St. Bernard Parish
Hazard Mitigation Plan Update
Risk Assessment & Public Meeting

September 30, 2020

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Introductions

- **Stephenson Disaster Management Institute (SDMI) at LSU**
  - Lauren Stevens – Associate Director, Disaster Management Programs
  - Chris Rippetoe – Hazard Mitigation Program Manager
- **St. Bernard Parish OHSEP Director/Parish Staff**
  - John Rahaim– OHSEP Director
- **Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP)**
  - Jeffrey Giering – State Hazard Mitigation Officer
  - Marion Pearson – State Hazard Mitigation Planner

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Agenda

- Introductions
- Hazard Mitigation Overview
- Hazard Mitigation
- Planning Process Risk Assessment
- Public Outreach Activity

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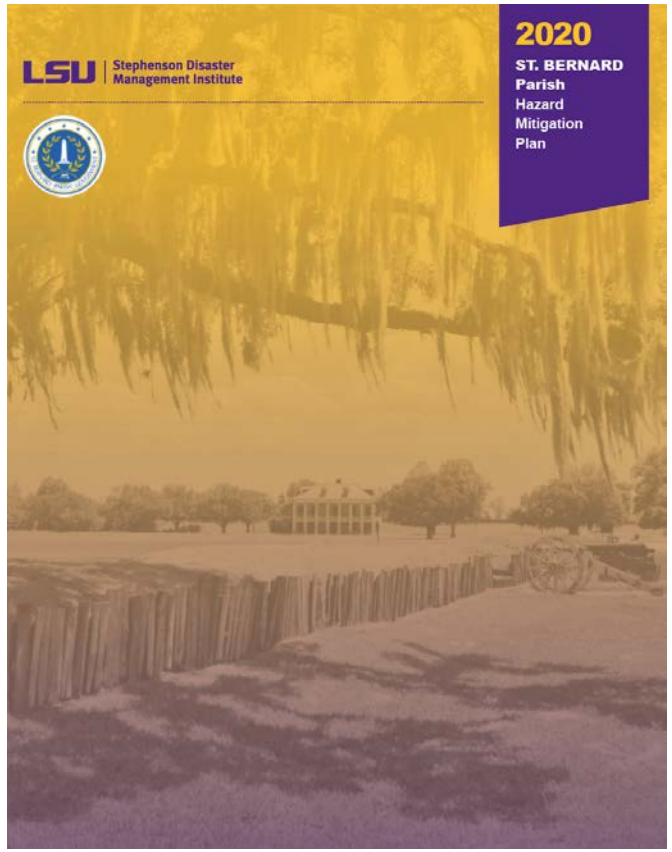
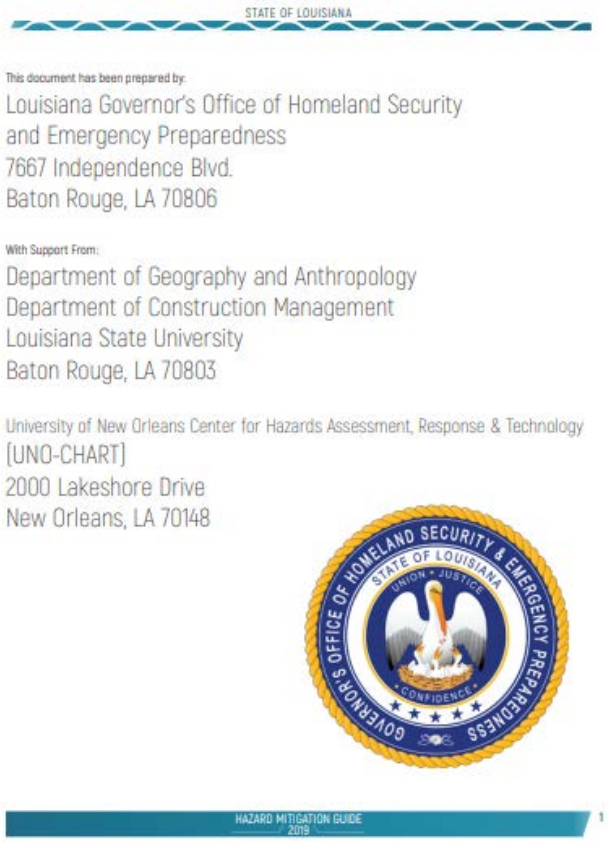
Why are we here?





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!

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

Planning Process to Date

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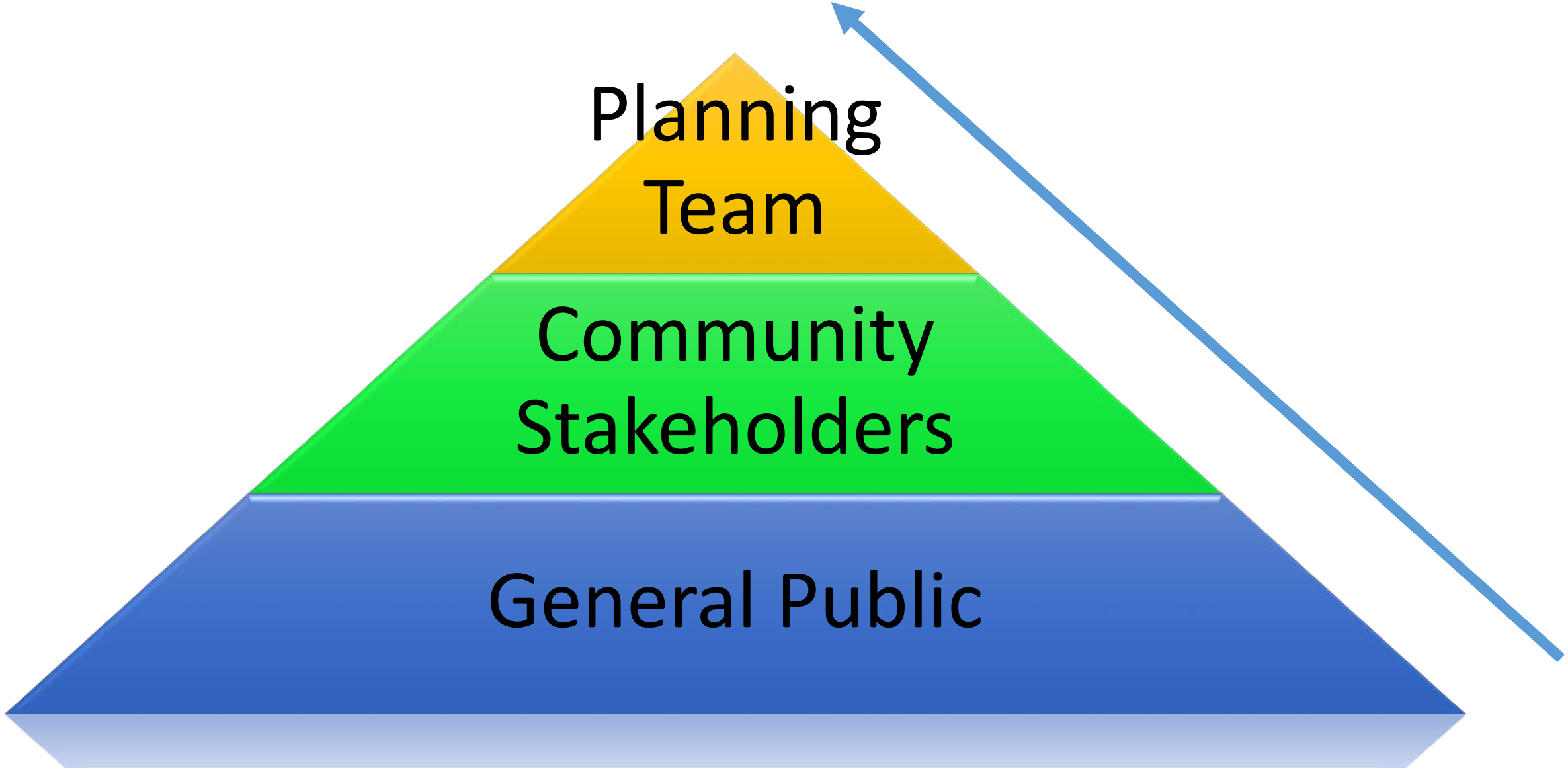
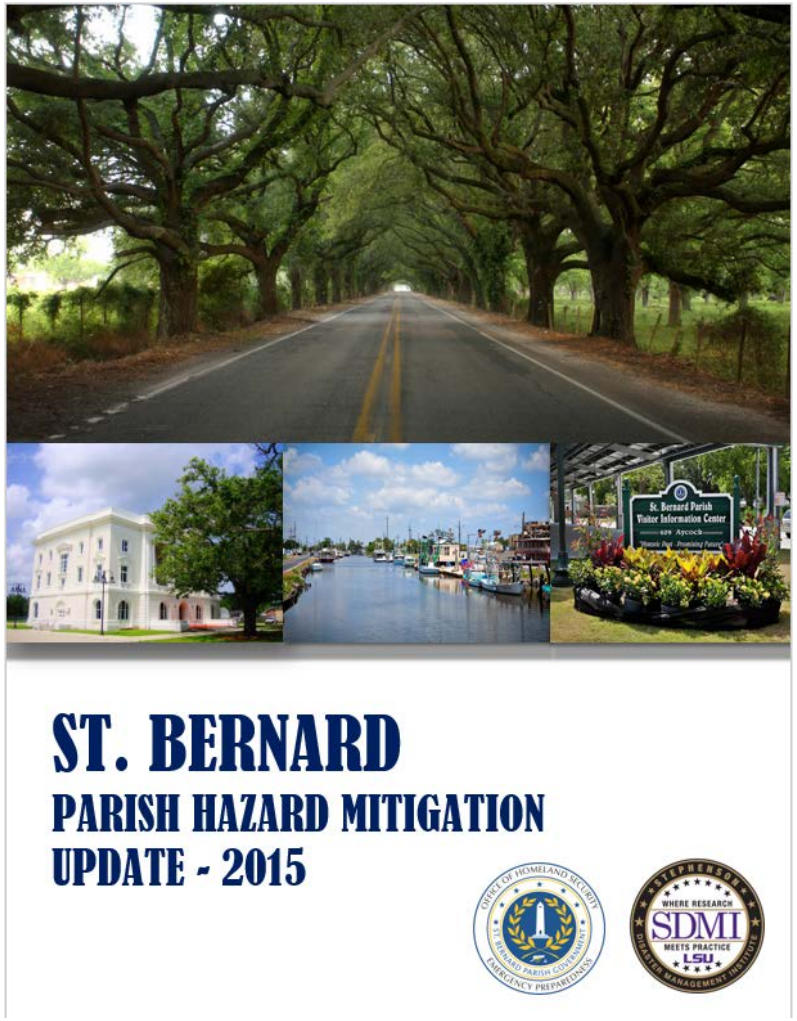
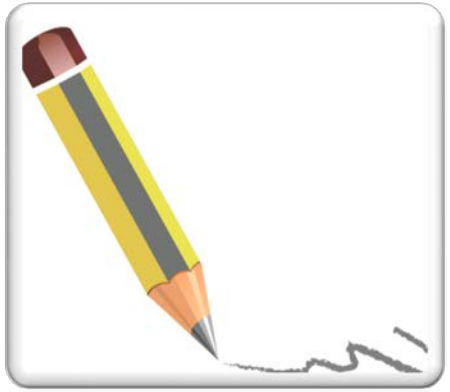
Collaborative Planning Approach



Planning Development





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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

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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

- 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*

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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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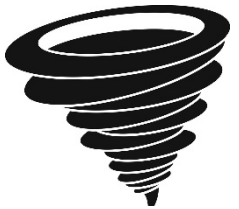
Hazard Identification and Risk Assessment

- Coastal Hazards
  - Land Subsidence/Storm Surge/Saltwater Intrusion
- Flooding
- Sinkholes

- Thunderstorms
  - Lightning/High Winds/Hailstorms
- Tornados
- Tropical Cyclones



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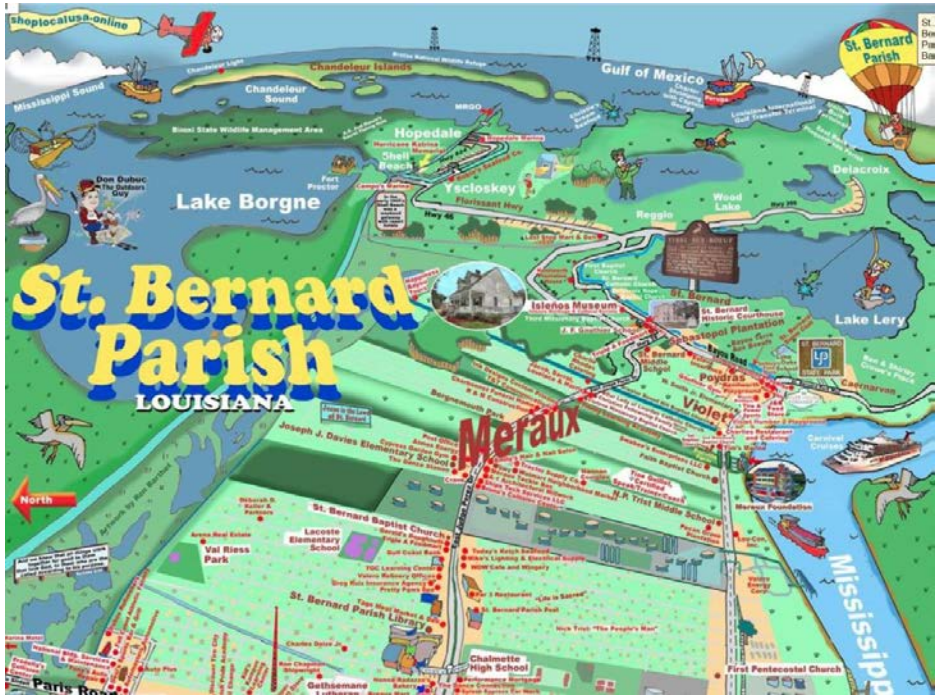
Risk Matrix for St. Bernard Parish

