



Lafourche Parish

Multi-Jurisdiction
Hazard Mitigation
Plan Update

2020



LAFOURCHE PARISH MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE

Prepared for:

Lafourche Parish



Prepared by:

Stephenson Disaster Management Institute

Mr. Brant Mitchell, CEM

Mrs. Lauren Morgan, MEPP

Mr. Chris Rippetoe, CFM

Dr. Joseph B. Harris, PhD*

Louisiana State University – Louisiana Emerging Technology Center
Baton Rouge, LA 70803



*Western Carolina University, Emergency and Disaster Management Program (Dept. of Criminology and Criminal Justice)

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ACKNOWLEDGMENTS

This 2020 Lafourche Parish Hazard Mitigation Plan Update was coordinated by the Lafourche Parish Hazard Mitigation Plan Update Steering Committee, in collaboration with community stakeholders and the general public. The participating jurisdictions are made up of the following communities:

Unincorporated Lafourche Parish
Town of Golden Meadow
Town of Lockport
City of Thibodaux

Special thanks is directed to all of those who assisted in contributing their expertise and feedback on this document, especially the Lafourche Parish Office of Homeland Security and Emergency Management. These combined efforts have made this project possible. The Lafourche Parish Steering Committee consists of the following individuals, who are credited in the creation of this document:

Archie Chaisson III	Lafourche Parish Government
Mitch Orgeron	Lafourche Parish Government
Darla Duet	Lafourche Parish Government
Dillon Baronne	Lafourche Parish Government Public Works
Marie Blouin	Lafourche Parish Government Public Works
Tommy Eschete	City of Thibodaux
Ed Reinhardt	Town of Lockport
Joey Bouziga	Town of Golden Meadow

The 2020 Lafourche Parish Hazard Mitigation Plan Update was written by the Stephenson Disaster Management Institute, Louisiana State University. Further comments should be directed to the Lafourche Parish Office of Homeland Security and Emergency Preparedness: 4876 Highway 1, Raceland, LA 70394.



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1. Introduction

Hazard Mitigation is defined as sustained actions taken to reduce or eliminate long-term risk from hazards and their effects. Hazard Mitigation Planning is the process through which natural hazards that threaten communities are identified, likely impacts of those hazards are determined, mitigation goals are set, and appropriate strategies that would lessen the impacts are determined, prioritized, and implemented.

In that regard, this plan (a) documents the Lafourche Parish Hazard Mitigation Plan Update (HMPU) process; (b) identifies natural hazards and risks within the parish; and (c) identifies the parish's hazard mitigation strategy to make Lafourche Parish less vulnerable and more disaster resilient. It also includes mitigation project scoping to further identify scopes of work, funding sources, and implementation timing requirements of proposed selected mitigation projects. Information in the plan will be used to help guide and coordinate mitigation and local policy decisions affecting future land use.

The Lafourche Parish Hazard Mitigation Plan is a multi-jurisdictional plan that includes the following jurisdictions which participated in the planning process:

- Unincorporated Lafourche Parish
- Town of Golden Meadow
- Town of Lockport
- City of Thibodaux

The Federal Emergency Management Agency (FEMA), now under the Department of Homeland Security, has made reducing losses from natural disasters one of its primary goals. The Hazard Mitigation Plan (HMP) and subsequent implementation of recommended projects, measures, and policies is the primary means to achieving these goals. Mitigation planning and project implementation has become even more significant in a post-Katrina and Rita environment in south Louisiana.

This Hazard Mitigation Plan is a comprehensive plan for disaster resiliency in Lafourche Parish. The parish is subject to natural hazards that threaten life and health and have caused extensive property damage. To better understand these hazards and their impacts on people and property, and to identify ways to reduce those impacts, the parish's Office of Homeland Security and Emergency Preparedness undertook this Natural Hazards Mitigation Plan. "Hazard mitigation" does not mean that all hazards are stopped or prevented. It does not suggest complete elimination of the damage or disruption caused by such incidents. Natural forces are powerful and most natural hazards are well beyond our ability to control. Mitigation does not mean quick fixes. It is a long term approach to reduce hazard vulnerability. As defined by FEMA, "hazard mitigation" means any sustained action taken to reduce or eliminate the long-term risk to life and property from a hazard event.

Every community faces different hazards and every community has different resources and interests to bring to bear on its problems. Because there are many ways to deal with natural hazards and many agencies that can help, there is no one solution for managing or mitigating their effects. Planning is one of the best ways to correct these shortcomings and produce a program of activities that will best mitigate the impact of local hazards and meet other local needs. A well-prepared plan will ensure that all possible activities are reviewed and implemented so that the problem is addressed by the most appropriate and efficient solutions. It can also ensure that activities are coordinated with each other and with other goals and programs, preventing conflicts and reducing the costs of implementing each individual activity.

Under the Disaster Mitigation Act of 2000 (42 USC 5165), a mitigation plan is a requirement for Federal mitigation funds. Therefore, a mitigation plan will both guide the best use of mitigation funding and meet the prerequisite for obtaining such funds from FEMA. FEMA also recognizes plans through its Community Rating System (CRS), a program that reduces flood insurance premiums in participating communities. This program is further described in Section Three: Capability Assessment.

This plan identifies activities that can be undertaken by both the public and the private sectors to reduce safety hazards, health hazards, and property damage caused by natural hazards. It fulfills the Federal mitigation planning requirements, qualifies for CRS credit, and provides Lafourche Parish and its communities with a blueprint for reducing the impacts of these natural hazards on people and property.

Geography and Population

Geography

Lafourche Parish is located in the southeast portion of Louisiana along the state's Gulf of Mexico coastline. Essentially bisected from the northwest to the southeast by Bayou Lafourche, Lafourche Parish is bordered to the east by St. Charles and Jefferson Parishes, to the north by St. James and St. John the Baptist Parishes, and to the west by Assumption and Terrebonne Parishes. Lafourche Parish includes a surface area of approximately 1471 square miles (or 941,649 acres), of which 85% (799,868 acres) is wetlands or open water, and a mere 4% (33,619 acres) is urban development. Below, *Figure 1-1* shows the geographical location of Lafourche Parish.



Figure 1-1: Location of Lafourche Parish

The geography of Lafourche Parish mainly consists of marshes, sandy ridges, lakes, bayous, and natural levees. Lafourche Parish is bisected by Bayou Lafourche, resulting in two separate portions of the parish, although there are approximately two dozen crossings along the length of the bayou. The largest concentration of urban development is found along Highways 1 and 308, which flank Bayou Lafourche to the east and west respectively. Coincidentally, this is also the area with the highest natural elevation in the parish.

Approximately 90% of the total land area of Lafourche Parish is located within FEMA's 100-year floodplain. The only significant area outside the 100-year floodplain is the area along Bayou Lafourche from the northwestern parish boundary to the Town of Lockport. This area includes Highways 1 and 308 from the parish boundary to their respective intersections with Hwy 90, as well as the large majority of the City of Thibodaux.

Lafourche Parish weather is typically warm and humid. Variations in daily temperature are determined by distance from the Gulf of Mexico and, to a much lesser degree, by differences in elevation. The average annual temperature for the state as a whole is 68°F. January is typically the coldest month for Louisiana, averaging approximately 54°F, while July is typically the warmest at an average of 83°F. Winter months are usually mild with cold spells of short duration. For Lafourche Parish in particular, the summer months are usually quite warm, with an average daily maximum temperature in July and August of 91°F. Winters are typically mild. Snowfall averages less than one inch per year. Average annual rainfall for the area is 64.6 inches. Lafourche Parish is susceptible to the normal weather dangers, such as tornados and floods, but due to its location within the state and its proximity to the Gulf of Mexico, the parish is extremely susceptible to tropical cyclones. Hurricane season lasts from June 1st to November 30th, with most hurricanes forming in August, September, and October.

Population

The population of Lafourche Parish is estimated at 97,614 (2019 estimate) with a population percent change from April 1, 2010 – July 1, 2019 of 1.0%.

*Table 1-1: Lafourche Parish Population
(Source: US Census)*

	2010 Census	2018 Estimate	2019 Estimate	Percent Change 2010 -2019
Total Population	96,318	96,662	97,614	1.00%
Population Density (Pop/Sq. Mi.)	90.2	-----		-----
Total Housing Units	35,072	36,449	36,446	3.93%
Persons Per Household	-----	2.64	2.64	-----

Table 1-2: Lafourche Parish Business Patterns
(Source: US Census, CBP)

Business Description	Number of Establishments	Number of Employees	Annual Payroll (\$1,000)
Retail Trade	300	4,003	95,544
Manufacturing	55	2,027	114,821
Health Care and Social Assistance	188	4,165	187,514
Mining, Quarrying, Oil and Gas Extraction	46	2677	204,833
Transportation and Warehousing	138	3,659	267,628
Construction	139	1,352	65,513
Administration/Support and Waste Management/Remediation Services	69	859	31,199
Real Estate and Rental and Leasing	65	215	8,980
Wholesale Trade	65	890	48,883
Other Services (except Public Administration)	134	676	20,206
Accommodation and Food Services	157	2,453	33,087
Financial and Insurance	151	833	38,240
Professional, Scientific, and Technical Services	172	1,049	61,841
Information	18	223	11,319
Educational Services	12	149	3,559
Arts, Entertainment, and Recreation	28	312	5,714
Agriculture, Forestry, Fishing and Hunting	5	12	395
Utilities	5	20-99	—
Management of Companies and Enterprises	11	282	15,463

Hazard Mitigation

To fully understand hazard mitigation efforts in Lafourche Parish and throughout Louisiana, it is first crucial to understand how hazard mitigation relates to the broader concept of emergency management. In the early 1980s, the newly-created Federal Emergency Management Agency (FEMA) was charged with developing a structure for how the federal, state, and local governments would respond to disasters. FEMA developed the *four phases of emergency management*, an approach which can be applied to all disasters. The four phases are as follows:

- Hazard Mitigation**—described by FEMA and the Disaster Mitigation Act of 2000 (DMA 2000) as “any sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event.” The goal of mitigation is to save lives and reduce property damage. Besides significantly aiding in the obviously desirous goal of saving human lives, mitigation can reduce the enormous cost of disasters to property owners and all levels of government. In addition, mitigation can protect critical community facilities and minimize community disruption, helping communities return to usual daily living in the aftermath of disaster. Examples of mitigation involve a range of activities and actions including the following: land-use planning, adoption and enforcement of building codes, and construction projects (e.g., flood proofing homes through elevation, or acquisition or relocation away from floodplains).

- **Emergency Preparedness**—includes plans and preparations made to save lives and property and to facilitate response operations in advance of a disaster event.
- **Disaster Response**—includes actions taken to provide emergency assistance, save lives, minimize property damage, and speed recovery immediately following a disaster.
- **Disaster Recovery**—includes actions taken to return to a normal or improved operating condition following a disaster.

Figure 1-2 illustrates the basic relationship between these phases of emergency management. While hazard mitigation may occur both before and after a disaster event, it is significantly more effective when implemented before an event occurs. This is one of the key elements of this plan and its overall strategy: reduce risk before disaster strikes in order to minimize the need for post-disaster response and recovery.

As *Figure 1-2* demonstrates, mitigation relies on updating in the wake of disaster. This can give the appearance that mitigation is only reactive rather than proactive. In reality, however, post-disaster revision is a vital component of improving mitigation. Each hazardous event affords an opportunity to reduce the consequences of future occurrences.

Unfortunately, this cycle can be painful for a community. For instance, the risks of disasters that could create catastrophic incidents in Louisiana were thought to be relatively well-understood prior to 2005. However, the impact of the 2005 hurricane season on the Gulf Coast region of the United States prompted a new level of planning and engagement related to disaster response, recovery, and hazard mitigation. Hurricanes Katrina and Rita hit three weeks apart and together caused astonishing damage to human life and to property. The two storms highlighted a hurricane season that spawned 28 storms—unparalleled in American history. The 2005 hurricane season confirmed Louisiana's extreme exposure to natural disasters and both the positive effects and the concerns resulting from engineered flood-protection solutions.

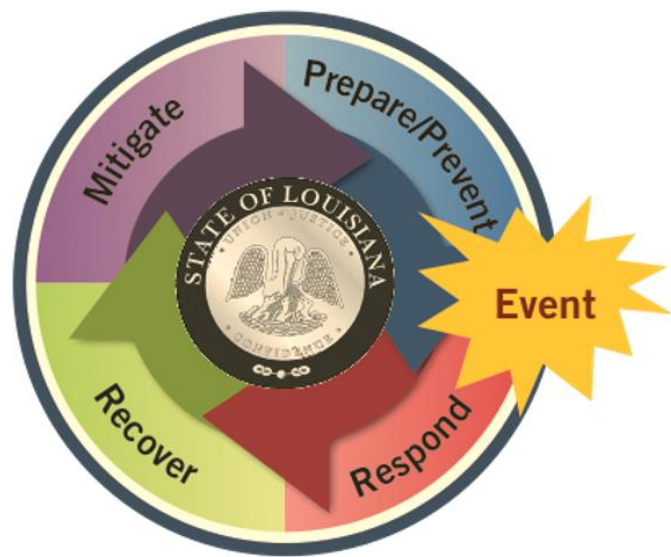


Figure 1-2: The Four Phases of Emergency Management and their Relation to Future Hazard Mitigation (Source: Louisiana State Hazard Mitigation Plan 2014)

The catastrophic events of 2005 had profound impacts on emergency management and hazard mitigation throughout Louisiana. As detailed later in this document, significant funding has been made available to the State of Louisiana and its parishes for the purpose of hazard mitigation planning. The storms also raised awareness of the importance of hazard mitigation among decision-makers and the general population, which has been particularly important since natural hazards will likely be increasing in frequency, magnitude, and impact in the coming years due to climate change.

General Strategy

During the last update to the Louisiana State Hazard Mitigation Plan, the State Hazard Mitigation Team (SHMT) began a long-term effort to better integrate key components of all plans with hazard mitigation implications in Louisiana to ensure that the programs, policies, recommendations, and implementation strategies are internally consistent. As each of these documents has been adopted by various agencies within the state, the SHMT has worked to incorporate this information into the decision process.

Part of the ongoing integration process is that the Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) encourages the parishes and the local communities with independent hazard mitigation plans to utilize the same plan format and methodologies as the State Hazard Mitigation Plan in order to create continuity of information from local to state mitigation plans and programs.

The 2020 Lafourche Parish Hazard Mitigation Plan (HMP) maintains much of the information from the 2015 plan version, but it now reflects the order and methodologies of the 2019 Louisiana State Hazard Mitigation Plan.

The sections in the 2015 Lafourche HMP were as follows:

- Section One Introduction
- Section Two Hazard Identification and Risk Assessment
- Section Three Capability Assessment
- Section Four Mitigation Strategy
- Appendix A Planning Process
- Appendix B Plan Maintenance
- Appendix C Parish Essential Facilities
- Appendix D Plan Adoption
- Appendix E State Required Worksheets

This plan update also coheres with the Plain Writing Act of 2010, which requires federal agencies to use clear communication that is accessible, consistent, understandable, and useful to the public. While the State of Louisiana and its political subdivisions are not required to meet such standards, the Act aligns with best practices in hazard mitigation. Since successful hazard mitigation relies on full implementation and cooperation at all levels of government and community, a successful hazard mitigation plan must also be easily used at all of these levels. Nevertheless, the Lafourche Parish Hazard Mitigation Steering Committee was not ignorant or dismissive of the successful analysis and mitigation planning executed in previous plan updates. This plan update remains coherent with those documents, retaining language and content when needed, deleting it when appropriate, and augmenting it when constructive.

2020 Plan Update

This 2020 plan update proceeds with the previous goals of the Lafourche Parish Hazard Mitigation Plan. The current goals are as follows:

- Goal 1:** Identify and pursue preventative structural and non-structural 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 by pursuing various mitigation measures (acquisitions, elevations, and flood-proofing).
- Goal 4:** Facilitate sound development in the parish and municipalities so as to reduce or eliminate the potential impact of hazards.

This plan update makes a number of textual changes throughout, but the most obvious changes are data related and structural edits. First, the National Oceanic and Atmospheric Administration's (NOAA) National Centers for Environmental Information's (NCEI) Storm Events Database was used in the analysis, which provides historical hazard data from 1950 to 2019. Furthermore, all of the sections were updated to reflect the most current information and the most current vision of the plan update. The most significant changes are the newly developed hazard profiles and risk assessments, as well as the removal of much repetition between sections from the previous plan updates.

The 2020 plan update is organized in the exact same format as the 2015 update as you can see below:

- Section One Introduction
- Section Two Hazard Identification and Parish-wide Risk Assessment
- Section Three Capability Assessment
- Section Four Mitigation Strategies
- Appendix A Planning Process
- Appendix B Plan Maintenance
- Appendix C Essential Facilities
- Appendix D Plan Adoption
- Appendix E State Required Worksheets

Table 1-3: 2020 Plan Update Crosswalk

Plan Update Crosswalk	
Chapter One: Introduction	Section 1: Introduction
Chapter Two: Planning Process	Appendix A: Planning Process
Chapter Three: Risk Assessment	Section 2: Hazard Identification and Parish wide Risk Assessment
Chapter Four: Mitigation Strategy	Section 4: Mitigation Strategy
Chapter Five: Plan Adoption	Appendix D: Plan Adoption
Chapter Six: Plan Maintenance	Appendix B: Plan Maintenance
Chapter Seven: Appendices	Appendix A-E
Chapter Eight: Endnotes	

Despite numerous changes in this plan update, the plan remains consistent in its emphasis on the few types of hazards that pose the most risk to loss of life, injury, and property in Lafourche Parish and its communities. The extent of this risk is dictated primarily by its geographic location. Most significantly, Lafourche Parish remains at high risk of water inundation from various sources, including flooding and tropical cyclone activity. The entire parish is also at high risk of damages from high winds and wind-borne debris caused by various meteorological phenomena. Other hazards threaten the parish and/or its communities, although not to such great degrees and not in such widespread ways. In all cases, the relative social vulnerability of areas threatened and affected plays a significant role in how governmental agencies and their partners (local, parish, state and federal) prepare for and respond to disasters.

Mitigation efforts related to particular hazards are highly individualized by jurisdiction. Flexibility in response and planning is essential. The most important step forward to improve hazard management capability is to improve coordination and information sharing between the various levels of government regarding hazards.

2. Hazard Identification and Parish-Wide Risk Assessment

This section assesses the various hazard risks that Lafourche Parish faces in order to identify a strategy for mitigation. Having identified the categories of hazards, emergencies, disasters, and catastrophes, this section details the major climatological and natural/human-influenced hazards by (1) defining them, (2) explaining how they are measured, (3) describing their geographic extent, (4) surveying their previous occurrences, and (5) evaluating their future likelihood of occurrences.

The table below provides an overview of the hazards that had been previously profiled in the Lafourche Parish Hazard Mitigation Plan published in 2015, as well as the hazards that were identified in the state's 2019 Hazard Mitigation Plan that were considered to be of high or medium risk for the parish by the state. Those hazards identified as high or medium risk by the state or previously identified as a risk by the parish, have been determined to provide a risk to the parish and will be profiled in this section.

Table 2-1: Hazard Profile Summary.

Hazard	Profiled in Previous Plan	Considered Medium or High Risk in the State's HM Plan	Profiled in the 2020 Update
Coastal Hazards	X		X
Flooding	X	X	X
Sinkholes	X		X
Thunderstorms (Hail, Lightning, & Wind)		X	X
Tornadoes	X	X	X
Tropical Cyclones	X	X	X

Prevalent Hazards to the Community

While many of the hazards identified in [Table 2-1](#) occur in the parish, their occurrence was not merited for further study by the planning committee. The determination was made to focus attention and resources on the most prevalent hazards, which include the hazards previously profiled, along with thunderstorms.

The following hazards have been selected to be included in this risk assessment:

- a) Coastal Hazards
- b) Flooding
- c) Sinkholes
- d) Thunderstorms (Hail, Lightning, & Wind)
- e) Tornadoes
- f) Tropical Cyclones

For analysis purposes, the impact of the critical and prevalent hazards is summarized as follows:

- Flooding from rivers and waterways, rain storms, tropical cyclones, and hurricanes in the following forms:
 - a) Riverine
 - b) Stormwater
 - c) Surge
 - d) Backwater flooding (as the result of river flooding and surge)
 - e) Coastal
- High wind damage most commonly resulting from hurricanes, thunderstorms, and tornadoes
- Property damage resulting from all profiled natural hazards

The potential destructive power of tropical cyclones was determined to be the most prevalent hazard to the parish. Nineteen of the twenty-eight disaster declarations Lafourche Parish has received resulted from tropical cyclones, which validates this as the most significant hazard. Therefore, the issue of hurricanes will serve as the main focus during the mitigation planning process. Hurricanes present risks from the potential for flooding, primarily resulting from storm surge, and high wind speeds. While storm surge is considered the hazard with the most destructive potential, the risk assessment will also assess non-storm surge flooding as well. Flooding can also occur from non-hurricane events, as flash floods are a common occurrence due to heavy rainfall.

Hurricanes, tropical storms, and heavy storms are fairly common occurrences, and resultant wind damage is of utmost concern. Damage from high winds can include roof damage, destruction of homes and commercial buildings, downed trees and power lines, and damage and disruption to services caused by heavy debris. A wind map for Lafourche Parish is included in the hurricane risk assessment.

Lafourche Parish is also susceptible to tornadoes. Tornadoes can spawn from tropical cyclones or severe weather systems that pass-through Lafourche Parish. High winds produced by tornadoes have the potential to destroy residential and commercial buildings, as well as create wind-borne objects from the debris produced by the destruction of the natural and human environment, such as building materials and trees.

Previous Occurrences

Table 2-2 summarizes federal disaster declarations for Lafourche Parish since 1965. Information includes names, dates, and types of disaster.

Table 2-2: Lafourche Parish Major Disaster Declarations.

Disaster Number	Year	Declaration
374	4/27/1973	Severe Storm, Flood
448	9/23/1974	Tropical Cyclone – Hurricane Carmen
3031	2/22/1977	Drought and Freezing
616	4/9/1980	Severe Storm, Flood
752	11/1/1985	Tropical Cyclone – Hurricane Juan
902	4/23/1991	Severe Storm, Flood
904	5/3/1991	Severe Storm, Flood

Disaster Number	Year	Declaration
956	8/26/1992	Tropical Cyclone – Hurricane Andrew
1049	5/10/1995	Severe Storm, Flood
1246	9/23/1998	Tropical Cyclone – TS Frances and Hurricane Georges
1380	6/11/2001	Tropical Cyclone – Tropical Storm Allison
1435	9/27/2002	Tropical Cyclone – Tropical Storm Isidore
1437	10/3/2002	Tropical Cyclone – Hurricane Lili
1548	9/15/2004	Tropical Cyclone – Hurricane Ivan
1601	8/23/2005	Tropical Cyclone – Tropical Storm Cindy
1603	8/29/2005	Tropical Cyclone – Hurricane Katrina
1607	9/24/2005	Tropical Cyclone – Hurricane Rita
4015	8/18/2011	Severe Storm, Flood
4041	10/28/2011	Tropical Cyclone – Tropical Storm Lee
4080	8/29/2012	Tropical Cyclone – Hurricane Isaac
4236	3/13/2016	Severe Storms, Flood
3392	10/6/2017	Tropical Cyclone – Tropical Storm Nate
4345	10/16/2017	Tropical Cyclone – Tropical Storm Harvey
4458	8/27/2019	Tropical Cyclone – Hurricane Barry
4484	3/24/2020	COVID-19 Pandemic
3527	6/7/2020	Tropical Cyclone – Tropical Storm Cristobal
3538	8/23/2020	Tropical Cyclone – Tropical Storms Laura and Marco
4559	8/28/2020	Tropical Cyclone – Hurricane Laura

Probability of Future Hazard Events

The probability of a hazard event occurring in Lafourche Parish is estimated in the table on the following page. The percent chance of an event happening during any given year was calculated by posting past events and dividing by the time period. Unless otherwise indicated, the time period used to access probability followed the method used in the State of Louisiana's most current Hazard Mitigation Plan. The primary source for historical data used throughout the plan is the National Oceanic and Atmospheric Administration's (NOAA) National Centers for Environmental Information's (NCEI) Storm Events Database, which provides historical hazard data from 1950 to 2019. In staying consistent with the state plan, the Storm Events Database was evaluated for the last thirty years (1989 – 2019) in order to determine future probability of a hazard occurring. While the 30-year record used by the State was adopted for the purpose of determining the overall probability, in order to assist with determining estimated losses, unless otherwise stated, the full 70-year record was used when Hazus wasn't available to determine losses. This full record was used to provide a more extensive record to determine losses. All assessed damages were adjusted for inflation in order to reflect the equivalent amount of damages with the value of the U.S. dollar today.

The following table shows the annual probability for each hazard occurring across the parish:

Table 2-3: Probability of Future Hazard Reoccurrence.

Hazard	Probability			
	Lafourche Parish (Unincorporated)	Golden Meadow	Lockport	Thibodaux
Coastal Hazards	100%	100%	100%	100%
Flooding	64%	24%	28%	36%
Sinkholes	<1%	<1%	<1%	<1%
Thunderstorms - Hail	73%	73%	73%	73%
Thunderstorms - Lightning	20%	20%	20%	20%
Thunderstorms - Winds	100%	100%	100%	100%
Tornadoes	60%	60%	60%	60%
Tropical Cyclones	100%	100%	100%	100%

As shown in the above tables, coastal hazards, thunderstorm winds, and hurricanes have the highest annual chance of occurrence (100%). This is followed by hailstorms (73%), flooding in the unincorporated areas of Lafourche Parish (64%), tornadoes (60%), and flooding in Thibodaux, Lockport, and Golden Meadow. Lightning and sinkholes have the lowest annual chance of occurrence at 20% and less than 1% respectively.

Inventory of Assets for the Entire Parish

As part of the Risk Assessment, the planning team identified essential facilities throughout the parish. Several methods were used to assist in identifying all essential facilities, including field data collected by the Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) on critical infrastructure from a previous hazard mitigation project.

Within the entire planning area, there is an estimated value of \$6,674,466,000 in structures throughout the parish. The table below provides the total estimated value for each type of structure by occupancy.

Table 2-4: Estimated Total of Potential Losses throughout Lafourche Parish.

Occupancy	Lafourche Parish	Unincorporated Area	Golden Meadow	Lockport	Thibodaux
Agricultural	\$25,363,000	\$21,967,000	\$771,000	\$0	\$2,625,000
Commercial	\$1,039,276,000	\$626,476,000	\$25,615,000	\$24,025,000	\$363,160,000
Government	\$42,095,000	\$24,064,000	\$777,000	\$26,000	\$17,228,000
Industrial	\$311,298,000	\$199,224,000	\$3,944,000	\$3,335,000	\$104,795,000
Religion	\$102,361,000	\$64,142,000	\$3,497,000	\$7,941,000	\$26,781,000
Residential	\$6,625,379,000	\$5,131,489,000	\$162,111,000	\$156,788,000	\$1,174,991,000
Education	\$91,715,000	\$35,023,000	\$6,841,000	\$6,941,000	\$42,910,000
Total	\$8,237,487,000	\$6,102,385,000	\$203,556,000	\$199,056,000	\$1,732,490,000

Essential Facilities of the Parish

The following figures show the locations and names of the essential facilities within the parish:

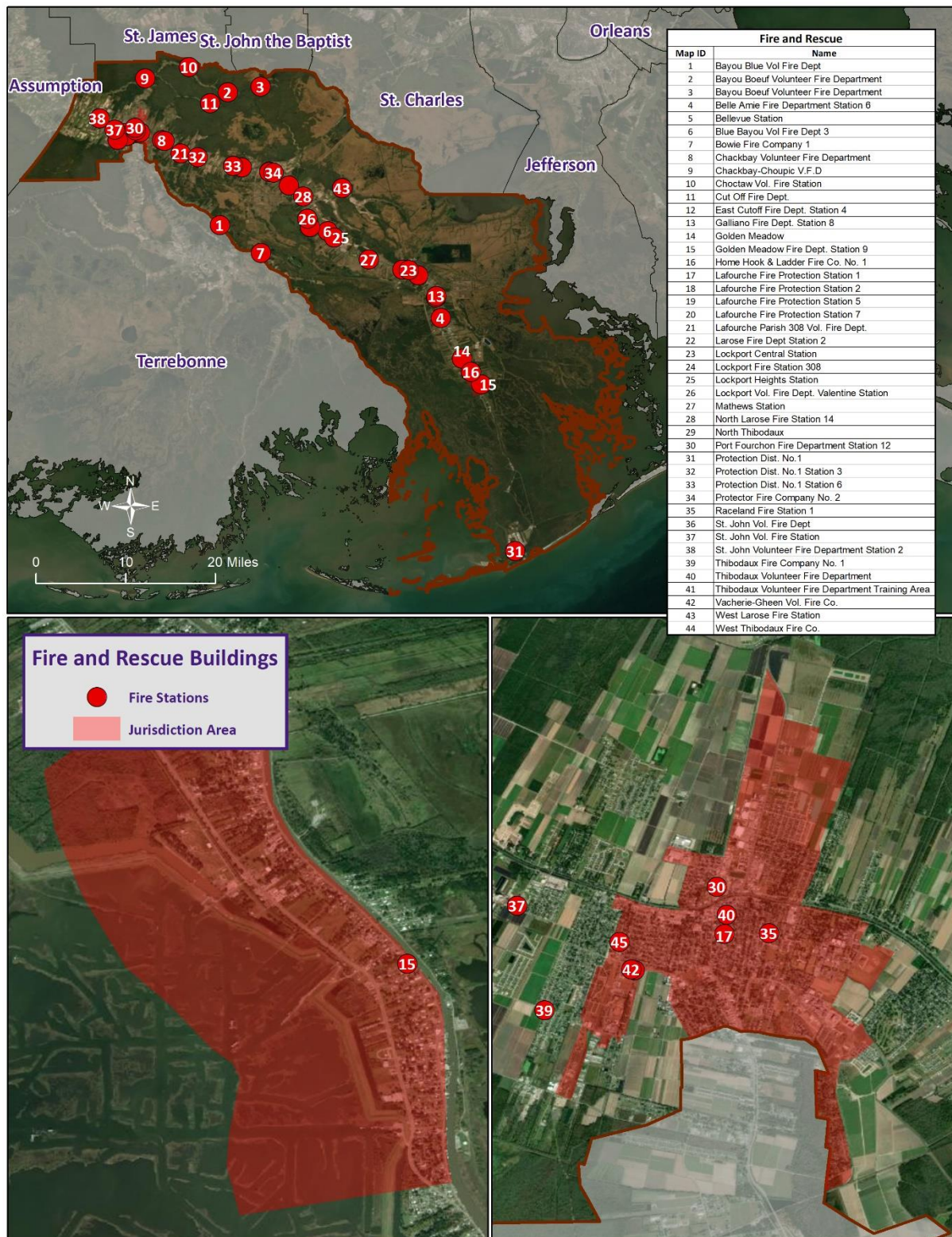


Figure 2-1: Fire and Rescue Facilities in Lafourche Parish.

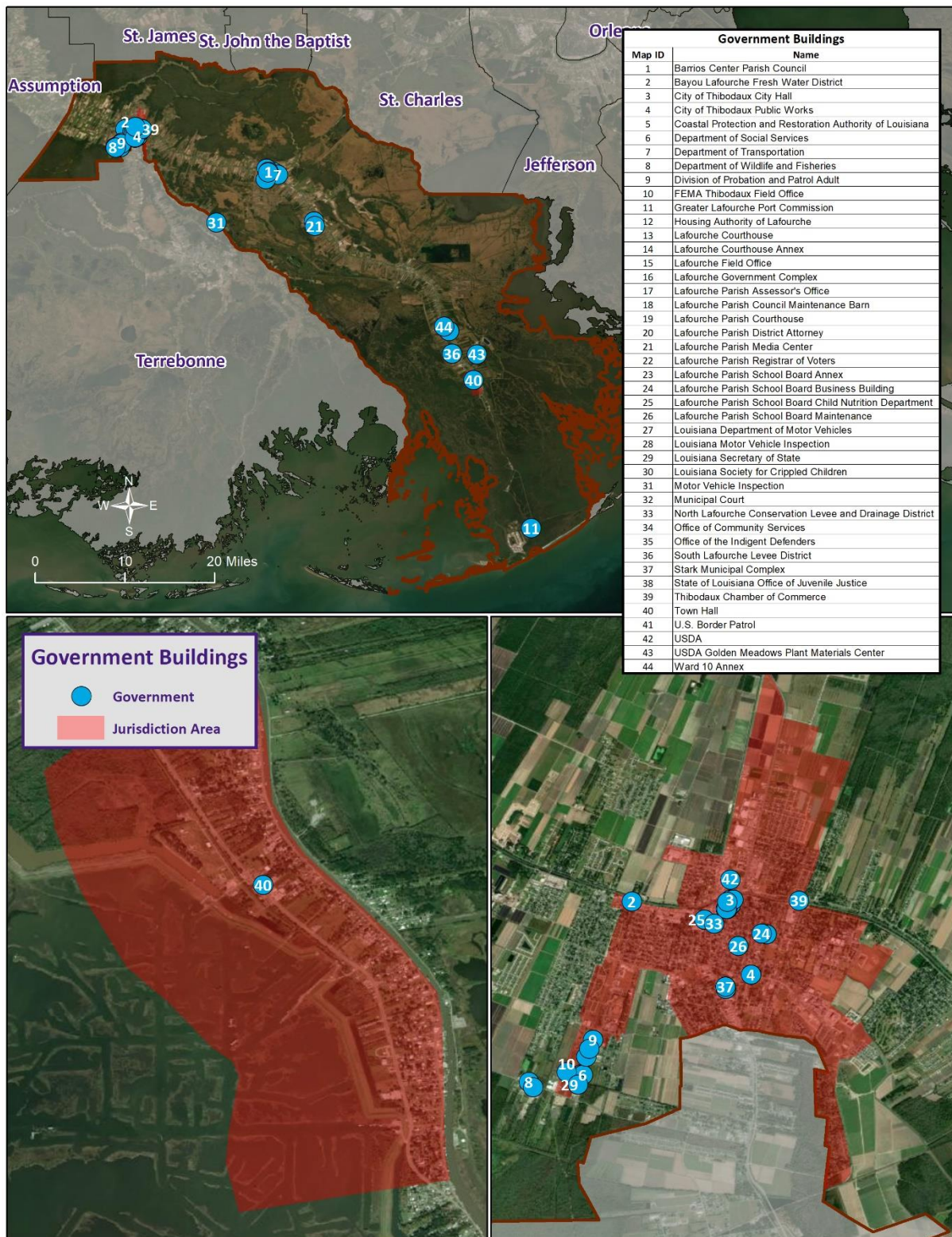


Figure 2-2: Government Buildings in Lafourche Parish.

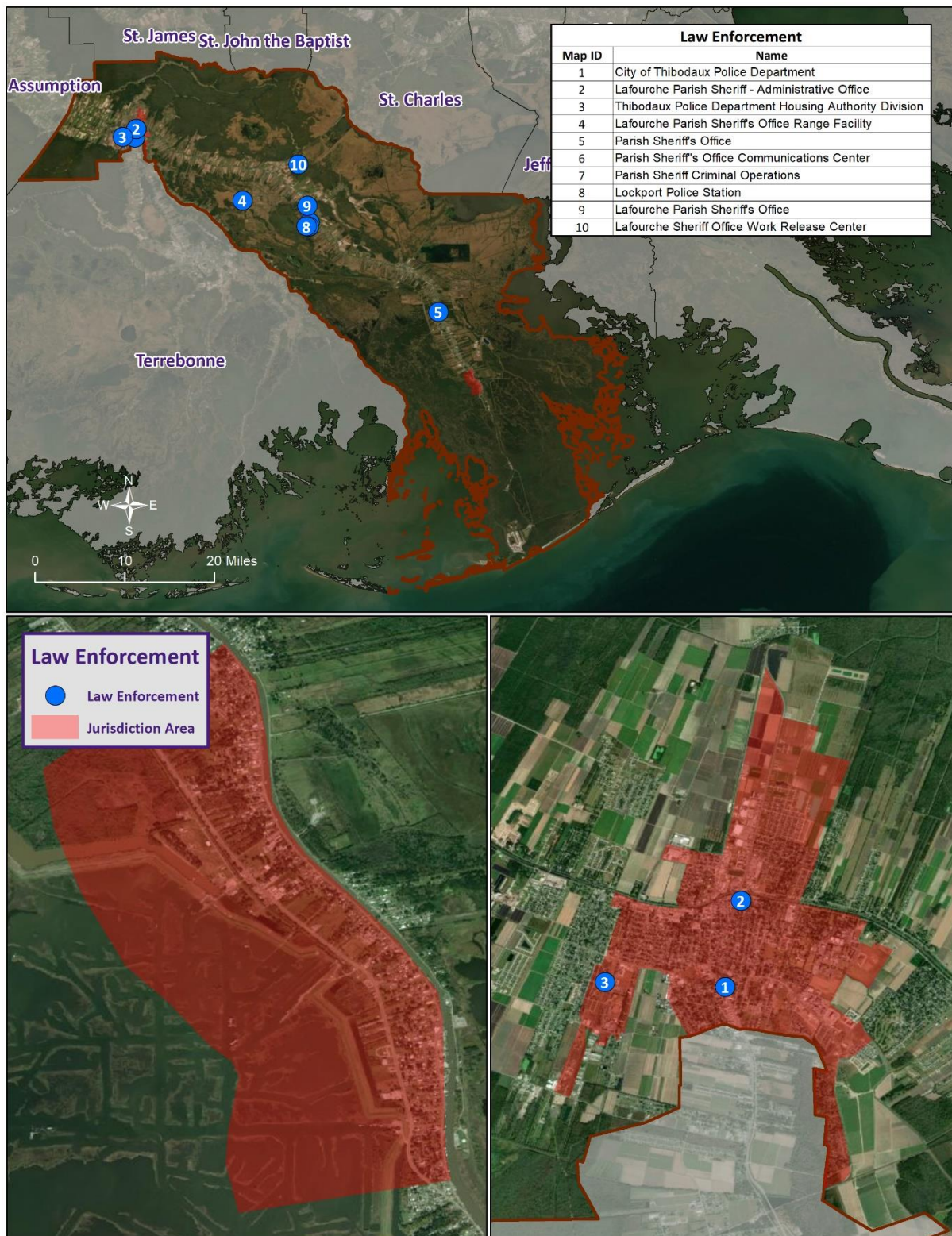


Figure 2-3: Law Enforcement in Lafourche Parish.

