2020 BEAUREGARD MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

UNICORPORATED
BEAUREGARD, DERIDDER,
MERRYVILLE

BEAUREGARD PARISH
HAZARD MITIGATION PLAN UPDATE

Prepared for:

Beauregard Parish

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ACKNOWLEDGMENTS

This 2020 Beauregard Parish Hazard Mitigation Plan Update was coordinated by the Beauregard 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 Beauregard Parish
City of DeRidder
Town of Merryville

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

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The 2020 Beauregard Parish Hazard Mitigation Plan Update was written by the Stephenson Disaster Management Institute, Louisiana State University. Further comments should be directed to the Beauregard Parish Office of Homeland Security and Emergency Preparedness: 412 Bolivar Bishop Dr., DeRidder, LA 70634.

Contents

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

- Unincorporated Beauregard Parish
- City of DeRidder
- Town of Merryville

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 Beauregard 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 Beauregard Parish and its communities with a blueprint for reducing the impacts of these natural hazards on people and property.

Geography and Population

Geography

Beauregard Parish is located in southwest Louisiana and has a land area of approximately 1,166 square miles and a water area of nearly 5.9 square miles with an average elevation of 203 feet above sea level. Beauregard Parish is bound by Vernon Parish to the north, Allen Parish to the east, Calcasieu Parish to the south, and the Sabine River/Newton County, Texas to the west. The parish includes two incorporated municipalities – the City of DeRidder and the Town of Merryville. DeRidder is located in the northern boundary of the parish. Merryville is located on the western boundary of the parish and relies heavily on tourism and agribusiness for its economic viability.

Figure 1-1: Location of Beauregard Parish

Approximately 25% of the total land area of Beauregard Parish is located within FEMA's 100-year floodplain. The most prominent area included in the 100-year floodplain is the area along the Sabine River in the far western portion of the parish, although there are several A Zones along the creeks and bayous found throughout the parish. This area primarily includes areas of unincorporated Beauregard Parish, although it does also include a very small portion of western Merryville.

Beauregard 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 68ºF. January is typically the coldest month for Louisiana, averaging approximately 54ºF, while July is typically the warmest at an average of 83ºF. Winter months are usually mild with cold spells of short duration. For Beauregard Parish in particular, the summer months are usually quite warm, with an average daily maximum temperature in July and August of 92°F. Winters are typically mild. Snowfall averages less than one inch per year. Average annual rainfall for the area is 62 inches. Beauregard 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 Beauregard Parish is estimated at 37,497 (2019 estimate) with a population percent change from April 1, 2010 – July 1, 201 of 5.2%.

Table 1-1: Beauregard Parish Population
(Source: US Census)

	2010 Census	2018 Estimate	2019 Estimate	Percent Change 2010 -2019
Total Population	35,654	37,253	37,497	5.20%
Population Density (Pop/Sq. Mi.)	30.8	-------	-------	-------
Total Households	12,948	15,890	13,219	2.05%
Persons Per Household	-------	2.75	2.75	-------

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

Business Description	Number of Establishments	Number of Employees	Annual Payroll ($1,000)
Retail Trade	105	1,267	29,533
Manufacturing	18	921	68,230
Health Care and Social Assistance	62	1,238	42,362
Mining, Quarrying, Oil and Gas Extraction	7	30	2,270
Transportation and Warehousing	34	129	8,144
Construction	50	333	12,714
Administration/Support and Waste Management/Remediation Services	22	133	3,388
Real Estate and Rental and Leasing	24	57	2,042
Wholesale Trade	11	57	3,215
Other Services (except Public Administration)	77	415	8,146
Accommodation and Food Services	46	721	10,332
Financial and Insurance	51	693	38,396
Professional, Scientific, and Technical Services	54	20	7,648
Information	4	0-19	___
Educational Services	3	15	158
Arts, Entertainment, and Recreation	4	58	855
Agriculture, Forestry, Fishing and Hunting	34	271	11,633
Utilities	5	138	9,523

Hazard Mitigation

To fully understand hazard mitigation efforts in Beauregard 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 Beauregard 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 Beauregard 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 Beauregard 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 Beauregard Parish Hazard Mitigation Plan. The current goals are as follows:

1. Improve education and outreach efforts regarding potential impacts of hazards and the identification of specific measures that can be taken to reduce their impact.
2. Improve data collection, use, and sharing to reduce the impacts of hazards.
3. Improve capabilities and coordination to plan and implement hazard mitigation projects.
4. Pursue opportunities to reduce impacts from hazards through mitigation of repetitive and severe repetitive loss properties and other appropriate construction projects and related activities.

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 of the repetition between sections from the previous plan updates. No revisions to the plan were made related to the priorities of the parish and communities as the priorities remain unchanged from the previous plan update.

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	
Section 1: Introduction	Section 1: Introduction
Section 2: Hazard Identification and Risk Assessment	Section 2: Hazard Identification and Risk Assessment
Section 3: Capability Assessment	Section 3: Capability Assessment
Section 4: Mitigation Strategy	Section 4: Mitigation Strategy
Appendix A: Planning Process	Appendix A: Planning Process
Appendix B: Plan Maintenance	Appendix B: Plan Maintenance
Appendix C: Essential Facilities	Appendix C: Essential Facilities
Appendix D: Plan Adoptions	Appendix D: Plan Adoptions
Appendix E: State Required Worksheets	Appendix E: State Required Worksheets

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 Beauregard Parish and its communities. The extent of this risk is dictated primarily by its geographic location. The entire parish is also at high risk of damages from high winds and wind-borne debris caused by various meteorological phenomena, as seen during Hurricane Laura in 2020. 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 Beauregard 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 Beauregard 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 Last Plan	Considered Medium or High Risk in the State's HM Plan	Profiled in the 2020 Update
Drought	X		X
Excessive Heat	X		X
Flooding	X	X	X
Sinkholes	X		X
Thunderstorms (Hail, Lightning, & Wind)	X	X	X
Tornadoes	X	X	X
Tropical Cyclones	X	X	X
Wildfires	X		X
Winter Weather			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) Drought
b) Excessive Heat
c) Flooding
d) Sinkholes
e) Thunderstorms (Hail, Lightning, & Wind)
f) Tornadoes
g) Tropical Cyclones
h) Wildfires
i) Winter Weather

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

- Flooding from rivers and waterways, rainstorms, tropical cyclones, and hurricanes in the following forms:
    a) Riverine
    b) Stormwater
    c) Surge
    d) Backwater flooding (as the result of river flooding)
- 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. Eleven of the twenty disaster declarations Beauregard 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 asses 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 Beauregard Parish is included in the hurricane risk assessment.

Beauregard Parish is also susceptible to tornadoes. Tornadoes can spawn from tropical cyclones or severe weather systems that pass-through Beauregard 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 Beauregard Parish since 1965. Information includes names, dates, and types of disaster.

Table 2-2: Beauregard Parish Major Disaster Declarations.

Disaster Number	Year	Declaration
675	1/11/1983	Severe Storm, Flood
833	6/16/1989	Severe Storm, Tornadoes
837	7/17/1989	Severe Storm, Flood
902	4/23/1991	Severe Storm, Flood
2337	9/11/2000	Emergency, Fire Management
1380	6/11/2001	Tropical Cyclone – Tropical Storm Allison
1437	10/3/2002	Tropical Cyclone – Hurricane Lili
1603	8/29/2005	Tropical Cyclone – Hurricane Katrina

Disaster Number	Year	Declaration
1607	9/24/2005	Tropical Cyclone – Hurricane Rita
1668	11/2/2006	Severe Storm, Flood
1792	9/13/2008	Tropical Cyclone – Hurricane Ike
1863	12/10/2009	Severe Storm, Flood
4080	8/27/2012	Tropical Cyclone – Hurricane Isaac
4263	3/13/2016	Severe Storms, Flood
4345	10/6/2017	Tropical Cyclone – Tropical Storm Harvey
3416	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 Beauregard 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) 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 to reflect the equivalent amount of damages with the value of the U.S. dollar today. The table on the next page shows the annual probability for each hazard occurring across the parish.

Table 2-3: Probability of Future Hazard Reoccurrence.

Hazard	Probability		
	Beauregard Parish (Unincorporated)	DeRidder	Merryville
Drought	10%	10%	10%
Excessive Heat	< 1%	< 1%	< 1%
Flooding	76%	40%	36%
Sinkholes	< 1%	< 1%	< 1%
Thunderstorms – Hail	100%	100%	100%
Thunderstorms – Lightning	13%	13%	13%
Thunderstorms – Winds	100%	100%	100%
Tornadoes	100%	100%	100%
Tropical Cyclones	35%	35%	35%
Wildfires	< 1%	< 1%	< 1%
Winter Weather	30%	30%	30%

As shown in the above table, thunderstorm winds, hail, and tornadoes have the highest annual chance of occurrence (100%). This is followed by flooding for the unincorporated areas of the parish (76%), flooding for the incorporated area of DeRidder (40%), flooding for the incorporated area of Merryville (36%), tropical cyclones (35%), lightning (13%), and droughts (10%). Excessive heat, sinkholes, and wildfires have the lowest annual chance of occurrence at less than 1%.

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.

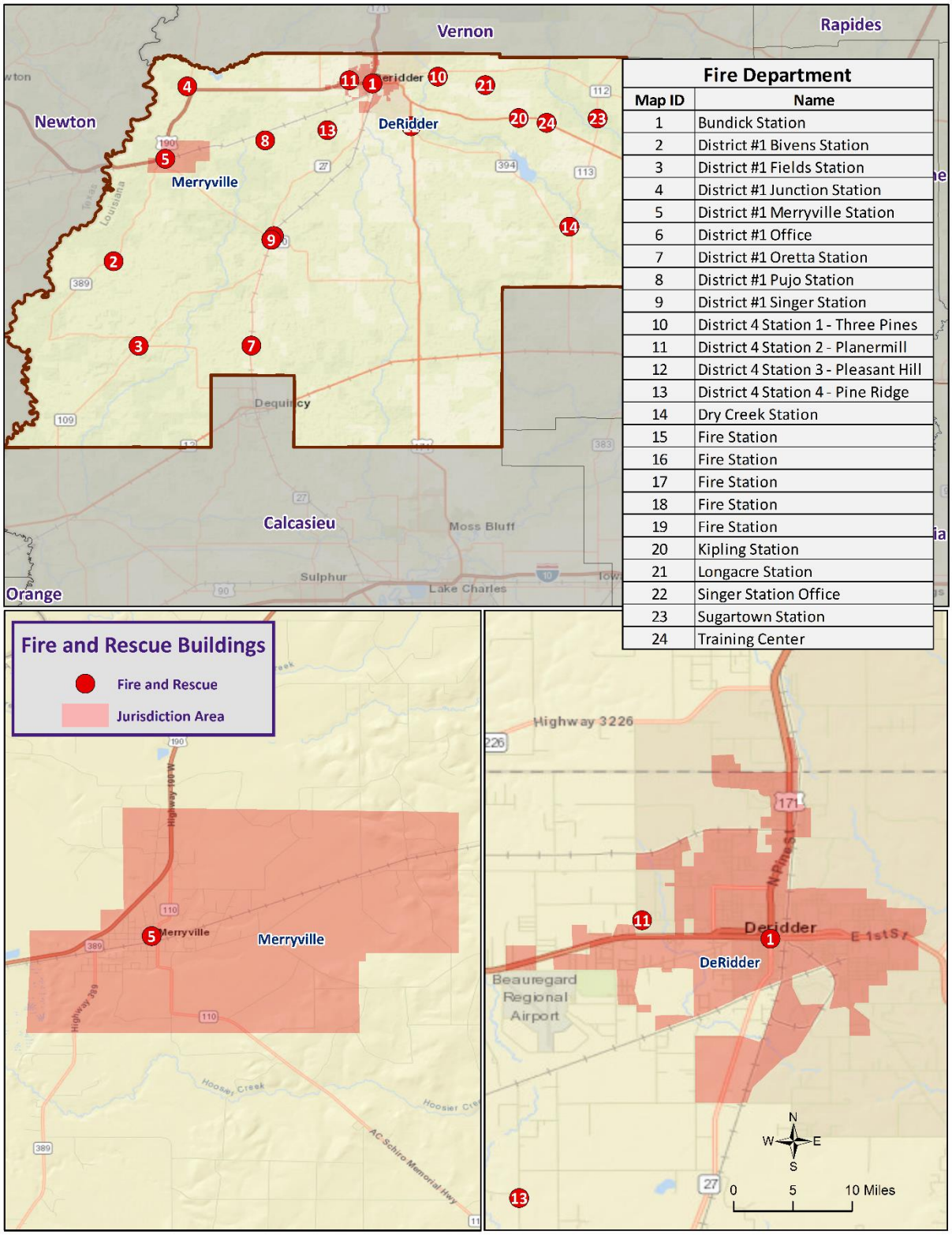
Within the entire planning area, there is an estimated value of $780,551,000 in structures throughout the parish. The table below provides the total estimated value for each type of structure by occupancy.

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

Occupancy	Beauregard Parish	Unincorporated Area	DeRidder	Merryville
Agricultural	$16,514,000	$12,294,000	$4,122,000	$98,000
Commercial	$279,022,000	$88,204,000	$186,556,000	$4,262,000
Government	$30,072,000	$18,404,000	$11,384,000	$284,000
Industrial	$79,822,000	$38,746,000	$39,335,000	$1,741,000
Religion	$85,582,000	$47,410,000	$34,910,000	$3,262,000
Residential	$2,331,594,000	$1,365,645,000	$897,488,000	$68,461,000
Education	$30,986,000	$17,063,000	$13,809,000	$114,000
Total	**$2,853,592,000**	**$1,587,766,000**	**$1,187,604,000**	**$78,222,000**

Essential Facilities of the Parish

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



Fire Department	
Map ID	Name
1	Bundick Station
2	District #1 Bivens Station
3	District #1 Fields Station
4	District #1 Junction Station
5	District #1 Merryville Station
6	District #1 Office
7	District #1 Oretta Station
8	District #1 Pujo Station
9	District #1 Singer Station
10	District 4 Station 1 - Three Pines
11	District 4 Station 2 - Planermill
12	District 4 Station 3 - Pleasant Hill
13	District 4 Station 4 - Pine Ridge
14	Dry Creek Station
15	Fire Station
16	Fire Station
17	Fire Station
18	Fire Station
19	Fire Station
20	Kipling Station
21	Longacre Station
22	Singer Station Office
23	Sugartown Station
24	Training Center

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

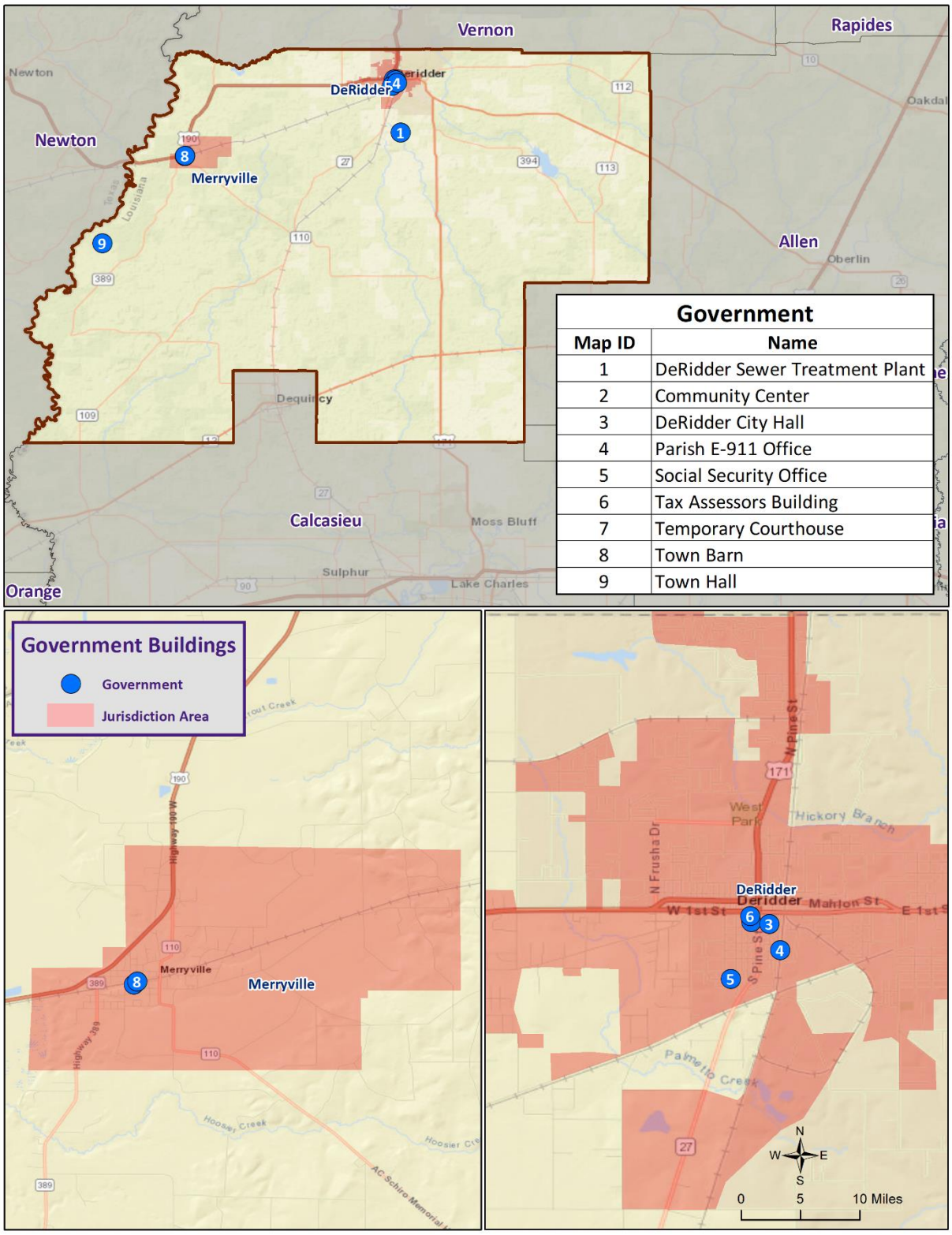


Figure 2-2: Government Buildings in Beauregard Parish.

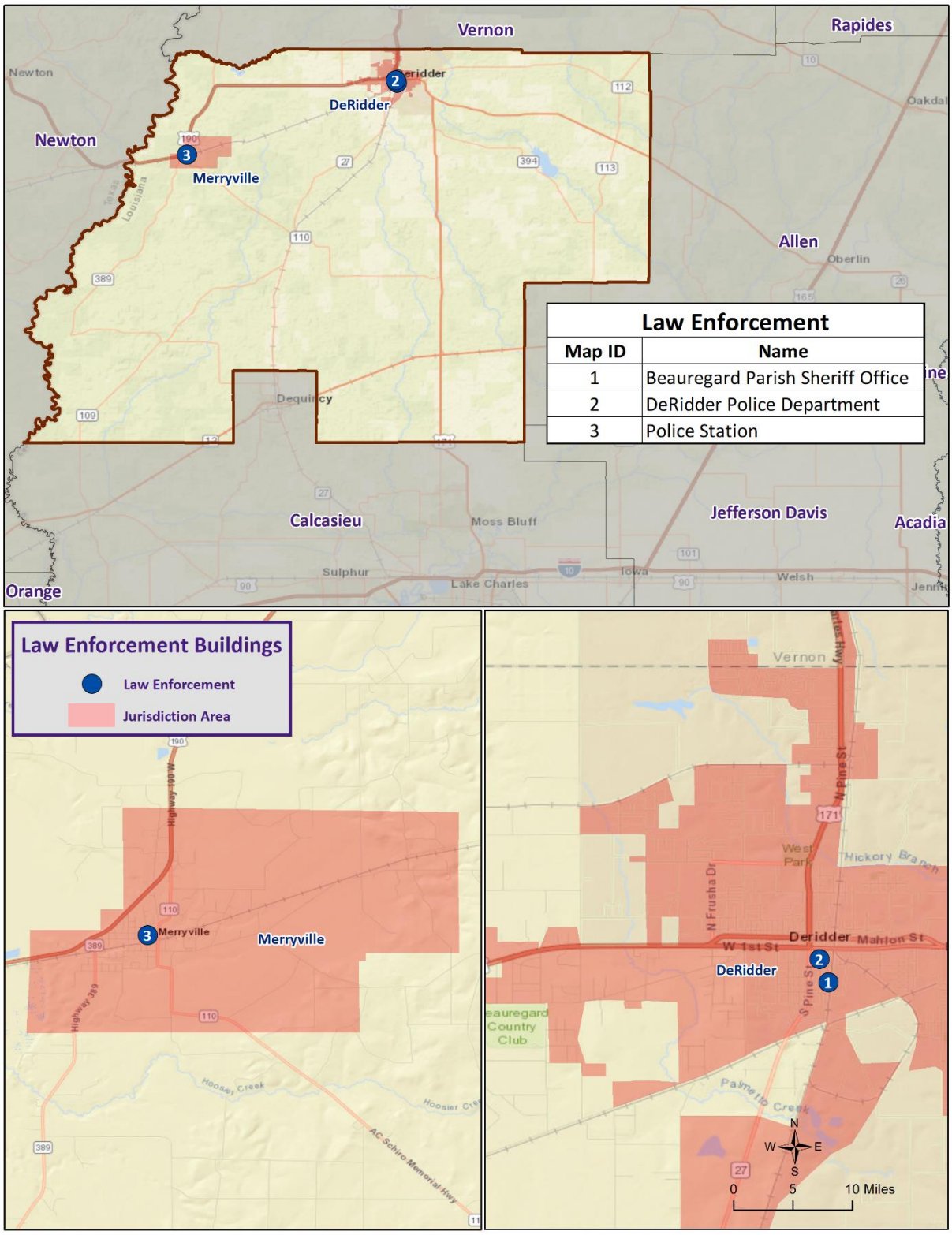


Figure 2-3: Law Enforcement in Beauregard Parish.

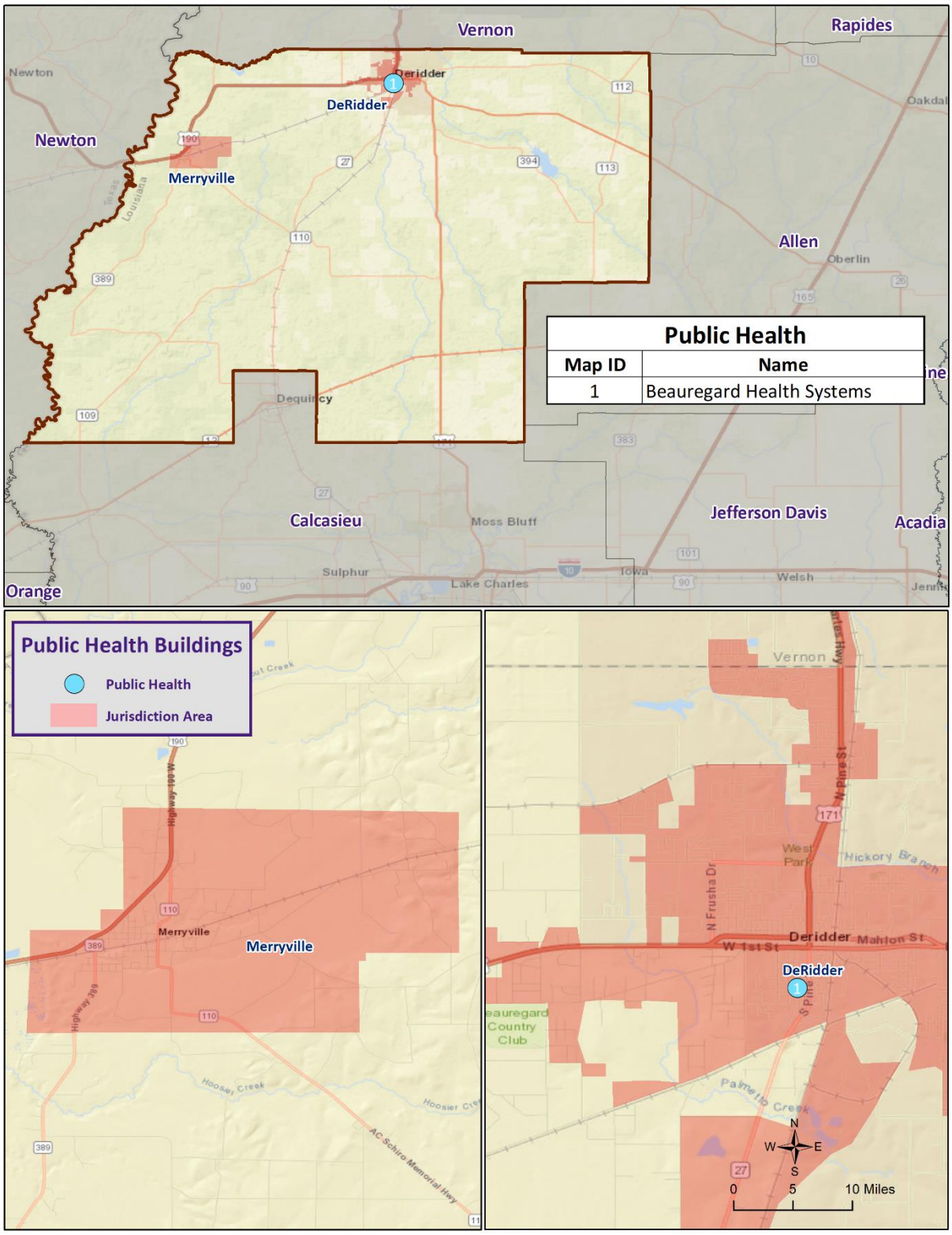


Figure 2-4: Public Health Facilities in Beauregard Parish.

