

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 1

Building on previous efforts

Region 1 planning and policy professionals worked with LWI to identify these priorities based on their region's flood risk and mitigation needs.

Agenda

1. Region 1 flood risk assessment
2. Break



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2. Break
3. Group mapping exercise
4. Report out
5. Public comment

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



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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



UPDATE MAPS AND ACCOUNT FOR RAPID DEVELOPMENT IN MITIGATION EFFORTS

ESTABLISH REGIONAL COLLABORATION

IMPROVE POLICY CONSISTENCY AND IMPACT ACROSS REGIONS

ENSURE ADEQUATE REGIONAL REPRESENTATION

PRIORITIZE PROJECTS WITH GREATEST LONG-TERM BENEFIT

Agenda

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Parishes in Region 1

Working together to address risk at the watershed scale

- Caddo Parish
- Bossier Parish
- Webster Parish
- Claiborne Parish
- Bienville Parish
- Red River Parish



Flood risk assessment

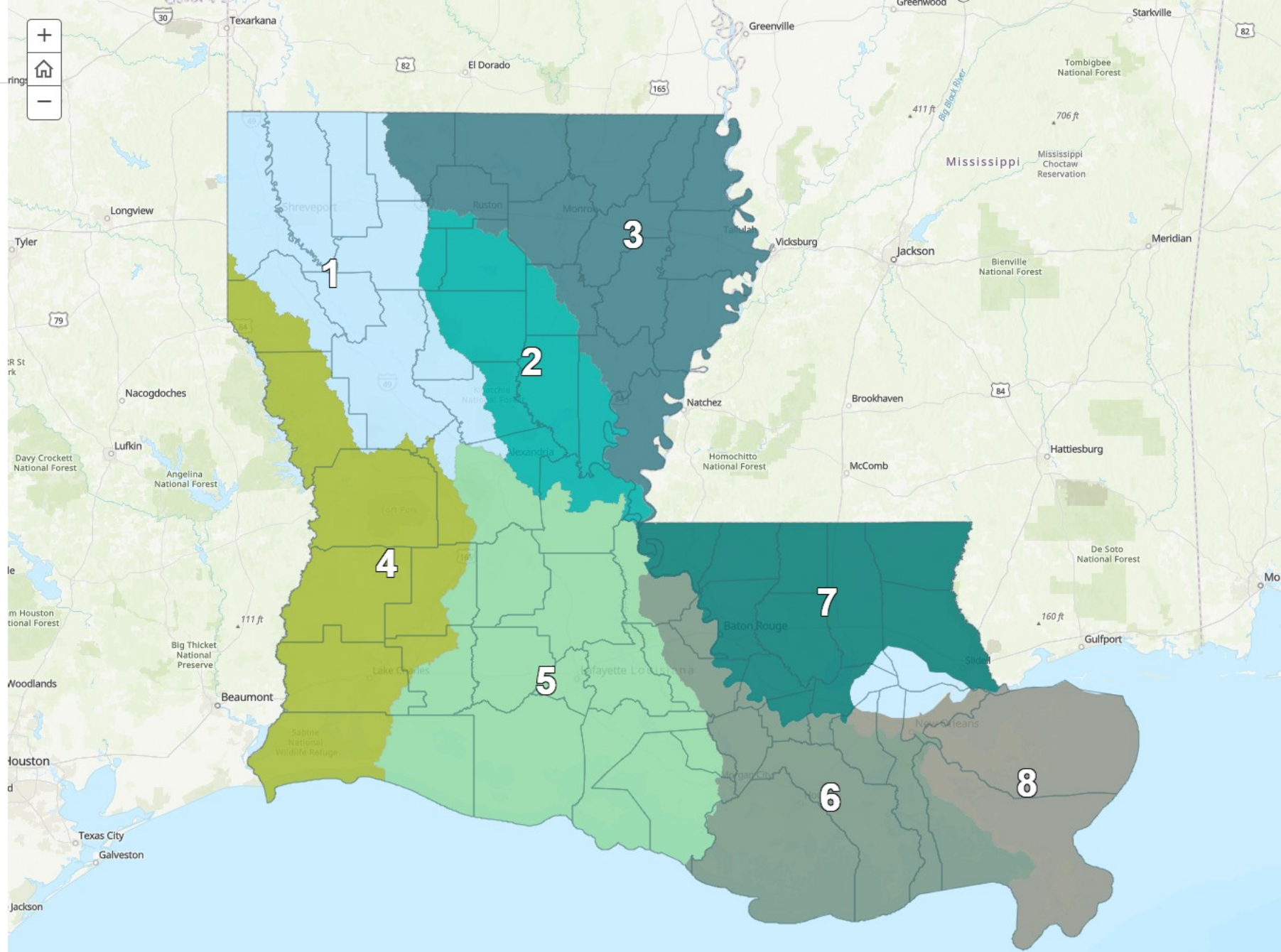
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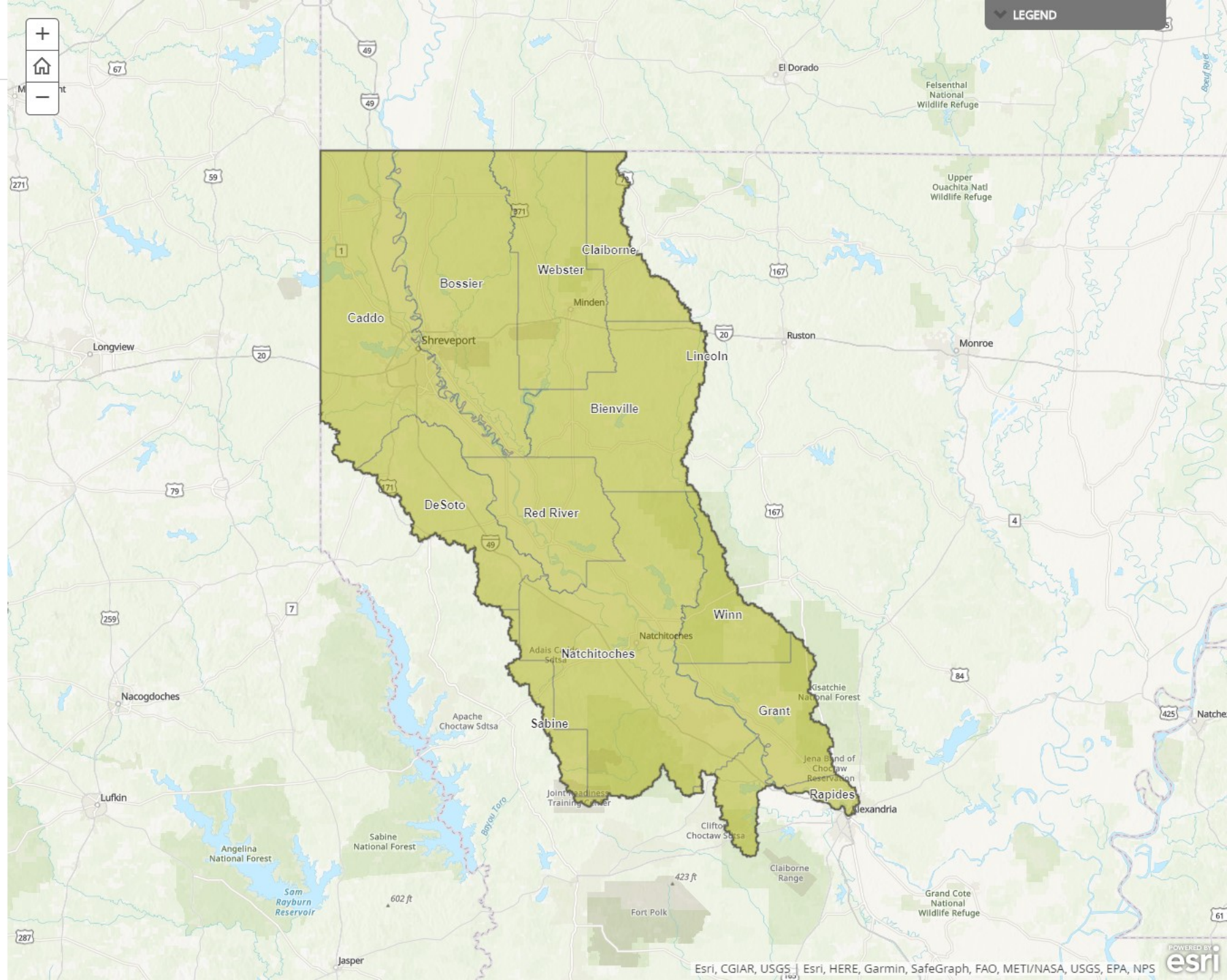
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Region 1 watersheds

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

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Types of flood risk

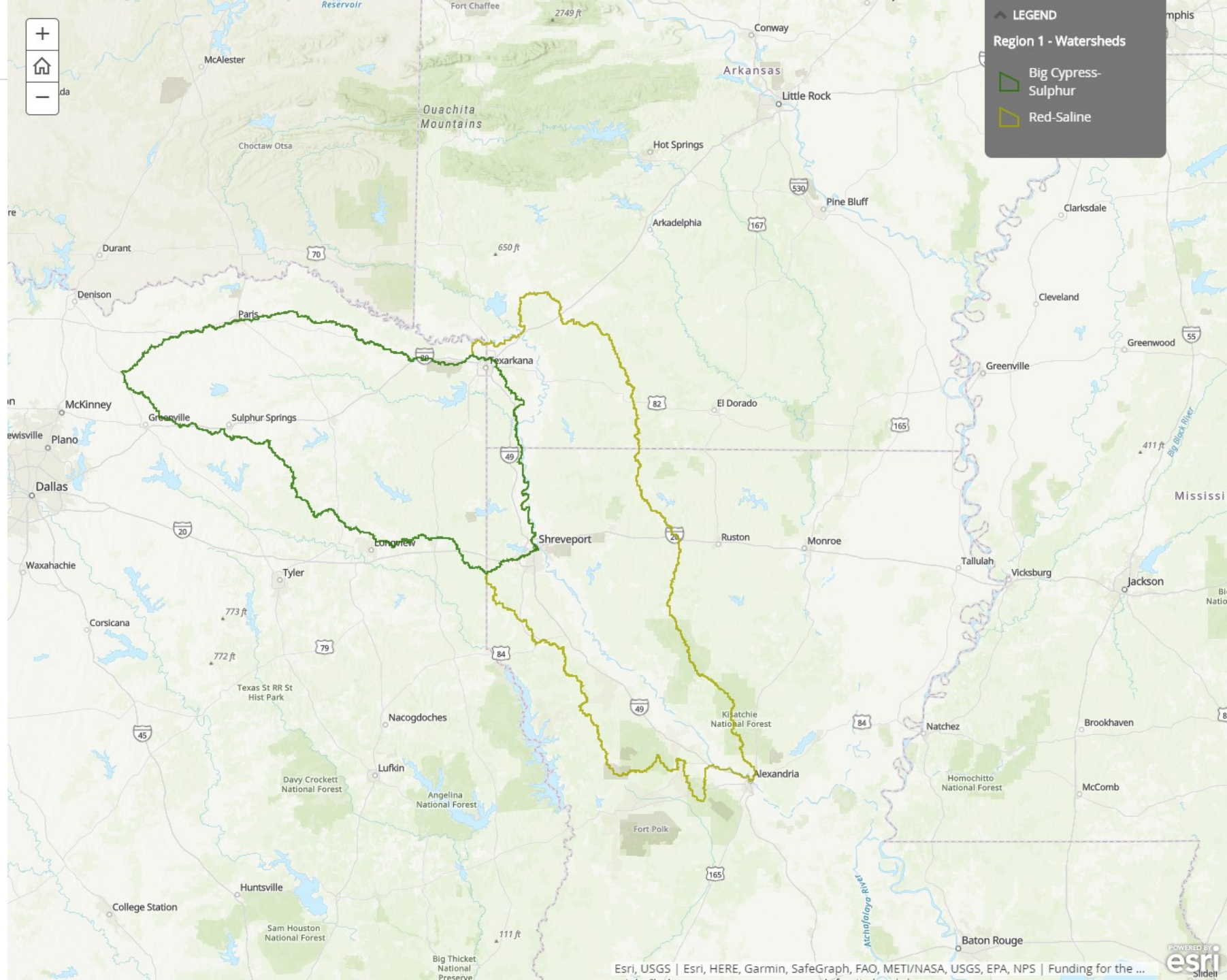
- Coastal floods: surge and tidal
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- Pluvial floods: rainfall-induced flash floods and urban flooding
- Backwater flooding

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, the impact of a rainfall event in one part of the state is often felt far beyond the boundaries of where the rain falls.