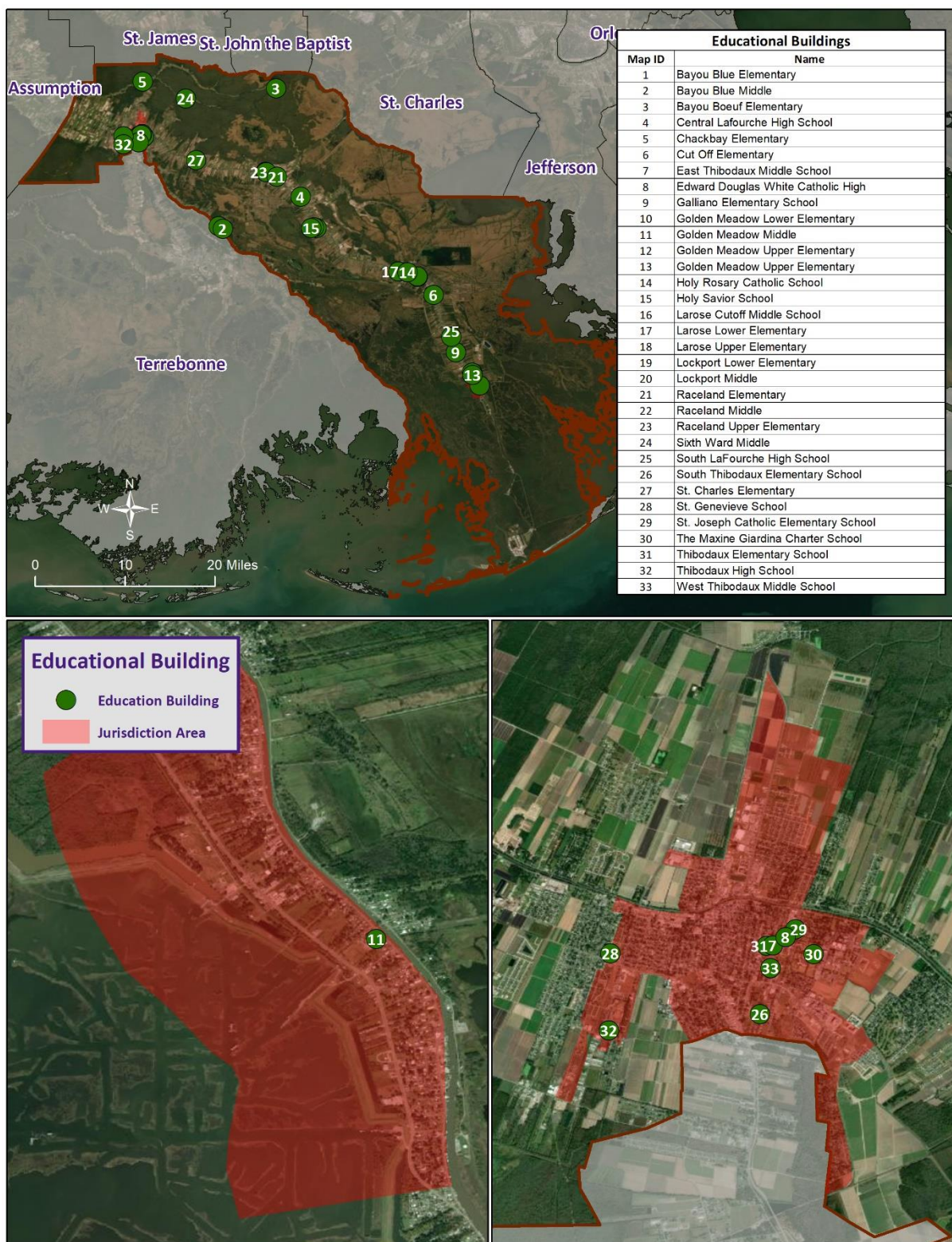
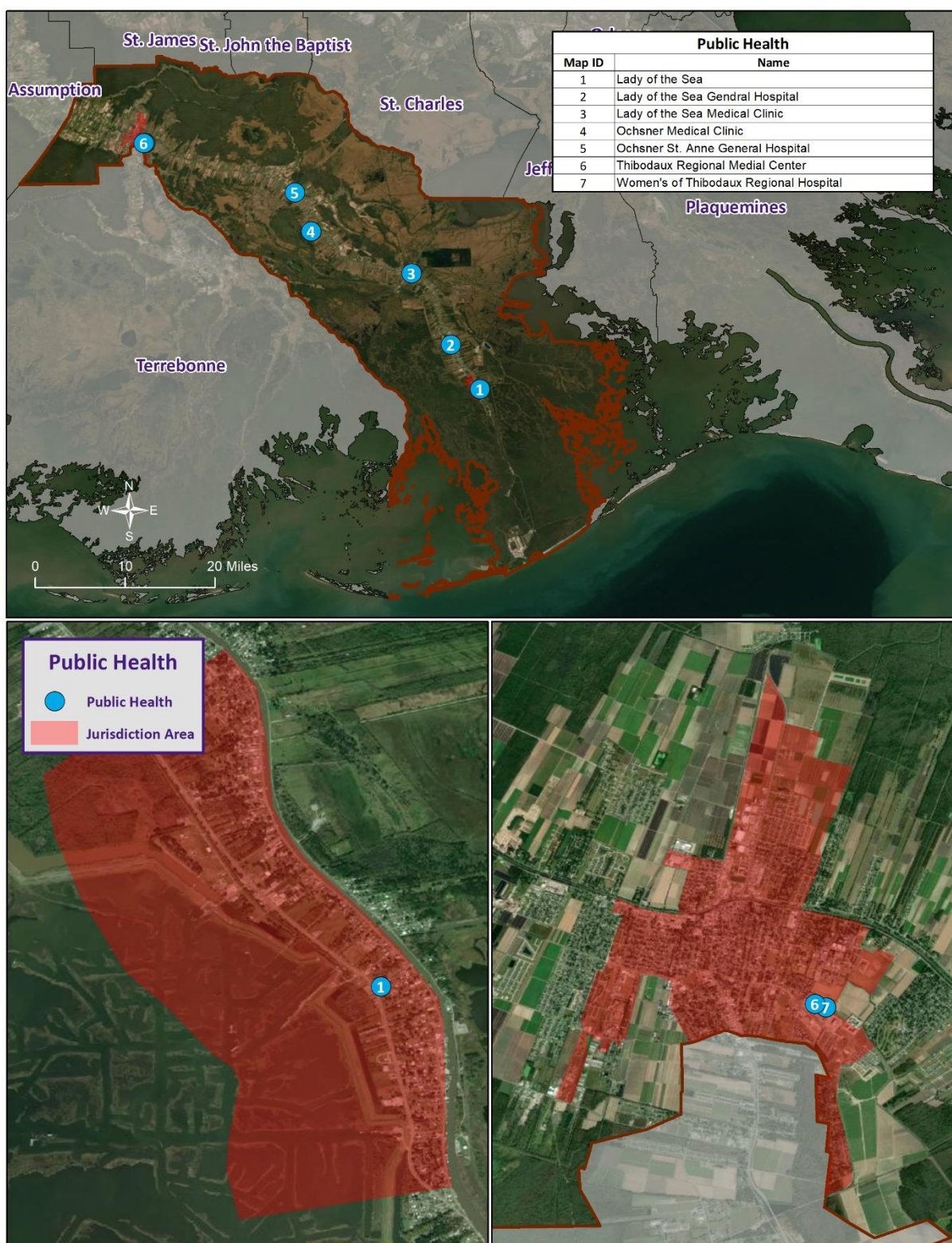


Figure 2-4: Educational Facilities in Lafourche Parish.



Future Development Trends

Lafourche Parish experienced significant growth from the years 2000 to 2019 growing from a population of 89,974 in 2000 to 98,214 in 2019. The unincorporated area of Lafourche Parish experienced the largest increase in population in population from 2010 to 2019 (0.9% overall), followed by the incorporated areas of Thibodaux (0.1% overall). The incorporated areas of Golden Meadow and Lockport both experienced a decline in population during this period with Golden Meadow falling from a 2,101 residents in 2010 to 2,023 in the year 2019, and Lockport falling from a population of 2,578 in 2010 to 2,458 in 2019.

Table 2-5: Population Growth Rate for Lafourche Parish.

Total Population	Lafourche Parish	Unincorporated Area	Golden Meadow	Lockport	Thibodaux
1-Apr-00	89,974	70,726	2,193	2,624	14,431
1-Apr-10	96,318	77,073	2,101	2,578	14,566
1-Jul-19	98,214	79,187	2,023	2,489	14,515
Population Growth between 2000 – 2010	7.1%	9.0%	-4.2%	-1.8%	0.9%
Average Annual Growth Rate between 2000 – 2010	0.7%	0.9%	-0.4%	-0.2%	0.1%
Population Growth between 2010 – 2019	2.0%	2.7%	-3.7%	-3.5%	-0.4%
Average Annual Growth Rate between 2010 – 2019	0.22%	0.30%	-0.41%	-0.38%	-0.04%

There was a rise in housing trends from the years 2010 to 2019 with housing units increasing from 38,824 in 2010 to 40,697 in 2019. The incorporated area of Golden Meadow experienced the largest increase in housing units during this time with an overall increase of 6.4%, followed by the unincorporated area of the parish at 6.2%, and the incorporated area of Lockport at 0.6%. The incorporated area of Thibodaux is the only incorporated area to experience a decline in housing units during this time period falling from 6,324 units in 2010 to 6,231 units in 2019. The future population and number of buildings can be estimated using U.S. Census Bureau housing and population data.

Table 2-6: Housing Growth Rate for Lafourche Parish.

Total Housing Units	Lafourche Parish	Unincorporated Area	Golden Meadow	Lockport	Thibodaux
1-Apr-00	35,045	27,044	934	1,063	6,004
1-Apr-10	38,824	30,453	959	1,088	6,324
1-Jul-19	40,697	32,351	1,020	1,095	6,231
Housing Growth between 2000 – 2010	10.8%	12.6%	2.7%	2.4%	5.3%
Average Annual Growth Rate between 2000 – 2010	1.1%	1.3%	0.3%	0.2%	0.5%
Housing Growth between 2010 – 2019	4.8%	6.2%	6.4%	0.6%	-1.5%
Average Annual Growth Rate between 2010 – 2019	0.5%	0.7%	0.7%	0.1%	-0.2%

Future Hazard Impacts

Hazard impacts were estimated for five years and ten years in the future (2025 and 2030). Yearly population and housing growth rates were applied to parish inventory assets for composite flood and tropical cyclones. Based on a review of available information, it is assumed that population and housing units will grow within Lafourche Parish from the present until 2030. A summary of estimated future impacts is shown in the table below. Dollar values are expressed in future costs and assume an annual rate of inflation of 1.02%.

Table 2-7: Estimated Future Impacts, 2018-2030.

(Source: Hazus, US Census Bureau)

Hazard / Impact	Total in Parish (2018)	Hazard Area (2018)	Hazard Area (2025)	Hazard Area (2030)
Flood Damage				
Structures	40,697	21,862	22,015	22,126
Value of Structures	\$8,237,487,000	\$4,425,089,961.04	\$4,784,231,606.11	\$5,058,472,625
# of People	98,312	52,760	53,130	53,396
Tropical Cyclone				
Structures	40,697	40,697	40,983	41,188
Value of Structures	\$8,237,487,000	\$8,237,487,000	\$8,906,043,946.53	\$9,416,554,886
# of People	98,214	98,214	98,904	99,399

Population and housing numbers have continued to increase slightly but steadily since the last update to the Lafourche Parish Hazard Mitigation Plan. However, initiatives such as active floodplain management have restricted the development of known flood prone areas, particularly coastal flood zones, to continue supporting and encouraging safer communities within Lafourche Parish. Strict enforcement of building codes for all new development is an additional step taken by the parish in its effort to decrease its vulnerability and increase the resiliency of the parish against natural hazards.

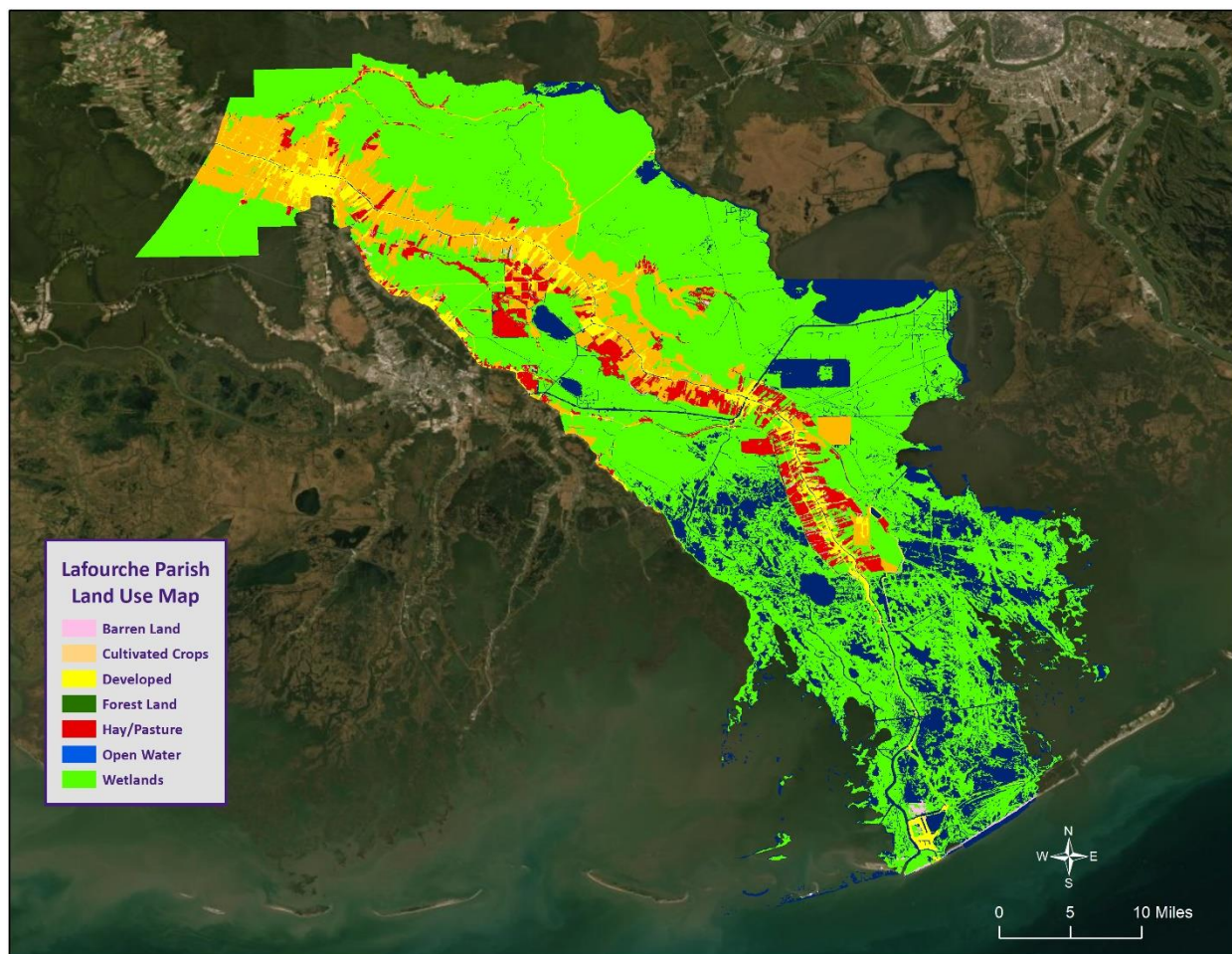
Land Use

The Lafourche Parish Land Use table is provided on the below. Residential, commercial, and industrial areas account for only 4% of the parish's land use. Wetland areas is the largest category accounting for 487,412 acres (52%) of parish land. At 312,456 acres, water areas account for 33% of parish lands, while 105,353 acres of agricultural areas account for 11% of parish lands. The parish also consists of 2,809 acres of forested areas, accounting for less than 1% of all parish lands.

Table 2-8: Lafourche Parish Land Use.

(Source: USGS Land Use Map)

Land Use	Acres	Percentage
Agricultural Land, Cropland, and Pasture	105,353	11%
Wetlands	487,412	52%
Forest Land (Not including forested wetlands)	2,809	< 1%
Urban/Development	33,619	4%
Water	312,456	33%



*Figure 2-6: Lafourche Parish Land Use Map.
(Source: USGS Land Use Map)*

Assessing Vulnerability Overview

The purpose of assessing vulnerability is to quantify and/or qualify exposure and determine how various threats and hazards impact life, property, the environment, and critical operations in Lafourche Parish. Vulnerability can be defined as the manifestation of the inherent states of the system (e.g., physical, technical, organizational, cultural) that can be exploited to adversely affect (cause harm or damage to) that system. For example, identifying areas in the parish that suffer disproportional damages from flooding compared with other areas, or overall exposure of an entire town to flooding. Identifying and understanding vulnerability to each threat and hazard provides a strong foundation for developing and pursuing mitigation actions.

The Vulnerability Assessment section for each hazard builds upon the information provided in the Risk Assessment by assessing the potential impact and amount of damage that each hazard has on the parish and each jurisdiction location. To complete the assessment, best available data were collected from a variety of sources, including local, state, and federal agencies, and multiple analyses were performed qualitatively and quantitatively. The estimates provided in the Vulnerability Assessment should be used to understand relative risk from each hazard and the potential losses that may be incurred; however, uncertainties are inherent in any loss estimation methodology, arising in part from incomplete scientific knowledge concerning specific hazards and their effects on the built environment, as well as incomplete

datasets from approximations and simplifications that are necessary to provide a meaningful and complete analysis. Further, most datasets used in this assessment contain relatively short periods of records, which increases the uncertainty of any statistically-based analysis.

Quantitative Methodology

The quantitative methodology consists of utilizing a detailed GIS-based approach informed through the development of comprehensive hazard and infrastructure databases. This data-centric approach forms the foundation for our quantitative vulnerability assessment. GIS technology allowed for the identification and analysis of potentially at-risk community assets such as people and infrastructure. This analysis was completed for hazards that can be spatially defined in a meaningful manner (i.e., hazards with an official and scientifically determined geographic extent) and for which GIS data were readily available.

Qualitative Methodology

The qualitative assessment relies less on technology, but more on historical and anecdotal data regarding expected hazard impacts. The qualitative assessment completed for Lafourche Parish is based on the Priority Risk Index (PRI). The purpose of the PRI is to prioritize all potential hazards, and then group them into three categories of high, moderate, or low risk to identify and prioritize mitigation opportunities. The PRI is a good practice to use when prioritizing hazards because it provides a standardized numerical value for hazards to be compared. PRI scores were calculated using five categories:

- Probability
- Impact
- Spatial Extent
- Warning Time
- Duration

Each degree of risk is assigned a value (1-4) and a weighting factor. To calculate the Risk Factor for a given hazard, the assigned risk value for each category is multiplied by the weighted factor, and the sum of all six categories is totaled together to determine the final Risk Factor. The highest possible Risk Factor is 4.0.

$$\text{Risk Factor} = [(Probability * 0.25) + (Impact * 0.25) + (Spatial Extent * 0.20) + (Warning Time * 0.15) + (Duration * 0.15)]$$

Priority Risk Index and Hazard Risk

Hazard risk is determined by calculating the Risk Factor for each hazard impacting Lafourche Parish. A summary of the PRI is found in the following table. The conclusions drawn from the qualitative and quantitative assessments are fitted into three categories based on High, Moderate, or Low designations. Hazards identified as high risk have risk factors of 2.5 or greater. Risk Factors ranging from 2.0 to 2.4 are deemed moderate risk hazards. Hazards with Risk Factors less than 2.0 are considered low risk.

Table 2-9: Summary of the Priority Risk Index.

PRI Category	Degree of Risk			Assigned Weighting Factor
	Level	Criteria	Index Value	
Probability	Unlikely	Less than 1% annual probability	1	25%
	Possible	Between 1 and 10% annual probability	2	
	Likely	Between 10 and 100% probability	3	
	Highly Likely	100% annual probability	4	
Impact	Minor	Very few injuries, if any. Only minor property damage and minimal disruption on quality of life. Temporary shutdown of critical facilities.	1	25%
	Limited	Minor injuries only. More than 10% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than one day.	2	
	Critical	Multiple deaths/injuries possible. More than 25% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than a week.	3	
	Catastrophic	High number of deaths/injuries possible. More than 50% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for 30 days or more.	4	
Spatial Extent	Negligible	Less than 1% of area affected	1	20%
	Small	Between 1 and 10% of area affected	2	
	Moderate	Between 10 and 50% of area affected	3	
	Large	Between 50 and 100% of area affected	4	
Warning Time	More than 24 hours	Self-explanatory	1	15%
	12 to 24 hours	Self-explanatory	2	
	6 to 12 hours	Self-explanatory	3	
	Less than 6 hours	Self-explanatory	4	
Duration	Less than 6 hours	Self-explanatory	1	15%
	Less than 24 hours	Self-explanatory	2	
	Less than one week	Self-explanatory	3	
	More than one week	Self-explanatory	4	

Table 2-10: Associated Risk Factor with PRI Value Range.

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

Table 2-11: Risk Assessment for Lafourche 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	2	2	4	3	1.9
Thunderstorms - Hail	3	2	3	3	1	2.45
Thunderstorms - Lightning	3	2	2	3	1	2.25
Thunderstorms - Winds	4	2	3	3	1	2.7
Tornadoes	4	3	2	4	3	3.2
Tropical Cyclones	4	4	4	1	4	3.55

Hazard Identification

Coastal Hazards/Subsidence

Coastal land loss is the loss of land (especially beach, shoreline, or dune material) by natural and/or human influences. Coastal land loss occurs through various means, including erosion, subsidence (the sinking of land over time as a result of natural and/or human-caused actions), saltwater intrusion, coastal storms, littoral drift, changing currents, manmade canals, rates of accretion, and sea level rise. The effects of these processes are difficult to differentiate because of their complexity and because they often occur simultaneously, with one influencing each of the others.

Some of the worst recent contributors to coastal land loss in the state are the tropical cyclones of the past decade. Two storms that stand out in this regard are Hurricanes Katrina and Rita. These powerful cyclones completely covered large tracts of land in a very brief period, permanently altering the landscape. The disastrous legacy of these storms concentrated already ongoing efforts to combat coastal land loss. Consistent with the 2014 State Hazard Mitigation Plan Update, coastal land loss is considered in terms of two of the most dominant factors: sea level rise and subsidence.

Sea level rise and subsidence impact Louisiana in a similar manner—again making it difficult to separate impacts. Together, rising sea level and subsidence—known together as relative sea level rise—can accelerate coastal erosion and wetland loss, exacerbate flooding, and increase the extent and frequency of storm impacts. According to NOAA, global sea level rise refers to the upward trend currently observed in the average global sea level. Local sea level rise is the level that the sea rises relative to a specific location (or, benchmark) at the coastline. The most prominent causes of sea level rise are thermal expansion, tectonic actions (such as sea floor spreading), and the melting of the Earth's glacial ice caps.

The current U.S. Environmental Protection Agency (EPA) estimate of global sea level rise is 10–12 in. per century, while future sea level rise could be within the range of 1–4 ft. by 2100. According to the U.S. Geological Survey (USGS), the Mississippi Delta plain is subject to the highest rate of relative sea level rise of any region in the nation largely due to rapid geologic subsidence.

Subsidence results from a number of factors including:

- Compaction/consolidation of shallow strata caused by the weight of sediment deposits, soil oxidation, and aquifer draw-down (shallow component)
- Gas/oil/resource extraction (shallow & intermediate component)
- Consolidation of deeper strata (intermediate components)
- Tectonic effects (deep component)

For the most part, subsidence is a slow-acting process with effects that are not as evident as hazards associated with discrete events. Although the impacts of subsidence can be readily seen in coastal parishes over the course of decades, subsidence is a “creeping” hazard. The highest rate of subsidence is occurring at the Mississippi River Delta (estimated at greater than 3.5 ft./century). Subsidence rates tend to decrease inland, and they also vary across the coast.

Overall, subsidence creates three distinct problems in Louisiana:

- By lowering elevations in coastal Louisiana, subsidence accelerates the effects of saltwater intrusion and other factors that contribute to land loss.
- By lowering elevations, subsidence may make structures more vulnerable to flooding.
- By destabilizing elevations, subsidence undermines the accuracy of surveying benchmarks (including those affecting levee heights, coastal restoration programs, surge modeling, BFEs, and other engineering inputs), which can contribute to additional flooding problems if construction occurs at lower elevations than anticipated or planned.

Saltwater intrusion is one of the major causes of subsidence and marshland loss. Saltwater intrusion refers to the movement of saltwater into freshwater aquifers, or to the encroachment of saline water into freshwater estuaries. This intrusion flows into streams discharging into the Gulf of Mexico as well as the marsh areas, subsequently into freshwater streams. Intrusion of saltwater 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.

Location

Historic areas of coastal land loss and gain (*Figure 2-7*) and subsidence rates (*Figure 2-8*) have been quantified for Lafourche Parish using data from the U.S. Geologic Survey and Louisiana Coastal Protection and Restoration Authority (CPRA). Since 1932, the average annual land loss in Louisiana is 35 mi², while the average annual land gain has been 3 mi² for a net loss of 32 mi² per year. Land loss is primarily occurring on the southern coastline along the Gulf of Mexico in the unincorporated Lafourche Parish and in the eastern portion of the town of Golden Meadow (*Figure 2-7*). Subsidence is occurring in all of unincorporated Lafourche Parish as well as the jurisdictions of the Golden Meadow, Lockport, and Thibodaux (*Figure 2-8*).

Saltwater intrusion, which is one of the major causes of coastal land loss, occurs when salt water from the Gulf of Mexico flows inland to freshwater intakes and marshes. Saltwater intrusion also contaminates

drinking water and affects the propagation of fish and wildlife, especially in the river of Bayou Lafourche, which traverses from north to south through the parish.

Previous Occurrences / Extent

Coastal land loss is an ongoing process, including discrete (hurricanes) and continuous (subsidence, sea level rise) processes. While historic flood loss data undoubtedly include the effects of coastal land loss, specific previous occurrences have not been identified as a source of direct disaster damage in Louisiana. Rather, the effects of the underlying flood or hurricane storm surge hazard are recorded. Land loss is a significant hazard, however, and assessment of the added flood impacts caused by land loss is quantified in the following sections. The southern unincorporated portions of Lafourche Parish and the incorporated area of Golden Meadow can expect to experience subsidence rates of approximately 25 mm annually while the incorporated areas of Lockport and Thibodaux can expect to experience subsidence rates of approximately 10 mm annually.

Frequency / Probability

Subsidence, sea level rise, and coastal land loss are ongoing hazards. Based on historical subsidence rates and land loss/gain trends, the probability of future land loss in Louisiana is 100% certain, but actual rates of subsidence and land loss/gain vary along the coast based on various meteorological, geological, and human-influenced dynamics (e.g., water/resource extraction, canal dredging, saltwater intrusion, marsh restoration projects, etc.). The following table displays the annual probability of occurrence for coastal land loss/subsidence for Lafourche Parish and its jurisdictions.

Table 2-12: Estimated Annual Probability of Coastal Land Loss in Lafourche Parish.
(Source: Hazus)

Unincorporated Area	Golden Meadow	Lockport	Thibodaux
100%	100%	100%	100%

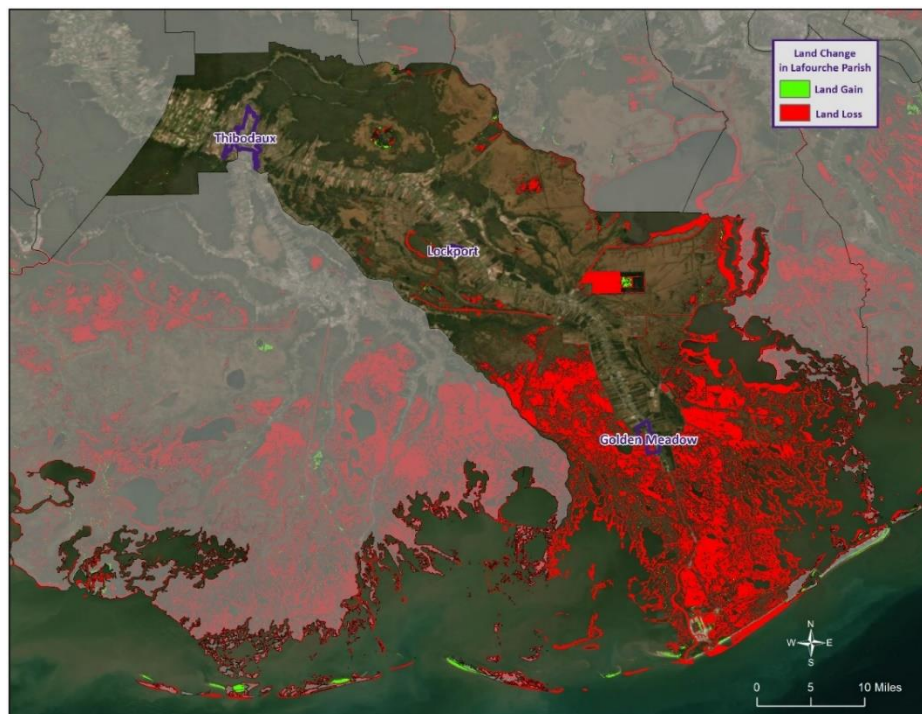
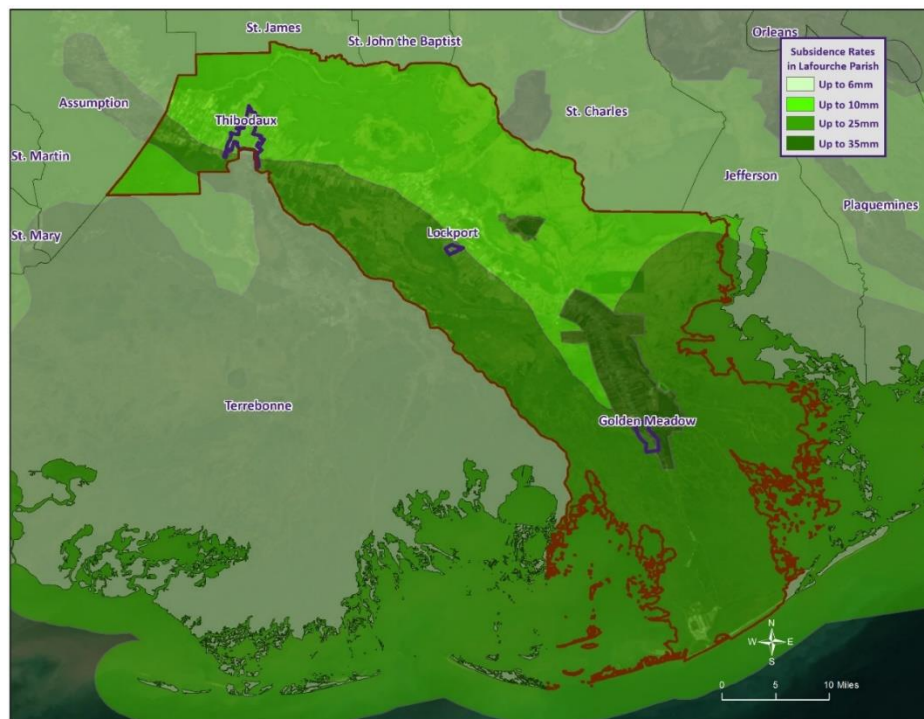


Figure 2-7: Historical Areas of Land Loss and Gain between 1932 and 2010.
(Source: State of Louisiana Hazard Mitigation Plan)



*Figure 2-8: Maximum Annual Subsidence Rates Based on Subsidence Zones in Coastal Louisiana.
(Source: State of Louisiana Hazard Mitigation Plan)*

Estimated Potential Losses

To determine the estimated potential losses, the methodology implemented in the 2014 Louisiana State Plan Update was used. In the state plan, two parameters were considered to estimate the projected increase in coastal flood losses from storm surge scenarios – global sea level rise and subsidence. A timeframe of 10 years was used for evaluation of future effects of sea level rise and subsidence for comparison with current conditions. The NOAA Sea, Lake and Overland Surges from Hurricanes (SLOSH) model was used to estimate the maximum of maximum (MOM) storm surge elevations for a Category 1 hurricane at mean tide along the coast of Louisiana. The MOM scenario is not designed to describe the storm surge that would result from a particular event, but rather evaluates the impacts of multiple hurricane scenarios with varying forward speeds and storm track trajectories to create the maximum storm surge elevation surface that would occur given the simultaneous occurrence of all hurricane events for a given category.

There are many global sea level rise scenarios from which to select; however, within a 10-year timeframe, methods that predict accelerating sea level rise rates do not deviate significantly from straight line methods. Therefore, a linear sea level rise projection for the sea level rise occurring in 10 years (SLR2024) using a linear global sea level rise rate of 3.1 mm/year was used (IPCC, 2007), which is also in accordance with the CPRA Coastal Master Plan. This resulted in an increase of 0.1 feet, which was applied to the NOAA MOM storm surge elevation results over the model output domain.

$$SLR_{2024} = 0.0031 \frac{m}{year} \times 10 \text{ years}$$

$$SLR_{2024} = 0.031 \text{ meters} = 0.10 \text{ ft in 2024}$$

To estimate the effects of subsidence, the elevation profile for southern Louisiana was separated into sections based on subsidence zones. The 20th percentile values for subsidence were used, in accordance with the CPRA Master Plan, and subtracted from the digital elevation model (DEM) for each zone and re-joined to create a final subsided ground elevation layer.

To perform the economic loss assessment, depth grids were created for current conditions (SLOSH MOM Results – Current Land Elevation) and for projected 2024 conditions ([SLOSH MOM Results + 0.1 ft sea level rise] – [Current Land Elevation – Subsidence]). Hazus was used to calculate economic loss for the current and future depth grids.

Figure 2-9 shows the projected increase in total flood loss resulting from a SLOSH Category 1 MOM in the year 2014, with many areas expecting increase in losses. Some areas that would be currently unaffected by a SLOSH Category 1 MOM would be impacted in ten years based on subsidence and sea level rise projections (Figure 2-10).

To determine annual potential loss estimates for coastal land loss, increased exposure estimates over the next 10 years calculated using Hazus were annualized at the parish level (Figure 2-11). To provide an annual estimated potential loss per jurisdiction, the total loss for the census block groups within each jurisdiction were calculated. Based on hazard exposure, Table 2-13 provides an estimate of annual potential losses for Lafourche Parish.

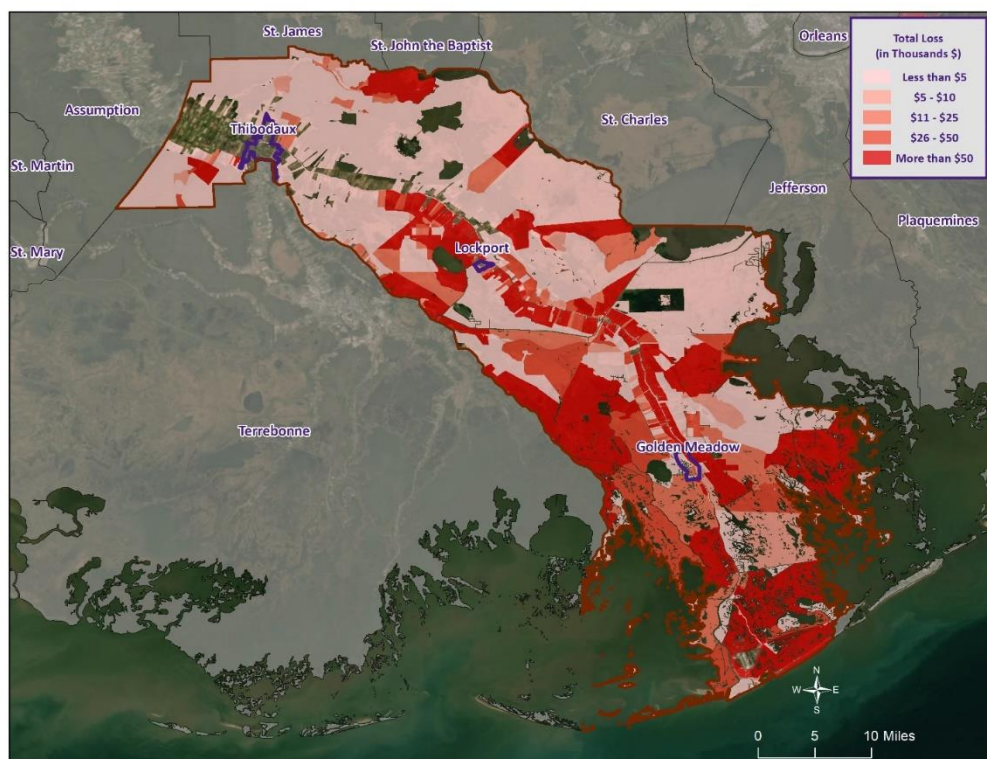


Figure 2-9: Increase in Total Loss Estimates in 2024 by Census Block Group Based on the Hazus Flood Model and NOAA SLOSH Model.

(Source: State of Louisiana Hazard Mitigation Plan)

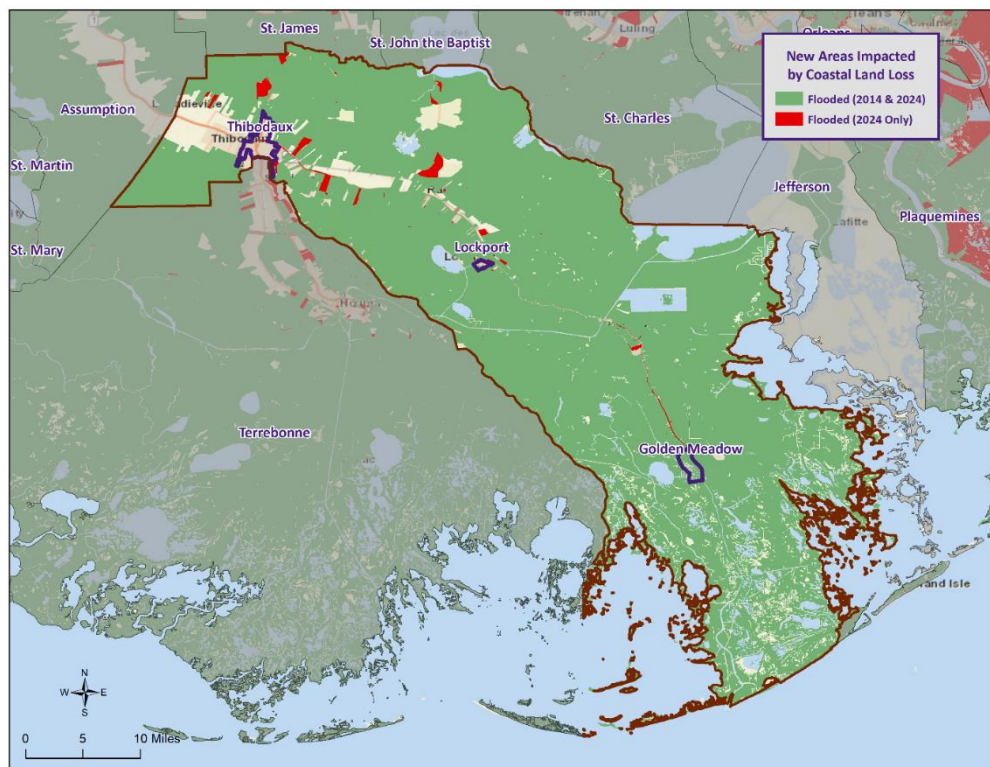


Figure 2-10: Census Block Groups Not Currently Impacted by Category 1 Hurricane Storm Surge but Expected to be Impacted in 2024 are Shown in Red.
(Source: State of Louisiana Hazard Mitigation Plan)

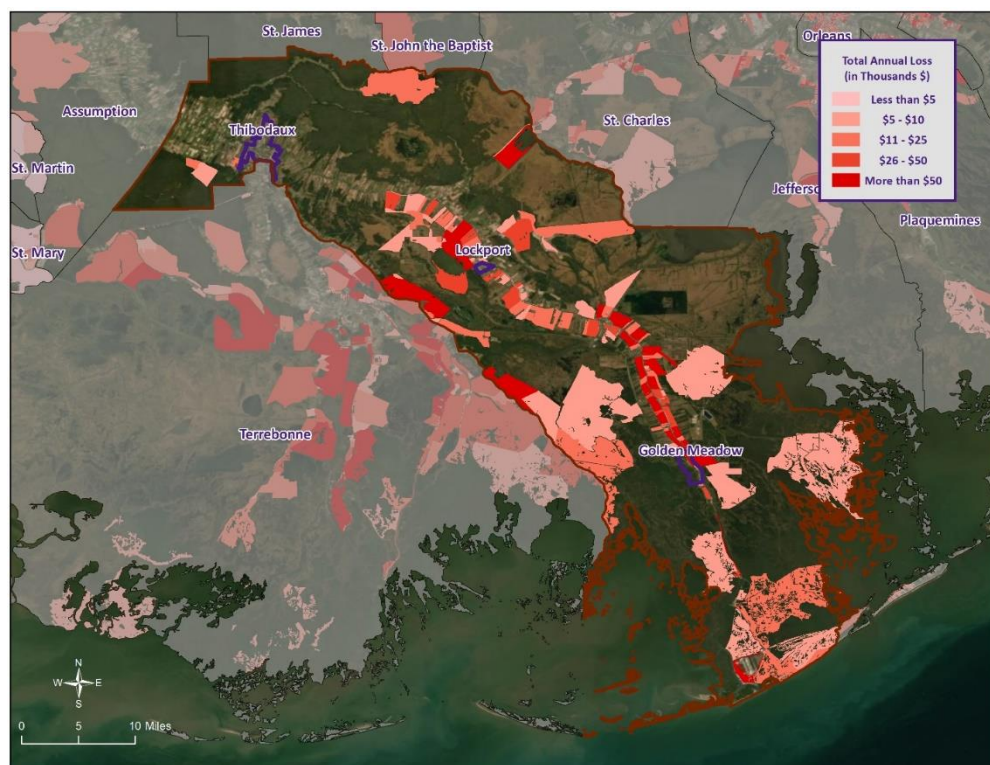


Figure 2-11: Estimated Annual Losses for Coastal Land Loss by Census Block Group.