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	Overall Risk
Coastal Hazards	4	2	4	1	3	2.9
Flooding	3	4	3	4	3	3.4
Sinkholes	1	1	1	4	2	1.6
Thunderstorms (Hail)	3	2	2	3	1	2.25
Thunderstorms (High Winds)	3	2	3	3	1	2.45
Thunderstorms (Lightning)	3	2	3	3	1	2.45
Tornadoes	3	3	2	4	3	2.95
Tropical Cyclones	4	4	4	1	4	3.55

Risk Assessment Maps



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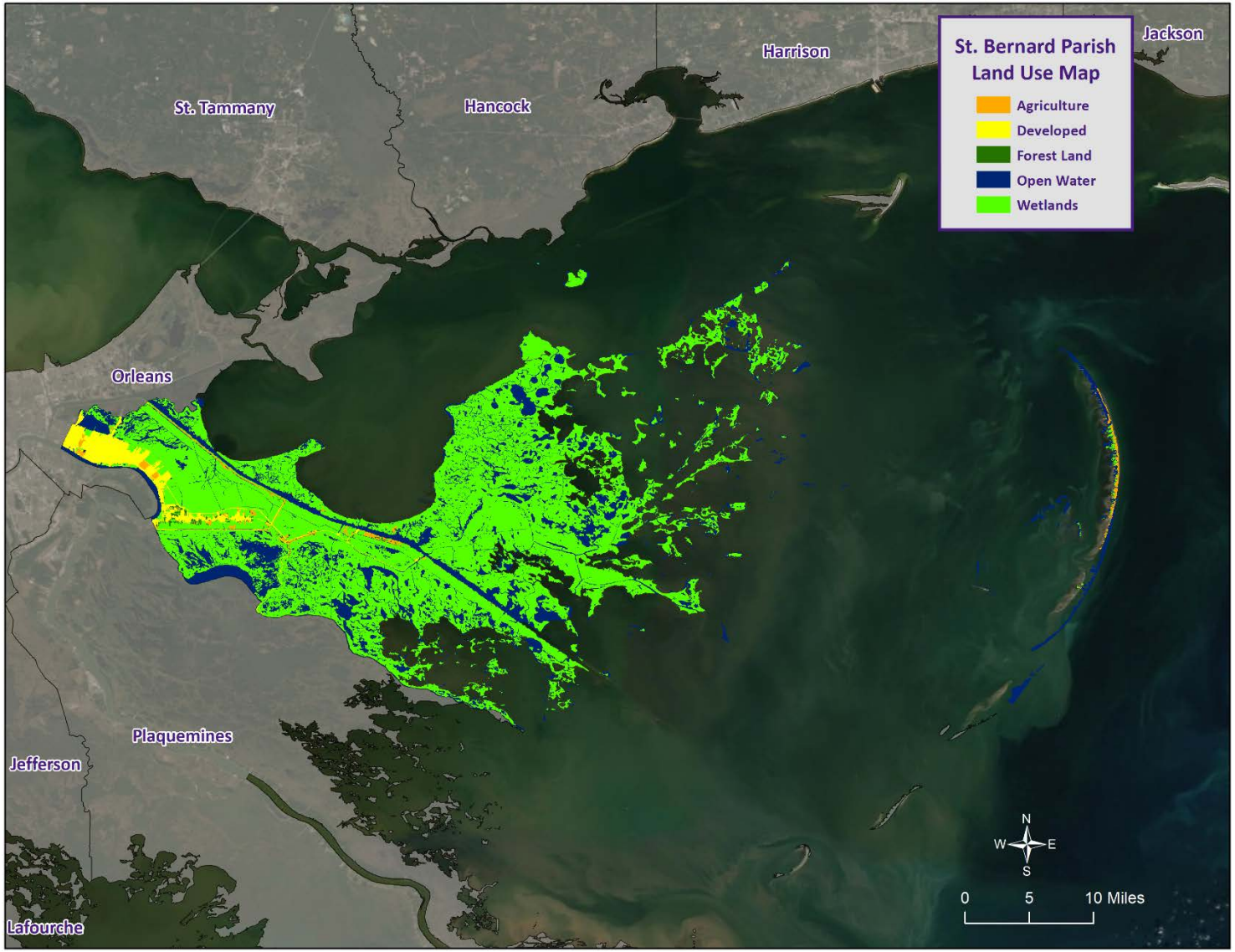
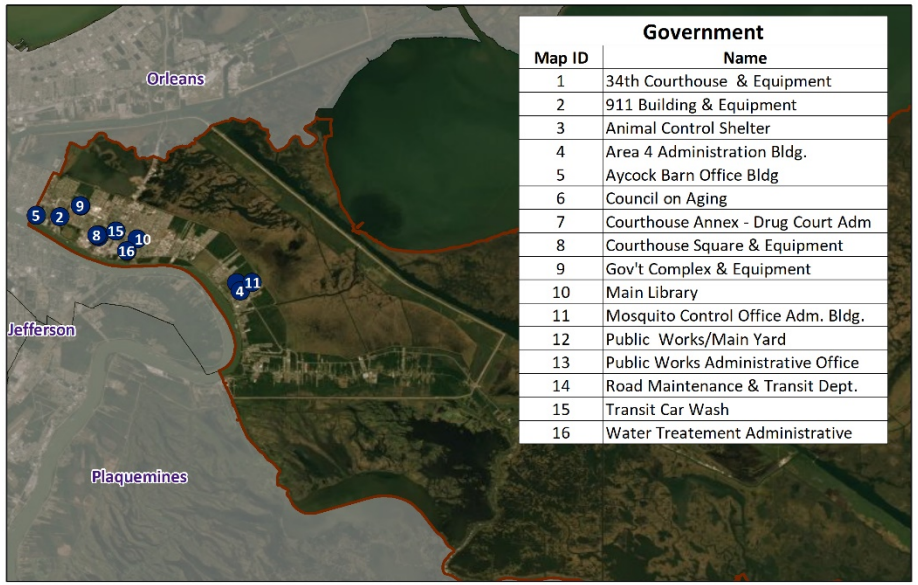
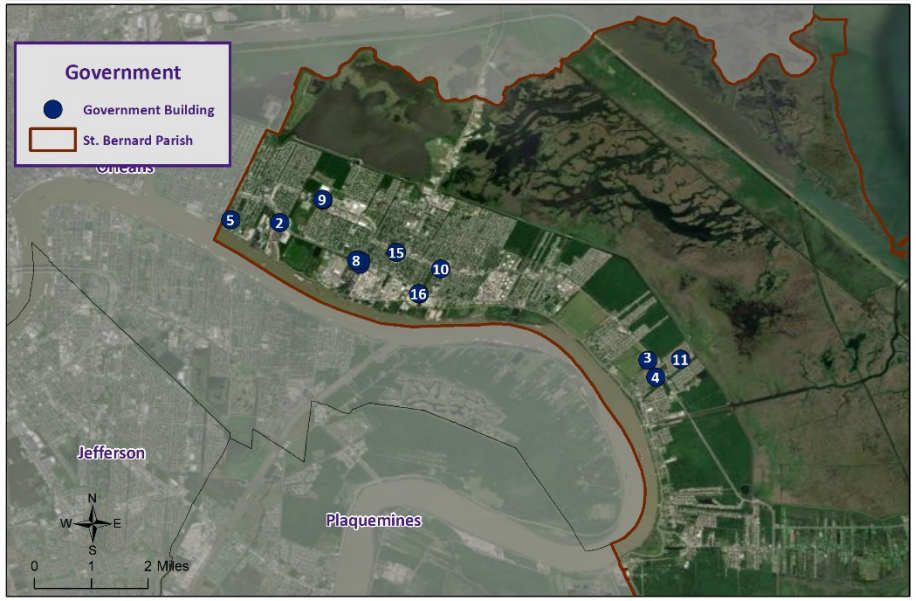
St. Bernard Parish Land Usage



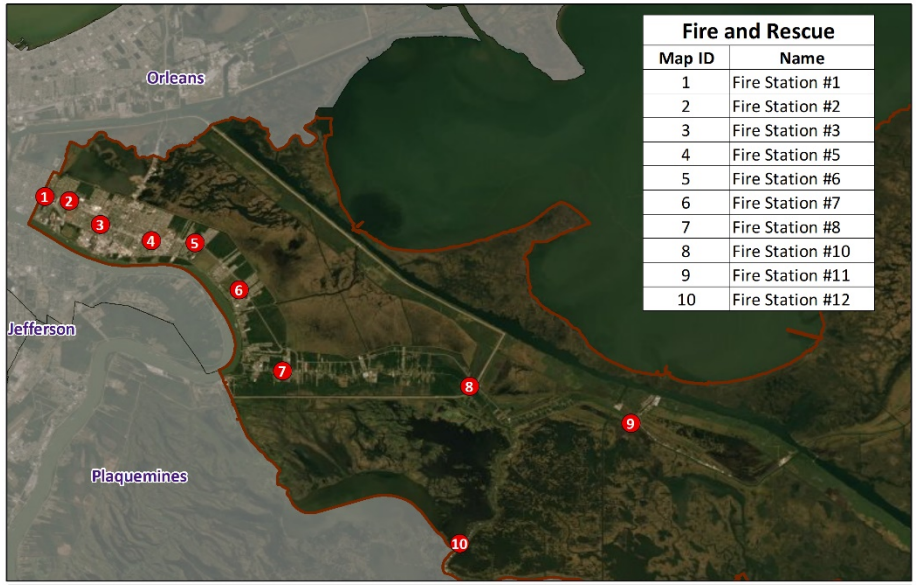
Critical Facilities: Civil Government



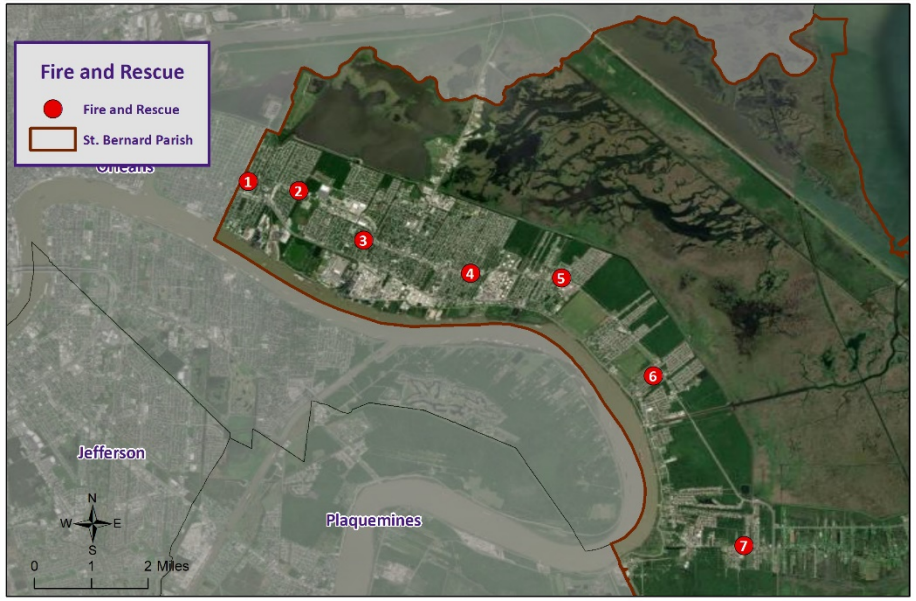
Government	
Map ID	Name
1	34th Courthouse & Equipment
2	911 Building & Equipment
3	Animal Control Shelter
4	Area 4 Administration Bldg.
5	Aycock Barn Office Bldg
6	Council on Aging
7	Courthouse Annex - Drug Court Adm
8	Courthouse Square & Equipment
9	Gov't Complex & Equipment
10	Main Library
11	Mosquito Control Office Adm. Bldg.
12	Public Works/Main Yard
13	Public Works Administrative Office
14	Road Maintenance & Transit Dept.
15	Transit Car Wash
16	Water Treatement Administrative



