



West Baton Rouge Parish Hazard Mitigation Plan Update Public Meeting

September 9, 2015

Port Allen, LA



Agenda

- Hazard Mitigation Planning Process – SDMI Staff
- Risk Assessment – SDMI Staff
- Update on Previous/Current Mitigation Projects – West Baton Rouge OHSEP
- Public Outreach Activities – SDMI Staff/West Baton Rouge Parish OHSEP

Hazard Mitigation

- Protect public safety and prevent loss of life and injury;
- Help accomplish community objectives, such as leveraging capital improvements, infrastructure protection, open space preservation, and economic resiliency;
- Prevent damage to a community's economic, cultural and environmental assets;
- Minimize operational downtime and accelerate recovery of government and the private sector after an event

Why are we required to have a Hazard Mitigation Plan?

- Disaster Mitigation Act of 2000 (DMA 2000)

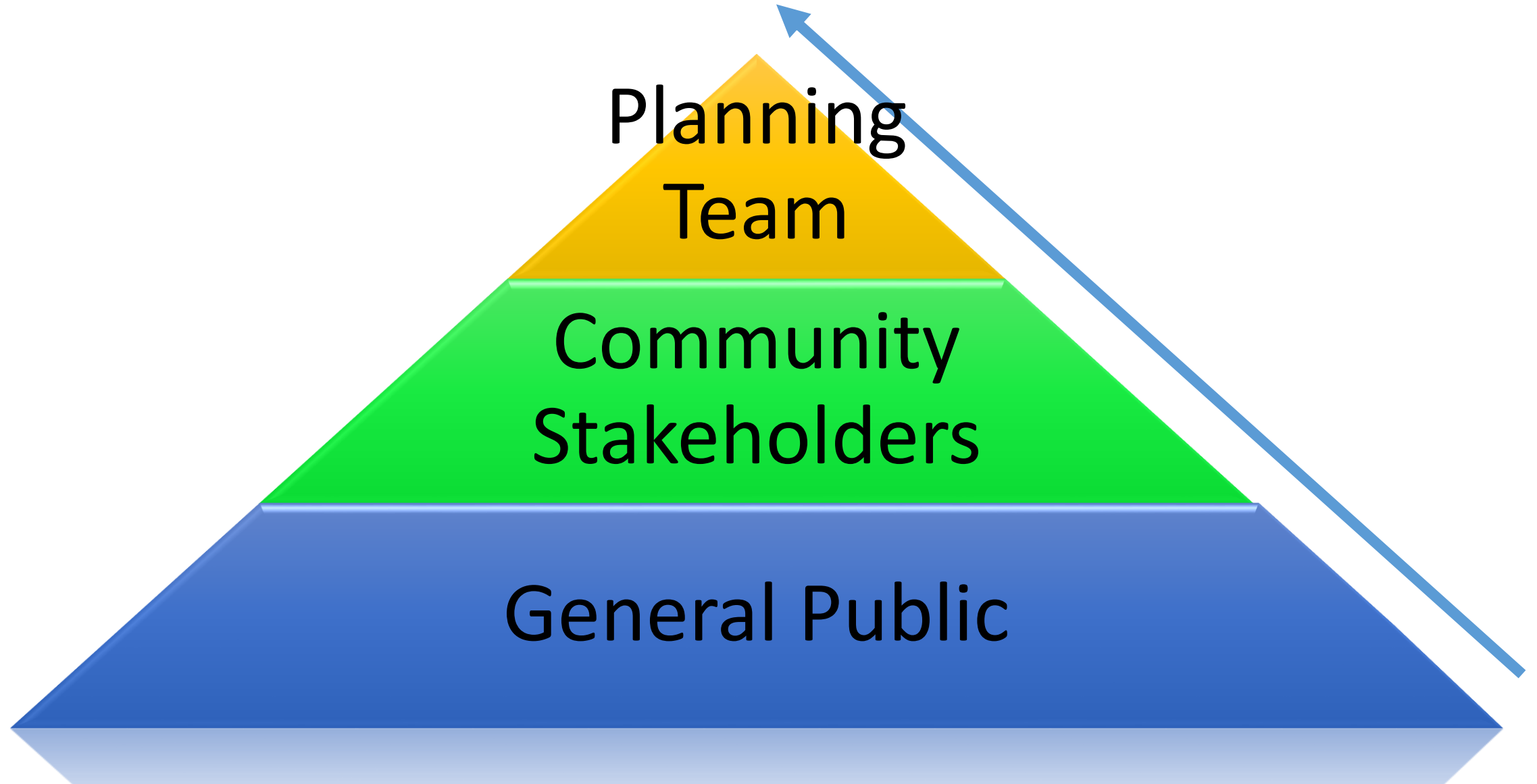
Section 322 of the Act specifically addresses mitigation planning and requires state and local governments to prepare multi-hazard migration plans as a precondition for receiving FEMA mitigation project grants.

- Meet federal requirements of Title 44 Code of Regulations (CFR) §201.6 for approval and eligibility to apply for FEMA Hazard Mitigation Assistance grant programs.



- The approved West Baton Rouge Parish Hazard Mitigation Plan will allow for distribution of HM funding following future disasters.

Collaborative Planning Approach



Planning Development

New Plan Layout

- Section 1: Introduction
 - Updated demographics
 - Economics
 - Update parish/jurisdiction descriptions
- Section 2: Hazard Identification and Parishwide Risk Assessment
- Section 3: Capability Assessment
- Section 4: Mitigation Strategies
 - New actions
 - Action updates
 - Survey results

New Plan Layout

- Appendix A: Planning Process
- Appendix B: Plan Maintenance
- Appendix C: Parish Essential Facilities
- Appendix D: Plan Adoption
- Appendix E: State Required Worksheets

Hazard Identification and Risk Assessment

- Based on currently profiled risks
- Any newly identified risks
- Prevalent Hazards
- Previous occurrences
- Probability of future events
- Assets Inventory
- Essential Facilities
- Hazard Impact
- Future Development
- Future Hazard Impacts
- Zoning and Land Use
- Hazard Profiles

Hazard Identification and Risk Assessment

- Drought
- Floods
- Sinkholes
- Thunderstorms
 - Hail
 - Lightning
 - High wind
- Tornadoes
- Tropical Cyclones
- Wildfires
- Winter weather

These natural hazards were selected based on an assessment of the overall impact (geographic extent, magnitude, probability, and exacerbating or mitigating conditions) affecting West Baton Rouge Parish.

Risk Assessment: Hazard Identification

- The plan includes descriptions of the natural hazards that affect the jurisdictions in the planning area.
- A hazards identification should include the
 - locations affected
 - the extent or strength
 - previous occurrences
 - probability of future events

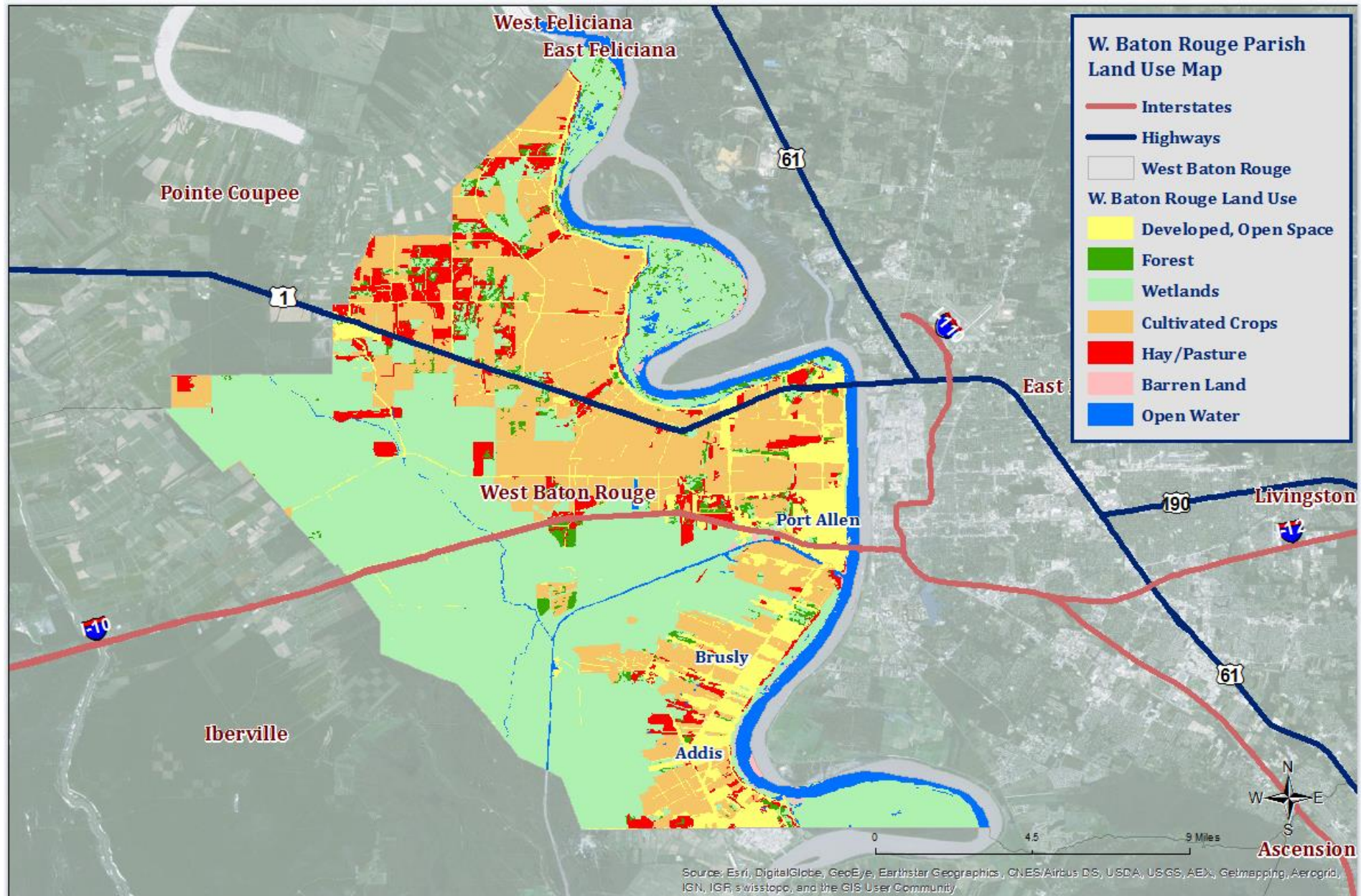
Risk Assessment: Analyze Risk and Summarize Vulnerability

- Risk analysis involves evaluating vulnerable assets, describing potential impacts, and estimating losses for each hazard.
- This helps the community understand the greatest risks facing the area.
- Methods can include exposure risk analysis, historical analysis and scenario analysis.
- Through the risk analysis the community should be able to verbalize or create problem statements about the identified risks.

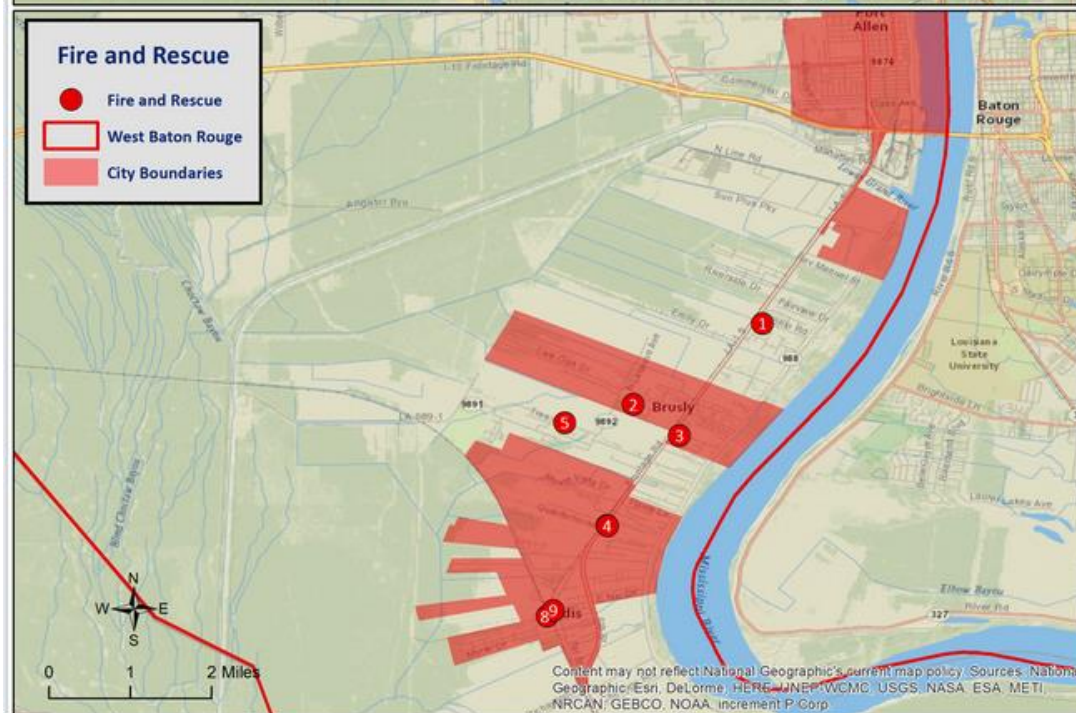
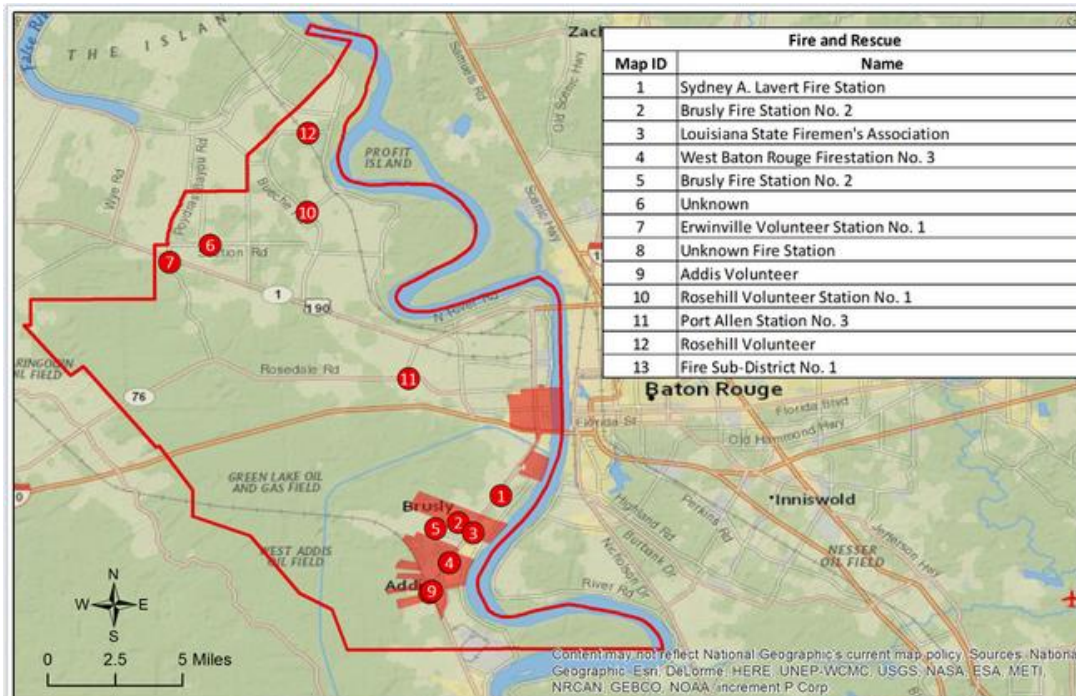
Risk Assessment: Maps



