



St. Tammany Parish Hazard Mitigation Plan Update Public Meeting

June 18, 2020

Zoom Video Conference



Introductions

- **Stephenson Disaster Management Institute (SDMI) at LSU**
 - Lauren Stevens – Associate Director, Disaster Management Programs
 - Chris Rippetoe – Hazard Mitigation Program Manager
 - Catherine Street – Hazard Mitigation Student Worker
- **St. Tammany Parish OHSEP Director/Parish Staff**
 - Clarence Powe– OHSEP Director
- **Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP)**
 - Jeffrey Giering – State Hazard Mitigation Officer



Agenda

- **Introductions**
- **Zoom Ground Rules**
- **Hazard Mitigation Overview**
- **Hazard Mitigation**
- **Planning Process Risk Assessment**
- **Public Outreach Activity**

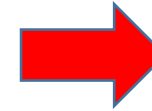
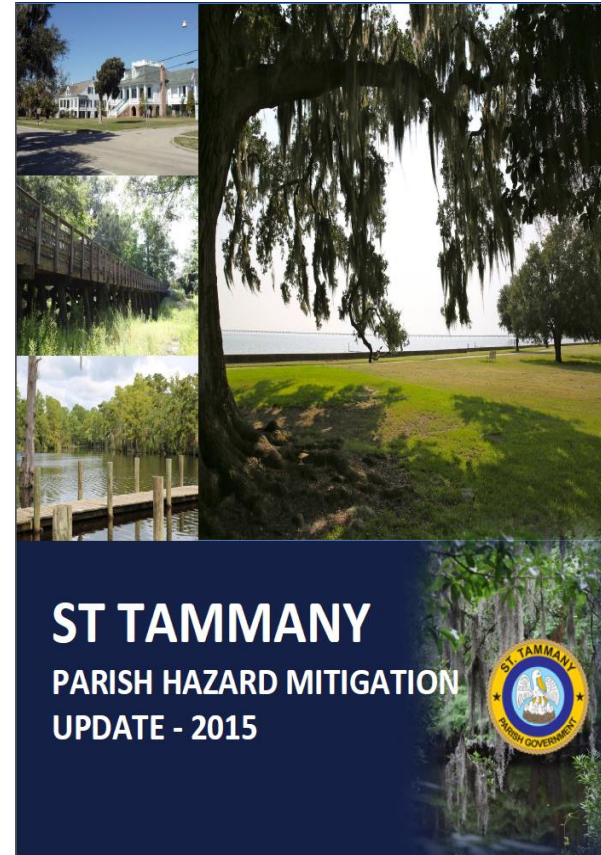
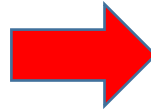


Zoom Meeting Ground Rules

- All microphones **will be muted** for the duration of the meeting, with the exception of the host and designated co-hosts.
- If using web-cams, please be aware of your surroundings as to not distract others.
- Please utilize the chat function for all collaborative discussion and questions.
- We will answer all questions posted in the chat at the end of the PowerPoint presentation.
- The host or co-host have the ability to remove participants for inappropriate or off-topic comments in the chat.



Why Are We Here?



STATE OF LOUISIANA

This document has been prepared by:

Louisiana Governor's Office of Homeland Security
and Emergency Preparedness
7667 Independence Blvd.
Baton Rouge, LA 70806

With Support From:

Department of Geography and Anthropology
Department of Construction Management
Louisiana State University
Baton Rouge, LA 70803

University of New Orleans Center for Hazards Assessment, Response & Technology
[UNO-CHART]
2000 Lakeshore Drive
New Orleans, LA 70148



Hazard Mitigation Is.....

- Any action taken to reduce long term risk to life and property;
- On-going process that occurs before, during, and after disasters;
- Mitigation actions help prevent damage to a *community's infrastructure, economic, cultural and environmental assets*;
- Implementation of mitigation actions leads to building stronger, safer and smarter!

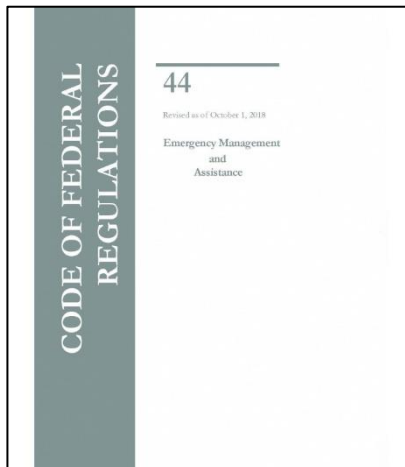


Why Are We Required To Have A Hazard Mitigation Plan?

- 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.

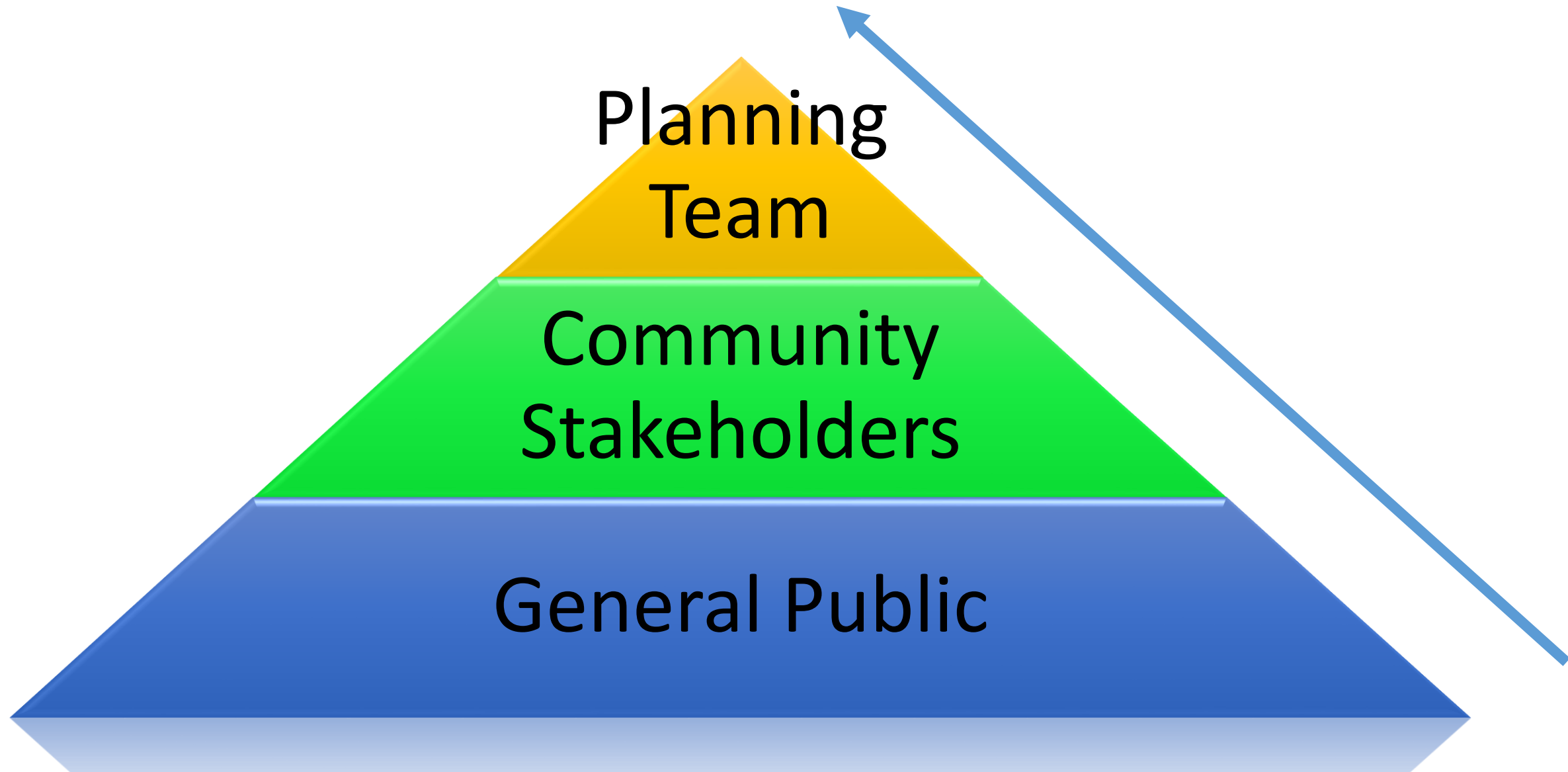


- The approved St. Tammany Parish Hazard Mitigation Plan will allow for distribution of HM funding following future disasters.

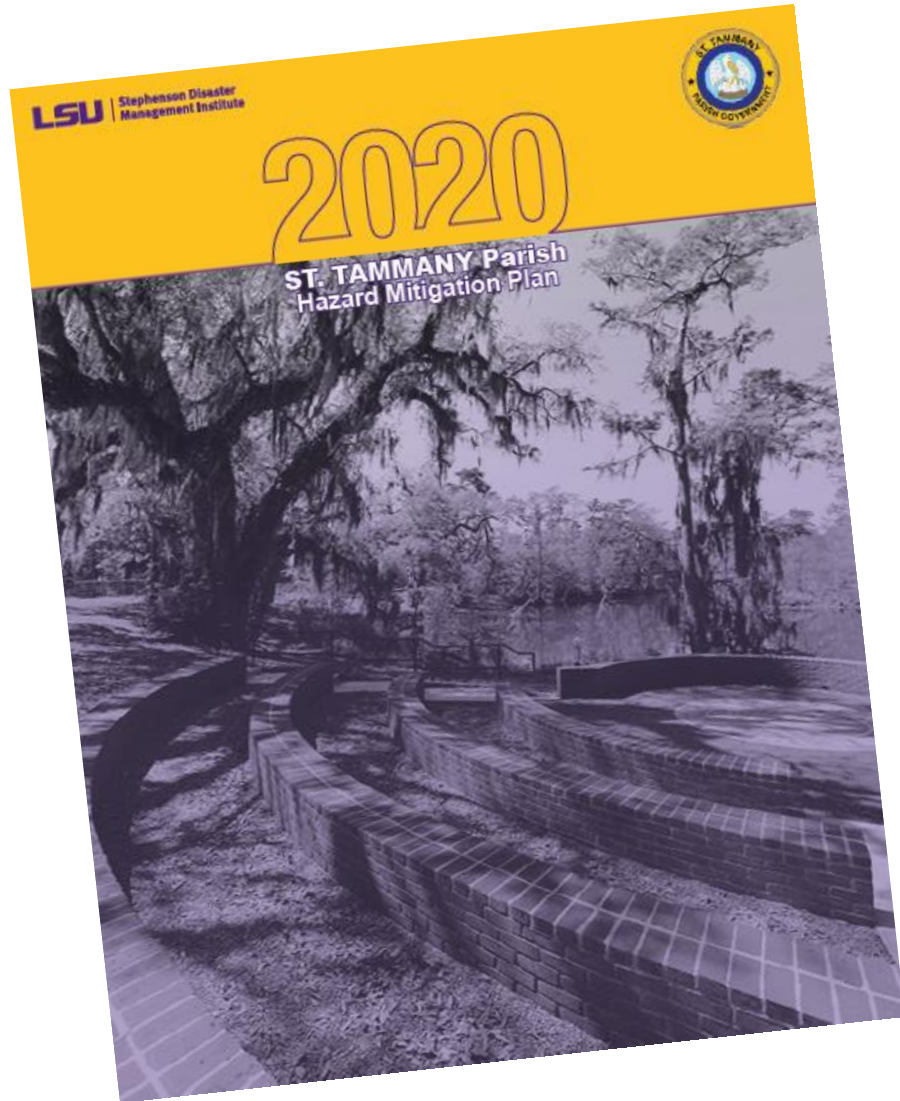
Planning Process to Date



Collaborative Planning Approach



Planning Development



Plan Layout

- **Section 1: Introduction**
 - Updated parish description
 - Updated demographics
 - Economics
- **Section 2: Hazard Identification and Parish-wide Risk Assessment**
- **Section 3: Capability Assessment**
- **Section 4: Mitigation Strategies**
 - New actions
 - Action updates
 - Survey results



Plan Layout

- **Appendix A:** Planning Process
- **Appendix B:** Plan Maintenance
- **Appendix C:** Parish Essential Facilities
- **Appendix D:** Plan Adoption
- **Appendix E:** State Required Worksheets
- **Appendix F:** Community Rating System (CRS)



Hazard Identification and Risk Assessment

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



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

- Coastal Land Loss
- Drought
- Flooding
- Fog
- Levee/Dam Failure
- Termites
- Thunderstorms/
Lightning/High Winds
- Tropical Cyclones
- Tornadoes
- Wildfires



Priority Risk Index for St. Tammany Parish

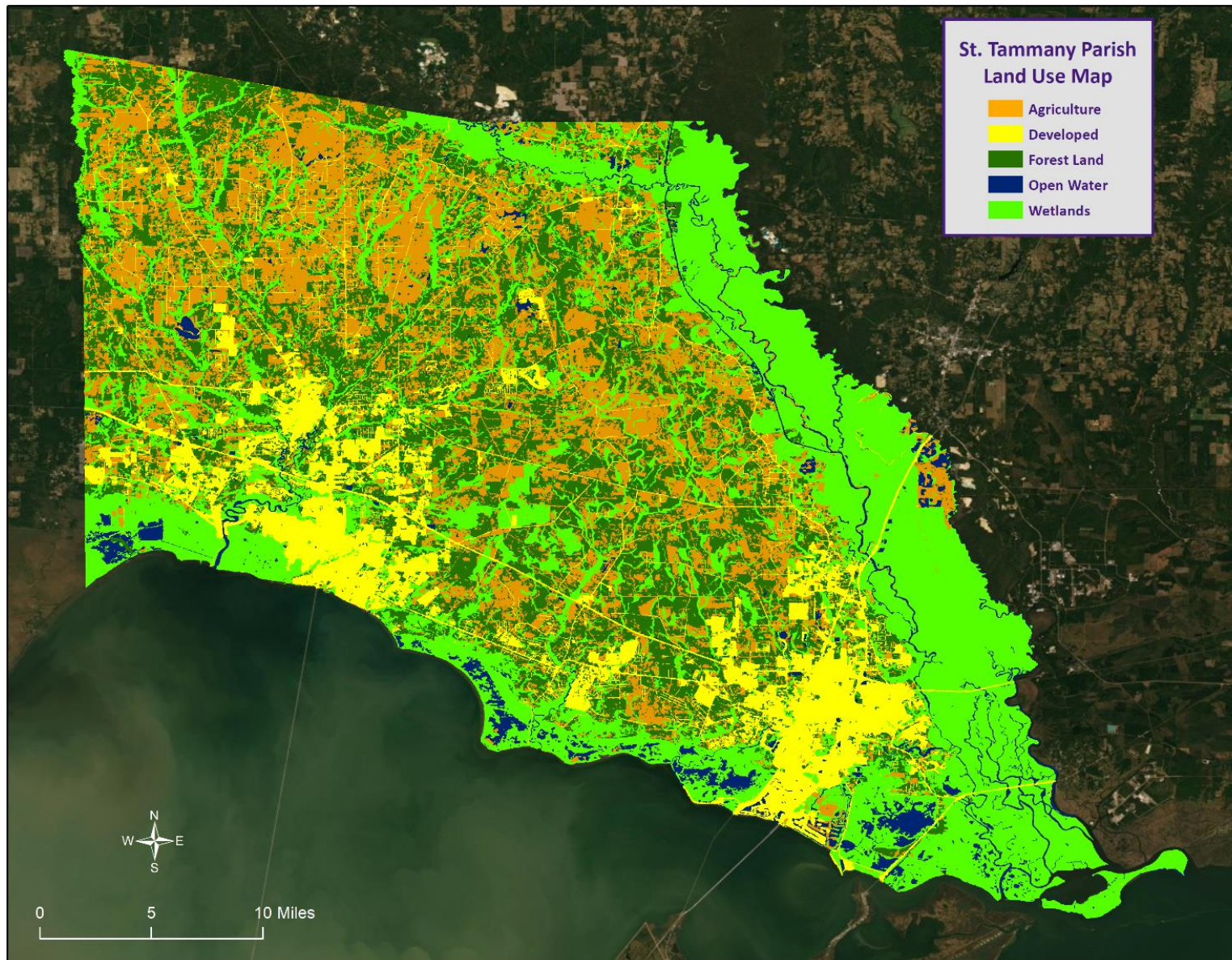
Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	Overall Risk
Coastal Hazards	4	2	4	1	3	2.9
Dam Failure	1	2	2	4	2	2.05
Drought	2	4	4	1	4	3.05
Flooding	3	4	3	4	3	3.4
Fog	3	2	2	3	1	2.25
Levee Failure	1	3	2	4	2	2.3
Termites	4	2	1	1	2	2.15
Thunderstorms - Hail	3	2	3	3	1	2.45
Thunderstorms - Lightning	3	2	2	3	1	2.25
Thunderstorms - Winds	3	2	2	3	1	2.25
Tornadoes	3	3	2	4	3	2.95
Tropical Cyclones	4	4	4	1	4	3.55
Wildfires	1	3	3	4	4	2.8



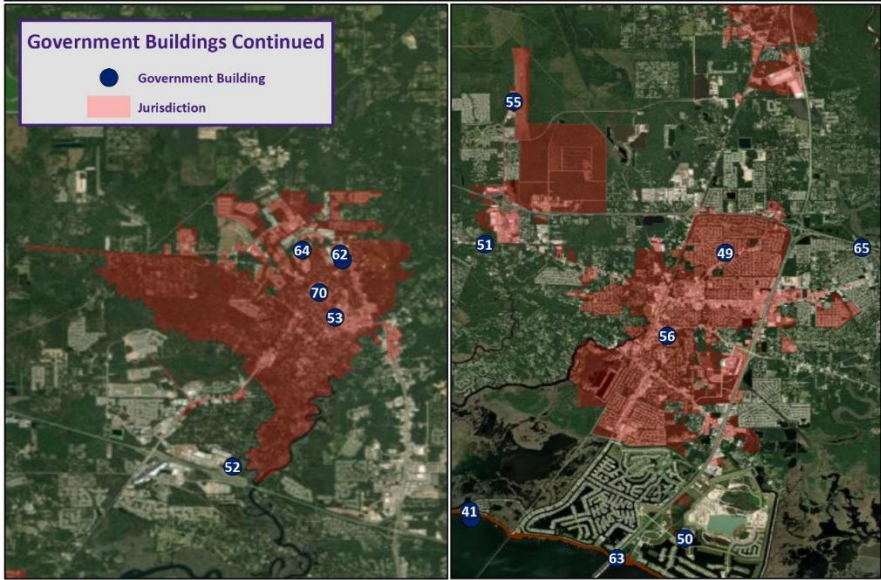
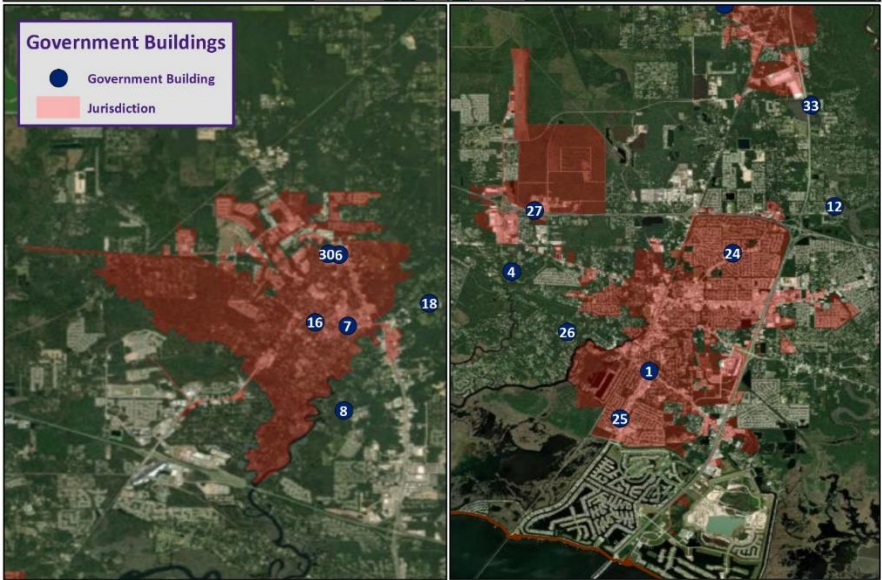
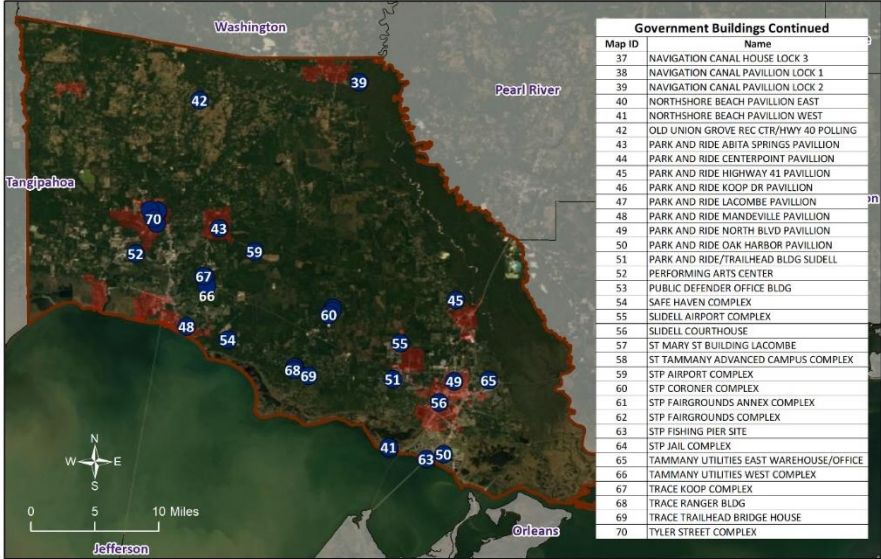
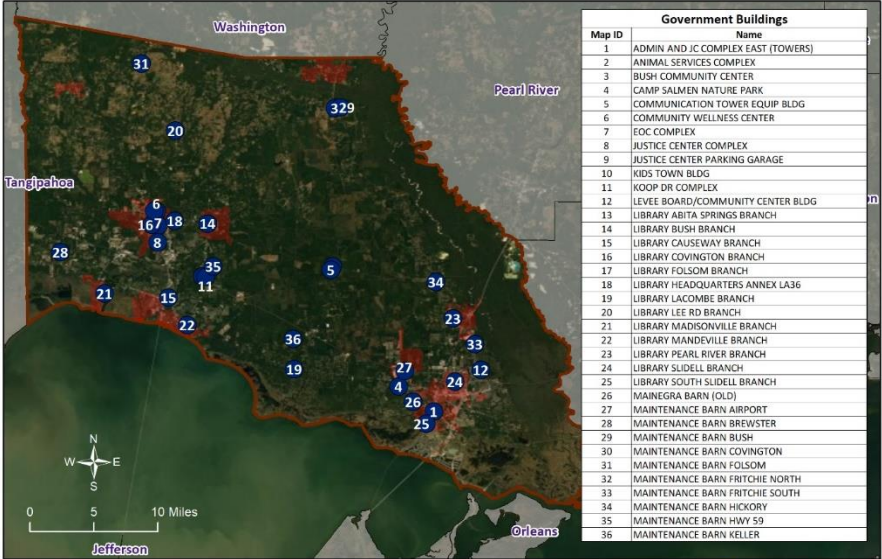
Risk Assessment Maps



