

Louisiana Watershed Initiative

Sustainability and resilience through science, engineering and objective decision making

Objective

Develop a common understanding of known flood risks, vulnerabilities and priorities in Region 7

Building on previous efforts

Region 7 planning and policy professionals worked with LWI to identify these priorities based on their region's flood risk and mitigation needs.

Agenda

1. Region 7 flood risk asses

2. Brief



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1. Region 7 flood risk assessment
2. Break
3. Group mapping exercise
4. Report out
5. Public comment

Some things to ask yourself as you listen to the presentation:

- o Does the data discussed accurately and completely reflect your region's flood risk profile?
- o Are there additional datasets you rely on that help communicate regional priorities and perceived vulnerabilities that we might not be showing?
- o Are there opportunities to leverage natural resources to address flooding challenges that you can highlight for the group?
- o Are there other concerns you are aware of related to improved watershed management? Can you highlight



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- Are there other concerns you are aware of related to improved watershed management? Can you highlight how these concerns may fit within a list of regional priorities?

Flood risk assessment

**ENHANCE PUBLIC UNDERSTANDING OF
FLOODING PROBABILITY**

ALIGN REGIONAL METHODS STATEWIDE

**ACHIEVE LONG-TERM RESULTS THROUGH A
WATER MANAGEMENT DISTRICT APPROACH**

**LEAN ON TECHNICAL EXPERTS TO DEVELOP
POLICY GUIDELINES**

**USE DATA AND SCIENCE TO GUIDE POLICY
SHIFTS**

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Flood risk assessment

Each watershed region throughout Louisiana faces unique flood risks. To understand these risks and to prioritize solutions, we must accomplish the following:

1. Build a common vocabulary
2. Consider various risk factors
3. Work with nature



Flood risk assessment

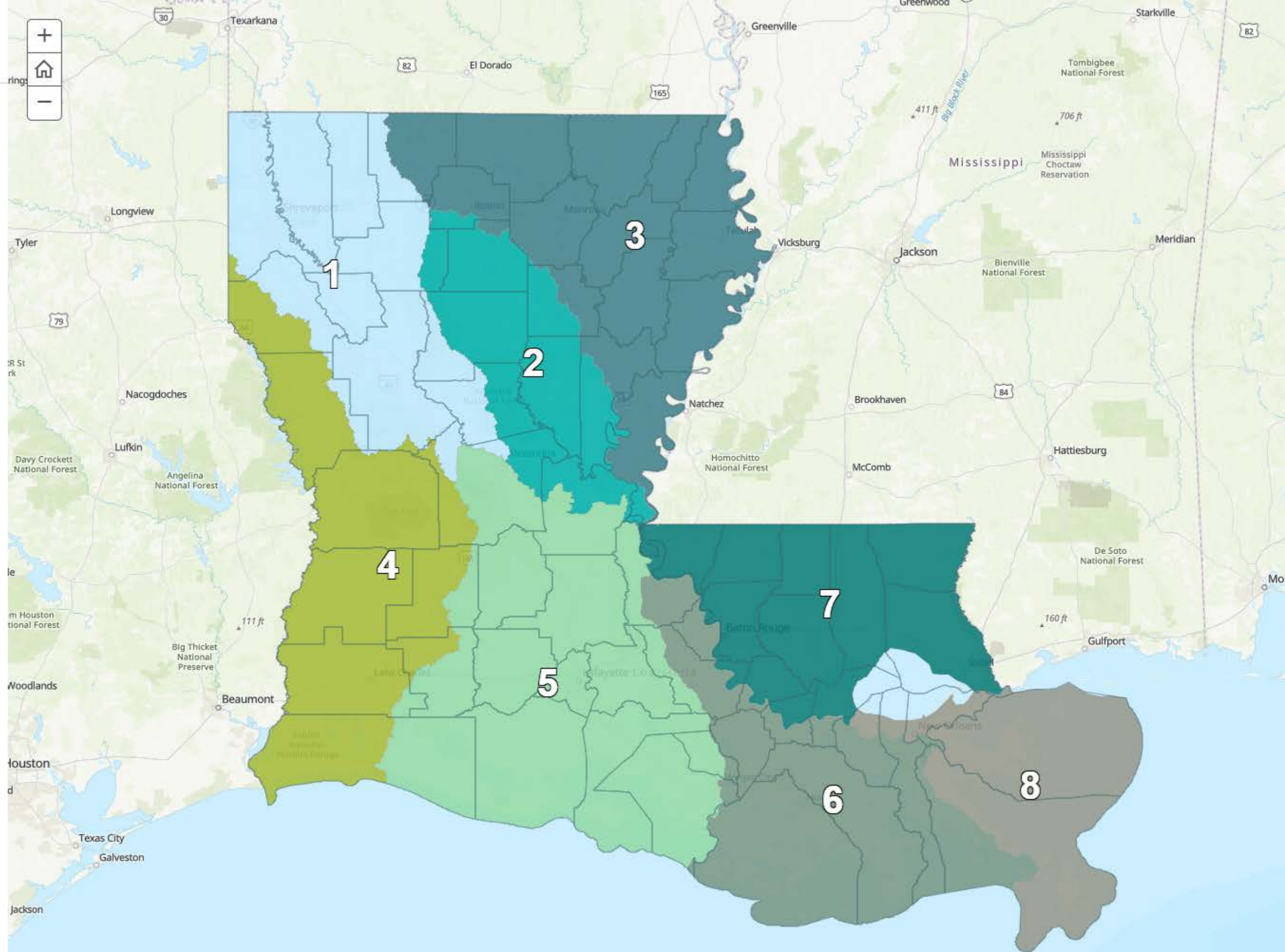
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Parishes in Region 7

Working together to address risk at the watershed scale

- West Feliciana Parish
- East Feliciana Parish
- St. Helena Parish
- Tangipahoa Parish
- Washington Parish
- East Baton Rouge Parish
- Livingston Parish
- St. Tammany Parish
- Iberville Parish
- Ascension Parish
- St. John the Baptist Parish
- St. James Parish
- St. Charles Parish



Parishes in Region 7

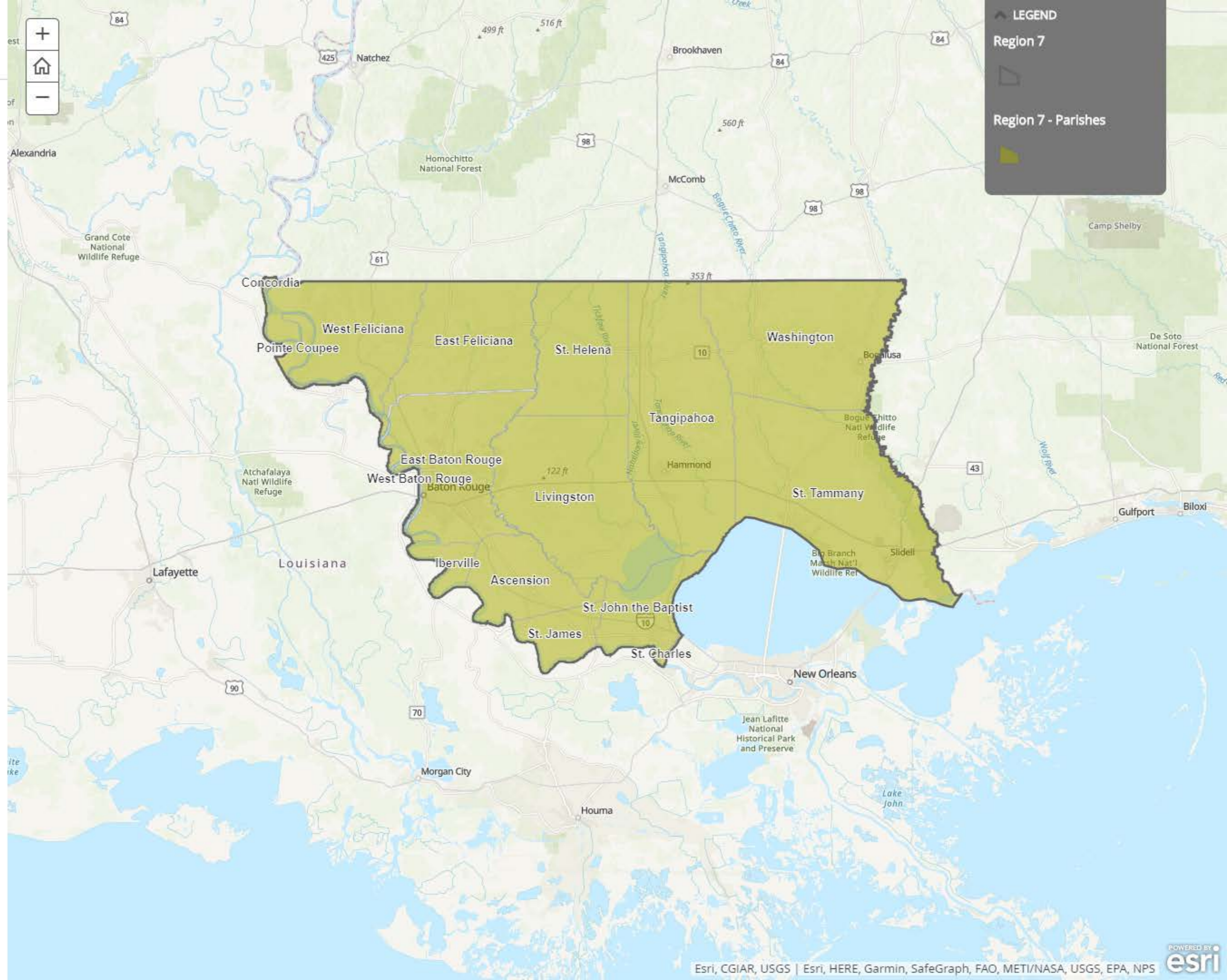
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Region 7 watersheds

Hydrology: a science that deals with the properties, distribution and circulation of water on and below Earth's surface and in the atmosphere

Types of flood risk



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Types of flood risk

We must consider all types of flood risk to effectively manage flood risk within Region 7 watersheds.

Types of flood risk

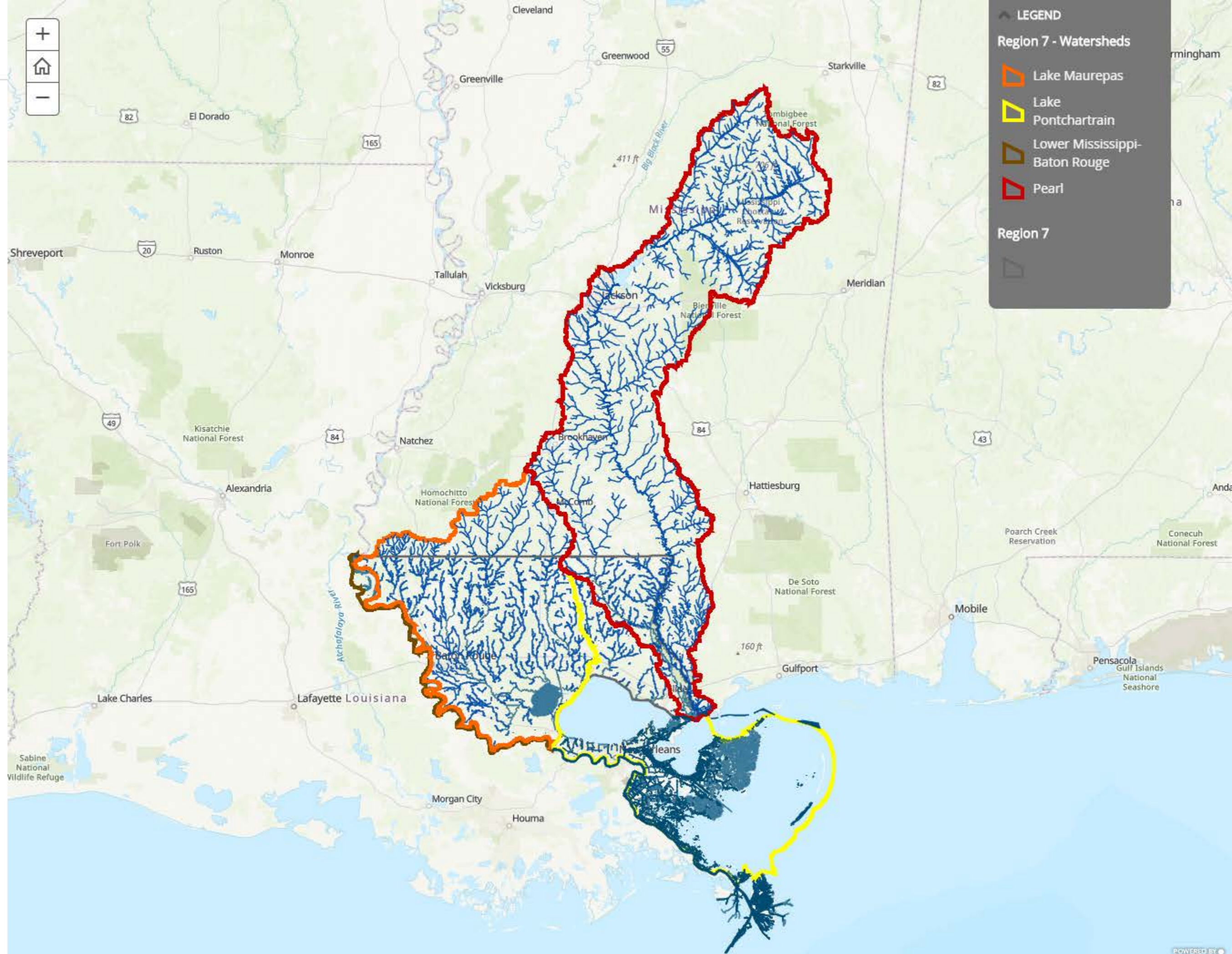
- Coastal floods: surge and tidal
- Fluvial floods: river floods
- Pluvial floods: rainfall-induced flash floods and urban flooding
- Backwater floods

Coastal floods: surge and tidal

Storm surge from the winds and waves of tropical storms and hurricanes causes coastal floods. The changing tides also have a compounding impact on these types of floods.

Future flood risk: coastal surge floods

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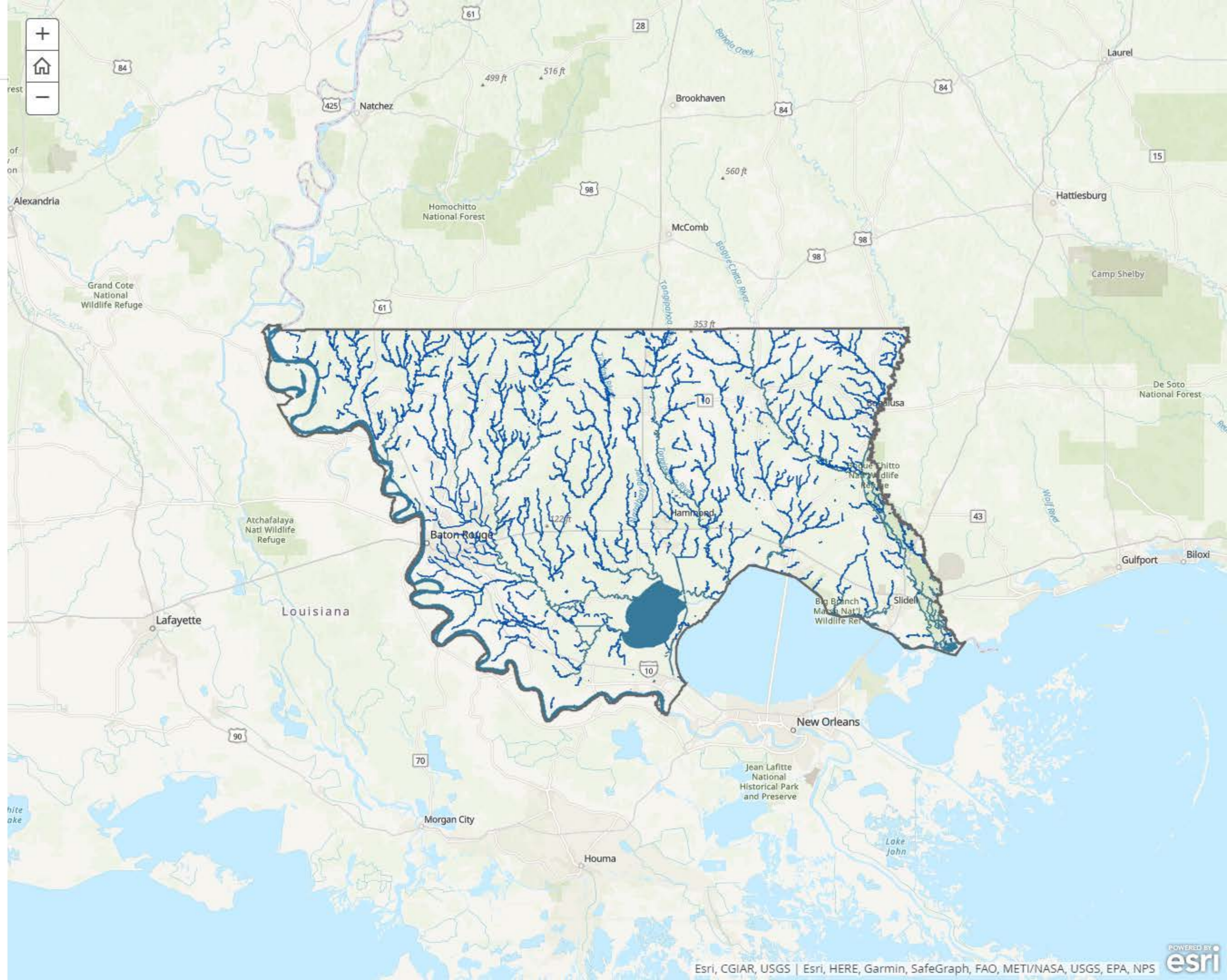
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Future flood risk is understood in terms of the severity of future events and how often they will occur. This is reflected as a probability:

- **1% annual chance event:** 26% chance of at least one event in any 30-year period (commonly known as a 100-year event)
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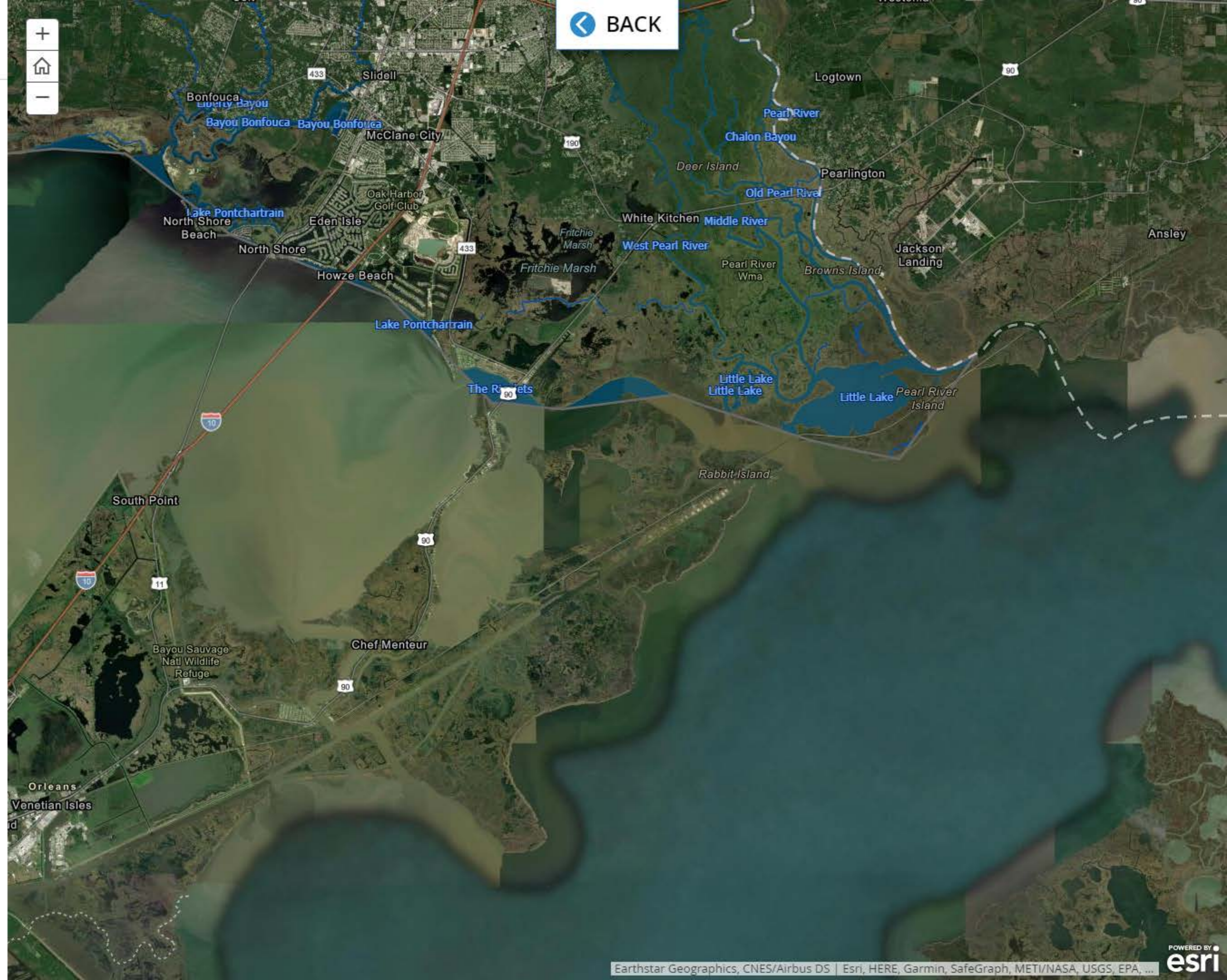
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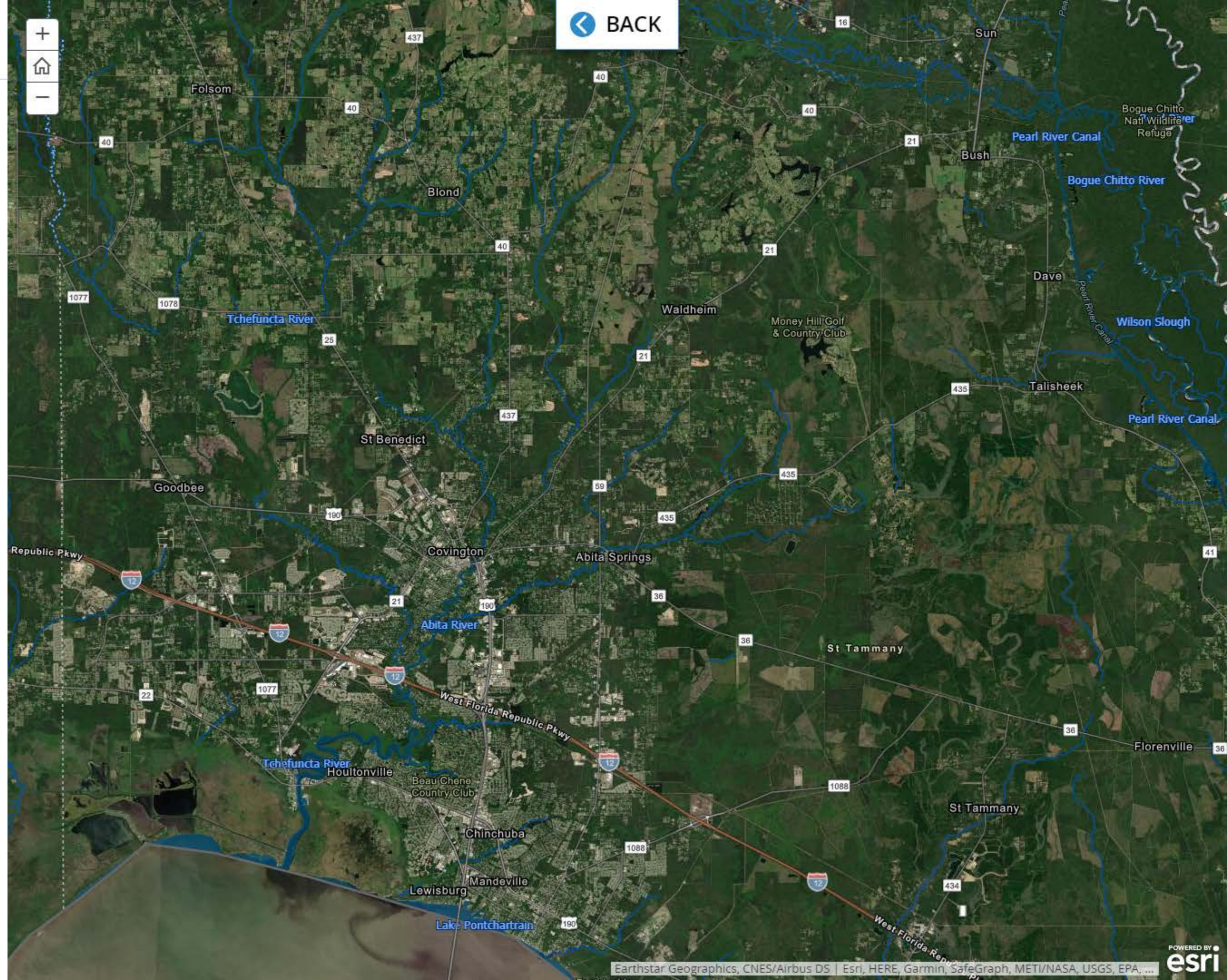
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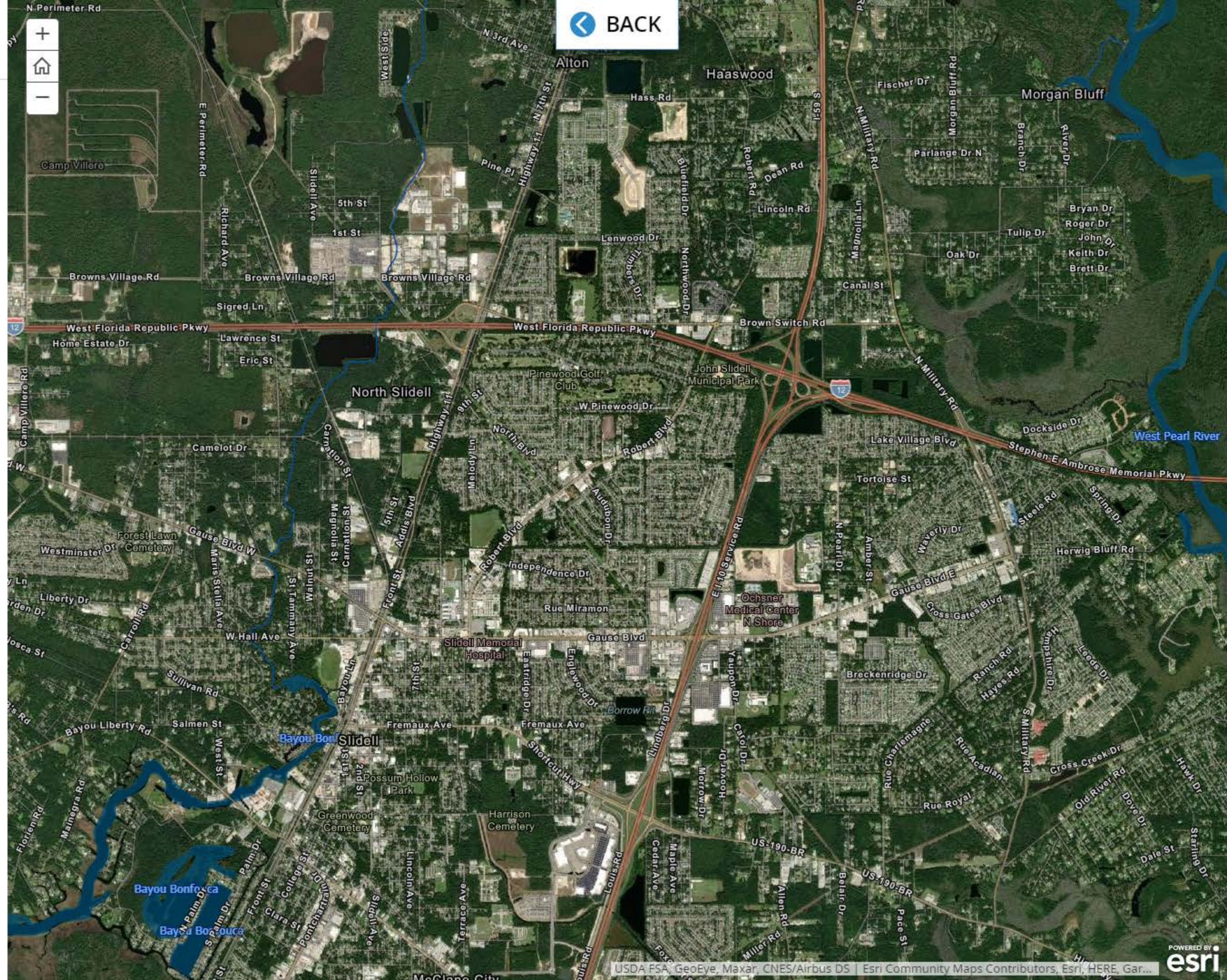
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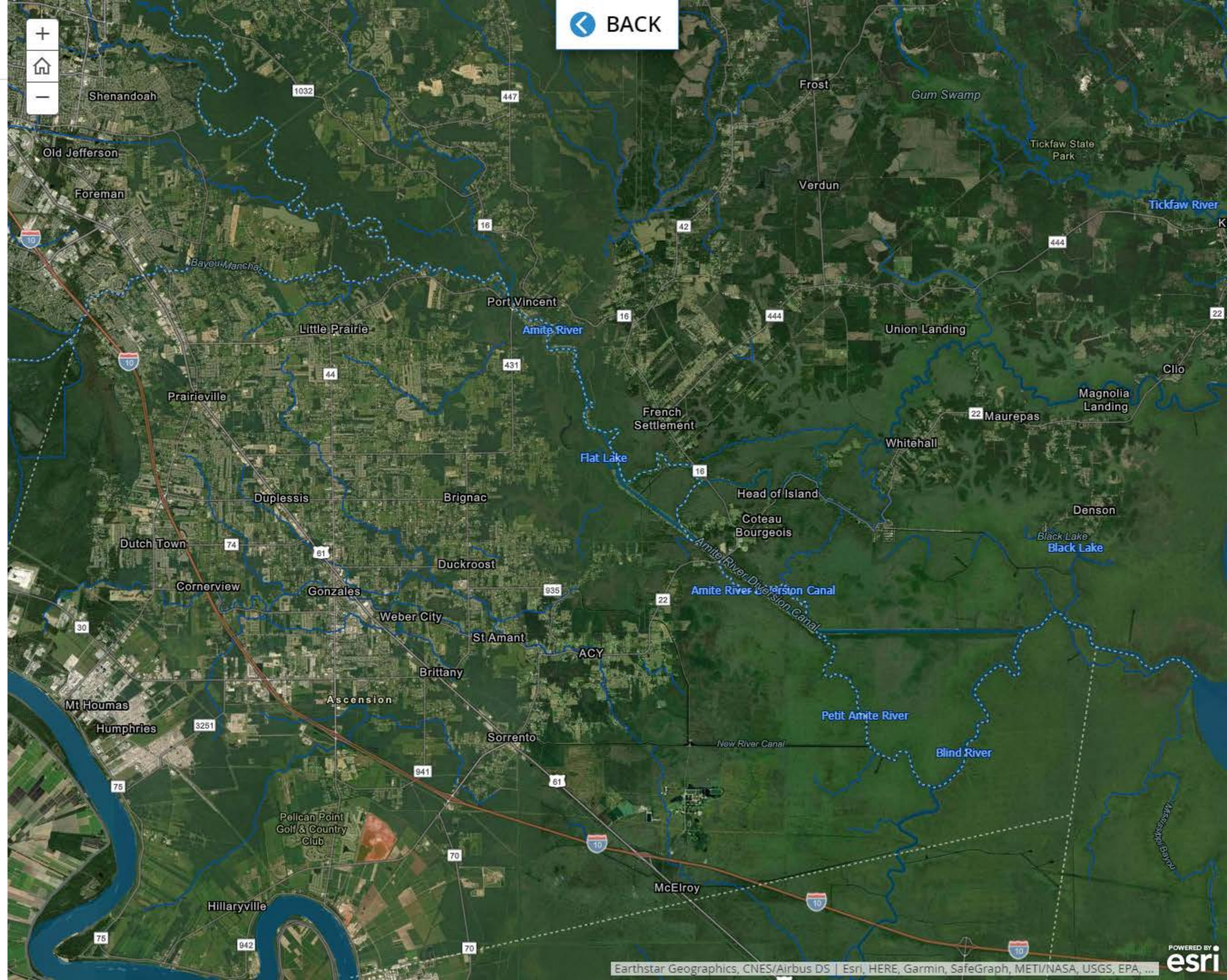
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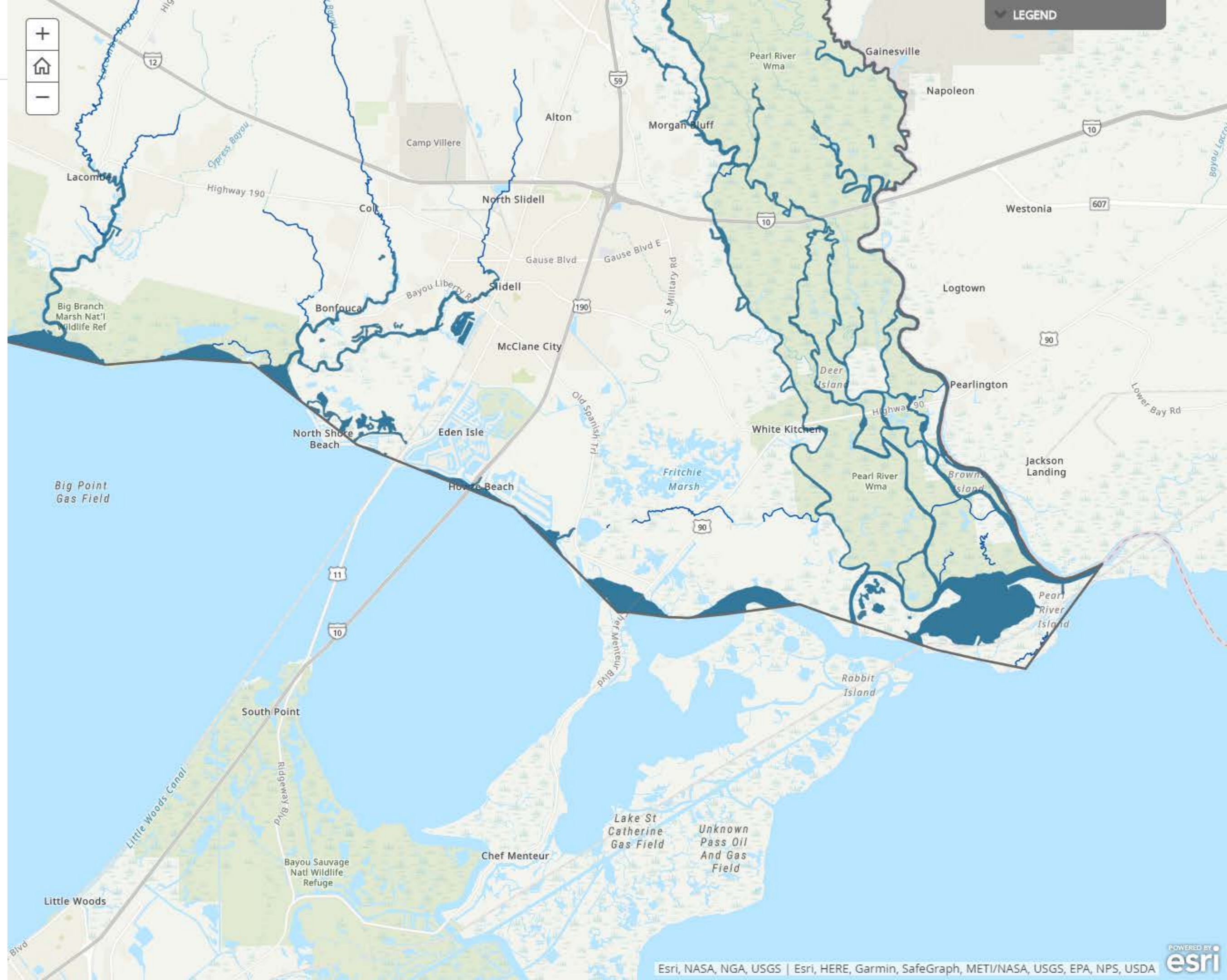
Source: 2017 Coastal Master Plan modeling analysis, Coastal Louisiana Risk Assessment model grid