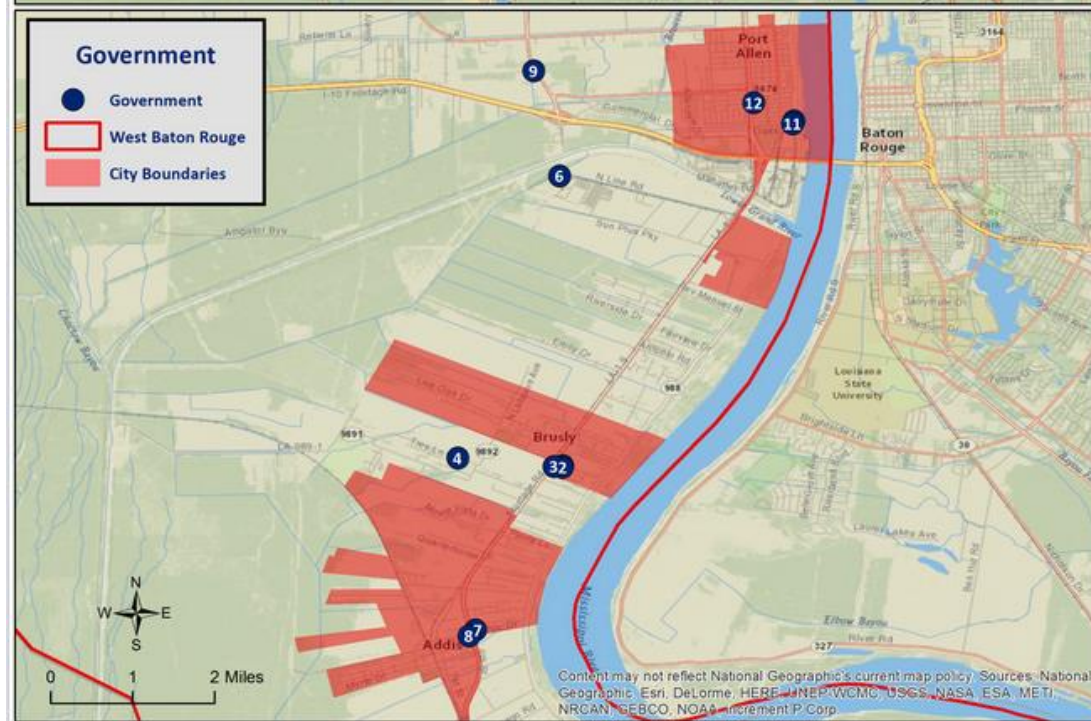
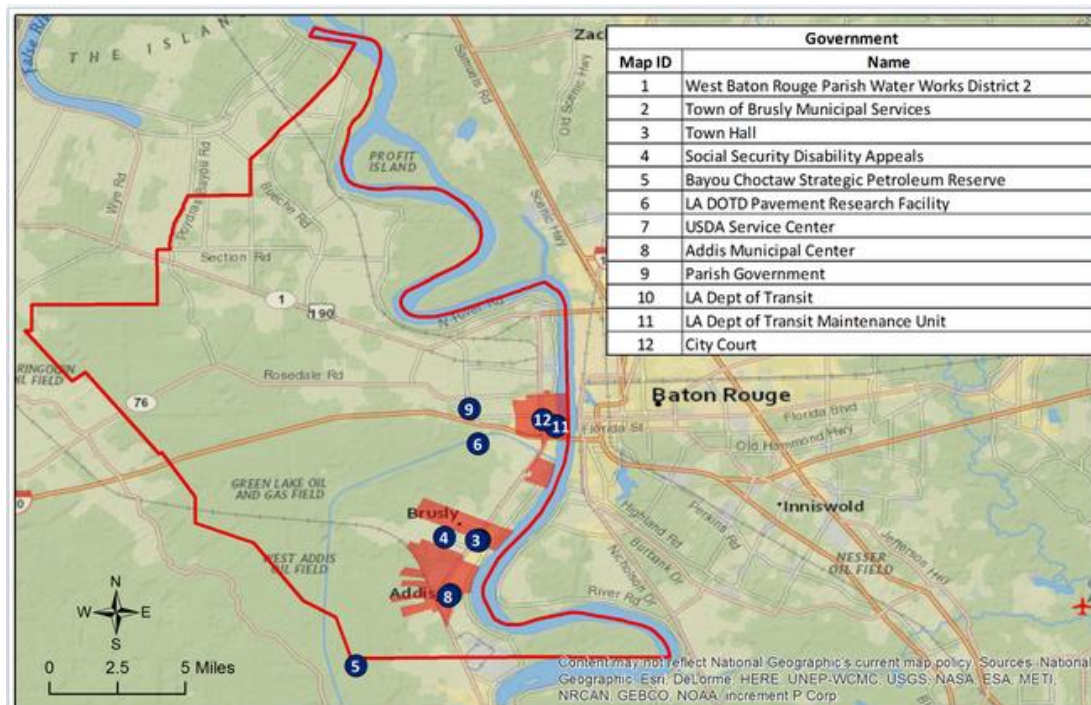
Land Use in West Baton Rouge Parish



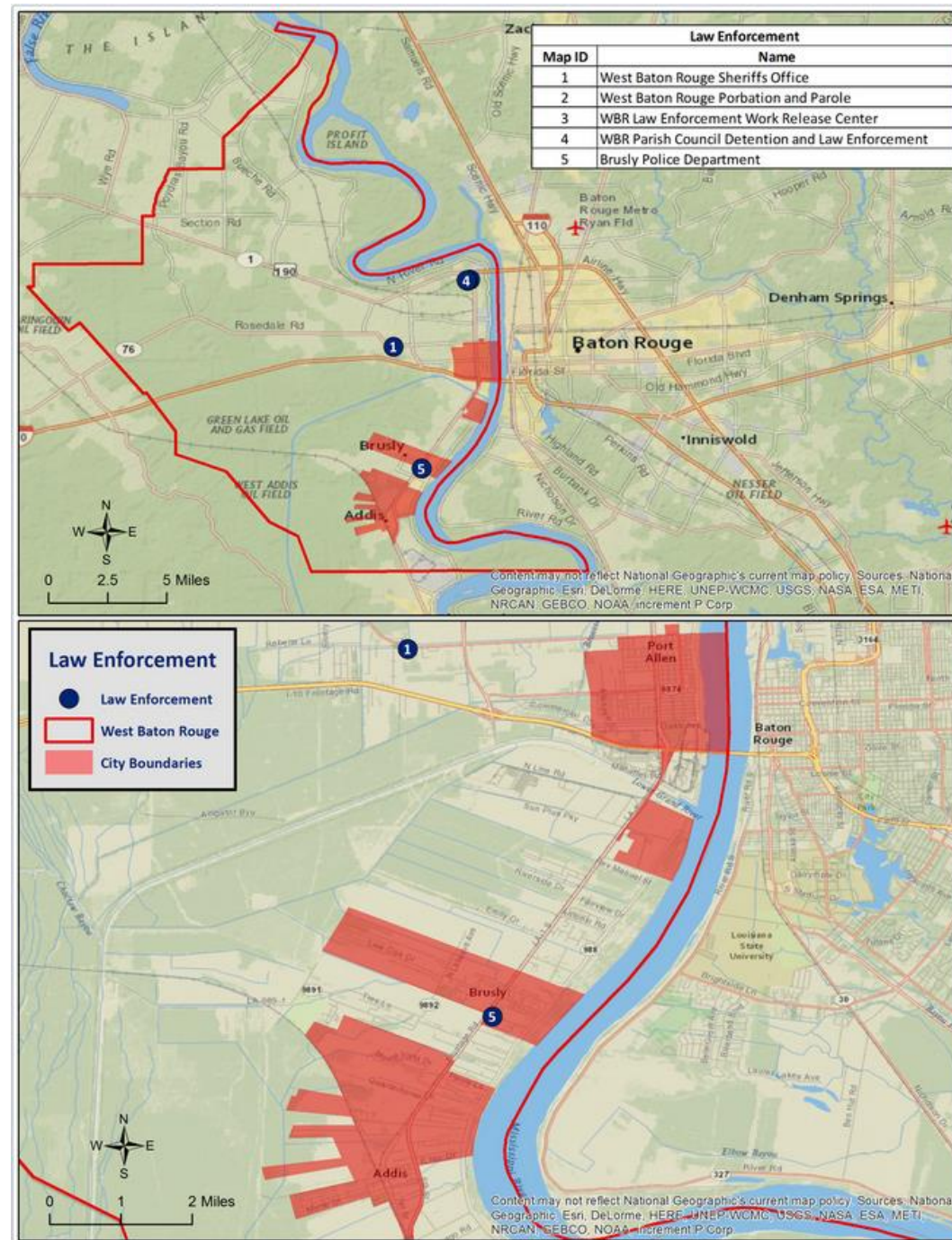
Critical Facilities – Fire Stations



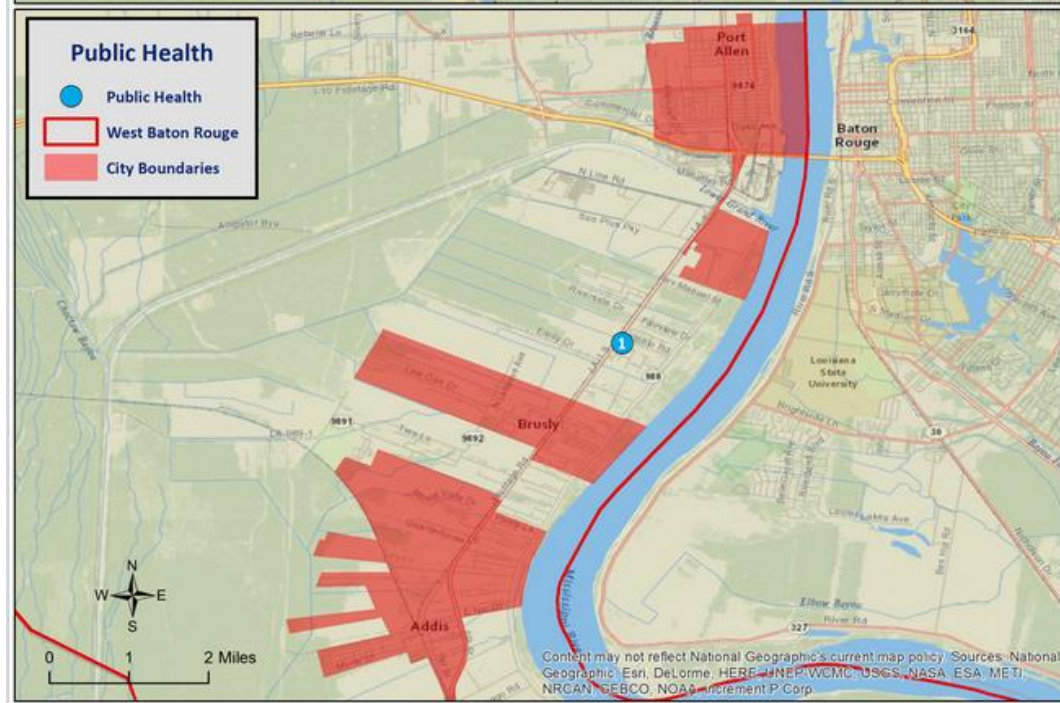
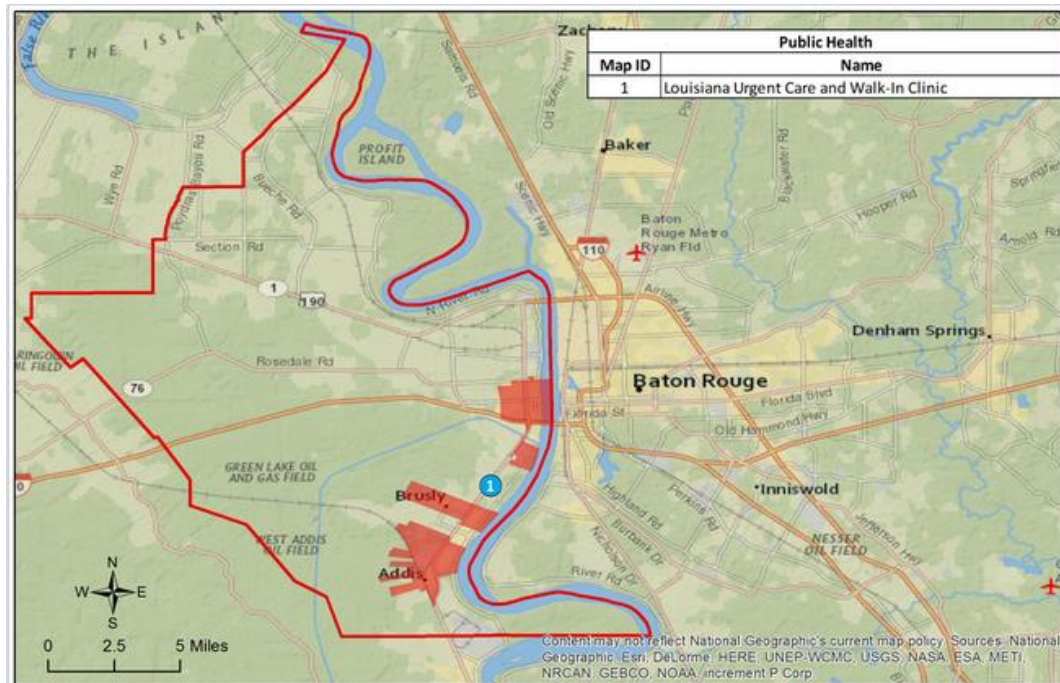
Critical Facilities – Government Buildings



