



East Baton Rouge Parish Hazard Mitigation Plan Update Public Meeting

September 22, 2016

Baton Rouge, LA

Agenda

- Hazard Mitigation Planning Process – SDMI Staff
- Risk Assessment – SDMI Staff
- Update on Previous/Current Mitigation Projects – EBR MOHSEP
- Public Outreach Activities – SDMI & EBR MOHSEP

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?

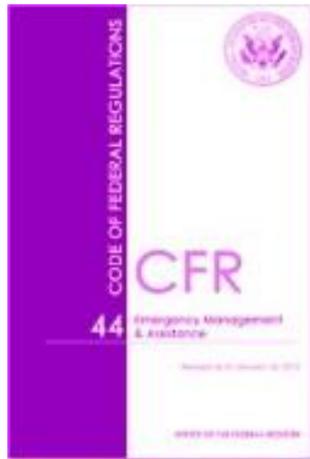
- Disaster Mitigation Act of 2000 (DMA 2000)

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.

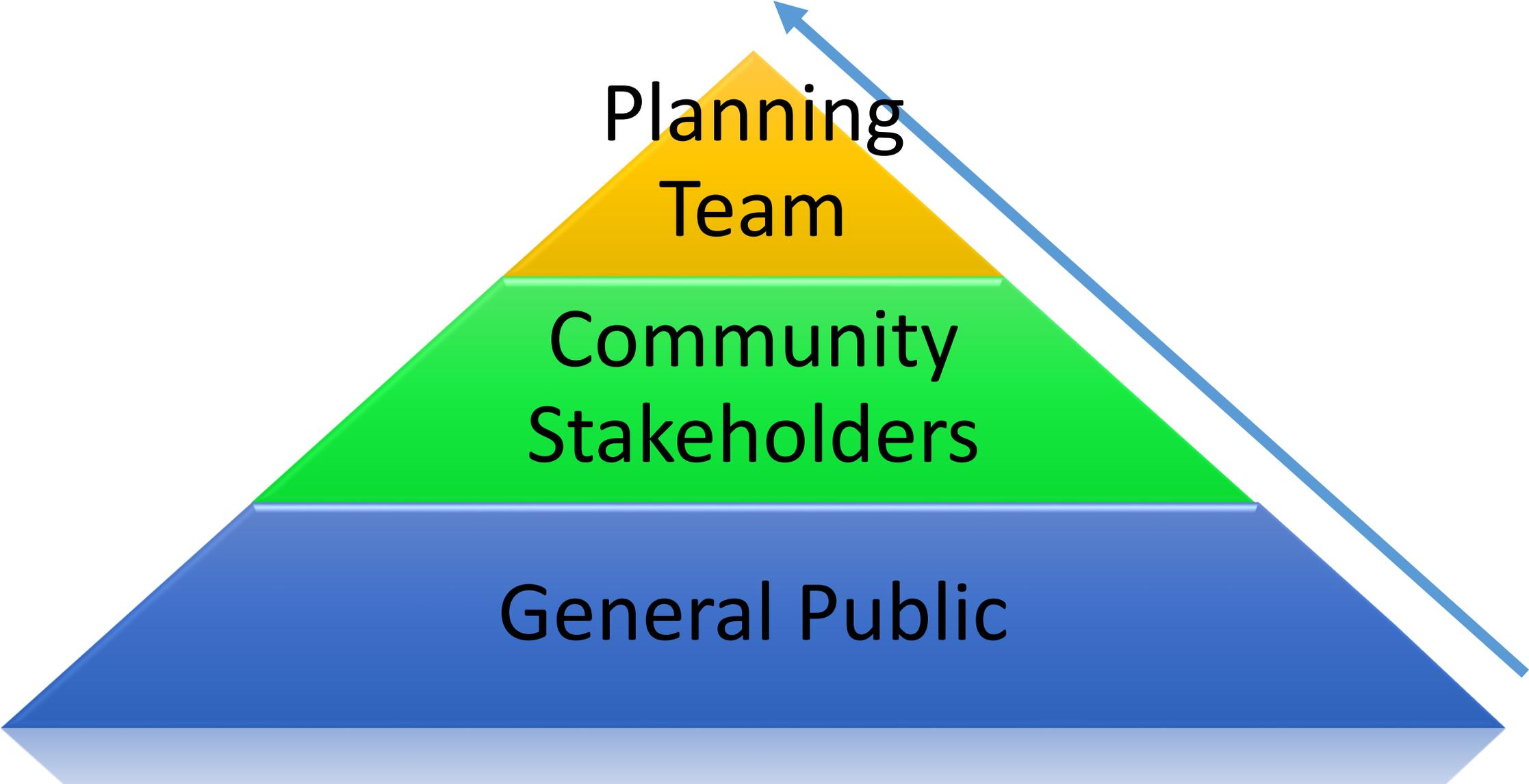
- Meet federal requirements of Title 44 Code of Regulations (CFR) §201.6 for approval and eligibility to apply for FEMA Hazard Mitigation Assistance grant programs.



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



Collaborative Planning Approach



Planning Development

New Plan Layout

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

New Plan Layout

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

Hazard Identification and Risk Assessment

- Based on Currently Profiled Risks
- Any Newly Identified Risks
- Prevalent Hazards
- Previous Occurrences
- Probability of Future Events
- Assets Inventory
- Essential Facilities
- Hazard Impact
- Future Development
- Future Hazard Impacts
- Zoning and Land Use
- Hazard Profiles

Hazard Identification and Risk Assessment

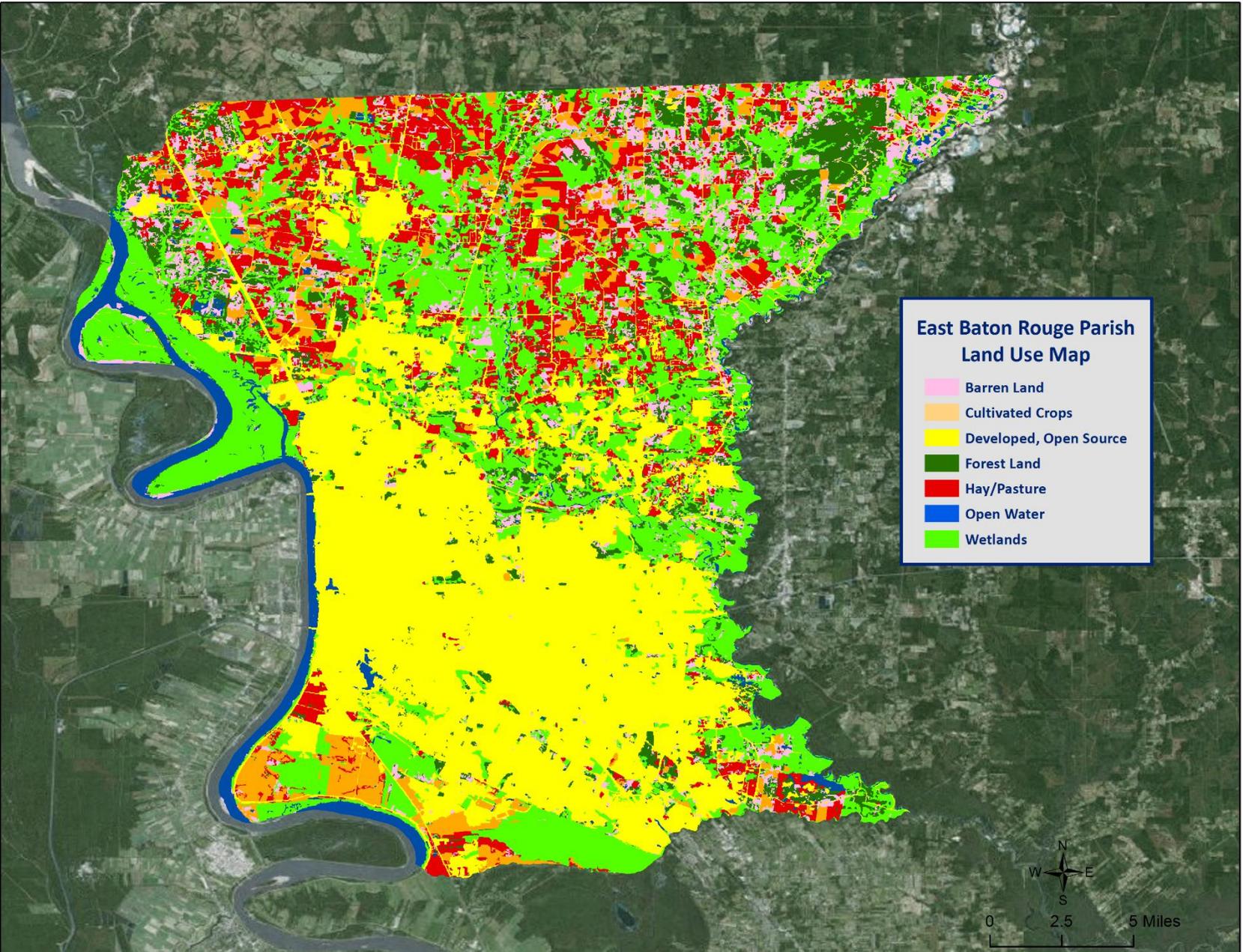
- Drought
- Earthquakes *Discounted
- Flooding
- Land Subsidence *Discounted
- Thunderstorms
 - Lightning
 - High Winds
 - Hailstorms
- Tornadoes
- Tropical Cyclones
- Wildfires
- Winter Storms
- Dam Failure
- Levee Failure

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

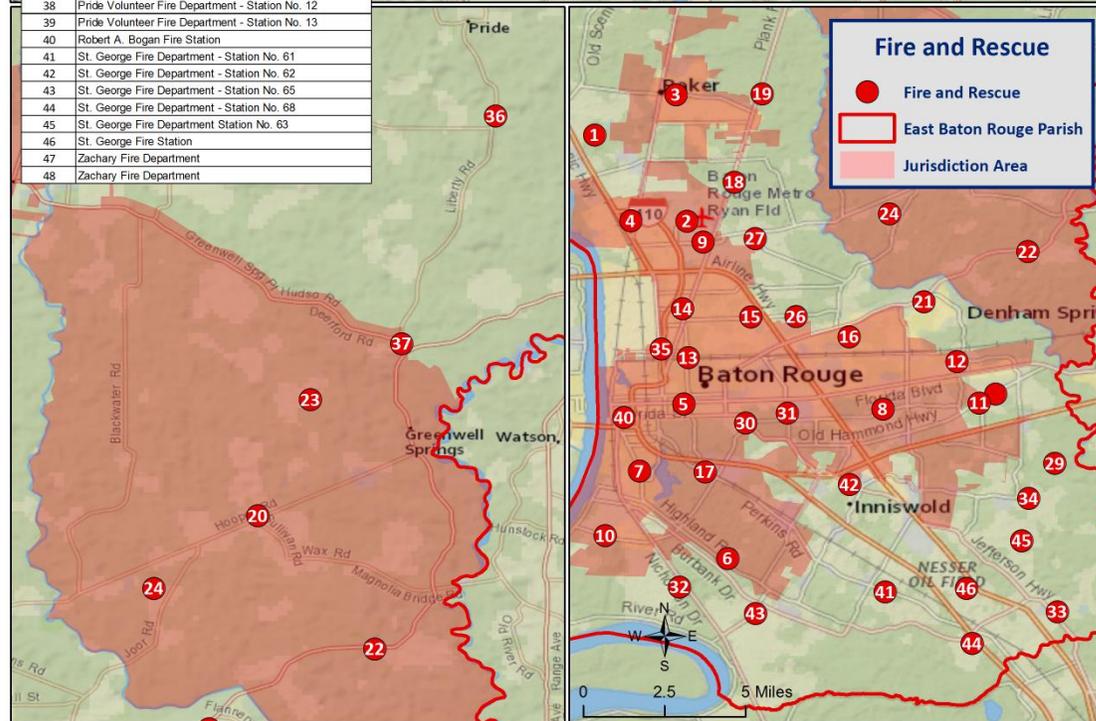
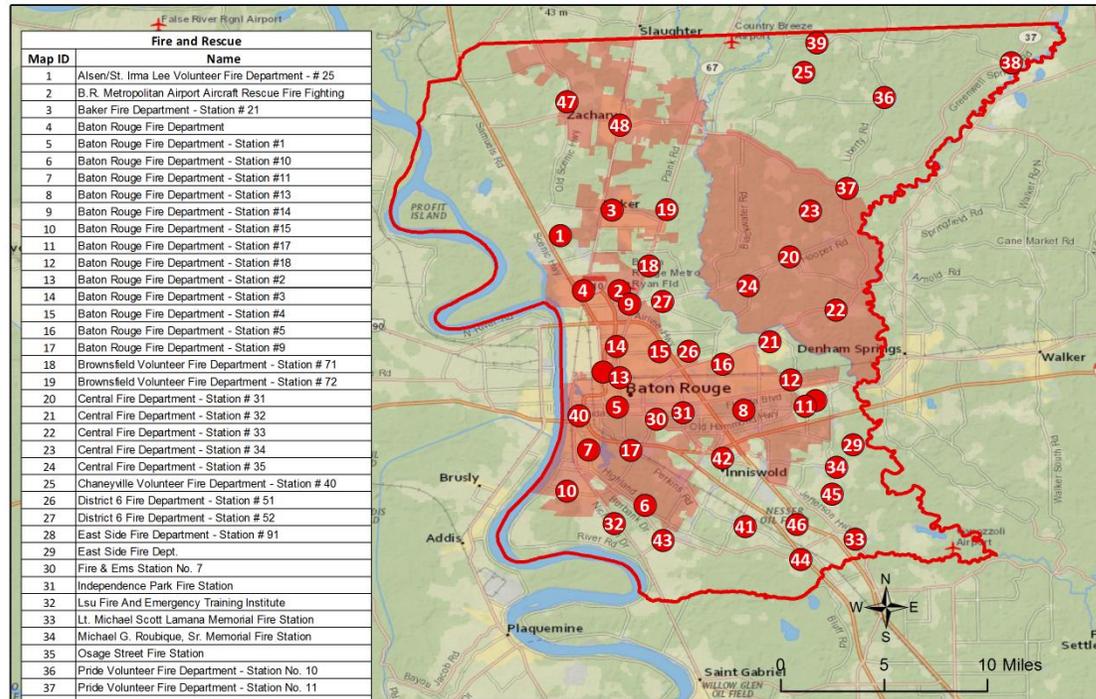
Risk Assessment: Maps



Land Use in East Baton Rouge Parish

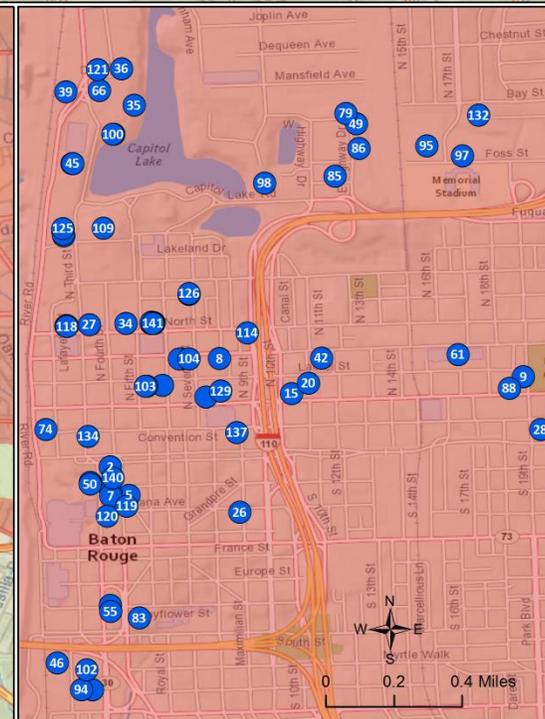
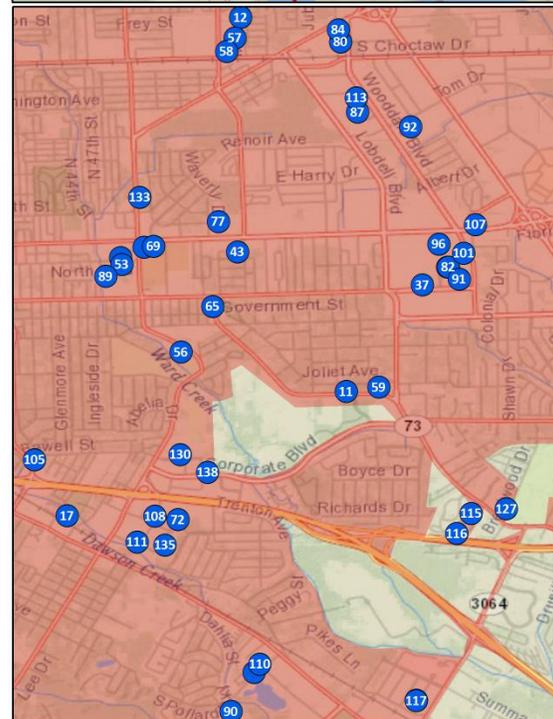
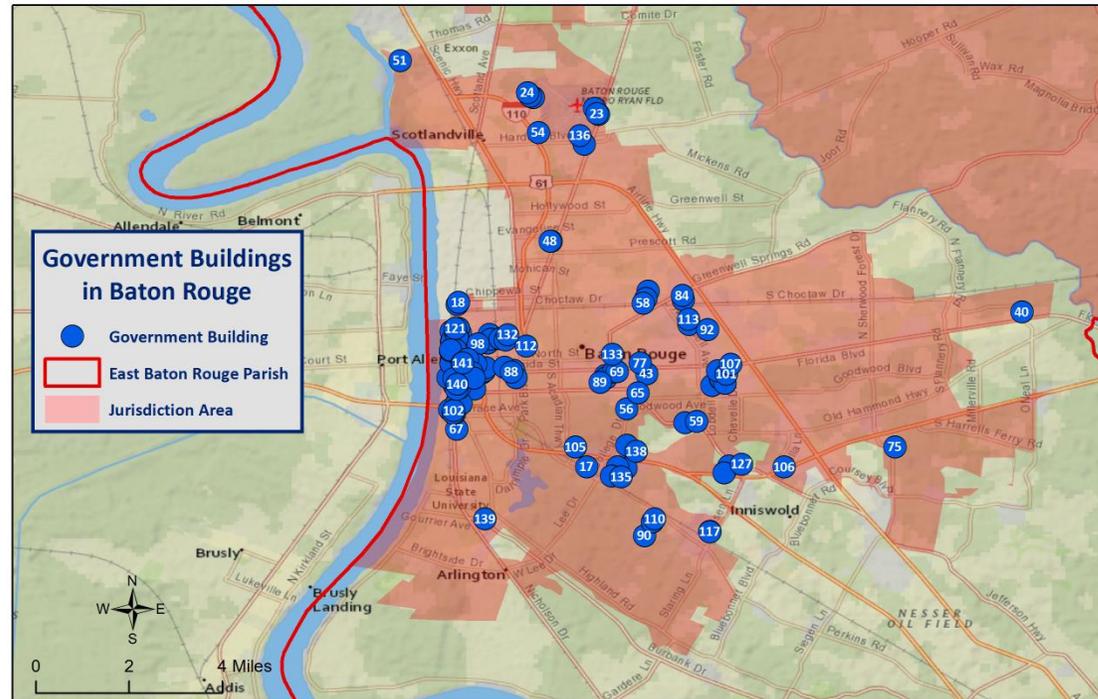