Region 1 rainfall total
March 7 - 14, 2016



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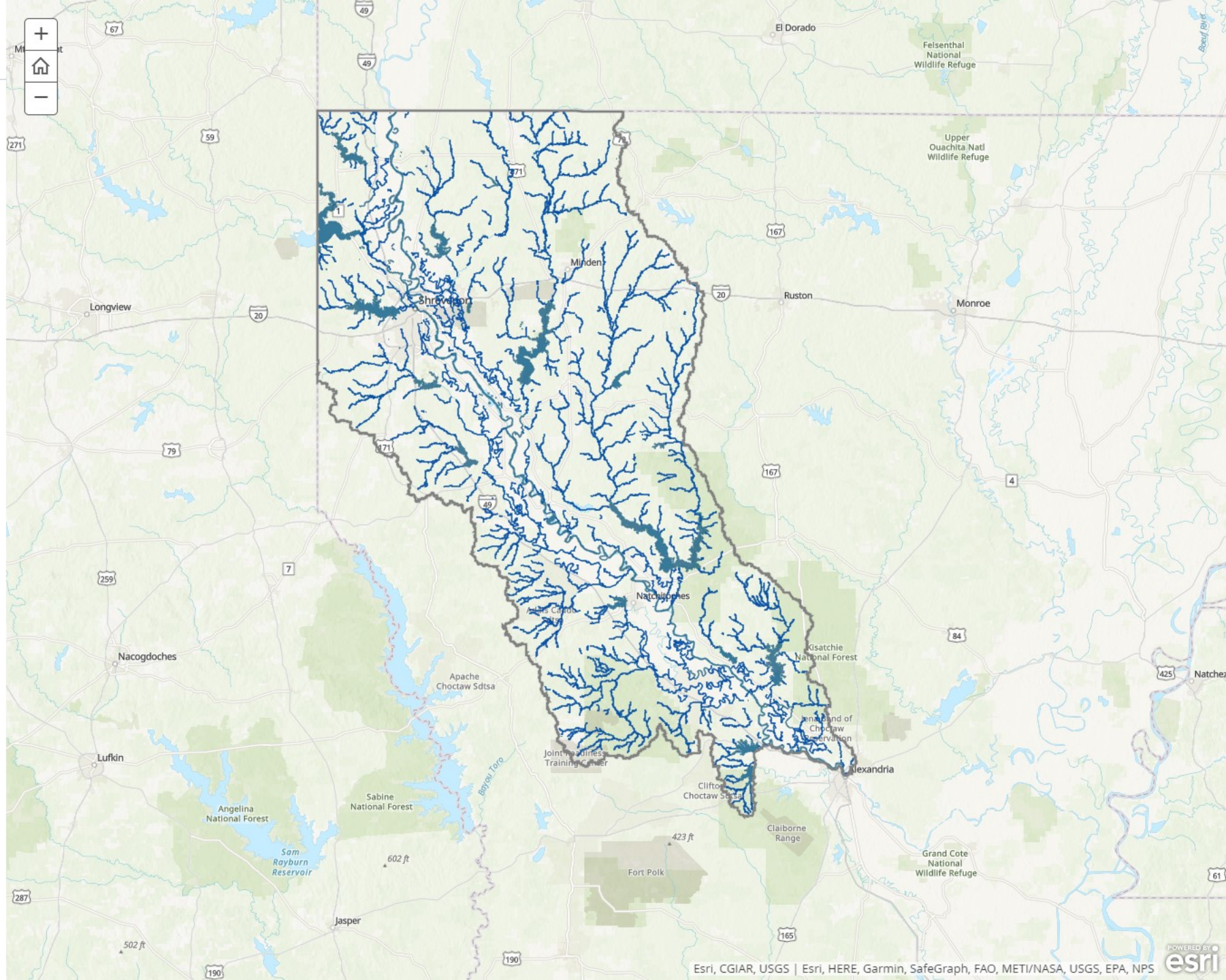
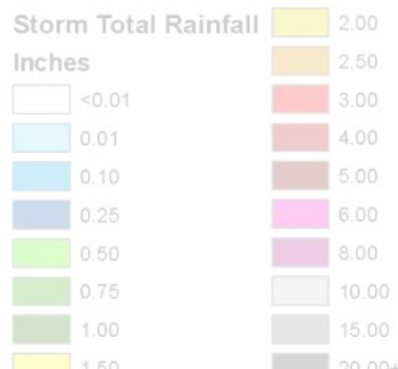
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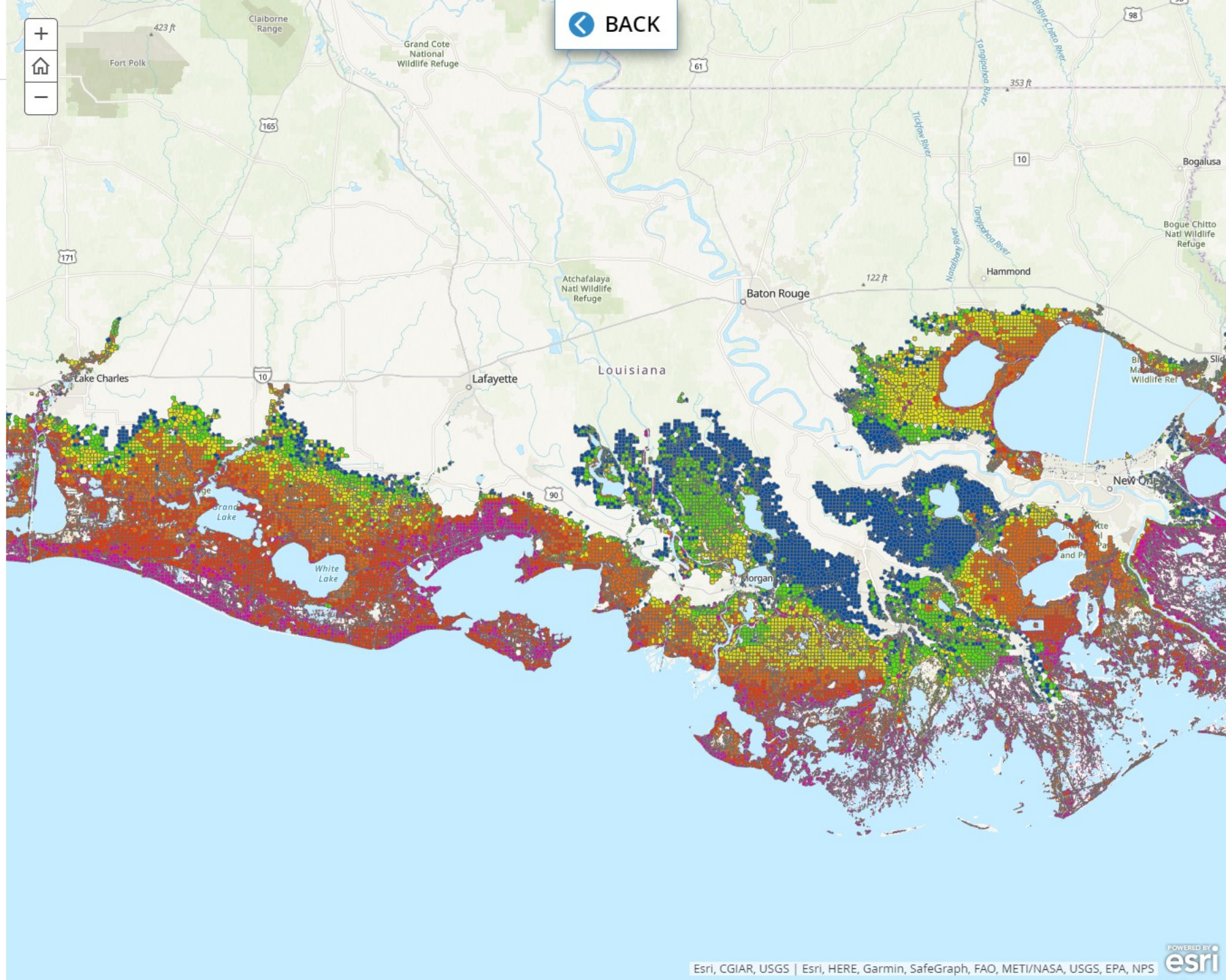
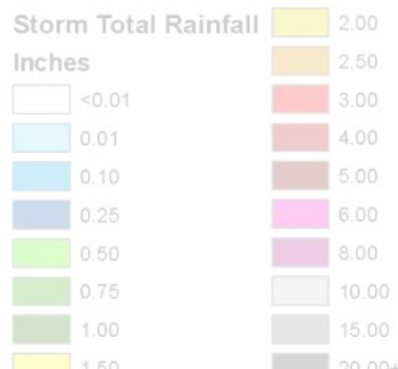
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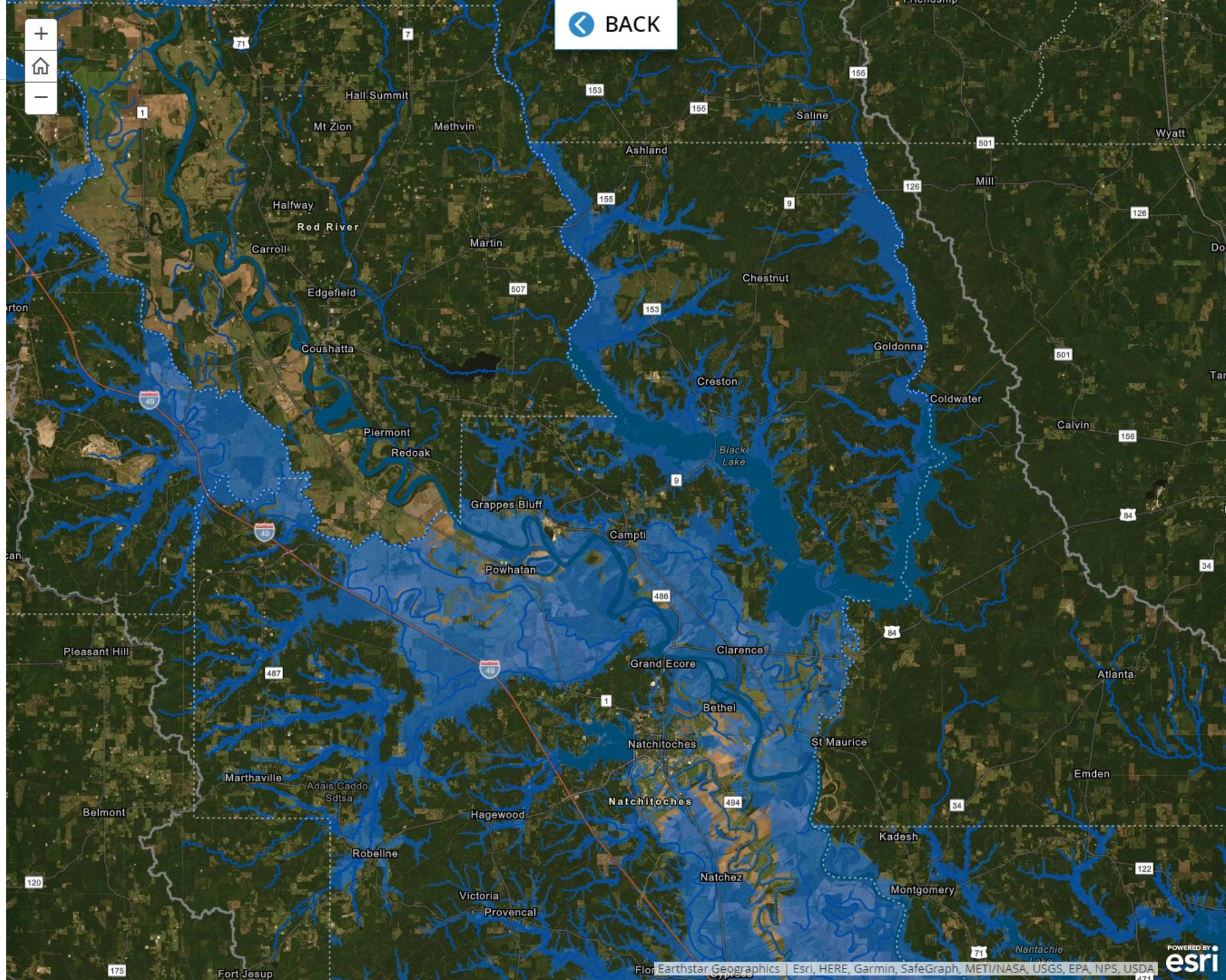
