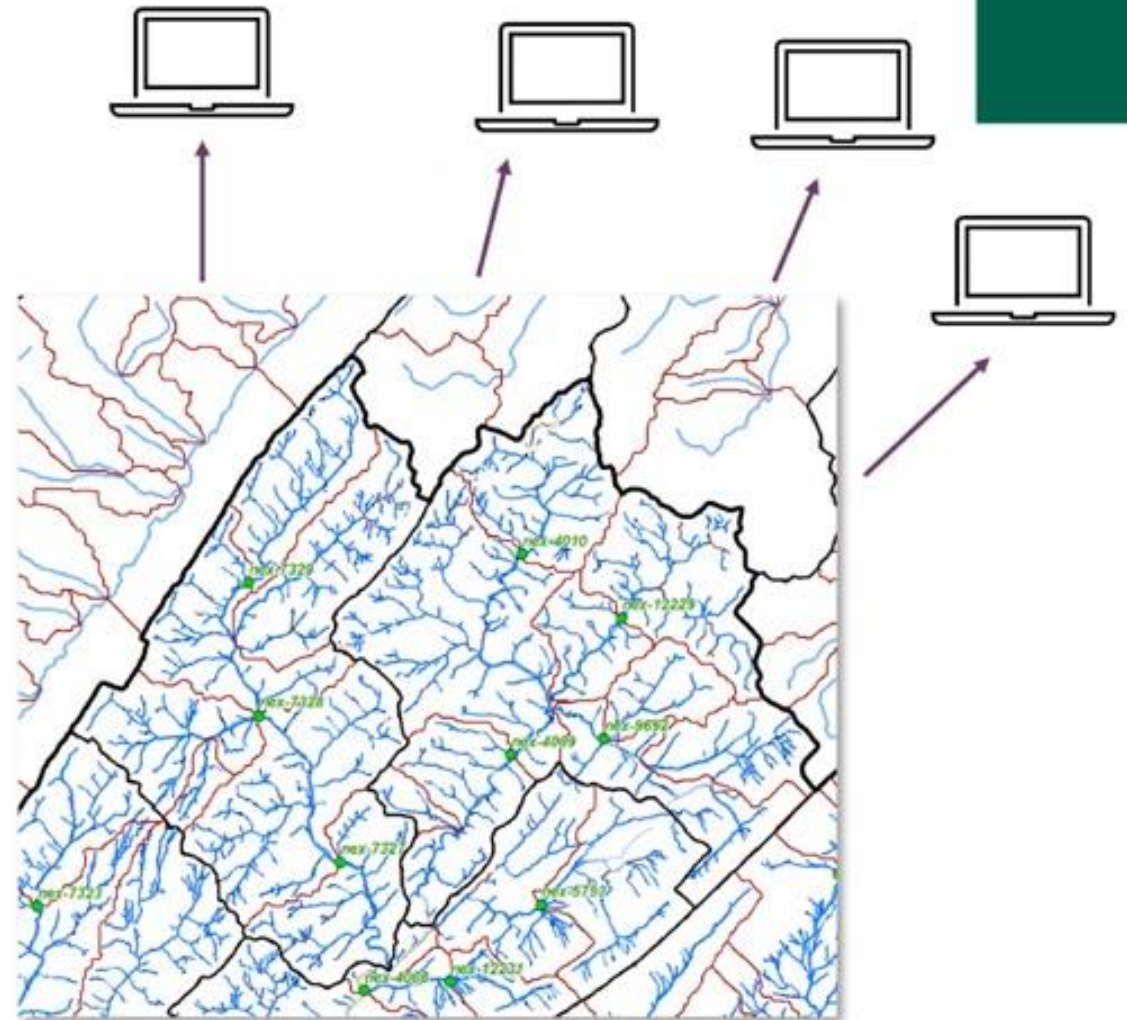




# Data distribution

Services-first – punctuated static releases

- Views (initially)
  - Cartographic
  - Addressing (IoW)
  - Hydrologic Units/Water Census
- Primary access will be through web services to support activities like IoW
  - Everyone accessing the same data
  - Limited branching/orphaning of dataset
- Annual static releases
  - URLs and DOI numbers for reference purposes
  - Frequency could be changed



**Benefit from** adopting National 3D elevation and hydrography data standards that are also adopted by the State of Indiana GIO

**integrated elevation and hydro data improves** water resource management and provides more accurate modeling and monitoring of flooding, environmental, and engineered systems

**expands** data sharing opportunities and **data maintenance / stewardship** responsibilities across **Fed->State->County->City partners**

**provides geospatial connections/alignment to other water data systems and networks** (e.g. NWI, legal drains, wellhead protection areas / ground water, farm tile drains, storm sewer systems, etc...)