The following table shows the current and future exposure potential based on the Hazus inventory database.

*Table 2-13: Estimated Annual Losses for Coastal Land Loss in Lafourche Parish.
(Source: Hazus)*

Coastal Land Loss Estimated Annual Potential Losses			
Unincorporated Area	Golden Meadow	Lockport	Thibodaux
\$5,996,100	\$385,200	\$193,100	\$0

Threat to People

Coastal land loss can impact all demographics and age groups. Buildings located within highly vulnerable coastal land loss areas could be eventually permanently shut down and forced to re-locate. Long-term sheltering and permanent relocation could be a concern for communities that are at the highest risk for future coastal land loss. The total population within the parish that is susceptible to the effects of coastal land loss are shown in the following table.

Table 2-14: Number of People Susceptible to Coastal Land Loss in Lafourche Parish.

Number of People Exposed to Coastal Land Loss Hazards			
Location	# in Community	# in Hazard Area	% in Hazard Area
Lafourche Parish (Unincorporated)	77,073	44,619	57.9%
Golden Meadow	2,101	1,479	70.4%
Lockport	2,578	1,376	53.4%
Thibodaux	14,566	0	0%
Total	96,318	47,474	49.3%

The Hazus hurricane model was used to identify populations vulnerable to coastal land loss throughout the jurisdictions in the tables below:

Table 2-15: Population Vulnerable to Coastal Land Loss in the Unincorporated Area of Lafourche Parish.

Lafourche Parish (Unincorporated)		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	44,619	57.9%
Persons Under 5 years	2,856	6.4%
Persons Under 18 years	10,619	23.8%
Persons 65 Years and Over	6,024	13.5%
White	36,097	80.9%
Minority	8,522	19.1%

Table 2-16: Population Vulnerable to Coastal Land Loss in Golden Meadow.

Golden Meadow		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	1,479	70.4%
Persons Under 5 years	93	6.3%
Persons Under 18 years	258	17.5%
Persons 65 Years and Over	222	15.0%
White	1,234	83.4%
Minority	245	16.6%

Table 2-17: Population Vulnerable to Coastal Land Loss in Lockport.

Lockport		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	1,376	53.4%
Persons Under 5 years	99	7.2%
Persons Under 18 years	215	15.6%
Persons 65 Years and Over	217	15.8%
White	1,266	92.0%
Minority	110	8.0%

Vulnerability

See Appendix C for parish and municipality buildings that are susceptible to coastal land loss and subsidence.

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.

Factors influencing the type and severity of flooding include natural variables such as precipitation, topography, vegetation, soil texture, and seasonality, as well as anthropogenic factors such as urbanization (extent of impervious surfaces), land use (agricultural and forestry tend to remove native vegetation and accelerate soil erosion), and the presence of flood-control structures such as levees and dams.

Excess precipitation, produced from thunderstorms or hurricanes, is often the major initiating condition for flooding, and Louisiana can have high rainfall totals at any time of day or year. During the cooler months, slow-moving frontal weather systems produce heavy rainfalls, while the summer and autumn seasons produce major precipitation in isolated thunderstorm events (often on warm afternoons) that may lead to localized flooding. During these warmer seasons, floods are overwhelmingly of the flash flood variety, as opposed to the slower-developing river floods caused by heavy stream flow during the cooler months.

In cooler months, particularly in the spring, Louisiana is in peak season for severe thunderstorms. The fronts that cause these thunderstorms often stall while passing over the state, occasionally producing rainfall totals exceeding ten inches within a period of a few days. Since soil tends to be nearly saturated at this time (due to relatively low overall evaporation rates), spring typically becomes the period of maximum stream flow across the state. Together, these characteristics increase the potential for high water, with low-lying, poorly drained areas being particularly susceptible to flooding during these months.

In Louisiana, six specific types of flooding are of main concern: riverine, flash, ponding, backwater, urban, and coastal.

- **Riverine flooding** occurs along a river or smaller stream. It is the result of runoff from heavy rainfall or intensive snow or ice melt. The speed with which riverine flood levels rise and fall depends not only on the amount of rainfall, but even more on the capacity of the river itself, as well as the shape and land cover of its drainage basin. The smaller the river, the faster that water levels rise and fall. Thus, the Mississippi River levels rise and fall slowly due to its large capacity. Generally, elongated and intensely-developed drainage basins will reach faster peak discharges and faster falls than circular-shaped and forested basins of the same area.
- **Flash flooding** occurs when locally intense precipitation inundates an area in a short amount of time, resulting in local stream flow and drainage capacity being overwhelmed.
- **Ponding** occurs when concave areas (e.g., parking lots, roads, and clay-lined natural low areas) collect water and are unable to drain.
- **Backwater flooding** occurs when water slowly rises from a normally unexpected direction where protection has not been provided. A model example is the flooding that occurred in LaPlace

during Hurricane Isaac in 2012. Although the town was protected by a levee on the side facing the Mississippi River, floodwaters from Lake Maurepas and Lake Pontchartrain crept into the community on the side of town opposite the Mississippi River.

- **Urban flooding** is similar to flash flooding but is specific to urbanized areas. It takes place when storm water drainage systems cannot keep pace with heavy precipitation, and water accumulates on the surface. Most urban flooding is caused by slow-moving thunderstorms or torrential rainfall.
- **Coastal flooding** can appear similar to any of the other flood types, depending on its cause. It occurs when normally dry coastal land is flooded by seawater, but may be caused by direct inundation (when the sea level exceeds the elevation of the land), overtopping of a natural or artificial barrier, or the breaching of a natural or artificial barrier (i.e., when the barrier is broken down by the sea water). Coastal flooding is typically caused by storm surge, tsunamis, or gradual sea level rise.

Historically, in Lafourche Parish, all six types of flooding events have historically been observed. For purposes of this assessment, ponding, flash flood, and urban flooding are considered to be flooding as a result of storm water from heavy precipitation thunderstorms

Based on stream gauge levels and precipitation forecasts, the National Weather Service (NWS) posts flood statements, watches, and warnings. The NWS issues the following weather statements with regard to flooding:

- **Flood Categories**
 - Minor Flooding: Minimal or no property damage, but possibly some public threat.
 - Moderate Flooding: Some inundation of structures and roads near streams. Some evacuations of people and/or transfer of property to higher elevations.
 - Major Flooding: Extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations.
 - Record Flooding: Flooding which equals or exceeds the highest stage or discharge at a given site during the period of record keeping.
- **Flood Warning**
 - Issued along larger streams when there is a serious threat to life or property.
- **Flood Watch**
 - Issued when current and developing hydrometeorological conditions are such that there is a threat of flooding, but the occurrence is neither certain nor imminent.

Floods are measured mainly by probability of occurrence. A 10-year flood event, for example, is an event of small magnitude (in terms of stream flow or precipitation) but with a relatively high annual probability of recurrence (10%). A 100-year flood event is larger in magnitude, but it has a smaller chance of recurrence (1%). A 500-year flood is significantly larger than both a 100-year event and a 10-year event, but it has a lower probability than both to occur in any given year (0.2%). It is important to understand that an X-year flood event does not mean an event of that magnitude occurs only once in X years. Instead, it means that on average, we can expect a flood event of that magnitude to occur once every X years. Given that such statistical probability terms are inherently difficult for the general population to understand, the Association of State Floodplain Managers (ASFPM) promotes the use of more tangible expressions of flood probability. As such, the ASFPM also expresses the 100-year flood event as having a 25% chance of occurring over the life of a 30-year mortgage.

It is essential to understand that the magnitude of an X-year flood event for a particular area depends on the source of flooding and the area's location. The size of a specific flood event is defined through historic data of precipitation, flow, and discharge rates. Consequently, different 100-year flood events can have very different impacts. The 100-year flood event in two separate locations have the same likelihood to occur, but they do not necessarily have the same magnitude. For example, a 100-year event for the Mississippi River means something completely different in terms of discharge values (ft^3/s) than for the Amite River. Not only are the magnitudes of 100-year events different between rivers, they can be different along any given river. A 100-year event upstream is different from one downstream due to the change of river characteristics (volume, discharge, and topography). As a result, the definition of what constitutes a 100-year flood event is specific to each location, river, and time, since floodplain and river characteristics change over time. Finally, it is important to note that each flood event is unique. Two hypothetical events at the same location, given the same magnitude of stream flow, may still produce substantially different impacts if there were different antecedent moisture characteristics, different times of day of occurrence (which indicates the population's probable activities at the flood's onset), or other characteristic differences.

The 100-year flood event is of particular significance since it is the regulatory standard that determines the obligation (or lack thereof) to purchase flood insurance. Flood insurance premiums are set depending on the flood zone, as modeled by National Flood Insurance Program (NFIP) Rate Maps. The NFIP and FEMA suggest insurance rates based on Special Flood Hazard Areas (SFHAs), as diagrammed in *Figure 2-12*.

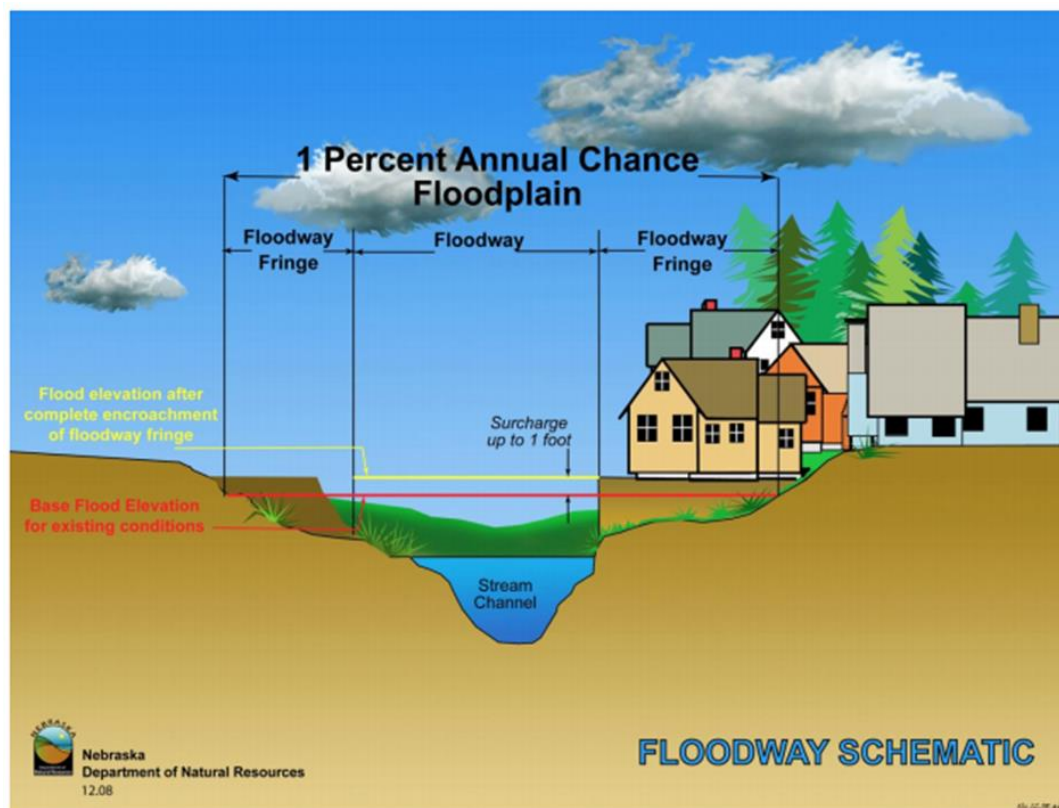


Figure 2-12: Schematic of 100-year Floodplain. The Special Flood Hazard Area (SFHA) extends to the end of the floodway fringe.

(Source: Nebraska Department of Natural Resources)

A SFHA is the land area covered by the floodwaters of the base flood (red line in *Figure 2-12*), where the NFIP's floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies.

Property Damage

The depth and velocity of flood waters are the major variables in determining property damage. Flood velocity is important because the faster water moves, the more pressure it puts on a structure and the more it will erode stream banks and scour the earth around a building's foundation. In some situations, deep and fast moving waters can push a building off its foundation. Structural damage can also be caused by the weight of standing water (hydrostatic pressure).

Another threat to property from a flood is called "soaking". When soaked, many materials change their composition or shape. Wet wood will swell, and if dried too quickly, will crack, split, or warp. Plywood can come apart and gypsum wallboard can deteriorate if it is bumped before it has time to completely dry. The longer these materials are saturated, the more moisture, sediment, and pollutants they absorb.

Soaking can also cause extensive damage to household goods. Wooden furniture may become warped, making it unusable, while other furnishings such as books, carpeting, mattresses, and upholstery usually are not salvageable. Electrical appliances and gasoline engines will flood, making them worthless until they are professionally dried and cleaned.

Many buildings that have succumbed to flood waters may look sound and unharmed after a flood, but water has the potential to cause severe property damage. Any structure that experiences a flood should be stripped, cleaned, and allowed to dry before being reconstructed. This can be an extremely expensive and time consuming effort.

Repetitive Loss Properties

Repetitive loss structures are structures covered by a contract for flood insurance made available under the NFIP that:

- a. Have incurred flood-related damage on two occasions, in which the cost of the repair, on average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event; and
- b. At the time of the second incidence of flood-related damage, the contract for flood insurance contains increased cost of compliance coverage.

Severe repetitive loss (SRL) is defined by the Flood Insurance Reform Act of 2004 and updated in the Biggert-Waters Flood Insurance Reform Act of 2012. For a property to be designated SRL, the following criteria must be met:

- a. It is covered under a contract for flood insurance made available under the NFIP; and
- b. It has incurred flood related damage –
 - 1) For which four or more separate claims payments have been made under flood insurance coverage with the amount of each claim exceeding \$5,000 and with the cumulative amount of such claims payments exceeding \$20,000; or
 - 2) For which at least two separate claims payments have been made under such coverage, with the cumulative amount of such claims exceeding the market value of the insured structure.

Figures regarding repetitive loss structures for Lafourche Parish are provided in the table below:

Table 2-18: Repetitive Loss Structures for Lafourche Parish.

Jurisdiction	Number of Structures	Residential	Commercial	Government	Total Claims	Total Claims Paid	Average Claim Paid
Lafourche Parish (Unincorporated)	388	355	31	2	1,168	\$26,957,165	\$23,080
Golden Meadow	12	5	7	0	37	\$597,886	\$16,159
Lockport	16	16	0	0	39	\$909,581	\$23,322
Thibodaux	22	21	1	0	76	\$995,117	\$45,233
Total	438	397	39	2	1,320	\$29,459,749	\$22,318

Of the 438 repetitive loss structures, 385 were geocoded in order to provide an overview of where the repetitive loss structures are located throughout the parish. *Figure 2-13* shows the approximate location of the structures, while *Figure 2-14* shows where the highest concentration of repetitive loss structures are located. Through the repetitive loss map, it is clear the primary concentrated area of repetitive loss structures is focused around the unincorporated southeastern coastal areas and western areas of Lafourche Parish around Thibodaux and Lockport.

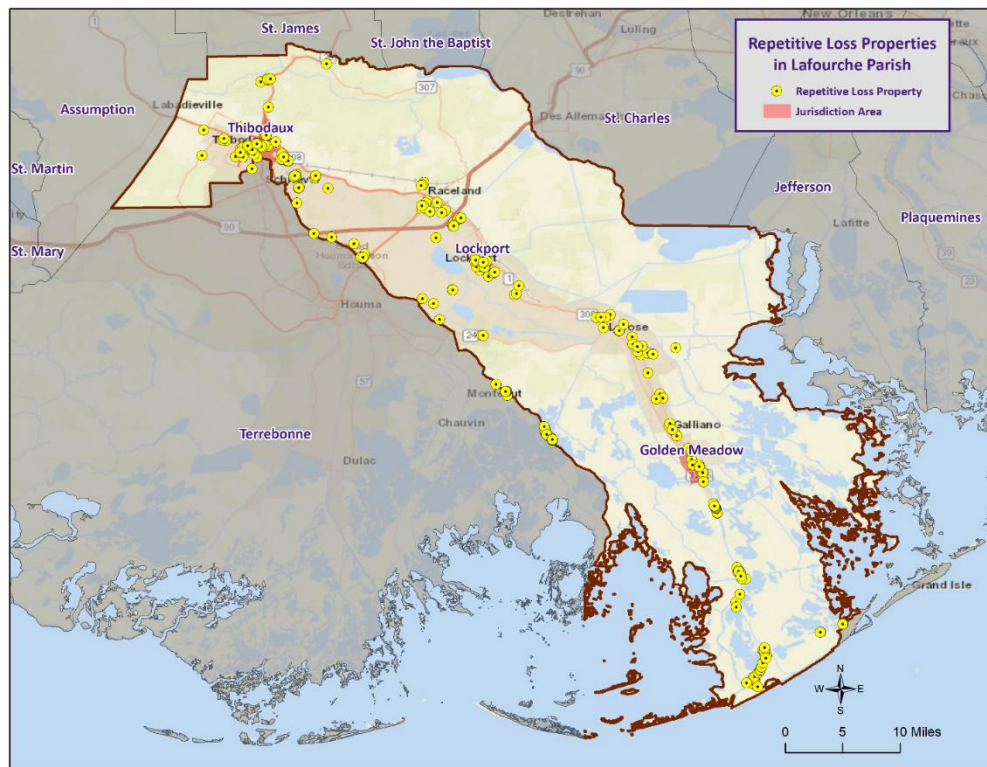


Figure 2-13: Repetitive Loss Properties in Lafourche Parish.

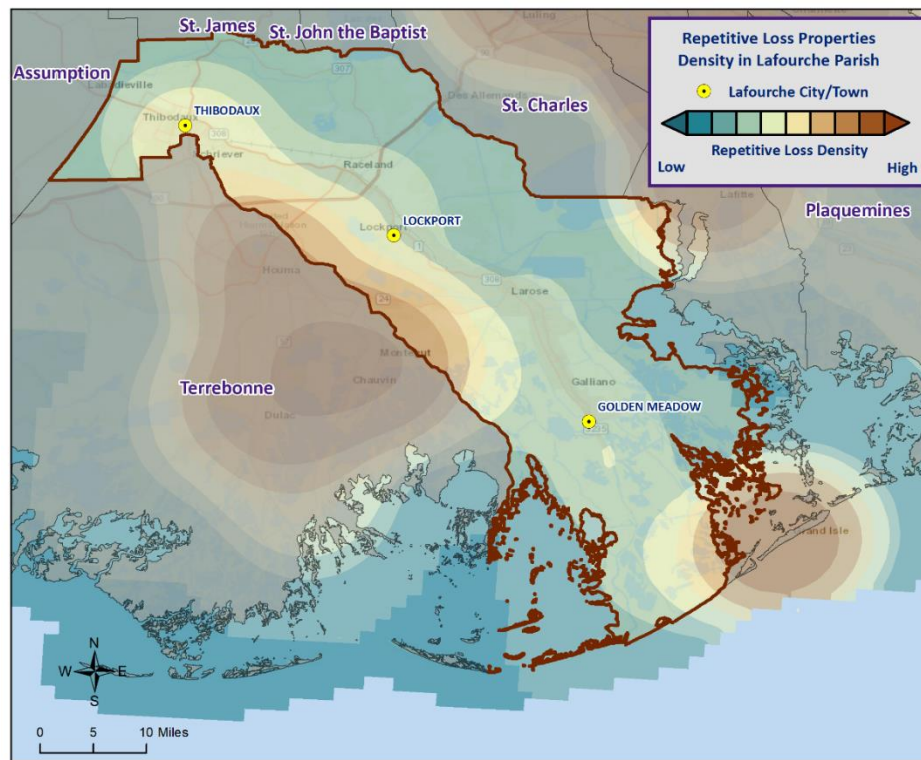


Figure 2-14: Repetitive Loss Property Densities in Lafourche Parish.

National Flood Insurance Program

Flood insurance statistics indicate that Lafourche Parish has 13,163 flood insurance policies with the NFIP, with total annual premiums of \$10,492,788. Lafourche Parish and the jurisdictions of Golden Meadow, Lockport, and Thibodaux are all participants in the NFIP. Lafourche Parish and all of its jurisdictions will continue to adopt and enforce floodplain management requirements, including regulating new construction Special Flood Hazard Areas, and will continue to monitor activities including local requests for new map updates. Flood insurance statistics and additional NFIP participation details for Lafourche Parish and its jurisdictions is provided in the tables to follow.

Table 2-19: Summary of NFIP Policies for Lafourche Parish

Location	No. of Insured Structures	Total Insurance Coverage Value	Annual Premiums Paid
Lafourche Parish (Unincorporated Area)	11,666	\$2,763,832,211	\$9,471,655
Golden Meadow	345	\$48,455,000	\$322,121
Lockport	399	\$65,032,200	\$301,914
Thibodaux	753	\$205,455,500	\$397,098
Total	13,163	\$3,082,774,911	\$10,492,788

Table 2-20: Summary of Community Flood Maps for Lafourche Parish.

CID	Community Name	Initial FHBM Identified	Initial FIRM Identified	Current Effective Map Date	Date Joined the NFIP	Tribal
225202#	Lafourche Parish	5/8/1971	7/1/1974	5/4/1992	4/17/1985	No
225196#	Golden Meadow	11/20/1970	9/11/1970	7/11/1975	11/20/1970	No
220254#	Lockport	1/10/1975	8/15/1980	8/15/1980	8/15/1980	No
220111#	Thibodaux	2/12/1974	2/7/1978	12/15/1989	2/7/1978	No

According to the Community Rating System (CRS) list of eligible communities dated October 1, 2020, Lafourche Parish participates in the CRS, but jurisdictions of Golden Meadow, Lockport, and Thibodaux do not participate in the program.

Table 2-21: Participants in the Community Rating System.

Community Number	Community Name	CRS Entry Date	Current Effective Date	Current Class	% Discount for SFHA	% Discount for Non-SFHA	Status
225202	Lafourche Parish	1/1/1992	5/1/2004	10	0%	0%	R

Threat to People

Just as with property damage, depth and velocity are major factors in determining the threat posed to people by flooding. It takes very little depth or velocity for flood waters to become dangerous. A car will float in less than two feet of moving water, and can be swept downstream into deeper waters, trapping passengers within the vehicle. Victims of floods have often put themselves in perilous situations by entering flood waters that they believe to be safe, or by ignoring travel advisories.

Major health concerns are also associated with floods. Flood waters can transport materials such as dirt, oil, animal waste, and chemicals (e.g., farm, lawn, and industrial) that may cause illnesses of various degrees when coming in contact with humans. Flood waters can also infiltrate sewer lines and inundate wastewater treatment plants, causing sewage to backup and creating a breeding ground for dangerous bacteria. This infiltration may also cause water supplies to become contaminated and undrinkable.

Flooding in Lafourche Parish

By definition, flooding is caused when an area receives more water than the drainage system can convey. The following is a synopsis of the types of flooding that Lafourche Parish experiences.

Flash Floods: Flash floods are characterized by a rapid rise in water level, high velocity, and large amounts of debris. They are capable of uprooting trees, undermining buildings and bridges, and scouring new channels. Major factors in flash flooding are the high intensity and short duration of rainfall, as well as the steepness of watershed and stream gradients.

Local Drainage or High Groundwater Levels: Locally heavy precipitation may produce flooding in areas other than delineated floodplains or along recognizable drainage channels. If local conditions cannot accommodate intense precipitation through a combination of infiltration and surface runoff, water may accumulate and cause flooding problems.

Backwater Flooding: Backwater flooding is normally associated with riverine flooding and connotes minimal velocity. All low-lying areas are at risk. A heavy rainfall event coupled with a swollen river, canal, bayou, or marsh hinders drainage outflow, causing backwater flooding to the same areas susceptible to storm surge.

Riverine Flooding: Riverine flooding, by definition, is river-based. Most of the riverine flooding problems occur when a river crests at flood stage levels, causing extensive flooding in low-lying areas.

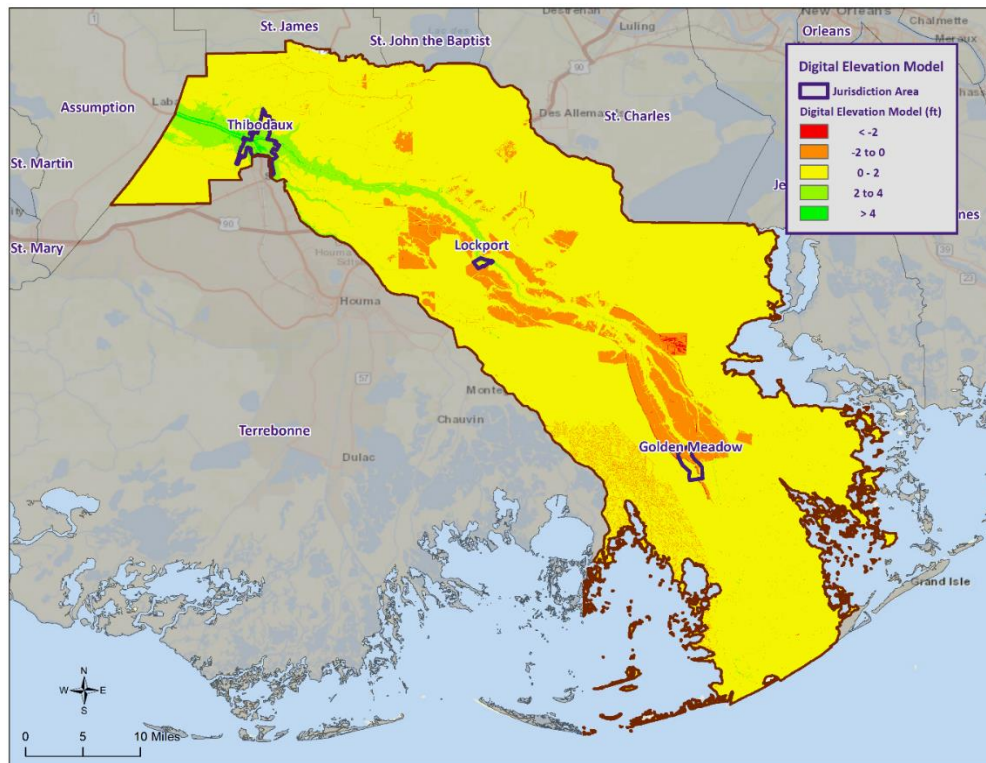


Figure 2-15: Elevation throughout Lafourche Parish.

The digital elevation model (DEM) in the figure above for Lafourche Parish is instructive in visualizing where the low-lying and high-risk areas are for the parish. The DEM shows the areas located in the middle and northern parts of the parish are the highest elevations of the parish. These areas are at or near 0 to 2 feet (NAVD88) in elevation. The elevations in Golden Meadow are at or below 0 feet (NAVD88) in elevation while the incorporated areas of Lockport and Thibodaux are at approximately 4 feet (NAVD88) in elevation.

Location

Lafourche Parish has experienced significant flooding in its history and can expect more in the future. Lafourche Parish is susceptible to several different types of flooding due to its geographical location, including riverine, flash, and storm surge. The river, Bayou Lafourche, traverses the parish from north to south and separated the two watersheds that are located within Lafourche Parish. The area west of Bayou Lafourche is part of the Terrebonne watershed and the area east of the Bayou Lafourche is part of the Barataria watershed. Below are maps of the incorporated areas showing the areas within each jurisdiction that are at risk to flooding.

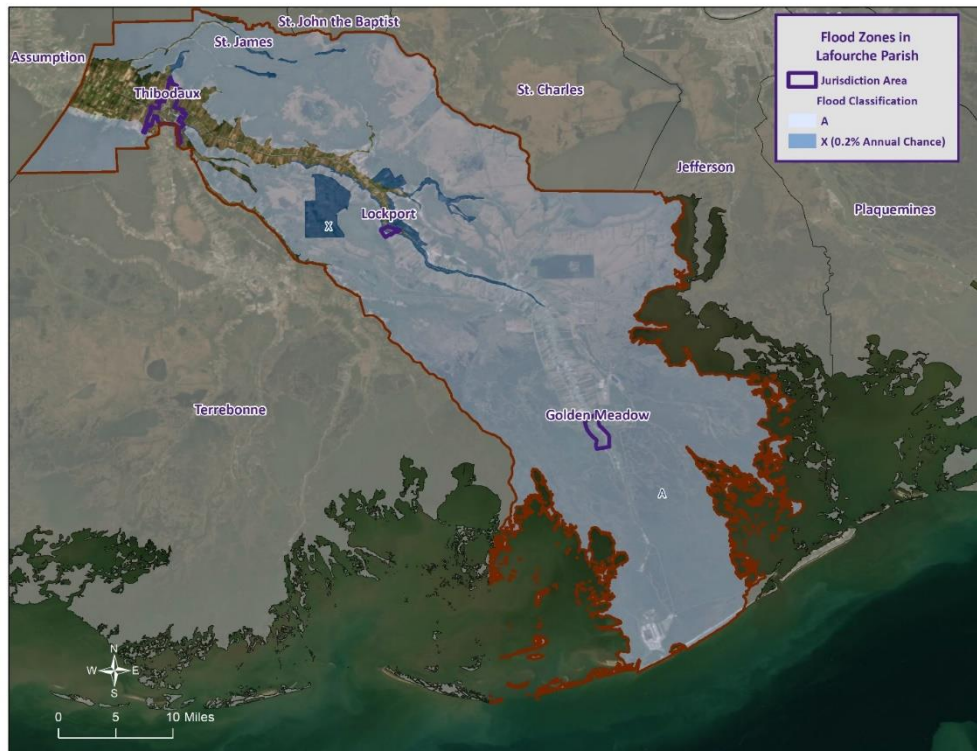


Figure 2-16: Lafourche Parish Areas within the Flood Zones.



Figure 2-17: Golden Meadow Areas within the Flood Zones.



Figure 2-18: Lockport Areas within the Flood Zones.

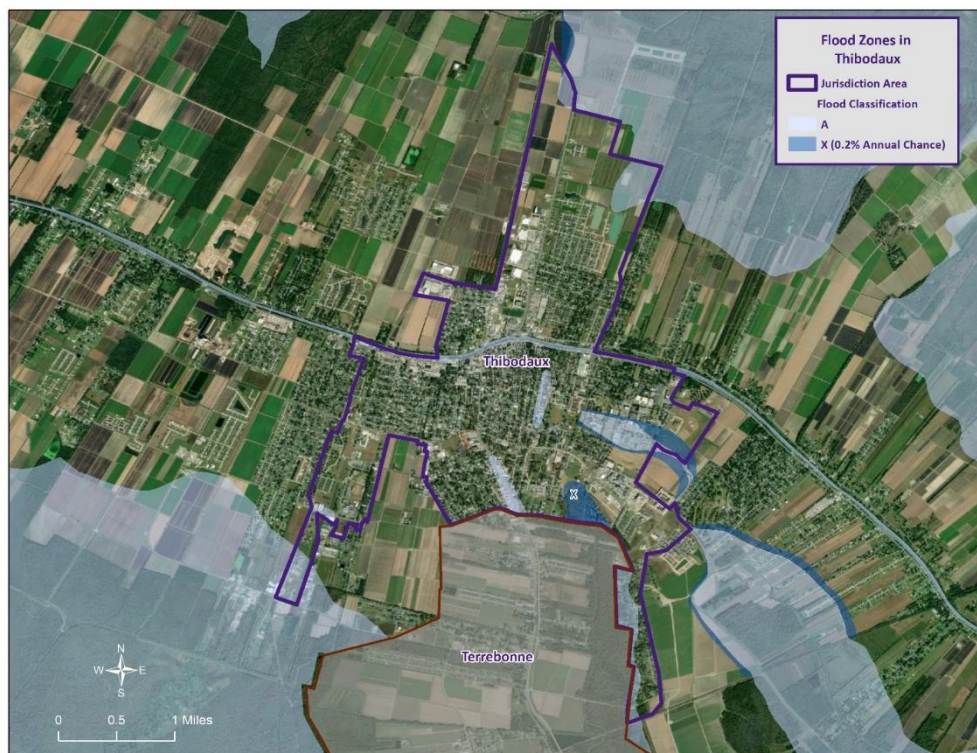


Figure 2-19: Thibodaux Areas within the Flood Zones.

Previous Occurrences / Extents

Historically, there have been 22 flooding events that have caused significant flooding in Lafourche Parish and its jurisdictions between 1989 and 2019. Below is a brief synopsis of the flooding events which occurred since the last Lafourche Parish HMP Update in 2015.

Table 2-22: Historical Floods in Lafourche Parish with Locations since the 2015 Lafourche Parish HMP Update.

Date	Extents	Type of Flooding	Estimated Damages	Location
August 29, 2017	Heavy rain from Hurricane Harvey caused a few homes in the Lockport area to flood. Multiple roads were reported to have water covering them in northern and central Lafourche Parish.	Flash Flood	\$0	PARISHWIDE

Frequency / Probability

The NCEI Storm Events Database identified 22 flooding events within the Lafourche Parish planning area since 1989. The table below shows the probability and return frequency for each jurisdiction.

Table 2-23: Annual Flood Probabilities for Lafourche Parish.

Jurisdiction	Annual Probability	Return Frequency
Lafourche Parish (Unincorporated)	64%	1 event every 1 to 2 years
Golden Meadow	24%	1 event every 4 to 5 years
Lockport	28%	1 event every 2 to 4 years
Thibodaux	36%	1 event every 2 to 3 years

Based on historical record, the overall flooding probability for the entire Lafourche Parish Planning area is 73% with 22 events occurring over a 30-year period.

Estimated Potential Losses

Using the Hazus Flood Model, the 100-year flood scenario, along with the Parish DFIRM, was analyzed to determine losses from this worst-case scenario. Table 2-24 shows the total economic losses that would result from this occurrence.

*Table 2-24: Estimated Losses in Lafourche Parish from a 100-year Flood Event.
(Source: Hazus)*

Jurisdiction	Estimated Total Losses from 100-Year Flood Event
Lafourche Parish (Unincorporated Area)	\$3,700,811,000
Golden Meadow	\$157,360,000
Lockport	\$62,528,000
Thibodaux	\$1,513,000
Total	\$3,922,212,000

The Hazus Flood model also provides a breakdown for seven primary sectors (Hazus occupancy) throughout the parish. The losses for Lafourche Parish by sector are listed in the following tables.

Table 2-25: Estimated 100-year Flood Losses for Lafourche Parish by Sector.

(Source: Hazus)

Lafourche Parish (Unincorporated)	Estimated Total Losses from 100-Year Flood Event
Agricultural	\$10,649,000
Commercial	\$500,897,000
Government	\$18,685,000
Industrial	\$139,674,000
Religious / Non-Profit	\$47,292,000
Residential	\$2,951,654,000
Schools	\$31,960,000
Total	\$3,700,811,000

Table 2-26: Estimated 100-year Flood Losses for Golden Meadow by Sector.

(Source: Hazus)

Golden Meadow	Estimated Total Losses from 100-Year Flood Event
Agricultural	\$612,000
Commercial	\$22,223,000
Government	\$570,000
Industrial	\$3,112,000
Religious / Non-Profit	\$2,404,000
Residential	\$124,779,000
Schools	\$3,660,000
Total	\$157,360,000

Table 2-27: Estimated 100-year Flood Losses for Lockport by Sector.

(Source: Hazus)

Lockport	Estimated Total Losses from 100-Year Flood Event
Agricultural	\$0
Commercial	\$3,702,000
Government	\$0
Industrial	\$827,000
Religious / Non-Profit	\$1,040,000
Residential	\$56,516,000
Schools	\$443,000
Total	\$62,528,000

*Table 2-28: Estimated 100-year Flood Losses for Thibodaux by Sector.
(Source: Hazus)*

Thibodaux	Estimated Total Losses from 100-Year Flood Event
Agricultural	\$8,000
Commercial	\$77,000
Government	\$34,000
Industrial	\$91,000
Religious / Non-Profit	\$33,000
Residential	\$1,256,000
Schools	\$14,000
Total	\$1,513,000

Threat to People

The total population within the parish that is susceptible to a flood hazard is shown in the table below:

*Table 2-29: Vulnerable Populations Susceptible to a 100-year Flood Event.
(Source: Hazus)*

Number of People Exposed to Flood Hazards			
Location	# in Community	# in Hazard Area	% in Hazard Area
Lafourche Parish (Unincorporated)	77,073	45,081	59.4%
Golden Meadow	2,101	2,101	100%
Lockport	2,578	1,181	45.8%
Thibodaux	14,566	284	1.9%
Total	96,318	49,367	51.3%

The Hazus flood model was also extrapolated to provide an overview of vulnerable populations throughout the jurisdictions in the following tables:

*Table 2-30: Vulnerable Populations Susceptible to a 100-year Flood Event in Lafourche Parish.
(Source: Hazus)*

Lafourche Parish (Unincorporated)		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	45,801	59.4%
Persons Under 5 Years	2,931	6.4%
Persons Under 18 Years	10,901	23.8%
Persons 65 Years and Over	6,183	13.5%
White	37,053	80.9%
Minority	8,748	19.1%

*Table 2-31: Vulnerable Populations Susceptible to a 100-year Flood Event in Golden Meadow.
(Source: Hazus)*

Golden Meadow		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	2,101	100%
Persons Under 5 Years	132	6.2%
Persons Under 18 Years	367	17.5%
Persons 65 Years and Over	316	15%
White	1,753	83.4%
Minority	348	16.6%

*Table 2-32: Vulnerable Populations Susceptible to a 100-year Flood Event in Lockport.
(Source: Hazus)*

Lockport		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	1,181	45.8%
Persons Under 5 Years	85	7.2%
Persons Under 18 Years	185	15.6%
Persons 65 Years and Over	186	15.8%
White	1,086	92%
Minority	95	8%

*Table 2-33: Vulnerable Populations Susceptible to a 100-year Flood Event in Thibodaux.
(Source: Hazus)*

Thibodaux		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	284	1.9%
Persons Under 5 Years	18	6.3%
Persons Under 18 Years	42	14.6%
Persons 65 Years and Over	41	14.6%
White	181	63.7%
Minority	103	36.3%

Vulnerability

See Appendix C for parish and municipality buildings that are susceptible to flooding due to proximity within the 100-year flood plain.

Sinkholes

Sinkholes are areas of ground—varying in size from a few square feet to hundreds of acres, and reaching in depth from 1 to more than 100 ft.—with no natural external surface drainage. Sinkholes are usually found in karst terrain—that is, areas where limestone, carbonate rock, salt beds, and other water-soluble rocks lie below the Earth’s surface. Karst terrain is marked by the presence of other uncommon geologic features such as springs, caves, and dry streambeds that lose water into the ground. In general, sinkholes form gradually (in the case of cover subsidence sinkholes), but they can also occur suddenly (in the case of cover-collapse sinkholes).

Sinkhole formation is a very simple process. Whenever water is absorbed through soil, encounters water-soluble bedrock, and then begins to dissolve it, sinkholes start to form. The karst rock dissolves along cracks; as the fissures grow, soil and other particles fill the gaps, loosening the soil above the bedrock. Figure 1 illustrates the development of a cover subsidence sinkhole. As the soil sinks from the surface, a depression forms, which draws in more water, funneling it down to the water-soluble rock. The increase of water and soil in the rock pushes open the cracks, again drawing more soil and water into it. This positive feedback loop continues, unless clay plugs into the cracks in the bedrock, at which time a pond may form. A sudden cover-collapse sinkhole occurs when the topsoil above dissolving bedrock does not sink but forms a bridge over the soil that is sinking beneath it. Underground soil continues to fill the bedrock fissures, until finally the soil bridge collapses and fills the void beneath it.

