



Madison Parish Hazard Mitigation Plan Update Public Meeting

February 27, 2024

Richmond, LA



Agenda



Introductions



**Hazard Mitigation
Overview**



Planning Process



**Risk Assessment
Maps**



**Public Outreach
Activities**

Introductions

- **Stephenson Disaster Management Institute (SDMI) at LSU**
 - Chris Rippetoe – Hazard Mitigation Program Manager
 - Jason Martin – Emergency Management Analyst
- **Madison Parish OHSEP Director/Parish Staff**
- **Governor's Office of Homeland Security and Emergency Preparedness**
 - Jeffrey Giering – State Hazard Mitigation Officer
 - Marion Pearson – Hazard Mitigation Planner

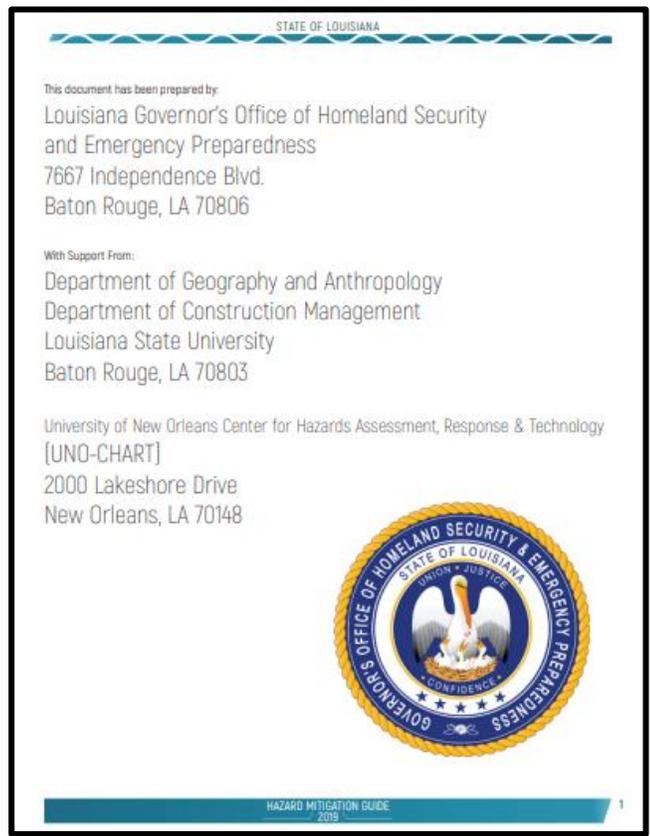
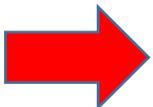
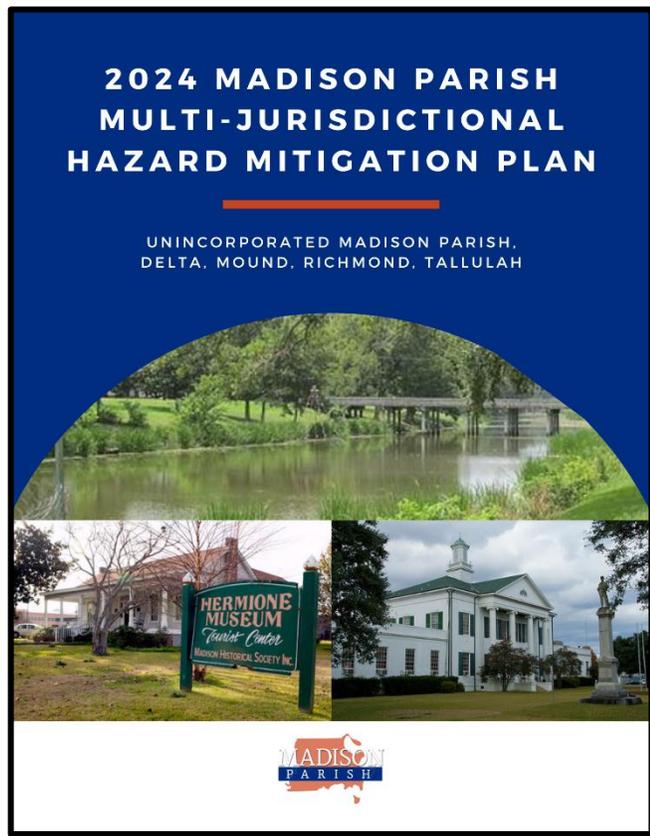
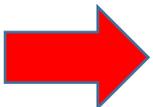


Who is SDMI?

- Stephenson Disaster Management Institute (SDMI) at Louisiana State University
- Non-Academic, Applied Research Unit on campus
- Specialize in providing programmatic support and decision making tools for state and local emergency managers
 - Hazard Mitigation Plans
 - Emergency Operations Plans
 - Geographic Information Systems
 - Application Development
 - Data Visualization
 - Aerial Imagery Collection/Processing



Why We're 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;
- Minimize operational downtime and accelerate recovery of government and the private sector after an event;
- ***Implementation of mitigation actions leads to building stronger, safer and smarter!***

Why the Plan is Required

- 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 mitigation plans as a precondition for receiving FEMA mitigation project grants.
- Title 44 Code of Regulations (CFR) §201.6
 - Meet federal requirements for approval and eligibility for FEMA Hazard Mitigation Assistance grant programs.



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

Planning Process to Date

Initial Planning Meeting with OHSEP



Full Planning Committee Meeting

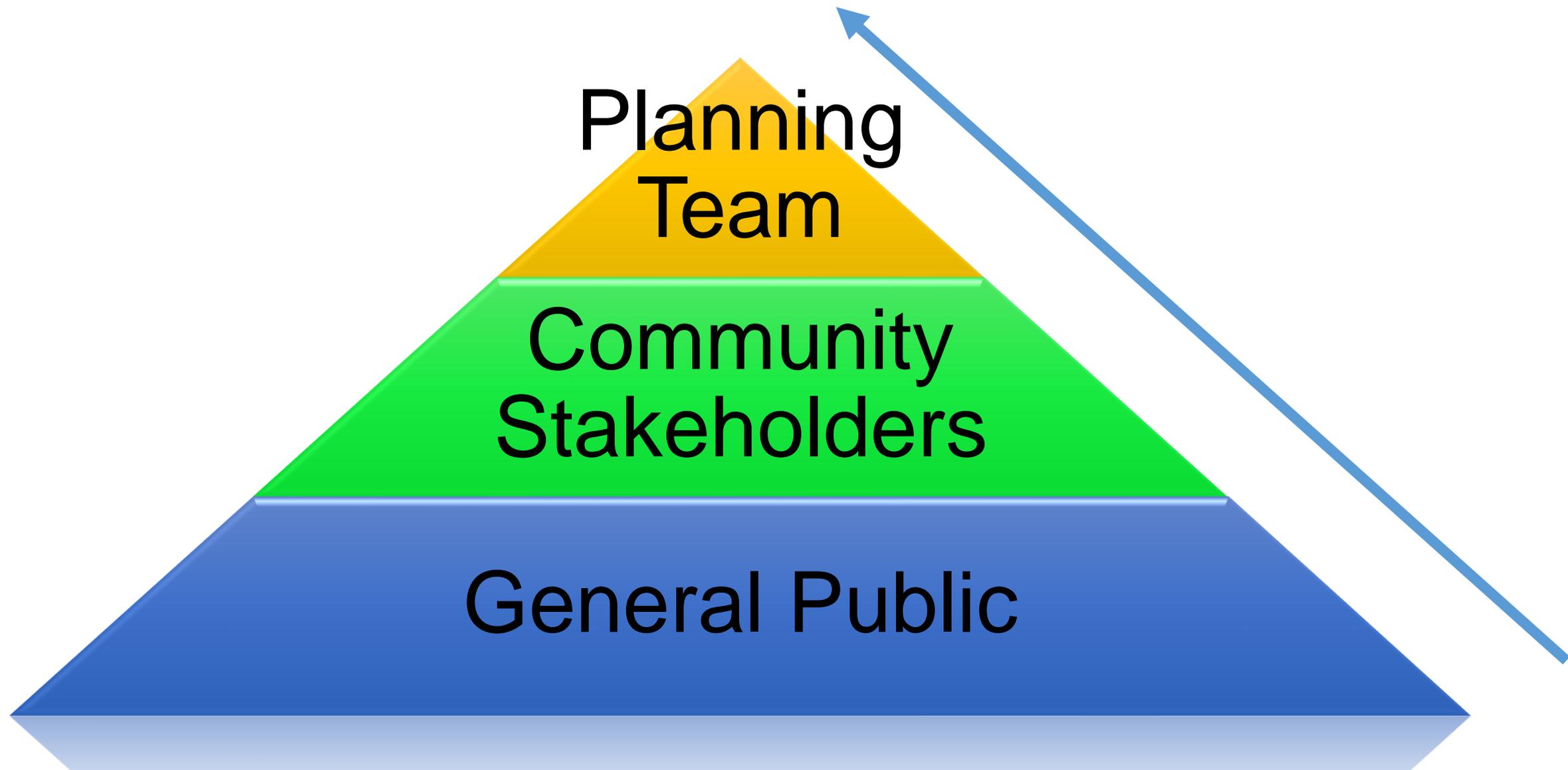


Risk Assessment Review with Planning Committee

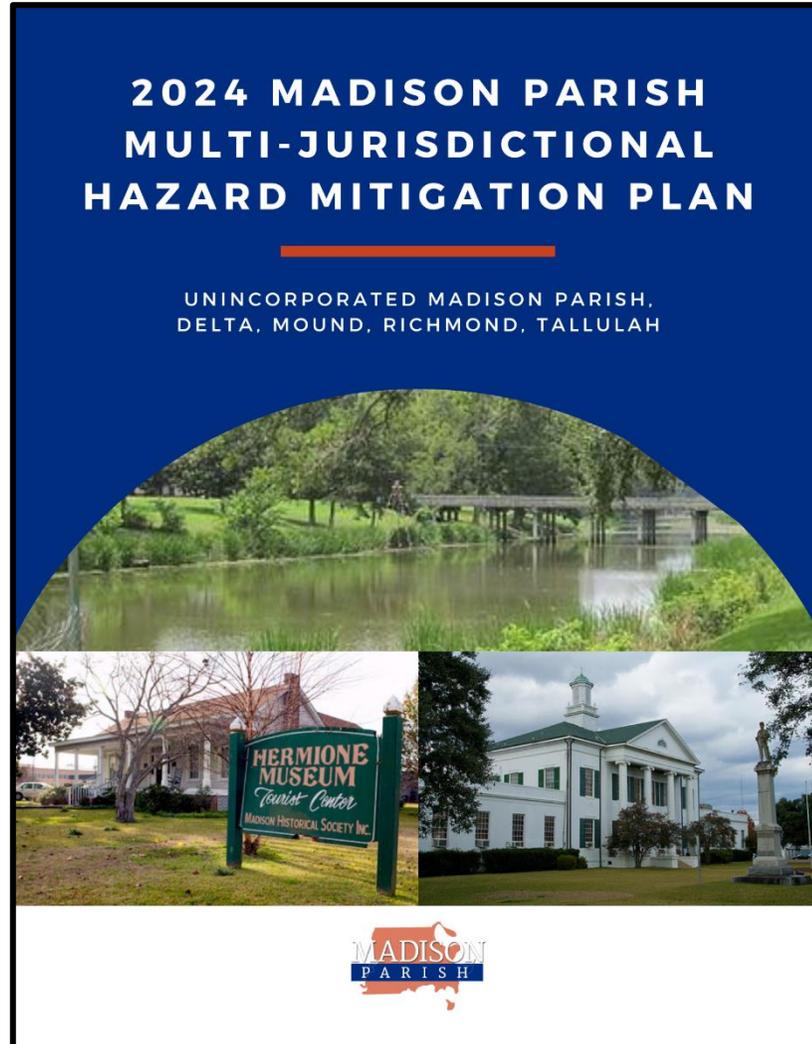
Constant communication with Parish and Committee members!

Public Meeting

Collaborative Planning Approach



Hazard Mitigation Plan Development



Plan Layout

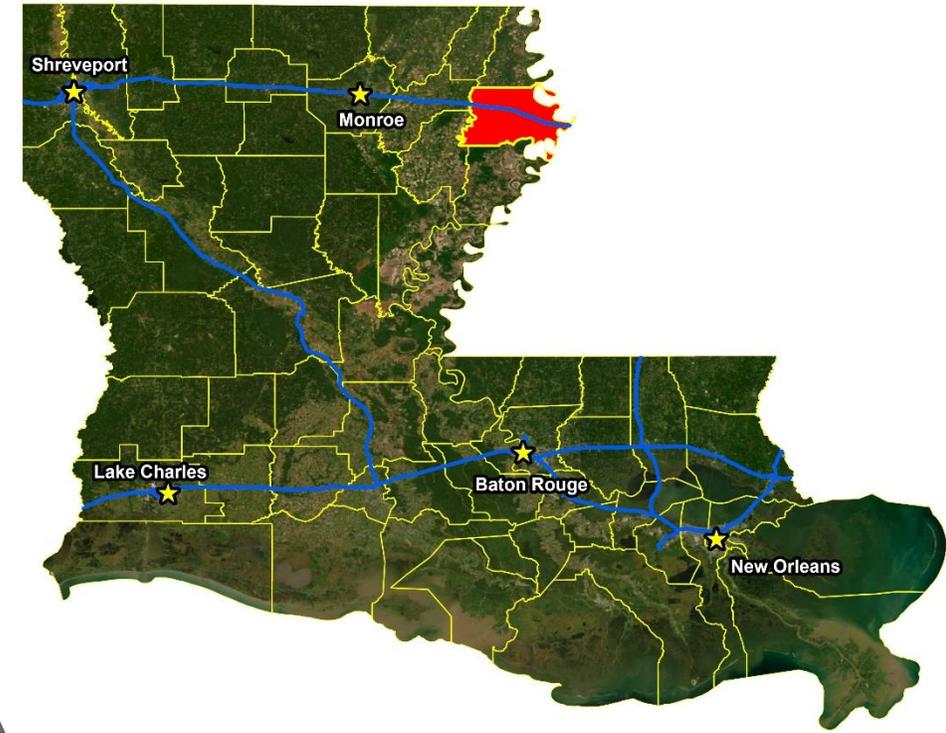
- **Section 1: Introduction**
 - Updated parish description
 - Updated demographics
 - Economics
- **Section 2: Hazard Identification and Parish-wide Risk Assessment**
- **Section 3: Capability Assessment**
- **Section 4: Mitigation Strategies**
 - New actions
 - Action updates
 - Survey results

