Beauregard Parish Hazard Mitigation Plan Update Public Meeting

July 27, 2015

DeRidder, LA

LSU STEPHENSON DISASTER MANAGEMENT INSTITUTE

Stephenson National Center for Security Research and Training

Agenda

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

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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 Beauregard Parish Hazard Mitigation Plan will allow for distribution of HM funding following future disasters.

The Planning Team: A multi-jurisdictional approach

- Each jurisdiction has at least one representative as part of the Hazard Mitigation Steering Committee:
  - Beauregard Unincorporated
  - City of DeRidder
  - Town of Merryville

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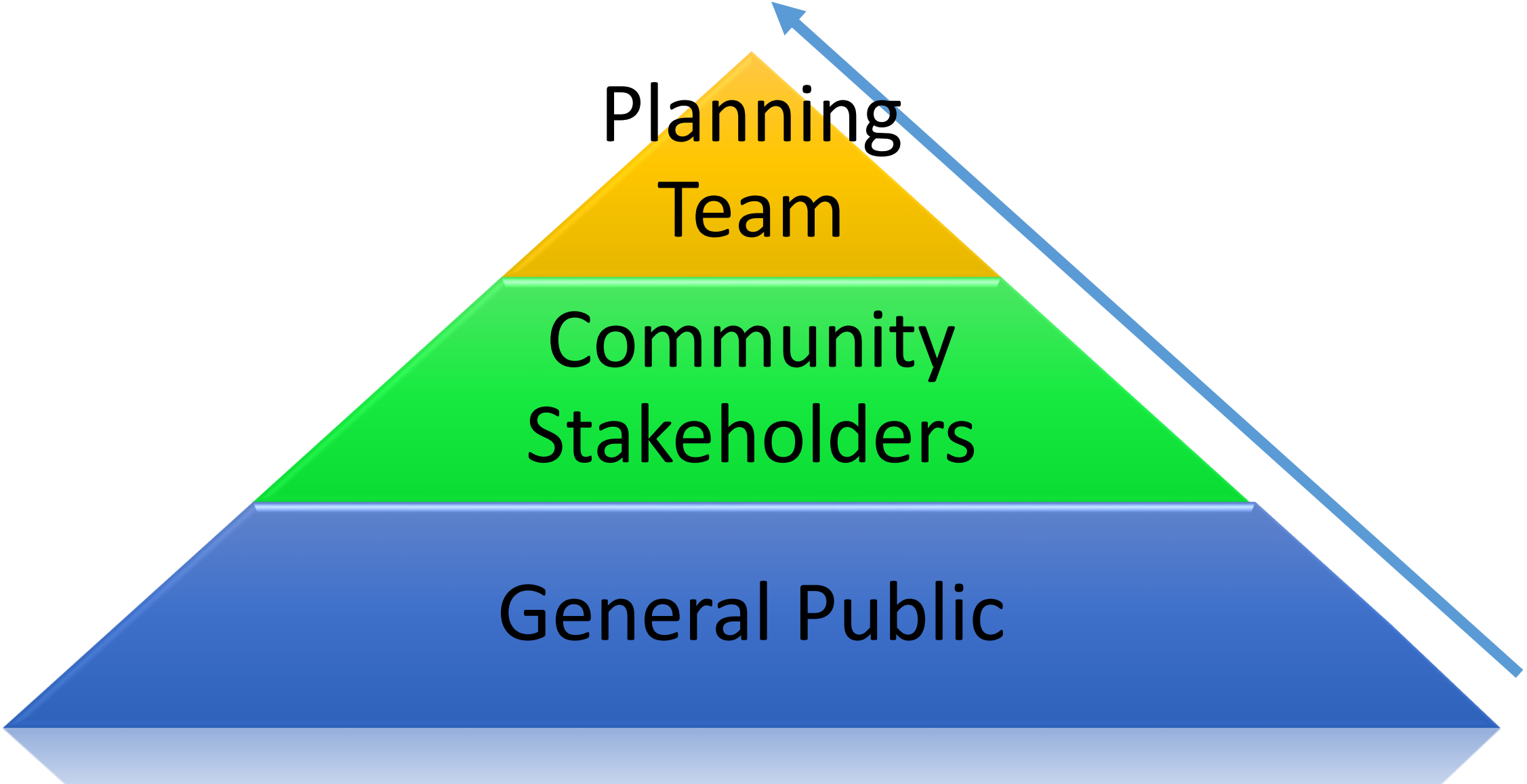
Collaborative Planning Approach



Planning Development

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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

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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

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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

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Hazard Identification and Risk Assessment

- Drought
- Flooding
- Excessive Heat
- Thunderstorms (Hail, Wind, Lightning)
- Tornadoes
- Wildfires
- Tropical Cyclones
- Sinkhole

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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: Hazards Identified

- These natural hazards were selected based on an assessment of the overall impact (geographic extent, magnitude, probability, and exacerbating or mitigating conditions) affecting Beauregard Parish;
- The hazards that pose the greatest potential for a negative impact are:

  -Flooding, Tropical Cyclones, Wildfires, Tornadoes, Sinkholes, Excessive Heat, Thunderstorms, Drought

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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

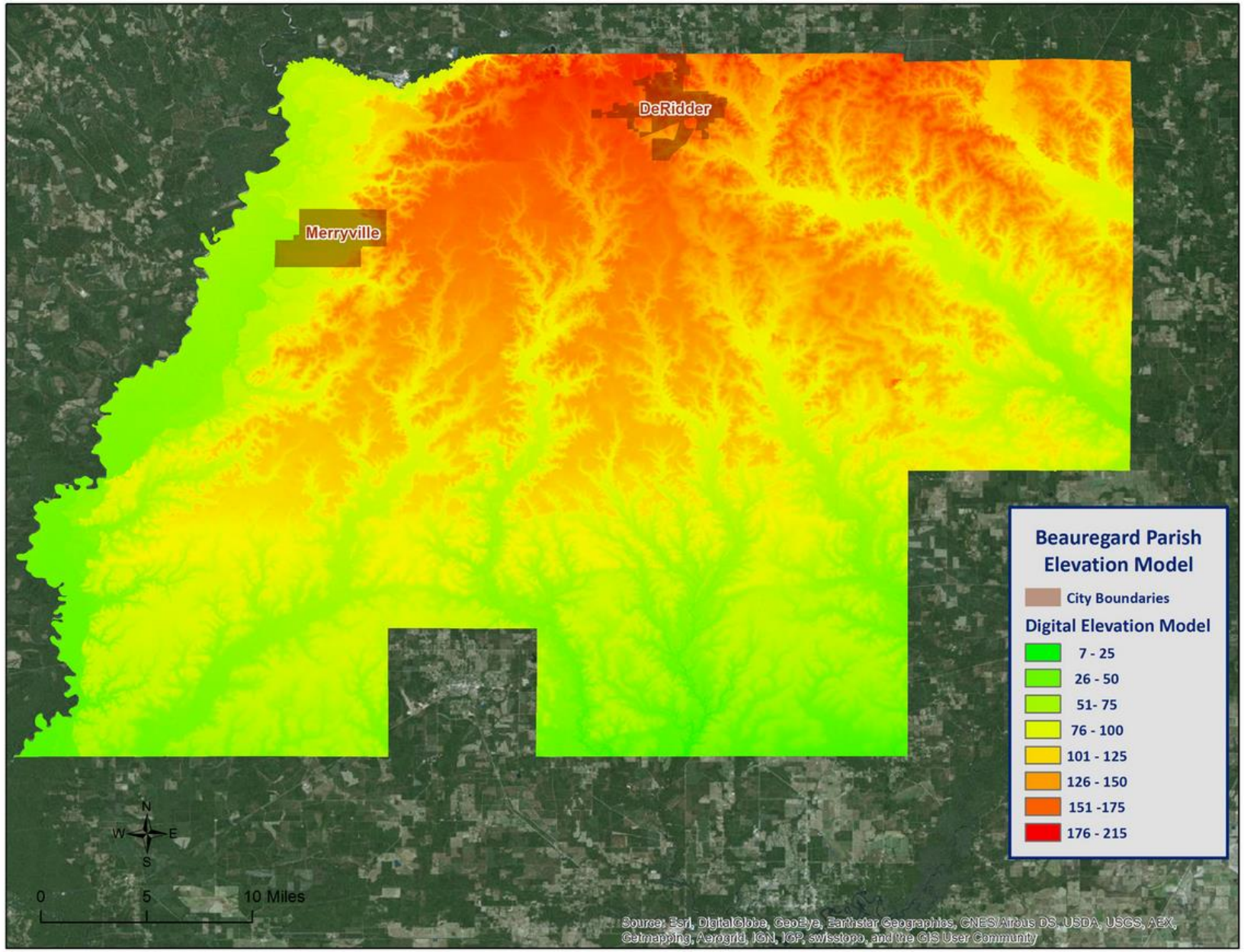
Types of flooding may include the following:

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

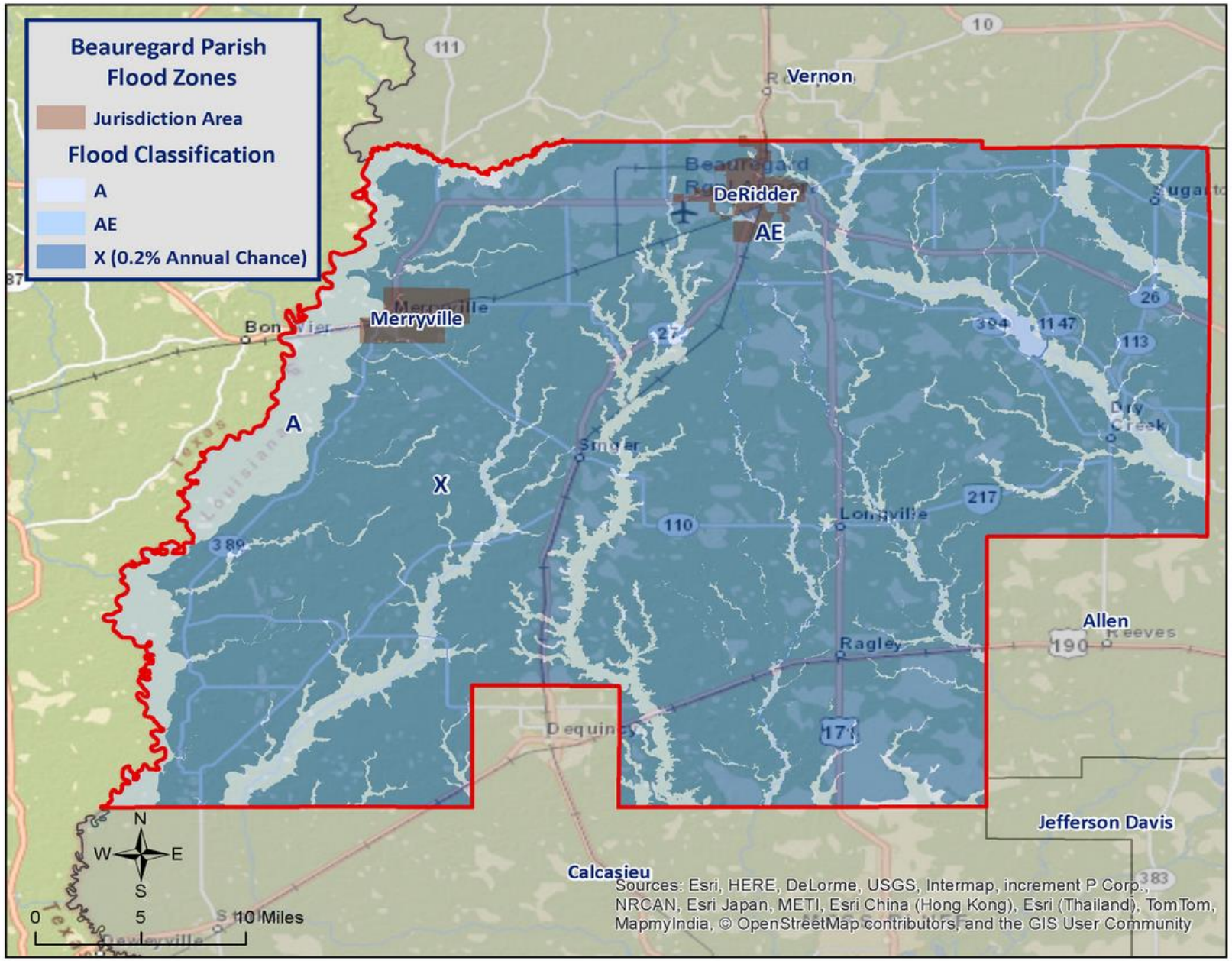
Repetitive Flooding

- 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.