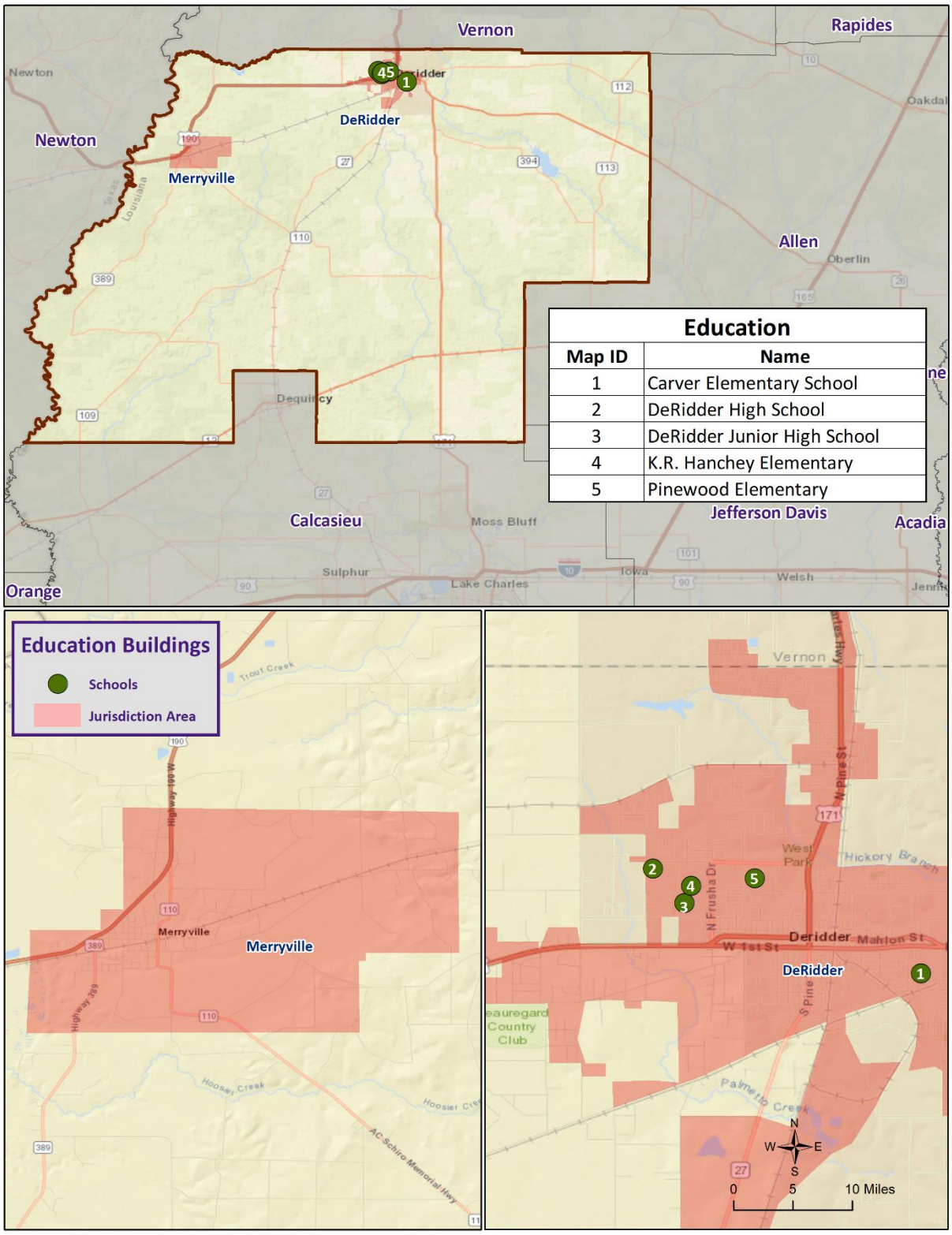


Figure 2-5: Education Facilities in Beauregard Parish.

Future Development Trends

Beauregard Parish experienced an increase in overall population from the years 2010 to 2019, increasing from a population of 35,654 in in 2010 to 37,497 in 2019. The incorporated area of Merryville experienced the largest increase in population from 2010 to 2019 (21.7% overall), followed by the unincorporated area of the parish (6.6% overall), and the incorporated area of DeRidder (0.1% overall).

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

Total Population	Beauregard Parish	Unincorporated Area	DeRidder	Merryville
1-Apr-00	32,986	21,768	10,092	1,126
1-Apr-10	35,654	23,973	10,578	1,103
1-Jul-19	37,497	25,567	10,588	1,342
Population Growth between 2000 – 2010	8.1%	10.1%	4.8%	-2.0%
Average Annual Growth Rate between 2000 – 2010	0.8%	1.0%	0.5%	-0.2%
Population Growth between 2010 – 2019	5.2%	6.6%	0.1%	21.7%
Average Annual Growth Rate between 2010 – 2019	0.57%	0.74%	0.01%	2.41%

There was a rise in housing trends from the years 2010 to 2019 with housing units increasing from 15,040 in 2010 to 16,223 in 2019. The incorporated area of Merryville experienced the largest increase in housing units during this time with an overall increase of 26.7%, followed by the incorporated area of DeRidder at 13.7%, and the unincorporated area of the parish at 4.8% overall. 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 Beauregard Parish.

Total Housing Units	Beauregard Parish	Unincorporated Area	DeRidder	Merryville
1-Apr-00	14,501	9,514	4,505	482
1-Apr-10	15,040	10,520	4,034	486
1-Jul-19	16,223	11,021	4,586	616
Housing Growth between 2000 – 2010	3.7%	10.6%	-10.5%	0.8%
Average Annual Growth Rate between 2000 – 2010	0.4%	1.1%	-1.0%	0.1%
Housing Growth between 2010 – 2019	7.9%	4.8%	13.7%	26.7%
Average Annual Growth Rate between 2010 – 2019	0.9%	0.5%	1.5%	3.0%

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 Beauregard 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, 2018-2028.
(Source: Hazus, US Census Bureau)

Hazard / Impact	Total in Parish (2018)	Hazard Area (2018)	Hazard Area (2025)	Hazard Area (2030)
Flood Damage				
Structures	16,223	8,820	8,882	8,926
Value of Structures	$2,853,592,000	$1,551,411,547.88	$1,677,324,580.24	$1,773,471,933
# of People	37,534	20,386	20,529	20,632
Tropical Cyclone				
Structures	16,223	16,223	16,337	16,419
Value of Structures	$2,853,592,000	$2,853,592,000	$3,085,190,393.32	$3,262,039,223
# of People	37,497	37,497	37,760	37,949

Population and housing numbers have continued to increase steadily since the last update to the Beauregard Parish Hazard Mitigation Plan. However, initiatives such as active floodplain management have restricted the development of flood prone areas, particularly in areas along the Sabine River, to continue supporting and encouraging safer communities within Beauregard 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. The development that has occurred since 2015 has not in any knowing way altered the jurisdiction's vulnerability to natural hazards.

Land Use

The Beauregard Parish Land Use table is provided on the below. Residential, commercial, and industrial areas account for only 4% of the parish's land use. Forested areas is the largest category accounting for 467,277 acres (63%) of parish land. At 164,689 acres, wetland areas account for 22% of parish lands, while 76,065 acres of agricultural areas account for 10% of parish lands. The parish also consists of 4,290 acres of open water areas, accounting for 1% of all parish lands.

Table 2-8: Beauregard Parish Land Use.
(Source: USGS Land Use Map)

Land Use	Acres	Percentage
Agricultural Land, Cropland, and Pasture	76,065	10%
Wetlands	164,689	22%

Forest Land (Not including forested wetlands)	467,277	63%
Urban/Development	33,746	4%
Water	4,290	1%

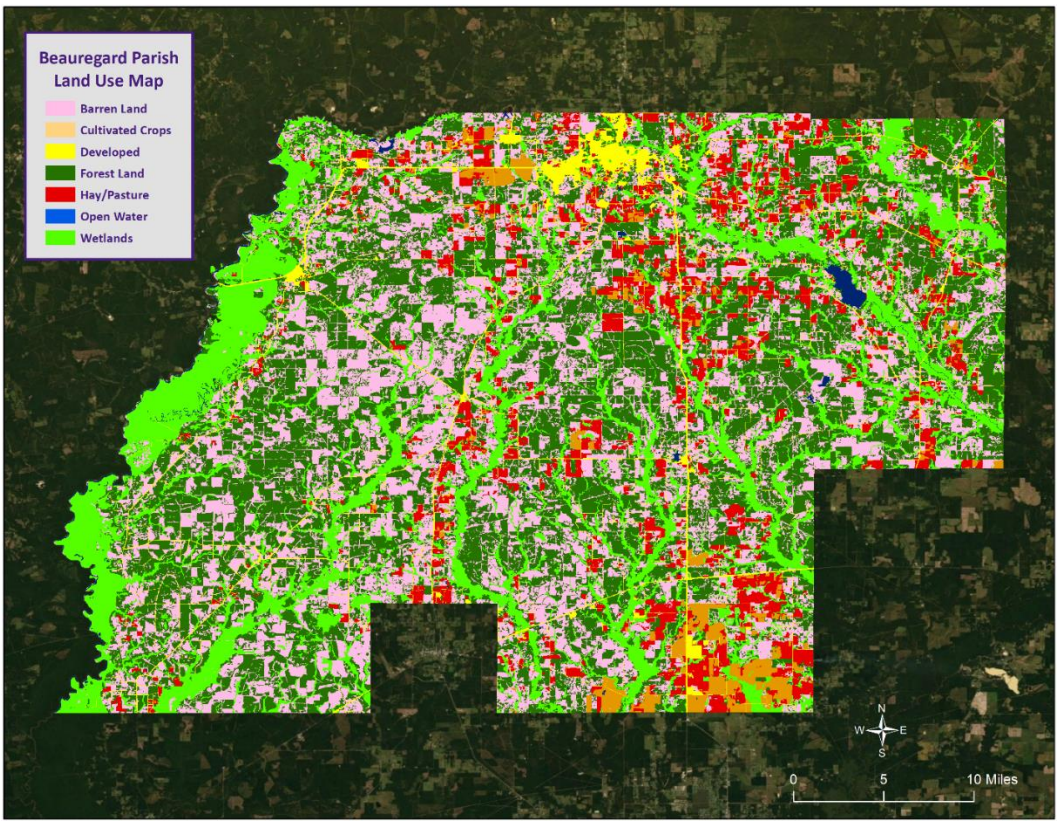


Figure 2-6: Beauregard Parish Land Use Map.
(Source: USGS Land Use Map)

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 Beauregard 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 Beauregard 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.

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 Beauregard Parish. A summary of the PRI is found in the table below. 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 Beauregard Parish.

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	Overall Risk
Drought	2	2	4	2	3	**2.55**
Excessive Heat	1	1	4	1	4	**2.05**
Flooding	3	4	3	4	3	**3.4**
Sinkholes	1	2	1	4	2	**1.85**
Thunderstorms – Hail	4	2	3	3	1	**2.7**
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	3	4	4	1	4	**3.3**
Wildfires	1	2	3	3	4	**2.4**
Winter Weather	2	3	4	1	2	**2.5**

Hazard Identification

Drought

A drought is a deficiency in water availability over an extended period of time, caused by precipitation totals and soil water storages that do not satisfy the environmental demand for water, either by evaporation or transpiration through plant leaves. It is important to note that the lack of precipitation alone does not constitute drought; the season during which the precipitation is lacking has a major impact on whether drought occurs. For example, a week of no precipitation in July, when the solar energy to evaporate water and vegetation's need for water to carry on photosynthesis are both high, may trigger a drought, while a week of no precipitation in January may not initiate a drought.

Drought is a unique and insidious hazard. Unlike other natural hazards, no specific threshold of "dryness" exists for declaring a drought. In addition, the definition of drought depends on stakeholder needs. For instance, the onset (and demise) of agricultural drought is quick, as crops need water every few days; once they get rainfall, they improve. But hydrologic drought sets in (and is alleviated) only over longer time periods. A few dry days will not drain a reservoir, but a few rain showers cannot replenish it either. Moreover, different geographical regions define drought differently based on the deviation from local, normal precipitation. And drought can occur anywhere, triggered by changes in the local-to-regional-scale atmospheric circulation over an area, or by broader-scale circulation variations such as the expansion of semi-permanent oceanic high-pressure systems or the stalling of an upper-level atmospheric ridge in place over a region. The severity of a drought depends upon the degree and duration of moisture deficiency, as well as the size of the affected area. Periods of drought also tend to be associated with other hazards, such as wildfires and/or heat waves. Lastly, drought is a slow onset event, causing less direct—but tremendous indirect—damage. Depletion of aquifers, crop loss, and livestock and wildlife mortality rates are examples of direct impacts. Since the groundwater found in aquifers is the source of about 38% of all county and city water supplied to households (and comprises 97% of the water for all rural populations that are not already supplied by cities and counties), droughts can potentially have direct,

disastrous effects on human populations. The indirect consequences of drought, such as unemployment, reduced tax revenues, increased food prices, reduced outdoor recreation opportunities, higher energy costs as water levels in reservoirs decrease and consumption increases, and water rationing, are not often fully known. This complex web of impacts causes drought to affect people and economies well beyond the area physically experiencing the drought.

This hazard is often measured using the Palmer Drought Severity Index (PDSI, also known operationally as the Palmer Drought Index). The PDSI, first developed by Wayne Palmer in a 1965 paper for the U.S. Weather Bureau, measures drought through recent precipitation and temperature data with regard to a basic supply-and-demand model of soil moisture. It is most effective in long-term calculations. Three other indices used to measure drought are the Palmer Hydrologic Drought Index (PHDI), the Crop Moisture Index (CMI), which is derived from the PDSI, and the Keetch-Byram Drought Index (KBDI), created by John Keetch and George Byram in 1968 for the U.S. Forest Service. The KBDI is used mainly for predicting the likelihood of wildfire outbreaks. As a compromise, the PDSI is used most often for droughts since it is a medium-response drought indicator. The objective of the PDSI is to provide measurements of moisture conditions that are standardized so that comparisons using the index can be made between locations and between months. *Table 2-12* displays the range and Palmer classifications of the PDSI index while *Figure 2-7* displays the current drought monitor for the state of Louisiana and its parishes.

Table 2-12: Palmer Drought Severity Index Classification and Range

Range	Palmer Classifications
4.0 or more	Extremely Wet
3.0 to 3.9	Very Wet
2.0 to 2.9	Moderately Wet
1.0 to 1.99	Slightly Wet
0.5 to 0.99	Incipient Wet Spell
0.49 to -0.49	Near Normal
-0.5 to -0.99	Incipient Dry Spell
-1.0 to -1.99	Mild Drought
-2.0 to -2.99	Moderate Drought
-3.0 to -3.99	Severe Drought
-4.0 or less	Extreme Drought

The PDSI best measures the duration and intensity of drought-inducing circulation patterns at a somewhat long-term time scale, although not as long-term as the PHDI. Long-term drought is cumulative, so the intensity of drought during the current month is dependent on the current weather patterns in addition to the effects of cumulative patterns of previous months. Although weather patterns can change almost overnight from a long-term drought pattern to a long-term wet pattern, as a medium-response indicator, the PDSI responds relatively rapidly. Data compiled by the National Drought Mitigation Center indicates normal conditions currently exists within Beauregard Parish.

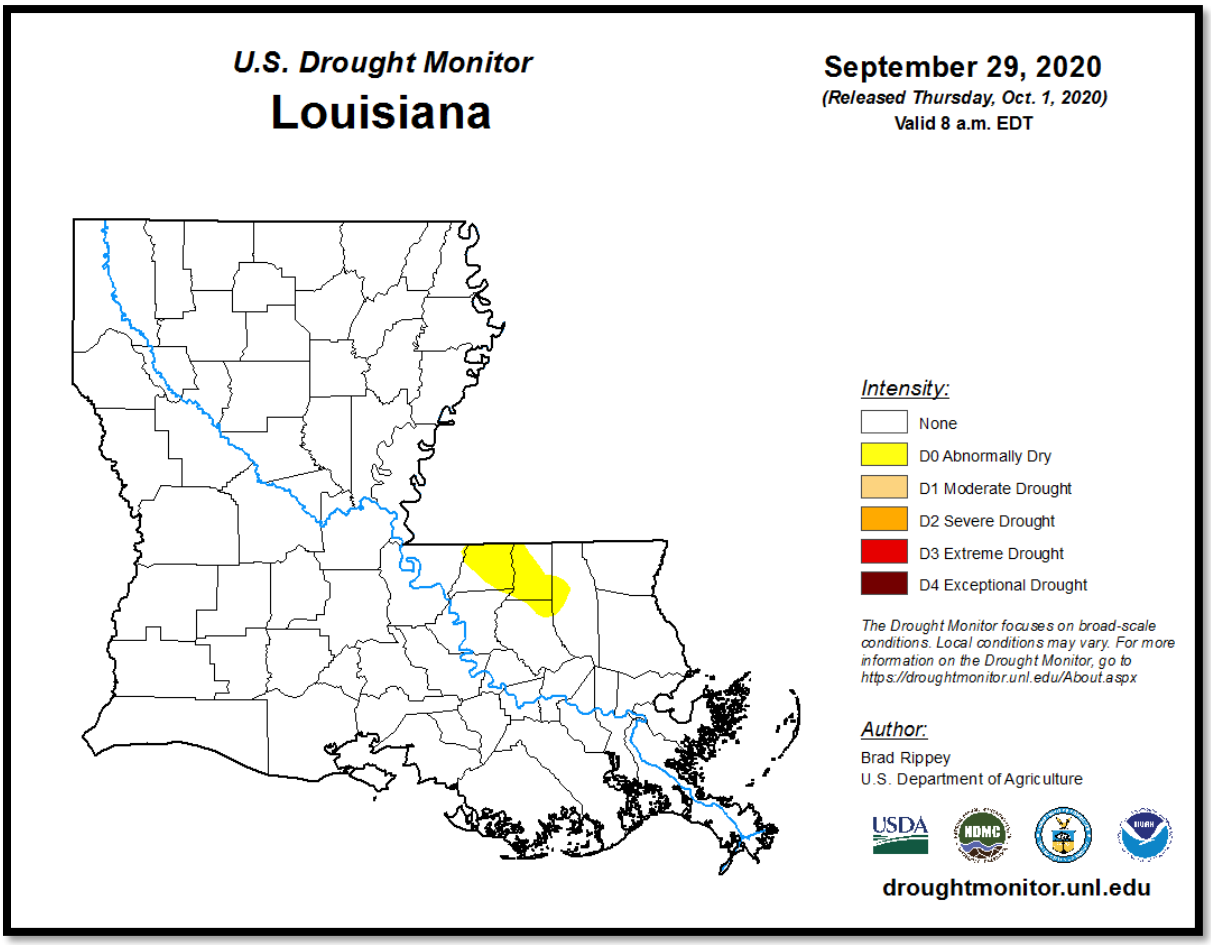


Figure 2-7: United States Drought Monitor for the State of Louisiana and its Parishes. (Source: The National Drought Mitigation Center)

Location

Drought typically impacts a region and not one specific parish or jurisdiction. While the entire planning area can experience drought, the major impact of a drought event in Beauregard Parish is on the agricultural community. The worst-case drought scenario for Beauregard Parish would be a severe drought (D2).

Previous Occurrences / Extent

Historically, there have been three drought incidents in Beauregard Parish. Drought events have ranged from Mild to Moderate per the National Climatic Data Center. Since the last update, there has been no drought events within the boundaries of Beauregard Parish.

Frequency / Probability

Based on three drought events since 1989, the annual chance of occurrence of a drought event occurring within a given year is calculated at 10% for Beauregard Parish.

Estimated Potential Loses

According to the NCEI Storm Events Database, there have been three drought events which have impacted Beauregard Parish which resulted in limited to no damage to crops in the parish. When examining the

drought hazard, the main impact will primarily be on the crops. The following table presents an analysis of agricultural exposure which are susceptible to droughts by type for Beauregard Parish.

Table 2-13: Agricultural Exposure by Crop Type for Droughts in Beauregard Parish. (Source: LSU AG Center 2018 Parish Totals)

Agricultural Exposure by Type for Drought						
Blueberries	**Corn**	**Hay**	**Rice**	**Soybeans**	**Watermelon**	**Total**
$146,790	$570,871	$901,560	$1,543,386	$1,154,960	$790,320	$5,107,887

There have been no reported injuries or deaths as a direct result of drought in Beauregard Parish.

Vulnerability

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

Excessive Heat

There is no operational definition for defining heat or a heat wave. Heat waves are the consequence of the same weather pattern as drought and therefore both hazards often occur concurrently. A heat wave is an extended period of oppressive and above normal temperatures over a given period of time. The World Meteorological Organization recommends the declaration of a heat wave when the daily maximum temperature exceeds the average maximum temperatures by 9°F and lasts for a period of at least five days.

However, temperature alone is insufficient to describe the stress placed on humans (as well as flora and fauna) in hot weather. It is crucial to consider the effect of relative humidity since it is essential to the body's ability to perspire and cool. Once air temperature reaches 95°F, perspiration becomes a very significant biophysical mechanism to ensure heat loss. Perspiration is ineffective as a cooling mechanism if the water cannot evaporate (i.e., sweating in high relative humidity is reduced as compared to during dry conditions). To communicate this relationship between temperature and humidity, the National Weather Service (NWS) developed the Heat Index (HI), which provides a warning system based on a combination of air temperature and relative humidity. The HI is presented in
Figure 2-8 and *Table 2-14* summarizes the HI risk levels and protective measures. The NWS devised the index for shady, light wind conditions, and thus advises that the HI value can be increased by as much as 15°F if a person is in direct sunlight, and that strong winds of hot, dry air can be extremely hazardous.

Most heat disorders (e.g., sunburn, heat cramps, heat exhaustion, and heat stroke) occur because the victim has been overexposed to heat or has over-exercised considering age and physical condition. Other circumstances that can induce heat-related illnesses include stagnant atmospheric conditions and poor air quality. Seniors and children are most at risk from adverse heat effects. Excessive heat can also damage roads, bridges, pipelines, utilities, and railroads. High temperatures can be partially responsible for deflection of rails and related railroad accidents.

According to NOAA, excessive heat is the leading weather-related cause of deaths in the United States. And while heat-related deaths in Louisiana are not common, due in part to the consistency and predictability of high seasonal temperatures, they do occur, and are still very intense and dangerous. Such deaths happen in a variety of circumstances, often in ways that are not easily categorized because they are unexpected. For instance, although exposure to heat is higher at the beach than usual, NOAA does not track heat-related deaths there because such deaths happen infrequently.

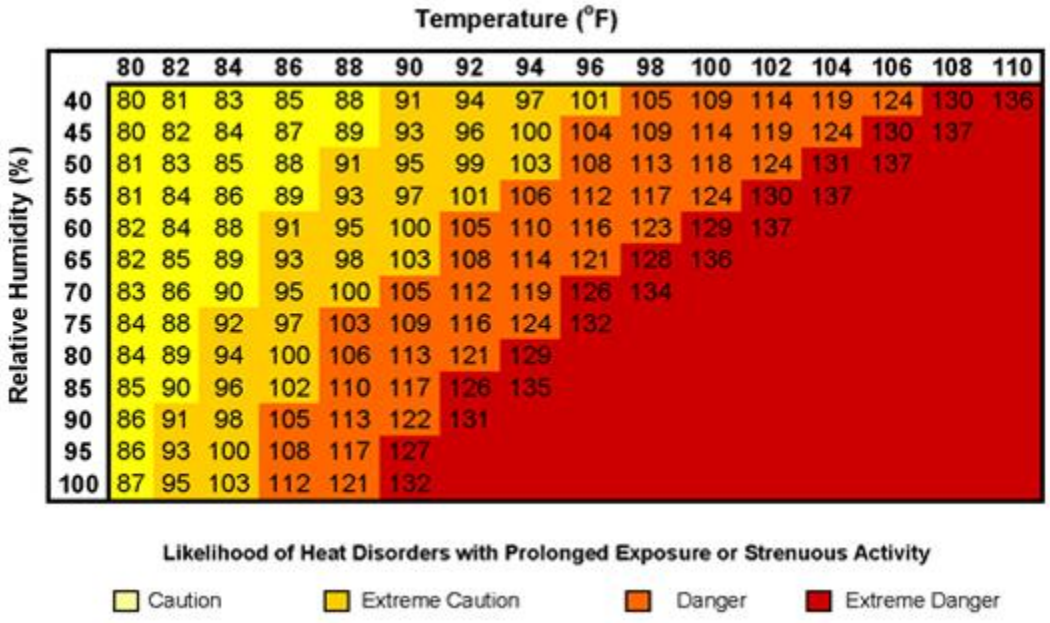


Figure 2-8: Heat Index Advisor based on Air Temperature (°F) and Relative Humidity. (Source: National Weather Service)

Table 2-14: Summary of Heat Index Risk Levels with Protective Measures (Source: National Weather Service)

Heat Index	Risk Level	Protective Measures
Less than 91°F	Lower (Caution)	Basic heat safety and planning.
91°F to 103°F	Moderate	Implement precautions and heighten awareness.
103°F to 115°F	High	Additional precautions to protect workers.
Greater than 115°F	Very High to Extreme	Triggers even more aggressive protective measures.

Location

Excessive heat typically impacts a region and not one specific parish or jurisdiction. Because excessive heat is a climatological bases hazard, it has the same probability of occurring in Beauregard Parish as all of the adjacent parishes. The entire planning area of Beauregard Parish is equally at risk for excessive heat. Based on historical data, the worst-case scenario for Beauregard Parish involving excessive heat would be a high risk level on the HI scale with temperatures ranging from 103°F to 115°F.

Previous Occurrences / Extent

Per the NCEI Storm Events Database, there have been no occurrence of excessive heat events in Beauregard Parish since 1989.

Frequency / Probability

Based on historical data, the annual chance of occurrence of an excessive heat event occurring within a given year is calculated at less than 1% for Beauregard Parish and its jurisdictions.

Estimated Potential Loses

According to the NCEI Storm Events Database, there have been no excessive heat events which have impacted Beauregard Parish and its jurisdictions which has resulted in no injuries, deaths, or crop damage.

Vulnerability

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

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 Beauregard Parish, all types except for coastal flooding have 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 2-9*.

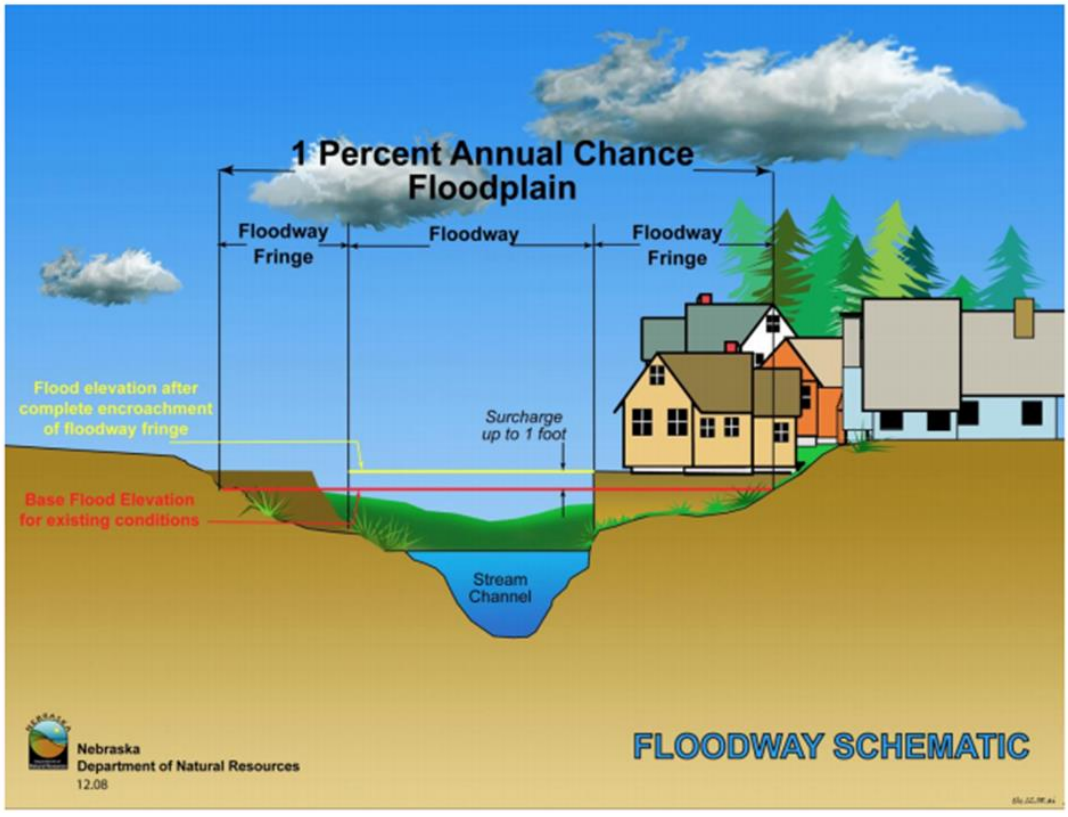


Figure 2-9: Schematic of 100-year Floodplain. The Special Flood Hazard Area (SFHA) extends to the end of the floodway fringe.
(Source: Nebraska Department of Natural Resources)

A SFHA is the land area covered by the floodwaters of the base flood (red line in *Figure 2-9*), 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 Beauregard Parish are provided in the table below:

Table 2-15: Repetitive Loss Structures for Beauregard Parish.