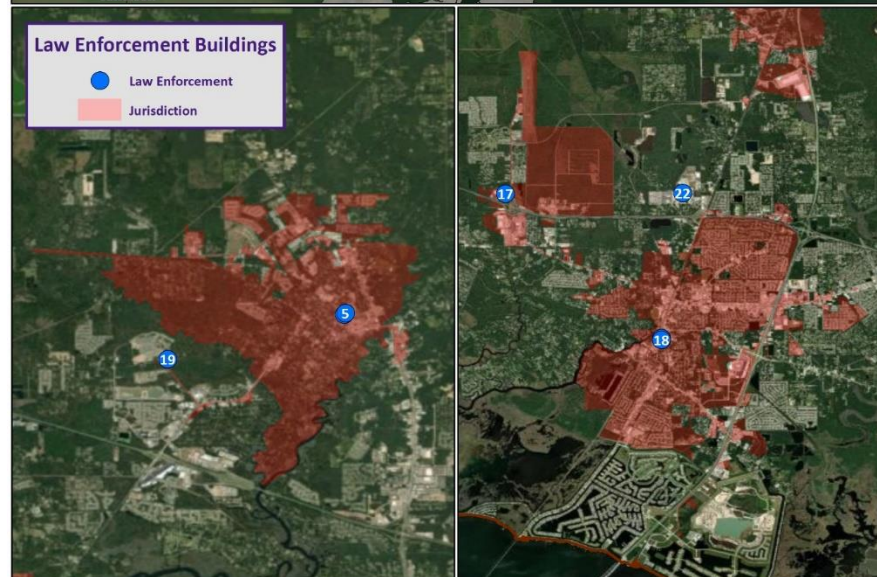
St. Tammany Parish Land Use



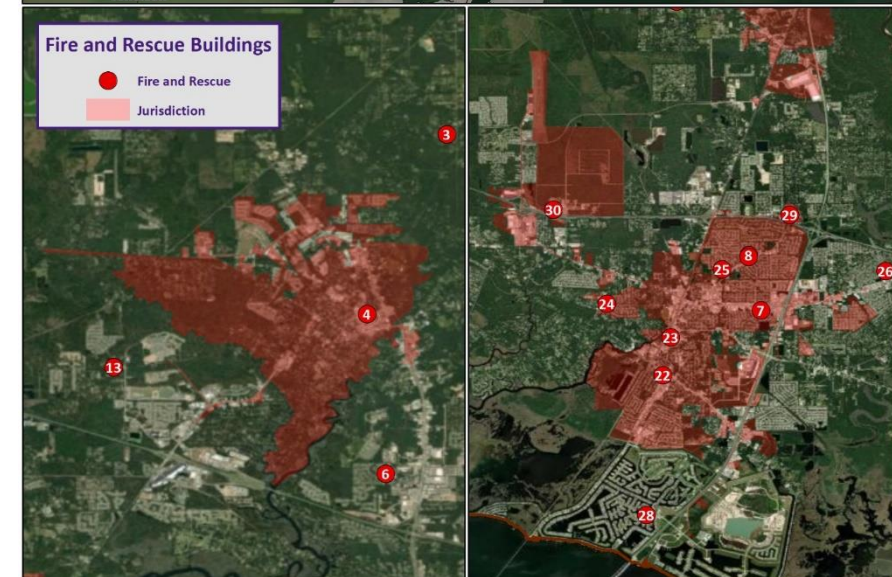
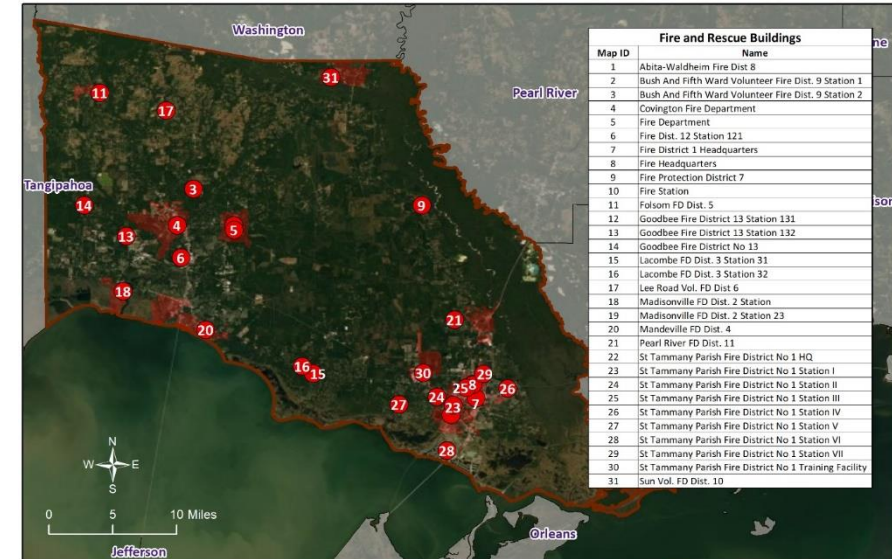
Critical Facilities: Civil Government



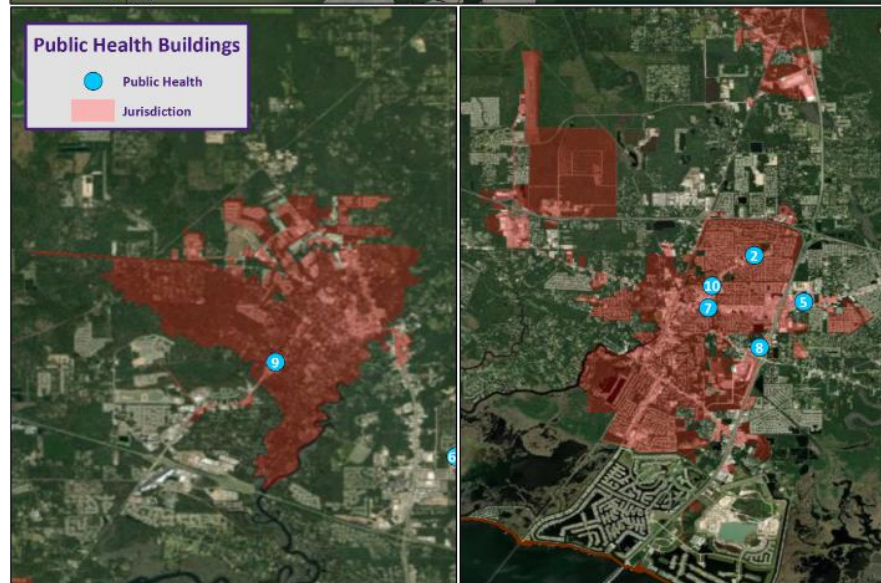
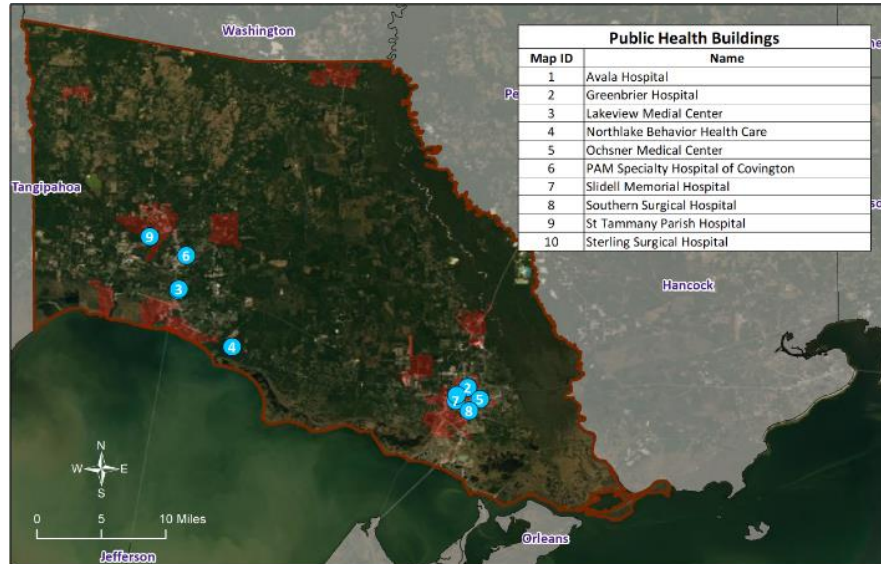
Critical Facilities: Law Enforcement



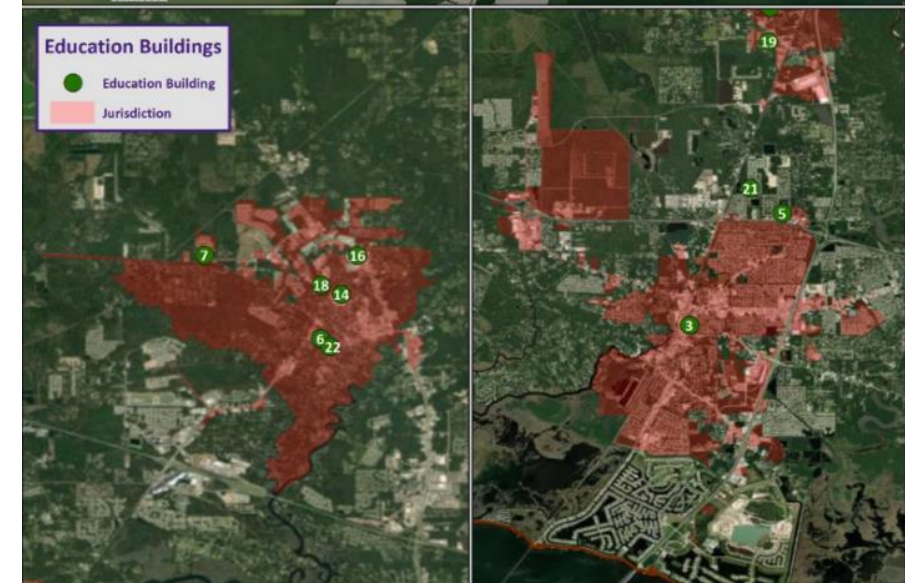
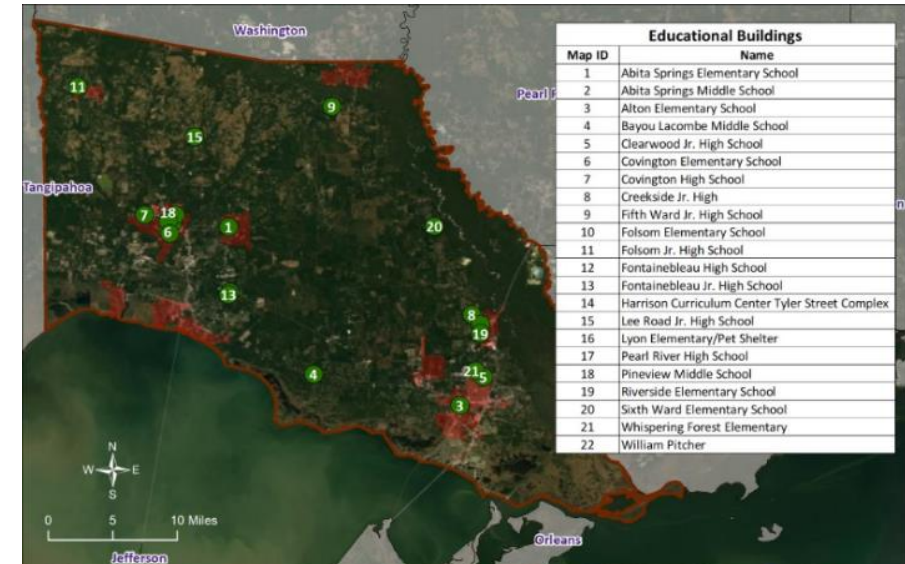
Critical Facilities: Fire & SAR



Critical Facilities: Public Health



Critical Facilities: Education



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

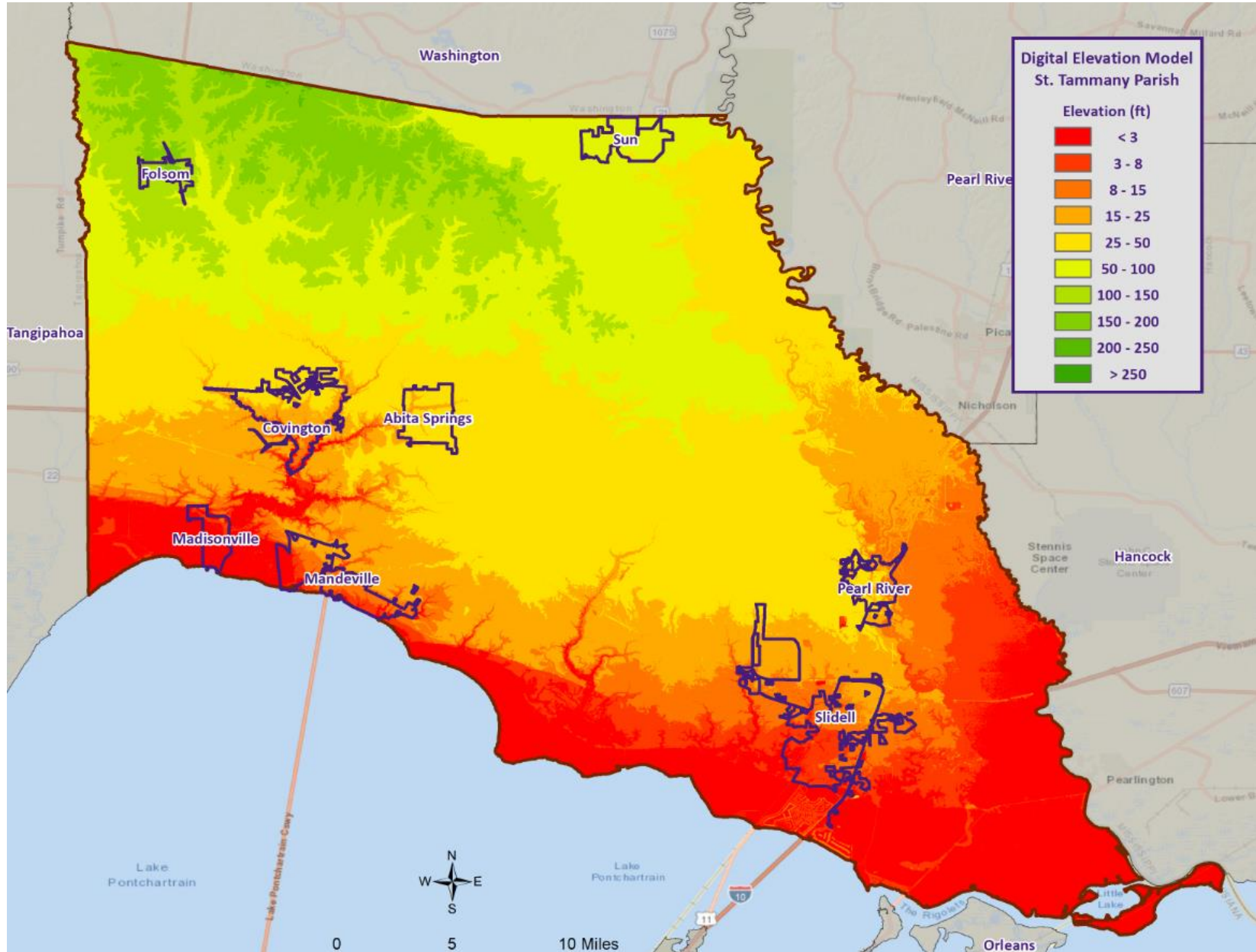


Flooding

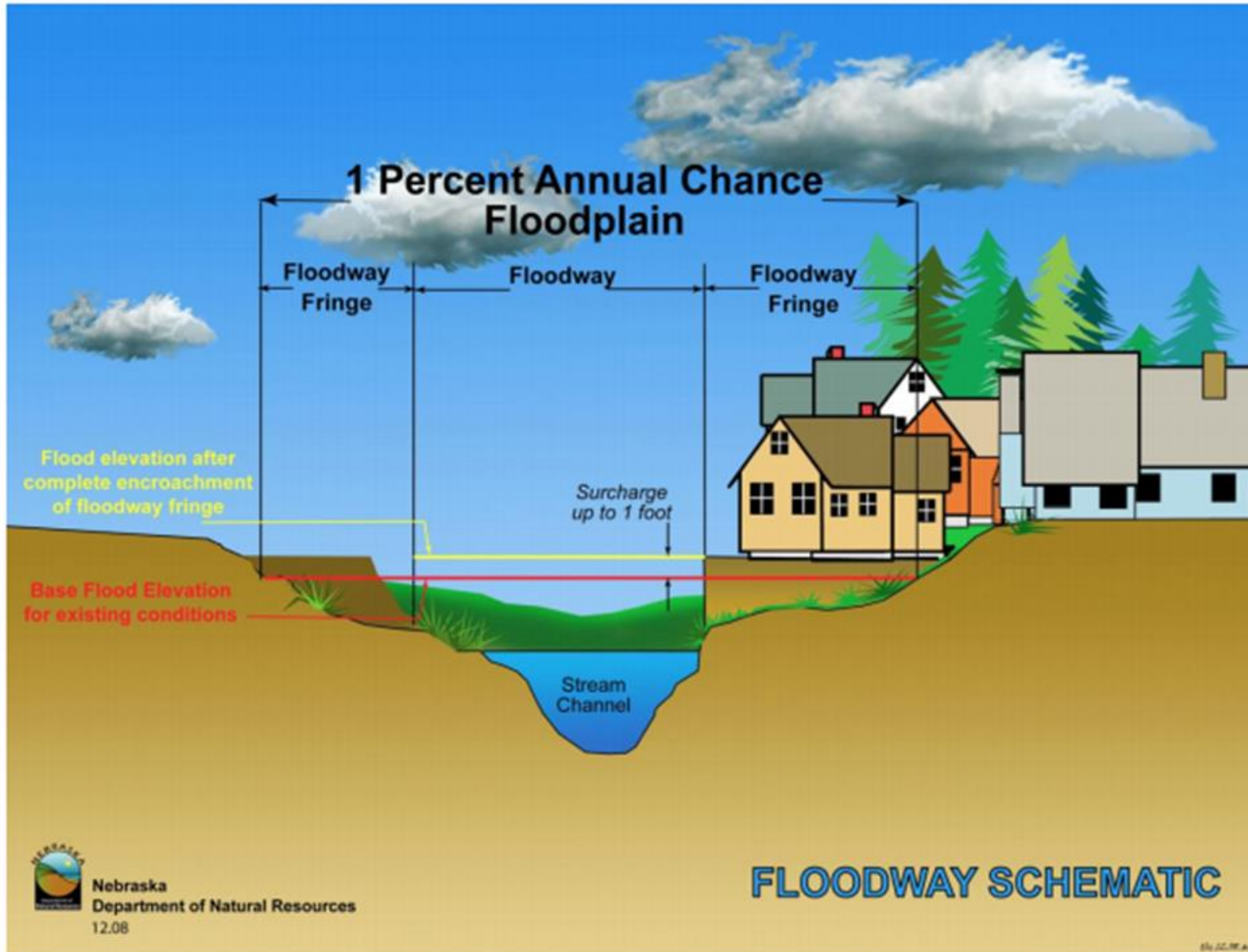
- Some areas flood more often than other properties, even more than those in the mapped 100-year floodplain.
- FEMA defines a “repetitive loss” property as one which has received two flood insurance claim payments for at least \$1,000 over any 10-year period since 1978.
- These properties are important 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.