Critical Facilities – Fire Stations

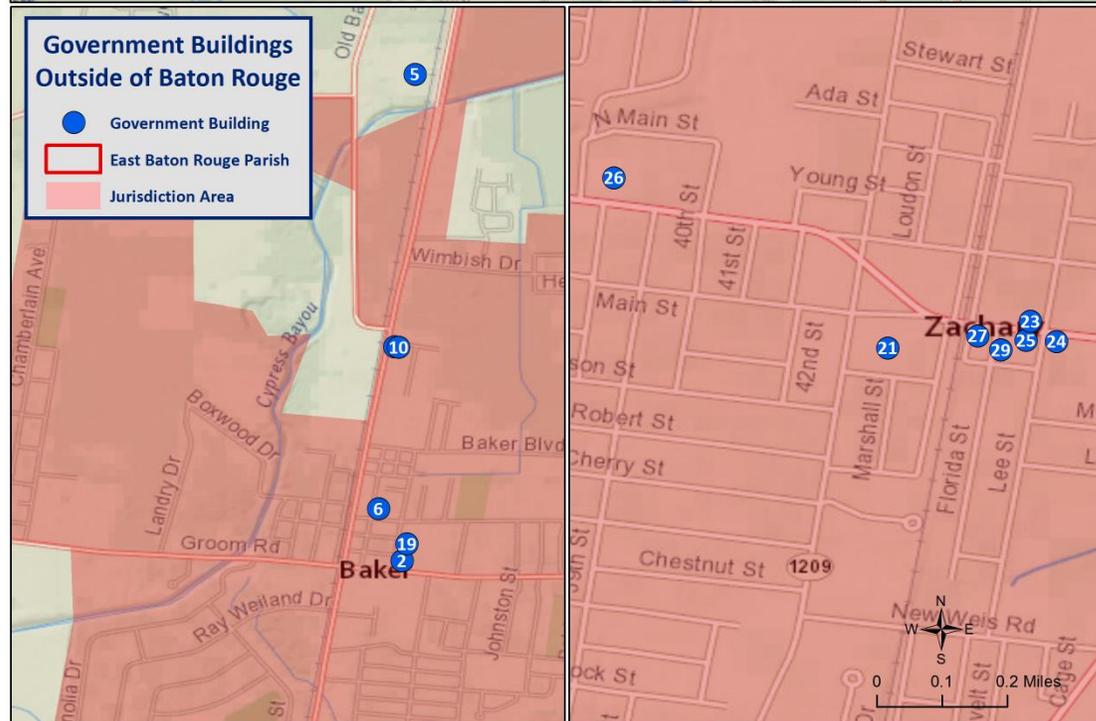
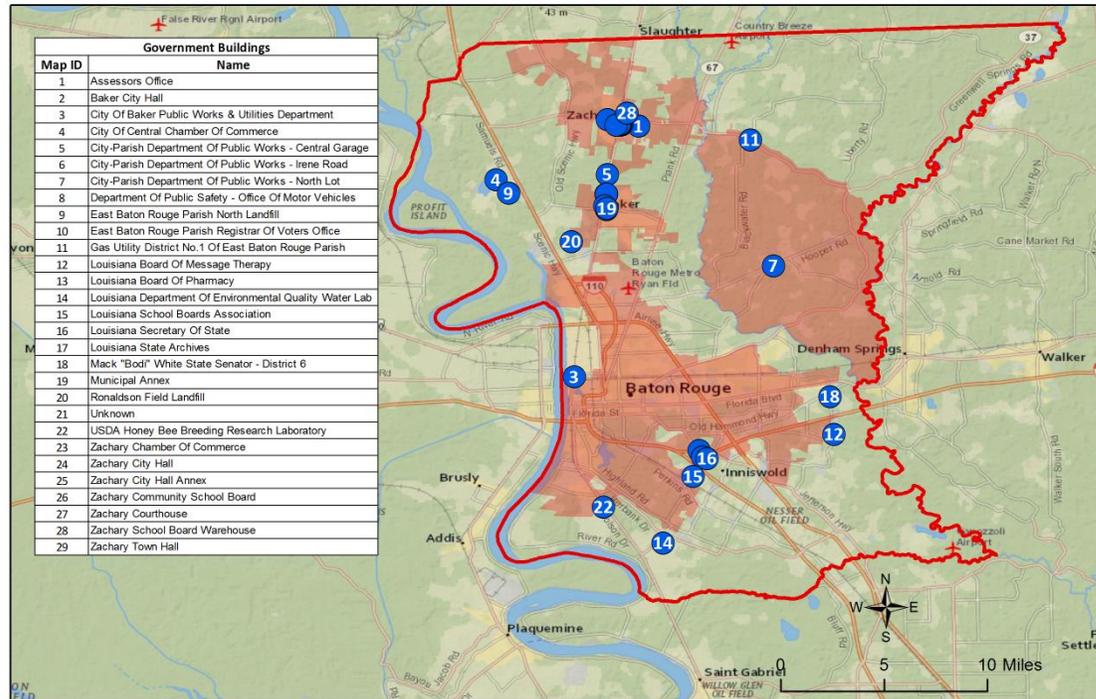


Map ID	Name
1	Alsen/St. Irma Lee Volunteer Fire Department - # 25
2	B. R. Metropolitan Airport Aircraft Rescue Fire Fighting
3	Baker Fire Department - Station # 21
4	Baton Rouge Fire Department
5	Baton Rouge Fire Department - Station #1
6	Baton Rouge Fire Department - Station #10
7	Baton Rouge Fire Department - Station #11
8	Baton Rouge Fire Department - Station #13
9	Baton Rouge Fire Department - Station #14
10	Baton Rouge Fire Department - Station #15
11	Baton Rouge Fire Department - Station #17
12	Baton Rouge Fire Department - Station #18
13	Baton Rouge Fire Department - Station #2
14	Baton Rouge Fire Department - Station #3
15	Baton Rouge Fire Department - Station #4
16	Baton Rouge Fire Department - Station #5
17	Baton Rouge Fire Department - Station #9
18	Brownfield Volunteer Fire Department - Station # 71
19	Brownfield Volunteer Fire Department - Station # 72
20	Central Fire Department - Station # 31
21	Central Fire Department - Station # 32
22	Central Fire Department - Station # 33
23	Central Fire Department - Station # 34
24	Central Fire Department - Station # 35
25	Chaneyville Volunteer Fire Department - Station # 40
26	District 6 Fire Department - Station # 51
27	District 6 Fire Department - Station # 52
28	East Side Fire Department - Station # 91
29	East Side Fire Dept.
30	Fire & Ems Station No. 7
31	Independence Park Fire Station
32	Lsu Fire And Emergency Training Institute
33	Lt. Michael Scott Lamana Memorial Fire Station
34	Michael G. Roubique, Sr. Memorial Fire Station
35	Osage Street Fire Station
36	Pride Volunteer Fire Department - Station No. 10
37	Pride Volunteer Fire Department - Station No. 11
38	Pride Volunteer Fire Department - Station No. 12
39	Pride Volunteer Fire Department - Station No. 13
40	Robert A. Bogan Fire Station
41	St. George Fire Department - Station No. 61
42	St. George Fire Department - Station No. 62
43	St. George Fire Department - Station No. 65
44	St. George Fire Department - Station No. 68
45	St. George Fire Department Station No. 63
46	St. George Fire Station
47	Zachary Fire Department
48	Zachary Fire Department

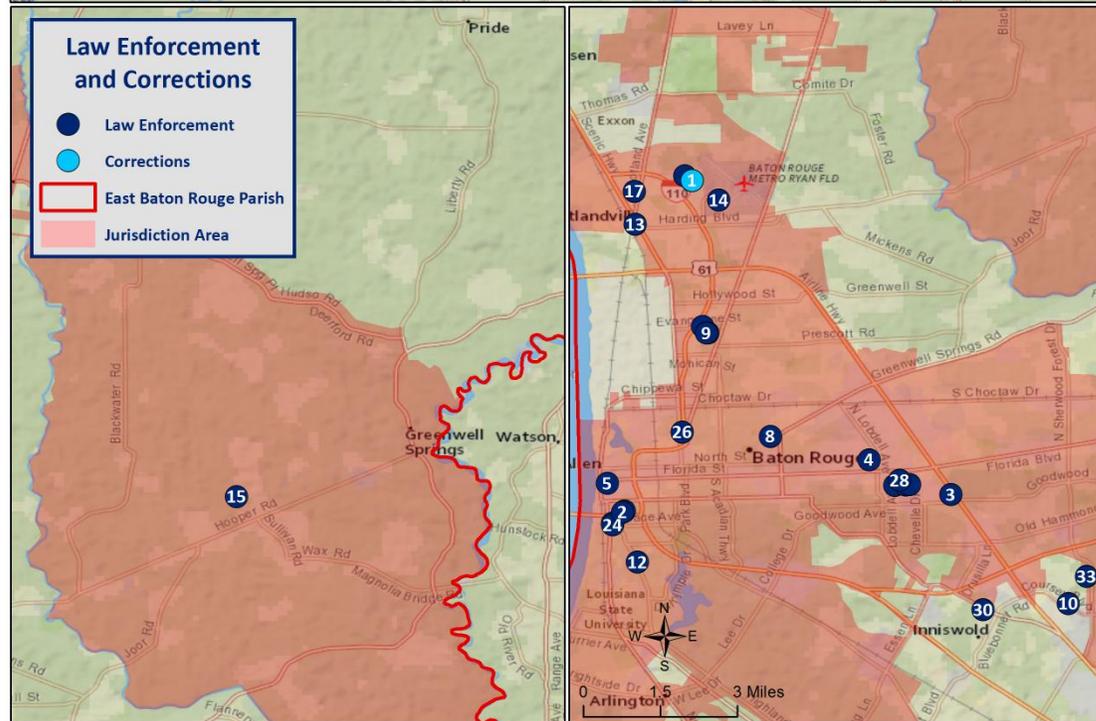
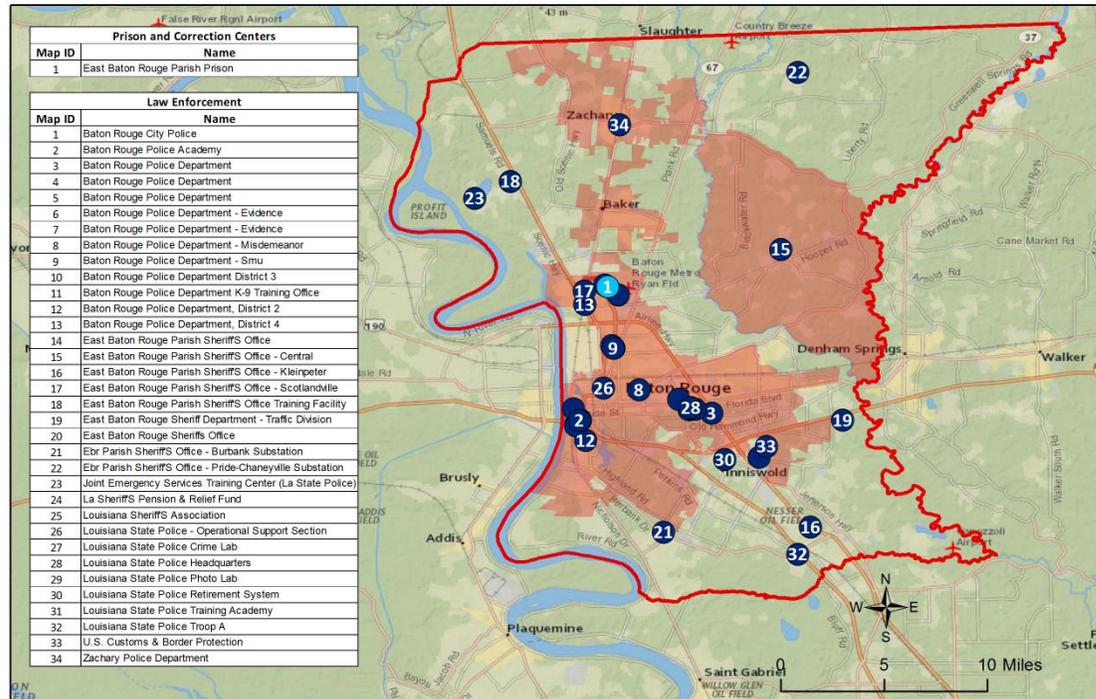
Critical Facilities – Government Buildings in Baton Rouge



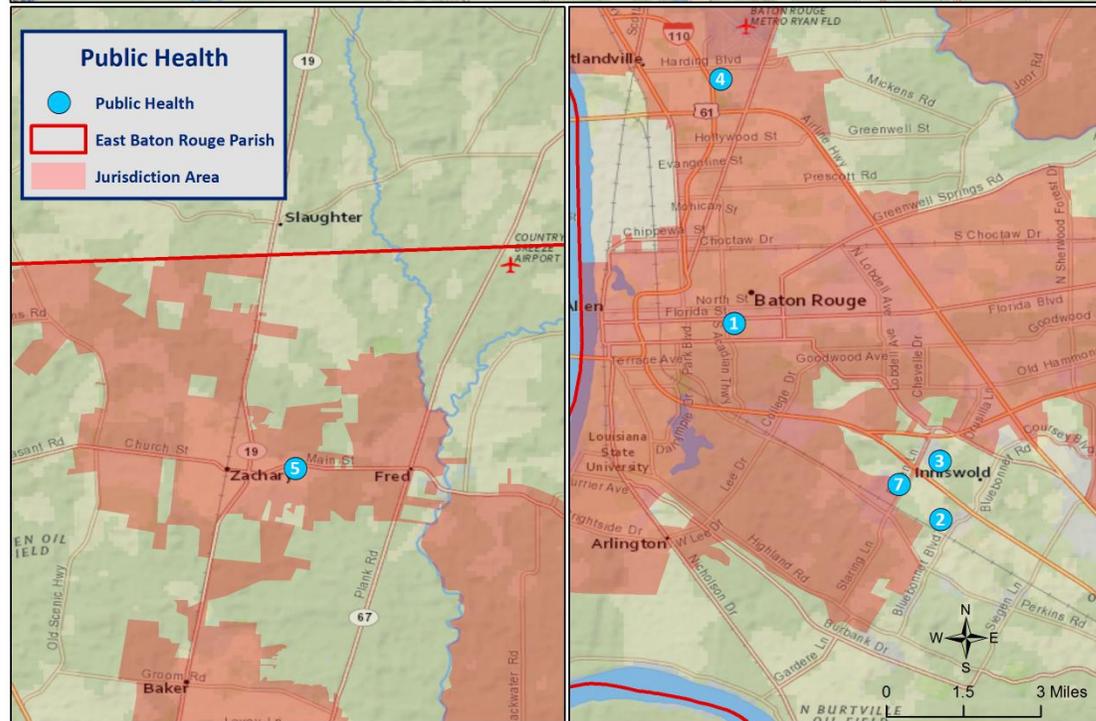
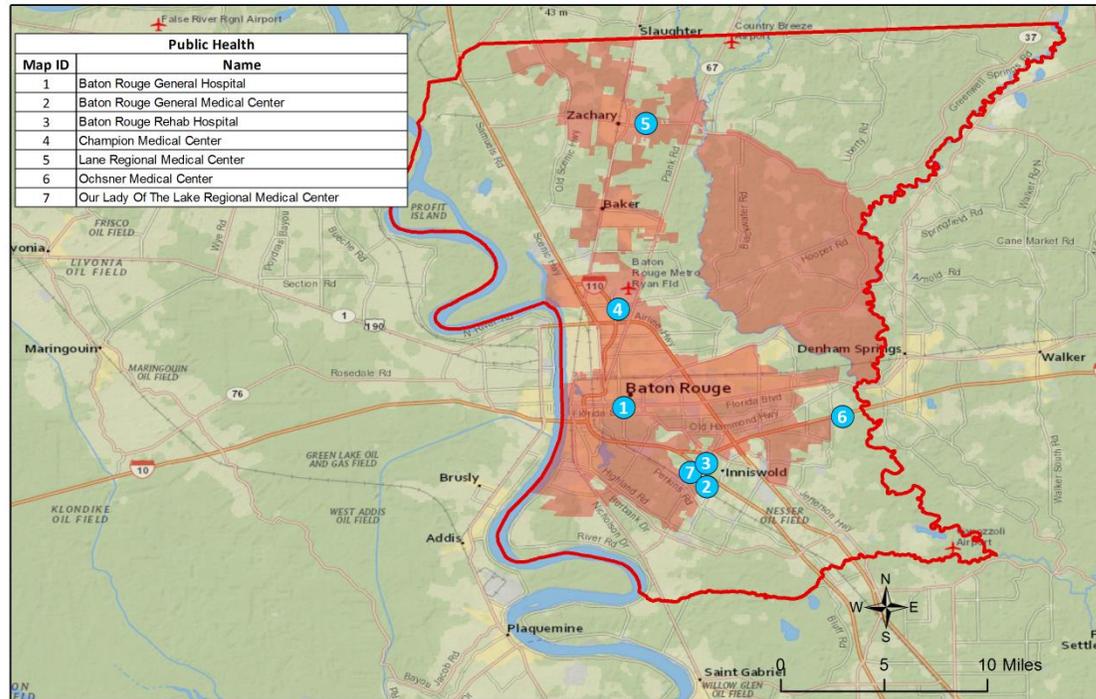
Critical Facilities – Government Buildings Outside of Baton Rouge