Both kinds of sinkholes can occur naturally or through human influence. While sinkholes tend to form naturally in karst areas, sinkholes can form in other geological areas that have been altered by humans such as mining, sewers, hydraulic fracture drilling, groundwater pumping, irrigation, or storage ponds. In all of these cases, and others, the cause for the sinkhole is that support for surface soil has been weakened or substantially removed.

In the United States, 20% of land in the United States is susceptible to sinkholes. Most of this area lies in Florida, Texas, Alabama, Missouri, Kentucky, Tennessee, and Pennsylvania. In Louisiana, most of the sinkholes are precipitated by the human-influenced collapse of salt dome caverns. The collapse of a salt dome is usually a slow process; however, it may occur suddenly and without any advance warning.

Location

Currently, there are sixteen identifiable salt dome locations in Lafourche Parish. *Figure 2-20* displays the location of the salt domes. As depicted in *Figure 2-20*, the salt domes are located sporadically throughout Lafourche Parish. Two of the salt domes are located off the shores of Lafourche Parish and are completely discounted. While the majority of the salt domes are located in unincorporated areas of the parish, the Golden Meadow Salt Dome’s two-mile buffer encompasses portions of the incorporated area of Golden Meadow. The incorporated areas of Lockport and Thibodaux are not susceptible to the impacts of sinkholes.

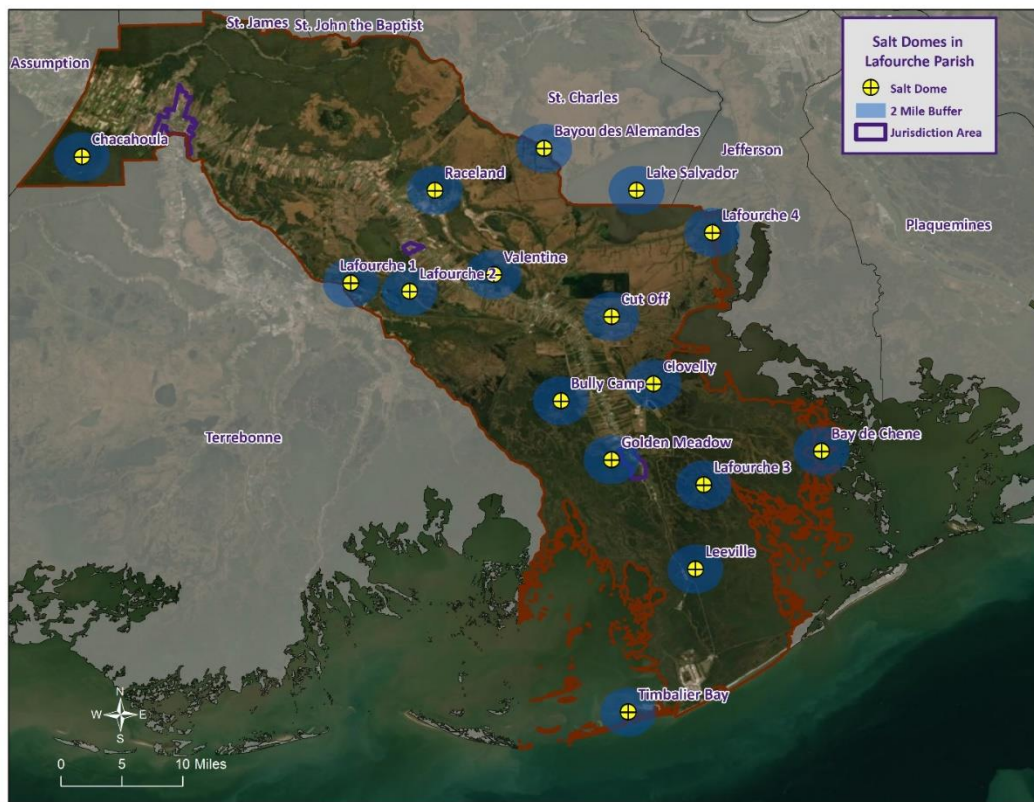


Figure 2-20: Salt Dome Locations in Lafourche Parish.

Previous Occurrences / Extent

There have been no recorded incidents of sinkholes or salt dome collapses in Lafourche Parish to date.

Frequency / Probability

Since there has been no recorded incidents of sinkhole or salt dome collapse in Lafourche Parish, the annual chance of occurrence is calculated at less than 1% in Lafourche Parish.

Estimated Potential Losses

Of each of the sixteen salt domes that impact Lafourche Parish, nine were analyzed to determine the number people and houses that are potentially susceptible to losses from a sink hole materializing from the salt dome. The following table is based on conducting a two-mile buffer around the center of the salt dome. The values were determined by querying the 2010 U.S. Census block data to determine the number of houses and people located within two miles of the salt dome. Critical facilities were also analyzed to determine if they fell within the two-mile buffer of the salt dome. Total value for all occupancy group from Hazus was used to estimate a total loss of all facilities that were within two miles of the salt domes.

The salt dome that poses the greatest risk to Lafourche parish is the Golden Meadow Salt Dome, which has a buffer that extends into Golden Meadow. The Golden Meadow Salt Dome contains a total of 814 homes and a populace of 1,843 within its two-mile buffer.

*Table 2-34: Estimated Potential Losses from a Sinkhole Formation.
(Source: U.S. 2010 Census Data and Hazus)*

Salt Dome Name	Total Building Exposure	Critical Infrastructure Exposure	Number of People Exposed	Number of Houses Exposed
Chacahoula	\$13,841,000	0	2	1
Lafourche1	\$134,192,000	0	1,161	436
Lafourche2	\$16,233,000	0	109	36
Raceland	\$29,525,000	0	508	181
Valentine	\$58,022,000	1	123	40
Cut Off	\$3,424,000	0	7	13
Golden Meadow	\$279,342,000	6	1,843	814
Leeville	\$25,380,000	0	19	28
Bully Camp	\$1,885,000	0	39	15

As a result of the isolated locations of the salt domes, there is little to no risk to people in Lafourche Parish, with the exception being the residents within two miles of the Golden Meadow, Lafourche1, and Raceland Salt Domes. The remaining six salt domes that were analyzed also pose some risk, but not nearly to the same degree as the Golden Meadow Salt Dome.

Vulnerability

See Appendix C for parish and municipality building exposure to a sinkhole hazard.

Thunderstorms

The term “thunderstorm” is usually used as a catch-all term for several kinds of storms. Here “thunderstorm” is defined to include any precipitation event in which thunder is heard or lightning is seen. Thunderstorms are often accompanied by heavy rain and strong winds and, depending on conditions, occasionally by hail or snow. Thunderstorms form when humid air masses are heated, which causes them to become convectively unstable and therefore rise. Upon rising, the air masses’ water vapor condenses into liquid water and/or deposits directly into ice when they rise sufficiently to cool to the dew-point temperature.

Thunderstorms are classified into four main types (single-cell, multicell, squall line, and supercell), depending on the degree of atmospheric instability, the change in wind speed with height (called wind shear), and the degree to which the storm’s internal dynamics are coordinated with those of adjacent storms. There is no such interaction for single-cell thunderstorms, but there is significant interaction with clusters of adjacent thunderstorms in multicell thunderstorms and with a linear “chain” of adjacent storms in squall line thunderstorms. Though supercell storms have no significant interactions with other storms, they have very well-organized and self-sustaining internal dynamics, which allows them to be the longest-lived and most severe of all thunderstorms.

The life of a thunderstorm proceeds through three stages: the developing (or cumulus) stage, the mature stage, and the dissipation stage. During the developing stage, the unstable air mass is lifted as an updraft into the atmosphere. This sudden lift rapidly cools the moisture in the air mass, releasing latent heat as condensation and/or deposition occurs, and warming the surrounding environment, thus making it less dense than the surrounding air. This process intensifies the updraft and creates a localized lateral rush of air from all directions into the area beneath the thunderstorm to feed continued updrafts. At the mature stage, the rising air is accompanied by downdrafts caused by the shear of falling rain (if melted completely), or hail, freezing rain, sleet, or snow (if not melted completely). The dissipation stage is characterized by the dominating presence of the downdraft as the hot surface that gave the updrafts their buoyancy is cooled by precipitation. During the dissipation stage, the moisture in the air mass largely empties out.

The Storm Prediction Center in conjunction with the National Weather Service (NWS) have the ability to issue advisory messages based on forecasts and observations. The following are the advisory messages that may be issued with definitions of each:

- *Severe Thunderstorm Watch:* Issued to alert people to the possibility of a severe thunderstorm developing in the area. Expected time frame for these storms is three to six hours.
- *Severe Thunderstorm Warning:* Issued when severe thunderstorms are imminent. This warning is highly localized and covers parts of one to several counties (parishes).

A variety of hazards might be produced by thunderstorms, including lightning, hail, tornadoes or waterspouts, flash floods, and high-speed winds called downbursts. Nevertheless, given all of these criteria, the National Oceanic and Atmospheric Administration (NOAA) characterizes a thunderstorm as severe when it produces one or more of the following:

- Hail of 1 inch in diameter or larger
- Wind gusts to 58 mph or greater
- One or more tornadoes

Tornadoes and flooding hazards have been profiled within this report; therefore, for the purpose of thunderstorms, the sub hazards of hail, high winds, and lightning will be profiled.

Thunderstorms occur throughout Louisiana at all times of the year, although the types and severity of those storms vary greatly, depending on a wide variety of atmospheric conditions. Thunderstorms generally occur more frequently during the late spring and early summer when extreme variations exist between ground surface temperatures and upper atmospheric temperatures.

Hazard Description

Hailstorms

Hailstorms are severe thunderstorms in which balls or chunks of ice fall along with rain. Hail develops in the upper atmosphere initially as ice crystals that are bounced about by high-velocity updraft winds. The ice crystals grow through deposition of water vapor onto their surface, fall partially to a level in the cloud where the temperature exceeds the freezing point, melt partially, get caught in another updraft whereupon re-freezing and deposition grows another concentric layer of ice, and fall after developing enough weight, sometimes after several trips up and down the cloud. The size of hailstones varies depending on the severity and size of the thunderstorm. Higher surface temperatures generally mean stronger updrafts, which allows more massive hailstones to be supported by updrafts, leaving them suspended longer. This longer time means larger hailstone sizes. The following tables display the TORRO Hailstorm Intensity Scale along with a spectrum of hailstone diameters and their everyday equivalents.

Table 2-35: TORRO Hailstorm Intensity Scale.

Intensity Category		Hail Diameter (mm)	Probable Kinetic Energy	Typical Damage Impacts
H0	Hard Hail	5	0 - 20	No damage
H1	Potentially Damaging	5 - 15	>20	Slight general damage to plant, crops
H2	Significant	10 - 20	>100	Significant damage to fruit, crops, vegetation
H3	Severe	20 - 30	>300	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	25 - 40	>500	Widespread glass damage, vehicle body work
H5	Destructive	30 - 50	>800	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	40 - 60		Bodywork of grounded aircraft dented, brick walls pitted
H7	Destructive	50 - 75		Severe roof damage, risk of serious injuries
H8	Destructive	60 - 90		Severe damage to aircraft bodywork
H9	Super Hailstorms	75 - 100		Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	>100		Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

Table 2-36: Spectrum of Hailstone Diameters and their Everyday Description.

(Source: National Weather Service)

Spectrum of Hailstone Diameters	
Hail Diameter Size	Description
1/4"	Pea
1/2"	Plain M&M
3/4"	Penny
7/8"	Nickle
1" (severe)	Quarter
1 1/4"	Half Dollar
1 1/2"	Ping Pong Ball / Walnut
1 3/4"	Golf Ball
2"	Hen Egg / Lime
2 1/2"	Tennis Ball
2 3/4"	Baseball
3"	Teacup / Large Apple
4"	Softball
4 1/2"	Grapefruit
4 3/4" – 5"	Computer CD-DVD

Hailstorms can cause widespread damage to homes and other structures, automobiles, and crops. While the damage to individual structures or vehicles is often minor, the cumulative cost to communities, especially across large metropolitan areas, can be quite significant. Hailstorms can also be devastating to crops. Thus, the severity of hailstorms depends on the size of the hailstones, the length of time the storm lasts, and where it occurs.

Hail rarely causes loss of life, although large hailstones can cause bodily injury.

High Winds

In general, high winds can occur in a number of different ways, within and without thunderstorms. The Federal Emergency Management Agency (FEMA) distinguishes these as shown in *Table 2-37*.

Table 2-37: High Winds Categorized by Source, Frequency, and Duration.
(Source: *Making Critical Facilities Safe from High Wind, FEMA*)

High Winds Categories			
High Wind Type	Description	Relative Frequency in Louisiana	Relative Maximum Duration in Louisiana
Straight-line Winds	Wind blowing in straight line; usually associated with intense low-pressure area	High	Few-minutes – 1 day
Downslope Winds	Wind blowing down the slope of a mountain; associated with temperature and pressure gradients	N/A	N/A
Thunderstorm Winds	Wind blowing due to thunderstorms, and thus associated with temperature and pressure gradients	High (especially in the spring and summer)	~Few minutes – several hours
Downbursts	Sudden wind blowing down due to downdraft in a thunderstorm; spreads out horizontally at the ground, possibly forming horizontal vortex rings around the downdraft	Medium-to-High (~5% of all thunderstorms)	~15 – 20 minutes
Northeaster (nor'easter) Winds	Wind blowing due to cyclonic storm off the east coast of North America; associated with temperature and pressure gradients between the Atlantic and land	N/A	N/A
Hurricane Winds	Wind blowing in spirals, converging with increasing speed toward eye; associated with temperature and pressure gradients between the Atlantic and Gulf and land	Low-to-Medium	Several days
Tornado Winds	Violently rotating column of air from base of a thunderstorm to the ground with rapidly decreasing winds at greater distances from center; associated with extreme temperature gradient	Low-to-Medium	Few minutes – few hours

The only high winds of present concern are thunderstorm winds and downbursts. Straight-line winds are common but are a relatively insignificant hazard (on land) compared to other high winds. Downslope winds are common but relatively insignificant in the mountainous areas of Louisiana where they occur. Nor'easters are cyclonic events that have at most a peripheral effect on Louisiana, and none associated with high winds. Winds associated with hurricanes and tornadoes will be considered in their respective sections.

Table 2-38 presents the Beaufort Wind Scale, first developed in 1805 by Sir Francis Beaufort, which aids in determining relative force and wind speed based on the appearance of wind effects.

Table 2-38: Beaufort Wind Scale.

(Source: NOAA's SPC)

Beaufort Wind Scale			
Force	Wind (MPH)	WMO Classification	Appearance of Wind Effects on Land
			Calm, smoke rises vertically
1	1-3	Light Air	Smoke drift indicates wind direction, still wind vanes
2	4-7	Light Breeze	Wind felt on face, leaves rustle, vanes begin to move
3	8-12	Gentle Breeze	Leaves and small twigs constantly moving, light flags extended
4	13-17	Moderate Breeze	Dust, leaves, and loose paper lifted, small tree branches move
5	18-24	Fresh Breeze	Small trees in leaf begin to sway
6	25-30	Strong Breeze	Larger tree branches moving, whistling in wires
7	31-38	Near Gale	Whole trees moving, resistance felt walking against wind
8	39-46	Gale	Twigs breaking off trees, generally impedes progress
9	47-54	Strong Gale	Slight structural damage occurs, slate blows off roofs
10	55-63	Storm	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	54-73	Violent Storm	
12	74+	Hurricane	

Major damage directly caused by thunderstorm winds is relatively rare, while minor damage is common and pervasive, and most noticeable when it contributes to power outages. These power outages can have major negative impacts such as increased tendency for traffic accidents, loss of revenue for businesses, increased vulnerability to fire, food spoilage, and other losses that might be sustained by a loss of power.

Power outages may pose a health risk for those requiring electric medical equipment and/or air conditioning.

Lightning

Lightning is a natural electrical discharge in the atmosphere that is a by-product of thunderstorms. Every thunderstorm produces lightning. There are three primary types of lightning: intra-cloud, cloud-to-ground, and cloud-to-cloud. Cloud-to-ground lightning has the potential to cause the most damage to property and crops, while also posing as a health risk to the populace in the area of the strike.

Damage caused by lightning is usually to homes or businesses. These strikes have the ability to damage electrical equipment inside the home or business and can also ignite a fire that could destroy homes or crops.

Lightning continues to be one of the top three storm-related killers in the United States per FEMA, but it also has the ability to cause negative long-term health effects to the individual that is struck. The following table outlines the lightning activity level that is a measurement of lightning activity.

Table 2-39: Lightning Activity Level (LAL) Grids.

LAL	Cloud and Storm Development	Lightning Strikes/15 Min
1	No thunderstorms.	-
2	Cumulus clouds are common but only a few reach the towering cumulus stage. A single thunderstorm must be confirmed in the observation area. The clouds produce mainly virga, but light rain will occasionally reach the ground. Lightning is very infrequent.	1-8
3	Towering cumulus covers less than two-tenths of the sky. Thunderstorms are few, but two to three must occur within the observation. Light to moderate rain will reach the ground, and lightning is infrequent.	9-15
4	Towering cumulus covers two to three-tenths of the sky. Thunderstorms are scattered and more than three must occur within the observation area. Moderate rain is common and lightning is frequent.	16-25
5	Towering cumulus and thunderstorms are numerous. They cover more than three-tenths and occasionally obscure the sky. Rain is moderate to heavy and lightning is frequent.	>25
6	Similar to LAL 3 except thunderstorms are dry	

Hazard Profile

Hailstorms

Location

Hailstorms are a meteorological phenomenon that can occur anywhere. Therefore, the entire planning area for Lafourche Parish and its jurisdictions are equally at risk for hailstorms. The worst-case scenario for hailstorms is hail up to a 2" diameter.

Previous Occurrences / Extents

Historically, there have been 22 hail incidents in Lafourche Parish. Hailstorm diameters have ranged from 0.75 inch to two inches per the National Climatic Data Center since 1989. The most frequently recorded hail sizes have been 1-inch in diameter. There have been four significant hailstorm events in Lafourche Parish since the 2015 Lafourche Parish HMP update. On the next page is a brief synopsis of those events.

Table 2-40: Previous Occurrences for Hailstorm Events since the 2015 Hazard Mitigation Plan Update.
(Source: NCEI Storm Events Database)

Date	Hail Size (inches)	Property Damage	Crop Damage
March 18, 2016	2	\$0	\$0
April 13, 2016	0.75	\$0	\$0
May 1, 2016	1	\$0	\$0
March 19, 2018	1.5	\$0	\$0

Frequency

Hailstorms occur frequently within Lafourche Parish with an annual chance of occurrence calculated at 73% based on the records for the past 30 years (1989-2019). *Figure 2-21* displays the density of hailstorm events in Lafourche Parish, while *Figure 2-22* provides an overview of hailstorm size based on location.

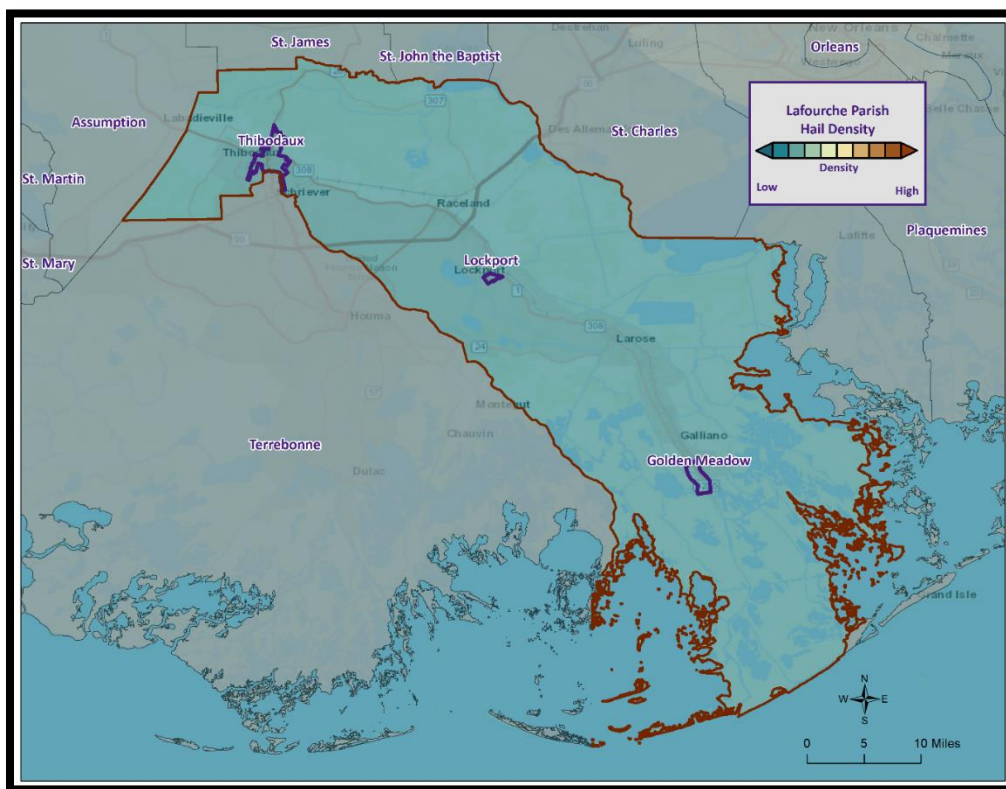


Figure 2-21: Density of Hailstorms by Diameter from 1950-2019.

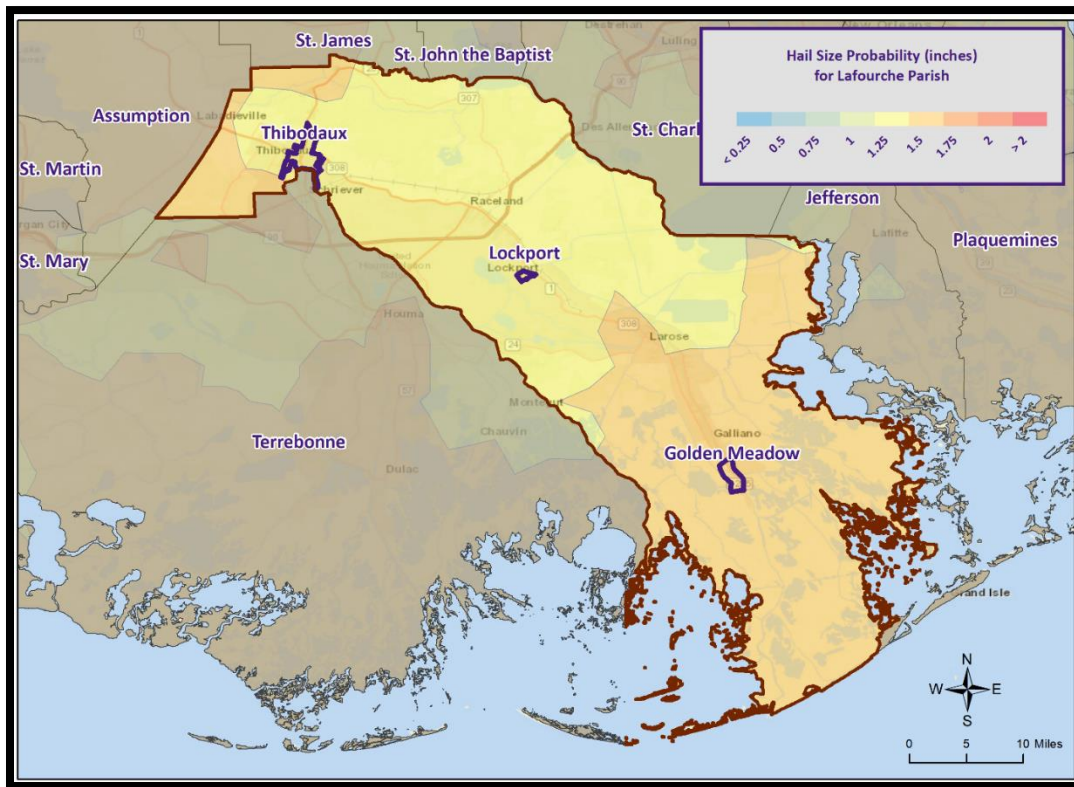


Figure 2-22: Hail Size Probability in Inches for Lafourche Parish.

Estimated Potential Losses

Since 1989, there have been 22 significant hail events that have resulted in property damages according to NCEI Storm Events Database. The total property damages associated with those storms have totaled approximately \$5,000. To estimate the potential losses of a hailstorm event on an annual basis, the total damages recorded for wind events was divided by the total number of years of available wind data in the NCEI Storm Events Database (1989 - 2019). This provides an annual estimated potential loss of \$167 and \$68 per event. The following table provides an estimate of potential property losses for Lafourche Parish:

Table 2-41: Estimated Annual Losses Lafourche Parish and its Jurisdictions Resulting from Hailstorms.

Hailstorm Estimated Annual Potential Losses			
Unincorporated Area	Golden Meadow	Lockport	Thibodaux
\$133	\$4	\$4	\$25

There have been no reported injuries or fatalities as a result of a hail events over the 30-year record.

Vulnerability

See Appendix C for parish and municipality buildings that are susceptible to hailstorms.

High Winds

Location

Because high winds are a meteorological phenomenon that can occur anywhere, the entire planning area for Lafourche Parish is equally at risk from high winds. The worst-case scenario for thunderstorm high wind is wind speeds of approximately 61 mph.

Previous Occurrences / Extents

Historically, there have been 85 thunderstorm high wind events in Lafourche Parish. High winds have ranged from 50 mph to 61 mph per the National Climatic Data Center since 1989. The most frequently recorded high wind speed has been 50 mph. Since the last update, there have been four high wind events in Lafourche Parish. *Table 2-42* provides an overview of the high wind speeds which impacted the Lafourche Parish Planning area since the 2015 Lafourche Parish HMP update.

Table 2-42: Previous Occurrences for Thunderstorm High Wind Events since the 2015 Hazard Mitigation Plan Update.

(Source: NCEI Storm Events Database)

Location	Date	Recorded Wind Speeds (mph)	Property Damage	Crop Damage
PORT FOURCHON	January 14, 2016	61	\$0	\$0
LEIGHTON	May 19, 2016	57	\$0	\$0
PORT FOURCHON	May 3, 2017	50	\$0	\$0
PORT FOURCHON	April 7, 2019	55	\$0	\$0

Frequency

High winds are a common occurrence within Lafourche Parish and its jurisdictions with an annual chance of occurrence calculated at 100% based on the records for the past 30 years (1989-2019). *Figure 2-23* displays the thunderstorm wind speed probability for Lafourche Parish and its jurisdictions.

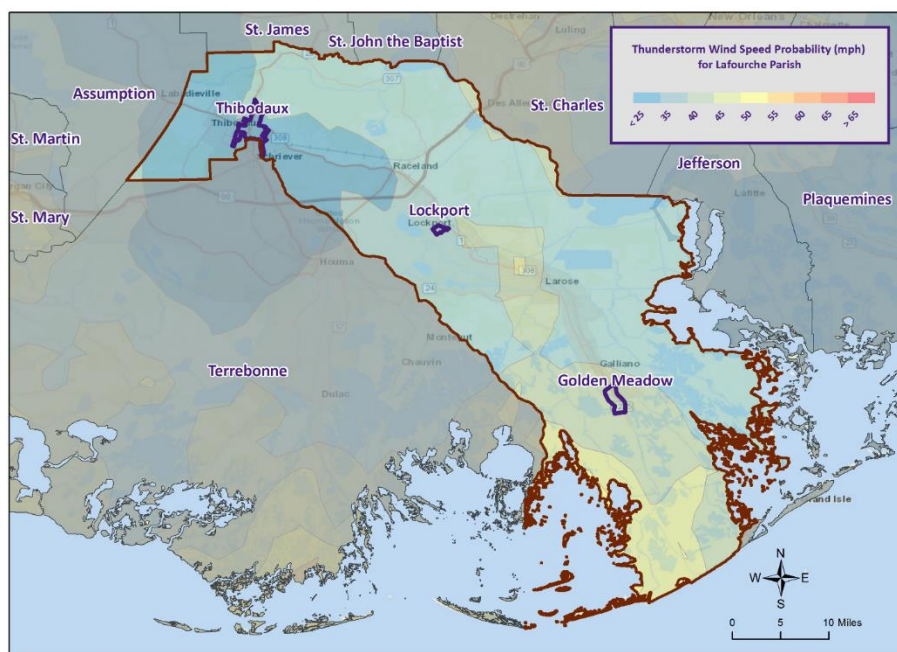


Figure 2-23: Thunderstorm High Wind Speed Probability in Miles Per Hour for Lafourche Parish.

Estimated Potential Losses

Since 1989, there have been 85 significant wind events that have resulted in property damages according to NCEI Storm Events Database. The total property damages associated with those storms have totaled approximately \$1,096,000. To estimate the potential losses of a wind event on an annual basis, the total damages recorded for wind events was divided by the total number of years of available wind data in the NCEI Storm Events Database (1989 - 2019). This provides an annual estimated potential loss of \$36,533 and \$12,894 per event. The following table provides an estimate of potential property losses for Lafourche Parish:

Table 2-43: Estimated Annual Property Losses in Lafourche Parish resulting from Wind Damage.

Wind Estimated Annual Potential Losses			
Unincorporated Area	Golden Meadow	Lockport	Thibodaux
\$10,965	\$603	\$1,767	\$283

There has been one fatality and no injuries as a result of a thunderstorm high wind event over the 30-year record.

Vulnerability

See appendix C for parish and municipality buildings that are susceptible to thunderstorm high winds.

Lightning

Location

Like hail and high winds, lightning is a meteorological phenomenon that can occur anywhere within the Lafourche Parish planning area. The worst-case scenario for lightning events is a lightning activity level of 4 which is approximately 16 to 25 lightning strikes every 15 minutes.

Previous Occurrences / Extent

Historically, there has been six lightning events in Lafourche Parish and its jurisdictions between the years 1989 and 2019. Since the last HMP update, there has been one significant lightning event within the boundaries of Lafourche Parish. *Table 2-44* provides an overview of the lightning event which impacted the Lafourche Parish Planning area since the 2015 Lafourche Parish HMP update.

*Table 2-44: Previous Occurrences for Lightning Events since the 2015 Hazard Mitigation Plan Update.
(Source: NCEI Storm Events Database)*

Location	Date	Property Damage	Crop Damage
PATOUTVILLE	March 18, 2016	\$0	\$0

Frequency

Lightning can strike anywhere and is produced by every thunderstorm, so the chance of lightning occurring in Lafourche Parish is high. However, lightning that meets the definition that is used by the NCEI Storm Events Database that results in damages to property and injury or death to people is a less likely

event. Lafourche Parish experienced six significant lightning events between the years 1989 and 2019 resulting in a 20% annual chance of occurrence.

Estimated Potential Losses

Since 1989, there have been six significant lightning events that have resulted in property damages according to NCEI Storm Events Database. The total property damages associated with those storms have totaled approximately \$890,000. To estimate the potential losses of a lightning event on an annual basis, the total damages recorded for lightning events was divided by the total number of years of available lightning data in the NCEI Storm Events Database (1989 - 2019). This provides an annual estimated potential loss of \$8,167 and \$40,833 per event. The following table provide an estimate of potential property losses for Lafourche Parish.

Table 2-45: Estimated Annual Property Losses in Lafourche Parish resulting from Lightning Damage.

Lightning Estimated Annual Potential Losses			
Unincorporated Area	Golden Meadow	Lockport	Thibodaux
\$6,535	\$178	\$219	\$1,235

Per the NCEI Storm Events Database, there has been one fatality and two injuries as a result of lightning in Lafourche Parish.

Vulnerability

See Appendix C for parish and municipality building exposure to lightning hazards.

Tornadoes

Tornadoes (also called twisters and cyclones) are rapidly rotating funnels of wind extending between storm clouds and the ground. For their size, tornadoes are the most severe storms, and 70% of the world's reported tornadoes occur within the continental United States, making them one of the most significant hazards Americans face. Tornadoes and waterspouts form during severe weather events, such as thunderstorms and hurricanes, when cold air overrides a layer of warm air, causing the warm air to rise rapidly, which usually occurs in a counterclockwise direction in the northern hemisphere. The updraft of air in tornadoes always rotates because of wind shear (differing speeds of moving air at various heights), and it can rotate in either a clockwise or counterclockwise direction; clockwise rotations (in the northern hemisphere) will sustain the system, at least until other forces cause it to die seconds to minutes later.

Since February 1, 2007, the Enhanced Fujita (EF) Scale has been used to classify tornado intensity. The EF Scale classifies tornadoes based on their damage pattern rather than wind speed; wind speed is then derived and estimated. This contrasts with the Saffir-Simpson scale used for hurricane classification, which is based on measured wind speed. *Table 2-46* shows the EF scale in comparison with the old Fujita (F) Scale, which was used prior to February 1, 2007. When discussing past tornadoes, the scale used at the time of the hazard is used. Damage and adjustment between scales can be made using the following tables.

Table 2-46: Comparison of the Enhanced Fujita (EF) Scale to the Fujita (F) Scale.

Wind Speed (mph)	Enhanced Fujita Scale					
	EF0	EF1	EF2	EF3	EF4	EF5
	65-85	86-110	111-135	136-165	166-200	>200
	Fujita Scale					
	F0	F1	F2	F3	F4	F5
	<73	73-112	113-157	158-206	207-260	>261

Table 2-47: Fujita and Enhanced Fujita Tornado Damage Scale.

Scale	Typical Damage
F0/EF0	Light damage. Some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; sign boards damaged.
F1/EF1	Moderate damage. Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads.
F2/EF2	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars overturned; light-object missiles generated; cars lifted off ground.
F3/EF3	Severe damage. Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown.
F4/EF4	Devastating damage. Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown and large missiles generated.
F5/EF5	Incredible damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 meters (109 yards); trees debarked; incredible phenomena will occur.

The National Weather Service (NWS) has the ability to issue advisory messages based on forecasts and observations. The following are the advisory messages that may be issued with definitions of each:

- *Tornado Watch:* Issued to alert people to the possibility of a tornado developing in the area. A tornado has not been spotted but the conditions are favorable for tornadoes to occur.
- *Tornado Warning:* Issued when a tornado has been spotted or when radar identifies a distinctive “hook-shaped” area within a thunderstorm line.

Structures within the direct path of a tornado vortex are often reduced to rubble. Structures adjacent to the tornado’s path are often severely damaged by high winds flowing into the tornado vortex, known as inflow winds. It is here, adjacent to the tornado’s path, that the building type and construction techniques are critical to the structure’s survival. Although tornadoes strike at random, making all buildings vulnerable, mobile homes, homes on crawlspaces, and buildings with large spans are more likely to suffer damage.

The major health hazard from tornadoes is physical injury from flying debris or being in a collapsed building or mobile home. Within a building, flying debris or missiles are generally stopped by interior walls. However, if a building has no partitions, any glass, brick, or other debris blown into the interior is life threatening. Following a tornado, damaged buildings are a potential health hazard due to instability, electrical system damage, and gas leaks. Sewage and water lines may also be damaged.

Peak tornado activity in Louisiana occurs during the spring, as it does in the rest of the United States. Nearly one-third of observed tornadoes in the United States occur during April. About half of those in Louisiana, including many of the strongest, occur between March and June. Fall and winter tornadoes are less frequent, but the distribution of tornadoes throughout the year is more uniform in Louisiana than in locations farther north.

Location

While there is a significant tornado record in Lafourche Parish with actual locations, tornadoes in general are a climatological based hazard and have the same approximate probability of occurring in Lafourche Parish as all of its jurisdictions. Because a tornado has a similar probability of striking anywhere within the planning area for Lafourche Parish, all areas in the parish are equally at risk for tornadoes.

Previous Occurrences / Extent

The NCEI Storm Events Database reports a total of 25 tornadoes or waterspouts occurring within the boundaries of Lafourche Parish since 1989 ranging in extent from F0 to F4 under the Fujita Scale and EF0 to EF1 on the Enhanced Fujita Scale. Lafourche Parish can expect future tornadoes up to an EF4 under the Enhanced Fujita Scale as a worst-case scenario.

The tornado that caused the most damage to property and resulted in the most injuries and fatalities occurred on October 3, 1964. The F4 tornado was responsible for over \$3 million in damages and caused 165 injuries and 22 deaths. The tornado touched down on the east side of Bayou Lafourche where it then crossed to the west side before lifting and carrying debris with it into the area.

Since the 2015 HMP Update, three tornadoes have occurred within the boundaries of Lafourche Parish. Below is a list and brief description of the impact for the event.

Table 2-48: Historical Tornadoes in Lafourche Parish with Locations since the 2015 Update.

Date	Impacts	Property Damage	Location	Magnitude
May 30, 2017	0.25 mile path with 75 yard width. Several reports and photos received through media of tornado just east of Leeville. Lack of access and no discernible damage prevented the NWS from assigning an EF scale rating.	\$0	LEEVILLE	EF0
April 22, 2018	0.95 path with 30 yard width. The EF-1 tornado touched down near the intersection of Old Safari Heights and Louisiana Highway 3235, where it tore the roof off of a business housed in a double-wide manufactured home. It also tore fascia off of a drive-in restaurant. It turned 2 vehicles in the parking lot and tossed one small car approximately 15 feet into a field. From there it moved east-northeast toward Main Street. As it approached Main Street, it broke several large limbs from hardwood trees, and tore the car port off of a home. Metal roof covering was also peeled back from a home. As the tornado moved across Bayou Lafourche, it turned more toward the northeast and caused shingle damage to one home. It then turned more toward the southeast, and caused damage to trees and a few power poles. The storm lifted as it neared the South Lafourche High School Football Stadium.	\$0	GALLIANO	EF1
June 6, 2019	0.27 mile path with 100 yard width. A NWS storm survey found damage consistent with an EF1 tornado east-southeast of Thibodaux. The tornado touched down just south of Louisiana Highway 1 along Reith Lane, snapping live oak hardwoods nearly 2 feet in diameter. Two well constructed storage buildings had major roof damage. These buildings had remained intact with metal roofs since the 1920s. Another well constructed storage building in the same vicinity had major wall and roof damage, with a carport above it being lifted and destroyed. Large sections of the roof of a home in the same lot had damage from the storage building debris. The tornado tracked north-northeastward, crossing Highway 1 and Bayou Lafourche, moving a multi-ton storage container several inches from its original location. The tornado continued north-northeast, taking out 3 large hardwood oak branches 16 inches in diameter before it lifted.	\$0	ROUSSEAU	EF1

Frequency / Probability

Tornadoes occur frequently within Lafourche Parish and its jurisdictions with an annual chance of occurrence calculated at 60% based on the records for the past 30 years (1989-2019). *Figure 2-24* displays the density of tornado touchdowns in Lafourche Parish and neighboring parishes.

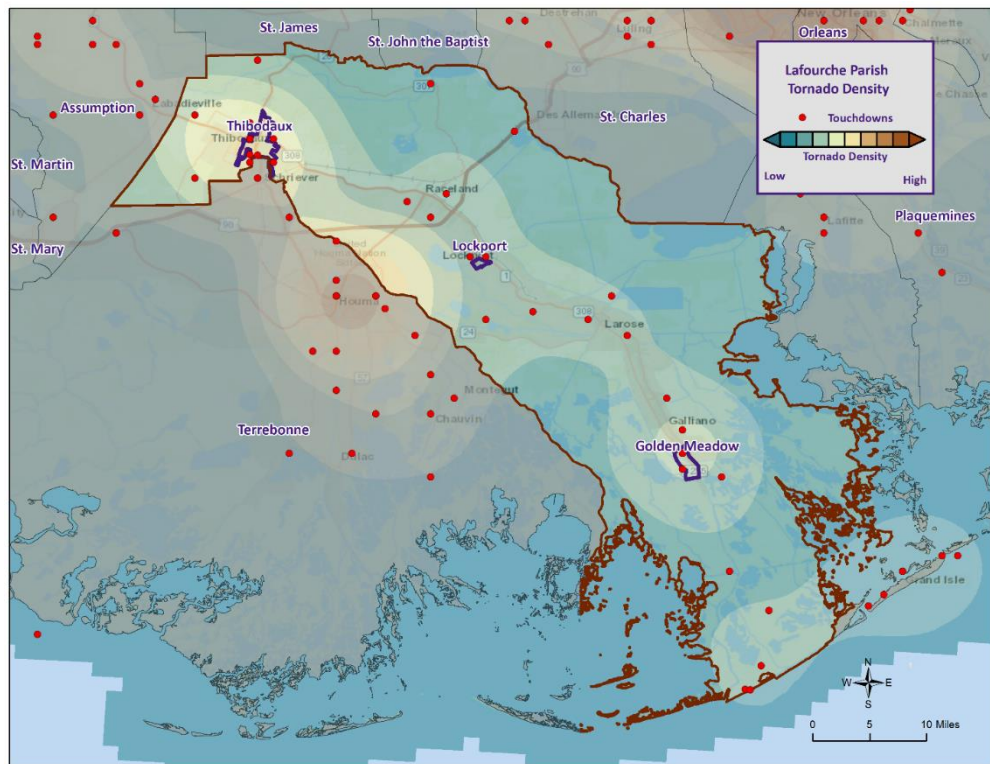


Figure 2-24: Location and Density of Tornadoes to Touchdown in Lafourche Parish.
(Source: NOAA/SPC Severe Weather Database)

Estimated Potential Losses

According to the NCEI Storm Events Database, there have been 25 tornadoes that have caused some level of property damage. The total damage from the actual claims for property is approximately \$1,397,000 with an average cost of \$55,880 per tornado event. When annualizing the total cost over the 30-year record, total annual losses based on tornadoes are estimated to be \$46,567. The following table provides an annual estimate of potential losses for Lafourche Parish.