Link: <http://coastal.la.gov/our-plan/2023-coastal-master-plan/>, email: masterplan@la.gov

NOTE: This data represents only a portion of the data from the 2017 CMP. Today we are already several years into the 30 year period

Let's take a break

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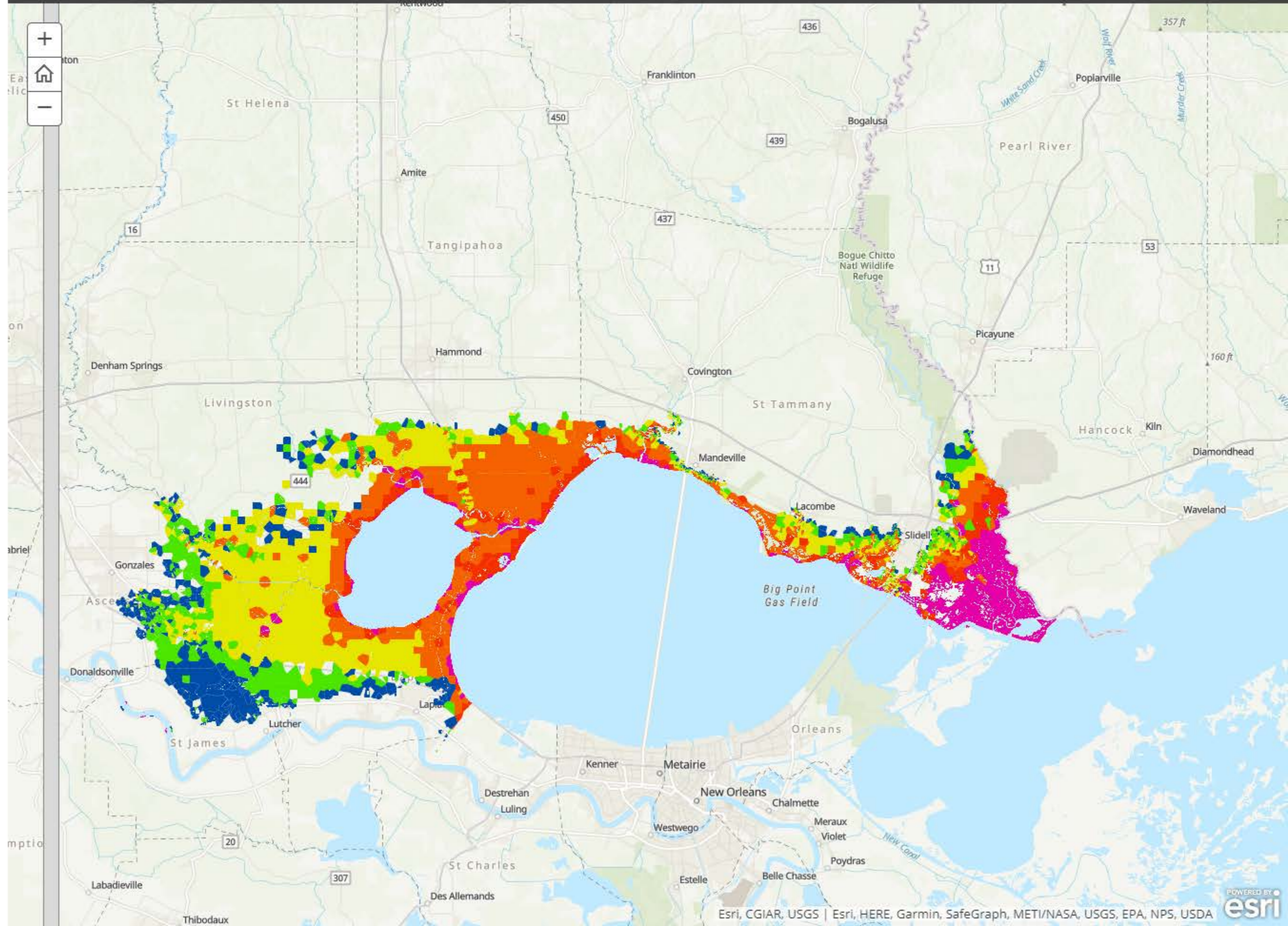
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Extreme rainfall or precipitation

Louisiana has some of the highest rainfall rates in the country on an average statewide basis and often experiences high water levels in its major riverine systems:

Because of our flat landscape and interconnected waterways,



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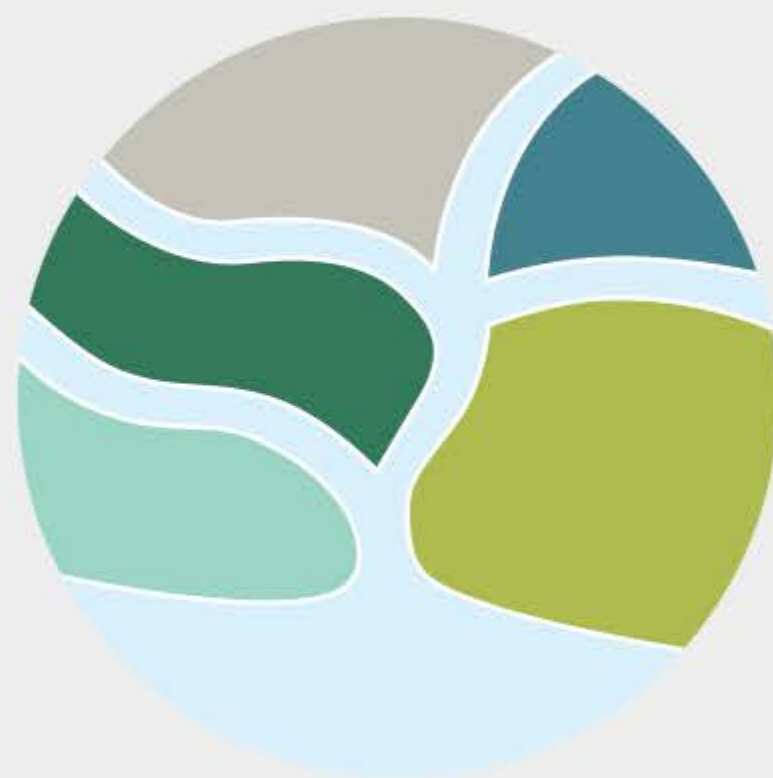
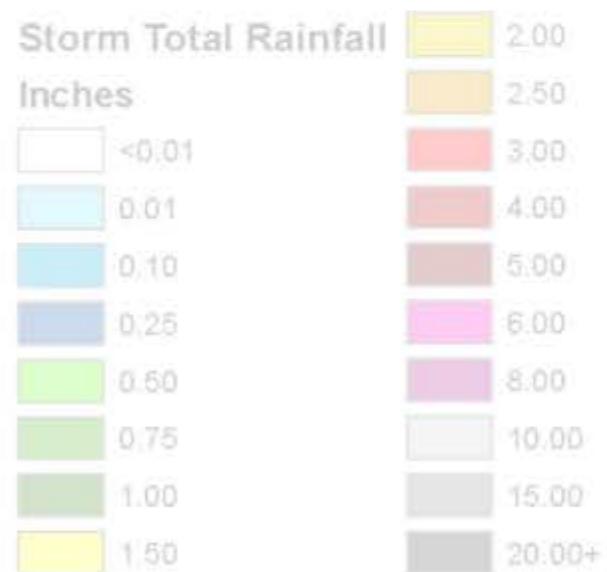
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Region 7 rainfall total
August, 2016



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Fluvial floods

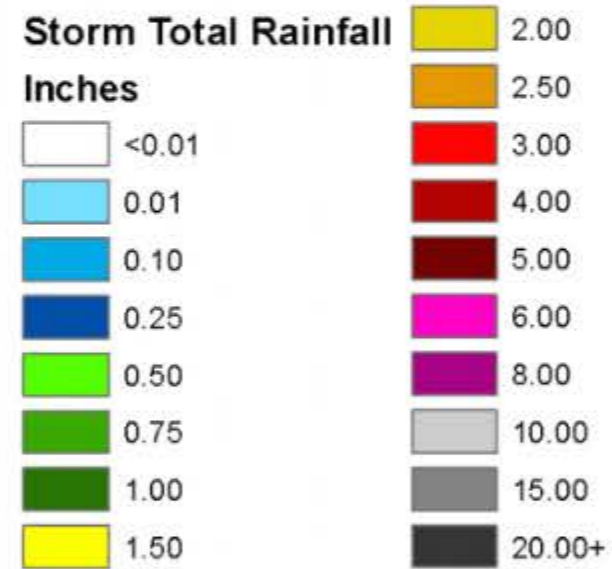
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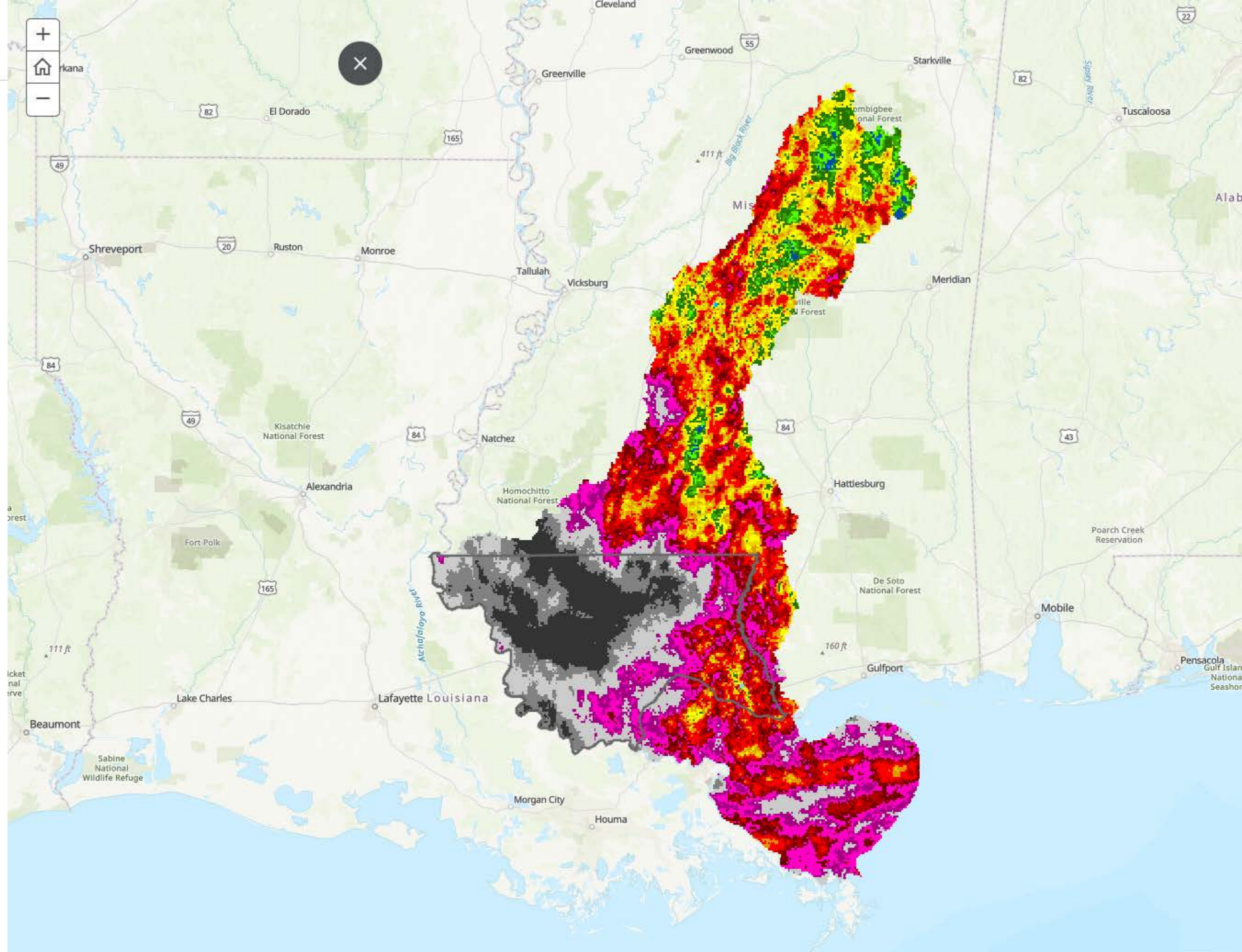
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Pluvial floods

Pluvial, or rainfall-induced, floods result from intense rain that causes surface, flash or urban flooding. These events are independent, not caused by an overflowing body of water.

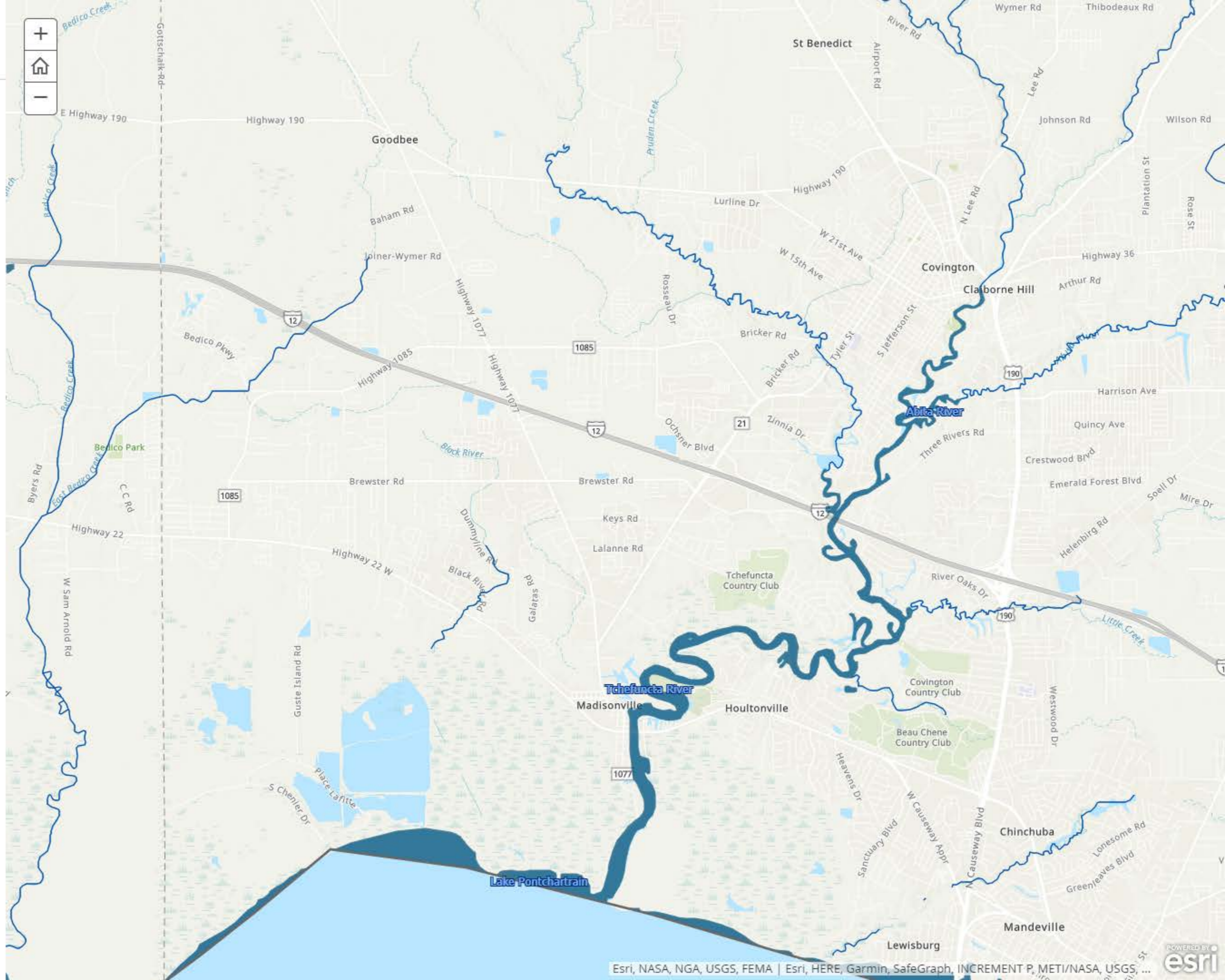
Baker/Zachary

Recent pluvial flood events

Region 7 pluvial flood events occurred in May, June and July 2020.