**opportunity to share in data development costs** through the USGS DCA grant program

**3DHP is estimated to provide more than \$1 billion in annual benefits** to Federal, State, Local, Tribal, Private, and Non-profit organizations every year

# Summary of 3DNTM and Why Participate?





### Culverts

culvert data acquired during the process of deriving hydrography from elevation will be made available

### Hydrologically enhanced elevation and other surfaces

Hydrologically enhanced raster DEMs will be created as a part of the stream network derivation process so that the flow of water across the surface is represented accurately. Additional derivative surfaces may be developed and provided as products as the program matures.

### Stream network

The stream network will be derived from 3DEP 1-meter standard product digital elevation models (DEMs) created from lidar (5-meter DEMs from IfSAR in Alaska) and will include elevation values on each vertex to enable 3D analysis of the data.

### Hydrologic units

Hydrologic units will be derived using the stream network and elevation data, while retaining and utilizing important outlet point information from the Watershed Boundary Dataset.

### Addressed Data

3DHP will support a hydrographic addressing system such that data produced by users can be assigned a unique location on the network (similar to a street address) and shared across the user community

### Wetlands Integration

Collaborative mapping of the stream network and the NWI will enable the two datasets to function together as a whole and to accurately depict the inland waters of the U.S.

### Engineered Hydrologic Systems

3DHP will include information on engineered hydrologic systems, with a concerted effort to integrate connection points to, or generalized representations of, stormwater systems in urban areas.

### Groundwater connections

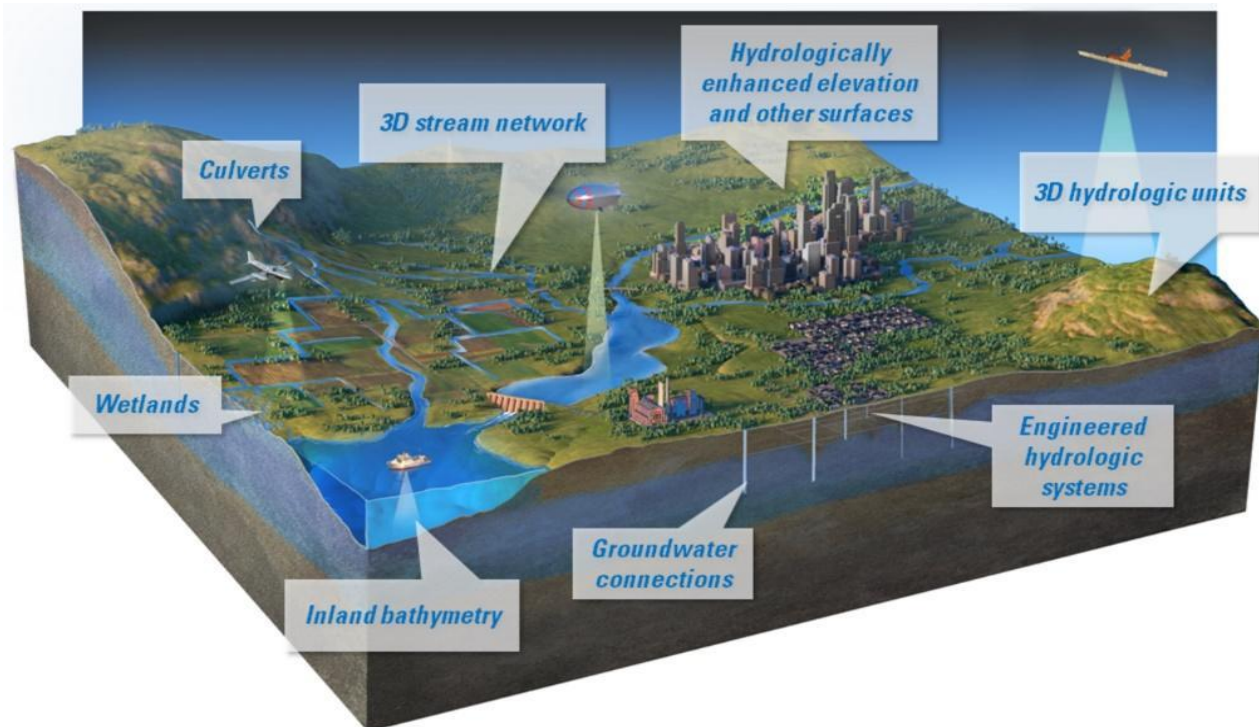
Connection between surface and groundwater features will be supported, for example, by identifying gaining and losing stream reaches or providing estimates of groundwater contributions to streamflow, where known.

