BEAUREGARD
PARISH HAZARD MITIGATION UPDATE - 2015

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BEAUREGARD PARISH
HAZARD MITIGATION PLAN UPDATE

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Beauregard Parish

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ACKNOWLEDGMENTS

This 2015 Beauregard Parish Hazard Mitigation Plan Update was coordinated by the Beauregard Parish Hazard Mitigation Plan Update Steering Committee, in collaboration with the participating jurisdictions as well as community stakeholders and the general public. The participating jurisdictions are made up of the following communities:

Beauregard Parish
Town of Merryville
City of DeRidder

Special thanks is directed to all of those who assisted in contributing feedback and expertise 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 2015 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: P.O. Box 370, DeRidder, LA, 70634.

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Contents

Section 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 resistant. Information in the plan will be used to help guide and coordinate mitigation activities and local policy decisions affecting future land use.

The Beauregard Parish HMPU is a multi-jurisdictional plan that includes the unincorporated areas of the parish as well as the following incorporated communities which participated in the planning process:

1. Town of Merryville
2. City of DeRidder.

Localized but unincorporated settlements within the parish are included in this plan, as well as additional intra-parish districts and organizations within Beauregard Parish that participated in the planning process.

This plan addresses natural hazards only. The HMPU Committee agreed at its first meeting not to pursue human-caused hazards in this update. Although the Federal Emergency Management Agency (FEMA) encourages integration of human-caused hazards into the mitigation planning process, the scope of this effort did not address these human-caused hazards for three reasons. First, planning activities for mitigation of and emergency response to human-caused hazards are the responsibility of specially designated organizations. Secondly, the Disaster Mitigation Act of 2000 (DMA) requires extensive public information and input conflicting with security and confidentiality issues associated with elements such as chemical hazards deemed to be particularly vulnerable to terrorist acts.

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.

The DMA requires state and local governments to develop and periodically update hazard mitigation plans to maintain eligibility for certain federal disaster assistance and hazard mitigation funding programs. Compliance with these requirements will maintain continued eligibility for certain hazard mitigation grant programs from FEMA for each organization participating in this planning process.

Location, Demography, and Economy

LOCATION

This plan will identify cost effective and environmentally sound mitigation strategies that will reduce or eliminate long-term risk to human life and property from natural hazards. Implementation of this plan can reduce the enormous cost of disasters to property owners and all levels of government. Mitigation strategies often include protecting critical community facilities, reducing exposure to liability and minimizing community disruption. Land development planning, adoption of building codes, elevation of

homes, and acquisition and relocation of homes away from floodplains are just a few examples of mitigation strategies.

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 – DeRidder and Merryville (see Figure 1 below). Merryville is located on the western boundary of the parish and relies heavily on tourism and agribusiness for its economic viability. DeRidder is located in the northern boundary of the parish.

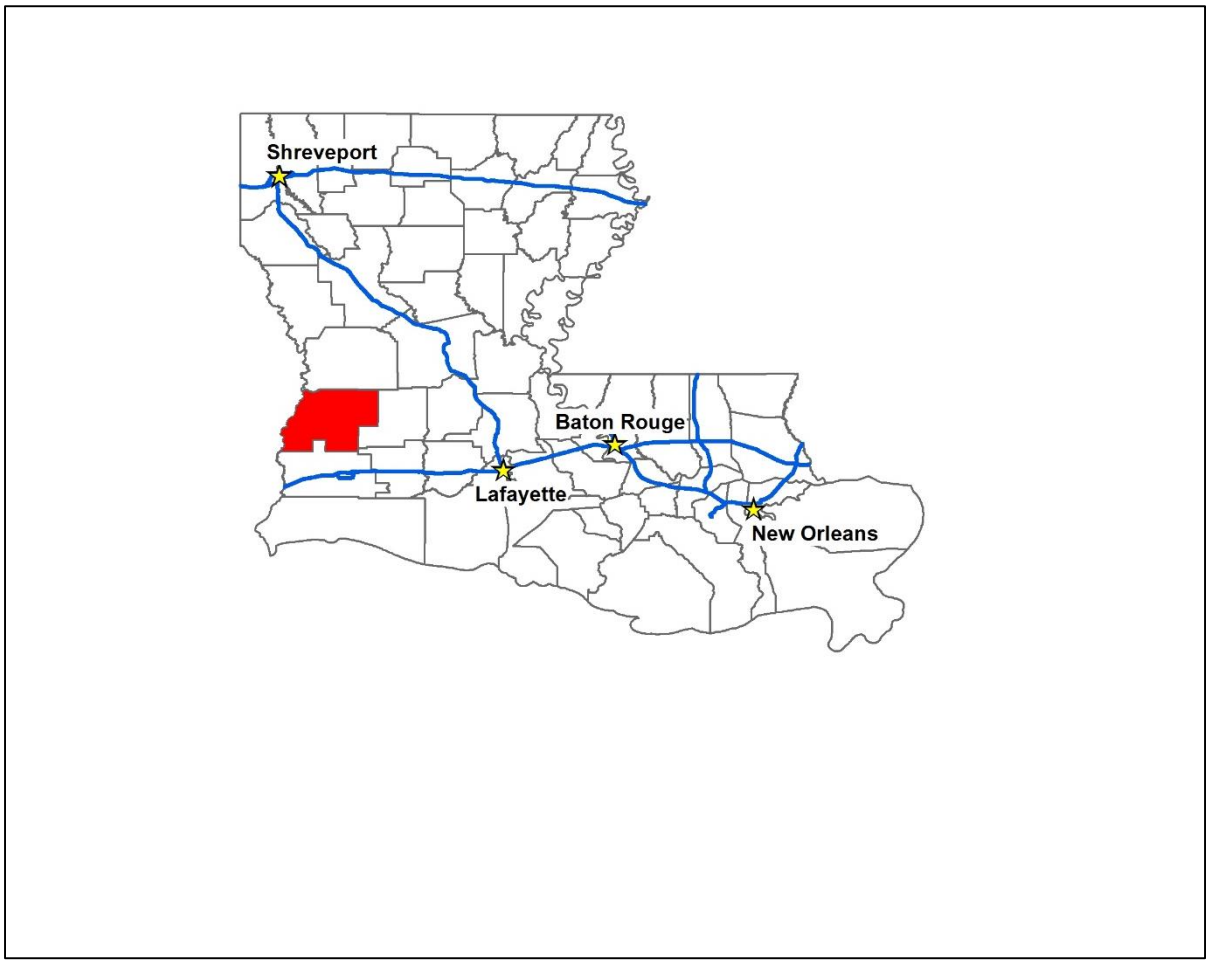

Figure 1-1: Beauregard Parish Highlight

DEMOGRAPHY

Recent demographic data and projections are shown in the following table (US Census 2013):

Table 1-1: Beauregard Parish Demographic Statistics

	2010 Census	2013 Census	2014 Estimate	Percent Change 2010 -2013	Percent Change 2010 -2014
Total Population	35,654	36,223	36,198	1.6%	1.5%
Population Density (Pop/Sq. Mi)	30.8	____	____	____	____
Total Households	12,948	12,948	____	____	0%

ECONOMY

Table 1-2: Beauregard Parish Business Patterns

Business Description	Number of Employees	Number of Establishments	Annual Payroll ($1,000)
Agriculture, Forestry, Fishing and Hunting	313	37	$10,123
Mining, Quarrying and Oil and Gas Extraction	20-99	8	$1,498
Utilities	100-249	5	n/a
Construction	630	59	$76,803
Manufacturing	813	19	$58,936
Wholesale Trade	75	14	$3,134
Retail Trade	1,284	103	$29,747
Transportation and Warehousing	112	30	$5,800
Information	20-99	4	n/a
Finance and Insurance	500-999	51	n/a
Real Estate and Rental and Leasing	65	21	$2,421
Professional, Scientific, and Technical Services	189	48	$5,619
Management of Companies and Enterprises	20-99	2	n/a
Administrative and Support and Waste Management and Remediation Services	137	21	$3,234
Educational Services	0-19	2	n/a
Health Care and Social Assistance	1,129	66	$36,291
Arts, Entertainment, and Recreation	20-99	3	n/a
Accommodation and Food Services	636	34	$8,711
Other Services (Except Public Administration)	410	73	$6,476

Retail trade is the largest employment base in Beauregard Parish. It is followed closely by the Health Care and Social Assistance, and Manufacturing industries. These three economic sectors constitute nearly 48% of parish wide employment.

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.

Figure 1-1: The four phases of emergency management and their relation to future hazard mitigation
(Source: Louisiana State Hazard Mitigation Plan 2014).

General Strategy

Part of the ongoing integration process is that GOHSEP encourages the parishes and the local municipalities 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 2015 Beauregard Parish Hazard Mitigation Plan (HMP) maintains much of the information from the 2006 and 2010 plan versions, but it now reflects the order and methodologies of the 2014 Louisiana State Hazard Mitigation Plan. The sections in the 2010 Beauregard HMP were as follows:

- Section One Foreword
- Section Two The Multi-Jurisdictional Hazard Mitigation Plan Update
- Section Three Developing the Plan Update
- Section Four Getting to Know Beauregard Parish
- Section Five Hazard Identification, Frequency, and Severity
- Section Six Assets and Vulnerable Population
- Section Seven Repetitive Loss Properties
- Section Eight Potential Losses and Hazard Rankings
- Section Nine Mitigation Strategy

- Section Ten Plan Maintenance
- Section Eleven Appendices
- Appendices

This plan update now 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 Planning 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.

2015 Plan Update

This 2015 plan update proceeds with four goals outlined in the State Hazard Mitigation Plan and included in the previous Beauregard Parish hazard mitigation plan. The current goals are as follows:

Goal 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.

Goal 2: Improve data collection, use, and sharing to reduce the impacts of hazards.

Goal 3: Improve capabilities and coordination to plan and implement hazard mitigation projects.

Goal 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. First, the Spatial Hazard Events and Losses Database for the United States (SHELDUS) was used as a data source for hazard identification because it incorporates all storm event data from the National Climatic Data Center (NCDC) Storm Events Database used in previous plans, as well as storm event data from other sources including the NOAA Storm Prediction Center, National Hurricane Center, and U.S. Fire Administration. Furthermore, all of the sections were updated to reflect the most current information and the most current vision of the plan update. In addition, the present plan update has four sections and five appendices. The most significant changes are the newly developed hazard profiles and Risk Assessments, the removal of much repetition between sections from the previous plan updates. The 2015 plan update is organized generally as follows:

- 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: Plan Change Crosswalk

2010 Plan	Revised Plan (2015)
Section 1: Foreword	Section 1: Introduction
Section 2: The Multi-Jurisdictional Hazard Mitigation Plan Update	Section 1: Introduction
Section 3: Developing the Plan Update	Appendix A: Planning Process
Section 4: Getting to Know Beauregard Parish	Section 1: Introduction
Section 5: Hazard Identification, Frequency and Severity	Section 2: Hazard Identification and Parish Wide Risk Assessment
Section 6: Assets and Vulnerable Population	Section3: Capability Assessment, Appendix E: State Required Worksheets
Section 7: Repetitive Loss Properties	Section 2: Hazard Identification and Parish Wide Risk Assessment
Section 8: Potential Losses and Hazard Rankings	Section 2: Hazard Identification and Parish Wide Risk Assessment
Section 9: Mitigation Strategy	Section 4: Mitigation Strategy
Section 10: Plan Maintenance	Appendix B: Plan Maintenance
Section 11: Appendices	Appendices

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 municipalities.

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Section 2: Hazard Identification and Parish Wide Risk Assessment

This section assesses the various hazard risks 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 provided an overview of the hazards that had been previously profiled in the Beauregard Parish Hazard Mitigation plan published in 2010, as well as the hazards that were identified in the State's 2014 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 2015 Update
Coastal Land Loss/Subsidence			
Drought	X		X
Earthquakes			
Expansive Soils			
Fog			
Floods	X	X	X
Excessive Heat	X		X
Sinkhole		X	X
Termites			
Thunderstorms (Hail, Lightning & Wind)	X	X	X
Tornado	X	X	X
Tropical Cyclones	X	X	X
Wildfires	X		X
Winter Storm			

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

a) **Flooding (backwater, riverine, localized storm water event)**
b) **Tropical Cyclones (flooding and high winds)**

c) **Wildfires**
d) **Tornadoes**
e) **Sinkholes**
f) **Excessive Heat**
g) **Thunderstorms (Hail, Lightning, Wind)**
h) **Drought**

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

- Flooding from rivers and waterways, rain storms, tropical storms, and hurricanes in the following forms:
  - Storm Water
  - Riverine
  - Surge
  - Back water flooding (as the result of river flooding and surge)
- High wind damage most commonly resulting from hurricanes, thunderstorms and tornadoes
- Property and crop damage resulting from drought, excessive heat, and wildfires.

The potential destructive power of tropical cyclones and flooding were determined to be the most prevalent hazards to the parish. Twelve of the thirteen presidential declarations Beauregard Parish has received resulted from either tropical cyclones (six declarations) or flooding (six declarations) which validates these as the most significant hazard. Therefore, the issue of hurricanes and floods will both 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 potential destructive potential, the risk assessment will also assess non-storm surge flooding as well. Flooding can also occur from non-hurricane events and 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 windborne objects from the debris produced from destroying 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 Declaration Number	Date	Type of Disaster
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
1607	9/24/2005	Tropical Cyclone – Hurricane Rita
1668	11/2/2006	Severe Storm, Flooding
1792	9/13/2008	Tropical Cyclone – Hurricane Ike
1863	12/10/2009	Severe Storm, Flood
4080	8/27/2012	Tropical Cyclone – Hurricane Isaac

Probability of Future Hazard Events

The probability of a hazard event occurring in Beauregard Parish is estimated below. 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 assess 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 Spatial Hazards Events and Losses Database (SHELDUS) which provides historical hazard data from 1960 to 2014. In staying consistent with the state plan, the SHELDUS database was evaluated for the last twenty five years (1989 – 2014) in order to determine future probability of a hazard occurring. While the twenty-five year record used by the State was adopted for the purpose of determining the overall probability, to assist with determining estimated losses, unless otherwise stated the full 54 year record was used when HAZUS-HM 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 to inflation to reflect the equivalent amount of damages with the value of the U.S. dollar today. In addition, the National Climatic Data Center (NCDC) was also used to help identify hazard data specific to the municipalities as it contains specific data for cities, whereas SHELDUS is limited to parishes.

The following table shows the annual probability for each hazard occurring across the parish and in separate jurisdictions.

Table 2-3: Probability of Future Hazard Reoccurrence.

Hazard	Probability		
	Beauregard Parish (Unincorporated	DeRidder	Merryville
Drought	12%	12%	12%
Excessive Heat	4%	4%	4%
Flood	76%	40%	36%
Sinkhole	<1%	<1%	<1%
Thunderstorms (Hail)	4%	4%	4%
Thunderstorms (Lightning)	16%	16%	16%
Thunderstorms (Wind)	100%	100%	100%
Tornado	96%	96%	96%
Tropical Cyclones	50%	50%	50%
Wildfire	< 1%	< 1%	< 1%

As shown in Table 2-3, thunderstorm winds have the highest annual chance of occurrence in the parish (100%) followed by tornadoes (96%). Floods have an annual chance of occurrence of 76%, but these probability percentages decrease for the incorporated areas of the parish. DeRidder has the highest annual chance of occurrence for a flood event at 40% followed by Merryville at 36%. Tropical cyclones have a 50% annual chance of occurring in Beauregard Parish while lightning and drought have a 16% and 12% annual chance of occurring respectively. Excessive heat, hail, sinkholes, and wildfires all have less than a 5% chance of occurring annually within the borders of Beauregard Parish.

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 on critical infrastructure from a previous hazard mitigation project.

Within the entire planning area there is an estimated value of $5,727,831,000 in structures throughout the parish. The table below provides the total estimated value for each structure by occupancy.

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

Occupancy	Beauregard Parish	Unincorporated Beauregard	DeRidder	Merryville
Agricultural	$14,465,000	$10,245,000	$4,122,000	$98,000
Commercial	$266,642,000	$75,824,000	$186,556,000	$4,262,000
Government	$27,311,000	$15,643,000	$11,384,000	$284,000
Industrial	$77,994,000	$36,918,000	$39,335,000	$1,741,000
Religion	$79,602,000	$41,430,000	$34,910,000	$3,262,000
Residential	$2,409,057,000	$1,443,108,000	$897,488,000	$68,461,000
Education	$26,406,000	$12,483,000	$13,809,000	$114,000
Total	$2,901,477,000	$1,635,651,000	$1,187,604,000	$78,222,000

Essential Facilities of the Parish.

The following pages contain maps that show the locations and names of the essential facilities within the parish.