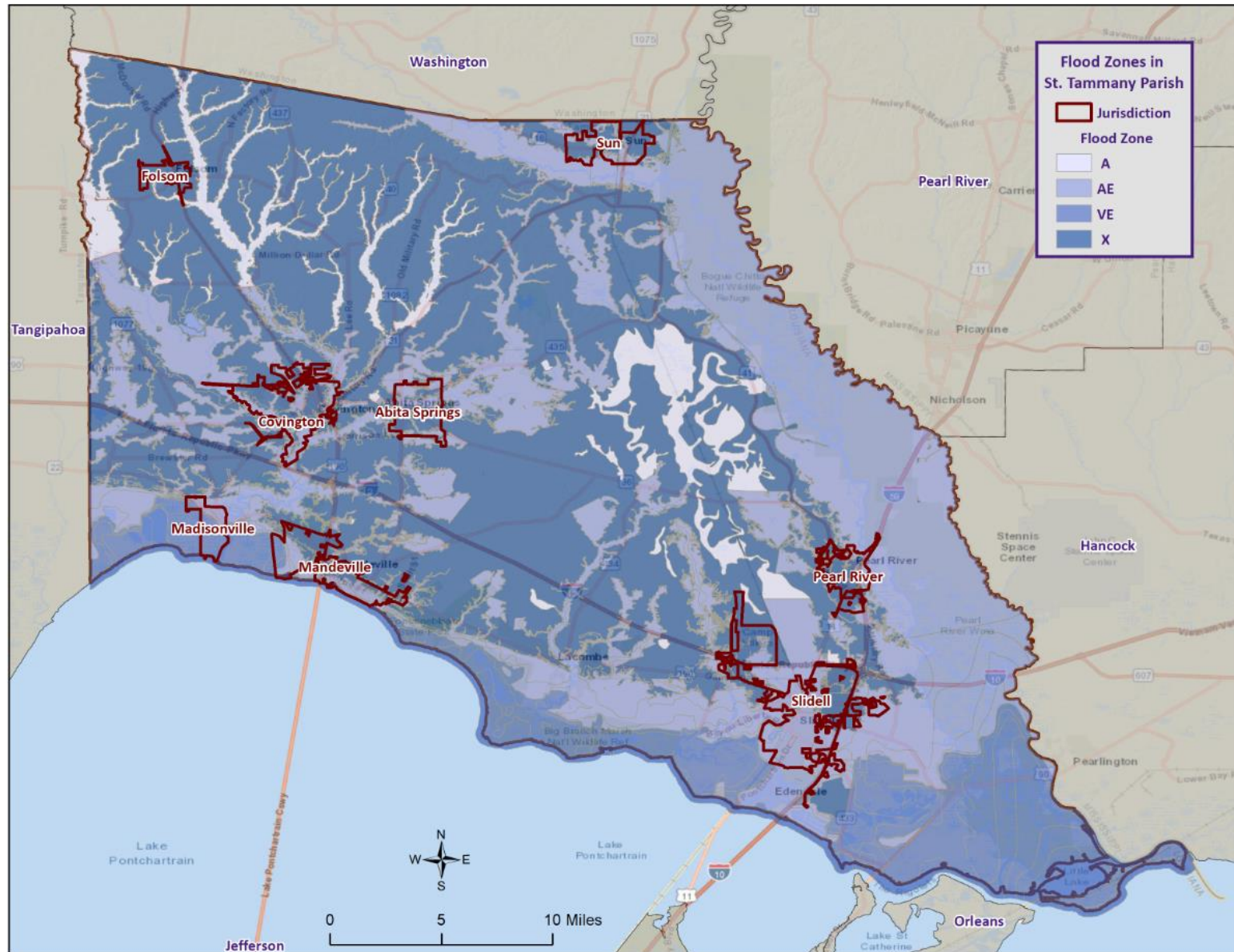
Digital Elevation Model



Floodway Diagram

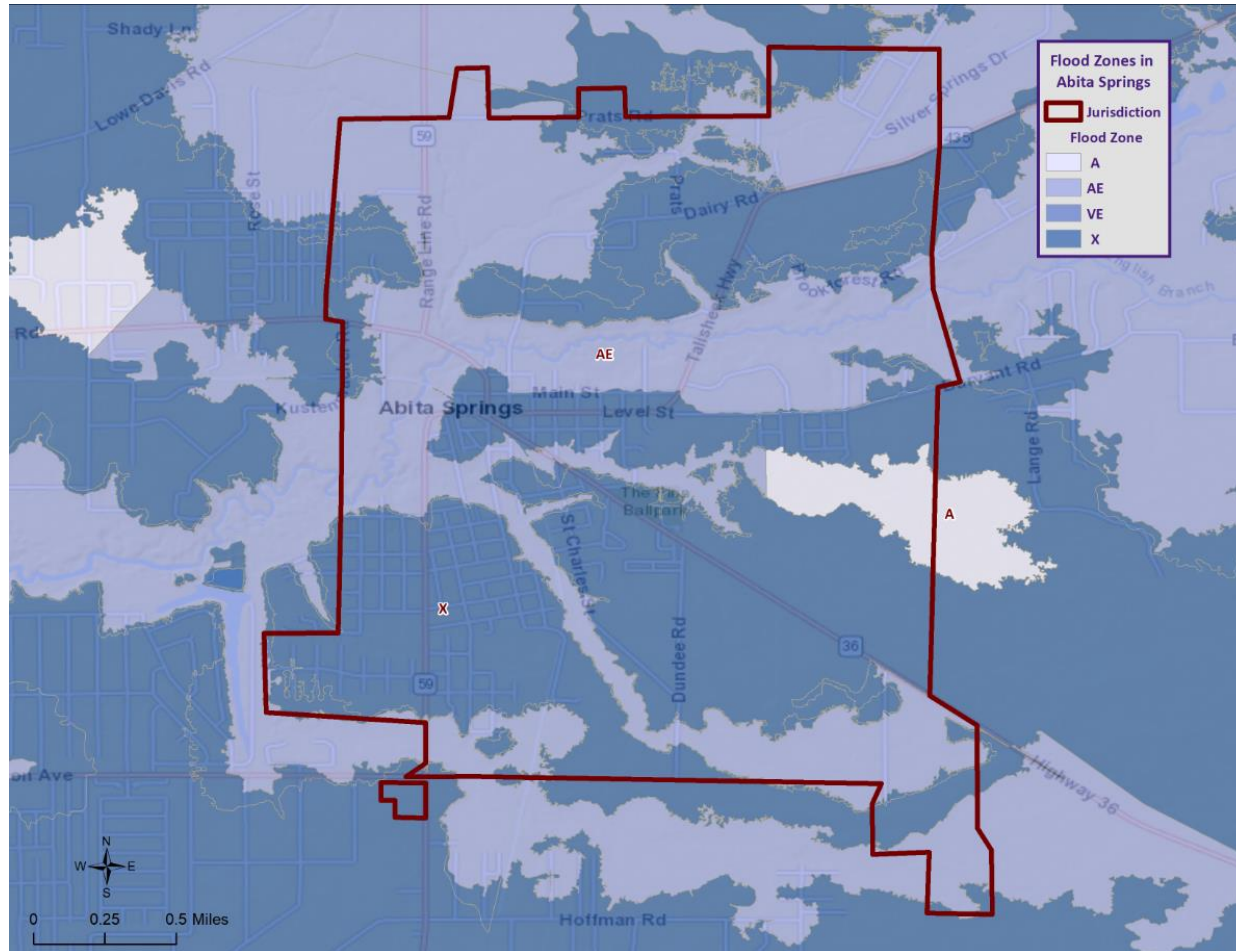


St. Tammany Parish Flood Map

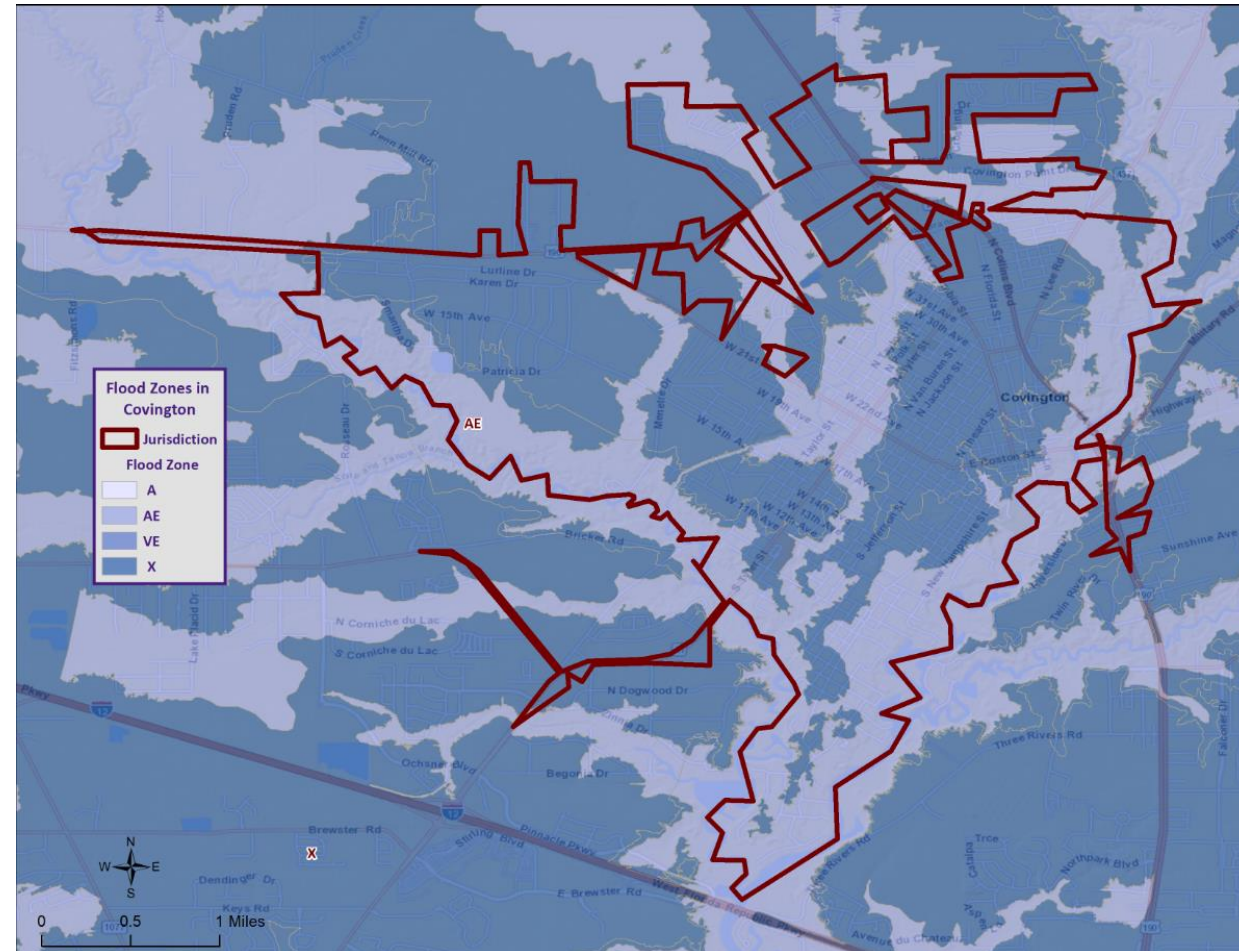


Flood Maps

Abita Springs

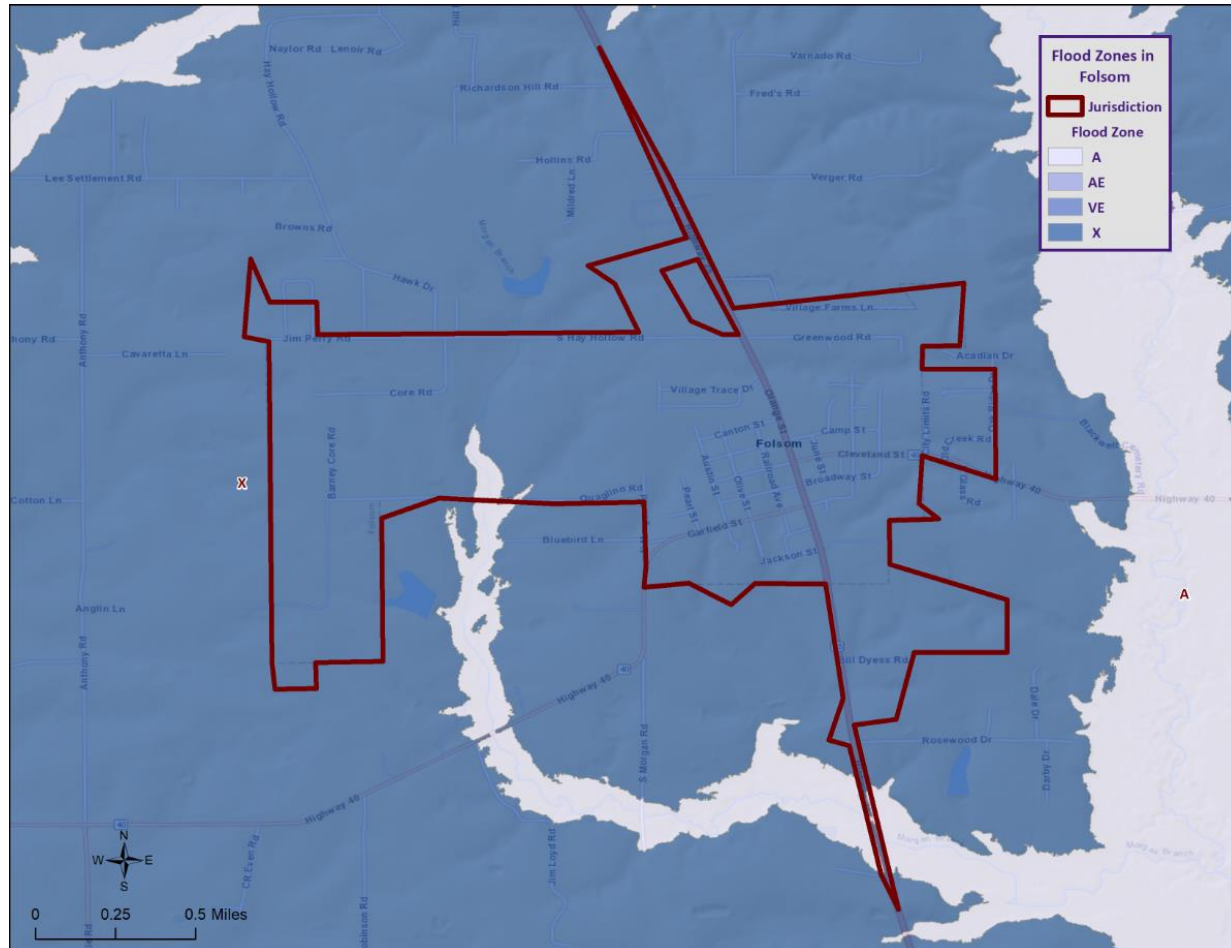


Covington

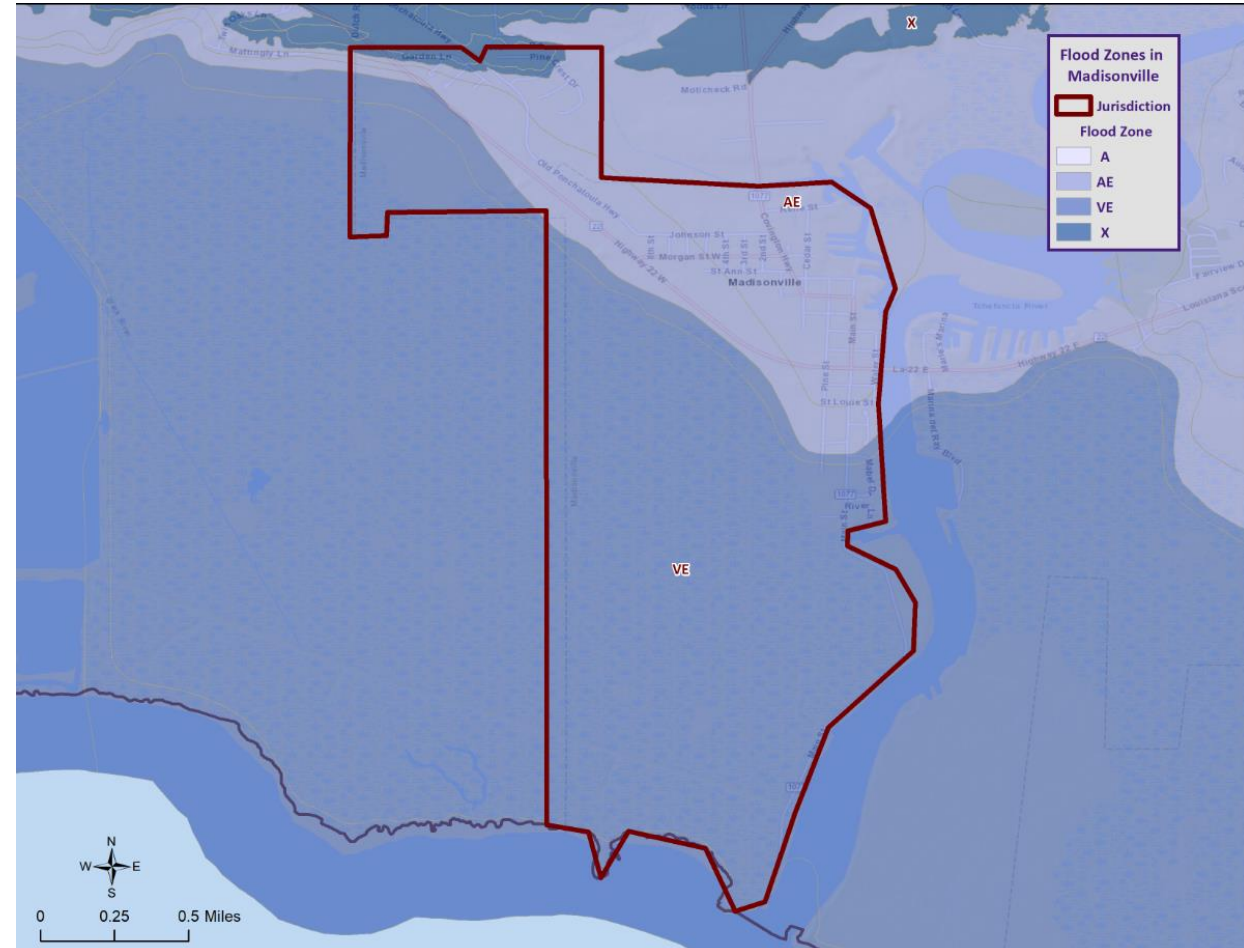


Flood Maps

Folsom

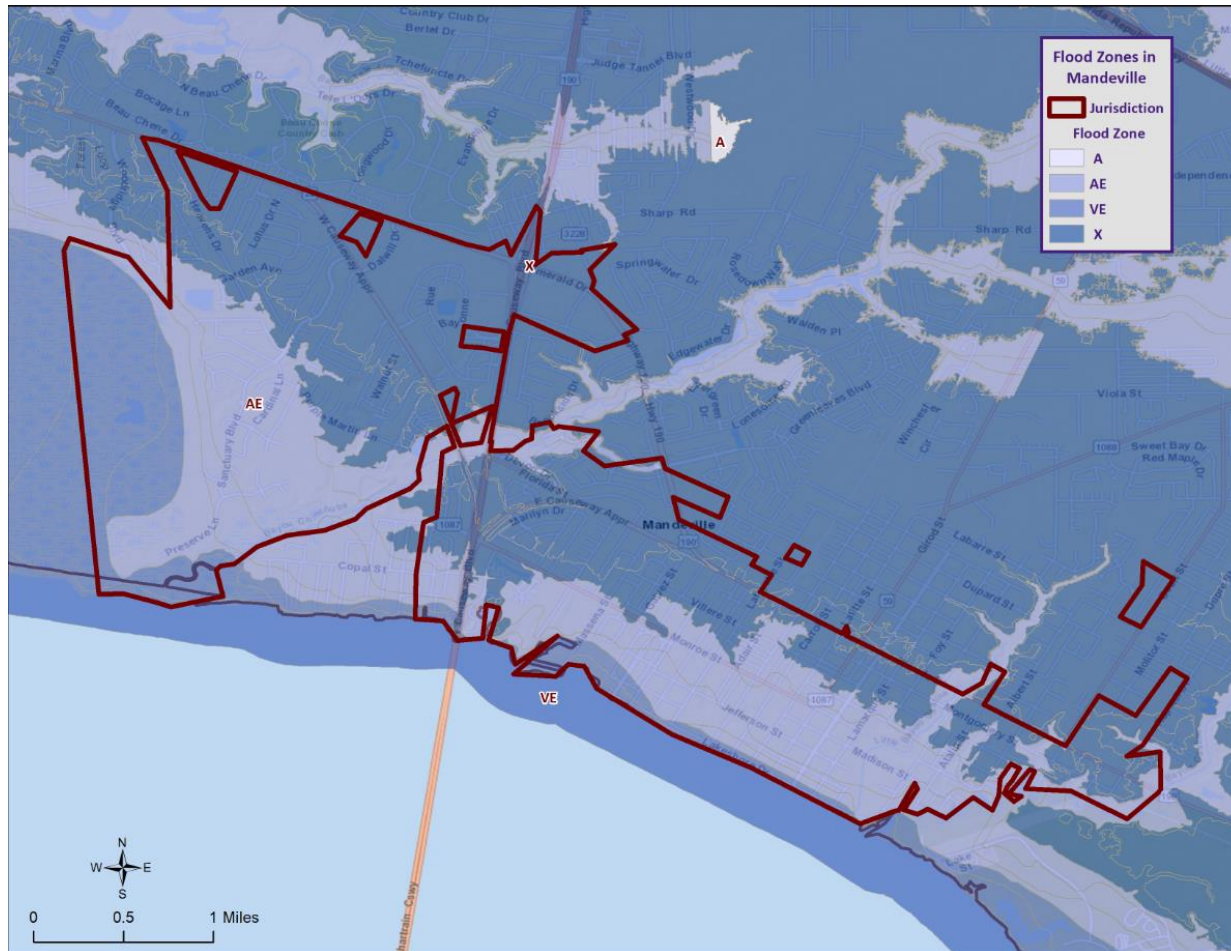


Madisonville

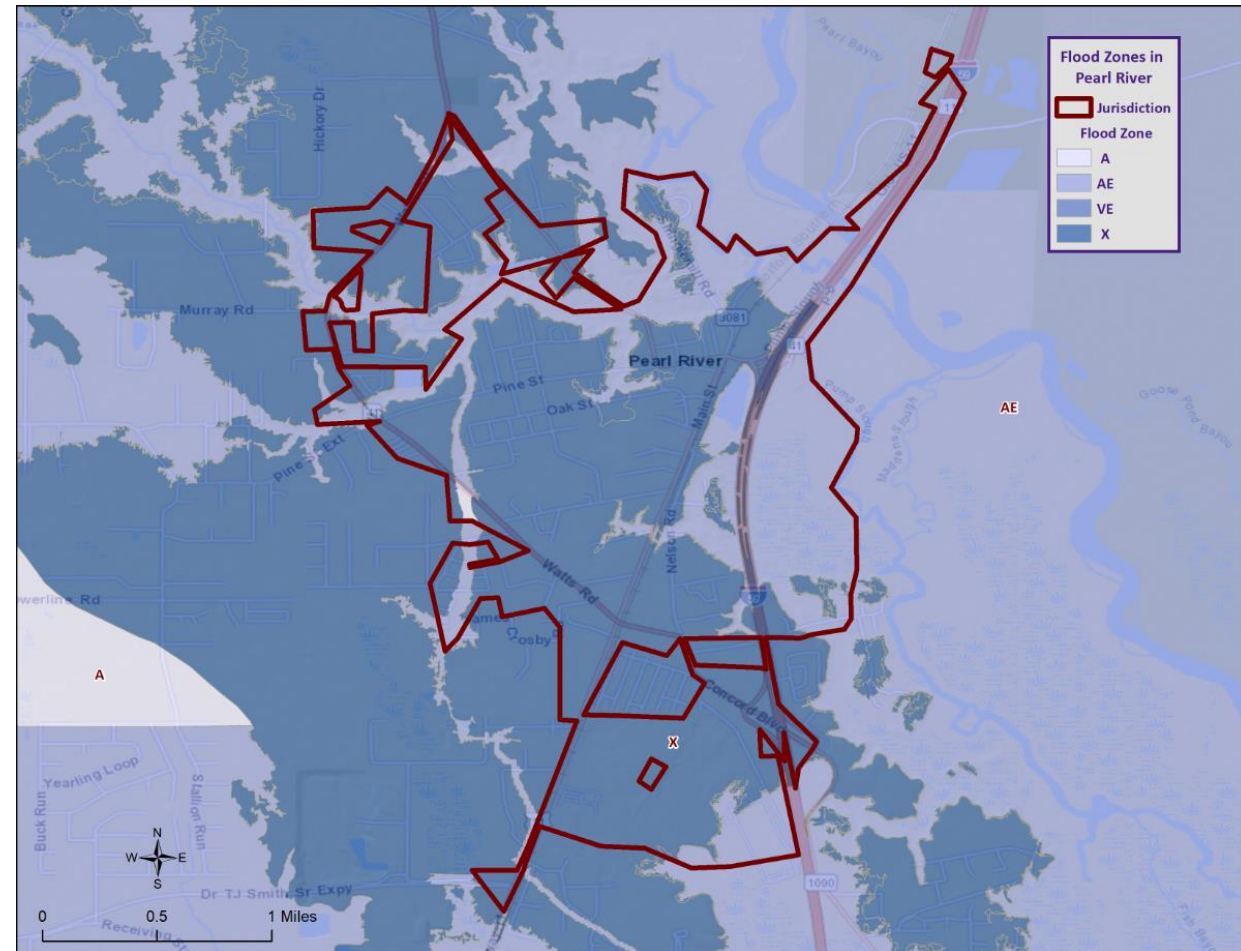


Flood Maps

Mandeville

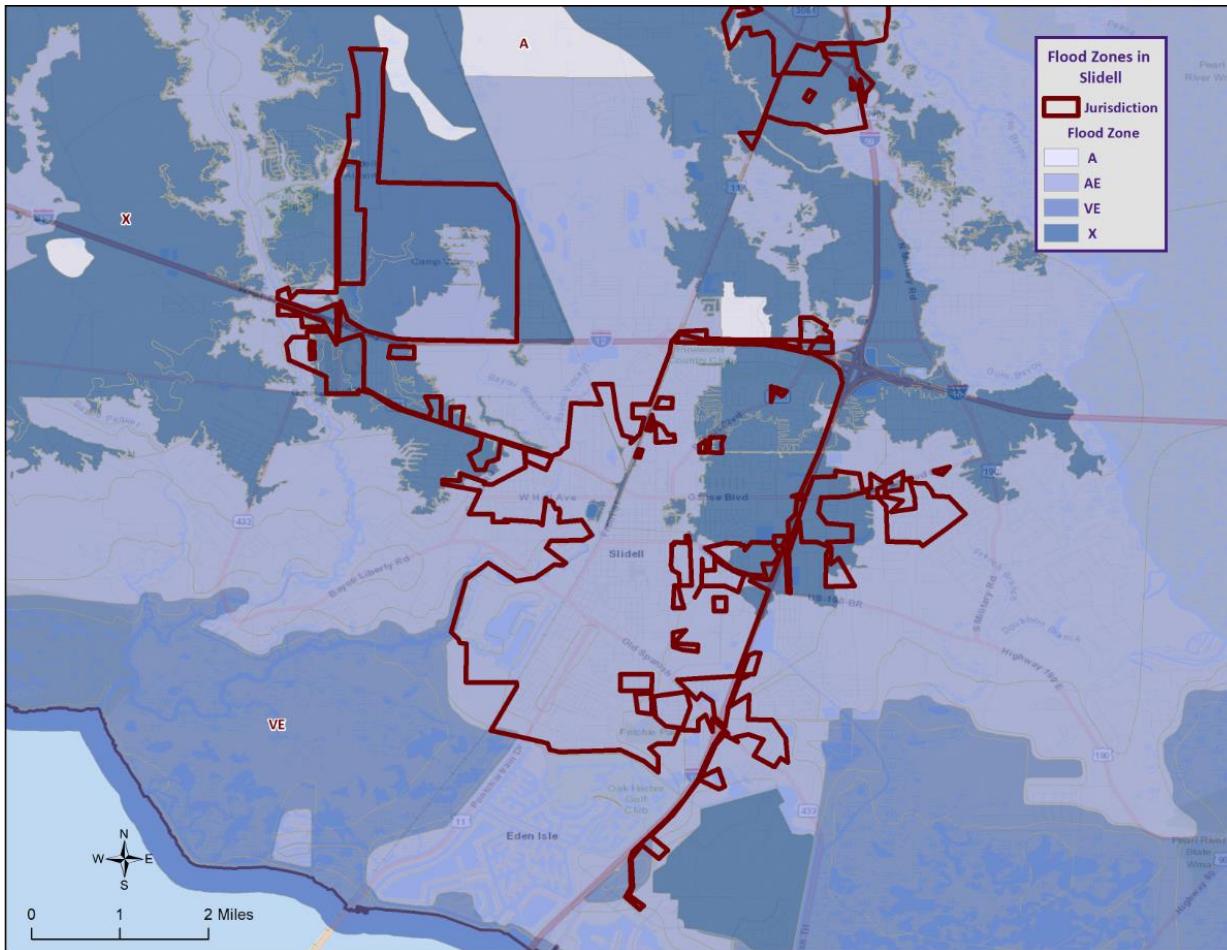


Pearl River

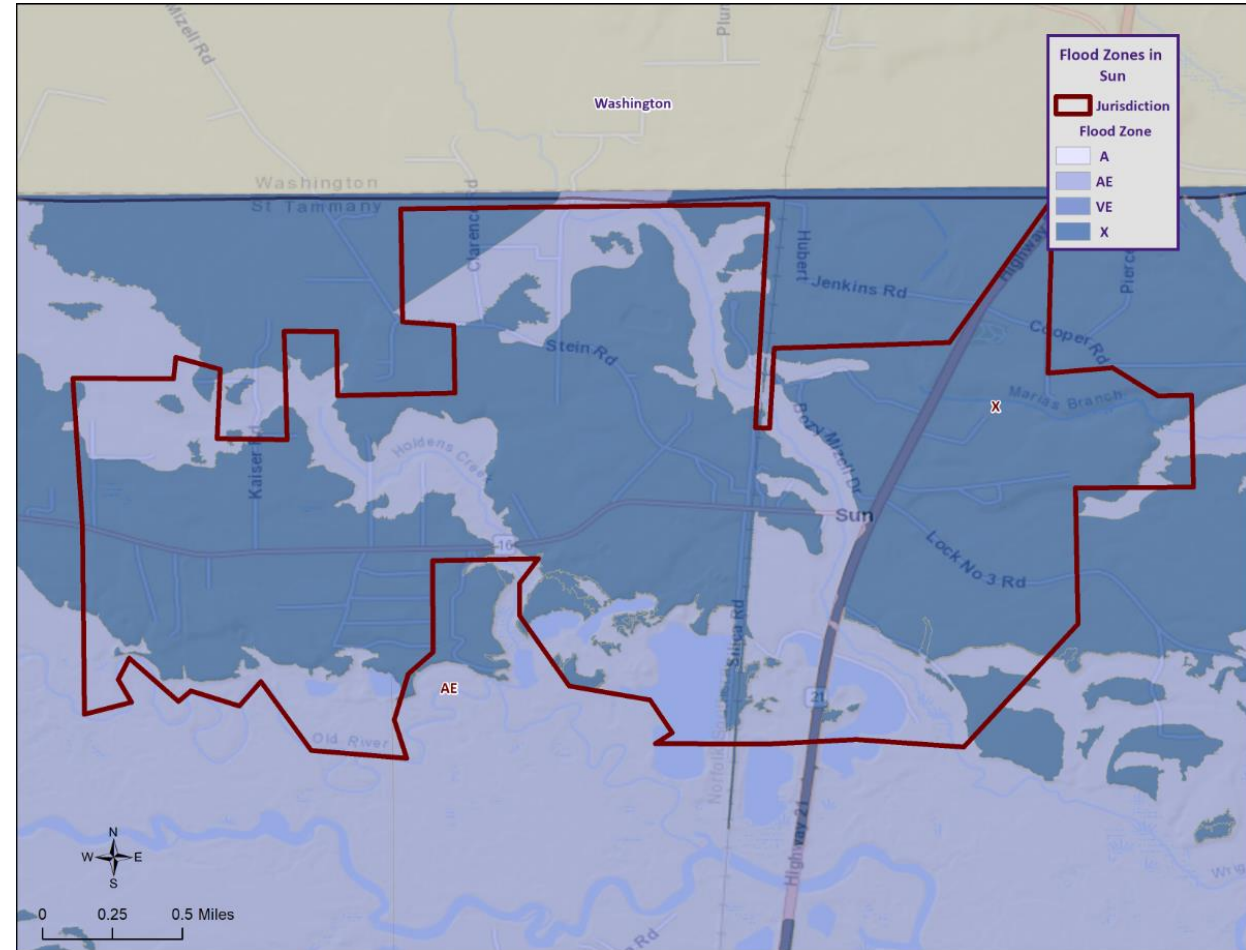


Flood Maps

Slidell



Sun

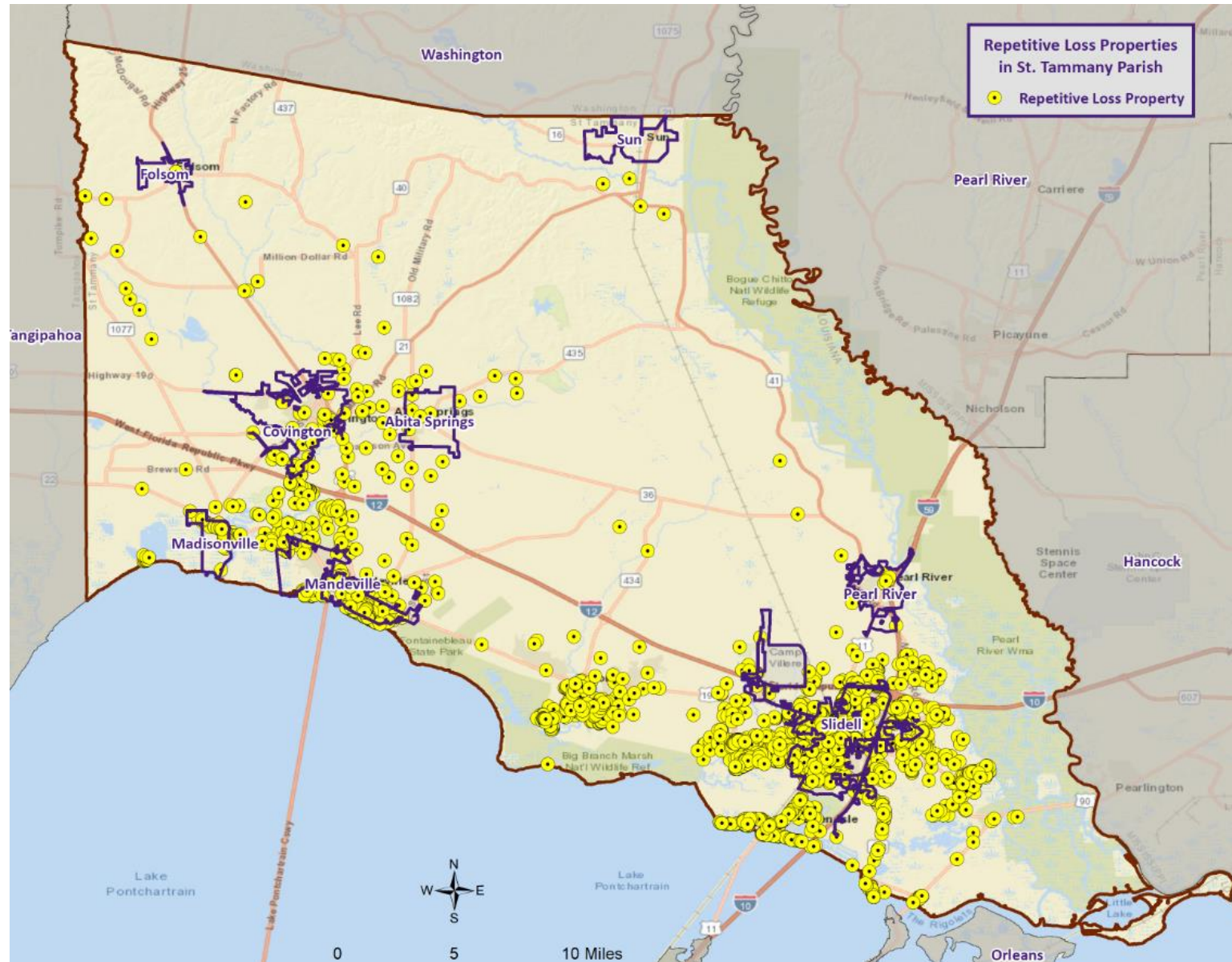


Repetitive Flooding

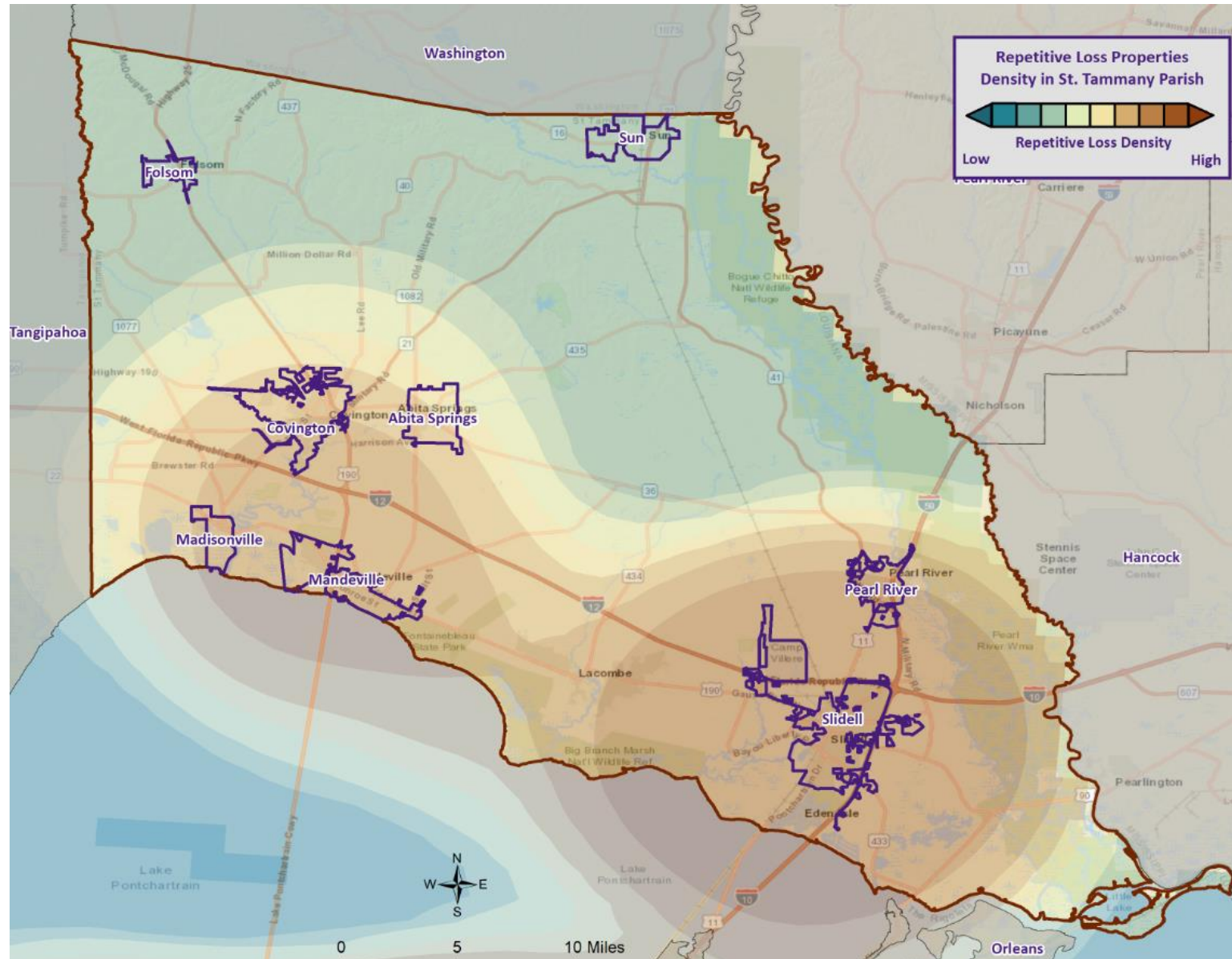