### Topobathymetry

USGS is researching how to create a continuous topobathymetric surface derived from high-resolution elevation and bathymetry. Plans to operationalize inland bathymetry will be addressed in the next generation of 3DEP.

# Why Participate?

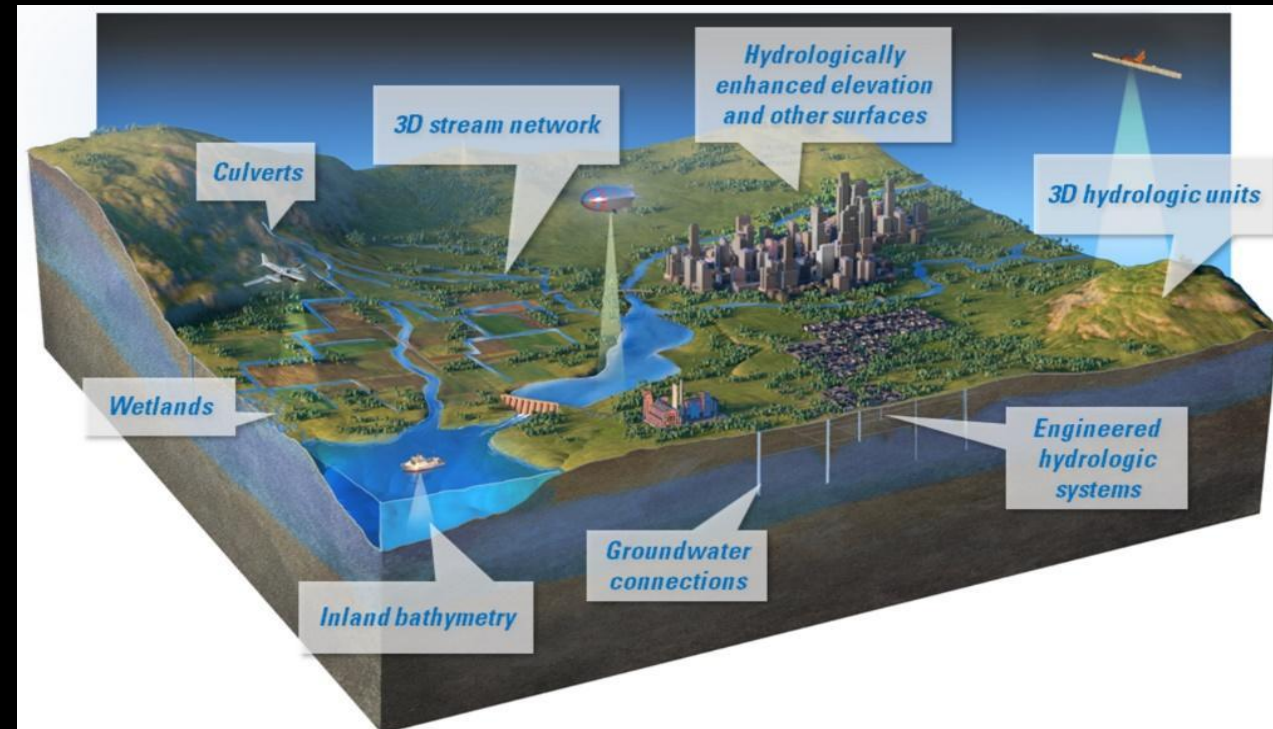
## Enhancements included in the 3D Hydrography Program