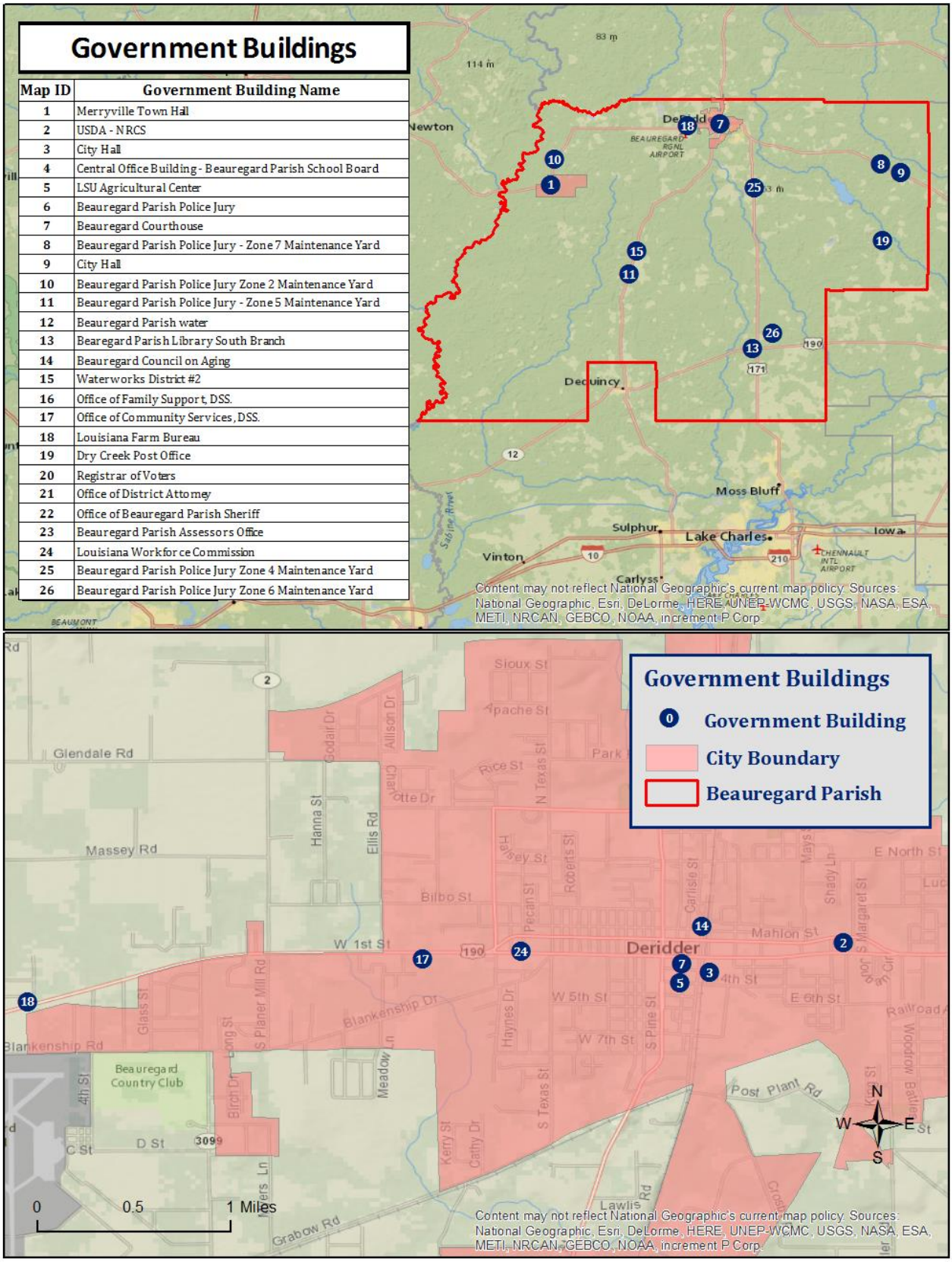

Figure 2-1: Government Buildings throughout Beauregard Parish.

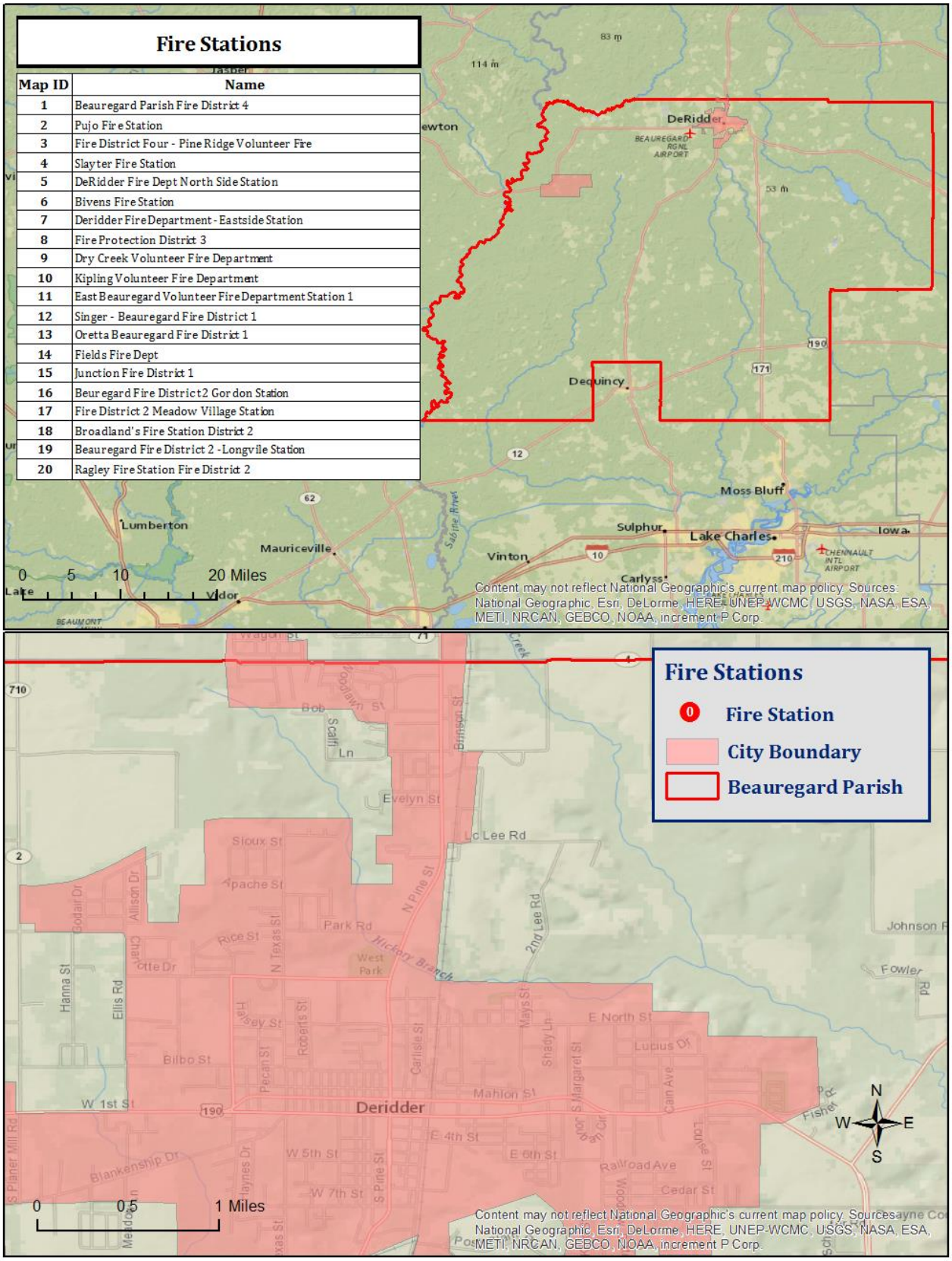

Figure 2-2: Fire Stations throughout Beauregard Parish.

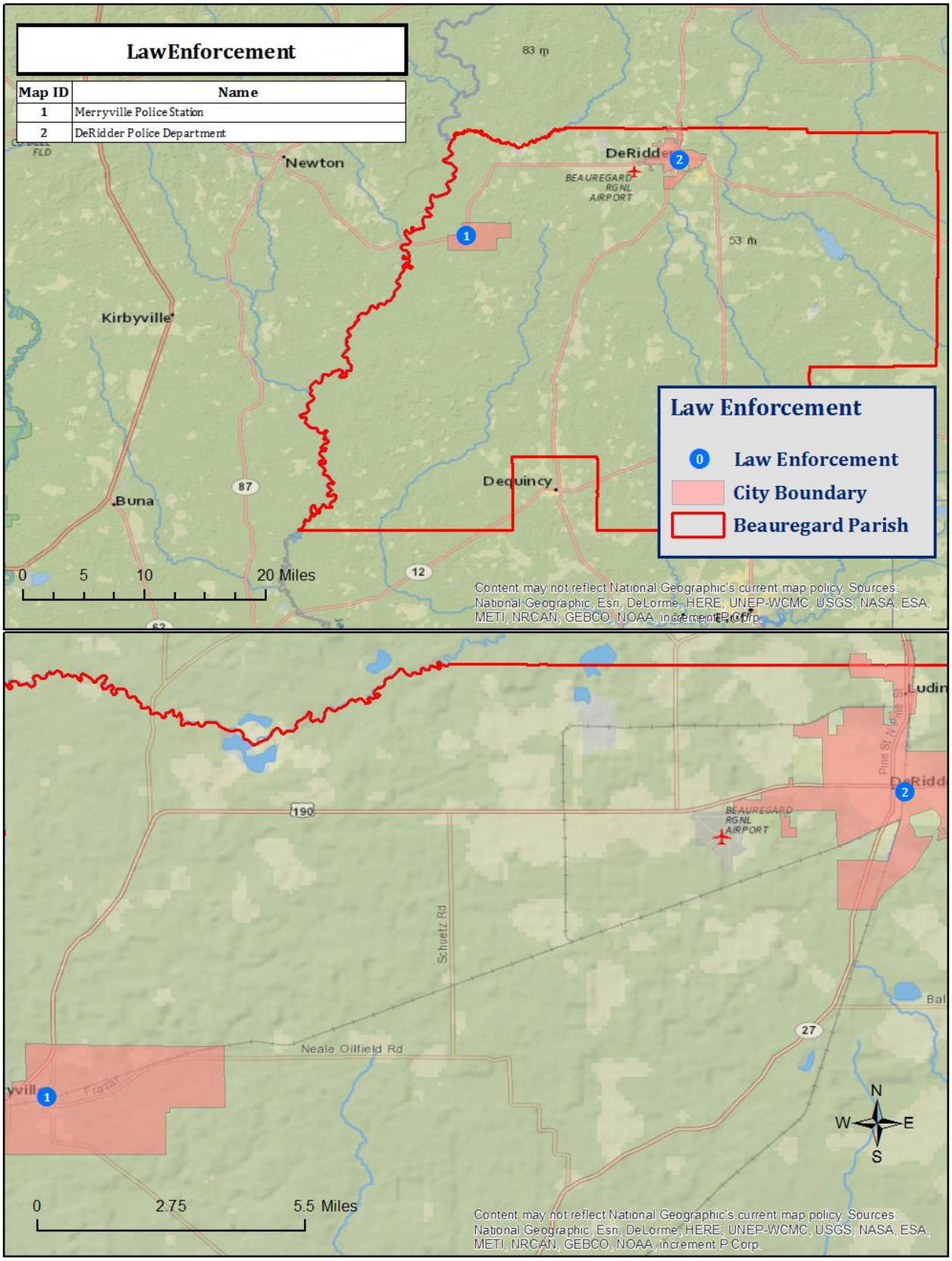

Figure 2-3: Law Enforcement Facilities in Beauregard Parish.

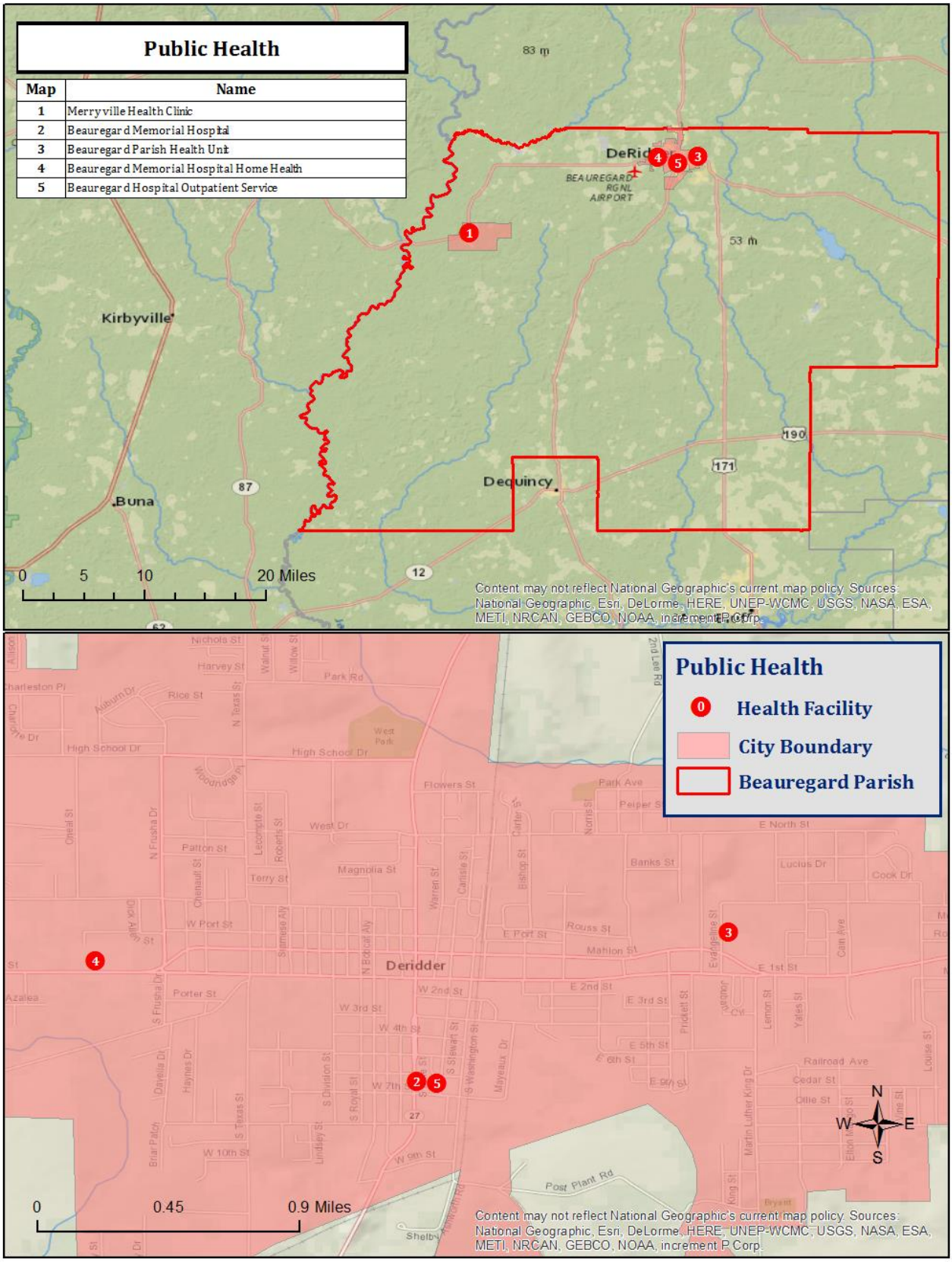

Figure 2-4: Public Health Facilities in Beauregard Parish.

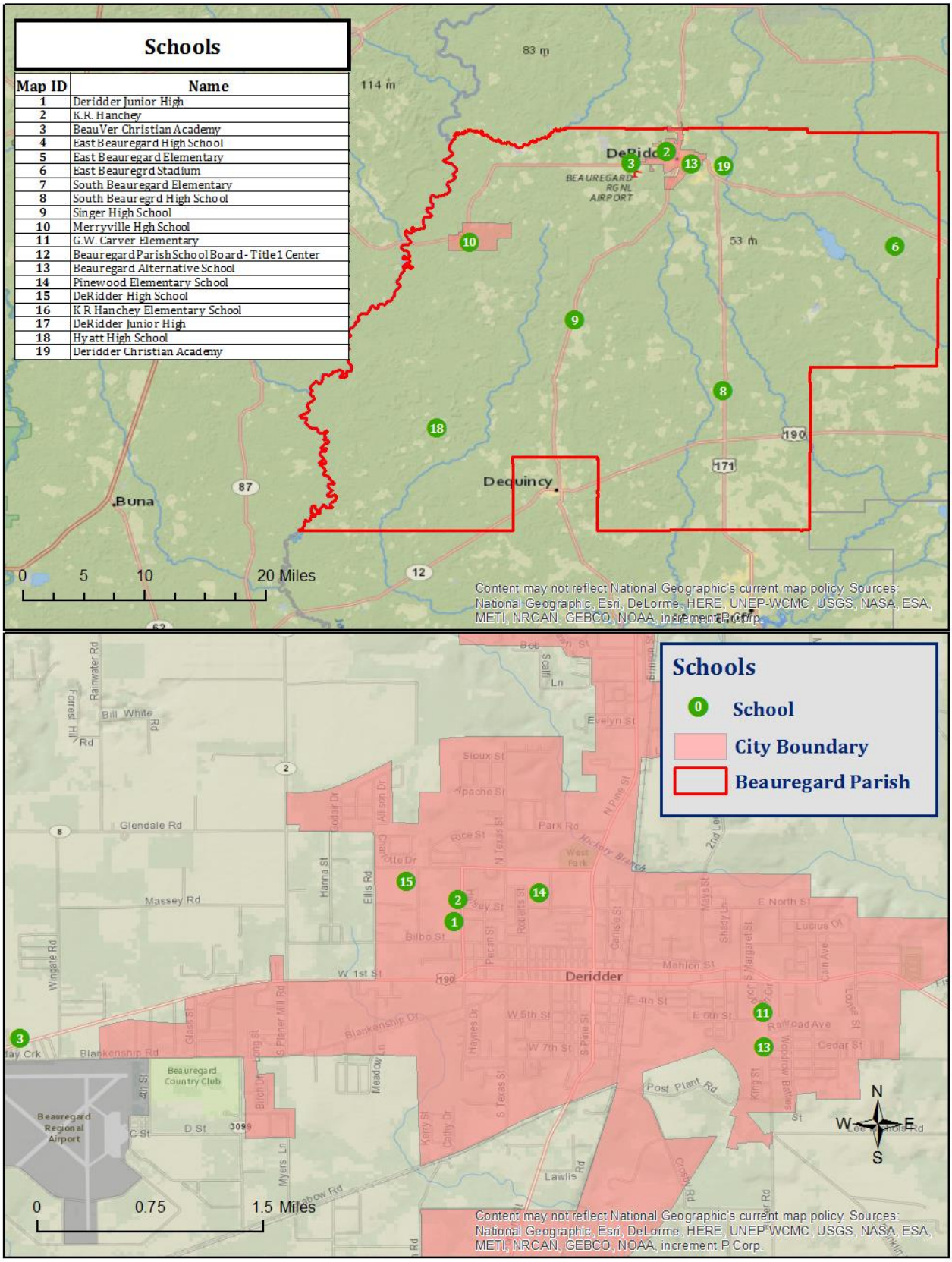

Figure 2-5: Educational Facilities in Beauregard Parish.