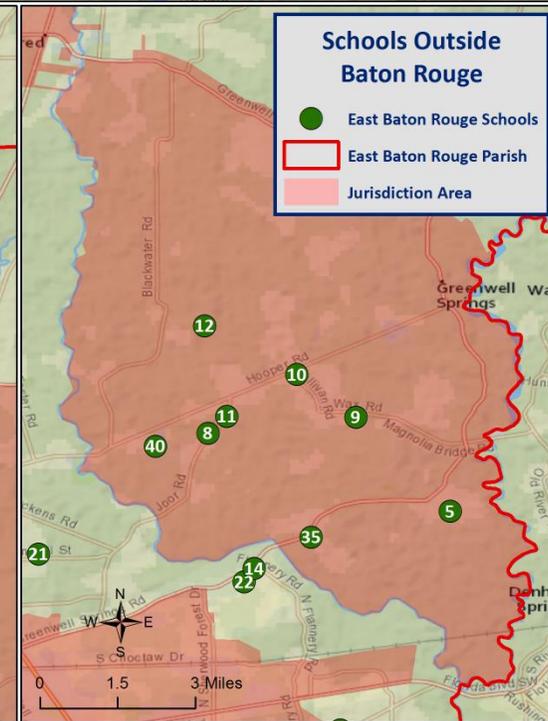
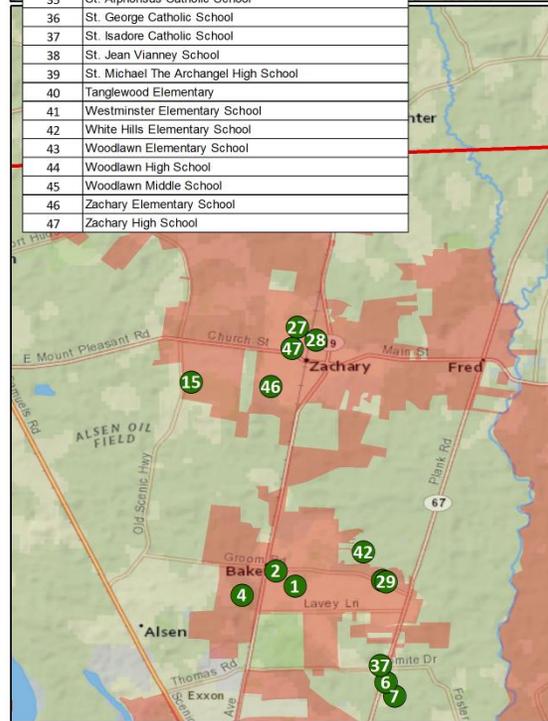
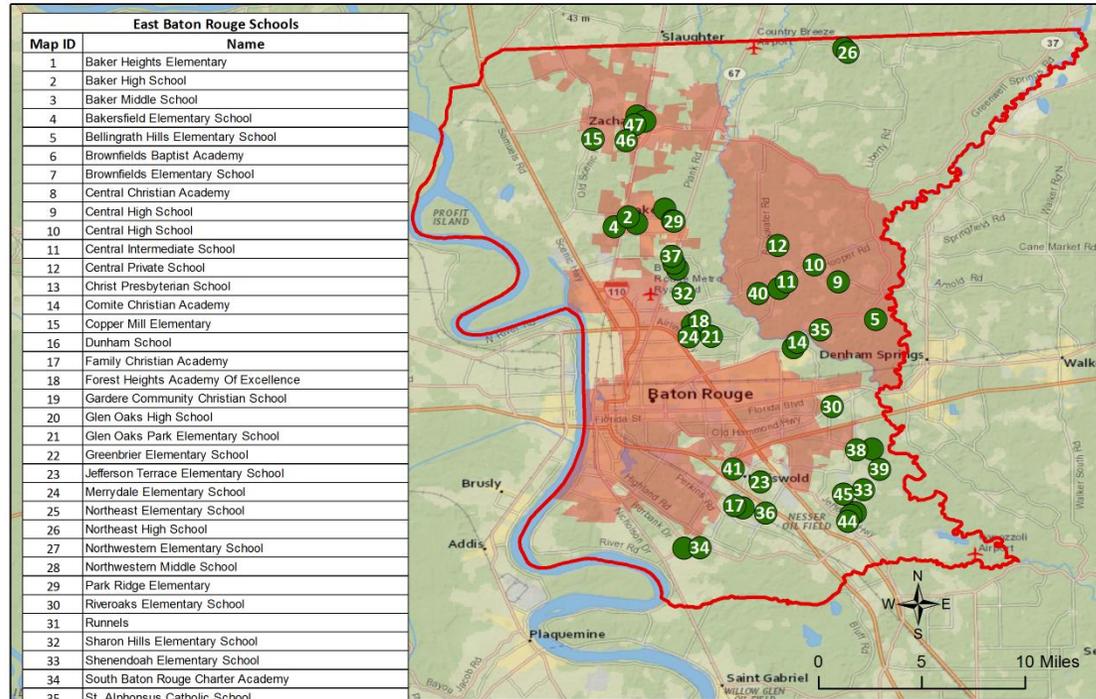
Critical Facilities – Law Enforcement



Critical Facilities – Public Health



Critical Facilities – Schools Outside of Baton Rouge



Drought

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

U.S. Drought Monitor

Louisiana

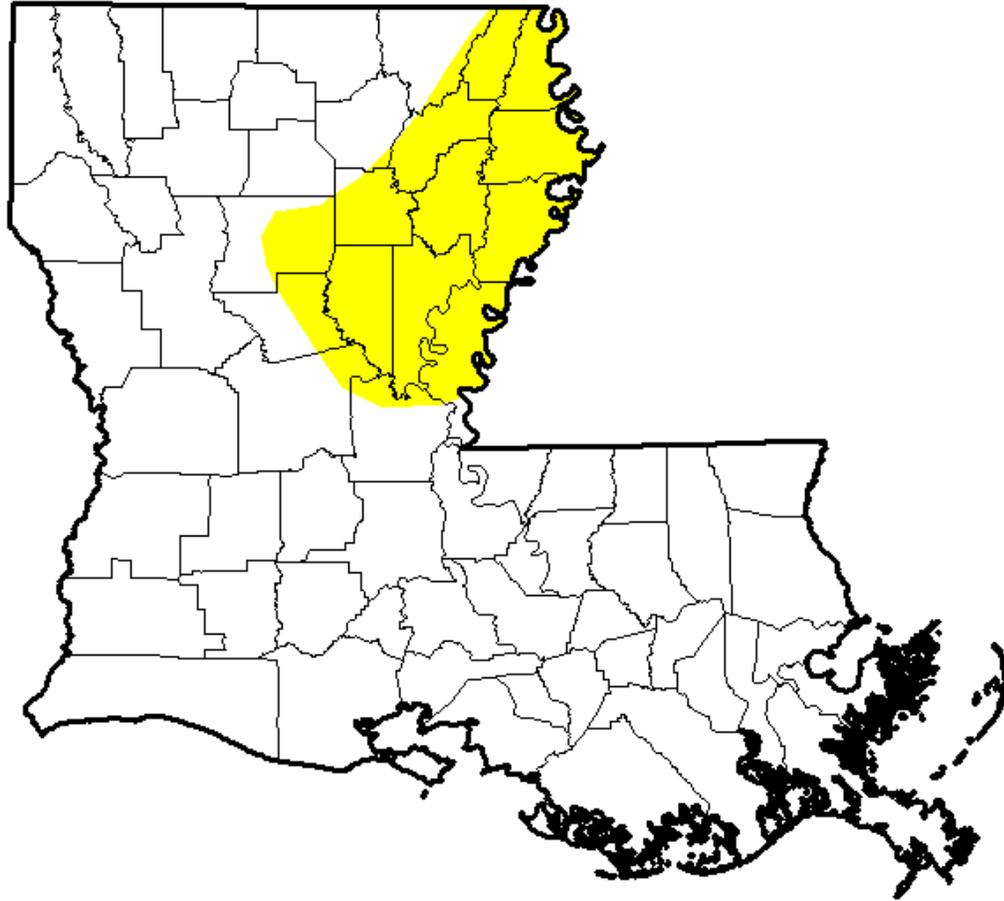
June 7, 2016

(Released Thursday, Jun. 9, 2016)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	84.94	15.06	0.00	0.00	0.00	0.00
Last Week <i>5/31/2016</i>	84.94	15.06	0.00	0.00	0.00	0.00
3 Months Ago <i>3/8/2016</i>	33.14	66.86	0.00	0.00	0.00	0.00
Start of Calendar Year <i>1/22/2015</i>	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year <i>9/29/2015</i>	6.86	93.14	71.14	45.44	15.22	0.00
One Year Ago <i>6/9/2015</i>	100.00	0.00	0.00	0.00	0.00	0.00



Intensity:



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

Author:

*Deborah Bathke
National Drought Mitigation Center*



Flooding

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

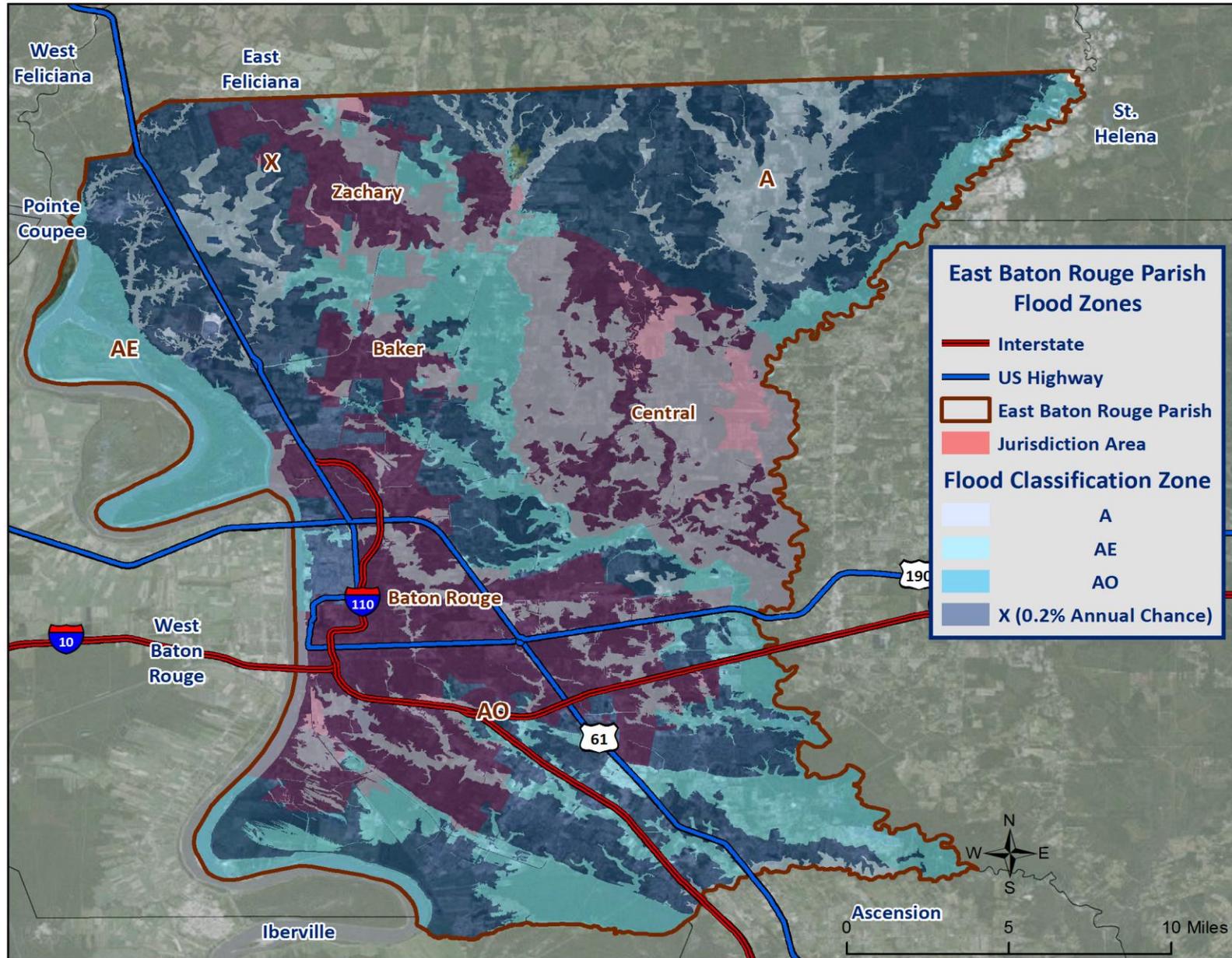
Flooding

Types of flooding may include the following:

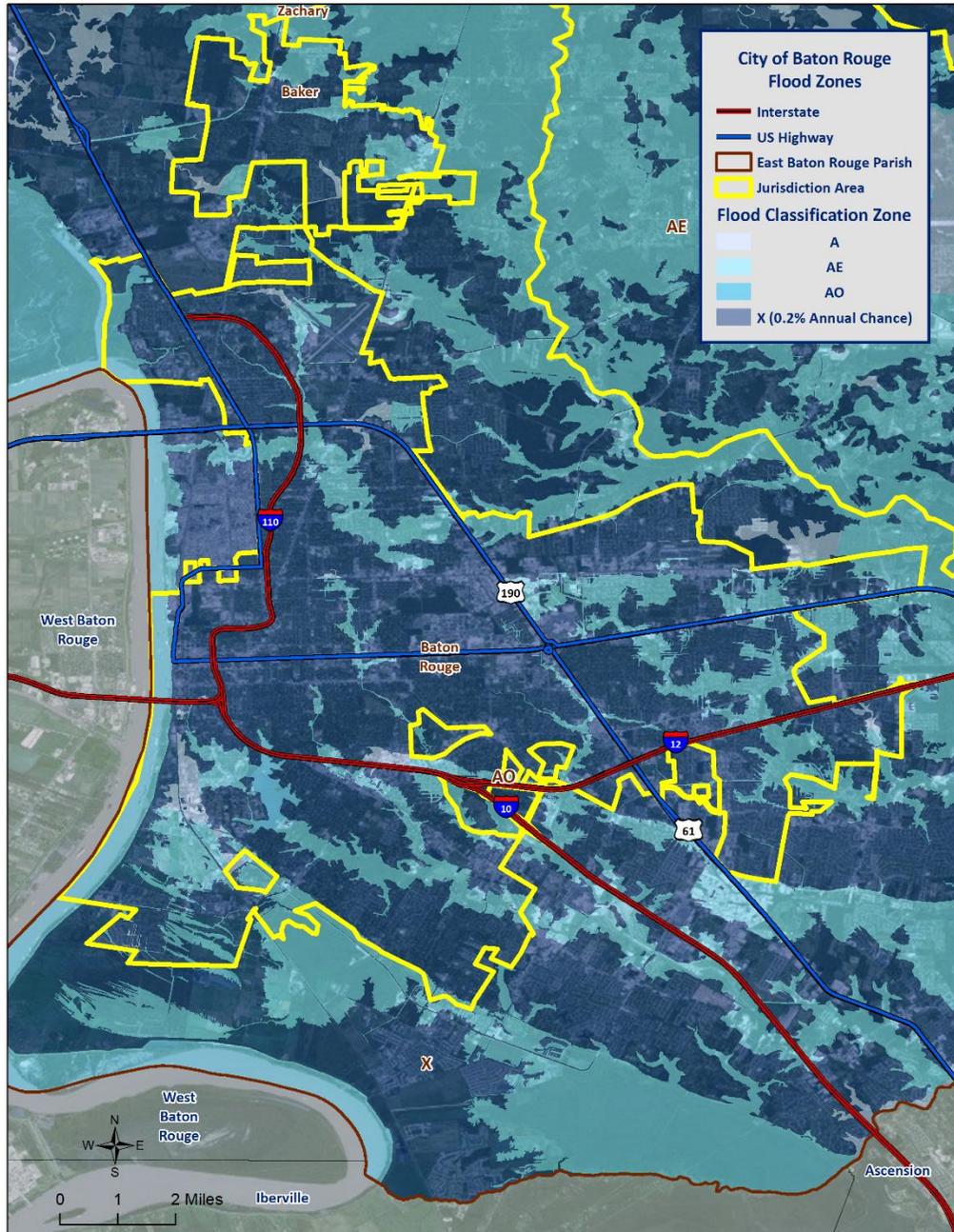
- Riverine
- Flash
- Ponding
- Backwater
- Urban
- Coastal