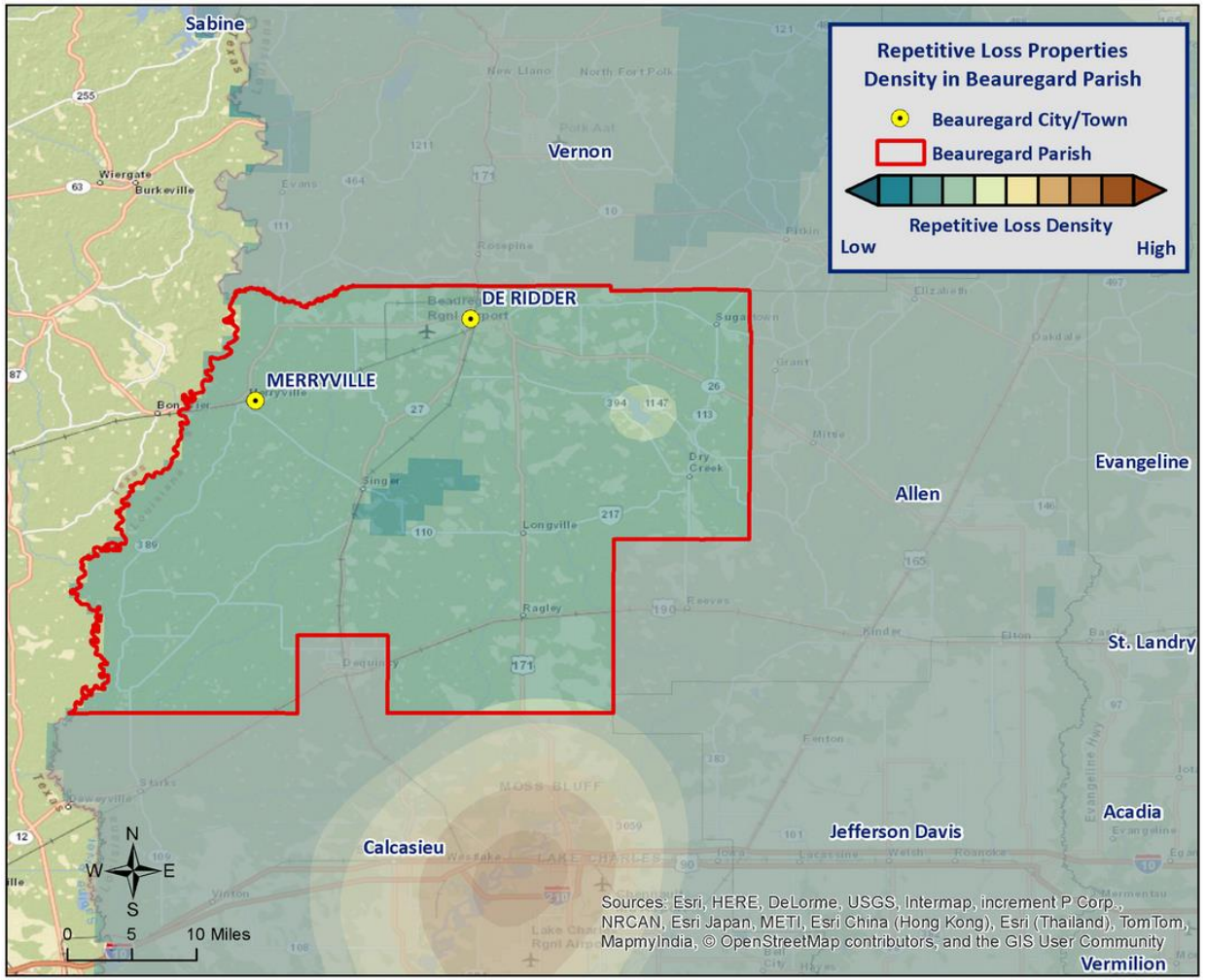
Flooding – Elevation Model

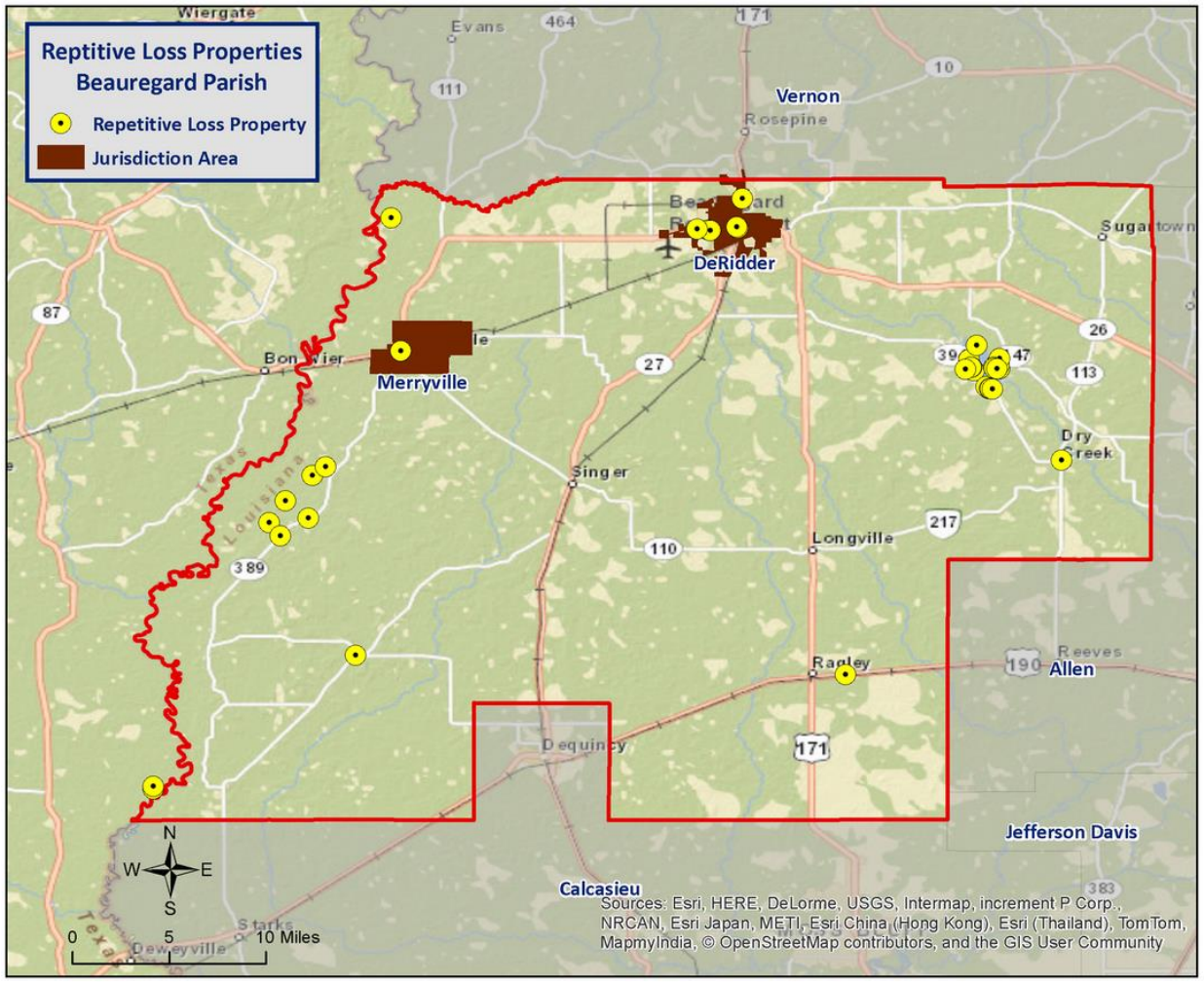


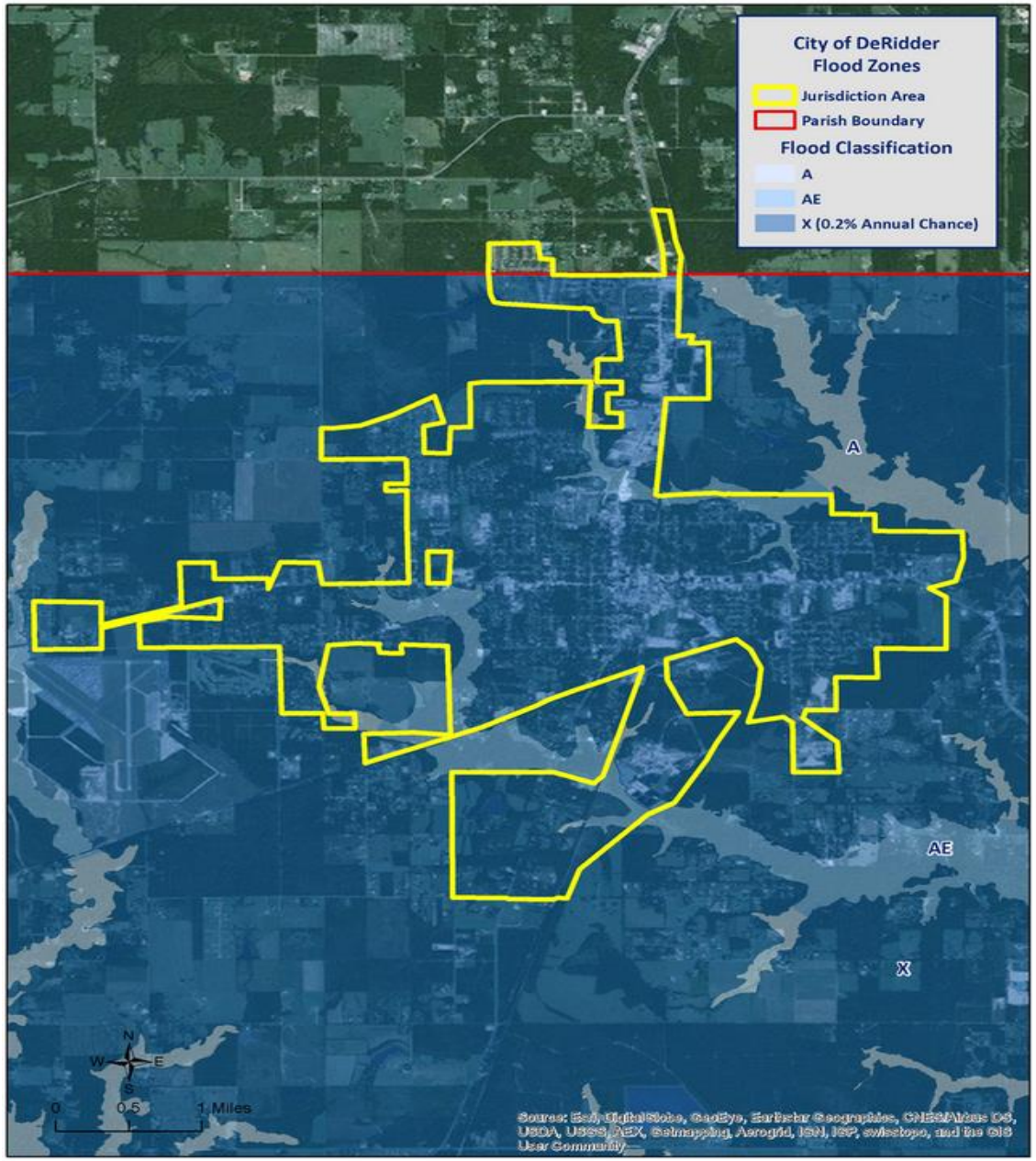
Beauregard Parish Flood Zones

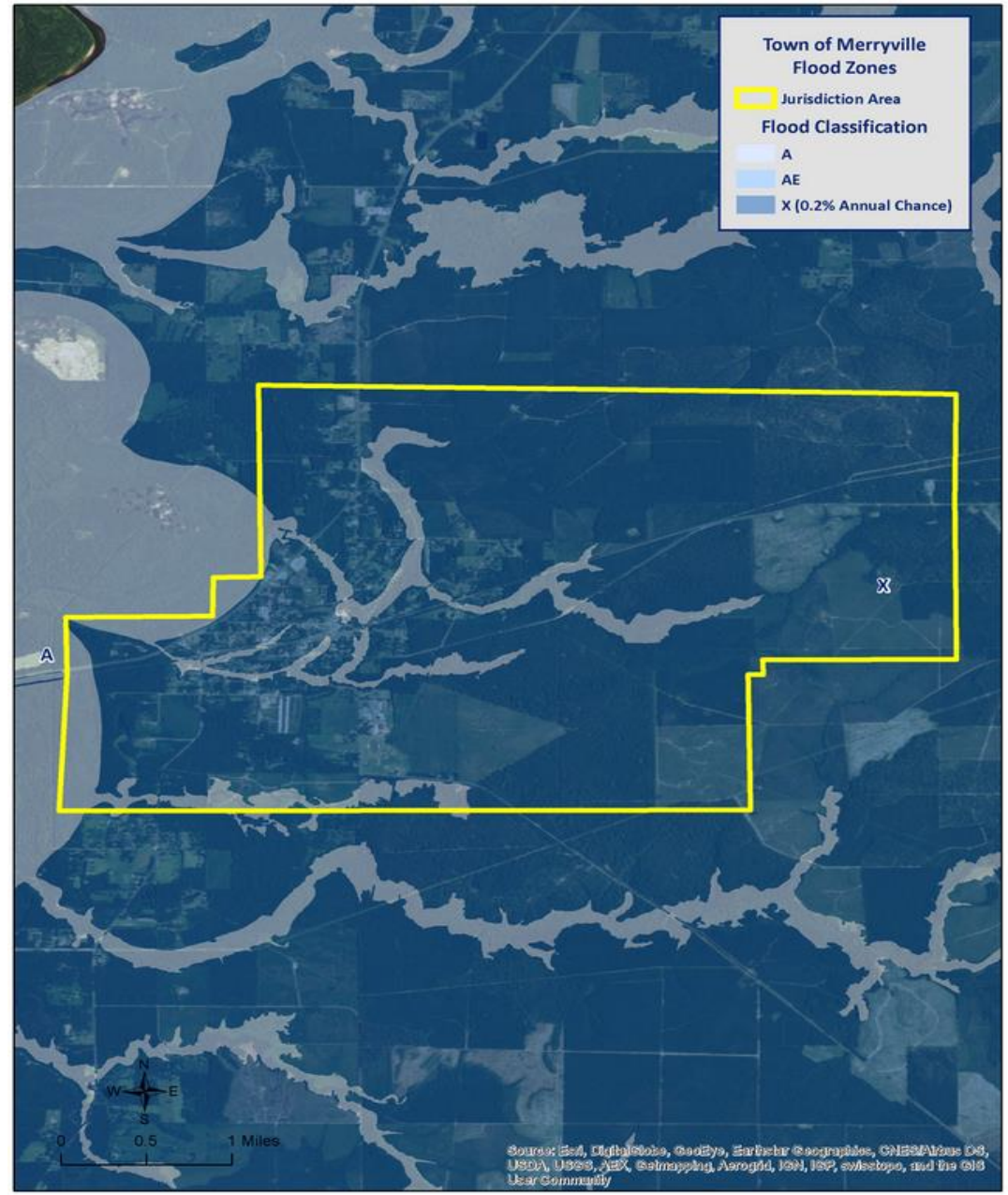


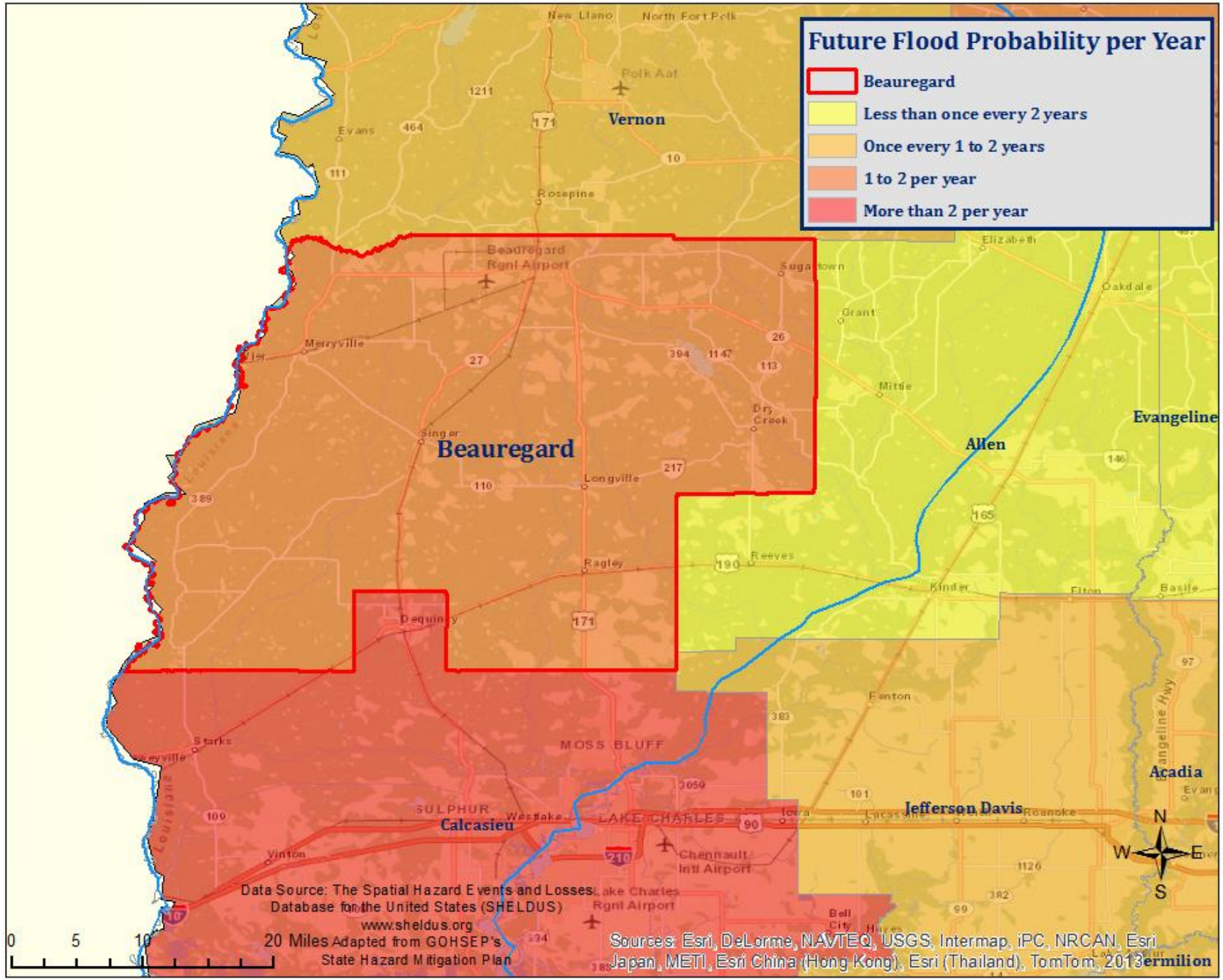
Repetitive Loss Properties






City of DeRidder
Flood Zones
Jurisdiction Area
Parish Boundary
Flood Classification
A
AE
X (0.2% Annual Chance)
A
AE
X
N
W
E
S
0
0.5
1 Miles
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