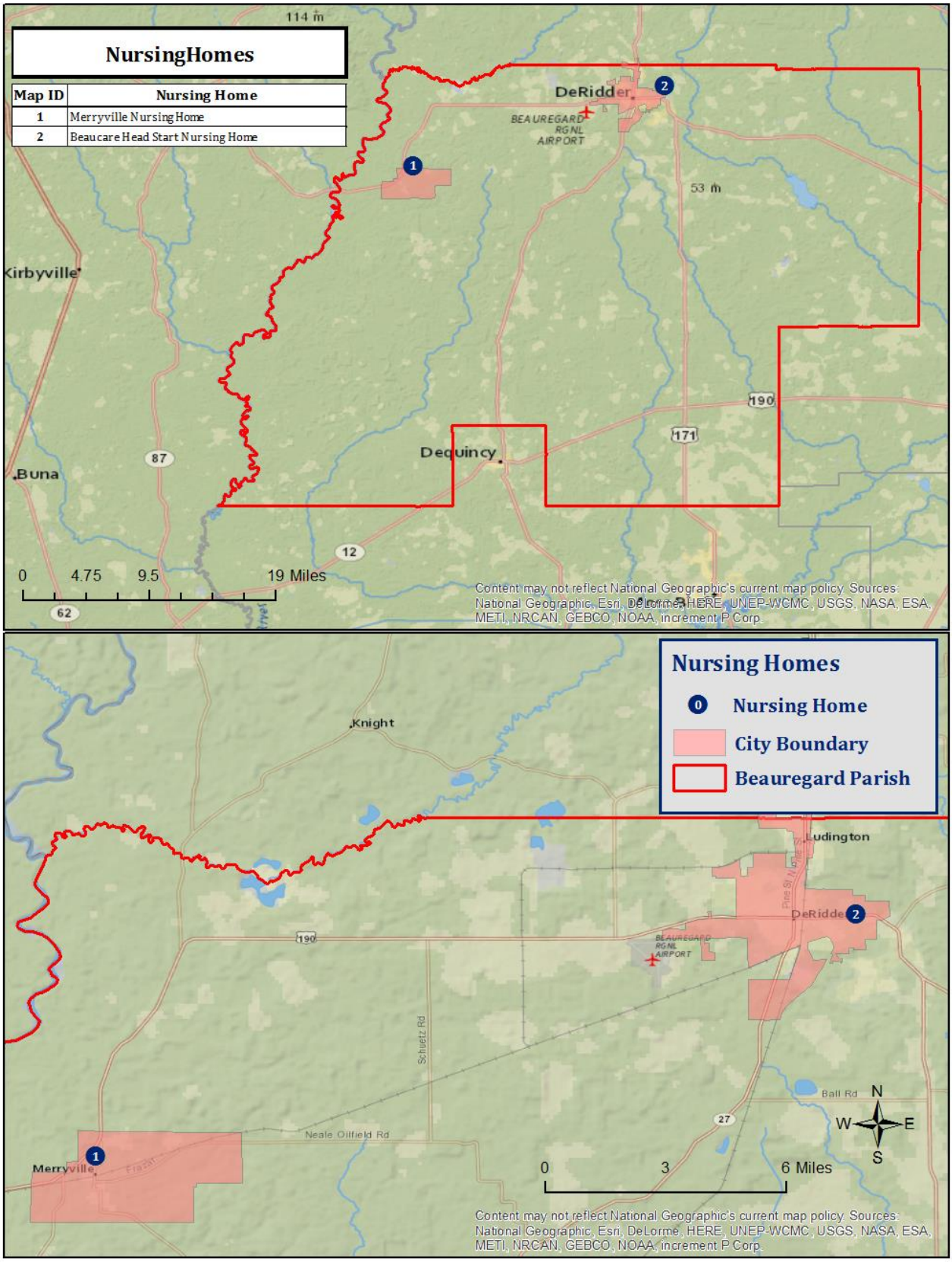

Figure 2-6: Nursing Home Facilities in Beauregard Parish.

Future Development Trends

Beauregard Parish experienced a small growth in population and housing between the years 2000 and 2013, growing from a population of 32,986 with 14,501 housing units in 2000 to a population of 35,654 with 15,076 housing units in 2013. This growth was largely in the unincorporated areas of Beauregard Parish. The City of DeRidder during this time also experienced a slight growth in population, but a decline in housing units. The Town of Merryville is the exact opposite of DeRidder, experiencing a decline in population yet an increase in housing units. The future population and number of buildings can be estimated using U.S. Census Bureau housing and population data. The tables below show population and housing unit estimates from 2000 to 2013.

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

Total Population	Beauregard Parish	Beauregard Unincorporated	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-13	35,891	24,088	10,793	1,010
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 – 2013	0.7%	0.5%	2.0%	-8.4%
Average Annual Growth Rate between 2010 – 2013	0.22%	0.16%	0.68%	-2.81%

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

Total Housing Units	Beauregard Parish	Beauregard Unincorporated	DeRidder	Merryville
1-Apr-00	14,501	9,514	4,505	482
1-Apr-10	15,040	9,920	4,634	486
1-Jul-13	15,076	10,060	4,515	501
Housing Growth between 2000 – 2010	3.7%	4.3%	2.9%	0.8%
Average Annual Growth Rate between 2000 – 2010	0.4%	0.4%	0.3%	0.1%
Housing Growth between 2010 – 2013	0.2%	1.4%	-2.6%	3.1%
Average Annual Growth Rate between 2010 – 2013	0.1%	0.5%	-0.9%	1.0%

As shown in Table 2-5 and Table 2-6, Beauregard Parish has experienced slight growth in both population and housing units. Population growth rates grew at 0.8% annually from 2000 to 2010 and at 0.22% annually from 2010 to 2013. Housing growth rates were slightly lower at 0.4% annually for the parish from 2000 to 2010 and 0.1% annually from 2010 to 2013. From 2000 to 2010, the unincorporated areas of Beauregard Parish had the largest increase in population at 10.1% followed by the City of DeRidder at 4.8%. The Town of Merryville experienced a 2% decline in population during the same time period. From 2010 to 2013, DeRidder's growth rate increased to 0.68% annually and fell to 0.5% annually during the 2000 to 2010 time period, while the unincorporated fell from 1% annually to 0.16%. The Town of Merryville experienced another decrease in population from 2010 to 2013 with an 8.4% decline in population numbers.

Housing growth from 2000 to 2010 and from 2010 to 2013 in Beauregard Parish increased at a slightly slower rate than population. The only exception to this was the City of DeRidder who experienced a 2.6% decline in housing from 2010 to 2013.

Future Hazard Impacts

Hazard impacts were estimated for five years and ten years in the future (2019 and 2024). 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 continue to grow slightly within Beauregard Parish from the present until 2024. 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, 2019-2024.
(Source: HAZUS, US Census Bureau)

Hazard / Impact	Total in Parish (2014)	Hazard Area (2014)	Hazard Area (2019)	Hazard Area (2024)
Flood Damage				
Structures	15,088	8,203	8,236	8,275
Value of Structures	$2,933,410,687	$1,594,806,551	$1,684,522,044	$1,798,867,287
# of People	35,971	19,556	19,774	20,038
Tropical Cyclone				
Structures	15,088	10,562	10,604	10,655
Value of Structures	$2,933,410,687	$2,053,387,481	$2,168,900,344	$2,316,125,153
# of People	35,971	25,179	25,460	25,800

Land Use

The Beauregard Parish Land Use table is provided below. Residential, commercial and industrial areas account for only 4% of the parish's land use. Forest land at 467,277 acres is by far the largest category accounting for 63% of parish land. The parish also consists of water areas (1%), agricultural land (10%), and wetlands (22%).

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%

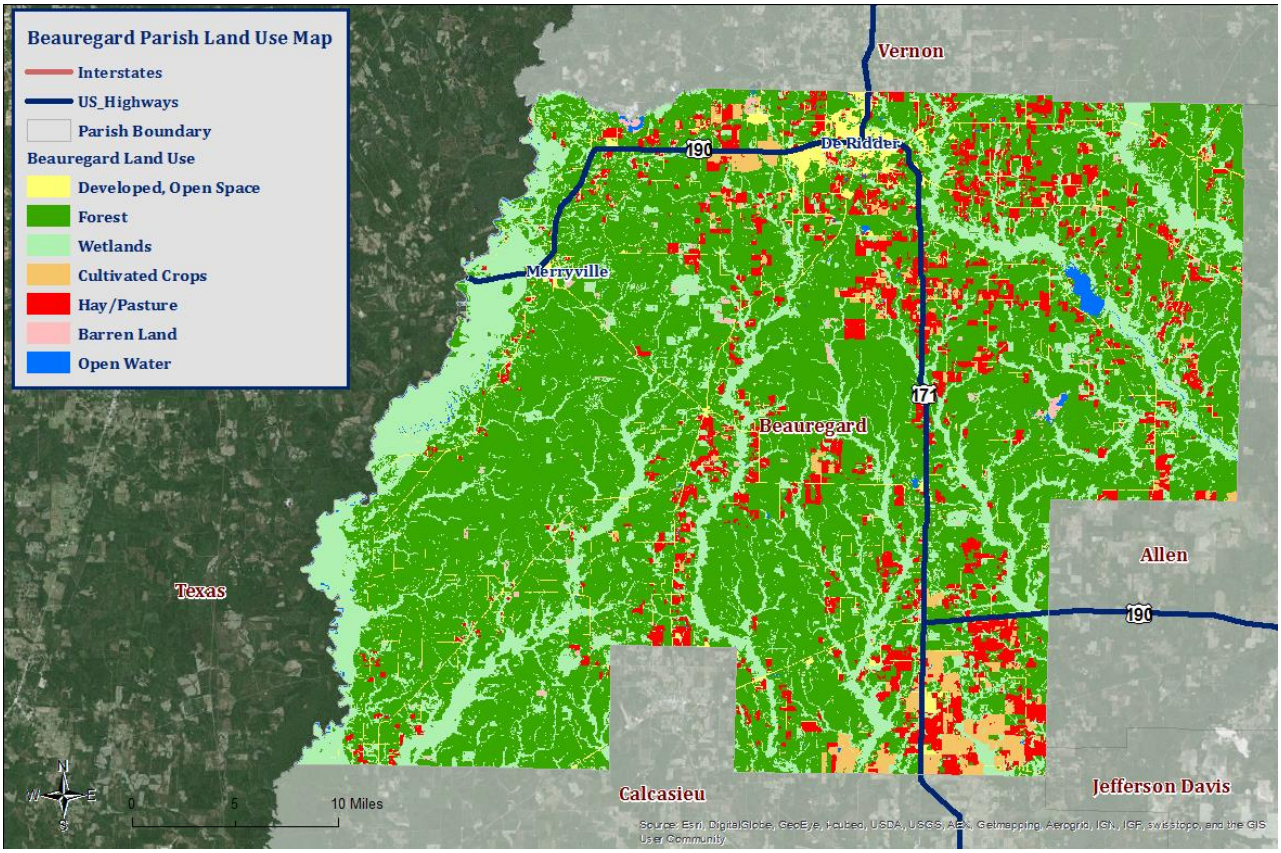

Figure 2-7: Beauregard Parish Land Use Map.
(Source: USGS Land Us Map)

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 tend to be associated with other hazards such as wildfires and/or heat waves as well. 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 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 2-9 displays the range and Palmer classifications of the PDSI index. Figure 2-8 displays the current drought monitor for the state of Louisiana and its parishes.

Table 2-9: 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 plus the effects of cumulative patterns of previous months—or longer. Although weather patterns can change almost literally 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 exist in Beauregard Parish at the time this plan went to publication (Figure 2-8).

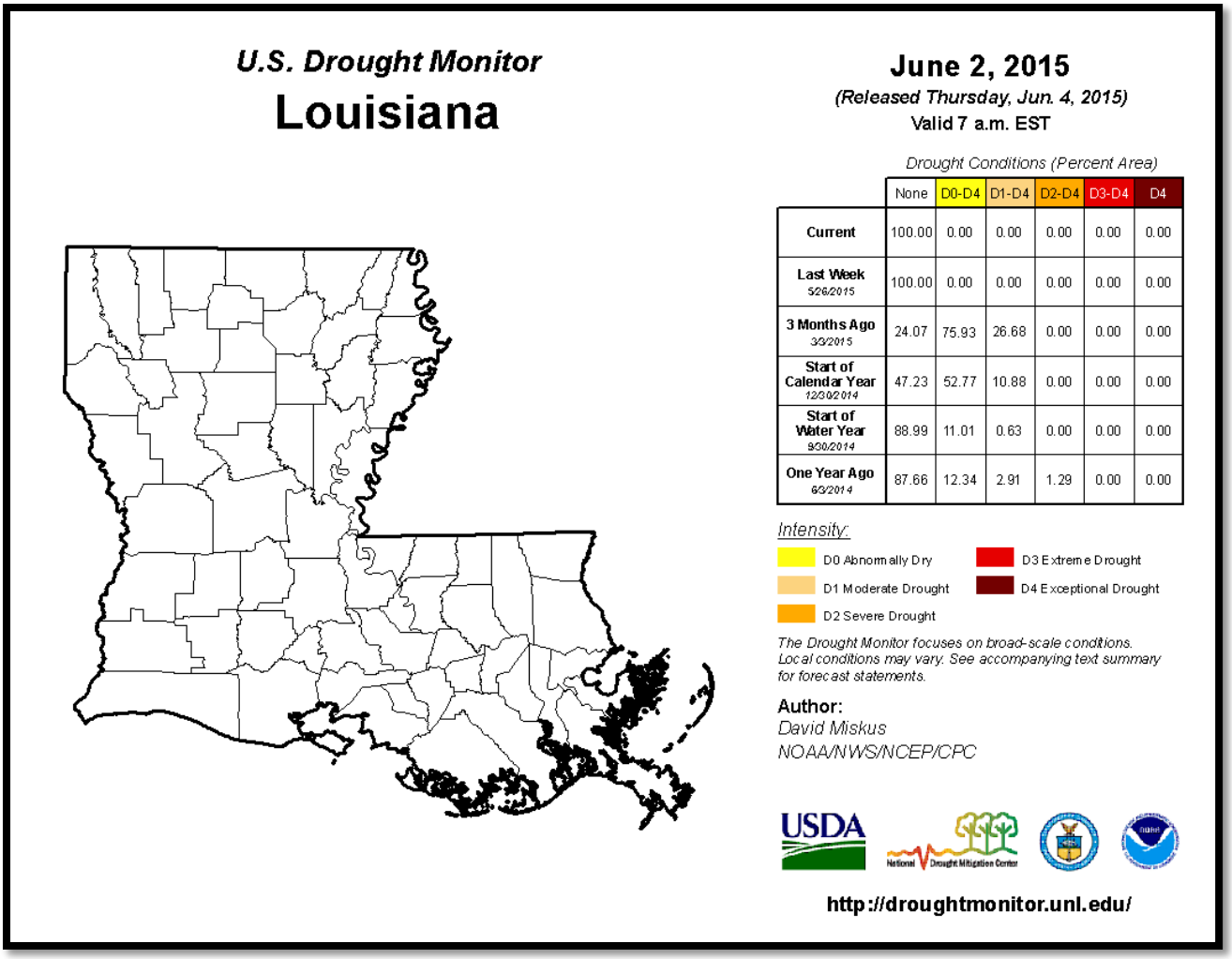

Figure 2-8 : United States Drought Monitor for the State of Louisiana and its Parishes. (Source: The National Drought Mitigation Center)

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.

Previous Occurrences / Extents

The SHELDUS database reports a total of three drought events occurring within the boundaries of Beauregard Parish between the years of 1989 – 2014. Table 2-10 identifies the date of occurrence, estimated crop damage, and severity of droughts that have occurred in Beauregard Parish. Based on previous occurrences, the worst case scenarios for droughts in Beauregard Parish would be a Severe Drought based on the Palmer Classification.