Plan Layout

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

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*

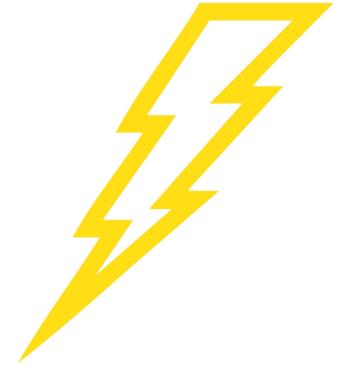
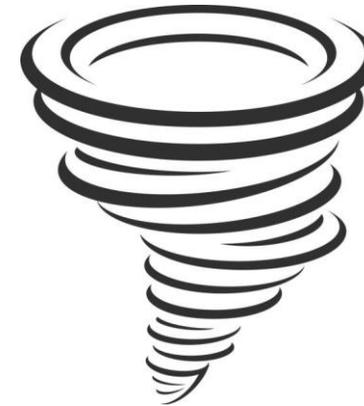


Hazard Identification And Risk Assessment

- Based on Currently Profiled Prevalent Natural Hazards
- Identify Any New Hazards
- Previous Occurrences
- Impact from Events
- Probability of Future Events
- Critical Facilities
- Future Development Trends
- Future Hazard Impacts
- Zoning and Land Use

Hazard Identification And Risk Assessment

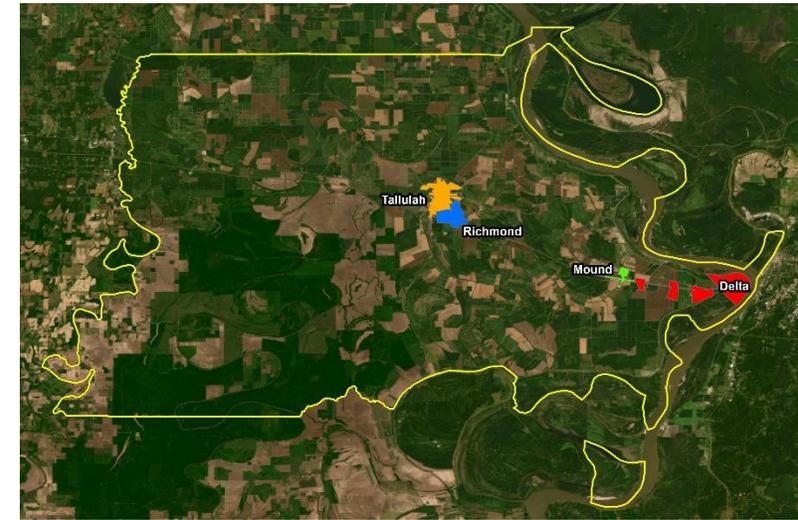
- Dam Failure*
- Flooding
- Levee Failure
- Sinkholes
- Thunderstorms
- Tornadoes
- Tropical Cyclones
- Winter Weather



Risk Matrix for Madison Parish

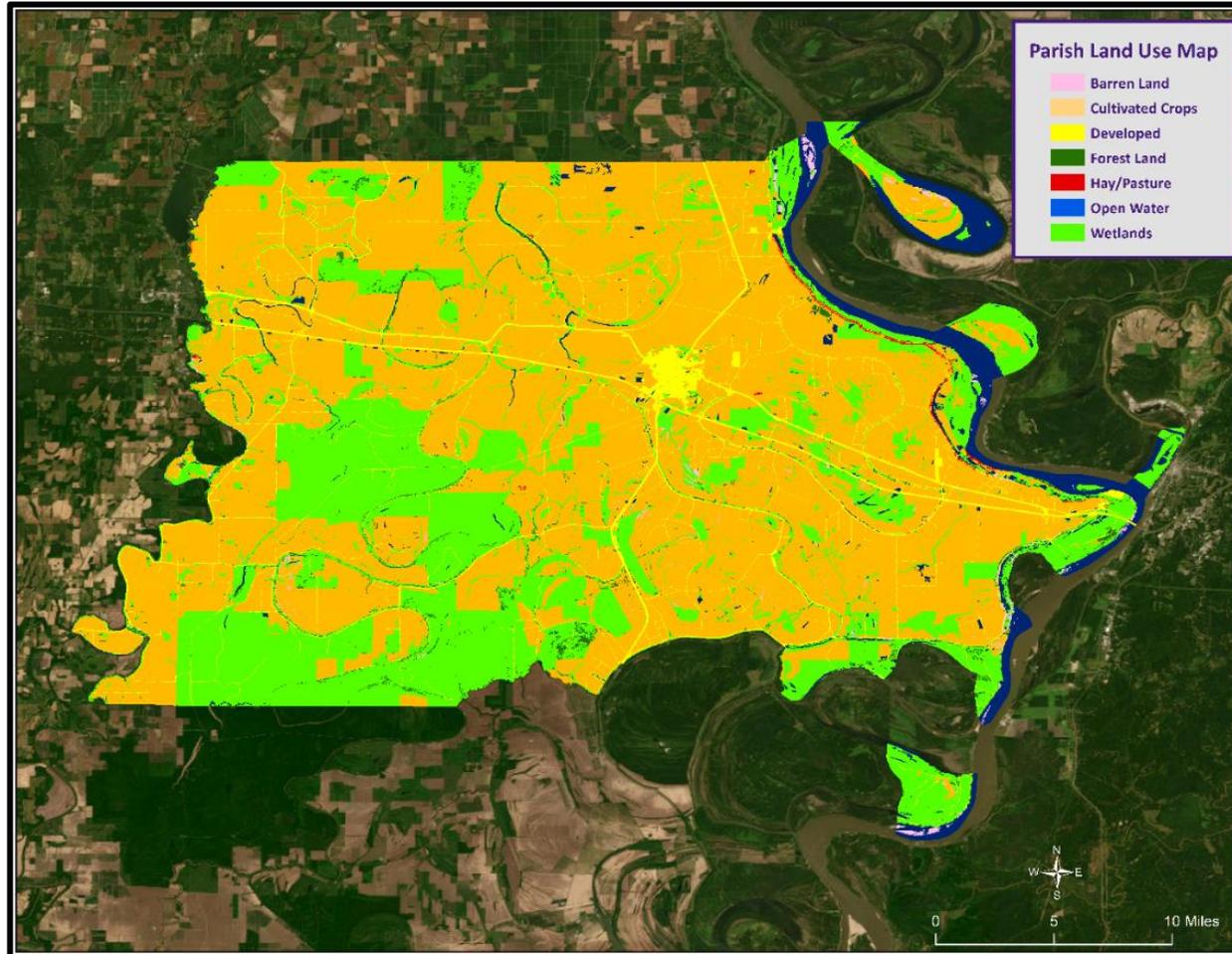
Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	Overall Risk
Flooding	3	4	3	4	3	3.4
Levee Failure	1	3	4	1	3	2.4
Sinkhole	1	3	2	4	2	2.3
Thunderstorms - Hail	4	2	3	3	1	2.7
Thunderstorms - Lightning	2	2	2	3	1	2
Thunderstorms - Wind	4	2	3	3	1	2.7
Tornadoes	3	3	2	4	3	2.95
Tropical Cyclones	3	4	4	1	4	3.3
Winter Weather	3	4	4	1	2	3

Risk Factor	PRI Range
High Risk	2.5 to 4.0
Moderate Risk	2.0 to 2.4
Low Risk	0 to 1.9



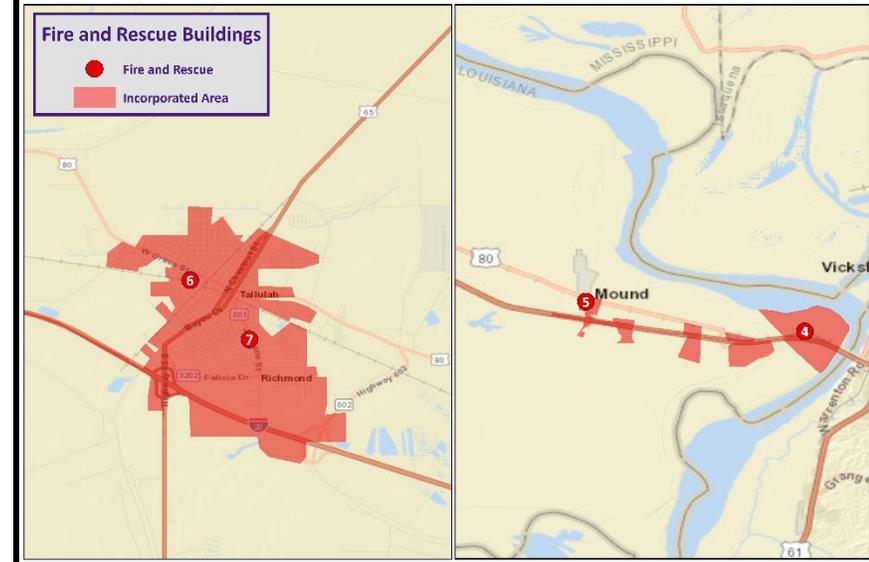
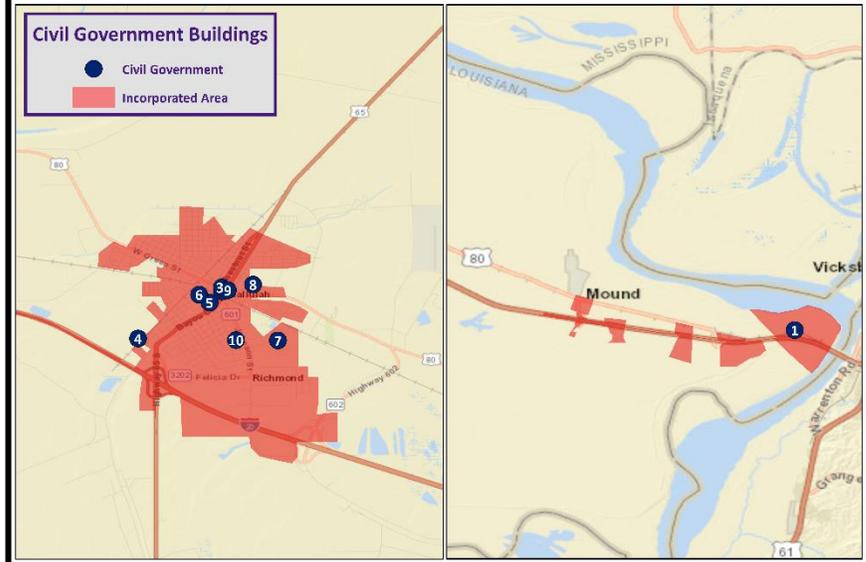
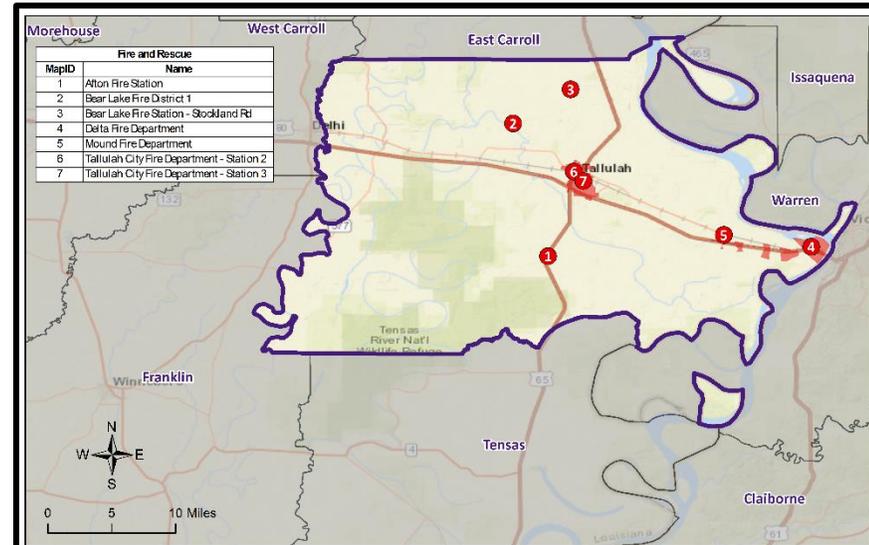
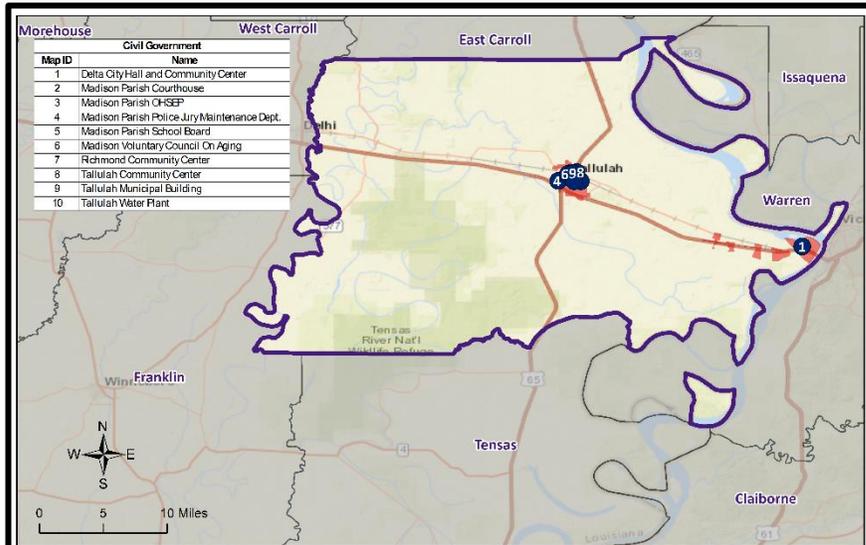
Risk Assessment Maps

Madison Parish Land Use



Land Use	Acres	Percentage
Agricultural Land, Cropland, and Pasture	259,578	63%
Wetlands	115,995	28%
Forest Land (Not including forested wetlands)	5,032	1%
Urban/Development	17,288	4%
Water	17,134	4%