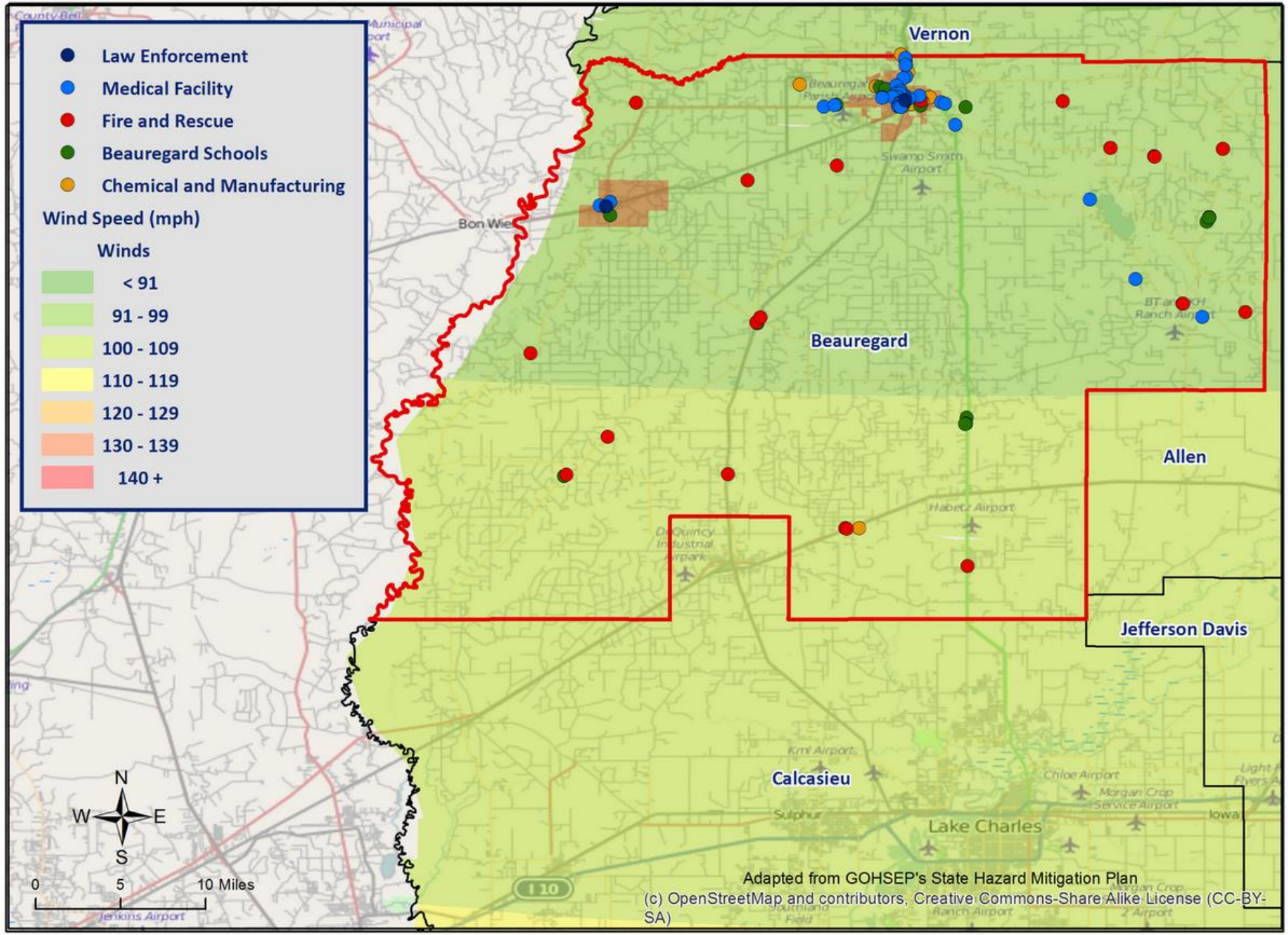

Town of Merryville
Flood Zones
Jurisdiction Area
Flood Classification
A
AE
X (0.2% Annual Chance)
A
X
N
W
E
S
0
0.5
1 Miles
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community


Future Flood Probability per Year
Beauregard
Less than once every 2 years
Once every 1 to 2 years
1 to 2 per year
More than 2 per year
Beauregard
Vernon
Allen
Evangeline
Jefferson Davis
Calcasieu
Acadia
MOSS BLUFF
SULPHUR
LAKE CHARLES
Data Source: The Spatial Hazard Events and Losses Database for the United States (SHELDUS)
www.sheldus.org
Adapted from GOHSEP's State Hazard Mitigation Plan
0 5 10 20 Miles
Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013
N
W
E
S

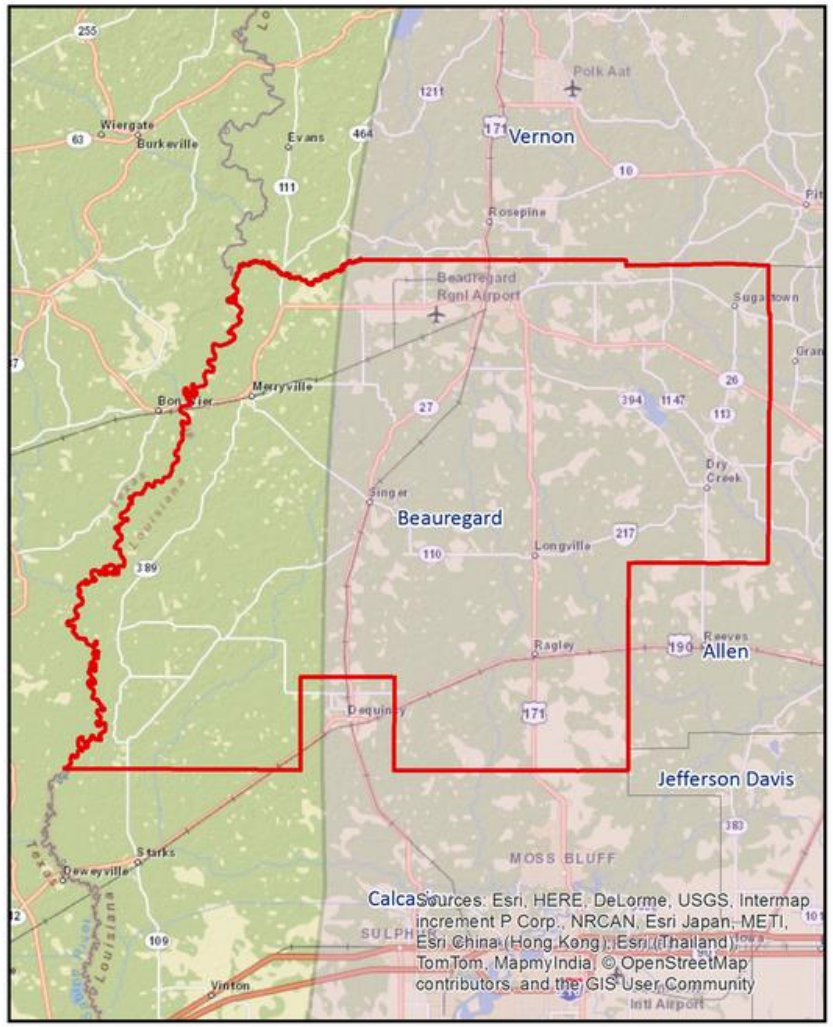
Tropical Cyclones

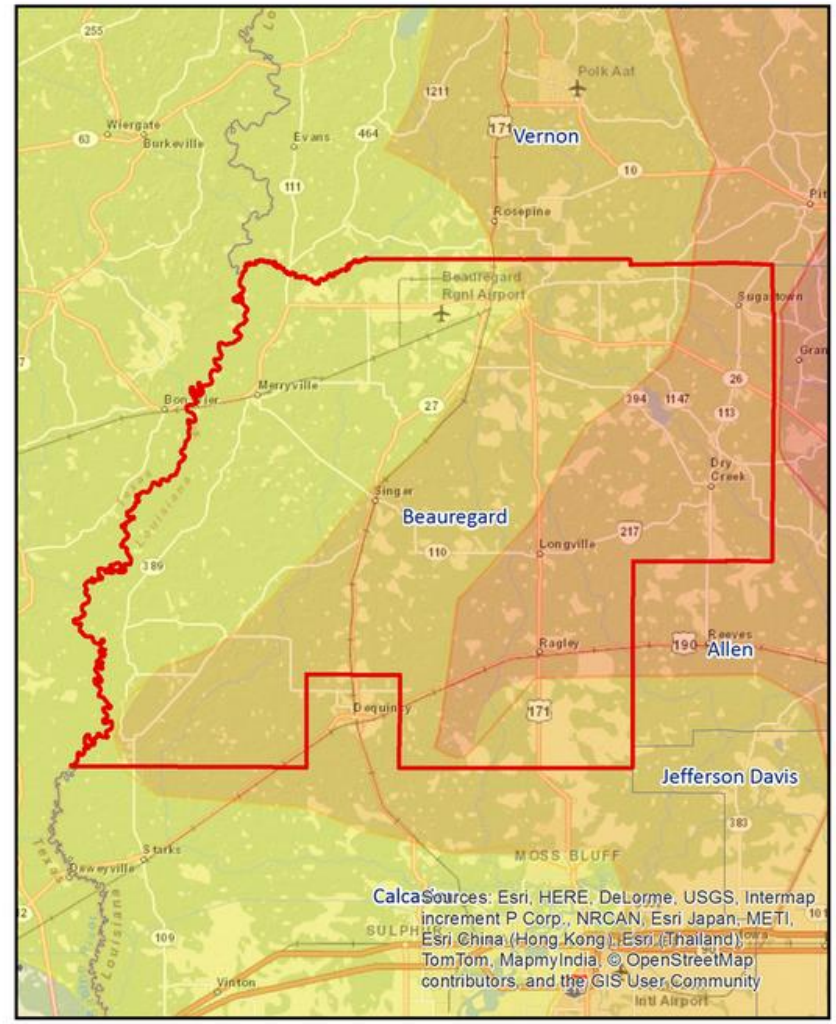
- Tropical cyclones are defined spinning, low-pressure air masses that draw surface air into their centers and attain strength ranging from weak tropical waves to the most intense hurricanes

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.


Law Enforcement
Medical Facility
Fire and Rescue
Beauregard Schools
Chemical and Manufacturing
Wind Speed (mph)
Winds
< 91
91 - 99
100 - 109
110 - 119
120 - 129
130 - 139
140 +
Vernon
Beauregard
Allen
Jefferson Davis
Calcasieu
Lake Charles
Swamp Smith Airport
Habetz Airport
DeQuincy Industrial Airpark
Krnl Airport
Chloe Airport
Morgan Crop Service Airport
Sulphur
Iowa
Jenkins Airport
I 10
N
W
E
S
0
5
10 Miles
Adapted from GOHSEP's State Hazard Mitigation Plan
(c) OpenStreetMap and contributors, Creative Commons-Share Alike License (CC-BY-SA)

Hurricane Gustav (2008)





Wind Speed (Saffir-Simpson Scale)

Tropical Storm (39 - 73 mph)

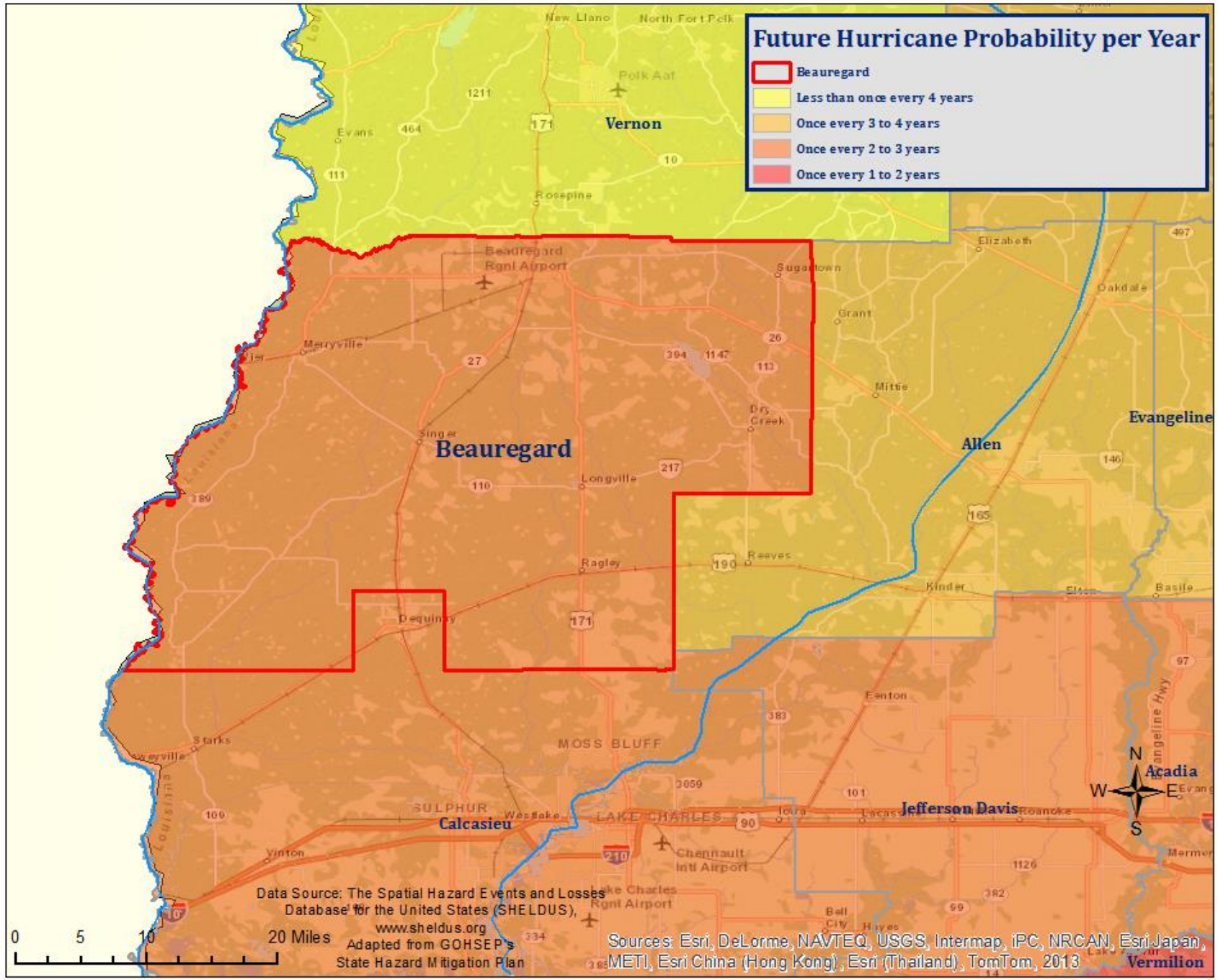
Hurricane (74 - 110 mph)

Major Hurricane (> 110 mph)

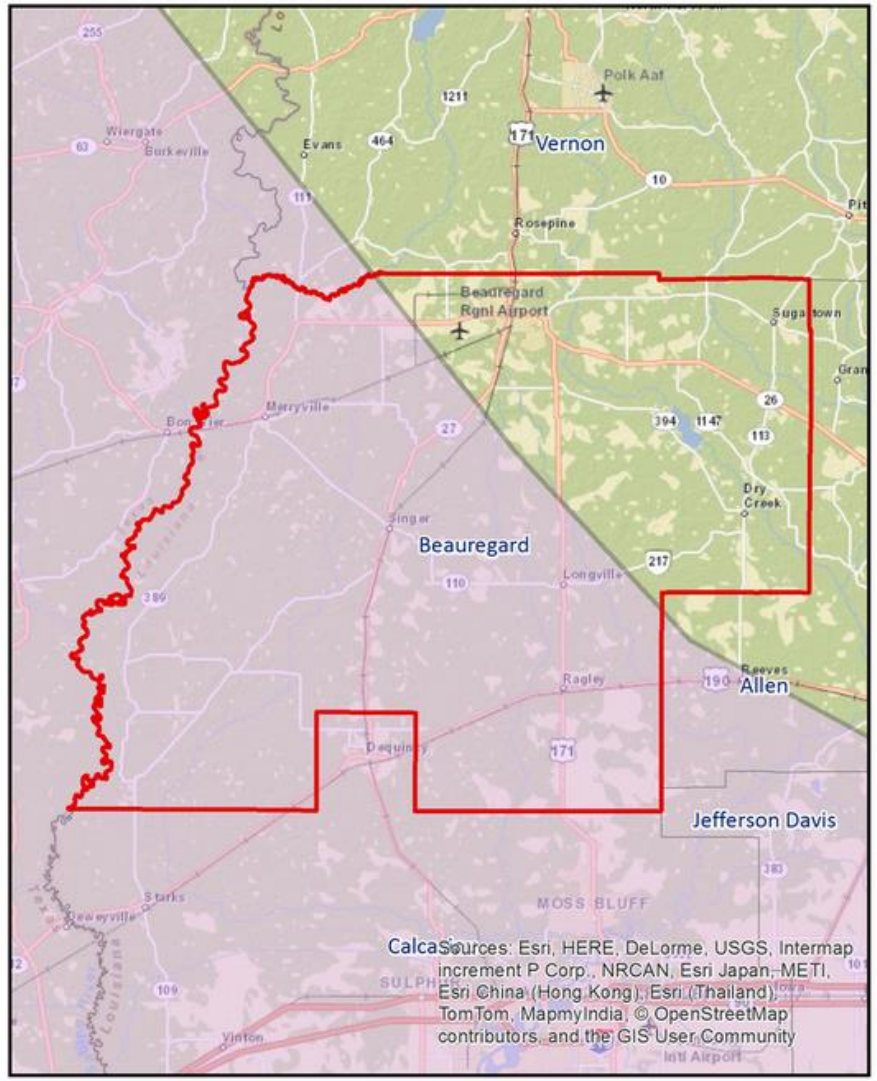
Total Precipitation (inches)