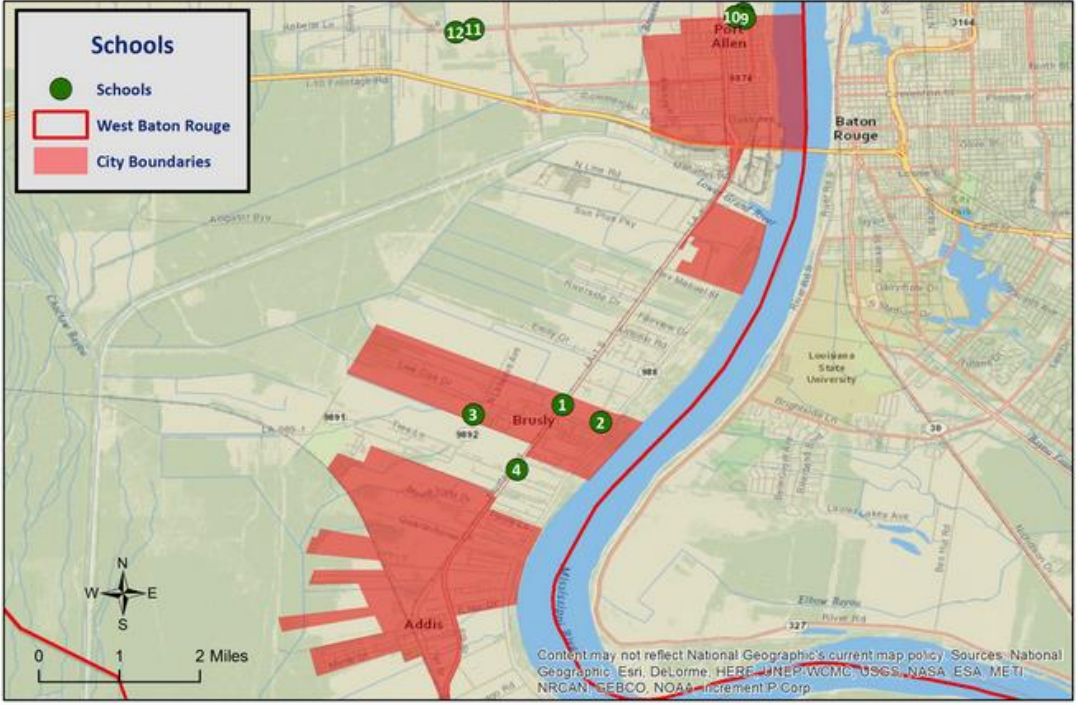
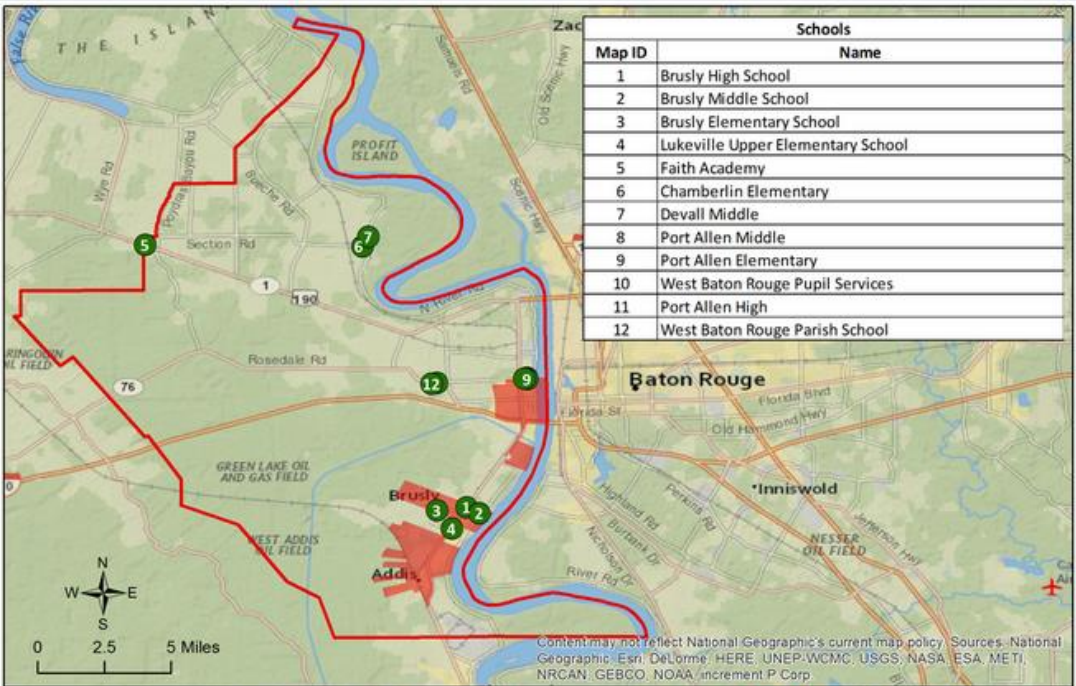
Critical Facilities – Law Enforcement



Critical Facilities – Public Health



West Baton Rouge Parish – Schools



Drought

- Drought is when a region receives below-average precipitation, resulting in prolonged shortages in its water supply, whether atmospheric, surface or ground water.
- Drought can last for months or years, or may be declared after as few as 15 days. It can have a substantial impact on the ecosystem and agriculture of the affected region.
- Periods of heat can significantly worsen drought conditions

U.S. Drought Monitor Louisiana

July 7, 2015

(Released Thursday, Jul. 9, 2015)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	100.00	0.00	0.00	0.00	0.00	0.00
Last Week 6/30/2015	100.00	0.00	0.00	0.00	0.00	0.00
3 Months Ago 4/7/2015	55.67	44.33	18.54	0.00	0.00	0.00
Start of Calendar Year 1/26/2014	47.23	52.77	10.88	0.00	0.00	0.00
Start of Water Year 9/30/2014	88.99	11.01	0.03	0.00	0.00	0.00
One Year Ago 7/8/2014	87.55	12.45	0.01	0.00	0.00	0.00

Intensity:

 D0 Abnormally Dry	 D3 Extreme Drought
 D1 Moderate Drought	 D4 Exceptional Drought
 D2 Severe Drought	

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

Brian Fuchs

National Drought Mitigation Center



<http://droughtmonitor.unl.edu/>

Flooding

- A flood is the overflow of water onto land that is usually not inundated.
- The National Flood Insurance Program defines a flood as a general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties from overflow of inland or tidal waves, unusual and rapid accumulation or runoff of surface waters from any source, mudflow, or collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood as defined above.

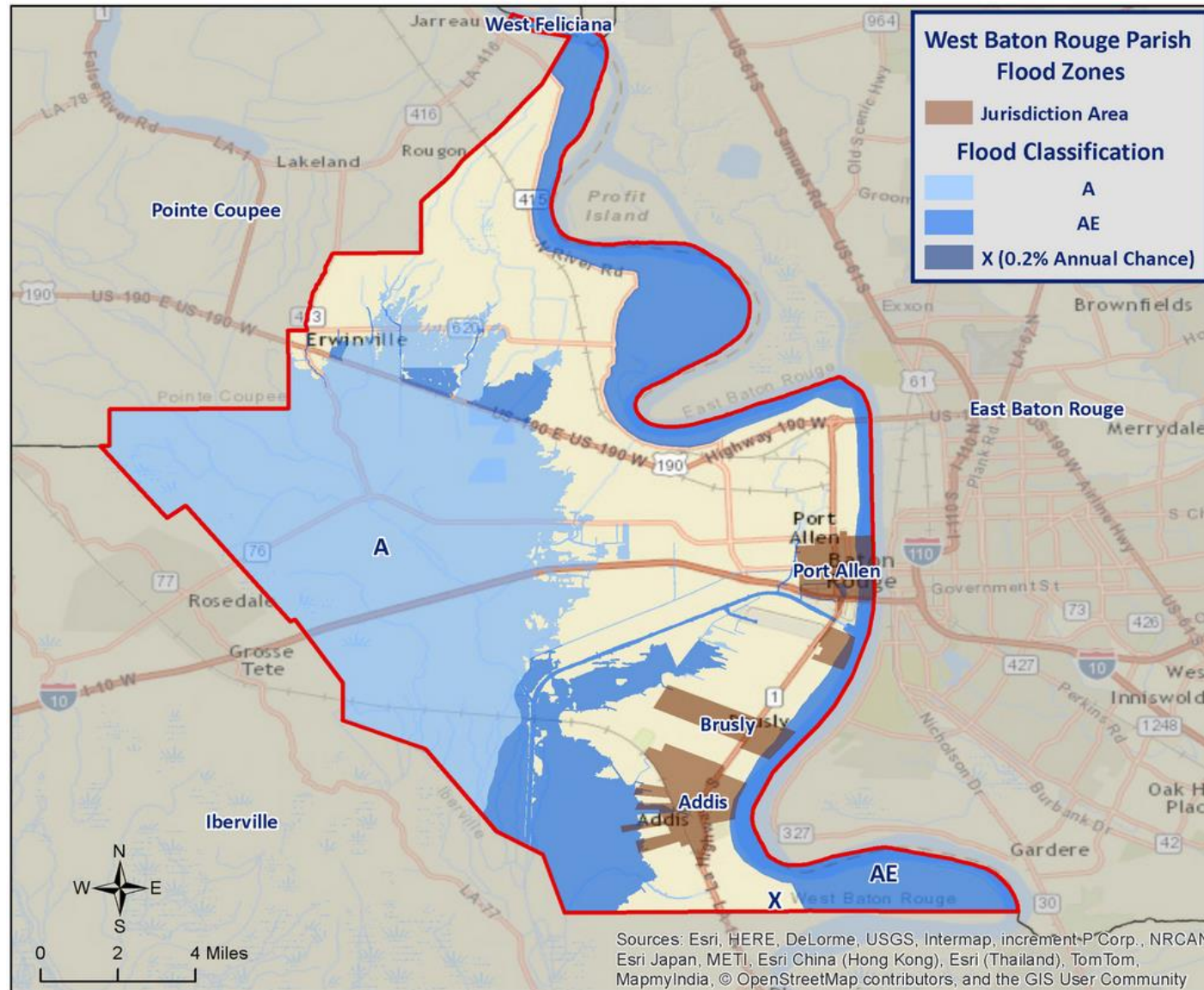
Flooding

Types of flooding may include the following:

- Riverine
- Flash
- Ponding
- Backwater
- Urban
- Coastal



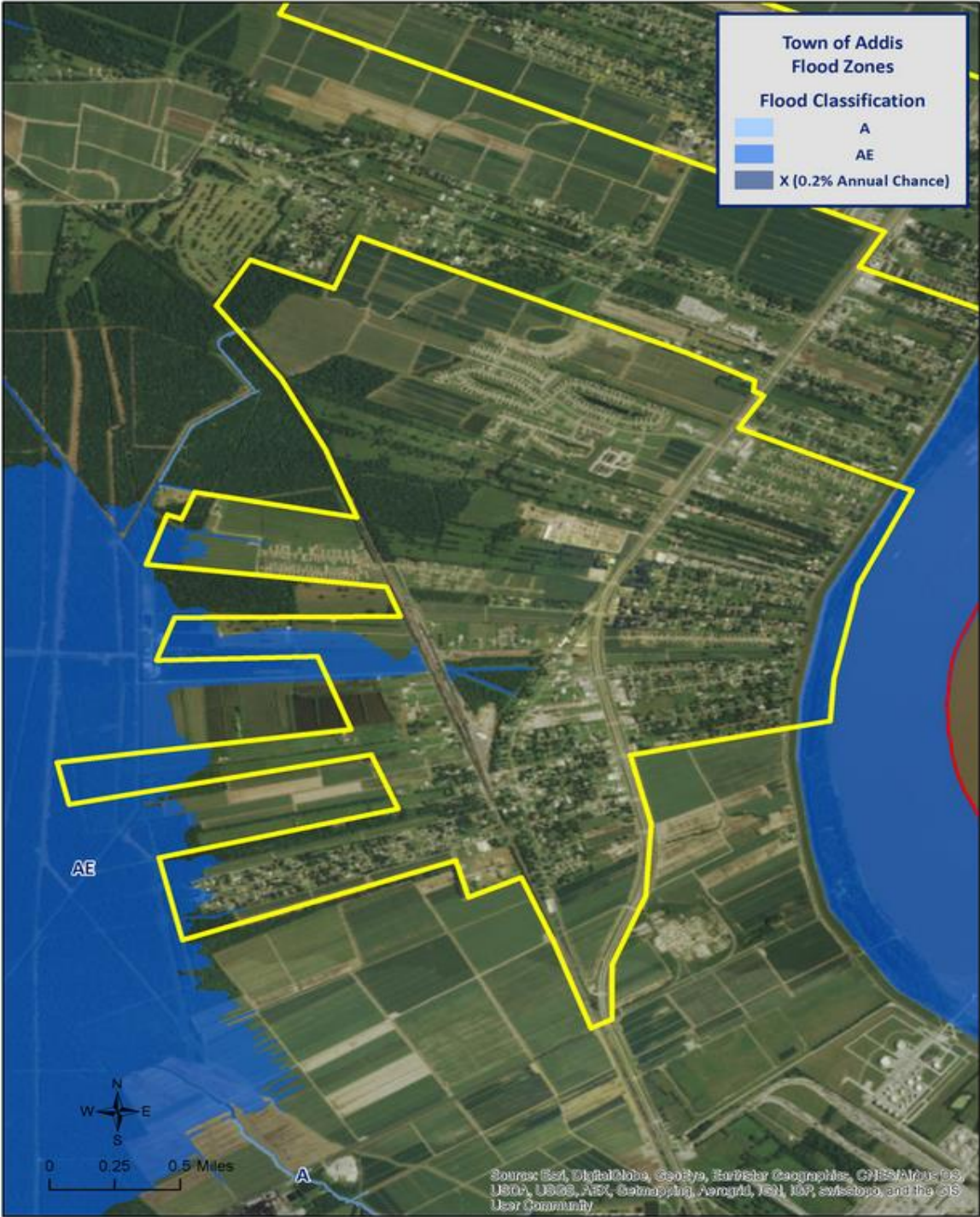
Flood Zone Classifications – Parish/Jurisdictions