Backwater floods

Backwater flooding is upstream flooding caused by downstream conditions such as channel restrictions and/or high flow in a downstream confluence stream.



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Traditional gaps in understanding flood risk

The Federal Emergency Management Agency is responsible for mapping the nation's hazardous flood areas:

FEMA Special Flood Hazard Areas:

- Provide a basis for flood insurance rates and floodplain management regulations nationwide
- Inform mapped communities about their flood vulnerability
- Impact development of the built environment

Region 7: 44% is located in a SFHA and is subject to flooding.

Northshore after heavy rain floods homes, cars

More than 13 inches of rain fell Thursday night between in the area between Madisonville and Ponchatoula.



St. Charles Parish declares state of emergency; more than 200 reports of flooded homes

WDSU 6 News | Uploaded: 4:04 PM CDT May 13, 2020



PHOTOS: Several areas hit hard by Wednesday storms; 3 tornadoes confirmed in La.



WDSU confirms tornadoes touched down in East and West Baton Rouge parishes on June 24, 2020

Heavy rains flood several neighborhoods, roadways; sandbags available ahead of more rain



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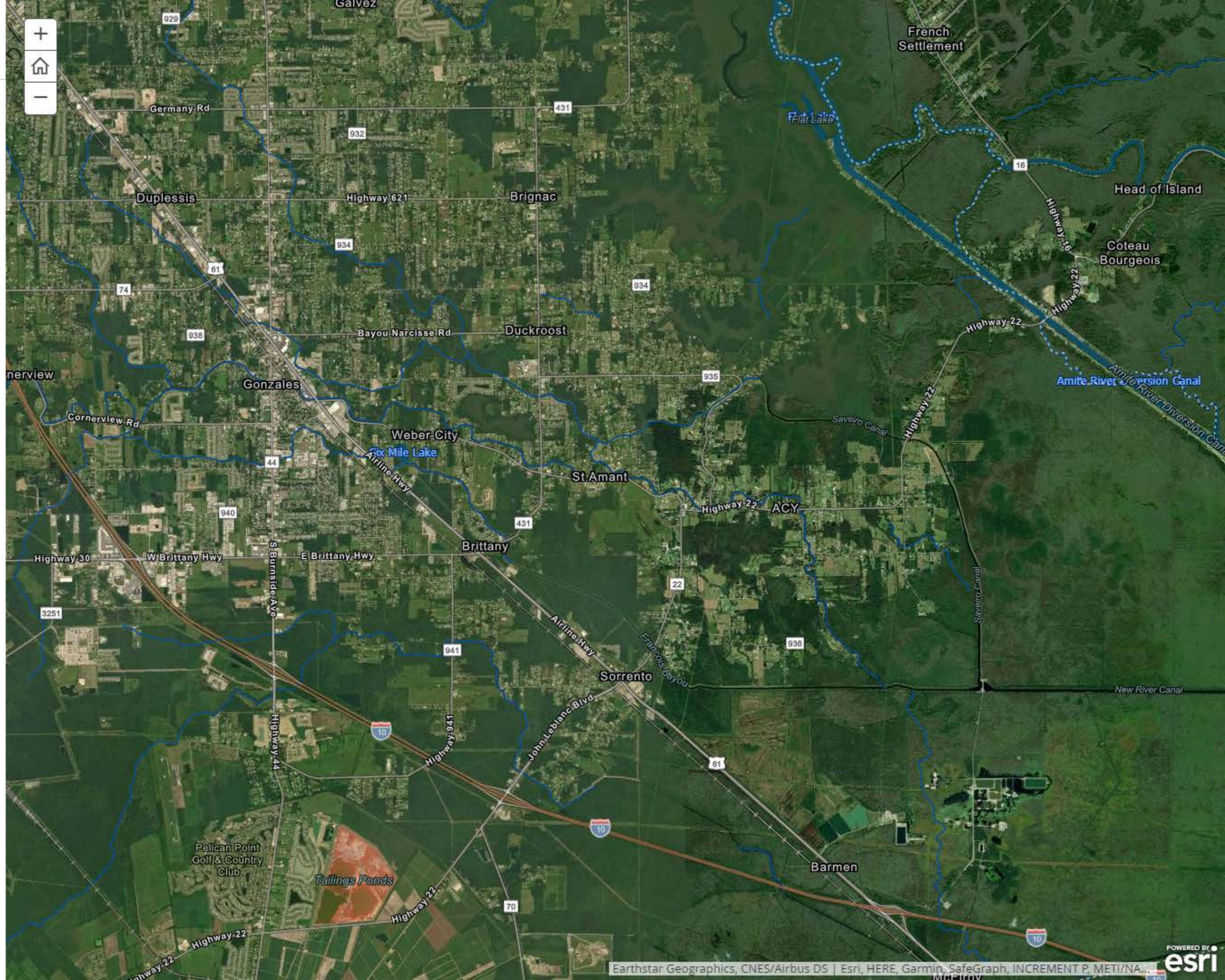
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Special Flood Hazard Areas - High Risk



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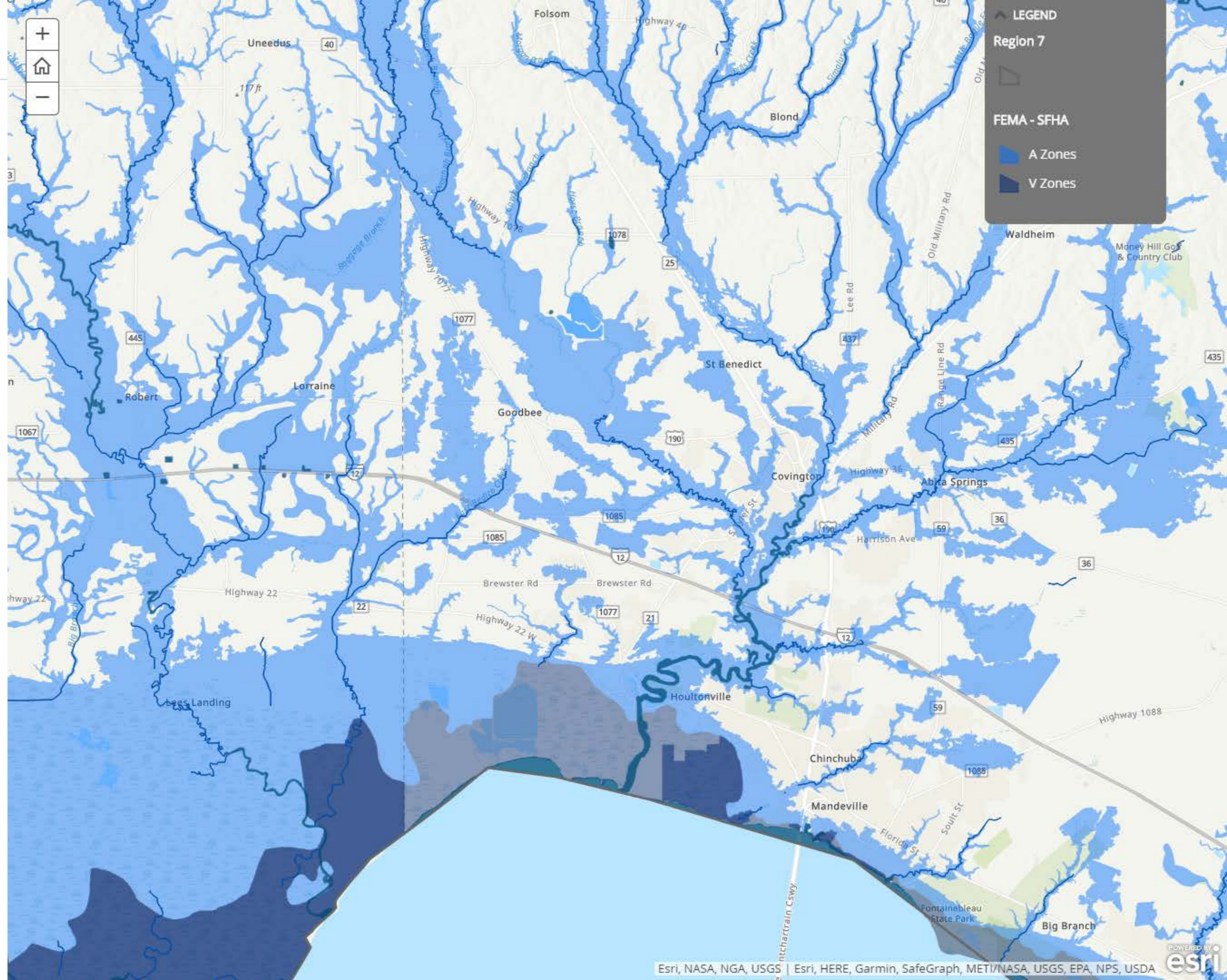
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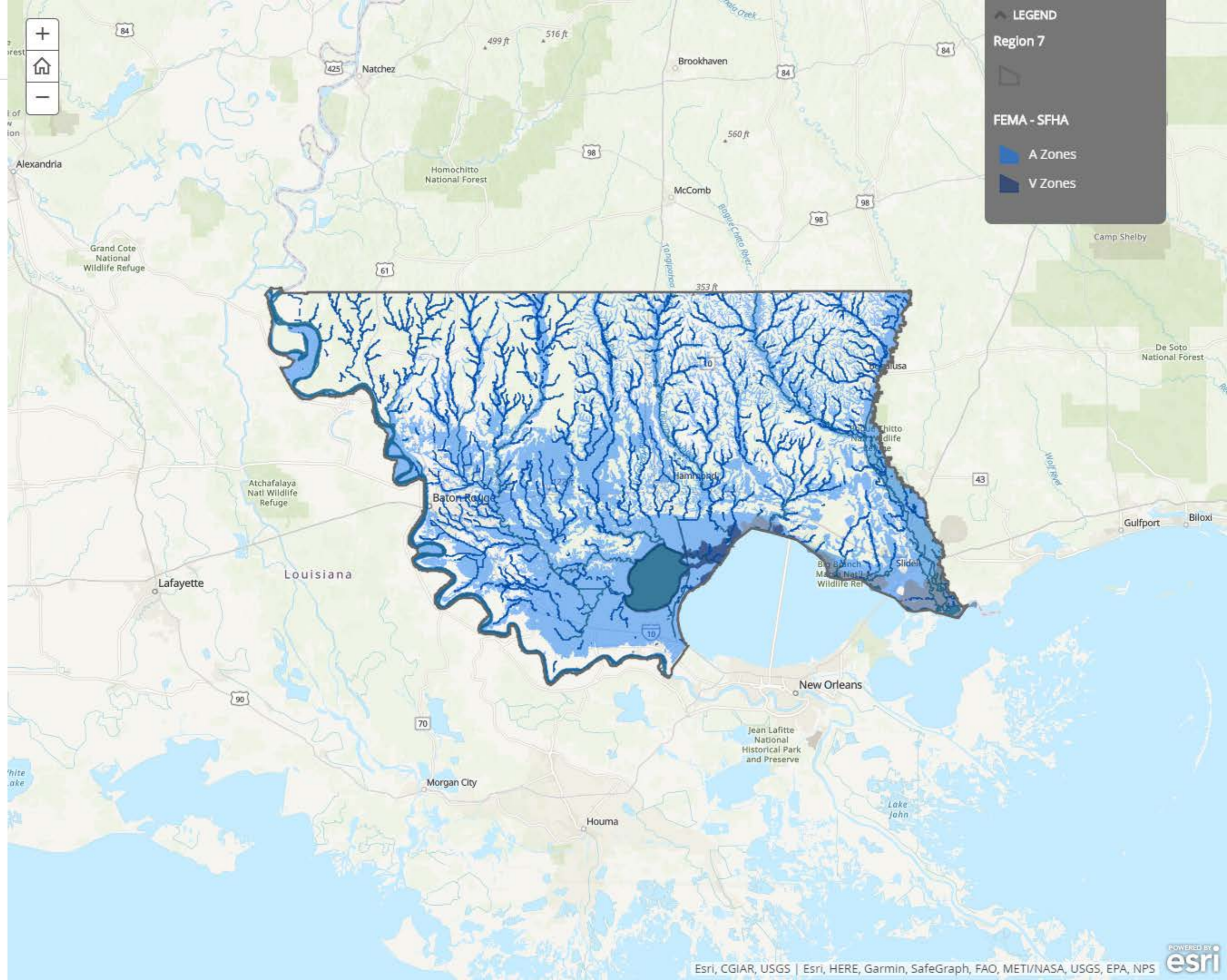
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FEMA Repetitive and Severe Repetitive Loss data

A Repetitive Loss structure is an NFIP-insured property that has had at least two paid flood losses of more than \$1,000 each in any 10-year period since 1978.



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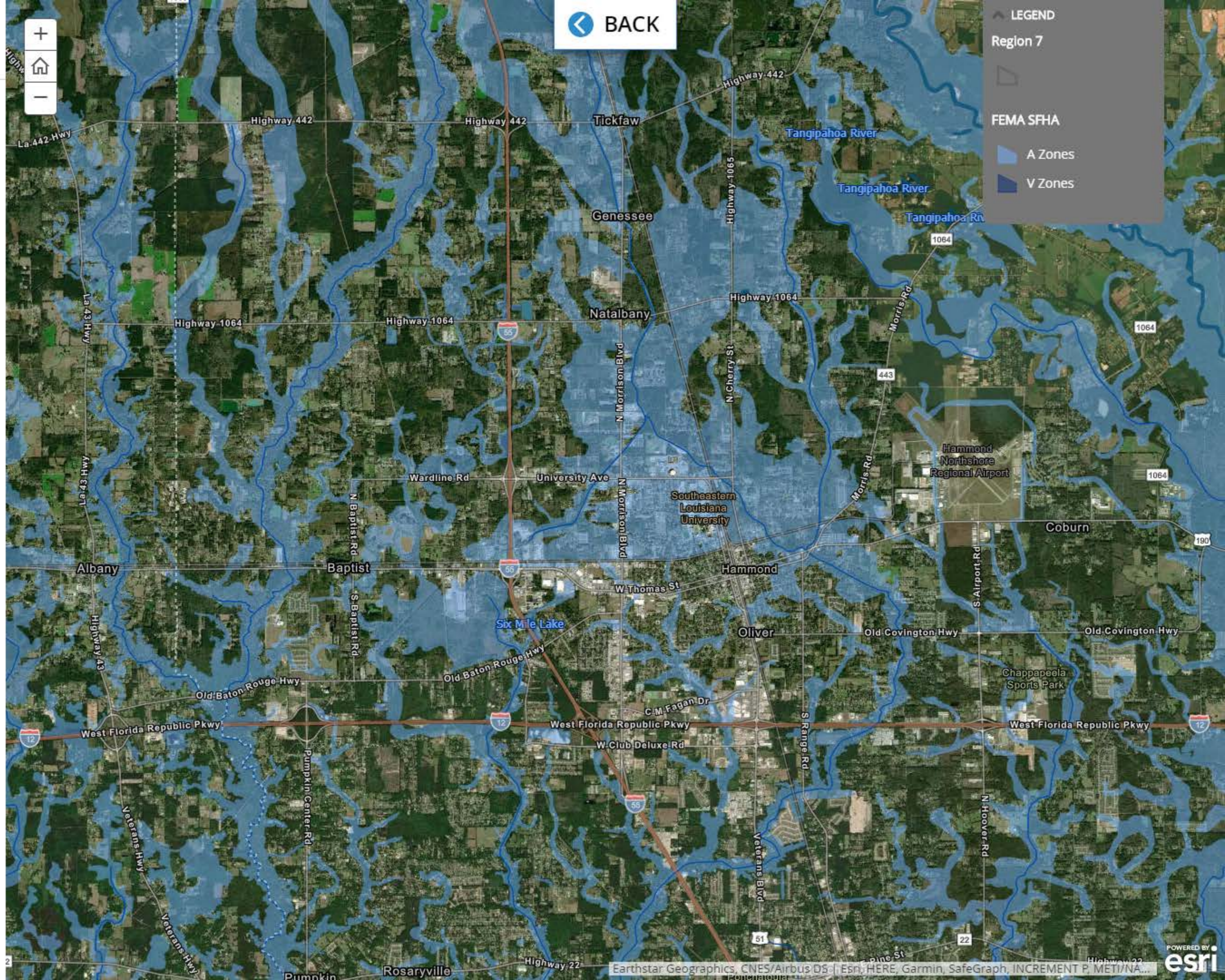
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A **Severe Repetitive Loss structure** is an NFIP-insured property that meets at least one of the following criteria:

- At least four NFIP claim payments (including building and contents) over \$5,000 each with the cumulative amount of such claims exceeding \$20,000
- At least two separate claims payments (building payments only) with the cumulative amount of the building portion of such claims exceeding the market value of the building

Case study: March and August 2016 floods

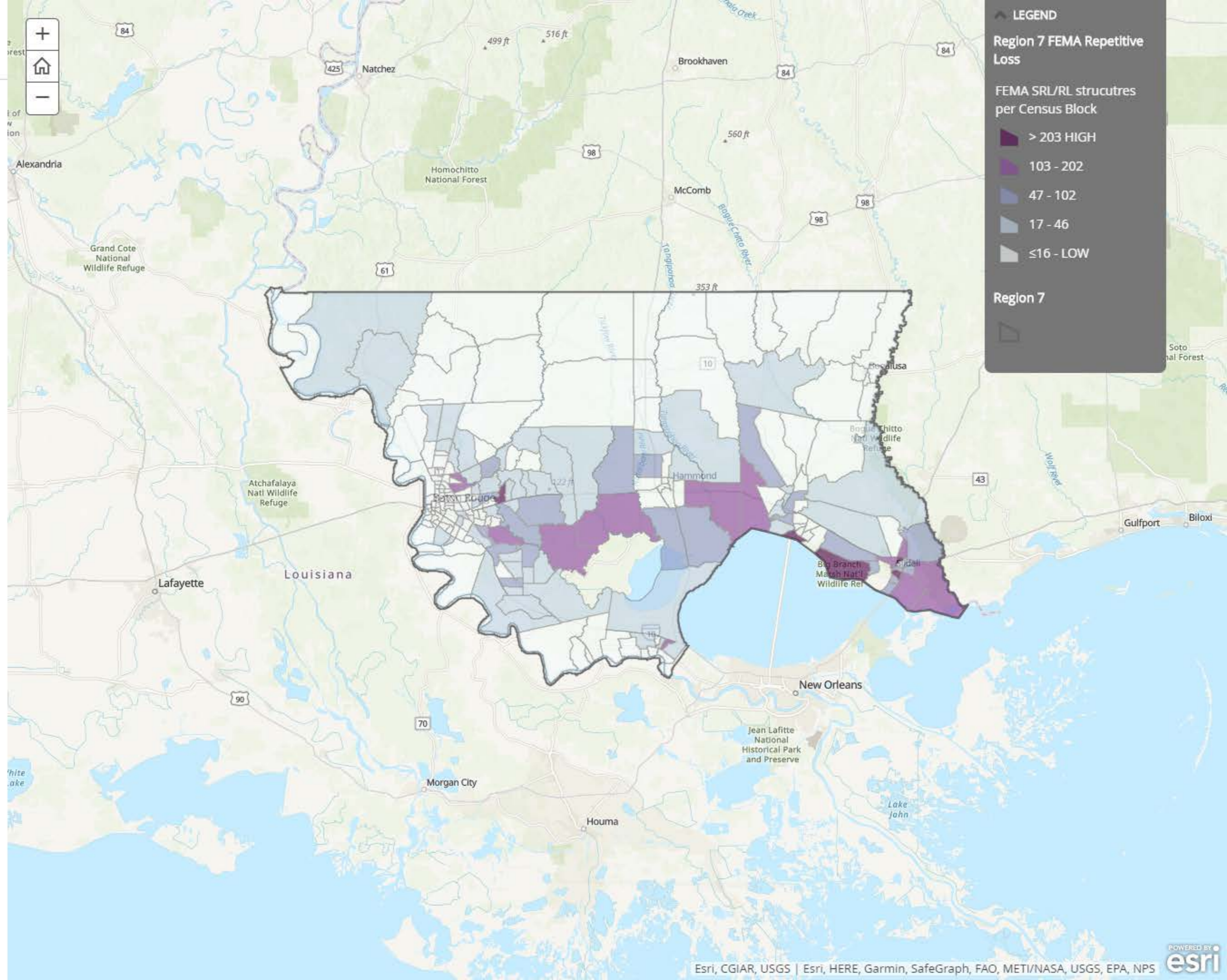
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86,304 homes impacted in Region 7

56% of structures impacted located within a SFHA

44% of structures impacted located outside of a SFHA

2016 floods Fairleville



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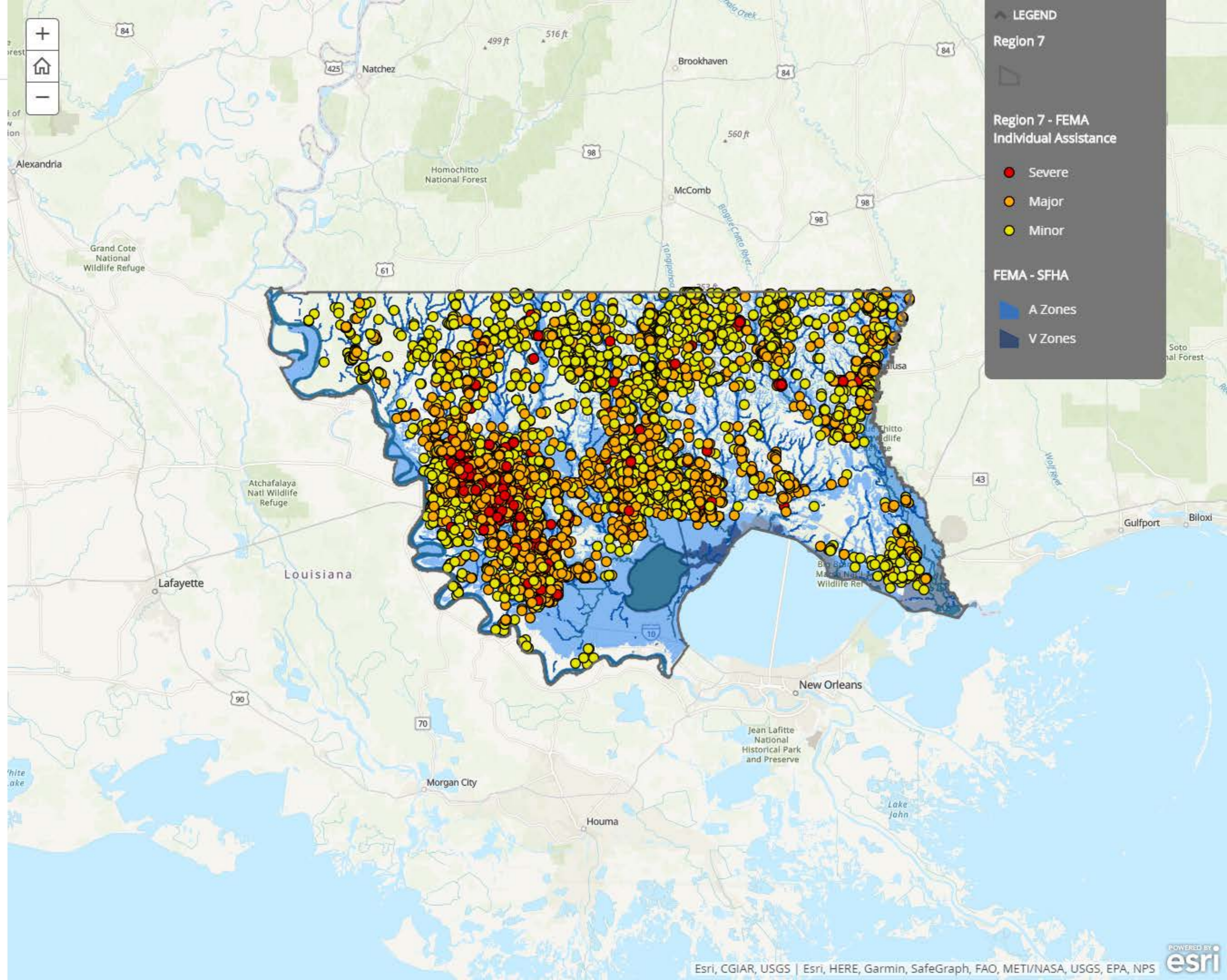
2016 floods Prairieville

2016 floods Central/Denham Springs

Best practice: working with nature

Wetlands function as natural sponges that trap and slowly release surface water, rain, snowmelt, groundwater and floodwaters. Trees, root mats and other wetland vegetation also slow the speed of floodwaters and distribute them more slowly over the floodplain. This combined water storage and braking action lowers flood heights and reduces erosion.

The holding capacity of wetlands helps control floods and prevents waterlogging of crops. Preserving and restoring wetlands together with other water retention efforts can often provide the same level of flood control otherwise provided by expensive dredge operations and levees.



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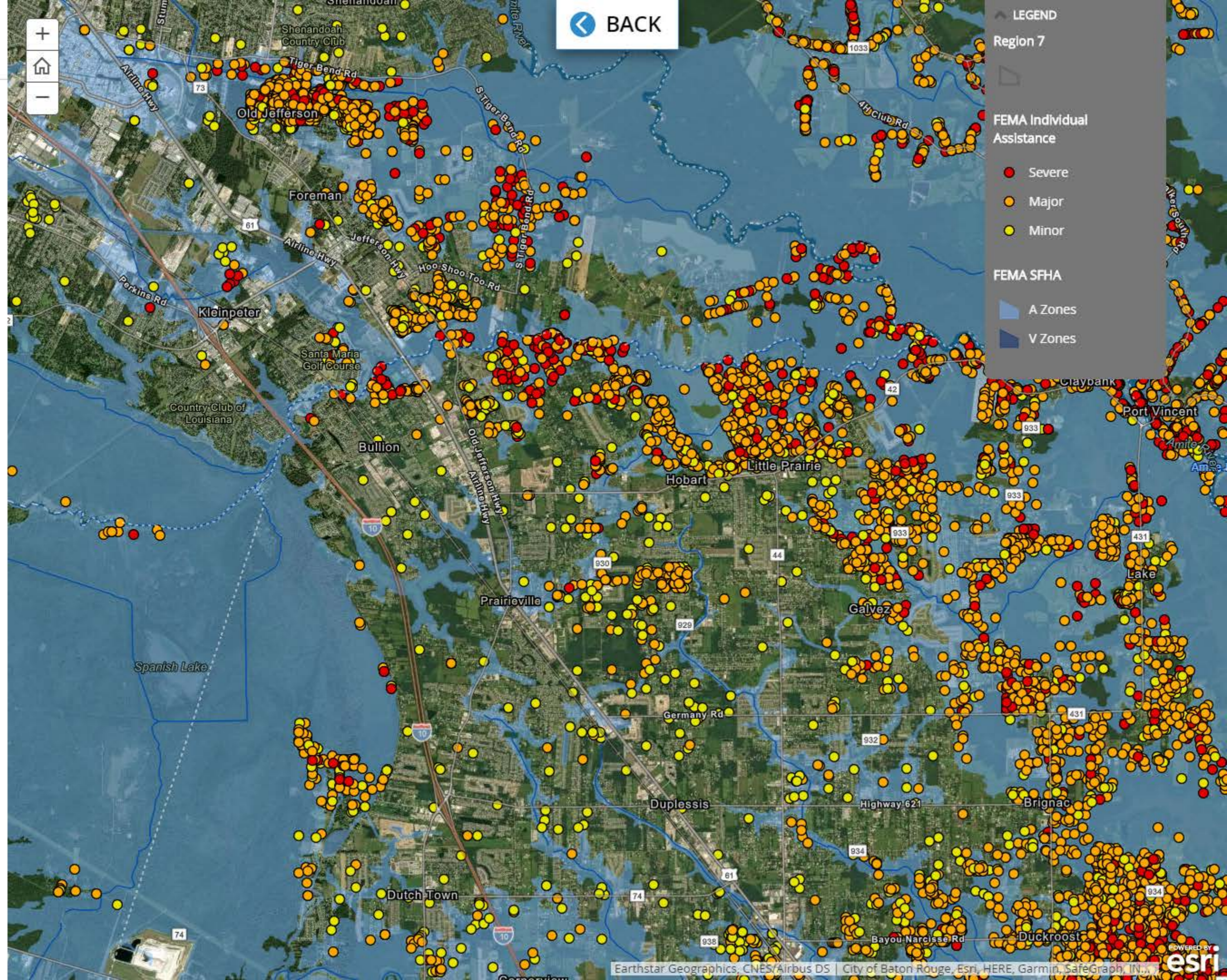
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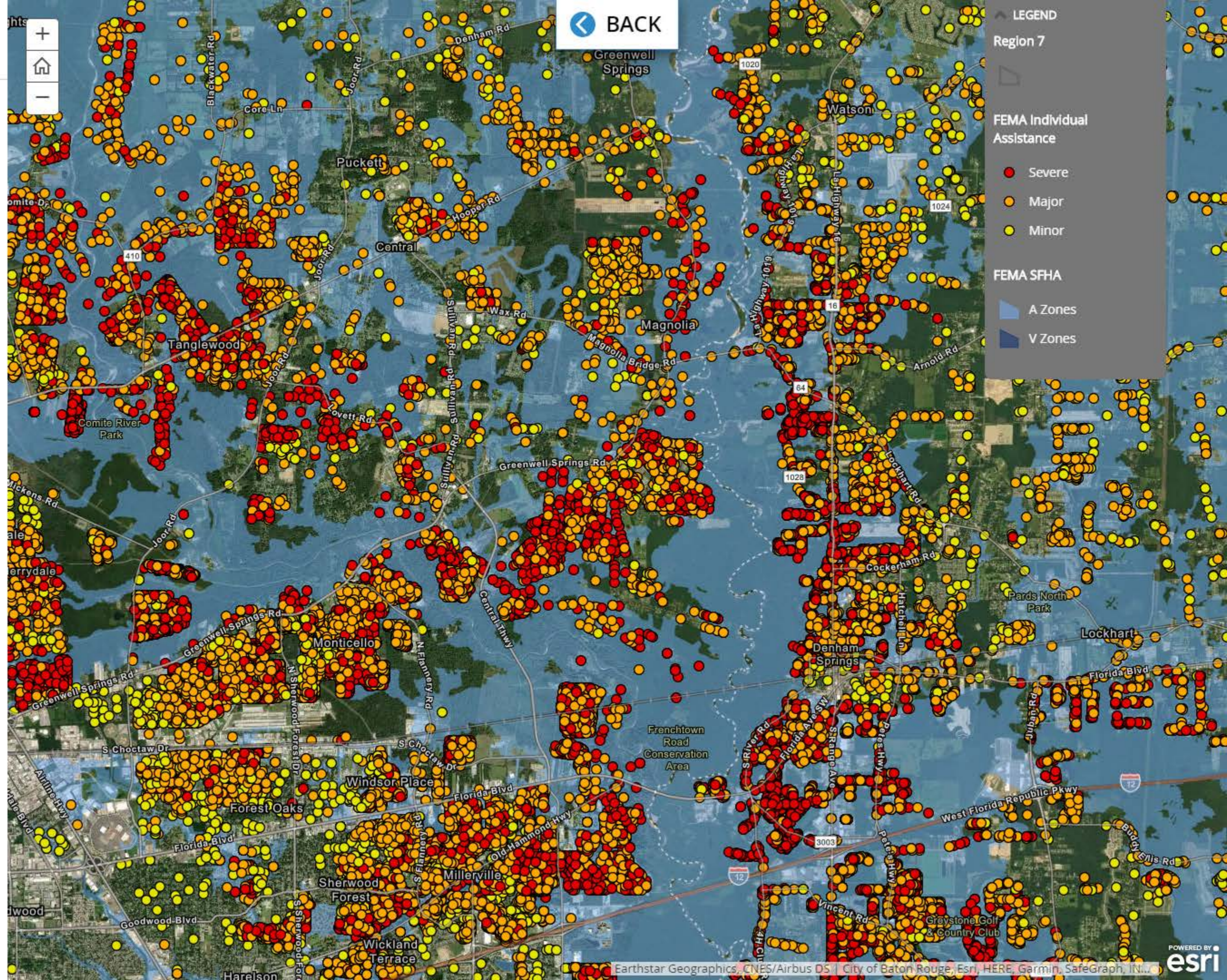
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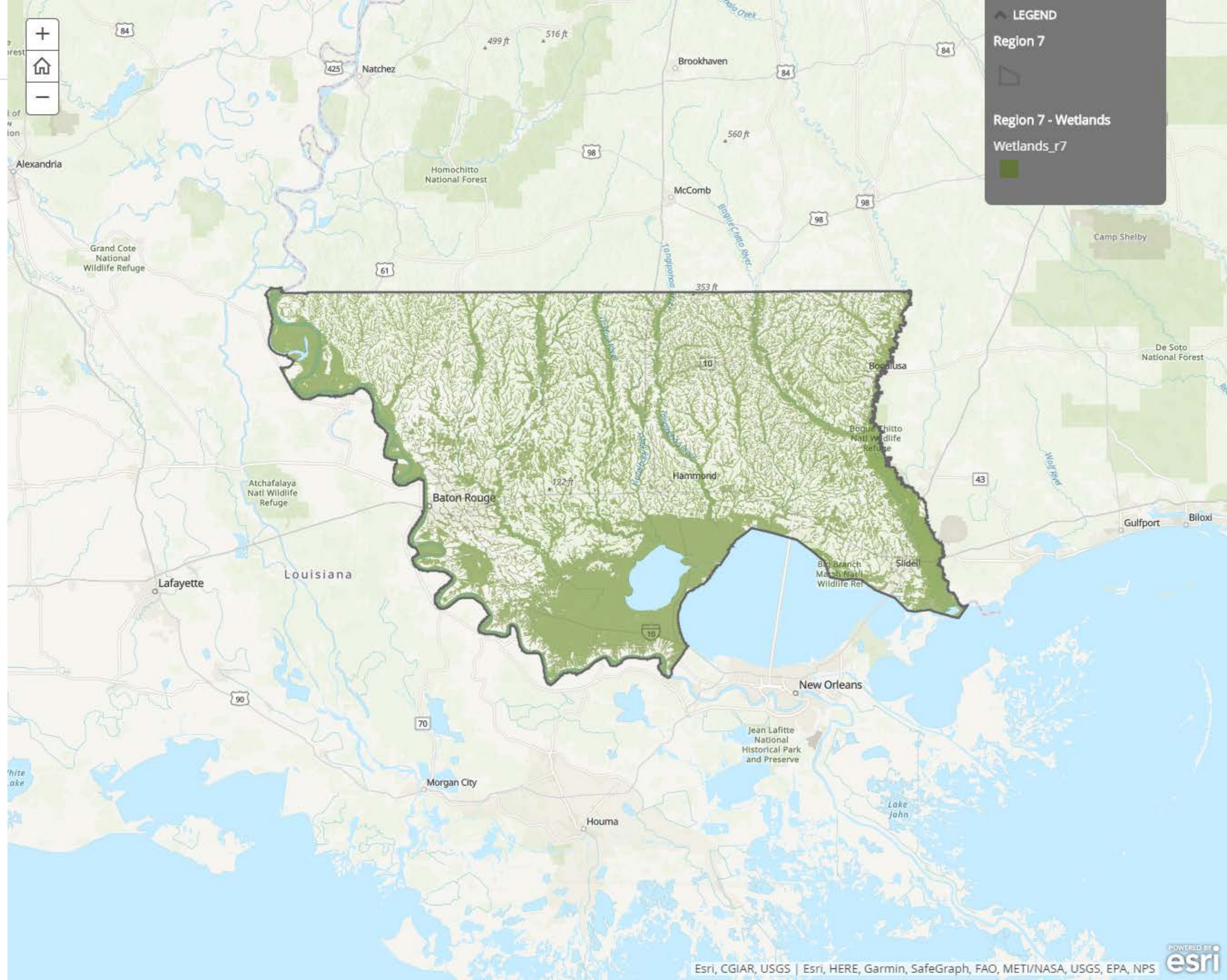
CDC Social Vulnerability Index