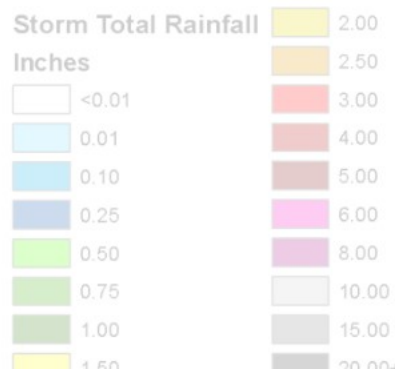
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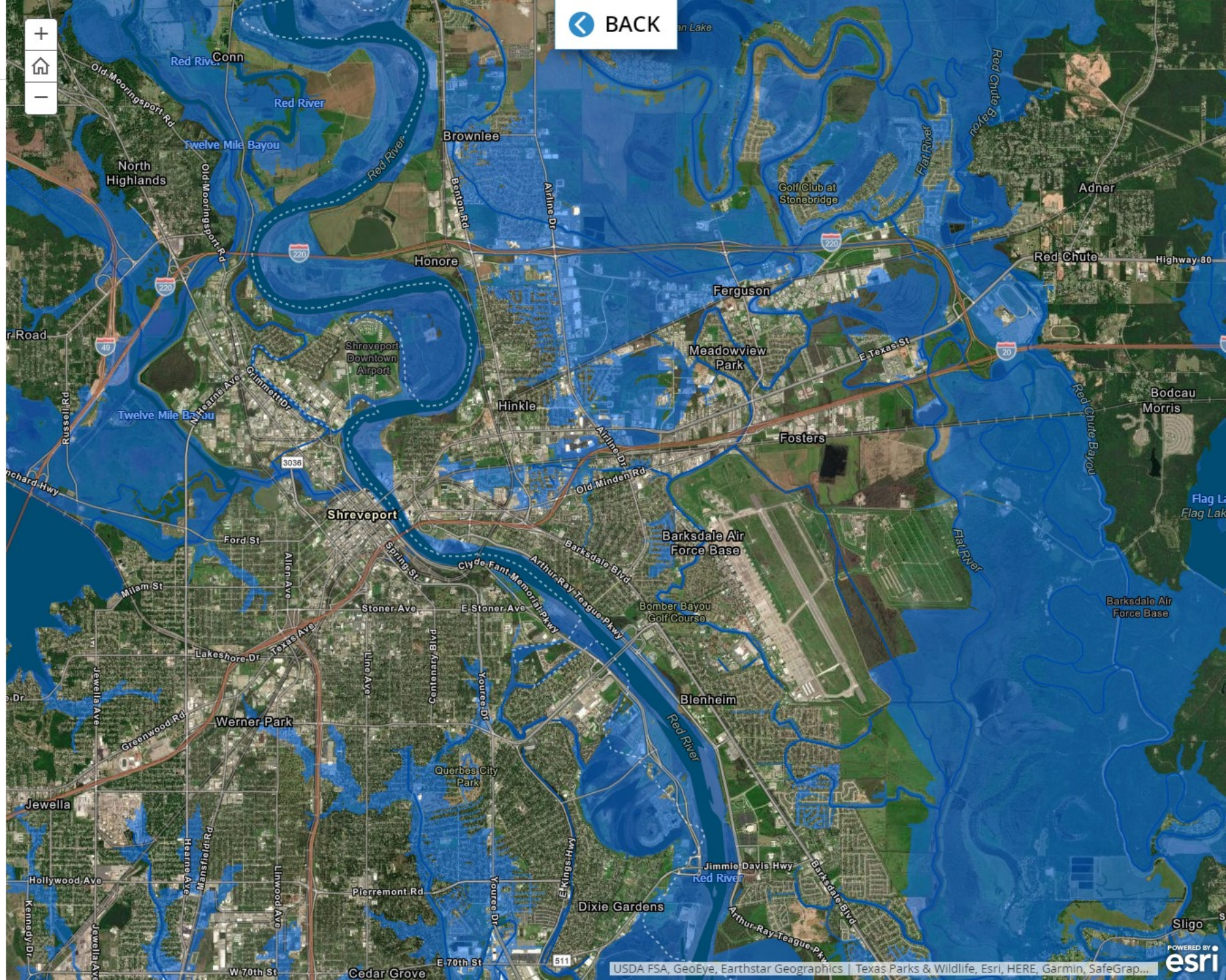
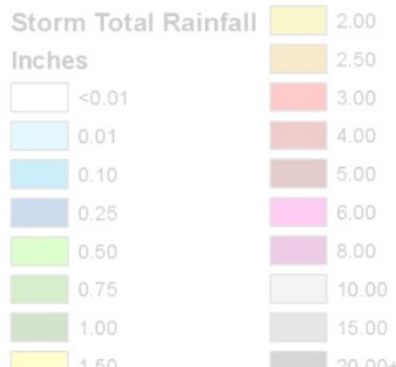
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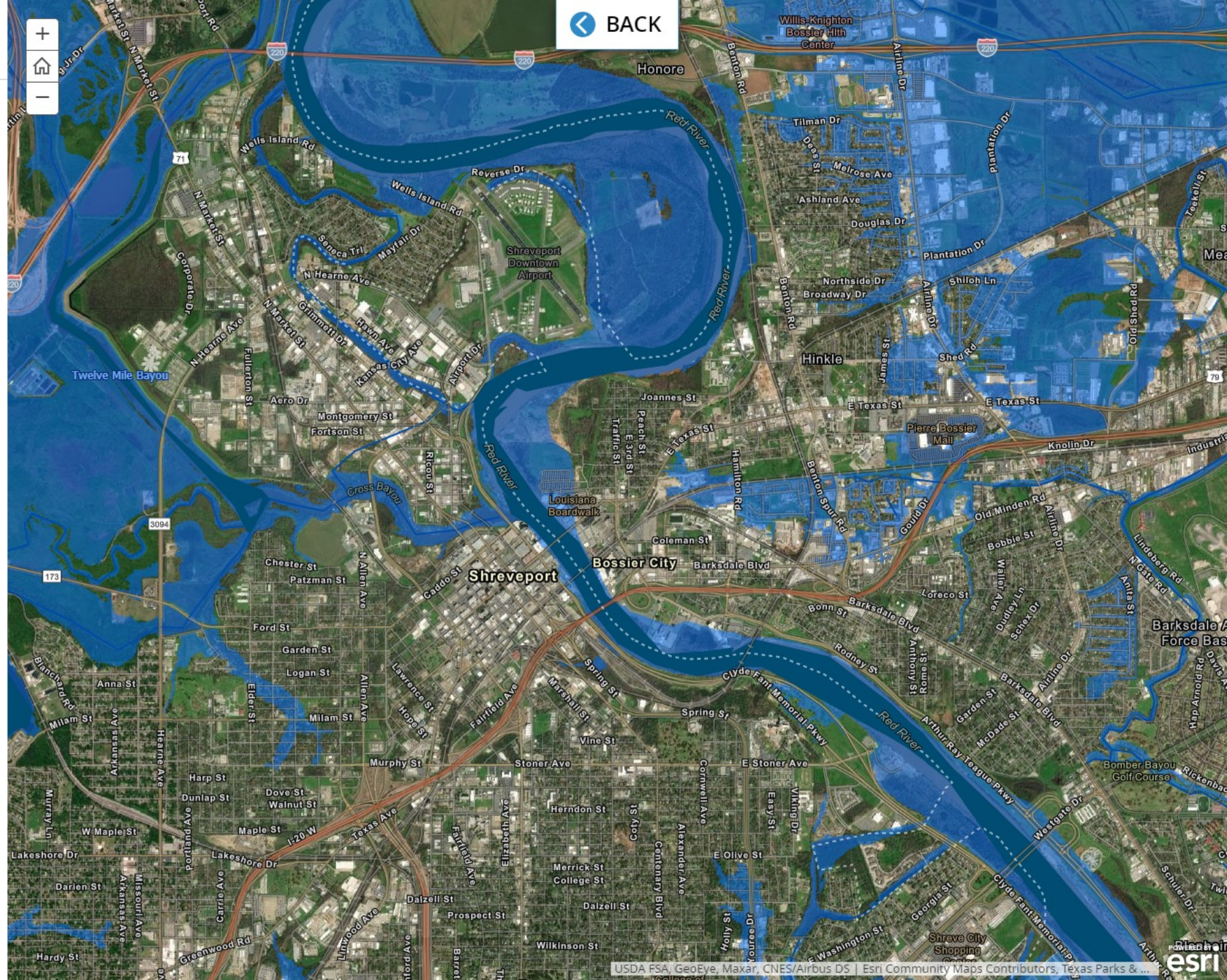
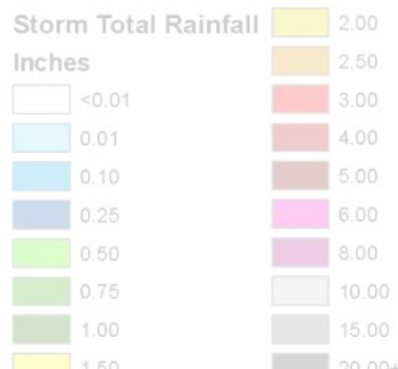
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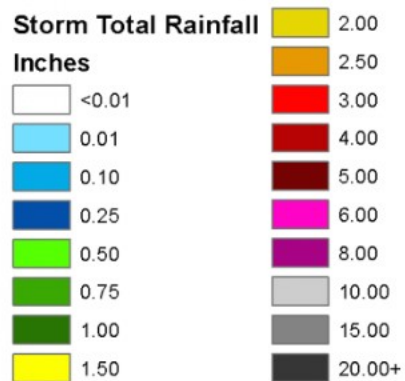