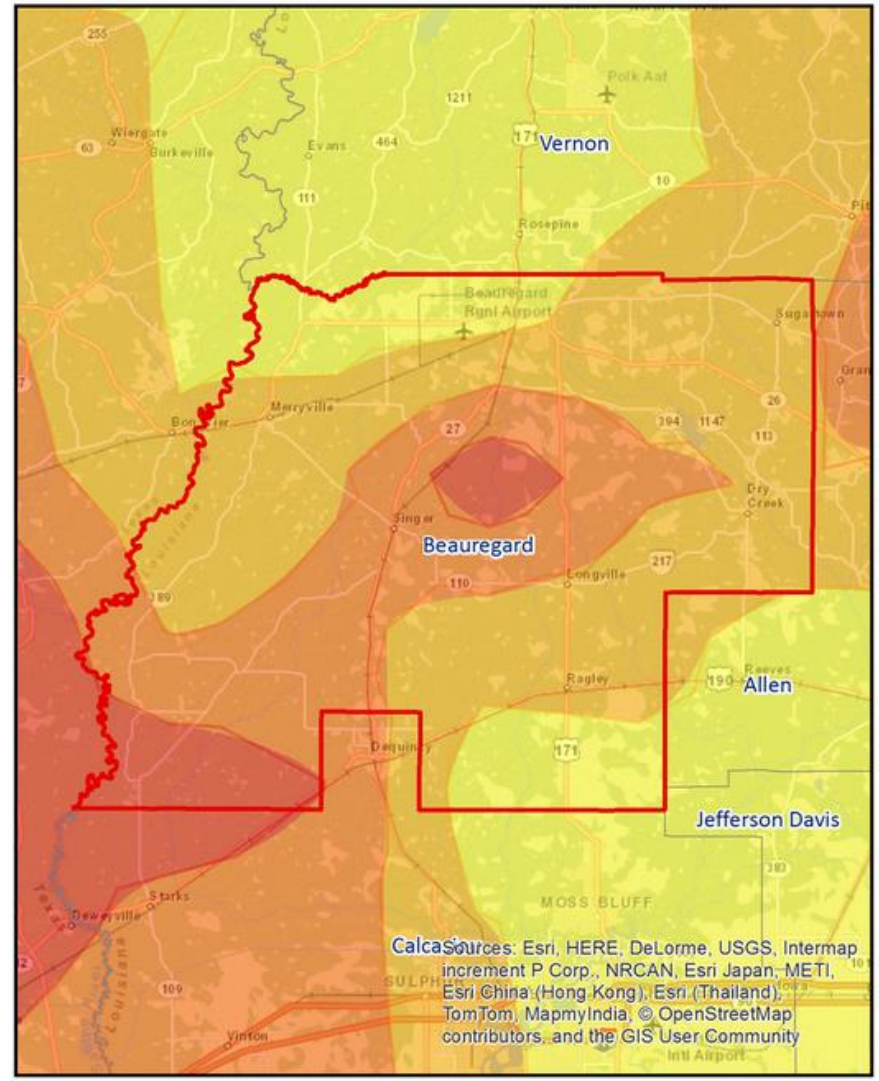
1 3 5 7 10 15 20

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


Future Hurricane Probability per Year
Beauregard
Less than once every 4 years
Once every 3 to 4 years
Once every 2 to 3 years
Once every 1 to 2 years
Beauregard
Vernon
Allen
Evangeline
Calcasieu
Jefferson Davis
Acadia
Vermilion
Beauregard Rgnl Airport
Polk Aaf
New Llano
North Fort Polk
Rosepine
Merryville
Singer
Longville
Dry Creek
Sugartown
Elizabeth
Oakdale
Grant
Mittie
Ragley
Reeves
Kinder
Basile
Dequincy
Starks
MOSS BLUFF
Eenton
SULPHUR
Westlake
LAKE CHARLES
Iowa
Lacassine
Roanoke
Vinton
Channault Intl Airport
Lake Charles Rgnl Airport
Bell City
Hayes
Louisiana
Evangeline Hwy
N
W
E
S
Data Source: The Spatial Hazard Events and Losses Database for the United States (SHELDUS), www.sheldus.org
Adapted from GOHSEP's State Hazard Mitigation Plan
0
5
10
20 Miles
Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

Hurricane Ike (2008)





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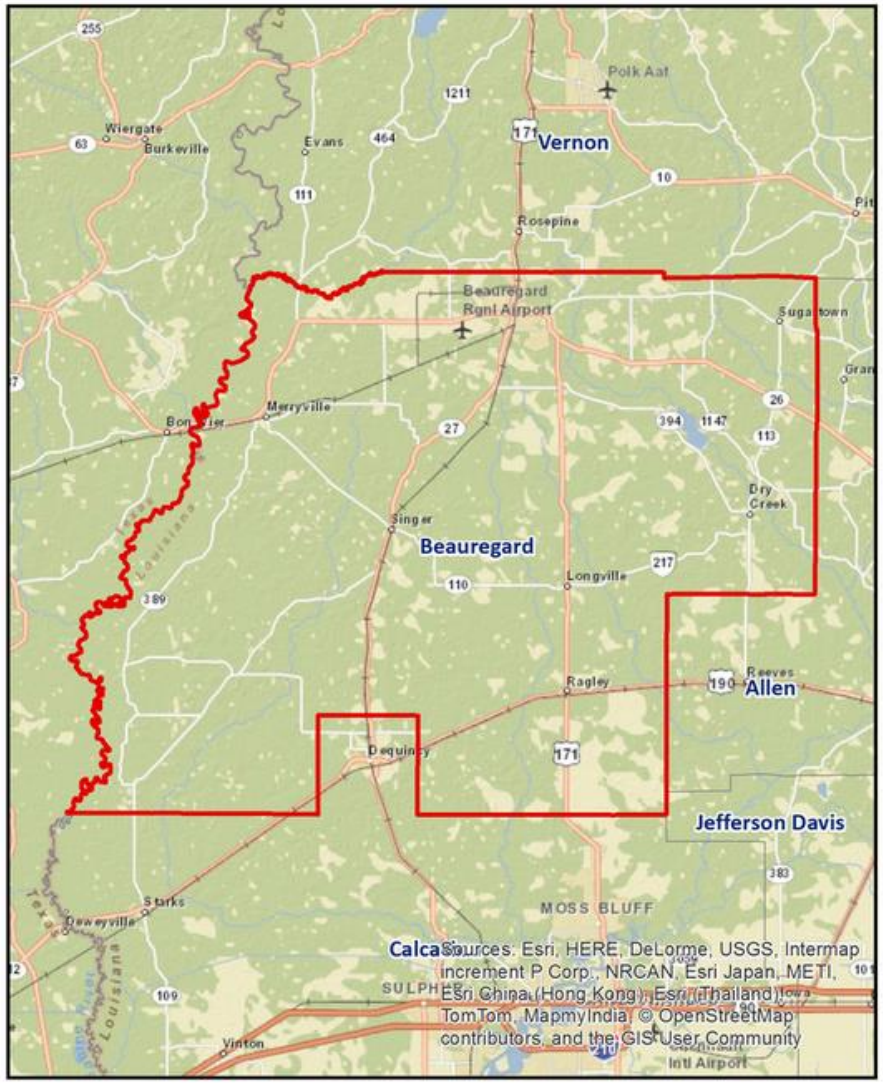
- Major Hurricane (> 110 mph)

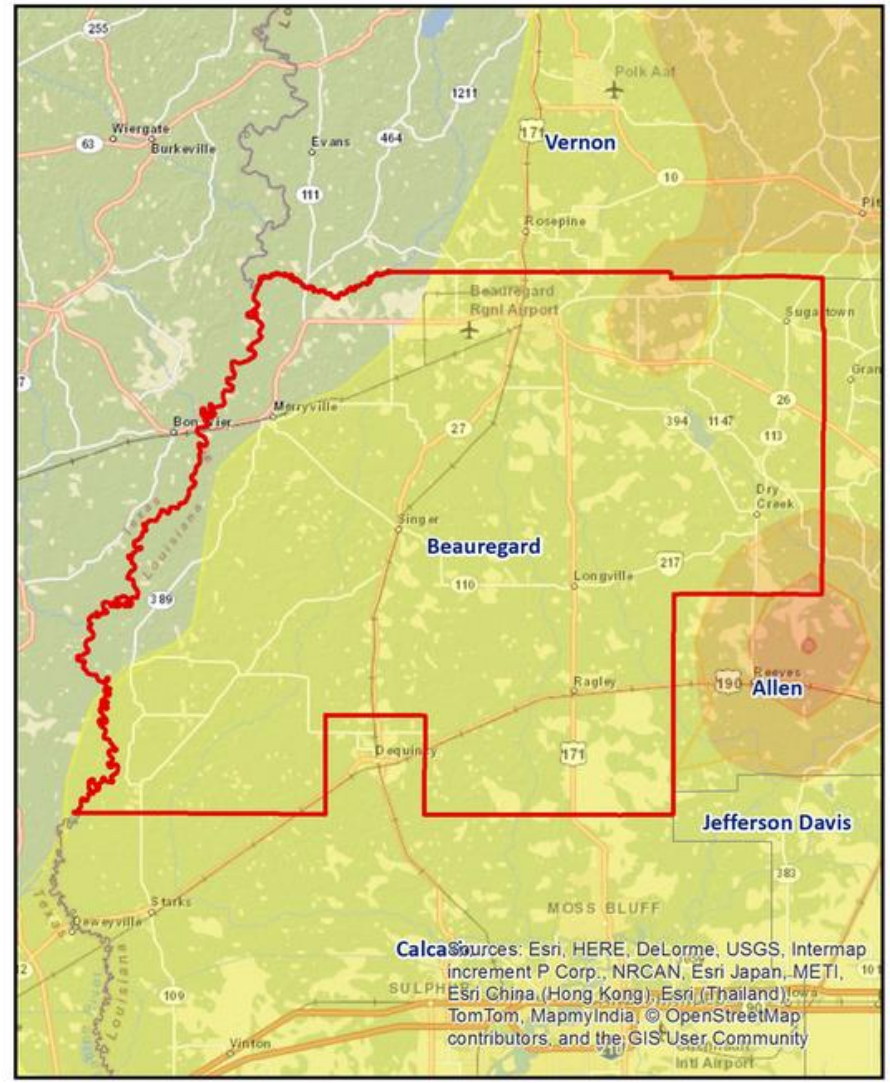
Total Precipitation (inches)

1 3 5 7 10 15 20

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

Hurricane Isaac (2012)





Wind Speed (Saffir-Simpson Scale)

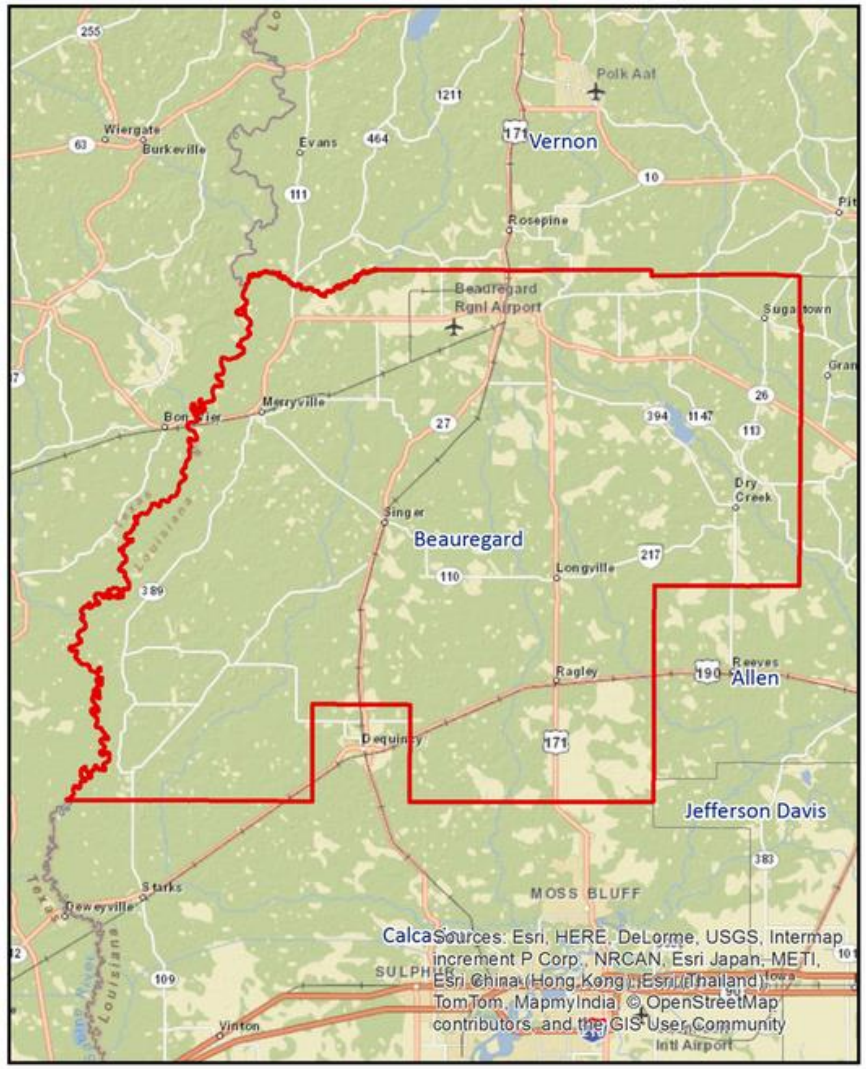
Tropical Storm (39 - 73 mph)
Hurricane (74 - 110 mph)
Major Hurricane (> 110 mph)

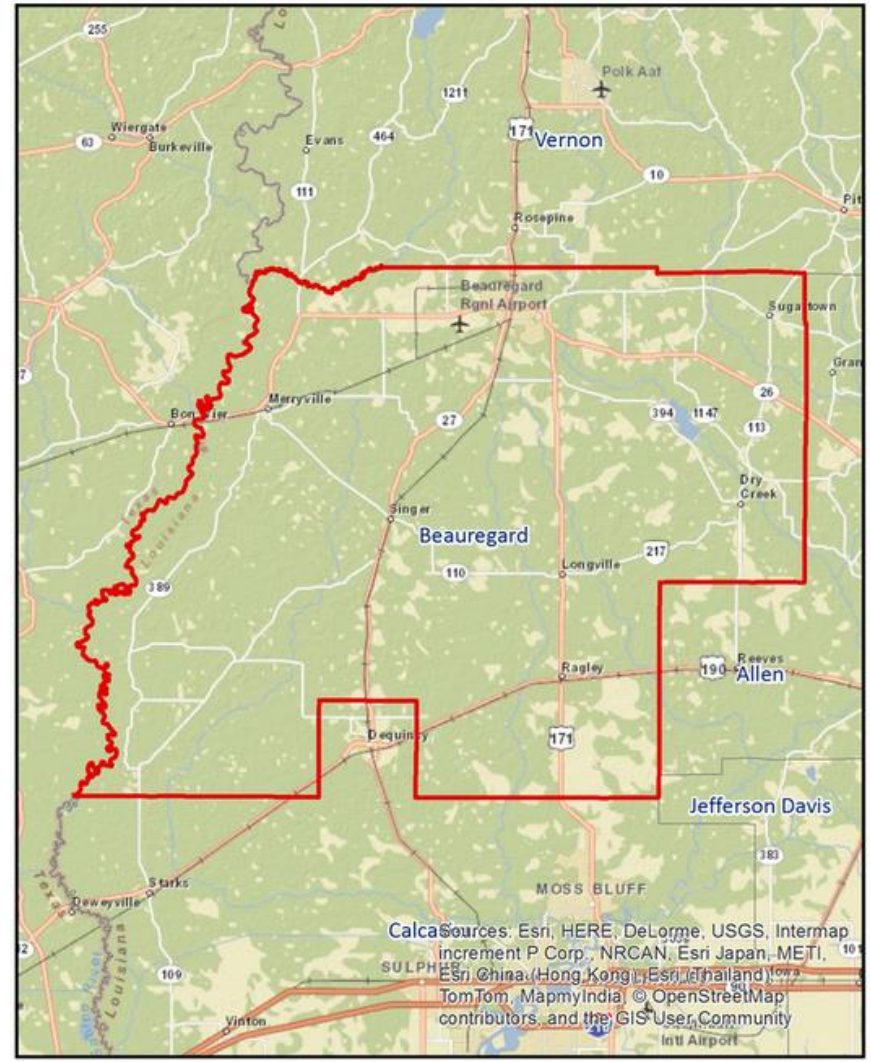
Total Precipitation (inches)