# Next Steps for Indiana's Hydrography?

IGIC Geospatial Coordinators Forum

October 1, 2024





# NSGIC

3DNTM For The Nation  
Support Project with  
the USGS

A curated resource for

State and Local  
Governments

HUB Resource [[LINK](#)]

Including BETA of new Custom  
trained Chat GPT

3DHP FTN GPT Advisor [[LINK](#)]

The screenshot shows the NSGIC 3D Hydrography Program For The Nation (3DHP FTN) Information Hub website. The top navigation bar includes "Home", "Learn More About 3D Hydrography", "State and Regional 3D Hydrography Activities", and "General Hydrography Resources". Below the navigation is a search bar and a link to "Ask Questions to NSGIC's new 3DHP For the Nation Custom GPT Expert Advisor BETA [[HERE](#)]".

The main content area features a map of the United States and the NSGIC 3DHP logo. Below the map is a search bar and a link to "Ask Questions to NSGIC's new 3DHP For the Nation Custom GPT Expert Advisor BETA [[HERE](#)]".

The text below the map reads: "The National States Geographic Information Council (NSGIC) and U.S. Geological Survey (USGS) have established a 3D Hydrography Program for the Nation (3DHP FTN) cooperative project to engage states and other partners in modernizing national hydrography by deriving new data from 3D Elevation Program (3DEP) data. The NSGIC 3DHP FTN hub is intended to serve as a workspace for the collection and dissemination of project information and products. Those interested in participating in the project are invited to join the 3DHP FTN Interest Group and/or the 3DHP FTN State Teams communities at [MyNSGIC](#)."

NSGIC Contact Information:  
[Lynda Wayne](#), Project Manager  
[Phil Worrall](#), Project Engineer and Hub Manager

3DHP FTN Activities Count: 56  
Last update: 48 seconds ago

NSGIC 3DHP FTN State, Regional and National 3D Hydrography Activities Dashboard

The chat interface shows a profile for "NSGIC's 3DHP FTN GPT Advisor" by Philip S Worrall. The chat area contains four prompts:

- How does the 3DHP align with state-specific...
- What are the recent changes in the Elevation-Derived...
- Can you provide insights on funding strategies for 3DH...
- List all Uploaded Documents (Knowledge) you...

The chat input field at the bottom says "Message NSGIC's 3DHP FTN GPT Advisor".

# Hamilton County, IN

## 2024 Ortho, Lidar, and Basemap Update Project

Press Release [\[LINK\]](#)

Tech. Article [\[LINK\]](#)

## Mapping a Brighter Future: Hamilton County's 2024 GIS Revolution



Joan Keene, Hamilton County GIS Director [joan.keene@hamiltoncounty.in.gov](mailto:joan.keene@hamiltoncounty.in.gov)

Jacob Mark, Dewberry PM [jmark@dewberry.com](mailto:jmark@dewberry.com)

Thomas Peck, Ecopia PM [thomas@ecopiatech.com](mailto:thomas@ecopiatech.com)

Philip Worrall, Project Consultant [philipworrall@hotmail.com](mailto:philipworrall@hotmail.com)

### 2024 Orthophotography and Lidar Basemap Project

- Upgrade overall base mapping accuracy from 1"=100' scale to 1"=50' scale
- Acquisition of 3-inch pixel 4-band Orthoimagery
- Acquisition of 3DEP QL1 Lidar data
- Generate AI/ML-driven Planimetric 2D & 3D Land Cover Mapping from 3-inch orthos
- Generate 3D Elevation-Derived Hydrography from QL1 Lidar