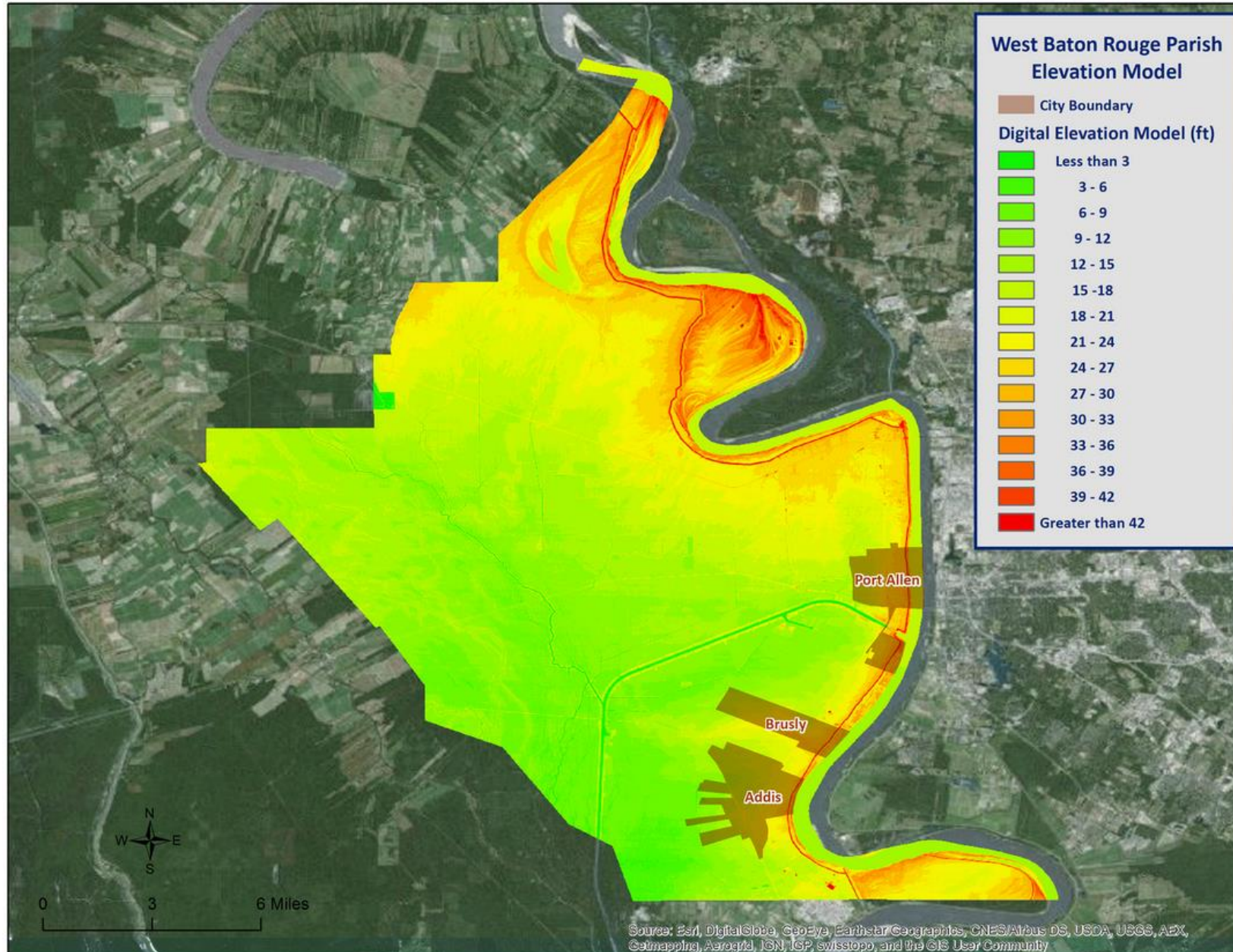
Flood Classification – Town of Brusly



Flood Classification – Town of Addis



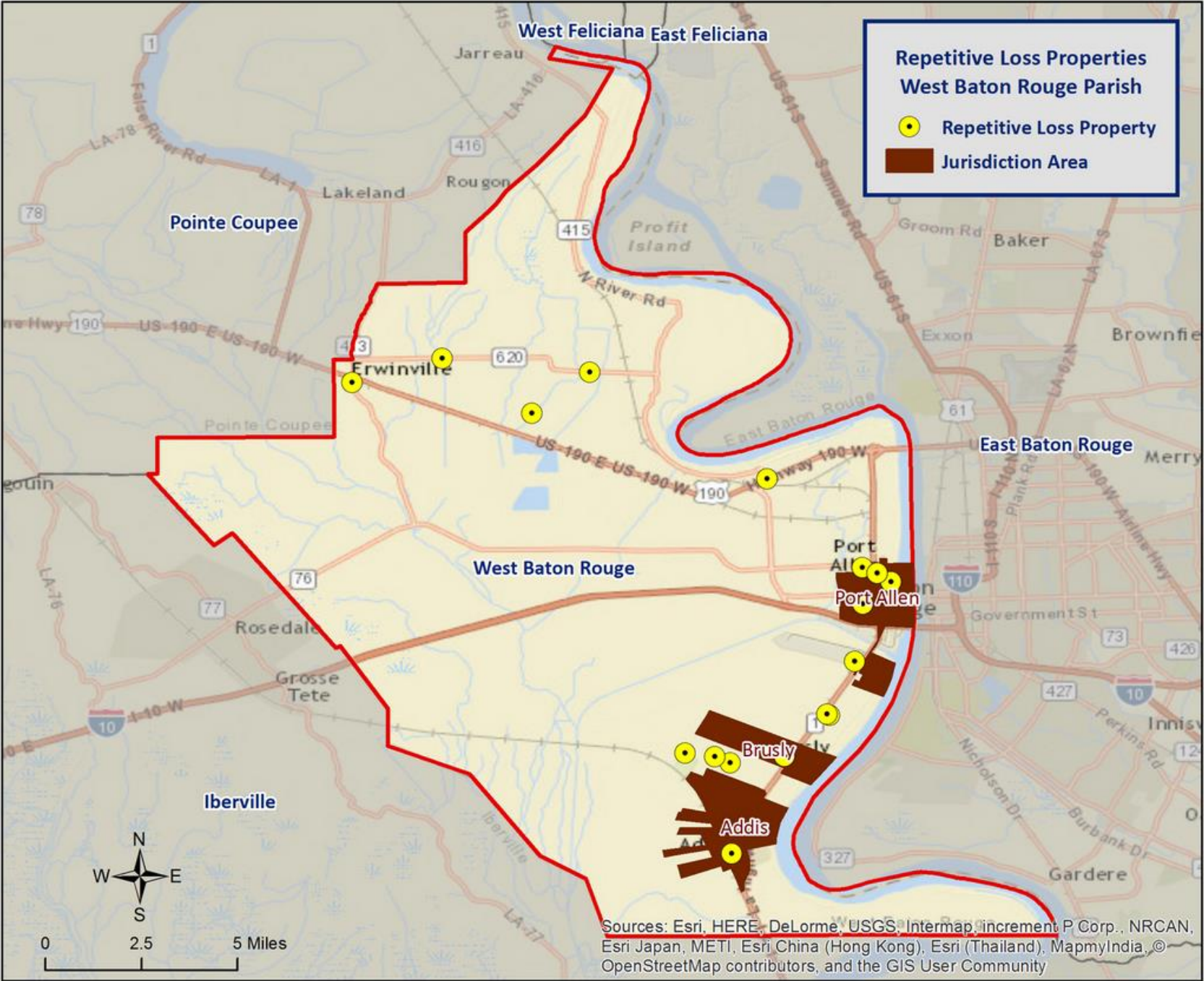
Flooding Elevation Model



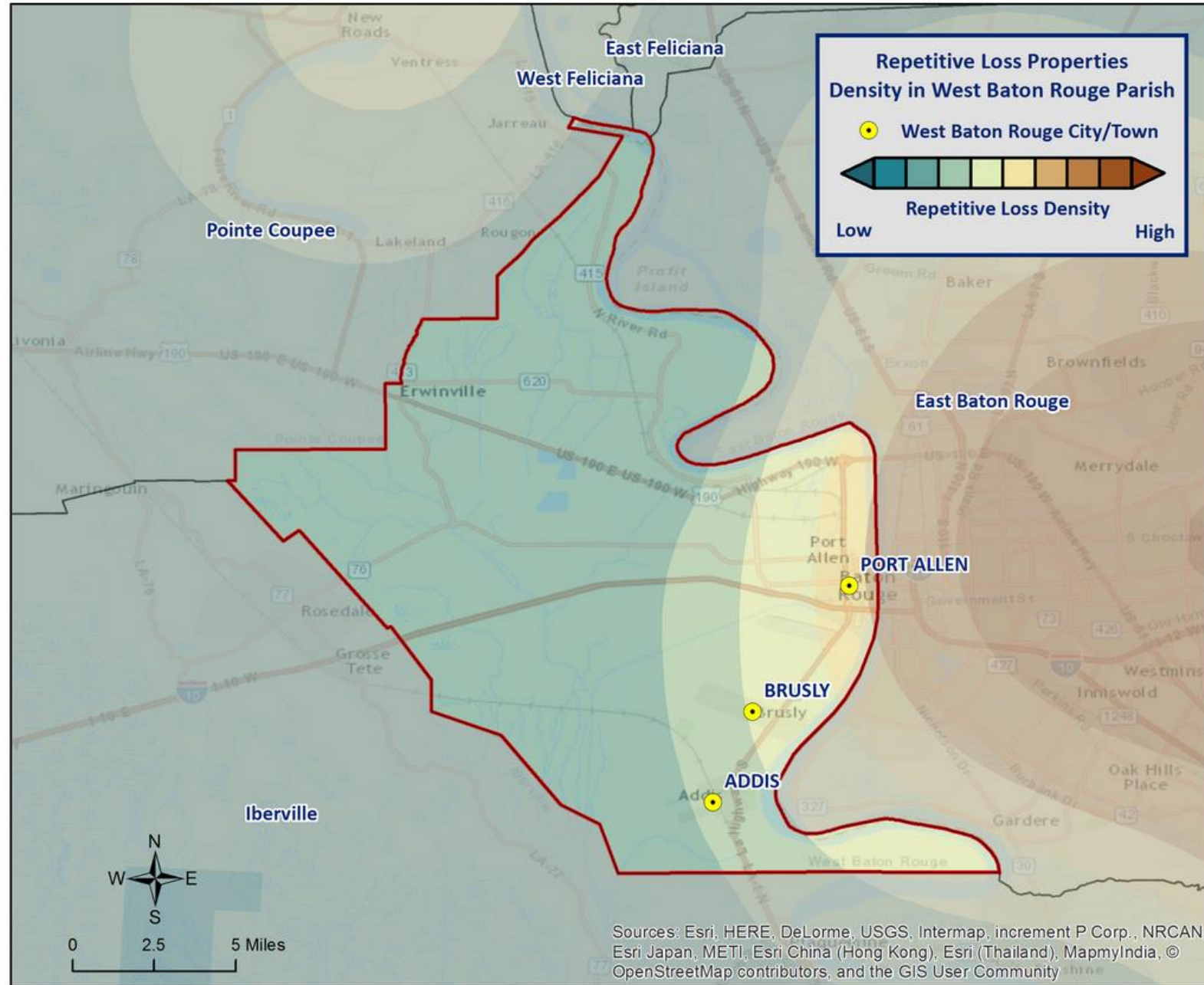
Repetitive Flooding

- Some areas flood more often than other properties, even more than those in the mapped 100-year floodplain.
- FEMA defines a “repetitive loss” property as one which has received two flood insurance claim payments for at least \$1,000 over any 10-year period since 1978.
- These properties are important to the National Flood Insurance Program and the Community Rating System because even though they comprise 1% of the policy base, they account for 30% of the country’s flood insurance claim payments.

Repetitive Loss Properties



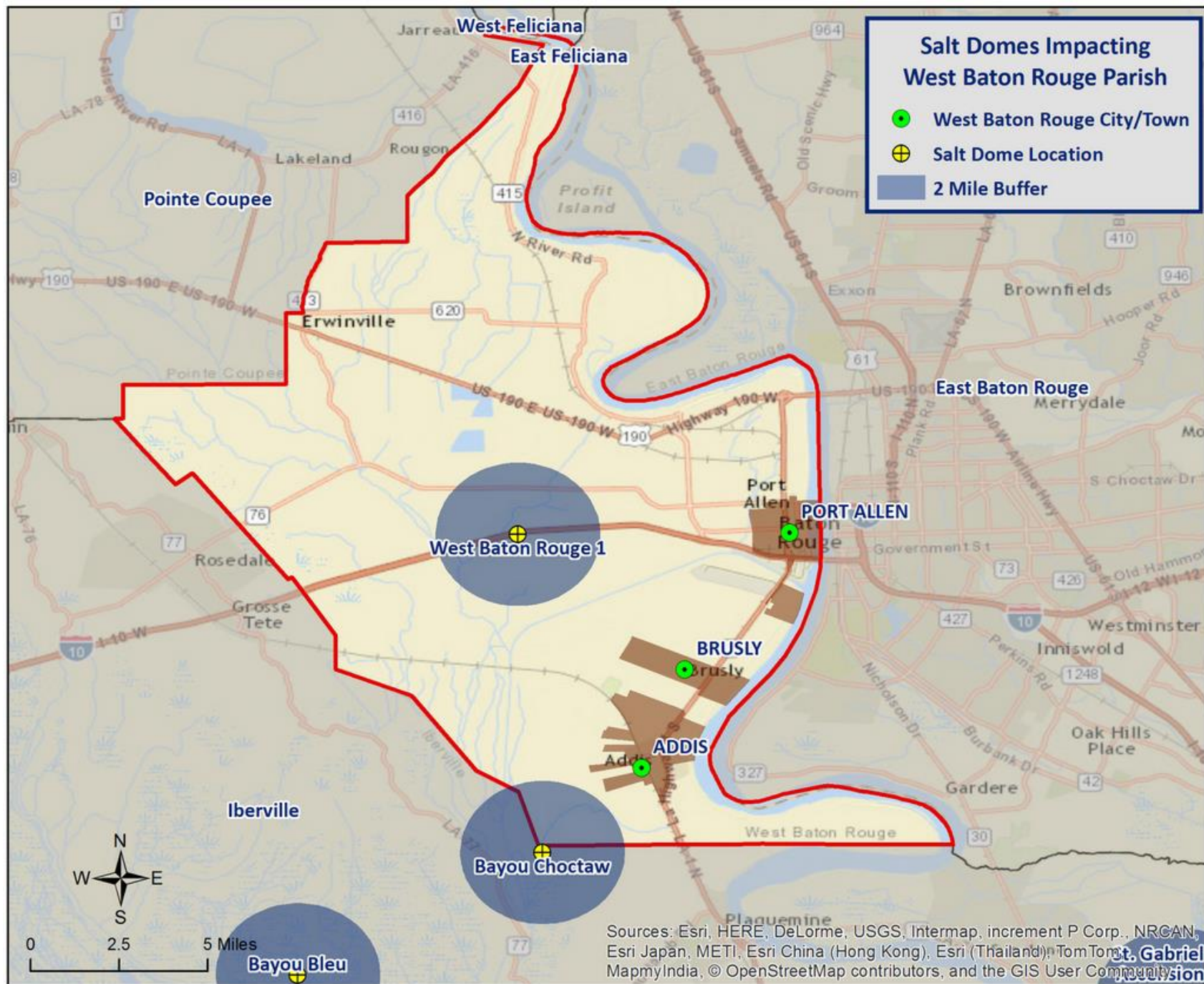
Repetitive Loss Properties Density Model



Sinkholes

- A sinkhole is an area of ground that has no natural external surface drainage – when it rains, all of the water stays inside the sinkhole and typically drains into the subsurface.
- Sinkholes form in areas where the rock below the land surface is limestone, carbonate rock, salt beds, or rocks that can naturally be dissolved by groundwater circulating through them.
- As the rock dissolves, spaces and caverns develop underground. Once the spaces underground become too large, there is not enough support for the land above the spaces which causes a sudden collapse on the land surface.