- Some areas flood more often than other properties, even more than those in the mapped 100-year floodplain.
- FEMA defines a “repetitive loss” property as one which has received two flood insurance claim payments for at least \$1,000 over any 10-year period since 1978.
- These properties are important 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 Density Map

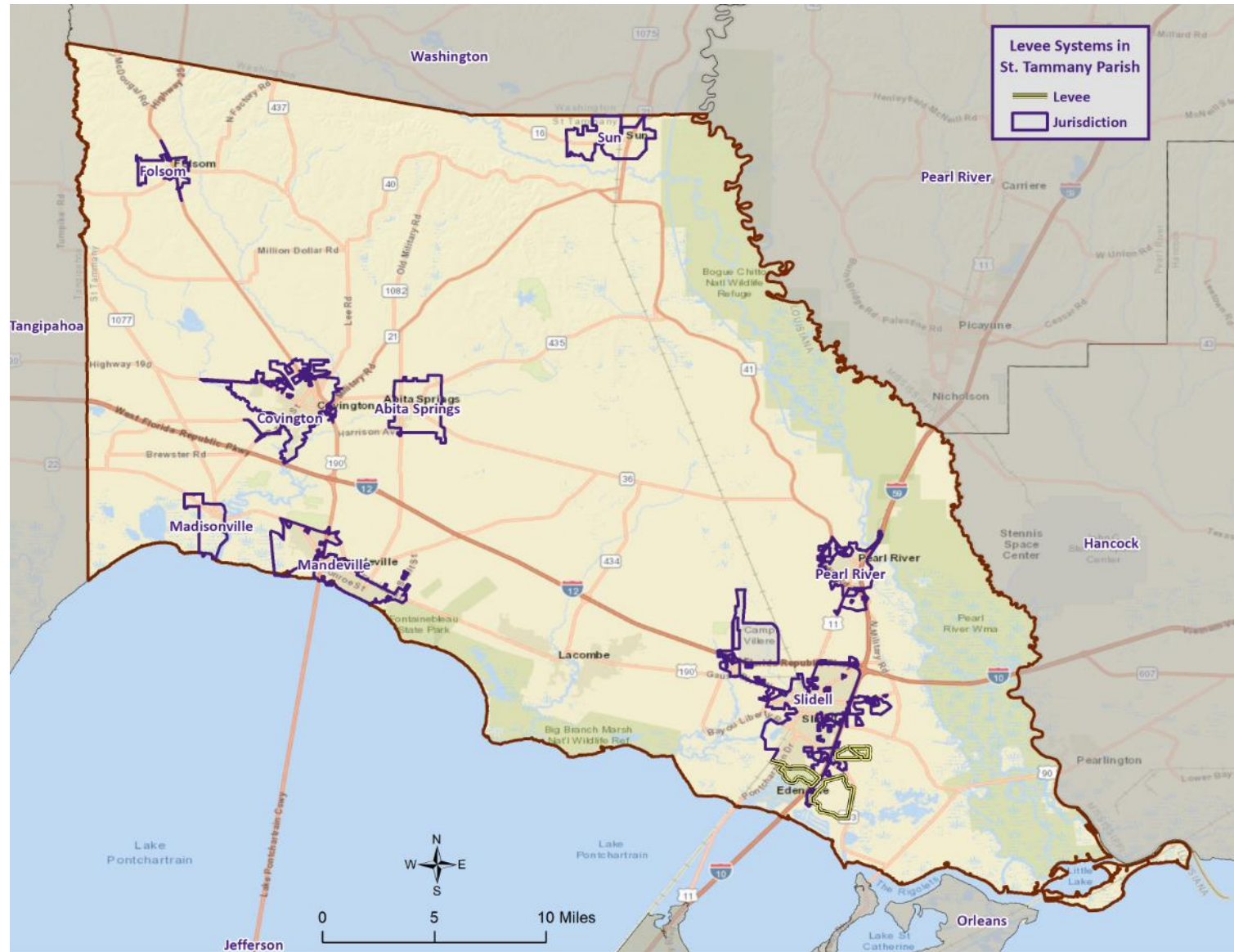


Levee Failure

- Levees are flood control barriers constructed of earth, concrete, or other materials that protect significant areas of residential, commercial, or industrial development.
- Levee failure involves the overtopping, breach, or collapse of the levee.