Jurisdiction	Number of Structures	Residential	Commercial	Government	Total Claims	Total Claims Paid	Average Claim Paid
Beauregard Parish (Unincorporated)	79	76	3	0	254	$3,130,033	$12,323
DeRidder	3	2	1	0	6	$141,423	$23,571
Merryville	0	0	0	0	0	$0	$0
Total	**82**	**78**	**4**	**0**	**260**	**$3,271,456**	**$12,583**

Of the 82 repetitive loss structures, 77 were able to be geocoded to provide an overview of where the repetitive loss structures were located throughout the parish. *Figure 2-10* shows the approximate location of the structures, while *Figure 2-11* 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 in the incorporated area of DeRidder and in the eastern section of the unincorporated area of Beauregard Parish.

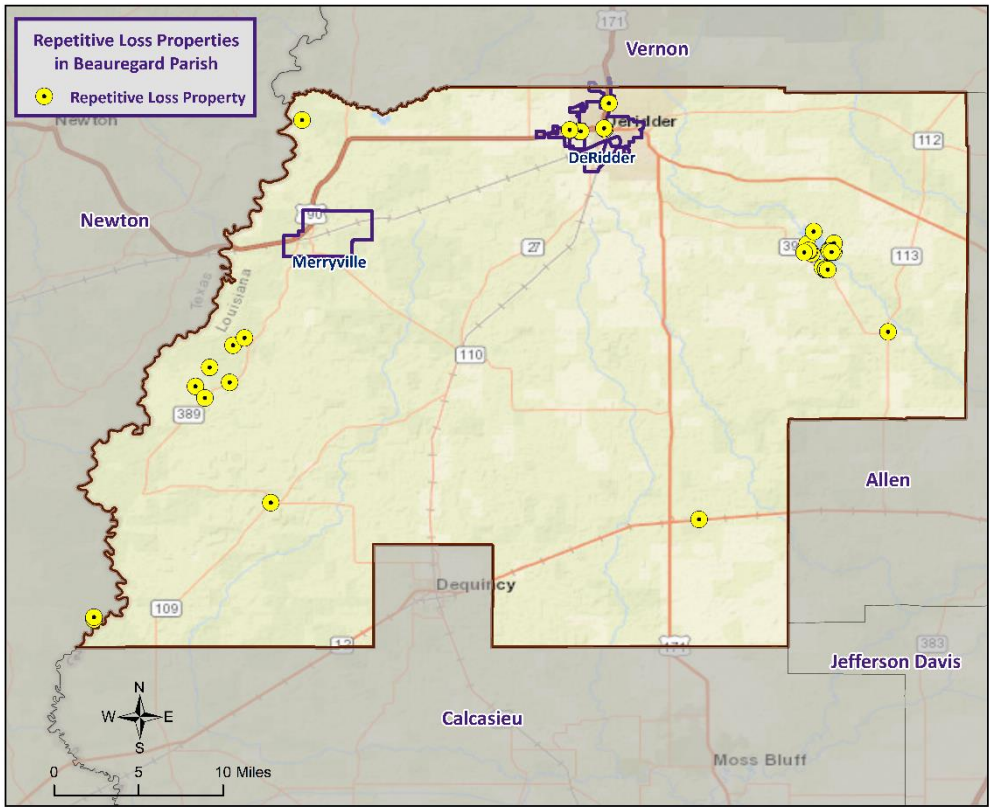


Figure 2-10: Repetitive Loss Properties in Beauregard Parish.

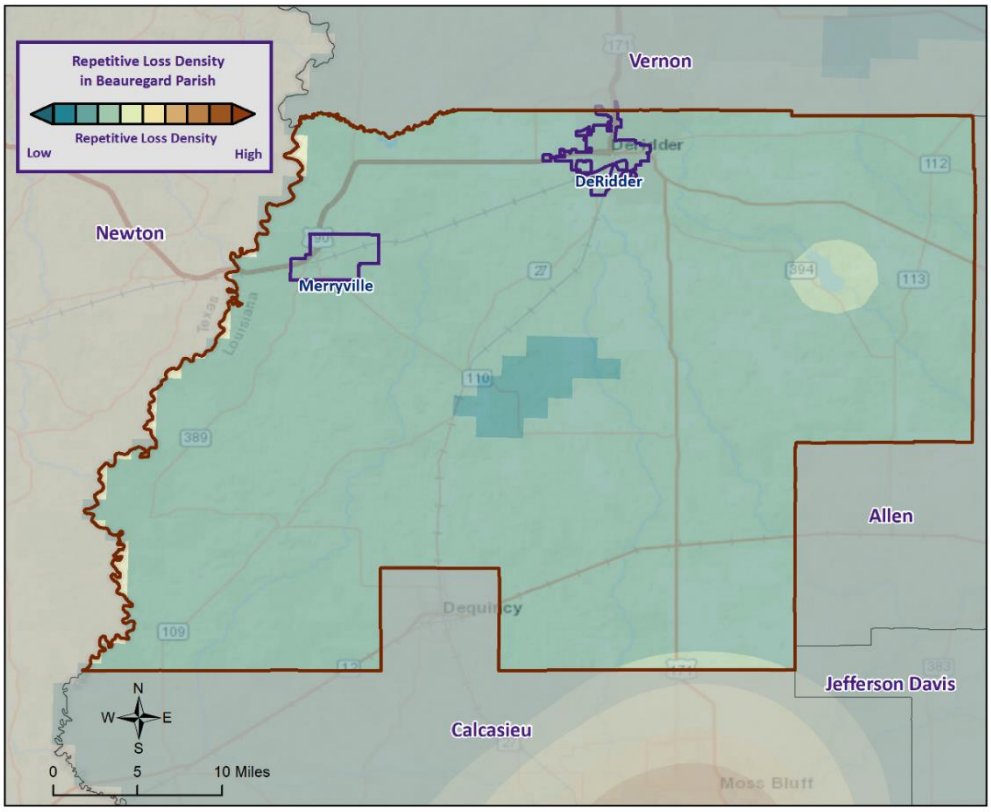


Figure 2-11: Repetitive Loss Property Densities in Beauregard Parish.

National Flood Insurance Program

Flood insurance statistics indicate that Beauregard Parish has 410 flood insurance policies with the NFIP, with total annual premiums of $250,055. Beauregard Parish and the jurisdictions of DeRidder and Merryville are all participants in the NFIP. Beauregard Parish and both 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 Beauregard Parish and its jurisdictions is provided in the tables to follow.

Table 2-16: Summary of NFIP Policies for Beauregard Parish.

Location	No. of Insured Structures	Total Insurance Coverage Value	Annual Premiums Paid
Beauregard Parish (Unincorporated Area)	298	$71,362,100	$175,058
DeRidder	103	$28,475,400	$69,534
Merryville	9	$1,683,700	$5,463
Total	**410**	**$101,521,200**	**$250,055**

Table 2-17: Summary of Community Flood Maps for Beauregard Parish.

CID	Community Name	Initial FHBM Identified	Initial FIRM Identified	Current Effective Map Date	Date Joined the NFIP	Tribal
220026B	Beauregard Parish	01/17/75	05/03/90	01/05/18	05/03/90	No
220027B	DeRidder	02/01/74	10/19/82	01/05/18	10/19/82	No
220028B	Merryville	05/24/74	02/01/87	01/05/18	02/01/87	No

According to the Community Rating System (CRS) list of eligible communities dated October 1, 2020, the incorporated area of DeRidder participates in the CRS program and Beauregard Parish and the incorporated area of Merryville do not participate in the program.

Table 2-18: List of Areas that Participate in the Community Rating System.

Community Number	Name	CRS Entry Date	Current Effective Date	Current Class	% Discount for SFHA	% Discount for Non-SFHA	Status
220027B	DeRidder	10/1/1985	5/1/2015	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 Beauregard 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 Beauregard 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.

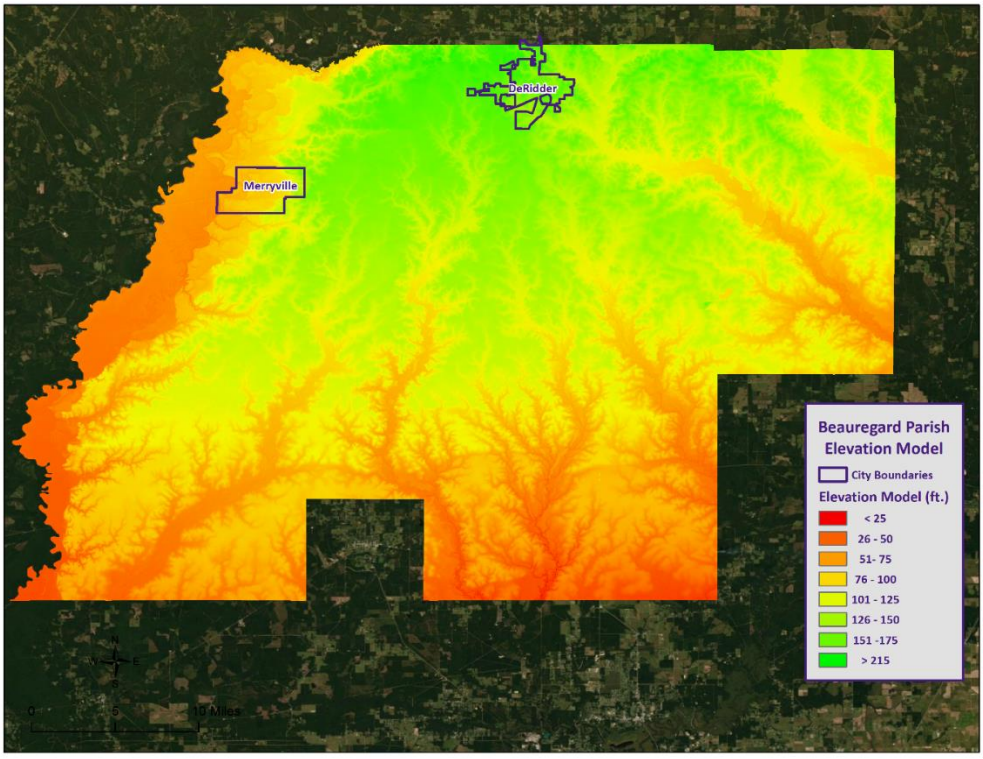


Figure 2-12: Elevation throughout Beauregard Parish.

The digital elevation model (DEM) in the figure above for Beauregard Parish is instructive in visualizing where the low-lying and high-risk areas are for the parish. The average elevation of Beauregard Parish is 203 feet. The highest elevations in the parish are approximately 215 feet in the DeRidder area. These higher elevations extend throughout the northern portions of the parish. The lowest portions of the parish average between seven and fifteen feet, and are located along the western border of the parish and in the southern areas of the parish. The average elevation in the incorporated area of Merryville is 82 feet, with the lowest elevations located in the eastern and southern areas of the town, and the highest elevations located in the western areas.

Location

Beauregard Parish has experienced significant flooding in its history and can expect more in the future. Beauregard Parish is situated in the floodplain of the Sabine River in the west and along the shores of Bundick Lake in the north. Below are enlarged maps of the incorporated areas showing the areas within each jurisdiction that are at risk to flooding.

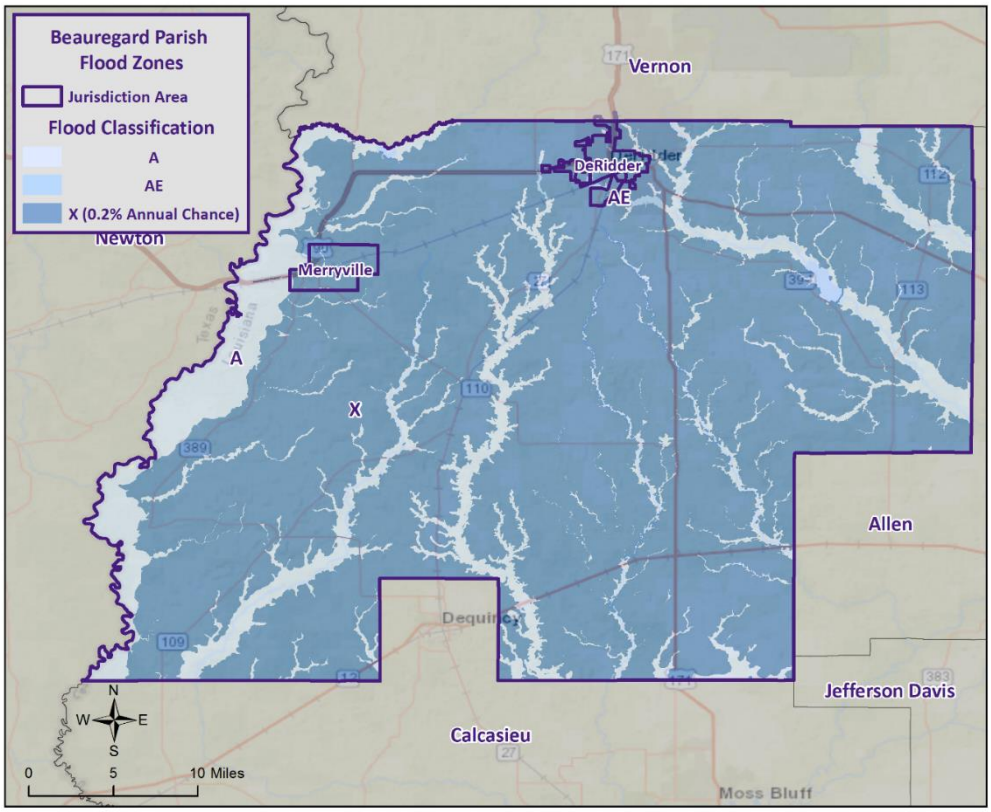


Figure 2-13: Beauregard Parish Areas within the Flood Zones.

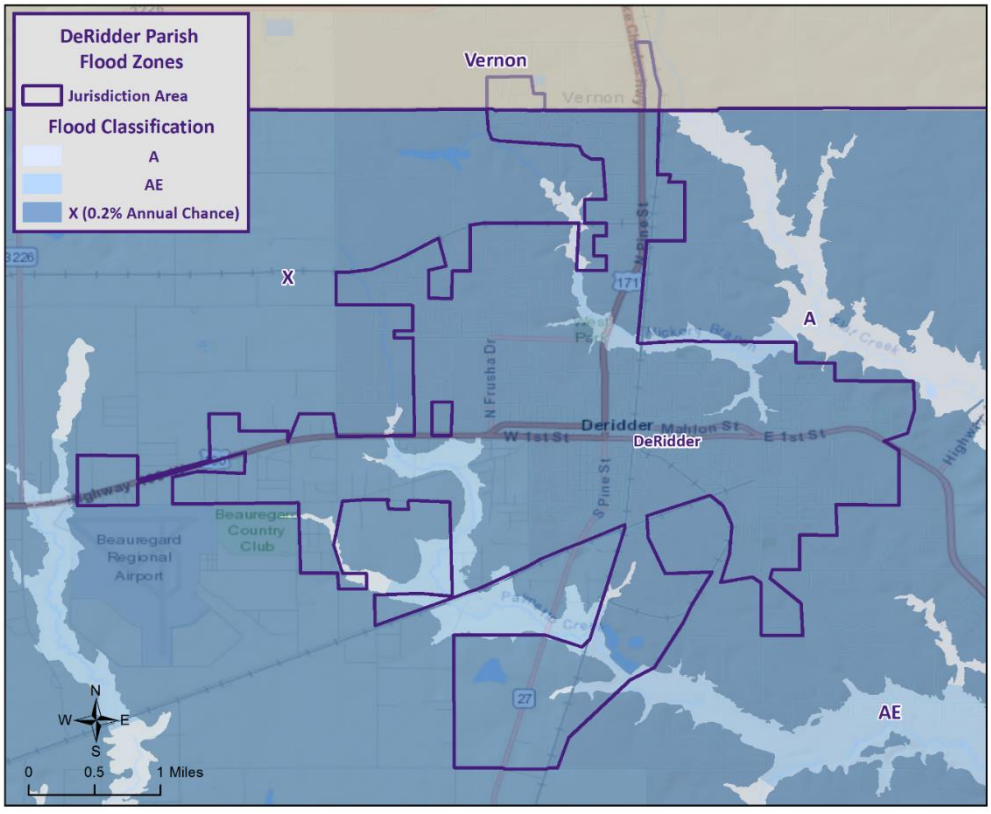


Figure 2-14: DeRidder Areas within the Flood Zones.

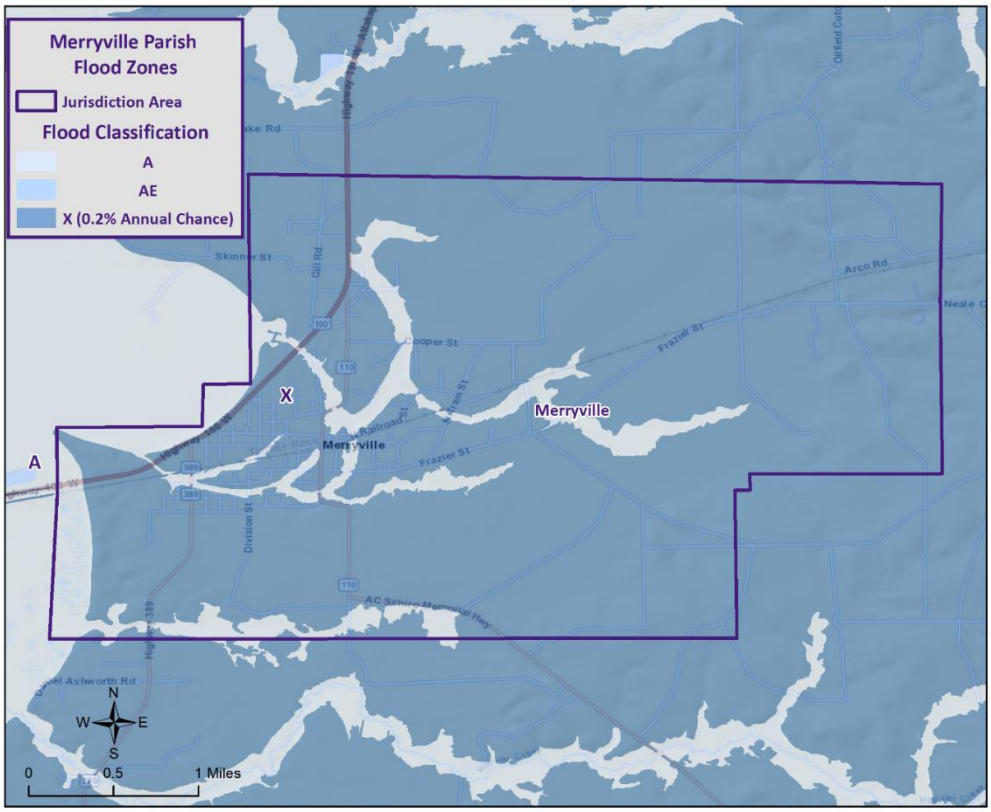


Figure 2-15: Merryville Areas within the Flood Zones.

Previous Occurrences / Extents

Historically, there have been 40 flooding events that have caused significant flooding in Beauregard Parish and its jurisdictions between 1989 and 2019. Below is a brief synopsis of the flooding events which occurred since the last Beauregard Parish HMP Update in 2015.

Table 2-19: Historical Floods in Beauregard Parish with Locations since the 2015 Beauregard Parish HMP Update.

Date	Extents	Type of Flooding	Estimated Damages	Location
March 10, 2016	Flood water from the heavy rain event on the 9th and 10th pushed down the Sabine River. Flood waters reached LA Highways 111 and 389 and nearly completely covered areas to the west of the roadways. This pushed water into the town of Merryville. Around 300 structures were flooded.	Flood	$40,000,000	PARISHWIDE
April 20, 2016	Water was reported over portions of Highway 12 between Dequincy and Ragley as well as flooding of some roads around Ragley.	Flash Flood	$0	UNINCORPORATED AREAS

Date	Extents	Type of Flooding	Estimated Damages	Location
August 28, 2017	Hurricane Harvey produced 15 to 30 inches of rain. This flooded 37 homes in the parish, but mainly near Bundick Creek and Sabine River.	Flash Flood	$15,000,0000	PARISHWIDE
March 29, 2018	Heavy rain during the morning the 29th produced flooding and flooded homes on Hauser Road near Tulla.	Flash Flood	$100,000	UNINCOPORATED AREAS
May 9, 2019	Heavy rain caused water to flow across Highway 113 near Dry Creek	Flash Flood	$0	UNINCORPORATED AREA
May 19, 2019	Heavy rain caused Highway 171 near Ragley to flood.	Flash Flood	$0	UNINCORPORATED AREA
June 6, 2019	Heavy rain resulted in several roads flooded and closed near and south of Ragley.	Flash Flood	$0	UNINCORPORATED AREA
July 14, 2019	Numerous roads were closed between Dequincy, Ragley, and Reeves in southeast portion of the parish. Hurricane Barry produced approximately 23.58 inches of rain 4 miles south of Ragley. Around 15 homes flooded.	Flash Flood	$3,000,000	PARISHWIDE

Based on previous flood events, the worst-case scenarios are based on several different types of flooding events. The low-lying areas of the parish can expect flood depths of approximately four to six feet in flood depth while the incorporated areas of Merryville can expect flood depths of approximately 5 feet. The incorporated area of DeRidder can expect flood depths of approximately two to four feet in low-lying areas.

Frequency / Probability

The NCEI Storm Events Database identified 40 flooding events within the Beauregard Parish planning area since 1989. The table below shows the probability and return frequency for each jurisdiction.

Table 2-20: Annual Flood Probabilities for Beauregard Parish.

Jurisdiction	Annual Probability	Return Frequency
Beauregard Parish (Unincorporated)	76%	1 event every 1 to 2 years
DeRidder	40%	1 event every 2 to 3 years
Merryville	36%	1 event every 2 to 3 years

Based on historical record, the overall flooding probability for the entire Beauregard Parish Planning area is 100% with five 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 2-21* shows the total economic losses that would result from this occurrence.

Table 2-21: Estimated Losses in Beauregard Parish from a 100-year Flood Event. (Source: Hazus)

Jurisdiction	Estimated Total Losses from 100-Year Flood Event
Beauregard Parish (Unincorporated Area)	$285,015,000
DeRidder	$40,246,000
Merryville	$9,062,000
Total	**$334,323,000**

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

Table 2-22: Estimated 100-year Flood Losses for Beauregard Parish by Sector. (Source: Hazus)

Beauregard Parish (Unincorporated)	Estimated Total Losses from 100-Year Flood Event
Agricultural	$2,208,000
Commercial	$17,279,000
Government	$4,759,000
Industrial	$11,289,000
Religious / Non-Profit	$16,271,000
Residential	$231,161,000
Schools	$2,048,000
Total	**$285,015,000**

Table 2-23: Estimated 100-year Flood Losses for DeRidder by Sector. (Source: Hazus)

DeRidder	Estimated Total Losses from 100-Year Flood Event
Agricultural	$279,000
Commercial	$7,072,000
Government	$563,000
Industrial	$356,000
Religious / Non-Profit	$1,681,000
Residential	$30,249,000
Schools	$46,000
Total	**$40,246,000**

Table 2-24: Estimated 100-year Flood Losses for Merryville by Sector. (Source: Hazus)

Merryville	Estimated Total Losses from 100-Year Flood Event
Agricultural	$0
Commercial	$1,056,000
Government	$25,000
Industrial	$176,000
Religious / Non-Profit	$595,000
Residential	$7,210,000
Schools	$0
Total	**$9,062,000**

Threat to People

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

Table 2-25: 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**
Beauregard Parish (Unincorporated)	23,973	16,984	70.8%
DeRidder	10,578	1,648	15.6%
Merryville	1,103	752	68.2%
Total	**35,654**	**19,384**	**54.4%**

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

Table 2-26: Vulnerable Populations Susceptible to a 100-year Flood Event in Beauregard Parish. (Source: Hazus)

Beauregard Parish (Unincorporated)		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	16,984	70.8%
Persons Under 5 Years	1,179	6.9%
Persons Under 18 Years	3,249	19.1%
Persons 65 Years and Over	2,201	13.0%
White	13,968	82.2%
Minority	3,016	17.8%

Table 2-27: Vulnerable Populations Susceptible to a 100-year Flood Event in DeRidder. (Source: Hazus)

DeRidder		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	1,648	15.6%
Persons Under 5 Years	130	7.9%
Persons Under 18 Years	309	18.8%
Persons 65 Years and Over	228	13.8%
White	982	59.6%
Minority	666	40.4%

Table 2-28: Vulnerable Populations Susceptible to a 100-year Flood Event in Merryville. (Source: Hazus)

Merryville		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	752	68.2%
Persons Under 5 Years	55	7.3%
Persons Under 18 Years	147	19.5%
Persons 65 Years and Over	119	15.8%
White	609	81.1%
Minority	143	19.0%

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 depths of 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 top soil 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 no identifiable salt dome locations in Beauregard Parish. However, there is one salt dome of which its two mile buffer extends into Beauregard Parish. *Figure 2-16* displays the location of this salt dome with its relative location to the nearest jurisdiction. The North Starks Salt Dome's two-mile buffer extends into the southern unincorporated area of Beauregard Parish and does not impact any of the parish's incorporated areas.