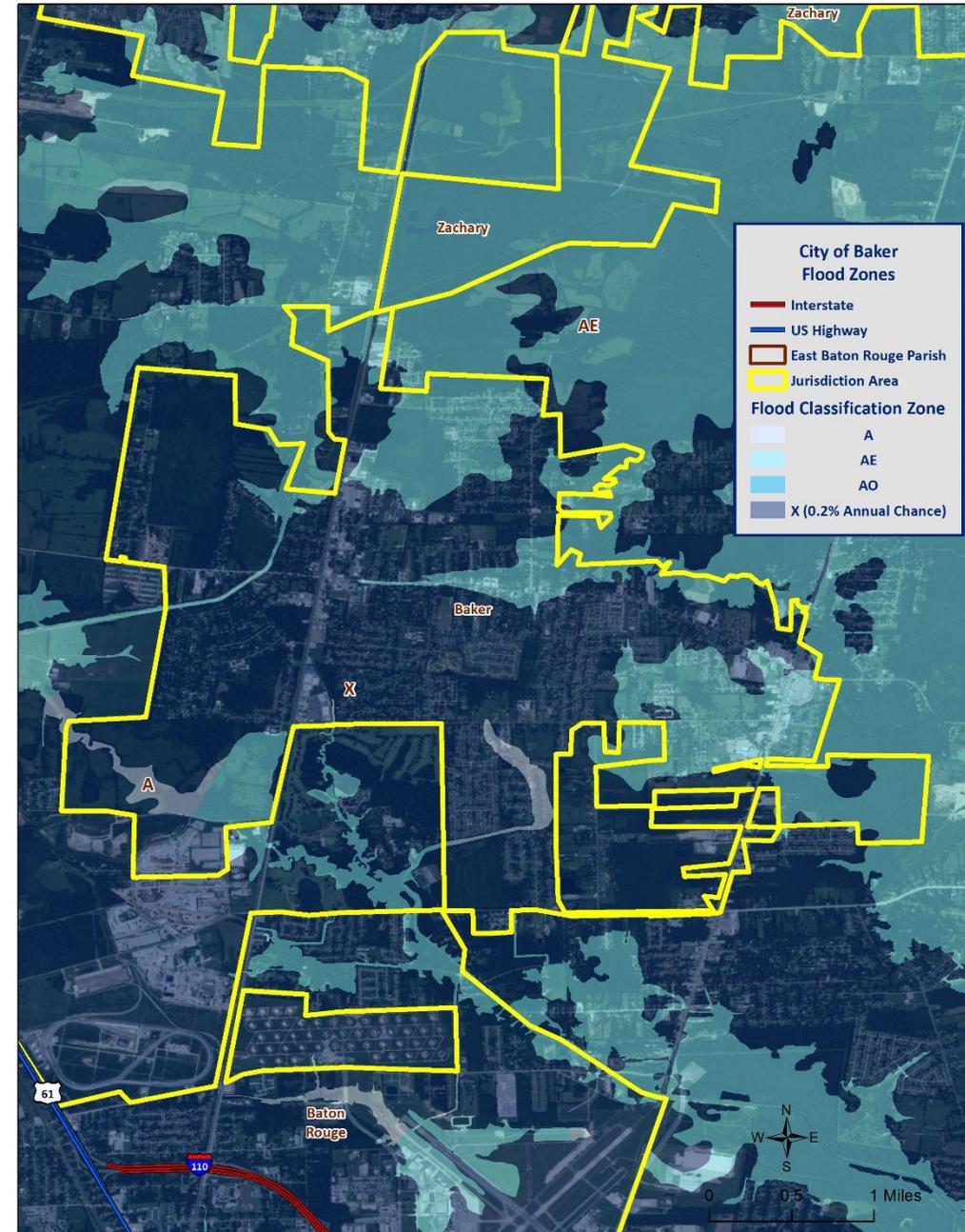
Flood Zone Classifications – Parish/Jurisdictions