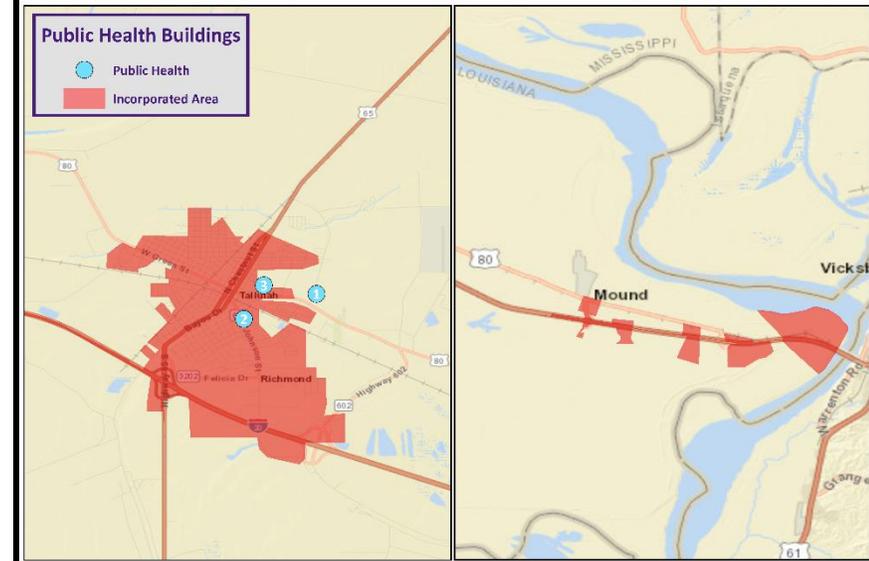
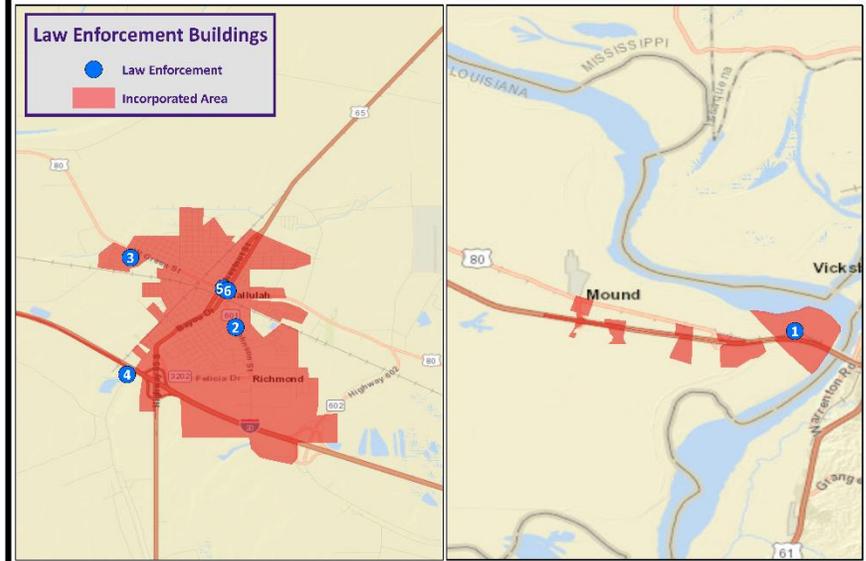
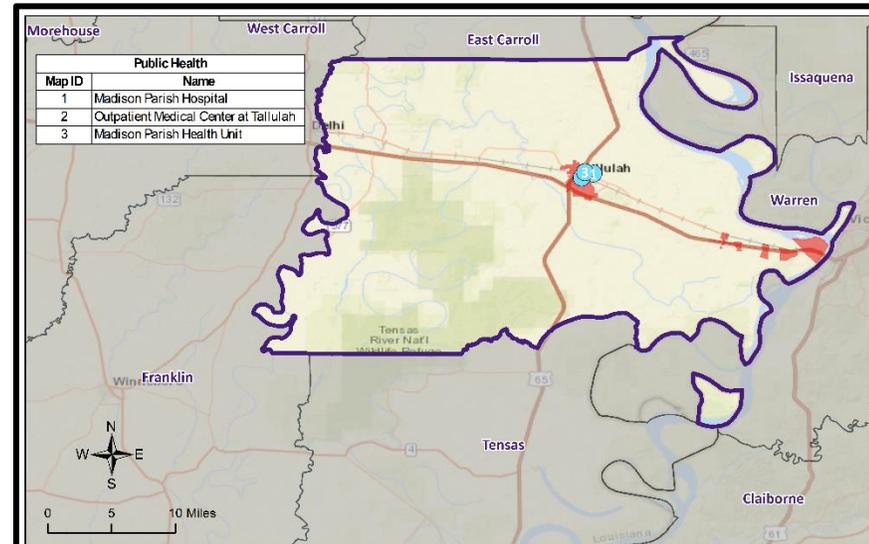
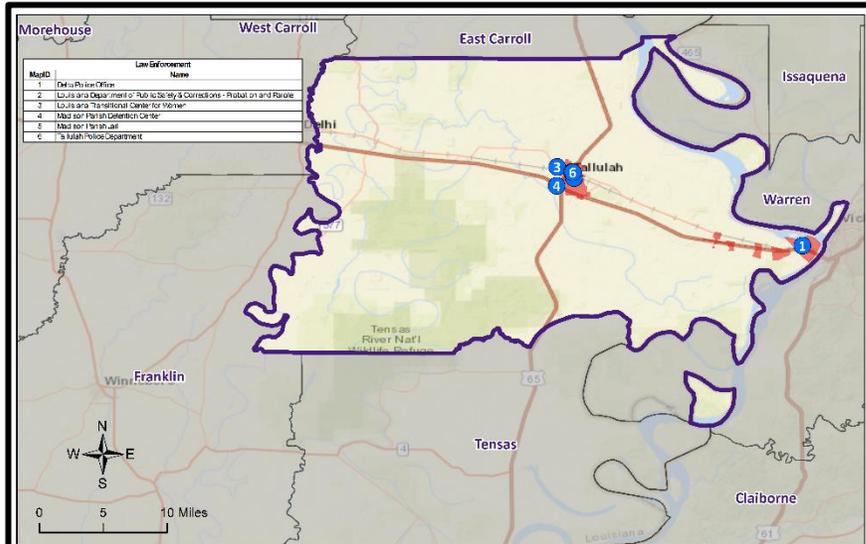
Madison Parish Critical Facilities



Civil Government

Fire & SAR

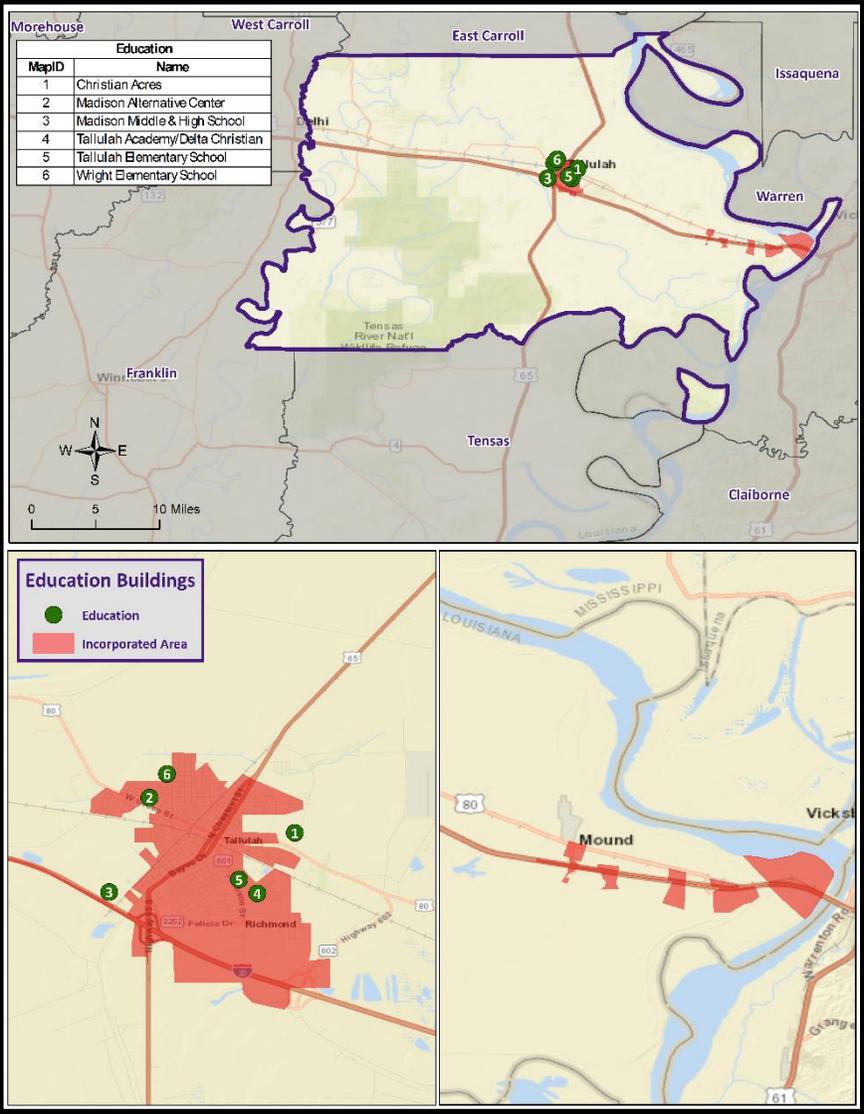
Madison Parish Critical Facilities



Law Enforcement

Public Health

Madison Parish Critical Facilities



Public 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.”



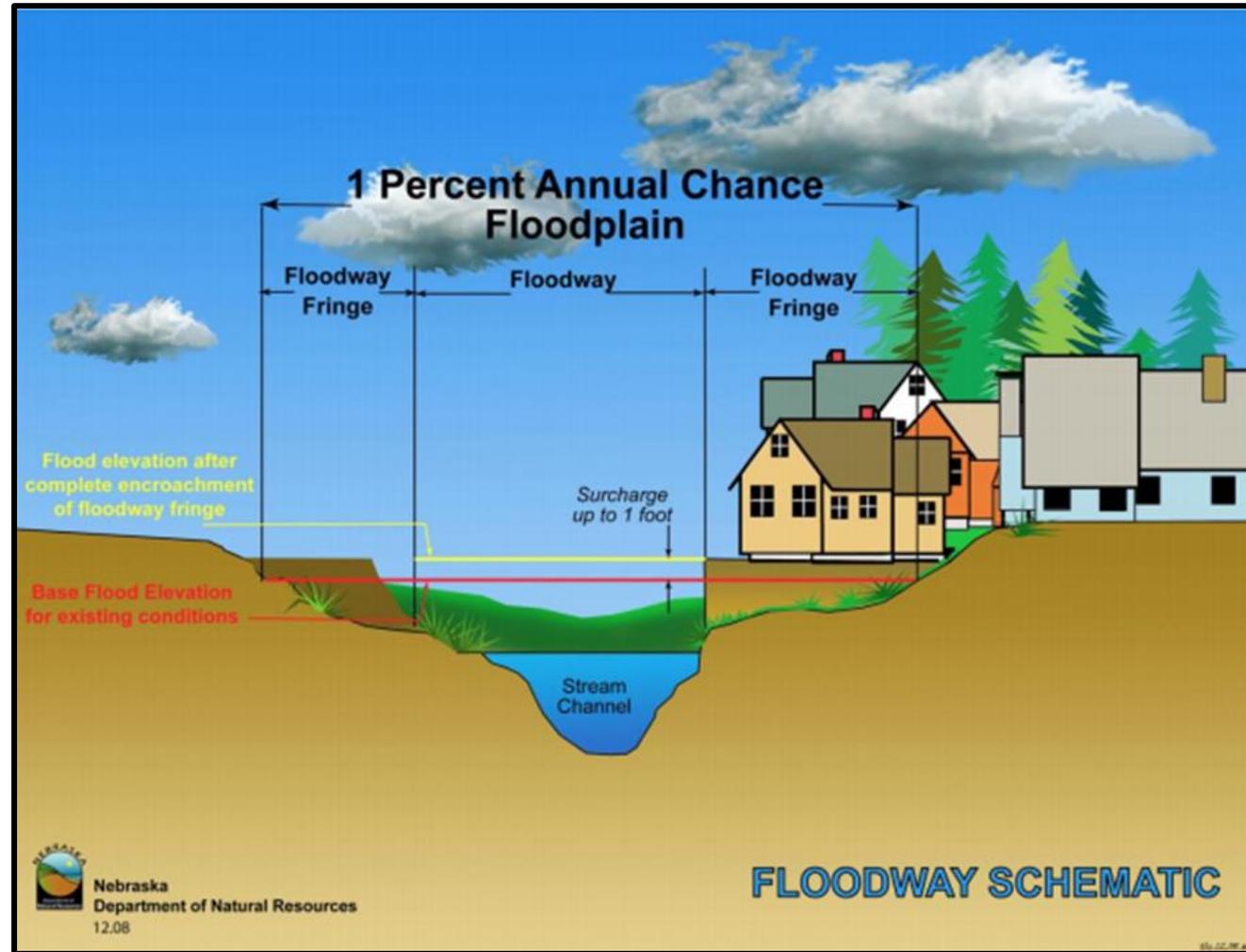
Flooding



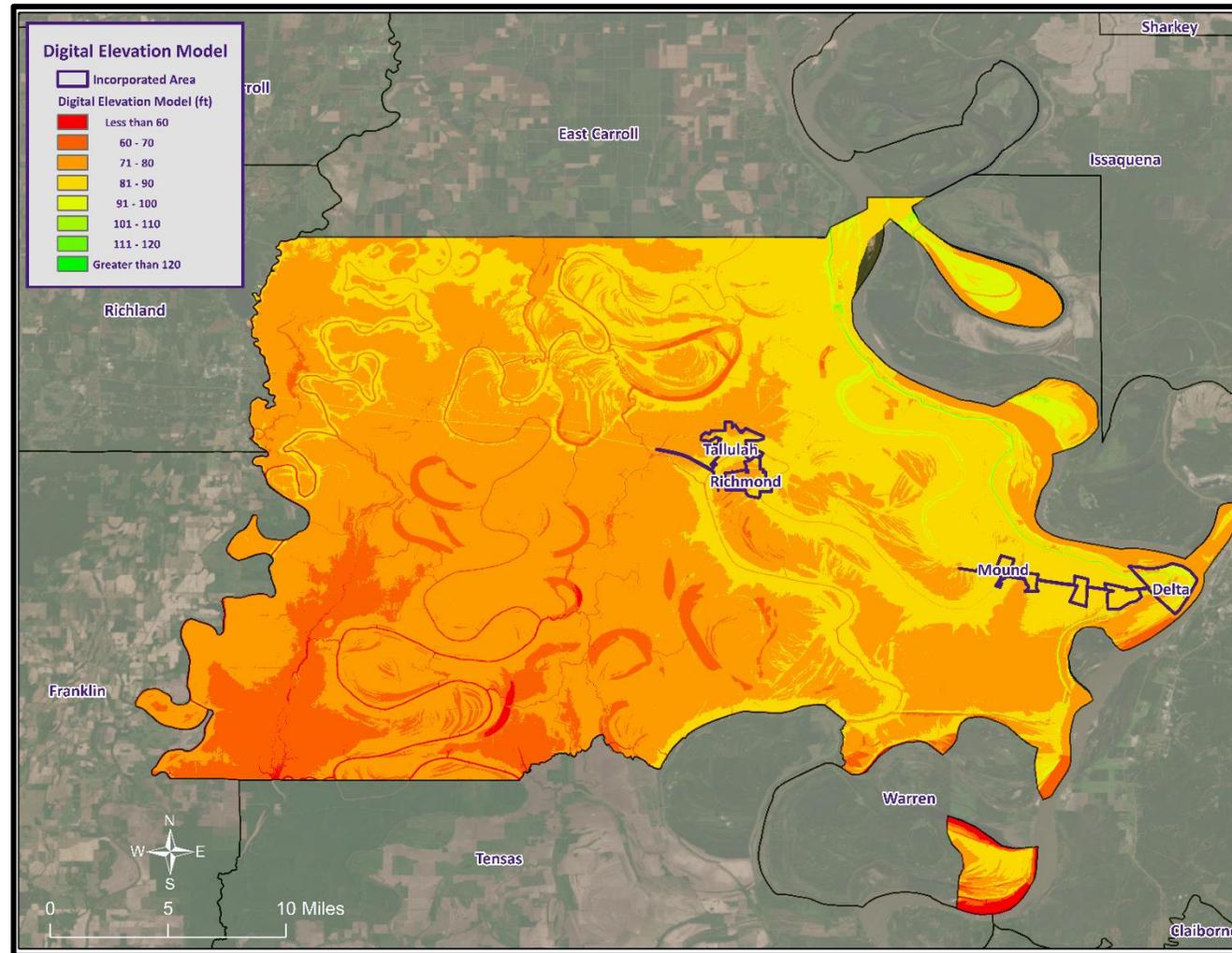
In Louisiana, six specific types of flooding are of main concern:

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

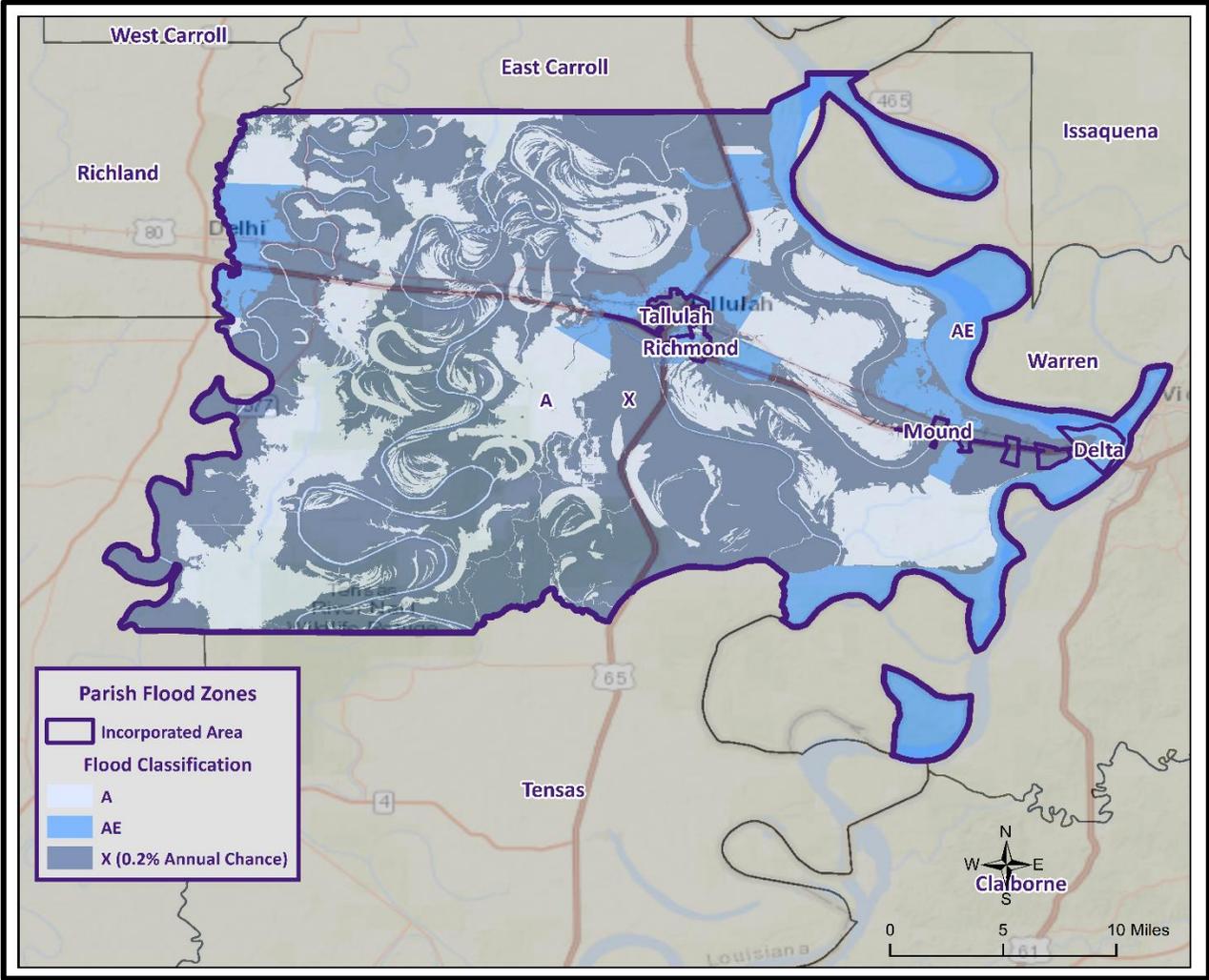
Floodway Diagram



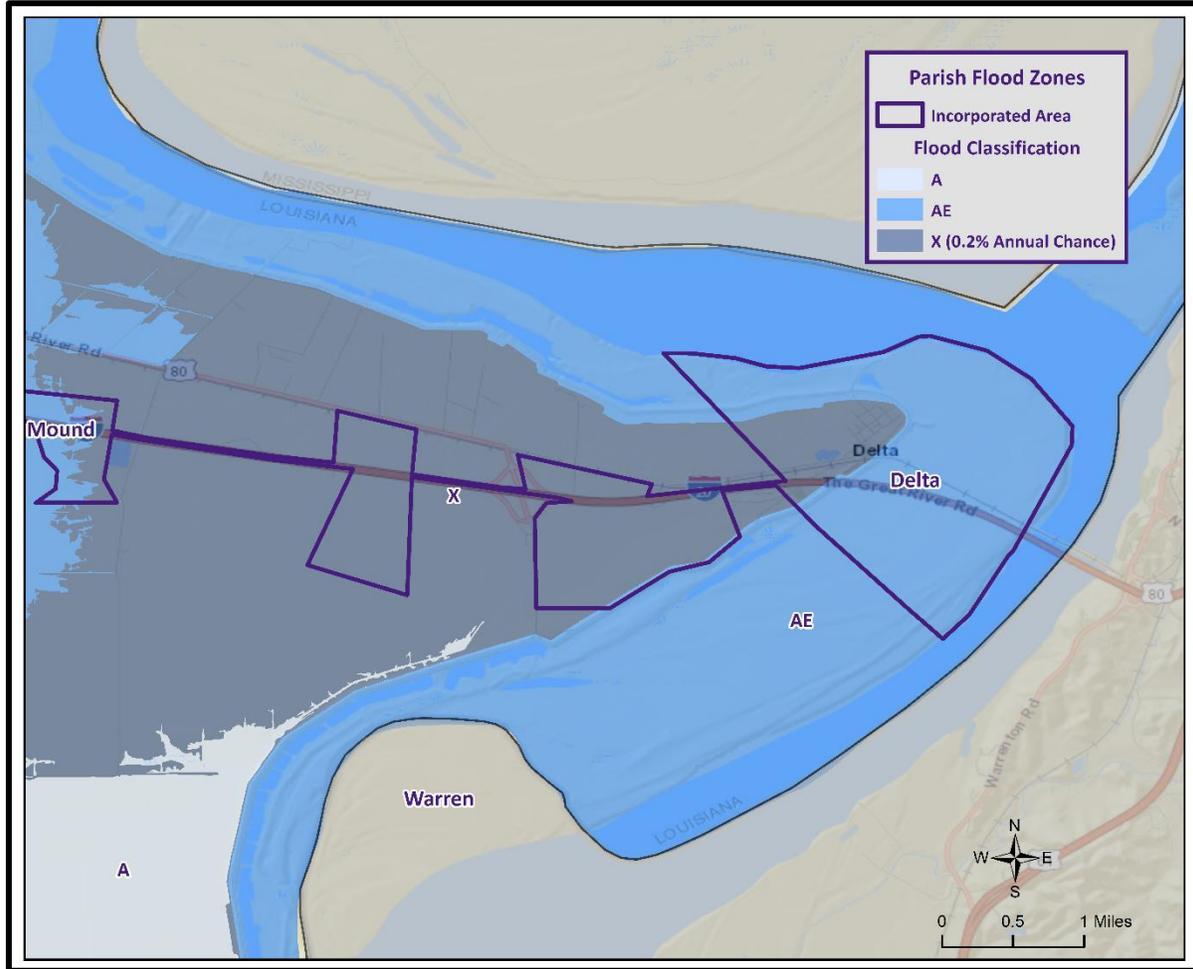
Digital Elevation Model



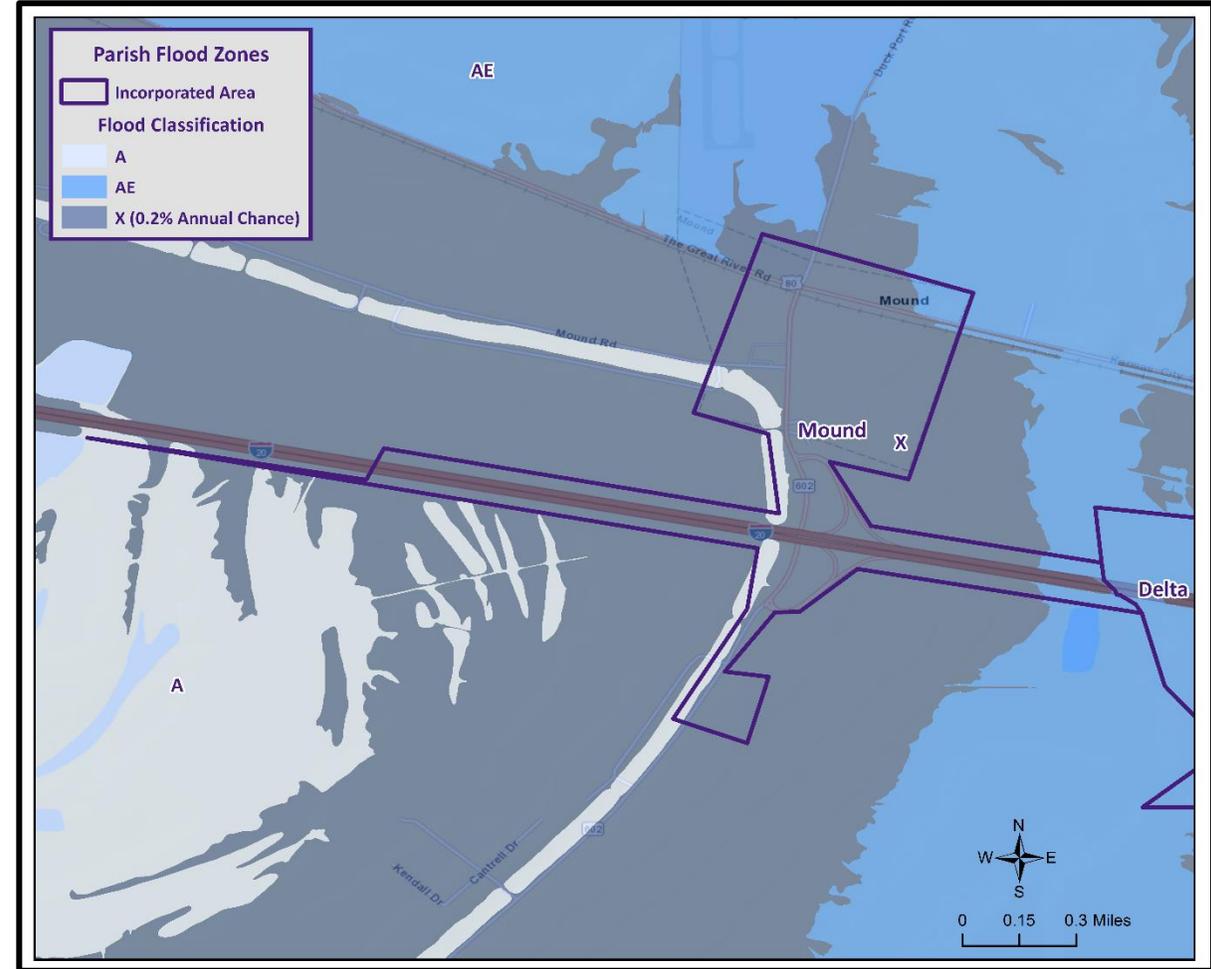
Madison Parish Flood Map



Municipal Flood Maps

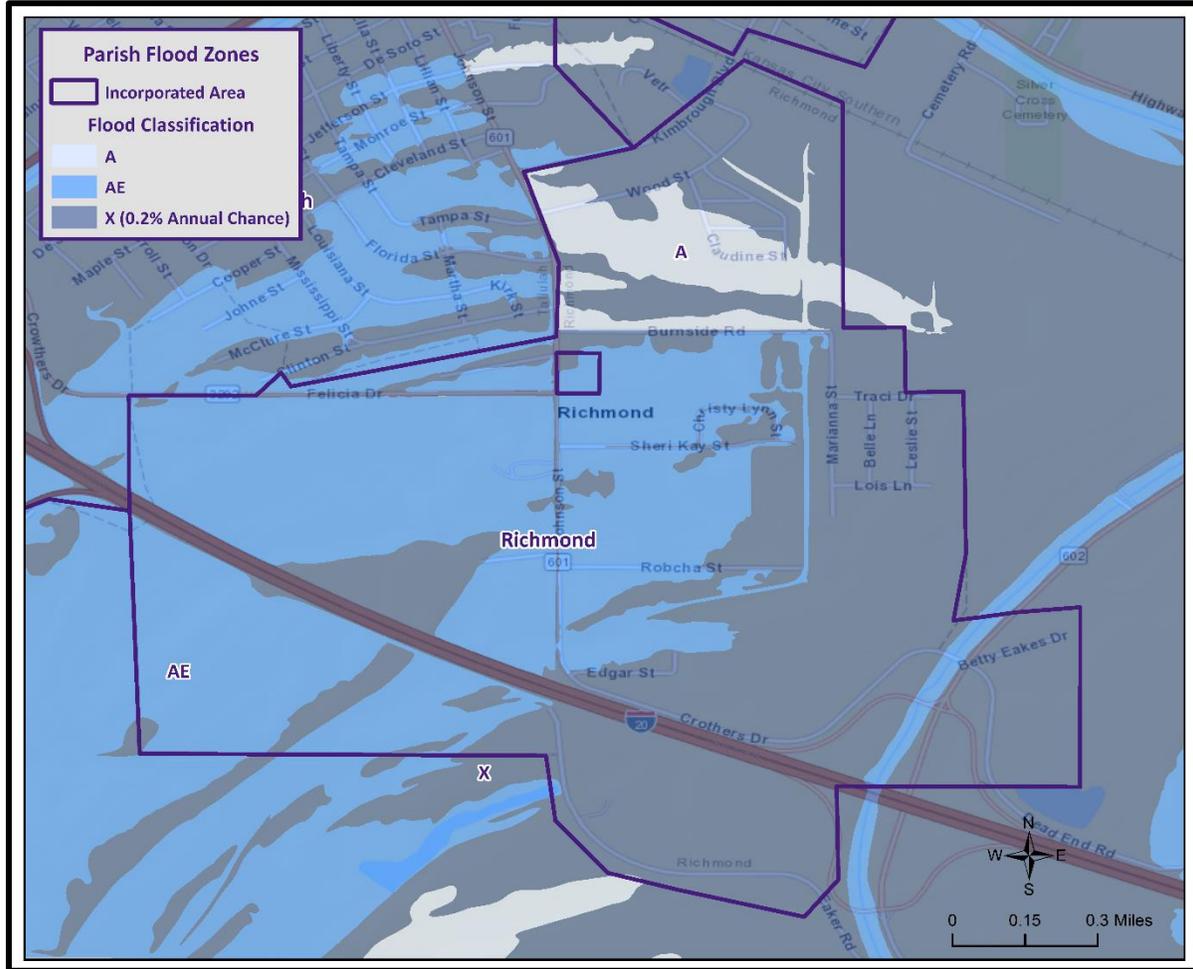


Delta

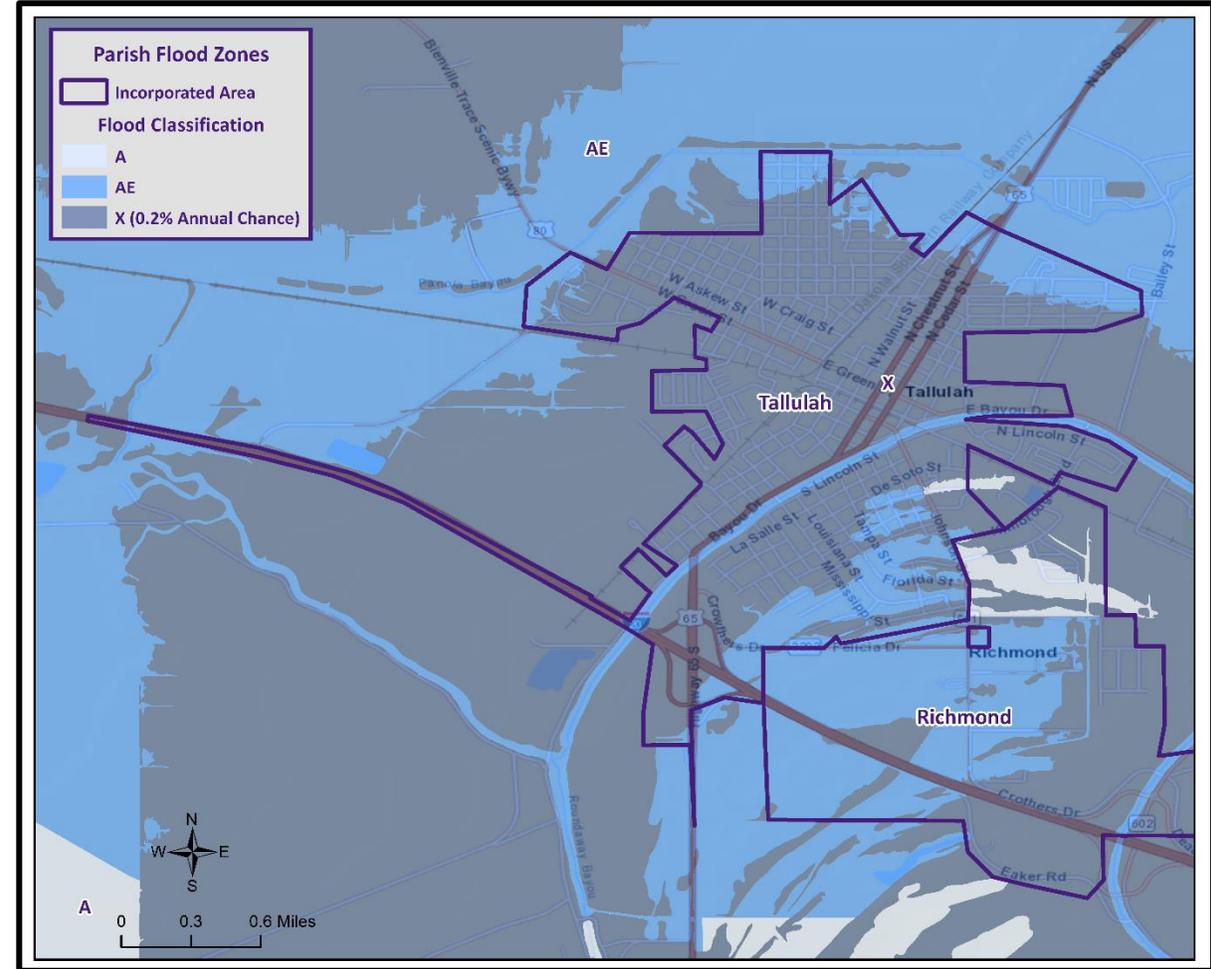


Mound

Municipal Flood Maps



Richmond



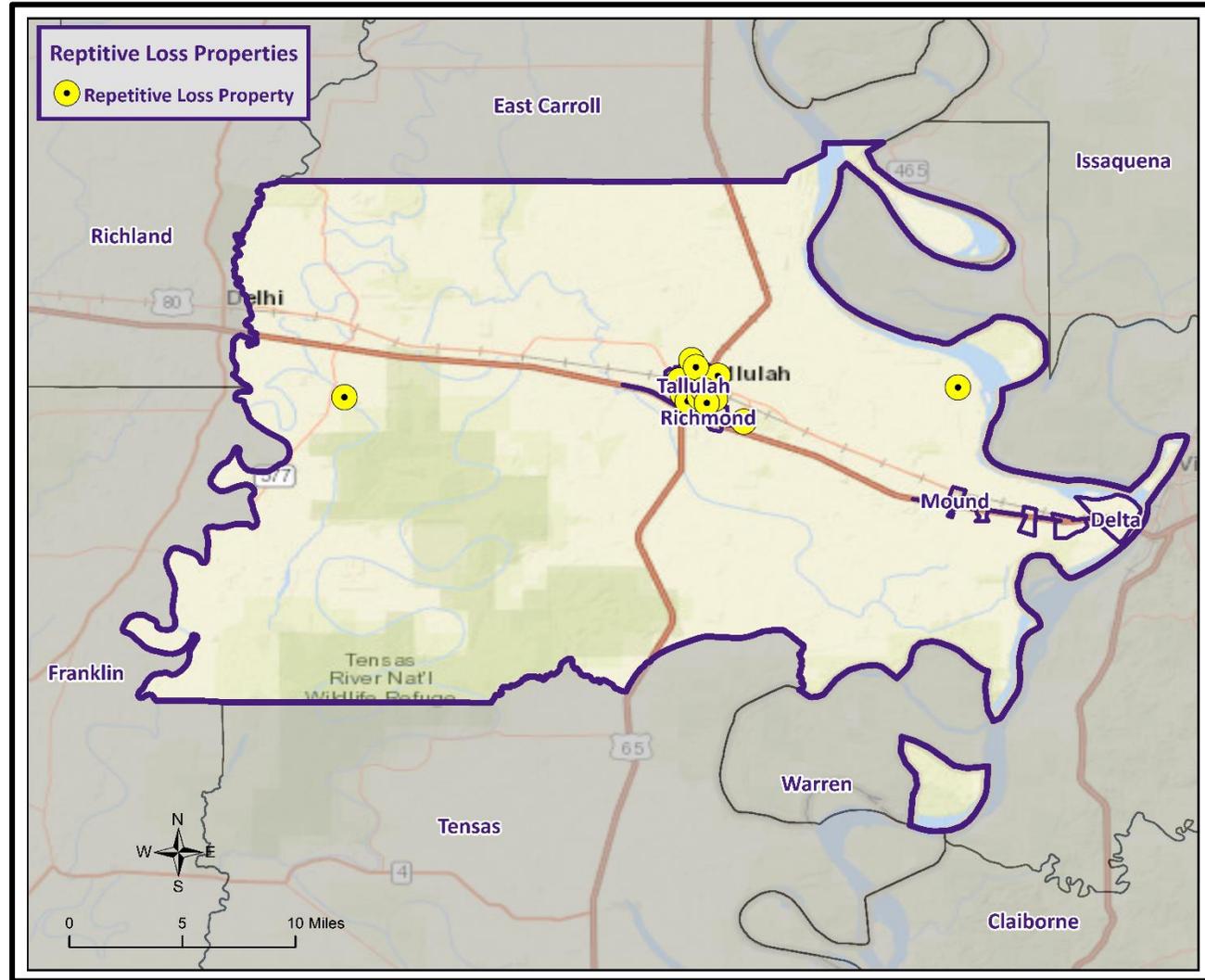
Tallulah

Flooding

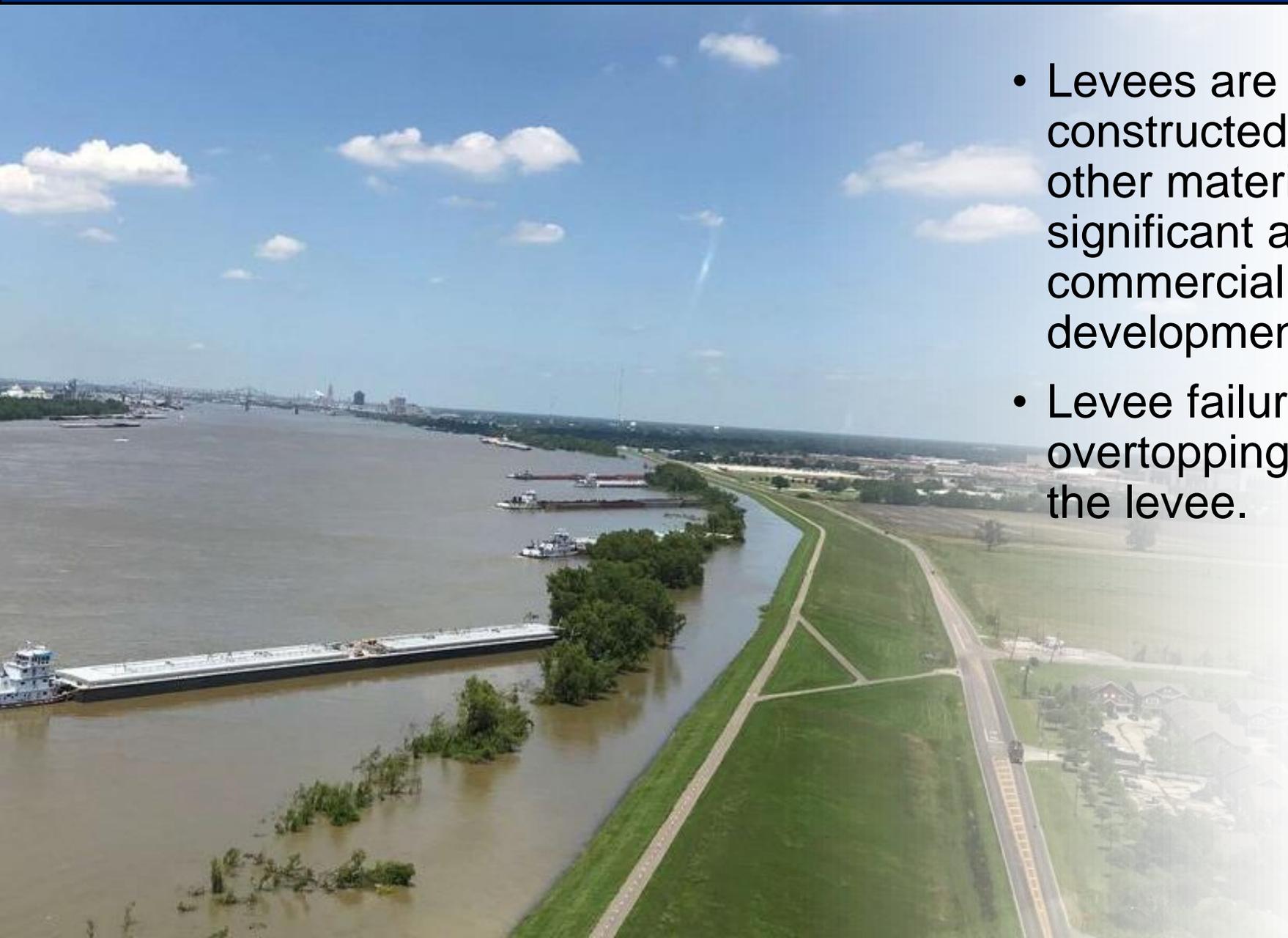


- Some areas flood more often than other properties, even more than those in the mapped 100-year floodplain.
- FEMA defines a “repetitive loss” property as one which has received two flood insurance claim payments for at least \$1,000 over any 10-year period since 1978.
- There are currently around 160,000 repetitive loss properties in the U.S.
- These properties comprise 1% of the NFIP policy base, but they account for approximately 30% of the country’s flood insurance claim payments.