Table 2-10: Drought events with crop damage totals for Beauregard Parish. (Source: SHELDUS)

Date	Crop Damage	Palmer Classification
May 1996	$92,797	Moderate Drought
August 1998	$15,160,345	Severe Drought
December 2000	$14,339,978	Severe Drought

Frequency / Probability

Based on previous occurrences of three droughts in twenty-five years, the probability of drought occurrence in the planning area in any given year is 12%.

Estimated Potential Losses

According to the SHELDUS database, there have been three droughts that have caused some level of crop damage. The total agricultural damage from these events is $29,593,120 with an average cost of $9,864,373 per drought event. When annualizing the total cost over the twenty-five year record, total annual losses based on drought is estimated to be $1,183,725. Table 2-11 presents an analysis of agricultural exposure that is susceptible to droughts by major crop type for Beauregard Parish.

Table 2-11 : Agricultural Exposure by Crop Type for Droughts in Beauregard Parish. (Source: LSU Ag Center 2014 Parish Totals)

Agricultural Exposure by Type for Drought						
Rice	Soybeans	Hay	Corn	Blueberries	Watermelon	Total
$1,634,683	$1,162,959	$878,560	$469,739	$130,680	$616,400	$4,893,021

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

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 Table 2-12 and Table 2-13 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.

Table 2-12: Heat Index Advisor based on Air Temperature (°F) and Relative Humidity. (Source: National Weather Service)

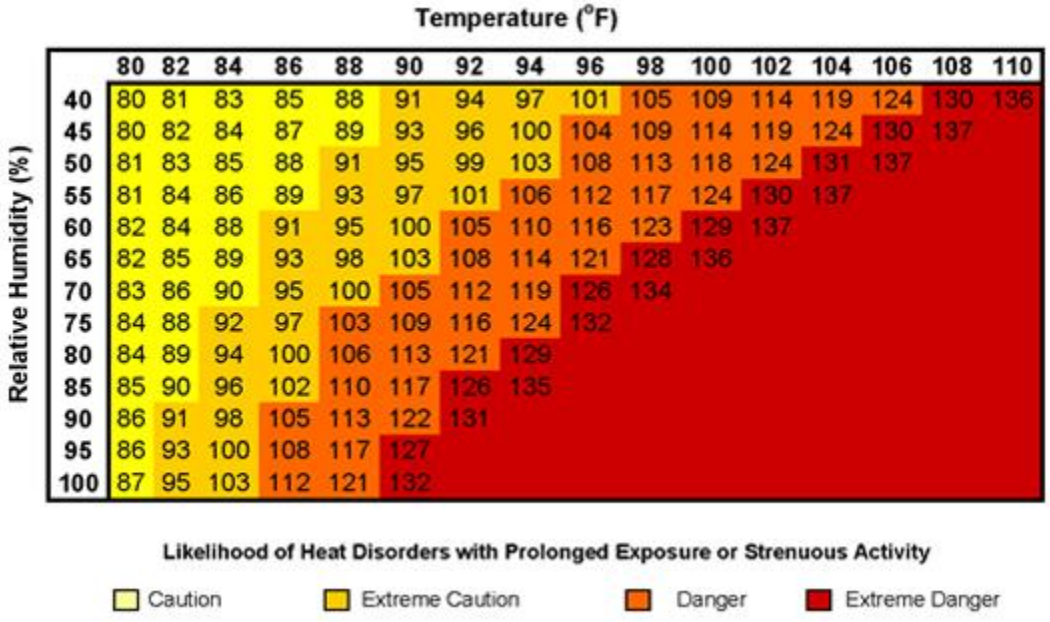

Table 2-13: Summary of Heat Index Risk Levels with Protective Measures. (Source: National Weather Service)

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 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 excessive heat.

Previous Occurrences / Extents

The SHELDUS database reports a total of two significant excessive heat events occurring within the boundaries of Beauregard Parish between the years of 1960 - 2014. Table 2-14 provides an overview of excessive heat events that have impacted the Beauregard Parish planning area since 1960. Based on historical data, the worst case scenario for Beauregard Parish involving excessive heat would be a high risk level event on the HI scale with temperatures ranging from 103°F to 115°F.

Table 2-14: Previous Occurrences of Excessive Heat in Beauregard Parish. (Source: SHELDUS)

Date	Crop Damage	Risk Level
May 1963	$594,764	Moderate
July 1980	$22,087	High

Frequency / Probability

Based on the geographical location of the State of Louisiana and Beauregard Parish, excessive heat events occur frequently. However, excessive heat events that meet the definition that is used by SHELDUS that actually results in damages to property or crops and injury or death to people is a less likely event. Based on a review of significant excessive heat data that has caused damages in the last 54 years, in which Beauregard Parish has had two recorded events, the probability of occurrence is estimated at approximately 4%.

Estimated Potential Losses

According to the SHELDUS database, crop damage due to excessive heat in Beauregard Parish have totaled approximately $616,851 since 1960. A list of the crop damages by event can be found in Table 2-145. To estimate the potential losses of an excessive heat event on an annual basis, the total damages recorded for an extreme event was divided by the total number of years of available excessive heat data in SHELDUS (1960 – 2014). This provides an annual estimated potential loss of $11,423. Based on the 2010 Census data, the following table provides an estimate of potential crop losses for Beauregard Parish:

Table 2-15 : Estimated Annual Crop Losses in Beauregard Parish for Excessive Heat.

Estimated Annual Potential Losses from Excessive Heat for Beauregard Parish		
Unincorporated Beauregard Parish (67.2% of Population)	DeRidder (29.7% of Population)	Merryville (3.1% of Population)
$7,676	$3,393	$354

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

Vulnerability

See Appendix C for parish and municipality agricultural exposure to excessive heat hazards.

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 (e.g., 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, and low-lying, poorly drained areas are particularly prone to flooding during these months.

In Louisiana, six specific types of floods 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 and the shape and land cover of its drainage basin. The smaller the river, the faster 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, 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, tsunami, and gradual sea level rise.

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

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

- **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 hydro meteorological 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-yr 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-yr flood event is larger in magnitude, but it has a smaller chance of recurrence (1%). A 500-yr flood is significantly larger than both a 100-yr event and a 10-yr 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-yr flood event does not mean an event of that magnitude occurs only once in x years. Instead, it just 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 lay population to understand, the Association of State Floodplain Managers (ASFPM) promotes the use of more tangible expressions of flood probability. The ASFPM also expresses the 100-yr flood event has having a 25% chance of occurring over the life of a 30-yr mortgage.

It is essential to understand that the magnitude of an x-yr 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-yr flood events can have very different impacts. The 100-yr flood events in two separate locations have the same likelihood to occur, but they do not necessarily have the same magnitude. For example, a 100-yr event for the Mississippi River means something completely different in terms of discharge values (ft^3/s) than, for example, for the Amite River. Not only are the magnitudes of 100-yr events different between rivers, they can be different along any given river. A 100-yr event upstream is different from one downstream since river characteristics (volume, discharge, and topography) change. As a result, the definition of what constitutes a 100-yr 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-yr 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 (NFIP) Rate Maps. The NFIP and FEMA suggest insurance rates based on special flood hazard areas (SFHAs), as diagrammed in Figure 2-9.

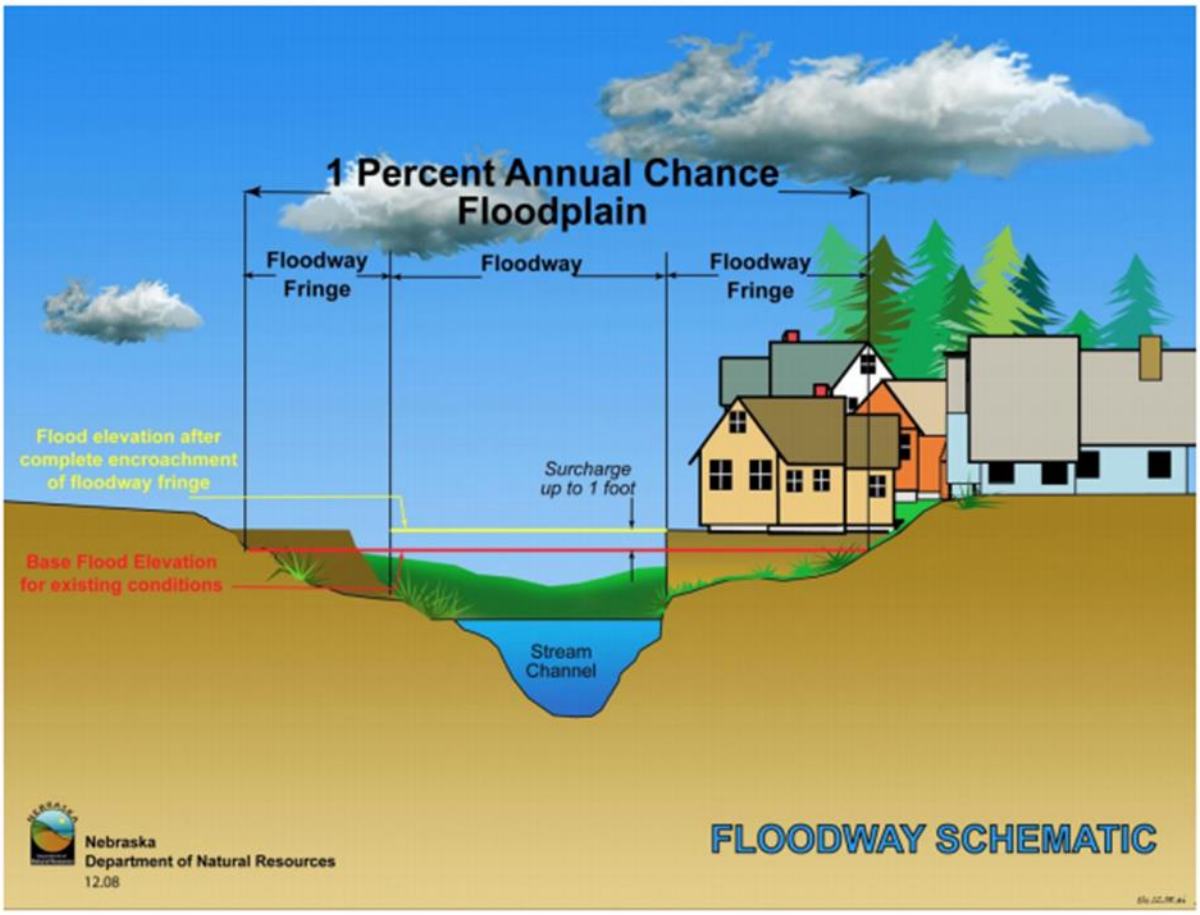

Figure 2-9: Schematic of 100 year Floodplain. The special hazard area (SFHA) extends to the end of the floodway fringe.
(Source: Nebraska Department of Natural Resources)

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 a few situations, deep and fast moving waters will 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 to quickly, will crack, split, or warp. Plywood can come apart and gypsum wallboard has the potential to fall apart 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 is 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. Has incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded twenty-five 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. Is covered under a contract for flood insurance made available under the NFIP; and
b. 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.

Repetitive loss properties for Beauregard Parish are provided below:

Table 2-16 : 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 77 structures, while Figure 2-111 shows where the highest concentration of repetitive loss structures are located. Through the repetitive loss map, it is clear that the primary concentrated area of repetitive loss structures are focused in and around the incorporated area of DeRidder and in the eastern section of unincorporated Beauregard Parish.

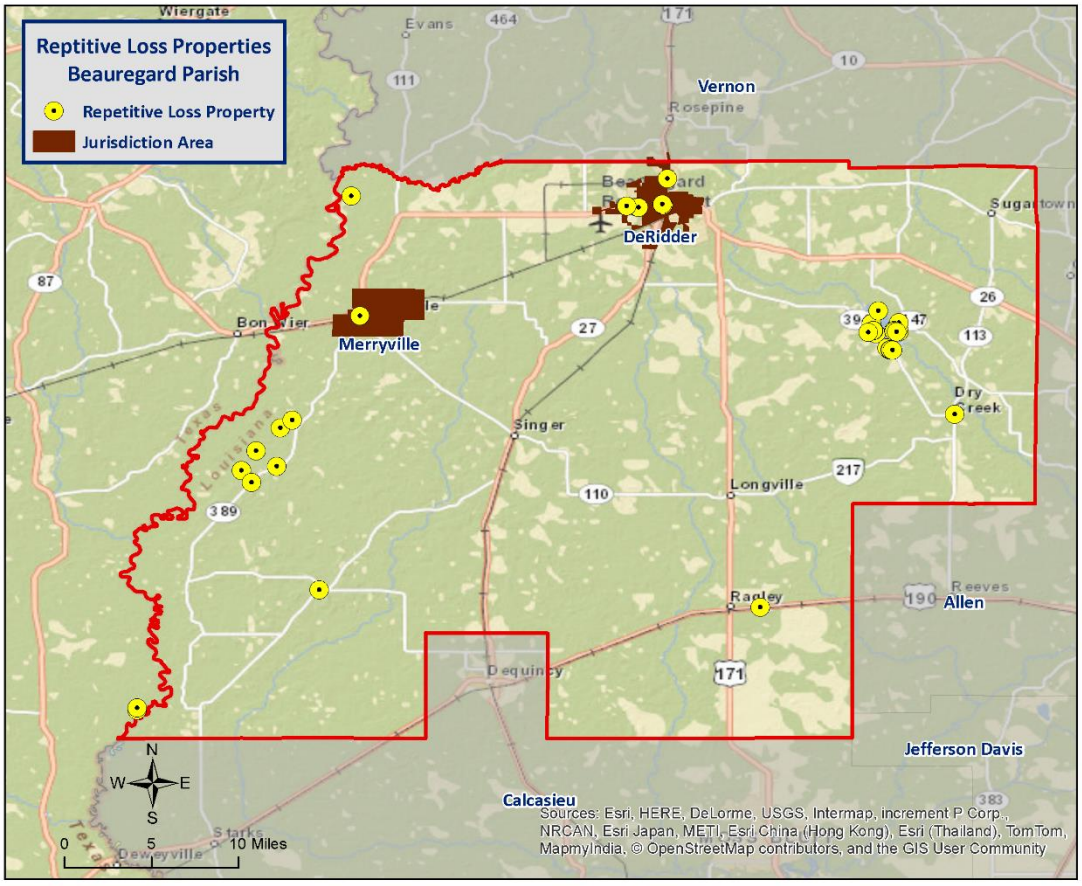

Figure 2-10: Repetitive Loss Properties in Beauregard Parish.

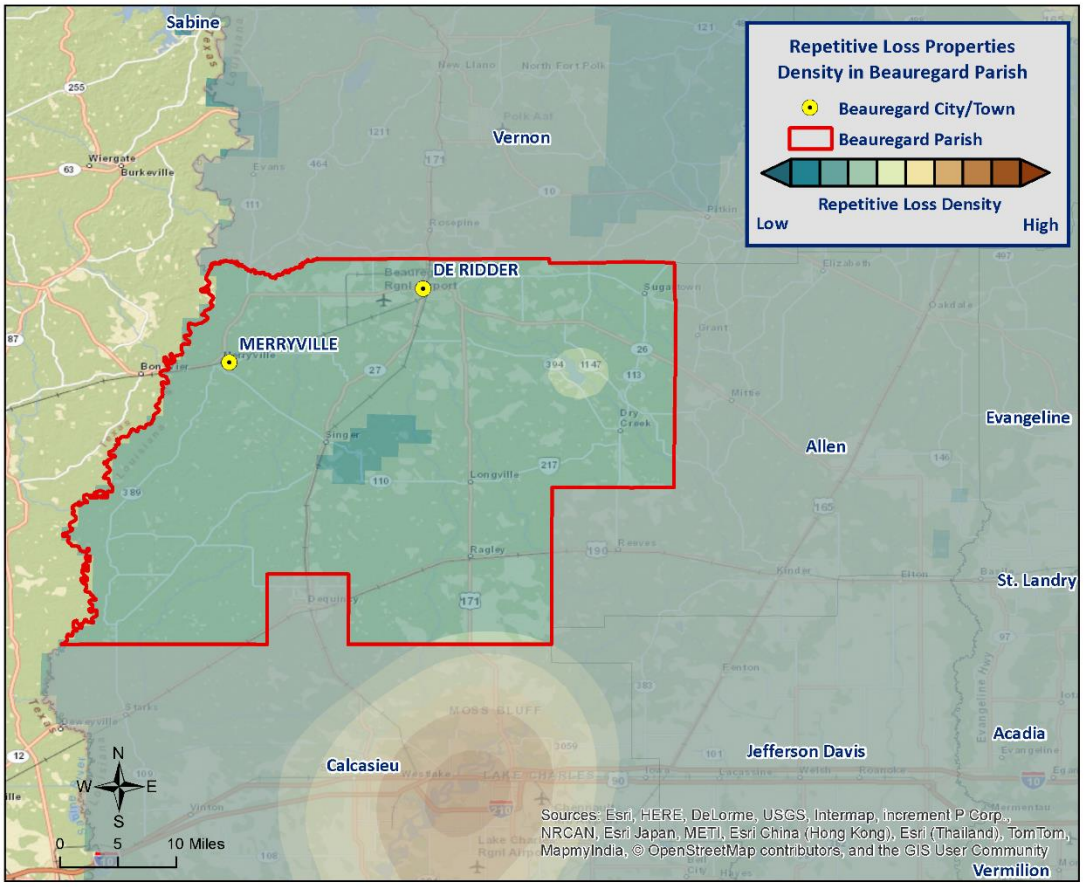

Figure 2-11: Repetitive Loss Property Densities in Beauregard Parish.