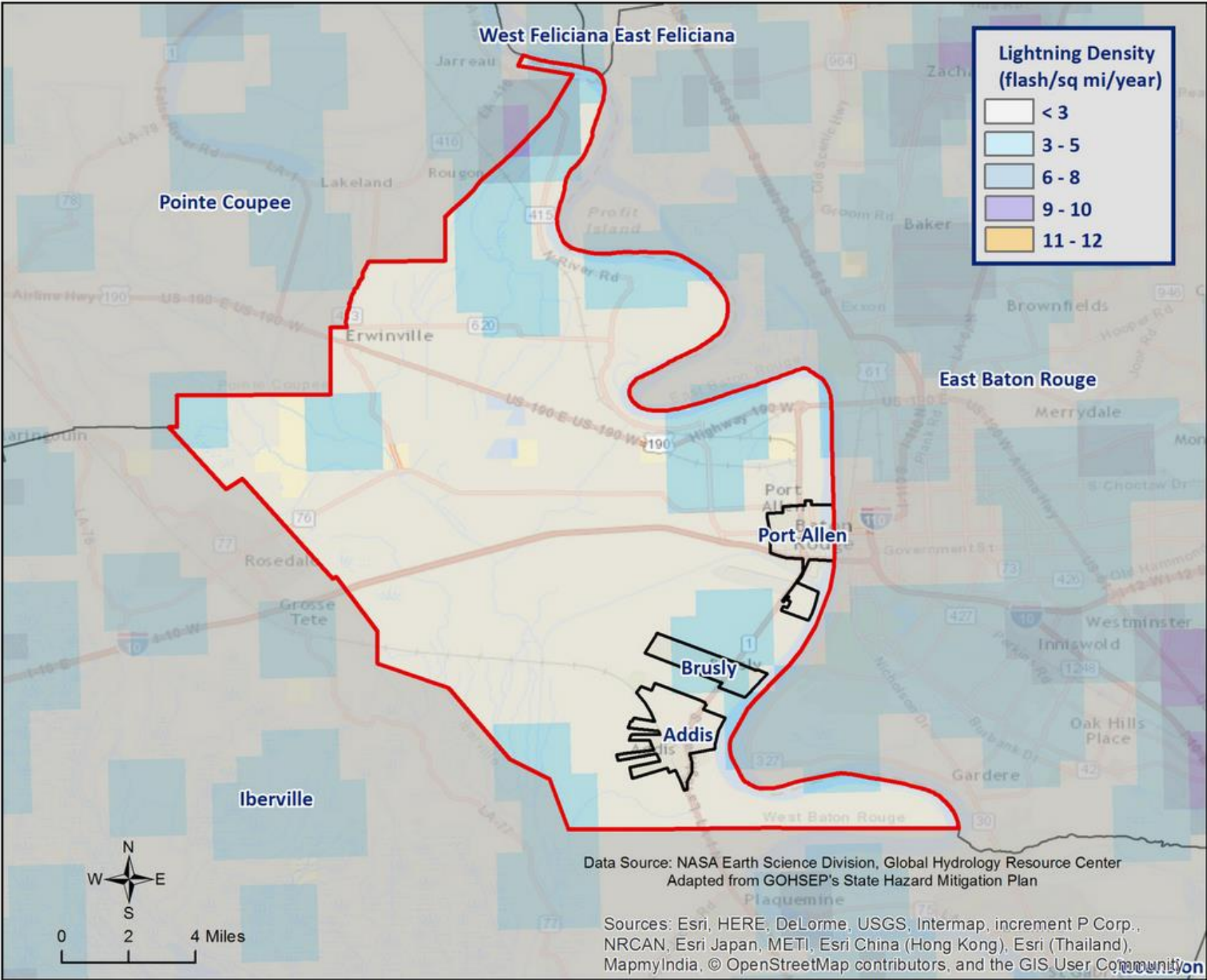




Thunderstorms – Lightning/High Wind/Hail

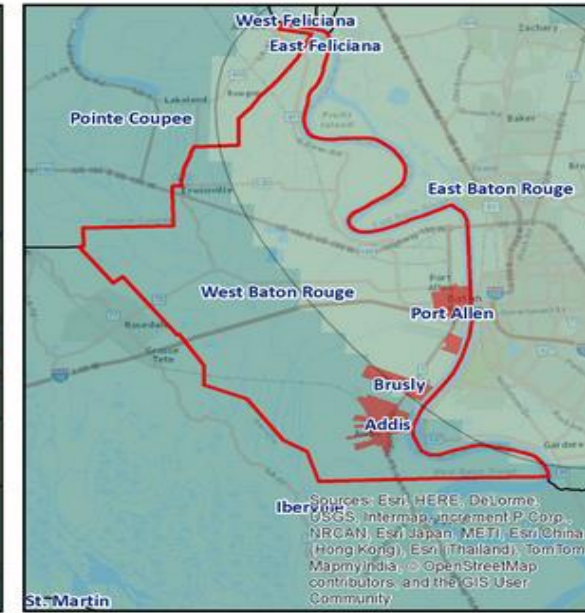
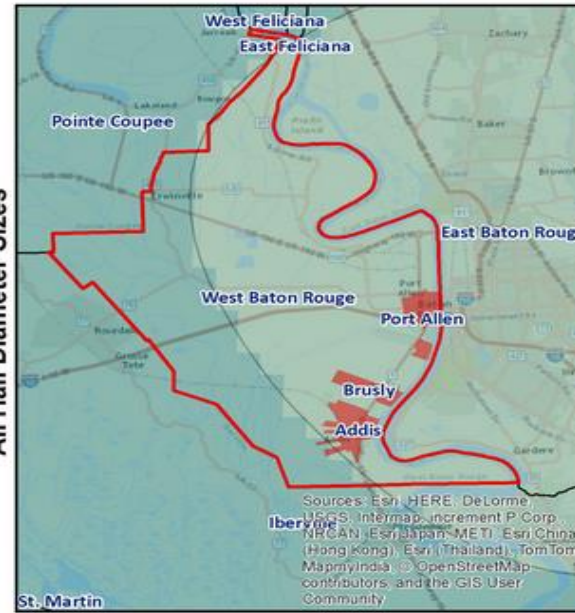
- A **thunderstorm**, also known as an **electrical storm**, a **lightning storm**, or a **thundershower**, is a type of storm characterized by the presence of lightning and its acoustic effect on the Earth's atmosphere known as thunder.
- They are usually accompanied by strong winds, heavy rain, and sometimes snow, sleet, or hail.
- Thunderstorms may line up in a series or rainband, known as a squall line. Strong or severe thunderstorms may rotate, known as supercells. While most thunderstorms move with the mean wind flow through the layer of the troposphere that they occupy, vertical wind shear causes a deviation in their course at a right angle to the wind shear direction.

Lightning Density Model



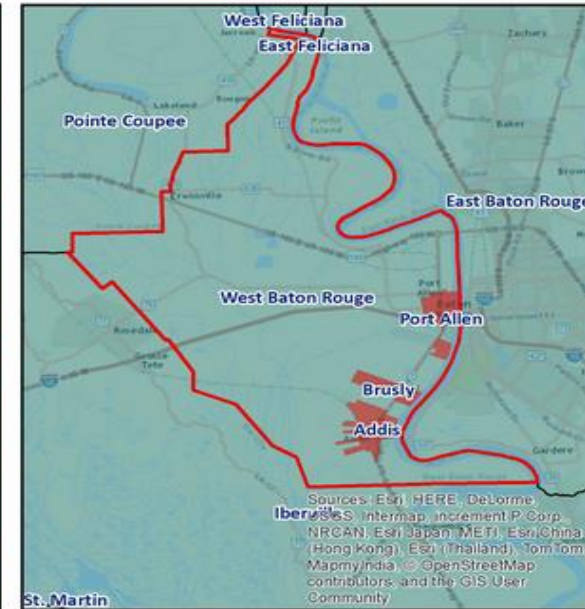
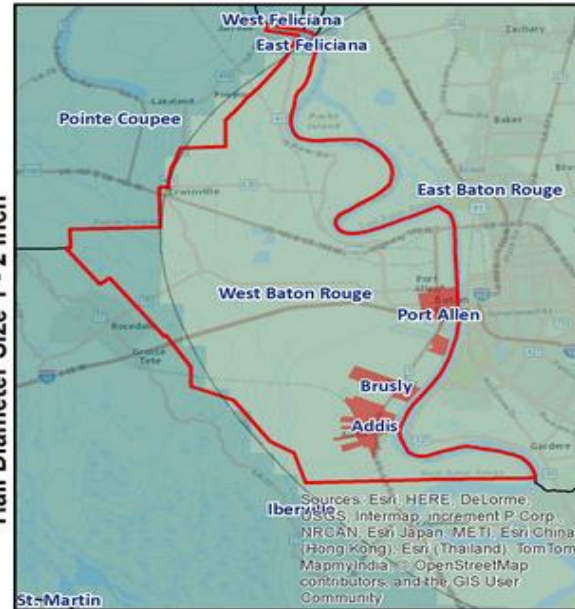
Hail Density Models

All Hail Diameter Sizes



Hail Diameter Size < 1 inch

Hail Diameter Size 1 - 2 inch



Hail Diameter Size ≥ 2 inch



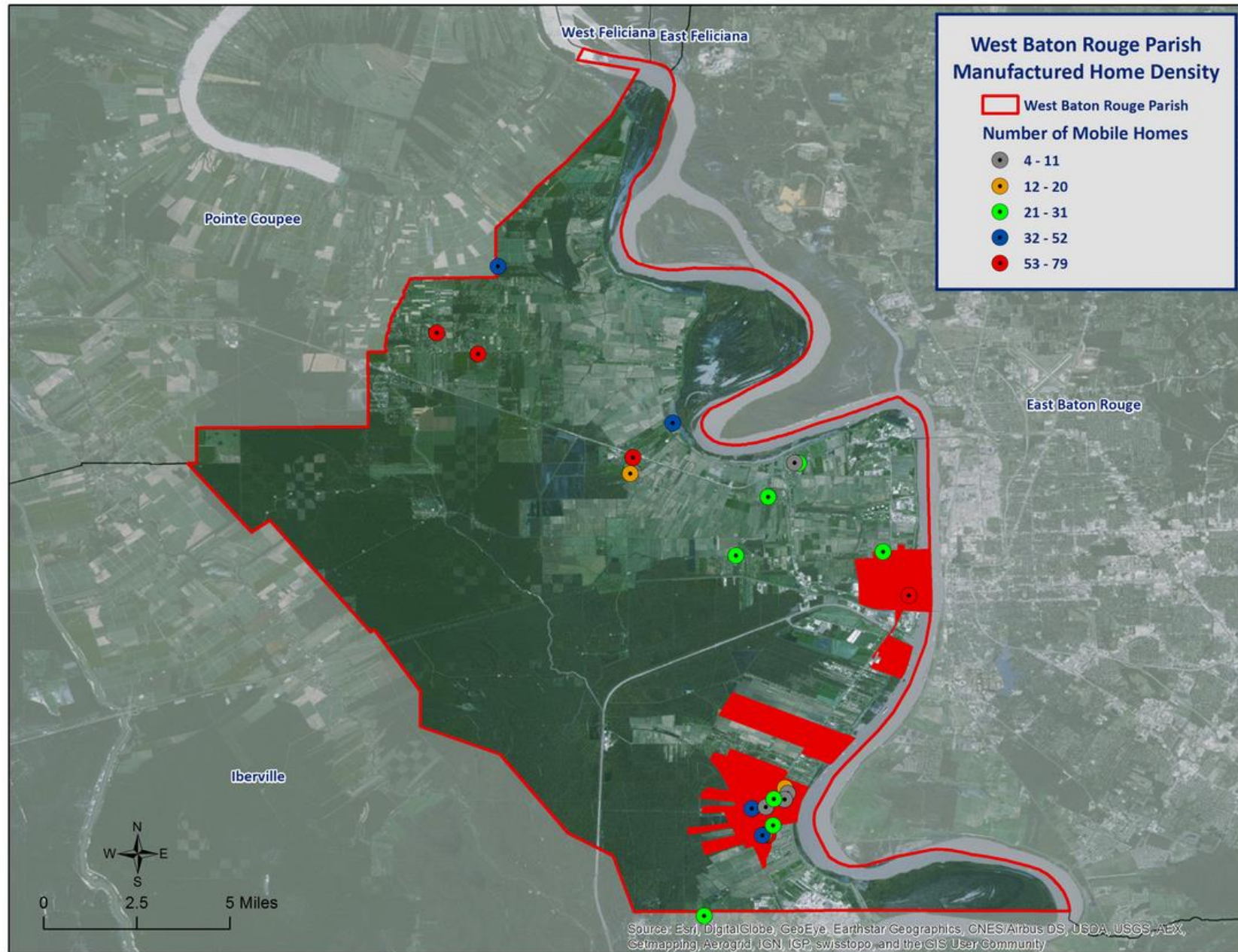
Tornadoes

- Tornadoes (also called twisters and cyclones) are rapidly rotating funnels of wind extending between storm clouds and the ground.
- Tornadoes are the most severe storms for their size, and 70% of the world’s reported tornadoes occur within the continental United States.

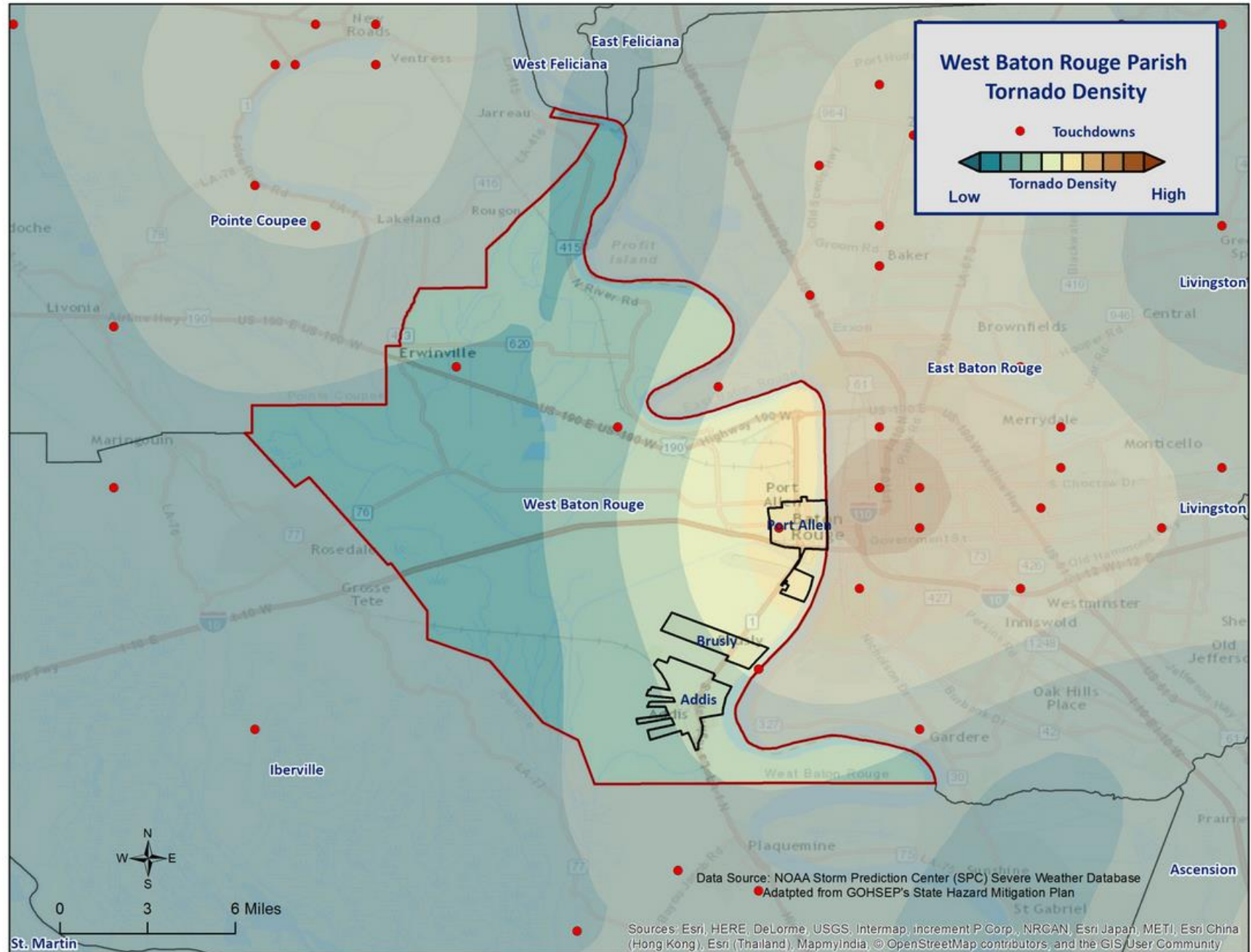


ORIGINAL FUJITA SCALE		ENHANCED FUJITA SCALE	
F5	261-318 mph	EF5	+200 mph
F4	207-260 mph	EF4	166-200 mph
F3	158-206 mph	EF3	136-165 mph
F2	113-157 mph	EF2	111-135 mph
F1	73-112 mph	EF1	86-110 mph
F0	<73 mph	EF0	65-85 mph