Repetitive Loss Properties

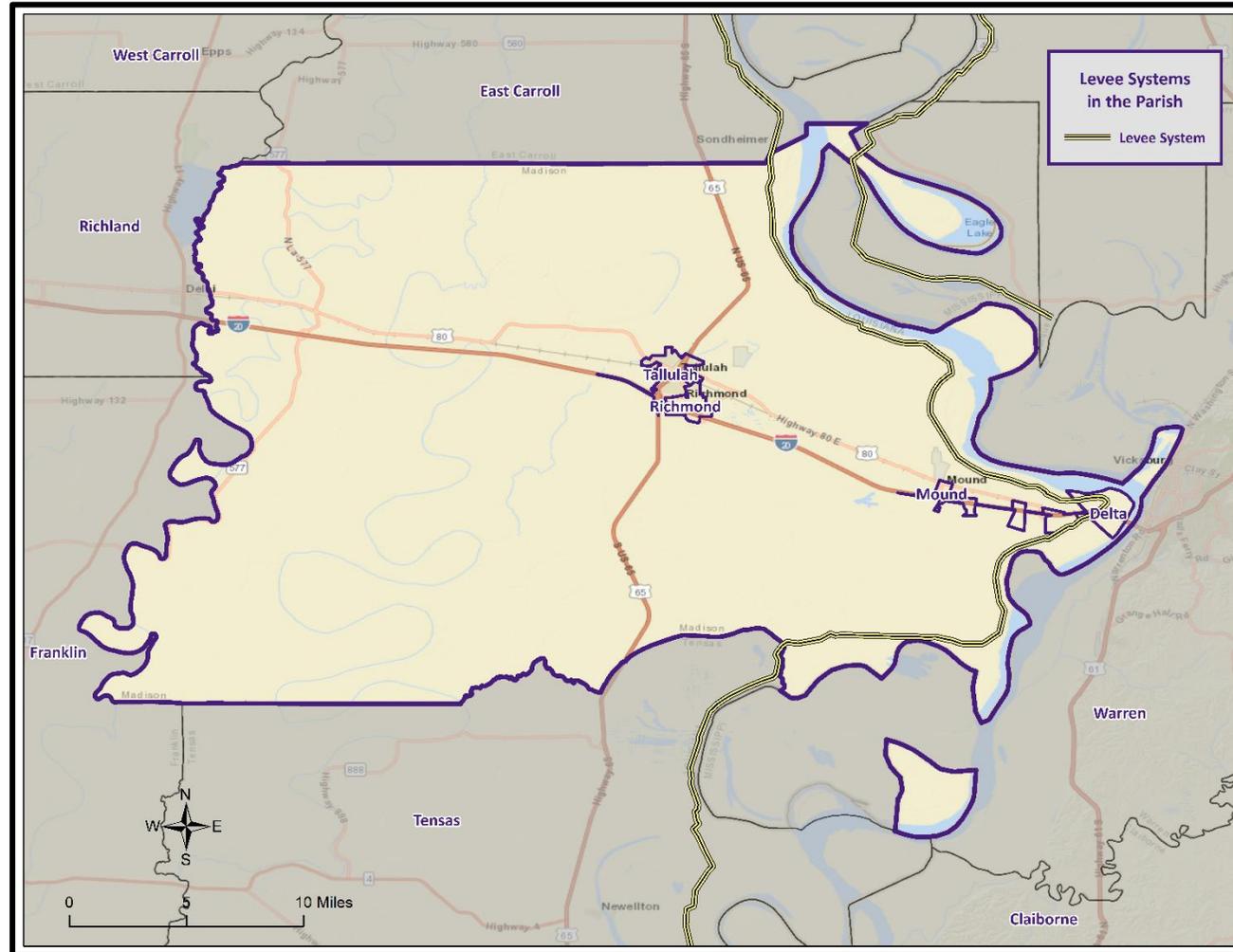


Levee Failure

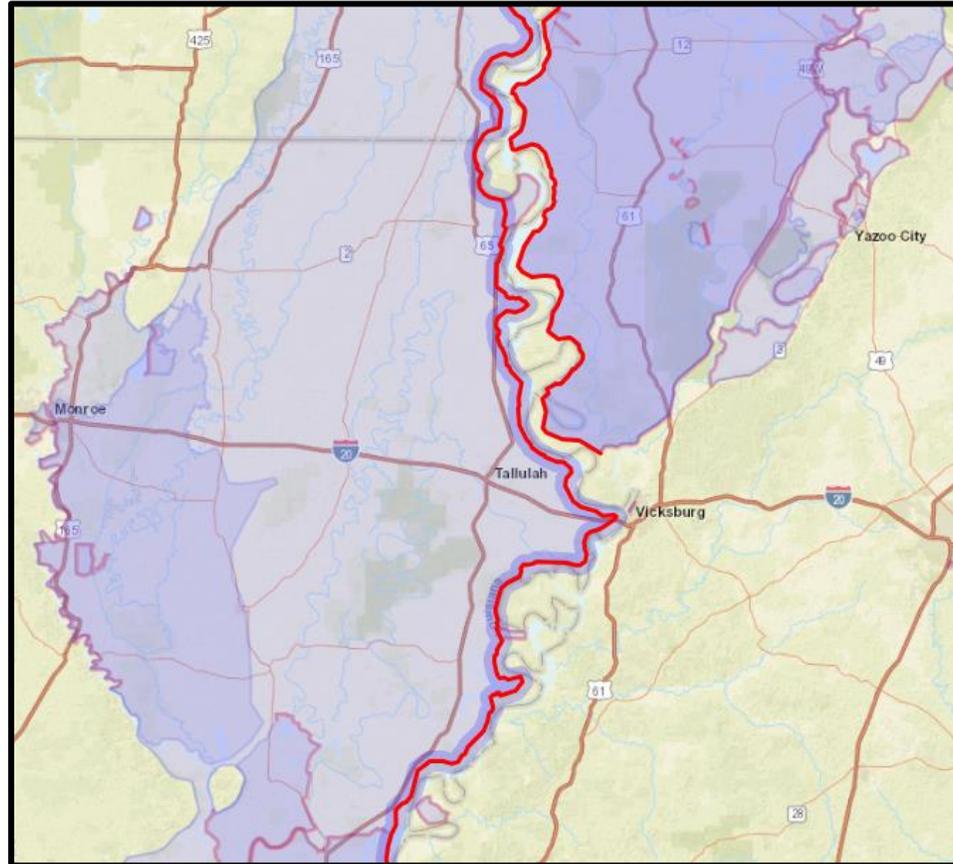


- Levees are flood control barriers constructed of earth, concrete, or other materials that protect significant areas of residential, commercial, or industrial development.
- Levee failure involves the overtopping, breach, or collapse of the levee.

Location of Levees in Madison Parish



Location of Levees in Madison Parish



System	Risk	Height (ft)	Population	Buildings	Property Value
AR-LA Mississippi River	High	28	227,280	110,450	\$20 Billion
Mississippi East	High	22	174,762	74,445	\$4 Billion

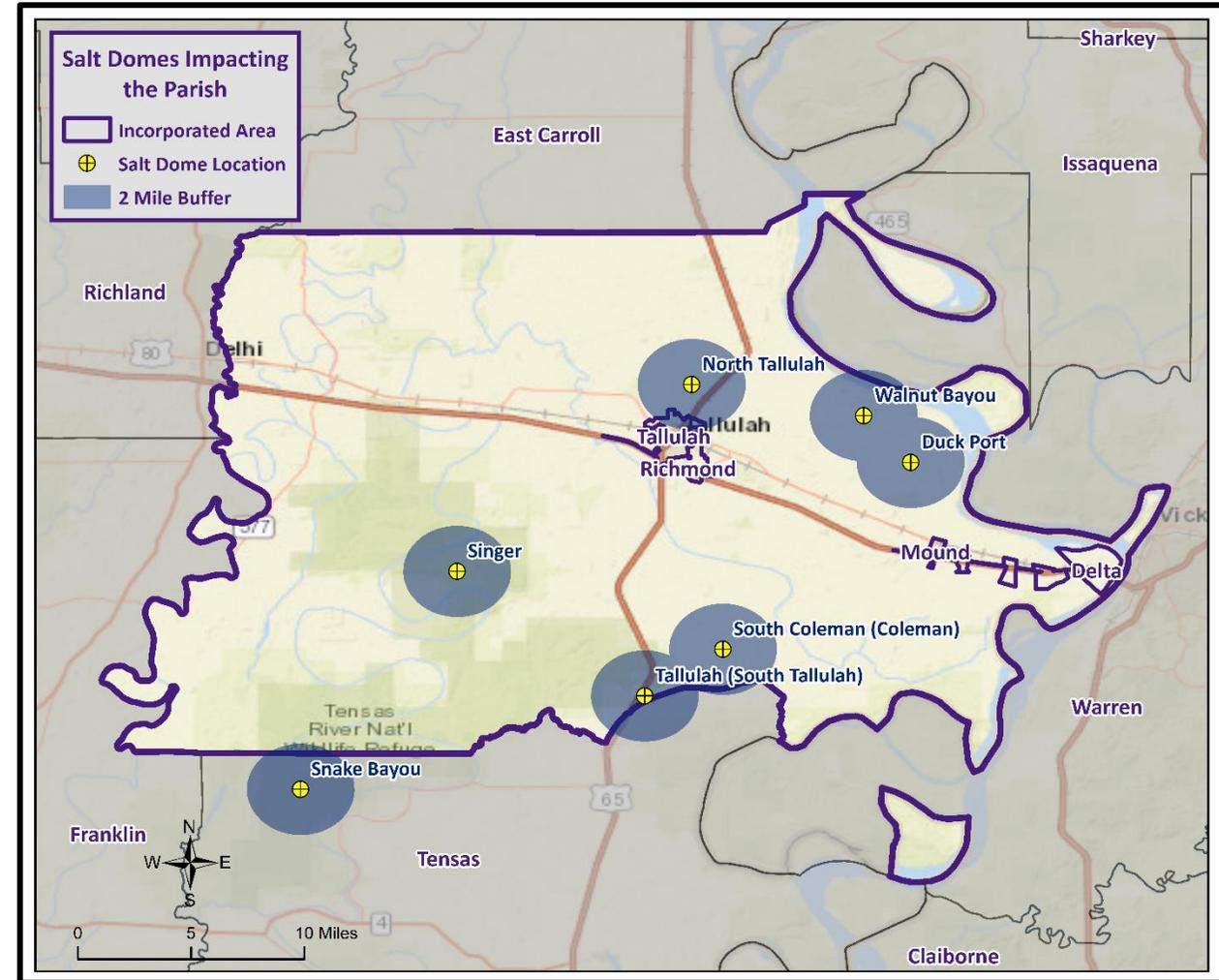
Sinkholes

- 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.



Salt Dome Locations

Salt Dome Name	Total Building Exposure	Critical Infrastructure Exposure	Number of People Exposed	Number of Houses Exposed
Duck Port	4,113,000	0	37	21
North Tallulah	\$372,311,000	1	3,443	1,419
Singer	\$0	0	0	0
Snake Bayou	\$0	0	0	0
South Coleman (Coleman)	\$4,569,000	0	24	13
Tallulah (South Tallulah)	\$2,987,000	0	16	9
Walnut Bayou	\$2,719,000	0	18	13