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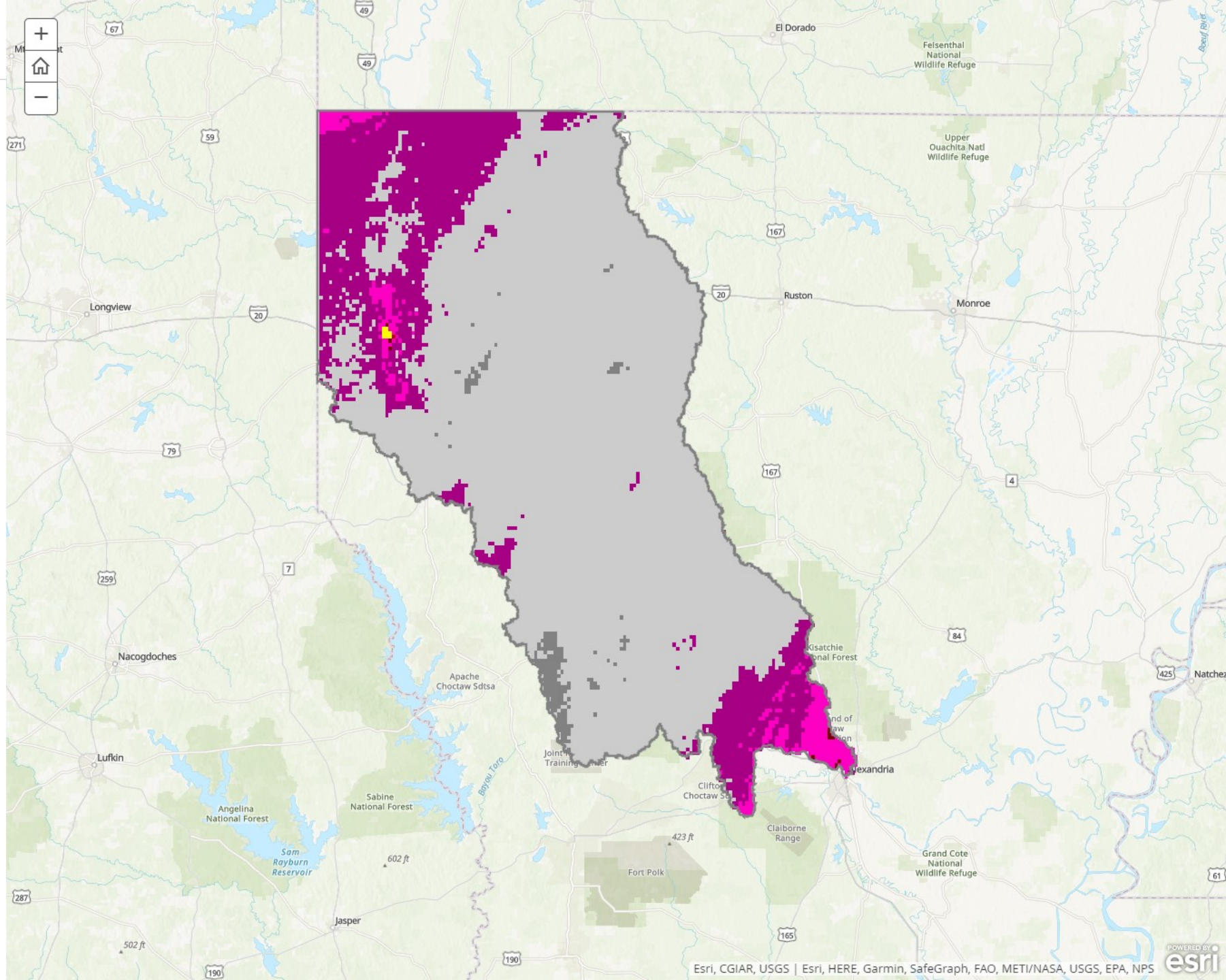
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Fluvial floods

Fluvial floods occur when excessive rain falls over an extended period of time and causes a river to exceed its capacity. A river's capacity is often monitored by checking the height of a river's crest. These events can cause dams and dikes to break and inundate nearby areas.



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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.

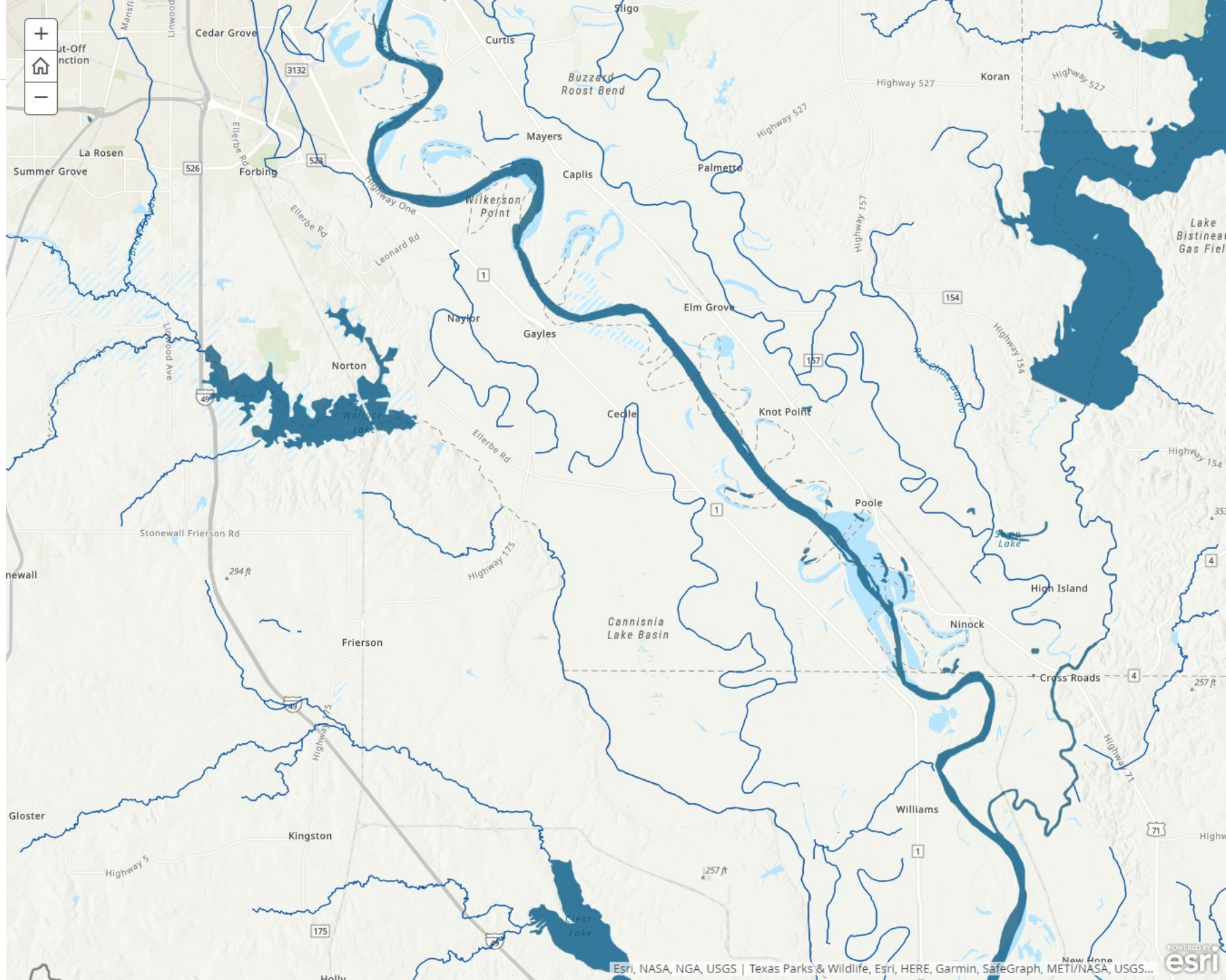
Traditional gaps in understanding flood risk

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 1: 40% is located in a SFHA and is subject to flooding.



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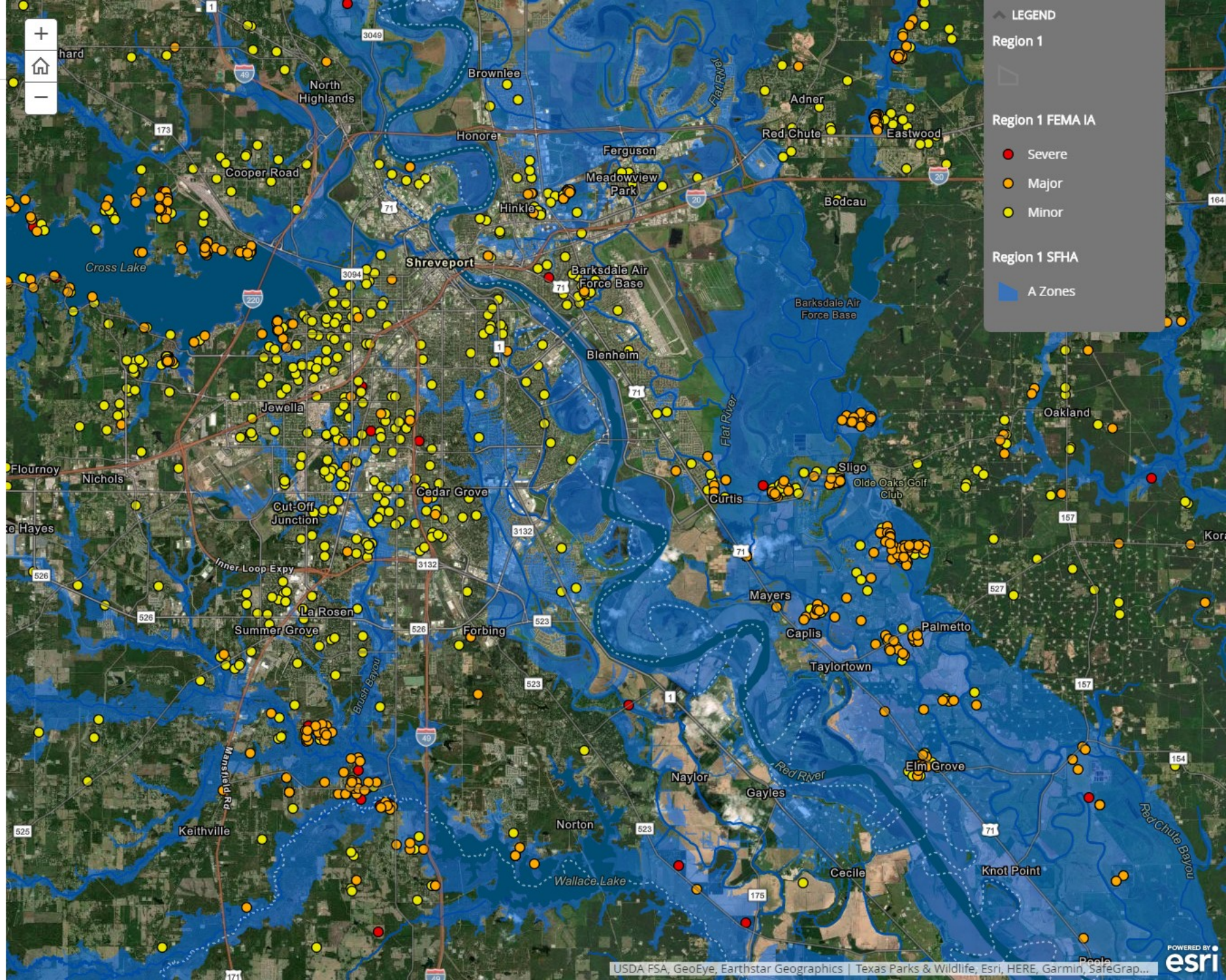
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Traditional gaps in understanding flood risk