National Flood Insurance Program

Flood insurance statistics indicate that Beauregard Parish has 281 flood insurance policies with the NFIP with total annual premiums of $148,833. Beauregard Parish, City of DeRidder, and Town of Merryville are all participants in the NFIP. Beauregard Parish and each of the incorporated jurisdictions will continue to adopt and enforce floodplain management requirements, including regulating new construction in Special Flood Hazard Areas, and will continue to monitor activities including local requests for map updates. Flood insurance statistics and additional NFIP participation details for Beauregard Parish is provided in the tables to follow.

Table 2-17: Summary of NFIP Policies for Beauregard Parish.

Location	No. of Insured Structures	Total Insurance Coverage Value	Annual Premiums Paid	No. of Insurance Claims Filed Since 1978	Total Loss Payments
Beauregard Parish (Unincorporated)	212	$40,875,000	$108,488	438	$4,669,286
DeRidder	67	$16,222,400	$39,495	63	$791,896
Merryville	2	$242,000	$850	4	$118,983
Total	281	$57,339,400	$148,833	505	$5,580,165

Table 2-18: 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
220026	Beauregard Parish (Unincorporated)	1/17/1975	5/3/1990	11/26/2010	5/3/1990	No
220027	DeRidder, City of	2/1/1974	3/27/1979	11/26/2010	10/19/1982	No
220028	Merryville, Town of	5/24/1974	2/1/1987	11/26/2010	2/1/1987	No

According to the Community Rating System (CRS) list of eligible communities dated June 1, 2014, the City of DeRidder participates in the CRS, while the Town of Merryville and Beauregard Parish do not participate.

Table 2-19: List of Areas within Beauregard Parish 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
220027	Deridder, City of	10/1/1995	10/1/1995	9	5	5	C

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 the passengers within the vehicle. Victims of floods have often put themselves in perilous situations by entering flood waters they believe are safe or by ignoring travel advisories.

Major health concerns are also associated with floods. Floodwaters 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. Floodwaters 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

Flooding in Beauregard Parish is typically the result of river flooding from excessive rainfall and flooding that occurs in conjunction with tropical storms and hurricanes. Annual average precipitation for Beauregard Parish as reported by NOAA is 56 - 60 inches. Beauregard Parish is located along the eastern portion of the Sabine River Basin, and the northeastern section of the parish is located in the Bundick Lake area.

The Sabine River is formed by three tributaries, which begin in Collin and Hunt County in northeast Texas, and becomes the boundary between Texas and Louisiana near Logansport, Louisiana. The river flows for 555 miles and has a total drainage basin area of 9,756 square miles, of which 7,426 are in Texas and the remainder in Louisiana. The Sabine River is situated in an area of abundant rainfall. Average annual

precipitation is between 37 inches at its source and fifty inches at its mouth. It flows through forested sandy country adaptable to the conservation of runoff and is fed by many flowing tributaries and springs. Average runoff within 97 percent of the Sabine River basin during the 1941-1967 period was approximately 640 acre-feet per square mile.

The Sabine River basin is characterized by flat slopes and wide, timbered floodplains. High rainfall rates produce frequent flooding of low-lying areas and large floods occur, on average, every five years. Floods generally rise and fall slowly, although flash floods occasionally occur in the basin. During flooding, the lowest part of the basin usually remains inundated for many days and sometimes for several weeks. The extreme southern portion of the river is subject to hurricane flooding. In its upper reaches, the river traverses rolling terrain with soils of deep sandy loams, loamy sands, and sand.

Major flooding on this river can have serious impacts on residents and businesses located along the river. Merryville is the largest community adjacent to the river basin that has significant flood experience as a result of the river exceeding its banks and flooding property along and adjacent to the river banks. Flooding in these areas is significant.

By definition, flooding is caused by 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 tearing out trees, undermining buildings and bridges, and scouring new channels. Major factors in flash flooding are the high intensity and short duration of rainfall and the steepness of watershed and stream gradients.

Local Drainage or High Groundwater Levels: Local 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, or bayou and marsh hinders drainage outflow causing backwater flooding to the same areas susceptible to storm surge.

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

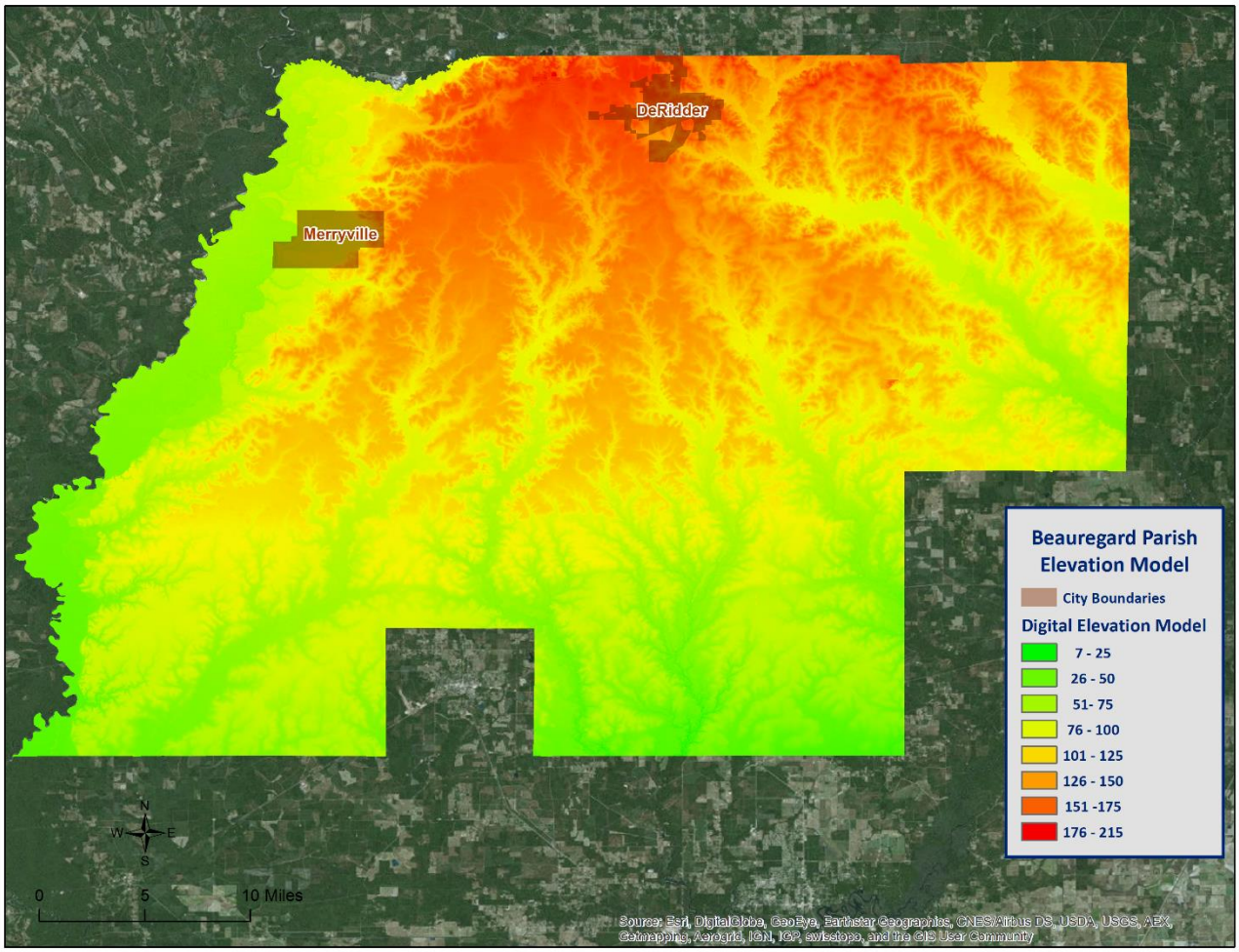

Figure 2-12: Elevation throughout Beauregard Parish.

Looking at the digital elevation model (DEM) in Figure 2-12 for Beauregard Parish is instructive in visualizing where the low lying and 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.

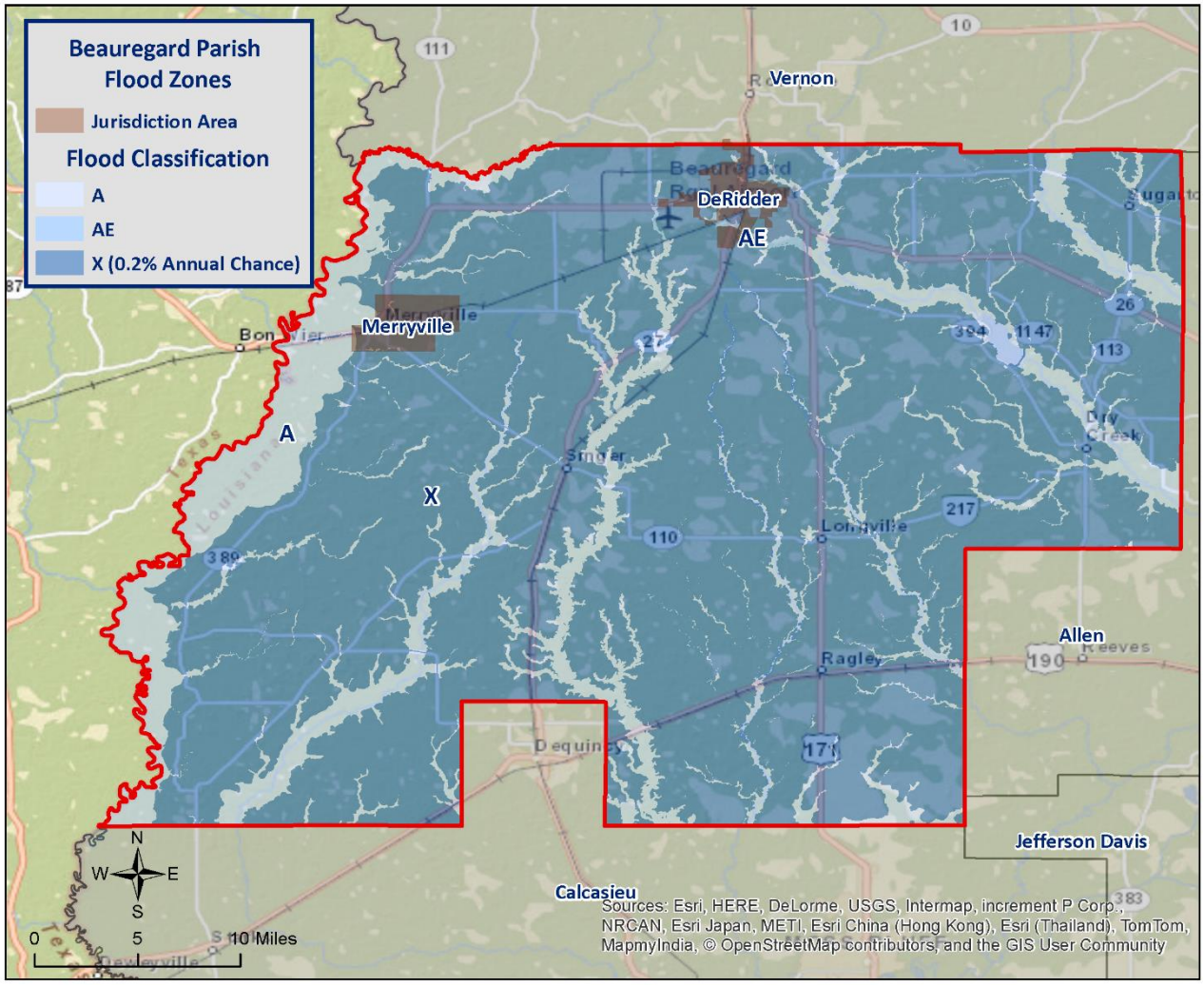

Figure 2-13: Beauregard Parish Areas within the Flood Zones.

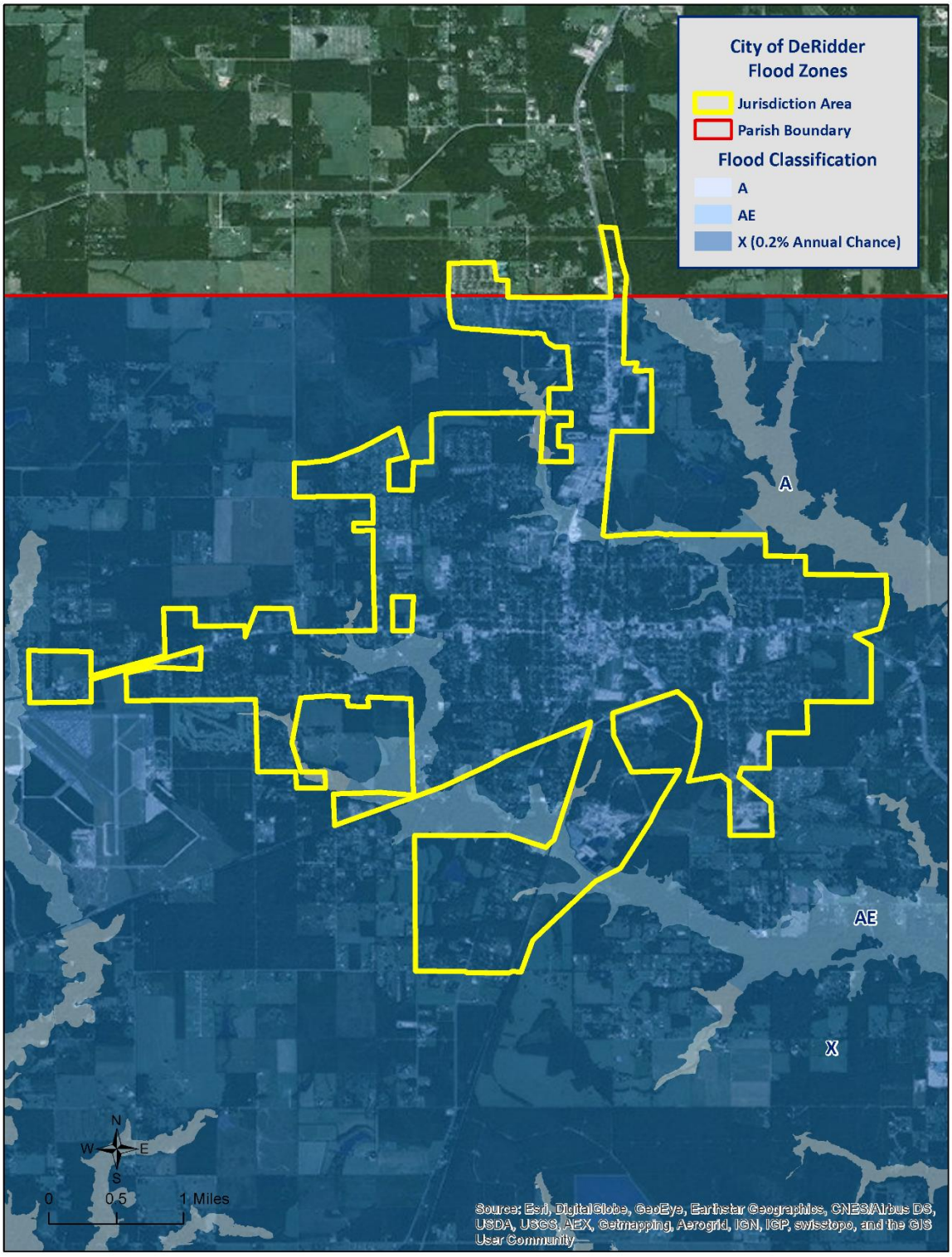

Figure 2-14: City of DeRidder Areas within the Flood Zones.