Table 2-49 Estimated Annual Losses for Tornadoes in Lafourche Parish.

Tornado Estimated Annual Potential Losses			
Unincorporated Area	Golden Meadow	Lockport	Thibodaux
\$37,262	\$1,016	\$1,246	\$7,042

Table 2-50 presents an analysis of building exposure that are susceptible to tornadoes by general occupancy type for Lafourche Parish along with the percentage of building stock that are mobile homes.

Table 2-50: Building Exposure by General Occupancy Type for Tornadoes in Lafourche Parish.

(Source: Hazus)

Building Exposure by General Occupancy Type for Tornadoes Exposure Types (\$1,000)							
Residential	Commercial	Industrial	Agricultural	Religion	Government	Education	Mobile Homes (%)
6,625,379	1,039,276	311,298	25,363	102,361	42,095	91,715	5.7%

The parish has suffered through a total of 25 days in which tornadoes or waterspouts have accounted for 15 injuries and one fatality during this 30-year period.

In accessing the overall risk to population, the most vulnerable population throughout the parish are those residing in manufacturing housing. Approximately 5.7% of all housing in Lafourche Parish consists of manufactured housing. The location and density of manufactured houses can be seen in Figure 2-25.

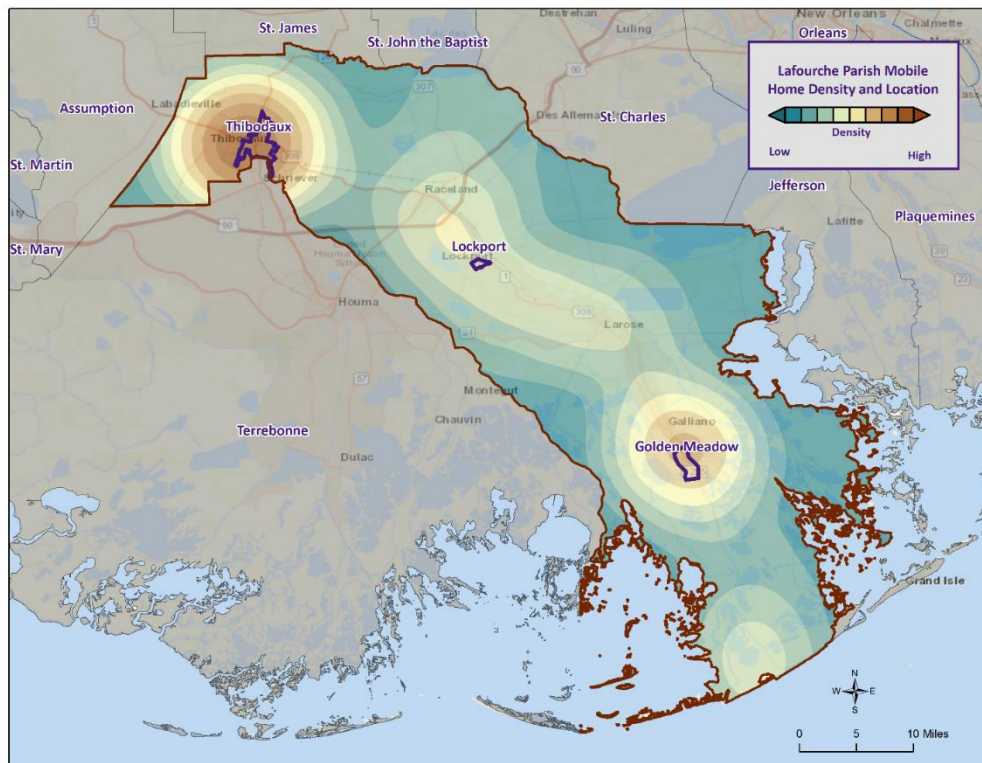


Figure 2-25: Location and Approximate Number of Units in Manufactured Housing Locations throughout Lafourche Parish.

Vulnerability

See Appendix C for parish and municipality building exposure to tornadoes.

Tropical Cyclones

Tropical cyclones are among the worst hazards Louisiana faces. These spinning, low-pressure air masses draw surface air into their centers and attain strength ranging from weak tropical waves to the most intense hurricanes. Usually, these storms begin as clusters of oceanic thunderstorms off the western coast of Africa, moving westward in the trade wind flow. The spinning of these thunderstorm clusters begins because of the formation of low pressure in a perturbation in the westerly motion of the storms associated with differential impacts of the Earth's rotation. The west-moving, counterclockwise-spinning collection of storms, now called a tropical disturbance, may then gather strength as it draws humid air toward its low-pressure center. This results in the formation of a tropical depression (defined when the maximum sustained surface wind speed is 38 mph or less), then a Tropical Cyclone (when the maximum sustained surface wind ranges from 39 mph to 73 mph), and finally a hurricane (when the maximum sustained surface wind speeds exceed 73 mph). On the next page, the table presents the Saffir-Simpson Hurricane Wind Scale, which categorizes tropical cyclones based on sustained winds.

Table 2-51: Saffir-Simpson Hurricane Wind Scale

Saffir-Simpson Hurricane Wind Scale			
Category	Sustained Winds	Pressure	Types of Damage Due to Winds
Tropical Depression	<39 mph	N/A	N/A
Tropical Cyclone	39-73 mph	N/A	N/A
1	74-95 mph	>14.2 psi	Very dangerous winds will produce some damage. Well-constructed frame homes could have damage to roof, shingles, vinyl siding, and gutters. Large branches of trees will snap and shallow-rooted trees may be toppled, especially after the soil becomes waterlogged. Extensive damage to power lines and poles will likely result in power outages that could last several days.
2	96-110 mph	14-14.2 psi	Extremely dangerous winds will cause extensive damage. Well-constructed frame homes could sustain major roof and siding damage. Many shallow-rooted trees will be snapped or uprooted, especially after the soil becomes waterlogged, and block numerous roads. Near total power loss is expected, with outages that could last from several days to weeks.
3	111-129 mph	13.7 -14 psi	Devastating damage will occur. Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, especially after the soil becomes waterlogged, blocking numerous roads. Electricity and water may be unavailable for several days to weeks after the storm passes.
4	130-156 mph	13.3-13.7 psi	Catastrophic damage will occur. Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted, especially after the soil becomes waterlogged, and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5	157 mph or higher	<13.7 psi	Catastrophic damage will occur. A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks to months.

Many associated hazards can occur during a hurricane, including heavy rains, flooding, high winds, and tornadoes. A general rule of thumb in coastal Louisiana is that the number of inches of rainfall to be expected from a tropical cyclone is approximately 100 divided by the forward velocity of the storm in mph; so a fast-moving storm (20 mph) might be expected to drop five inches of rain while a slow-moving (5 mph) storm could produce totals of around 20 inches. However, no two storms are alike, and such generalizations have limited utility for planning purposes. Hurricane Beulah, which struck Texas in 1967, spawned 115 confirmed tornadoes. In recent years, extensive coastal development has increased the storm surge resulting from these storms so much that this has become the greatest natural hazard threat to property and loss of life in the state. Storm surge is a temporary rise in sea level generally caused by reduced air pressure and strong onshore winds associated with a storm system near the coast. Although storm surge can technically occur at any time of the year in Louisiana, surges caused by hurricanes can be particularly deadly and destructive. Such storm surge events are often accompanied by large, destructive waves (exceeding ten meters in some places) that can inflict a high number of fatalities and economic losses. In 2005, Hurricane Katrina clearly demonstrated the destructive potential of this hazard, as it produced the highest modern-day storm surge levels in the State of Louisiana, reaching up to 18.7 feet near Alluvial City in St. Bernard Parish.

Property can be damaged by the various forces that accompany a tropical cyclone. High winds can directly impact structures in three ways: wind forces, flying debris, and pressure. By itself, the force of the wind can knock over trees, break tree limbs, and destroy loose items, such as television antennas and power lines. Many things can be moved by high winds. As winds increase, so does the pressure against stationary objects. Pressure against a wall rises with the square of the wind speed. For some structures, this force is enough to cause failure. The potential for damage to structures is increased when debris breaks the building “envelope” and allows the wind pressure to impact all surfaces (the building envelope includes all surfaces that make up the barrier between the indoors and the outdoors, such as the walls, foundation, doors, windows, and roof). Mobile homes and buildings in need of maintenance are most subject to wind damage. High winds mean bigger waves. Extended pounding by waves can demolish any poorly or improperly designed structures. The waves also erode sand beaches, roads, and foundations. When foundations are compromised, the building will collapse.

Nine out of ten deaths during hurricanes are caused by storm surge flooding. Falling tree limbs and flying debris caused by high winds have the ability to cause injury or death. Downed trees and damaged buildings are a potential health hazard due to instability, electrical system damage, broken pipelines, chemical releases, and gas leaks. Sewage and water lines may also be damaged. Salt water and fresh water intrusions from storm surge send animals, such as snakes, into areas occupied by humans.

Location

Hurricanes are the single biggest threat to all of South Louisiana. With any single tropical cyclone event having the potential to devastate multiple parishes at once, tropical cyclones are a significant threat to the entire Lafourche Parish planning area. The worst-case scenario for a tropical cyclone event in Lafourche Parish is a Category 5 Hurricane.

Previous Occurrences / Extents

Lafourche Parish has experienced 17 major tropical cyclone events since 2002. The table on the next page provides a list of tropical cyclones which have impacted Lafourche Parish since 2002.

Table 2-52: Historical Tropical Cyclone Events in Lafourche Parish from 2002 – 2019.

Date	Name	Storm Type At Time of Impact
September 25, 2002	Isidore	Tropical Storm
October 2, 2002	Lili	Hurricane – Category 1
June 20, 2003	Bill	Tropical Storm
September 22, 2004	Ivan	Tropical Storm
October 9, 2004	Matthew	Tropical Storm
July 5, 2005	Cindy	Hurricane – Category 1
August 28, 2005	Katrina	Hurricane – Category 3
September 23, 2005	Rita	Tropical Storm
August 3, 2008	Edouard	Tropical Storm
August 24, 2008	Fay	Tropical Depression
September 1, 2008	Gustav	Hurricane – Cat 2
September 12, 2008	Ike	Tropical Storm
November 9, 2009	Ida	Tropical Storm
September 3, 2011	Lee	Tropical Storm
August 29, 2012	Isaac	Tropical Storm
June 20, 2017	Cindy	Tropical Storm
July 12, 2019	Barry	Tropical Storm

Since the last Lafourche Parish HMP update in 2015, there have been two tropical cyclone events which have directly impacted the parish and the jurisdictions of Golden Meadow, Lockport, and Thibodaux.

Tropical Storm Cindy (2017)

Tropical Storm Cindy was the first tropical cyclone to make landfall in Louisiana since Hurricane Isaac in 2012. The third named storm of the 2017 Atlantic hurricane season, Cindy formed out of a broad area of low pressure that developed in the northwestern Caribbean Sea near the Yucatan Peninsula in June 2017. The disturbance gradually organized as it drifted northwards into the Gulf of Mexico before organizing into a tropical storm on June 20, 2017. Tropical Storm peaked with sustained winds of 60 mph on June 21, and weakened slightly prior to making landfall in southwestern Louisiana on June 22. The storm quickly weakened as it moved further inland eventually degenerating into a remnant low on June 23, 2017.

The minimum sea level pressure of 1004.4 mb, along with the highest wind gust, and highest sustained wind in southeast Louisiana were all measured by the New Orleans Lakefront Airport. The highest wind gust recorded was 49 mph, and the highest maximum sustained wind was 44 mph. Tropical storm force winds were primarily experienced in gusts as squalls moved through the area. The winds did cause minor damage to trees, roofs, and power lines. The only known injuries in southeast Louisiana resulted from a tree falling on a mobile home in Houma, Louisiana.

A storm tide of generally four to six feet occurred along the Gulf Coast of southeast Louisiana from St. Bernard Parish to Terrebonne Parish. The highest measured storm tide was 6.18 feet NAVD88 at the USCOE gauge near Mandeville, Louisiana. Impacts from storm surge were minor to moderate with flooding occurring in low lying areas and roadways outside of levee systems.

Many areas of southeast Louisiana received three to five inches of rain with a few measurements in excess of six inches. Maximum storm total rainfall was 6.52 inches measured in St. Bernard Parish. The rainfall resulted in some minor river flooding across portions of the north shore of Lake Pontchartrain.

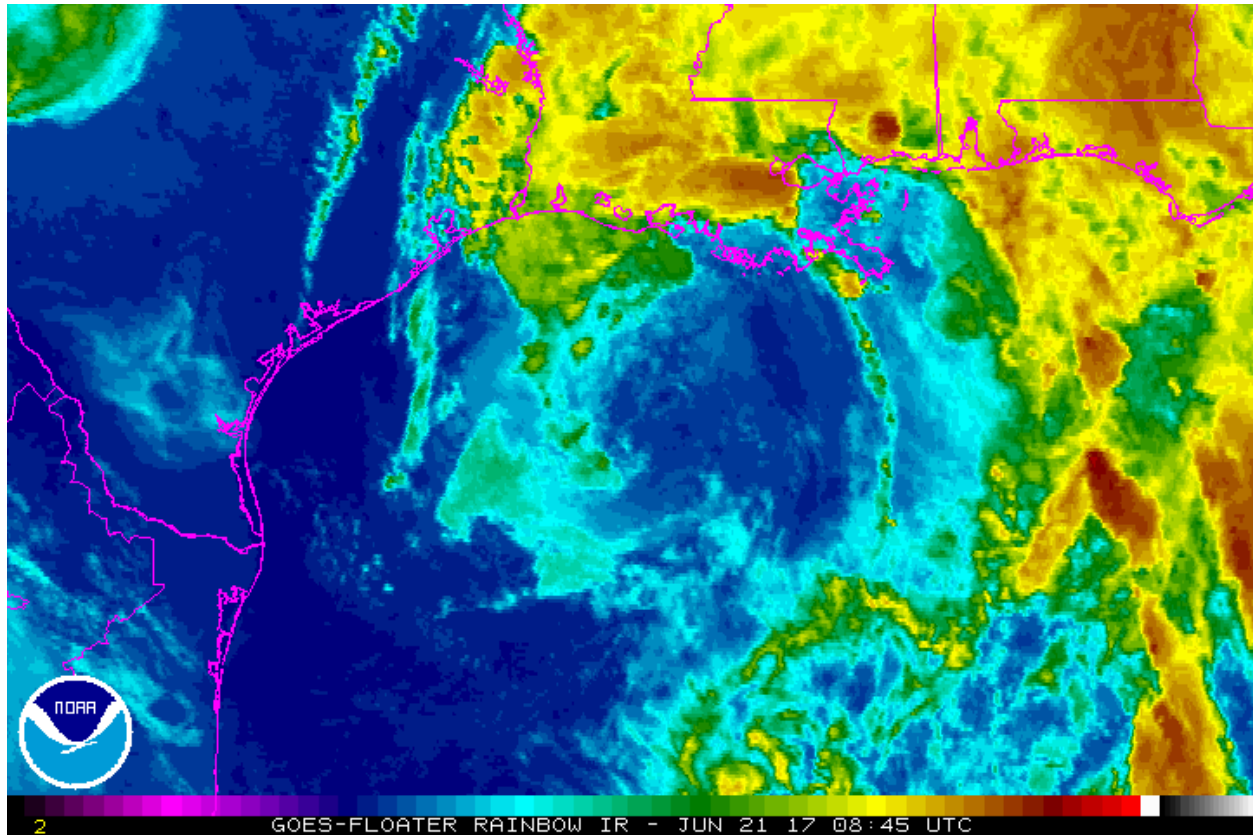


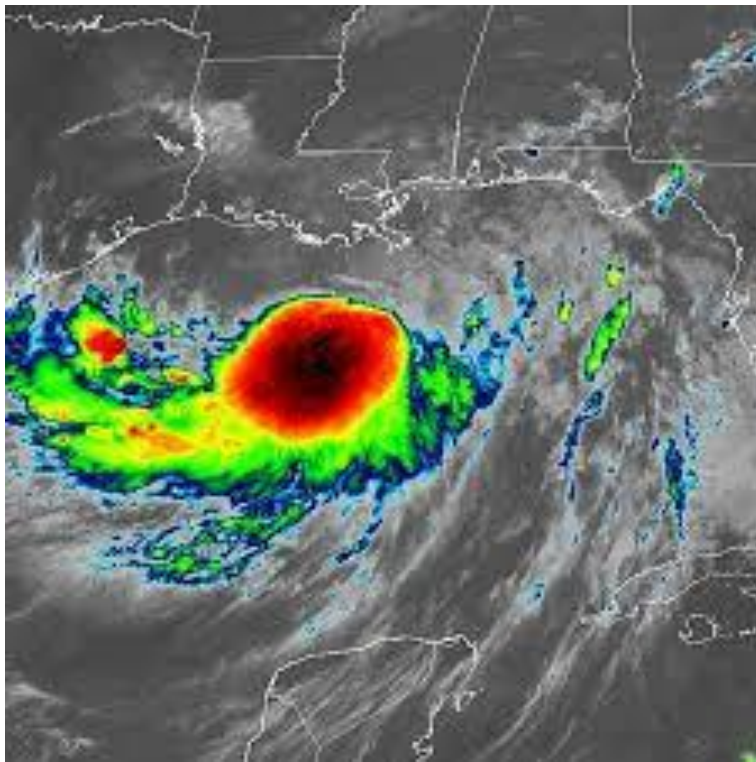
Figure 2-26: Tropical Cyclone Cindy Rain Bands across the Gulf Coast Area.

(Source: NOAA)

The impact in Lafourche Parish was minimal. Frequent tropical storm force wind gusts were reported with a maximum gust of 52 mph reported on Jun 20. The strong winds downed a few trees and knocked out power to the town of Golden Meadow.

Tropical Storm Barry (2019)

Hurricane Barry initially developed from a disturbance that moved from Georgia southwest to the northeast Gulf of Mexico on July 8-9, 2019. The weak low pressure system continued to move west-southwest and strengthen, and was eventually classified as Tropical Storm Barry on the morning of July 11th, 95 miles south-southeast of the mouth of the Mississippi River. Barry continued to move slowly west then northwest and briefly reached hurricane strength on the morning of July 13th before landfall in south-central Louisiana near Intracoastal City, Louisiana in Vermillion Parish. Tropical storm force winds reached the southeast Louisiana coast by midday on Friday, July 12th and spread slowly northwest reaching the Baton Rouge area during the evening of the 12th. Tropical storm wind impacts had ended across all of southeast Louisiana by midday on July 14th. Tropical storm force winds were primarily measured in gusts across southeast Louisiana. The exception was in Terrebonne and Assumption Parishes, close to the landfall location, where sustained tropical storm force winds and frequent gusts caused more significant power line and tree damage. A few tropical storm wind gusts were recorded in the metro New Orleans area but were not very impactful. No hurricane force wind gusts were recorded in southeast Louisiana.



*Figure 2-27: Hurricane Barry Rain Bands in the Gulf Coast Area.
(Source: NOAA)*

Mostly minor to moderate storm surge flooding occurred across coastal southeast Louisiana, including Lake Pontchartrain, and a small part of the Mississippi Coast. Terrebonne Parish had significant storm surge flooding in the lower portion of the parish with storm tides of five to eight feet, locally up to nine feet. Several local levees were overtopped on the morning of July 13th flooding roads and a few homes. The highest storm tide reading was 9.11 feet NAVD88 at a USGS tide gauge at Caillou Lake near Dulac, Louisiana.

Storm total rainfall was generally between four and eight inches with a maximum rainfall of 8.83 inches recorded northeast of Denham Springs, Louisiana in Livingston Parish. Isolated flash flooding of streets and secondary roadways occurred on July 13th in the greater Baton Rouge area, but flash flooding was not widespread or significant. The lower Mississippi River was at unusually high stages from late August with the state at the New Orleans Carrollton gauge near 16.5 feet. The combination of storm surge entering the lower Mississippi River with very high river stages prompted concern of potential overtopping of levees along the Mississippi River in lower Plaquemines Parish prompting some evacuations of the area.

In Lafourche Parish, occasional to frequent tropical storm force wind gusts were measured. Power was knocked out to about 25 percent of the parish during the storm. Storm total rainfall was estimated to generally be in the 2 to 4 inch range. The highest observed total was 3.89 inches near Galliano at site GALL1.

The figure on the next page displays the wind zones that affect Lafourche Parish in relation to critical facilities throughout the parish.

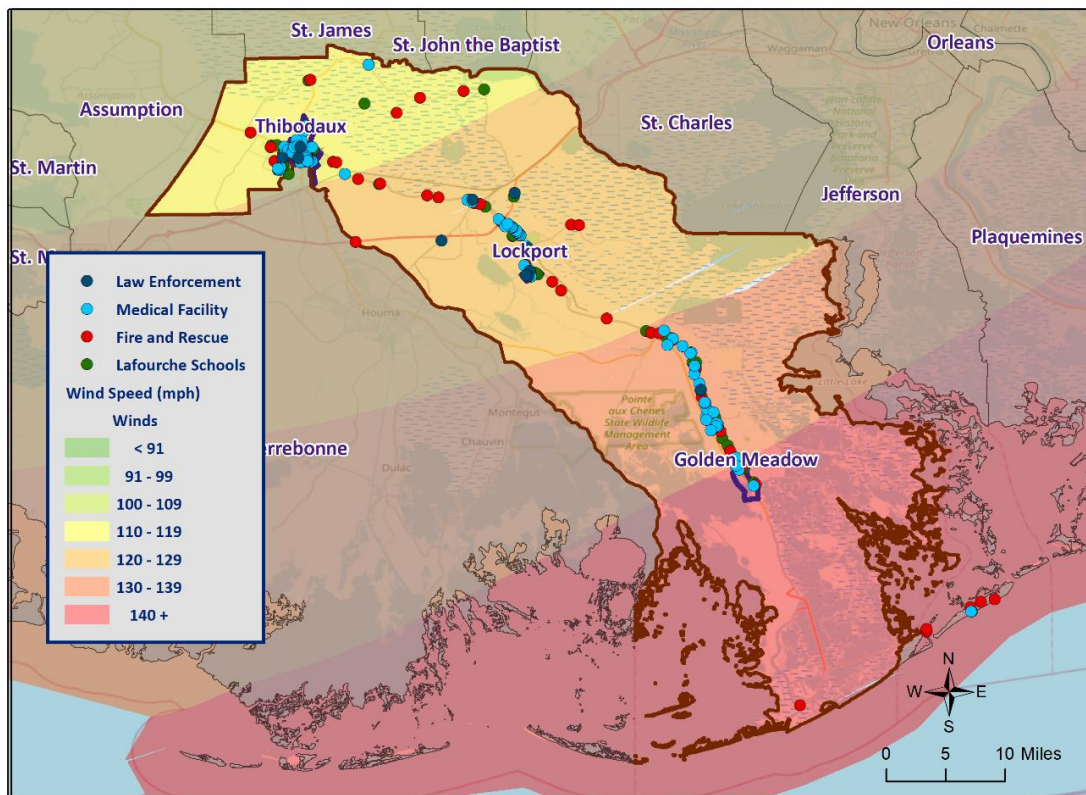


Figure 2-28: Winds Zones for Lafourche Parish in Relation to Critical Facilities

Frequency / Probability

Tropical cyclones are large natural hazard events that regularly impact Lafourche Parish. The annual chance of occurrence for a tropical cyclone is estimated at 100% for Lafourche Parish with 17 events occurring within 17 years (2002 to 2019). The tropical cyclone season for the Atlantic Basin is from June 1st through November 30th, with most of the major hurricanes (Saffir-Simpson Categories 3, 4, & 5) occurring between the months of August and October. Based on geographical location alone Lafourche Parish and its jurisdictions are highly vulnerable to tropical cyclones. This area has experienced several tropical cyclone events in the past and can expect more in the future.

Estimated Potential Losses

Using Hazus 100-Year Hurricane Model, the 100-year hurricane scenario was analyzed to determine losses from this worst-case scenario. The following table shows the total economic losses that would result from this occurrence.

Table 2-53: Total Estimated Losses for a 100-Year Hurricane Event
(Source: Hazus)

Jurisdiction	Estimated Total Losses from 100-Year Hurricane Event
Lafourche Parish (Unincorporated)	\$339,538,746
Golden Meadow	\$9,255,782
Lockport	\$11,357,166
Thibodaux	\$64,169,312
Total	\$424,321,007

Total losses from a 100-year hurricane event for Lafourche Parish were compared with the total value of assets to determine the ratio of potential damage to total inventory in the table below.

*Table 2-54: Ratio of Total Losses to Total Estimated Value of Assets for Lafourche Parish
(Source: Hazus)*

Jurisdiction	Estimated Total Losses from 100-Year Hurricane Event	Total Estimated Value of Assets	Ratio of Estimated Losses to Total Value
Lafourche Parish (Unincorporated)	\$339,538,746	\$6,102,385,000	5.6%
Golden Meadow	\$9,255,782	\$203,556,000	4.5%
Lockport	\$11,357,166	\$199,056,000	5.7%
Thibodaux	\$64,169,312	\$1,732,490,000	3.7%

Based on the Hazus Hurricane Model, estimated total losses for Lafourche Parish and its jurisdictions ranged from 3.7% to 5.7% of the total estimated value of all assets.

The Hazus Hurricane Model also provides a breakdown for seven primary sectors (Hazus occupancy) throughout the parish. The losses for Lafourche Parish by sector are listed in the table below.

*Table 2-55: Estimated Losses in Unincorporated Lafourche Parish for a 100-Year Hurricane Event
(Source: Hazus)*

Lafourche Parish (Unincorporated)	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	\$4,171,073
Commercial	\$152,288,873
Government	\$8,013,927
Industrial	\$50,539,304
Religious / Non-Profit	\$10,011,229
Residential	\$103,018,079
Schools	\$11,496,262
Total	\$339,538,746

*Table 2-56: Estimated Losses in Golden Meadow for a 100-Year Hurricane Event
(Source: Hazus)*

Golden Meadow	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	\$113,703
Commercial	\$4,151,375
Government	\$218,459
Industrial	\$1,377,695
Religious / Non-Profit	\$272,905
Residential	\$2,808,259
Schools	\$313,387
Total	\$9,255,782

*Table 2-57: Estimated Losses in Lockport for a 100-Year Hurricane Event
(Source: Hazus)*

Lockport	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	\$139,517
Commercial	\$5,093,881
Government	\$268,056
Industrial	\$1,690,479
Religious / Non-Profit	\$334,864
Residential	\$3,445,832
Schools	\$384,536
Total	\$11,357,166

*Table 2-58: Estimated Losses in Thibodaux for a 100-Year Hurricane Event
(Source: Hazus)*

Thibodaux	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	\$788,290
Commercial	\$28,781,022
Government	\$1,514,549
Industrial	\$9,551,406
Religious / Non-Profit	\$1,892,019
Residential	\$19,469,352
Schools	\$2,172,675
Total	\$64,169,312

Threat to People

The total population within the parish that is susceptible to a hurricane hazard is shown in the table below:

*Table 2-59: Number of People Susceptible to a 100-Year Hurricane Event in Lafourche Parish
(Source: Hazus)*

Number of People Exposed to Hurricane Hazards			
Location	# in Community	# in Hazard Area	% in Hazard Area
Lafourche Parish (Unincorporated)	77,073	77,073	100%
Golden Meadow	2,101	2,101	100%
Lockport	2,578	2,578	100%
Thibodaux	14,566	14,566	100%
Total	96,318	96,318	100%

The Hazus hurricane model was also extrapolated to provide an overview of vulnerable populations throughout Lafourche Parish. These populations are illustrated in the following tables:

*Table 2-60: Vulnerable Populations in Unincorporated Lafourche Parish for a 100-Year Hurricane Event
(Source: Hazus)*

Lafourche Parish (Unincorporated)		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	77,073	100.0%
Persons Under 5 Years	5,441	7.1%
Persons Under 18 Years	13,495	17.5%
Persons 65 Years and Over	9,626	12.5%
White	61,173	79.4%
Minority	15,900	20.6%

*Table 2-61: Vulnerable Populations in Golden Meadow for a 100-Year Hurricane Event
(Source: Hazus)*

Golden Meadow		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	2,101	100.0%
Persons Under 5 Years	132	6.3%
Persons Under 18 Years	367	17.5%
Persons 65 Years and Over	316	15.0%
White	1,753	83.4%
Minority	348	16.6%

*Table 2-62: Vulnerable Populations in Lockport for a 100-Year Hurricane Event
(Source: Hazus)*

Lockport		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	2,578	100.0%
Persons Under 5 Years	186	7.2%
Persons Under 18 Years	403	15.6%
Persons 65 Years and Over	407	15.8%
White	2,371	92.0%
Minority	207	8.0%

*Table 2-63: Vulnerable Populations in Thibodaux for a 100-Year Hurricane Event
(Source: Hazus)*

Thibodaux		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	14,566	100.0%
Persons Under 5 Years	913	6.3%
Persons Under 18 Years	2,131	14.6%
Persons 65 Years and Over	2,124	14.6%
White	9,284	63.7%
Minority	5,282	36.3%

Vulnerability

See Appendix C for parish and municipality buildings that are susceptible to tropical cyclones.

3. Capability Assessment

This section summarizes the results of Lafourche Parish jurisdictions and other agency efforts to develop policies, programs, and activities that directly or indirectly support hazard mitigation. It also provides information on resources and gaps in the parish's infrastructure, as well as relevant changes in its law since the last plan update, in order to suggest a mitigation strategy.

Through this assessment, Lafourche Parish and the participating jurisdictions are able to identify strengths that could be used to reduce losses and reduce risk throughout the communities. It also identifies areas where mitigation actions might be used to supplement current capabilities and create a more resilient community before, during, and after a hazard event.

Policies, Plans and Programs

Lafourche Parish capabilities are unique to the parish, including planning, regulatory, administrative, technical, financial, and education and outreach resources. There are a number of mitigation-specific acts, plans, executive orders, and policies that lay out specific goals, objectives, and policy statements which already support or could support pre- and post-disaster hazard mitigation. Many of the ongoing plans and policies hold significant promise for hazard mitigation and take an integrated and strategic look holistically at hazard mitigation in Lafourche Parish to propose ways to continually improve it. These tools are valuable instruments in pre- and post-disaster mitigation as they facilitate the implementation of mitigation activities through the current legal and regulatory framework. Examples of existing documents in Lafourche Parish and its jurisdictions include the following:

Table 3-1: Planning and Regulatory Capabilities

Planning and Regulatory					
Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.					
	Lafourche Parish	Golden Meadow	Thibodaux	Lockport	Comments
Plans	Yes / No				
Comprehensive / Master Plan	Yes	No	Yes	No	
Capital Improvements Plan	No	No	Yes	No	
Economic Development Plan	No	No	Yes	No	
Local Emergency Operations Plan	Yes	No	Yes	No	
Continuity of Operations Plan	Yes	No	Yes	No	
Transportation Plan	No	No	No	No	
Stormwater Management Plan	Yes	No	No	No	
Community Wildfire Protection Plan	No	No	No	No	
Other plans (redevelopment, recovery, coastal zone management)	Yes	No	No	No	
Building Code, Permitting and Inspections	Yes / No				
Building Code	Yes	Yes	Yes	Yes	
Building Code Effectiveness Grading Schedule (BCEGS) Score	No	No	Yes	No	
Fire Department ISO/PIAL rating	Yes	Yes	Yes	Yes	
Site plan review requirements	Yes	Yes	Yes	Yes	
Land Use Planning and Ordinances	Yes / No				
Zoning Ordinance	No	Yes	Yes	Yes	
Subdivision Ordinance	Yes	Yes	Yes	No	
Floodplain Ordinance	Yes	Yes	Yes	Yes	
Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)	Yes	Yes	No	Yes	
Flood Insurance Rate Maps	Yes	Yes	No	Yes	
Acquisition of land for open space and public recreation uses	Yes	No	Yes	No	
Other		No	No	No	

Lafourche Parish will work to expand their capabilities by adding to these plans, as well as work to create new plans that will address a long-term recovery and resiliency framework. In instances where there are no existing plans, there will be a commitment to explore opportunities to create new plans that will address long-term recovery and resiliency framework as parish and local resources allow.

Building Codes, Permitting, Land Use Planning and Ordinances

The Lafourche Parish Government provides oversight for building permits and codes, land use planning, and all parish ordinances.

As of the 2020 update, Lafourche Parish and its communities ensure that all adopted building codes are enforced and in compliance relating to the construction of any structure within the boundaries of the parish. Building permits are required prior to beginning any type of construction or renovation projects, installation of electrical wiring, plumbing or gas piping, moving manufactured/modular or portable buildings, and reroofing or demolitions.

The Lafourche Parish Government is also responsible for enforcing the parish ordinances related to health and safety, property maintenance standards, and condemnation of unsafe structures.

The Lafourche Parish Government meets regularly to consider any proposed ordinance changes, and to take final actions on proposed changes.

While local capabilities for mitigation can vary from community to community, Lafourche Parish as a whole has a system in place to coordinate and share these capabilities through the OHSEP and through this Parish Hazard Mitigation Plan.

Some programs and policies, such as the above described, might use complementary tools to achieve a common end, but fail to coordinate with or support each other. Thus, coordination among local mitigation policies and programs is essential to hazard mitigation.

Administration, Technical, and Financial

As a community, Lafourche Parish has administrative and technical capabilities in place that may be utilized in reducing hazard impacts or implementing hazard mitigation activities. Such capabilities include staff, skillset, and tools available in the community that may be accessed to implement mitigation activities and to effectively coordinate resources. The ability to access and coordinate these resources is also important. The table on the following page shows examples of resources in place in Lafourche Parish.

Table 3-2: Administration and Technical Capabilities

Administration and Technical					
Identify whether your community has the following administrative and technical capabilities. For smaller jurisdictions without local staff resources, if there are public resources at the next higher level government that can provide technical assistance, indicate so in your comments.					
	Lafourche Parish	Golden Meadow	Thibodaux	Lockport	Comments
Administration	Yes / No				
Planning Commission	Yes	Yes	Yes	Yes	
Mitigation Planning Committee	Yes	Yes	Yes	No	
Maintenance programs to reduce risk (tree trimming, clearing drainage systems)	Yes	Yes	Yes	Yes	
Staff	Yes / No				
Chief Building Official	Yes	No	Yes	No	
Floodplain Administrator	Yes	Yes	No	Yes	
Emergency Manager	Yes	No	Yes	Yes	
Community Planner	Yes	No	Yes	No	
Civil Engineer	No	No	Yes	Yes	
GIS Coordinator	Yes	No	Yes	No	
Grant Writer	Yes	No	Yes	No	
Other	No	No	N/A	No	
Technical	Yes / No				
Warning Systems / Service (Reverse 911, outdoor warning signals)	Yes	No	Yes	No	
Hazard Data & Information	No	No	Yes	No	
Grant Writing	No	No	Yes	No	
Hazus Analysis	No	No	Yes	No	
Other	No	No	N/A	No	

Financial capabilities are the resources that Lafourche Parish has access to or are eligible to use in order to fund mitigation actions. Costs associated with implementing the actions identified by the parish may vary from little to no cost actions, such as outreach efforts, or substantial action costs such acquisition of flood prone properties.

The following financial resources are available to fund mitigation actions in Lafourche Parish:

Table 3-3: Financial Capabilities

Financial					
Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.					
	Lafourche Parish	Golden Meadow	Thibodaux	Lockport	Comments
Funding Resource	Yes / No				
Capital Improvements project funding	No	Yes	Yes	Yes	
Authority to levy taxes for specific purposes	No	Yes	Yes	Yes	
Fees for water, sewer, gas, or electric services	No	Yes	Yes	Yes	
Impact fees for new development	No	No	Yes	No	
Stormwater Utility Fee	No	No	No	No	
Community Development Block Grant (CDBG)	No	Yes	Yes	Yes	
Other Funding Programs	Yes	Yes	Yes	Yes	

Education and Outreach

A key element in hazard mitigation is promoting a safer, more disaster resilient community through education and outreach activities and/or programs. Successful outreach programs provide data and information that improves overall quality and accuracy of important information for citizens to feel better prepared and educated with mitigation activities. These programs enable the individual communities and the parish as a whole to maximize opportunities for implementation of activities through greater acceptance and consensus of the community.

Lafourche Parish has existing education and outreach programs to implement mitigation activities, as well as communicate risk and hazard related information to its communities. Specifically, focusing on advising repetitive loss property owners of ways they can reduce their exposure to damage by repetitive flooding remains a priority for the entire parish. The existing programs are as follows:

Table 3-4: Education and Outreach Capabilities

Education and Outreach					
Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information.					
	Lafourche Parish	Golden Meadow	Thibodaux	Lockport	Comments
Program / Organization	Yes / No				
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No	No	Yes	No	
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	No	No	Yes	No	
Natural Disaster or safety related school program	No	No	No	No	
Storm Ready certification	No	No	Yes	No	
Firewise Communities certification	No	No	Yes	No	
Public/Private partnership initiatives addressing disaster-related issues	No	No	Yes	No	
Other	No	No	N/A	No	

The communities within Lafourche Parish rely on Lafourche OHSEP and/or Lafourche Parish Government agencies for the above listed planning and regulatory, administrative and technical, financial, and education and outreach capabilities.

As reflected with above existing regulatory mechanisms, programs and resources within the parish, Lafourche Parish remains committed to expanding and improving on the existing capabilities within the parish. Communities, along with Lafourche Parish will work together toward increased participation in funding opportunities and available mitigation programs. Should funding become available, the hiring of additional personnel to dedicate to hazard mitigation initiatives and programs, as well as increasing ordinances within the parish, will all enhance and expand risk reduction for all of Lafourche Parish.

Flood Insurance and Community Rating System

Lafourche Parish was a participant in the Community Rating System (CRS), but their participation has recently been rescinded. However, obtaining current status in the CRS was recognized as an eventual goal by the Hazard Mitigation Steering Committee. Participation in the CRS strengthens local capabilities by lowering flood insurance premiums for jurisdictions that exceed NFIP minimum requirements.

The Federal Emergency Management Agency's National Flood Insurance Program (NFIP) administers the Community Rating System (CRS). Under the CRS, flood insurance premiums for properties in participating communities are reduced to reflect the flood protection activities that are being implemented. This program can have a major influence on the design and implementation of flood mitigation activities, so a brief summary is provided here.

A community receives a CRS classification based upon the credit points it receives for its activities. It can undertake any mix of activities that reduce flood losses through better mapping, regulations, public information, flood damage reduction and/or flood warning and preparedness programs.

There are ten CRS classes: Class 1 requires the most credit points and gives the largest premium reduction; Class 10 receives no premium reduction (see *Figure 3-1*). A community that does not apply for the CRS or that does not obtain the minimum number of credit points is a class 10 community.