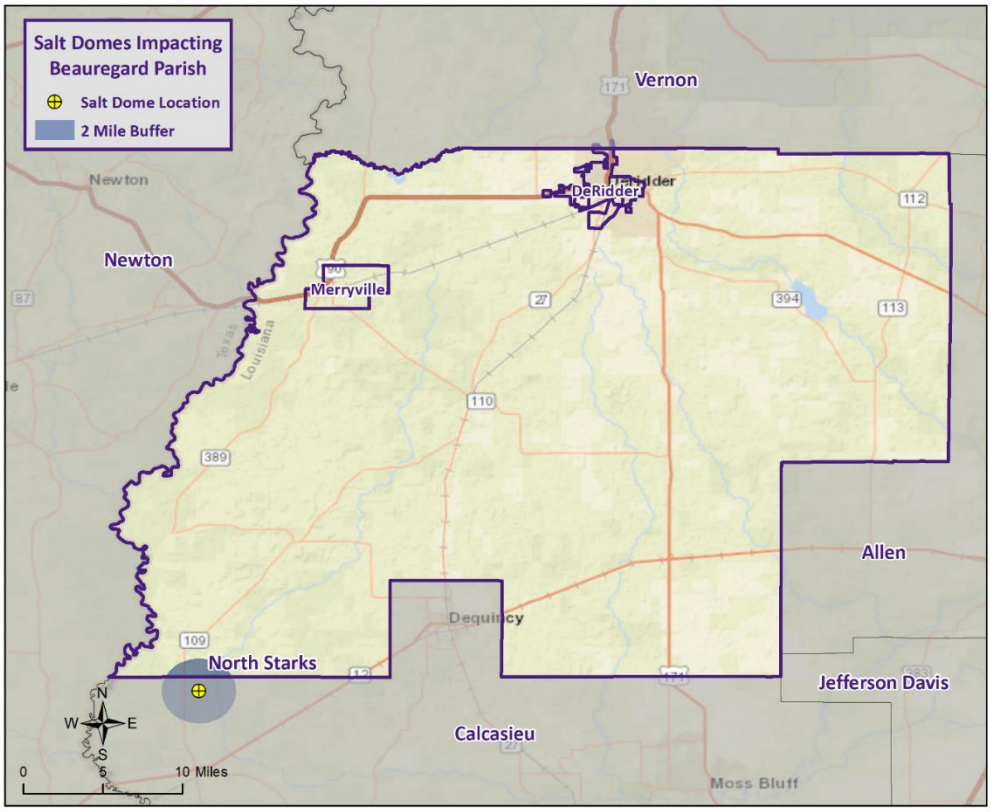


Figure 2-16: Salt Dome Locations in Beauregard Parish.

Previous Occurrences / Extent

There have been no recorded incidents of sinkholes or salt dome collapses in Beauregard Parish since the last update of the Beauregard Parish Hazard Mitigation Plan.

Frequency / Probability

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

Estimated Potential Losses

The only salt dome to impact Beauregard Parish is the North Starks Stark Salt Dome whose two-mile buffer extends into the unincorporated area of Beauregard Parish. The table on the next page 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.

Table 2-29: 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
North Starks	$3,634,000	0	77	27

The North Starks Salt Dome poses some risk to the people and structures located within the two-mile buffer of the salt dome, but the impact is minimal given there has been no occurrence of the salt dome collapsing in the past.

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 tables on the next page display the TORRO Hailstorm Intensity Scale along with a spectrum of hailstone diameters and their everyday equivalents.

Table 2-30: 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 2-31: 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 2-32*.

Table 2-32: 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 2-33 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 2-33: 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 2-34: 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 Beauregard Parish and its jurisdictions are equally at risk for hailstorms. The worst-case scenario for hailstorms is hail up to a 2.75” diameter.

Previous Occurrences / Extents

Historically, there have been 92 hail incidents in Beauregard Parish. Hailstorm diameters have ranged from 0.75 inch to 2.75 inches per the National Climatic Data Center since 1989. The most frequently recorded hail sizes have been 0.75 inches in diameter. There have been seven significant hailstorm events in Beauregard Parish since the 2015 Beauregard Parish HMP update. *Table 2-37* provides an overview of the hailstorm events which impacted the Beauregard Parish Planning area since the 2015 Beauregard Parish HMP update.

Table 2-35: Previous Occurrences for Hailstorm Events since the 2015 Hazard Mitigation Plan Update. (Source: NCEI Storm Events Database)

Location	Date	Diameter (Inches)	Property Damage	Crop Damage
FIELDS	January 8, 2016	1.5	$0	$0
DERIDDER	January 21, 2016	2	$0	$0
LONGVILLE	March 18, 2016	1	$0	$0
FIELDS	April 26, 2017	1.75	$0	$0
RAGLEY	February 26, 2019	1	$0	$0
DERIDDER	April 4, 2019	1.75	$0	$0

Frequency

Hailstorms occur frequently within Beauregard Parish with an annual chance of occurrence calculated at 100% based on the records for the past 30 years (1989-2019). *Figure 2-17* displays the density of hail storm events in Beauregard Parish, while *Figure 2-18* provides an overview of hailstorm size based on location.

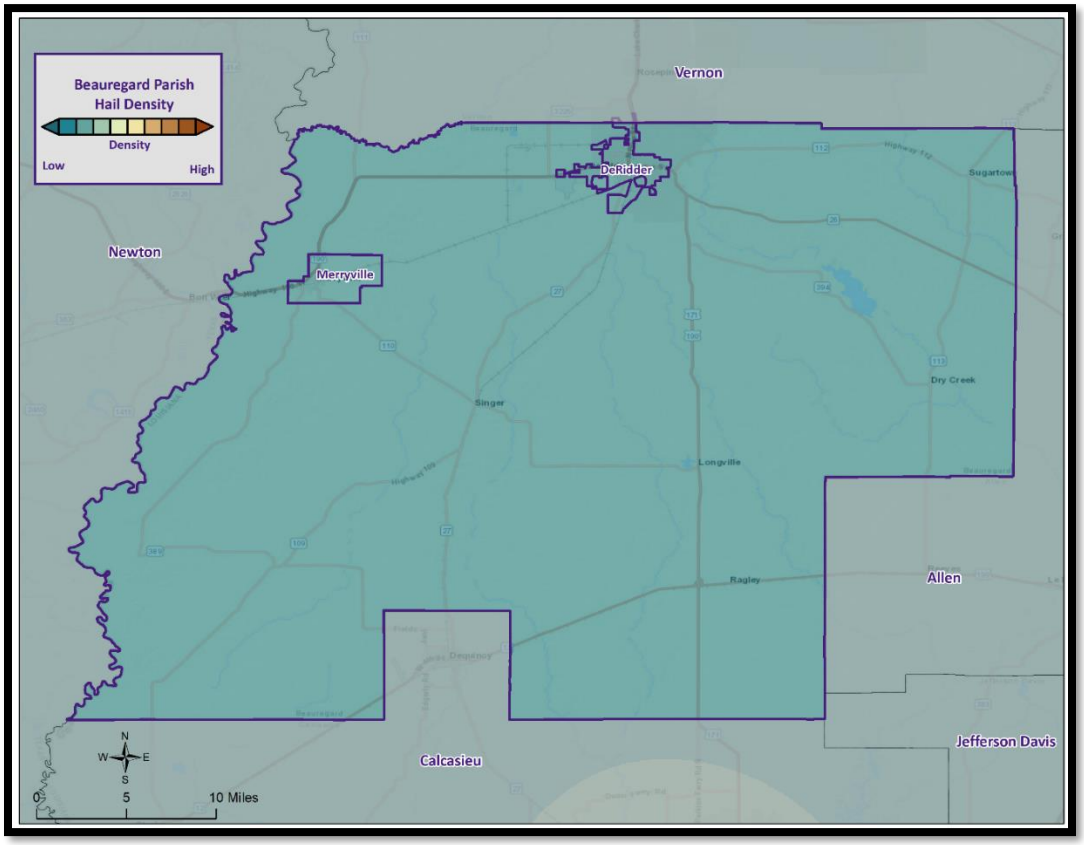


Figure 2-17: Density of Hailstorms by Diameter from 1950-2019.

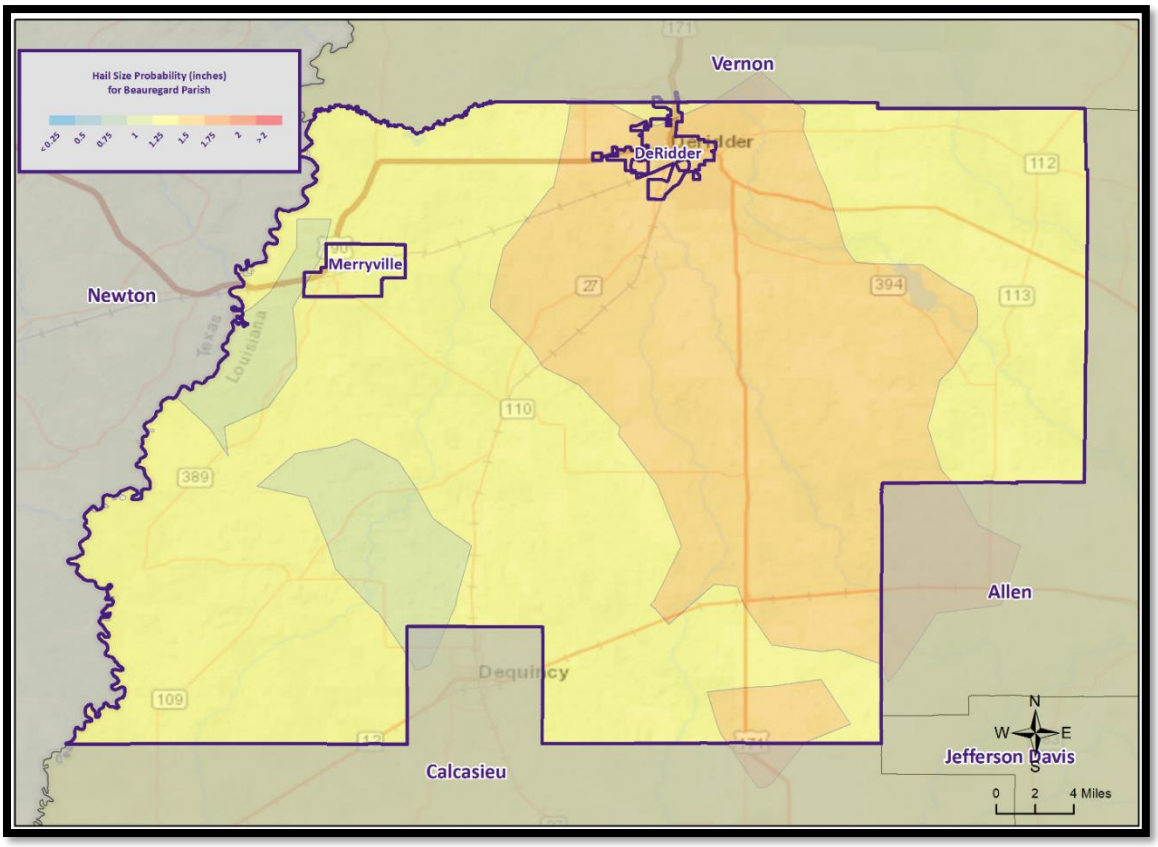


Figure 2-18: Hail Size Probability in Inches for Beauregard Parish.

Estimated Potential Losses

Since 1989, there have been 92 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 $4,000. 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 $133 and $333 per event. The following table provides an estimate of potential property losses for Beauregard Parish:

Table 2-36: Estimated Annual Losses Beauregard Parish and its Jurisdictions Resulting from Hailstorms.

Hailstorm Estimated Annual Potential Losses		
Unincorporated Area	**DeRidder**	**Merryville**
$90	$40	$4

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 Beauregard Parish is equally at risk from high winds. The worst-case scenario for thunderstorm high wind is wind speeds of approximately 101 mph.

Previous Occurrences / Extents

Historically, there have been 170 thunderstorm high wind events in Beauregard Parish. High winds have ranged from 50 mph to 101 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 eight high wind events in Beauregard Parish. *Table 2-37* provides an overview of the high wind speeds which impacted the Beauregard Parish Planning area since the 2015 Beauregard Parish HMP update.

Table 2-37: 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
FULTON	March 24, 2016	60	$5,000	$0
DERIDDER	May 27, 2016	50	$5,000	$0
DERIDDER	May 28, 2016	50	$2,000	$0
DRY CREEK	May 3, 2017	50	$1,000	$0
SHEAR	January 22, 2018	50	$5,000	$0
RAGLEY	July 29, 2018	50	$3,000	$0
DRY CREEK	August 29, 2018	50	$5,000	$0
SUGARTOWN	April 25, 2019	76	$6,000	$0

Frequency

High winds are a common occurrence within Beauregard Parish and its jurisdictions with an annual chance of occurrence calculated at 100% based on the records for the past 30 years (1989-2019). On the next page, *Figure 2-19* displays the thunderstorm wind speed probability for Beauregard Parish and its jurisdictions.

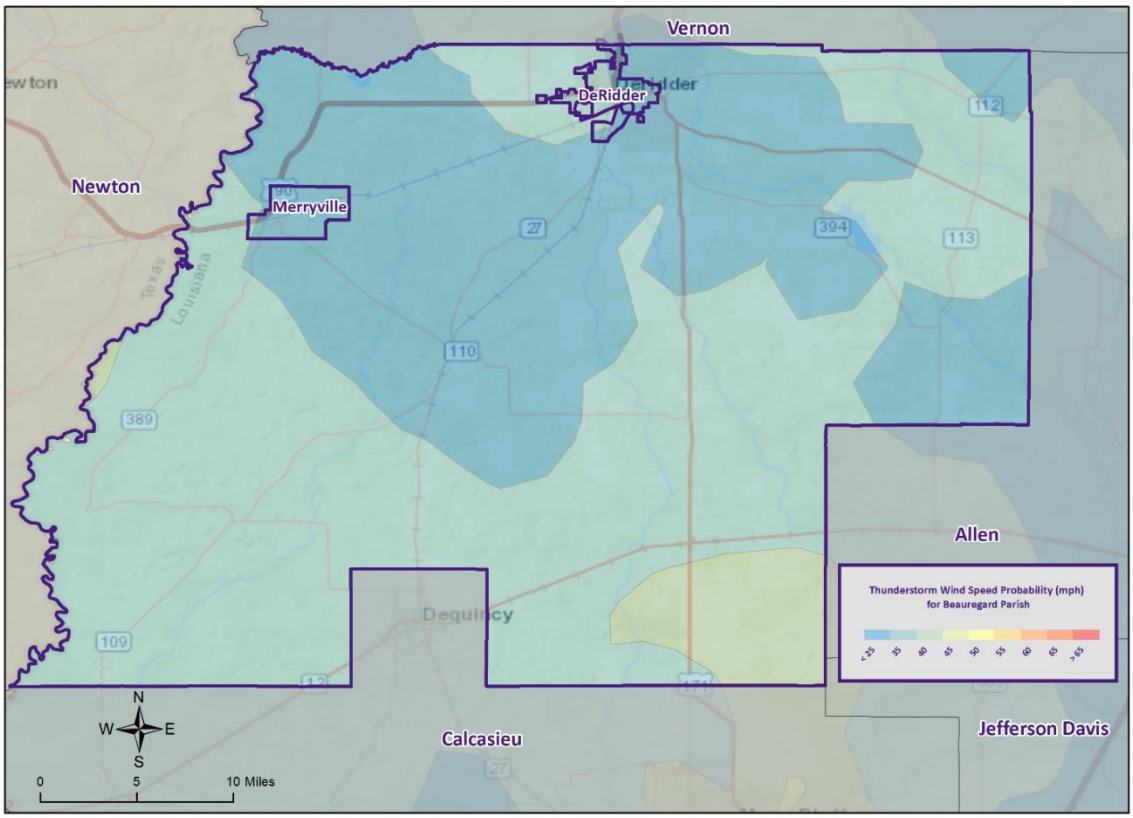


Figure 2-19: Thunderstorm High Wind Speed Probability in Miles Per Hour for Beauregard Parish.

Estimated Potential Losses

Since 1989, there have been 170 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 $1,300,000. 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 $43,333 and $7,647 per event. The following table provides an estimate of potential property losses for Beauregard Parish:

Table 2-38: Estimated Annual Property Losses in Beauregard Parish Resulting from Wind Damage.

Estimated Annual Potential Losses From High Wind Events		
Unincorporated Area	**DeRidder**	**Merryville**
$29,136	$12,856	$1,341

There have been two injuries and no fatalities 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 Beauregard 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 four significant lightning events in Beauregard Parish and its jurisdictions between the years 1989 and 2019. Since the last update, there have been no significant lightning events in Beauregard Parish and its jurisdictions.

Frequency

Lightning can strike anywhere and is produced by every thunderstorm, so the chance of lightning occurring in Beauregard 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. Beauregard Parish experienced no significant lightning events between the years 1989 and 2019 resulting a 13% annual chance of occurrence.

Estimated Potential Losses

Since 1989, there have been four significant lightning events that have resulted in property damages according to NCEI Storm Events Database. The total property damages associated with those events have totaled approximately $35,000. 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 $1,167 and $8,750 per event. The following table provides an estimate of potential property losses for Beauregard Parish:

Table 2-39: Estimated Annual Property Losses in Beauregard Parish resulting from Lightning Damage.

Estimated Annual Potential Losses from Lightning Events		
Unincorporated Area	**DeRidder**	**Merryville**
$784	$346	$36

There have been one injury and two fatalities as a result of a lightning event over the 30-year record.

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 2-40* 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 2-40: Comparison of the Enhanced Fujita (EF) Scale to the Fujita (F) Scale.

	Enhanced Fujita Scale					
	EF0	EF1	EF2	EF3	EF4	EF5
Wind Speed (mph)	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 2-41: 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 of 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*: Doppler 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 Beauregard Parish with actual locations, tornadoes in general are a climatological based hazard and have the same approximate probability of occurring in Beauregard Parish as all of its jurisdictions. Because a tornado has a similar probability of striking anywhere within the planning area for Beauregard Parish, all areas in the parish are equally at risk for tornadoes.

Previous Occurrences / Extent

The NCEI Storm Events Database reports a total of 47 tornadoes or waterspouts occurring within the boundaries of Beauregard Parish since 1989 ranging in extent from F0 to F2 under the Fujita Scale and EF0 to EF3 on the Enhanced Fujita Scale. Beauregard Parish can expect future tornadoes up to an EF3 under the Enhanced Fujita Scale as a worst-case scenario.

The tornado that caused the most damage to property occurred on December 16, 2019. The EF3 tornado began in DeRidder just north of 171 on East 1st Street where it destroyed or damaged nearly 40 structures in its path. Since the 2015 HMP Update, seven tornadoes have occurred within the boundaries of Beauregard Parish. Below is a list and brief description of the impact for the event.

Table 2-42: Historical Tornadoes in Beauregard Parish with Locations since the 2015 Update.

Date	Impacts	Property Damage	Location	Magnitude
January 2, 2017	2.74 mile length with 100 yard path. A tornado touched down south of Ragley, damaging near two dozen homes. Most of the damage was to roofing material, although some homes had trees land on them. Several garages and outbuildings were also damaged or destroyed. Along US Highway 171, several power poles were blown down with debris on the highway. The peak winds were estimated at 110 MPH.	$150,000	KERNAN	EF1
May 12, 2017	3.04 mile path with 267 yard length. The tornado started in the forest southwest of Raymond Spike Rd, then crossed Raymond Spikes Rd at a sharp bend where the tornado was at its widest point. The tornado continued on just to the north of the road where it crossed HWY 109. To the west of HWY 109 the tornado damaged numerous trees and a power pole. After crossing 109 the tornado started weakening and making a southwest turn towards Lucy Ln. where the tornado damaged more trees and a power pole. One of the trees caused severe damage to a barn after falling onto it along Lucy Lane. The maximum estimated wind were 105 MPH.	$15,000	FIELDS	EF1
April 7, 2018	8.92 mile path with 1200 yard length. A tornado touched down along LA Hwy 394 to Bundick Lake, damaging several homes. A mobile home lost most of its roof, and several other homes had trees land on them. The tornado blew trees down along LA Hwy 1147 as well. The max estimated wind speed was 105 MPH.	$300,000	IKES	EF1
October 31, 2018	16.35 mile path with 600 yard length. A tornado formed north of LA 110 west of Longville and moved northeast across Cook McCoy Road where it damaged trees and outbuildings. The tornado crossed Wesley Coleman Road and paralleled Brittney Lane snapping trees and power poles in addition to damaging outbuildings. The tornado reached its maximum width near Keller Road where it snapped numerous pine	$50,000	SINGER	EF1

Date	Impacts	Property Damage	Location	Magnitude
	trees. The tornado continued northeast crossing US 171 south of Memorial Church road. The tornado continued northeastward through rural parts of Beauregard Parish. The tornado crossed Greentown Road where it snapped trees and caused damage to part of a house. The tornado dissipated near LA 391 northwest of Dry Creek. Estimated peak winds were 110 MPH.			
April 25, 2019	3.17 mile path with 500 yard length. A tornado touched down on south side of Highway 112, and lifted along Highway 399 near the Whiskey Chitto. Numerous trees were blown down or snapped with a few trees uprooted. One home had a portion of roof flashing stripped. Maximum estimated winds were 104 MPH.	$5,000	SUGARTOWN	EF1
May 19, 2019	2.6 mile path with 800 yard length. A tornado formed northwest of the first Singer tornado along LA Highway 27 on the north end of Mitchell Loop. This tornado damaged several mobile homes and barns along Jim West Road. Numerous pine trees were snapped or uprooted. Max winds were estimated at 105 mph.	$75,000	CARSON	EF1
December 16, 2019	3.98 mile path with 550 yard length. EF3 tornado touched down and destroyed/damaged 40 structures. Numerous trees and power lines were downed and the max estimated winds was 152 mph.	$2,000,000	DERIDDER	EF3

Frequency / Probability

Tornadoes occur frequently within Beauregard 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 2-20* displays the density of tornado touchdowns in Beauregard Parish and neighboring parishes.

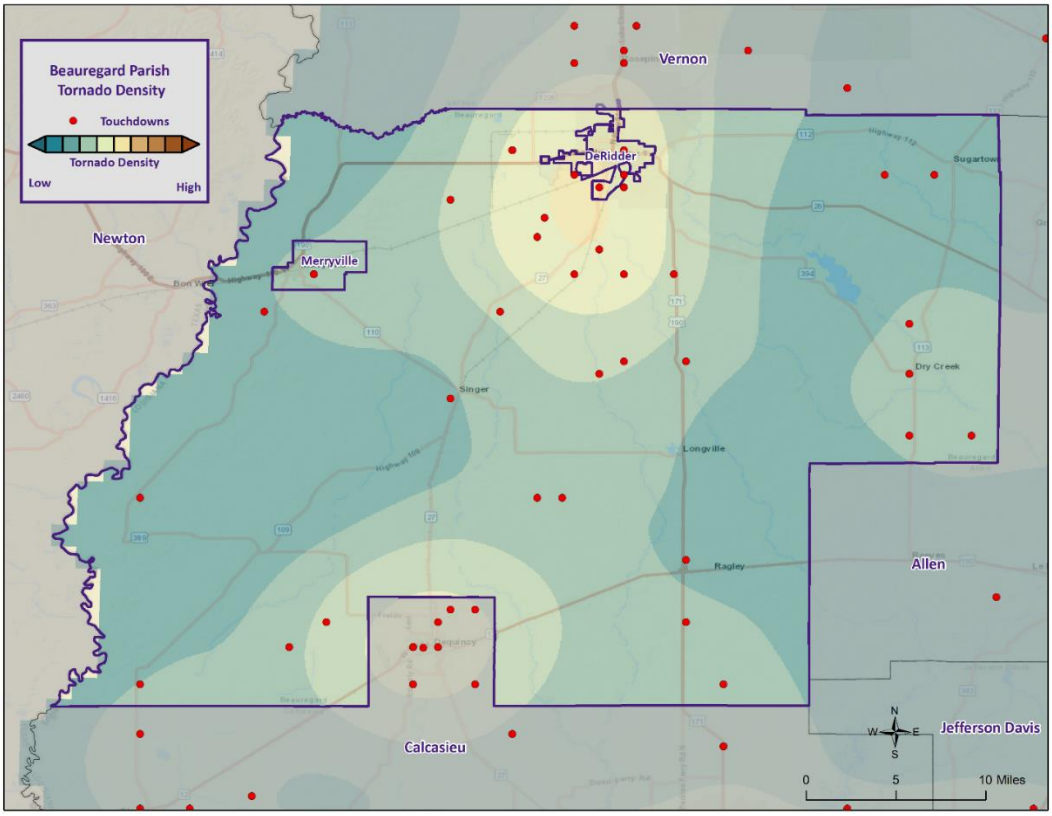


Figure 2-20: Location and Density of Tornadoes to Touchdown in Beauregard Parish. (Source: NOAA/SPC Severe Weather Database)

Estimated Potential Loses

According to the NCEI Storm Events Database, there have been 47 tornadoes that have caused some level of property damage. The total damage from the actual claims for property is approximately $6,854,000 with an average cost of $145,830 per tornado event. When annualizing the total cost over the 30-year record, total annual loses based on tornadoes are estimated to be $228,467. The following table provides an annual estimate of potential losses for Beauregard Parish.

Table 2-43 Estimated Annual Losses for Tornadoes in Beauregard Parish.

Estimated Annual Potential Losses From Tornado Events		
Unincorporated Area	**DeRidder**	**Merryville**
$153,616	$67,783	$7,068

Table 2-44 presents an analysis of building exposure that are susceptible to tornadoes by general occupancy type for Beauregard Parish along with the percentage of building stock that are mobile homes.

Table 2-44: Building Exposure by General Occupancy Type for Tornadoes in Beauregard Parish. (Source: Hazus)

Building Exposure by General Occupancy Type for Tornadoes ($1,000)							
Residential	**Commercial**	**Industrial**	**Agricultural**	**Religion**	**Government**	**Education**	**Mobile Homes (%)**
2,331,594	279,022	79,822	16,514	85,582	30,072	30,986	30.5%

The Parish has suffered through a total of 47 tornado events which have accounted for no fatalities and 24 injuries 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 30.5% of all housing in Beauregard Parish consists of manufactured housing. The location and density of manufactured houses can be seen in *Figure 2-21*.

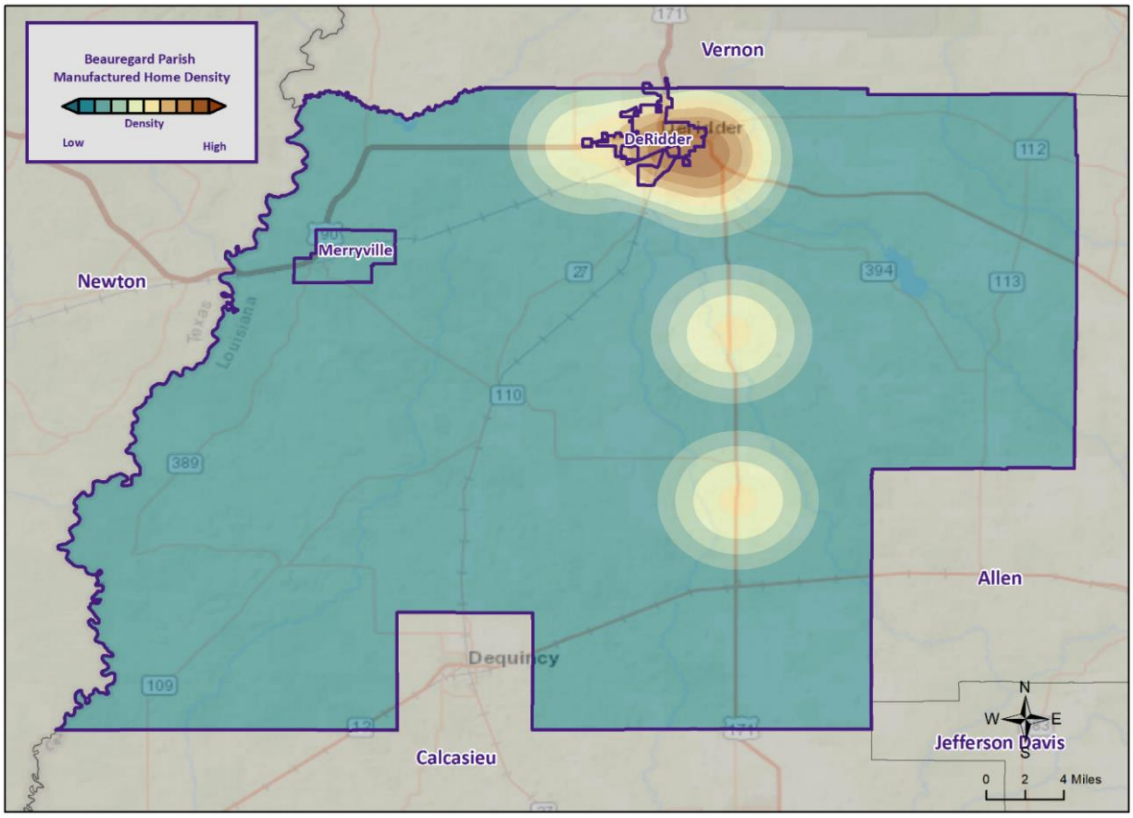


Figure 2-21: Location and Approximate Number of Units in Manufactured Housing Locations throughout Beauregard Parish.