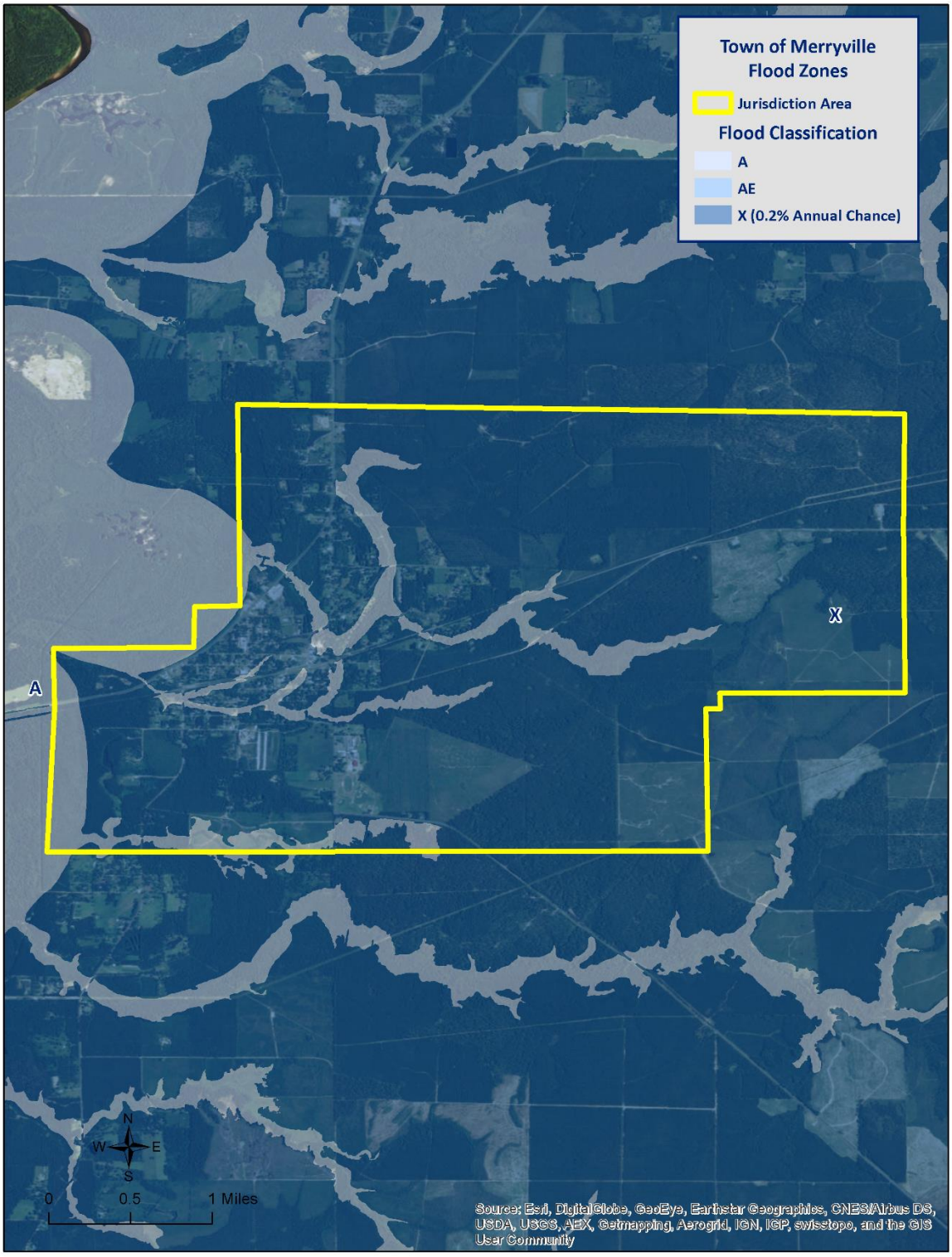

Figure 2-15: Town of Merryville Areas within the Flood Zones.

Previous Occurrences and Extents

Historically, there have been twenty-nine flood events that have created significant flooding in Beauregard Parish between 1989 and 2014. Below is a brief synopsis of the twenty-nine flooding events over the last twenty-five years, including each flooding event that has occurred since the parish's last planning update.

Table 2-20: Historical Floods in Beauregard on Parish with Locations from 1989 - 2014.

Date	Extents	Type of Flooding	Estimated Damages	Location
January 6, 1998	Extreme flooding occurred across Beauregard Parish, especially in the DeRidder area. 90% of the parish roads were under water and ten homes were flooded in the DeRidder area.	Flash Flood	$100,000	PARISHWIDE
January 12, 1998	Slow moving thunderstorms produced between four and six inches of rain across northern Beauregard Parish. Many streets were closed in DeRidder due to flooding. One minor injury occurred when a man drove his car into a washed out section of Long Acre road in DeRidder	Flash Flood	$50,000	DERIDDER
January 13, 1998	Heavy rain flooded sections of northern Beauregard Parish including DeRidder and Bundick Lake.	Flood	$20,000	DERIDDER AND UNINCORPORATED AREA
September 13, 1998	Between 10 and 15 inches of rain fell in a three day period resulting in flooding throughout Beauregard Parish.	Flash Flood	$50,000	PARISHWIDE
February 1, 1999	The Sabine River flooded below Toledo Bend Dam washing away hundreds of acres of farmland and a dozen cows. Thirty homes in Beauregard Parish received serious damage and 200 people were forced to evacuate.	Flood	$1,000,000	UNINCORPORATED AREA
April 4, 1999	Ten inches of rain caused significant flooding in the northwestern section of	Flash Flood	$250,000	DERIDDER AND UNINCORPORATED AREA

Date	Extents	Type of Flooding	Estimated Damages	Location
	Beauregard. Twenty roads were closed around the parish due to high water. DeRidder received significant flooding of primary and secondary roads.			
March 4, 2001	Significant flood occurred along the Sabine River when the river crested five to six feet above flood stage.	Flood	$75,000	UNINCORPORATED AREA
June 7, 2001	Heavy rains from Tropical Storm Allison caused widespread street flooding in Merryville. Most of the damage was a result of street and bridge damage.	Flash Flood	$100,000	MERRYVILLE
June 8, 2001	Heavy rains continued from Tropical Storm Allison. With already saturated grounds, an additional five to ten inches of rain resulted in widespread flooding of the Merryville area. Nearly every home and business in the downtown area flooded.	Flash Flood	$1,500,000	MERRYVILLE
September 1, 2001	Five to eight inches of rain fell in less than four hours, resulting in flooding across southern portions of Beauregard Parish, including the Fields area. Over 20 roads were damaged from flood waters.	Flash Flood	$50,000	UNINCORPROATED AREA
November 28, 2001	Twelve to 15 inches of rain resulted in 63 road closures and water in 44 homes. 27 of these homes received major damage (more than 2 feet of water).	Flash Flood	$250,000	MERRYVILLE
December 3, 2002	Streets located in low-lying areas of DeRidder were flooded.	Flash Flood	$10,000	DERIDDER

Date	Extents	Type of Flooding	Estimated Damages	Location
February 21, 2003	Heavy rains resulted in parish wide flooding that caused numerous roads to close including low spots in the Fields, DeRidder, Longville, Ragley, and Dry Creek areas.	Flood	$25,000	PARISHWIDE
February 11, 2004	Due to heavy rains over a two week period, any roads in the Merryville, Longville, and Ragley areas were closed due to flooding.	Flood	$5,000	MERRYVILLE AND UNINCORPORATED AREAS
June 24, 2004	High water along Highway 171 caused numerous cars to stall out.	Flash Flood	$10,000	UNINCORPORATED AREA
July 26, 2006	Five inches of rainfall caused extensive flooding of Highway 171 near Ragley.	Flash Flood	$10,000	UNINCORPORATED AREA
October 16, 2006	Over ten inches of rain fell over a two day period which caused flooding along Bundick Lake. Homes along the lake flooded and roads downstream were closed due to high water.	Flood	$250,000	DERIDDER
October 18, 2006	Drenched grounds experienced an additional five to 10 inches of rain that caused flooding along Highway 171 near DeRidder.	Flash Flood	$3,000	DERIDDER
October 26, 2006	Ten to 12 inches of rain fell in less than 24 hours resulting in widespread flooding across the parish. The heaviest hit area was near Ragley, where water entered a school and several homes.	Flood	$2,000,000	PARISHWIDE

Date	Extents	Type of Flooding	Estimated Damages	Location
September 13, 2007	Heavy rain from Hurricane Humberto resulted in 5 to 7 inches of rain. Highway 110 between Merryville and Singer was closed due to high water, and several roads in and around DeRidder were closed due to high water.	Flash Flood	$50,000	PARISHWIDE
April 18, 2009	One home was flooded on Flowers Street in DeRidder when 4 to 6 inches of rain fell in the area.	Flash Flood	$3,000	DE RIDDER
May 3, 2009	Heavy rains inundated Seth Cole Road 3 miles southwest of DeRidder.	Flash Flood	$0	UNINCORPORATED AREA
May 3, 2009	Heavy rains caused extensive flooding of numerous roads in the City of DeRidder.	Flash Flood	$0	DERIDDER
October 30, 2009	Fifteen roads were closed due to high water in the western portion of the parish. Five of those roads remained closed the next day.	Flash Flood	$10,000	UNINCORPORATED AREA
October 30, 2009	As floodwaters continued to drain towards the Sabine River from the previously mentioned storm, rising water along Brushy Creek washed a car off Friendship Road approximately 1 mile east of the Bancroft community.	Flood	$50,000	UNINCORPORATED AREA
November 1, 2009	River flooding along the Sabine River cut off several residences from outside areas requiring boats to access properties. No homes were reportedly flooded.	Flood	$1,000,000	UNINCORPORATED AREA

Date	Extents	Type of Flooding	Estimated Damages	Location
February 4, 2012	Localized flooding in DeRidder occurred when 3 to 6 inches of rain fell in the area. Water levels along Pine Street reportedly topped the tires of a car attempting to drive through the flood waters.	Flash Flood	$10,000	DERIDDER
March 20, 2012	Between 10 and 16 inches of rain fell across the western half of Beauregard Parish flooding 106 homes and closing roadways in and around DeRidder, Merryville, and Fields. Water was reported to be around five feet deep over portions of Highway 27 and 110.	Flash Flood	$1,840,000	DERIDDER, MERRYVILLE, AND UNINCORPORATED AREA
March 21, 2012	Heavy rains inundated the pumps for the Town of Merryville leaving the city without potable water. Around 20-30 homes around Bundick Lake reported flooding.	Flood	$0	MERRYVILLE AND UNINCORPORATED AREA

Based on previous flood events, the worst-case scenarios are based on several different types of flooding events. Storm water excesses and riverine flooding affect primarily the low lying areas of the parish and flood depths of up to five feet can be expected in the unincorporated areas of the parish and the Town of Merryville located in the Sabine River floodplain. The low-lying areas outside of the Sabine River floodplain can expect flood depths from two to four feet. Based on historical records the worst case scenario for the City of DeRidder is flooding levels of approximately two to four feet.

Frequency / Probability

While other parts of this plan, along with the State's Hazard Mitigation Plan have relied on the SHELDUS database to provide the annual probability, because Beauregard Parish has multiple jurisdictions it was necessary to assess the historical data found in the National Climatic Data Center for Beauregard Parish and its jurisdictions to properly determine probability for future flood events. The table below shows the probability and return frequency for each jurisdiction.

Table 2-21: Flood Annual Probabilities for NAME Parish.

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

Based on historical record, the overall probability for the entire Beauregard Parish Planning area is 100% with twenty-nine events occurring over a twenty-five year period. Based on the State's Hazard Mitigation Plan and the amount of significant flood events that have taken place throughout the parish, the Beauregard Parish Planning area can anticipate having one to two flooding events a year.

Estimated Potential Losses

Using Hazus 2.2 Flood Model the 100 year flood scenario, along with the Parish DFIRM, was analyzed to determine losses from this worst-case scenario. Table 2-22 shows the total economic losses that would result from this occurrence.

Table 2-22: Estimated Losses in Beauregard Parish from a 100 year Flood Event. (Source: Hazus 2.2)

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

The Hazus 2.2 Flood model also provides a breakdown by jurisdiction for seven primary sectors (Hazus occupancy) throughout the parish. The losses for each jurisdiction by sector are listed in the tables below.

Table 2-23: Estimated 100 year Flood Losses for Unincorporated Beauregard Parish by Sector. (Source: Hazus 2.2)

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
Totals	$285,015,000

Table 2-24: Estimated 100 year Flood Losses for DeRidder by Sector. (Source: Hazus 2.2)

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
Totals	$40,246,000

Table 2-25: Estimated 100 year Flood Losses for Merryville by Sector. (Source: Hazus 2.2)

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
Totals	$9,062,000

Threat to People

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

Table 2-26: Vulnerable Populations Susceptible to a 100 year Flood Event. (Source: Hazus 2.2)

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 2.2 flood model was also extrapolated to provide an overview of vulnerable populations throughout the jurisdictions in the tables below:

Table 2-27: Vulnerable Populations Susceptible to a 100 year Flood Event in Unincorporated Beauregard Parish.
(Source: Hazus 2.2)

Beauregard Parish (Unincorporated)		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	16,984	70.8%
Persons Under 5 years	1,121	6.6%
Persons Under 18 years	4,280	25.2%
Persons 65 Years and Over	2,395	14.1%
White	13,944	82.1%
Minority	3,040	17.9%

Table 2-28: Vulnerable Populations Susceptible to a 100 year Flood Event in DeRidder.
(Source: Hazus 2.2)

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 2-29: Vulnerable Populations Susceptible to a 100 year Flood Event in Merryville.
(Source: Hazus 2.2)

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 depth from one to more than 100 feet—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. 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 in 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. As depicted in Figure 2-16, the North Stark Salt Dome's two mile buffer extends into the southern unincorporated area of Beauregard Parish.

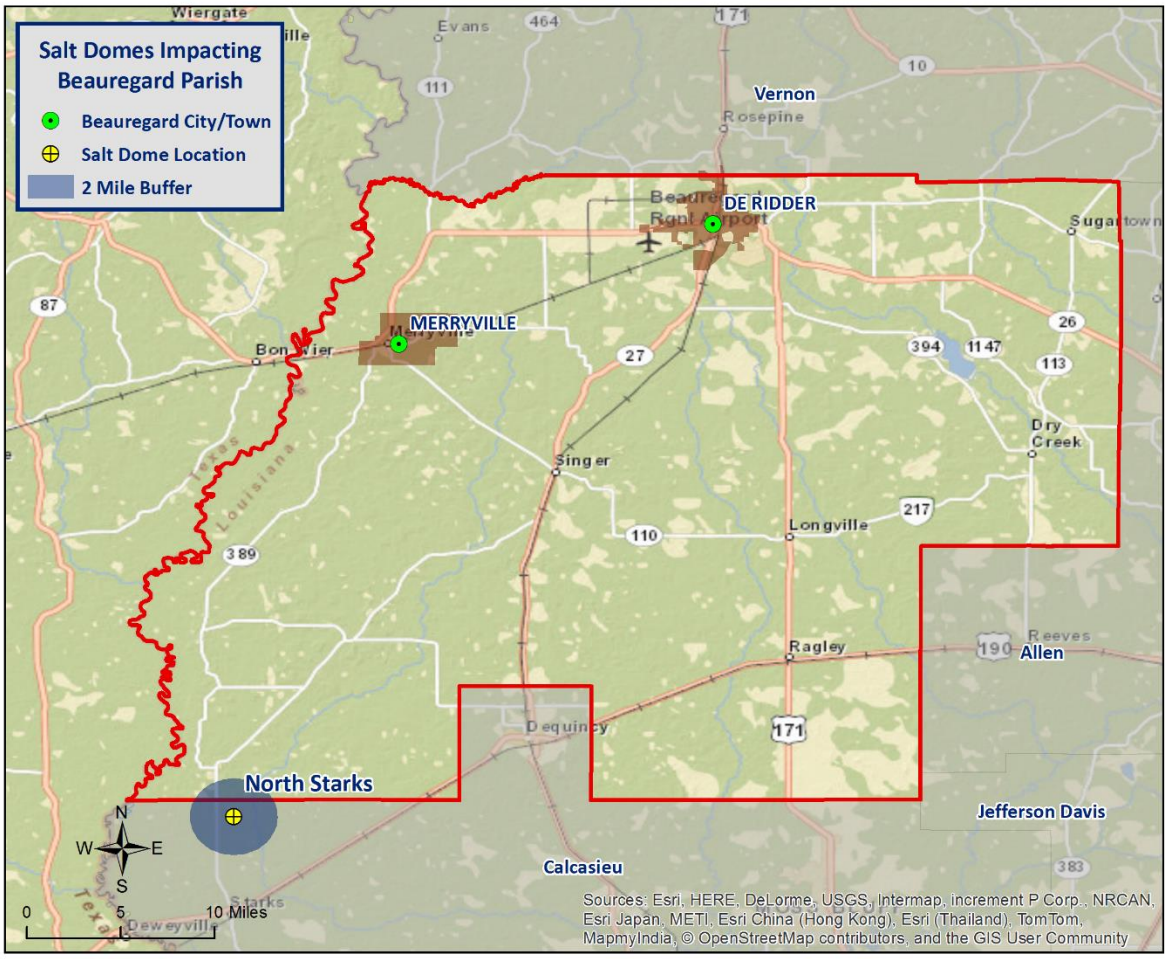

Figure 2-16: Salt Dome Locations in Beauregard Parish Relative to Jurisdictions.

Previous Occurrences / Extent

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

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 Salt Dome whose two mile buffer extends into the unincorporated area of Beauregard Parish. The following table is based on conducting a two mile buffer around the center of the salt dome. The values were determined by querying the 2010 U.S. Census block data to determine the number of houses and people located within two miles of the salt dome. Critical facilities were also analyzed to determine if they fell within the two mile buffer of the salt dome. Total value for all occupancy group from Hazus 2.2 was used to estimate a total loss of all facilities that were within two miles of a salt dome.

Table 2-30: Estimated Potential Losses from a Sinkhole formation.
(Source: U.S. 2010 Census Data and Hazus-2.2)

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 since there has been no occurrence of the salt dome collapsing the impact is minimal.

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, multi-cell, 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 multi-cell 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 one 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. Table 2- displays a spectrum of hailstone diameters and their everyday equivalents.

The following tables display the TORRO Hailstorm Intensity Scale along with a spectrum of hailstone diameters and their everyday equivalents.

Table 2-31: 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

Intensity Category		Hail Diameter (mm)	Probable Kinetic Energy	Typical Damage Impacts
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 2-32: 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 2-323.

Table 2-323: 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 2-334 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 2-334: 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.