A Zones (shown in light blue)

Special Flood Hazard Areas - High Risk

Special Flood Hazard Areas represent the area subject to inundation by a 1% annual chance flood. Structures located within SFHA have a 26% chance of flooding during the life of a standard 30-year mortgage. Federal floodplain management



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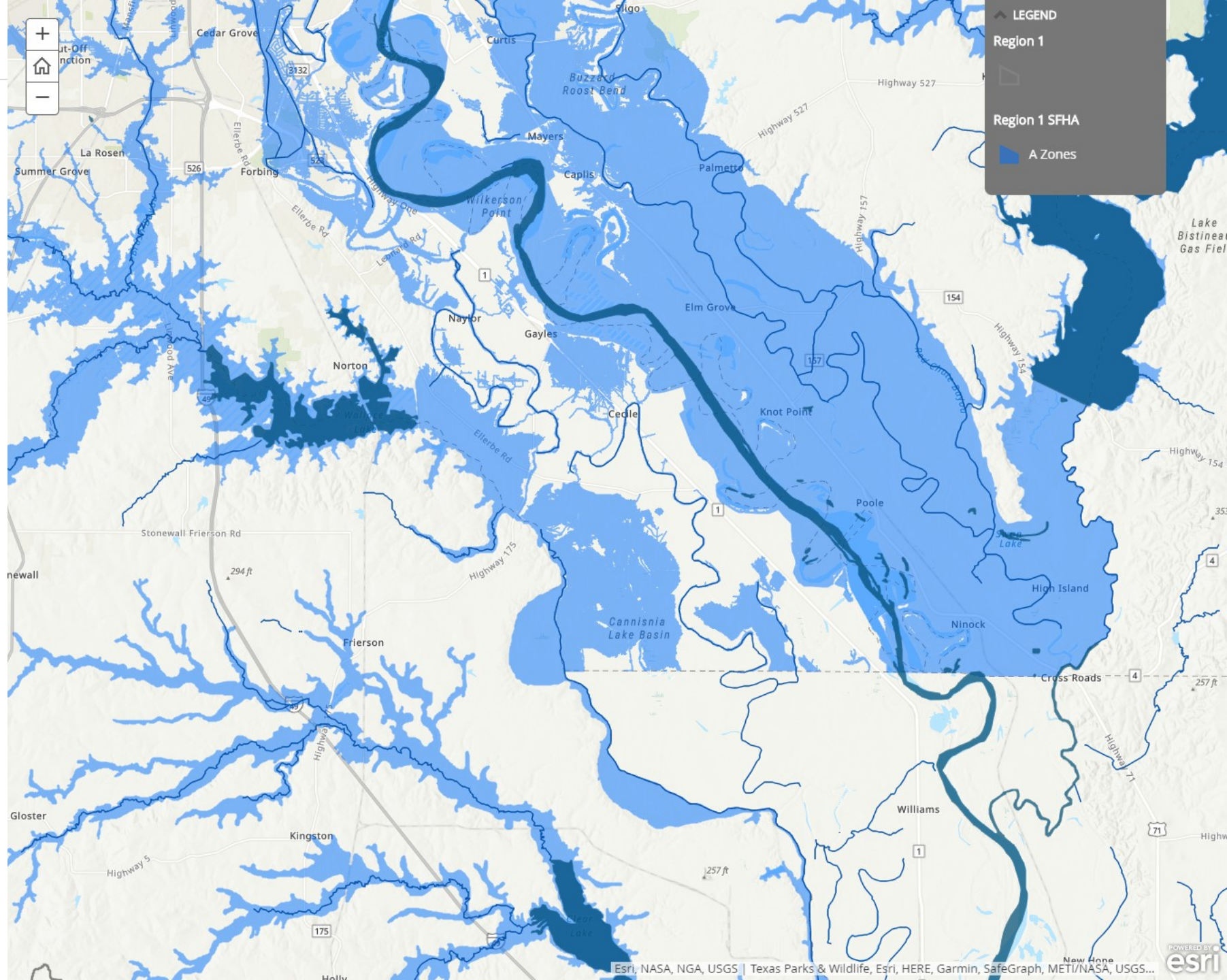
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V Zones (shown in dark blue)

Coastal High Hazard Areas - High Risk

Coastal High Hazard Areas represent the area subject to inundation by a 1% annual chance flood. Federal floodplain management regulations and mandatory flood insurance



Traditional gaps in understanding flood risk

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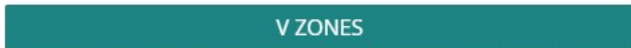
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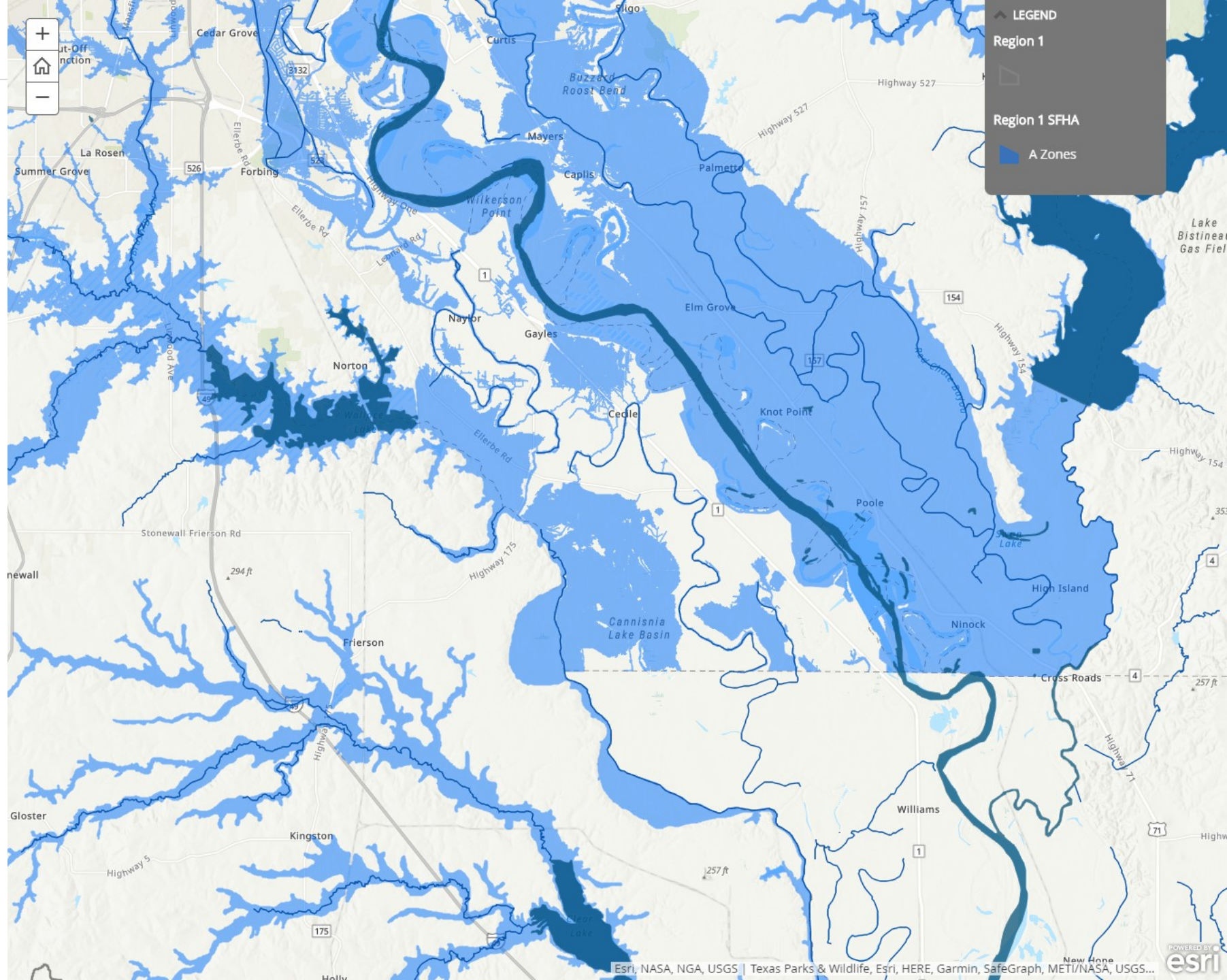


FEMA Repetitive and Severe Repetitive Loss data

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.