CLASS	DISCOUNT	CLASS	DISCOUNT
1	45%	6	20%
2	40%	7	15%
3	35%	8	10%
4	30%	9	5%
5	25%	10	—
SFHA (Zones A, AE, A1-A30, V, V1-V30, AO, and AH): Discount varies depending on class.			
SFHA (Zones A99, AR, AR/A, AR/AE, AR/A1-A30, AR/AH, and AR/AO): 10% discount for Classes 1-6; 5% discount for Classes 7-9.*			
Non-SFHA (Zones B, C, X, D): 10% discount for Classes 1-6; 5% discount for Classes 7-9.			

Figure 3-1: CRS Discounts by Class
(Source: FEMA)

As of September 2019, 317 communities in the State of Louisiana participate in the Federal Emergency Management Agency's National Flood Insurance Program (NFIP). Of these communities, 47 (or 15%) participate in the Community Rating System (CRS). Jefferson Parish leads the state with a rating of Class 5, followed by the City of Mandeville in St. Tammany Parish with a Class 6 rating. Of the top fifty Louisiana communities, in terms of

total flood insurance policies held by residents, 27 participate in the CRS. The remaining 23 communities present an outreach opportunity for encouraging participation in the CRS.

The CRS provides an incentive not just to start new mitigation programs, but to keep them going. There are two requirements that "encourage" a community to implement flood mitigation activities. Once the parish has obtained a CRS rating and is a participant, the parish will receive CRS credit for this plan when it is adopted. To retain that credit, though, the parish must submit an evaluation report on progress toward implementing this plan to FEMA by October 1 of each year. That report must be made available to the media and the public. Second, the parish must annually recertify to FEMA that it is continuing to implement its CRS credited activities. Failure to maintain the same level of involvement in flood protection can result in a loss of CRS credit points and a resulting increase in flood insurance rates to residents.

In 2011¹, the National Flood Insurance Program (NFIP) completed a comprehensive review of the Community Rating System (CRS) that resulted in the release of a new CRS Coordinator's Manual. The changes to the 2013 CRS Coordinator's Manual are the result of a multi-year program evaluation that included input from a broad group of contributors to evaluate the CRS and refine the program to meet its stated goals. The changes helped to drive new achievements in the following six core flood loss reduction areas important to the NFIP: (1) reduce liabilities to the NFIP Fund; (2) improve disaster resiliency and sustainability of communities; (3) integrate a Whole Community approach to addressing emergency

¹ <https://www.fema.gov/national-flood-insurance-program-community-rating-system>

management; (4) promote natural and beneficial functions of floodplains; (5) increase understanding of risk, and; (6) strengthen adoption and enforcement of disaster-resistant building codes.

Since the revision of the 2013 Coordinator's Manual, FEMA released the 2017 CRS Coordinator's Manual which continued the evolution of the CRS program and its mission to reward communities that prioritize mindful floodplain regulations. As with the 2013 manual, the changes made in the 2017 manual impact each CRS community differently. Some communities see an increase in the points they receive since points for certain activities have increased (e.g., Activity 420 Open Space Preservation). Other communities receive fewer points for certain activities (e.g., Activity 320 Map Information Service). It is likely that some communities with marginal CRS Class 9 programs have to identify new CRS credits in order to remain in the CRS class. Most notably, as it relates to this hazard mitigation plan, more credit was made available for Activity 410 Floodplain Mapping.

Typically, CRS communities do not request credit for all the activities they are currently implementing unless it would earn enough credit to advance the community to a higher CRS Class. A community that finds itself losing CRS credit with the 2017 manual could likely identify activities deserving credit they had not previously received. Due to the changes in both activities and CRS points, community CRS coordinators should speak with their ISO/CRS Specialist to understand how the 2017 manual will impact their community and when.

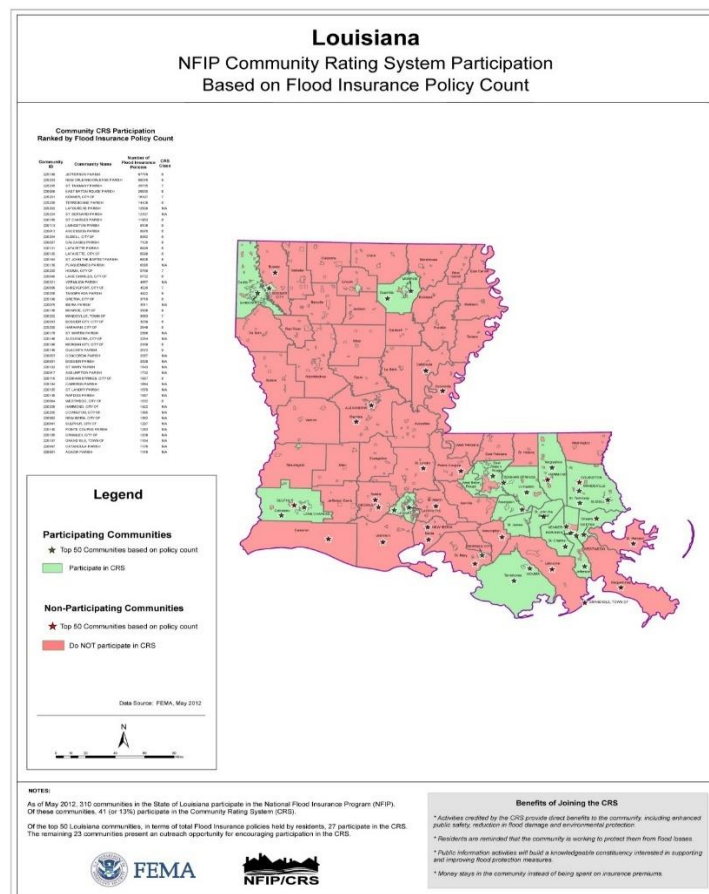


Figure 3-2: Louisiana CRS Participation
(Source: FEMA²)

² http://www.fema.gov/media-library-data/20130726-2128-31471-9581/ks_ky_la_crs_may_2012_508.zip

In addition to the direct financial reward for participating in the Community Rating System, there are many other reasons to participate in the CRS. As FEMA staff often say, “If you are only interested in saving premium dollars, you’re in the CRS for the wrong reason.”

The other benefits that are more difficult to measure in dollars include:

1. The activities credited by the CRS provide direct benefits to residents, including:

- Enhanced public safety
- A reduction in damage to property and public infrastructure
- Avoidance of economic disruption and losses
- Reduction of human suffering
- Protection of the environment

2. A community’s flood programs will be better organized and more formal. Ad hoc activities, such as responding to drainage complaints rather than an inspection program, will be conducted on a sounder, more equitable basis.

3. A community can evaluate the effectiveness of its flood program against a nationally recognized benchmark.

4. Technical assistance in designing and implementing a number of activities is available at no charge from the Insurance Services Office.

5. The public information activities will build a knowledgeable constituency interested in supporting and improving flood protection measures.

6. A community would have an added incentive to maintain its flood programs over the years. The fact that its CRS status could be affected by the elimination of a flood related activity or a weakening of the regulatory requirements for new developments would be taken into account by the governing board when considering such actions.

7. Every time residents pay their insurance premiums, they are reminded that the community is working to protect them from flood losses, even during dry years.

**More information on the Community Rating System can be found at <https://www.fema.gov/national-flood-insurance-program-community-rating-system> **

NFIP Worksheets

Parish NFIP worksheets can be found in Appendix E: State Required Worksheets.

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4. Mitigation Strategy

Introduction

Lafourche Parish's Hazard Mitigation Strategy has a common guiding principle and is the demonstration of the parish's commitment to reduce risks from hazards. The strategy also serves as a guide for parish and local decision makers as they commit resources to reducing the effects of hazards.

Lafourche confirmed the goals, objectives, actions and projects over the period of the hazard mitigation plan update process. The mitigation actions and projects in this 2020 HMP update are a product of analysis and review of the Lafourche Parish Hazard Mitigation Plan Steering Committee under the coordination of the Lafourche Parish Office of Homeland Security and Emergency Preparedness. The committee was presented a list of projects and actions, new and from the 2015 plan, for review from June 2020 – October 2020.

An online public opinion survey of Lafourche Parish residents was conducted between June and November 2020. The survey was designed to capture public perceptions and opinions regarding natural hazards in Lafourche Parish. In addition, the survey collected information regarding the methods and techniques preferred by the respondents for reducing the risks and losses associated with local hazards.

This activity was created in an effort to confirm that the goals and action items developed by the Lafourche Parish Hazard Mitigation Plan Steering Committee are representative of the outlook of the community at large. However, because there were no responses to the survey, this public feedback could not be incorporated into the plan. The full Lafourche Parish survey can be found at the following link:

<https://www.surveymonkey.com/r/LafourcheHMP2020>

Goals

The goals represent the guidelines that the parish and its communities want to achieve with this plan update. To help implement the strategy and adhere to the mission of the Hazard Mitigation Plan, the preceding section of the plan update was focused on identifying and quantifying the risks faced by the residents and property owners in Lafourche Parish from natural and manmade hazards. By articulating goals and objectives based on the previous plans, the risk assessment results, and intending to address those results, this section sets the stage for identifying, evaluating, and prioritizing feasible, cost effective, and environmentally sound actions to be promoted at the parish and municipal level – and to be undertaken by the state for its own property and assets. By doing so, Lafourche Parish can make progress toward reducing identified risks.

For the purposes of this plan update, goals and action items are defined as follows:

- **Goals** are general guidelines that explain what the parish wants to achieve. Goals are expressed as broad policy statements representing desired long-term results.
- **Action Items** are the specific steps (projects, policies, and programs) that advance a given goal. They are highly focused, specific, and measurable.

The current goals of the Lafourche Parish Hazard Mitigation Plan Update Steering Committee represent long-term commitments by the parish. After assessing these goals, the committee decided that the current remain valid.

The goals are as follows:

- Goal 1:** Identify and pursue preventative structural and non-structural 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 by pursuing various mitigation measures (acquisitions, elevations, and flood-proofing).
- Goal 4:** Facilitate sound development in the parish and municipalities so as to reduce or eliminate the potential impact of hazards.

The Mitigation Action Plan focuses on actions to be taken by Lafourche Parish. All of the activities in the Mitigation Action Plan will be focused on helping the parish and its communities in developing and funding projects that are not only cost effective but also meet the other DMA 2000 criteria of environmental compatibility and technical feasibility.

The Hazard Mitigation Plan Steering Committee reviewed and evaluated the potential action and project lists in which consideration was given to a variety of factors. Such factors include determining a project's eligibility for federal mitigation grants as well as its ability to be funded. This process required evaluation of each project's engineering feasibility, cost effectiveness, and environmental and cultural factors.

2020 Mitigation Actions and Update on Previous Plan Actions

The Lafourche Parish Hazard Mitigation Plan Steering Committee identified new actions that would reduce and/or prevent future damage within Lafourche Parish and their respective communities. In that effort, the parish focused on a comprehensive range of specific mitigation actions. These actions were identified in thorough fashion by the consultant team and the committee by way of frequent and open communications and meetings held throughout the planning process. The addition of these new actions, coupled with any ongoing and/or carried over projects from their previous update, provide Lafourche Parish with a solid mitigation strategy through which risk and losses will be reduced throughout the parish and its communities.

As outlined in the Local Mitigation Planning Handbook the following are eligible types of mitigation actions:

- **Local Plans and Regulations** – These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.
- **Structure and Infrastructure Projects** – These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area, and also includes projects to construct manmade structures to reduce the impact of hazards.
- **Natural System Protection** – These actions minimize the damage and losses and also preserve or restore the functions of natural systems.
- **Education and Awareness Programs** – These actions inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them.

The established and agreed upon parish actions relative to the parish-wide goals are below. Additionally, action updates from the previous plan updates can be found below the new actions.

Lafourche Parish and Municipality Completed Mitigation Actions

Completed Mitigation Projects in Lafourche Parish and Jurisdictions						
Jurisdiction-Specific Action	Action Description	Funding Source	Target Completion Date	Responsible Party, Agency, or Department	Hazard	Status
Generator Installation	Install generators at all critical facilities and governmental facilities	HMGP, Local, Regional	1-5 years	Lafourche Parish Government, Lafourche OHSEP	Flooding, Coastal Land Loss, Sinkholes, Tornadoes, Tropical Cyclones	Complete
Generator Installation	Install generators at all critical facilities and governmental facilities	HMGP, Local, Regional	1-5 years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Tornadoes, Tropical Cyclones	Complete
Generator Installation	Install generators at all critical facilities and governmental facilities	HMGP, Local, Regional	1-5 years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Tornadoes, Tropical Cyclones	Completed

Lafourche Parish Previous and New Mitigation Actions

Unincorporated Lafourche Parish Previous and New Mitigation Actions						
Jurisdiction-Specific Action	Action Description	Funding Source	Target Completion Date	Responsible Party, Agency, or Department	Hazard	Status
LA 1 Improvement Project Phase II Segment A	LA 1 Improvement Project Phase II Segment A	LA Capital Outlay Program: LA Coalition, Inc; FEMA	1-5 years	Lafourche Parish Government, Lafourche OHSEP, Louisiana Department of Transportation & Development	Flooding, Tropical Cyclones	In Progress
LA 1 Improvement Project Phase II Segment B	LA 1 Improvement Project Phase II Segment B	USDOT Tiger Grant Program; RESTORE Act; OCS; FEMA	1-5 years	Lafourche Parish Government, Lafourche OHSEP, Louisiana Department of Transportation & Development	Flooding, Tropical Cyclones	In Progress
Drainage Improvement Projects	Widen drainage ditches and upgrade culverts	HMGP, FEMA, Local, Regional	1-5 years	Lafourche Parish Government, Public Works Director	Flooding, Tropical Cyclone	In Progress
Pump Station Improvements	Upgrade Pump station capacity; Ensure pump stations have adequate trash racks to ensure operation during flood events; Provide additional pump station protection inside levee systems	HMGP, Local, Regional	1-5 years	Lafourche Parish Government, Public Works Director	Flooding, Tropical Cyclone	In Progress
Elevation Projects	Elevate roads with flood history; Elevate levee and floodwall heights to further protect from storm surge; Elevate, acquire, or pilot reconstruct all RL and SRL structures	HMGP, Local, Regional	1-5 years	Lafourche Parish Government, Lafourche OHSEP	Flooding, Tropical Cyclone	In Progress
Construct Safe Rooms	Construct safe rooms for all critical facilities and governmental facilities	HMGP	1-5 years	Lafourche Parish Government, Lafourche OHSEP	Tornado, Tropical Cyclone	In Progress
Mitigation Outreach and Education	Monitor agricultural activities and encourage smart farming practices to reduce soil compaction and acceleration of subsidence; Provide educational brochures to libraries, schools, and other public facilities including mitigation measures for all hazards; Establish a public outreach campaign to ensure all homeowners in floodplains are aware of the various types of coverage options under the NFIP; Establish a homeowner education program on flood mitigation measures	Local	1-5 years	Lafourche Parish Government, Lafourche OHSEP	Coastal Land Loss, Flooding, Sinkholes, Tornadoes, Tropical Cyclones	In Progress

Communication Systems Upgrades	Acquire all-hazard warning system to ensure proper citizen notification of tornadoes, hurricanes, and coastal/tropical storms	HMGP, Local, Regional	1-5 years	Lafourche Parish Government, Lafourche OHSEP	Tornado, Tropical Cyclone	In Progress
LA 1 Improvement Project Phase II Segment C	LA 1 Improvement Project Phase II Segment C	LA Capital Outlay Program: LA Coalition, Inc; FEMA	1-5 years	Lafourche Parish Government, Lafourche OHSEP, Louisiana Department of Transportation & Development	Flooding, Tropical Cyclones	Carried Over - Not Started
Wind Hardening Projects	Wind hardening of critical facilities and governmental facilities	HMGP	1-5 years	Lafourche Parish Government, Lafourche OHSEP	Tornadoes, Thunderstorms, Tropical Cyclones	Carried Over - Not Started
Increase Sediment Diversion	Increase sediment diversion	CPRA	1-5 years	Lafourche Parish Government, Parish Engineer, Zoning Department	Coastal Land Loss	Carried Over - Not Started
Drinking Water Protection Projects	Locate and construct additional potable water intakes further north in the parish to provide drinking water during a saltwater intrusion event	Local	1-5 years	Lafourche Parish Government, Water District Department Heads	Coastal Land Loss	Carried Over - Not Started
Implementation of Land Loss Monitoring	Ensure accurate survey points are located throughout the parish to monitor continued subsidence	Local, Federal	1-5 years	Lafourche Parish Government, Lafourche OHSEP	Coastal Land Loss	Carried Over - Not Started
Participate in Community Rating System (CRS)	Each political subdivision to join the CRS	No Additional Funding	1-5 years	Lafourche Parish Government, Lafourche OHSEP	Flooding, Tropical Cyclones	Carried Over - Not Started
Lafourche Parish Capital Outlay Projects	Completion of Capital Outlay projects, including additional drainage improvements, infrastructure and building upgrades and improvements, pump station improvements, bulkhead improvements, and other unidentified capital outlay projects	FEMA, Local	1-5 years	Lafourche Parish Government, Lafourche OHSEP	Coastal Land Loss, Flooding, Sinkholes, Thunderstorms, Tornadoes, Tropical Cyclones	Carried Over - Not Started
Drainage Improvement Projects	Implementation of drainage improvement/flood mitigation projects to relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation.	HMGP, Local, regional, and federal	1-5 years	Lafourche Parish Government, Lafourche OHSEP	Coastal Hazards, Flooding, Sinkholes, Tornadoes, Tropical Cyclones	New
Potable Water	Create redundancy of potable water supply to critical facilities, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	HMGP, Federal	1-5 years	Lafourche Parish Government, Lafourche OHSEP	Flooding, Sinkholes, Tornadoes, Tropical Cyclones	New

Flood Proofing Projects	Flood-proof critical structures within the parish to help promote continuation of critical services during a storm event	HMGP, Federal	1-5 years	Lafourche Parish Government, Lafourche OHSEP	Flooding, Tropical Cyclones	New
Pumping Station Projects	Elevate or flood proof pump stations; upgrade existing pump stations by installing block valves to prevent/protect against backwater	HMGP, Federal	1-5 years	Lafourche Parish Government, Lafourche OHSEP	Flooding, Tropical Cyclones	New
Flood Ordinances	Adopt new regulations reducing development density in flood prone areas.	HMGP, Federal	1-5 years	Lafourche Parish Government, Lafourche OHSEP	Flooding, Tropical Cyclones	New
Generator Procurement and Installation	Acquire and install backup generators for public buildings for continuity of operations and government during disasters.	HMGP, Federal	1-5 years	Lafourche Parish Government, Lafourche OHSEP	Coastal Hazards, Flooding, Sinkholes, Thunderstorms, Tornadoes, Tropical Cyclones	New
Transfer Switch Installation	Acquire and install transfer switches at critical facilities to allow for generator use during and after emergency events. This will allow for continuity of operations at the parish and municipal level.	HMGP	1-5 years	Lafourche Parish Government, Lafourche OHSEP	Coastal Hazards, Flooding, Sinkholes, Thunderstorms, Tornadoes, Tropical Cyclones	New
Map and Assess Vulnerability to Erosion	Develop and maintain database of current community vulnerability to erosion. Utilize GIS to identify and map affected areas to provide better awareness of the hazard to emergency management officials and community members.	HMGP	1-5 Years	Lafourche Parish Government, Lafourche OHSEP	Coastal Hazards, Tropical Cyclones	New
Improvements to Flood Risk Assessment	Heighten awareness within the parish to current and future flood risks by developing and implementing procedures for tracking high water marks following high water events, incorporating GIS to develop map areas that are at risk, and by developing and maintaining a database to track community exposure to high water and flood risk events.	HMGP	1-5 years	Lafourche Parish Government, Lafourche OHSEP	Flooding, Tropical Cyclones	New
Floodproofing of Residential and Non-Residential Structures	Better protect structures within the parish from flood damage by encouraging wet flood proofing of areas above BFE. Dry proof non-residential structures by strengthening walls, seal openings, and other measures to keep water out.	HMGP	1-5 years	Lafourche Parish Government, Lafourche OHSEP	Flooding, Tropical Cyclones	New

Town of Golden Meadow Previous and New Mitigation Actions

Town of Golden Meadow Previous and New Mitigation Actions						
Jurisdiction-Specific Action	Project Description	Funding Source	Target Completion Date	Responsible Party, Agency, or Department	Hazard	Status
Drinking Water Protection Projects	Locate and construct additional potable water intakes further north in the parish to provide drinking water during a saltwater intrusion event	Local	1-5 years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Coastal Land Loss	Delete
Generator Installation	Install generators at all critical facilities and governmental facilities	HMGP, Local, Regional	1-5 years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Tornadoes, Tropical Cyclones	In Progress
Mitigation Education and Outreach	Monitor agricultural activities and encourage smart farming practices to reduce soil compaction and acceleration of subsidence; Establish a public outreach campaign to ensure all homeowners in floodplains are aware of the various types of coverage options under the NFIP; Establish a homeowner education program on flood mitigation measures; Provide educational brochures to libraries, schools, and other public facilities including mitigation measures for all hazards	Local	1-5 years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Coastal Land Loss, Flooding, Sinkholes, Tornadoes, Tropical Cyclones	In Progress
Lafourche Parish Capital Outlay Projects	Completion of Capital Outlay projects including additional drainage improvements, infrastructure and building upgrades/improvements, pump station improvements, bulkhead improvements, and other unidentified projects	FEMA, Local	1-5 years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Coastal Land Loss, Flooding, Sinkholes, Tornadoes, Tropical Cyclones	In Progress
Participate in the Community Rating System (CRS)	Each political subdivision to join the CRS	No Additional Funding	1-5 years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Flooding, Tropical Cyclones	Carried Over - Not Started
Implementation of Land Loss Monitoring	Ensure accurate survey points are located throughout the parish to monitor continued subsidence	Local, Federal	1-5 years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Coastal Land Loss	Carried Over - Not Started
Wind Hardening Projects	Wind harden critical facilities and governmental facilities	HMGP, Local, Regional	1-5 years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Thunderstorms, Tornadoes, Tropical Cyclones	Carried Over - Not Started
Drainage Improvement Projects	Widen drainage ditches and upgrade culverts	HMGP, Local, Regional	1-5 years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Flooding, Tropical Cyclones	Carried Over - Not Started

Elevation Projects	Elevate levee and floodwall heights to further protect from storm surge; Elevate, acquire, or pilot reconstruct all RL and SRL structures	HMGP, Local, Regional	1-5 years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Flooding, Tropical Cyclones	Carried Over - Not Started
Safe Room Construction	Construct safe rooms in critical facilities and governmental facilities	FEMA	1-5 years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Tornadoes, Tropical Cyclones	Carried Over - Not Started
Drainage Improvement Projects	Implementation of drainage improvement/flood mitigation projects to relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation.	HMGP, Local, regional, and federal	1-5 years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Coastal Hazards, Flooding, Tornadoes, Tropical Cyclones	New
Potable Water	Create redundancy of potable water supply to critical facilities, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	HMGP, Federal	1-5 years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Flooding, Sinkholes, Tornadoes, Tropical Cyclones	New
Flood Proofing Projects	Flood-proof critical structures within the parish to help promote continuation of critical services during a storm event	HMGP, Federal	1-5 years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Flooding, Tropical Cyclones	New
Pumping Station Projects	Elevate or flood proof pump stations; upgrade existing pump stations by installing block valves to prevent/protect against backwater	HMGP, Federal	1-5 years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Flooding, Tropical Cyclones	New
Flood Ordinances	Adopt new regulations reducing development density in flood prone areas.	HMGP, Federal	1-5 years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Flooding, Tropical Cyclones	New
Generator Procurement and Installation	Acquire and install backup generators for public buildings for continuity of operations and government during disasters.	HMGP, Federal	1-5 years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Coastal Hazards, Flooding, Sinkholes, Thunderstorms, Tornadoes, Tropical Cyclones	New
Transfer Switch Installation	Acquire and install transfer switches at critical facilities to allow for generator use during and after emergency events. This will allow for continuity of operations at the parish and municipal level.	HMGP	1-5 years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Coastal Hazards, Flooding, Sinkholes, Thunderstorms, Tornadoes, Tropical Cyclones	New

Map and Assess Vulnerability to Erosion	Develop and maintain database of current community vulnerability to erosion. Utilize GIS to identify and map affected areas to provide better awareness of the hazard to emergency management officials and community members.	HMGP	1-5 Years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Coastal Hazards, Tropical Cyclones	New
Improvements to Flood Risk Assessment	Heighten awareness within Golden Meadow to current and future flood risks by developing and implementing procedures for tracking high water marks following high water events, incorporating GIS to develop map areas that are at risk, and by developing and maintaining a database to track community exposure to high water and flood risk events.	HMGP	1-5 years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Flooding, Tropical Cyclones	New
Floodproofing of Residential and Non-residential Structures	Better protect structures within the Golden Meadow from flood damage by encouraging wet flood proofing of areas above BFE. Dry proof non-residential structures by strengthening walls, seal openings, and other measures to keep water out.	HMGP	1-5 years	Mayor of Golden Meadow, Lafourche Parish Government, Lafourche Parish OHSEP	Flooding, Tropical Cyclones	New

Town of Lockport Previous and New Mitigation Actions

Town of Lockport Previous and New Mitigation Actions						
Jurisdiction-Specific Action	Project Description	Funding Source	Target Completion Date	Responsible Party, Agency, or Department	Hazard	Status
Drinking Water Protection Projects	Locate and construct additional potable water intakes further north in the parish to provide drinking water during a saltwater intrusion event	Local	1-5 years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Coastal Land Loss	Delete
Drainage Improvement Projects	Widen drainage ditches and upgrade culverts	HMGP, Local, Regional	1-5 years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Flooding, Tropical Cyclones	In progress
Mitigation Education and Outreach	Monitor agricultural activities and encourage smart farming practices to reduce soil compaction and acceleration of subsidence; Establish a public outreach campaign to ensure all homeowners in floodplains are aware of the various types of coverage options under the NFIP; Establish a homeowner education program on flood mitigation measures; Provide educational brochures to libraries, schools, and other public facilities including mitigation measures for all hazards	Local	1-5 years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Coastal Land Loss, Flooding, Sinkholes, Tornadoes, Tropical Cyclones	In Progress
Implementation of Land Loss Monitoring	Ensure accurate survey points are located throughout the parish to monitor continued subsidence	Local, Federal	1-5 years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Coastal Land Loss	Carried Over - Not Started
Wind Hardening Projects	Wind harden critical facilities and governmental facilities	HMGP, Local, Regional	1-5 years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Thunderstorms, Tornadoes, Tropical Cyclones	Carried Over - Not Started
Elevation Projects	Elevate, acquire, or pilot reconstruct all RL and SRL structures	HMGP	1-5 years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Flooding, Tropical Cyclone	Carried Over - Not Started

Participate in the Community Rating System (CRS)	Each political subdivision to join the CRS	No Additional Funding	1-5 years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Flooding, Tropical Cyclone	Carried Over - Not Started
Lafourche Parish Capital Outlay Projects	Completion of Capital Outlay projects, including additional drainage improvements, infrastructure and building upgrades and improvements, bulkhead improvements, and other unidentified capital outlay projects	FEMA, Local	1-5 years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Coastal Land Loss, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Carried Over - Not Started
Safe Room Construction	Construct safe rooms for critical facilities and governmental facilities	HMGP	1-5 years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Thunderstorms, Tornadoes, Tropical Cyclones	Carried Over - Not Started
Drainage Improvement Projects	Implementation of drainage improvement/flood mitigation projects to relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation.	HMGP, Local, regional, and federal	1-5 years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Coastal Land Loss, Flooding, Tornadoes, Tropical Cyclones	New
Potable Water	Create redundancy of potable water supply to critical facilities, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	HMGP, Federal	1-5 years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Flooding, Tornadoes, Tropical Cyclones	New
Flood Proofing Projects	Flood-proof critical structures within the parish to help promote continuation of critical services during a storm event	HMGP, Federal	1-5 years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Flooding, Tropical Cyclones	New
Pumping Station Projects	Elevate or flood proof pump stations; upgrade existing pump stations by installing block valves to prevent/protect against backwater	HMGP, Federal	1-5 years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Flooding, Tropical Cyclones	New
Flood Ordinances	Adopt new regulations reducing development density in flood prone areas.	HMGP, Federal	1-5 years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Flooding, Tropical Cyclones	New

Generator Procurement and Installation	Acquire and install backup generators for public buildings for continuity of operations and government during disasters.	HMGP, Federal	1-5 years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Coastal Hazards, Flooding, Tornadoes, Tropical Cyclones	New
Transfer Switch Installation	Acquire and install transfer switches at critical facilities to allow for generator use during and after emergency events. This will allow for continuity of operations at the parish and municipal level.	HMGP	1-5 years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Coastal Hazards, Flooding, Tornadoes, Tropical Cyclones	New
Map and Assess Vulnerability to Erosion	Develop and maintain database of current community vulnerability to erosion. Utilize GIS to identify and map affected areas to provide better awareness of the hazard to emergency management officials and community members.	HMGP	1-5 Years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Coastal Land Loss, Tropical Cyclones	New
Improvements to Flood Risk Assessment	Heighten awareness within Lockport to current and future flood risks by developing and implementing procedures for tracking high water marks following high water events, incorporating GIS to develop map areas that are at risk, and by developing and maintaining a database to track community exposure to high water and flood risk events.	HMGP	1-5 years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Flooding, Tropical Cyclones	New
Flood proofing of Residential and Non-residential Structures	Better protect structures within Lockport from flood damage by encouraging wet flood proofing of areas above BFE. Dry proof non-residential structures by strengthening walls, seal openings, and other measures to keep water out.	HMGP	1-5 years	Mayor of Lockport, Lafourche Parish Government, Lafourche Parish OHSEP	Flooding, Tropical Cyclones	New

City of Thibodaux Previous and New Mitigation Actions

City of Thibodaux Previous and New Mitigation Actions						
Jurisdiction-Specific Action	Action Description	Funding Source	Target Completion Date	Responsible Party, Agency, or Department	Hazard	Status
Drinking Water Protection Projects	Locate and construct additional potable water intakes further north in the parish to provide drinking water during a saltwater intrusion event	Local	1-5 years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Coastal Land Loss	Delete
Mitigation Outreach and Education	Monitor agricultural activities and encourage smart farming practices to reduce soil compaction and acceleration of subsidence; Establish a public outreach campaign to ensure all homeowners in floodplains are aware of the various types of coverage options under the NFIP; Establish a homeowner education program on flood mitigation measures; Provide educational brochures to libraries, schools, and other public facilities including mitigation measures for all hazards	Local	1-5 years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Coastal Land Loss, Flooding, Tornadoes, Tropical Cyclones	In Progress
Elevation Projects	Elevate, acquire, or pilot reconstruct all RL and SRL structures	HMGP	1-5 years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Flooding, Tropical Cyclone	In Progress
Lafourche Parish Capital Outlay Projects	Completion of Capital Outlay projects, including additional drainage improvements, infrastructure and building upgrades and improvements, pump station improvements, bulkhead improvements, and other unidentified capital outlay projects	FEMA, Local	1-5 years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Coastal Land Loss, Flooding, Tornadoes, Tropical Cyclones	In Progress
Implementation of Land Loss Monitoring	Ensure accurate survey points are located throughout the parish to monitor continued subsidence	Local, Federal	1-5 years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Coastal Land Loss	Carried Over - Not Started
Participate in Community Rating System (CRS)	Each political subdivision to join the CRS	No Additional Funding	1-5 years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Flooding, Tropical Cyclones	Carried Over - Not Started
Drainage Improvement Projects	Widen drainage ditches and upgrade culverts; South Canal Blvd. drainage project; Acadian Woods Subdivision drainage project; East 7th St. drainage project; St. Louis Canal Backflow Project	HMGP, Local, Regional	1-5 years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Flooding, Tropical Cyclones	Carried Over - Not Started

Wind Hardening Projects	Wind harden critical facilities and governmental facilities, including Public Works Office	HMGP	1-5 years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Tornadoes, Tropical Cyclones	Carried Over - Not Started
Safe Room Construction	Construct safe rooms for all critical facilities and governmental facilities	HMGP	1-5 years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Tornadoes, Tropical Cyclones	Carried Over - Not Started
Drainage Improvement Projects	Implementation of drainage improvement/flood mitigation projects to relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation.	HMGP, Local, regional, and federal	1-5 years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Coastal Hazards, Flooding, Tornadoes, Tropical Cyclones	New
Potable Water	Create redundancy of potable water supply to critical facilities, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	HMGP, Federal	1-5 years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Flooding, Tornadoes, Tropical Cyclones	New
Flood Proofing Projects	Flood-proof critical structures within Thibodaux to help promote continuation of critical services during a storm event	HMGP, Federal	1-5 years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Flooding, Tropical Cyclones	New
Pumping Station Projects	Elevate or flood proof pump stations; upgrade existing pump stations by installing block valves to prevent/protect against backwater	HMGP, Federal	1-5 years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Flooding, Tropical Cyclones	New
Flood Ordinances	Adopt new regulations reducing development density in flood prone areas within city limits.	HMGP, Federal	1-5 years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Flooding, Tropical Cyclones	New
Generator Procurement and Installation	Acquire and install backup generators for public buildings for continuity of operations and government during disasters.	HMGP, Federal	1-5 years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Coastal Hazards, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	New
Transfer Switch Installation	Acquire and install transfer switches at critical facilities to allow for generator use during and after emergency events. This will allow for continuity of operations at the parish and municipal level.	HMGP	1-5 years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Coastal Hazards, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	New
Map and Assess Vulnerability to Erosion	Develop and maintain database of current community vulnerability to erosion. Utilize GIS to identify and map affected areas to provide better awareness of the hazard to emergency management officials and community members.	HMGP	1-5 Years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Coastal Hazards, Tropical Cyclones	New

Improvements to Flood Risk Assessment	Heighten awareness within the Thibodaux to current and future flood risks by developing and implementing procedures for tracking high water marks following high water events, incorporating GIS to develop map areas that are at risk, and by developing and maintaining a database to track community exposure to high water and flood risk events.	HMGP	1-5 years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Flooding, Tropical Cyclones	New
Floodproofing of Residential and Non-residential Structures	Better protect structures within the Thibodaux from flood damage by encouraging wet flood proofing of areas above BFE. Dry proof non-residential structures by strengthening walls, seal openings, and other measures to keep water out.	HMGP	1-5 years	Mayor of Thibodaux, Lafourche Parish Government, Lafourche OHSEP	Flooding, Tropical Cyclones	New

Action Prioritization

During the prioritization process, the steering committee considered the costs and relative benefits of each new action. Costs can usually be listed in terms of dollars, although at times it involves staff time rather than the purchase of equipment or services that can be readily measured in dollars. In most cases, benefits, such as lives saved or future damage prevented, are hard to measure in dollars. Therefore, many projects were prioritized with these factors in mind. In addition, prioritization of the mitigation actions was performed based on the following economic criteria: i) whether the action can be performed with the existing parish resources; ii) whether the action requires additional funding from external sources; and iii) relative costs of the mitigation actions.

In all cases, the committee concluded that the benefits (in terms of reduced property damage, lives saved, health problems averted and/or economic harm prevented) outweighed the costs for the recommended action items.

The steering committee prioritized the possible activities that could be pursued. Steering committee members consulted appropriate agencies in order to assist with the prioritizations. The results were items that address the major hazards, are appropriate for those hazards, are cost-effective, and are affordable. The steering committee met internally for mitigation action meetings to review and approve Lafourche mitigation actions. On-going actions, as well as actions which can be undertaken by existing parish staff without need for additional funding, were given high priority. The actions with high benefit and low cost, political support, and public support but require additional funding from parish or external sources were given medium priority. The actions that require substantial funding from external sources with relatively longer completion time were given low priority.

Lafourche Parish will implement and administer the identified actions based off of the proposed timeframes and priorities for each reflected in the portions of this section where actions are summarized. The inclusion of any specific action item in this document does not commit the parish to implementation. Each action item will be subject to availability of staff and funding. Certain items may require regulatory changes or other decisions that must be implemented through standard processes, such as changing regulations. This plan is intended to offer priorities based on an examination of hazards.

Appendix A: Planning Process

Purpose

The Hazard Mitigation Plan Update process prompts local jurisdictions to keep their hazard mitigation plan current and moving toward a more resilient community. The plan update builds on the research and planning efforts of previous plans while reviewing recent trends. The steering committee followed FEMA's hazard mitigation planning process per the FEMA Local Mitigation Planning Handbook. This planning process assured public involvement and the participation of interested agencies and private organizations. Documentation of the planning process for the updated plan is addressed in this section.

The Lafourche Parish Hazard Mitigation Plan Update

The Lafourche Parish Hazard Mitigation Plan Update process began in June 2020 with a series of meetings and collaborations between the contractor (SDMI) and the participating agencies. Update activities were intended to give each participating agency the opportunity to shape the plan to best fit their community's goals. Community stakeholders and the general public were invited to attend and contribute information to the planning process during specific time periods or meetings.

The table below details the meeting schedule and purpose for the planning process:

Date	Meeting or Outreach	Location	Public Invited	Purpose
6/30/2020	Kick Off Meeting	Conference Call	No	Discuss with Parish HM Director the expectations and requirements of the project.
7/22/2020	Initial Planning Meeting	Virtual - Zoom Platform	No	Discuss with the plan Steering Committee expectations and requirements of the project. Assign plan worksheets to Parish.
10/14/2020	Risk Assessment Overview	Raceland, LA	No	Discuss and review the Risk Assessment with the Steering Committee. Discuss and review expectations for Public Meeting.
10/14/2020	Public Meeting	Raceland, LA	Yes	The Public Meeting allowed the public and community stakeholders to participate and provide input into the hazard mitigation planning process. Maps of the Lafourche Parish communities were provide for the meeting attendees to identify specific areas where localized hazards occur.
Ongoing	Public Survey Tool	Online	Yes	This survey asked participants about public perceptions and opinions regarding natural hazards in Lafourche Parish. In addition, questions covered the methods and techniques preferred for reducing the risks and losses associated with these hazards. Survey Results: https://www.surveymonkey.com/results/SM-WGMQBFR67/
2 Week Period	Public Plan Review (Digital)		Yes	Parish Website or other locations determined by Steering Committee

Planning

The plan update process consisted of several phases:

	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7
Plan Revision							
Data Collection							
Risk Assessment							
Public Input							
Mitigation Strategy and Actions							
Plan Review by GOHSEP and FEMA							
Plan Adoption							
Plan Approval							

Coordination

The Lafourche Parish Office of Homeland Security and Emergency Preparedness (OHSEP) oversaw the coordination of the 2020 Hazard Mitigation Plan Update Steering Committee during the update process. The parish OHSEP was responsible for identifying members for the committee.

The Parish Director and SDMI were jointly responsible for inviting the steering committees and key stakeholders to planned meetings and activities. SDMI assisted the Parish Director with press releases and social media statements for notification to the media and general public for public meetings and public outreach activities.

SDMI was responsible for facilitating meetings and outreach efforts during the update process.

Neighboring Community, Local and Regional Planning Process Involvement

From the outset of the planning process, the steering committee encouraged participation from a broad range of parish entities. The involvement of representatives from the city, state, and regional agencies provided diverse perspectives and mitigation ideas.

Formal participation in this plan includes but is not limited to the following activities:

- Participation in Hazard Mitigation Team meetings at the local and parish level
- Sharing local data and information
- Action item development
- Plan document draft review
- Formal adoption of the Hazard Mitigation Plan document following provisional approval by the State of Louisiana and FEMA

The 2020 Hazard Mitigation Plan Update Steering Committee consisted of representatives from the following parish, municipal or community stakeholders:

- Lafourche Parish Government
- Lafourche Office of Homeland Security and Emergency Preparedness
- Lafourche Parish Public Works
- City of Thibodaux
- Town of Lockport
- Town of Golden Meadow
- Assumption Office of Homeland Security and Emergency Preparedness

The Assumption Parish OHSEP Director was invited to the Initial Planning and Risk Assessment Meetings for Lafourche Parish in an effort to coordinate mitigation efforts where possible as neighboring communities. The Assumption OHSEP Director was invited via email and phone call to participate in an effort to collaborate with neighboring communities. SDMI assisted Lafourche Parish with encouraging the collaboration with these neighboring communities via email by extending an invitation to the Lafourche Hazard Mitigation Plan Update Meetings. The participation of the GOHSEP Region 3 Coordinator during the process also contributed to neighboring community representation.