Levee Locations

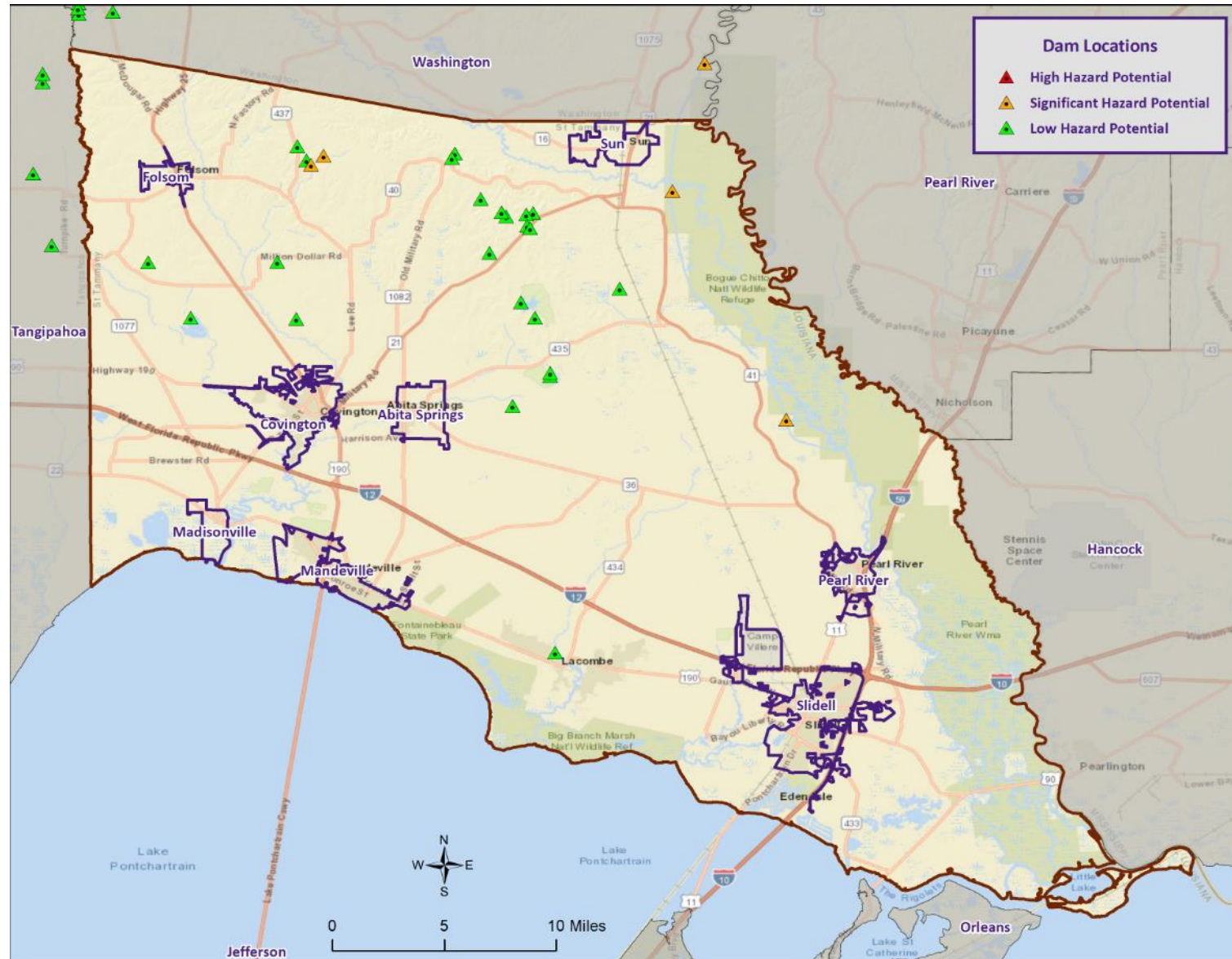


Dam Failure

- Dams are water storage, control, or diversion barriers that impound water upstream in reservoirs.
- Dams are a vital part of our nation's infrastructure, providing drinking water, flood protection, renewable hydroelectric power, navigation, irrigation, and recreation.



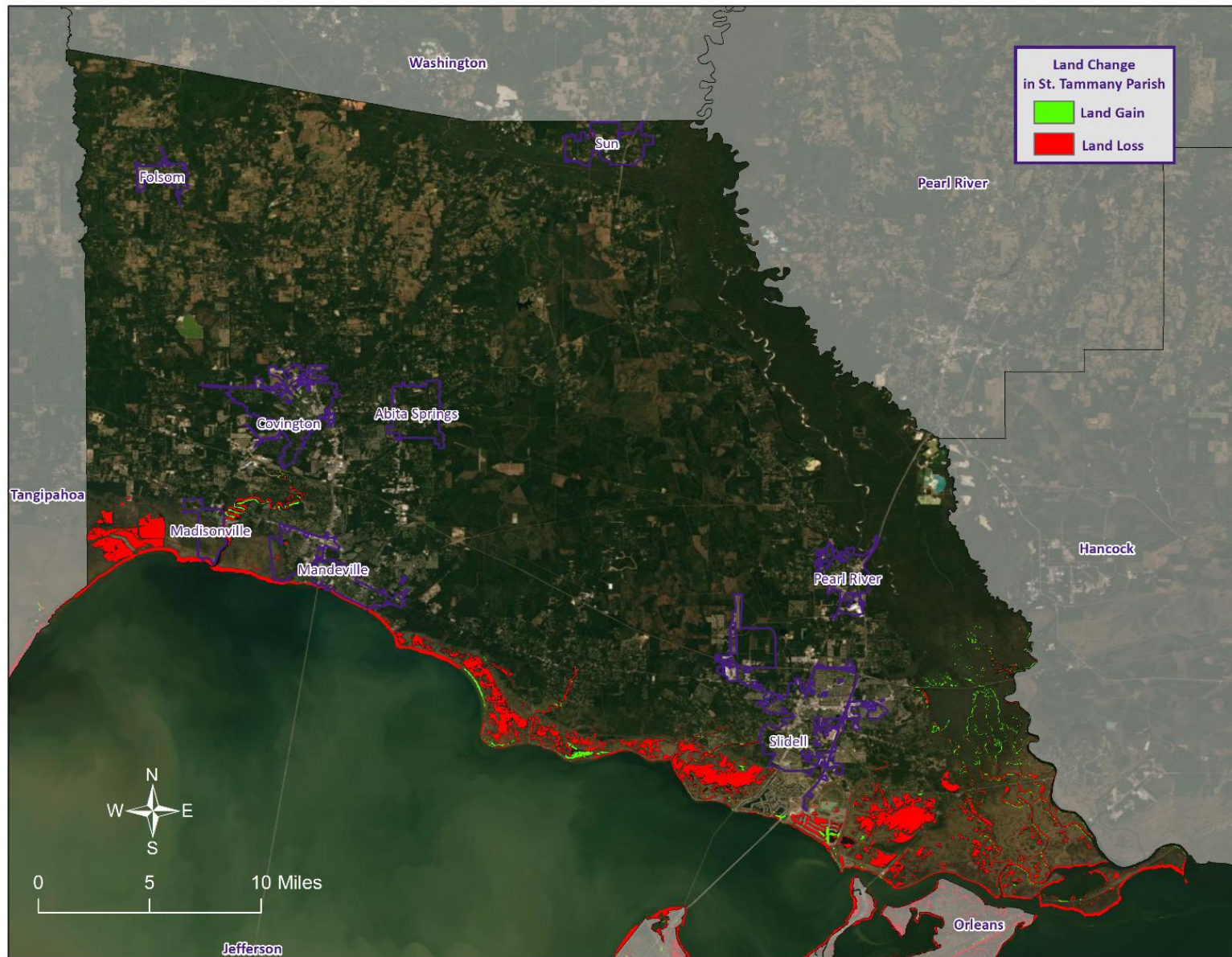
Dam Locations



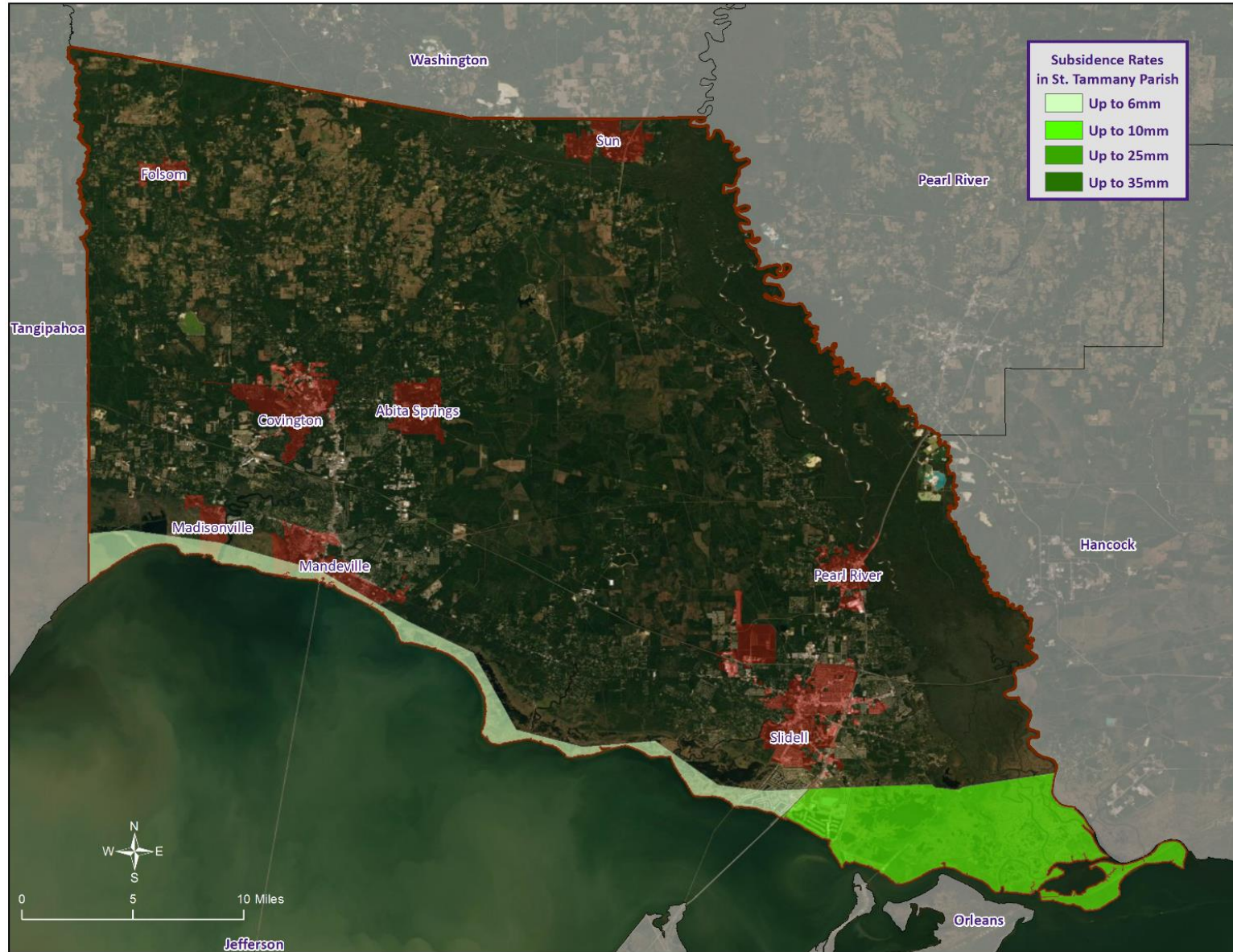
Coastal Hazards

- **Subsidence** is the gradual caving in or sinking of an area of land
 - Slow-acting process with impacts that can be readily seen in coastal parishes over the course of decades
 - Lowers elevations in coastal Louisiana, accelerates the effects of saltwater intrusion
 - Causes structures to become more vulnerable to flooding by lowering elevations
- **Saltwater intrusion/Coastal Land Loss** is the movement of salty water into freshwater aquifers or is the encroachment of saline water into freshwater estuaries
 - One of the major causes of subsidence and marshland loss
 - Causes the loss of fresh and intermediate vegetation, which results in rapid erosion of marsh soils and the ultimate conversion of the area to open water

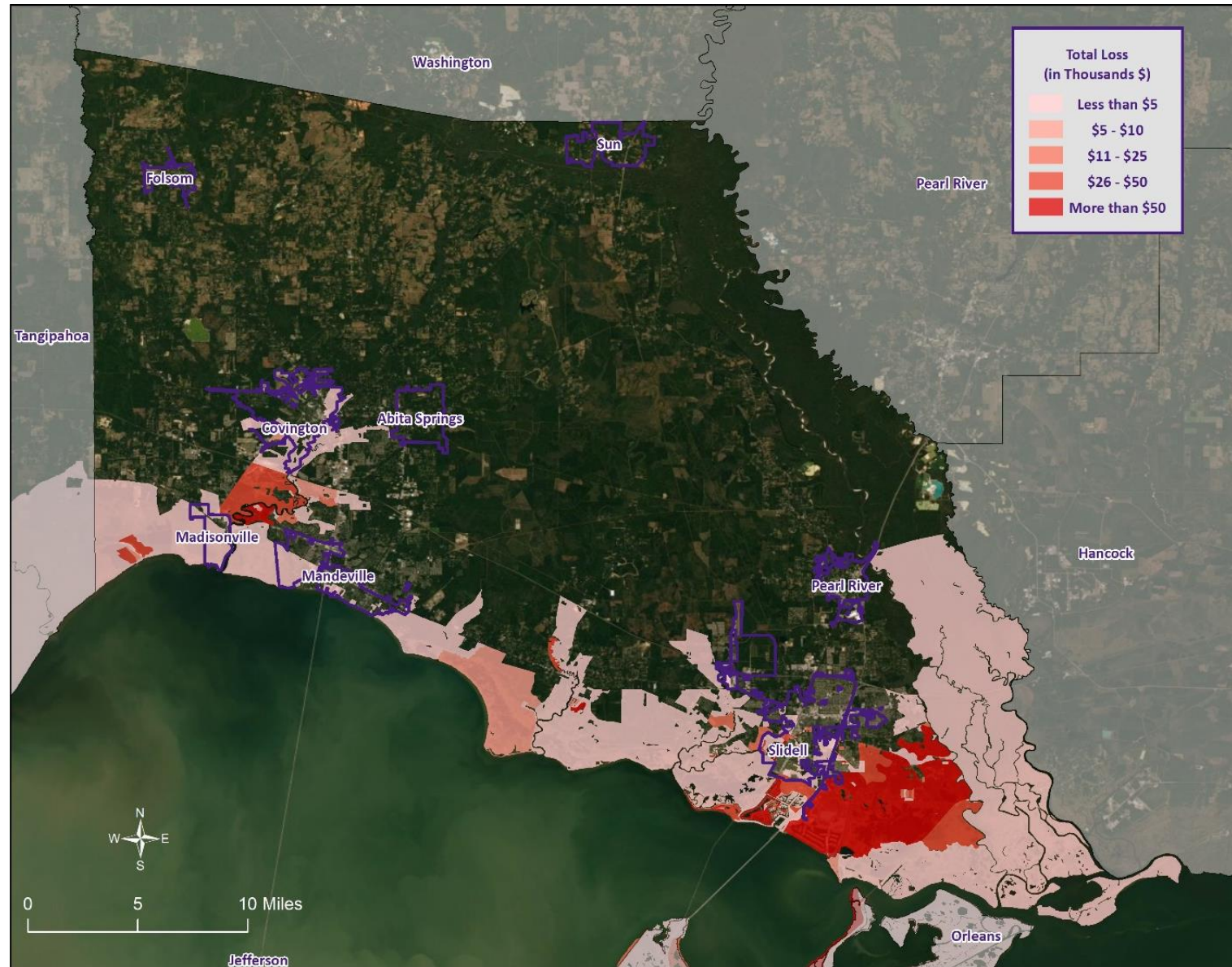
Land Gain & Loss



Subsidence Rates



Subsidence Future Total Loss

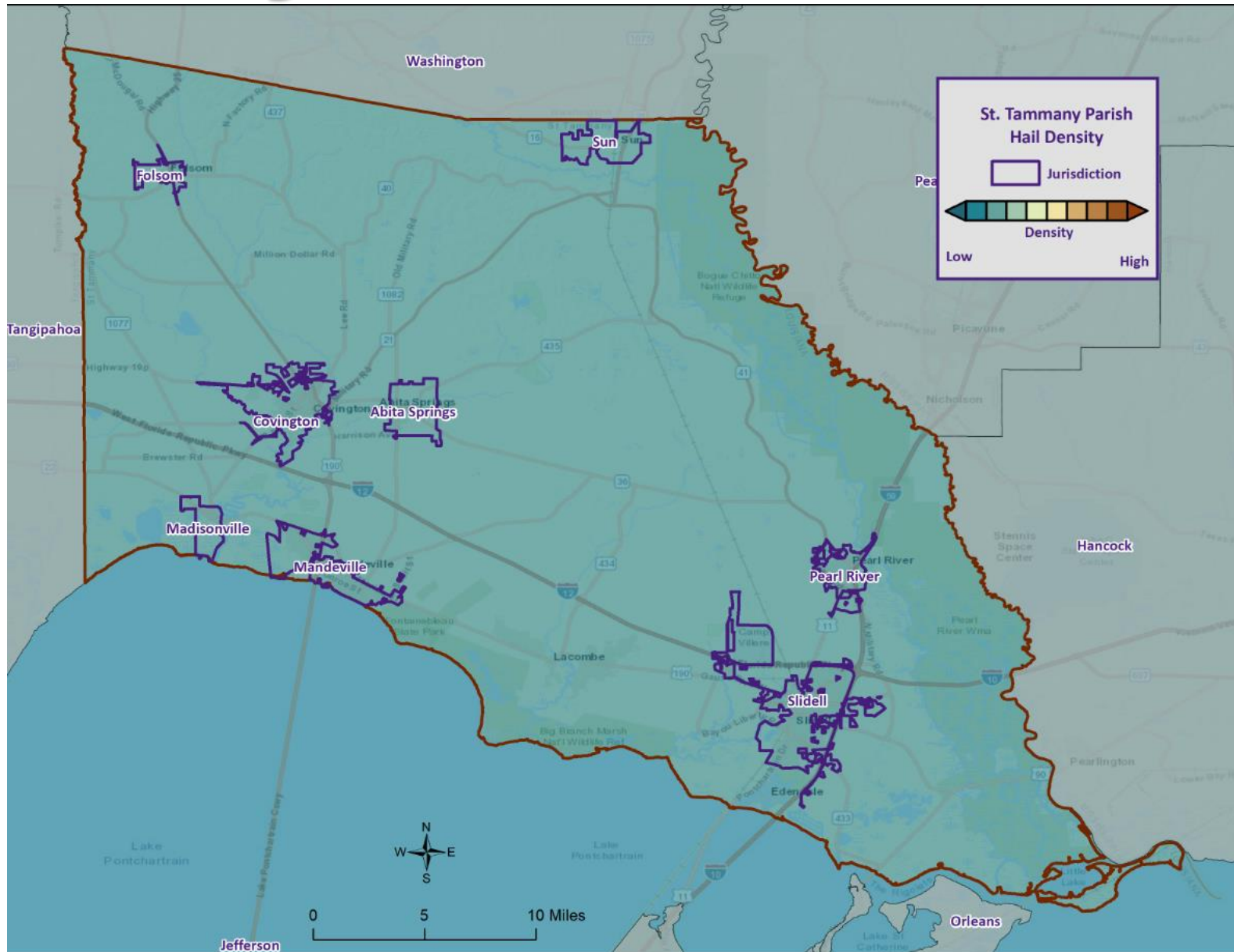


Thunderstorms

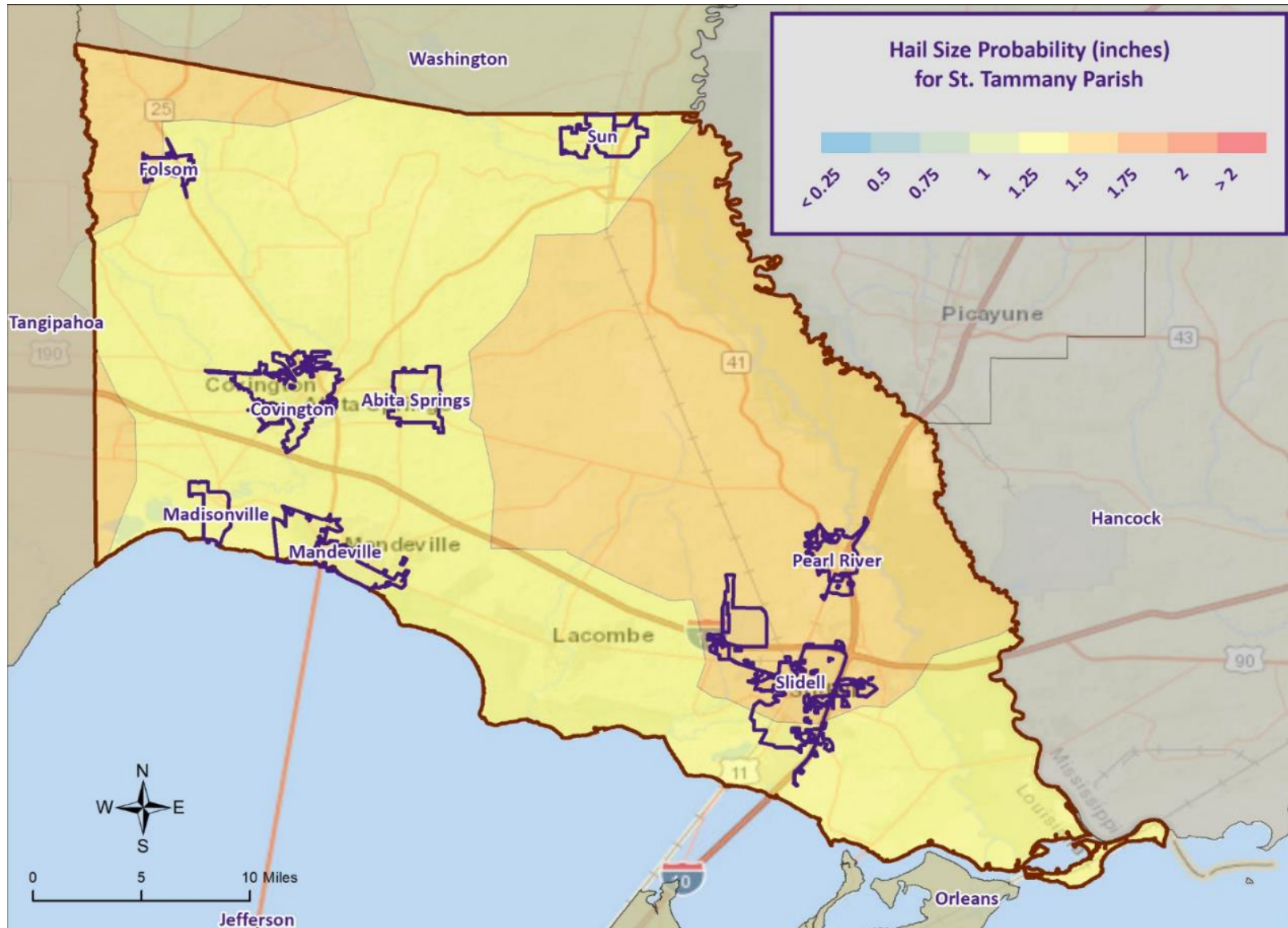
- A **thunderstorm**, also known as an **electrical storm**, a **lightning storm**, or a **thundershower**, is a type of storm characterized by the presence of lightning and its acoustic effect on the Earth's atmosphere known as thunder.
- They are usually accompanied by strong winds, heavy rain, and 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.