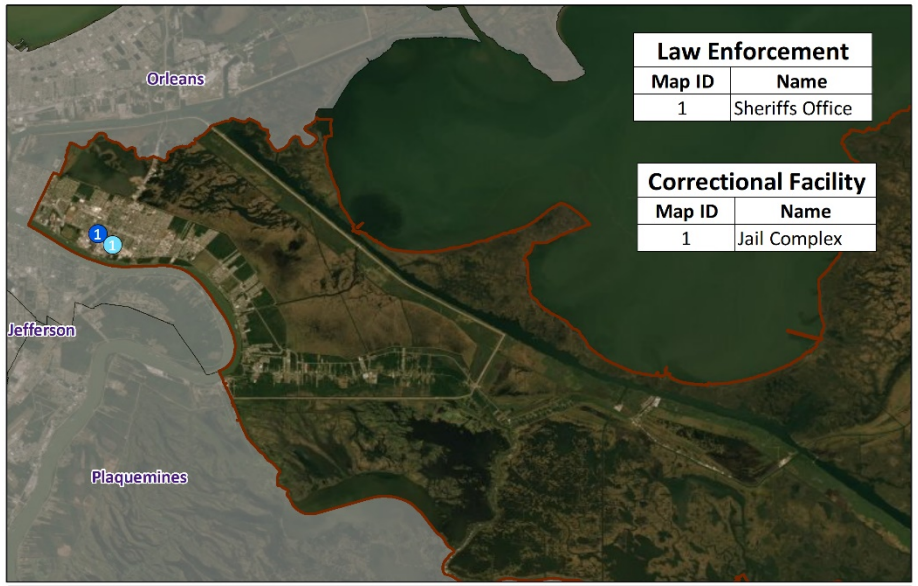
Critical Facilities: Fire & Rescue

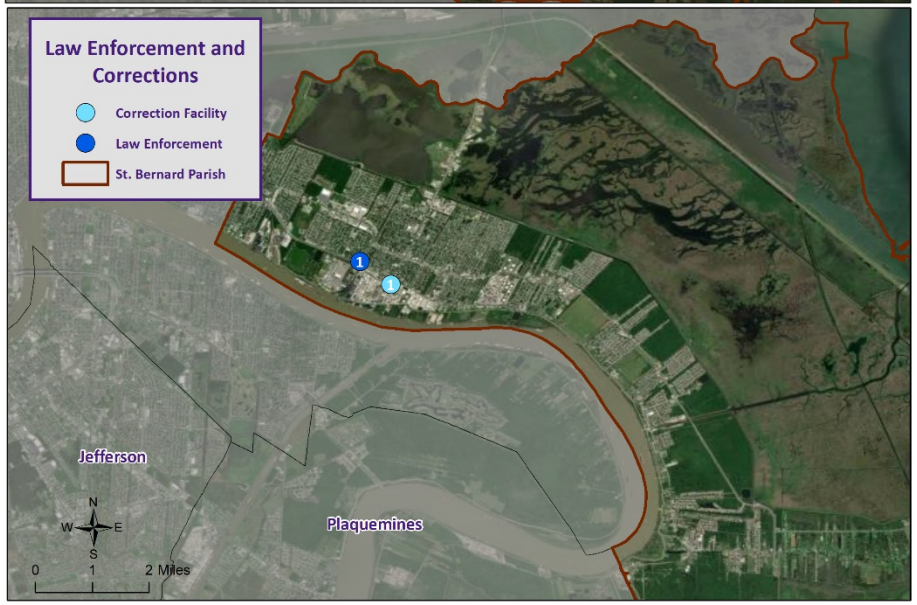


Fire and Rescue	
Map ID	Name
1	Fire Station #1
2	Fire Station #2
3	Fire Station #3
4	Fire Station #5
5	Fire Station #6
6	Fire Station #7
7	Fire Station #8
8	Fire Station #10
9	Fire Station #11
10	Fire Station #12



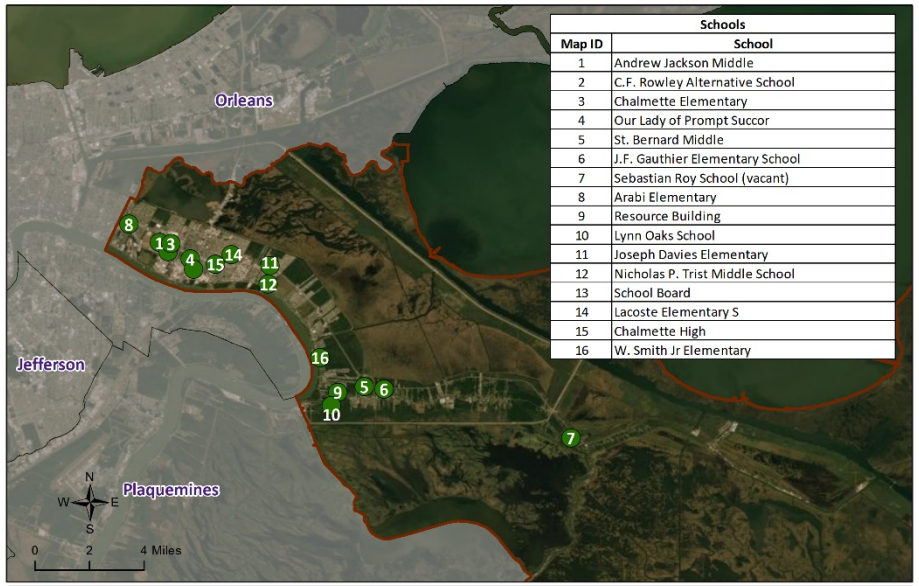
Critical Facilities: Law Enforcement



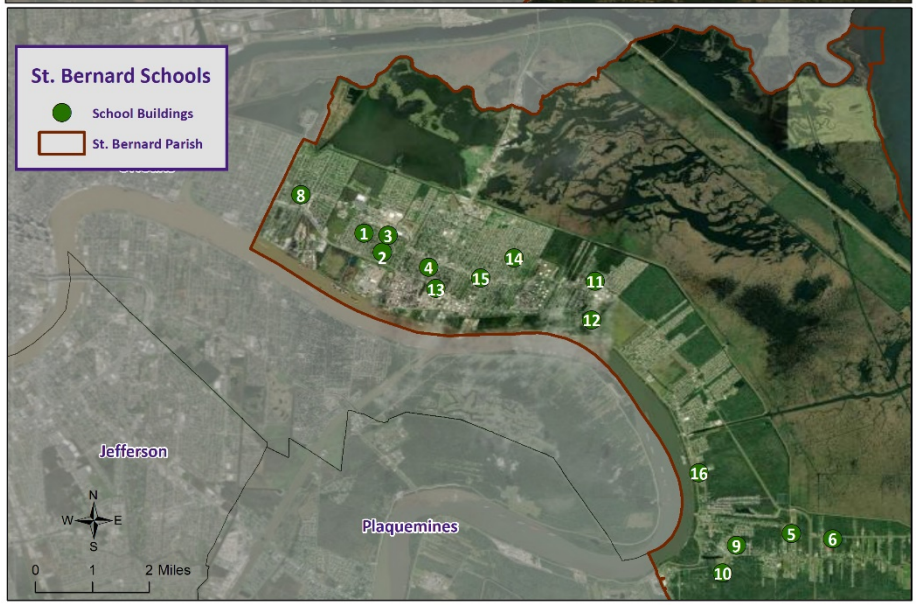


Critical Facilities: Public Health

Critical Facilities: Schools



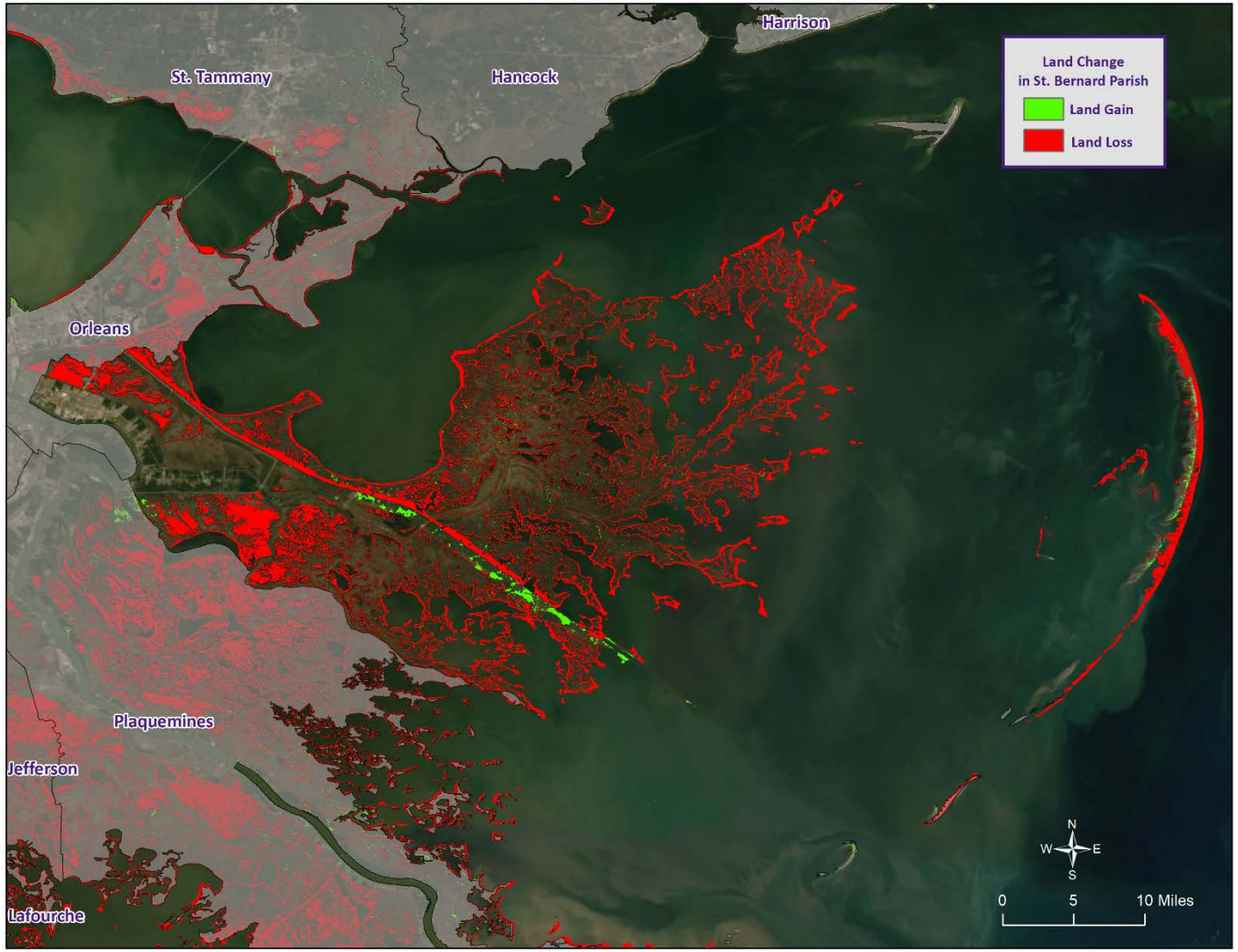
Schools	
Map ID	School
1	Andrew Jackson Middle
2	C.F. Rowley Alternative School
3	Chalmette Elementary
4	Our Lady of Prompt Succor
5	St. Bernard Middle
6	J.F. Gauthier Elementary School
7	Sebastian Roy School (vacant)
8	Arabi Elementary
9	Resource Building
10	Lynn Oaks School
11	Joseph Davies Elementary
12	Nicholas P. Trist Middle School
13	School Board
14	Lacoste Elementary S
15	Chalmette High
16	W. Smith Jr Elementary