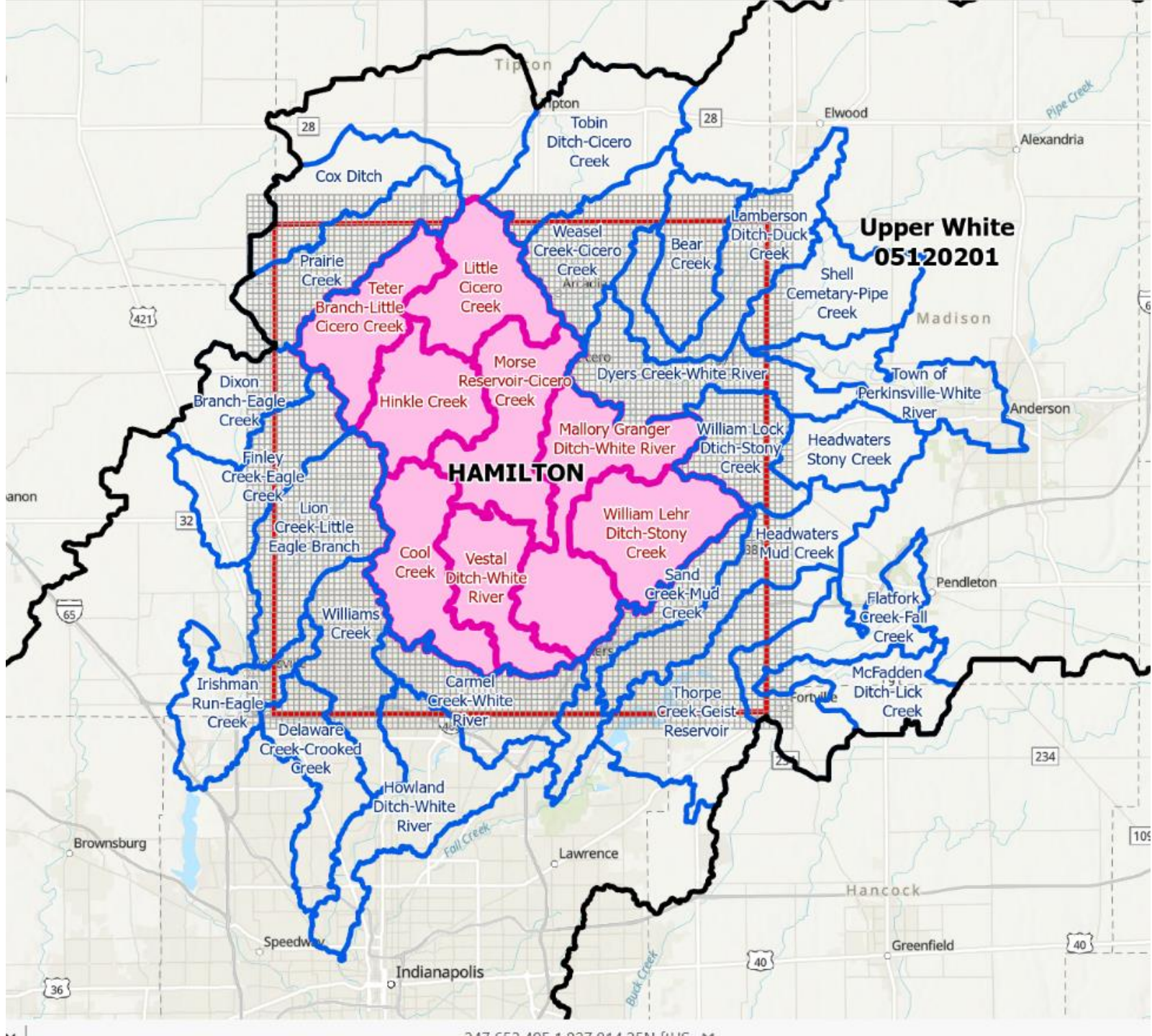
# Hamilton County, IN

## 2024 Ortho, Lidar, and Basemap Update Project

Hamilton County will develop EDH data for over 400 square miles as part of their 2024 Ortho-Lidar Basemap Update Project.

This includes parts of 24 HUC-12's that cover the County, plus eight (8) complete HUC-12's (shown here) that are inside the County and cover 192.1 square miles.

When completed, these data will be available to the state to use as a baseline to support their Statewide EDH pilot[s].