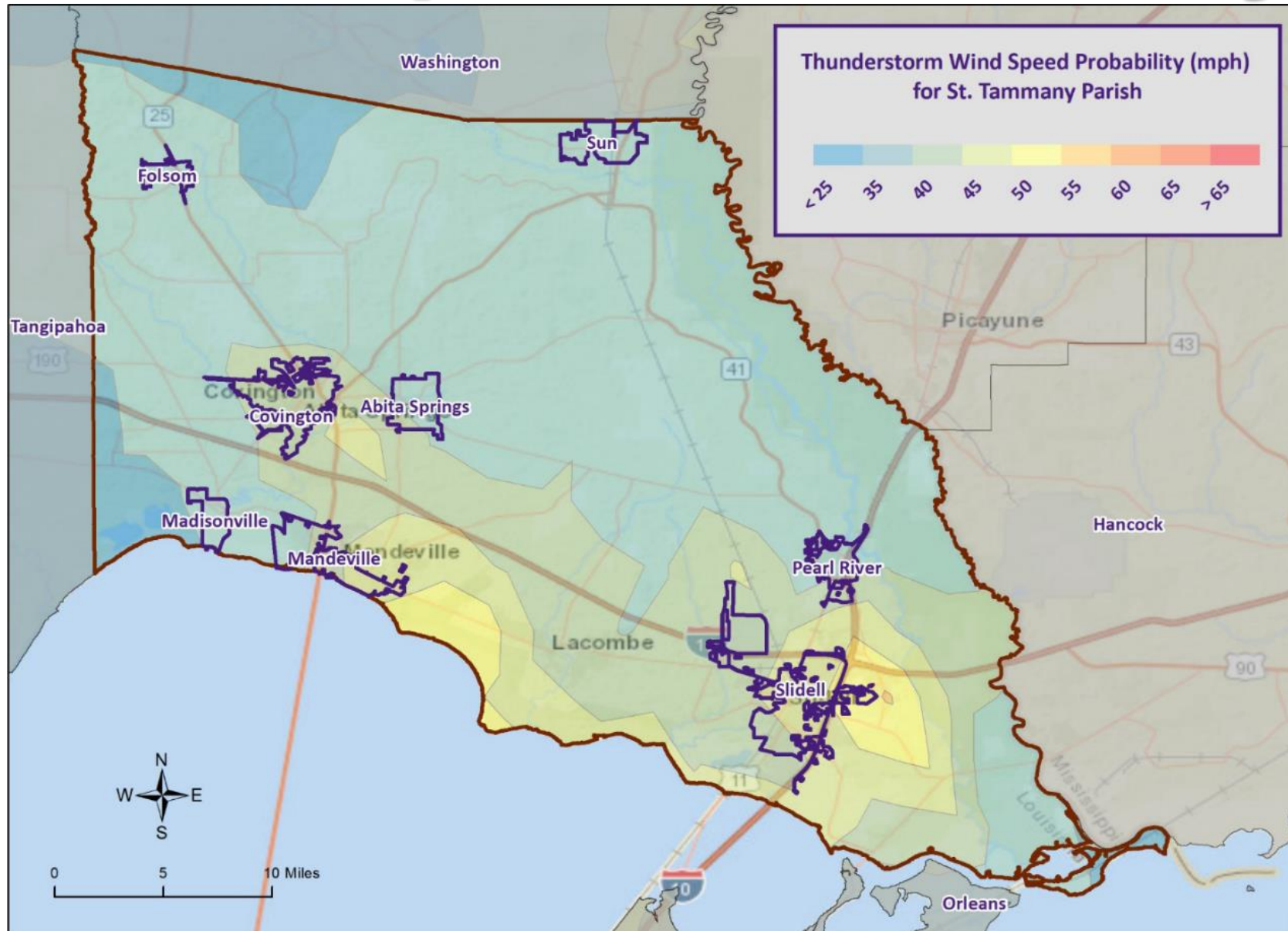
Density of Prior Hailstorms



Hail Size Probability



Wind Speed Probability



Tornadoes

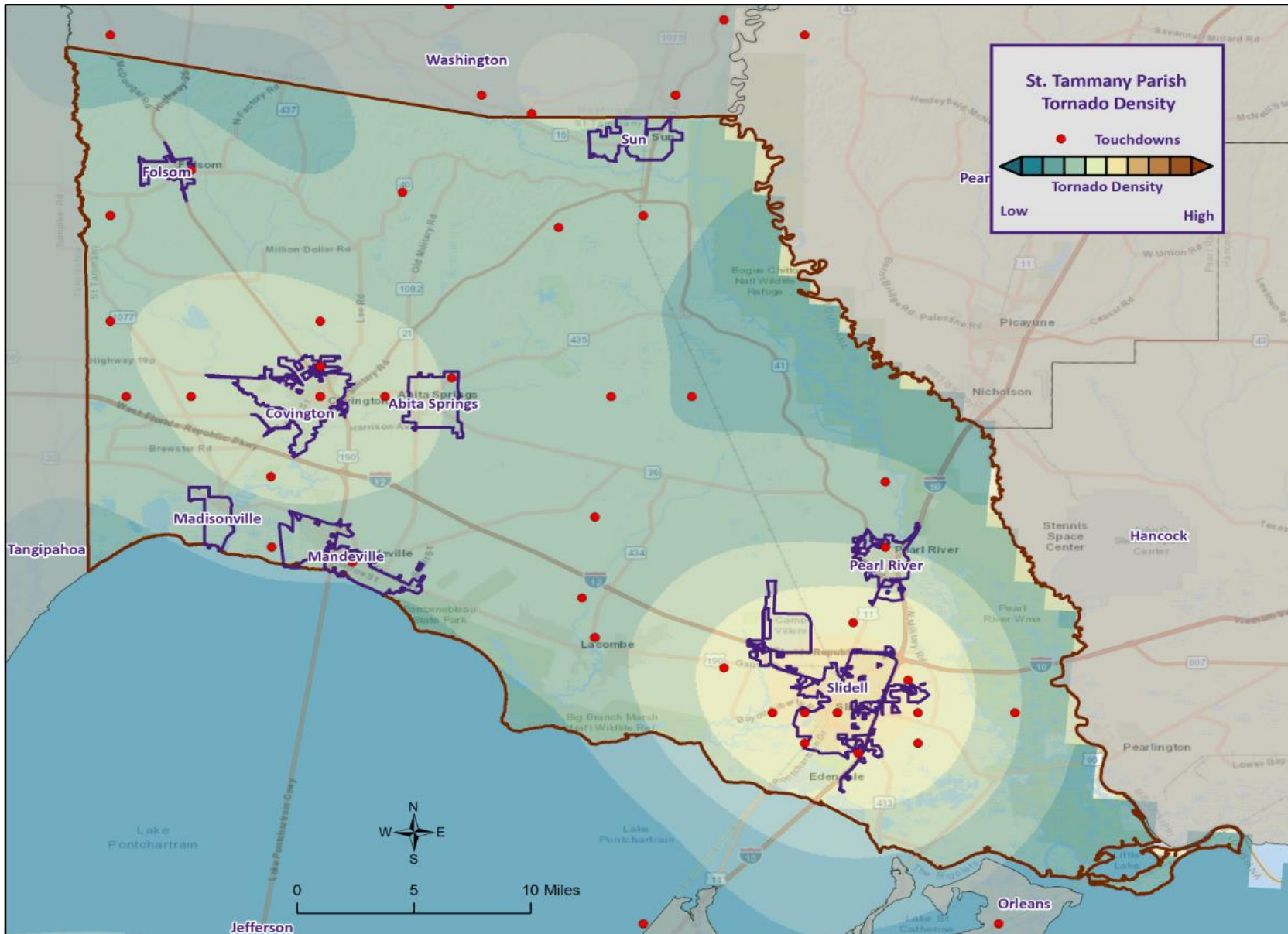
- Tornadoes (also called twisters and cyclones) are rapidly rotating funnels of wind extending between storm clouds and the ground.
- Tornadoes are the most severe storms for their size, and 70% of the world's reported tornadoes occur within the continental United States.



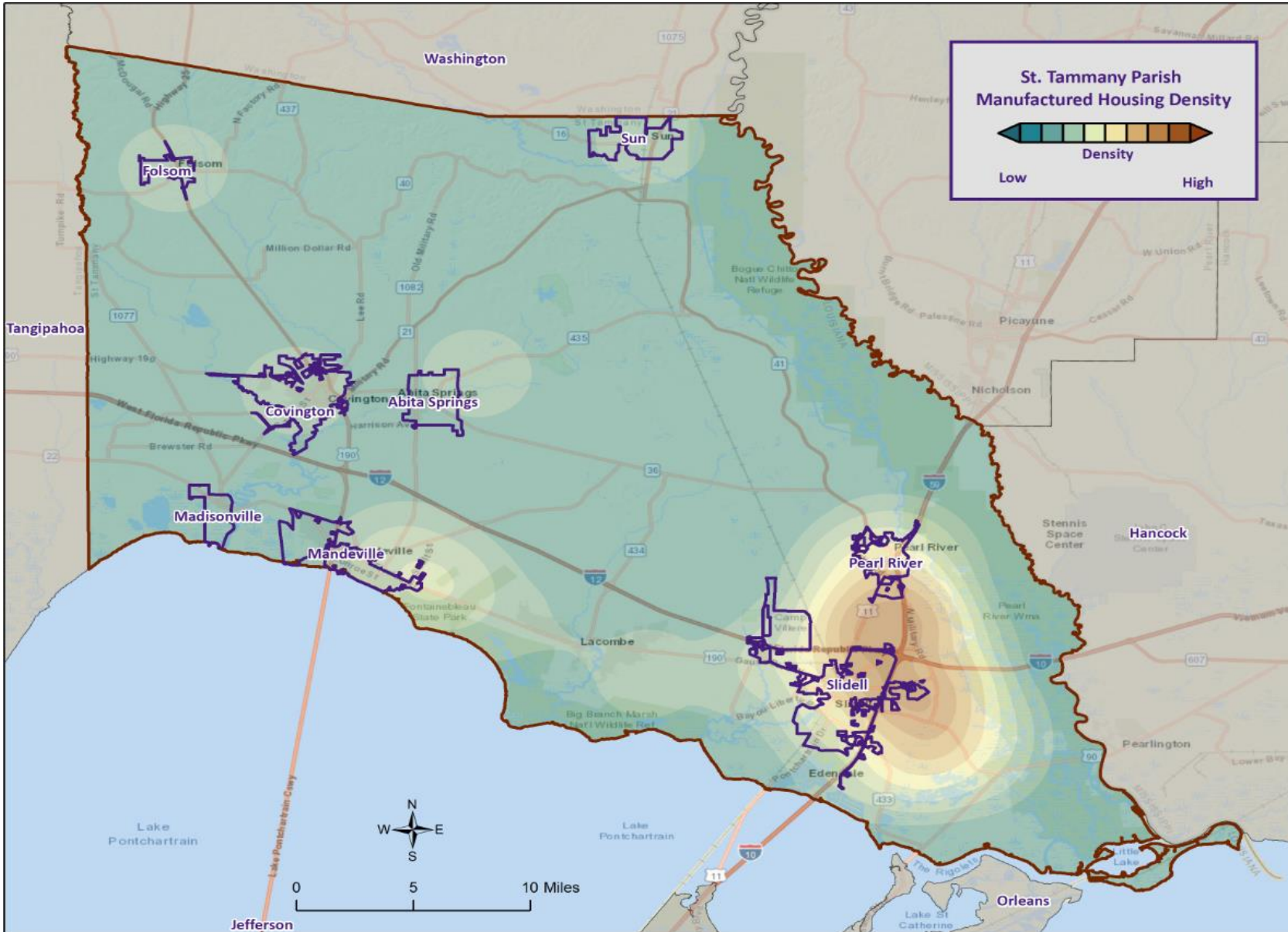
ORIGINAL FUJITA SCALE		ENHANCED FUJITA SCALE	
F5	261-318 mph	EF5	+200 mph
F4	207-260 mph	EF4	166-200 mph
F3	158-206 mph	EF3	136-165 mph
F2	113-157 mph	EF2	111-135 mph
F1	73-112 mph	EF1	86-110 mph
F0	<73 mph	EF0	65-85 mph



Tornadoes



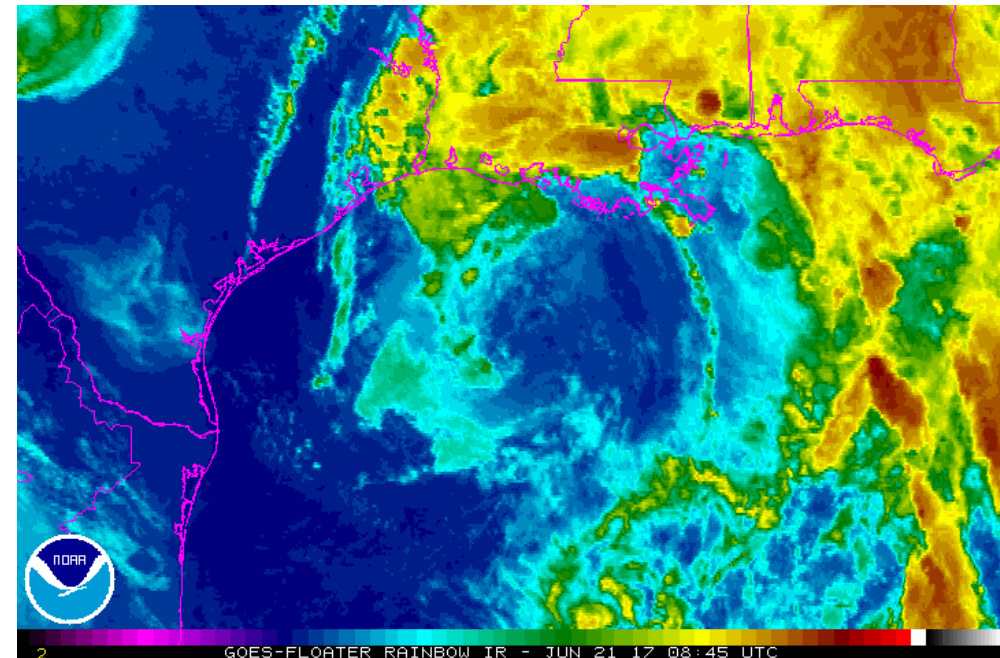
Manufactured Home Density



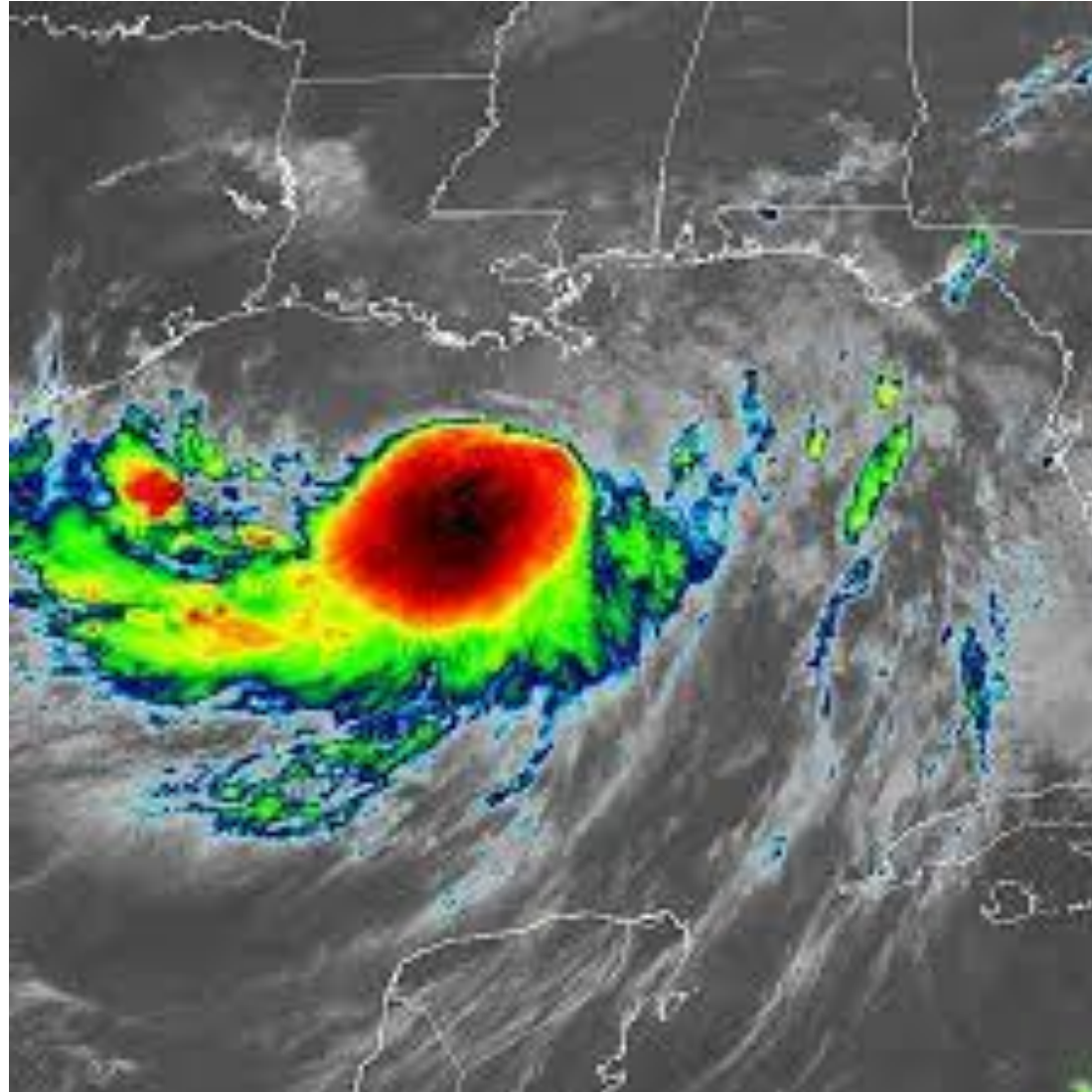
Tropical Cyclones

- 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

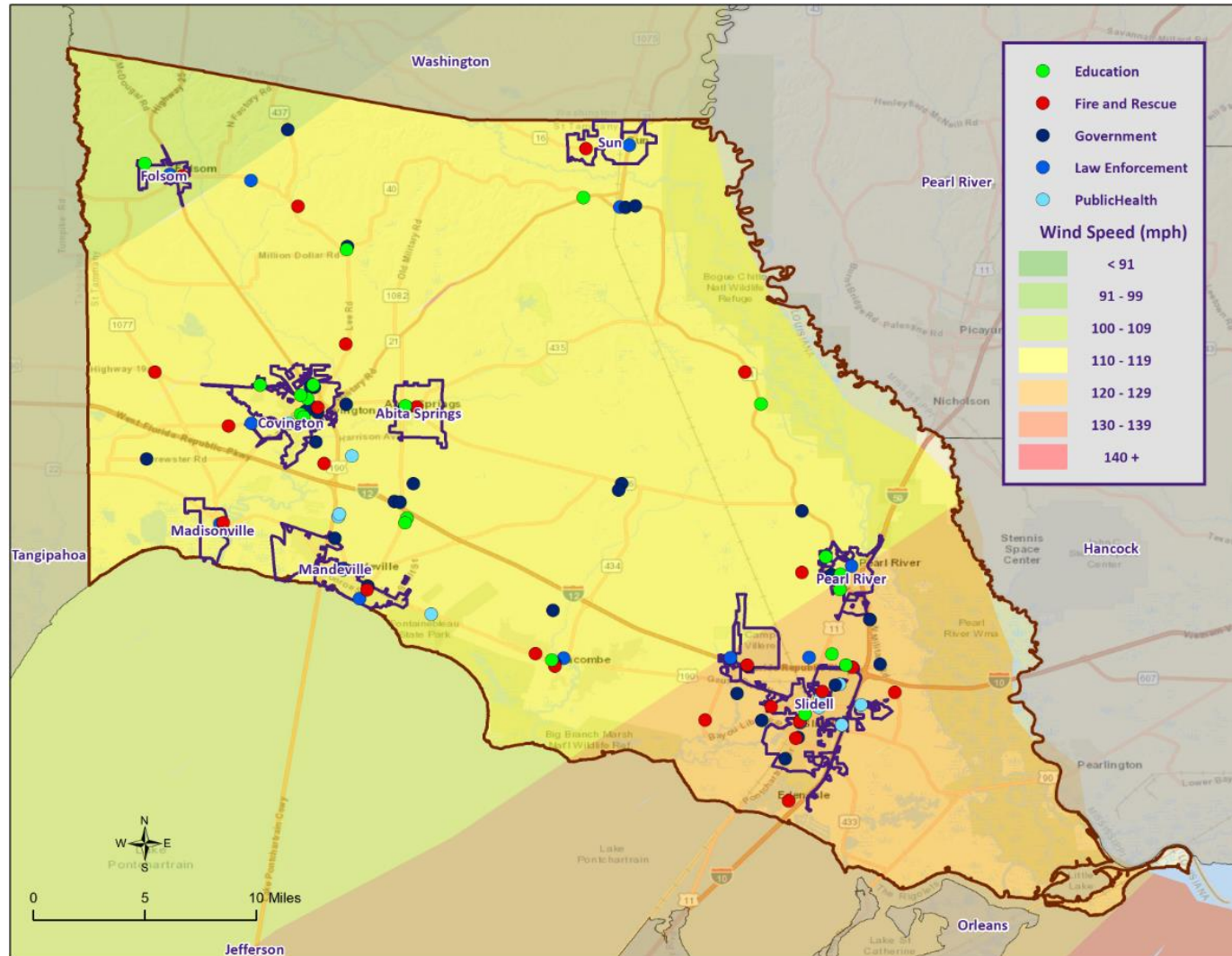
Saffir-Simpson Hurricane Wind Scale		
	Sustained Wind Speed	Effects
Category 1	74-95 mph (119-153 km/hr)	Very dangerous winds will produce some damage. Low-lying coastal roads flooded, minor pier damage
Category 2	96-110 mph (154-177 km/hr)	Extremely dangerous winds will cause extensive damage. Major 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.