1 3 5 7 10 15 20

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

Hurricane Katrina (2005)





Wind Speed (Saffir-Simpson Scale)

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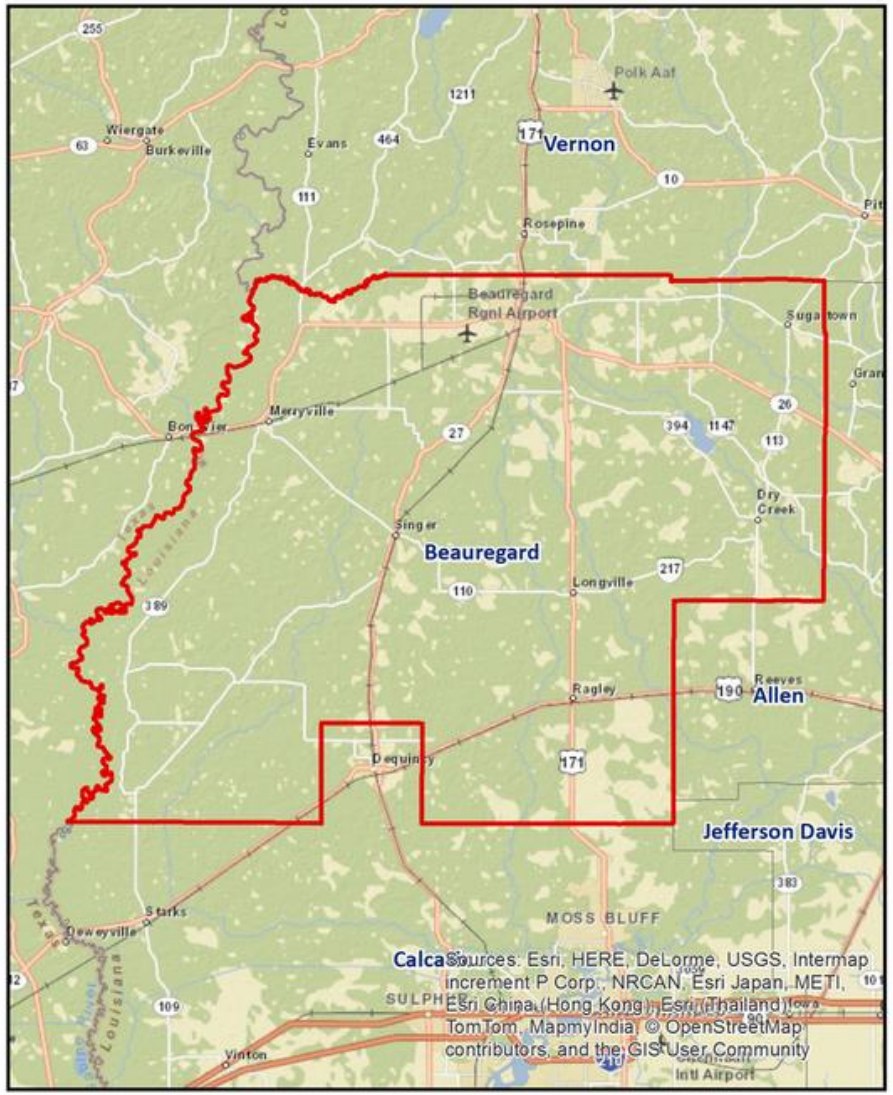
- Hurricane (74 - 110 mph)
- Major Hurricane (> 110 mph)

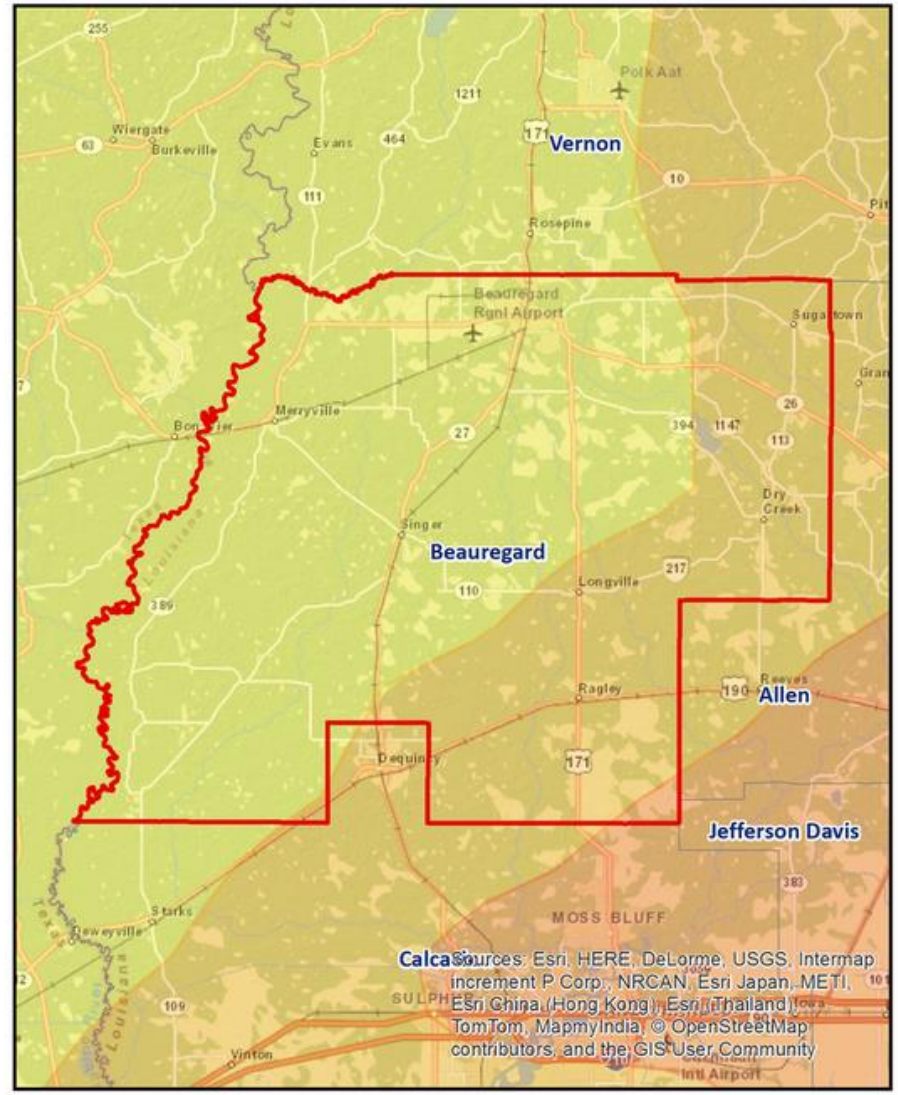
Total Precipitation (inches)

1 3 5 7 10 15 20

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

Tropical Storm Lee (2011)





Wind Speed (Saffir-Simpson Scale)

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Hurricane (74 - 110 mph)

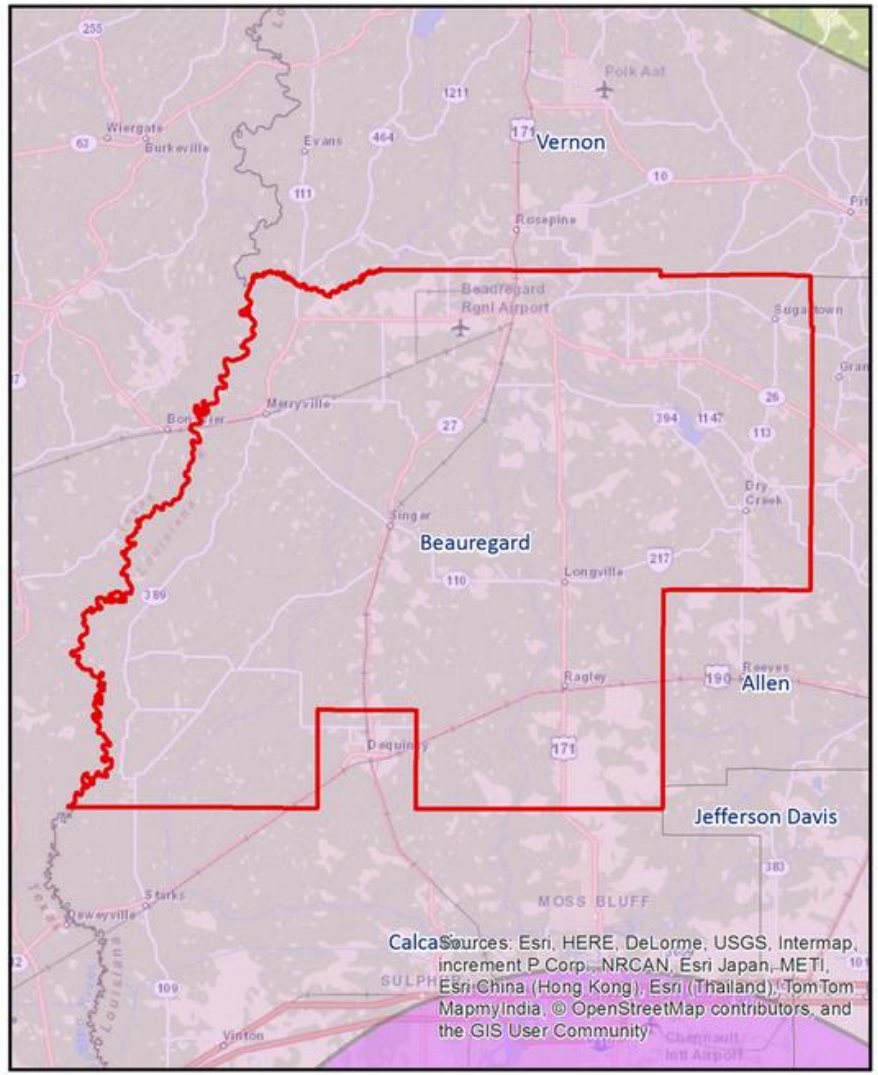
Major Hurricane (> 110 mph)

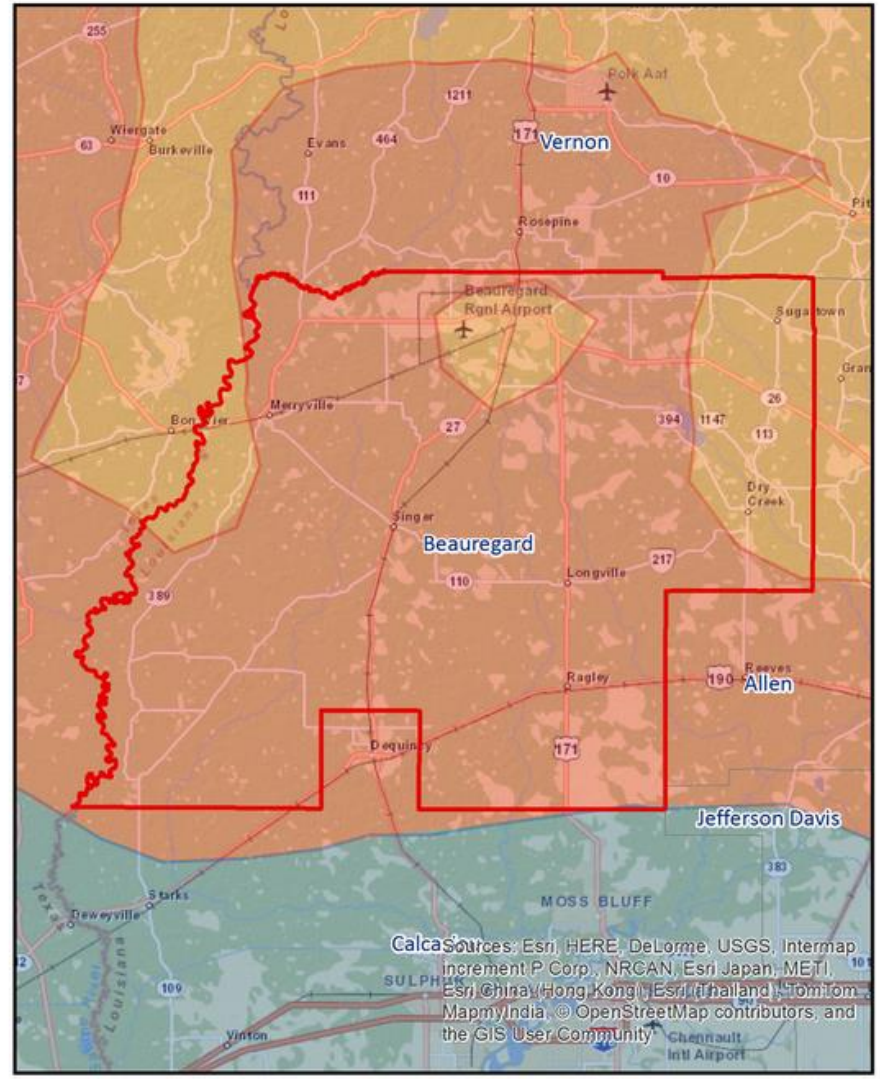
Total Precipitation (inches)

1 3 5 7 10 15 20

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

Hurricane Rita (2005)





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Major Hurricane (> 110 mph)

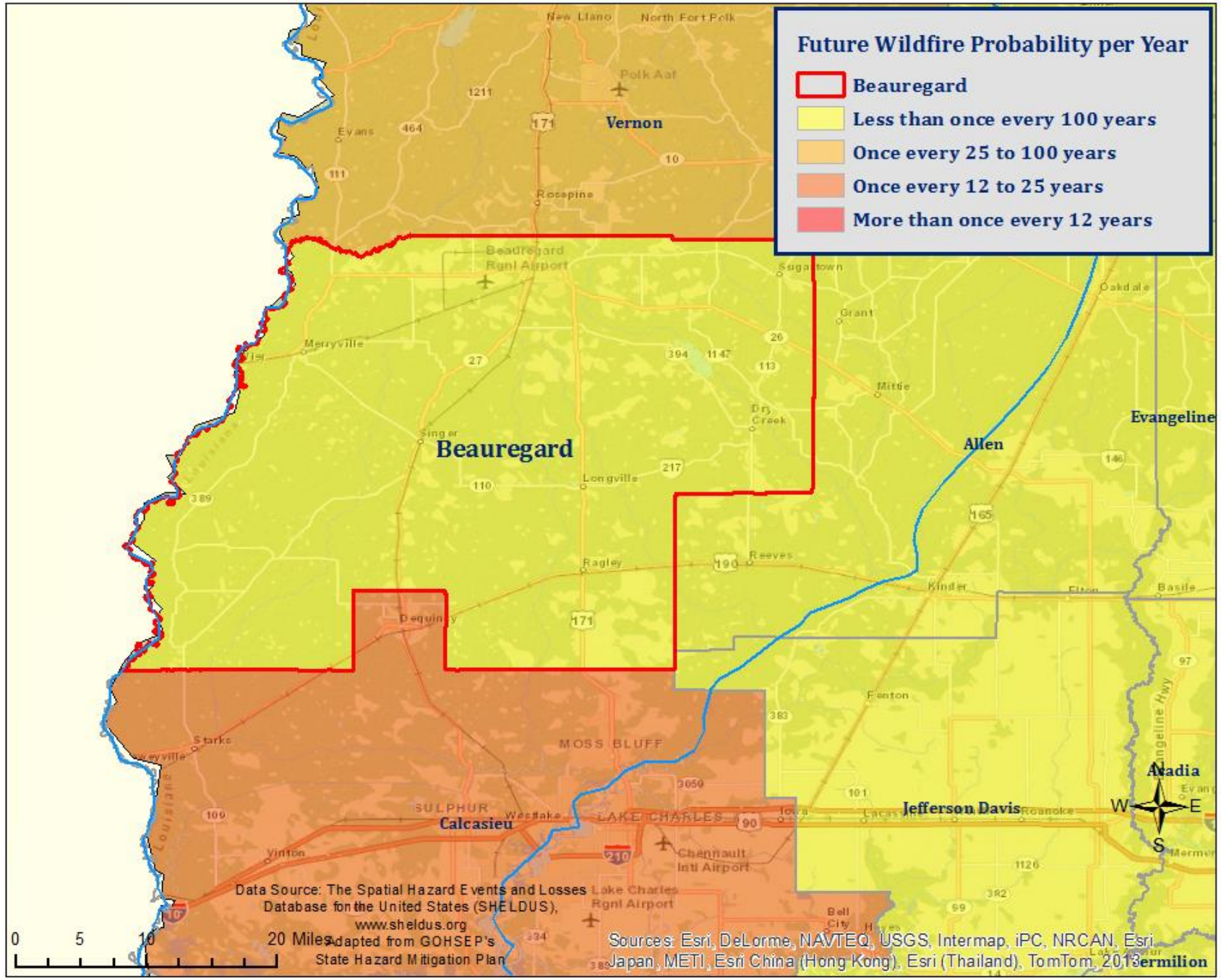
Total Precipitation (inches)