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



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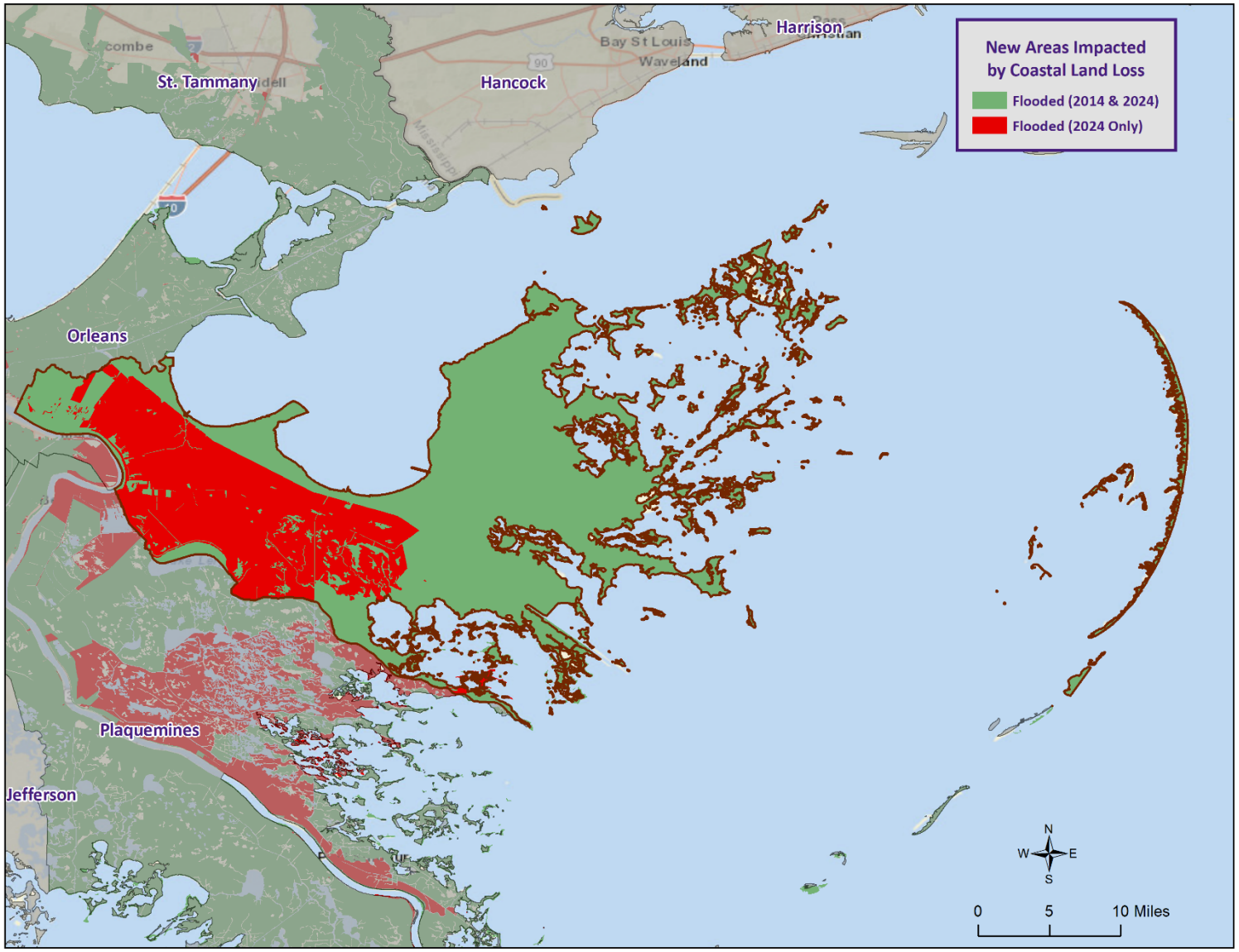
Coastal Hazards



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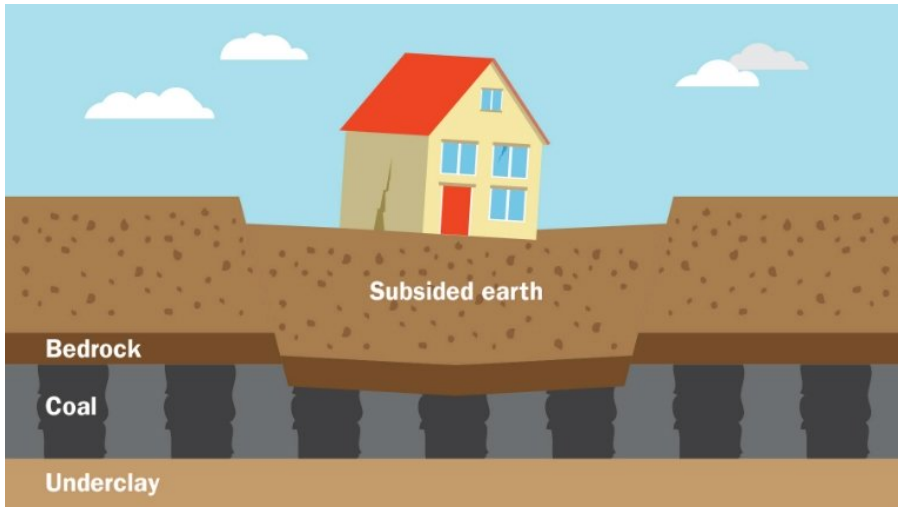
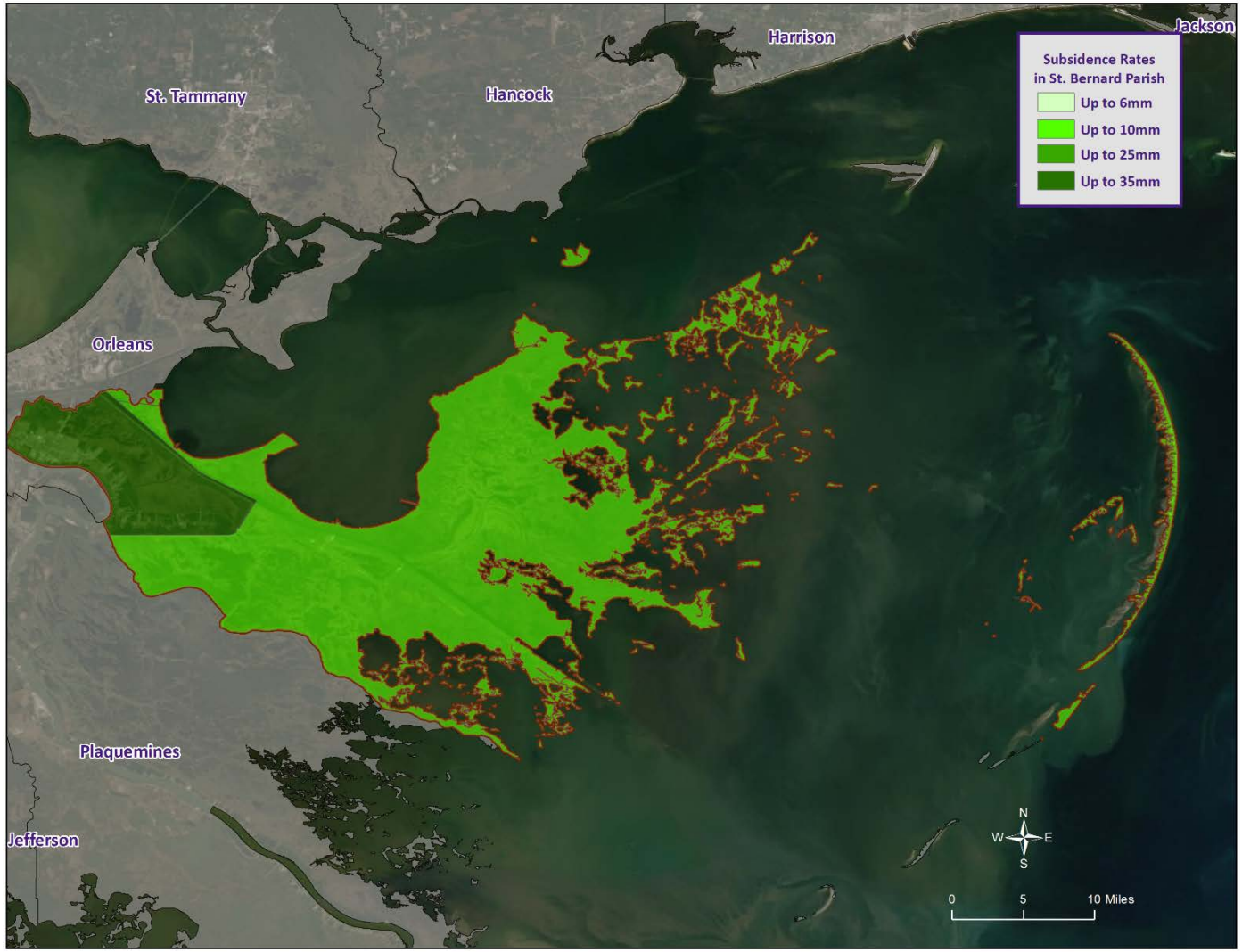


Subsidence Rates



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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