Manufactured Home Density



Tornado Density



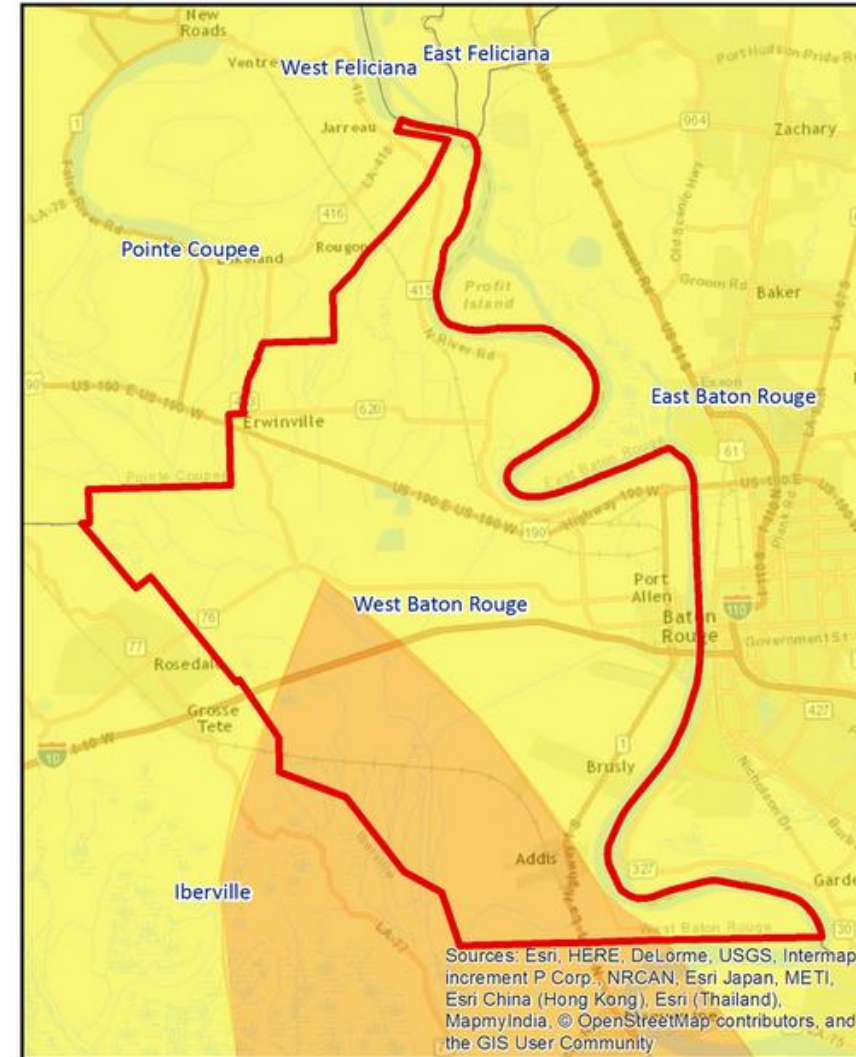
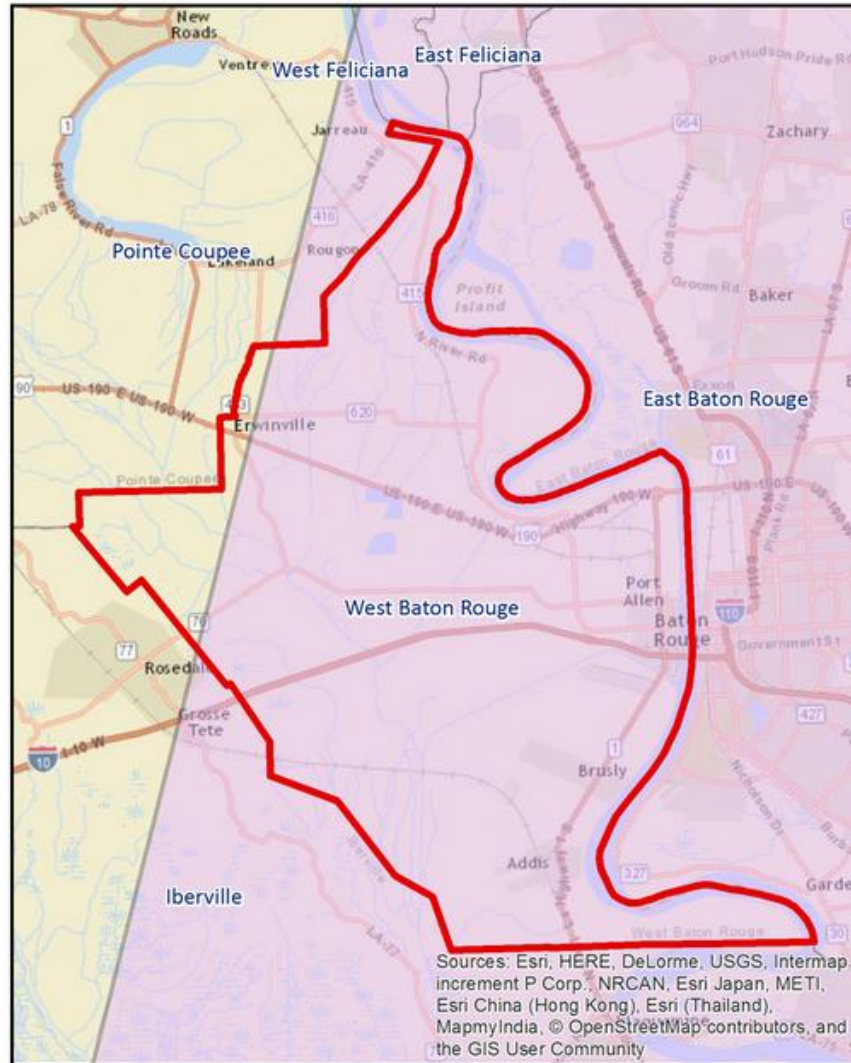
Tropical Cyclones

- Tropical cyclones are defined spinning, low-pressure air masses that draw surface air into their centers and attain strength ranging from weak tropical waves to the most intense hurricanes

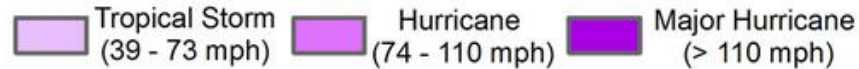
Saffir-Simpson Hurricane Wind Scale		
	Sustained Wind Speed	Effects
Category 1	74-95 mph (119-153 km/hr)	Very dangerous winds will produce some damage. Low-lying coastal roads flooded, minor pier damage
Category 2	96-110 mph (154-177 km/hr)	Extremely dangerous winds will cause extensive damage. Major damage to exposed mobile homes, evacuation of some shoreline residents
Category 3	111-130 mph (178-209 km/hr)	Devastating damage will occur. Some structural damage to small buildings; serious flooding at coast and many smaller structures near coast destroyed
Category 4	131-155 mph (210-249 km/hr)	Catastrophic damage will occur. High risk of injury or death to people, livestock, and pets due to flying and falling debris. Long-term water shortages will increase human suffering. Most of the area will be uninhabitable for weeks or months.
Category 5	> 155 mph (249 km/hr)	Catastrophic damage will occur. People, livestock, and pets are at very high risk of injury or death from flying or falling debris. A high percentage of frame homes will be destroyed. Long-term power outages and water shortages will render area uninhabitable for weeks or months.



Hurricane Katrina (2005)



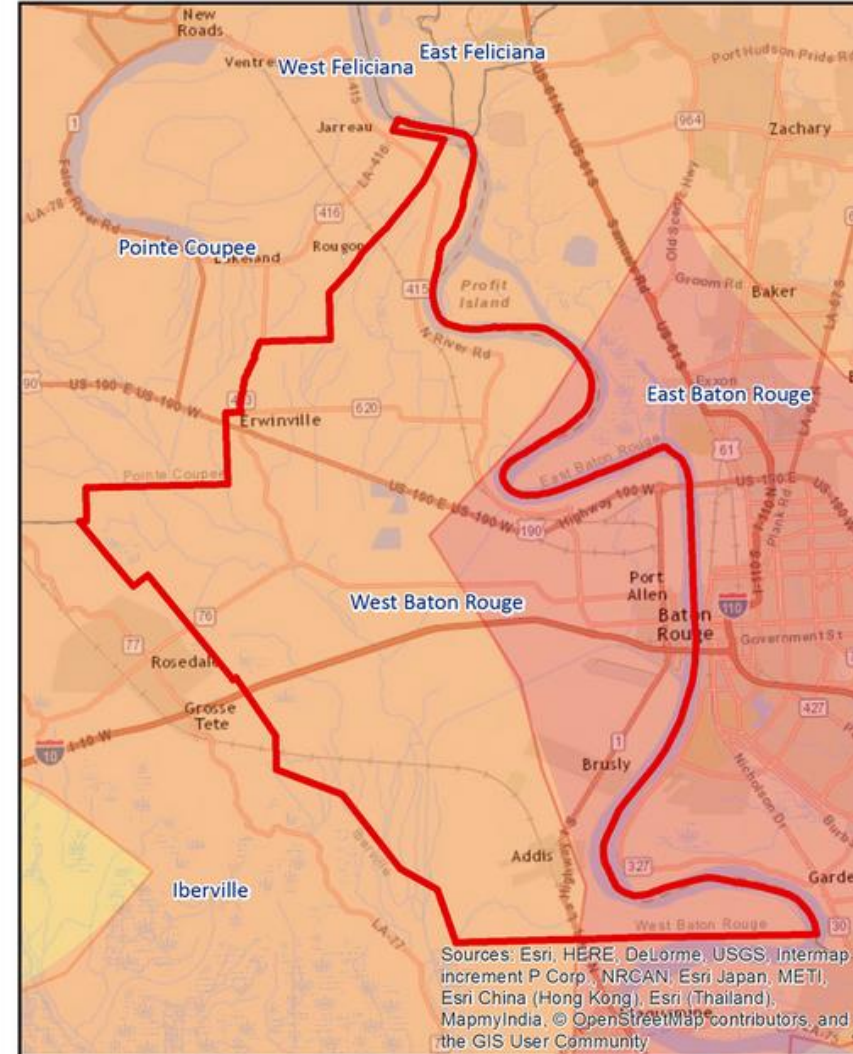
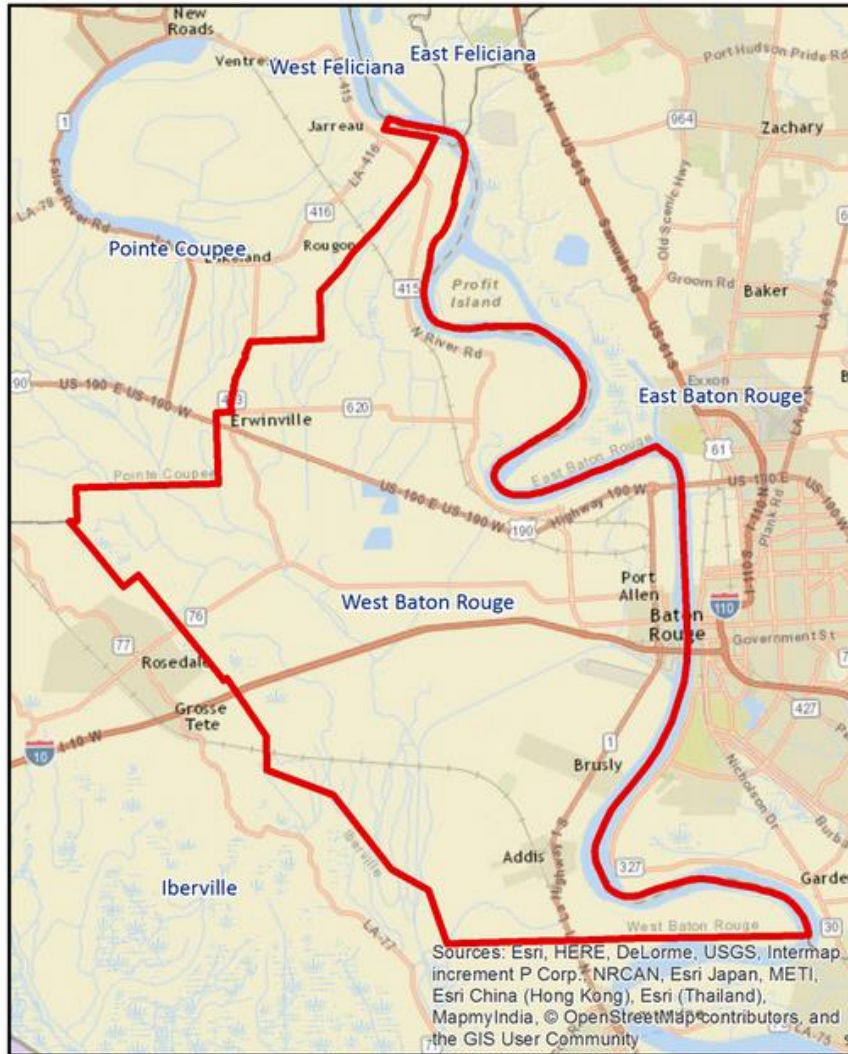
Wind Speed (Saffir-Simpson Scale)



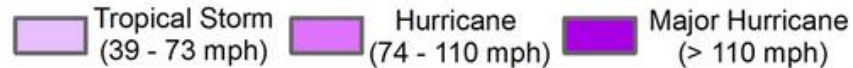
Total Precipitation (inches)



Hurricane Rita (2005)



Wind Speed (Saffir-Simpson Scale)

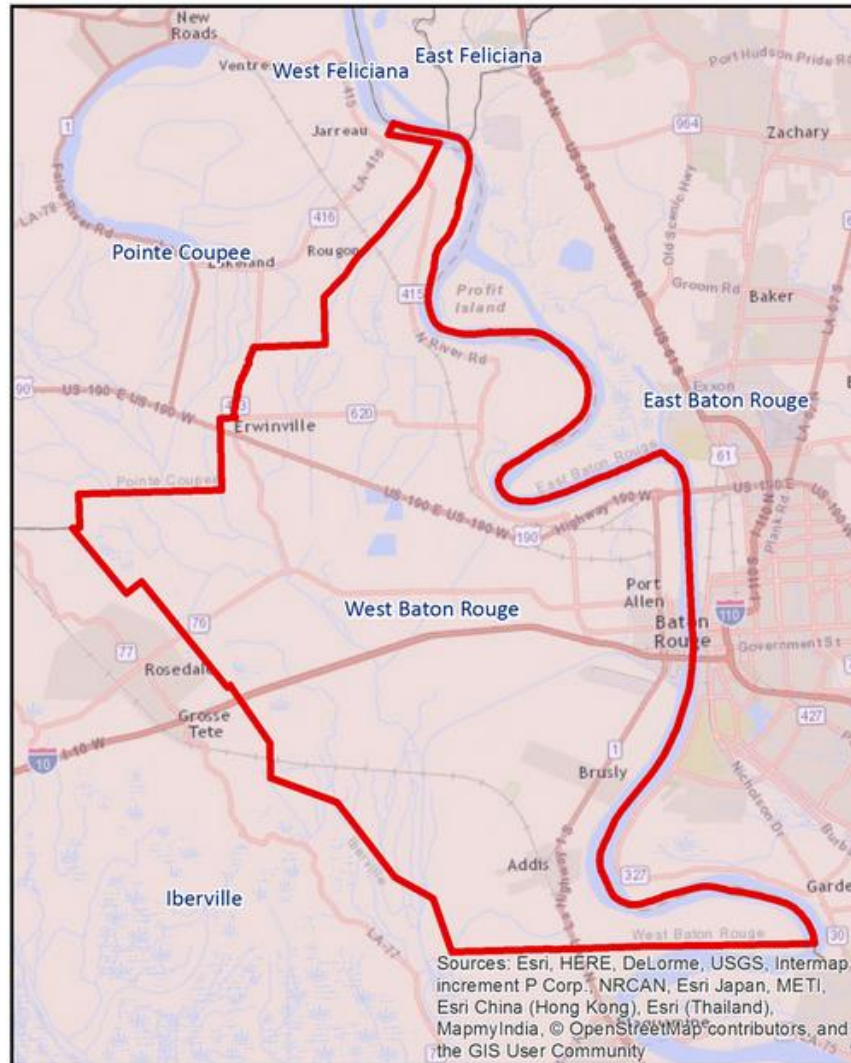


Total Precipitation (inches)