Hazard Profile

Hailstorms

Location

Because it is a climatological based hazard, the entire planning area for Beauregard Parish is equally at risk for hailstorms.

Previous Occurrences / Extents

The SHELDUS database reports one significant hailstorm occurring within the boundaries of Beauregard Parish between the years of 1989-2014. The hailstorm diameters experienced in Beauregard Parish have ranged from 0.75 inches to 2.5 inches according to the National Climatic Data Center since 1989. The most frequently recorded hail size has been 0.75 inch diameters. Figure 2-17 displays the density of hailstorms in Beauregard parish and adjacent parishes. Table 2-35 provides an overview of hail storms that have impacted the Beauregard Parish Planning area since 2009 based on the National Climatic Data Center dataset. Beauregard Parish can expect to experience hail up to 2.5 inches for future events.

Table 2-35: Previous Occurrences of Hailstorms in Beauregard Parish. (Source: NCDC)

Date	Recorded Hail Size	Location
March 27, 2009	0.75 inches	MERRYVILLE
March 27, 2009	1 inches	BANCROFT
March 27, 2009	0.88 inches	SINGER
March 27, 2009	1.5 inches	SINGER
March 27, 2009	1.75 inches	LONGVILLE
March 27, 2009	1 inches	RAGLEY

Date	Recorded Hail Size	Location
March 27, 2009	2.5 inches	LONGVILLE
March 27, 2009	2.75 inches	RAGLEY
March 27, 2009	1.5 inches	CARSON
June 2, 2011	0.75 inches	DRY CREEK
April 2, 2012	0.75 inches	RAGLEY
June 6, 2012	1.75 inches	DERIDDER
June 13, 2012	0.75 inches	LONGVILLE
February 18, 2013	1 inches	MERRYVILLE
May 9, 2013	2.5 inches	CARSON
December 23, 2014	2 inches	SUGARTOWN
December 23, 2014	0.75 inches	MERRYVILLE

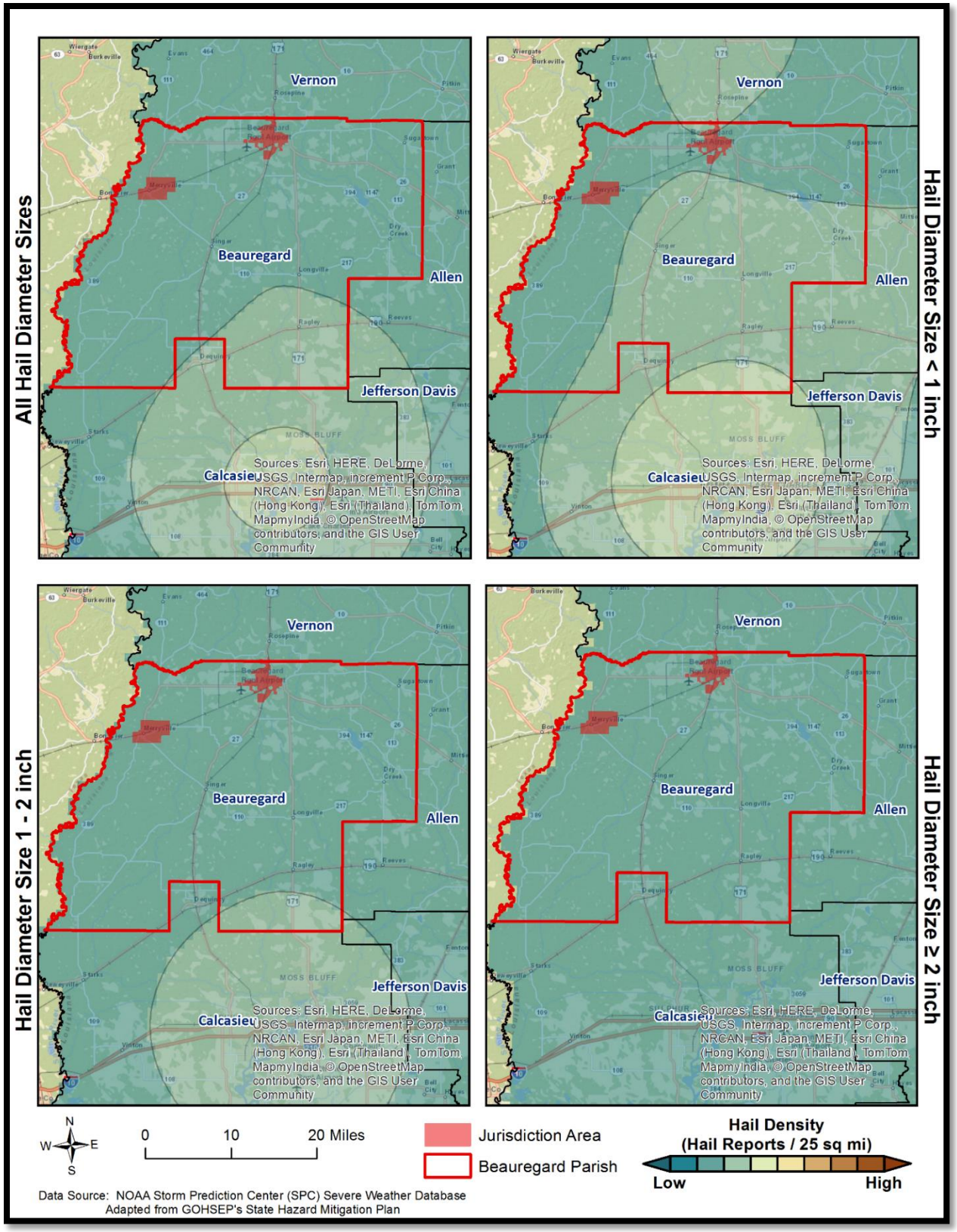

Figure 2-17 : Density of Hailstorms by Diameter from 1950-1964.
(Source: State of Louisiana Hazard Mitigation Plan 2014)

Frequency

Based on historical data from SHELDUS for the past twenty-five years, it is estimated the probability of occurrence for a significant hailstorm event is approximately 4%, with a return frequency of less than once every eight years. The probability was determined based on a review of significant hail data that has caused damages in the last twenty five years, in which Beauregard Parish has had one recorded event.

Estimated Potential Losses

According to the SHELDUS database, property damage due to hailstorms in Beauregard Parish has totaled approximately $199,489 since 1960. A list of total damages by event can be found in Table 2-34. To estimate the potential losses of a severe weather event on an annual basis, the total damages recorded for hailstorms was divided by the total number of years of available hailstorm data in SHELDUS (1960 – 2014). This provides an annual estimated potential loss of $3,694. The following table provides an estimate of potential property losses for Beauregard Parish:

Table 2-346: Property Damage Caused by Hailstorms in Beauregard Parish. (Source: SHELDUS)

Date	Property Damage
April 1962	$3,013
May 1963	$0
July 1963	$1,983
April 1964	$14,677
June 1967	$1,816
July 1967	$1,362
May 1968	$1,691
July 1970	$834
March 1971	$11,234
March 1972	$13,933
November 1972	$1,089
April 1975	$108,251
May 1975	$11,276
April 1976	$5,118
May 1978	$17,515
May 1985	$1,546
June 1992	$4,151

Table 2-357: Estimated Annual Property Losses in Beauregard Parish from Hailstorms.

Estimated Annual Potential Losses from Hailstorms for Beauregard Parish		
Unincorporated Beauregard Parish (67.2% of Population)	DeRidder (29.7% of Population)	Merryville (3.1% of Population)
$2,484	$1,096	$114

The Parish has suffered no deaths or injuries due to hailstorms from 1989 – 2014.

Vulnerability

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

High Winds

Location

Because high winds are a climatological based hazard, the entire planning area for Beauregard Parish is equally at risk for high winds.

Previous Occurrences / Extents

The SHELDUS database reports a total of 102 thunderstorm wind events occurring within the boundaries of Beauregard Parish between the years of 1989-2014. The significant thunderstorm wind events experienced in Beauregard Parish have ranged from a wind speed of 13 mph to 101 mph. Beauregard Parish can expect to receive thunderstorm winds up to 101 mph for future high wind events.

Table 2-368: Previous Occurrences for Thunderstorm High Wind Events.

Location	Date	Recorded Wind Speeds (mph)	Property Damage	Crop Damage
KERNAN	March 25, 2009	58	$2,000	$0
RAGLEY	March 25, 2009	58	$3,000	$0
SUGARTOWN	March 25, 2009	58	$5,000	$0
CARSON	April 2, 2009	60	$2,000	$0
DERIDDER	June 3, 2009	60	$5,000	$0
DERIDDER	July 15, 2009	60	$10,000	$0
RAGLEY	August 26, 2009	60	$0	$2,000
DRY CREEK	August 5, 2010	60	$1,000	$0
DRY CREEK	August 5, 2010	60	$1,000	$0
LONGVILLE	February 1, 2011	60	$5,000	$0
RAGLEY	March 29, 2011	60	$2,000	$0
DRY CREEK	August 24, 2011	58	$2,000	$0
FIELDS	December 22, 2011	58	$8,000	$0
SINGER	May 31, 2012	58	$2,000	$0

DE RIDDER	June 13, 2012	58	$4,000	$0
MERRYVILLE	December 25, 2012	58	$2,000	$0
RAGLEY	April 24, 2013	58	$2,000	$0
GORDON	June 6, 2013	58	$1,000	$0
DERIDDER	March 2, 2014	58	$10,000	$0
DERIDDER	October 13, 2014	58	$3,000	$0

Frequency

High winds are a fairly common occurrence within Beauregard Parish with an annual chance of occurrence calculated at 100%. According to the State Hazard Mitigation Plan, Beauregard parish has a future probability of experiencing two to four wind events annually.

Estimated Potential Losses

Since 1989, there have been 102 significant wind events that have resulted in property damages according to the SHELDUS database. The total property damages associated with those storms have totaled $900,438. 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 SHELDUS (1989 – 2014). This provides an annual estimated potential loss of $36,018. The following table provides an estimate of potential property losses for Beauregard Parish:

Table 2-379: Estimated Annual Property Losses in Beauregard Parish Resulting from Wind Damage.

Estimated Annual Potential Losses from Thunderstorm Winds for Beauregard Parish		
Unincorporated Beauregard Parish (67.2% of Population)	**DeRidder (29.7% of Population)**	**Merryville (3.1% of Population)**
$24,217	$10,686	$1,114

There have been no reported injuries or fatalities as a result of a thunderstorm wind event over the twenty-five year record.

Vulnerability

See appendix C-1 to C-2 for parish and municipality buildings that are susceptible to high winds.

Lightning

Location

Like hail and high winds, lightning is a climatological based hazard and has the same probability of occurring throughout the entire planning area for Beauregard Parish.

Previous Occurrences / Extent

The SHELDUS database reports a total of four lightning events occurring within the boundaries of Beauregard Parish between the years of 1989-2014. The SHELDUS database only records lightning events that cause death, injuries, crop damage, and/or property damage, so these numbers do not accurately reflect the number of lightning events in Beauregard Parish which occur on a nearly monthly basis. The

table below provides an overview of significant lightning strikes over the last five years. Beauregard Parish can expect to experience a lightning activity level of 2 with approximately one to eight cloud-to-ground lightning strikes in a fifteen minute period.

Table 2-40: 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	

Table 2-41: Previous Occurrences of Significant Lightning Strikes in Beauregard Parish from 1989 – 2014. (Source: NCDC and SHELDUS)

Location	Date	Summary	Property Damage
LONGVILLE	January 1, 1996	Lightning struck a tree near two men working on a roof. Lightning traveled through the tree striking the two men resulting in one fatality.	$0
DERIDDER	August 9, 1997	A lightning strike caused an electrical surge in ungrounded lines causing a small fire to the Beauregard Parish E-911 computers.	$14,514
DERIDDER	June 27, 2000	Lightning struck near three businesses in DeRidder causing power surges. All appliances in	$33,821

Location	Date	Summary	Property Damage
		one restaurant had be replaced due to the surge.	
MERRYVILLE	July 4, 2002	Lightning struck an oak tree that two fishermen were using as cover from the thunderstorm. Lightning traveled through the tree and struck one of the fisherman resulting in a fatality.	$0

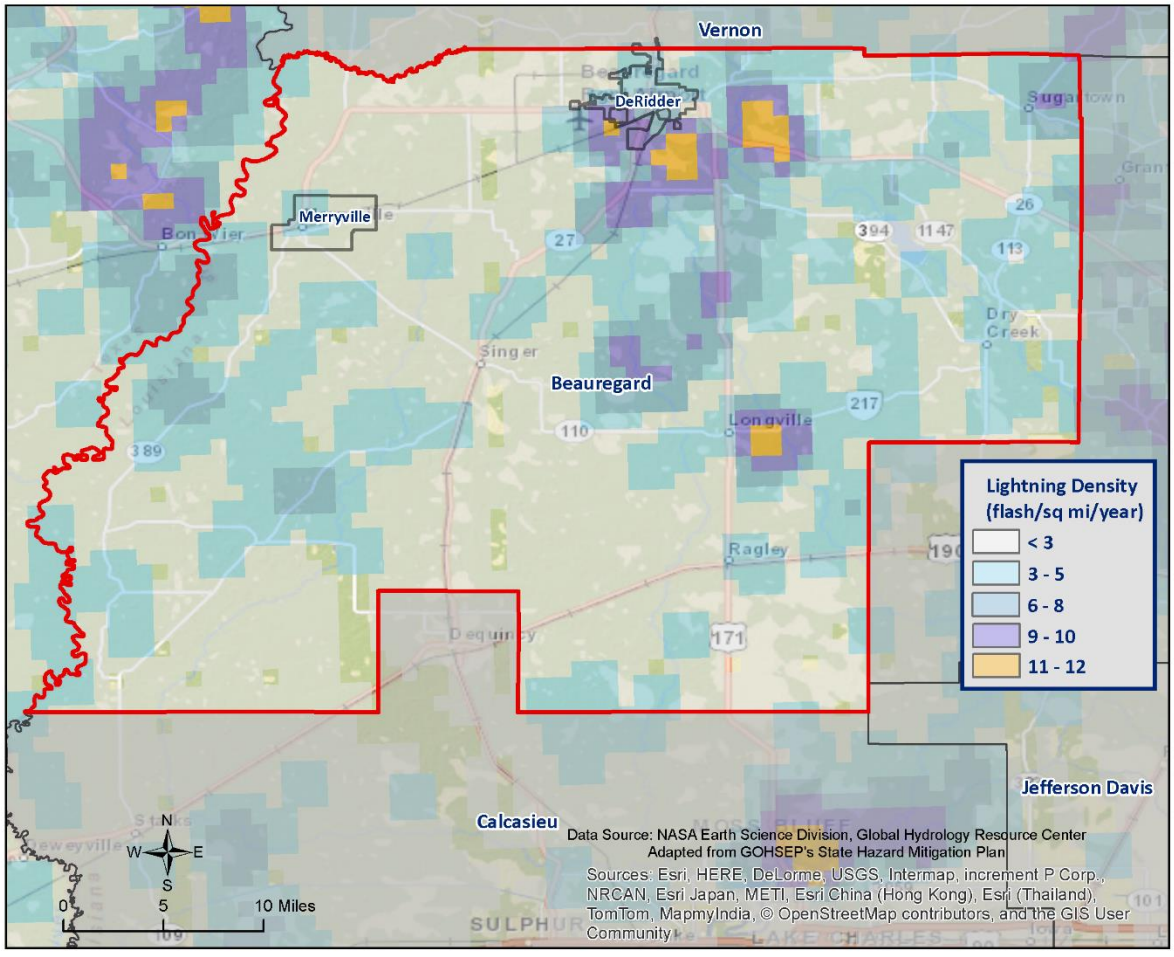

Figure 2-18: Lightning Density Reports for Beauregard Parish.

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 SHELDUS and the NCDC that actually results in damages to property and injury or death to people is a less likely event. According to the State Hazard Mitigation Plan, a major lightning strike in Beauregard parish is likely to occur every four to eight years. This is consistent with SHELDUS, which has four lightning events that have caused property damages or injuries over the last twenty-five years, establishing an annual probability of 16%.

Estimated Potential Losses

Since 1989, there have been four significant lightning strikes with two of those strikes resulting in property damages according to the SHELDUS database. The total property damages associated with lightning events totaled $48,335. 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 major lightning strike data in SHELDUS (1989 – 2014). This provides an annual estimated potential loss of $1,933. The following table provides an estimate of potential property losses for Beauregard Parish:

Table 2-42: Estimated Annual Property Losses in Beauregard Parish from Lightning.

Estimated Annual Potential Losses from Thunderstorm Winds for Beauregard Parish		
Unincorporated Beauregard Parish (67.2% of Population)	**DeRidder (29.7% of Population)**	**Merryville (3.1% of Population)**
$1,300	$574	$60

There have been one reported injury and two fatalities in Beauregard Parish as a result of a lightning strikes over the twenty-five 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 2-43 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. Adjustment between scales can be made using Table 2-44.

Table 2-43: 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 2-44: 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*: Issued when a tornado has been spotted or when Doppler 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 jurisdictions are equally at risk for tornadoes.