Natural disasters disproportionately impact socially vulnerable populations. Understanding and addressing vulnerability can help mitigate suffering and recovery costs.

Social vulnerability is based on the following factors:

- Socioeconomic status
- Household composition and disability
- Minority status and language
- Housing and transportation

Break



CDC Social Vulnerability Index

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- Minority status and language
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Break

Mapping exercise

Now we will examine risk more closely by combining these datasets and dividing Region 7 into subregions. Please locate your packets;

Legend

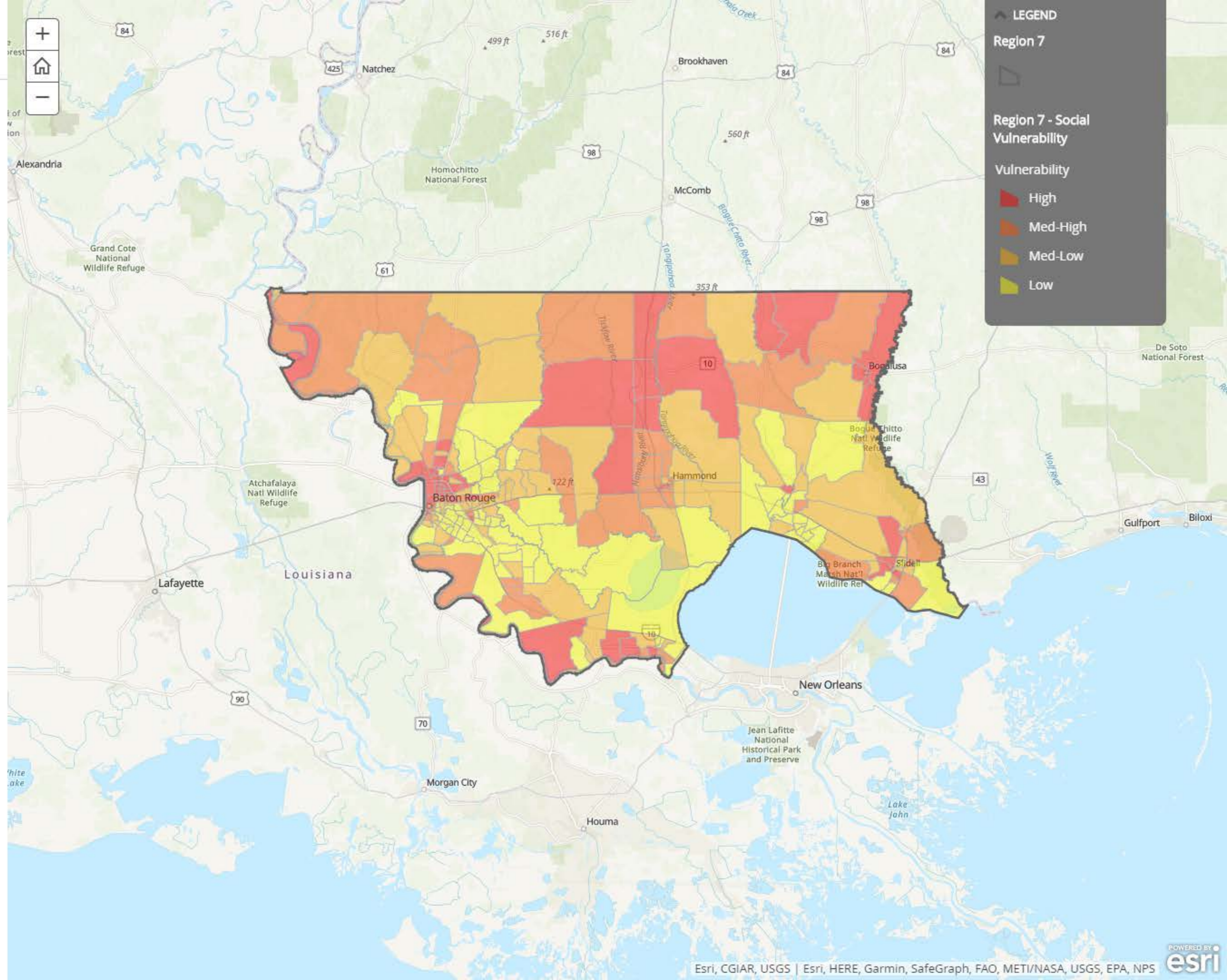
FEMA Individual Assistance - Damage Category

- Severe
- Major
- Minor

CDC Social Vulnerability

Vulnerability

- High
- Med-High
- Med-Low
- Low



Break

Mapping exercise

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Legend

FEMA Individual Assistance - Damage Category	CDC Social Vulnerability
● Severe	■ High
● Major	■ Med-High
● Minor	■ Med-Low
	■ Low



LOUISIANA
WATERSHED
INITIATIVE

Let's get started!

Mapping exercise

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Legend

FEMA Individual Assistance - Damage Category

- Severe
- Major
- Minor

CDC Social Vulnerability

Vulnerability

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Let's get started!

Recap

Putting it all together

- Four types of flood risk
- Future coastal surge flood risk
- Special Flood Hazard Areas, A zones and V zones
- FEMA Repetitive Loss



Mapping exercise

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Legend

FEMA Individual Assistance - Damage Category

- Severe
- Major
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CDC Social Vulnerability

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Let's get started!

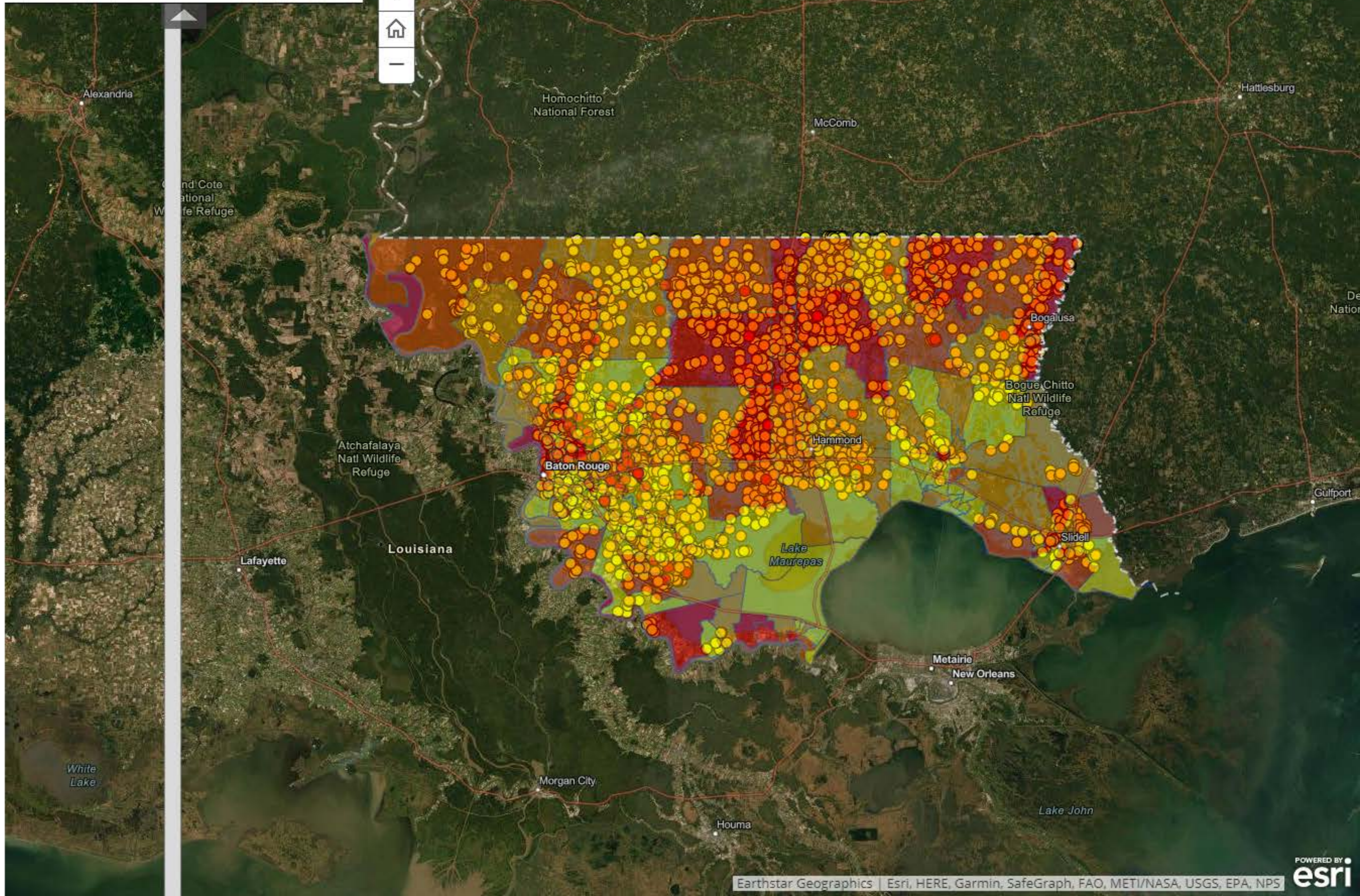
Recap

Putting it all together

- Four types of flood risk
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Region 7



Mapping exercise

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Legend

FEMA Individual Assistance - Damage Category

- Severe
- Major
- Minor

CDC Social Vulnerability

- Vulnerability
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Let's get started!

Recap

Putting it all together

- Four types of flood risk
- Future coastal surge flood risk
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Mapping Exercise

BACK

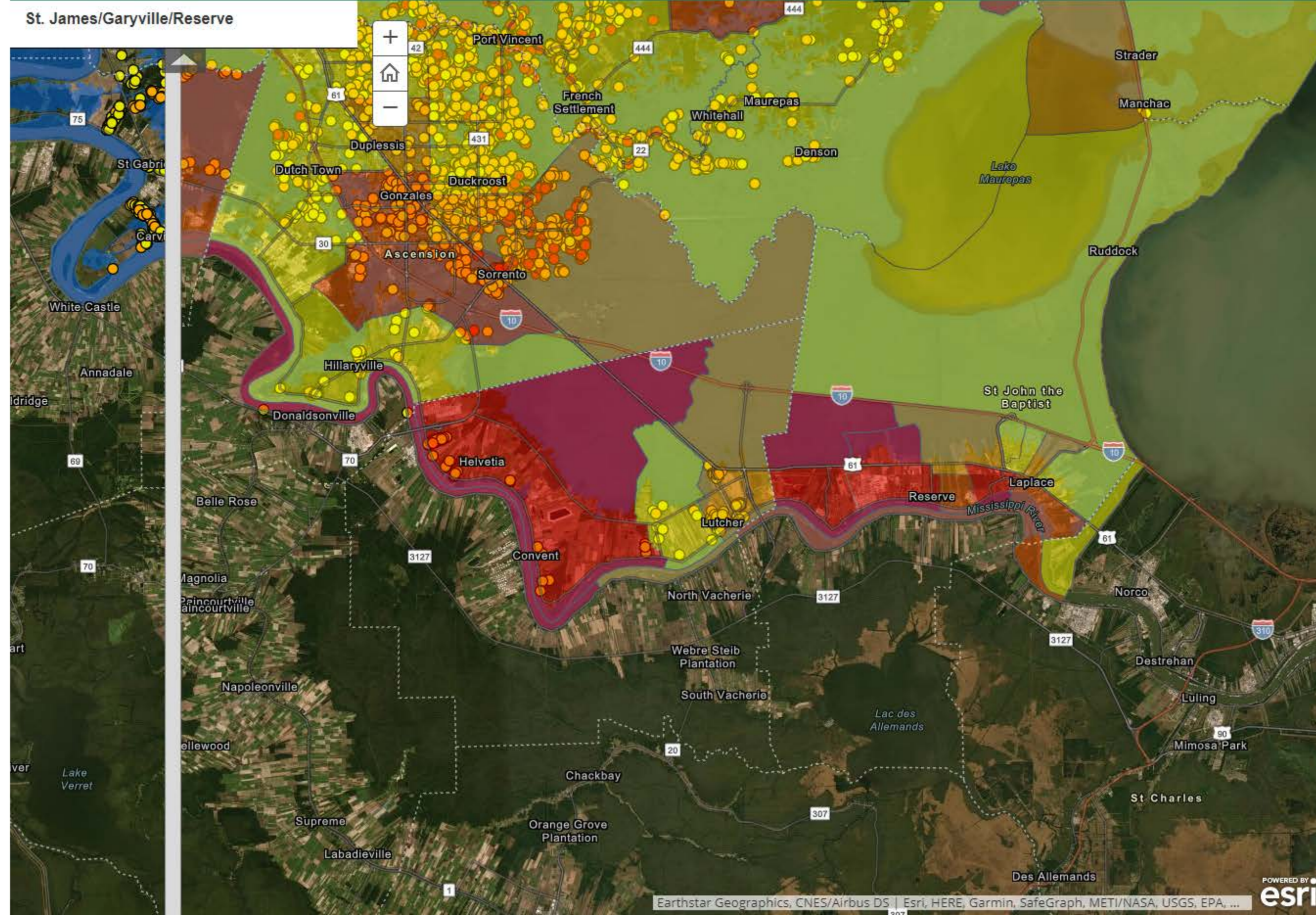
Switch to builder mode

A Story Map



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St. James/Garyville/Reserve



Mapping exercise

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FEMA Individual Assistance - Damage Category