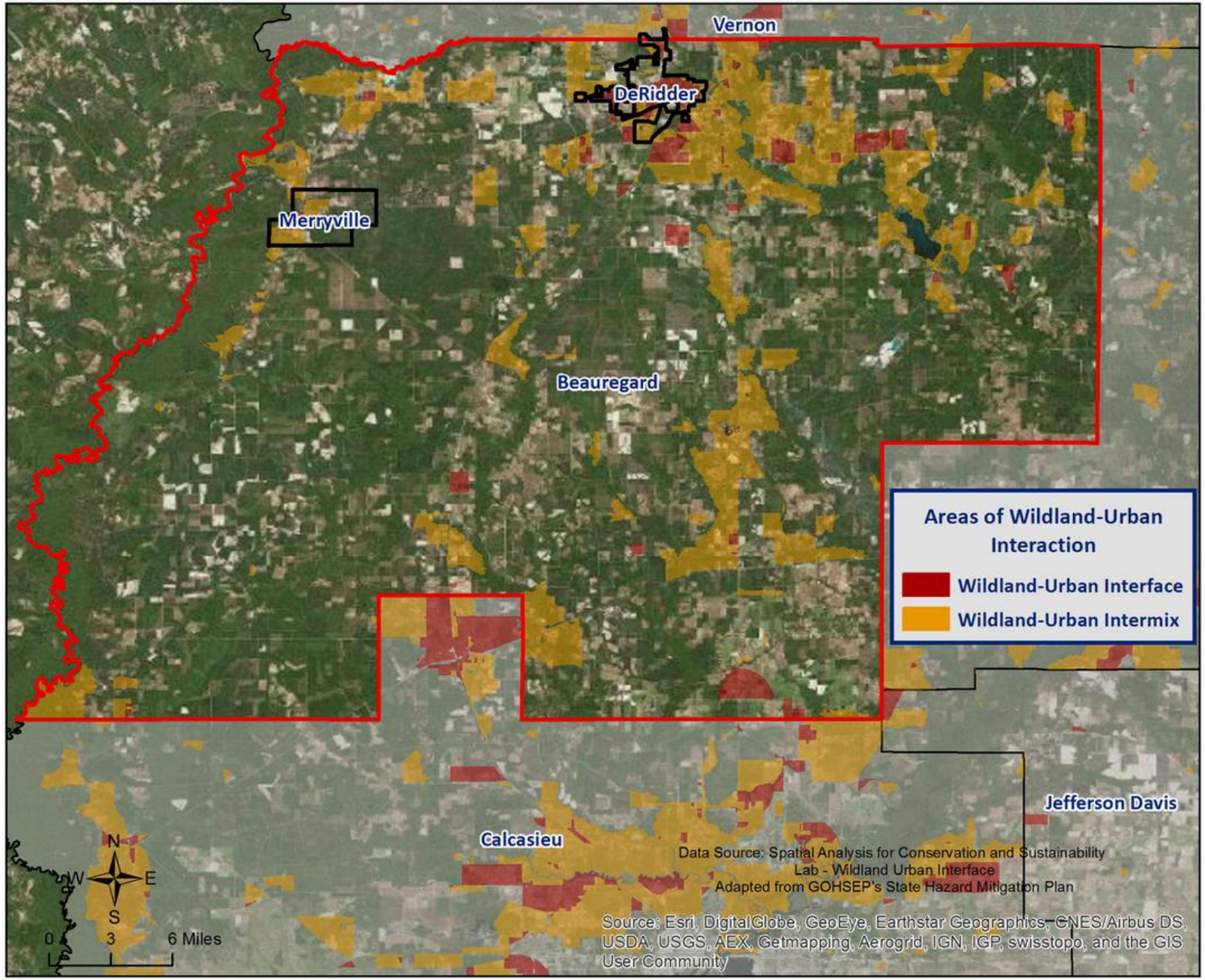
1 3 5 7 10 15 20

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

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.

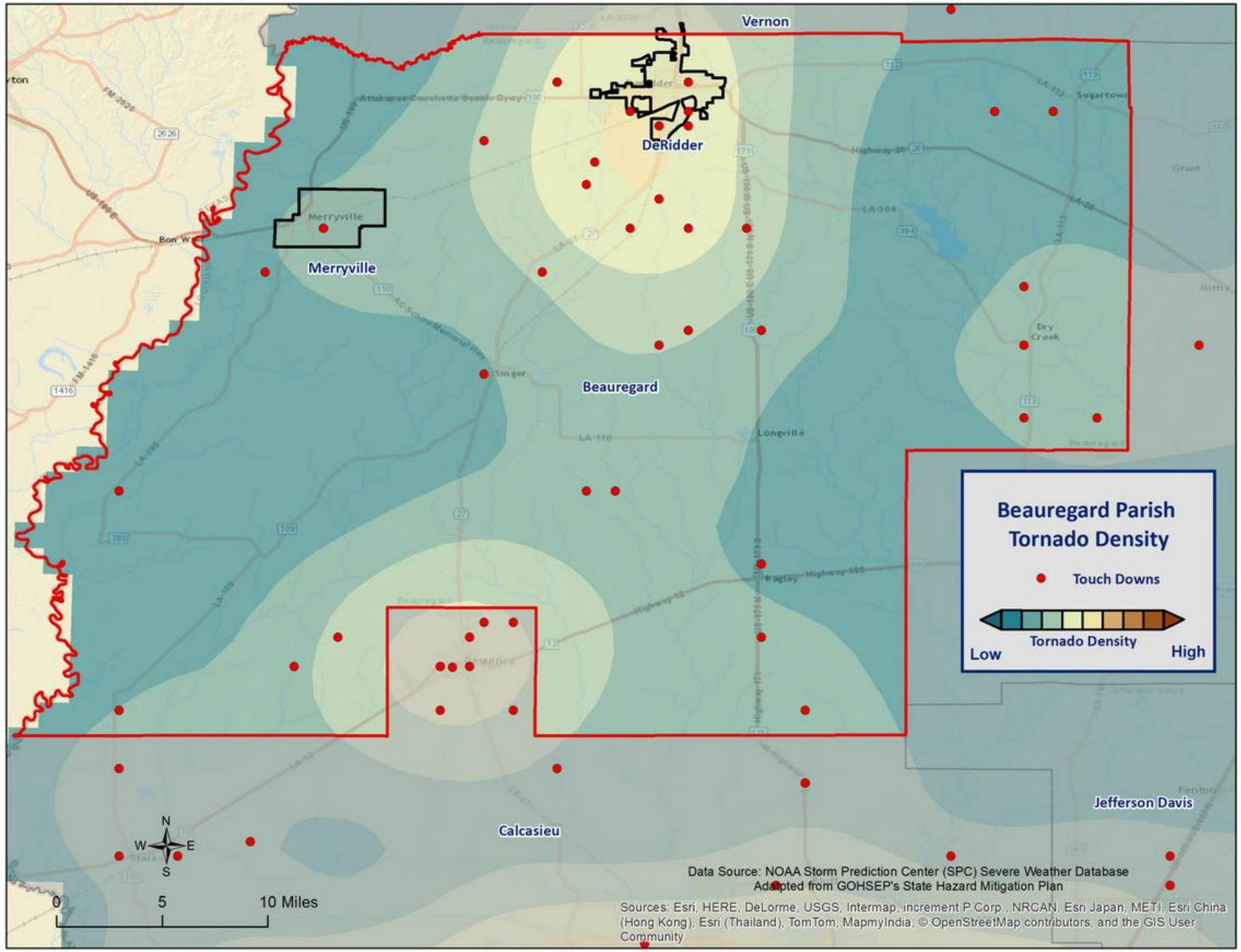

Future Wildfire Probability per Year
Beauregard
Less than once every 100 years
Once every 25 to 100 years
Once every 12 to 25 years
More than once every 12 years
Beauregard
Vernon
Allen
Evangeline
Jefferson Davis
Calcasieu
Acadia
MOSS BLUFF
SULPHUR
LAKE CHARLES
Data Source: The Spatial Hazard Events and Losses Database for the United States (SHELDUS), www.sheldus.org
Adapted from GOHSEP's State Hazard Mitigation Plan
0 5 10 20 Miles
Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013
Vermilion

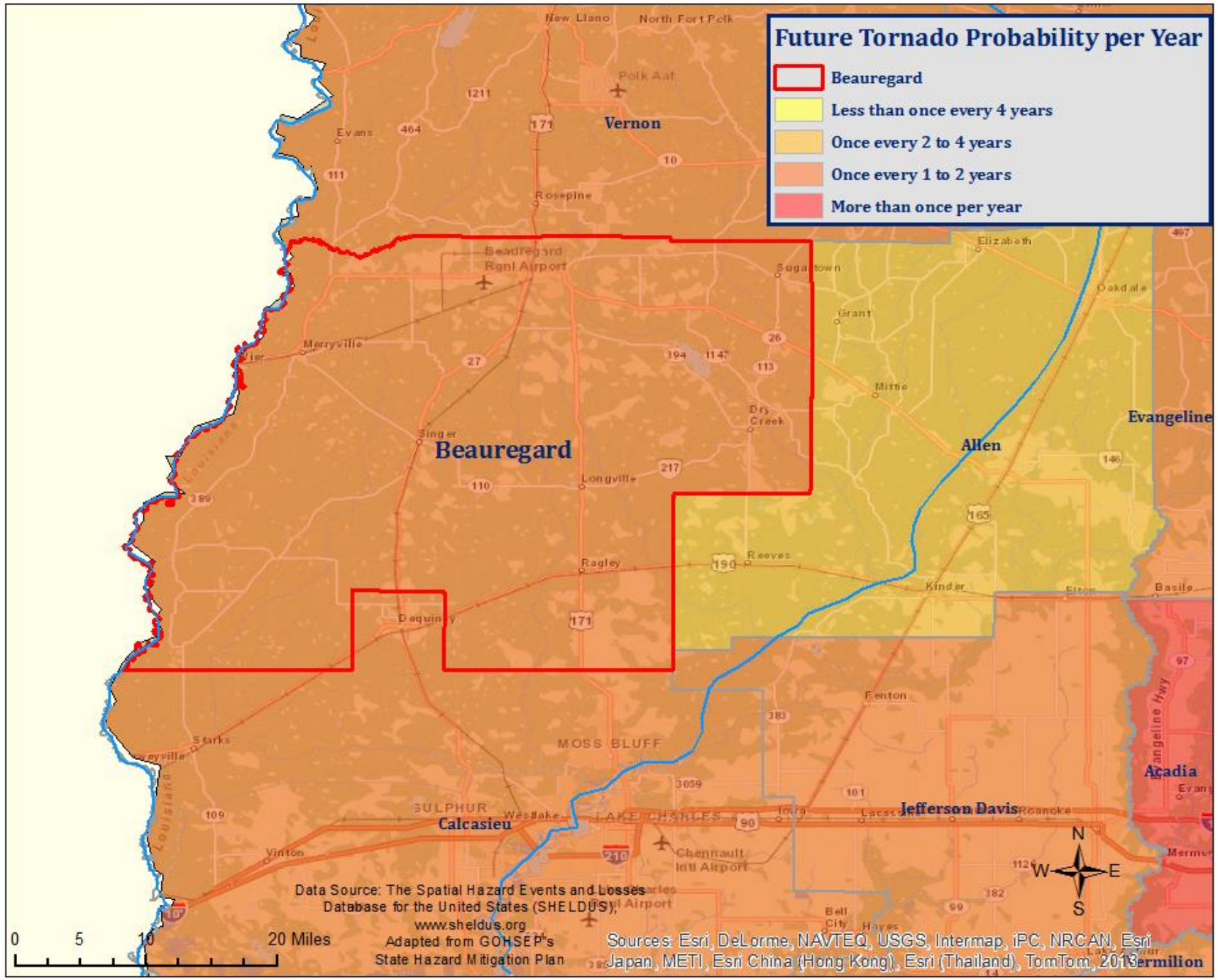

Vernon
DeRidder
Merryville
Beauregard
Areas of Wildland-Urban Interaction
Wildland-Urban Interface
Wildland-Urban Intermix
Jefferson Davis
Calcasieu
N
W
E
S
0
3
6 Miles
Data Source: Spatial Analysis for Conservation and Sustainability Lab - Wildland Urban Interface
Adapted from GOHSEP's State Hazard Mitigation Plan
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Tornadoes

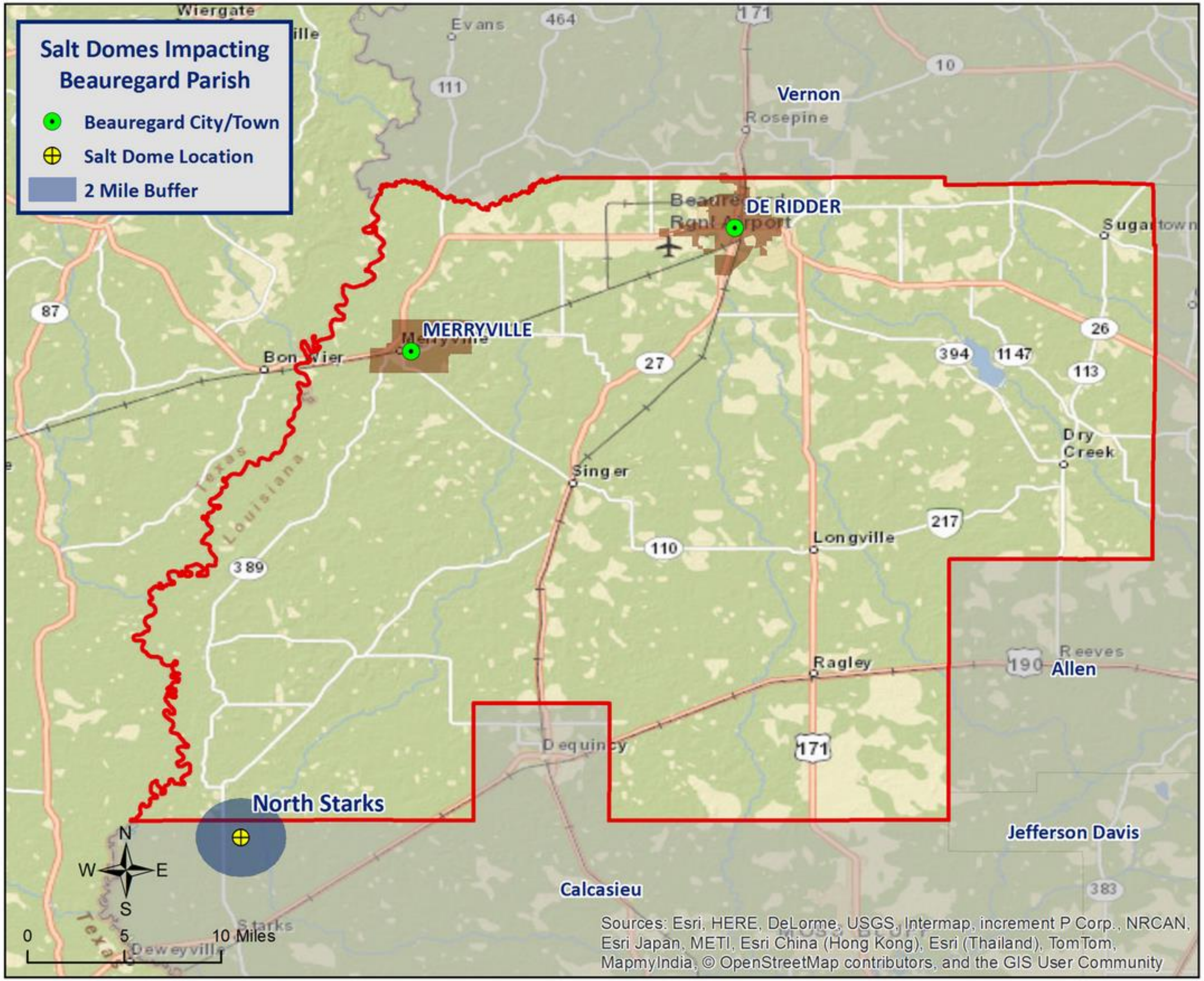
- Tornadoes (also called twisters and cyclones) are rapidly rotating funnels of wind extending between storm clouds and the ground.
- Tornadoes are the most severe storms for their size, and 70% of the world's reported tornadoes occur within the continental United States.