Flood Zone Classifications

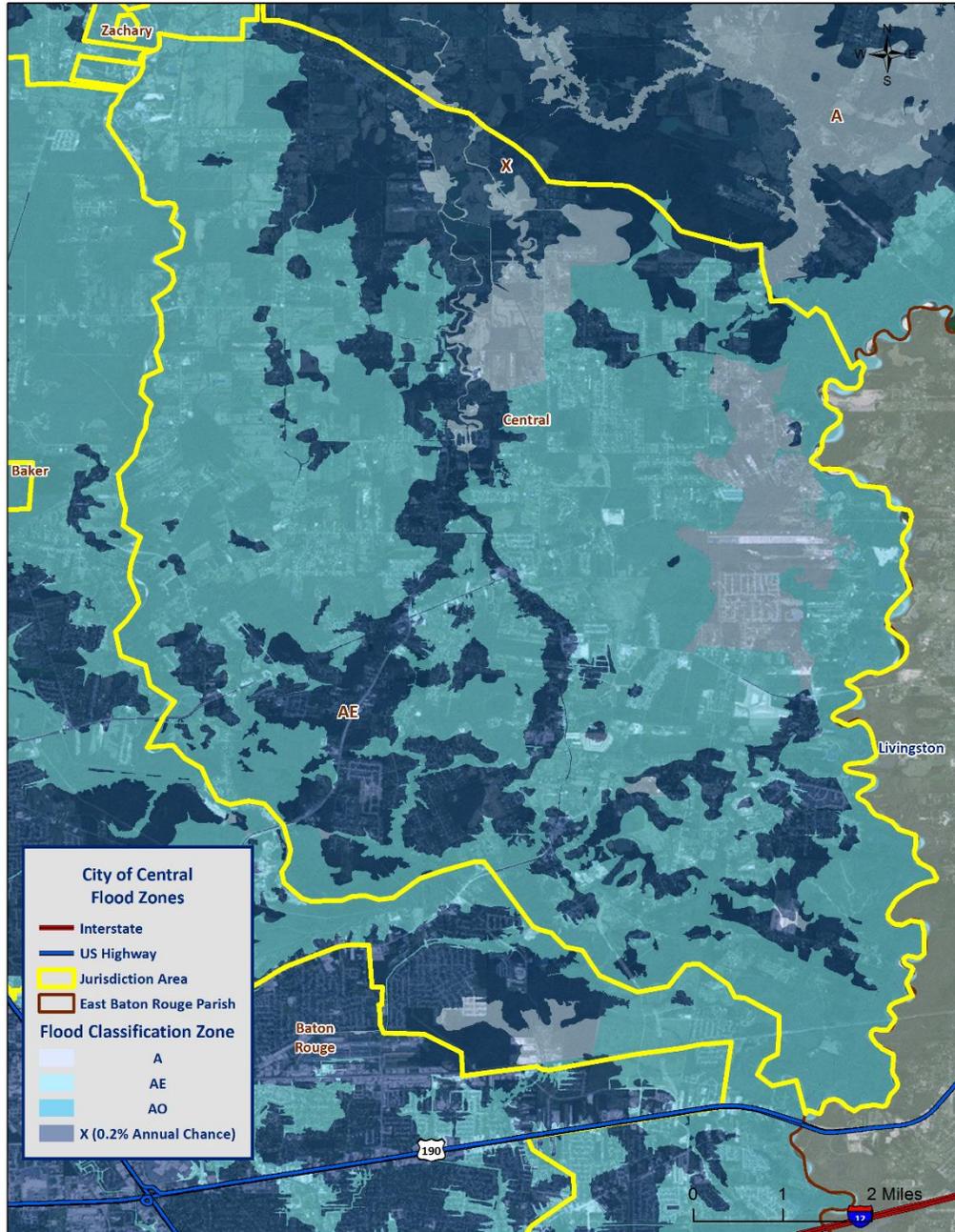


City of Baton Rouge

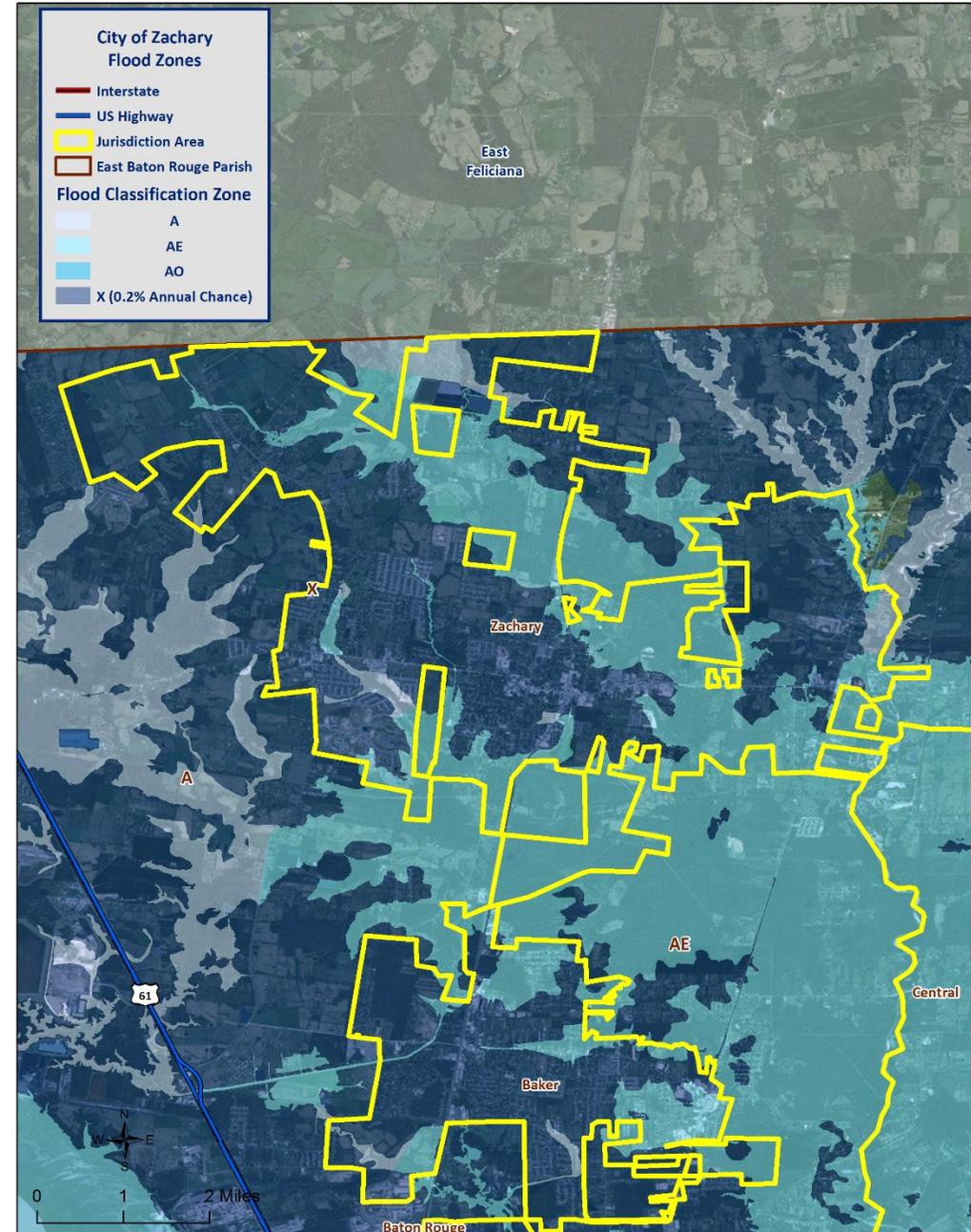


City of Baker

Flood Zone Classifications

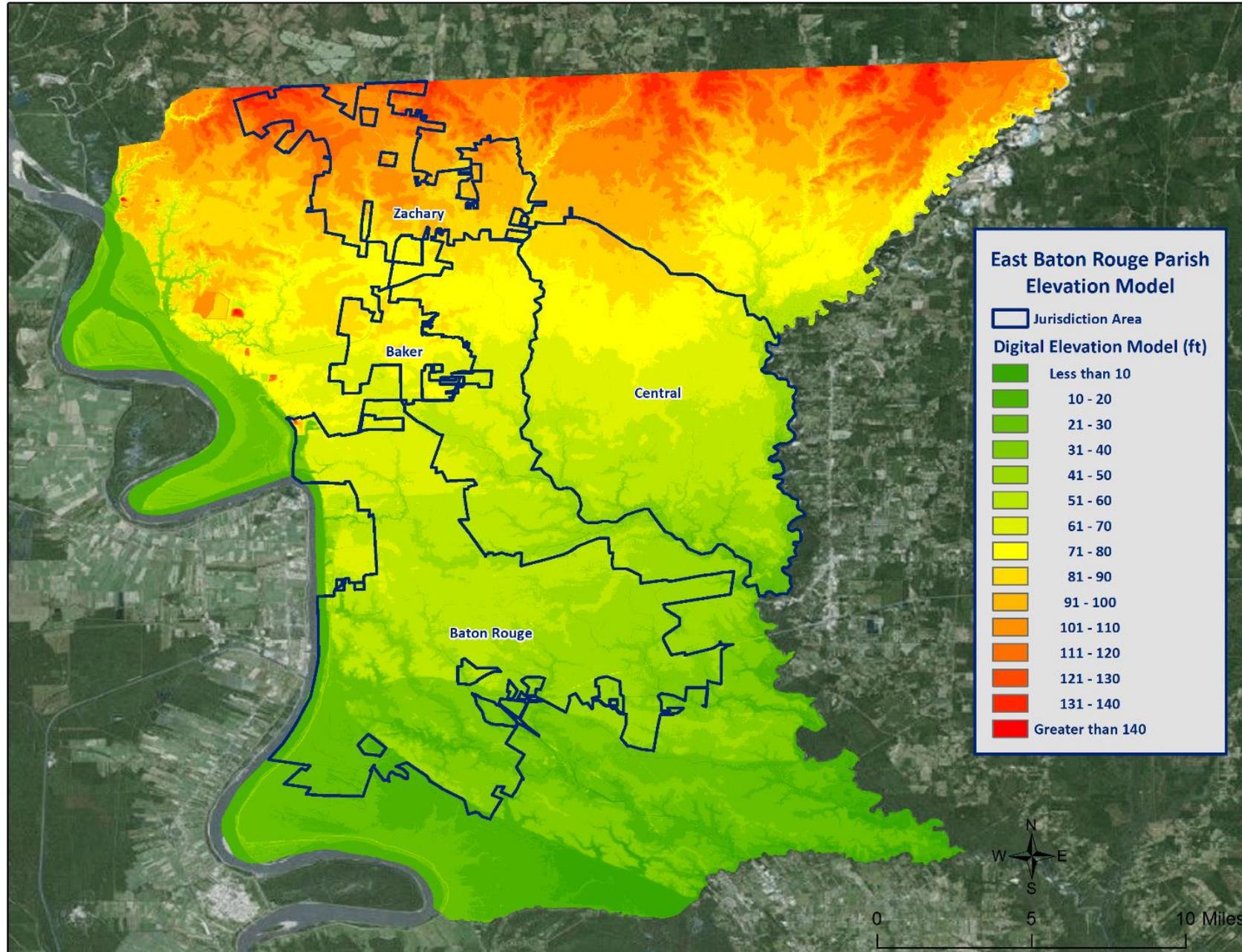


City of Central



City of Zachary

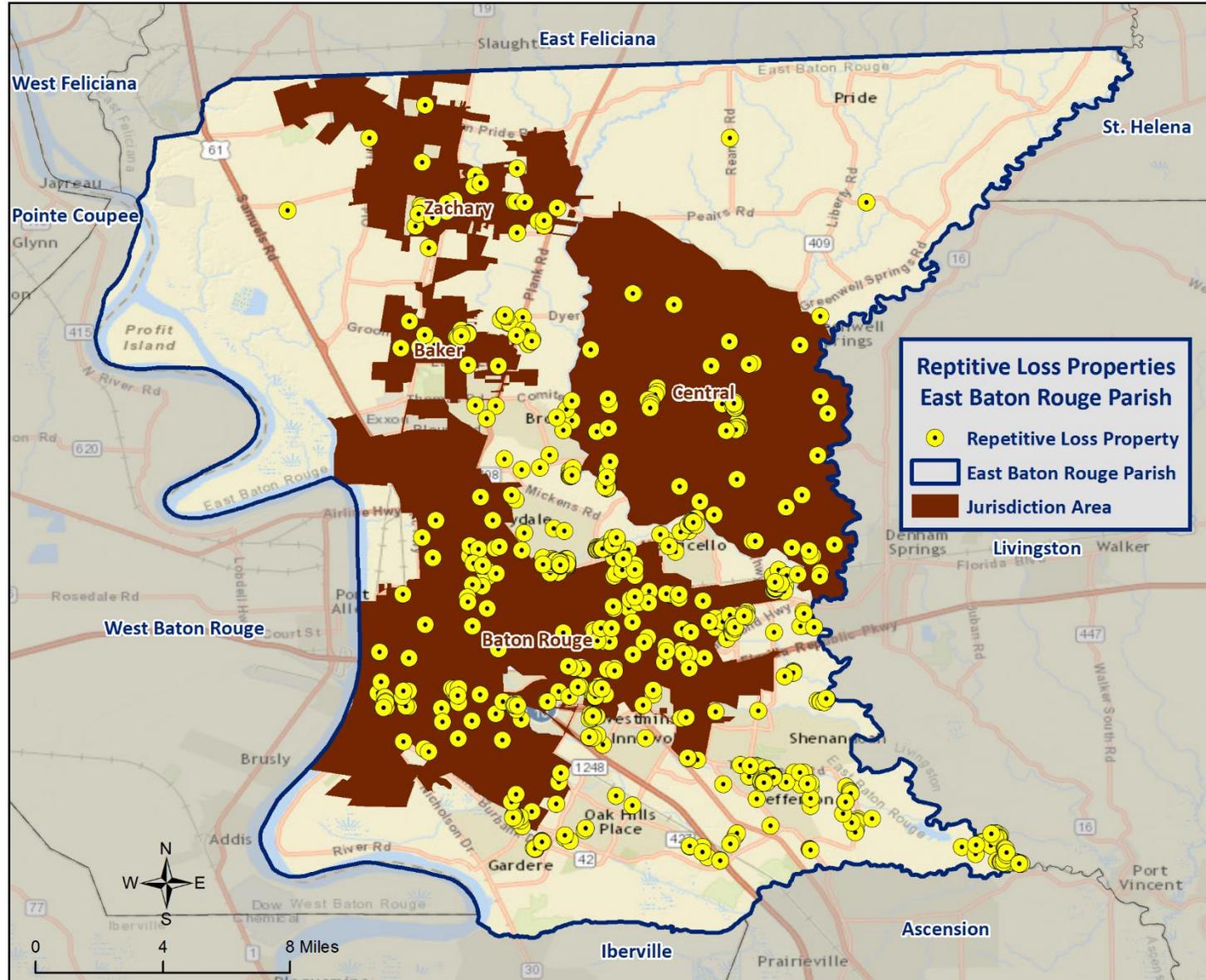
Flooding Elevation Model



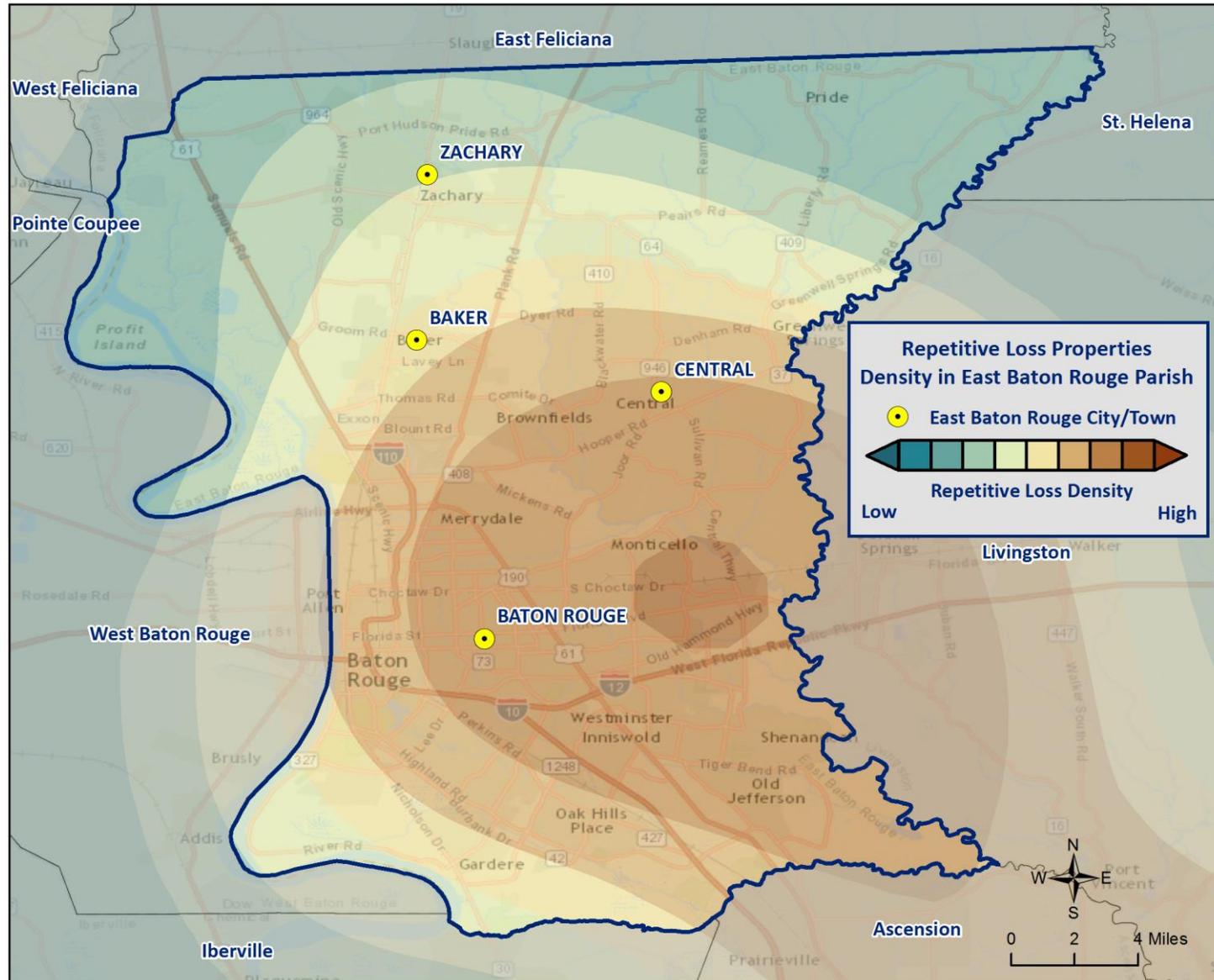
Repetitive Flooding

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

Repetitive Loss Properties



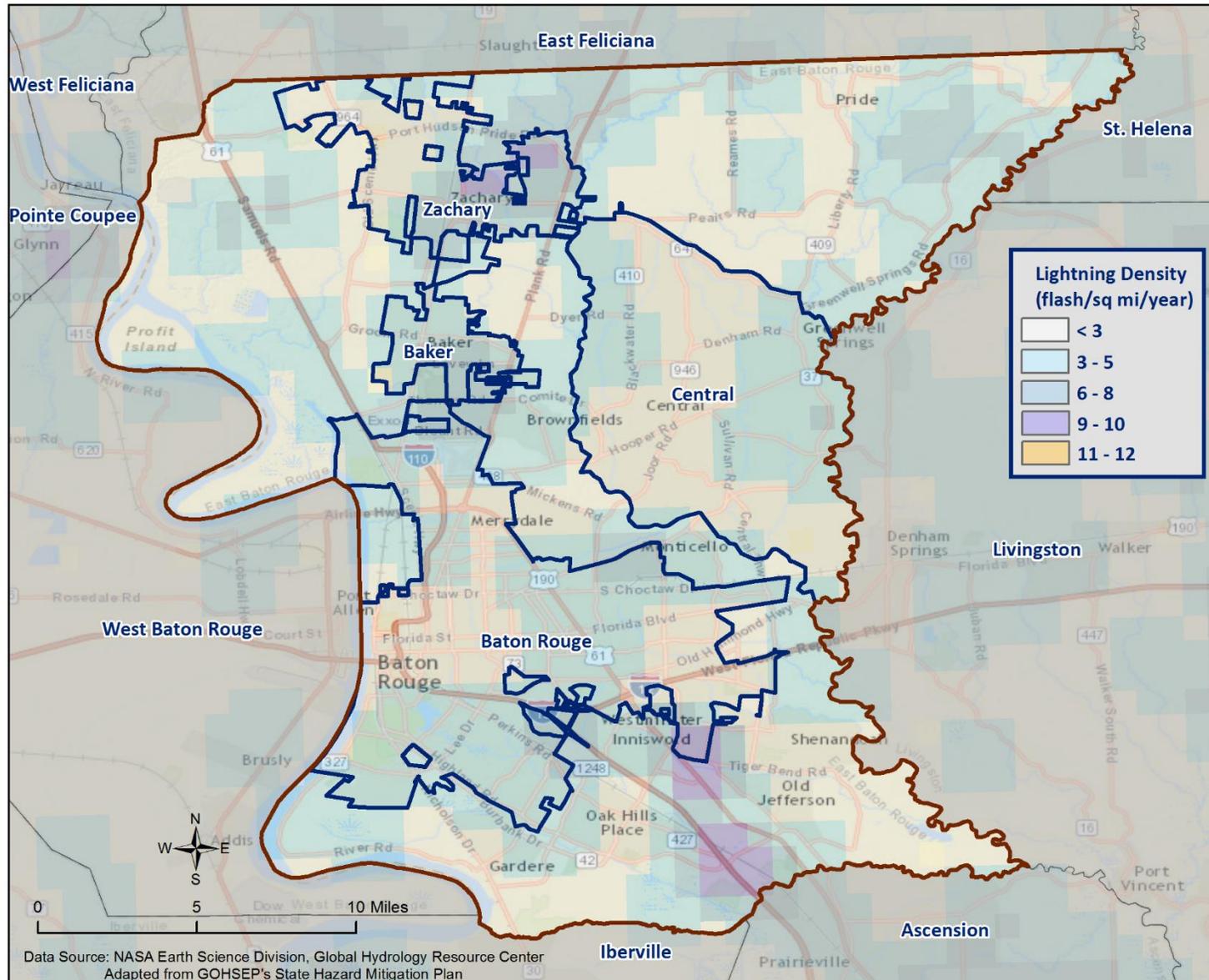
Repetitive Loss Properties Density Model



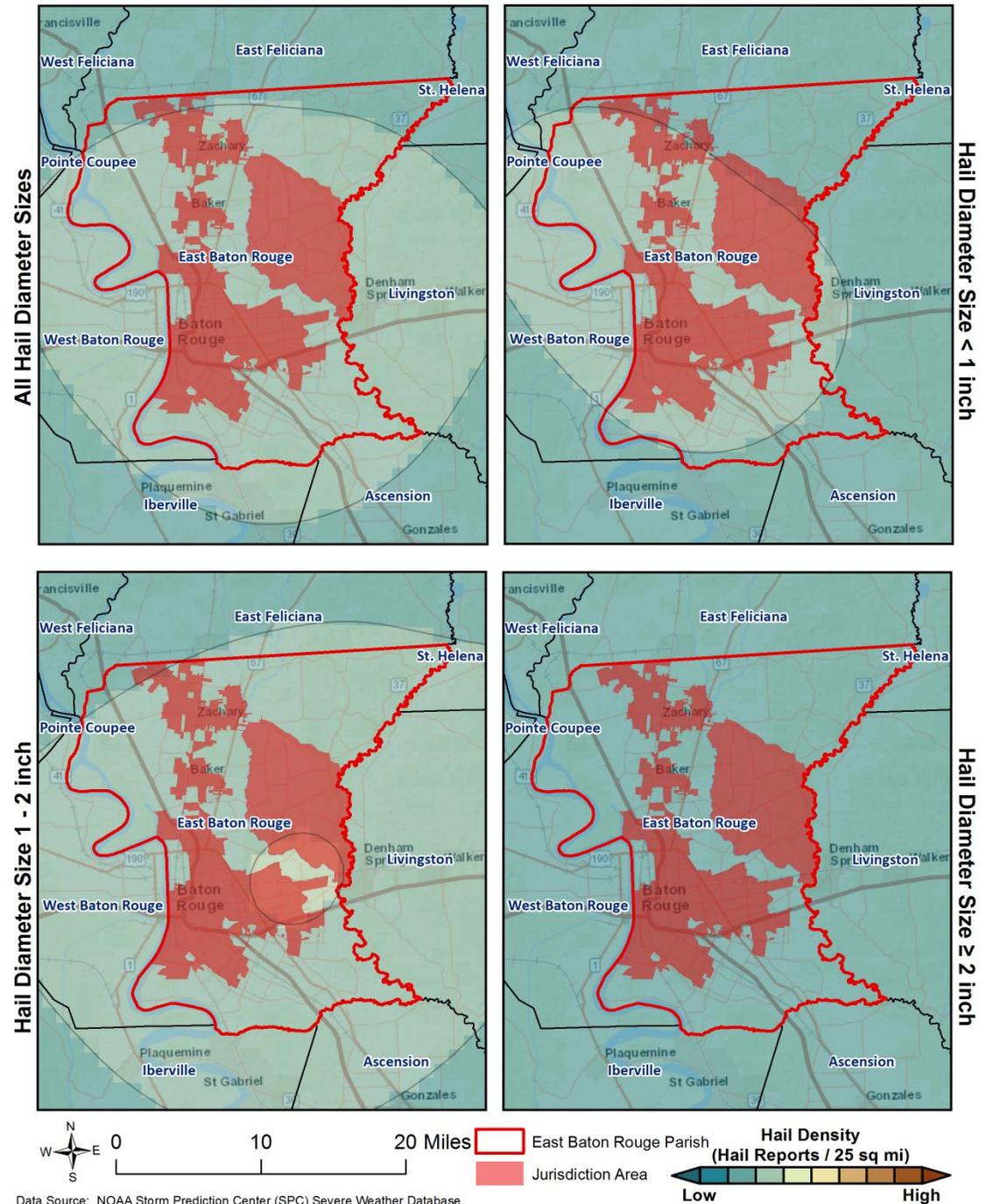
Thunderstorms – Lightning/High Wind/Hail

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

Lightning Density Model



Hail Density Models



Data Source: NOAA Storm Prediction Center (SPC) Severe Weather Database
Adapted from GOHSEP's State Hazard Mitigation Plan

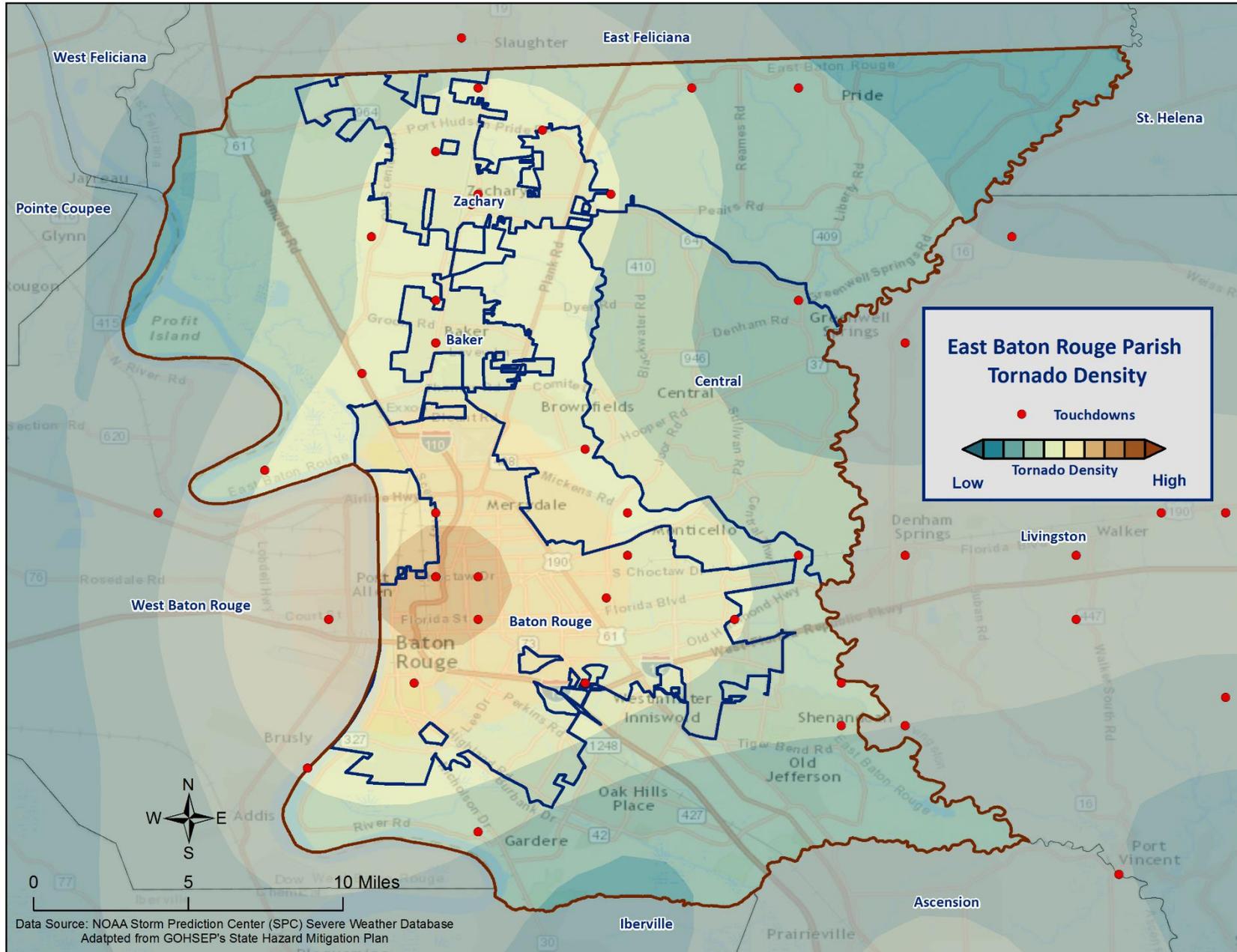
Tornadoes

- 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.