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 2-45: 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 Beauregard Parish planning area. The worst-case scenario for a tropical cyclone event in Beauregard Parish is a Category 3 Hurricane.

Previous Occurrences / Extents

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

Table 2-46: Historical Tropical Cyclone Events in Beauregard Parish from 2002 – 2019.

Date	Name	Storm Type At Time of Impact
October 2, 2002	Lili	Hurricane – Category 1
September 23, 2005	Rita	Hurricane – Category 3
September 13, 2007	Humberto	Hurricane – Category 1
September 1, 2008	Gustav	Tropical Storm
September 12, 2008	Ike	Tropical Storm
September 3, 2011	Lee	Tropical Storm

Since the last Beauregard Parish HMP update in 2015, there have been no tropical cyclone events which have directly impacted the parish and the jurisdictions of DeRidder and Merryville.

The following figure displays the wind zones that affect Beauregard Parish in relation to critical facilities throughout the parish.

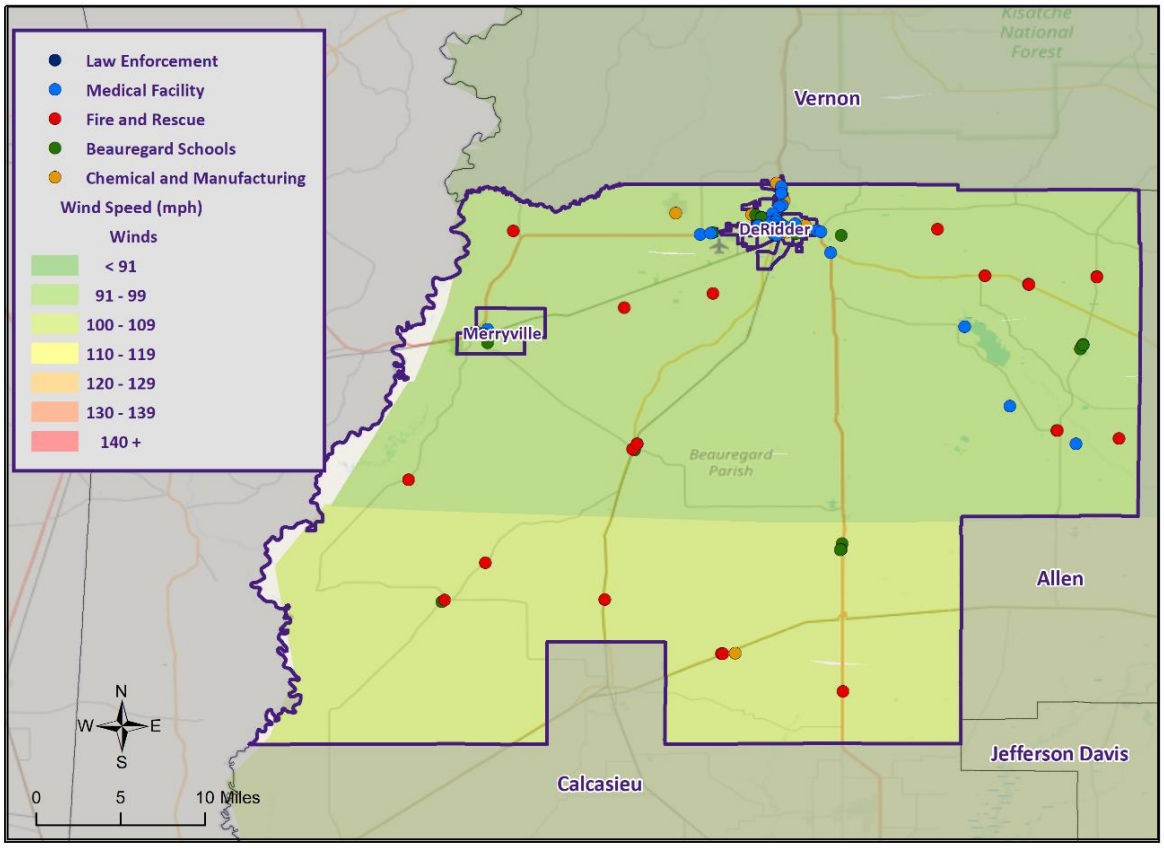


Figure 2-22: Winds Zones for Beauregard Parish in Relation to Critical Facilities

Frequency / Probability

Tropical cyclones are large natural hazard events that regularly impact Beauregard Parish. The annual chance of occurrence for a tropical cyclone is estimated at 35% for Beauregard Parish with six 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 Beauregard 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 2-47: Total Estimated Losses for a 100-Year Hurricane Event (Source: Hazus)

Jurisdiction	Estimated Total Losses from 100-Year Hurricane Event
Beauregard Parish (Unincorporated)	$12,980,820
DeRidder	$5,727,740
Merryville	$597,249
Total	$19,305,809

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

Table 2-48: Ratio of Total Losses to Total Estimated Value of Assets for Beauregard Parish (Source: Hazus)

Jurisdiction	Estimated Total Losses from 100-Year Hurricane Event	Total Estimated Value of Assets	Ratio of Estimated Losses to Total Value
Beauregard Parish (Unincorporated)	$12,980,820	$1,587,766,000	0.8%
DeRidder	$5,727,740	$1,187,604,000	0.5%
Merryville	$597,249	$78,222,000	0.8%

Based on the Hazus Hurricane Model, estimated total losses for Beauregard Parish and its jurisdictions ranged from 0.5% to 0.8% 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 Beauregard Parish by sector are listed in the table on the next page.

Table 2-49: Estimated Losses in Unincorporated Beauregard Parish for a 100-Year Hurricane Event (Source: Hazus)

Beauregard Parish (Unincorporated)	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$30,225
Commercial	$208,233
Government	$16,770
Industrial	$38,153
Religious / Non-Profit	$67,949
Residential	$12,591,421
Schools	$28,069
Total	**$12,980,820**

Table 2-50: Estimated Losses in DeRidder for a 100-Year Hurricane Event (Source: Hazus)

DeRidder	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$13,337
Commercial	$91,882
Government	$7,400
Industrial	$16,835
Religious / Non-Profit	$29,982
Residential	$5,555,919
Schools	$12,385
Total	**$5,727,740**

Table 2-51: Estimated Losses in Merryville for a 100-Year Hurricane Event (Source: Hazus)

Merryville	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$1,391
Commercial	$9,581
Government	$772
Industrial	$1,755
Religious / Non-Profit	$3,126
Residential	$579,332
Schools	$1,291
Total	**$597,249**

Threat to People

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

Table 2-52: Number of People Susceptible to a 100-Year Hurricane Event in Beauregard Parish (Source: Hazus)

Number of People Exposed to Hurricane Hazards			
Location	**# in Community**	**# in Hazard Area**	**% in Hazard Area**
Beauregard Parish (Unincorporated)	23,973	23,973	100%
DeRidder	10,578	10,578	100%
Merryville	1,103	1,103	100%
Total	**35,654**	**35,654**	**100%**

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

Table 2-53: Vulnerable Populations in Unincorporated Beauregard Parish for a 100-Year Hurricane Event (Source: Hazus)

Beauregard Parish (Unincorporated)		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	23,973	100.0%
Persons Under 5 Years	1,664	6.9%
Persons Under 18 Years	4,586	19.1%
Persons 65 Years and Over	3,107	13.0%
White	19,715	82.2%
Minority	4,258	17.8%

Table 2-54: Vulnerable Populations in DeRidder for a 100-Year Hurricane Event (Source: Hazus)

DeRidder		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	10,578	100.0%
Persons Under 5 Years	832	7.9%
Persons Under 18 Years	1,985	18.8%
Persons 65 Years and Over	1,461	13.8%
White	6,306	59.6%
Minority	4,272	40.4%

Table 2-55: Vulnerable Populations in Merryville for a 100-Year Hurricane Event (Source: Hazus)

Merryville		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	1,103	100.0%
Persons Under 5 Years	80	7.3%
Persons Under 18 Years	215	19.5%
Persons 65 Years and Over	174	15.8%
White	894	81.1%
Minority	209	19.0%

Vulnerability

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

Wildfires

A wildfire is combustion in a natural setting, marked by flames or intense heat. Most frequently wildfires are ignited by lightning or unintentionally by humans. Fires set purposefully (but lawfully) are referred to as controlled fires or burns. There are three different types of wildfires. (1) **Ground fires** burn primarily in the thick layers of organic matter directly on the forest floor and even within the soil. Ground fires destroy root networks, peat, and compact litter. These fires spread extremely slowly and can smolder for months. (2) **Surface fires** burn litter and vegetative matter in the underbrush of a forest. (3) **Crown fires** spread rapidly by wind and move quickly by jumping along the tops of trees. There are two types of crown fires—(a) passive (or dependent) crown fires rely on heat transfer from surface fire, whereas (b) active (or independent) crown fires do not require any heat transfer from below. Active crown fires tend to occur with greater tree density and drier conditions. A firestorm is a mass, crown fire (also called a running crown fire, area fire, or conflagration). They are large, continuous, intense fires that lead to violent convection. They are characterized by destructively violent surface in-drafts near and beyond their perimeter. Crown fires are the most damaging and most difficult to contain. The intensity of crown fires enables the fire to produce its own wind gusts. These so-called fire whirls can move embers ahead of the fire front and ignite new fires. Fire whirls are spinning vortex columns of ascending hot air and gases rising from the fire. Large fire whirls have the intensity of a small tornado.

The conditions conducive to the occurrence of wildfires are not distributed equally across the United States. Wildfires have a much greater likelihood of occurring in the western part of the country. Although less frequent than in other areas, wildfires do occur in Louisiana. Wildfire danger can vary greatly season to season and is exacerbated by dry weather conditions. Factors that increase susceptibility to wildfires are the availability of fuel (e.g., litter and debris), topography (i.e., slope and elevation affect various factors like precipitation, fuel amount, and wind exposure), and specific meteorological conditions (e.g., low rainfall, high temperatures, low relative humidity, and winds). The potential for wildfire is often measured by the Keetch–Byram Drought Index (KBDI), which represents the net effect of evapotranspiration and precipitation in producing cumulative moisture deficiency in the soil. The KBDI tries to measure the amount of precipitation needed to return soil to its full field capacity, with KBDI values ranging from 0 (moist soil) to 800 (severe drought).

According to the State of Louisiana Forestry Division, most forest fires in Louisiana are caused by intentional acts (arson) or carelessness and negligence committed by people, exacerbated by human confrontation with nature. The wildland–urban interface is the area in which development meets wildland vegetation, where both vegetation and the built environment provide fuel for fires. As development near wildland settings continues, more people and property are exposed to wildfire danger.

The Southern Group of State Foresters developed the Southern Wildfire Risk Assessment Portal to create awareness among the public and government sectors about the threat of wildfires in their areas. The Southern Wildfire Assessment Portal allows users to identify areas that are most prone to wildfires. The table on the next page summarizes the intensity levels assigned to areas in the Southern Wildfire Assessment Portal.

Table 2-56: Southern Group of State Foresters Wildfire Risk Assessment Fire Intensity Scale. (Source: Southern Wildfire Assessment Portal)

Fire Intensity	
Level	**Definition**
1	Lowest Intensity: Minimal direct wildfire impacts. Location has a minimal chance of being directly impacted by a wildfire.
2	Low Intensity: Small flames usually less than two feet long; small amount of very short range spotting possible. Fires are easy to suppress.
3	Moderate Intensity: Flames up to eight feet in length; short-range spotting is possible.
4	High Intensity: Large flames up to 30 feet in length; short-range spotting common; medium range spotting possible.
5	Highest Intensity: Very large flames up to 150 feet in length; profuse short-range spotting, frequent long-range spotting; strong fire induced winds.

Location

Wildfires impact areas that are populated with forests and grasslands. The worse-case scenario for Beauregard Parish and the jurisdictions of DeRidder and Merryville is a level 4 on the fire intensity scale. The following figure displays the areas of wildland-urban interface and intermix in Beauregard Parish and its jurisdictions.

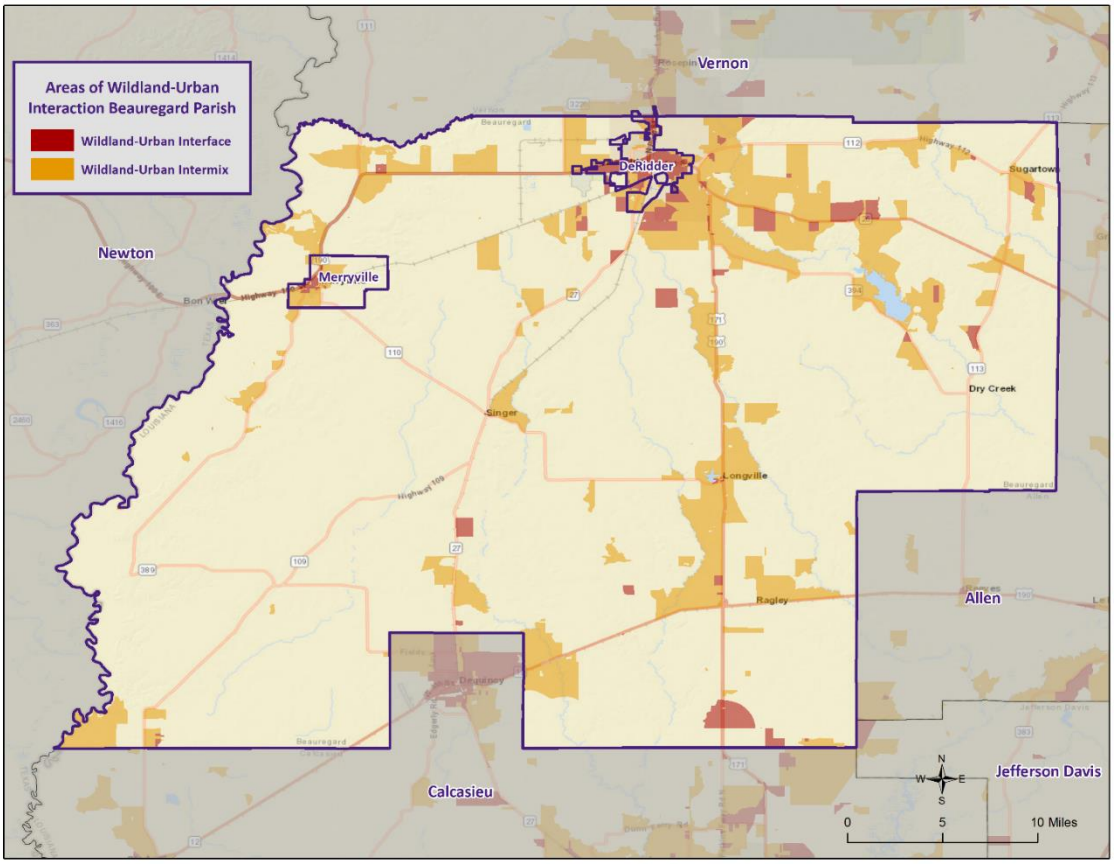


Figure 2-23: Wildland-Urban Interaction in Beauregard Parish.

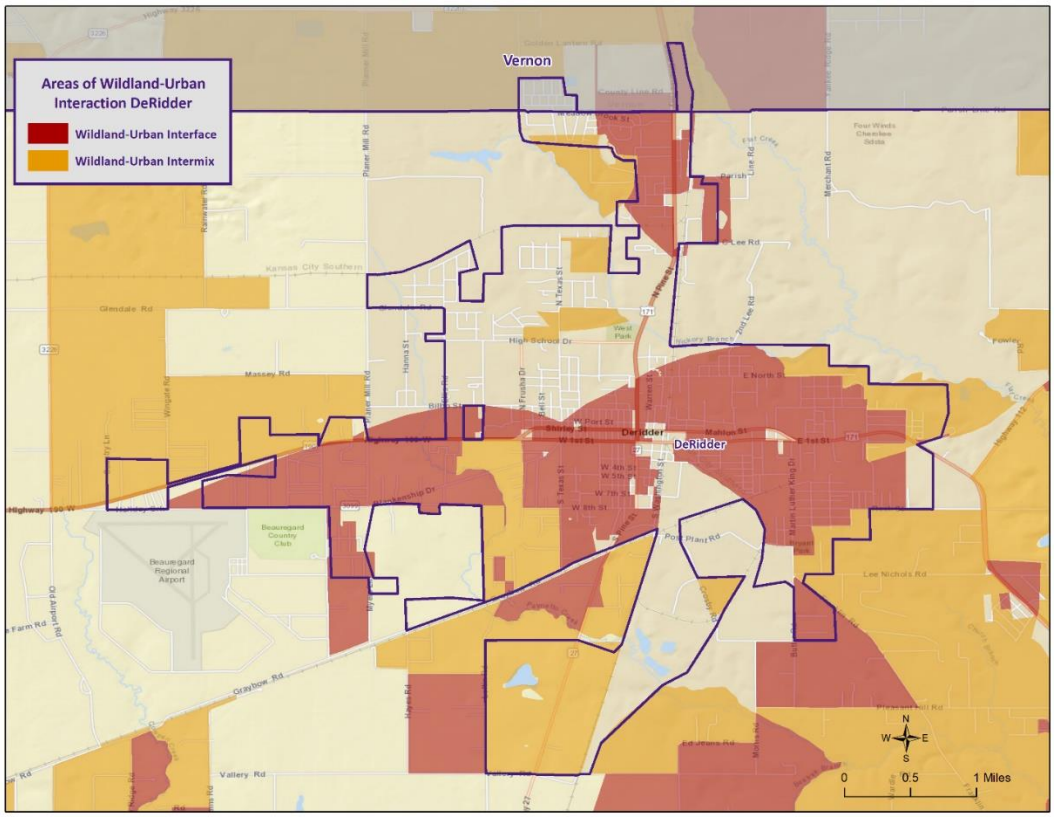


Figure 2-24: Wildland-Urban Interaction in DeRidder.

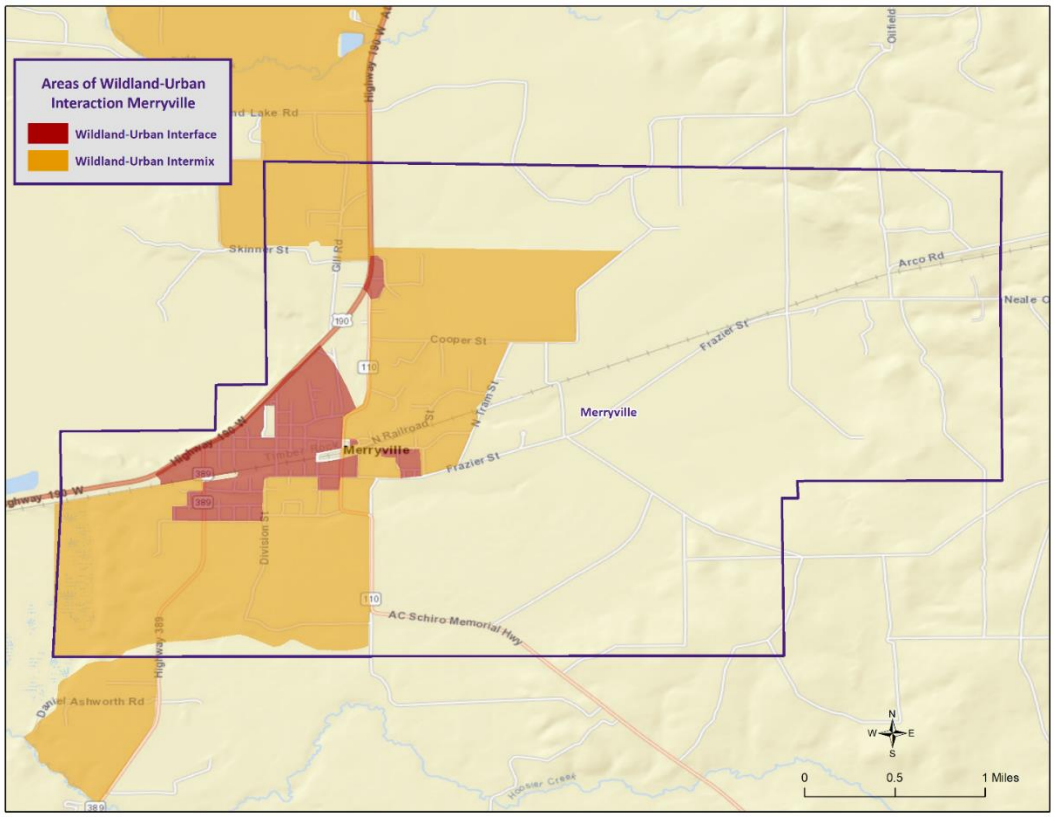


Figure 2-25: Wildland-Urban Interaction in Merryville.

Previous Occurrences / Extents

The NCEI Storm Events report no wildfire events occurring within the boundaries of Beauregard Parish between the years 1989 and 2019.

Frequency / Probability

Based on historical records, there have been no significant wildfire events within the boundaries of Beauregard and the jurisdictions of DeRidder and Merryville; therefore, the annual chance of occurrence for wildfires is estimated at less than 1%.

Estimated Potential Loses

According to the NCEI Storm Events database, there have been no wildfire events which have caused property damage, crop damage, injuries, or fatalities in Beauregard Parish and its jurisdictions. In assessing over risk to population, the most vulnerable population throughout the parish consists of those residing in areas of wildland-urban interaction.

Using Hazus, along with wildland-urban interaction areas, the following table presents an analysis of total building exposure that is located within the wildland-urban interaction areas.

Table 2-57: Total Building Exposure by Wildland-Urban Interaction Areas. (Source: Hazus)

Jurisdiction	Estimated Total Building Exposure
Beauregard Parish (Unincorporated)	$1,429,800,000
DeRidder	$956,392,000
Merryville	$71,575,000
Total	**$2,457,767,000**

Hazus also provides a breakdown by jurisdiction for seven primary sectors (Hazus occupancy) throughout the parish. Utilizing this information with the wildland-urban interaction areas allows for identifying the total exposure by jurisdiction. The total exposure for each jurisdiction by sector is listed in the following tables. These sectors are comprised of privately owned structures/facilities, as well as locally, state, and federally owned structures/facilities.

Table 2-58: Estimated Exposure for Unincorporated Beauregard Parish by Sector. (Source: Hazus)

Beauregard Parish (Unincorporated)	Estimated Total Building Exposure by Sector
Agricultural	$8,859,000
Commercial	$75,049,000
Government	$14,069,000
Industrial	$32,813,000
Religious / Non-Profit	$34,402,000
Residential	$1,253,597,000
Schools	$11,011,000
Total	**$1,429,800,000**

Table 2-59: Estimated Exposure for DeRidder by Sector.
(Source: Hazus)

DeRidder	Estimated Total Building Exposure by Sector
Agricultural	$2,518,000
Commercial	$151,459,000
Government	$7,280,000
Industrial	$34,438,000
Religious / Non-Profit	$28,631,000
Residential	$718,390,000
Schools	$13,676,000
Total	**$956,392,000**

Table 2-60: Estimated Exposure in Merryville by Sector.
(Source: Hazus)

Merryville	Estimated Total Building Exposure by Sector
Agricultural	$98,000
Commercial	$3,705,000
Government	$0
Industrial	$1,741,000
Religious / Non-Profit	$3,262,000
Residential	$62,769,000
Schools	$0
Total	**$71,575,000**

Threat to People

The total population within the parish that is located within a wildland-urban interaction area is shown in the table below:

Table 2-61: Population Located within a Wildland-Urban Interaction Areas.
(Source: 2010 U.S. Census Data)

Number of People Exposed to Hurricane Hazards			
Location	**# in Community**	**# in Hazard Area**	**% in Hazard Area**
Beauregard Parish (Unincorporated)	23,973	8,182	34.1%
DeRidder	10,578	1,293	12.2%
Merryville	1,103	654	59.3%
Total	**35,654**	**10,129**	**28.4%**

The 2010 U.S. Census data was also extrapolated to provide an overview of populations located within wildland-urban interaction areas throughout the jurisdictions. The date is illustrated in the following tables:

Table 2-62: Population in Unincorporated Beauregard Parish Located within a Wildland-Urban Interaction Area.
(Source: 2010 Census Data)

Beauregard Parish (Unincorporated)		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	8,182	34.1%
Persons Under 5 Years	540	6.6%
Persons Under 18 Years	2,062	25.2%
Persons 65 Years and Over	1,154	14.1%
White	6,717	82.1%
Minority	1,465	17.9%

Table 2-63: Population in DeRidder Located within a Wildland-Urban Interaction Area.
(Source: 2010 Census Data)

DeRidder		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	1,293	12.2%
Persons Under 5 Years	102	7.9%
Persons Under 18 Years	290	18.8%
Persons 65 Years and Over	202	13.8%
White	803	59.6%
Minority	490	40.4%

Table 2-64: Population in Merryville Located within a Wildland-Urban Interaction Area.
(Source: 2010 Census Data)

Merryville		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	654	59.3%
Persons Under 5 Years	47	7.3%
Persons Under 18 Years	127	19.5%
Persons 65 Years and Over	103	15.8%
White	530	81.1%
Minority	124	19.0%

Vulnerability

See Appendix C for parish and municipality facilities that could potentially be exposed to a wildfire hazard. Buildings were determined based on whether or not they fall within the wildfire-urban interface and/or intermix.

Winter Weather

For Louisiana and other parts of the southeastern United States, a severe winter storm occurs when humid air from the Gulf of Mexico meets a cold air mass from the north. Once the cold air mass crosses Louisiana, and the temperature drops, precipitation may fall in the form of snow or sleet. If the ground temperature is cold enough but air temperature is above freezing, rain can freeze instantly on contact with the surface, causing massive ice storms.

The winter storm events that affect the state of Louisiana are ice storms, freezes, and snow events. Of the winter storm types listed above, ice storms are the most dangerous. Ice storms occur during a precipitation event when warm air aloft exceeds 32 °F, while the surface remains below the freezing point. Ice will form on all surfaces when precipitation originating as rain or drizzle contacts physical structures. These ice storms are usually accompanied by freezing temperatures and occasionally snow.