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

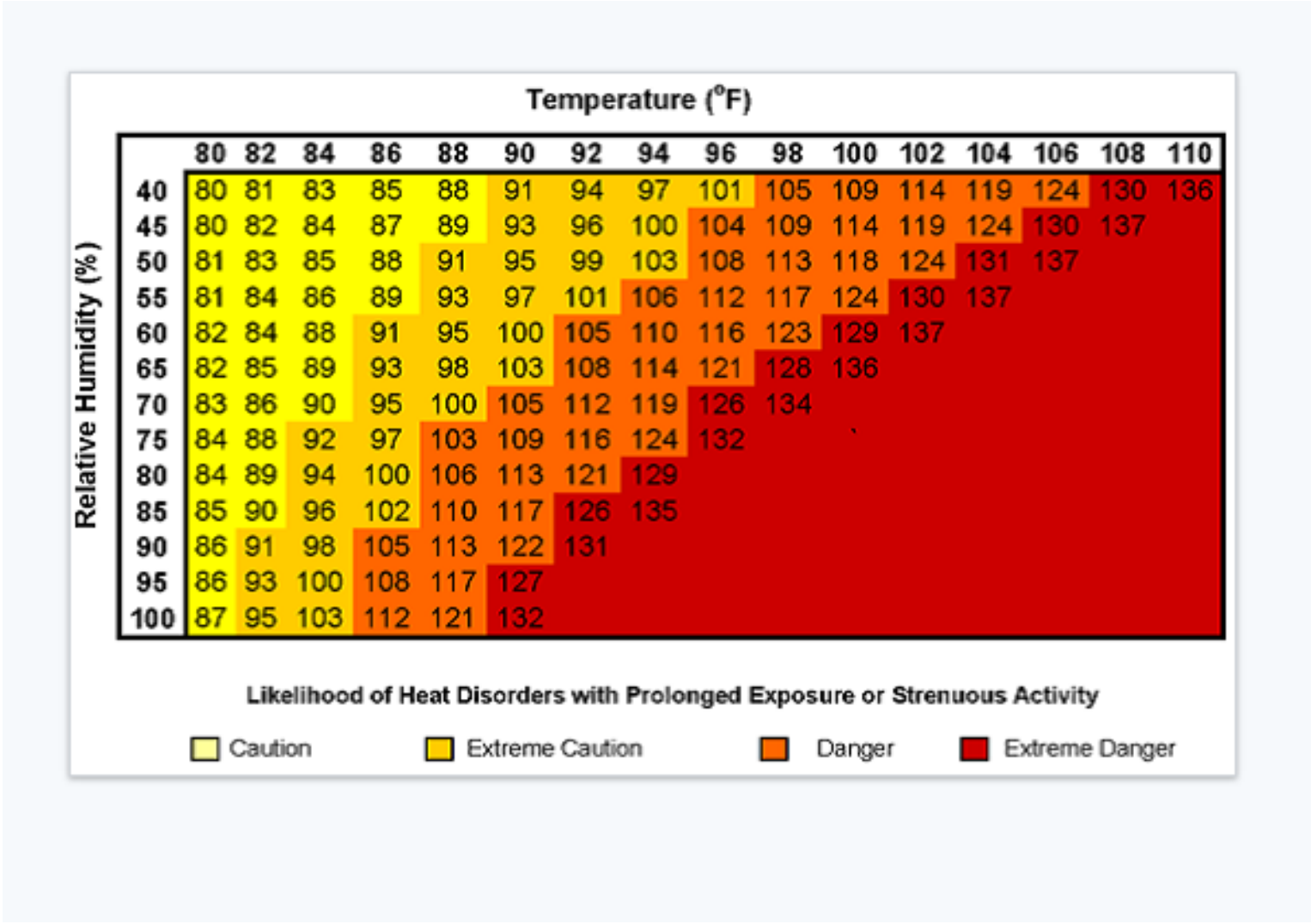

Vernon
DeRidder
Merryville
Merryville
Beauregard
Singer
Longville
Dry Creek
Sugartown
Grant
Jefferson Davis
Calcasieu
Beauregard Parish
Tornado Density
Touch Downs
Tornado Density
Low
High
N
W
E
S
0
5
10 Miles
Data Source: NOAA Storm Prediction Center (SPC) Severe Weather Database
Adapted from GOHSEP's State Hazard Mitigation Plan
Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community


Future Tornado Probability per Year
Beauregard
Less than once every 4 years
Once every 2 to 4 years
Once every 1 to 2 years
More than once per year
Beauregard
Allen
Evangeline
Vernon
Calcasieu
Jefferson Davis
Acadia
Vermilion
Data Source: The Spatial Hazard Events and Losses Database for the United States (SHELDUS), www.sheldus.org
Adapted from GOHSEP's State Hazard Mitigation Plan
0 5 10 20 Miles
N
W
E
S
Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

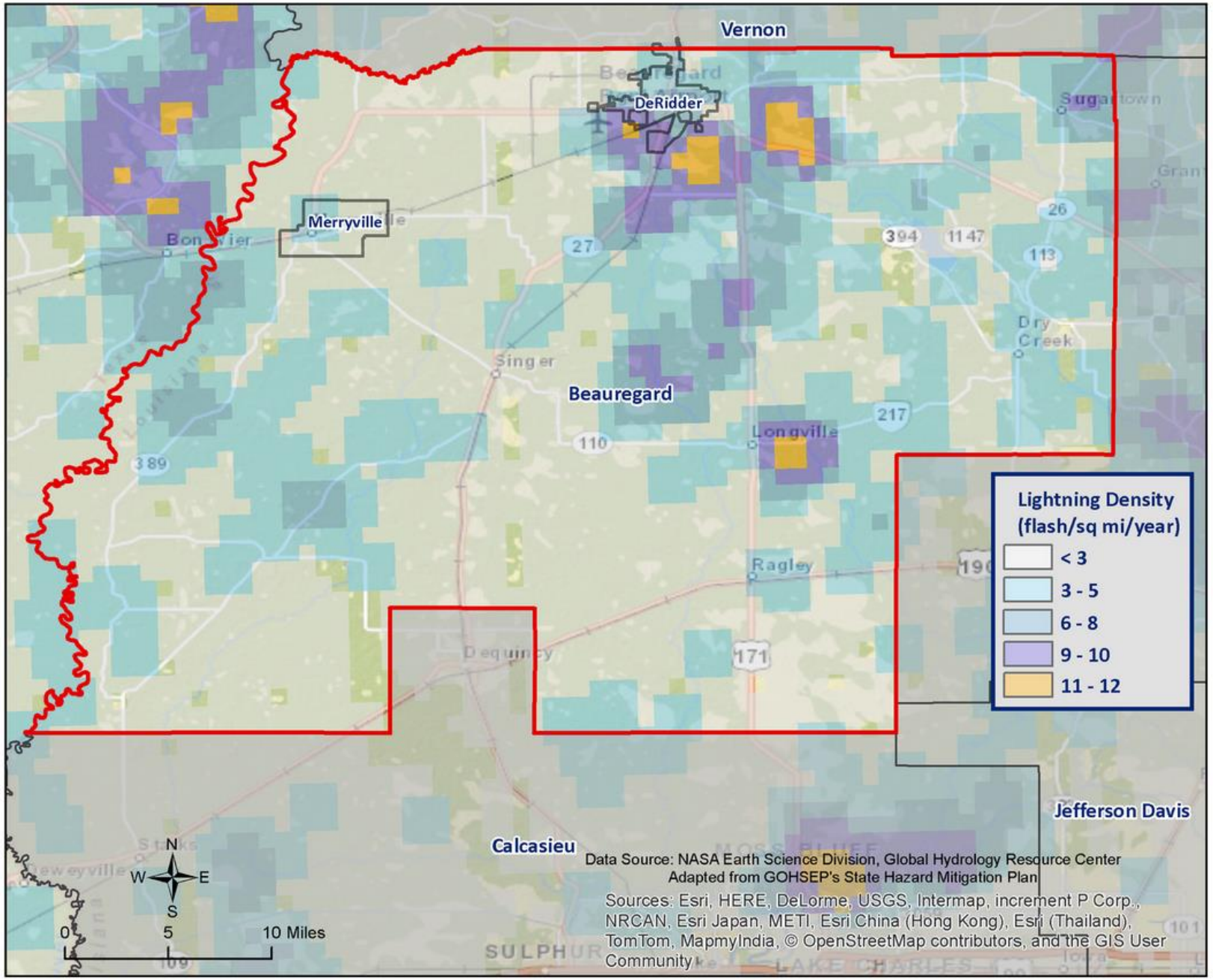
Sinkholes


Salt Domes Impacting Beauregard Parish
Beauregard City/Town
Salt Dome Location
2 Mile Buffer
DE RIDDER
MERRYVILLE
North Starks
Vernon
Allen
Jefferson Davis
Calcasieu
Singer
Longville
Ragley
Dry Creek
Sugartown
Dequincy
Bon Wier
Rosepine
Evans
Starks
N
S
E
W
0
5
10 Miles
Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