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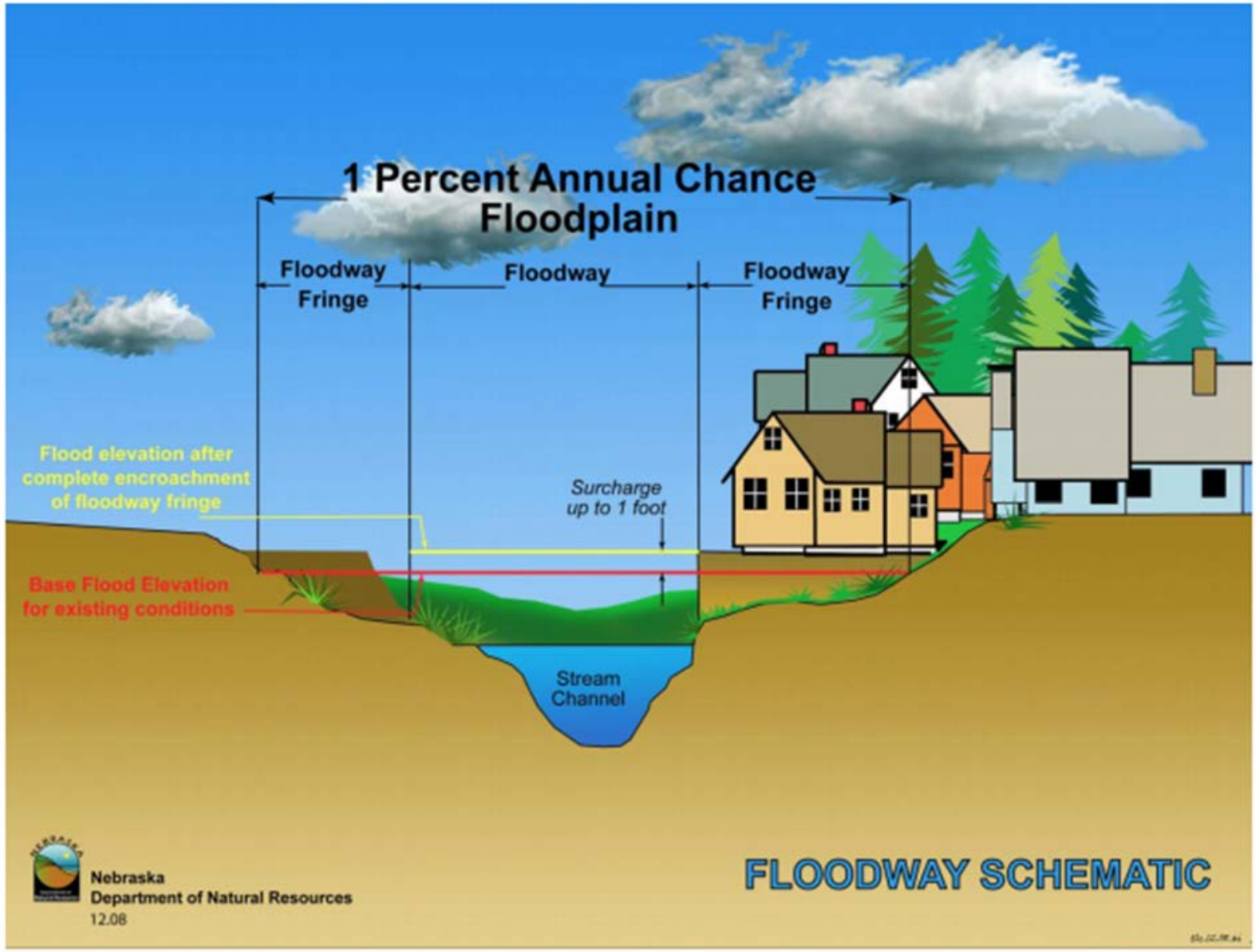
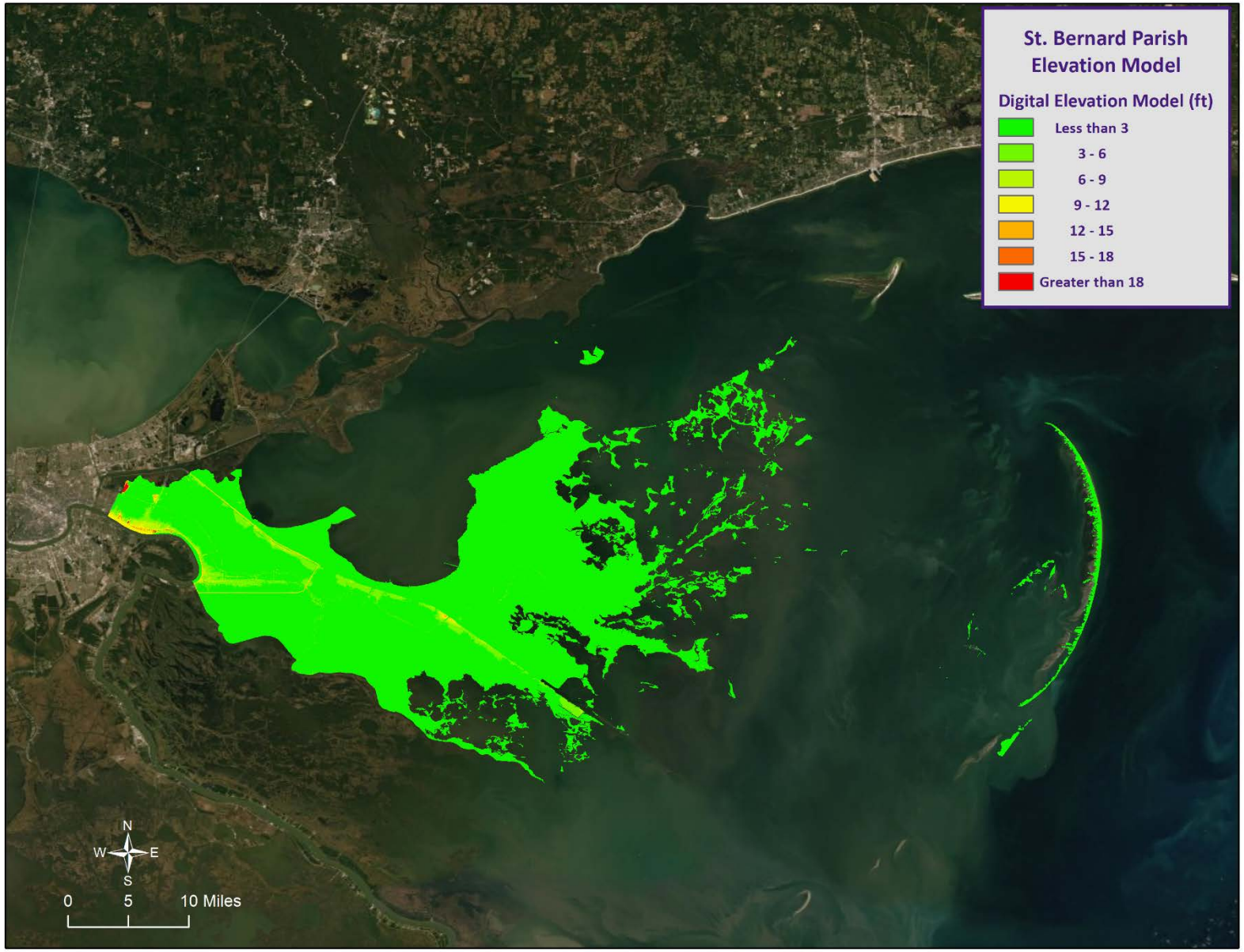
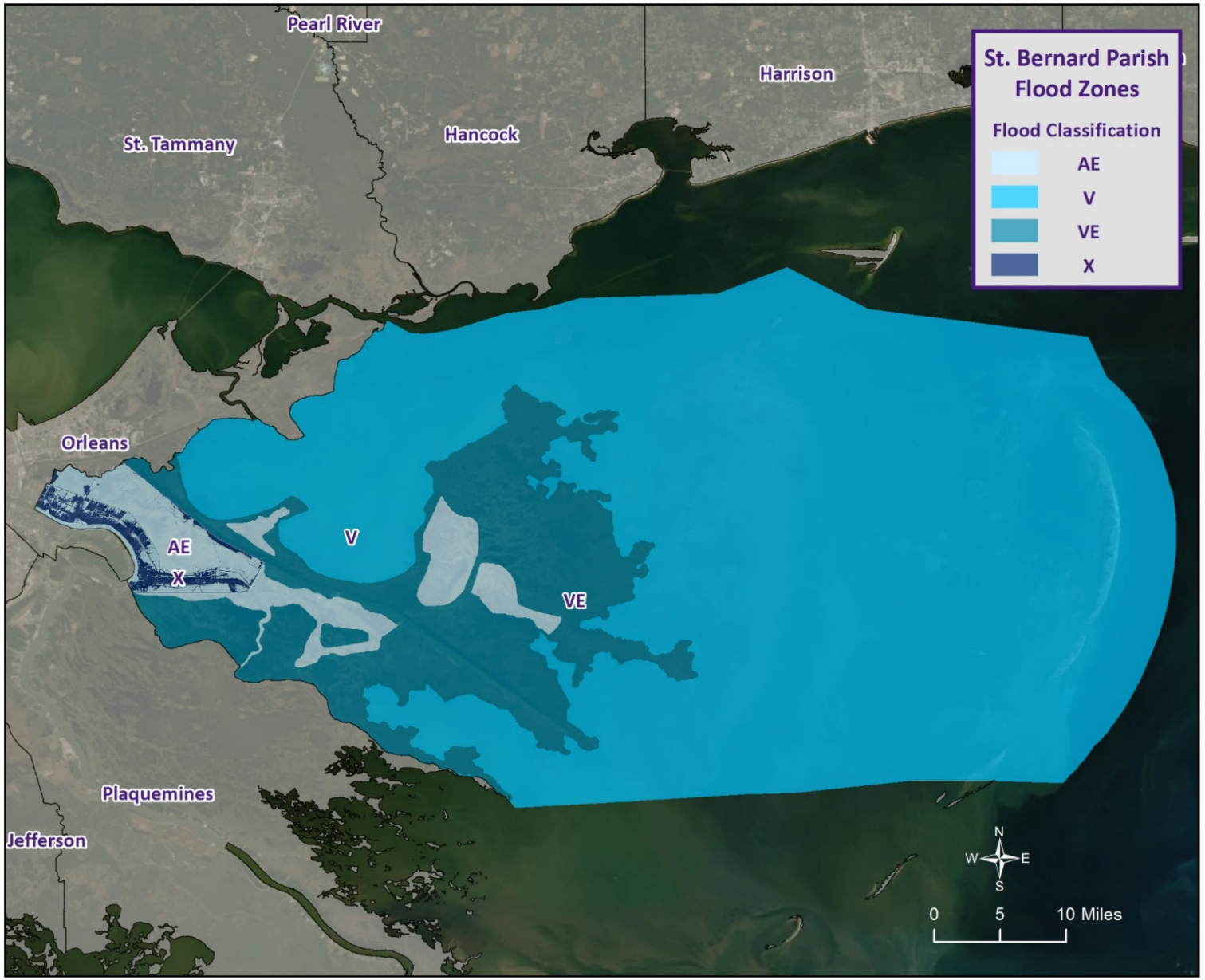
Floodway Diagram



Digital Elevation Model



St. Bernard Parish Flood Map



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.

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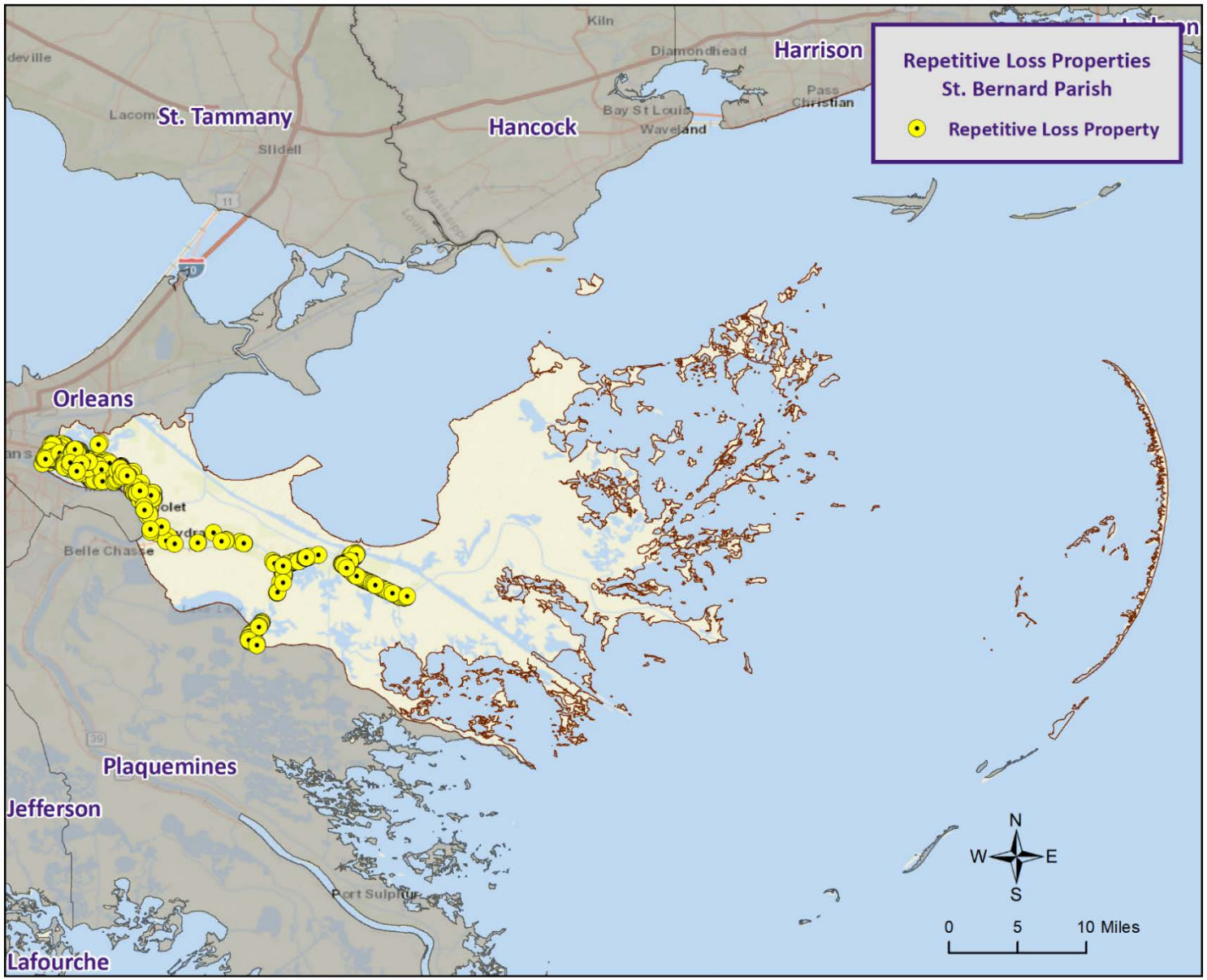
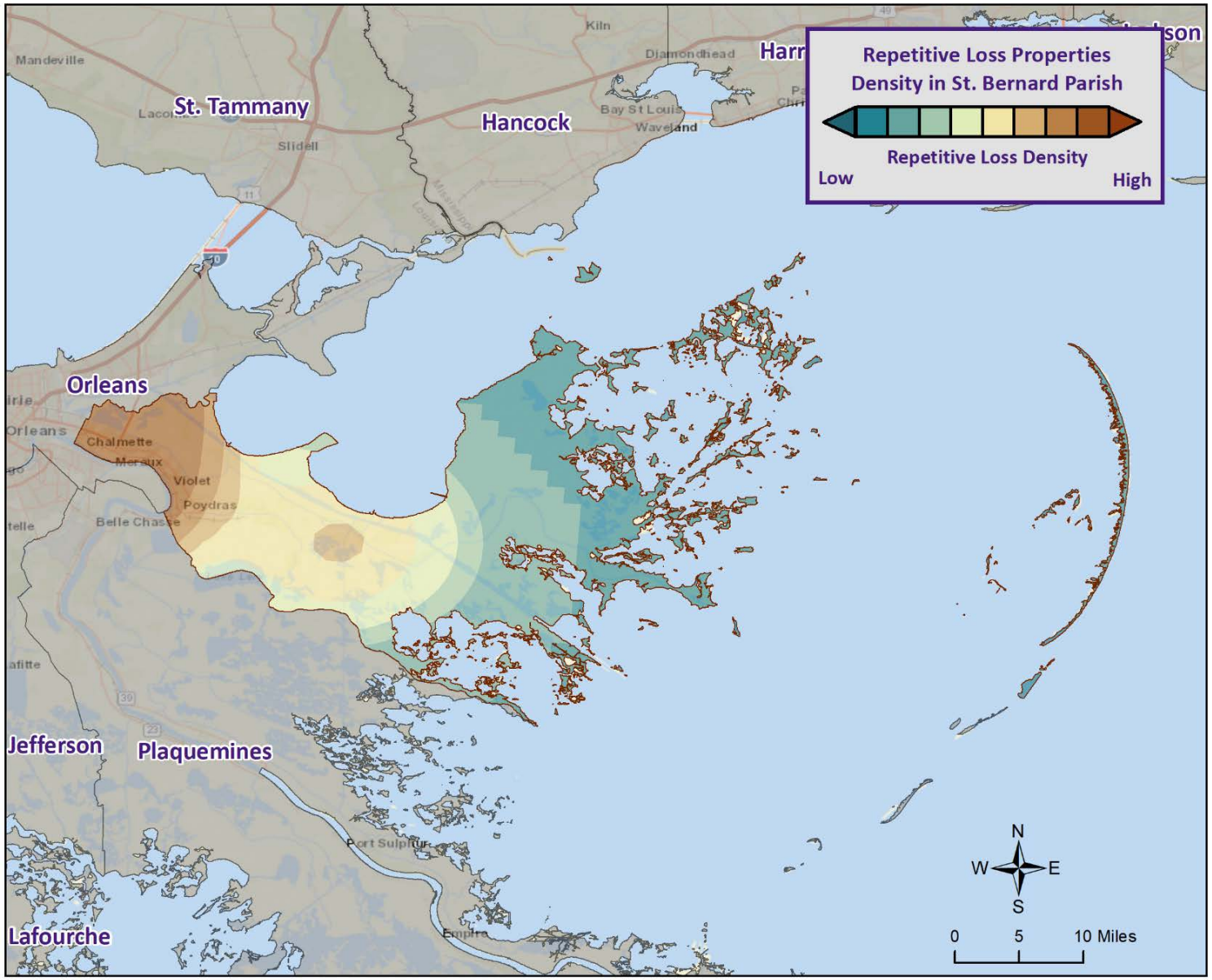
Repetitive Loss Properties