Winter storms can be accompanied by strong winds, creating blizzard conditions with blinding, wind driven snow, severe drifting, and dangerous wind chill. These types of conditions are very rare in Louisiana, even in north Louisiana, but ice storms are more common. The climatic line between snow and rain often stalls over north Louisiana, creating ideal conditions for ice accumulation.

In a typical winter storm event, homes and buildings are damaged by ice accumulation, either directly by the weight of the ice on the roofs or by trees and/or limbs falling on buildings. While it is not very prevalent, this type of damage can occur in Louisiana, particularly in north Louisiana. Effects of winter weather more likely to occur in Louisiana, especially southern Louisiana, include extreme temperatures which can cause waterlines to freeze and sewer lines to rupture. This is especially true with elevated or mobile homes, since cold air is able to access more of the building's infrastructure. Winter storms can also have a devastating effect on agriculture, particularly on crops (like citrus) that are dependent on warm weather. Long exposures to low temperatures can kill many kinds of crops, and ice storms can weigh down branches and fruit.

Winter storms are not only a direct threat to human health through conditions like frostbite and hypothermia, but they are also an indirect threat to human health due to vehicle accidents and loss of power and heat, which can be disrupted for days. However, these impacts are rarely seen in Louisiana. As people use space heaters and fireplaces to stay warm, the risk of household fires and carbon monoxide poisoning increases.

Winter storm events occur throughout Louisiana usually during the colder calendar months of December, January, and February. Severe weather events do not occur with the same frequency across all parts of Louisiana. The northern quarter of Louisiana has historically experienced the most severe winter events between 1987 and 2012. The central, and to an even greater extent the southern parts of the state, have experienced the fewest severe winter events. The following table shows the Sperry-Piltz Ice Accumulation Index which is utilized to predict the potential damage to overhead utility systems from freezing rain and ice storms.

Table 2-65: Sperry-Piltz Ice Accumulation Index

Ice Damage Index	Damage and Impact Descriptions
0	Minimal risk of damage to exposed utility systems; no alerts or advisories needed for crews, few outages.
1	Some isolated or localized utility interruptions are possible, typically lasting only a few hours. Roads and bridges may become slick and hazardous.
2	Scattered utility interruptions expected, typically lasting 12 to 24 hours. Roads and travel conditions may be extremely hazardous due to ice accumulation.
3	Numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1 – 5 days.
4	Prolonged and widespread utility interruptions with extensive damage to main distribution feeder lines and some high voltage transmission lines/structure. Outages lasting 5 – 10 days.
5	Catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed.

Location

Because a winter storm is a climatological based hazard and has the same probability of occurring in Beauregard Parish as all of the adjacent parishes, the entire planning area for Beauregard Parish is equally at risk for winter storms. Beauregard Parish and its jurisdictions can expect to experience an ice damage index of 2 on the Sperry-Piltz Ice Accumulation Index as a worst-case scenario.

Previous Occurrences / Extents

The NCEI Storm Events Database reports nine winter weather events wildfire events occurring within the boundaries of Beauregard Parish between the years 1989 and 2019. Below is a brief synopsis of the winter weather events which occurred since the last Beauregard Parish HMP Update in 2015.

Table 2-66: Previous Occurrences for Winter Storm Events

Date	Synopsis	Property Damage	Crop Damage
December 8, 2017	Two to four inches of snow fell across the parish during the morning of the 8th. Schools closed for the day while the snow melted.	$0	$0
January 16, 2018	A light dusting of snow and sleet over a thin glaze of ice occurred during the 16th. Snow accumulations were generally around half an inch or less. Ara travel was interrupted, and area schools canceled classes for a couple of days.	$0	$0

Frequency / Probability

Based on historical records, there have been nine significant winter weather events within the boundaries of Beauregard Parish and the jurisdictions of DeRidder and Merryville; therefore, the annual chance of occurrence for winter weather is estimated at 30%.

Estimated Potential Loses

Since 1989, there have been nine winter weather events that have resulted in property damages according to NCEI Storm Events Database. The total property damages associated with those storms have totaled approximately $10,000. To estimate the potential losses of a winter weather event on an annual basis, the total damages recorded for winter weather was divided by the total number of years of available winter weather in the NCEI Storm Events Database (1989 - 2019). This provides an annual estimated potential loss of $333 and $1,111 per event. The following table provides an estimate of potential property losses for Beauregard Parish.

Table 2-67: Estimated Annual Losses Beauregard Parish and its Jurisdictions Resulting from Winter Weather.

Winter Weather Estimated Annual Potential Losses		
Beauregard Parish (Unincorporated)	**DeRidder**	**Merryville**
$78,301	$6,572	$8,644

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

Vulnerability

See Appendix C for parish and municipality building exposure to winter weather.

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3. Capability Assessment

This section summarizes the results of Beauregard 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, Beauregard 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

Beauregard 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 Beauregard 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 Beauregard 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.				
	Beauregard Parish	DeRidder	Merryville	Comments
Plans	Yes / No			
Comprehensive / Master Plan	No	No	No	
Capital Improvements Plan	Yes	No	No	
Economic Development Plan	No	No	No	
Local Emergency Operations Plan	Yes	Yes	Yes	
Continuity of Operations Plan	Yes	No	No	
Transportation Plan	No	No	No	
Stormwater Management Plan	No	No	No	
Community Wildfire Protection Plan	No	No	No	
Other plans (redevelopment, recovery, coastal zone management)	No	No	No	
Building Code, Permitting and Inspections	Yes / No			
Building Code	Yes	Yes	Yes	
Building Code Effectiveness Grading Schedule (BCEGS) Score		No	No	
Fire Department ISO/PIAL rating	Yes	Yes	Yes	
Site plan review requirements	No	Yes	No	
Land Use Planning and Ordinances	Yes / No			
Zoning Ordinance	No	Yes	Yes	
Subdivision Ordinance	Yes	Yes	No	
Floodplain Ordinance	Yes	Yes	Yes	
Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)	No	No	No	
Flood Insurance Rate Maps	Yes	Yes	Yes	
Acquisition of land for open space and public recreation uses	Yes	Yes	No	
Other	n/a	No	n/a	

Beauregard 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 Beauregard Parish Police Jury provides oversight for building permits and codes, land use planning, and all parish ordinances.

As of the 2020 update, Beauregard 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 Beauregard Parish Police Jury is also responsible for enforcing the parish ordinances related to health and safety, property maintenance standards, and condemnation of unsafe structures.

The Beauregard Parish Police Jury 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, Beauregard 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, Beauregard 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 Beauregard 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.				
	Beauregard Parish	DeRidder	Merryville	Comments
Administration	Yes / No			
Planning Commission	No	Yes	No	
Mitigation Planning Committee	Yes	No	No	
Maintenance programs to reduce risk (tree trimming, clearing drainage systems)	Yes	Yes	No	
Staff	Yes / No			
Chief Building Official	Yes	Yes	No	
Floodplain Administrator	Yes	Yes	Yes	Merryville relies on Parish Floodplain Admin
Emergency Manager	Yes	No	No	
Community Planner	No	Yes	No	
Civil Engineer	Yes	Yes	No	
GIS Coordinator	No	No	No	
Grant Writer	No	No	No	
Other	n/a	No	n/a	
Technical	Yes / No			
Warning Systems / Service (Reverse 911, outdoor warning signals)	No	Yes	No	
Hazard Data & Information	Yes	No	No	
Grant Writing	No	No	No	
Hazus Analysis	No	No	No	
Other	n/a	No	n/a	

Financial capabilities are the resources that Beauregard 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 Beauregard 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.				
	Beauregard Parish	DeRidder	Merryville	Comments
Funding Resource	Yes / No			
Capital Improvements project funding	Yes	Yes	Yes	
Authority to levy taxes for specific purposes	Yes	Yes	No	
Fees for water, sewer, gas, or electric services	No	Yes	Yes	
Impact fees for new development	No	Yes	No	
Stormwater Utility Fee	No	No	No	
Community Development Block Grant (CDBG)	Yes	Yes	Yes	
Other Funding Programs	No	Yes	No	

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.

Beauregard 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.				
	Beauregard Parish	DeRidder	Merryville	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	Yes	No	
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	No	Yes	No	
Natural Disaster or safety related school program	No	No	No	
Storm Ready certification	No	No	No	
Firewise Communities certification	No	No	No	
Public/Private partnership initiatives addressing disaster-related issues	LEPC	Yes	No	
Other	n/a	No	n/a	

The communities within Beauregard Parish rely on Beauregard OHSEP and/or Beauregard Parish Police Jury 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, Beauregard Parish remains committed to expanding and improving on the existing capabilities within the parish. Communities, along with Beauregard 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 Beauregard Parish.

Flood Insurance and Community Rating System

The City of DeRidder is currently a participant in the Community Rating System (CRS), although their status was rescinded as of May 2015. However, reclaiming active participation in the CRS was recognized as an eventual goal by the Hazard Mitigation Steering Committee. Neither Beauregard Parish nor the Town of

Merryville participate in the CRS. 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.

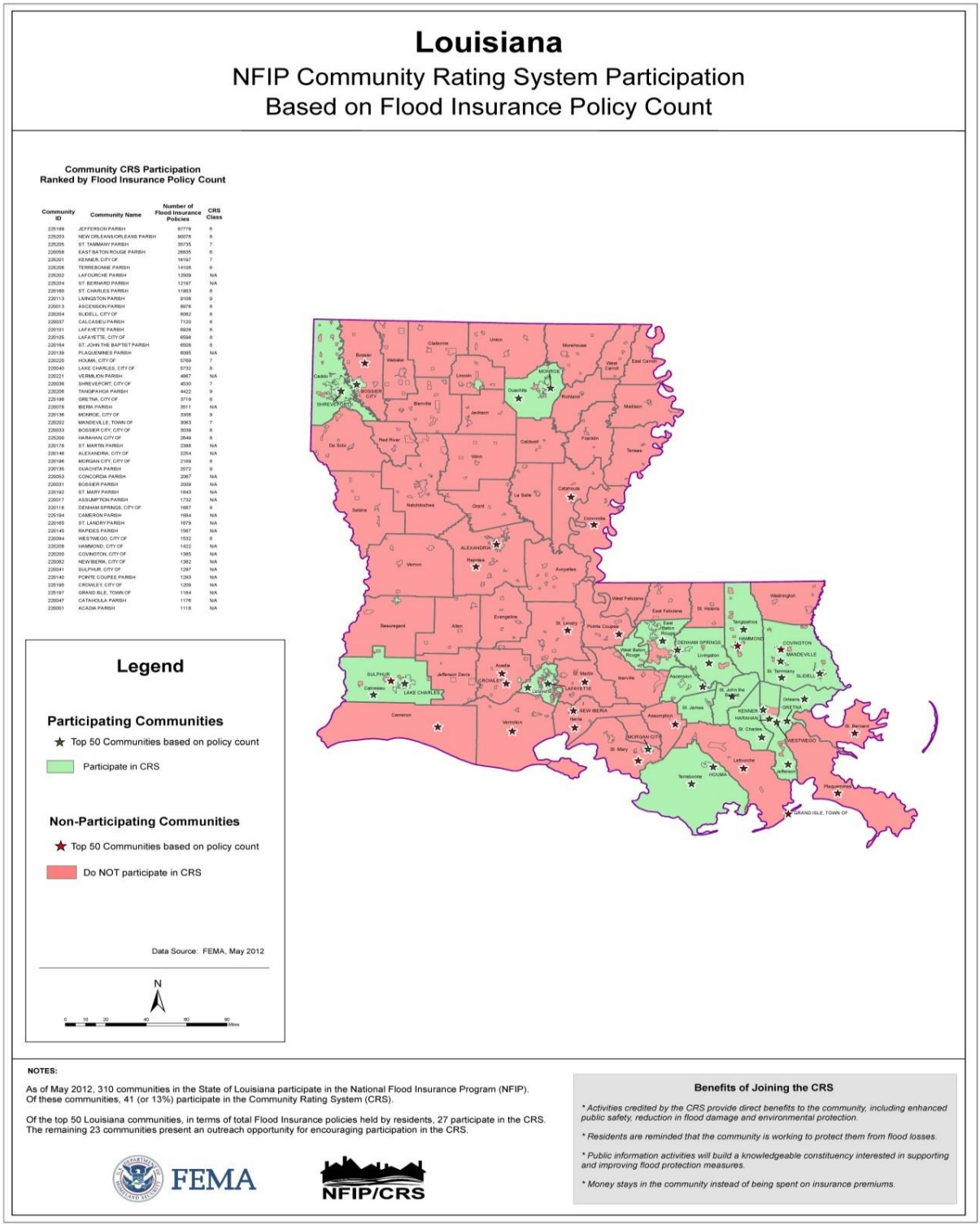
In 2011[1], the National Flood Insurance Program (NFIP) completed a comprehensive review of the Community Rating System (CRS) that resulted in the release of a new CRS Coordinator's Manual. The changes to the 2013 CRS Coordinator's Manual are the result of a multi-year program evaluation that included input from a broad group of contributors to evaluate the CRS and refine the program to meet its

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

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 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.



Community ID	Community Name	Number of Flood Insurance Policies	CRS Class
225199	JEFFERSON PARISH	97779	6
225203	NEW ORLEANS/ORLEANS PARISH	90076	6
225205	ST. TAMMANY PARISH	36735	7
220058	EAST BATON ROUGE PARISH	29835	6
225201	KENNER, CITY OF	16197	7
225206	TERREBONNE PARISH	14108	6
225202	LAFOURCHE PARISH	12509	N/A
225204	ST. BERNARD PARISH	12197	N/A
220160	ST. CHARLES PARISH	11953	6
220113	LIVINGSTON PARISH	9108	9
220013	ASCENSION PARISH	8976	6
220094	SLIDELL, CITY OF	8062	6
220037	CALCASIEU PARISH	7120	6
220101	LAFAYETTE PARISH	6926	6
220105	LAFAYETTE, CITY OF	6596	6
220164	ST. JOHN THE BAPTIST PARISH	6508	6
220139	PLAQUEMINES PARISH	6095	N/A
220220	HOUMA, CITY OF	5769	7
220040	LAKE CHARLES, CITY OF	5732	6
220021	VERMILION PARISH	4967	N/A
220036	SHREVEPORT, CITY OF	4530	7
220206	TANGIPAHOA PARISH	4422	9
225196	GRETNA, CITY OF	3719	6
220078	IBERIA PARISH	3511	N/A
220136	MONROE, CITY OF	3306	9
220202	MANDEVILLE, TOWN OF	3063	7
220033	BOSSIER CITY, CITY OF	3039	6
225200	HARAHAN, CITY OF	2849	6
220176	ST. MARTIN PARISH	2366	N/A
220146	ALEXANDRIA, CITY OF	2254	N/A
220196	MORGAN CITY, CITY OF	2189	6
220135	OUACHITA PARISH	2072	9
220053	CONCORDIA PARISH	2067	N/A
220031	BOSSIER PARISH	2009	N/A
220192	ST. MARY PARISH	1843	N/A
220017	ASSUMPTION PARISH	1732	N/A
220116	DENHAM SPRINGS, CITY OF	1667	6
225194	CAMERON PARISH	1664	N/A
220165	ST. LANDRY PARISH	1679	N/A
220145	RAPIDES PARISH	1567	N/A
220094	WESTWEGO, CITY OF	1532	6
220058	HAMMOND, CITY OF	1402	N/A
220200	COVINGTON, CITY OF	1385	N/A
220082	NEW IBERIA, CITY OF	1382	N/A
220041	SULPHUR, CITY OF	1297	N/A
220140	POINTE COUPEE PARISH	1293	N/A
225195	CROWLEY, CITY OF	1209	N/A
225197	GRAND ISLE, TOWN OF	1184	N/A
220047	CATAHOULA PARISH	1176	N/A
220001	ACADIA PARISH	1118	N/A

Figure 3-2: Louisiana CRS Participation
(Source: FEMA[2])

[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.

4. Mitigation Strategy

Introduction

Beauregard 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.

Beauregard Parish 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 Beauregard Parish Hazard Mitigation Plan Steering Committee under the coordination of the Beauregard 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 July 2020 – December 2020.

An online public opinion survey of Beauregard Parish residents was conducted between July and November 2020. The survey was designed to capture public perceptions and opinions regarding natural hazards in Beauregard 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 Pointe Coupee Parish Hazard Mitigation Plan Steering Committee are representative of the outlook of the community at large. However, because there were so few responses to the survey, this public feedback could not be incorporated into the plan. The full Beauregard Parish survey can be found at the following link:

https://www.surveymonkey.com/r/BeauregardHM2020

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 Beauregard 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, Beauregard 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 Beauregard 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:

1. Improve education and outreach efforts regarding potential impacts of hazards and the identification of specific measures that can be taken to reduce their impact.
2. Improve data collection, use, and sharing to reduce the impacts of hazards.
3. Improve capabilities and coordination to plan and implement hazard mitigation projects.
4. Pursue opportunities to reduce impacts from hazards through mitigation of repetitive and severe repetitive loss properties and other appropriate construction projects and related activities.

The Mitigation Action Plan focuses on actions to be taken by Beauregard 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 Beauregard Parish Hazard Mitigation Plan Steering Committee identified new actions that would reduce and/or prevent future damage within Beauregard 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 Beauregard 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.

Beauregard Parish Previous and New Mitigation Actions

Beauregard Parish - Unincorporated						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
Generator Installation for Critical Facilities	Continue day-to-day operations of the parish and participating jurisdictions during a hazard event through the following methods (but not limited to): Generators for critical facilities, Cooperative Agreements	FEMA, local	1-5 Years	BP Public Works Director	Drought, Wildfire Flooding, Excessive Heat, Tropical Cyclones, Tornadoes, Thunderstorms, Sinkholes	Completed and Carried Over
Acquisition Projects	Mitigate parish flood damage by acquiring properties in the parish.	Currently under a grant for the buy outs and elevations in the Bundick Lake area	1-5 Years	Beauregard Parish OHSEP	Flooding, Tropical Cyclones	In progress
Mitigation Outreach and Education	Public Education Campaign for all hazards, including Brochures, Fliers, PSAs, weather awareness campaigns for schools and local businesses.	Local, FEMA	1-5 Years	Beauregard Parish OHSEP	Drought, Wildfire Flooding, Excessive Heat, Tropical Cyclones, Tornadoes, Thunderstorms, Sinkholes	In Progress
Drainage Retrofit	Ensure usability of roads and buildings that serve a public purpose such as government, healthcare, and school districts by retrofitting drainage structures to reduce flood risk.	FEMA, local	1-5 Years	BP Public Works Director	Flooding, Tropical Cyclones, Thunderstorms	In Progress
Road Improvements, Including Debris Removal	Ensure usability of roads that serve a public purpose such as government, healthcare, and school districts by removing debris from nearby creeks and rivers.	FEMA, local	1-5 Years	BP Public Works Director	Flooding, Tropical Cyclones, Thunderstorms, Tornadoes	Carried Over - Not Started
Elevation Projects	Mitigate parish flood damage by raising properties in the parish.	FEMA, local	1-5 Years	Beauregard Parish OHSEP, BP Public Works Director	Flooding, Tropical Cyclones	Carried Over - Not Started
Relocation Projects	Mitigate parish flood damage by relocating properties in the parish.	FEMA, local	1-5 Years	Beauregard Parish OHSEP, BP Public Works Director	Flooding, Tropical Cyclones	Carried Over - Not Started

Water Restriction Implementation	Implement water rationing program for times of drought	Local	As needed	Beauregard Parish OHSEP, Local	Drought	Carried Over - Not Started
Air Conditioning Accessibility for Vulnerable Populations	Implement programs to provide air conditioning to homeless, elderly, and other vulnerable citizens	FEMA, NOAA, Red Cross, Local	1-5 Years	Beauregard Parish OHSEP	Excessive Heat	Carried Over - Not Started
Building Restrictions for Future Development	Reduce future development, i.e. new buildings, in floodplains and correct inappropriate development already in floodplains, i.e. existing buildings. Methods include (but are not limited to): Modification of codes, zoning, etc.	Police Jury	1-5 Years	BP Public Works Director	Flooding, Tropical Cyclones	Carried Over - Not Started
Capital Improvement Projects - Drainage Improvement	Carry out long-range capital improvements projects to support implementation of projects recommended by the U.S. Army Corps of Engineers related to the Sabine River in order to improve drainage.	FEMA, USA-COE, Local	1-5 Years	BP Public Works Director	Flooding, Tropical Cyclones, Thunderstorms	Carried Over - Not Started
Communications Systems Improvements	Improve communication in the parish by implementing warning systems and communications equipment.	FEMA, Local	1-5 Years	BP Public Works Director	Flooding, Tropical Cyclones, Tornadoes, Thunderstorms, Sinkholes, Wildfires	Carried Over - Not Started
Safe Room Project	Construction of a safe room for first responders in Beauregard Parish	FEMA	1-5 Years	Mayor - City of DeRidder, Beauregard Parish Public OHSEP/BP Public Works Director	Tornadoes, Thunderstorms, 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	Parish Administrator, Beauregard Parish OHSEP/BP Public Works Director	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	Parish Administrator, Beauregard Parish OHSEP/BP Public Works Director	Flooding, Sinkholes, Tornadoes, Tropical Cyclones. Wildfire	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	Parish Administrator, Beauregard Parish OHSEP/BP Public Works Director	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	Parish Administrator, Beauregard Parish OHSEP	Flooding, Sinkholes, Thunderstorms Tornadoes, Tropical Cyclones, Wildfire, Winter Weather	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	Parish Administrator, Beauregard Parish OHSEP	Flooding, Sinkholes, Thunderstorms Tornadoes, Tropical Cyclones, Wildfire	New
Map and Assess Vulnerability to High Wind	Develop and maintain database of current community vulnerability to high wind. Utilize GIS to identify and map areas at risk to wind with different conditions (hurricane categories) to provide better awareness of the hazard to emergency management officials and community members.	HMGP	1-5 Years	Parish Administrator, Beauregard Parish OHSEP	Tropical Cyclones, Thunderstorms	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	Parish Administrator, Beauregard Parish 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	Parish Administrator, Beauregard Parish OHSEP	Flooding, Tropical Cyclones	New

Protect Power Lines and Infrastructure	Establishment of standards for utility companies regarding tree pruning around lines. Burying of powerlines to provide uninterrupted power after severe weather, installation of redundancies and loopfeeds.	HMGP	1-5 years	Parish Administrator, Beauregard Parish OHSEP	Tropical Cyclones, Thunderstorms, Tornadoes, Winter Weather	New
Retrofit of Structures with Ignition Resistant Materials	Installation of non-combustible materials and technologies of existing structures in wildfire hazard areas.	HMGP	1-5 years	Parish Administrator, Beauregard Parish OHSEP	Wildfire	New
Enhance Landscaping Measures	Encourage the use of drought tolerant landscaping measures to reduce dependence on irrigation and promote groundwater recharge	HGMP, Local, Federal	1-5 years	Parish Administrator Beauregard Parish Public Works	Drought	New
Water Distribution Plan	Work with local businesses/water suppliers to develop and implement a water distribution plan for vulnerable populations in advance of periods of excessive heat.	HGMP, Local, Federal	1-5 years	Parish Administrator, Beauregard Parish OHSEP	Excessive Heat	New

City of DeRidder Previous and New Mitigation Actions

City of DeRidder						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
Wind Hardening for Governmental Buildings and Critical Facilities	Ensure adequate public resources in time of disaster by providing retrofits for buildings that will serve an Emergency Response role the event of a natural disaster.	FEMA	1-5 years	Mayor - City of DeRidder, Beauregard Parish OHSEP	Tropical Cyclones, Tornadoes	Carried Over – Not Started
Drainage Retrofit	Ensure usability of roads and buildings that serve a public purpose such as government, healthcare, and school districts by retrofitting drainage structures to reduce flood risk.	FEMA, Local	1-5 years	Mayor - City of DeRidder, BP Public Works Director, Beauregard Parish OHSEP	Flooding, Tropical Cyclones, Thunderstorms	Carried Over – Not Started
Road Improvements, Including Debris Removal	Ensure usability of roads that serve a public purpose such as government, healthcare, and school districts by removing debris from nearby creeks and rivers.	FEMA, Local	1-5 years	Mayor - City of DeRidder, BP Public Works Director, Beauregard Parish OHSEP	Flooding, Tropical Cyclones, Thunderstorms, Tornadoes	Carried Over – Not Started
Acquisition Projects	Mitigate parish flood damage by acquiring properties in the parish.	FEMA, Local	1-5 years	Mayor - City of DeRidder, Beauregard Parish OHSEP	Flooding, Tropical Cyclones	Carried Over – Not Started
Elevation Projects	Mitigate parish flood damage by raising properties in the parish.	FEMA, Local	1-5 years	Mayor - City of DeRidder, BP Public Works Director, Beauregard Parish OHSEP	Flooding, Tropical Cyclones	Carried Over – Not Started
Relocation Projects	Mitigate parish flood damage by relocating properties in the parish.	FEMA, Local	1-5 years	Mayor - City of DeRidder, BP Public Works Director, Beauregard Parish OHSEP	Flooding, Tropical Cyclones	Carried Over – Not Started
Water Restriction Implementation	Implement water rationing program for times of drought	Local	As needed	Mayor - City of DeRidder, BP Public Works Director, Beauregard Parish OHSEP	Drought	Carried Over – Not Started
Mitigation Outreach and Education	Public Education Campaign for all hazards, including Brochures, Fliers, PSAs, weather awareness campaigns for schools and local businesses.	Local, NOAA, FEMA	1-5 years	Mayor - City of DeRidder, BP Public Works Director, Beauregard Parish OHSEP	Drought, Wildfire Flooding, Excessive Heat, Tropical Cyclones, Tornadoes, Thunderstorms, Winter Weather	Carried Over – Not Started

Capital Improvement Projects - Drainage Improvement	Carry out long-range capital improvements projects to support implementation of projects recommended by the U.S. Army Corps of Engineers related to the Sabine River in order to improve drainage.	FEMA, USA-COE, Local	1-5 years	Mayor - City of DeRidder, BP Public Works Director, Beauregard Parish OHSEP	Flooding, Tropical Cyclones, Thunderstorms	Carried Over – Not Started
Communications Systems Improvements	Improve communication in the parish by implementing warning systems and communications equipment.	FEMA, Local	1-5 years	Mayor - City of DeRidder, BP Public Works Director, Beauregard Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Thunderstorms, Wildfires	Carried Over – Not Started
Air Conditioning Accessibility for Vulnerable Populations	Implement programs to provide air conditioning to homeless, elderly, and other vulnerable citizens	FEMA, NOAA, Red Cross, Local	1-5 years	Mayor - City of DeRidder, Beauregard Parish OHSEP	Excessive Heat	Carried Over – Not Started
Safe Room Project	Construction of a safe room for first responders in Beauregard Parish	FEMA	1-5 years	Mayor - City of DeRidder, BP Public Works Director, Beauregard Parish OHSEP	Tornadoes, Thunderstorms	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 - City of DeRidder, BP Public Works Director, Beauregard Parish OHSEP	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 - City of DeRidder, BP Public Works Director, Beauregard 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 - City of DeRidder, BP Public Works Director, Beauregard 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 - City of DeRidder, BP Public Works Director, Beauregard Parish OHSEP	Flooding, Thunderstorms Tornadoes, Tropical Cyclones, Winter Weather	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 - City of DeRidder, BP Public Works Director, Beauregard Parish OHSEP	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 - City of DeRidder, BP Public Works Director, Beauregard Parish OHSEP	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	Mayor - City of DeRidder, BP Public Works Director, Beauregard Parish 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	Mayor - City of DeRidder, BP Public Works Director, Beauregard Parish OHSEP	Flooding, Tropical Cyclones	New
Map and Assess Vulnerability to High Wind	Develop and maintain database of current community vulnerability to high wind. Utilize GIS to identify and map areas at risk to wind with different conditions (hurricane categories) to provide better awareness of the hazard to emergency management officials and community members.	HMGP	1-5 Years	Mayor - City of DeRidder, BP Public Works Director, Beauregard Parish OHSEP	Tropical Cyclones, Thunderstorms	New