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

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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

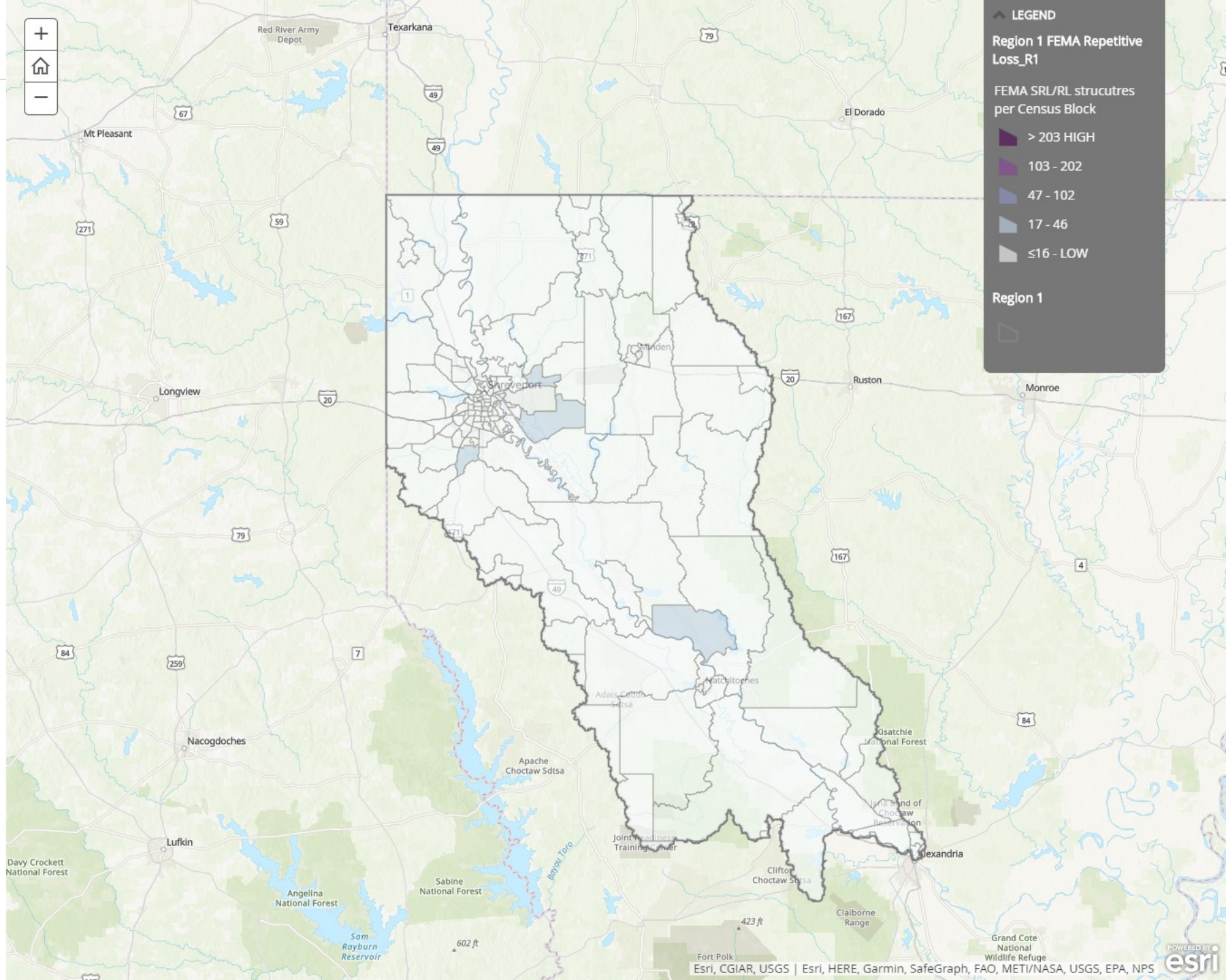
Communities are not required to build structures to withstand the 0.2% chance event, which makes structures inside and outside of SFHA unprepared for these more intense events altogether.

3,739 homes impacted in Region 1

39% of structures impacted located within a SFHA

61% of structures impacted located outside of a SFHA

2016 floods



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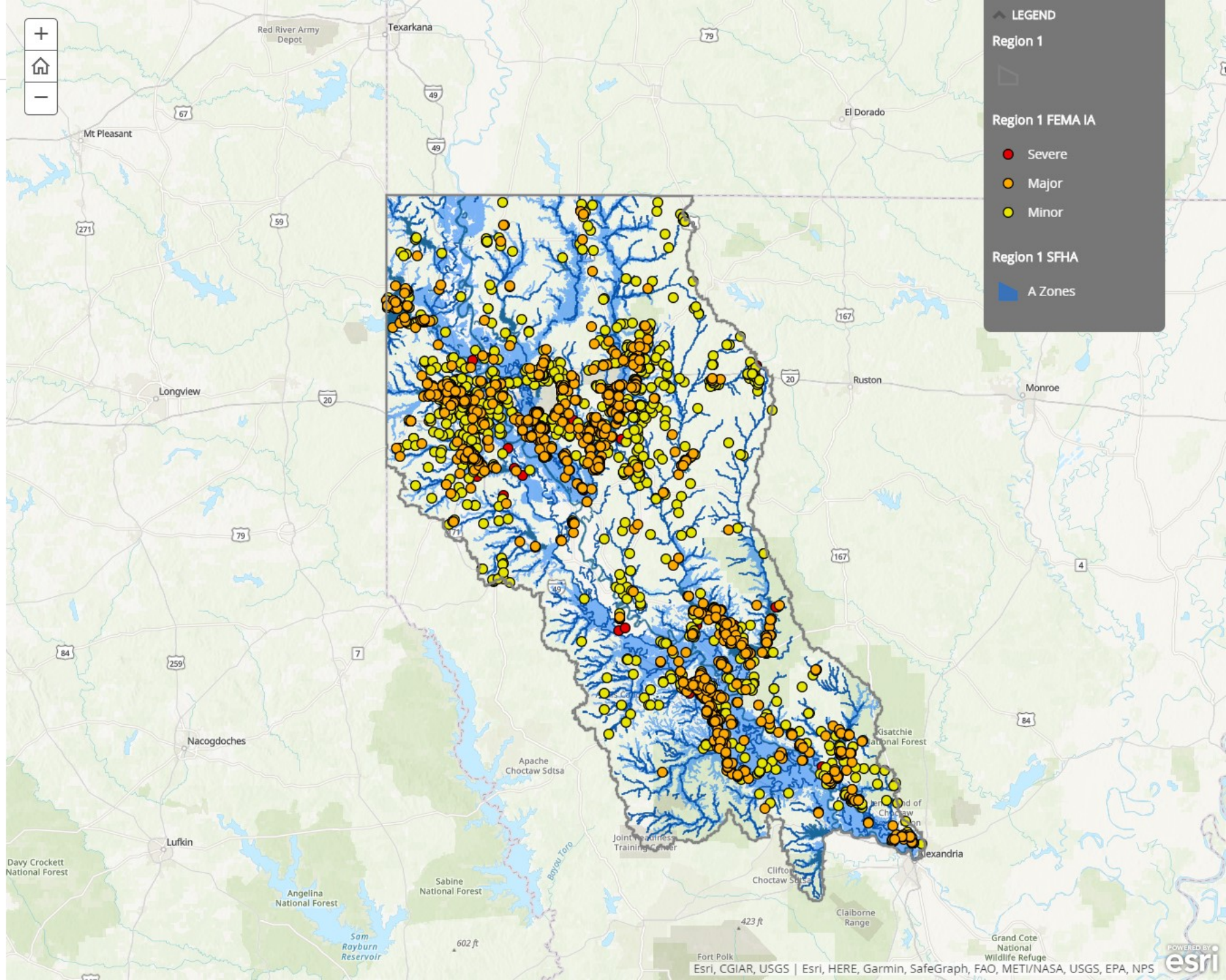
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2016 floods

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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CDC Social Vulnerability Index

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

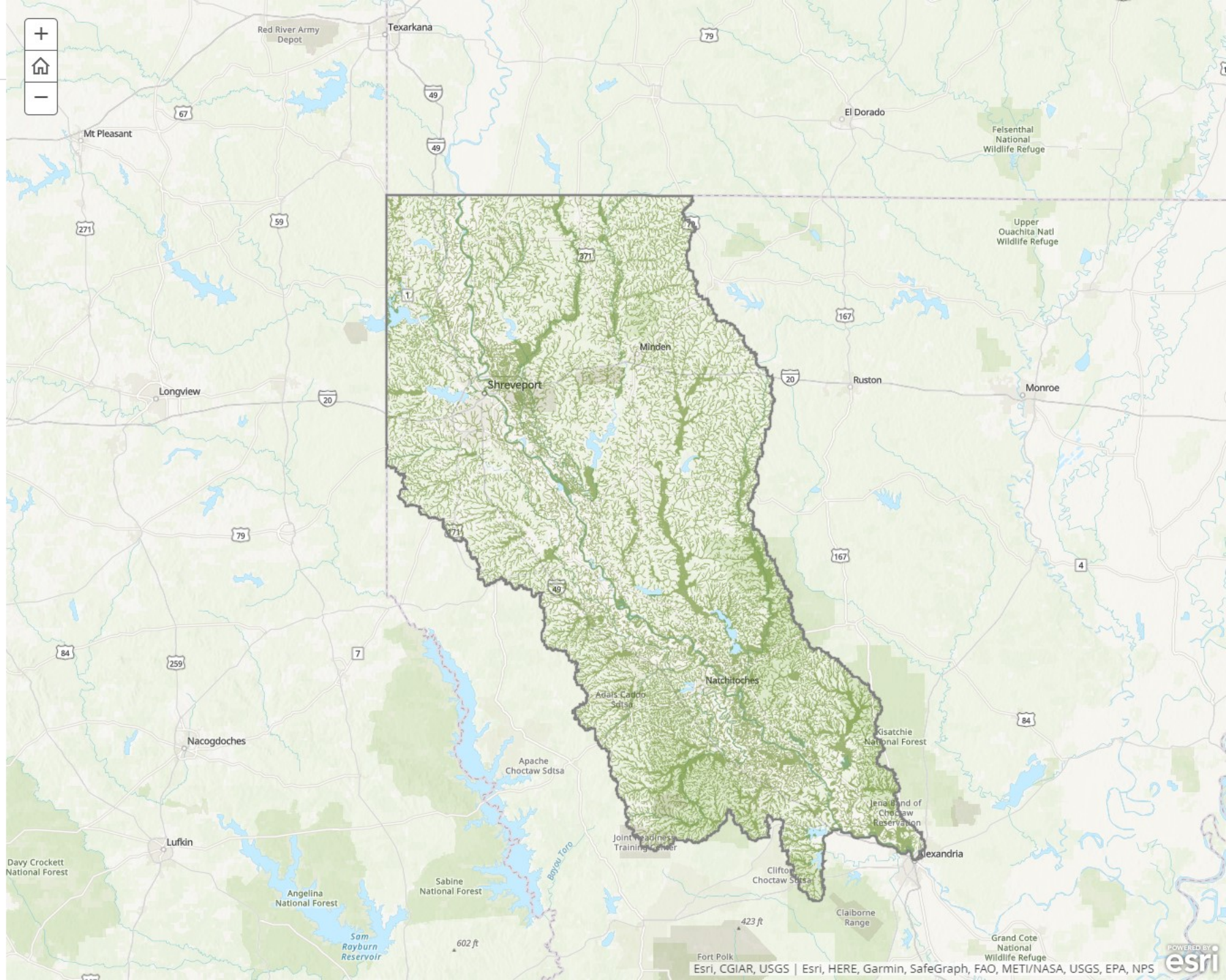
Social vulnerability is based on the following factors:

- Socioeconomic status
- Household composition and disability
- Minority status and language
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Natchitoches area