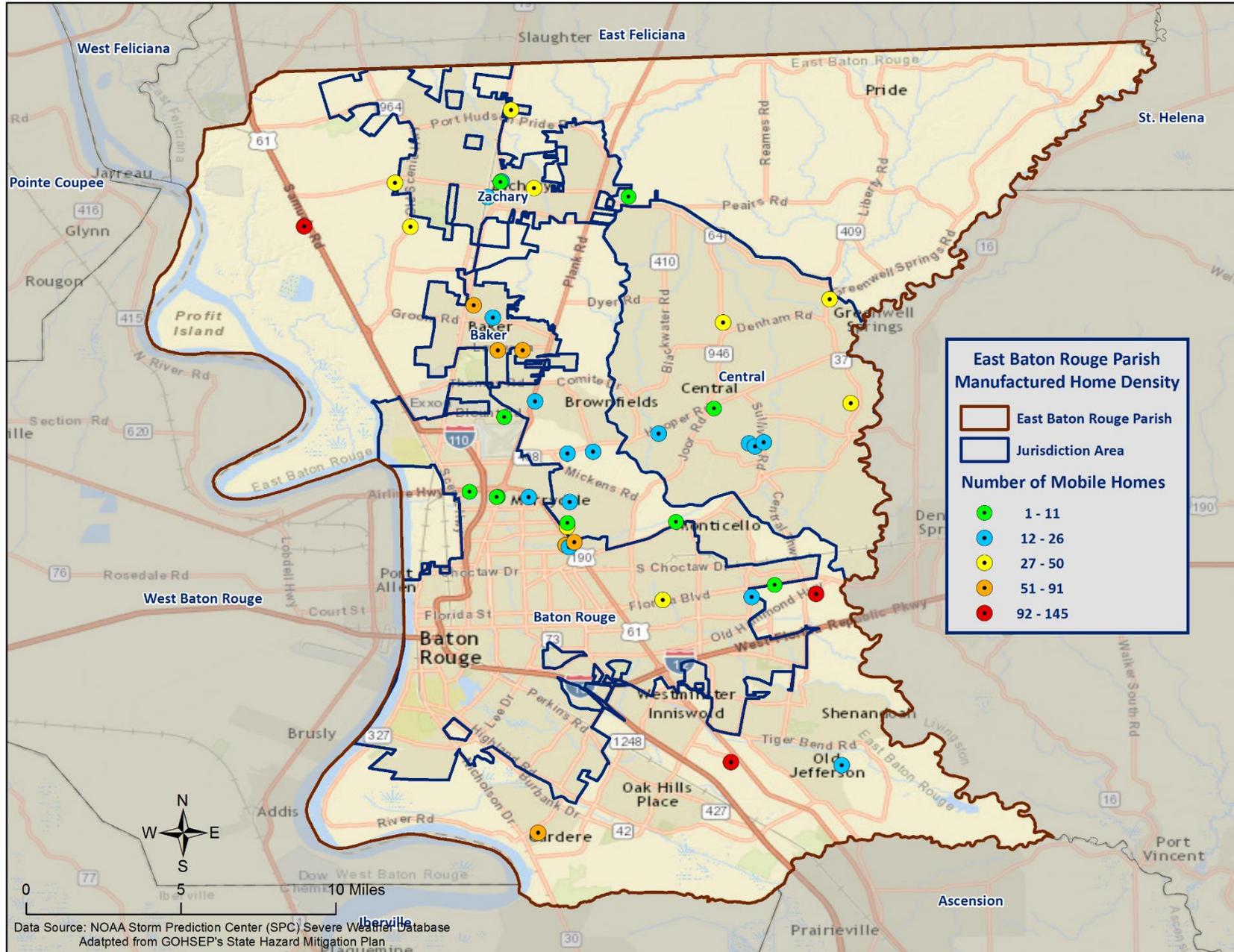


ORIGINAL FUJITA SCALE		ENHANCED FUJITA SCALE	
F5	261-318 mph	EF5	+200 mph
F4	207-260 mph	EF4	166-200 mph
F3	158-206 mph	EF3	136-165 mph
F2	113-157 mph	EF2	111-135 mph
F1	73-112 mph	EF1	86-110 mph
F0	<73 mph	EF0	65-85 mph

Tornado Density



Manufactured Home Density



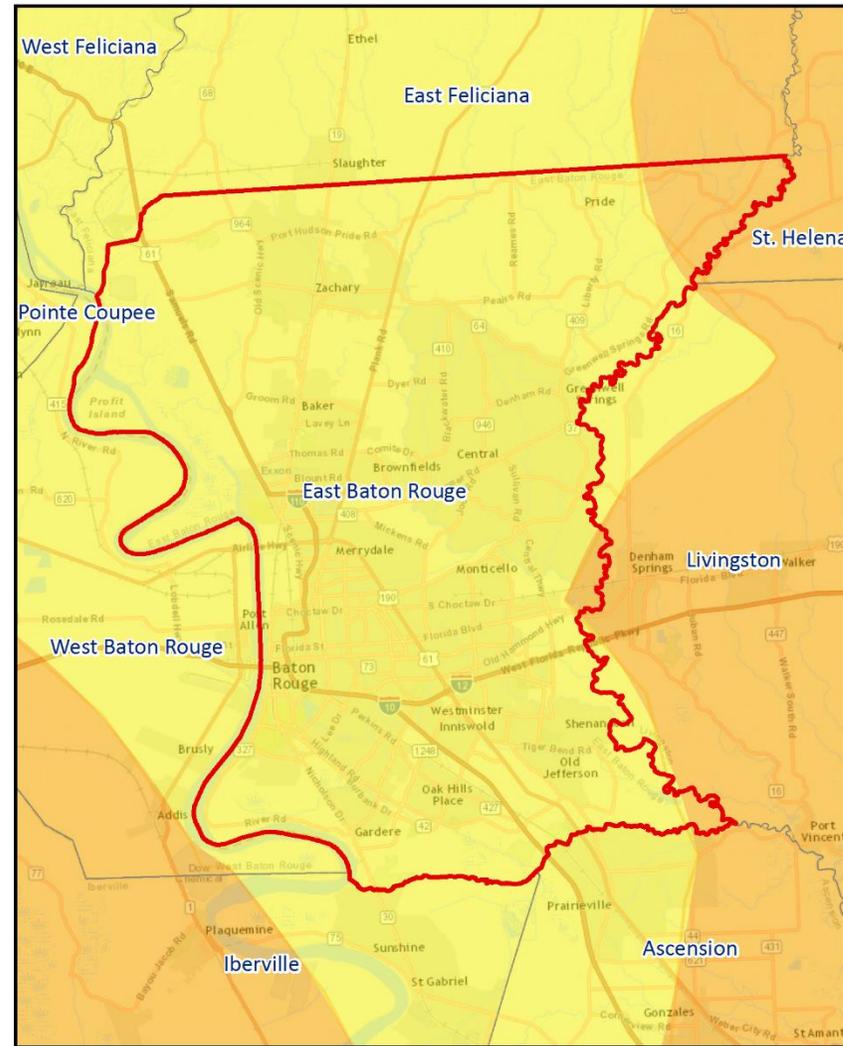
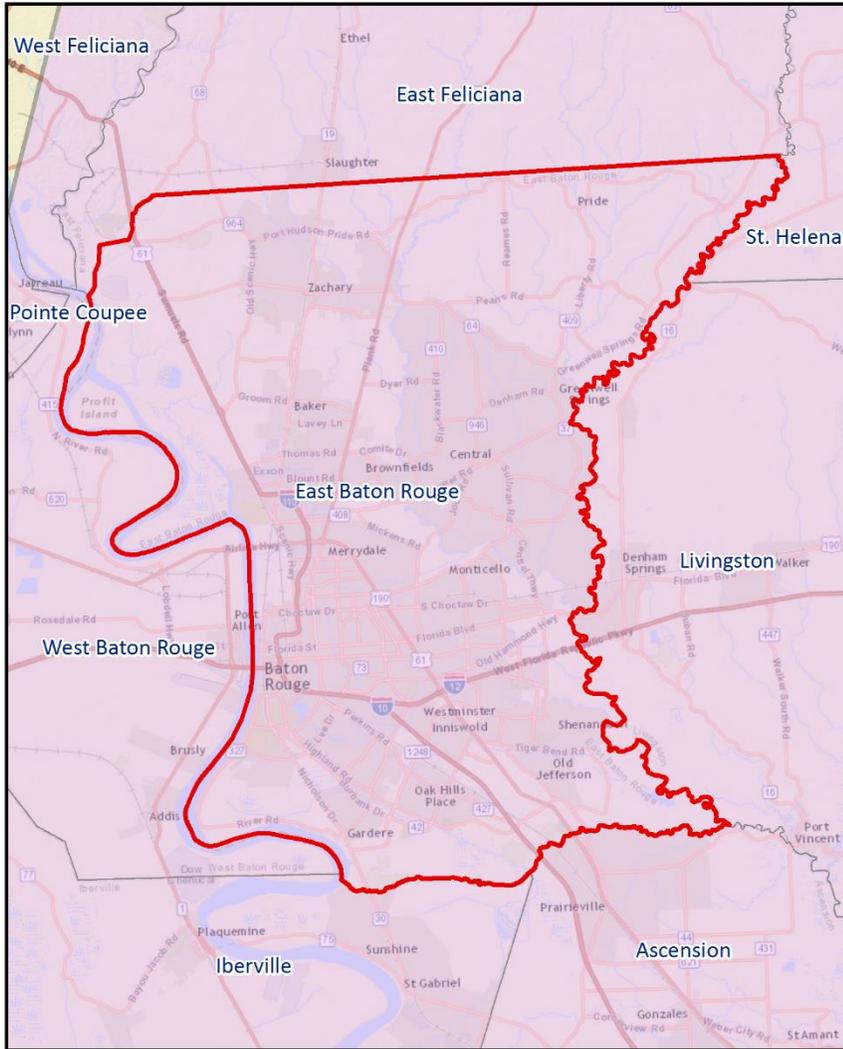
Tropical Cyclones

- 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

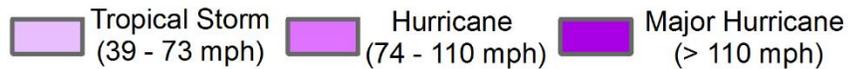
Saffir-Simpson Hurricane Wind Scale		
	Sustained Wind Speed	Effects
Category 1	74-95 mph (119-153 km/hr)	Very dangerous winds will produce some damage. Low-lying coastal roads flooded, minor pier damage
Category 2	96-110 mph (154-177 km/hr)	Extremely dangerous winds will cause extensive damage. Major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



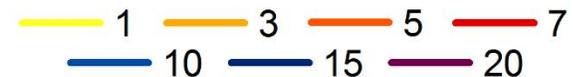
Hurricane Katrina (2005)



Wind Speed (Saffir-Simpson Scale)

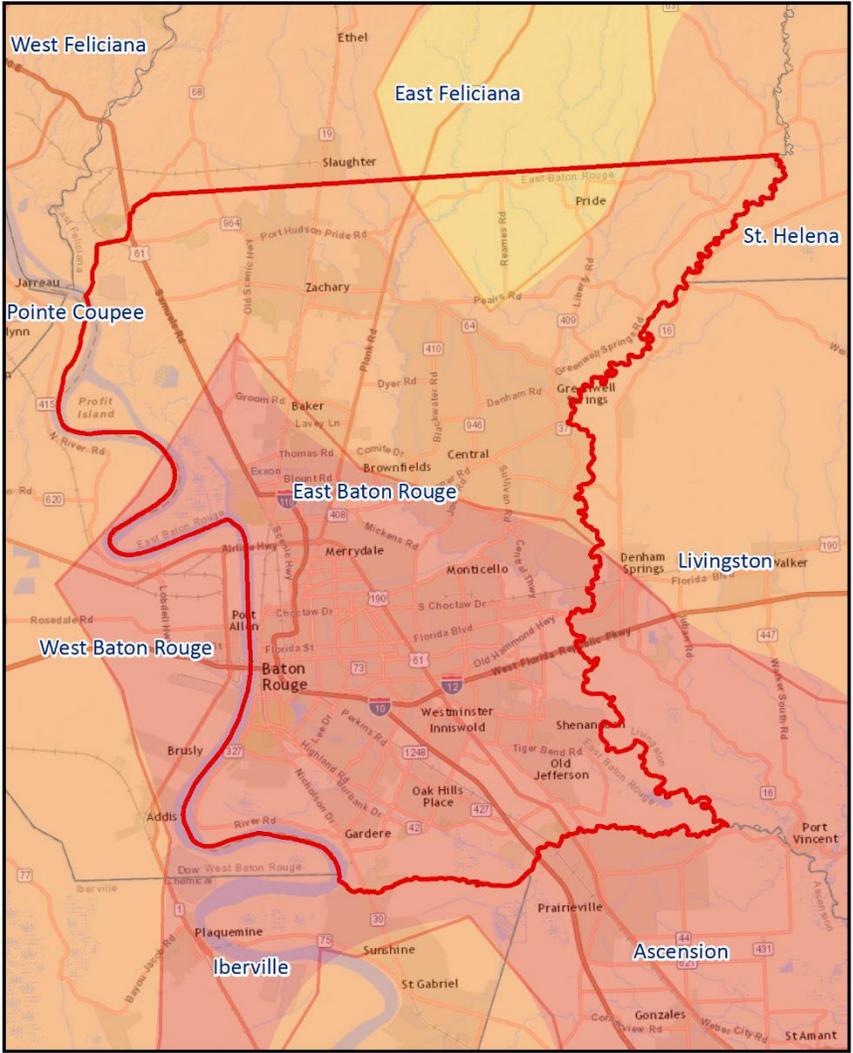
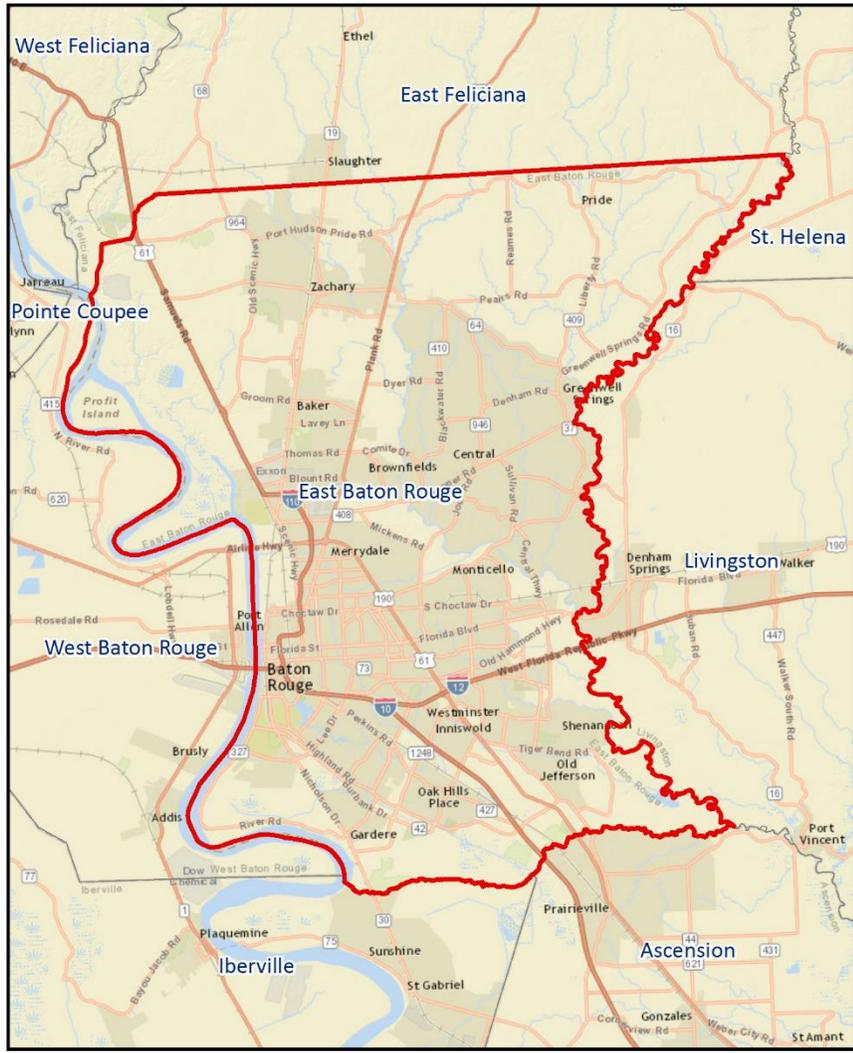


Total Precipitation (inches)



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

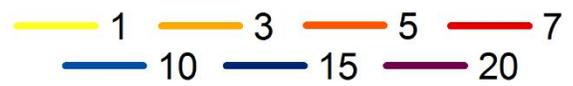
Hurricane Rita (2005)



Wind Speed (Saffir-Simpson Scale)