Protect Power Lines and Infrastructure	Establishment of standards for utility companies regarding tree pruning around lines. Burying of powerlines to provide uninterrupted power after severe weather, installation of redundancies and loopfeeds.	HMGP	1-5 years	Mayor – City of DeRidder, Beauregard Parish OHSEP	Tropical Cyclones, Thunderstorms, Tornadoes, Winter Weather	New
Retrofit of Structures with Ignition Resistant Materials	Installation of non-combustible materials and technologies of existing structures in wildfire hazard areas.	HMGP	1-5 years	Mayor – City of DeRidder, Beauregard Parish OHSEP	Wildfire	New
Enhance Landscaping Measures	Encourage the use of drought tolerant landscaping measures to reduce dependence on irrigation and promote groundwater recharge	HGMP, Local, Federal	1-5 years	Mayor – City of DeRidder, Beauregard Parish Public Works	Drought	New
Water Distribution Plan	Work with local businesses/water suppliers to develop and implement a water distribution plan for vulnerable populations in advance of periods of excessive heat.	HGMP, Local, Federal	1-5 years	Mayor – City of DeRidder, Beauregard Parish Public Works	Excessive Heat	New

Town of Merryville Previous and New Mitigation Actions

Town of Merryville						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
Relocation Projects	Mitigate parish flood damage by relocating properties in the parish.	FEMA, Local	1-5 Years	Mayor - Town of Merryville, Beauregard Parish OHSEP, BP Public Works Director	Flooding, Tropical Cyclones	Completed and Carried Over
Wind Hardening for Governmental Buildings and Critical Facilities	Ensure adequate public resources in time of disaster by providing retrofits for buildings that will serve an Emergency Response role the event of a natural disaster.	FEMA	1-5 Years	Mayor - Town of Merryville, BP Public Works	Tropical Cyclones, Tornadoes	In Progress
Road Improvements, Including Debris Removal	Ensure usability of roads that serve a public purpose such as government, healthcare, and school districts by removing debris from nearby creeks and rivers.	FEMA, Local	1-5 Years	Mayor - Town of Merryville, BP Public Works	Flooding, Tropical Cyclones, Thunderstorms, Tornadoes	In progress
Mitigation Outreach and Education	Public Education Campaign for all hazards, including Brochures, Fliers, PSAs, weather awareness campaigns for schools and local businesses.	Local, NOAA, FEMA	1-5 Years	Town of Merryville, Beauregard Parish OHSEP	Drought, Wildfire Flooding, Excessive Heat, Tropical Cyclones, Tornadoes, Thunderstorms	In Progress
Drainage Retrofit	Ensure usability of roads and buildings that serve a public purpose such as government, healthcare, and school districts by retrofitting drainage structures to reduce flood risk.	FEMA, Local	1-5 Years	Mayor - Town of Merryville, BP Public Works	Flooding, Tropical Cyclones, Thunderstorms	Carried Over - Not Started
Acquisition Projects	Mitigate parish flood damage by acquiring properties in the parish.	FEMA, Local	1-5 Years	Mayor - Town of Merryville, Beauregard Parish OHSEP	Flooding, Tropical Cyclones	Carried Over - Not Started
Elevation Projects	Mitigate parish flood damage by raising properties in the parish.	FEMA, Local	1-5 Years	Mayor - Town of Merryville, Beauregard Parish OHSEP, BP Public Works Director	Flooding, Tropical Cyclones	Carried Over - Not Started
Water Restriction Implementation	Implement water rationing program for times of drought	Local	As needed	Mayor - Town of Merryville, BP Public Works	Drought	Carried Over - Not Started
Air Conditioning Accessibility for Vulnerable Populations	Implement programs to provide air conditioning to homeless, elderly, and other vulnerable citizens	FEMA, NOAA, Red Cross, Local	1-5 Years	Mayor - Town of Merryville, Beauregard Parish OHSEP	Excessive Heat	Carried Over - Not Started

Building Restrictions for Future Development	Reduce future development, i.e. new buildings, in floodplains and correct inappropriate development already in floodplains, i.e. existing buildings. Methods include (but are not limited to): Modification of codes, zoning, etc.	Police Jury	1-5 Years	Mayor - Town of Merryville, BP Public Works Director	Flooding, Tropical Cyclones	Carried Over - Not Started
Capital Improvement Projects - Drainage Improvement	Carry out long-range capital improvements projects to support implementation of projects recommended by the U.S. Army Corps of Engineers related to the Sabine River in order to improve drainage.	FEMA, USA-COE, Local	1-5 Years	Mayor - Town of Merryville, BP Public Works Director	Flooding, Tropical Cyclones, Thunderstorms	Carried Over - Not Started
Communications Systems Improvements	Improve communication in the parish by implementing warning systems and communications equipment.	FEMA, Local	1-5 Years	Mayor - Town of Merryville, BP Public Works Director	Flooding, Tropical Cyclones, Tornadoes, Thunderstorms, Wildfires	Carried Over - Not Started
Safe Room Project	Construction of a safe room for first responders in Beauregard Parish	FEMA	1-5 Years	Mayor - Town of Merryville, Beauregard Parish OHSEP, BP Public Works Director	Tornadoes, Thunderstorms	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 - Town of Merryville, Beauregard Parish OHSEP, BP Public Works Director	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 - Town of Merryville, Beauregard Parish OHSEP, BP Public Works Director	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 - Town of Merryville, Beauregard Parish OHSEP, BP Public Works Director	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 - Town of Merryville, Beauregard Parish OHSEP	Wildfire, Flooding, Thunderstorms Tornadoes, Tropical Cyclones, Winter Weather	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 - Town of Merryville, Beauregard Parish OHSEP	Wildfire, Flooding, Thunderstorms Tornadoes, 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	Mayor - Town of Merryville, Beauregard Parish OHSEP	Flooding, Tropical Cyclones	New
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Protect Power Lines and Infrastructure	Establishment of standards for utility companies regarding tree pruning around lines. Burying of powerlines to provide uninterrupted power after severe weather, installation of redundancies and loopfeeds.	HMGP	1-5 years	Mayor - Town of Merryville, Beauregard Parish OHSEP	Tropical Cyclones, Thunderstorms, Tornadoes, Winter Weather	New

Retrofit of Structures with Ignition Resistant Materials	Installation of non-combustible materials and technologies of existing structures in wildfire hazard areas.	HMGP	1-5 years	Mayor - Town of Merryville, Beauregard Parish OHSEP	Wildfire	New
Enhance Landscaping Measures	Encourage the use of drought tolerant landscaping measures to reduce dependence on irrigation and promote groundwater recharge	HGMP, Local, Federal	1-5 years	Mayor - Town of Merryville, Beauregard Parish Public Works	Drought	New
Water Distribution Plan	Work with local businesses/water suppliers to develop and implement a water distribution plan for vulnerable populations in advance of periods of excessive heat.	HGMP, Local, Federal	1-5 years	Mayor - Town of Merryville, Beauregard Parish OHSEP	Excessive Heat	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 Beauregard 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. As the priorities of the parish and its communities had not changed from the last plan update, the content of the plan was not altered aside from the hazard updates to reflect the most recent five years between updates.

Beauregard 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.

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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 Beauregard Parish Hazard Mitigation Plan Update

The Beauregard Parish Hazard Mitigation Plan Update process began in July 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
7/09/2020	Kick Off Meeting	Conference Call	No	Discuss with Parish HM Director the expectations and requirements of the project.
7/28/2020	Initial Planning Meeting	DeRidder, LA	No	Discuss with the plan Steering Committee expectations and requirements of the project. Assign plan worksheets to Parish.
10/27/2020	Risk Assessment Overview	DeRidder, LA	No	Discuss and review the Risk Assessment with the Steering Committee. Discuss and review expectations for Public Meeting.
10/27/2020	Public Meeting	DeRidder, 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 Beauregard 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 Beauregard Parish. In addition, questions covered the methods and techniques preferred for reducing the risks and losses associated with these hazards.
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
Plan Revision						
Data Collection						
Risk Assessment						
Public Input						
Mitigation Strategy and Actions						
Plan Review by GOHSEP and FEMA						
Plan Adoption						
Plan Approval						

Coordination

The Beauregard 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:

- Beauregard Parish Police Jury
- Beauregard Office of Homeland Security and Emergency Preparedness
- Beauregard Parish Fire Department
- Beauregard Parish Sheriff Department
- City of DeRidder
- Town of Merryville
- Calcasieu Office of Homeland Security and Emergency Preparedness

The Calcasieu OHSEP Director was invited via email and phone call to participate in an effort to collaborate with neighboring communities. SDMI assisted Beauregard Parish with encouraging the collaboration with these neighboring communities via email by extending an invitation to the Beauregard Hazard Mitigation Plan Update Meetings. The participation of the GOHSEP Region 5 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:

Beauregard Parish Hazard Mitigation Planning Committee				
Name	**Title**	**Agency**	**Email**	**Phone**
Scott Greenmun	Parish Director	Beauregard Sheriff Department/OHSEP	bpso434@yahoo.com	337-460-5447
Glen Mears	N/A	Civilian	gcrr1959@hughes.net	337-526-6108
Ken Harlow	Fire Chief	DeRidder Fire Department	kharlow@cityofderidder.org	337-462-8929
Bryan McReynolds	Parish Manager	Beauregard Police Jury	braynm@beauparish.org	337-463-7019
Sara Sellers	Town Council	Town of Merryville	sarasellers4@gmail.com	337-396-2043
Jay Williams	Fire Dist. 1 Chief	Beauregard Fire Dist. 1	beafiredist1@bellsouth.net	337-375-2138
Wayne Baggett	Fire Dist. 2 Chief	Beauregard Fire Dist. 2	beaufd2@gmail.com	337-794-4462
Daryl Binford	Fire Dist. 3 Chief	Beauregard Fire Dist. 3	darylettexas@aol.com	337-375-4268
Zach Weaver	Fire Dist. 4 Chief	Beauregard Fire Dist. 4	zweaver@bpfd4.org	337-375-5855
Misty Clanton	Mayor	City of DeRidder	mclanton@cityofderidder.org	337-462-8900
Sheila Smith	Interim Mayor	Town of Merryville	bpso434@yahoo.com	337-825-8740

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 Beauregard 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), parish planning and zoning and building code enforcement.

Beauregard 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 Beauregard 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.

- Parish Capital Improvements 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 Beauregard Parish.

Meeting #1: Hazard Mitigation Plan Update Kick-Off

Date: July 9, 2020

Location: Teleconference

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:

Name	Title	Agency
Scott Greenmun	Parish Director	Beauregard Sheriff Department/OHSEP
Lauren Morgan	Associate Director	Stephenson Disaster Management Institute
Chris Rippetoe	Program Manager	Stephenson Disaster Management Institute

Meeting #2: Hazard Mitigation Plan Update Initial Planning Meeting

Date: July 28, 2020

Location: DeRidder, Louisiana

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:

Name	Title	Agency
Scott Greenmun	Parish Director	Beauregard Sheriff
Glen Mears	N/A	Civilian
Ken Harlow	Fire Chief	DeRidder Fire Department
Bryan McReynolds	Parish Manager	Beauregard Police Jury
Sara Sellers	Town Council	Town of Merryville
Jay Williams	Fire Dist. 1 Chief	Beauregard Fire Dist. 1
Wayne Baggett	Fire Dist. 2 Chief	Beauregard Fire Dist. 2
Daryl Binford	Fire Dist. 3 Chief	Beauregard Fire Dist. 3
Zach Weaver	Fire Dist. 4 Chief	Beauregard Fire Dist. 4
Misty Clanton	Mayor	City of DeRidder
Sheila Smith	Interim Mayor	Town of Merryville

Meeting #3: Risk Assessment Overview

Date: October 27, 2020

Location: DeRidder, Louisiana

Purpose: Members of the Beauregard 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:

Name	Title	Agency
Scott Greenmun	Parish Director	Beauregard Sheriff
Glen Mears	N/A	Civilian
Ken Harlow	Fire Chief	DeRidder Fire Department
Bryan McReynolds	Parish Manager	Beauregard Police Jury
Sara Sellers	Town Council	Town of Merryville
Jay Williams	Fire Dist. 1 Chief	Beauregard Fire Dist. 1
Wayne Baggett	Fire Dist. 2 Chief	Beauregard Fire Dist. 2
Daryl Binford	Fire Dist. 3 Chief	Beauregard Fire Dist. 3
Zach Weaver	Fire Dist. 4 Chief	Beauregard Fire Dist. 4
Misty Clanton	Mayor	City of DeRidder
Sheila Smith	Interim Mayor	Town of Merryville

Meeting #4: Public Meeting

Date: October 27, 2020

Location: DeRidder, 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 Beauregard Parish communities were provided for the meeting attendees to identify specific areas where localized hazards occur.

Public Initiation: Yes

Meeting Invitees:

Name	Title	Agency
Scott Greenmun	Parish Director	Beauregard Sheriff
Glen Mears	N/A	Civilian
Ken Harlow	Fire Chief	DeRidder Fire Department
Bryan McReynolds	Parish Manager	Beauregard Police Jury
Sara Sellers	Town Council	Town of Merryville
Jay Williams	Fire Dist. 1 Chief	Beauregard Fire Dist. 1
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Daryl Binford	Fire Dist. 3 Chief	Beauregard Fire Dist. 3
Zach Weaver	Fire Dist. 4 Chief	Beauregard Fire Dist. 4
Misty Clanton	Mayor	City of DeRidder
Sheila Smith	Interim Mayor	Town of Merryville

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 Beauregard 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

Beauregard 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

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

- Ordinances, Resolutions, Regulations
- Floodplain Ordinances
- Capital Improvements Plan
- Emergency Operations Plan
- Continuity of Operations Plan

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 Beauregard 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 Beauregard 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 will provide a copy of the Parish Hazard Mitigation Plan to the appropriate parties and recommend 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.

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 Beauregard Parish Hazard Mitigation Plan Update as follows:

Beauregard Unincorporated

- Capital Improvements Plan – Updated as needed by Beauregard Parish Police Jury
- Local Emergency Operations Plan – Updated as needed by Beauregard Parish OHSEP
- Continuity of Operations Plan – Updated as needed by Beauregard Parish OHSEP

City of DeRidder

- Local Emergency Operations Plan – Updated as needed by Beauregard Parish OHSEP and Mayor of DeRidder

Town of Merryville

- Local Emergency Operations Plan – Updated as needed by Beauregard Parish OHSEP and Mayor of Merryville

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.

Appendix C: Essential Facilities

Beauregard Parish Essential Facilities

Beauregard Parish Unincorporated Essential Facilities												
Type	**Name**	**Drought**	**Excessive Heat**	**Flooding**	**Sinkholes**	**Hail**	**Lightning**	**Wind**	**Tornadoes**	**Tropical Cyclones**	**Wildfires**	**Winter Weather**
Fire and Rescue	District #1 Bivens Station					X	X	X	X	X		
	District #1 Fields Station					X	X	X	X	X		
	District #1 Junction Station					X	X	X	X	X		
	District #1 Office					X	X	X	X	X		
	District #1 Oretta Station					X	X	X	X	X		
	District #1 Pujo Station					X	X	X	X	X		
	District #1 Singer Station					X	X	X	X	X		
	District 4 Station 1 – Three Pines					X	X	X	X	X		
	District 4 Station 3 – Pleasant Hill					X	X	X	X	X		
	District 4 Station 4 – Pine Ridge					X	X	X	X	X		
	Dry Creek Station					X	X	X	X	X		
	Fire Station					X	X	X	X	X		
	Fire Station					X	X	X	X	X		
	Fire Station					X	X	X	X	X		
	Fire Station					X	X	X	X	X		
	Kipling Station					X	X	X	X	X		
	Longacre Station					X	X	X	X	X		
	Singer Station Office					X	X	X	X	X		
	Sugartown Station					X	X	X	X	X		
	Training Center					X	X	X	X	X		
Government	Sewer Treatment Plant					X	X	X	X	X		
	War Memorial Civic Center					X	X	X	X	X		

City of DeRidder Essential Facilities

DeRidder Essential Facilities												
Type	**Name**	**Drought**	**Excessive Heat**	**Flooding**	**Sinkholes**	**Hail**	**Lightning**	**Wind**	**Tornadoes**	**Tropical Cyclones**	**Wildfires**	**Winter Weather**
Fire and Rescue	Bundick Station					X	X	X	X	X	X	
	District 4 Station 2 - Planermill					X	X	X	X	X	X	
Government	DeRidder City Hall					X	X	X	X	X	X	
	Parish E-911 Office					X	X	X	X	X	X	
	Social Security Office					X	X	X	X	X	X	
	Tax Assessors Building					X	X	X	X	X	X	
	Temporary Courthouse					X	X	X	X	X	X	
Law Enforcement	Beauregard Parish Sheriff Office					X	X	X	X	X	X	
	City of DeRidder Police Department					X	X	X	X	X	X	
Public Health	Beauregard Health Systems					X	X	X	X	X	X	
Schools	Carver Elementary School					X	X	X	X	X	X	
	DeRidder High School					X	X	X	X	X	X	
	DeRidder Junior High School					X	X	X	X	X	X	
	K.R. Hanchey Elementary					X	X	X	X	X	X	
	Pinewood Elementary					X	X	X	X	X	X	

Town of Merryville Essential Facilities

Merryville Essential Facilities												
Type	**Name**	**Drought**	**Excessive Heat**	**Flooding**	**Sinkholes**	**Hail**	**Lightning**	**Wind**	**Tornadoes**	**Tropical Cyclones**	**Wildfires**	**Winter Weather**
Fire and Rescue	District #1 Merryville Station					X	X	X	X	X	X	
Government	Community Center					X	X	X	X	X	X	
	Town Barn					X	X	X	X	X		
	Town Hall					X	X	X	X	X	X	
Law Enforcement	Police Station					X	X	X	X	X	X	

Appendix D: Plan Adoption

The following resolution was offered by Shanel Handy and seconded by Kelly Bailey:

RESOLUTION NO. 18-2021

2020 Beauregard Multijurisdictional Hazard Mitigation Plan

WHEREAS the Beauregard Parish Police Jury recognizes the threat that natural hazards pose to people and property within Beauregard Parish; and

WHEREAS the Beauregard Parish Police Jury has prepared a multi-hazard mitigation plan, hereby known as 2020 Beauregard Multijurisdictional Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS 2020 Beauregard Multijurisdictional Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Beauregard Parish from the impacts of future hazards and disasters; and

WHEREAS adoption by the Beauregard Parish Police Jury demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2020 Beauregard Multijurisdictional Hazard Mitigation Plan.

NOW THEREFORE, BE IT RESOLVED BY THE Beauregard Parish Police Jury, LOUISIANA, that in accordance with Louisiana Revised Statue RS 33:1236, the Beauregard Parish Police Jury adopts the 2020 Beauregard Multijurisdictional Hazard Mitigation Plan.

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

YEAS:	Wayne Reeves, Jeffery Meadows, Shanel Handy, Jerry Shirley, Mike Harper, Kelly Bailey, Ronnie Jackson, John Stebbins, Eddie Ware, Chuck Montgomery.
NAYS:	None.
ABSENT:	None.
ABSTAIN:	None.

And the resolution was declared adopted on this, the 13th day of April 2021.

Shantel Alleman
Secretary -Treasurer

Mike Harper
President

STATE OF LOUISIANA

PARISH OF BEAUREGARD

I, SHANTEL ALLEMAN, Secretary-Treasurer of the Police Jury of the Parish of Beauregard, State of Louisiana, DO HEREBY CERTIFY that the foregoing is a true and correct copy of the Resolution adopted by the Police Jury in Regular Session on April 13,2021 and recorded in Minute Book 30 at which meeting a quorum was present. GIVEN UNDER MY OFFICIAL SIGNATURE AND SEAL OF OFFICE THIS 13th DAY OF APRIL 2021.

(SEAL)

SHANTEL ALLEMAN, SECRETARY-TREASURER
BEAUREGARD PARISH POLICE JURY

RESOLUTION NO. R-2021-5

A RESOLUTION ADOPTING THE 2020 BEAUREGARD MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN WITH SECTION 404 OF THE STAFFORD ACT, FEMA AND THE STATE OF LOUISIANA HAZARD MITIGATION DIVISION.

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

WHEREAS, the City of DeRidder has prepared a multi-hazard mitigation plan, hereby known as the 2020 Beauregard Multi-Jurisdictional Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

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

WHEREAS, adoption by the City of DeRidder demonstrates their commitment to hazard mitigation and achieving the goals outlined in the 2020 Beauregard Multi-Jurisdictional Hazard Mitigation Plan

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of DeRidder does hereby adopt the 2020 Beauregard Multi-Jurisdictional Hazard Mitigation Plan in accordance with Section 404 of the Stafford Act, FEMA and the State of Louisiana Hazard Mitigation Division.

THUS, DONE AND ADOPTED on this 12th day of April 2021 by the City Council of the City of DeRidder in Regular Session duly convened in Council Chambers at DeRidder, Louisiana.

ATTEST:

GLENNA LUTHER, CMA/LCMC
CLERK OF THE COUNCIL

RANDY LARKEN
PRESIDENT OF THE COUNCIL

STATE OF LOUISIANA
PARISH OF BEAUREGARD

OFFICE OF CLERK OF COUNCIL
City of DeRidder

CERTIFICATE

I hereby certify that the within and foregoing is a true and correct copy of the original Resolution No. R-2021-5 as adopted by the Council of the City of DeRidder, Louisiana, in Reg session on 12th day of April, 20 21 and is still in full force and effect and on record in my office.

IN TESTIMONY WHEREOF, I witness my official signature and the seal of the office at DeRidder, Louisiana, this 16th day of April, 20 21.

GLENNA L. LUTHER, CLERK OF THE COUNCIL

The following resolution was offered by Councilman Dale Reinhardt and seconded by Councilwoman Carolyn Rhodes

Town of Merryville

Louisiana

RESOLUTION 041221

A RESOLUTION OF THE TOWN OF MERRYVILLE

BEAUREGARD PARISH HAZARD MITIGATION PLAN, 2020

WHEREAS, the Town of Merryville recognizes the threat that natural hazards pose to people and property with the Town of Merryville; and

WHEREAS, the Town of Merryville has prepared a multi-hazard mitigation plan, hereby known as the Beauregard Parish Hazard Mitigation Plan, 2020 in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the Beauregard Parish Mitigation Plan, 2020, identifies mitigation goals and actions to reduce or eliminate long term risk to people and property in the Town of Merryville from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Town of Merryville demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the Beauregard Parish Hazard Mitigation Plan, 2020.

NOW THEREFORE, BE IT RESOLVED BY THE TOWN OF MERRYVILLE, LOUISIANA, THAT:

Section 1. In accordance with the Section 2-1006 of the Lawrson Act, the Town of Merryville adopts the Beauregard Parish Hazard Mitigation Plan, 2020.

ADOPTED by a vote of 4 in favor and 0 against, 0 abstaining and 1 absent, this the 12th day of APRIL, 2021.