Tropical Storm Barry

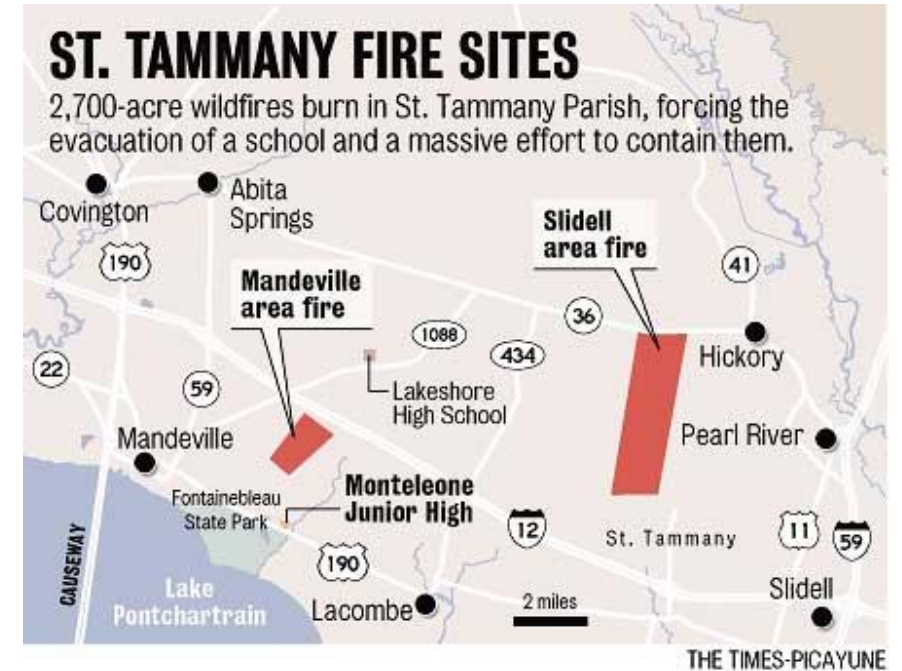


Wind Speed Impacts on Critical Infrastructure

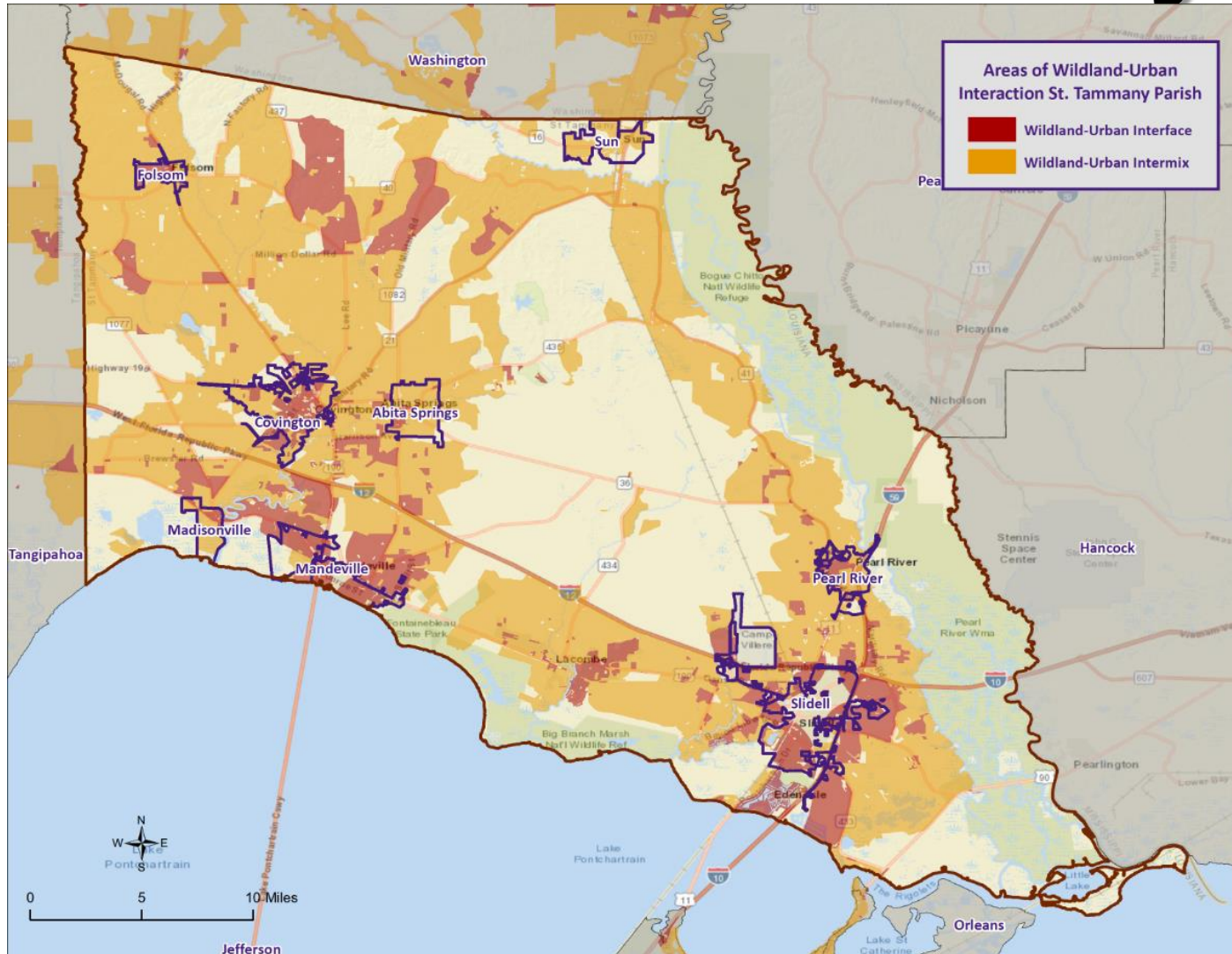


Wildfire

- A wildfire is combustion in a natural setting, marked by flames or intense heat.
- Most frequently, wildfires are ignited by lightning or unintentionally by humans. Fires set purposefully (but lawfully) are referred to as controlled fires or burns
- The primary areas affected by wildfires are the forests. Sixty-five percent of St. Tammany Parish is covered in timber.
- While loss of timber is a problem, the real hazard is when wildfires threaten developed areas. As more development moves into and next to forested areas, the hazards to people and property increases.