As part of the coordination and planning process, the parish was provided the State Required Hazard Mitigation Plan Update Worksheet. The completed worksheets can be found in Appendix E – State Required Plan Update Worksheets.

Below is a detailed list of the 2020 HMPU Steering Committee:

Lafourche Parish Hazard Mitigation Planning Committee			
Name	Title	Agency	Email
Archie Chaisson III	Parish President	Lafourche Parish Government	chaissonap@lafourchegov.org
Mitch Orgeron	Parish Administrator	Lafourche Parish Government	parishadministrator@lafourchegov.org
Darla Duet	Flood Plain Manager	Lafourche Parish Government	duetda@lafourchegov.org
Dillon Baronne	Director	Lafourche Parish Government Public Works	dpwdirector@lafourchegov.org
Marie Blouin	Administrative Assistant	Lafourche Parish Government Public Works	blouinma@lafourchegov.org
Tommy Eschete	Mayor	City of Thibodaux	teschete@ci.thibodaux.la.us
Ed Reinhardt	Mayor	Town of Lockport	mayoredreinhardt@townoflockport.com
Joey Bouziga	Mayor	Town of Golden Meadow	mayor@townofgoldenmeadow-la.gov

Program Integration

Local governments are required to describe how their mitigation planning process is integrated with other ongoing local and area planning efforts. This subsection describes Lafourche Parish programs and planning.

A measure of integration and coordination is achieved through the HMPU participation of Steering Committee members and community stakeholders who administer programs such as: floodplain

management under the National Flood Insurance Program (NFIP), coastal protection and restoration, parish planning and zoning and building code enforcement.

Lafourche Parish will continue to integrate the requirements of this Hazard Mitigation Plan into other local planning mechanisms that are to be identified through future meetings of the Parish, and through the five-year review process described in the Plan Maintenance section. The primary means for integrating mitigation strategies into other local planning mechanisms will be through the revision, update and implementation of any individual city/town plans that require specific planning and administrative tasks (e.g. risk assessment, plan amendments, ordinance revisions, capital improvement projects, etc.).

The members of the Lafourche Parish Hazard Mitigation Steering Committee will remain charged with ensuring that the goals and strategies of new and updated local planning documents for their communities or agencies are consistent with the goals and actions of the Hazard Mitigation Plan, and will not contribute to increased hazard vulnerability in the Parish. Existing plans, studies, and technical information were incorporated in the planning process. Examples include flood data from FEMA and the U. S. Geological Survey. Much of this data was incorporated into the Risk Assessment component of the plan relative to plotting historical events and the magnitude of damages that occurred. The parish's 2015 Hazard Mitigation Plan was also used in the planning process. Other existing data and plans used in the planning process include those listed below.

- Louisiana Coastal Master Plan
- Parish Emergency Operations Plan
- State of Louisiana Hazard Mitigation Plan
- Flood Insurance Rate Maps

Further information on the plans can be found in the Capabilities Assessment, Section 3.

Meeting Documentation and Public Outreach Activities

The following pages contain documentation of the meetings and public outreach activities conducted during this hazard mitigation plan update for Lafourche Parish.

Meeting #1: Hazard Mitigation Plan Update Kick-Off

Date: June 30, 2020

Location: Conference Call

Purpose: Discuss the expectations and requirements of the hazard mitigation plan update process and establish an initial project timeline with the Parish's OHSEP Director and any additional personnel.

Public Initiation: No

Meeting Invitees:

Lafourche Parish Hazard Mitigation Planning Committee		
Name	Title	Agency
Archie Chaisson III	Parish President	Lafourche Parish Government
Mitch Orgeron	Parish Administrator	Lafourche Parish Government
Darla Duet	Flood Plain Manager	Lafourche Parish Government
Dillon Baronne	Director	Lafourche Parish Government Public Works
Marie Blouin	Administrative Assistant	Lafourche Parish Government Public Works
Tommy Eschete	Mayor	City of Thibodaux
Ed Reinhardt	Mayor	Town of Lockport
Joey Bouziga	Mayor	Town of Golden Meadow

Meeting #2: Hazard Mitigation Plan Update Initial Planning Meeting

Date: July 22, 2020

Location: Virtual – Zoom Platform

Purpose: Discuss the expectations and requirements of the hazard mitigation plan update process and establish an initial project timeline with the Parish's Hazard Mitigation Plan Steering Committee. Assign each individual the parish data collection for the plan update.

Meeting Invitees:

Lafourche Parish Hazard Mitigation Planning Committee		
Name	Title	Agency
Archie Chaisson III	Parish President	Lafourche Parish Government
Mitch Orgeron	Parish Administrator	Lafourche Parish Government
Darla Duet	Flood Plain Manager	Lafourche Parish Government
Dillon Baronne	Director	Lafourche Parish Government Public Works
Marie Blouin	Administrative Assistant	Lafourche Parish Government Public Works
Tommy Eschete	Mayor	City of Thibodaux
Ed Reinhardt	Mayor	Town of Lockport
Joey Bouziga	Mayor	Town of Golden Meadow

Meeting #3: Risk Assessment Overview

Date: October 14, 2020

Location: Raceland, Louisiana

Purpose: Members of the Lafourche Parish Hazard Mitigation Plan Update Steering Committee were presented the results of the risk assessment and an overview of the public meeting presentation during this overview. The assessment was conducted based on hazards identified during previous plans and on any newly identified risks.

Public Initiation: No

Meeting Invitees:

Lafourche Parish Hazard Mitigation Planning Committee		
Name	Title	Agency
Archie Chaisson III	Parish President	Lafourche Parish Government
Mitch Orgeron	Parish Administrator	Lafourche Parish Government
Darla Duet	Flood Plain Manager	Lafourche Parish Government
Dillon Baronne	Director	Lafourche Parish Government Public Works
Marie Blouin	Administrative Assistant	Lafourche Parish Government Public Works
Tommy Eschete	Mayor	City of Thibodaux
Ed Reinhardt	Mayor	Town of Lockport
Joey Bouziga	Mayor	Town of Golden Meadow

Meeting #4: Public Meeting

Date: October 14, 2020

Location: Raceland, Louisiana

Purpose: The Public Meeting allowed the public and community stakeholders to participate and provide input into the hazard mitigation planning process. Maps of the Lafourche Parish communities were provided for the meeting attendees to identify specific areas where localized hazards occur.

Public Initiation: Yes

Meeting Invitees:

Lafourche Parish Hazard Mitigation Planning Committee		
Name	Title	Agency
Archie Chaisson III	Parish President	Lafourche Parish Government
Mitch Orgeron	Parish Administrator	Lafourche Parish Government
Darla Duet	Flood Plain Manager	Lafourche Parish Government
Dillon Baronne	Director	Lafourche Parish Government Public Works
Marie Blouin	Administrative Assistant	Lafourche Parish Government Public Works
Tommy Eschete	Mayor	City of Thibodaux
Ed Reinhardt	Mayor	Town of Lockport
Joey Bouziga	Mayor	Town of Golden Meadow

Outreach Activity #1: Public Opinion Survey

Date: Ongoing throughout planning process

Location: Web survey

Public Initiation: Yes

Outreach Activity #2: Incident Questionnaire

Date: Public Meeting Activity

Location: Public Meeting

Public Initiation: Yes

Outreach Activity #3: Mapping Activities

Public meeting attendees were asked to identify areas on parish and community specific maps provided that were “problem areas.” They were also asked to indicate any areas of new development. This activity gave the public an opportunity to interact with SDMI’s GIS Mapping division as well as provide valuable input on areas that may flood repeatedly during rain events that may not get reported to local emergency managers as significant events.

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Appendix B: Plan Maintenance

Purpose

The section of the Code of Federal Regulations (CFR) pertaining to Local Mitigation Plans lists five required components for each plan: a description of the planning process; risk assessments; mitigation strategies; a method and system for plan maintenance; and documentation of plan adoption. This section details the method and system for plan maintenance, following the CFR's guidelines that the Plan Update must include (1) "a section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle," (2) "a process by which local governments incorporated the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans" and (3) "discussion on how the community will continue public participation in the plan maintenance process."

Monitoring, Evaluating, and Updating the Plan

The Lafourche Parish Planning Committee will be responsible for monitoring, evaluating, and documenting the plan's progress throughout the year. Part of the plan maintenance process should include a system by which local governing bodies incorporate the HMP into the parish's comprehensive or capital improvement plans. This process provides for continued public participation through the diverse resources of the parish to help in achieving the goals and objectives of the plan. Public participation will be achieved through availability of copies of HMP in parish public library and parish website. This section describes the whole update process which includes the following:

- Responsible parties
- Methods to be used
- Evaluation criteria to be applied
- Scheduling for monitoring and evaluating the plan

Responsible Parties

Lafourche Parish has designated an entity that will perform a regular review and update of the Hazard Mitigation Plan. This will be the responsibility of the steering committee, which consists of representatives from governmental organizations, local businesses, and private citizens, who will be involved in the process of monitoring, evaluating and updating the plan. All committee members in this plan will remain active in the steering committee.

Although the people filling the positions may change from year to year, the parish and its stakeholders will have representatives on the Steering Committee. The future Steering Committee will continue to be comprised of the same job functions as currently evident in the Steering Committee. However, the decision of specific job duties will be left to the Parish OHSEP Director to be assigned as deemed appropriate.

Methods for Monitoring and Evaluating the Plan and Plan Evaluation Criteria

Lafourche Parish has developed a method to ensure monitoring, evaluating, and updating of the HMP occurs during the five-year cycle of the plan. The planning committee will become a permanent body and will be responsible for monitoring, evaluating, and updating of the plan. The planning committee meeting

will be held annually in order to monitor, evaluate, and update the plan. The Lafourche Parish OHSEP Director will be responsible for conducting the annual planning committee meetings. The lead person of the agency responsible for the implementation of a specific mitigation action will submit a progress report to the Lafourche Parish OHSEP Director at least 30 days prior to the planning committee meeting. The progress report will provide project status monitoring to include the following: whether the project has started; if not started, reason for not starting; if started, status of the project; if the project is completed, whether it has eliminated the problem; and any changes recommended to improve the implementation of the project etc. In addition, the progress report will provide status monitoring on the plan evaluation, changes to the hazard profile, changes to the risk assessment, and public input on the Hazard Mitigation Plan updates and reviews.

Progress on the mitigation action items and projects will be reviewed during the annual planning committee meeting. The criteria that would be utilized in the project review will include the following:

- 1) Whether the action was implemented and reasons, if the action was not implemented
- 2) What were the results of the implemented action
- 3) Were the outcomes as expected, and reasons if the outcomes were not as expected
- 4) Did the results achieve the stated goals and objectives
- 5) Was the action cost-effective
- 6) What were the losses avoided after completion of the project
- 7) In case of a structural project, did it change the hazard profile

An evaluation of the plan will be conducted in the annual planning committee meeting. The planning committee will review each goal and objective to determine their relevance to changing situations in the parish, as well as changes to state or federal policy, and to ensure that they are addressing current and expected conditions. The planning committee will evaluate if any change in hazard profile and risk in the parish occurred during the past year. In addition, the evaluation will include the following criteria in respect of plan implementation:

- 1) Any local staffing changes that would warrant inviting different members to the planning committee
- 2) Any new organizations that would be valuable in the planning process or project implementation need to be included in the planning committee
- 3) Are there any procedures that can be done more efficiently
- 4) Are there more ways to gain more diverse and widespread cooperation
- 5) Are there any different or additional funding sources available for mitigation planning and implementation

The HMP will be updated every five years to remain eligible for continued HMGP funding. The planning committee will be responsible for updating the HMP. The OHSEP Director will be the lead person for the HMP update. The HMP update process will commence at least one year prior to the expiration of the

plan. The HMP will be updated after a major disaster if an annual evaluation of the plan indicates a substantial change in hazard profile and risk assessment in the parish.

Additionally, the public will be canvassed to solicit input to continue Lafourche Parish's dedication to involving the public directly in review and updates of the Hazard Mitigation Plan. Meetings will be scheduled as needed by the plan administrator to provide a forum for which the public can express their concerns, opinions, and/or ideas about the plan. The plan administrator will be responsible for using parish resources to publicize the annual public meetings and maintain public involvement through the newspapers, radio, and public access television channels. Copies of the plan will be catalogued and kept at all appropriate agencies in the city government, as well as at the Public Library.

The review by the steering committee and input from the public will determine whether a plan update is needed prior to the required five-year update.

2020 Plan Version Plan Method and Schedule Evaluation

For the current plan update, the previously approved plan's method and schedule were evaluated to determine if the elements and processes involved in the required 2015 update were adequate. Based on this analysis, the method and schedule were deemed to be acceptable, and nothing was changed for this update.

Incorporation into Existing Planning Programs

It is the responsibility of the Lafourche Parish Hazard Mitigation Plan Steering Committee to determine additional implementation procedures when appropriate. This may include integrating the requirements of the Lafourche Parish Hazard Mitigation Plan into planning documents, processes, or mechanisms as follows:

- Ordinances, Resolutions, Regulations
- Floodplain Ordinances
- Comprehensive Master Plan
- Capital Improvements Plan
- Economic Development Plan
- Local Emergency Operations Plan
- Continuity of Operations Plan
- Stormwater Management Plan
- Louisiana Watershed Initiative

The above referenced ordinances, building codes, and regulations will be amended by a resolution in the parish council in order to incorporate the mitigation actions identified in the HMP.

Opportunities to integrate the requirements of this plan into other local planning mechanisms will continue to be identified through future meetings of the Lafourche Parish Hazard Mitigation Steering Committee and through the five-year review process described herein. The primary means for integrating mitigation strategies into other local planning mechanisms will be through the revision, update and implementation of individual plans that require specific planning and administrative tasks (e.g. risk assessment, plan amendments, ordinance revisions, capital improvement projects, etc.). The members

of the steering committee will meet with Department Heads to discuss what should be included in the changes that are necessary before the changes are introduced to the city council or police jury meetings. The members of the steering committee will remain charged with ensuring that the goals and strategies of new and updated local planning documents for their agencies are consistent with the goals and actions of the Lafourche Parish Hazard Mitigation Plan, and will not contribute to increased hazard vulnerability within the parish.

During the planning process for new and updated local planning documents, such as a Risk Assessment, Comprehensive Plan, Capital Improvements Plan, or Emergency Operations Plan, the parish provided a copy of the previously approved Parish Hazard Mitigation Plan to the appropriate parties and recommended that all goals and strategies of new and updated local planning documents are consistent with and support the goals of the Parish Hazard Mitigation Plan and will not contribute to increased hazards. As a participant in the Louisiana Watershed Initiative, Lafourche Parish has incorporated strategies identified in the previously approved Hazard Mitigation Plan into their watershed planning processes. Lafourche Parish has also expressed interest in becoming an active participant in the Community Rating System. The Hazard Mitigation Plan updates will provide a solid foundation for processes and actions that will be incorporated into the CRS planning process.

Although it is recognized that there are many possible benefits to integrating components of this plan into other parish planning mechanisms, the development and maintenance of this stand-alone Hazard Mitigation Plan is deemed by the steering committee to be the most effective and appropriate method to ensure implementation of parish and local hazard mitigation actions. And while the development and maintenance of this stand-alone plan has been recognized as the most effective course of mitigation action implementation, individual facets of this plan have been used to bolster other planning and mitigation efforts. The following parish plans incorporate requirements of the Lafourche Parish Hazard Mitigation Plan Update as follows:

Lafourche Unincorporated

- Comprehensive Master Plan – Updated as needed by Lafourche Parish Government
- Local Emergency Operations Plan – Updated as needed by Lafourche Parish OHSEP
- Continuity of Operations Plan – Update as needed by Lafourche Parish OHSEP
- Stormwater Management Plan – Updated as needed by Lafourche Parish Government

Town of Golden Meadow

- There are no additional plans within this jurisdiction for the Hazard Mitigation Plan to be integrated.

Town of Lockport

- There are no additional plans within this jurisdiction for the Hazard Mitigation Plan to be integrated.

City of Thibodaux

- Comprehensive Master Plan – Updated as needed by Lafourche Parish Government
- Capital Improvements Plan – Updated as needed by Lafourche Parish Government
- Economic Development Plan – Updated as needed by Lafourche Parish Government
- Local Emergency Operations Plan – Updated as needed by Lafourche Parish OHSEP
- Continuity of Operations Plan – Update as needed by Lafourche Parish OHSEP

Continued Public Participation

Public participation is an integral component of the mitigation planning process and will continue to be essential as this plan evolves over time. Significant changes or amendments to the plan require a public hearing prior to any adoption procedures. Other efforts to involve the public in the maintenance, evaluation, and revision process will be made as necessary. These efforts may include:

- Advertising meetings of the Mitigation Committee in the local newspaper, public bulletin boards, and/or city and county office buildings
- Designating willing and voluntary citizens and private sector representatives as official members of the Mitigation Committee
- Utilizing local media to update the public of any maintenance and/or periodic review activities taking place
- Utilizing city and Parish web sites to advertise any maintenance and/or periodic review activities taking place
- Keeping copies of the plan in appropriate public locations.

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Appendix C: Essential Facilities

Lafourche Parish Essential Facilities

Lafourche Parish Unincorporated Essential Facilities									
Type	Name	Coastal Hazards	Flooding	Hail	Lightning	Wind	Sinkholes	Tornadoes	Tropical Cyclones
Fire and Rescue	Bayou Blue Volunteer Fire Dept.	X	X	X	X	X		X	X
	Bayou Boeuf Volunteer Fire Dept.	X	X	X	X	X		X	X
	Belle Aime Fire Department Station 6	X	X	X	X	X		X	X
	Bellevue Station	X	X	X	X	X		X	X
	Blue Bayou Volunteer Fire Department 3	X	X	X	X	X		X	X
	Bowie Fire Company 1	X	X	X	X	X		X	X
	Chackbay-Choupic VFD	X	X	X	X	X		X	X
	Chackbay Volunteer Fire Department	X	X	X	X	X		X	X
	Choctaw Volunteer Fire Station	X	X	X	X	X		X	X
	Cut Off Fire Station	X	X	X	X	X		X	X
	East Cutoff Fire Department Station 4	X	X	X	X	X		X	X
	Galliano Fire Department Station 8	X	X	X	X	X		X	X
	Lafourche Fire Protection Station 1	X	X	X	X	X		X	X
	Lafourche Fire Protection Station 2	X	X	X	X	X		X	X
	Lafourche Fire Protection Station 5	X	X	X	X	X		X	X
	Lafourche Fire Protection Station 7	X	X	X	X	X		X	X
	Lafourche Parish 308 Volunteer Fire Department	X	X	X	X	X		X	X
	Larose Fire Department Station 2	X	X	X	X	X		X	X

Lafourche Parish Unincorporated Essential Facilities									
Type	Name	Coastal Hazards	Flooding	Hail	Lightning	Wind	Sinkholes	Tornadoes	Tropical Cyclones
	Lockport Fire Station 308	X	X	X	X	X		X	X
	Lockport Heights Station	X	X	X	X	X		X	X
	Lockport Volunteer Fire Department Valentine Station	X	X	X	X	X		X	X
	Matthews Station	X	X	X	X	X		X	X
	North Larose Fire Station 14	X	X	X	X	X		X	X
	Port Fourchon Fire Department Station 12	X	X	X	X	X		X	X
	Protection District No. 1	X	X	X	X	X		X	X
	Protection District No. 1 Station 3	X	X	X	X	X		X	X
	Protection District No. 1 Station 6	X	X	X	X	X		X	X
	Raceland Fire Station 1	X	X	X	X	X		X	X
	St. John Volunteer Fire Department	X	X	X	X	X		X	X
	St. John Volunteer Fire Station	X	X	X	X	X		X	X
	St. John Volunteer Fire Department Station 2	X	X	X	X	X		X	X
	Vacherie-Gheen Volunteer Fire Company	X	X	X	X	X		X	X
	West Larose Fire Station	X	X	X	X	X		X	X
Government	Barrios Center Parish Council	X	X	X	X	X		X	X
	Coastal Protection and Restoration Authority of LA	X	X	X	X	X		X	X
	Department of Social Services	X	X	X	X	X		X	X
	Department of Transportation	X	X	X	X	X		X	X
	Department of Wildlife and Fisheries	X	X	X	X	X		X	X

Lafourche Parish Unincorporated Essential Facilities									
Type	Name	Coastal Hazards	Flooding	Hail	Lightning	Wind	Sinkholes	Tornadoes	Tropical Cyclones
	Division of Probation and Patrol Adult	X	X	X	X	X		X	X
	Greater Lafourche Port Commission	X	X	X	X	X		X	X
	Housing Authority of Lafourche	X	X	X	X	X		X	X
	Lafourche Field Office	X	X	X	X	X		X	X
	Lafourche Parish Council Maintenance Barn	X	X	X	X	X		X	X
	Louisiana Department of Motor Vehicles	X	X	X	X	X		X	X
	Louisiana Secretary of State	X	X	X	X	X		X	X
	Louisiana Society for Crippled Children	X	X	X	X	X		X	X
	Motor Vehicle Inspection	X	X	X	X	X		X	X
	Office of Community Services Department of Social Services	X	X	X	X	X		X	X
	South Lafourche Levee District	X	X	X	X	X		X	X
	State of Louisiana Office of Juvenile Justice	X	X	X	X	X		X	X
	U.S. Border Patrol	X	X	X	X	X		X	X
	USDA Golden Meadows Plant Materials Center	X	X	X	X	X		X	X
	Ward 10 Annex	X	X	X	X	X		X	X
Law Enforcement	Parish Sheriff's Office	X	X	X	X	X		X	X
	Lafourche Sheriff Office Work Release Center	X	X	X	X	X		X	X
	Lafourche Parish Sherriff's Office Range Facility	X	X	X	X	X		X	X
	Lafourche Parish Sheriff's Office	X	X	X	X	X		X	X

Public Health	Lady of the Sea General Hospital	X	X	X	X	X		X	X
	Lady of the Sea Medical Clinic	X	X	X	X	X		X	X
	Ochsner St. Anne General Hospital	X	X	X	X	X		X	X
Schools	Bayou Blue Elementary	X	X	X	X	X		X	X
	Bayou Blue Middle	X	X	X	X	X		X	X
	Bayou Boeuf Elementary	X	X	X	X	X		X	X
	Central Lafourche High School	X	X	X	X	X		X	X
	Chackbay Elementary	X	X	X	X	X		X	X
	Galliano Elementary School	X	X	X	X	X		X	X
	Holy Rosary Catholic School	X	X	X	X	X		X	X
	Larose Cutoff Middle School	X	X	X	X	X		X	X
	Larose Lower Elementary	X	X	X	X	X		X	X
	Larose Upper Elementary	X	X	X	X	X		X	X
	Raceland Elementary	X	X	X	X	X		X	X
	Raceland Middle	X	X	X	X	X		X	X
	Raceland Upper Elementary	X	X	X	X	X		X	X
	Sixth Ward Middle	X	X	X	X	X		X	X
	South Lafourche High School	X	X	X	X	X		X	X
	St. Charles Elementary	X	X	X	X	X		X	X

Golden Meadow Essential Facilities									
Type	Name	Coastal Hazards	Flooding	Hail	Lightning	Wind	Sinkholes	Tornadoes	Tropical Cyclones
Fire and Rescue	Golden Meadow	X	X	X	X	X	X	X	X
Government	Town Hall	X	X	X	X	X	X	X	X
Public Health	Lady of the Sea	X	X	X	X	X	X	X	X
Schools	Golden Meadow Lower Elementary	X	X	X	X	X	X	X	X
	Golden Meadow Middle Elementary	X	X	X	X	X	X	X	X
	Golden Meadow Upper Elementary	X	X	X	X	X	X	X	X

Lockport Essential Facilities									
Type	Name	Coastal Hazards	Flooding	Hail	Lightning	Wind	Sinkholes	Tornadoes	Tropical Cyclones
Fire and Rescue	Lockport Central Station	X	X	X	X	X		X	X
Government	Lafourche Parish Media Center	X	X	X	X	X		X	X
Law Enforcement	Lockport Police Station	X	X	X	X	X		X	X
	Parish Sheriff's Office Communications Center	X	X	X	X	X		X	X
	Parish Sheriff Criminal Operations	X	X	X	X	X		X	X
Schools	Holy Savior School	X	X	X	X	X		X	X
	Lockport Lower Elementary	X	X	X	X	X		X	X
	Lockport Middle School	X	X	X	X	X		X	X

Thibodaux Essential Facilities									
Type	Name	Coastal Hazards	Flooding	Hail	Lightning	Wind	Sinkholes	Tornadoes	Tropical Cyclones
Fire and Rescue	Home Hook and Ladder Fire Co. No. 1	X	X	X	X	X		X	X
	North Thibodaux	X	X	X	X	X		X	X
	Protector Fire Company No. 2	X	X	X	X	X		X	X
	Thibodaux Fire Company No. 2	X	X	X	X	X		X	X
	Thibodaux Fire Company No. 1	X	X	X	X	X		X	X
	Thibodaux Volunteer Fire Department	X	X	X	X	X		X	X
	Thibodaux Volunteer Fire Department Training Area	X	X	X	X	X		X	X
	West Thibodaux Co.	X	X	X	X	X		X	X
Government	Bayou Lafourche Fresh Water District	X	X	X	X	X		X	X
	City of Thibodaux City Hall	X	X	X	X	X		X	X
	City of Thibodaux Public Works	X	X	X	X	X		X	X
	FEMA Thibodaux Field Office	X	X	X	X	X		X	X
	Lafourche Courthouse	X	X	X	X	X		X	X
	Lafourche Courthouse Annex	X	X	X	X	X		X	X
	Lafourche Government Complex	X	X	X	X	X		X	X
	Lafourche Parish Assessor's Office	X	X	X	X	X		X	X
	Lafourche Parish Courthouse	X	X	X	X	X		X	X
	Lafourche Parish District Attorney	X	X	X	X	X		X	X
	Lafourche Parish Registrar of Voters	X	X	X	X	X		X	X
	Lafourche Parish School Board Annex	X	X	X	X	X		X	X
	Lafourche Parish School Board Business Building	X	X	X	X	X		X	X
	Lafourche Parish School Board Child Nutrition Department	X	X	X	X	X		X	X

Thibodaux Essential Facilities									
Type	Name	Coastal Hazards	Flooding	Hail	Lightning	Wind	Sinkholes	Tornadoes	Tropical Cyclones
	Lafourche Parish School Board Maintenance	X	X	X	X	X		X	X
	Louisiana Department of Motor Vehicles	X	X	X	X	X		X	X
	Louisiana Secretary of State	X	X	X	X	X		X	X
	Municipal Court	X	X	X	X	X		X	X
	North Lafourche Conservation Levee and Drainage District	X	X	X	X	X		X	X
	Office of the Indigent Defenders	X	X	X	X	X		X	X
	Stark Municipal Complex	X	X	X	X	X		X	X
	Thibodaux Chamber of Commerce	X	X	X	X	X		X	X
	USDA	X	X	X	X	X		X	X
Law Enforcement	City of Thibodaux Police Department	X	X	X	X	X		X	X
	Lafourche Parish Sheriff Administrative Office	X	X	X	X	X		X	X
	Thibodaux Police Department Housing Authority Division	X	X	X	X	X		X	X
Public Health	Thibodaux Regional Medical Center	X	X	X	X	X		X	X
	Women's of Thibodaux Regional Hospital	X	X	X	X	X		X	X
Schools	East Thibodaux Middle School	X	X	X	X	X		X	X
	Edward Douglas White Catholic High	X	X	X	X	X		X	X
	South Thibodaux Elementary School	X	X	X	X	X		X	X
	St. Genevieve School	X	X	X	X	X		X	X
	St. Joseph Catholic Elementary School	X	X	X	X	X		X	X
	The Maxine Giardina Charter School	X	X	X	X	X		X	X
	Thibodaux Elementary School	X	X	X	X	X		X	X

Thibodaux Essential Facilities									
Type	Name	Coastal Hazards	Flooding	Hail	Lightning	Wind	Sinkholes	Tornadoes	Tropical Cyclones
	Thibodaux High School	X	X	X	X	X		X	X
	West Thibodaux Middle School	X	X	X	X	X		X	X

Appendix D: Plan Adoptions

Lafourche Parish



www.lafourchegov.org

Armand Autin, Chairman

COUNCIL

402 GREEN STREET • THIBODAUX, LA 70301
P.O. DRAWER 5548 • THIBODAUX, LA 70302
985.446.8427 • 800.834.8832 • FAX 985.449.4012

Carleen B. Babin, Council Clerk

INTEROFFICE MEMORANDUM

TO: Lafourche Parish Government
DEPARTMENT: Office of Homeland Security and Emergency Preparedness

Lafourche Parish Government
Office of the Parish President, Archie Chaisson, III.

FROM: Tira L. Harden
DEPARTMENT: Assistant Council Clerk

THROUGH: Carleen B. Babin
DEPARTMENT: Council Clerk

DATE: January 20, 2021

RE: Resolution No. 21-001

The Lafourche Parish Council convened in Regular Session on January 12, 2021, adopted Resolution No. 21-001 (see attached), adopting the Lafourche Parish Multi-Jurisdiction Hazard Mitigation Plan Update; and authorizing the Parish President to sign, execute, and administer any and all relevant documents.

Attachment

On motion by James “Jim” Wendell, seconded by Jerry Jones, the following resolution was introduced and adopted:

RESOLUTION NO. 21-001

A RESOLUTION ADOPTING THE LAFOURCHE PARISH MULTI-JURISDICTION HAZARD MITIGATION PLAN UPDATE; AND AUTHORIZING THE PARISH PRESIDENT TO SIGN, EXECUTE AND ADMINISTER ANY AND ALL RELEVANT DOCUMENTS.

WHEREAS, Lafourche Parish Government recognizes the threat that natural hazards pose to people and property within Lafourche Parish; and

WHEREAS, Lafourche Parish Government has prepared a multi-jurisdiction hazard mitigation plan, hereby known as the Lafourche Parish Multi-Jurisdiction Hazard Mitigation Plan Update in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the Lafourche Parish Multi-Jurisdiction Hazard Mitigation Plan, updated November 2020, identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Lafourche Parish from the impacts of future hazards and disasters; and

WHEREAS, this resolution was sponsored for Administration by Mr. Armand Autin, Councilman, District 7; and

WHEREAS, it is recommended by the Administration of Lafourche Parish Government that the Council does hereby adopt the Lafourche Parish Multi-Jurisdiction Hazard Mitigation Plan Update; and authorizes the Parish President to sign, execute, and administer any and all relevant documents.

THEREFORE, BE IT RESOLVED, that the Lafourche Parish Council convened in regular session on January 12, 2021, and hereby adopts the Lafourche Parish Multi-Jurisdiction Hazard Mitigation Plan Update; and authorizes the Parish President to sign, execute, and administer any and all relevant documents.

BE IT FURTHER RESOLVED, that a certified copy of this resolution shall be forwarded to: Lafourche Parish Government: Office of Emergency Preparedness Department and the Office of the Parish President.

This resolution having been submitted to a vote, the vote thereon was as follows:

YEAS:	Mr. Jerry Jones	Mr. Armand “Noonie” Autin
	Mr. Aaron “Bo” Melvin	Mrs. D’Lynn Chiasson
	Mr. Bobby Grabert	Mr. Daniel Lorraine

NAYS: None

ABSENT: Mr. William “T-Boo” Adams
Mr. Michael T. Gros
Mr. James “Jim” Wendell

And the resolution was declared adopted this 12th day of January, 2021.



ARMAND AUTIN, CHAIRMAN
LAFOURCHE PARISH COUNCIL



CARLEEN B. BABIN, COUNCIL CLERK
LAFOURCHE PARISH COUNCIL

I, CARLEEN B. BABIN, Council Clerk for the Lafourche Parish Council, do hereby certify that the foregoing is a true and correct copy of Resolution No. 21-001, adopted by the Assembled Council in Regular Session on January 12, 2021 which meeting a quorum was present.

GIVEN UNDER MY OFFICIAL SIGNATURE AND SEAL OF OFFICE THIS 20TH DAY OF JANUARY, 2021.



CARLEEN B. BABIN, COUNCIL CLERK
LAFOURCHE PARISH COUNCIL

City of Thibodaux

RESOLUTION NO. 2311***A RESOLUTION ADOPTING THE LAFOURCHE
PARISH MULTI-JURISDICTIONAL HAZARD
MITIGATION PLAN UPDATE 2020***

BE IT RESOLVED by the City Council of the City of Thibodaux in regular session assembled, that;

WHEREAS, the City of Thibodaux recognizes the threat that natural hazards pose to people and property within the City; and

WHEREAS, the City of Thibodaux has assisted Stephenson Disaster Management Institute in the preparation of the Lafourche Parish Multi-Jurisdictional Hazard Mitigation Plan Update 2020 in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the Lafourche Parish Multi-Jurisdictional Hazard Mitigation Plan Update 2020 identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Lafourche Parish, and the City of Thibodaux from the impacts of future hazards and disasters; and

WHEREAS, the adoption by the City of Thibodaux demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the Lafourche Parish Multi-Jurisdictional Hazard Mitigation Plan Update 2020.

NOW, THEREFORE BE IT RESOLVED that the City Council of the City of Thibodaux does hereby adopt the Lafourche Parish Multi-Jurisdictional Hazard Mitigation Plan Update 2020.

The above resolution having been submitted to a vote, the vote thereon was as follows:

YEAS: Tabor, Richard, Johnson, Naquin, Mire


NAYS: None

ABSTAIN: None

ABSENT: None

And the above resolution was declared adopted this 2nd day of February 2021.


Jennifer Morvant, Council Adm.


Chad J. Mire, President

Town of Golden Meadow

On motion by Councilman Jody Cheraime, seconded by Councilman Kip Plaisance, the following resolution was introduced and adopted:

RESOLUTION NO. 1796**RESOLUTION ADOPTING THE LAFOURCHE PARISH HAZARD MITIGATION PLAN UPDATE; AND AUTHORIZING MAYOR BOUZIGA TO SIGN, EXECUTE AND ADMINISTER ANY AND ALL RELEVANT DOCUMENTS.**

WHEREAS, the Town Council of Golden Meadow (the "GM Town Council") recognizes the threat that natural hazards pose to people and property within Town of Golden Meadow; and

WHEREAS, Lafourche Parish Government has prepared a multi-hazard mitigation plan, hereby known as Lafourche Parish Hazard Mitigation Plan Update in accordance with the Disaster Mitigation Act of 2020; and

WHEREAS, Lafourche Parish Hazard Mitigation Plan, updated November 2020, identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Lafourche Parish, including the Town of Golden Meadow, from the impacts of future hazards and disasters; and

WHEREAS, it is recommended by the Mayor that the GM Town Council adopt the Lafourche Parish Hazard Mitigation Plan Update; and authorize the Mayor to sign, execute and administer any and all relevant documents.

THEREFORE, BE IT RESOLVED, that the GM Town Council convened in regular session on February 1, 2021, and does hereby adopt the Lafourche Parish Hazard Mitigation Plan Update; and authorizes the Mayor to sign, execute and administer any and all relevant documents.

BE IT FURTHER RESOLVED, that a certified copy of this resolution shall be forwarded to: Governor's Office of Homeland Security and Emergency Preparedness and Lafourche Parish Government.

This resolution having been submitted to a vote, the vote thereon was as follows:

YEAS: COUNCILMAN MIKE BILLIOT, COUNCILMAN JODY CHERAMIE,
COUNCILMAN, LACI LATIOLAIS, COUNCILMAN KIP PLAISANCE,
COUNCILMAN WILLIS TOUPS

NAYS: NONE

ABSENT: NONE

ABSTAINED: NONE

And the resolution was declared adopted this 1st day of February, 2021.


MAYOR JOEY BOUZIGA
TOWN OF GOLDEN MEADOW

ATTESTED:

JAMIE A. LINER, TOWN CLERK
TOWN OF GOLDEN MEADOW

Town of Lockport

On motion by Councilman Boudreaux, seconded by Councilman Acosta, the following resolution was introduced and adopted:

RESOLUTION NO. 2021-02

**RESOLUTION ADOPTING THE LAFOURCHE PARISH HAZARD MITIGATION PLAN UPDATE;
AND AUTHORIZING THE MAYOR TO SIGN, EXECUTE AND ADMINISTER ANY AND ALL
RELEVANT DOCUMENTS.**

WHEREAS, Town of Lockport recognizes the threat that natural hazards pose to people and property within Town of Lockport and Lafourche Parish; and

WHEREAS, Lafourche Parish Government has prepared a multi-hazard mitigation plan, hereby know as Lafourche Parish Hazard Mitigation Plan Update in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, Lafourche Parish Hazard Mitigation Plan, updated November 2020, identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Town of Lockport and Lafourche Parish from the impacts of future hazards and disasters; and

WHEREAS, it is recommended by the Administration of Lafourche Parish Government that the Lockport Town Council does hereby adopt the Lafourche Parish Hazard Mitigation Plan Update; and authorizes the Mayor to sign, execute and administer any and all relevant documents.

BE IT FURTHER RESOLVED, that a certified copy of this resolution shall be forwarded to: Lafourche Parish Government.

This resolution having been submitted to a vote, the vote thereon was as follows:

YEAS: Councilmembers: Boudreaux, Acosta, and Galjour.

NAYS: 00

ABSENT: Councilmembers: Detillier and Hartman

And the resolution was declared adopted this January 26, 2021.



MANDY HIMEL
TOWN CLERK



EDWARD REINHARDT
MAYOR

Appendix E: State Required Worksheets

During the planning process (Appendix A) the Hazard Mitigation Plan Update Steering Committee was provided state-required plan update process worksheets to be filled out. The worksheets were presented at the Initial Planning Meeting by SDMI as tools for assisting in the update of the Hazard Mitigation Plan, but also as a State Requirement (Element E) for the update. The plan update worksheets allowed for collection of information such as planning team members, community capabilities, critical infrastructure and vulnerable populations and NFIP information. The following pages contain documentation of the state required worksheets.

Mitigation Planning Team

Lafourche Parish Hazard Mitigation Planning Committee			
Name	Title	Agency	Email
Archie Chaisson III	Parish President	Lafourche Parish Government	chaissonap@lafourchegov.org
Mitch Orgeron	Parish Administrator	Lafourche Parish Government	parishadministrator@lafourchegov.org
Darla Duet	Flood Plain Manager	Lafourche Parish Government	duetda@lafourchegov.org
Dillon Baronne	Director	Lafourche Parish Government Public Works	dpwdirector@lafourchegov.org
Marie Blouin	Administrative Assistant	Lafourche Parish Government Public Works	blouinma@lafourchegov.org
Tommy Eschete	Mayor	City of Thibodaux	teschete@ci.thibodaux.la.us
Ed Reinhardt	Mayor	Town of Lockport	mayoredreinhardt@townoflockport.com
Joey Bouziga	Mayor	Town of Golden Meadow	mayor@townofgoldenmeadow-la.gov

Capability Assessment – Unincorporated Lafourche

Capability Assessment Worksheet		
Unincorporated Lafourche		
Local mitigation capabilities are existing authorities, polices and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible.		
Planning and Regulatory		
Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.		
Plans	Yes / No	Comments
Comprehensive / Master Plan	Yes	n/a
Capital Improvements Plan	No	n/a
Economic Development Plan	No	n/a
Local Emergency Operations Plan	Yes	n/a
Continuity of Operations Plan	Yes	n/a
Transportation Plan	No	n/a
Stormwater Management Plan	Yes	n/a
Community Wildfire Protection Plan	No	n/a
Other plans (redevelopment, recovery, coastal zone management)	Yes	n/a
Building Code, Permitting and Inspections	Yes / No	Comments
Building Code	Yes	n/a
Building Code Effectiveness Grading Schedule (BCEGS) Score	No	n/a
Fire Department ISO/PIAL rating	Yes	Rating Dist 1-5, Dist 2-5, Dist 3-5, Dist 4-2(Thibodaux) Dist 5-5, Dist 6-5, Dist 7-5 Dist 8-A-7, Dist 8-B-5, Dist 8-C-5, Dist 9-5
Site plan review requirements	Yes	n/a
Land Use Planning and Ordinances	Yes / No	Comments
Zoning Ordinance	No	n/a
Subdivision Ordinance	Yes	n/a
Floodplain Ordinance	Yes	n/a
Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)	Yes	n/a
Flood Insurance Rate Maps	Yes	n/a
Acquisition of land for open space and public recreation uses	Yes	n/a
Other		n/a

Administration and Technical

Identify whether your community has the following administrative and technical capabilities. For smaller jurisdictions without local staff resources, if there are public resources at the next higher level government that can provide technical assistance, indicate so in your comments.