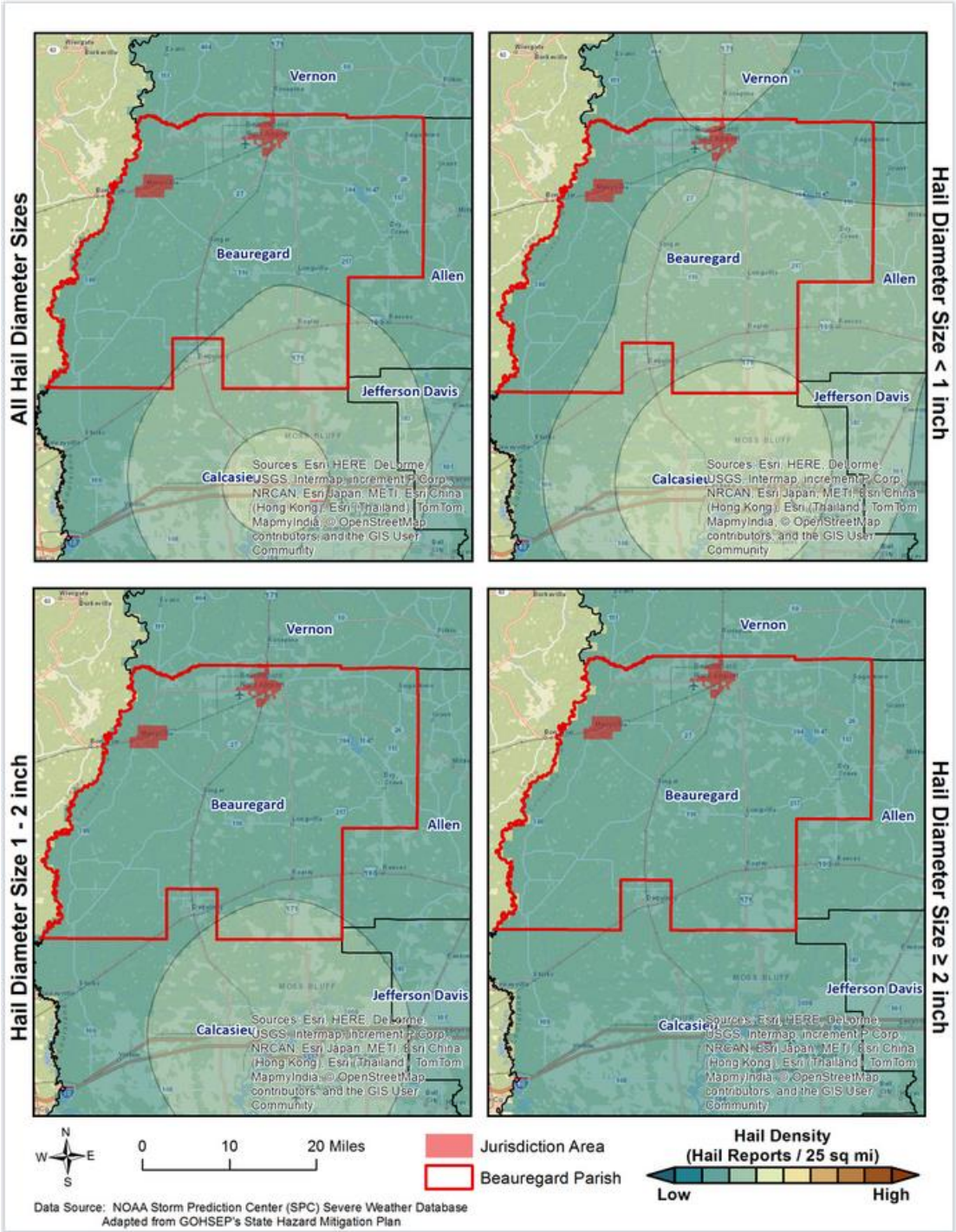
Excessive Heat

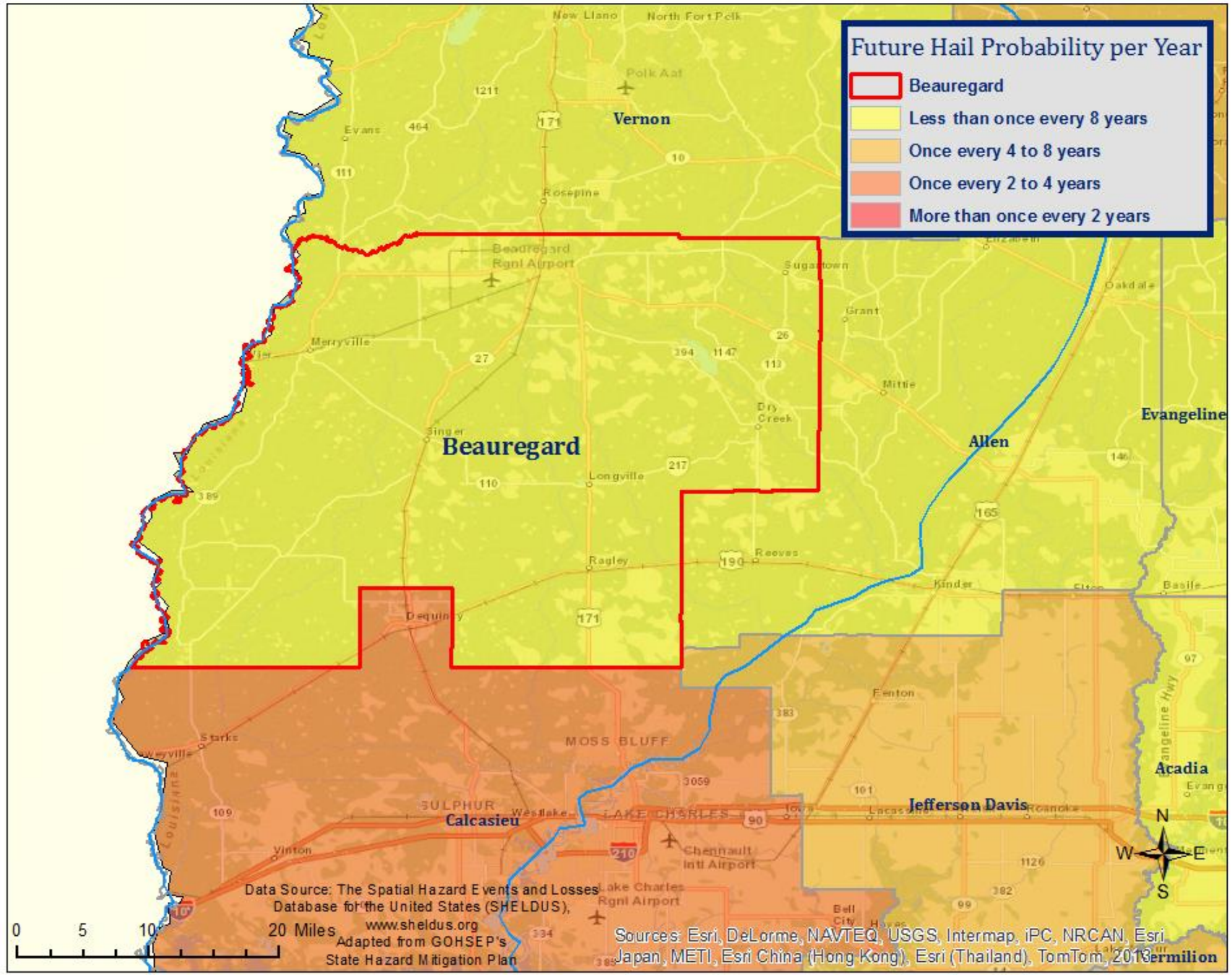


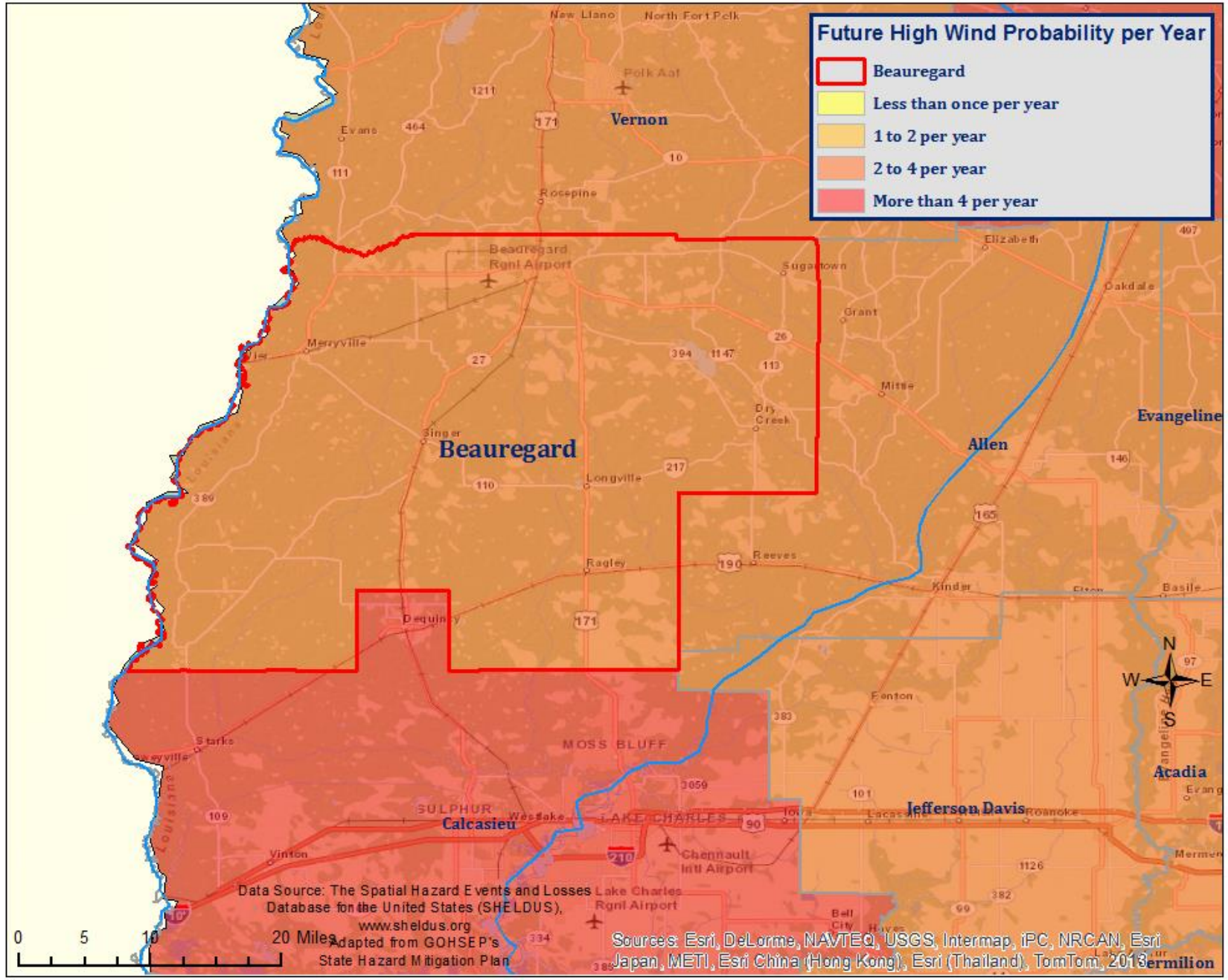
Lightning Density

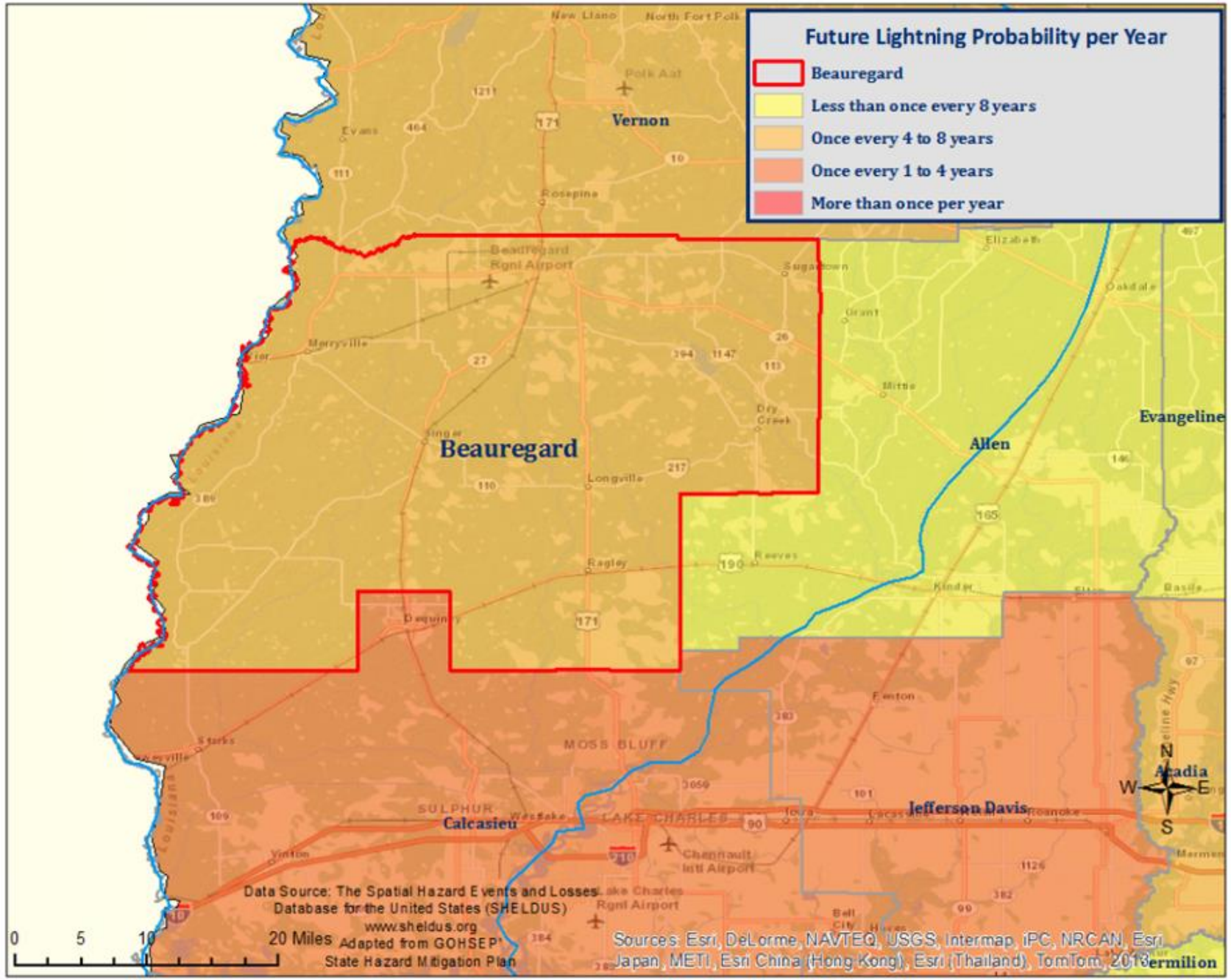


Hail Density



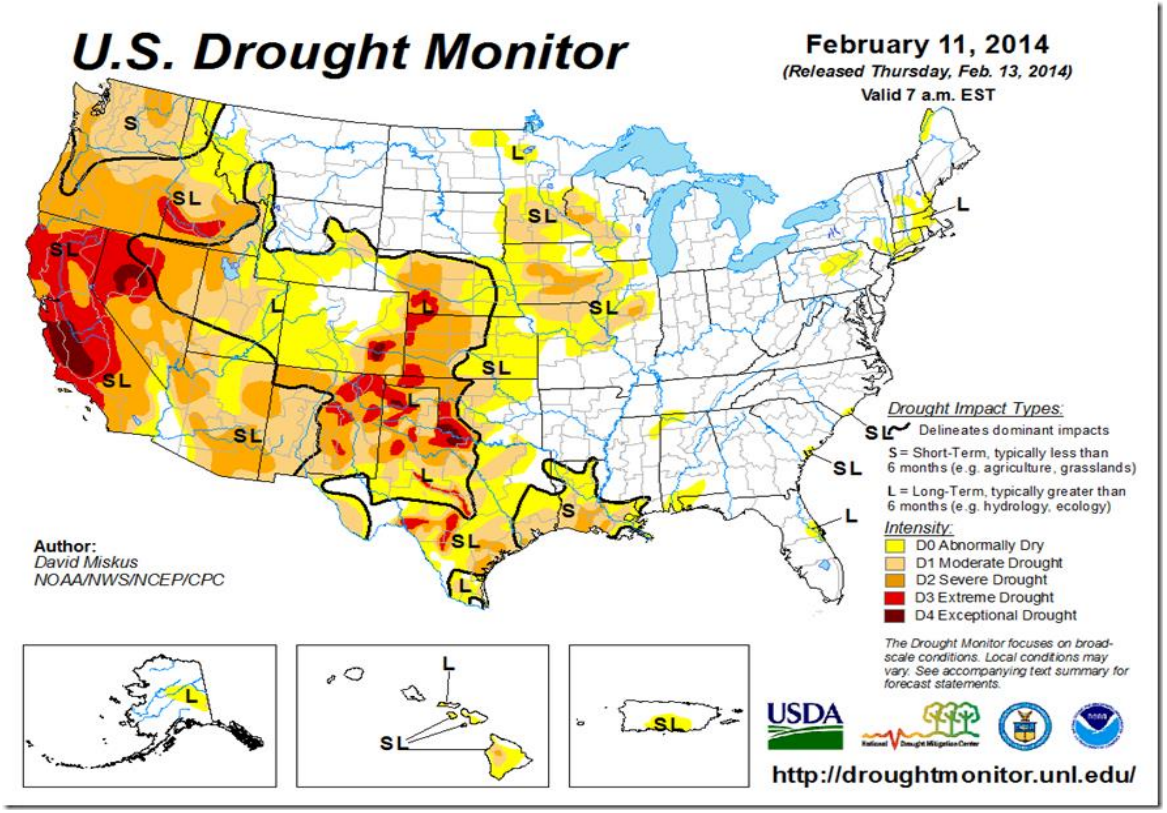

Future Hail Probability per Year
Beauregard
Less than once every 8 years
Once every 4 to 8 years
Once every 2 to 4 years
More than once every 2 years
Beauregard
Allen
Evangeline
Acadia
Jefferson Davis
Calcasieu
Vernon
Rosepine
Merryville
Singer
Longville
Ragley
Dequincy
Starks
MOSS BLUFF
SULPHUR
LAKE CHARLES
Westlake
Vinton
Fenton
Kinder
Basile
Mittie
Grant
Oakdale
Sugartown
Dry Creek
Reeves
Beauregard Rgnl Airport
Chennault Intl Airport
Lake Charles Rgnl Airport
New Llano
North Fort Polk
Polk Aaf
Evans
Data Source: The Spatial Hazard Events and Losses Database for the United States (SHELDUS), www.sheldus.org
Adapted from GOHSEP's State Hazard Mitigation Plan
0 5 10 20 Miles
Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013
N
W
E
S


Future High Wind Probability per Year
Beauregard
Less than once per year
1 to 2 per year
2 to 4 per year
More than 4 per year
Beauregard
Vernon
Allen
Evangeline
Acadia
Calcasieu
Jefferson Davis
Vermilion
MOSS BLUFF
SULPHUR
LAKE CHARLES
Data Source: The Spatial Hazard Events and Losses Database for the United States (SHELDUS), www.sheldus.org
Adapted from GOHSEP's State Hazard Mitigation Plan
0 5 10 20 Miles
Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013
N
W
E
S


Future Lightning Probability per Year
Beauregard
Less than once every 8 years
Once every 4 to 8 years
Once every 1 to 4 years
More than once per year
Beauregard
Allen
Evangeline
Jefferson Davis
Calcasieu
Vernon
Acadia
MOSS BLUFF
SULPHUR
LAKE CHARLES
Data Source: The Spatial Hazard Events and Losses Database for the United States (SHELDUS) www.sheldus.org Adapted from GOHSEP State Hazard Mitigation Plan
0 5 10 20 Miles
Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013
N
W
E
S

Drought

- A drought is a deficiency in water availability over an extended period of time, caused by precipitation totals and soil water storages that do not satisfy the environmental demand for water either by evaporation or transpiration through plant leaves.
- There are four classes of drought, based upon what is impacted by the shortage of water:
  - Meteorological Drought
  - Hydrologic Drought
  - Agricultural Drought
  - Socioeconomic Drought
- The entire parish can be affected by drought



U.S. Drought Monitor

Louisiana

June 2, 2015

(Released Thursday, Jun. 4, 2015)

Valid 7 a.m. EST

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 5/26/2015	100.00	0.00	0.00	0.00	0.00	0.00
3 Months Ago 3/3/2015	24.07	75.93	26.68	0.00	0.00	0.00
Start of Calendar Year 12/30/2014	47.23	52.77	10.88	0.00	0.00	0.00
Start of Water Year 9/30/2014	88.99	11.01	0.63	0.00	0.00	0.00
One Year Ago 6/3/2014	87.66	12.34	2.91	1.29	0.00	0.00

Intensity:

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

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

Author:
David Miskus
NOAA/NWS/NCEP/CPC

http://droughtmonitor.unl.edu/

Mitigation Strategy – Parish Goals

- Goal 1: Improve education and outreach efforts regarding potential impacts of hazards and the identification of specific measures that can be taken to reduce their impact.
- Goal 2: Improve data collection, use, and sharing to reduce the impacts of hazards.
- Goal 3: Improve capabilities and coordination to plan and implement hazard mitigation projects.
- Goal 4: Pursue opportunities to reduce impacts from hazards through mitigation of repetitive and severe repetitive loss properties and other appropriate construction projects and related activities.

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Stephenson National Center for Security Research and Training

2009-2014 Parish HM Project Status

- Director's Comments

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Public Outreach Activities

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

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