Repetitive Loss Properties



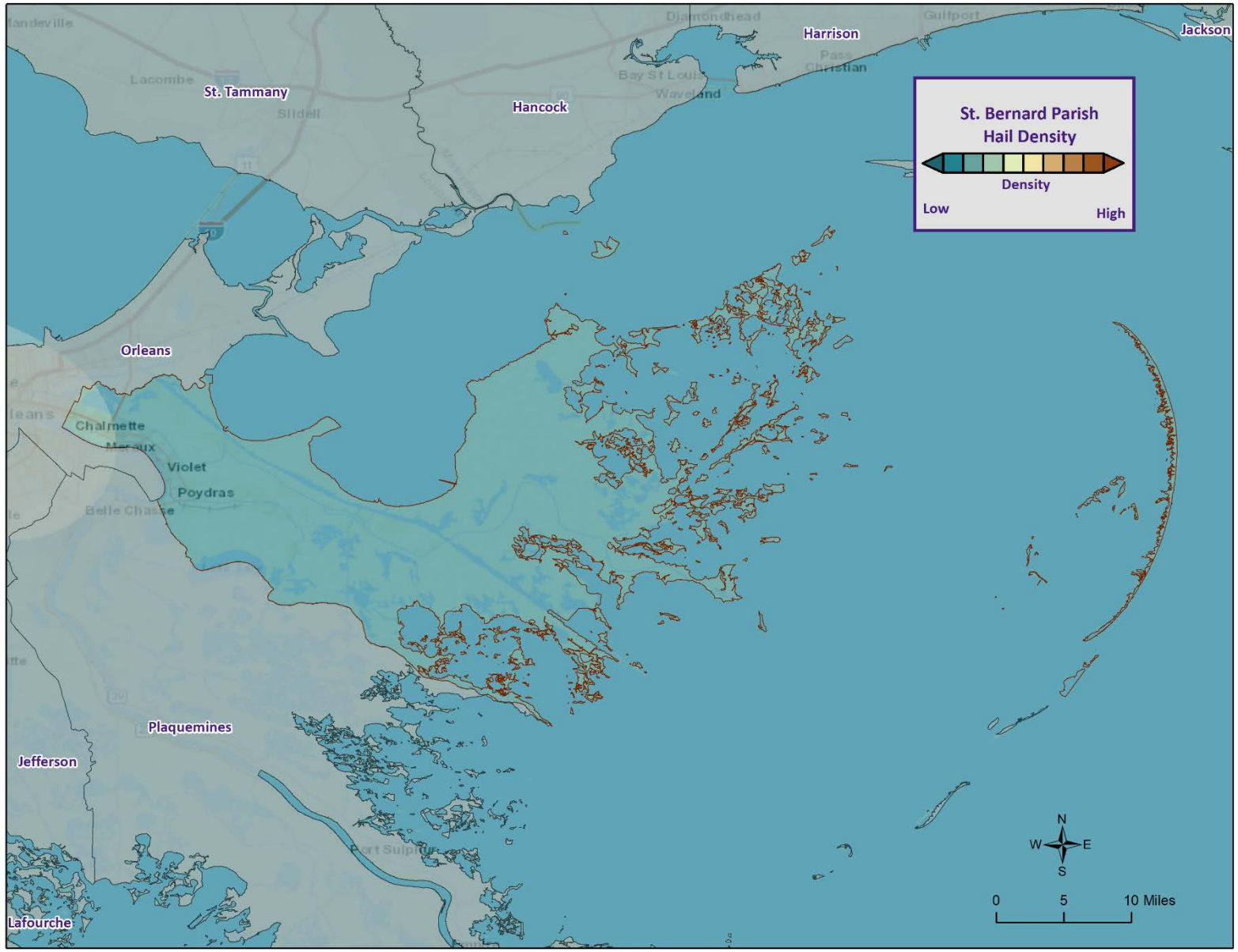
Thunderstorms

- 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.

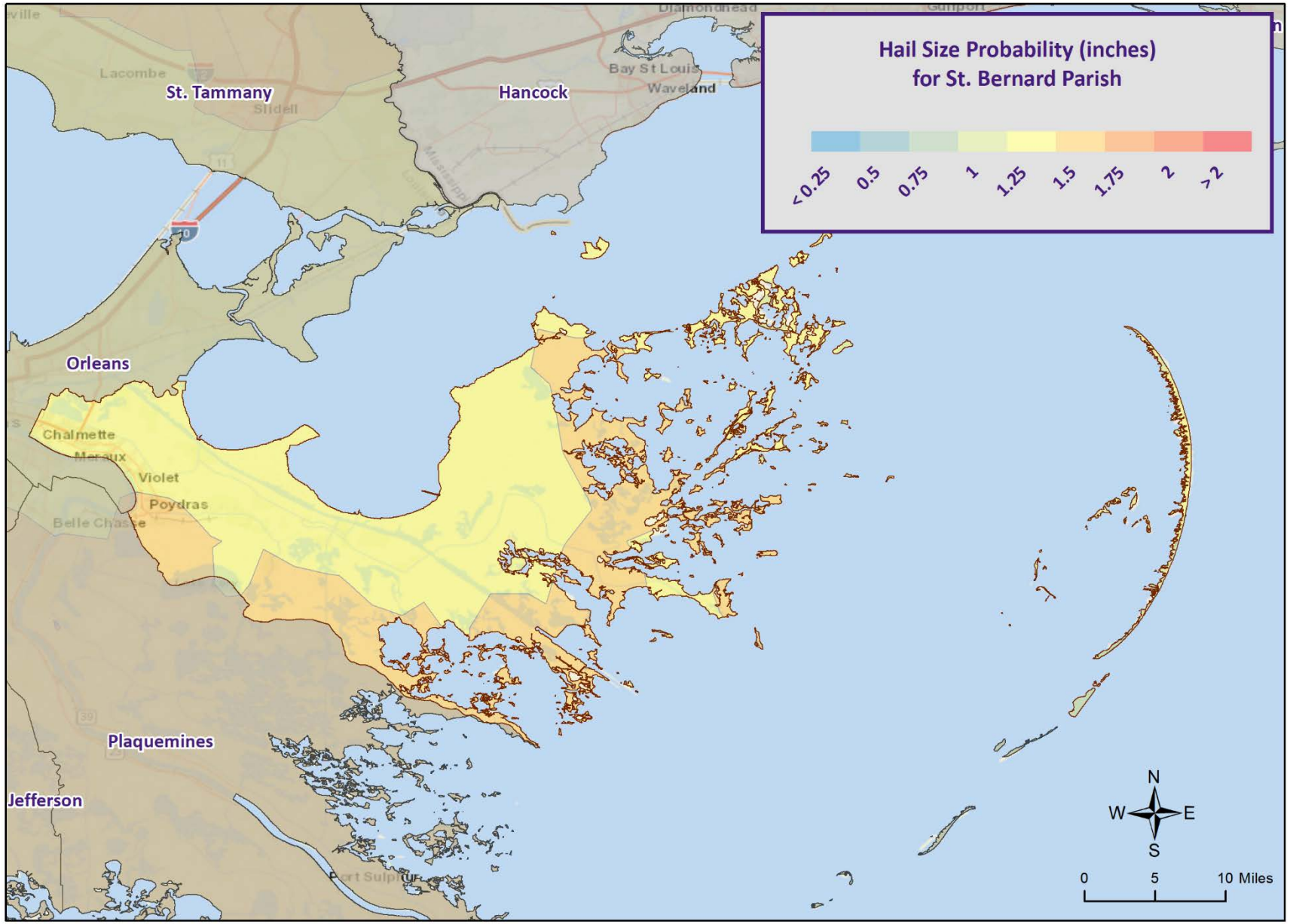
- They are usually accompanied by strong winds, heavy rain, and sometimes snow, sleet, or hail.

- 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 sheer causes a deviation in their course at a right angle to the wind shear direction.