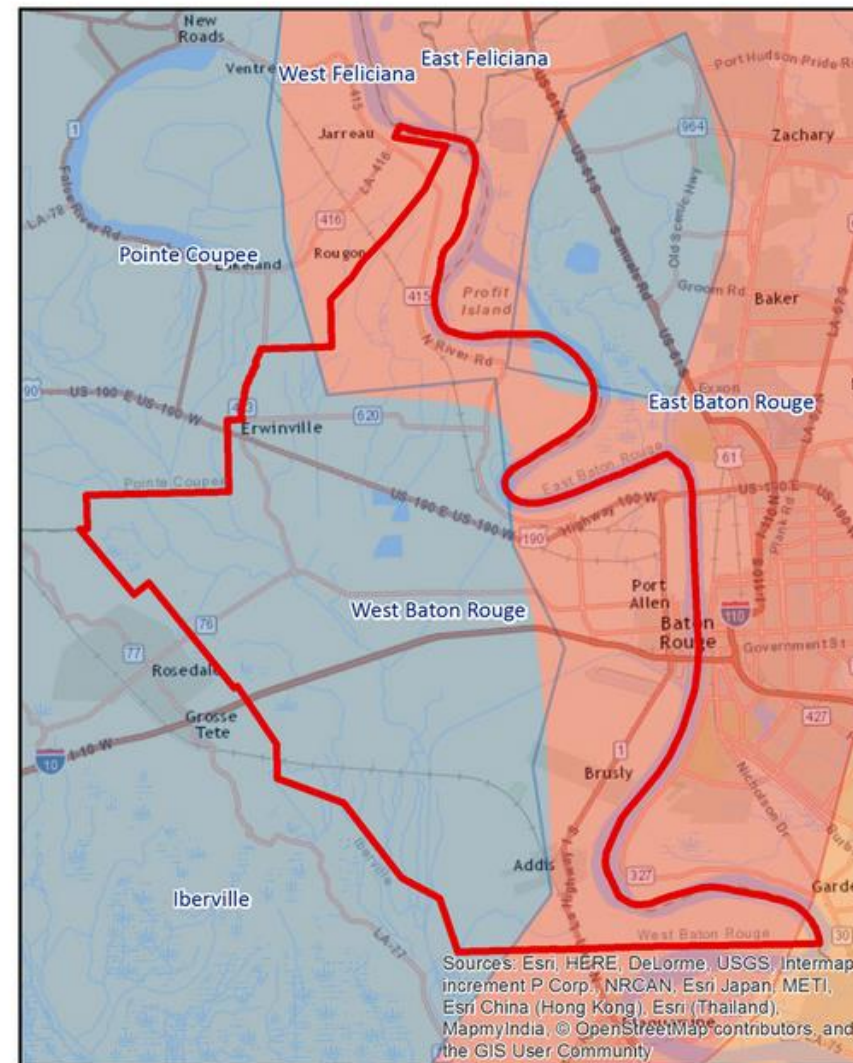


Data Source: NOAA Hurricane Research Division (HRD)
Adapted from GOHSEP's State Hazard Mitigation Plan

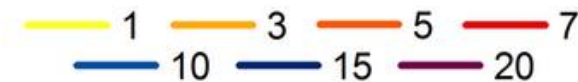
Hurricane Gustav (2008)



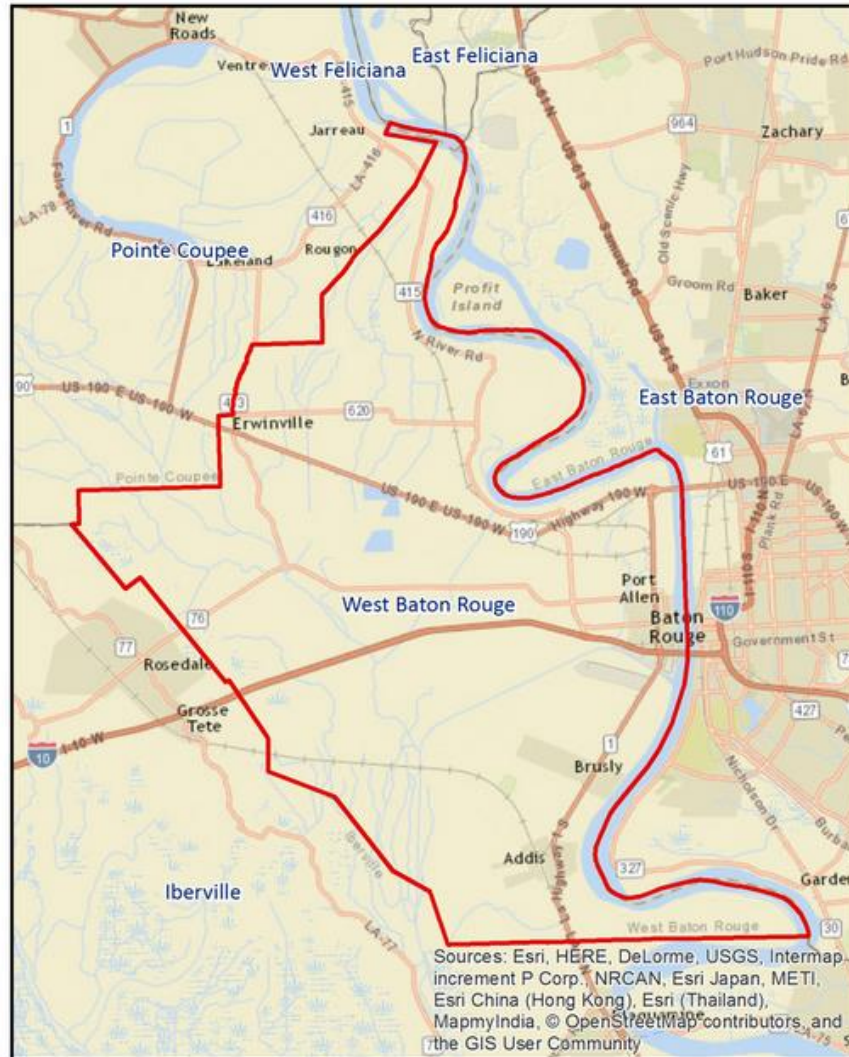
Wind Speed (Saffir-Simpson Scale)



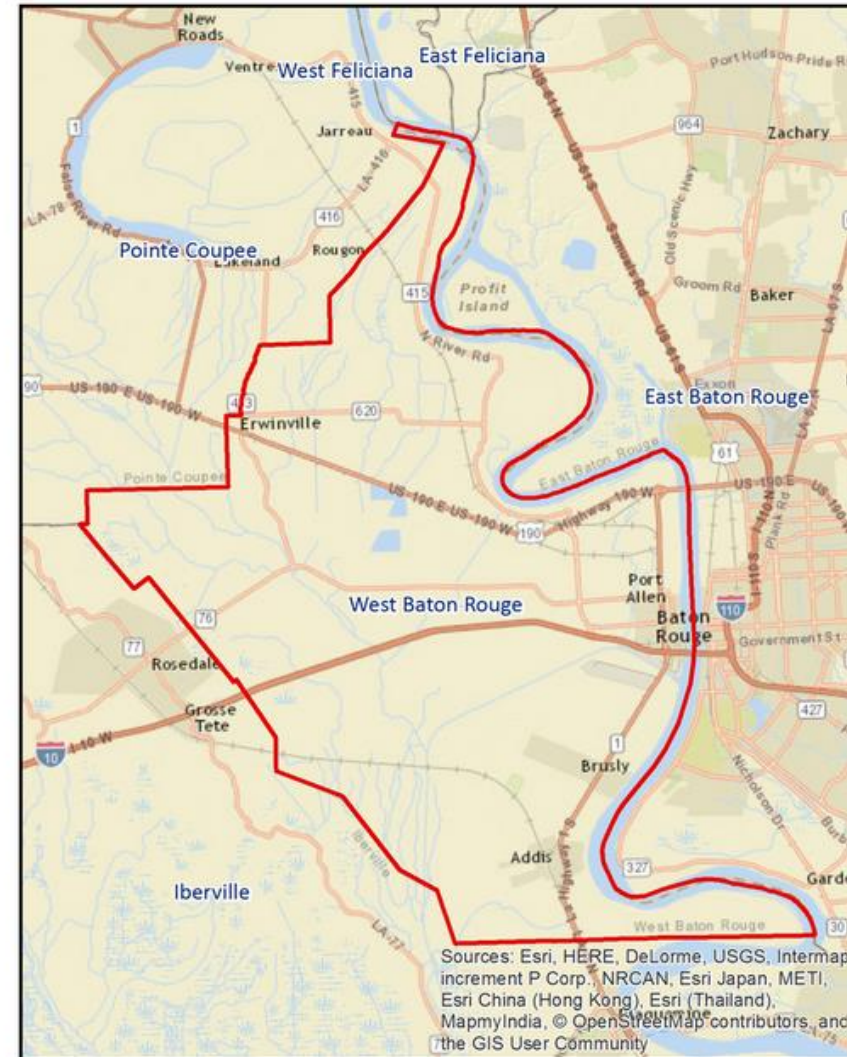
Total Precipitation (inches)



Hurricane Ike (2008)



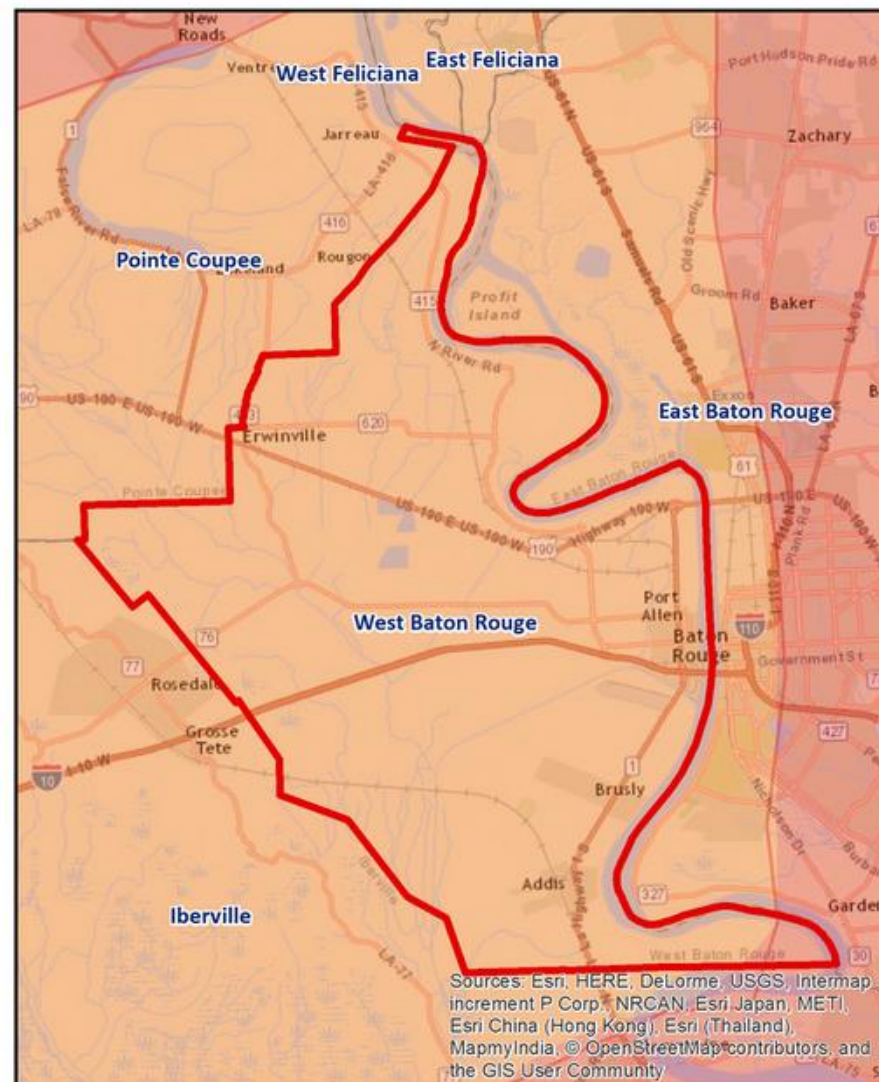
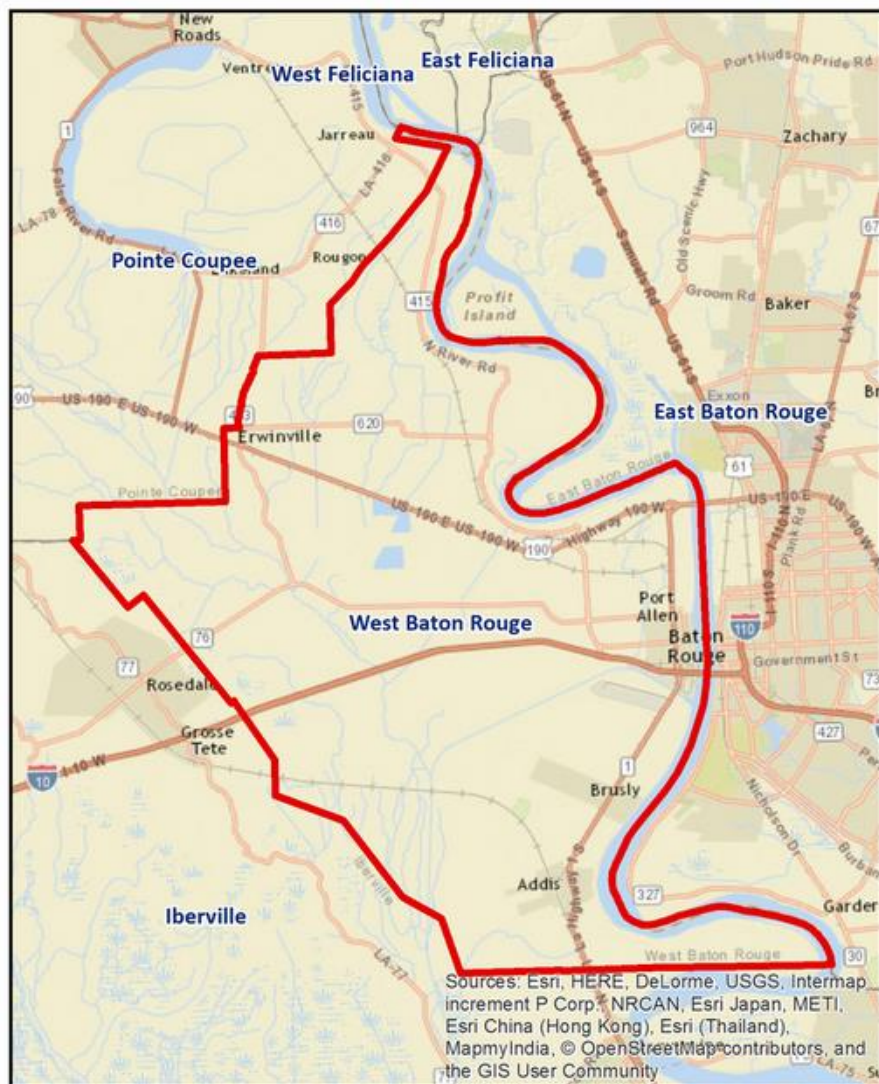
Wind Speed (Saffir-Simpson Scale)



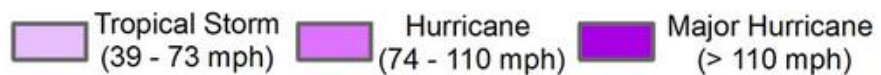
Total Precipitation (inches)



Tropical Storm Lee (2011)