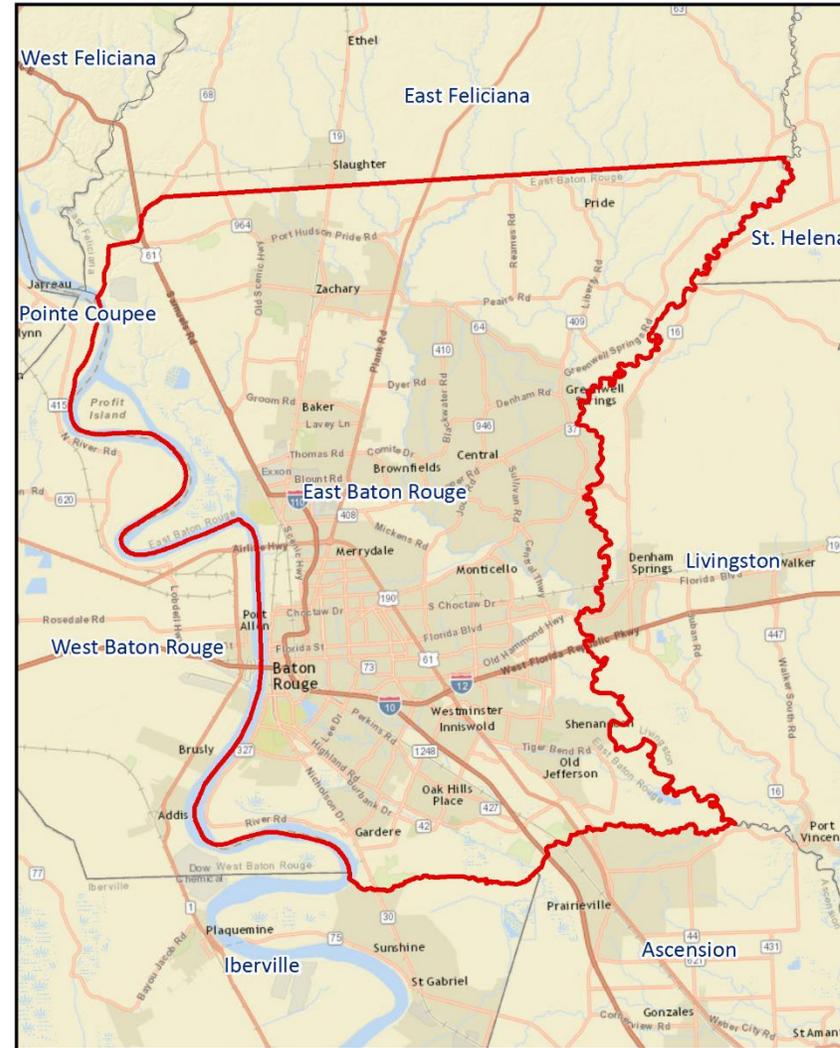
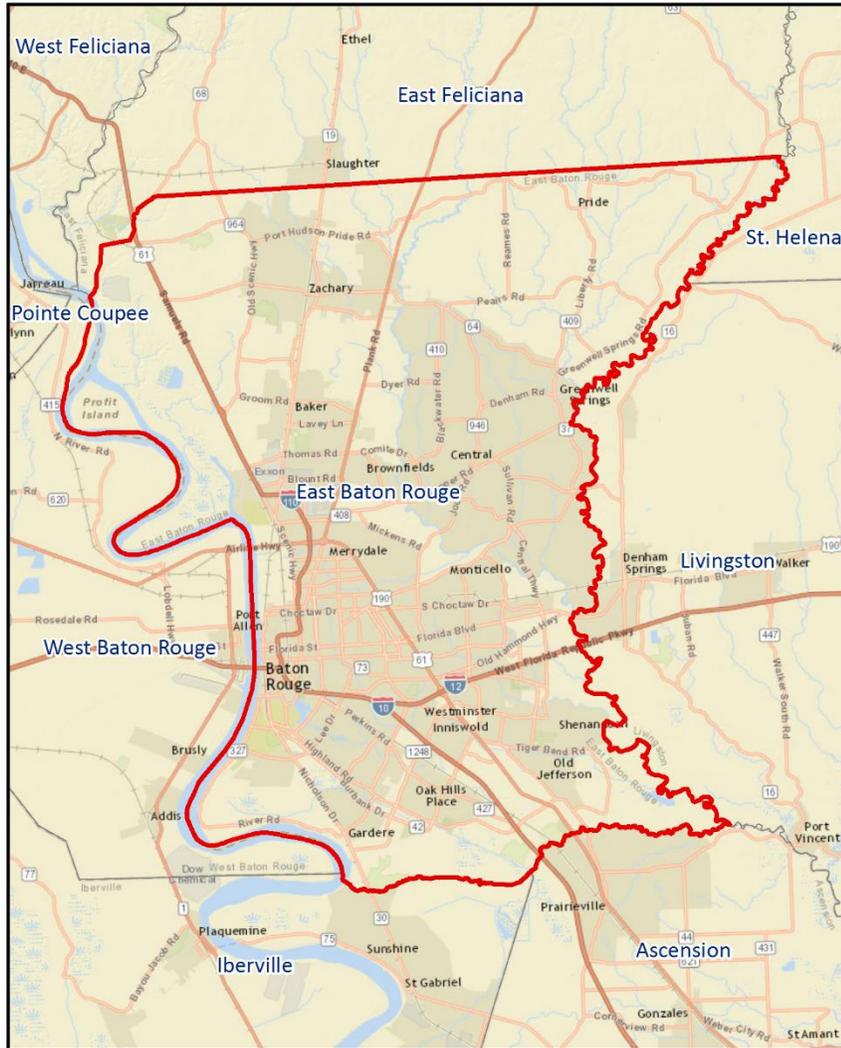


Total Precipitation (inches)

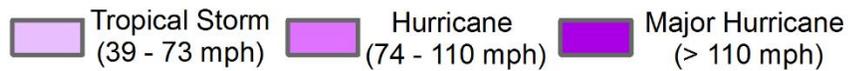


Data Source: NOAA Hurricane Research Division (HRD)
Adapted from GOHSEP's State Hazard Mitigation Plan

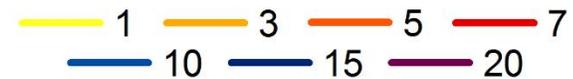
Hurricane Ike (2008)



Wind Speed (Saffir-Simpson Scale)

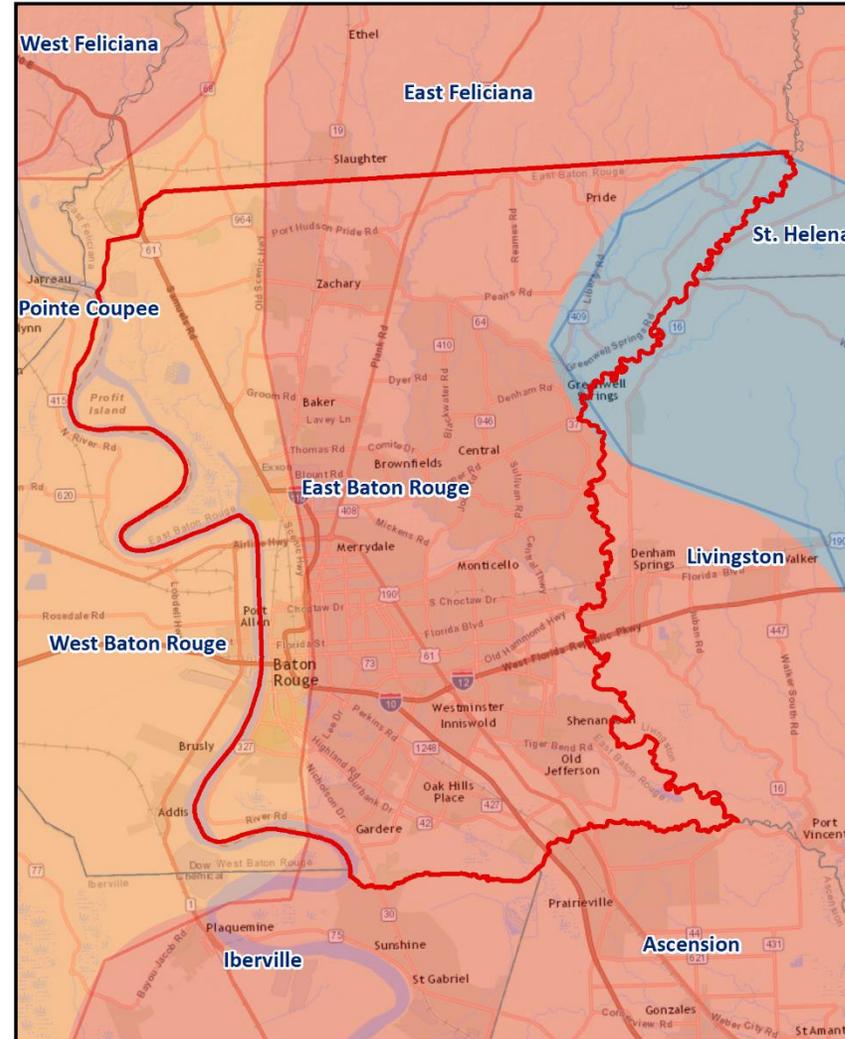
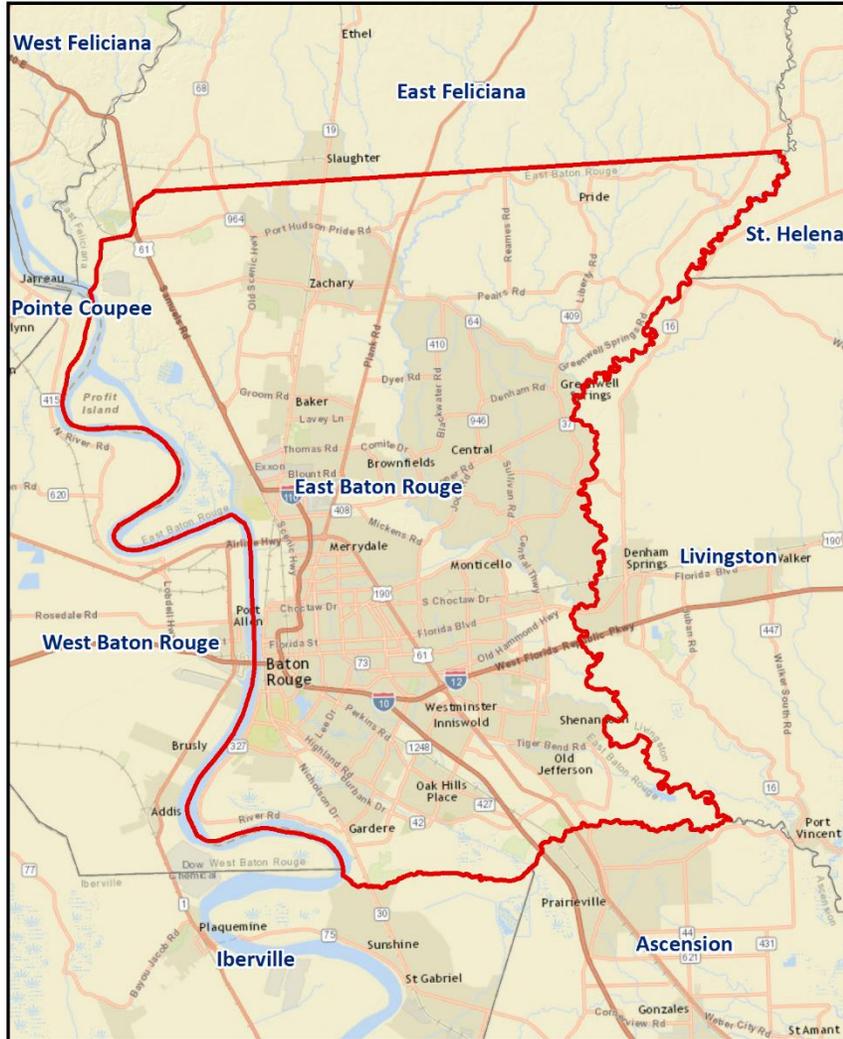


Total Precipitation (inches)

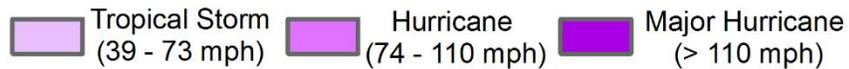


Data Source: NOAA Hurricane Research Division (HRD)
Adapted from GOHSEP's State Hazard Mitigation Plan

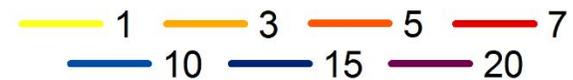
Tropical Storm Lee (2011)



Wind Speed (Saffir-Simpson Scale)

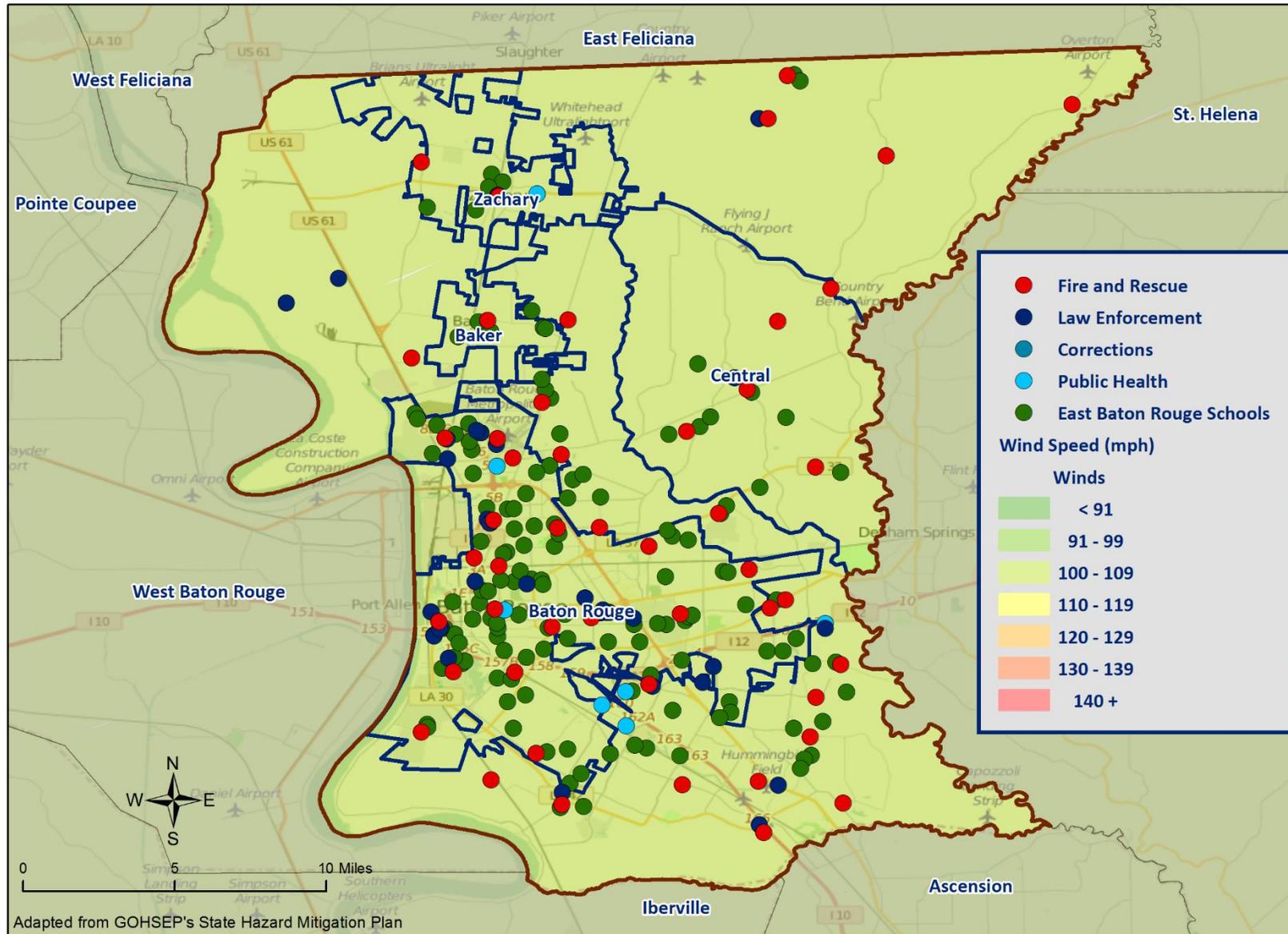


Total Precipitation (inches)



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

Critical Facilities – Wind Speeds



Wildfires

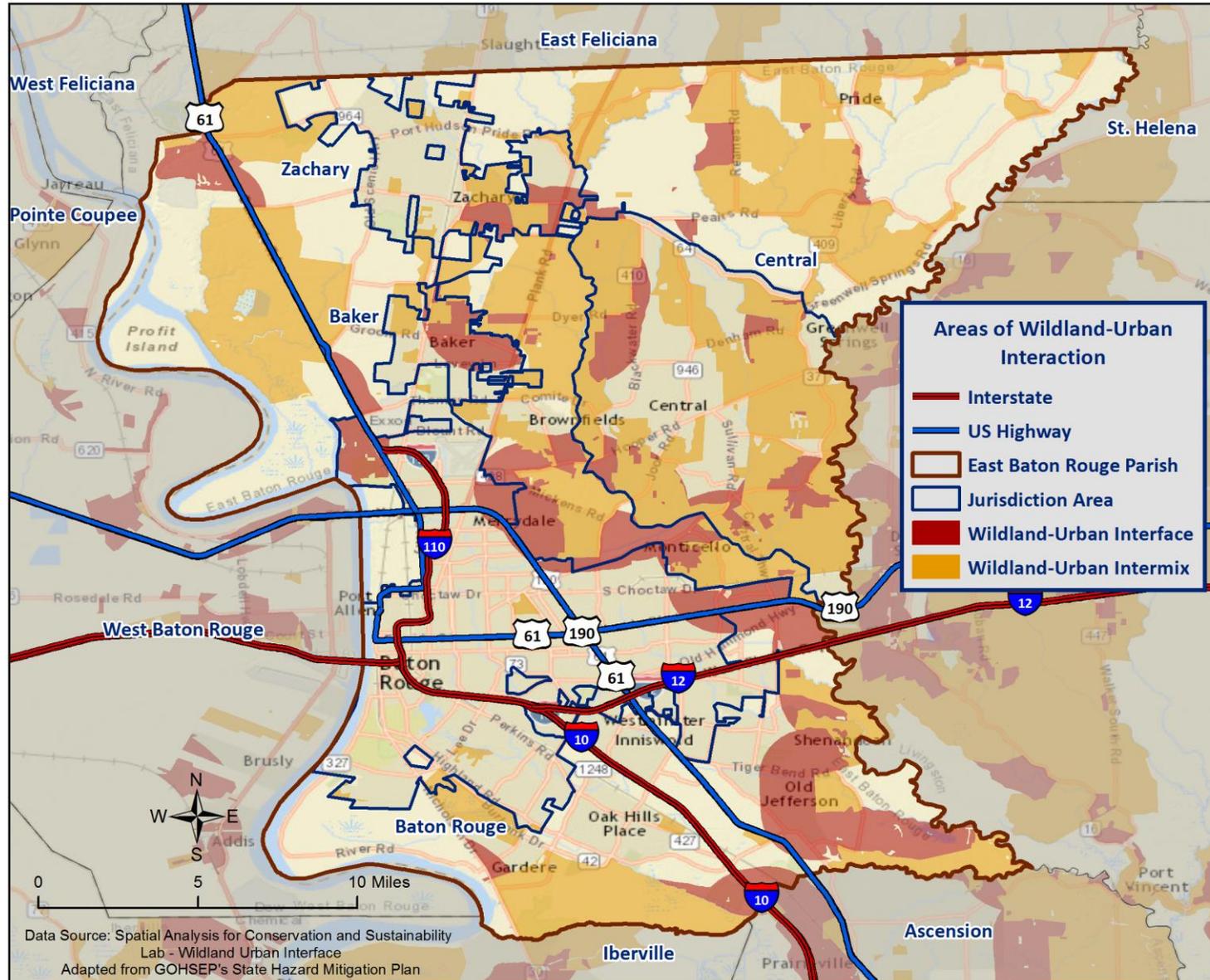
- Wildfires are fueled by naturally occurring or non-native species of trees, brush, and grasses.
- Topography, fuel, and weather are the three principal factors that impact wildfire hazards and behavior.
- There are four categories of wildfires; wildland fires, interface or intermixed fires, firestorms,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