By: Shelia L Smith

Shelia L. Smith. Mayor

ATTEST:

By: Jennifer Hatfield

Jennifer Hatfield, Town Clerk

APPROVED AS TO FORM:

BY: Jennifer Hatfield

Jennifer Hatfield, Town Clerk

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

Beauregard Parish Hazard Mitigation Planning Committee				
Name	**Title**	**Agency**	**Email**	**Phone**
Scott Greenmun	Parish Director	Beauregard Sheriff Department/OHSEP	bpso434@yahoo.com	337-460-5447
Glen Mears	N/A	Civilian	gcrr1959@hughes.net	337-526-6108
Ken Harlow	Fire Chief	DeRidder Fire Department	kharlow@cityofderidder.org	337-462-8929
Bryan McReynolds	Parish Manager	Beauregard Police Jury	braynm@beauparish.org	337-463-7019
Sara Sellers	Town Council	Town of Merryville	sarasellers4@gmail.com	337-396-2043
Jay Williams	Fire Dist. 1 Chief	Beauregard Fire Dist. 1	beafiredist1@bellsouth.net	337-375-2138
Wayne Baggett	Fire Dist. 2 Chief	Beauregard Fire Dist. 2	beaufd2@gmail.com	337-794-4462
Daryl Binford	Fire Dist. 3 Chief	Beauregard Fire Dist. 3	darylettexas@aol.com	337-375-4268
Zach Weaver	Fire Dist. 4 Chief	Beauregard Fire Dist. 4	zweaver@bpfd4.org	337-375-5855
Misty Clanton	Mayor	City of DeRidder	mclanton@cityofderidder.org	337-462-8900
Sheila Smith	Interim Mayor	Town of Merryville	bpso434@yahoo.com	337-825-8740

Capability Assessment – Unincorporated Beauregard

Capability Assessment Worksheet – Unincorporated Beauregard		
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	n/a
Capital Improvements Plan	Yes	n/a
Economic Development Plan	No	n/a
Local Emergency Operations Plan	Yes	Updated 2019
Continuity of Operations Plan	Yes	n/a
Transportation Plan	No	n/a
Stormwater Management Plan	No	n/a
Community Wildfire Protection Plan	No	n/a
Other plans (redevelopment, recovery, coastal zone management)	No	n/a
Building Code, Permitting and Inspections	**Yes / No**	**Comments**
Building Code	Yes	n/a
Building Code Effectiveness Grading Schedule (BCEGS) Score		n/a
Fire Department ISO/PIAL rating	Yes	3
Site plan review requirements	No	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)	No	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	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	No	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	n/a
Floodplain Administrator	Yes	n/a
Emergency Manager	Yes	n/a
Community Planner	No	n/a
Civil Engineer	Yes	n/a
GIS Coordinator	No	n/a
Grant Writer	No	n/a
Other	n/a	n/a
Technical	**Yes / No**	**Comments**
Warning Systems / Service (Reverse 911, outdoor warning signals)	No	n/a
Hazard Data & Information	Yes	n/a
Grant Writing	No	n/a
Hazus Analysis	No	n/a
Other	n/a	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	n/a
Authority to levy taxes for specific purposes	Yes	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)	Yes	n/a
Other Funding Programs	No	n/a

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	LEPC	n/a
Other	n/a	n/a

Capability Assessment – City of DeRidder

Capability Assessment Worksheet - City of DeRidder		
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	n/a
Capital Improvements Plan	No	n/a
Economic Development Plan	No	n/a
Local Emergency Operations Plan	Yes	Updated 2019
Continuity of Operations Plan	No	n/a
Transportation Plan	No	n/a
Stormwater Management Plan	No	n/a
Community Wildfire Protection Plan	No	n/a
Other plans (redevelopment, recovery, coastal zone management)	No	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	3
Site plan review requirements	Yes	n/a
Land Use Planning and Ordinances	**Yes / No**	**Comments**
Zoning Ordinance	Yes	n/a
Subdivision Ordinance	Yes	n/a
Floodplain Ordinance	Yes	n/a
Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)	No	n/a
Flood Insurance Rate Maps	Yes	n/a
Acquisition of land for open space and public recreation uses	Yes	n/a
Other	No	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	No	n/a
Maintenance programs to reduce risk (tree trimming, clearing drainage systems)	Yes	n/a
Staff	**Yes / No**	**Comments**
Chief Building Official	Yes	FT
Floodplain Administrator	Yes	FT
Emergency Manager	No	n/a
Community Planner	Yes	FT
Civil Engineer	Yes	Contracted to private firm
GIS Coordinator	No	n/a
Grant Writer	No	n/a
Other	No	n/a
Technical	**Yes / No**	**Comments**
Warning Systems / Service (Reverse 911, outdoor warning signals)	Yes	Utilizes city account with NIXLE
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	Yes	n/a
Authority to levy taxes for specific purposes	Yes	n/a
Fees for water, sewer, gas, or electric services	Yes	n/a
Impact fees for new development	Yes	n/a
Stormwater Utility Fee	No	n/a
Community Development Block Grant (CDBG)	Yes	n/a
Other Funding Programs	Yes	n/a

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	Local community groups who focus on the elderly and low income
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	Yes	All city departments promote public education
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	Yes	Local community church groups designed for disaster response
Other	No	n/a

Capability Assessment – Town of Merryville

Capability Assessment Worksheet - Town of Merryville		
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	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	No	n/a
Transportation Plan	No	n/a
Stormwater Management Plan	No	n/a
Community Wildfire Protection Plan	No	n/a
Other plans (redevelopment, recovery, coastal zone management)	No	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	n/a
Site plan review requirements	No	n/a
Land Use Planning and Ordinances	**Yes / No**	**Comments**
Zoning Ordinance	Yes	n/a
Subdivision Ordinance	No	n/a
Floodplain Ordinance	Yes	n/a
Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)	No	n/a
Flood Insurance Rate Maps	Yes	n/a
Acquisition of land for open space and public recreation uses	No	n/a
Other	n/a	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	No	n/a
Mitigation Planning Committee	No	n/a
Maintenance programs to reduce risk (tree trimming, clearing drainage systems)	No	n/a
Staff	**Yes / No**	**Comments**
Chief Building Official	No	n/a
Floodplain Administrator	Yes	Relies on Parish
Emergency Manager	No	n/a
Community Planner	No	n/a
Civil Engineer	No	n/a
GIS Coordinator	No	n/a
Grant Writer	No	n/a
Other	n/a	n/a
Technical	**Yes / No**	**Comments**
Warning Systems / Service (Reverse 911, outdoor warning signals)	No	n/a
Hazard Data & Information	No	n/a
Grant Writing	No	n/a
Hazus Analysis	No	n/a
Other	n/a	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	n/a
Authority to levy taxes for specific purposes	No	n/a
Fees for water, sewer, gas, or electric services	Yes	n/a
Impact fees for new development	No	n/a
Stormwater Utility Fee	No	n/a
Community Development Block Grant (CDBG)	Yes	n/a
Other Funding Programs	No	n/a

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	n/a	n/a

Building Inventory

Beauregard Parish Owned Building Information								
Beauregard Parish								
Name of Building	Purpose of Building	Address	City	Latitude	Longitude	Assessed Value	Date Built	Construction Type
Ragley Library	Library	6715 Hwy. 12, Suite A	Ragley	30.51083	93.236388	$10,000	n/a	n/a
Fields Library	Library	13487 Hwy. 389	Fields	30.52444	93.575277	$1,000,000	n/a	n/a
Singer Library	Library	9130 Hwy. 27	Singer	30.655	93.413055	$20,000	n/a	n/a
Oretta Fire Station	Fire Department	114 Parker Road	Singer	n/a	n/a	n/a	n/a	n/a
Singer Fire Station	Fire Department	9088 Highway 27	Singer	n/a	n/a	n/a	n/a	n/a
Fire District #1 Office	Fire Department	1287 Newlin Cemetery Road	Singer	30-39.613n	93-24.554w	n/a	n/a	n/a
Singer High School	School	152 Highway 110 East	Singer	n/a	n/a	n/a	n/a	n/a
South Beauregard Elementary School	School	12380 Highway 171	Longville	n/a	n/a	n/a	n/a	n/a
South Beauregard High School	School	151 Longville Church Road	Longville	n/a	n/a	n/a	n/a	n/a
East Beauregard High School	School	5368 Highway 113	Dry Creek	n/a	n/a	n/a	n/a	n/a
East Beauregard Elementary School	School	5364 Highway 113	Dry Creek	n/a	n/a	n/a	n/a	n/a
South Beauregard Water System	Water System	7213 Highway 190 East (Main Office)	Ragley	30-30-619n	93-13.076w	n/a	n/a	n/a
Beauregard Parish Water District 2	Water System	9080 Highway 27 (Main Office)	Singer	30-39.345n	93-24.750w	n/a	n/a	n/a
Beauregard Fire District #1 Main Office	Fire Department	1287 Newline Cem. Road	Singer	30-39.613n	93-24.554w	n/a	n/a	n/a
Oretta Fire Department	Fire Department	114 Parker Road	Singer	30-31.593n	93-26.208w	n/a	n/a	n/a
Singer Fire Department	Fire Department	9088 Highway 27	Singer	30-39.345n	93-24.717w	n/a	n/a	n/a
Beauregard Fire District #2 Main Office	Fire Department	11080 Hwy 171	Longville	30-36.000n	93-13.964n	n/a	n/a	n/a
Longville Fire Department	Fire Department	11078 Highway 171	Longville	30-36.000n	93-13.964n	n/a	n/a	n/a
Ragley Fire Department	Fire Department	160 1st Pentecostal Church Road	Longville	30-31.601n	93-14.084w	n/a	n/a	n/a
Meadow Village Fire Department	Fire Department	16793 Highway 171	Ragley	30-26.872n	93-13.944w	n/a	n/a	n/a
Texas Eastern Fire Department	Fire Department	2190 Texas Eastern Road	Ragley	30-27.437n	93-8.871w	n/a	n/a	n/a
Gordon Fire Department	Fire Department	3285 Highway 12	DeQunicy	30-28.789n	93-20.132w	n/a	n/a	n/a
Dry Creek Fire Department	Fire Department	8352 Highway 394	Dry Creek	30-40.314n	93-2.736w	n/a	n/a	n/a

East Beauregard FD Station #1	Fire Department	3141 Highway 113	Sugartown	30-50.183n	93-2.891w	n/a	n/a	n/a
Beauregard Electric Substation Ragley	Utilities	US 171 and Conley Rd	Ragley	30-31.299n	93-13.964w	n/a	n/a	n/a
Beauregard Electric Substation Longville	Utilities	US 171 (Barnes Creek Area)	Longville	30-39.879n	93-13.964w	n/a	n/a	n/a
Beauregard Electric Substation Dry Creek	Utilities	La. 113 and La. 394	Dry Creek	n/a	n/a	n/a	n/a	n/a
Beauregard Electric Substation DeQunicy/Fields	Utilities	La. 389 at Dee Gilland Rd	DeQuincy	30-31.195n	93-30.234w	n/a	n/a	n/a
Beauregard Electric Substation Junction Area	Utilities	La. 111 and April Road	Junction	30-50.813n	93-30.539w	n/a	n/a	n/a
CLECO Substation Sugartown	Utilities	La. 113 Sugartown	Sugartown	n/a	n/a	n/a	n/a	n/a
Parker Propane	Utilities	La. 27 &Snuffy Rd	Singer	30-35.912n	93-25.854w	n/a	n/a	n/a
Tennessee Gas Pipeline	Transportation	15449 Parish Line Rd.	Kinder	n/a	n/a	n/a	n/a	n/a
Texas Eastern Gas Pipeline	Transportation	2240 Texas Eastern Road	Ragley	30-27.518n	93-8.872w	n/a	n/a	n/a
Transcontinental Gas Pipeline	Transportation	17333 Highway 171	Ragley	30-25.945n	93-13.964w	n/a	n/a	n/a
Trunkline Gas Pipeline	Transportation	Highway 171	Longville	30-35.760n	93-13.964w	n/a	n/a	n/a
Gulf South Pipeline	Transportation	1415 Miller Street	West Lake	n/a	n/a	n/a	n/a	n/a
Temple Inland	Chemical Industry	Highway 12 East	Dequincy	30-28.841n	93-19.766w	n/a	n/a	n/a
US Post Office	Postal and Shipping	8243 Highway 113	Dry Creek	n/a	n/a	n/a	n/a	n/a
US Post Office	Postal and Shipping	126 Longville Road	Longville	30-36.331n	93-13.893w	n/a	n/a	n/a
US Post Office	Postal and Shipping	7619 Highway 190 East	Ragley	30-30.685n	93-12.318w	n/a	n/a	n/a
US Post Office	Postal and Shipping	9054 Singer Highway	Singer	30-39.391n	93-24.731w	n/a	n/a	n/a
Phellps Correctional Center	Government Facilities	14925 Highway 27	DeQuincy	30-29.940n	93-26.204w	n/a	n/a	n/a
Singer School	School	153 Highway 110 East	Singer	30-39.264n	93-24.717w	n/a	n/a	n/a
South Beauregard Lower Elementary School	School	12380 Highway 171	Longville	n/a	n/a	n/a	n/a	n/a
South Beauregard Upper Elementary School	School	12378 Highway 171	Longville	30-35.974n	93-13.964w	n/a	n/a	n/a
South Beauregard High School	School	151 Longville Church Road	Longville	30-35.974n	93-13.964w	n/a	n/a	n/a
East Beauregard High School	School	5368 Highway 113	Dry Creek	30-44.61n	93-1.57w	n/a	n/a	n/a
East Beauregard Elementary School	School	5364 Highway 113	Dry Creek	30-44.61n	93-1.57w	n/a	n/a	n/a
Boy Scouts Camp Edgewood	School	Camp Edgewood Road	DeQuincy	30-26n	93-22w	n/a	n/a	n/a
Dry Creek Baptist Camp	School	8237 Highway 113	Dry Creek	30-40.95n	93-2.74w	n/a	n/a	n/a

DeRidder								
Name of Building	Purpose of Building	Address	City	Latitude	Longitude	Assessed Value	Date Built	Construction Type
Sheriff's Office/Homeland Security	Law enforcement, corrections	412 Bolivar Bishop Drive	DeRidder	30.84194	93.28388	$3,200,000		
Security EOC and Jail Complex								
Police Jury Building	Parish Government Offices	201 West 2nd Street	DeRidder	30.84556	93.2874	$250,000		
Beauregard Parish Library	Library	205 S. Washington Street	DeRidder	30.84528	93.286666	$2,000,000		
BCAA Offices	n/a	204 West 1st. Street	DeRidder	30.84694	93.287777	$660,000		
Annex Buildings	Sheriff and D.A. Office	120 S. Stewart Street	DeRidder	30.84611	93.287222	$885,000		
Temporary Courthouse	Parish Government Offices	201 West 2nd Street	DeRidder	30.84611	93.288611	$900,000		
Parish Activities Building	Community Activities	201 West 2nd Street	DeRidder	30.84556	93.288611	$100,000		
Tax Assessors Building	Parish Government Offices	214 West 2nd Street	DeRidder	30.84611	93.288333	$250,000		
City of DeRidder Sewer Treatment Plant	Governmental	1366 Ball Road	DeRidder	30-46.877n	93-14.510w	$20,000,000	1990	
Pujo Fire Department	Fire Department	2386 Schuetz Rd	DeRidder	30-46.179n	93-30.906w			
Broadlands Fire Department	Fire Department	124 Lee Hall Road	DeRidder	30-43.170n	93-14.291w			
Beauregard Fire District #3 Main Office	Fire Department	5691 Hwy 26	DeRidder					
East Beauregard FD Station #2	Fire Department	4444 Highway 26	DeRidder	30-48.30n	30-06.98w			
East Beauregard FD Station #3	Fire Department	1150 Longacre Road	DeRidder	30-49.601n	93-9.033w			
Pleasant Hill Fire Department	Fire Department	4081 Highway 171	DeRidder	30-47.658n	93-14.554w			
Three Pines Fire Department	Fire Department	354 Three Pines Church Road	DeRidder	30-51.162n	93-12.579w			
Pine Ridge Fire Department	Fire Department	1009 Pine Ridge Road	DeRidder	30-47.413n	93-20.653w			
Planner Mill Fire Department	Fire Department	2061 Bilbo Street	DeRidder	30-51.021n	93-19.041w			
DeRidder Fire Department-Main Office	Fire Department	200 South Jefferson Street	DeRidder	30-46.877n	93-14.510w	$4,000,000	Remodel 1998	
DeRidder Fire Department-Eastside Station	Fire Department	201 Martin Luther King Drive	DeRidder	30-50.673n	93-16.324w	$200,000	1959	
DeRidder Fire Department-Westside Station	Fire Department	102 Wilson Street	DeRidder	30-50.818n	93-17.679w	$400,000	1976	
DeRidder Fire Department-Northside Station	Fire Department	1809 North Pine St	DeRidder	30-52.748n	93-17.107w	$400,000	2006	
Beauregard Parish Sheriff Office	Law Enforcement	412 Bolivar Bishop Dr.	DeRidder	30-50.526n	93-17.017w			

City of DeRidder Police Department	Law Enforcement	200 S Jefferson St	DeRidder	30-46.877n	93-14.510w	$4,000,000	Remodel 1998	
Acadian Ambulance Service	Medical	613 Pittman Street	DeRidder	30-51.187n	93-17.378w			
Cox Communications	Communications	1501 North Pine Street	DeRidder	30-52.353n	93-17.121w			
Beauregard Electric Main Office	Utilities	1010 East 1st St.	DeRidder	30-50.812n	93-14.386w			
Beauregard Electric Substation DeRidder area	Utilities	La. 27 and Maul Rd	DeRidder	30-47.707n	93-18.089w			
CLECO Service Office	Utilities	North Pine Street	DeRidder	30-51.528n	93-17.306w			
CLECO Substation DeRidder	Utilities	Louis st and East 1st st.	DeRidder	30-50.821n	93-15.825w			
DeRidder Propane	Utilities	1044 Eric Green Road	DeRidder	30-48.537n	93-13.289w			
Ferrell Gas	Utilities	2825 Highway 3226	DeRidder	30-50.647n	93-21.197w			
Chase	Financial Institution	111 West 2nd Street	DeRidder	30-50.740n	93-17.233w			
Beauregard Federal Savings and Loan	Financial Institution	122 North Jefferson Street	DeRidder	30-50.812n	93-17.112w			
City Savings Bank	Financial Institution	301 North Pine Street	DeRidder	30-50.812w	93-17.365w			
1st Federal Bank of La.	Financial Institution	519 North Pine Street	DeRidder	30-51.225n	93-17.369w			
First National Bank of DeRidder	Financial Institution	131 N. Washington Ave.	DeRidder	30-50.860n	93-17.162w			
Ampacet	Chemical Industry	125 Ampacet Drive	DeRidder	0-52.164n3	93-16.911w			
Boise Cascade Paper Mill	Chemical Industry	4200 Highway 190 West	DeRidder	30-51.506n	93-22.555w			
GEO Specialty	Chemical Industry	4200 Highway 190 West	DeRidder	30-51.506n	93-22.555w			
Mead Wewstvaco	Chemical Industry	400 Crosby Road	DeRidder	30-49.795n	93.17.102w			
US Post Office	Postal	116 East 4th Street	DeRidder	30-50.666n	93-17.068w			
Wal-Mart Super Center	Retail	1125 North Pine Street	DeRidder	30-51.973n	93-17.179w			
Park Terrace Shopping center	Retail	1000 Block of North Pine Street	DeRidder	30-51.807n	93-17.300w			
East Side Shopping Center	Retail	1000 Block of Mahlon Street	DeRidder	30-50.812n	93-16.340w			
Civic Center Covered Arena	Retail	5515 Highway 190 West	DeRidder	30-50.266n	93-25.128w			
Beauregard Parish Fair Grounds	Community Activities	613 North Pine Street	DeRidder	30-51.241n	93-17.443w			
Amerisafe Insurance	Insurance	2301 Highway 190	DeRidder	30-50.804n	93-19.233w			
Westside Office Complex	Commercial	1807 Hwy 190 West	DeRidder	30-50.827n	93-18.362w			

Beauregard Parish Sheriff Office/Homeland Security-Emergency Preparedness EOC	Governmental	412 Bolivar Bishop Dr.	DeRidder	30-50.526n	93.17.017w			
Beauregard Parish Court House	Governmental	201 West 1st Street	DeRidder	30-50.765n	93-17.250w			
DeRidder City Hall	Governmental	200 S Jefferson St	DeRidder	30-50.705n	93-17.147w	$4,000,000	Remodel 1998	
Beauregard Parish Police Jury Office	Governmental	214 West 2nd Street	DeRidder	30-50.687n	93-17.267w			
Beauregard Parish Public Works Office	Public Works	203 West 3rd Street	DeRidder	30-50.687n	93-17.267w			
Beauregard Parish Library	Library	205 South Washington St.	DeRidder	30-50.699n	93-17.178w			
Social Security Office	Governmental	807 South Pine Street	DeRidder	30-50.306n	93-17.390w			
Beauregard Health Unit	Governmental	216 Evangeline St.	DeRidder	30-50.963n	93-16.394w			
Parish E-911 Office	Governmental	410 Bolivar Bishop Dr.	DeRidder	30-50.526n	93.17.017w			
Beauregard Parish School Board Main Office	School Board	202 West 3rd St.	DeRidder	30-50.687n	93-17.267w			
DeRidder High School	School	723 O'Neal Street	DeRidder	30-51.408n	93-18.354w			
DeRidder Jr. High School	School	415 N. Frusha Drive	DeRidder	30-51.150n	93-18.103w			
Carver Elementary School	School	220 MLK Drive	DeRidder					
Pinewood Elementary School	School	800 Mel Branch Street	DeRidder	30-51.406n	93-17.590w			
K.R. Hanchey Elementary	School	611 N Frusha Dr	DeRidder	30-51.293n	93-18.100w			
Building Blocks Child Care Center	School	500 W 8th St	DeRidder	30-50.361n	93-17.461w			
First Baptist Church Preschool	School	219 W 2nd St	DeRidder	30-50.812	93-17.314w			
Methodist Church First United Pre School Bldg	School	403 W Port St	DeRidder	30-50.812n	93-17.424w			
Mother Goose Day Care And Learning Center	School	130 Ellis Rd	DeRidder					
Beauregard Parish Fair Parade	Community Activities	1st and Pine Streets	DeRidder	30-51.241n	93-17.436w			
War Memorial Civic Center	Community Activities	250 West 7th street	DeRidder	30-50.447n	93-17.334w			
VFW Post 3619	Community Activities	1115 Hwy 27	DeRidder	30-49.896n	93-17.55w			
American Legion	Community Activities	176 Hwy 112	DeRidder	30-50.617n	93-15.103w			

Merryville								
Name of Building	Purpose of Building	Address	City	Latitude	Longitude	Assessed Value	Date Built	Construction Type
Town Hall	Merryville Municipal Building	1009 HWY 110	Merryville			$137,280	1960	Unreinforced Masonry
Police Station	Law Enforcement	1009 Highway 110	Merryville			$85,280	1960	Unreinforced Masonry
Jeff Case Pavilion	Public Gatherings	649 HENNIGAN ST.	Merryville			$50,000	2012	Reinforced Masonry
Community Center	Public Gatherings / Local Shelter Location	3024 S. PINE ST.	Merryville			$46,800	1970	Unreinforced Masonry
Town Barn	Public Works And Equipment Location	3014 S. PINE ST.	Merryville			$32,760	1970	Unreinforced Masonry
Merryville Library	Library	1007 Hwy. 110	Merryville	30.75417	93.540555	$20,000	n/a	n/a
Junction Fire Department	Fire Department	272 Mouth of Creek Road	Merryville	n/a	n/a	n/a	n/a	n/a
Merryville Fire Station	Fire Department	637 Hennigan Street	Merryville	n/a	n/a	n/a	n/a	n/a
Bivens Fire Station	Fire Department	5163 Highway 389	Merryville	n/a	n/a	n/a	n/a	n/a
Fields Fire Station	Fire Department	13491 Highwa389	Merryville	n/a	n/a	n/a	n/a	n/a
Merryville High School	School	7061 Highway 110 West	Merryville	n/a	n/a	n/a	n/a	n/a
Merryville Water System	Water System	530 Hennigan Street (Main Office)	Merryville	30-44.649n	93-33.334w	n/a	n/a	n/a
South Merryville Water System	Water System	3189 Highway 389 (Main Office and Well site)	Merryville	30-40.669n	93-34.800w	n/a	n/a	n/a
Beauregard Electric Substation Merryville	Utilities	La. 389 and Daniel Hollingsworth Rd.	Merryville	n/a	n/a	n/a	n/a	n/a
Eott Energy	Utilities	2001 Neale Oil Filed Road	Merryville	30-45n	93-26w	n/a	n/a	n/a
Sabine State Bank	Financial Institution	1470 Highway 190	Merryville	30-52.416n	93-17.117w	n/a	n/a	n/a
US Post Office	Postal	La. 110	Merryville	30-45.179n	93-32.439w	n/a	n/a	n/a
Play Pen Daycare	School	831 Highway 110 W	Merryville	30-45.478n	93-32.322w	n/a	n/a	n/a

Vulnerable Populations

Vulnerable Populations Worksheet					
Beauregard Parish					
All Hospitals (Private or Public)	**Address**	**City**	**Zip Code**	**Latitude**	**Longitude**
Beauregard Health Systems	600 South Pine Street	DeRidder	70634	30.841528	-93.288336
Oceans Behavioral Hospital	1420 Blankenship Drive	DeRidder	70634	30.841932	-93.31172
MOB Building	501 South Pine Street	DeRidder	70634		
Beauregard Urgent Care	200 West 5th Street	DeRidder	70634		
Cardiology Clinic DeRidder	101 West 6th Street	DeRidder	70634		
Washington Street Clinic	301 South Washington Street	DeRidder	70634		
South Beauregard Health Center	12186 Highway 171	Longville	70634		
BPG Billing Office	401 South Pine Street	DeRidder	70634		
Fourth Street Clinic	109 West 4th Street	DeRidder	70634		
Nursing Homes (Private or Public)	**Address**	**City**	**Zip Code**	**Latitude**	**Longitude**
Westwood Manor Nursing Home	714 High School Drive	DeRidder	70634	30.858009	-93.294229
Beauregard Retirement and Rehab	1420 Blankenship Drive	DeRidder	70634	30.841932	-93.31172
Merryville Rehab Center	900 N. Bryan St.	Merryville	70634		
Mobile Home Parks	**Address**	**City**	**Zip Code**	**Latitude**	**Longitude**
Dixie Trailer Park	131 Crumpler Road	DeRidder	70634	30.836465	-93.292275
Holliday Trailer Park	451 Petty Street	DeRidder	70634	30.840499	-93.342101
Tall Timbers Trailer Park	1507 Bilbo Street	DeRidder	70634	30.850411	-93.30521
Bilbo Trailer Park	1638 Bilbo Street	DeRidder	70634	30.851189	-93.307275
Hickory Creek Mobile Home Park	500 Hickory Creek Loop	DeRidder	70634	30.872223	-93.290281
Pine Grove Estates	1100 Alan Hickman Drive	DeRidder	70634	30.845771	-93.264234
Clear Creek Trailer Park	445 Cooper Street	Merryville	70634		
Pine Grove Estates	1100 Alan Hickman Drive	DeRidder	70634		
A & B Mobile Home Park	1246 Highway 112	DeRidder	70634		
Back 40 RV Park	690 Highway 26	DeRidder	70634		
Burnett Trailer Park	Kmatt Drive	Dequincy	70634		
Bypass Trailer Park	2844 Highway 3226	DeRidder	70634		
C & B Trailer Park	422 Tilley Street	DeRidder	70634		
Mathis Trailer Park	193 Thunder Valley Road	DeRidder	70634		
Camp Edgewood	3419 Camp Edgewood Road	Dequincy	70634		
Juanita Mobile Home Park	100 Cloud Loop	Singer	70634		

D & A Mobile Home Park	Herman Smith Road	DeRidder	70634		
Evergreen Mobile Home Park	7643 Highway 171	Longville	70634		
Fees Trailer Park	Granberry Road	DeRidder	70634		
G & A Trailer Park	Kulaga Road	DeRidder	70634		
G & S Trailer Park	411 Tilley Street	DeRidder	70634		
Holidays Mobile Home Park	422 Louis Street	DeRidder	70634		
Mockingbird Mobile Home Park	114 Mockingbird Lane	DeRidder	70634		
Legend Lane Trailer Park	1685 Highway 27	DeRidder	70634		
Longville Lake Trailer Park	711 South Highway 110	Longville	70634		
Longville RV Park and Campground	Longville Lake	Longville	70634		
Pine Hill Mobile Home Park	Highway 26	DeRidder	70634		
Pates Trailer Park	Franklin Road	DeRidder	70634		

National Flood Insurance Program (NFIP)

National Flood Insurance Program (NFIP)			
	Beauregard Parish	**DeRidder**	**Merryville**
Insurance Summary			
How many NFIP polices are in the community? What is the total premium and coverage?	300; $71,179,700; $163,619	n/a; $39,495; $16,222,400	n/a; $850; $242,000
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?	513, $7,170,888	63	4
How many structures are exposed to flood risk with in the community?	212	67	2
Describe any areas of flood risk with limited NFIP policy coverage.	n/a	n/a	n/a
Staff Resources			
Is the Community FPA or NFIP Coordinator certified?	No	Yes	No
Is flood plain management an auxiliary function?	No	Yes	No
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability)	Parish permit tech under parish administrator	Permit Review, Education Outreach, Inspection	No
What are the barriers to running an effective NFIP program in the community, if any?	None	None	No
Compliance History			
Is the community in good standing with the NFIP?	Yes	Yes	Yes
Are there any outstanding compliance issues(i.e., current violations)?	No	No	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact(CAC)?	Unknown	2019	Unknown
Is a CAV or CAC scheduled or needed? If so when?	No	As needed	Unknown
Regulation			
When did the community enter the NFIP?	5/3/1990	2/1/1987	10/19/1982
Are the FIRMs digital or paper?	Both	Both	Digital

Do floodplain development regulations meet or exceed FEMA or State minimum requirements? If so, in what ways?	Yes	Review Process to meet all minimum state and federal standards	Unknown
Community Rating System (CRS)			
Does the community participate in CRS?	No	Yes	No
What is the community's CRS Class Ranking?	n/a	10	n/a
Does the plan include CRS planning requirements?	n/a	Yes	n/a