- Severe
- Major
- Minor

CDC Social Vulnerability

Vulnerability

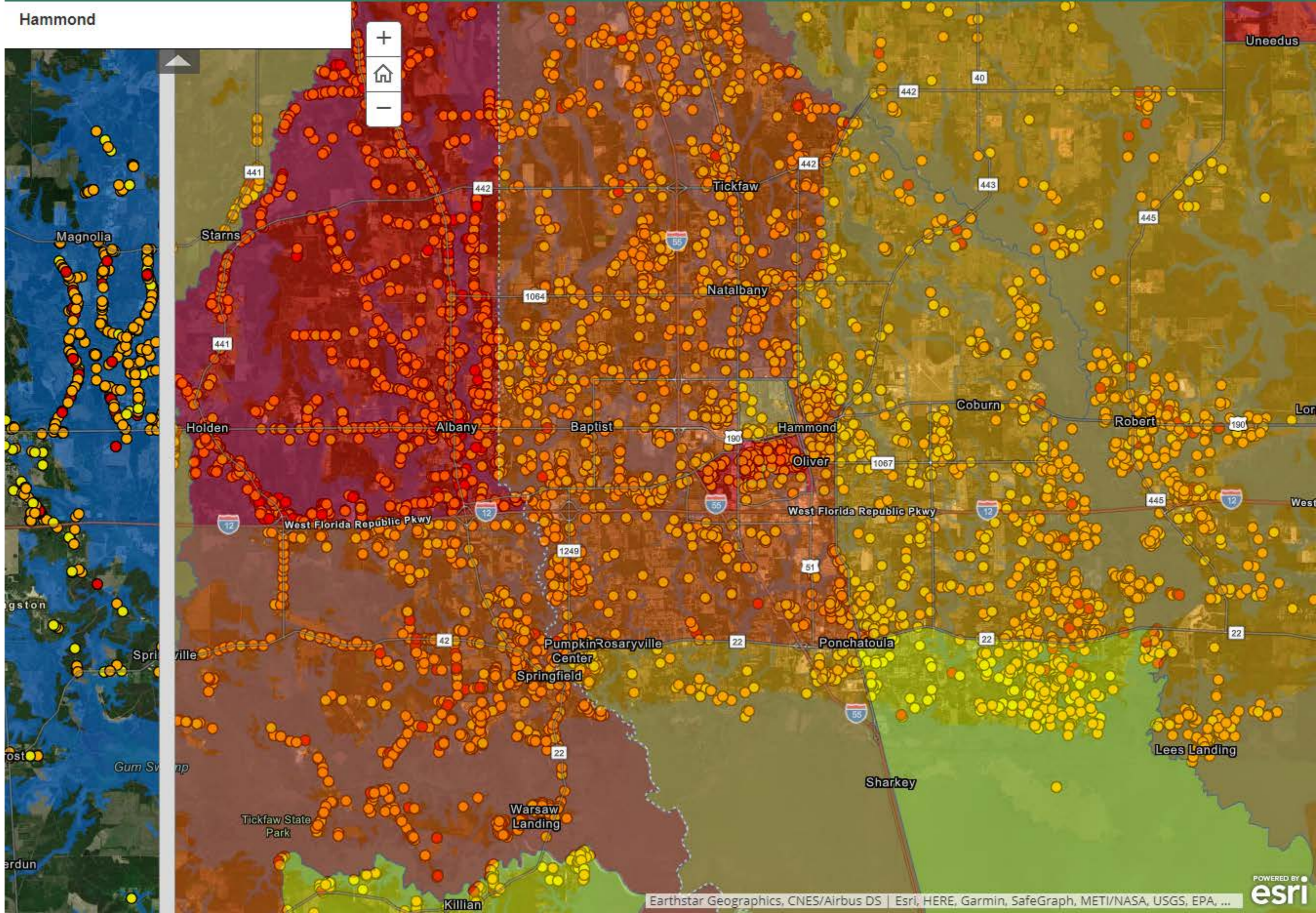
- High
- Med-High
- Med-Low
- Low

Let's get started!

Recap

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Slidell

Mapping exercise

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Legend

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CDC Social Vulnerability

Vulnerability

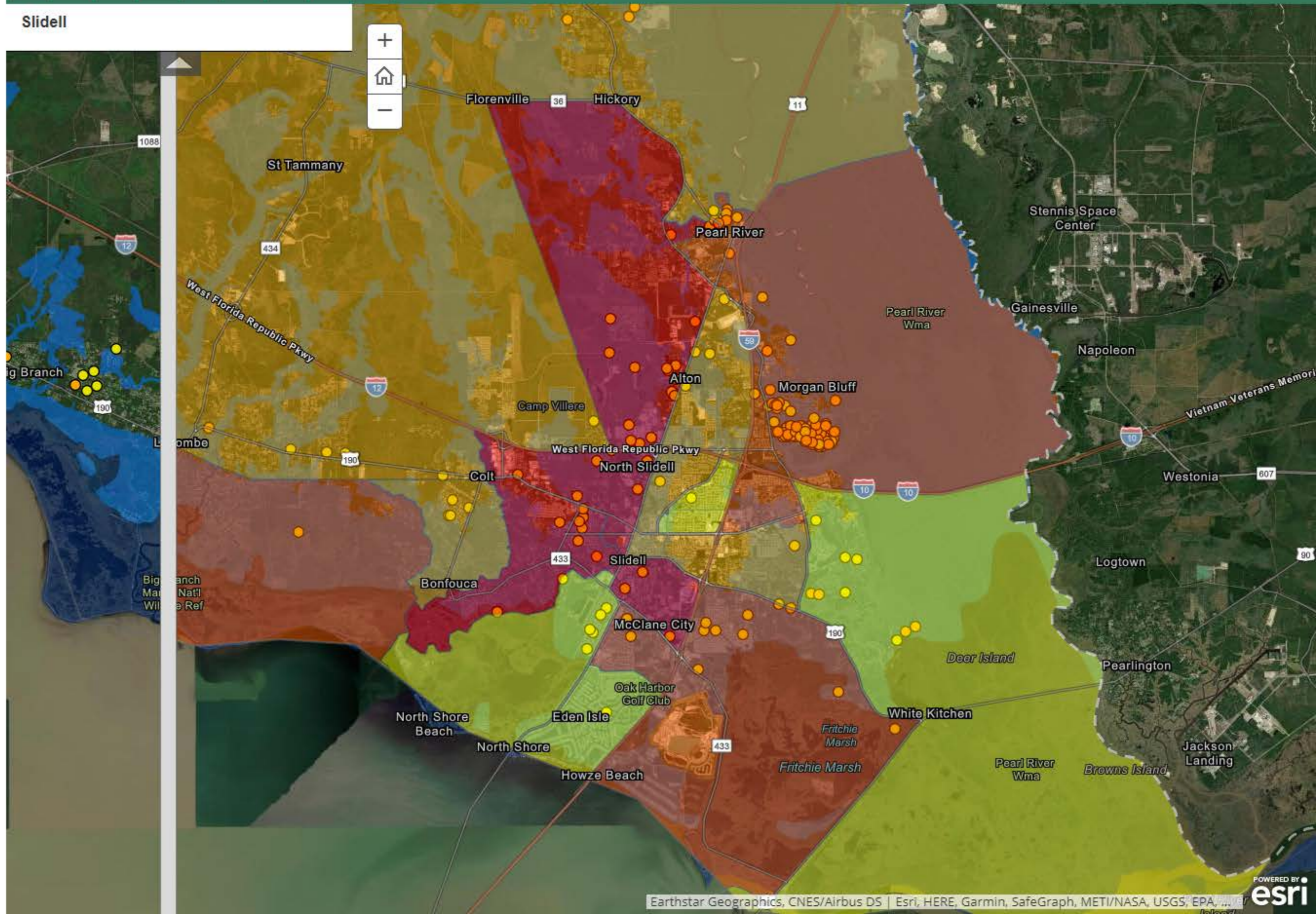
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Let's get started!

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Mapping exercise

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Let's get started!

Recap

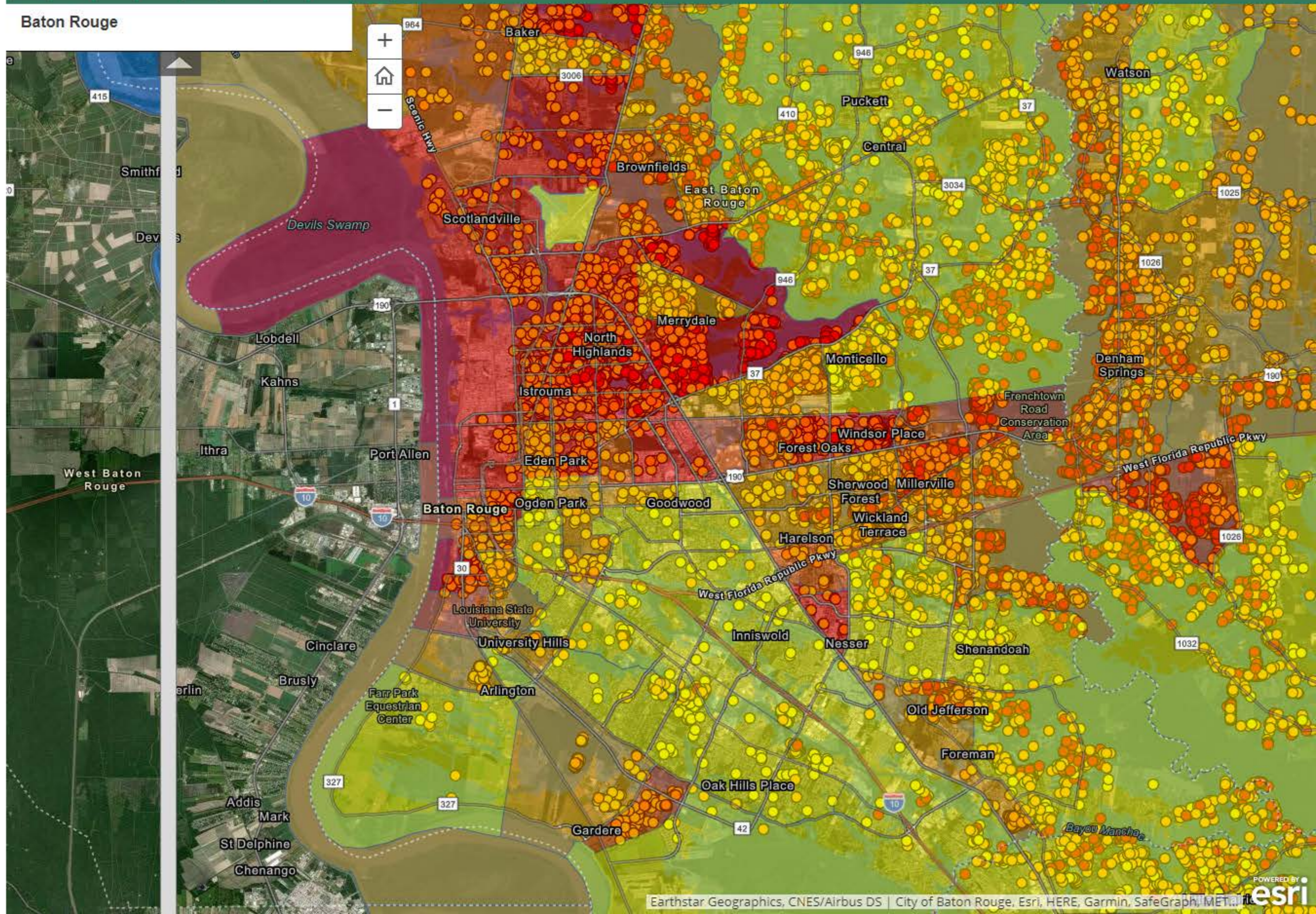
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Mapping Exercise

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Baton Rouge



BACK

Switch to builder mode

A Story Map



Mapping exercise

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Let's get started!

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Mapping Exercise

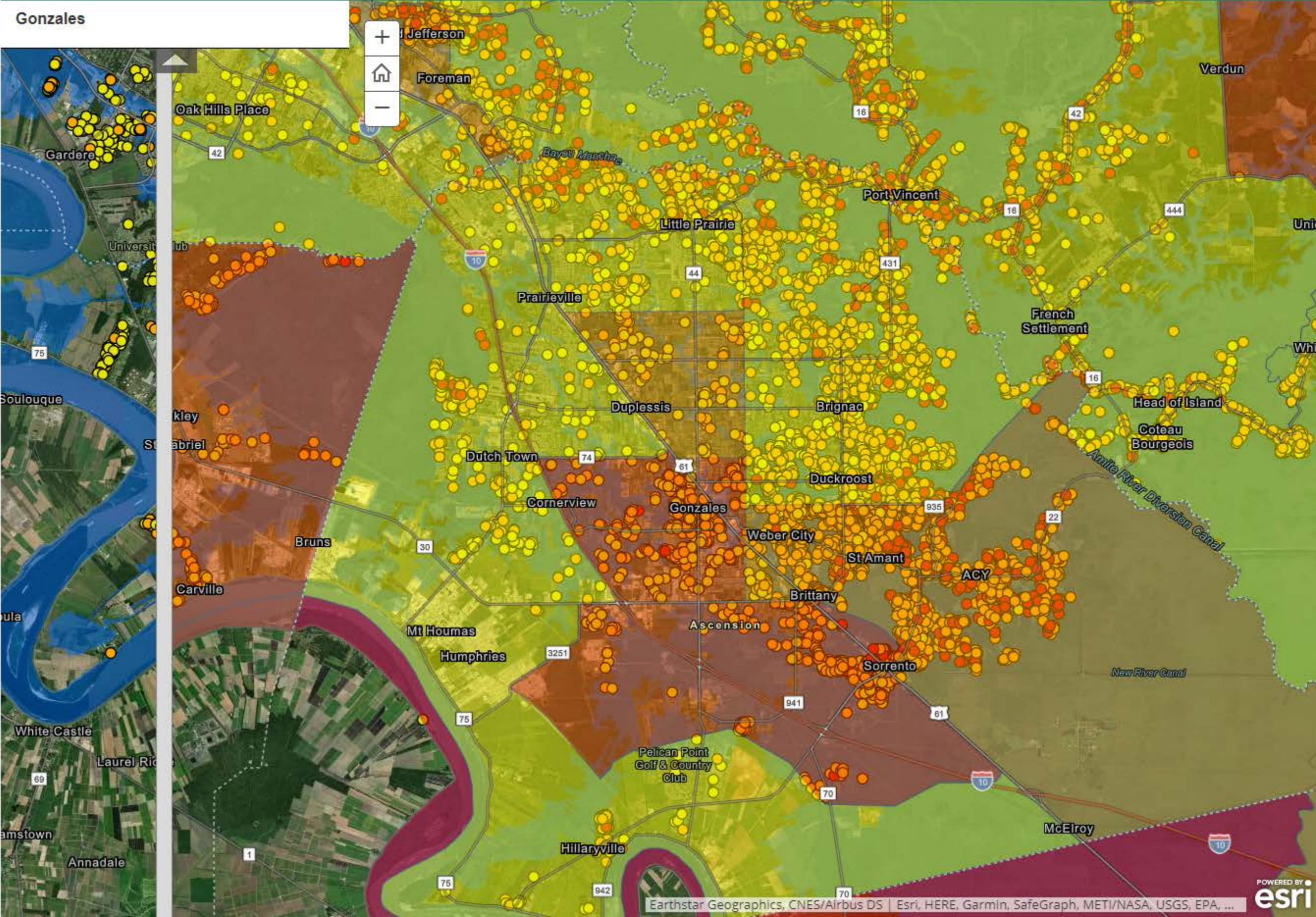
BACK

Switch to builder mode

A Story Map



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Mapping exercise

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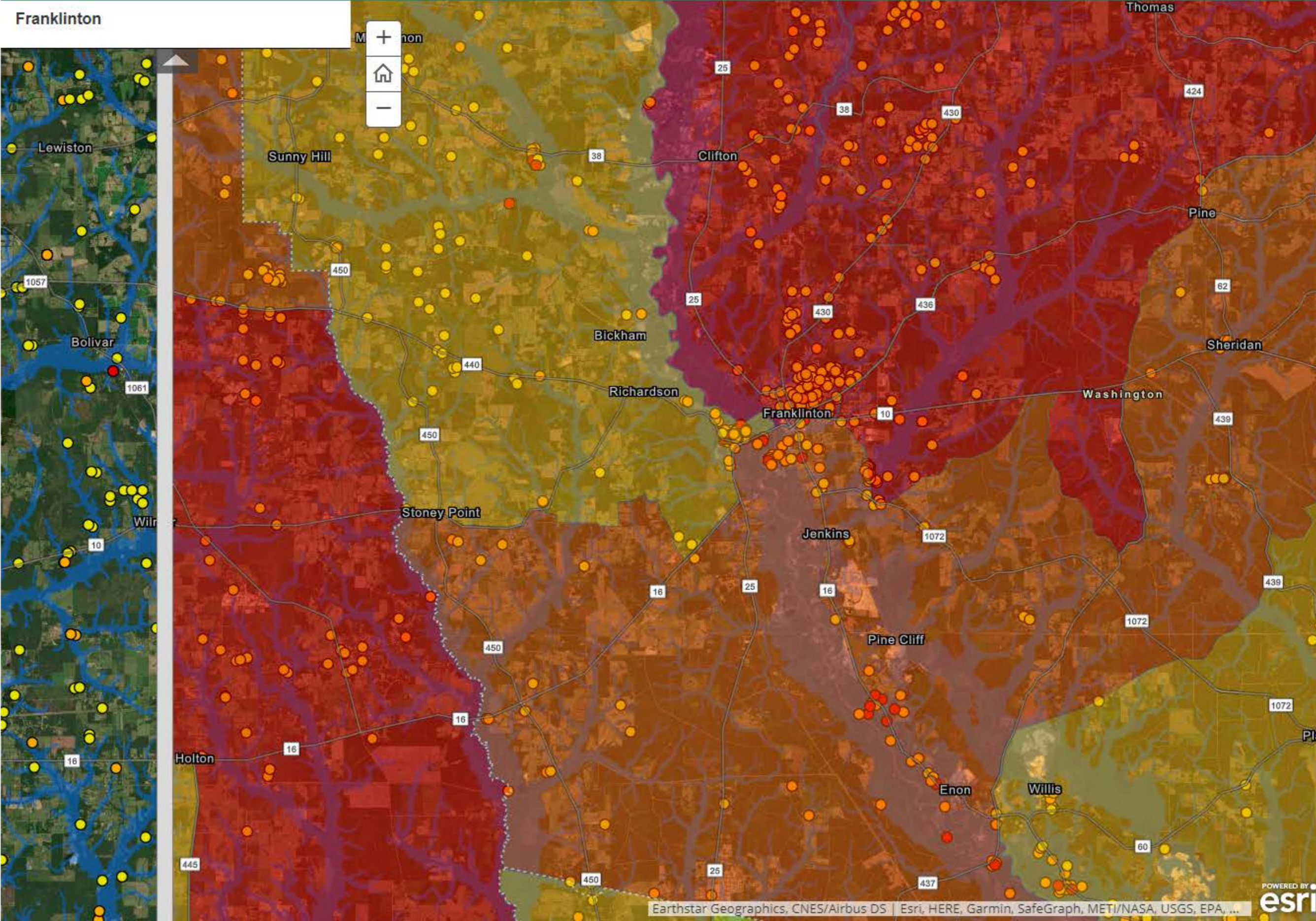
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Mapping exercise

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Let's get started!