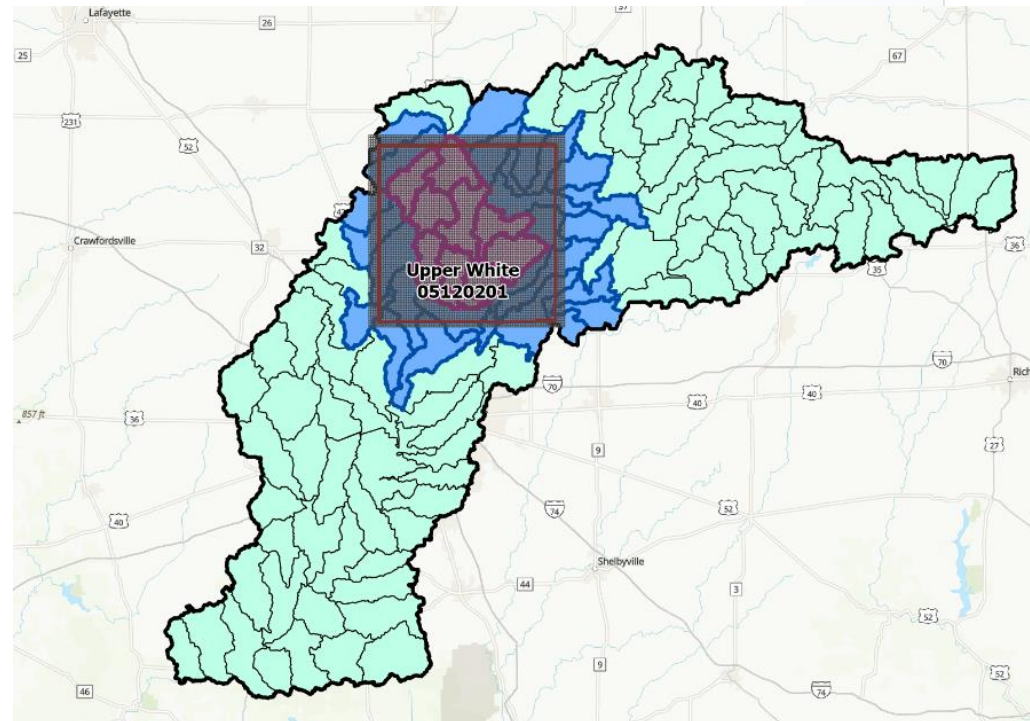




# IGIC Waters Workgroup

3DHP – Indiana EDH Pilot Project[s] Vision Paper for the IGIO

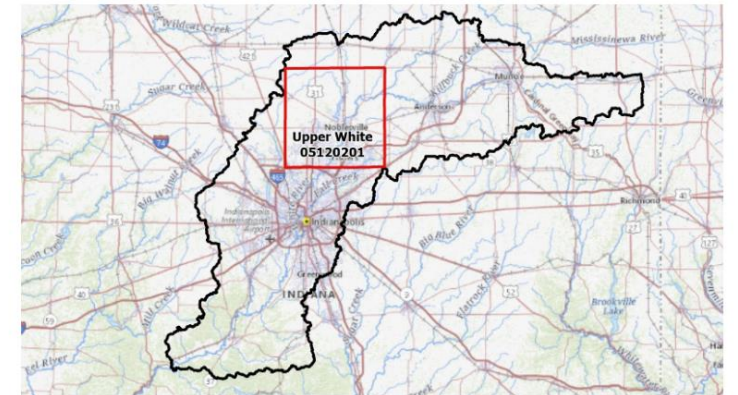
[\[LINK\]](#)



## State of Indiana 3D Hydrography Program(3DHP)

Upper White River HUC-8 (05120201)  
Elevation-Derived Hydrography Vision Paper  
Pilot Project Proposal (March 2024)

### OBJECTIVE



As the State of Indiana Geographic Information Office (IGIO) is acquiring new statewide Orthoimagery and Lidar data across Indiana in 2025 through 2027, the Indiana Geographic Information Council (IGIC) Waters Workgroup is investigating options to perform a series of new pilot projects to explore using these new datasets to develop new statewide 3DHP Elevation-Derived Hydrography (EDH) data as part of participating in the USGS 3D Hydrography Program (3DHP).