Break

10-minute break



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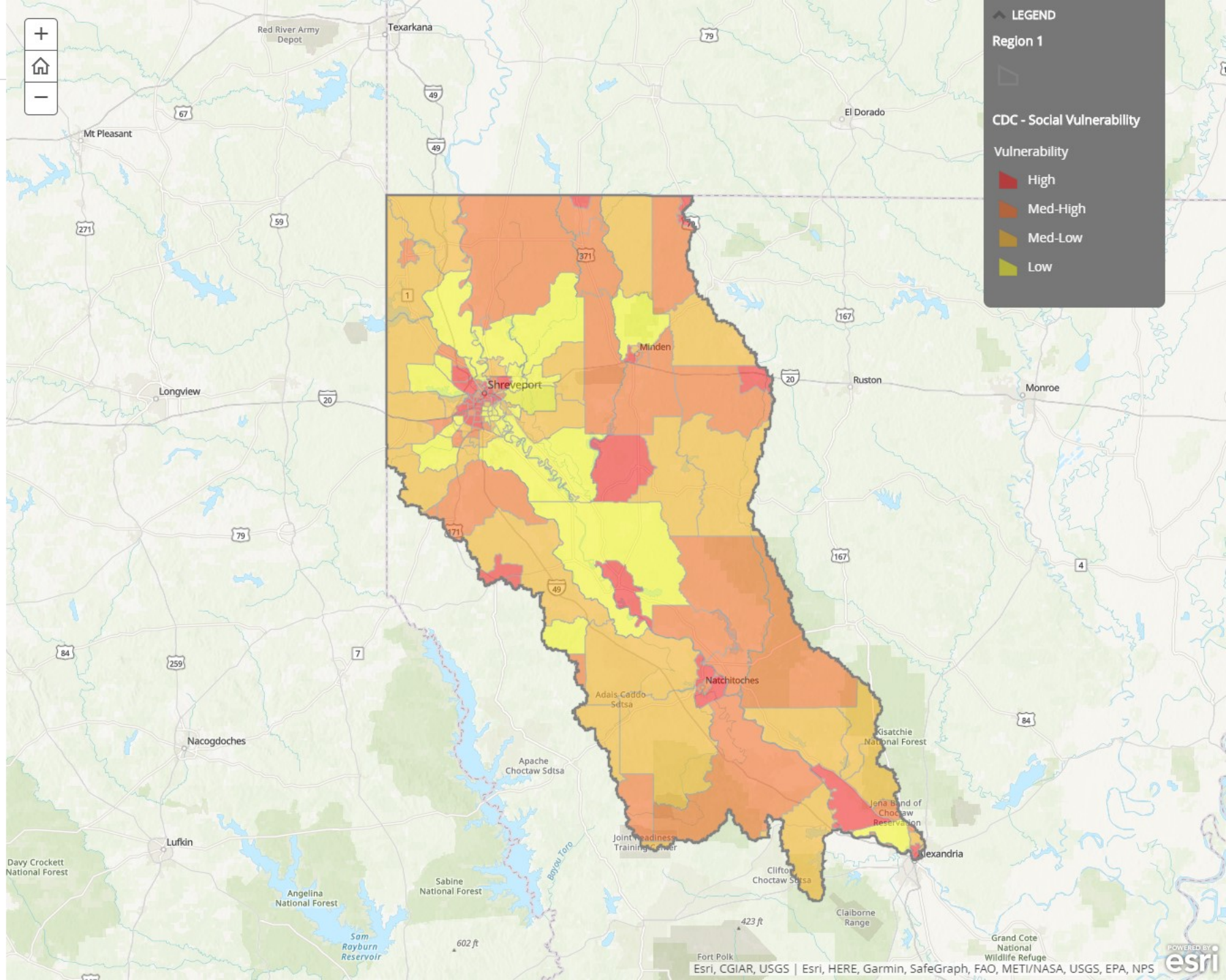
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Recap

Putting it all together

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

Mapping exercise



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Mapping exercise

Now we will examine risk more closely by combining these datasets and dividing Region 1 into subregions. Please locate your packets.

Legend

FEMA Individual Assistance - Damage Category

- Severe
- Major
- Minor

CDC Social Vulnerability

Vulnerability

- High
- Med-High
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Shreveport