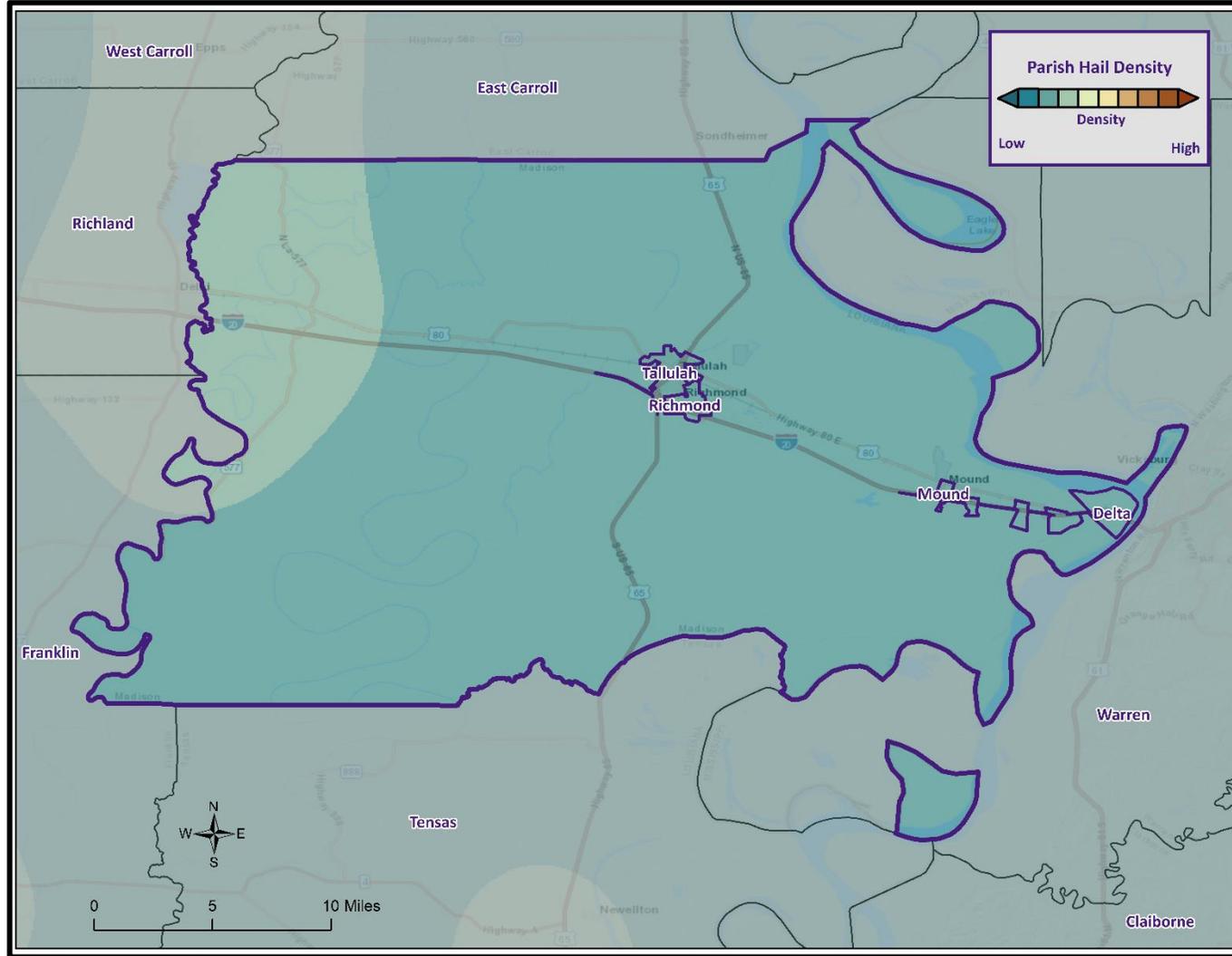


Thunderstorms

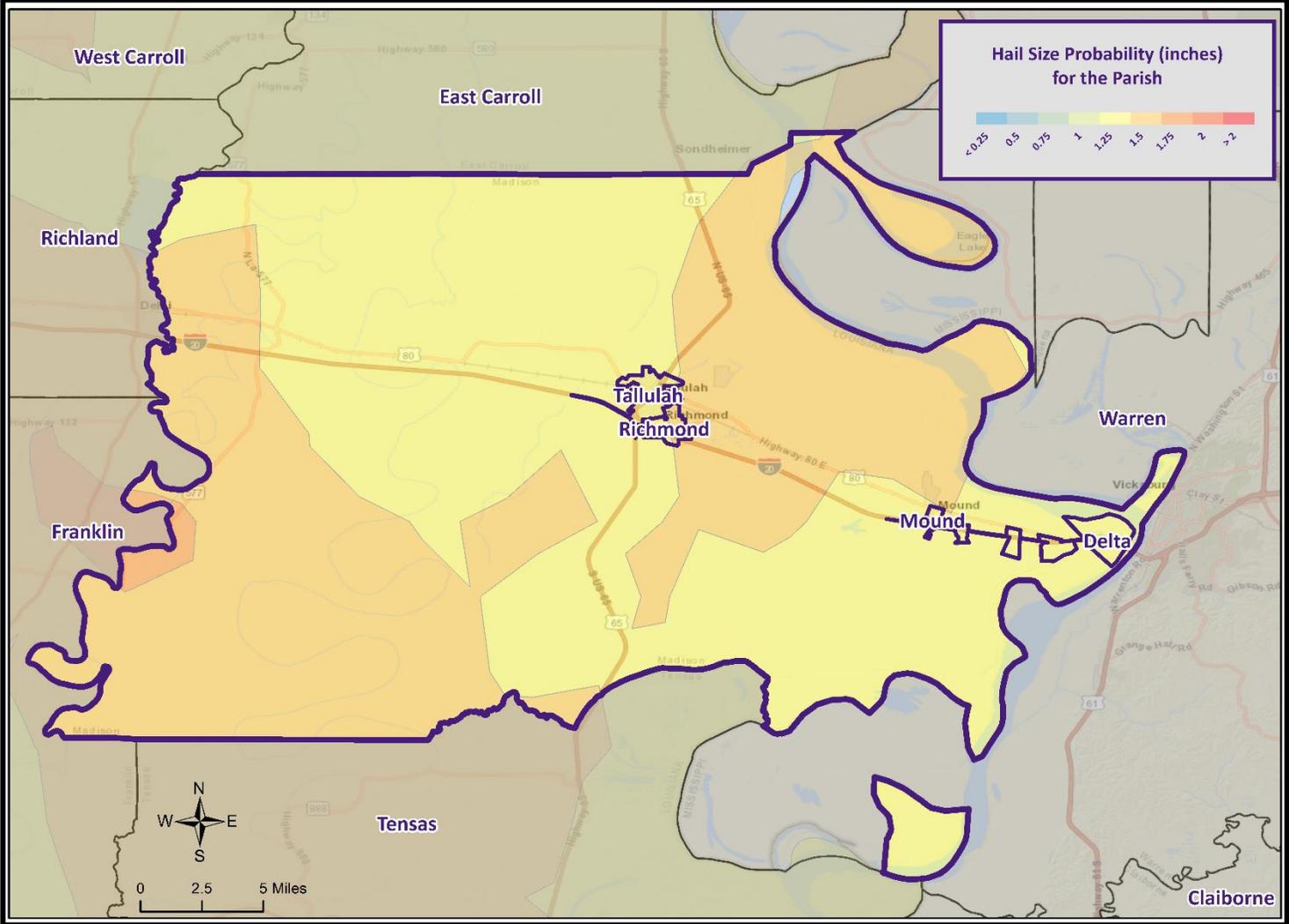


- A **thunderstorm**, also known as an **electrical storm**, a **lightning storm**, or a **thundershower**, is a type of storm characterized by the presence of lightning and its acoustic effect on the Earth's atmosphere known as thunder.
- They are usually accompanied by strong winds, heavy rain, and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

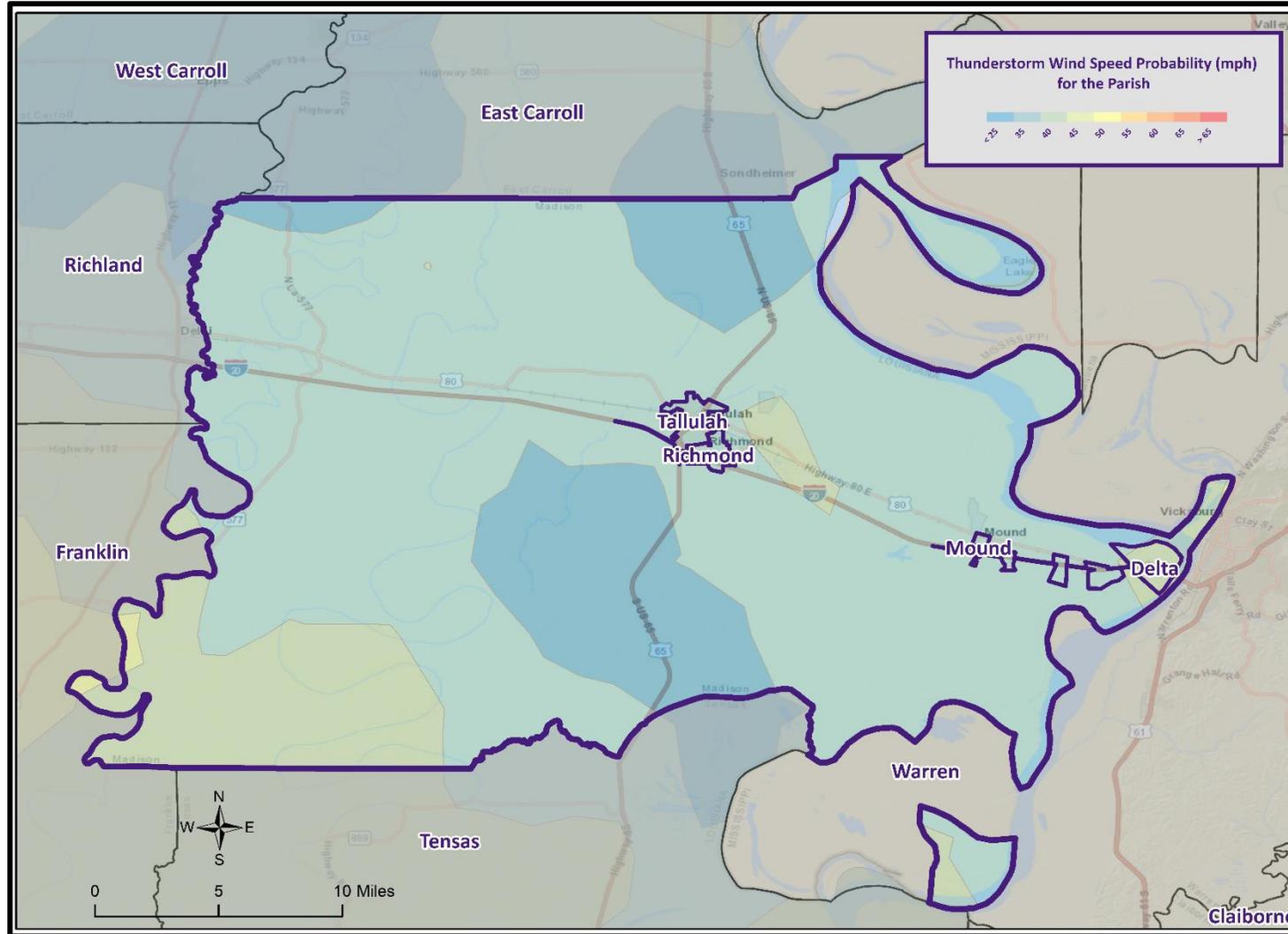
Hailstorm Density



Maximum Hail Size Probability



Maximum Wind Speed Probability

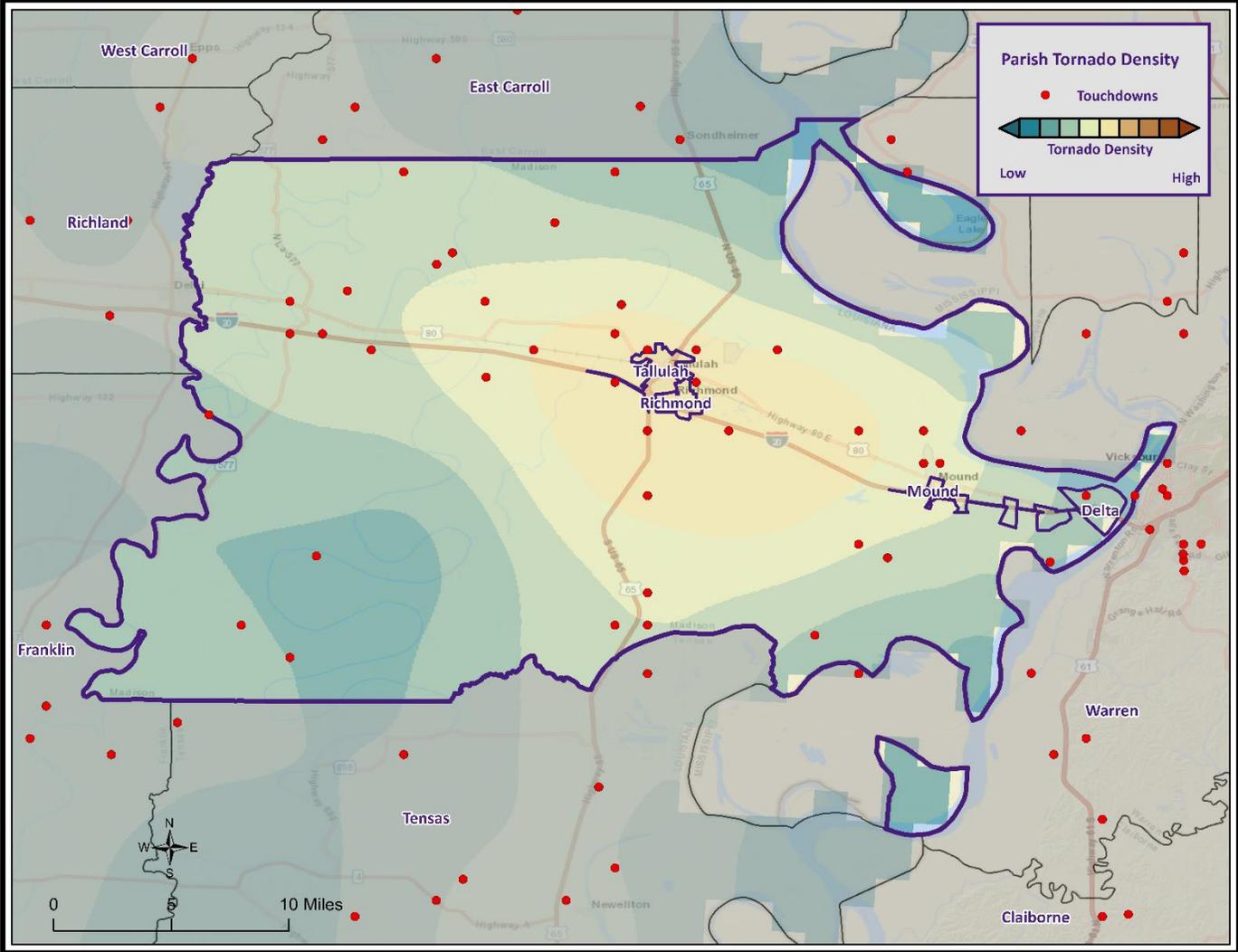


Tornadoes

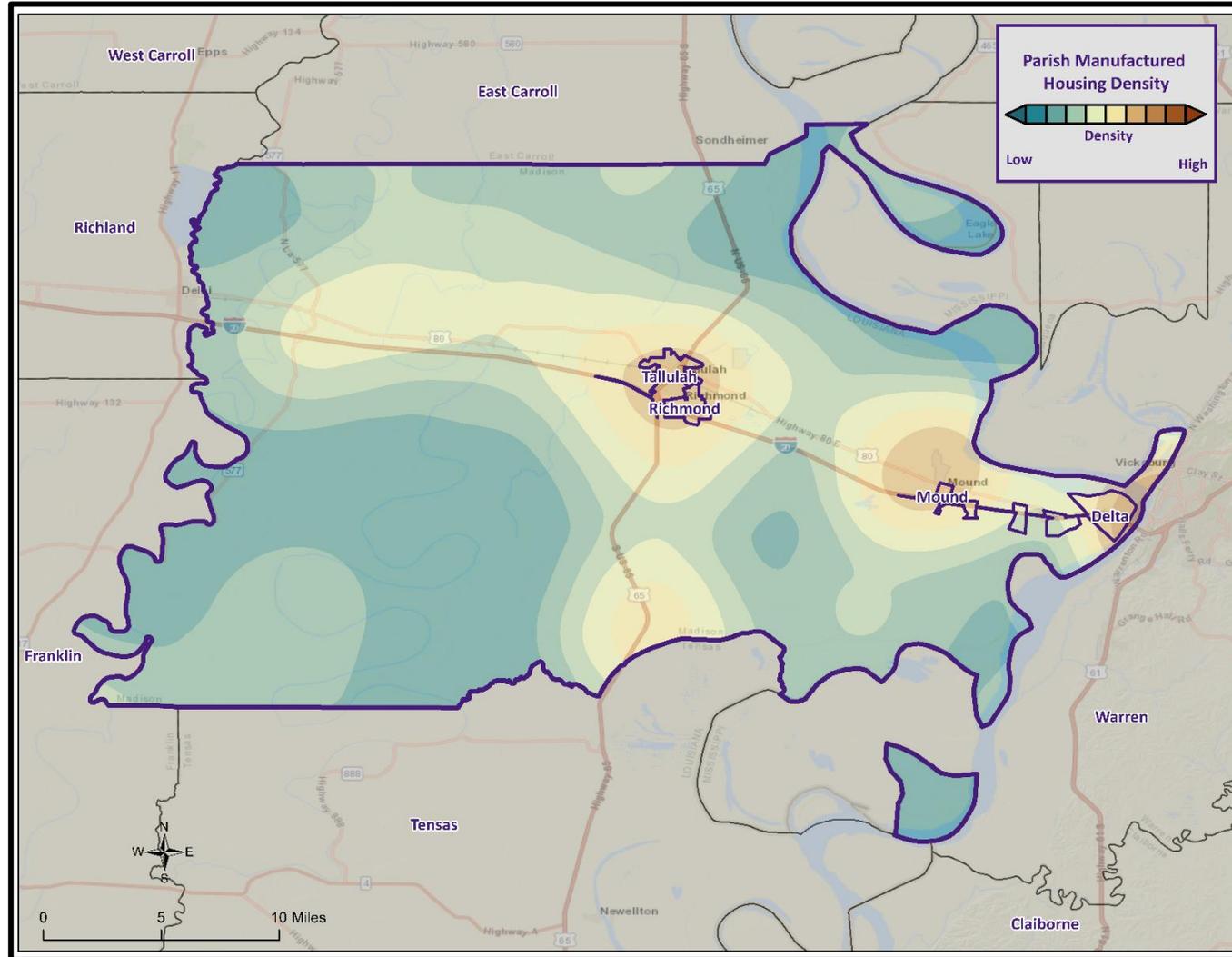
- Tornadoes are rapidly rotating funnels of wind extending between storm clouds and the ground.
- Tornadoes are the most severe storms for their size, and 70% of the world's reported tornadoes occur within the continental United States.