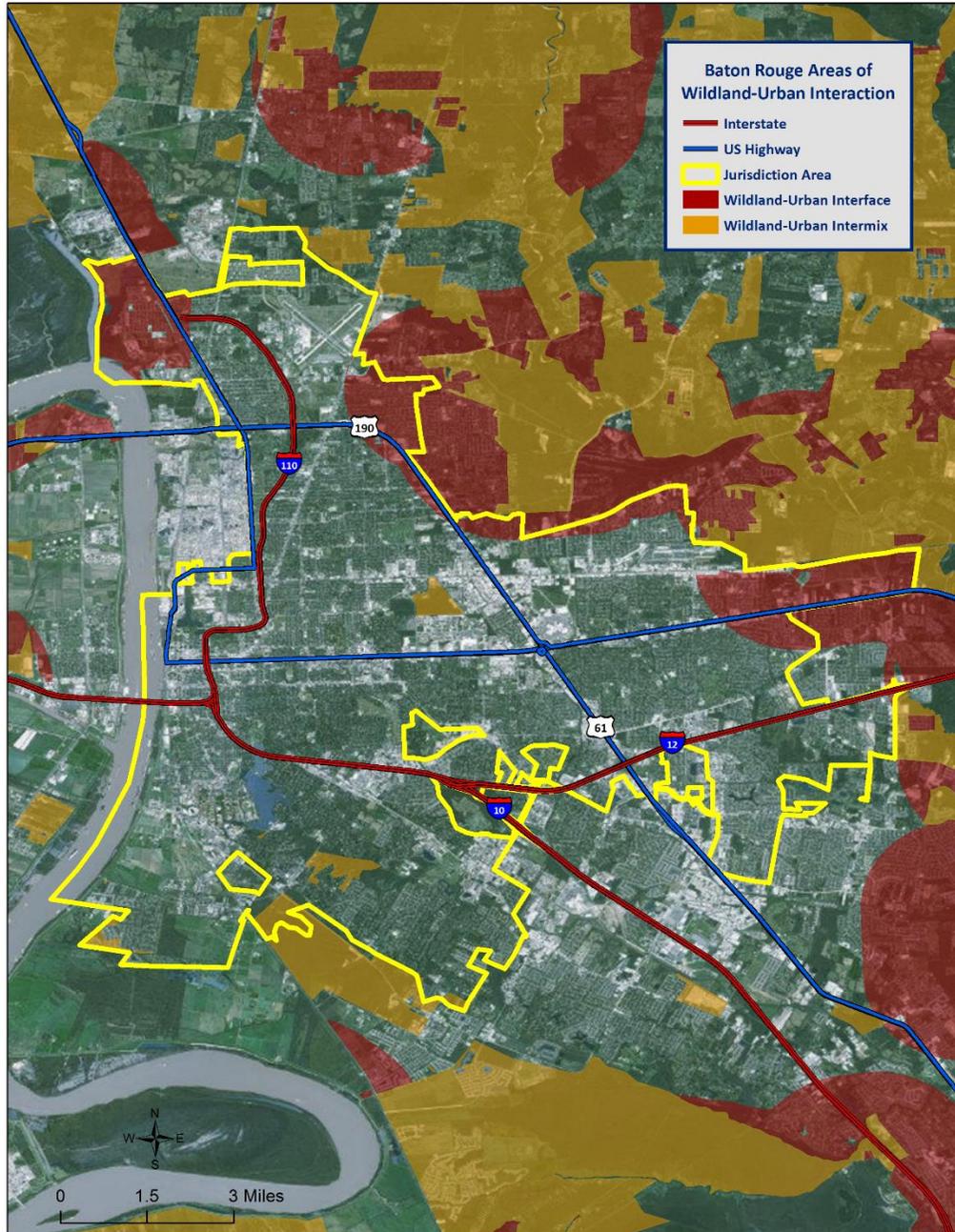
*Haze in Baton Rouge from
2013 Tangipahoa/St
Tammany Wildfires*



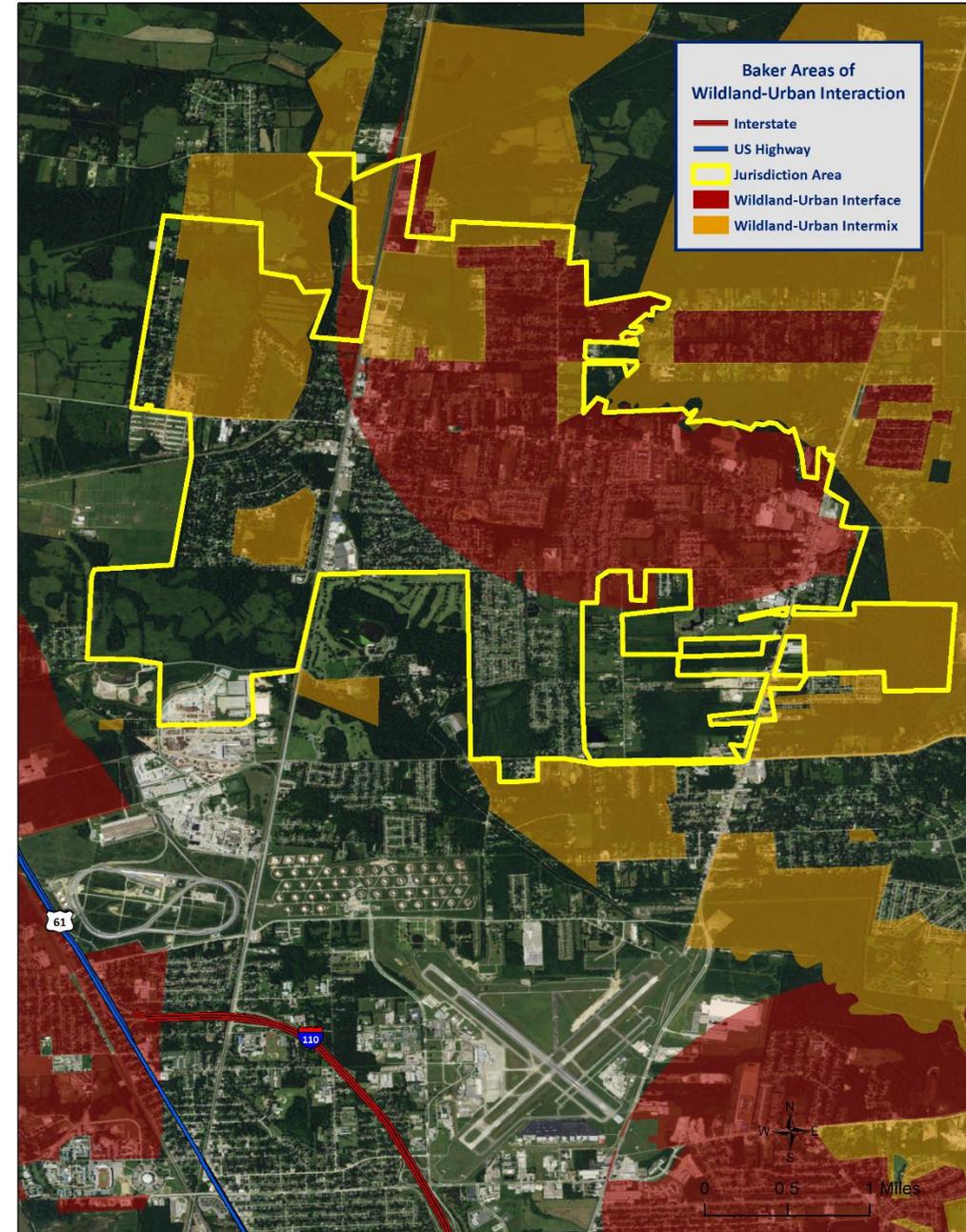
Areas of Wildland – Urban Interaction



Areas of Wildland – Urban Interaction

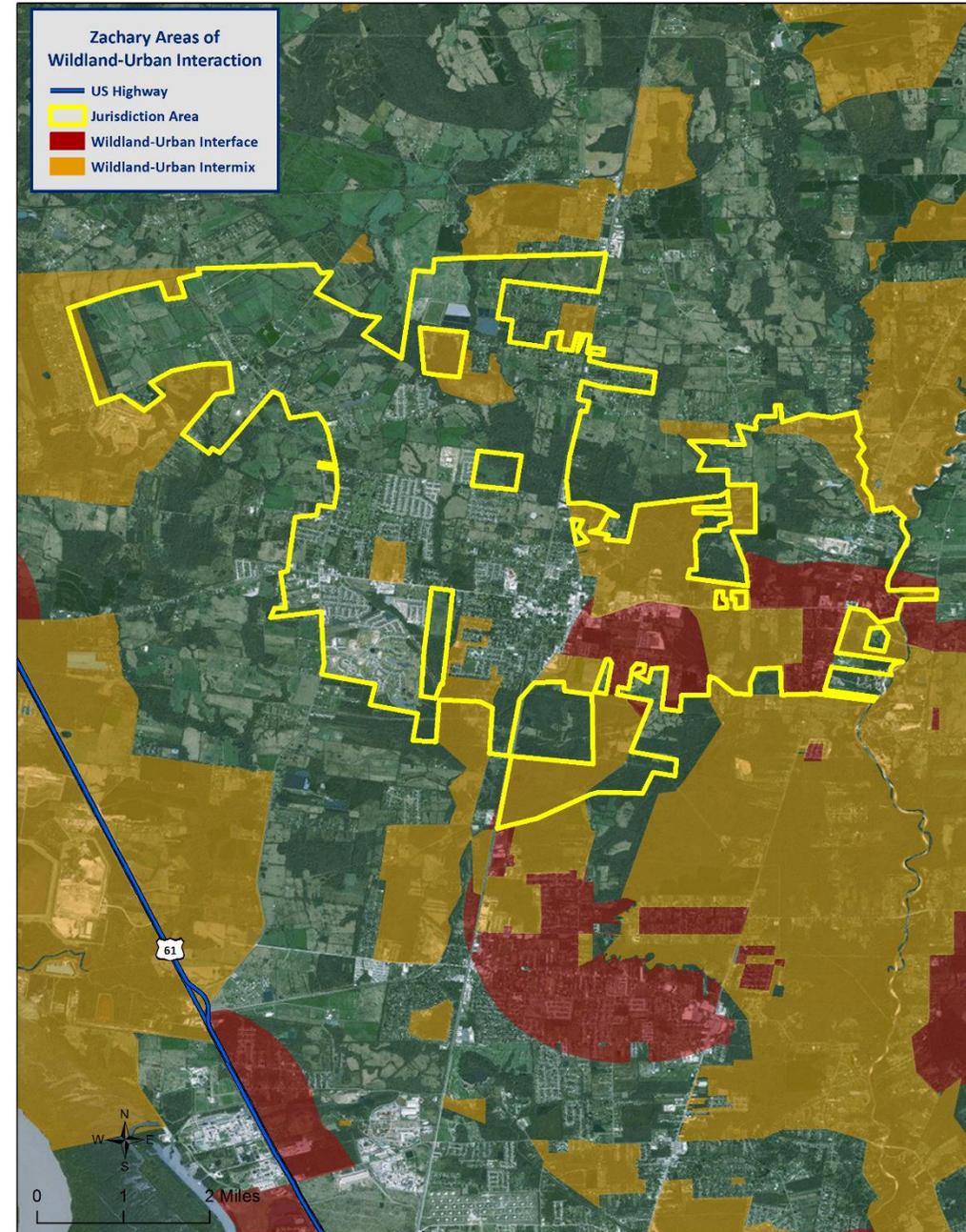
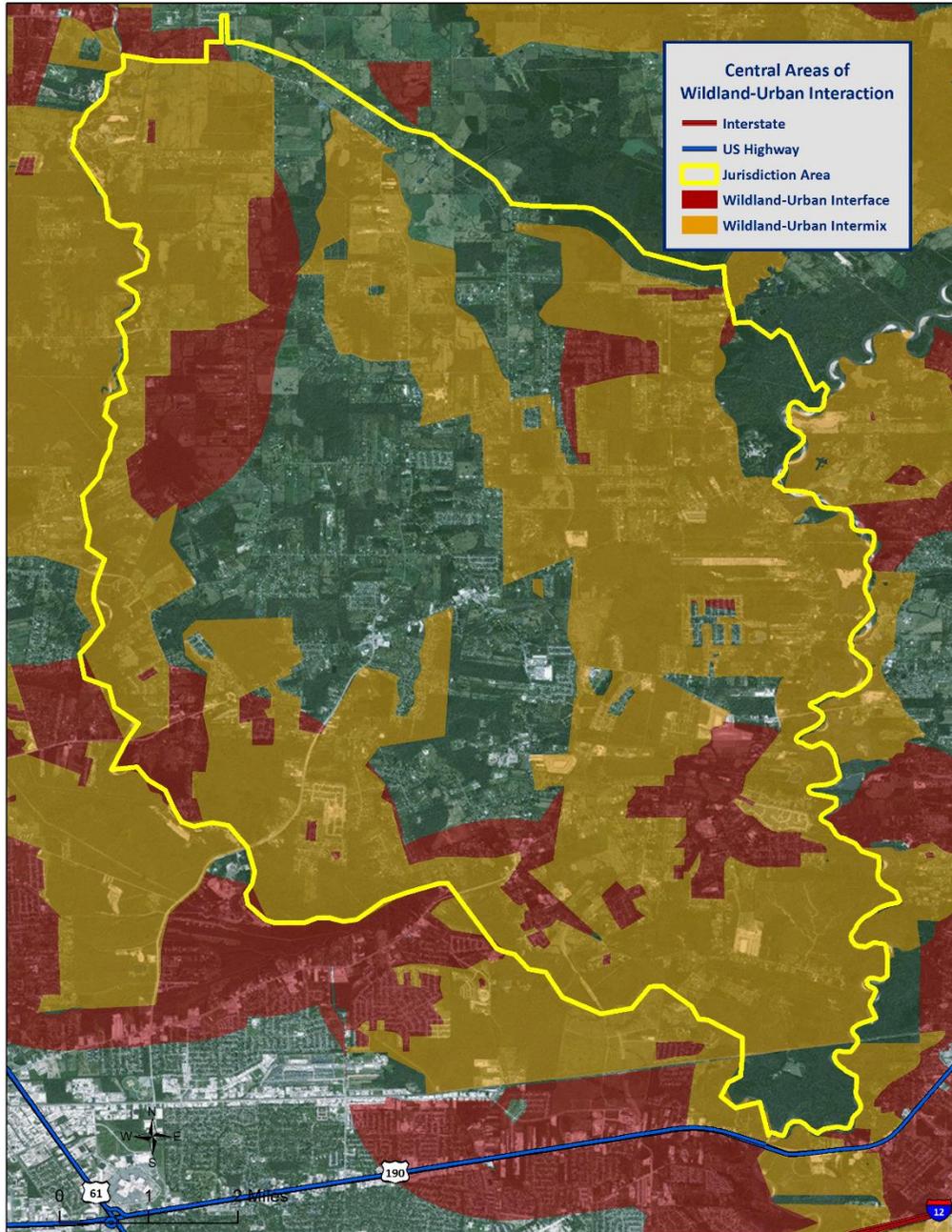


City of
Baton
Rouge



City of
Baker

Areas of Wildland – Urban Interaction



Winter Weather

- For Louisiana and other parts of the southeastern United States, a severe winter storm occurs when humid air from the Gulf of Mexico meets a cold air mass from the north. As the temperature falls once the cold air mass crosses Louisiana, 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.
 - Ice storms
 - Freezes
 - Snow events
 - Strong winds
 - Wind-driven snow, drifting, wind chill



Mitigation Strategy – Parish Goals

- To mitigate critical infrastructure and governmental/parish facilities to prepare for, protect against, respond to and recover from natural hazards within East Baton Rouge Parish
- To minimize the NFIP payouts by reducing repetitive flooding in all areas of East Baton Rouge Parish, including all municipalities
- To promote an all-hazards public awareness campaign that focuses on preparing for and mitigating against natural disasters that may affect our community
- To improve the drainage system capacity for all river, creeks and canals within East Baton Rouge Parish

2009-2016 Parish HM Project Status

- Director's Comments

Public Outreach Activities

- Problem Area Identification (Parish Maps)
- SurveyMonkey Survey
 - www.surveymonkey.com/r/EastBatonRougeParish

Contact Us

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