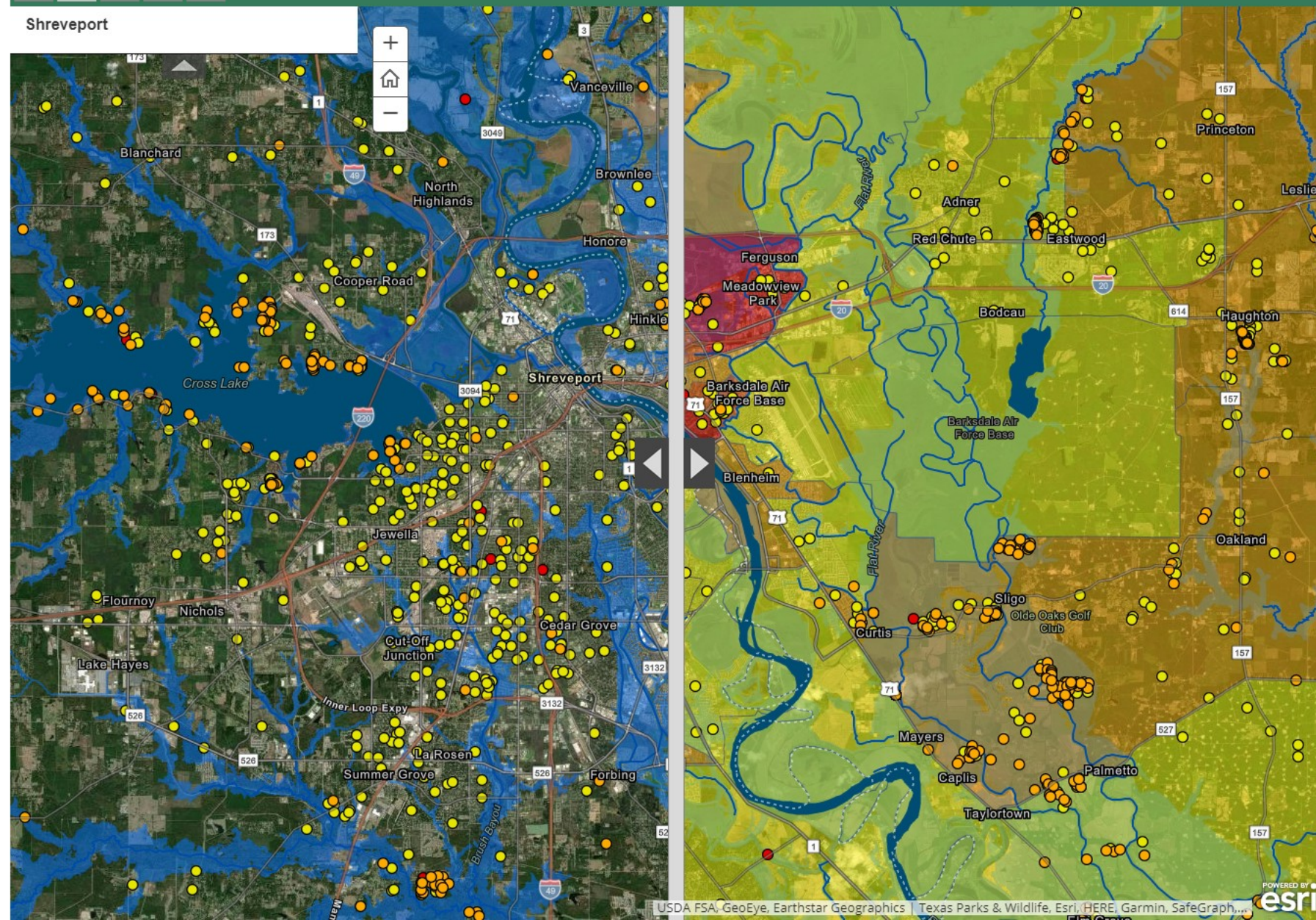
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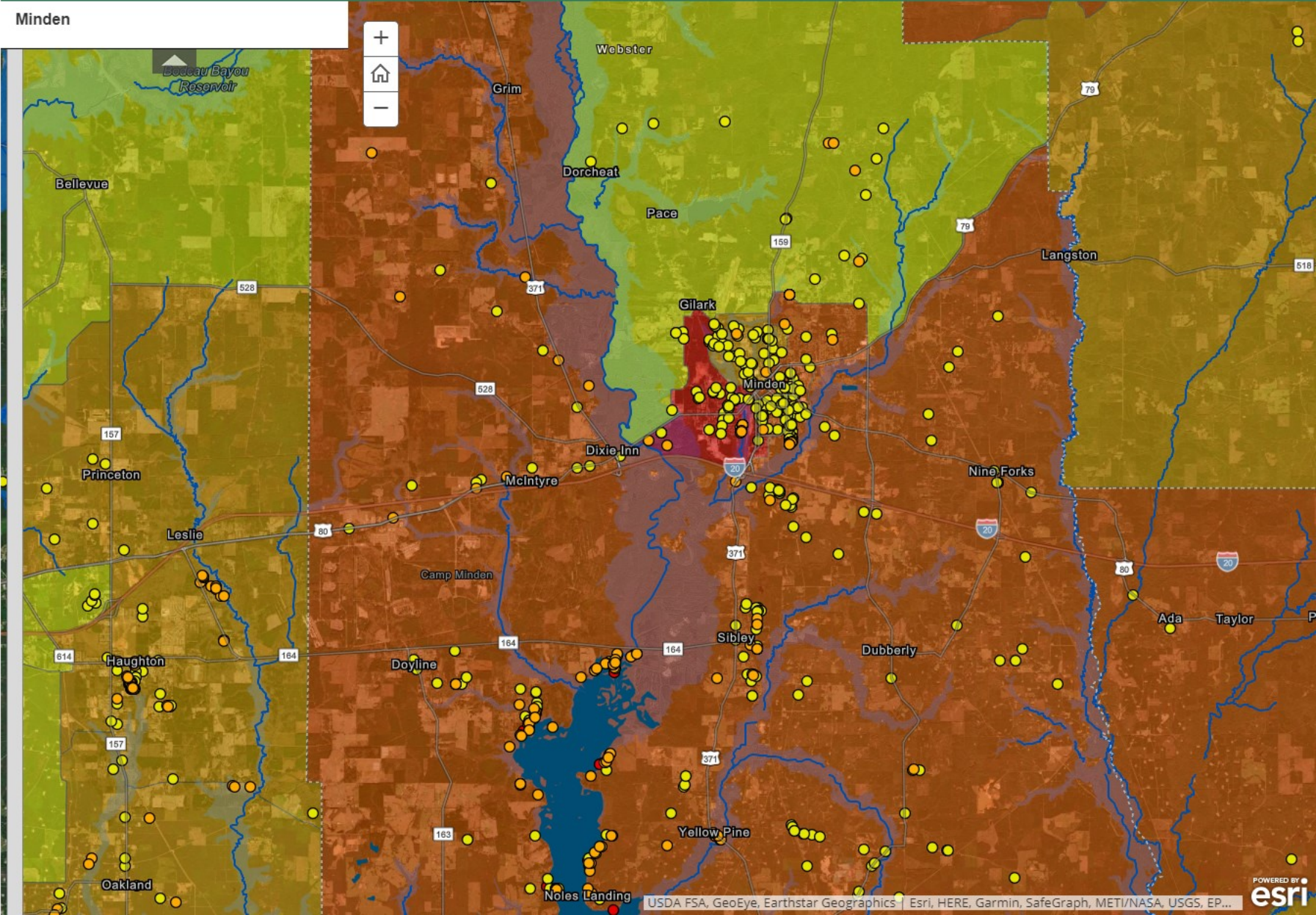
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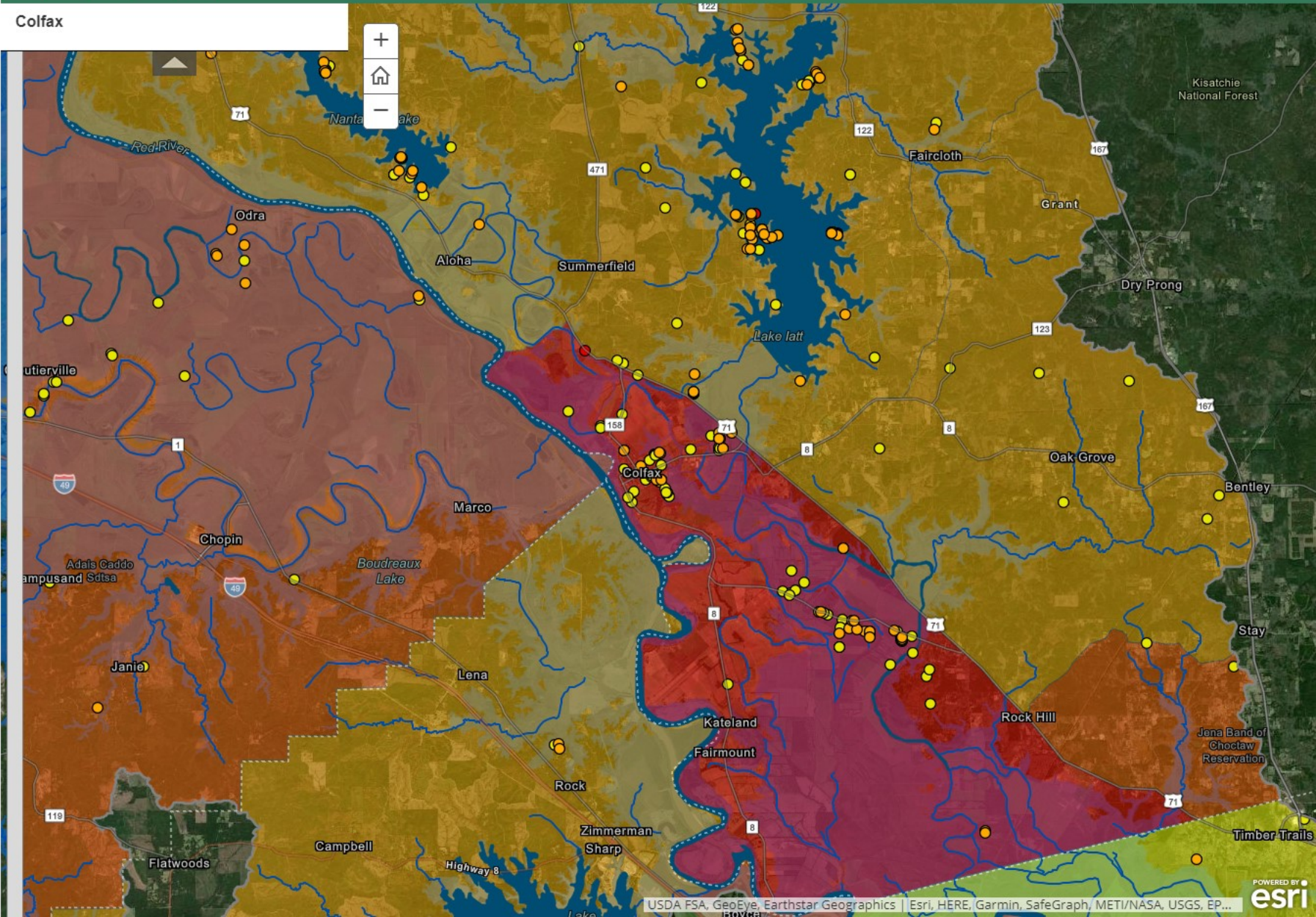
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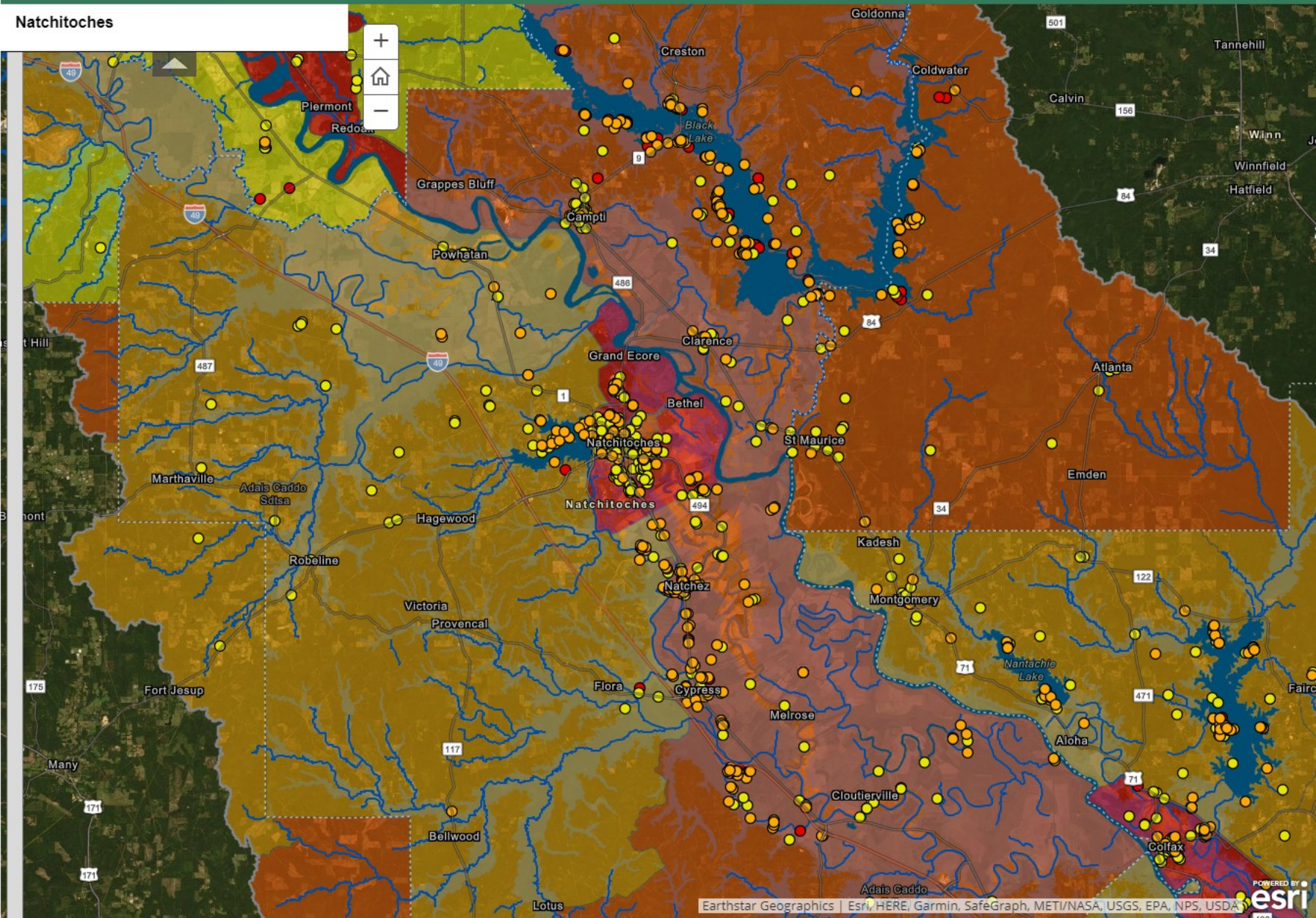
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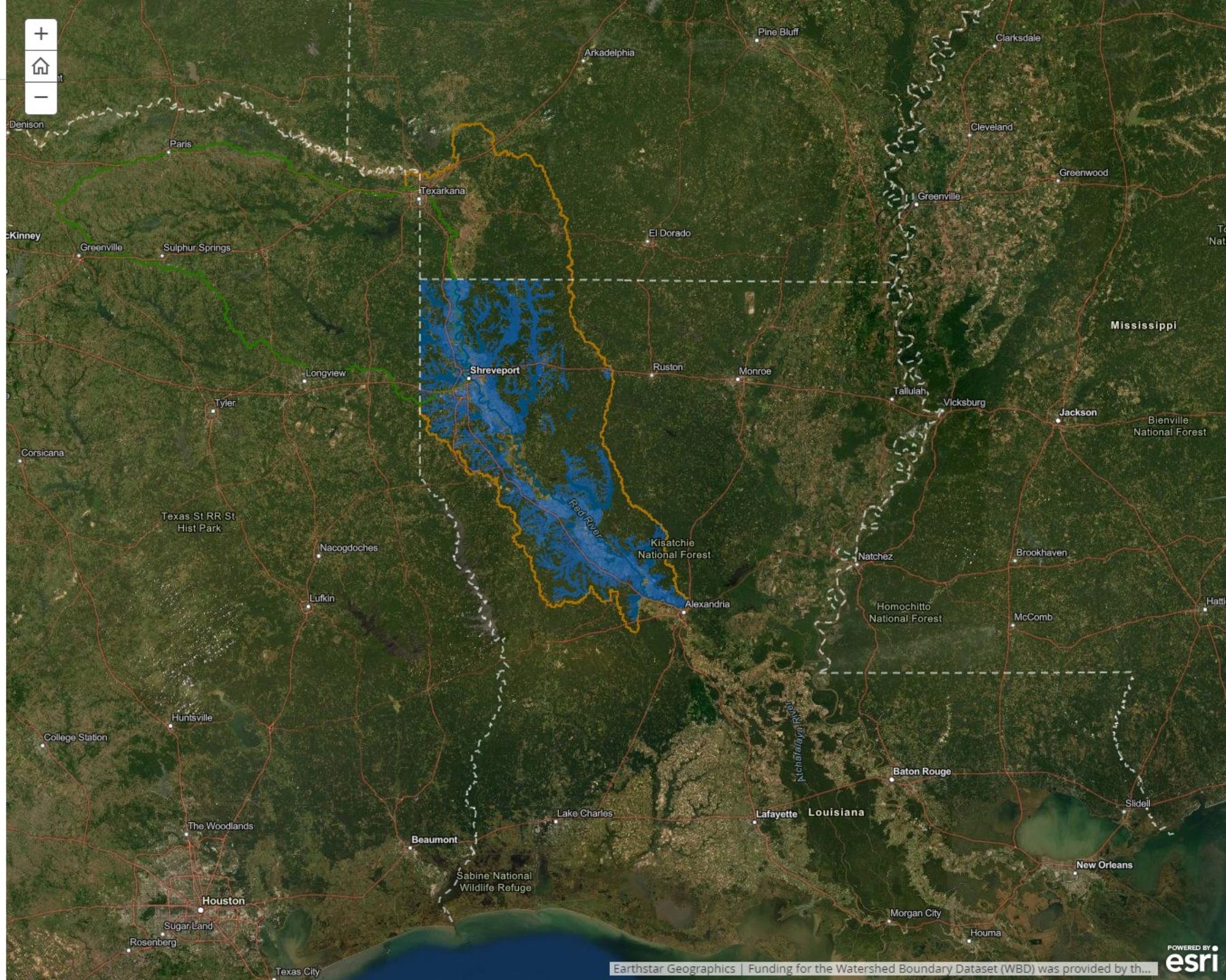
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Natchitoches



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Public comment

For additional comments or questions, you can call 504.556.9727 or email watershed@la.gov.

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



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