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 in Madison Parish



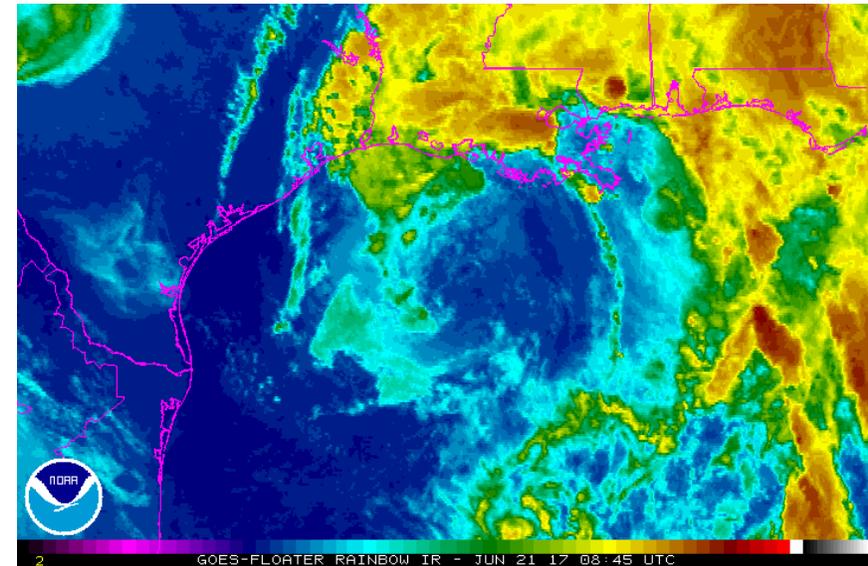
Manufactured Home Density



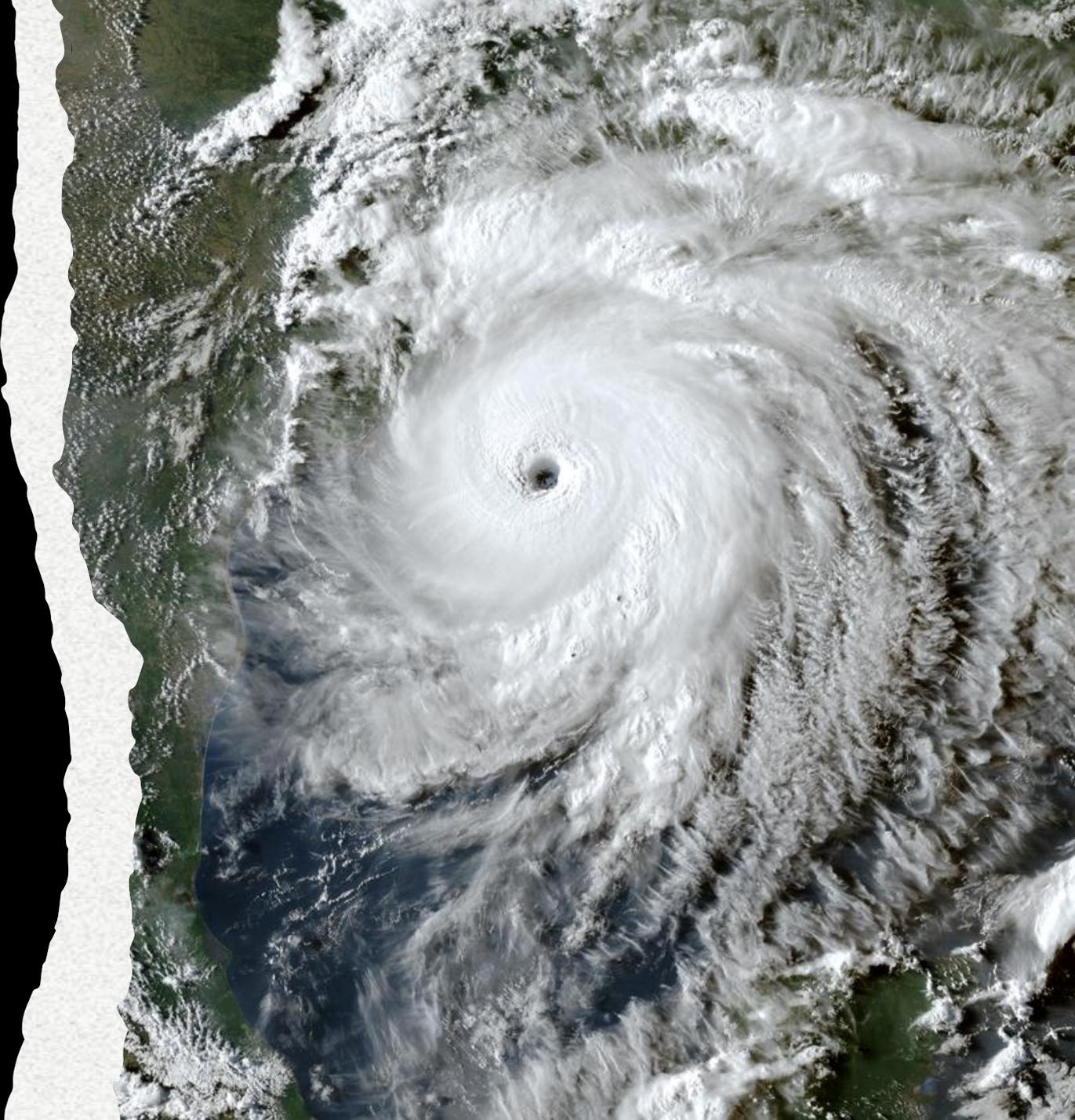
Tropical Cyclones

- 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

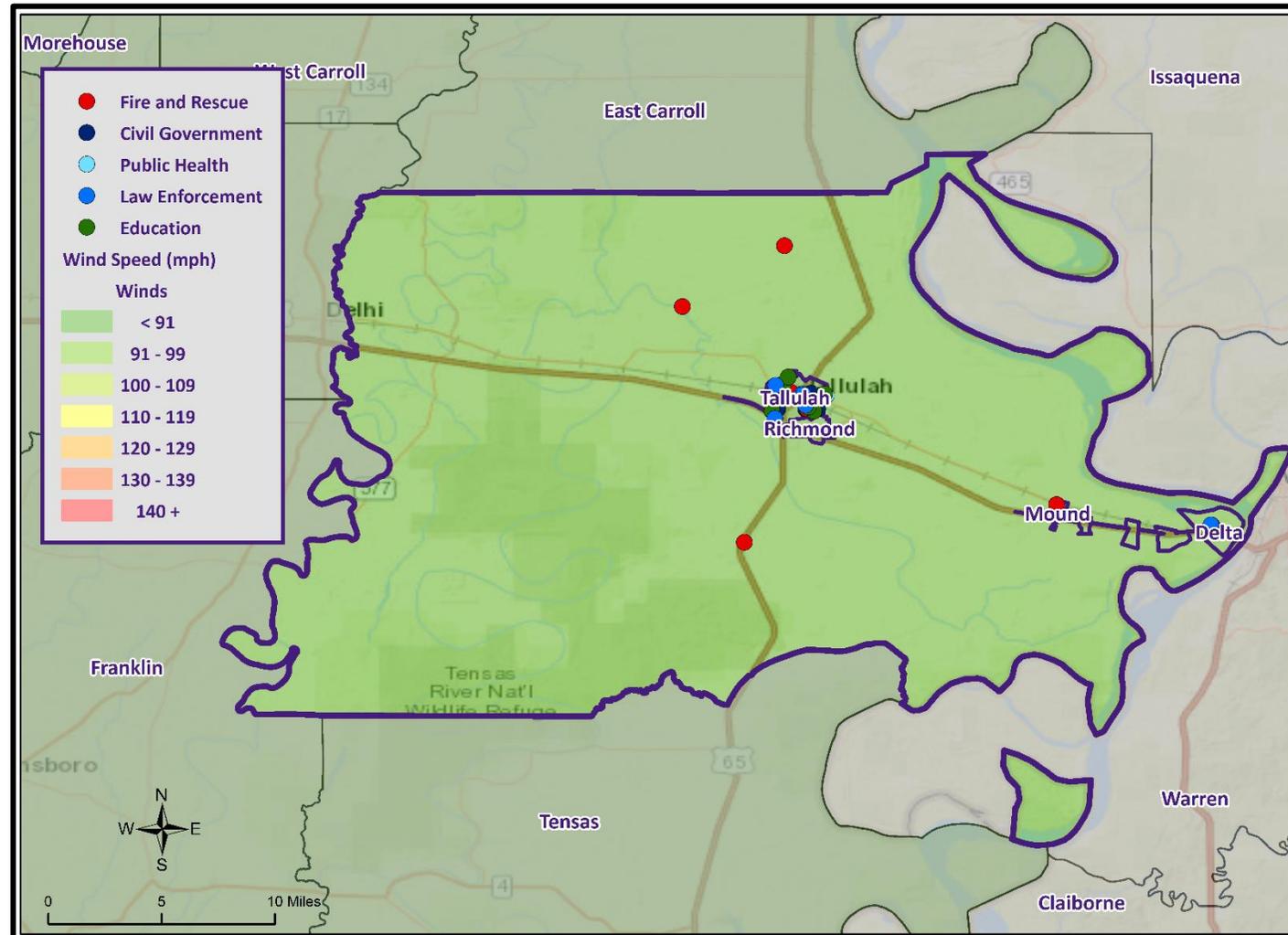
Saffir-Simpson Hurricane Wind Scale		
	Sustained Wind Speed	Effects
Category 1	74-95 mph (119-153 km/hr)	Very dangerous winds will produce some damage. Low-lying coastal roads flooded, minor pier damage
Category 2	96-110 mph (154-177 km/hr)	Extremely dangerous winds will cause extensive damage. Major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



Hurricane Laura (2020)



Wind Speed Impacts on C.I.



Winter Weather

- Occurs when humid air from the Gulf of Mexico meets a cold air mass from the north.
- As the temperature falls, precipitation may fall in the form of snow or sleet.
- If the ground temperature is cold enough but air temperature is above freezing, rain can freeze instantly on contact with the surface, causing massive ice storms.



Madison Parish Mitigation Goals

1. Identify and pursue preventative measures that will reduce further damages from hazards
2. Enhance public awareness and understanding of disaster preparedness
3. Reduce repetitive flood losses in the parish
4. Facilitate sound development in the parish to reduce or eliminate potential impacts of hazards



Parish Hazard Mitigation Project Update

Madison OHSEP/
Madison Parish Police Jury Discussion

Public Outreach Activity #1

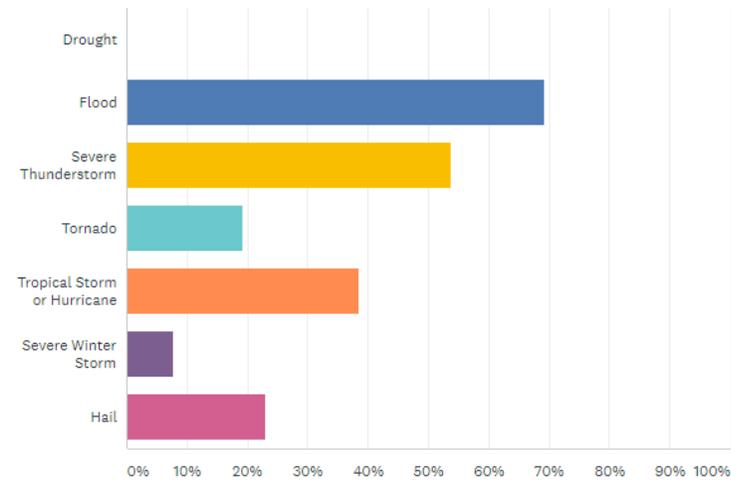
Hazard Mitigation Public Opinion Survey

https://lsu.qualtrics.com/jfe/form/SV_9KAI0IZ4wdG7Hwy



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

Answered: 26 Skipped: 1



Public Outreach Activity #2

Please fill out an incident questionnaire!



MADISON PARISH PUBLIC MEETING

**PUBLIC ACTIVITY:
INCIDENT/ ISSUE
QUESTIONNAIRE**

1. HAZARD TYPE(S):

A. FLOODING
B. LEVEE FAILURE
C. SINKHOLES
D. THUNDERSTORMS
E. TORNADOES
F. TROPICAL CYCLONES
G. WINTER WEATHER

2. DESCRIBE INCIDENT OR ISSUE:

3. LOCATION:

A. CITY:
B. ADDRESS OR AREA:

4. INTENSITY:

A. DEPTH (FLOODING) OR SIZE (HAIL ETC.):
B. WIND STRENGTH

5. RECURRING OR ONE TIME:

A. IF RECURRING, HOW OFTEN:

**6. WHAT TYPE OF INTERRUPTIONS
DOES/DID THE INCIDENT OR ISSUE
CAUSE? (BUSINESS CLOSURE, DAMAGE,
EVACUATION, ETC.)**

**7. HOW LONG WAS THE INTERRUPTION
(HOURS, DAYS, WEEKS ETC.)**

**8. HOW COULD THIS HAZARD OR
IMPACT BE PREVENTED, FIXED
OR ALLEVIATED?**



SDMI Hazard Mitigation Website

The screenshot shows the SDMI Hazard Mitigation Website for Madison Parish. The header includes the LSU Stephenson Disaster Management Institute logo and navigation links for SDMI HOME, Facebook, and Twitter. The main navigation bar features 'HAZARD MITIGATION' and sub-links for 'Intro', 'Events', 'FEMA Resources', 'Parish Plans', and 'Settings'. The 'Parish Plans' section is active, displaying 'Madison Parish' and a 'PLAN DUE DATE: AUGUST 11 2024'. A 'DEVELOPMENT STATUS' progress bar shows four stages: 'PLAN DEVELOPMENT' (yellow), 'PLAN REVIEW' (purple), 'PLAN ADOPTION' (purple), and 'COMPLETED' (purple). Below the progress bar, the stages are labeled with 'INITIAL PLANNING COMMITTEE', 'TBD', 'TBD', and 'TBD'. A 'PARTICIPATING JURISDICTIONS' section lists five entities: Village of Delta, Unincorporated Madison Parish, Village of Mound, City of Tallulah, and Village of Richmond. A calendar view shows two upcoming meetings: 'MADISON PARISH HM KICKOFF MEETING' on NOV 3 (Phone Conference, 10:00 AM - 10:30 AM 11/3/2023) and 'MADISON PARISH INITIAL PLANNING COMMITTEE MEETING' on FEB 15 (Tallulah, LA, 02:00 PM - 03:00 PM 2/15/2024). A 'PREVIOUS PLANS' section for 2019 features three download buttons for 'MADISON HM PLAN', 'MADISON PARISH KICK OFF MEETING', and 'MADISON PARISH PUBLIC MEETING'. A 'Survey' section has an 'Access Survey' button. The footer includes the LSU logo.

- Repository for materials used during update process
- <https://hmplans.sdmi.lsu.edu/Home/Parish/madison>

Contact Us

Brant Mitchell, Director, CEM

bmitch9@lsu.edu

(225) 578-5939

Chris Rippetoe, HM Program Manager, CFM

crippe2@lsu.edu

(225) 578-6667

Jason Martin, Emergency Management Analyst

jmar293@lsu.edu

(225) 578-6264