Recap

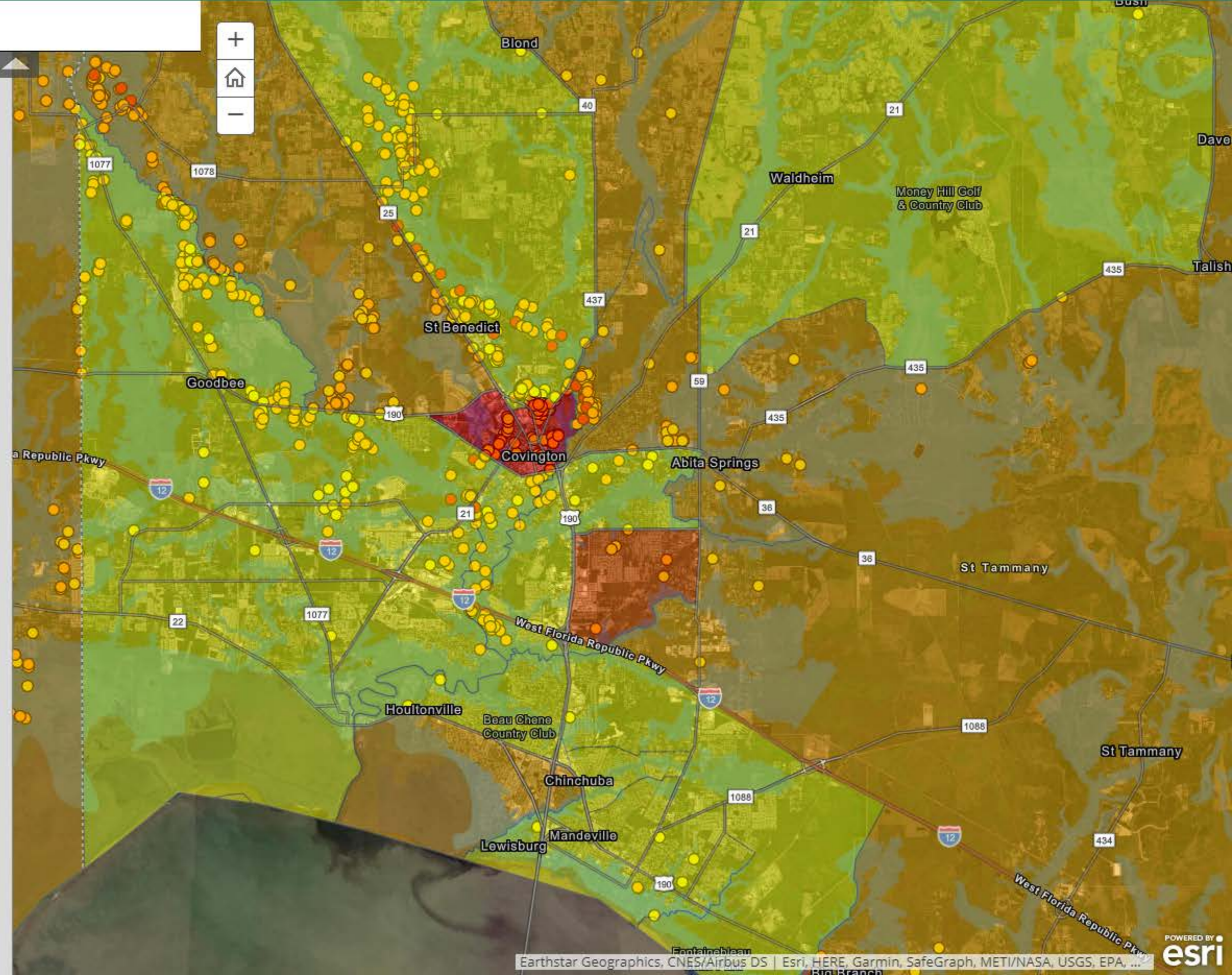
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Mapping Exercise

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Covington



Mapping exercise

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Legend

FEMA Individual Assistance - Damage Category	CDC Social Vulnerability
● Severe	■ High
● Major	■ Med-High
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Let's get started!

Recap

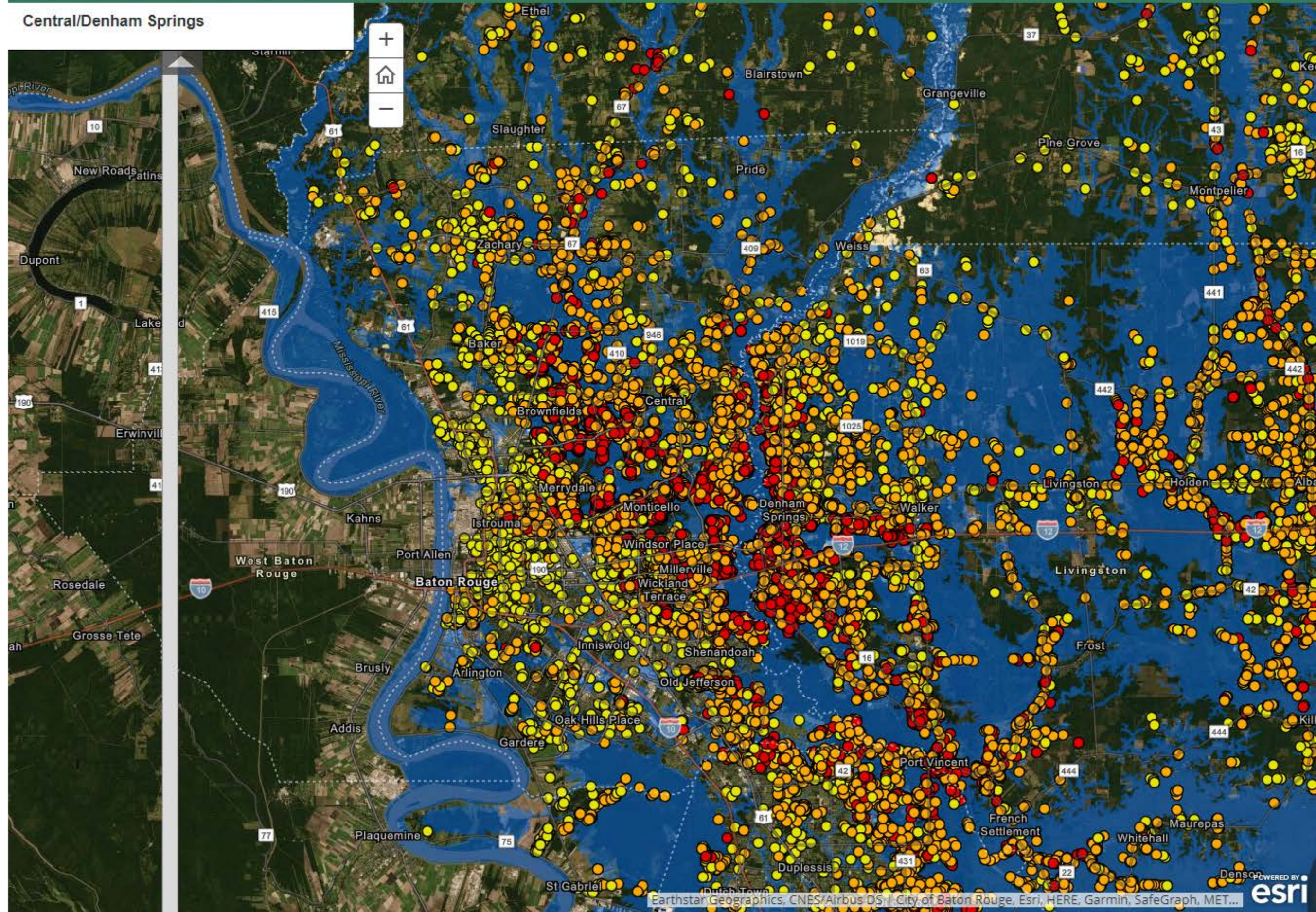
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Mapping Exercise

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Central/Denham Springs



BACK

Switch to builder mode

A Story Map



Mapping exercise

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Mapping Exercise

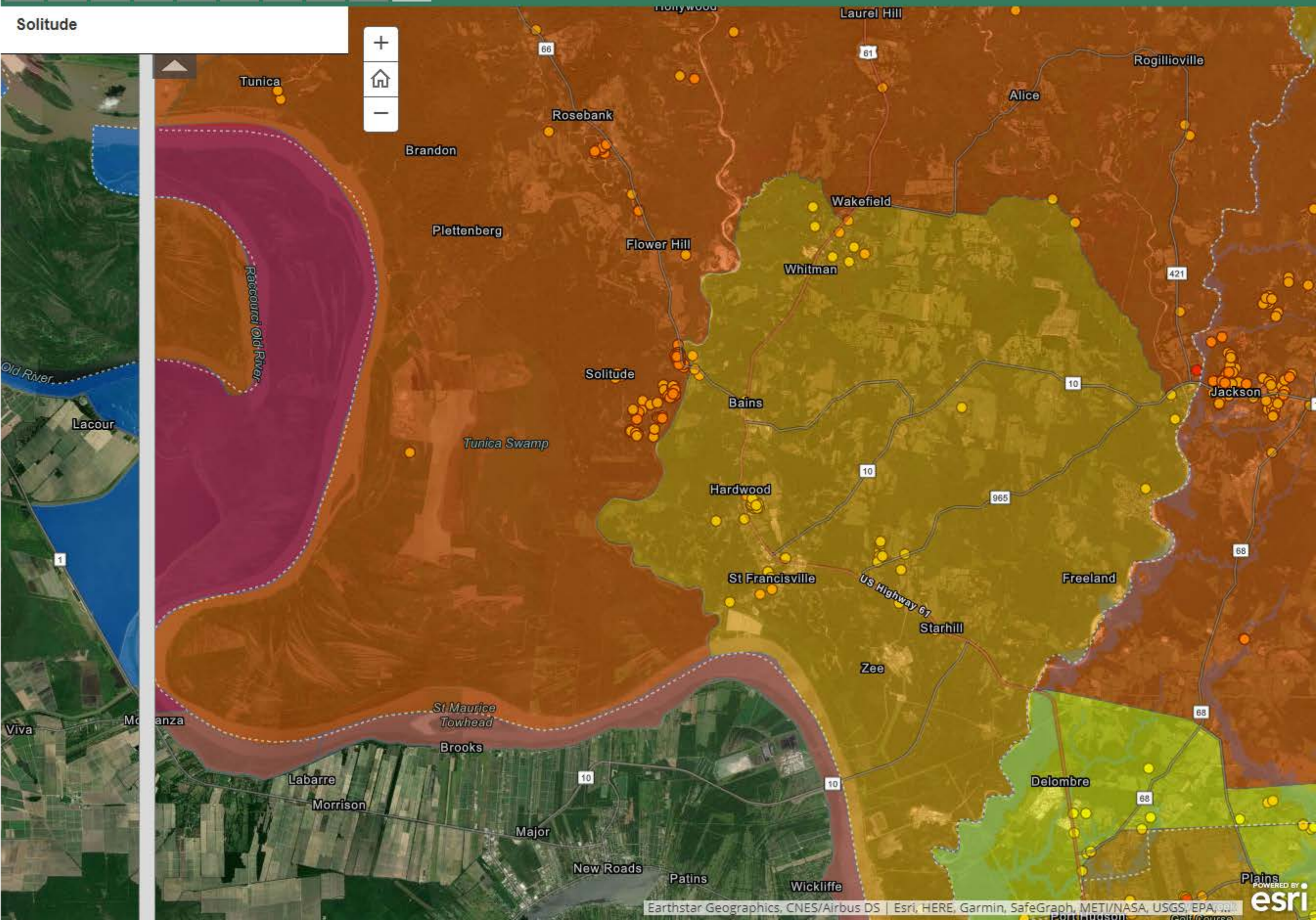
BACK

Switch to builder mode

A Story Map



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Recap

Putting it all together

- Four types of flood risk
- Future coastal surge flood risk
- Special Flood Hazard Areas, A zones and V zones
- FEMA Repetitive Loss
- Impacts of the 2016 floods
- Wetland areas
- Social Vulnerability Index

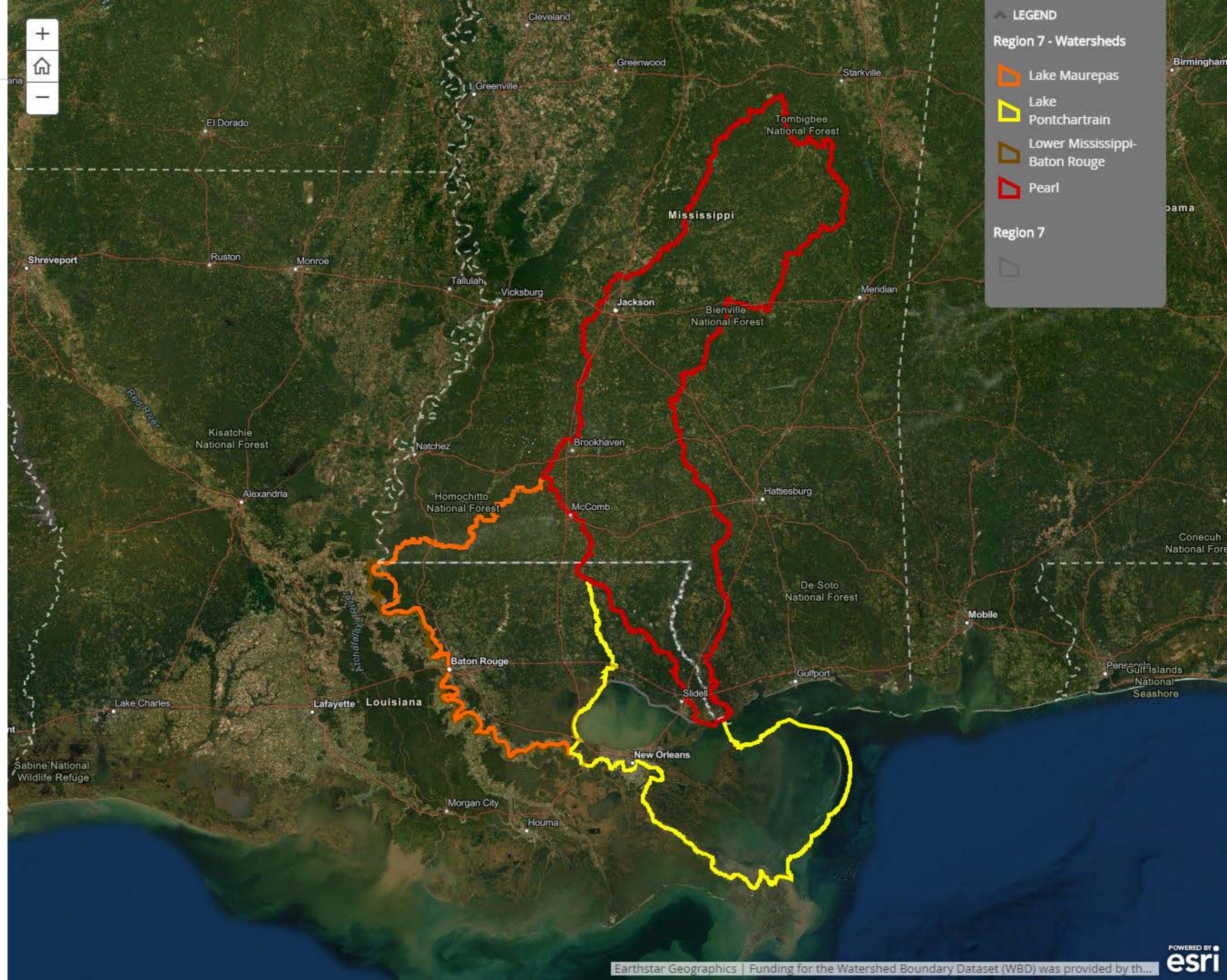
Report out and next steps

LWI will incorporate the feedback gathered today into the story map to further refine our understanding of flood risk in Region 7.



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Public comment

For additional comments or questions, you can call 504.556.9733 or email watershed@la.gov.

Please copy Rachelle Sanderson (rsanderson@crpcla.org) on any emailed comments or questions for Region 7.

A recording of this presentation will be available after the meeting on the LWI website.