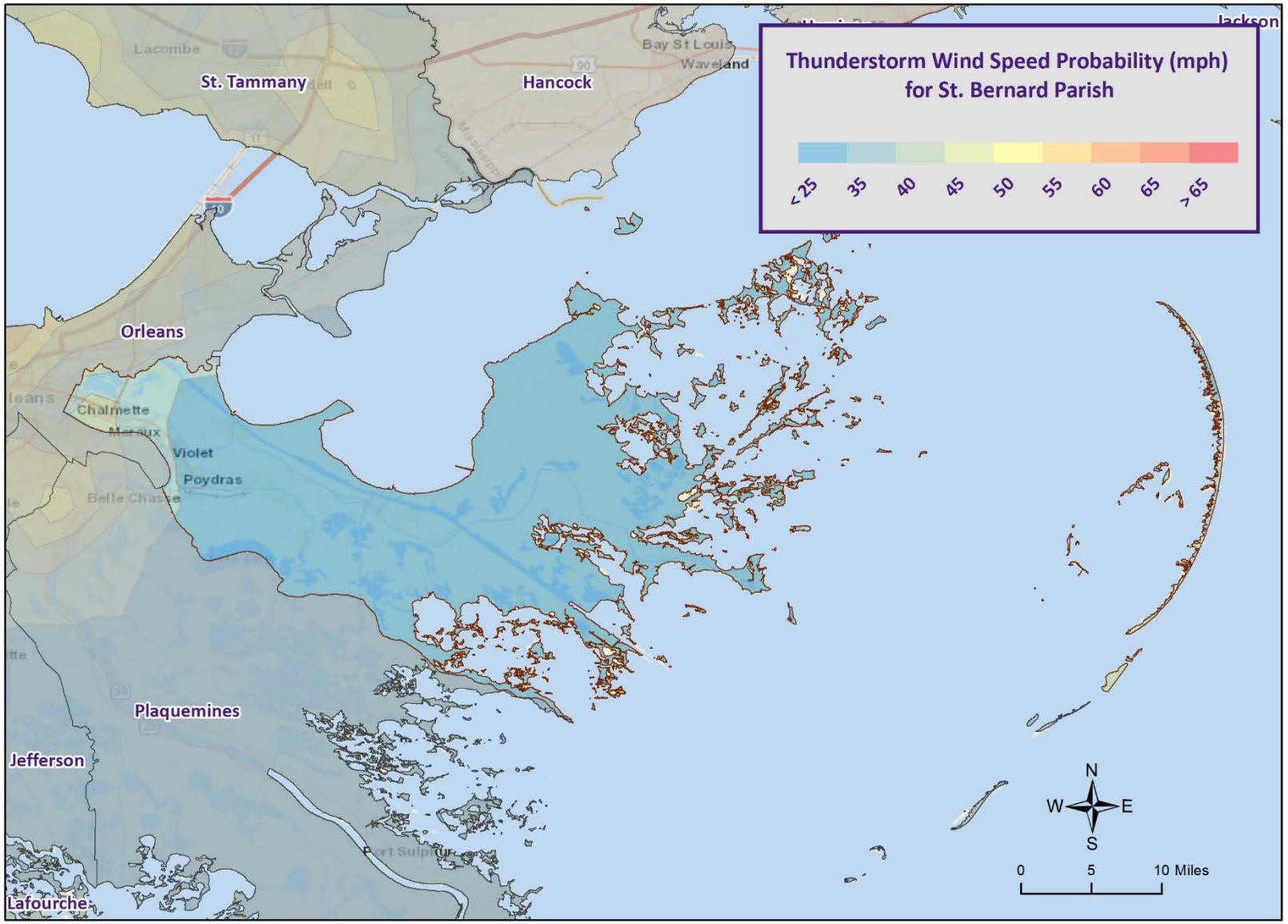
Density of Prior Hailstorms



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

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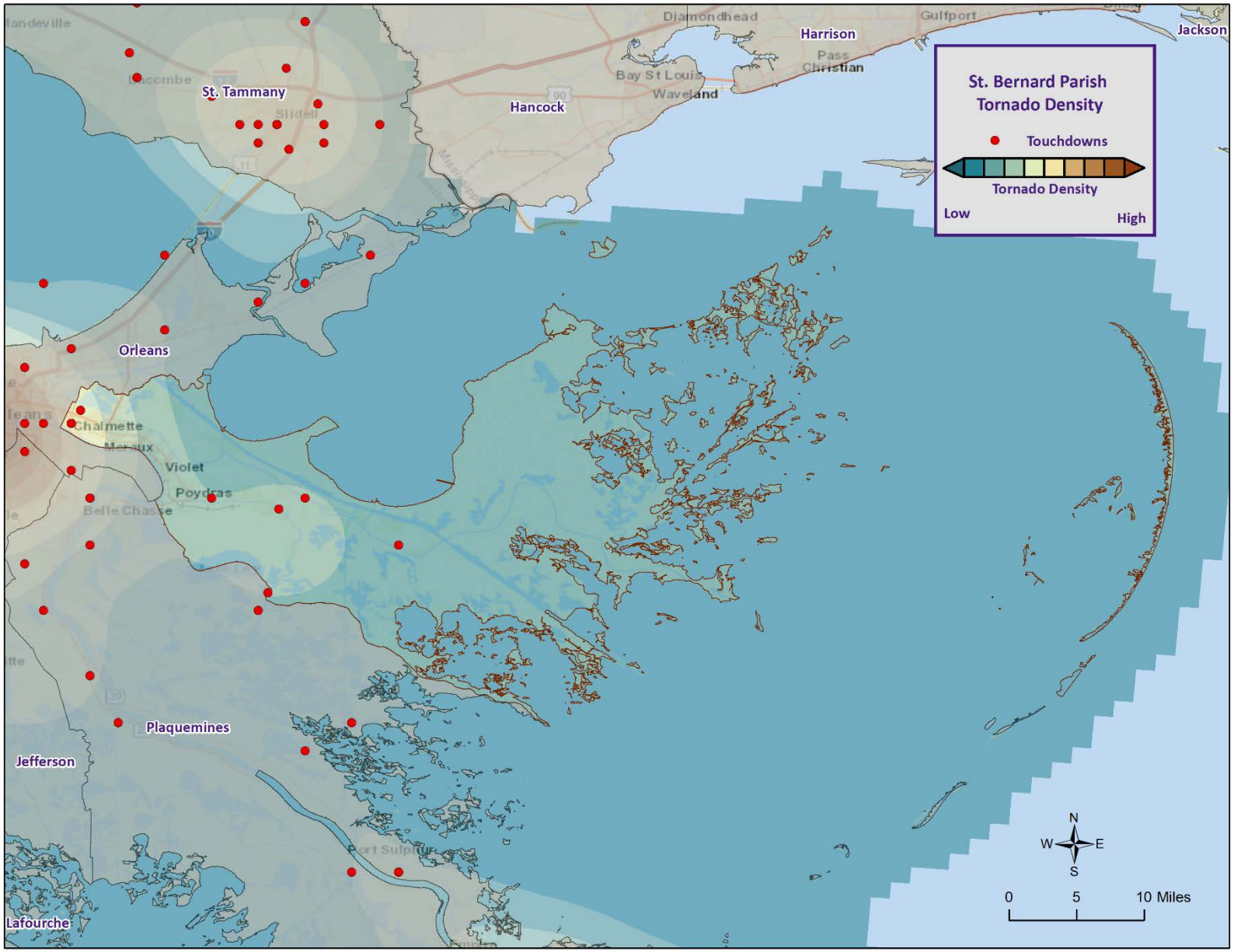
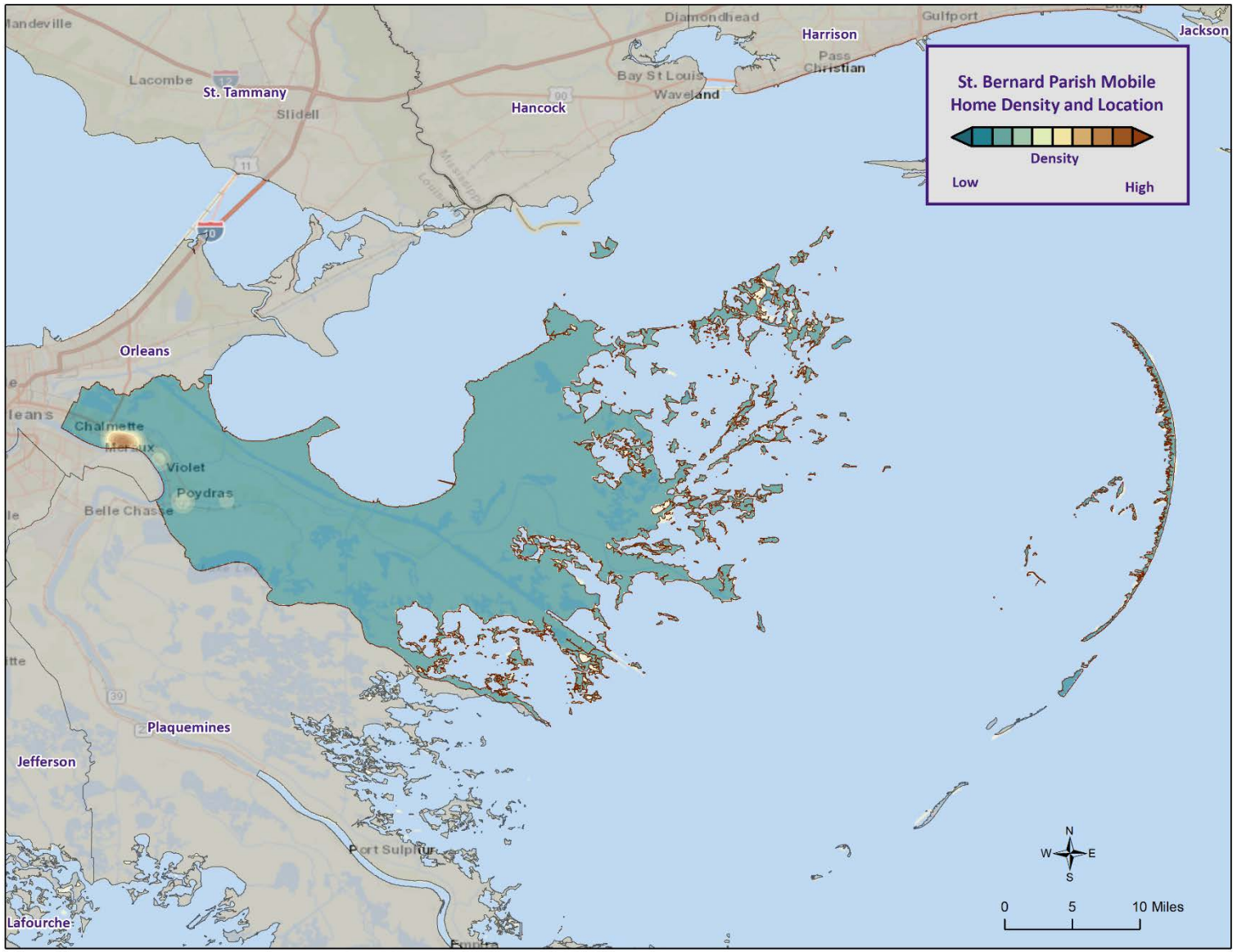
Tornadoes


St. Bernard Parish
Tornado Density
Touchdowns
Tornado Density
Low
High
Djamondhead
Gulfport
Jackson
Harrison
Pass Christian
Bay St Louis
Waveland
Hancock
St. Tammany
Slidell
Orleans
Chalmette
Meraux
Violet
Poydras
Belle Chasse
Plaquemines
Jefferson
Lafourche
N
W
E
S
0
5
10 Miles

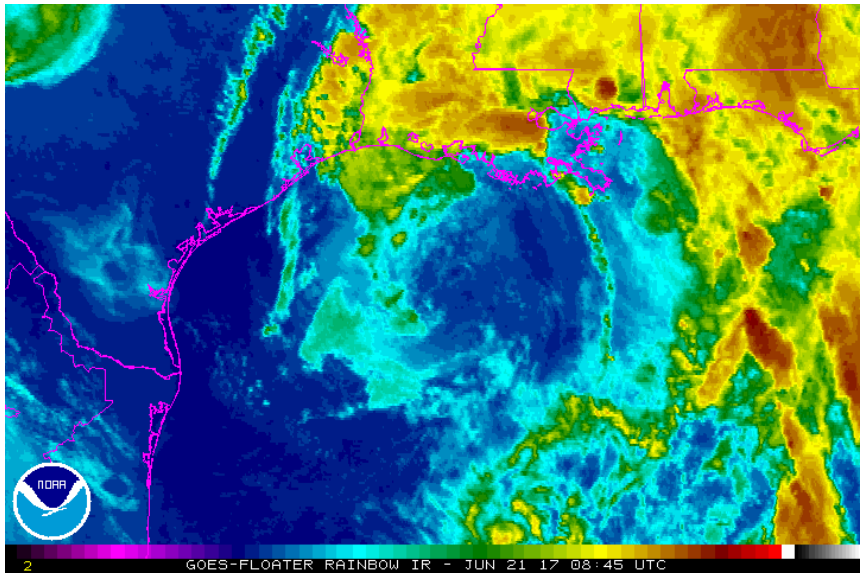
Manufactured Home Density



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.