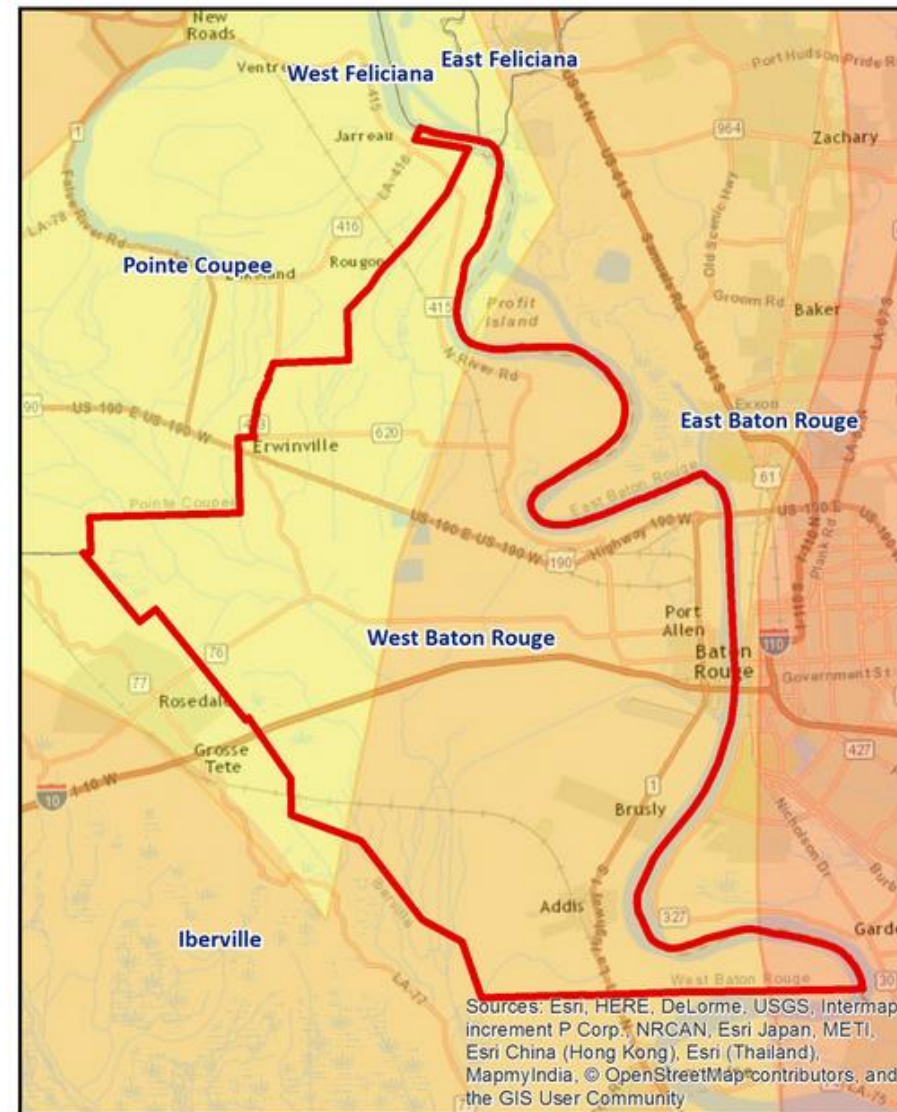
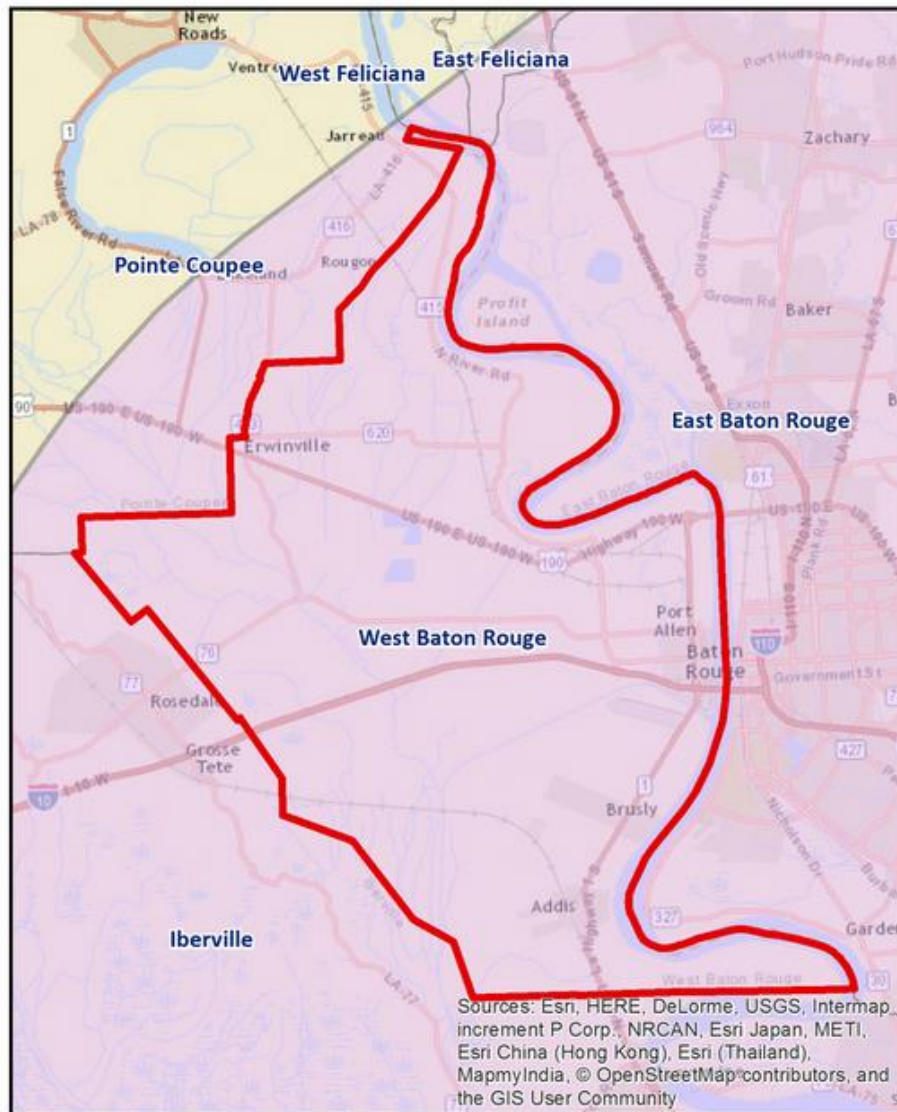
Wind Speed (Saffir-Simpson Scale)



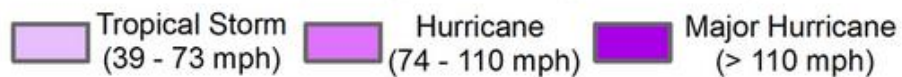
Total Precipitation (inches)



Hurricane Isaac (2012)



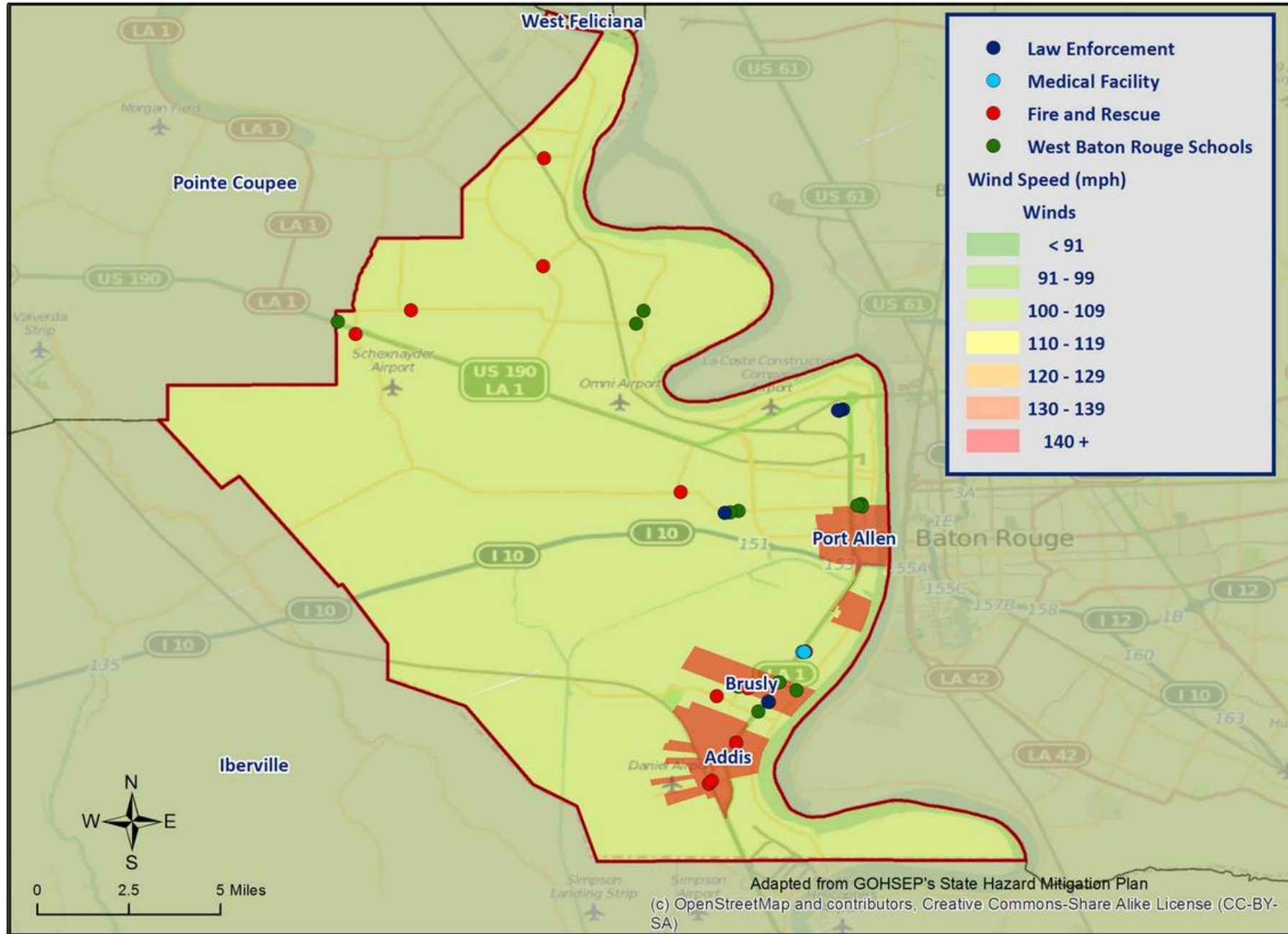
Wind Speed (Saffir-Simpson Scale)



Total Precipitation (inches)



Critical Facilities – Wind Speeds

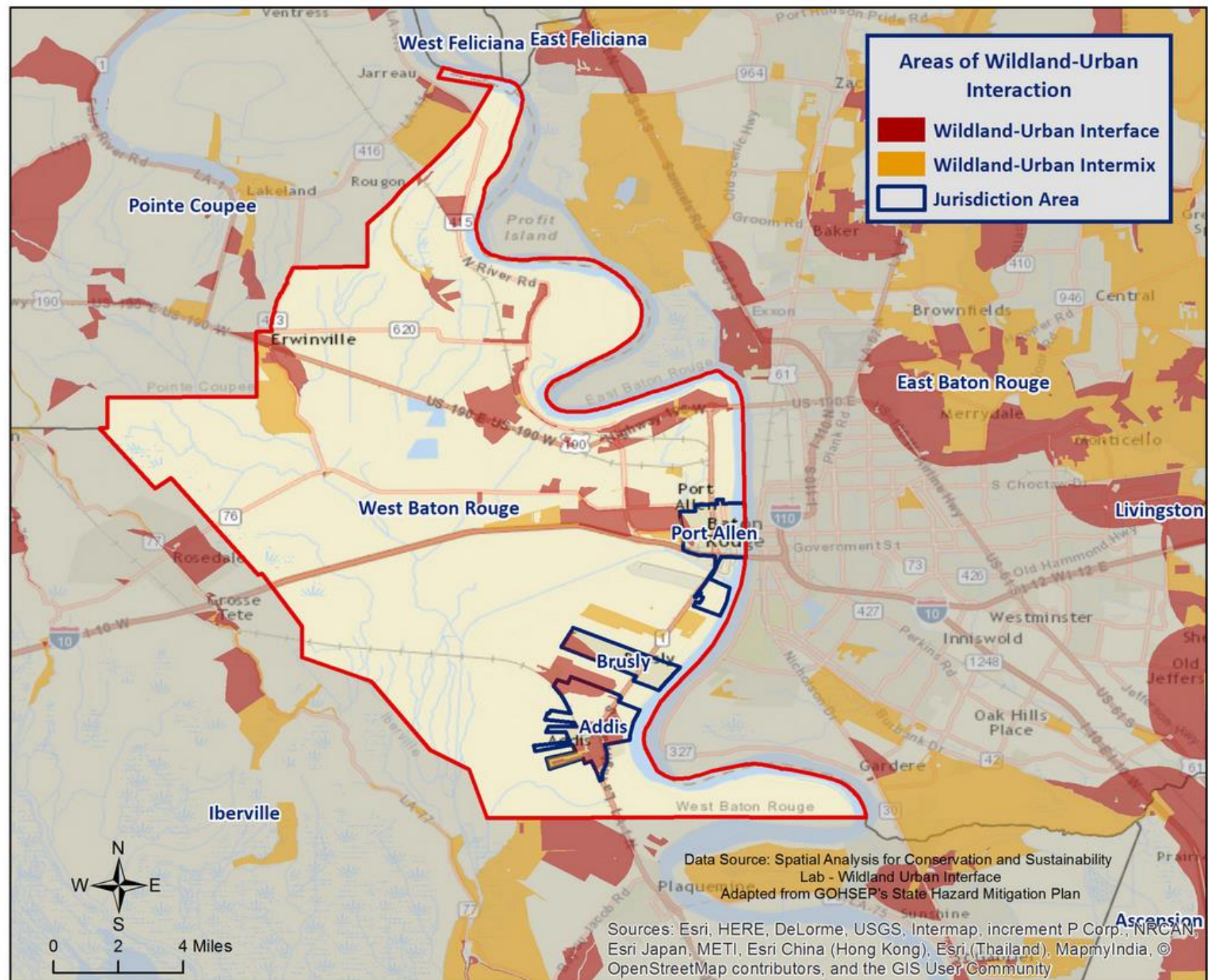


Wildfires

- Wildfires are fueled by naturally occurring or non-native species of trees, brush, and grasses.
- Topography, fuel, and weather are the three principal factors that impact wildfire hazards and behavior.
- There are four categories of wildfires; wildland fires, interface or intermixed fires, firestorms, and prescribed natural fires.



*Haze in Baton Rouge from
2013 Tangipahoa/St
Tammany Wildfires*



Mitigation Strategy – Parish Goals

- **Goal 1** Minimize human, economic, and environmental disruption from natural hazards
- **Goal 2** Protect life and property from the impacts of natural disasters
- **Goal 3** Enhance preparedness and emergency response to natural disasters
- **Goal 4** Enhance public awareness regarding understanding of risks associated with hazards and the need for hazard mitigation
- **Goal 5** Improve the disaster resistance of vulnerable structures and critical facilities through the development and implementation of cost-effective, technically feasible, and environmentally sound local mitigation actions
- **Goal 6** Promote the preservation or restoration of natural areas or natural functions of floodplain and watershed areas

2009-2015 Parish HM Project Status

- Director's Comments

Public Outreach Activities

- Risk Analysis Activity (Hazard Occurrences)
- Problem Area Identification (Parish Maps)
- Survey

Contact Us

Brant Mitchell, SDMI Director of Research & Operations

bmitch9@lsu.edu

(225) 578-5939

Lexie Andrews, HM Project Lead

aandrews1@lsu.edu

(225) 578-7034

Lauren Stevens, HM Project Lead

lstevens@lsu.edu

(225) 578-0502

Stephenson Disaster Management Institute

www.sdmi.lsu.edu