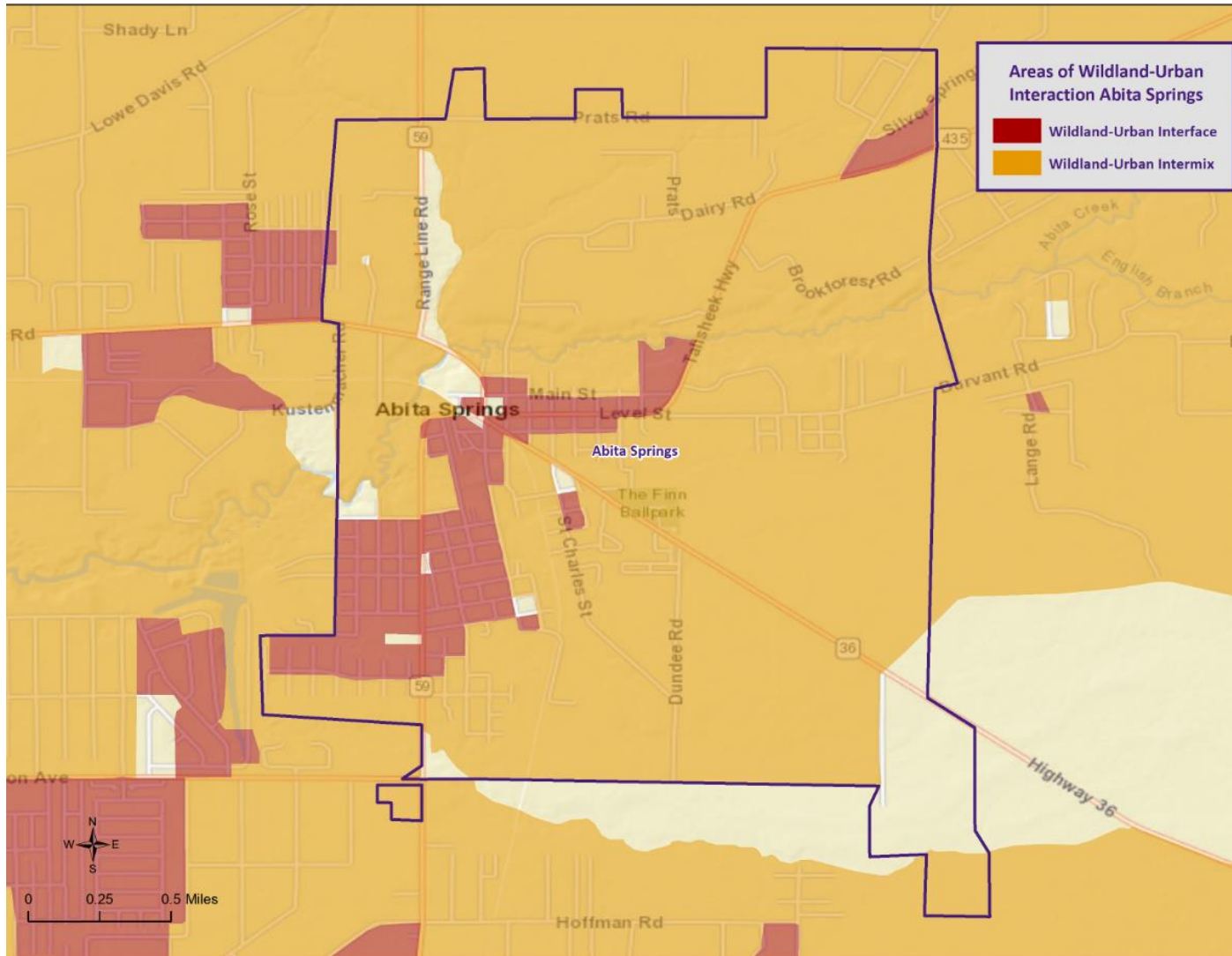


Wildfire Interaction St Tammany Parish

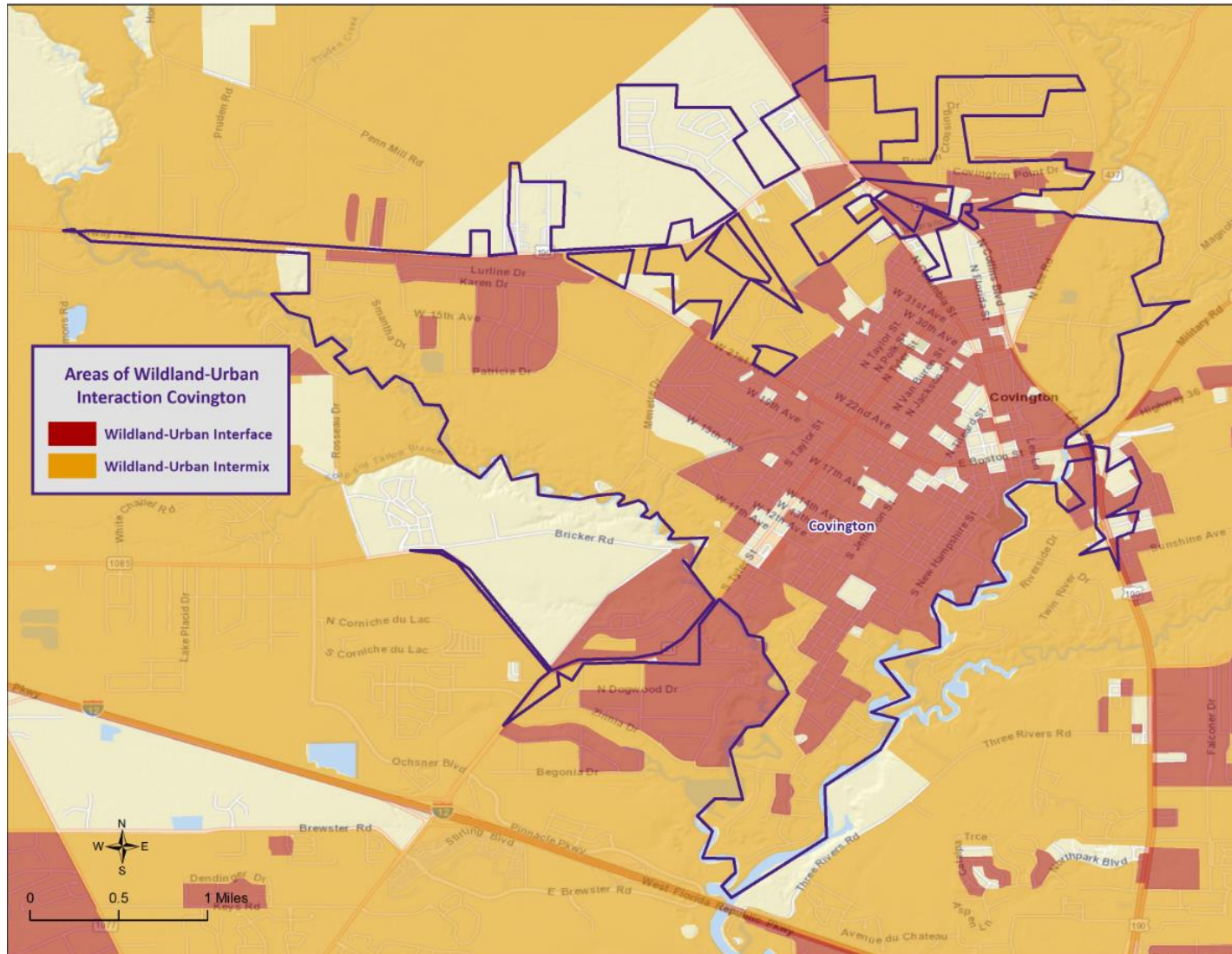


Wildfire Interaction

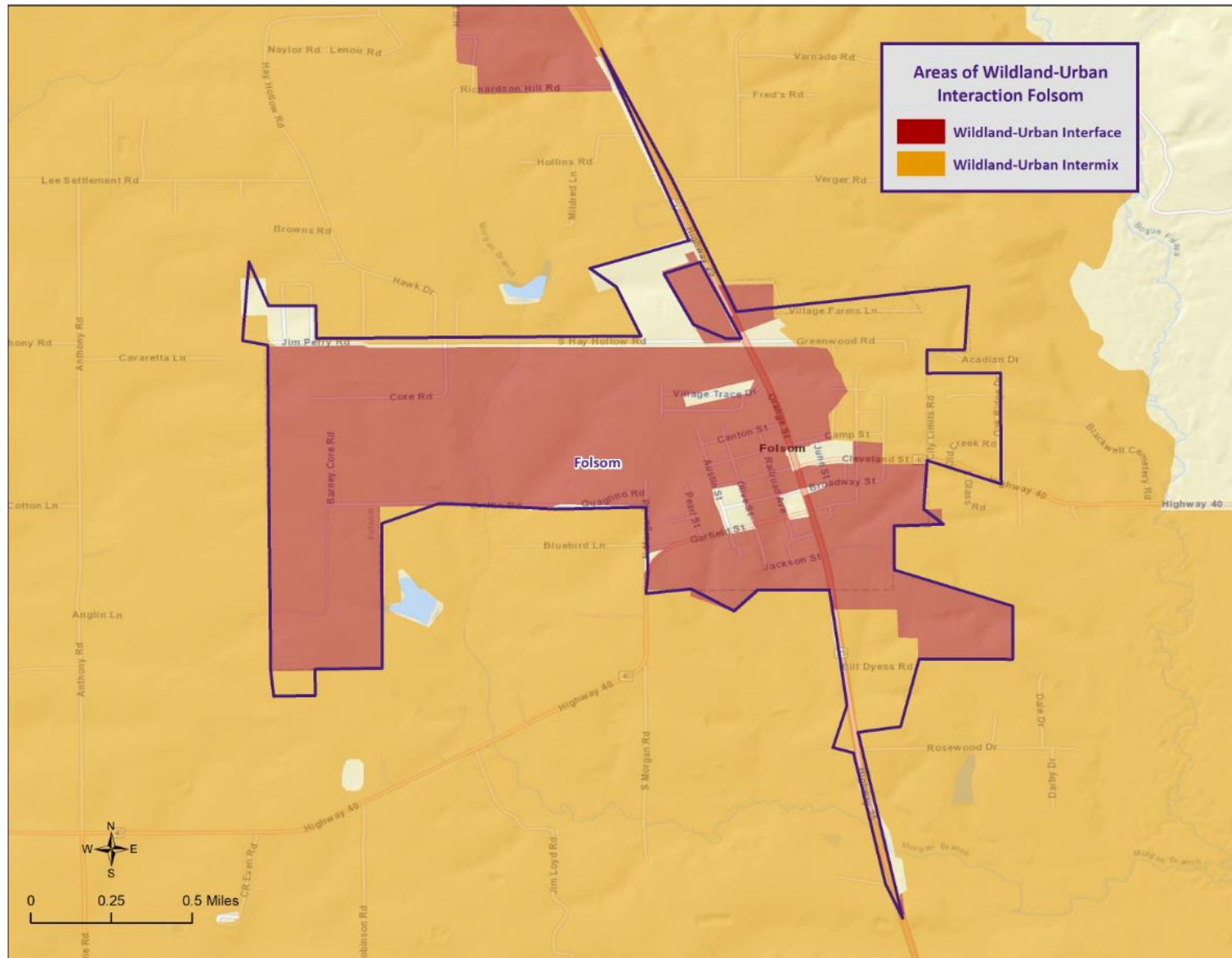
Abita Springs



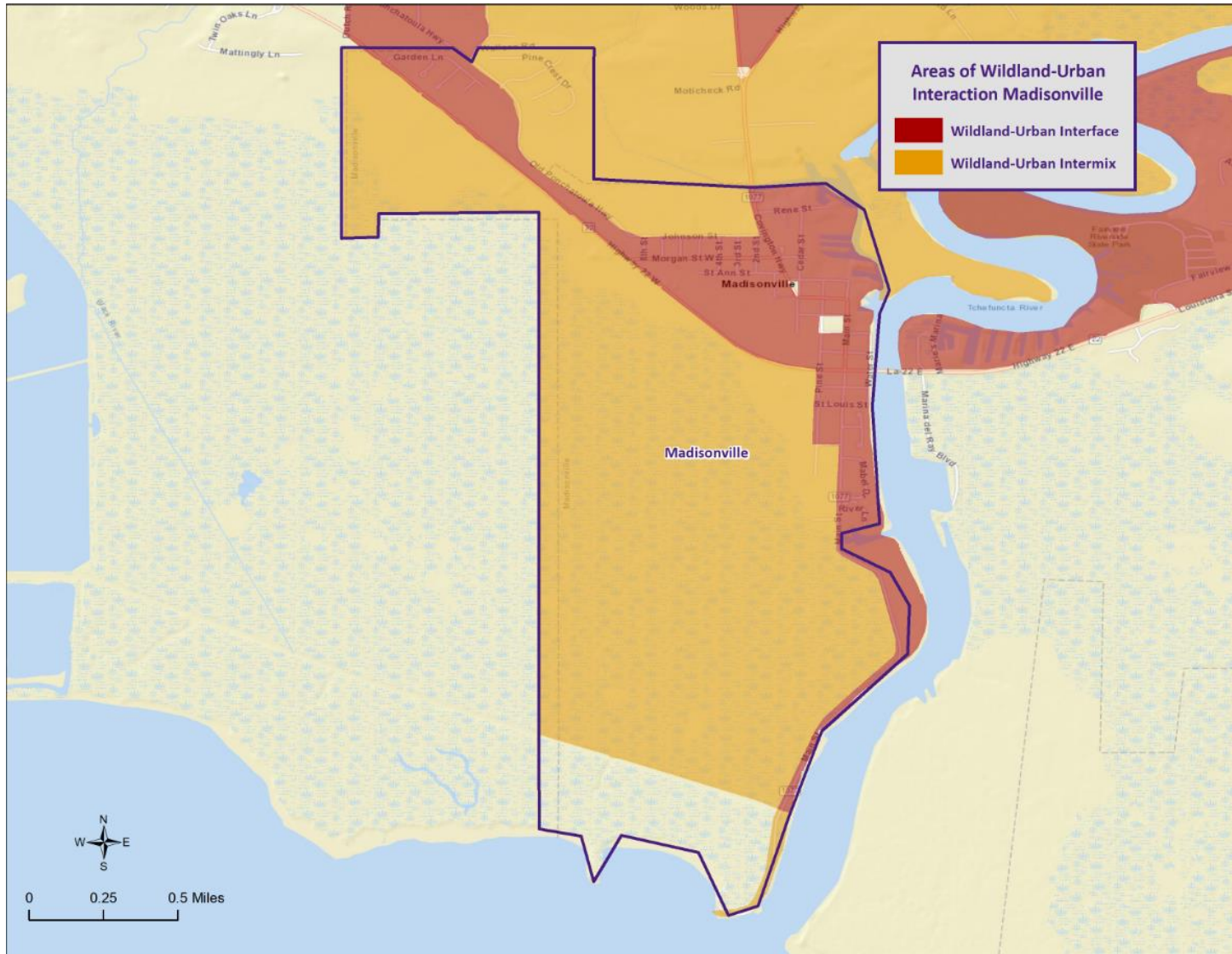
Wildfire Interaction Covington



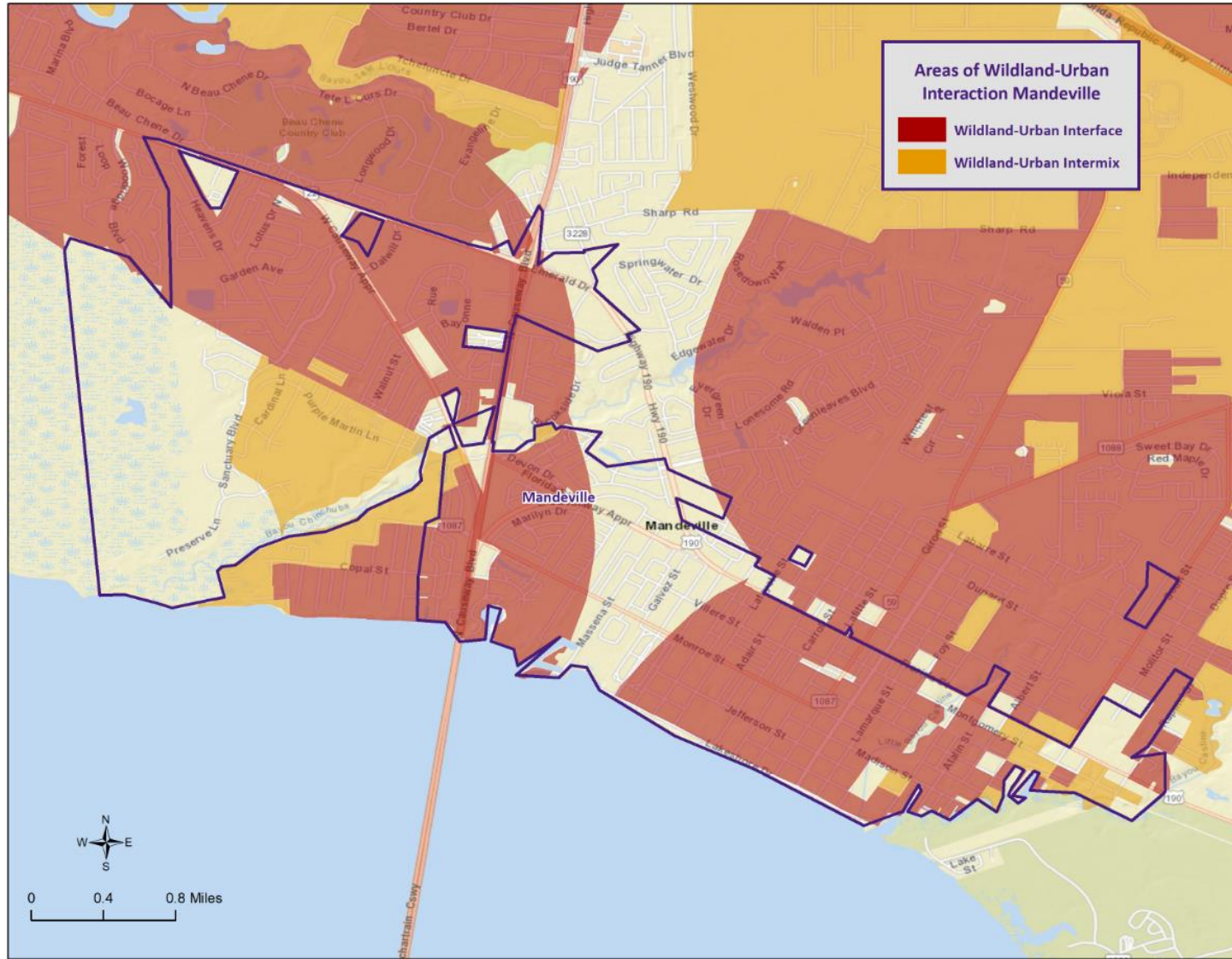
Wildfire Interaction Folsom



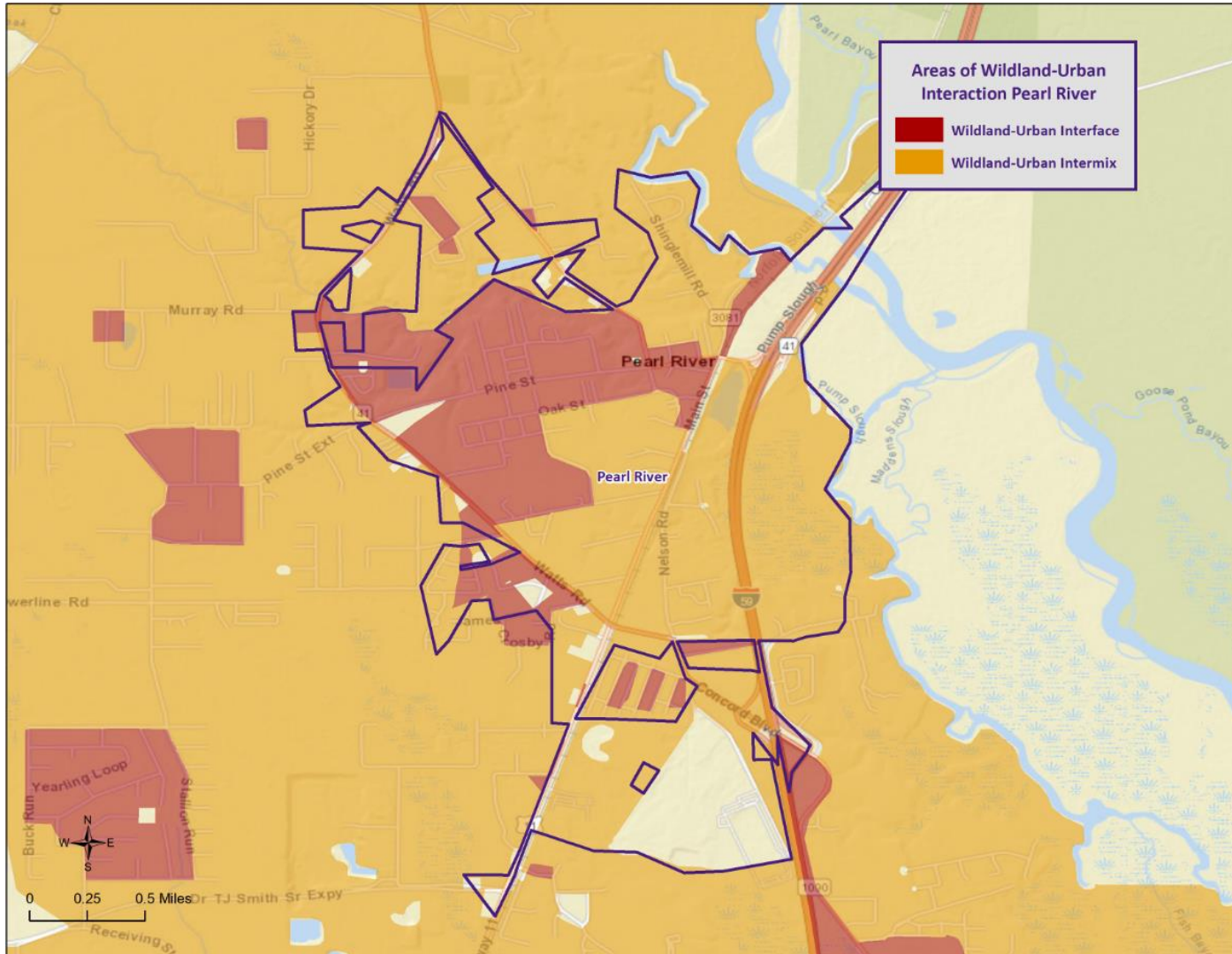
Wildfire Interaction Madisonville



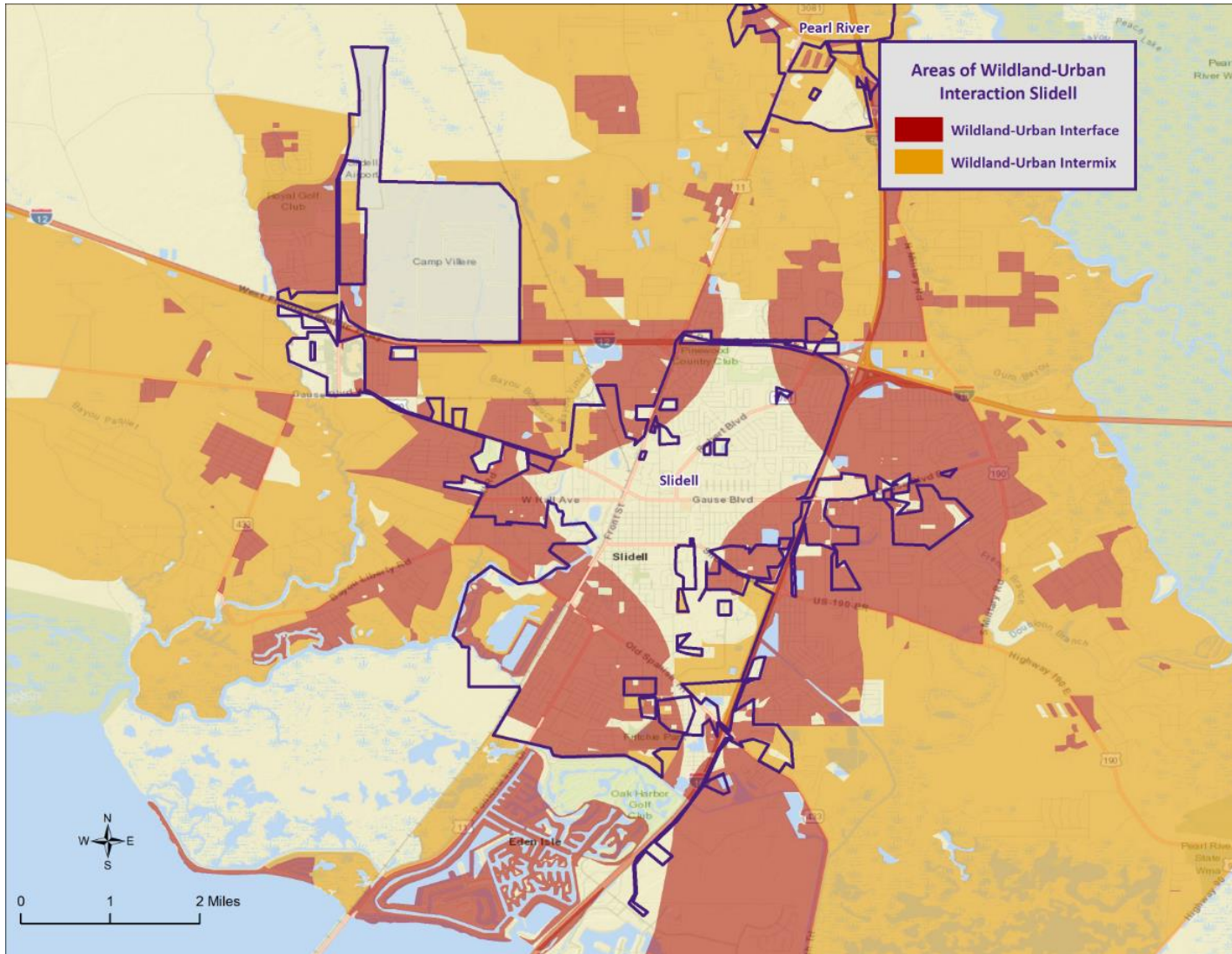
Wildfire Interaction Mandeville



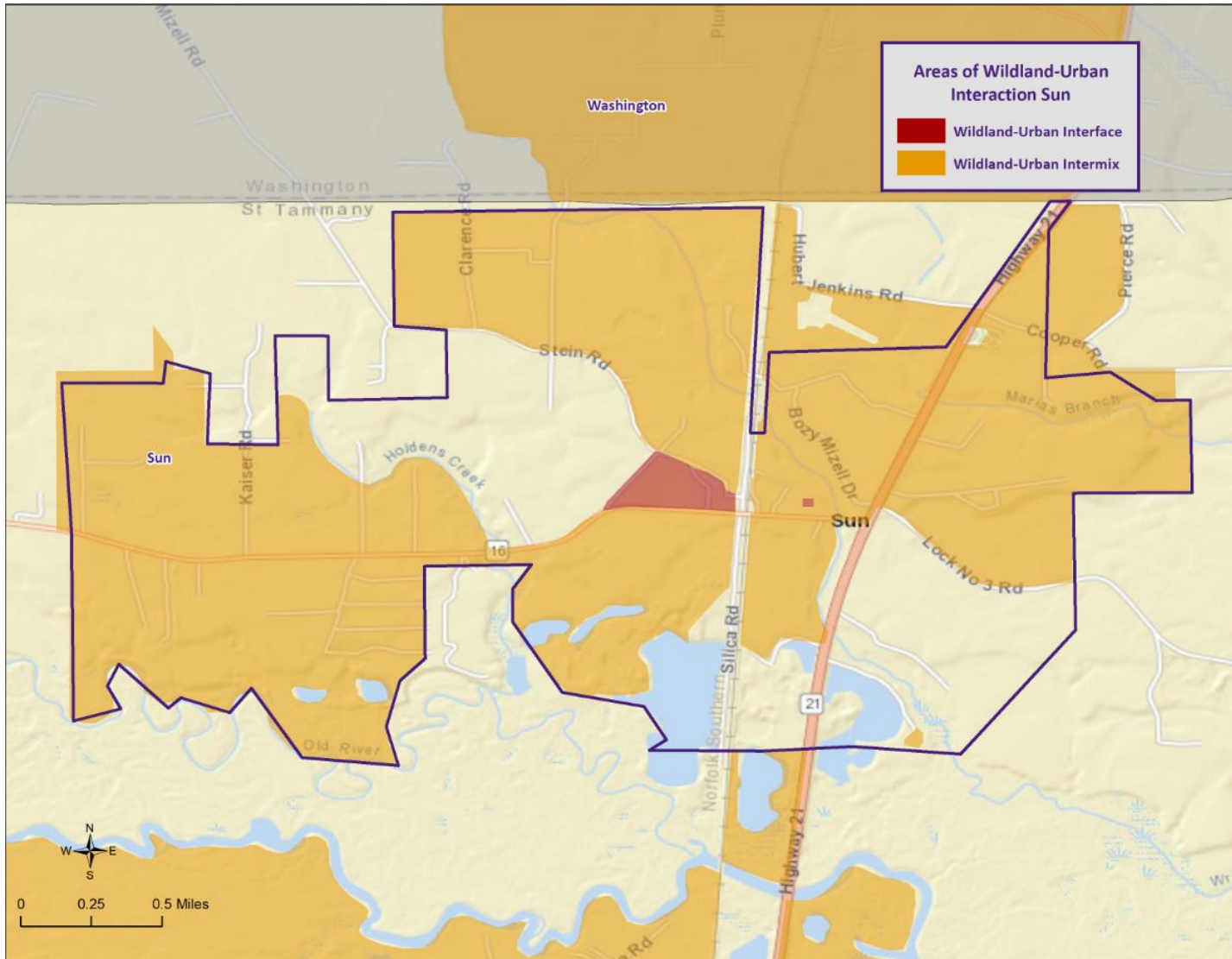
Wildfire Interaction Pearl River



Wildfire Interaction Slidell



Wildfire Interaction Sun



Fog

- Fog is a cloud that is on the ground. Fog forms once evaporation into the air results in super saturation, usually because the ground surface is very wet and the air is cooler
- Fog is common in situations over water or where a daytime shower saturates the soil, vegetation and boundary layer and then skies clear in the evening into the night hours.
- Fog has historically been and continues to be a major problem on the causeway leading to closures year round, typically during the colder months.



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









Drought

U.S. Drought Monitor Louisiana

June 9, 2020
(Released Thursday, Jun. 11, 2020)
Valid 8 a.m. EDT



Intensity:

-  None
-  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. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

Brad Pugh
CPC/NOAA



droughtmonitor.unl.edu



Termites

- Termites are small pale colored insects that live off of wood and wooden structures at or near the ground.
- There are two types of termites that live in southeastern Louisiana: drywood termites and subterranean termites.
- The main concentration of termites occurs in southeastern Louisiana, specifically, those areas south of Interstates 10 and 12. Most of St. Tammany Parish is affected



Parish Mitigation Goals

- **Goal 1:** Identify and pursue preventative structural and non-structural measures that will reduce future damages.
- **Goal 2:** Enhance public awareness and understanding of disaster preparedness.
- **Goal 3:** Reduce repetitive flood losses in parish and municipalities.
- **Goal 4:** Facilitate sound building practices in the parish and municipalities so as to reduce or eliminate the potential impact of hazards.
- **Goal 5:** Improve the ability of the parish and municipalities to rapidly recover and restore facilities and services to the public.



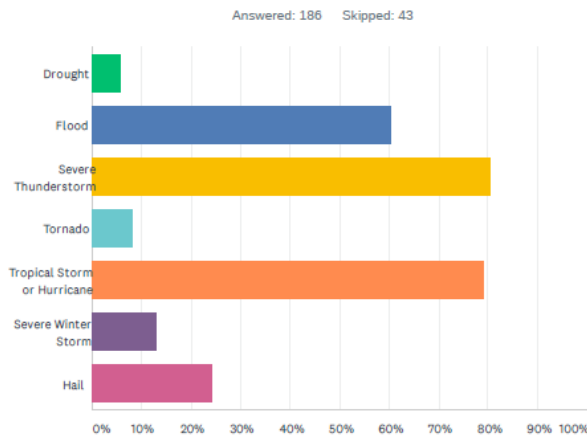
Public Outreach Activity

Hazard Mitigation Public Opinion Survey

<https://www.surveymonkey.com/r/SttammanyHM2020>

St. Tammany Parish Hazard Mitigation Public Opinion Survey

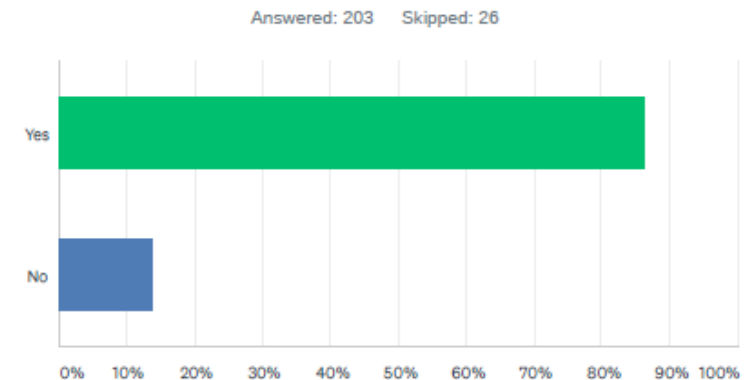
Q4 Which of these natural disasters have you or someone in your household experienced in the past five years? (Check all that apply)



ANSWER CHOICES	RESPONSES	
Drought	5.91%	11
Flood	60.22%	112
Severe Thunderstorm	80.65%	150
Tornado	8.06%	15
Tropical Storm or Hurricane	79.03%	147
Severe Winter Storm	12.90%	24
Hail	24.19%	45
Total Respondents: 186		

St. Tammany Parish Hazard Mitigation Public Opinion Survey

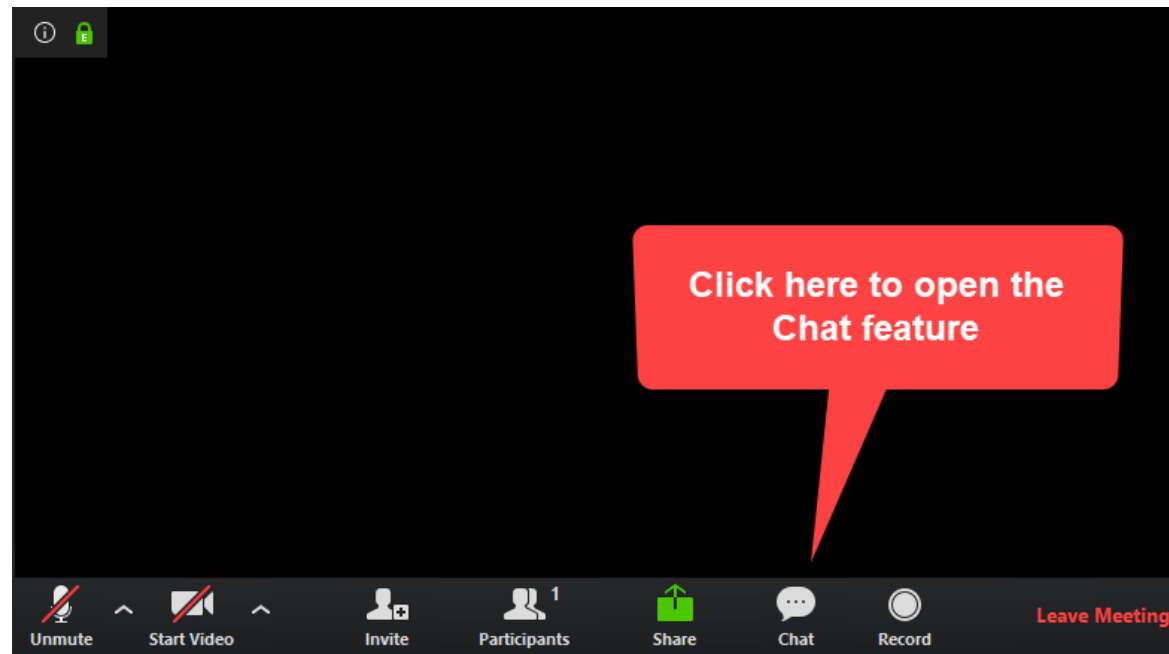
Q6 Have you ever received information about how to make members of your household and your home safer from natural disasters?



ANSWER CHOICES	RESPONSES	
Yes	86.21%	175
No	13.79%	28
TOTAL		203

Chat Questions

- SDMI Moderator answers to public chat questions that were not addressed directly in the chat function.



Contact Us

Brant Mitchell, SDMI Director, MPA, CEM, CISSP

Lauren Stevens, Associate Director, MEPP

lstevens@lsu.edu

Chris Rippetoe, HM Program Manager, CFM

crippe2@lsu.edu

Stephenson Disaster Management Institute

www.sdmi.lsu.edu