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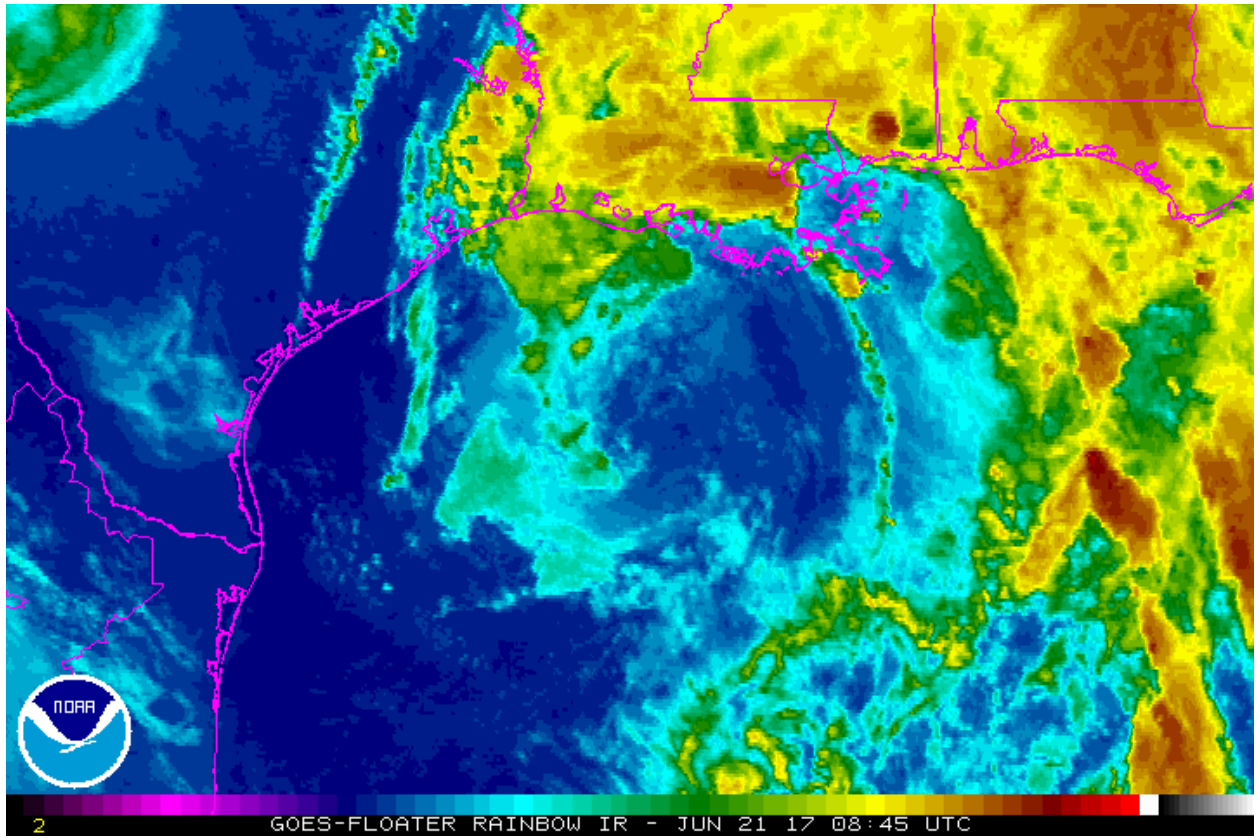
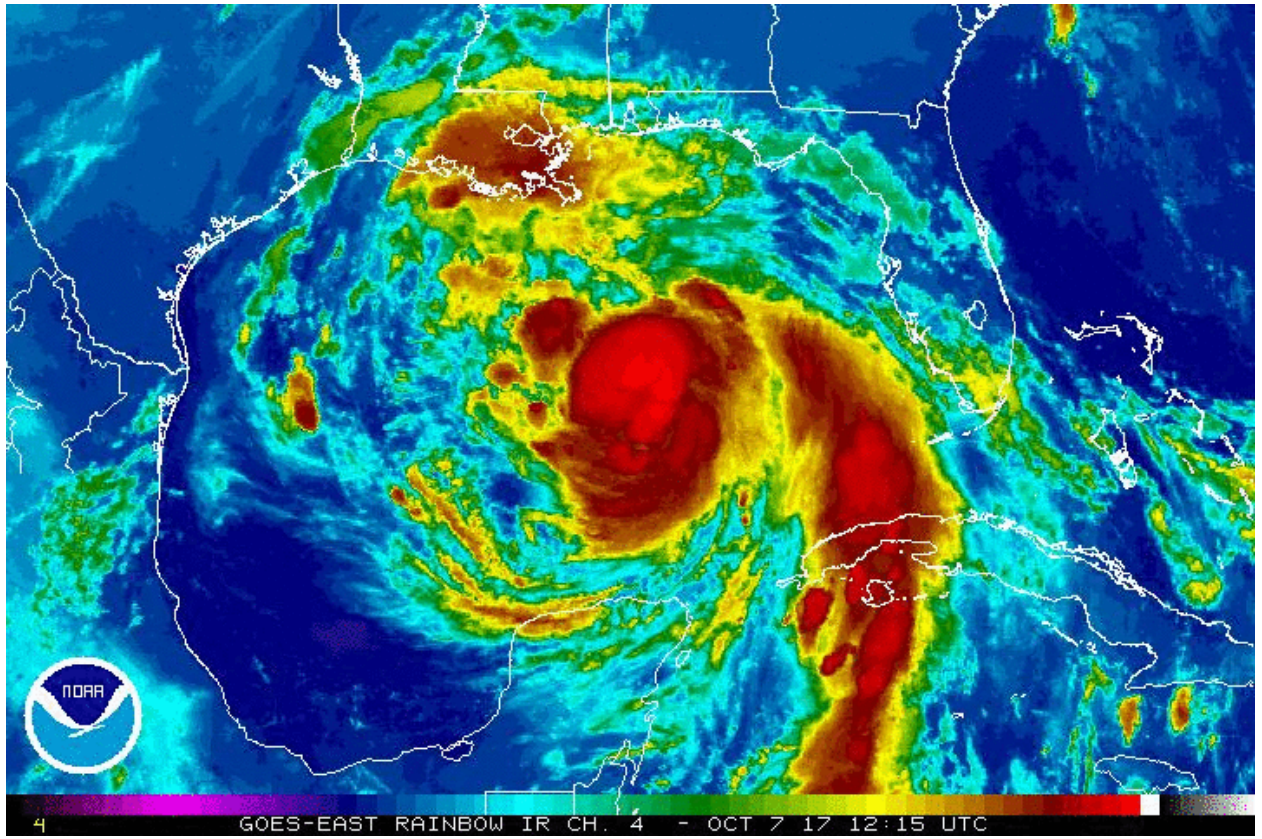
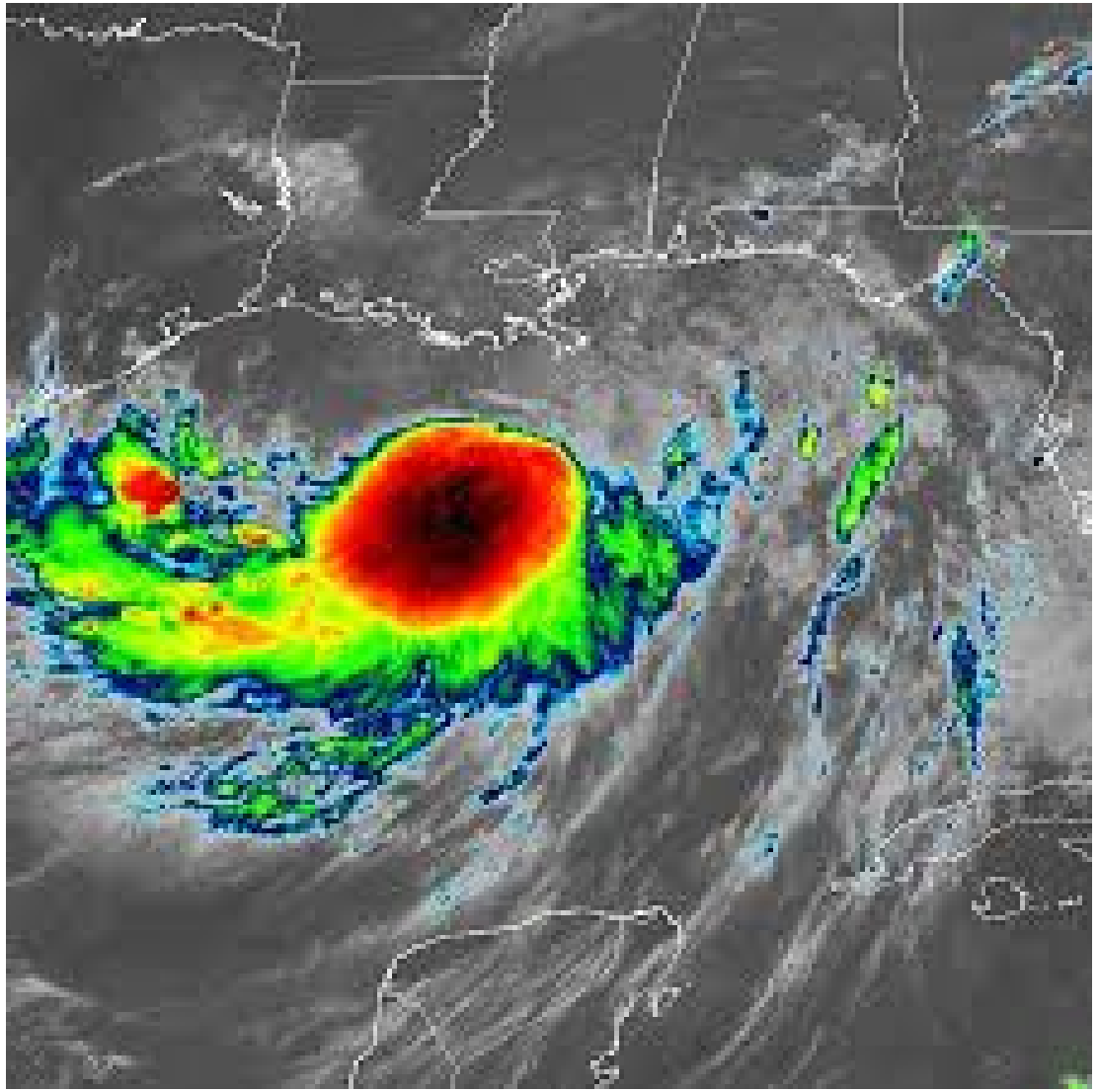
Tropical Storm Cindy



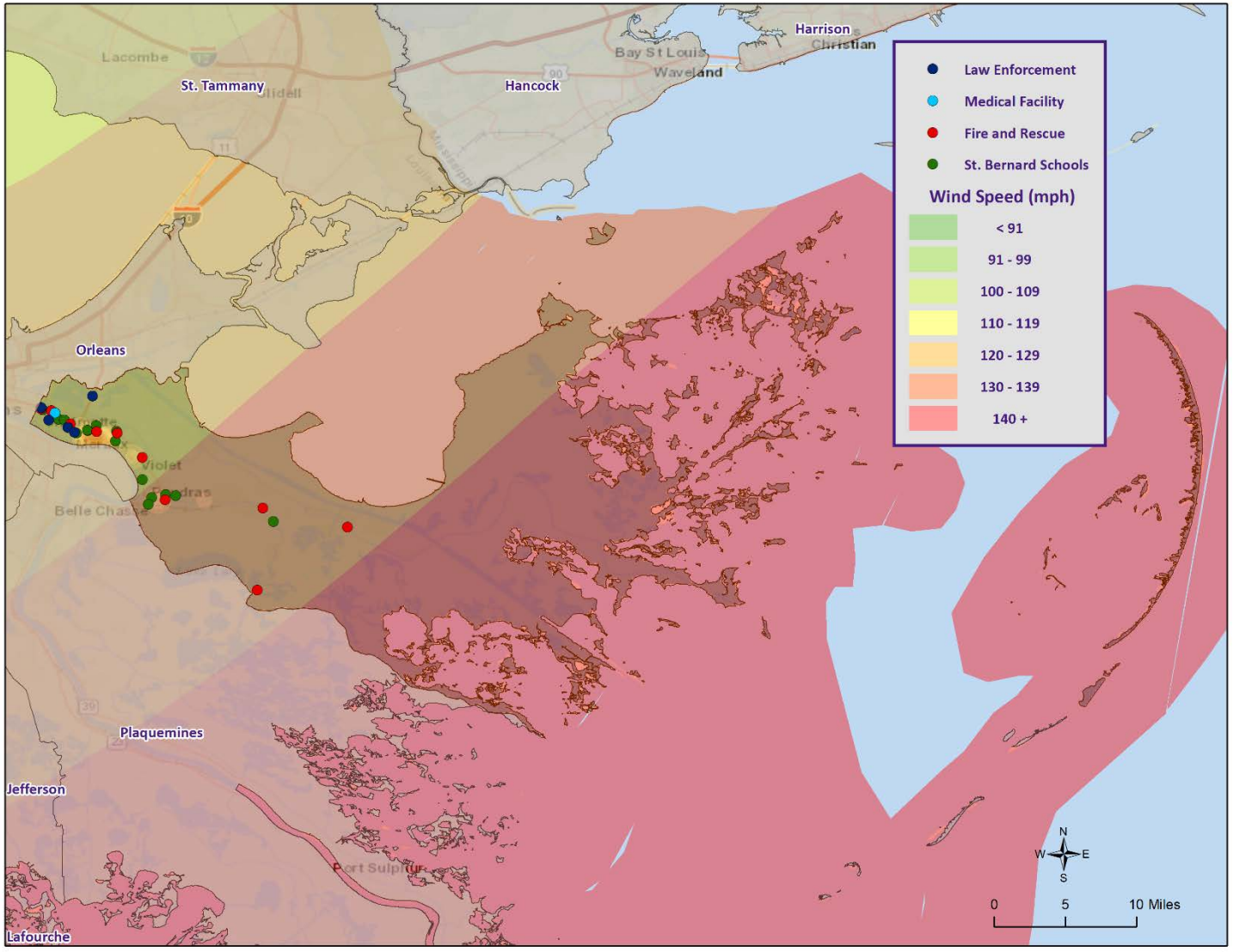
Tropical Storm Nate



Hurricane Barry



Wind Speed Impacts on Critical Infrastructure



Parish Mitigation Goals

- **Goal 1:** Identify and pursue preventative measures that will reduce future damages from hazards;
- **Goal 2:** Enhance public awareness and understanding of disaster preparedness;
- **Goal 3:** Reduce repetitive flood losses in the Parish;
- **Goal 4:** Facilitate sound development and rebuilding in the Parish so as to reduce or eliminate the potential impacts of hazards

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Parish Hazard Mitigation Project Update

- St. Bernard Parish OHSEP/St. Bernard Parish Government Discussion

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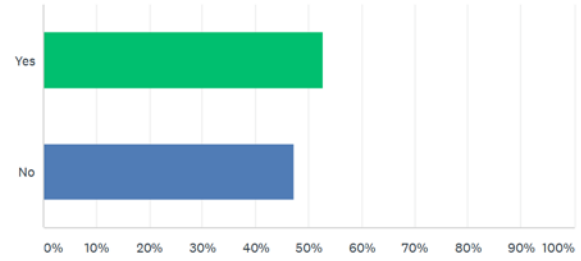
Public Outreach Activity

Hazard Mitigation Public Opinion Survey

https://www.surveymonkey.com/r/stbernardhm2020

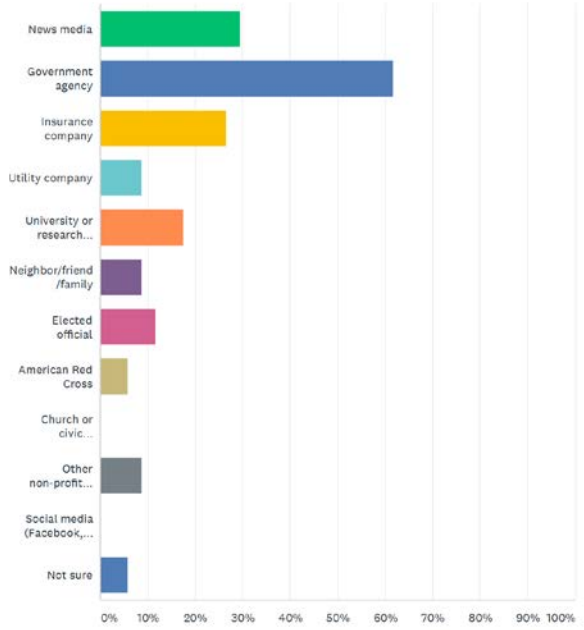
Prior to taking this survey, were you aware of your parish's Hazard Mitigation Plan (HMP)?

Answered: 36 Skipped: 14



Whom would you MOST TRUST to provide you with information about how to make your household and home safer from natural disasters? (Check up to three answers)

Answered: 34 Skipped: 16



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