# Indiana Geographic Information Office (IGIO)

## 3DHP State Plan Development

### NSGIC 3DHP State Planning Guide

[\[LINK\]](#)

#### | 3DNTM Data Acquisition and Management State Planning Guide

Introduction 2

Why a 3DNTM Plan? 1

- USGS 3D National Terrain Model (3DNTM)
- Value of 3DNTM Data
- Value of a State Data Acquisition and Management Plan

It Takes a Team

- Find the Leader, Be the Leader!
- Build the Project Team
  - Establish Project Goals and Objectives
  - Define the Project Value
  - Engage Stakeholders
- Identify Plan Champions

Do Your Homework

- Identify and Prioritize Data Acquisition Areas of Interest (AOIs)
  - Map and Attribute Existing Lidar Data Coverage
  - Identify and Prioritize Areas of Interest (AOIs)
- Estimate, Identify, and Secure Funding Partnerships
  - Estimate Costs
  - Identify Funding Sources
  - Securing Funding
  - Know and Align Stakeholders
  - Demonstrate Value
  - Track Data Usage
  - Proposal Drafting
- Identify Data Management Needs
  - 3DEP Data Management
  - 3DHP Data Management

Develop the Plan

- Establish Plan Goals and Objectives
- Develop a Strategy for Achieving Plan Objectives
- Write the Plan
- Promote the Plan

Template for the Development of a 3DEP or 3DHP Data Acquisition and Management Plan

- 3DNTM Planning Resources
  - 3DEP Planning Resources
  - 3DHP Planning Resource

3DEP and 3DHP Stakeholder Checklist
<p>Stakeholders aware of local, regional, and tribal elevation data needs and applications:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Municipalities</li> <li><input type="checkbox"/> Counties</li> <li><input type="checkbox"/> Regional and Councils of Government</li> <li><input type="checkbox"/> Native American Tribes</li> <li><input type="checkbox"/> Conservation Districts</li> <li><input type="checkbox"/> Watershed Districts</li> </ul>
<p>Stakeholders aware of state elevation data needs and applications:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 3D Nation Requirements and Benefits study respondents</li> <li><input type="checkbox"/> State Geological Survey / State Geologist</li> <li><input type="checkbox"/> Emergency and Floodplain Management</li> <li><input type="checkbox"/> Natural Resources and Environmental Protection and Permitting</li> <li><input type="checkbox"/> Transportation</li> <li><input type="checkbox"/> Agriculture and Forestry</li> <li><input type="checkbox"/> Cultural and Historic Preservation</li> <li><input type="checkbox"/> Commerce and Economic Development</li> <li><input type="checkbox"/> Revenue and Budget</li> </ul>
<p>Stakeholders aware of interstate/regional/federal/national elevation data needs and applications:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> USGS National Map Liaisons</li> <li><input type="checkbox"/> Federal 3DEP and 3DHP Working Group Member Agencies</li> <li><input type="checkbox"/> Conservation Organizations (Nature Conservancy, Land Trust, etc.)</li> <li><input type="checkbox"/> Agricultural Interest Groups</li> </ul>
<p>Stakeholders aware of commercial enterprise elevation data needs and applications:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Utility, Telecommunications, and Energy Companies</li> <li><input type="checkbox"/> Railroad</li> <li><input type="checkbox"/> Forestry and Timber</li> <li><input type="checkbox"/> Mining</li> <li><input type="checkbox"/> Developers, Engineers, and Surveyors</li> <li><input type="checkbox"/> Agriculture Operations, e.g. precision agriculture</li> <li><input type="checkbox"/> Recreational Resorts (ski, zipline, viewshed, etc.)</li> </ul>
<p>Data Acquisition and Management subject matter experts:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Universities and Colleges with Geospatial Programs</li> <li><input type="checkbox"/> Research Institutes focused on Earth Sciences and Environmental Studies</li> <li><input type="checkbox"/> Lidar Data and Acquisition Private Industry Consultants</li> <li><input type="checkbox"/> Image Processing and GIS Software System Developers</li> </ul>

**Table 1. 3DEP and 3DHP Stakeholder Checklist**

**Spread the Word Far and Wide**

Develop an outreach strategy that creates awareness and desire for the product. The strategy will build upon the value statement, be targeted to the identified stakeholders, and should

Questions,  
Comments,  
and  
Discussion