Administration	Yes / No	Comments
Planning Commission	Yes	n/a
Mitigation Planning Committee	Yes	n/a
Maintenance programs to reduce risk (tree trimming, clearing drainage systems)	Yes	n/a
Staff	Yes / No	Comments
Chief Building Official	Yes	5%
Floodplain Administrator	Yes	20%
Emergency Manager	Yes	5%
Community Planner	Yes	5%
Civil Engineer	No	We hire an Engineer When need for projects
GIS Coordinator	Yes	5%
Grant Writer	Yes	40%
Other	No	n/a
Technical	Yes / No	Comments
Warning Systems / Service (Reverse 911, outdoor warning signals)	Yes	Everbridge Calling system Alert FM
Hazard Data & Information	No	n/a
Grant Writing	No	n/a
Hazus Analysis	No	n/a
Other	No	n/a

Financial		
Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.		
Funding Resource	Yes / No	Comments
Capital Improvements project funding	No	n/a
Authority to levy taxes for specific purposes	No	n/a
Fees for water, sewer, gas, or electric services	No	n/a
Impact fees for new development	No	n/a
Stormwater Utility Fee	No	n/a
Community Development Block Grant (CDBG)	No	n/a
Other Funding Programs	Yes	STATE OF LOUISIANA ELEVATION AND ACQUISITION PROGRAMS

Education and Outreach		
Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information.		
Program / Organization	Yes / No	Comments
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No	n/a
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	No	n/a
Natural Disaster or safety related school program	No	n/a
Storm Ready certification	No	n/a
Firewise Communities certification	No	n/a
Public/Private partnership initiatives addressing disaster-related issues	No	n/a
Other	No	n/a

Capability Assessment – Town of Golden Meadow

Capability Assessment Worksheet		
Golden Meadow		
Local mitigation capabilities are existing authorities, polices and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible.		
Planning and Regulatory		
Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.		
Plans	Yes / No	Comments
Comprehensive / Master Plan	No	*Based on current parish agreements, Golden Meadow has the ability to utilize the capabilities of the parish government.
Capital Improvements Plan	No	
Economic Development Plan	No	
Local Emergency Operations Plan	No	
Continuity of Operations Plan	No	
Transportation Plan	No	
Stormwater Management Plan	No	
Community Wildfire Protection Plan	No	
Other plans (redevelopment, recovery, coastal zone management)	No	
Building Code, Permitting and Inspections	Yes / No	Comments
Building Code	Yes	*Based on current parish agreements, Golden Meadow has the ability to utilize the capabilities of the parish government.
Building Code Effectiveness Grading Schedule (BCEGS) Score	No	
Fire Department ISO/PIAL rating	Yes	
Site plan review requirements	Yes	
Land Use Planning and Ordinances	Yes / No	Comments
Zoning Ordinance	Yes	*Based on current parish agreements, Golden Meadow has the ability to utilize the capabilities of the parish government.
Subdivision Ordinance	Yes	
Floodplain Ordinance	Yes	
Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)	Yes	
Flood Insurance Rate Maps	Yes	
Acquisition of land for open space and public recreation uses	No	
Other	No	

Administration and Technical		
Identify whether your community has the following administrative and technical capabilities. For smaller jurisdictions without local staff resources, if there are public resources at the next higher level government that can provide technical assistance, indicate so in your comments.		
Administration	Yes / No	Comments
Planning Commission	Yes	*Based on current parish agreements, Golden Meadow has the ability to utilize the capabilities of the parish government.
Mitigation Planning Committee	Yes	
Maintenance programs to reduce risk (tree trimming, clearing drainage systems)	Yes	
Staff	Yes / No	Comments
Chief Building Official	No	*Based on current parish agreements, Golden Meadow has the ability to utilize the capabilities of the parish government.
Floodplain Administrator	Yes	
Emergency Manager	No	
Community Planner	No	
Civil Engineer	No	
GIS Coordinator	No	
Grant Writer	No	
Other	No	
Technical	Yes / No	Comments
Warning Systems / Service (Reverse 911, outdoor warning signals)	No	*Based on current parish agreements, Golden Meadow has the ability to utilize the capabilities of the parish government.
Hazard Data & Information	No	
Grant Writing	No	
Hazus Analysis	No	
Other	No	

Financial		
Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.		
Funding Resource	Yes / No	Comments
Capital Improvements project funding	Yes	*Based on current parish agreements, Golden Meadow has the ability to utilize the capabilities of the parish government.
Authority to levy taxes for specific purposes	Yes	
Fees for water, sewer, gas, or electric services	Yes	
Impact fees for new development	No	
Stormwater Utility Fee	No	
Community Development Block Grant (CDBG)	Yes	
Other Funding Programs	Yes	

Education and Outreach		
Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information.		
Program / Organization	Yes / No	Comments
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No	*Based on current parish agreements, Golden Meadow has the ability to utilize the capabilities of the parish government.
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	No	
Natural Disaster or safety related school program	No	
Storm Ready certification	No	
Firewise Communities certification	No	
Public/Private partnership initiatives addressing disaster-related issues	No	
Other	No	

Capability Assessment – Town of Lockport

Capability Assessment Worksheet		
Lockport		
Local mitigation capabilities are existing authorities, polices and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible.		
Planning and Regulatory		
Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.		
Plans	Yes / No	Comments
Comprehensive / Master Plan	No	*Based on current parish agreements, Lockport has the ability to utilize the capabilities of the parish government.
Capital Improvements Plan	No	
Economic Development Plan	No	
Local Emergency Operations Plan	No	
Continuity of Operations Plan	No	
Transportation Plan	No	
Stormwater Management Plan	No	
Community Wildfire Protection Plan	No	
Other plans (redevelopment, recovery, coastal zone management)	No	
Building Code, Permitting and Inspections	Yes / No	Comments
Building Code	Yes	*Based on current parish agreements, Lockport has the ability to utilize the capabilities of the parish government.
Building Code Effectiveness Grading Schedule (BCEGS) Score	No	
Fire Department ISO/PIAL rating	Yes	
Site plan review requirements	Yes	
Land Use Planning and Ordinances	Yes / No	Comments
Zoning Ordinance	Yes	*Based on current parish agreements, Lockport has the ability to utilize the capabilities of the parish government.
Subdivision Ordinance	No	
Floodplain Ordinance	Yes	
Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)	Yes	
Flood Insurance Rate Maps	Yes	
Acquisition of land for open space and public recreation uses	No	
Other	No	

Administration and Technical

Identify whether your community has the following administrative and technical capabilities. For smaller jurisdictions without local staff resources, if there are public resources at the next higher level government that can provide technical assistance, indicate so in your comments.

Administration	Yes / No	Comments
Planning Commission	Yes	*Based on current parish agreements, Lockport has the ability to utilize the capabilities of the parish government.
Mitigation Planning Committee	No	
Maintenance programs to reduce risk (tree trimming, clearing drainage systems)	Yes	
Staff	Yes / No	Comments
Chief Building Official	No	*Based on current parish agreements, Lockport has the ability to utilize the capabilities of the parish government.
Floodplain Administrator	Yes	
Emergency Manager	Yes	
Community Planner	No	
Civil Engineer	Yes	
GIS Coordinator	No	
Grant Writer	No	
Other	No	
Technical	Yes / No	Comments
Warning Systems / Service (Reverse 911, outdoor warning signals)	No	*Based on current parish agreements, Lockport has the ability to utilize the capabilities of the parish government.
Hazard Data & Information	No	
Grant Writing	No	
Hazus Analysis	No	
Other	No	

Financial		
Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.		
Funding Resource	Yes / No	Comments
Capital Improvements project funding	Yes	*Based on current parish agreements, Lockport has the ability to utilize the capabilities of the parish government.
Authority to levy taxes for specific purposes	Yes	
Fees for water, sewer, gas, or electric services	Yes	
Impact fees for new development	No	
Stormwater Utility Fee	No	
Community Development Block Grant (CDBG)	Yes	
Other Funding Programs	Yes	

Education and Outreach		
Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information.		
Program / Organization	Yes / No	Comments
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No	*Based on current parish agreements, Lockport has the ability to utilize the capabilities of the parish government.
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	No	
Natural Disaster or safety related school program	No	
Storm Ready certification	No	
Firewise Communities certification	No	
Public/Private partnership initiatives addressing disaster-related issues	No	
Other	No	

Capability Assessment – City of Thibodaux

Capability Assessment Worksheet		
Thibodaux		
Local mitigation capabilities are existing authorities, polices and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible.		
Planning and Regulatory		
Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.		
Plans	Yes / No	Comments
Comprehensive / Master Plan	Yes	Thibodaux uses a combination of city, parish and South Central Planning Commission services for HM/strategic planning. Thibodaux maintains an emergency operations plan. Thibodaux has a \$6.7M Capital Improvement HM Project (N. Thibodaux Sewer Plant). LA DEQ Project CS21905/A120395 Started December 2019- 50% Complete
Capital Improvements Plan	Yes	
Economic Development Plan	Yes	
Local Emergency Operations Plan	Yes	
Continuity of Operations Plan	Yes	
Transportation Plan	No	
Stormwater Management Plan	No	
Community Wildfire Protection Plan	No	
Other plans (redevelopment, recovery, coastal zone management)	No	
Building Code, Permitting and Inspections	Yes / No	Comments
Building Code	Yes	Thibodaux manages all building codes, fire ratings and strategic improvements in permitting and inspections.
Building Code Effectiveness Grading Schedule (BCEGS) Score	Yes	
Fire Department ISO/PIAL rating	Yes	
Site plan review requirements	Yes	
Land Use Planning and Ordinances	Yes / No	Comments
Zoning Ordinance	Yes	Thibodaux has a home rule charter that establishes a zoning ordinance, subdivision requirements and the process for annexing land into the City. Thibodaux does utilize Lafourche Parish for strategic floodplain and water shed management.
Subdivision Ordinance	Yes	
Floodplain Ordinance	Yes	
Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)	No	
Flood Insurance Rate Maps	No	
Acquisition of land for open space and public recreation uses	Yes	
Other	No	

Administration and Technical

Identify whether your community has the following administrative and technical capabilities. For smaller jurisdictions without local staff resources, if there are public resources at the next higher level government that can provide technical assistance, indicate so in your comments.

Administration	Yes / No	Comments
Planning Commission	Yes	Thibodaux has an established planning commission that focuses on services and mitigation. Thibodaux supervises all drainage and tree maintenance actions.
Mitigation Planning Committee	Yes	
Maintenance programs to reduce risk (tree trimming, clearing drainage systems)	Yes	
Staff	Yes / No	Comments
Chief Building Official	Yes	Thibodaux does have a Chief Building Official, Emergency Manager, Community Planner and Grant Writer. Thibodaux contracts with multiple engineering firms for engineering/GIS functions. Thibodaux utilizes Lafourche Parish for a floodplain administrator.
Floodplain Administrator	No	
Emergency Manager	Yes	
Community Planner	Yes	
Civil Engineer	Yes	
GIS Coordinator	Yes	
Grant Writer	Yes	
Other	N/A	
Technical	Yes / No	Comments
Warning Systems / Service (Reverse 911, outdoor warning signals)	Yes	Thibodaux has direct response for 911 systems. Thibodaux manages all hazard data information, grant writing and hazard analysis programs internally.
Hazard Data & Information	Yes	
Grant Writing	Yes	
Hazus Analysis	Yes	
Other	N/A	

Financial		
Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.		
Funding Resource	Yes / No	Comments
Capital Improvements project funding	Yes	Thibodaux manages all capital improvement projects funding. Thibodaux has the authority to levy taxes and establish fees for sewer, water and gas services.
Authority to levy taxes for specific purposes	Yes	
Fees for water, sewer, gas, or electric services	Yes	
Impact fees for new development	Yes	
Stormwater Utility Fee	No	
Community Development Block Grant (CDBG)	Yes	Thibodaux is an individual U.S. HUD entitlement city with opportunity zones.
Other Funding Programs (Section 8)	Yes	

Education and Outreach		
Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information.		
Program / Organization	Yes / No	Comments
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Yes	Thibodaux has partnerships with numerous groups, non-profit organizations, faith based groups and non-governmental organizations. Thibodaux manages all aspects of informational programs for residents, organizations and businesses in the city. Thibodaux partners with the Lafourche Parish School Board for educational programs in the city.
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	Yes	
Natural Disaster or safety related school program	No	
Storm Ready certification	Yes	
Firewise Communities certification	Yes	
Public/Private partnership initiatives addressing disaster-related issues	Yes	
Other	N/A	

Building Inventory

Lafourche Parish Owned Building Information								
Lafourche Unincorporated								
Name of Building	Purpose of Building	Address	City	Latitude	Longitude	Assessed Value	Date Built	Construction Type
Central Station	Fire Department	112 St. Phillip St.	Raceland	29-43.7441N	90-36.3090W			
Station #2	Fire Department	4470 Highway 1	Raceland	29-42.4397N	90-34.3985W			
Station #3	Fire Department	2920 Highway 308	Raceland	29-44.3209N	90-39.7928W			
Station #4	Fire Department	2002 Highway 308	Raceland	29-45.1871N	90-43.2275W			
Station #5	Fire Department	3159 Highway 1	Raceland	29-44.1949N	90-38.9672W			
Station #6	Fire Department	4406 Highway 308	Raceland	29-43.6737N	90-35.8800W			
Mathews Station	Fire Department	20 Central Lafourche Dr.	Raceland	29-41.3782N	90-32.9949W			
North Larose Station	Fire Department	12084 Highway 1	Larose	29-34.2568N	90-23.4166W			
West Larose Station	Fire Department	115 West 25th	Larose	29-33.7249N	90-21.8379W			
East Larose Station	Fire Department	12595 East Main	Larose	29-34.2588N	90-22.7610W			
West Cut Off Station	Fire Department	14734 West Main	Cut Off	29-31.5686N	90-20.1600W			
East Cut Off Station	Fire Department	14797 East Main	Cut Off	29-31.7296N	90-20.1001W			
Belle Amie Station	Fire Department	157 East Main	Cut Off	29-29.5937N	90-19.6644W			
Fire Central Station	Fire Department	17462 West Main	Galliano	29-27.0385N	90-18.2860W			
West Galliano Station	Fire Department	135 West 158th	Galliano	29-26.5101N	90-18.1373W			
East Galliano Station	Fire Department	182 East Main	Galliano	29-25.6630N	90-17.6365W			
Leeville Station	Fire Department	25754 Highway 1	Leeville	29-12.9673N	90-13.0924W			
Port Fourchon Station	Fire Department	412 A.J. Estay Rd	Port Fourchon	29-7.0091N	90-12.4794W			
Central Station	Fire Department	1870 Bayou Blue Rd	Houma	29-38.5796N	90-41.0610W			
Station # 2	Fire Department	3099 Bayou Blue Rd	Gray	29-40.9284N	90-45.0710W			
Station # 3	Fire Department	109 Lake Long Rd	Houma	29-35.8941N	90-37.0992W			
Station # 1	Fire Department	2273 Highway 654	Gheens	29-42.1818N	90-28.6684W			
Station # 2	Fire Department	105 S. Leon Drive	Gheens	29-42.1683N	90-29.2549W			

Name of Building	Purpose of Building	Address	City	Latitude	Longitude	Assessed Value	Date Built	Construction Type
Bayou Blue Elementary	School	1916 Bayou Blue Rd	Houma	29.644944N	90.686020W	\$531,061.00	1956	
Cut Off Elementary	School	177 West 55th St	Cut Off	29.533978N	90.339363W			
Galliano Elementary	School	148 West 158th St	Galliano	29.441809N	90.303462W	\$4,667,600.00	1960	
Larose Lower Elementary	School	175 Richardel Dr	Larose	29.572659N	90.396049W	\$6,029,150.00	1975	
Raceland Lower Elementary	School	4101 Hwy 308	Raceland	29.725475N	90.591485W	\$1,246,425.00	1959	
Larose Upper Elementary	School	13360 West Main St	Larose	29.563599N	90.364127W	\$3,484,211.00	1950	
Raceland Upper Elem.	School	4101 Hwy 308	Raceland	29.732864N	90.609713W	\$2,000,000.00	1957	
Larose Cut Off Middle	School	13356 West Main	Cut Off	29.563274N	90.364929W	\$4,728,052.00	1950	
Raceland Middle	School	3757 Hwy 308	Raceland	29.733909N	90.611498W	\$3,404,805.00	1954	
Bayou Blue Middle	School	196 Mazerac St	Houma	29.641505N	90.679272W	\$10,000,000.00	2007	
Central Lafourche High	School	4820 Hwy 1	Raceland	29.694695N	90.554786W	\$31,896,240.00	1965	
South Lafourche High	School	16911 East Main St	Galliano	29.467385N	90.311203W	\$32,499,868.00	1965	
Holy Rosary	School	12925 East Main St	Larose	29.571594N	90.380702W			
St. Mary's Nativity	School	3492 Nies St.	Raceland	29.732351N	90.627541W			
Bayou Blue Headstart	School	197 Mazerac St	Houma	29.643003N	90.680193W			
South Lafourche Headstart	School	13248 West Main St	Cut Off	29.566828N	90.371465W			
Lafourche Parish Government (Mathews)	Governmental Building	4876 Hwy 1	Raceland	29.691632N	90.552090W			
Lafourche Parish Government (Galliano)	Governmental Building	16241 East Main St.	Cut Off	29.474495N	90.313931W			
Transitional Work Program	Public Safety	1156 Hwy 90 East	Raceland	29.740885N	90.556144W			
Port Operations Center	Public Safety	108 A.O. Rappelet Rd	Port Fourchon	29.152238N	90.180574W			
South Lafourche Sub-Station	Public Safety	101 West 91st St.	Galliano	29.501611N	90.329729W			
Greater Lafourche Harbor Police	Public Safety	16829 East Main St	Galliano	29.471124N	90.312827W			
Library	Library	305 East 5th St.	Larose	29.574477N	90.377514W		2008	Reinforced Masonry
Library	Library	198 Mazerac St.	Houma	29.642245N	90.678651W		2006	Reinforced Masonry

Name of Building	Purpose of Building	Address	City	Latitude	Longitude	Assessed Value	Date Built	Construction Type
Library	Library	177 Recreation Drive	Raceland	29.733109N	90.603996W		2006	Reinforced Masonry
Library	Library	153 N. Leon Dr.	Gheens	29.705769N	90.487897W		2006	Wood
Library	Library	16241 E. Main Suite A	Cut Off	29.474266N	90.313807W		1980	Reinforced Masonry
Mathews Adm Office	Governmental Building	4879 Hwy. 1	Raceland	29.691512N	90.552192W		1986	Reinforced Masonry
Morgue	Governmental Building	123 Texas St.	Raceland	29.734006N	90.607944W		1973	
Region A Barn	Governmental Building	2565 Veterans Blvd.		29.770461N	90.845933W		1973	
Region B Barn	Governmental Building	129 Texas St.	Raceland	29.733813N	90.607763W		1973	
Region D Barn	Governmental Building	128 W. 97th St.	Cut Off	29.494282N	90.33064W		1973	
Rev. Lloyd Wallace Community Center	Public Use Facility	3603 Hwy. 308	Raceland	29.736135N	90.620237W		2013	Metal
Sheriff's Office	Public Safety	102 W. 91st St.	Galliano	29.501627N	90.329704W		1973	
Tourist Commission	Governmental Building	4484 Hwy. 1	Raceland	29.706586N	90.572518W		1988	
Raceland Field Office (B)	Public Works	129 Texas St.	Raceland	29.733813N	90.607763W			
Bayou Blue Field Office (11)	Public Works	104 Myrtle Place	Houma	29.659303N	90.684999W			
Galliano Field Office (D)	Public Works	128 West 97th St.	Cut Off	29.494282N	90.33064W			
Mathews Office	Public Works	4876 Hwy. 1	Mathews	29.691632N	90.552090W			
Lafourche Parish Health Unit	EMS	2535 Veterans Blvd	Thibodaux	29.7717N	90.845215W			
Lafourche Parish Health Unit	EMS	2535 Veterans Blvd	Thibodaux	29.7717N	90.845215W			
Department of Health and Hospitals	EMS	1434 Tiger Drive	Thibodaux	29.771073n	90.843515W			

Lafourche Parish Owned Building Information								
Golden Meadow								
Name of Building	Purpose of Building	Address	City	Latitude	Longitude	Assessed Value	Date Built	Construction Type
North Golden Meadow	Fire Department	2502 Norman Street	Golden Meadow	29-24.3918N	90-16.7408W			
South Golden Meadow	Fire Department	1003 South Bayou Dr	Golden Meadow	29-23.1834N	90-15.7398W			
Golden Meadow Lower Elem.	School	118 Alcide St	Golden Meadow	29.409051N	90.277211W			
Golden Meadow Upper Elem.	School	2201 N. 3rd St.	Golden Meadow	29.405329N	90.276361W			
Golden Meadow Middle	School	630 South Bayou Dr	Golden Meadow	29.388486N	90.264699W			
Town of Golden Meadow Government	Governmental Building	107 Jervais Dr	Golden Meadow	29.392284N	90.273289W			
Golden Meadow Police Dept.	Public Safety	107 Jervais Dr	Golden Meadow	29.392331N,	90.274010W			
Library	Library	1403 N. Bayou Drive	Golden Meadow	29.401639N	90.273666W			
TOWN HALL	POLICE/PUBLIC UTILITIES/ EMERGENCY OPERATIONS	107 JERVIS DRIVE	Golden Meadow	29.392284N	90.273289W			
DMV	HOUSES THE OFFICE OF MOTOR VEHICLES	119 JERVIS DRIVE	Golden Meadow	29.392524N	90.272835W			
CIVIL DEFENSE BUILDING	EQUIPMENT STORAGE	119 WASHINGTON STREET	Golden Meadow	29.385413N	90.262151W			
PUMP STATION	PUMP STATION HOUSE	246 DURSETTE STREET	Golden Meadow	29.386531N	90.267599W			
OLD TOWN HALL	STORAGE	313 NORTH BAYOU DRIVE	Golden Meadow	29.393667N	90.269843W			
SENIOR CITIZEN CENTER	HOUSES THE SENIOR CITIZENS OF GM	145 ENA DRIVE	Golden Meadow	29.392591N	90.277215W			

Name of Building	Purpose of Building	Address	City	Latitude	Longitude	Assessed Value	Date Built	Construction Type
SWIMMING POOL BATHHOUSE	BATHROOMS/SHOWERS FOR POOL	136 ENA DRIVE	Golden Meadow	29.3922733N	90.276669W			
SENIOR CITIZEN CERAMIC SHOP	SENIOR CITIZEN PROJECTS	147 ENA DRIVE	Golden Meadow	29.392591N	90.277215W			
WALKING TRAIL RESTROOM	RESTROOM FACILITY	177 ENA DRIVE	Golden Meadow	29.39429N	90.277545W			
PAVILION	COVER IN OAKRIDGE PARK	955 J. V. ALARIO DRIVE	Golden Meadow	29.396537N	90.279606W			
BASKETBALL PAVILION	COVERED BASKETBALL COURTS	988 J.V. ALARIO DRIVE	Golden Meadow	29.395384N	90.277488W			
TOOL HOUSE	TOOL STORAGE BUILDING	942 J.V. ALARIO DRIVE	Golden Meadow	29.394841N	90.277631W			

Lafourche Parish Owned Building Information								
Lockport								
Name of Building	Purpose of Building	Address	City	Latitude	Longitude	Assessed Value	Date Built	Construction Type
Lockport Heights Station	Fire Department	5511 Highway 1	Lockport	29-39.1987N	90-32.5857W			
Bellevue Station	Fire Department	7519 Highway 1	Lockport	29-38.0324N	90-30.6199W			
308 Station	Fire Department	8028 Highway 308	Lockport	29-37.3746N	90-29.9865W			
Valentine Station	Fire Department	10202 Highway 1	Lockport	29-35.2825N	90-26.6470W			
Lockport Central	Fire Department	806 Crescent Ave	Lockport	29-38.3521N	90-32.4010W			
Lockport Lower Elementary	School	1421 Crescent Ave	Lockport	29.641907N	90.528607W			
Lockport Upper Elem.	School	201 School St	Lockport	29.643977N	90.532938W			
Lockport Middle	School	720 Main St	Lockport	29.644225N	90.532155W			
Holy Savior Elementary	School	210 Church St	Lockport	29.643133N	90.537102W			
Myra G. Champagne Headstart	School	203 East Fontenelle St	Lockport	29.649076N	90.532685W			
Town of Lockport Government	Governmental Building	710 Church St.	Lockport	29.640816N	90.542585W			
Personnel/Motor Pool	Public Safety	5200 Hwy 1	Lockport	29.673683N	90.540988W			
Communications Office	Public Safety	207 Main St	Lockport	29.647027N	90.538054W			
Criminal Operations Center	Public Safety	805 Crescent Ave	Lockport	29.639868N	90.539478W			
Lockport Police Dept.	Public Safety	710 Church St.	Lockport	29.641093N	90.542821W			
Library	Library	720 Crescent Ave.	Lockport	29.851022N	90.738702W			
Region C Barn	Governmental Building	6236 Hwy. 308	Lockport	29.64864N	90.531326W			
Sheriff's Comm Bldg	Public Safety	1300 Lynn Ave.	Lockport	29.78487N	90.827857W			
Lockport Field Office	Public Works	6236 Hwy. 308	Lockport	29.64864N	90.531326W			
Lockport Town Office	Governmental Building	601 First Street	Lockport	29.639509	-90.545634			

Lafourche Parish Owned Building Information								
Thibodaux								
Name of Building	Purpose of Building	Address	City	Latitude	Longitude	Assessed Value	Date Built	Construction Type
Station #7	Fire Department	100 Bayou Vista Dr.	Thibodaux	29-45.5390N	90-44.8630W			
Station # 1	Fire Department	503 St. Louis St	Thibodaux	29-47.7631N	90-49.2252W			
Station # 2	Fire Department	549 Tetreau St	Thibodaux	29-47.5890N	90-48.8170W			
Station # 3	Fire Department	706 Canal Blvd	Thibodaux	29-47.6303N	90-49.2199W			
Station # 4	Fire Department	921 North Canal Blvd	Thibodaux	29-49.4246N	90-48.6905W			
Station # 5	Fire Department	603 St. Patrick Highway	Thibodaux	29-48.0443N	90-49.3091W			
Station # 6	Fire Department	102 Lafaye St.	Thibodaux	29-47.0112N	90-49.2936W			
Station # 7	Fire Department	200 Notre Dame St.	Thibodaux	29-47.5036N	90-50.2639W			
Station # 8	Fire Department	1075 Highway 1	Thibodaux	29-46.8046N	90-46.6782W			
Station # 9	Fire Department	800 Parish Rd.	Thibodaux	29-47.2268N	90-50.1180W			
Station # 1	Fire Department	100 Highway 304	Thibodaux	29-52.8123N	90-48.3577W			
Station # 2	Fire Department	1532 Highway 20	Thibodaux	29-53.8900N	90-44.0719W			
Station # 1	Fire Department	2854 Choctaw Rd	Thibodaux	29-50.3532N	90-42.0372W			
Station # 2	Fire Department	1632 Choctaw Rd	Thibodaux	29-51.0450N	90-44.9463W			
Station # 1	Fire Department	3447 Highway 307	Thibodaux	29-51.9920N	90-37.1375W			
Station # 1	Fire Department	2072 St. Mary St	Thibodaux	29-48.9328N	90-52.7393W			
Station # 2	Fire Department	1905 Talbot Ave	Thibodaux	29-46.8408N	90-50.9925W			
Station # 3	Fire Department	800 Parish Rd	Thibodaux	29-47.8133N	90-51.2949W			
Station # 1	Fire Department	691 Highway 308	Thibodaux	29-46.7652N	90-46.4867W			
Bayou Bouef Elementary	School	4138 Hwy 307	Thibodaux	29.868269N	90.593703W			
Chackbay Elementary	School	101 School Ln	Thibodaux	29.878351N	90.808516W			
WS Lafargue Elementary	School	700 Plantation Rd	Thibodaux	29.781854N	90.830502W			
St. Charles Elementary	School	1690 Hwy 1	Thibodaux	29.751535N	90.722455W			
South Thibodaux Elementary	School	200 Iris St	Thibodaux	29.780887N	90.814747W			
Thibodaux Elementary	School	700 East 7th St.	Thibodaux	29.792748N	90.814569W			

Name of Building	Purpose of Building	Address	City	Latitude	Longitude	Assessed Value	Date Built	Construction Type
East Thibodaux Middle	School	802 East 7th St	Thibodaux	29.791829N	90.813876W			
Sixth Ward Middle	School	1865 Choctaw Rd	Thibodaux	29.850929N	90.739757W			
West Thibodaux Middle	School	1111 East 12th St	Thibodaux	29.787433N	90.813431W			
Thibodaux High	School	1355 Tiger Dr	Thibodaux	29.778060N	90.839851W			
E.D. White High	School	555 Cardinal Dr	Thibodaux	29.793135N	90.810979W			
St. Genevieve Elementary	School	807 Barbier Ave	Thibodaux	29.790536N	90.839159W			
St. Joseph	School	501 Cardinal Dr	Thibodaux	29.794236N	90.810652W			
Thibodaux Headstart	School	2555 Veterans Blvd	Thibodaux	29.770921N	90.845539W			
Marydale Headstart	School	102 Park Ave	Thibodaux	29.765219N	90.832476W			
Martin Luther King Headstart	School	1445 Martin Luther King Dr	Thibodaux	29.779480N	90.812399W			
Lafourche Parish Government (Main)	Governmental Building	402 Green St	Thibodaux	29.796887N	90.820095W			
Administrative Office	Public Safety	200 Canal Blvd	Thibodaux	29.797940N	90.818413W			
Training Academy	Public Safety	751 Goode St	Thibodaux	29.789096N	90.815751W			
Whitney Building	Public Safety	200 West 2nd St.	Thibodaux	29.798179N	90.819169W			
Detention Center	Public Safety	952 Hwy 3185	Thibodaux	29.767761N	90.846798W			
Nicholl's State University Police	Public Safety	906 East First St	Thibodaux	29.794588N	90.801730W			
Library	Library	1887 Choctaw Rd.	Thibodaux	29.851007N	90.738707W			
Library	Library	314 St. Mary St.	Thibodaux	29.796228N	90.824926W			
Library	Library	705 W. 5th St.	Thibodaux	29.796134N	90.822233W			
Clerk of Court	Governmental Building	311 Green St.	Thibodaux	29.797436N	90.8196W			
Sheriff's Office	Public Safety	200 Canal St.	Thibodaux	29.79799N	90.818535W			
Ward 6 Office	Governmental Building	114 Choctaw Barn Rd.	Thibodaux	29.851208N	90.737258W			
Thibodaux Field Office (A)	Public Works	2565 Veterans Blvd.	Thibodaux	29.770499N	90.845979W			
Chackbay Field Office (6)	Public Works	122 Choctaw Barn Rd	Thibodaux	29.851507N	90.737271W			
Thibodaux Main Office	Public Works	402 Green St.	Thibodaux	29.796875N	90.820117W			
Civil Service/Housing Community Development	Governmental Building	112 St. Mary St.	Thibodaux	29.795873	-90.823207			

Name of Building	Purpose of Building	Address	City	Latitude	Longitude	Assessed Value	Date Built	Construction Type
Public Works	Governmental Building	1219 Henry Thibodaux St.	Thibodaux	29.785842	-90.815765			
Human Resources/Information Technology	Governmental Building	1233 CANAL BLVD	Thibodaux	29.787793	-90.822578			
City Court/Police Department	Governmental Building	1309 CANAL BLVD	Thibodaux	29.784254	-90.820991			
MLK Parks and Recreation Community Center	Governmental Building	1445 M L KING DR	Thibodaux	29.78039	-90.812798			
Parks and Recreation	Governmental Building	151 PELTIER PARK DR	Thibodaux	29.788397	-90.80949			
Harang Auditorium	Governmental Building	310 N CANAL BLVD	Thibodaux	29.804745	-90.818988			
City Hall	Governmental Building	310 W 2ND ST	Thibodaux	29.797247	-90.819663			
Waste Water Plant	Governmental Building	SEWER PLANT RD	Thibodaux	29.769572	-90.838464			
Water Plant	Governmental Building	110 E. BAYOU RD./HWY 308	Thibodaux					

Vulnerable Populations

Vulnerable Populations Worksheet					
Lafourche Parish					
All Hospitals (Private or Public)	Address	City	Zip Code	Latitude	Longitude
Ochsner St. Ann Hospital	4608 West 134 Pl	Cut Off	70345	29.456857N	90.311350W
Lady of the Sea	West 134 Pl	Cut Off	70345	29.456857N	90.311350W
Thibodaux Regional Medical Center	North Acadia Rd	Thibodaux	70301	29.780536N	90.805620W
Nursing Homes (Private or Public)	Address	City	Zip Code	Latitude	Longitude
Lafourche Home for the Aged	1002 Tiger Dr.	Thibodaux	70301	29.789188N	90.836692W
Audubon Guest Home	2110 Audubon Ave	Thibodaux	70301	29.781151N	90.809810W
Thibodaux Healthcare Center	1300 Lafourche Dr.	Thibodaux	70301	29.806698N	90.822784W
South Lafourche Nursing Home	146 E 28th St,	Cut Off	70345	29.550143N	90.341479W
Broadway Nursing Home	7534 Hwy 1	Lockport	70374	29.632998N	90.510820W
Mobile Home Parks	Address	City	Zip Code	Latitude	Longitude
Abby Plantation Estates	n/a	Thibodaux	n/a	n/a	n/a
Alma Trailer Park	n/a	Thibodaux	n/a	n/a	n/a
Burgo Trailer Park	n/a	Thibodaux	n/a	n/a	n/a
Civic Center	n/a	Thibodaux	n/a	n/a	n/a
Marydale Subdivision	n/a	Thibodaux	n/a	n/a	n/a
Woodland Heights	n/a	Chackbay	n/a	n/a	n/a
Grand Bayou	n/a	Chackbay	n/a	n/a	n/a
Big Blue Trailer Park	n/a	Gray	n/a	n/a	n/a
Cypress Court Trailer Park	n/a	Gray	n/a	n/a	n/a
Kajun Trailer Park	n/a	Gray	n/a	n/a	n/a
LuLu MHP	n/a	Gray	n/a	n/a	n/a
Brien MHP	n/a	Bayou Blue	n/a	n/a	n/a
Chloe Court MHP	n/a	Bayou Blue	n/a	n/a	n/a

Eschette's Trailer Park	n/a	Bayou Blue	n/a	n/a	n/a
Martin's Trailer Park	n/a	Bayou Blue	n/a	n/a	n/a
Pellegrin's Trailer Park	n/a	Bayou Blue	n/a	n/a	n/a
Drachenburg Trailer Park	n/a	Raceland	n/a	n/a	n/a
Bessie Dufrene Rentals	St. Louis Street	Raceland	n/a	n/a	n/a
Kirlin Matherne Rentals	St. Louis Street	Raceland	n/a	n/a	n/a
Oak Pointe	Hwy. 308	Raceland	n/a	n/a	n/a
Shady Trailer Park	n/a	Raceland	n/a	n/a	n/a
Cajun on the Bayou RV Park	Hwy. 90 East	Des Allemands	n/a	n/a	n/a
Dan Folse - Dantana RV Park	Hwy. 90 East	Des Allemands	n/a	n/a	n/a
Vanacor's KOA Campground	Hwy. 90 East	Des Allemands	n/a	n/a	n/a
Earl Comardelle Trailer Park	Hwy. 654	Gheens	n/a	n/a	n/a
Allemand's	Hwy. 1 & H20 Tower	Lockport	n/a	n/a	n/a
Roger's Trailer Park	Hwy. 308	Lockport	n/a	n/a	n/a
Larose Civic Center - Kelly Grove RV Park	n/a	Larose	n/a	n/a	n/a
Matherne's	Sandras St.	Larose	n/a	n/a	n/a
Kirlin Matherne Rentals	St. Pierre Dr.	Larose	n/a	n/a	n/a
R&R Rentals	East 69th Pl.	Cut Off	n/a	n/a	n/a
Doublewide MHP	n/a	Galliano	n/a	n/a	n/a
J&K Trailer Park	n/a	Galliano	n/a	n/a	n/a
LA Leisure	Hwy. 3235	Galliano	n/a	n/a	n/a
Bayou Resort Campground	Hwy. 3235	Golden Meadow	n/a	n/a	n/a
Boudreaux's Condos Town GM	Hwy. 3235	Golden Meadow	n/a	n/a	n/a
Catfish Lake Cabins & RVs	Hwy. 3235	Golden Meadow	n/a	n/a	n/a
Cheramie Trailer Park	E. 179th St.	Golden Meadow	n/a	n/a	n/a
Nicholas Cheramie MH & RV Park	Hwy. 1	Fourchon	n/a	n/a	n/a
Bobby Lynn's Marina & Marina South	n/a	Fourchon	n/a	n/a	n/a
Port Fourchon Hotel/Marina/RV Park	n/a	Fourchon	n/a	n/a	n/a

National Flood Insurance Program (NFIP)

National Flood Insurance Program (NFIP)				
	Lafourche Unincorporated	Golden Meadow	Thibodaux	Lockport
Insurance Summary				
How many NFIP policies are in the community? What is the total premium and coverage?	11,643; Premium \$9,204,010; Coverage \$2,338,257,700	307; \$45,399,000	952; \$397,361; \$200,778,500	340; \$64,003,100
How many claims have been paid in the community? What is the total amount of paid claims? How many of the claims were for substantial damage?	4,522; Claim payouts \$57,788,486; information not available	307; \$2,796,191	259, \$3,500,874; n/a	153; \$2,039,874
How many structures are exposed to flood risk within the community?	85%	85%	0.85	85%
Describe any areas of flood risk with limited NFIP policy coverage.	information not available	n/a	n/a	n/a
Staff Resources				
Is the Community FPA or NFIP Coordinator certified?	Yes	Community FPA	No	Community FPA
Is flood plain management an auxiliary function?	No	Community FPA	No	Community FPA
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability)	Permit reviews, Plan reviews, Subdivision reviews, some building inspections, education and outreach to residents and public officials	Community FPA	n/a	Community FPA
What are the barriers to running an effective NFIP program in the community, if any?	People do not want to follow the guidelines much less do anything above the minimum requirements.	Community FPA	Community FPA	Community FPA
Compliance History				
Is the community in good standing with the NFIP?	Yes	State NFIP Coordinator, FEMA NFIP Specialist, community records	Yes	Yes
Are there any outstanding compliance issues(i.e., current violations)?	No	NO	No	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact(CAC)?	going through a CAV now	OCT. 2014	going through a CAV now	going through a CAV now
Is a CAV or CAC scheduled or needed? If so when?	going through a CAV now	NO	going through a CAV now	going through a CAV now

Regulation				
When did the community enter the NFIP?	1978	1974	1978	1980
Are the FIRMs digital or paper?	paper	PAPER	paper	paper
Do floodplain development regulations meet or exceed FEMA or State minimum requirements? If so, in what ways?	meet, we follow CFR 44 guidelines, Technical Bulletins and all other FEMA requirements	MEET	n/a	meet, we follow CFR 44 guidelines, Technical Bulletins and all other FEMA requirements
Community Rating System (CRS)				
Does the community participate in CRS?	No	No	No	Yes
What is the community's CRS Class Ranking?		No	n/a	10
Does the plan include CRS planning requirements?	information not available	No	n/a	n/a