Previous Occurrences / Extent

SHELDUS reports a total of twenty-four tornadoes or waterspouts occurring within the boundaries of Beauregard Parish between the years of 1989-2014. The tornadoes experienced in Beauregard Parish have ranged EF0 to EF1 on the EF scale and ranged from F0 to F2 on the F scale. The worst case scenario Beauregard Parish can expect in the future is an EF1 tornado.

The tornado that caused the most damage to property occurred on December 3, 1973. The F2 tornado was responsible for over $2.5 million in damage. The tornado touched down in the unincorporated area of Beauregard Parish. The tornado responsible for the most injuries occurred on June 7, 1989. The tornado travelled between Longville and Dry Creek causing six injuries. There have been no fatalities in Beauregard Parish as a result of tornadoes.

Table 2-385: Historical Tornadoes in Beauregard Parish with Locations from 1989-2014.

Date	Impacts	Property Damage	Location	Magnitude
June 7, 1989	5 mile path with a width of 77 yards. 12 homes were severely damaged and 6 people suffered minor injuries.	$93,934	UNINCORPORATED AREA	F2
April 27, 1990	3 mile path with a width of 73 yards.	$8,920	UNINCORPORATED AREA	F1
April 27, 1990	0.8 mile path with a width of 30 yards.	$883	UNINCORPORATED AEA	F1
November 19, 1991	0.5 mile path with a width of 20 yards. Downed several trees.	$8,552	UNINCORPORATED AREA	F1
June 3, 1992	16 mile path with a width of 50 yards. Downed numerous trees and power lines. Moved a mobile home off its foundation.	$4,151	UNINCORPORATED AREA	F1
April 7, 1993	43 mile path with a width of 100 yards. Destroyed 4 homes and severely damaged 4 homes, 5 mobile homes, and 2 businesses. Injured 5 people.	$80,608	UNINCORPORATED AREA	F2
April 12, 1996	0.3 mile path with a width of 30 yards. Downed numerous trees and several homes sustained roof damage.	$22,271	DERIDDER	F0
October 23, 1997	4 mile path with a width of 200 yards. More than 90 homes and businesses sustained some kind of	$723,909	MERRYVILLE	F2

Date	Impacts	Property Damage	Location	Magnitude
	damage. 5 major injuries reported.			
October 23, 1997	5 mile path with a width of 20 yards. 2 barns destroyed and a roof blown off a house.	$38,100	DERIDDER	F1
January 2, 1999	1 mile path with a width of 100 yards. Destroyed 1 mobile home and scattered the debris over a mile.	$83,898	RAGLEY	F2
January 2, 1999	3 mile path with a width of 400 yards. Damaged several homes and ripped the roof off of one hoe. Numerous trees were downed near Highway 113.	$77,606	DRY CREEK	F1
January 2, 1999	5 mile path with a width of 400 yards. Damaged several homes near Highway 113 and downed numerous trees.	$48,241	SUGARTOWN	F2
March 2, 1999	6 mile path with a width of 200 yards. Damaged a roof of a home in the Bancroft area. Downed several trees along Highway 389.	$70,265	BANCROFT	F1
March 2, 1999	4 mile path with a width of 100 yards. Downed several trees between DeQuincy and Starks along the Beauregard-Calcasieu parish line.	$34,608	FIELDS	F1
October 13, 2001	0.5 mile path with a width of 10 yards. One mobile home was destroyed when a tree fell on it.	$65,770	MERRYVILLE	F1
December 12, 2001	2 mile path with a width of 10 yards. 1 home received shingle damage and a semi-truck was blown over.	$131,540	DE RIDDER	F1
October 29, 2002	1 mile path with a width of 20 yards. 7 mobile homes were	$388,477	ORETTA	F1

Date	Impacts	Property Damage	Location	Magnitude
	destroyed and an elderly couple received minor injuries when the mobile home flipped over.			
November 26, 2003	16 mile path with a width of 100 yards. The worst damage occurred along Highway 26 where 2 mobile homes were flipped over. Debris was scattered for half a mile. 1 home was completely destroyed.	$1,266,071	CARSON	F2
May 15, 2008	4.92 mile path with a width of 50 yards. Partially removed a roof to a barn and destroyed a mobile home. 2 people received minor injuries.	$107,930	SHEAR	EF1
May 15, 2008	0.29 mile path with a width of 25 yards. Uprooted and downed several trees along highway 171.	$5,680	CARSON	EF0
February 4, 2012	4.33 mile path with a width of 20 yards. Removed part of a roof off of a barn, damaged several outbuildings, and removed the trip work from a couple of homes.	$101,465	SHEAR	EF1
May 9, 2013	1.04 mile path with a width of 20 yards. Downed several pine trees.	$10,000	SINGER	EF0
October 31, 2013	7.89 mile path with a width of 150 yards. Destroyed numerous homes and many homes sustained roof damage from downed trees or broken limbs.	$396,000	KERNAN	EF1
October 31, 2013	2.48 mile path with a width of 75 yard. Minor tree damage.	$4,000	KERNAN	EF0

Since 2010, the year the last update to this hazard mitigation plan was written, Beauregard parish has had four tornado touch downs. There have been no tornadoes impacting the incorporated areas of Merryville or DeRidder during this time period. The following is a brief synopsis of these events:

February 4, 2012 – EF1 Tornado in Shear

As a cold front moved across Louisiana, a tornado developed and touched down near DeRidder. The tornado touched down on Maul Road blowing down trees. The most extensive damage occurred along Granberry Road where it tore part of a roof off a large barn, damaged several outbuildings, and blew the trip off of a couple of homes.

May 9, 2013 – EF0 Tornado in Singer

Multiple short waves moved across the region while a north flow remained in place causing multiple rounds of severe weather in the area. An EF0 tornado touched down along Highway 110 west of Singer blowing down numerous pine trees. Many of these trees fell on power lines causing power outages in the area.

October 31, 2013 – EF1 Tornado in Kernan

A line of thunderstorms moved out of Texas and into Louisiana. A tornado spawned from this system west of Highway 171 near Camp Edgewood Drive. The tornado traveled northeast across Highway 171 and peaked in intensity at the intersection of Gaytline Road and Connie Jackson Road. The path continued northeast and dissipated near Parish Road 152 and the Texas Eastern Road near Boggy Creek. Many trees were downed or damaged with some falling onto homes causing major roof damage. Awnings and gutters were damaged and numerous sheds destroyed.

October 31, 2013 – EF1 Tornado in Kernan

A second tornado spawned from the previous mentioned storm system touching down on the east end of Hoffpauir Road. The tornado moved across Highway 171 and dissipated near the intersection of Newt Hodges Road and Foreman Road. Only minor tree damaged was noted along the path.

Frequency / Probability

Tornadoes are a sporadic occurrence within Beauregard Parish with an annual chance of occurrence calculated at 96% based on the records for the past 25 years (1989-2014). Figure 2- displays the density of tornado touchdowns in Beauregard Parish and neighboring parishes. Based on the State Hazard Mitigation Plan, the overall probability of a tornado touching down in Beauregard Parish is once every one to two years.

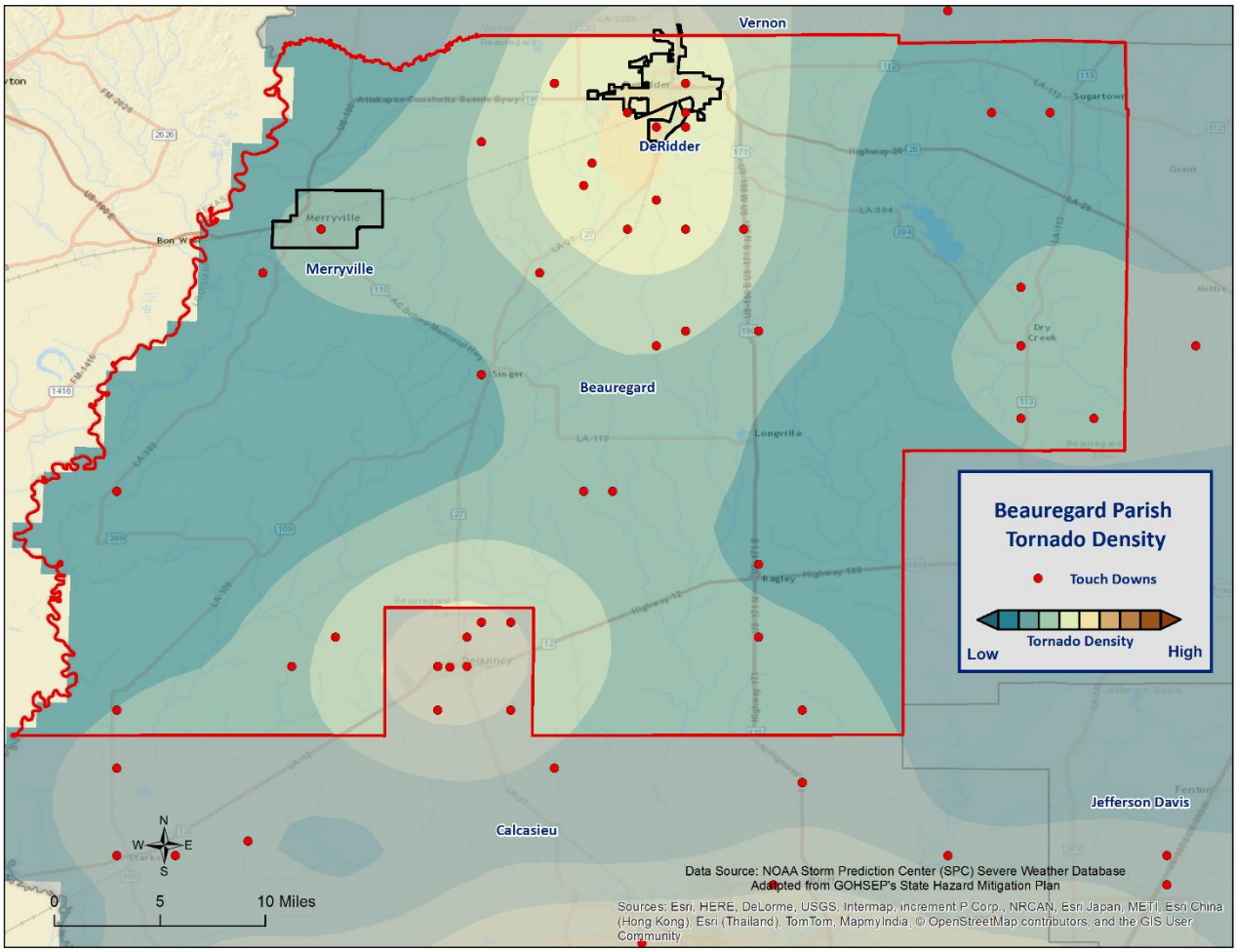

Figure 2-19: Location and Density of Tornadoes to Touchdown in Beauregard Parish. (Source: NOAA/SPC Severe Weather Database)

Estimated Potential Loses

According to the SHELDUS database, there have been twenty-four tornadoes that have caused some level of property damage. The total damage from the actual claims for property is $3,781,790 with an average cost of $157,575 per tornado strike. When annualizing the total cost over the 25 year record, total annual loses based on tornadoes are estimated to be $151,272. To provide an estimated annual estimated potential loss per jurisdiction, the 2010 Census population was used to assign the estimated potential losses proportionally across the jurisdictions. Based on the 2010 Census data,

Table *2-39*6 provides an annual estimate of potential losses for Beauregard parish.

Table 2-396: Estimated Annual Losses for Tornadoes in Beauregard Parish.

Estimated Annual Losses for Tornadoes in Beauregard Parish		
Beauregard Parish (Unincorporated) (67.2% of Population)	DeRidder (29.7% of Population)	Merryville (3.1% of Population)
$101,712	$44,880	$4,680

Table 2-407 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 2-407: Building Exposure by General Occupancy Type for Tornadoes in Beauregard Parish. (Source: FEMA's Hazus 2.2)

Building Exposure by General Occupancy Type for Tornadoes Exposure Types ($1,000)							
Residential	Commercial	Industrial	Agricultural	Religion	Government	Education	Mobile Homes (%)
2,409,057	266,642	77,994	14,465	79,602	27,311	26,406	30.5%

The Parish has suffered through a total of six days in which tornadoes or waterspouts have accounted for twenty-four injuries and no fatalities during this twenty-five year period (Table 2-48). The average injury per event for Beauregard parish is one per tornado with an average of 0.96 per year for the twenty-five year period.

Table 2-418: Tornadoes in Beauregard Parish by Magnitude that Caused Injuries or Deaths.

Date	Magnitude	Deaths	Injuries
June 7, 1989	F2	0	6
April 7, 1993	F2	0	5
October 23, 1997	F2	0	4
October 29, 2002	F1	0	2
November 26, 2003	F2	0	5
May 15, 2008	EF1	0	2

In assessing 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. Based on location data collected in a previous hazard mitigation project, there are five known locations where manufactured housing is concentrated. Those five locations have an overall number of manufactured houses ranging from one to seventy. The location and density of manufactured houses can be seen in Figure 2-18.

Manufactured housing is more likely to sustain damage from a tornado than any other residential structure. The highest concentration of manufactured home parks is located within the unincorporated area of Beauregard Parish (Table 2-429). However, this does not influence the risk associated with a

tornado event since they strike at random making all structures and population within the planning area equally vulnerable.

Table 2-429: Percentage of Manufactured Home Parks in Each Jurisdiction within Beauregard Parish.

Location	Number of Manufactured Home Parks	% of Manufactured Home Parks
Unincorporated Area	3	60%
DeRidder	2	40%
Merryville	0	0%

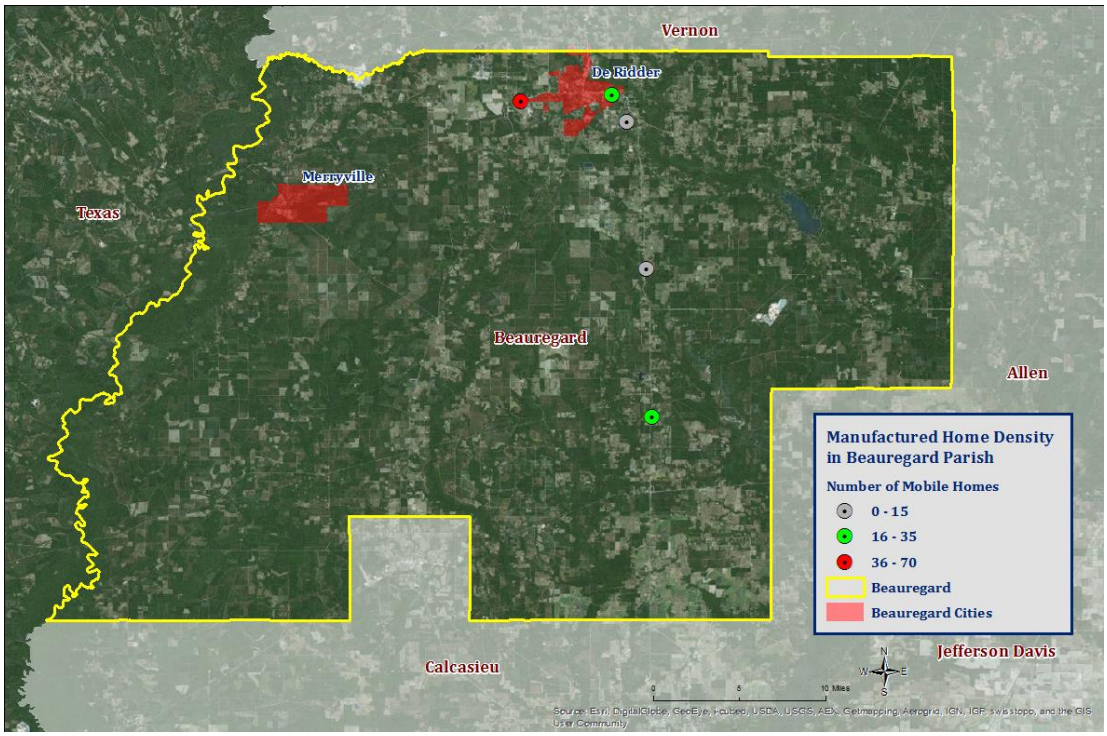

Figure 2-180: Location and Approximate Number of Units in Manufactured Housing Locations throughout Beauregard Parish.

Vulnerability

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

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, forming a tropical depression (defined when the maximum sustained

surface wind speed is 38 mph or less), then a tropical storm (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). Table 2- presents the Saffir-Simpson Hurricane Wind Scale, which categorizes tropical cyclones based on sustained winds.

Table 2-50: 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	
Tropical Storm	39-73 mph	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 likely will 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 will 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 rain, 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 twenty 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 as 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 10 m in some places that can inflict high numbers 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 in St. Bernard Paris, near Alluvial City.

Property can be damaged by the various forces that accompany a tropical storm. 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 pressures 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). Buildings needing maintenance and mobile homes are most subject to wind damage. High winds result in larger waves. Extended pounding by waves can demolish any structure not properly designed. The waves also erode sand beaches, roads, and foundations. When foundations are undermined, 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 hurricane having the potential to devastate multiple parishes during a single event, the risk of a tropical cyclone has the probability of impacting anywhere within the planning area for Beauregard Parish. As such, all jurisdictions are equally at risk for tropical cyclones.

Previous Occurrences / Extent

The central Gulf of Mexico coastline is among the most hurricane-prone locations in the United States, and hurricanes can affect every part of the state. The SHELDUS database reports a total of six tropical cyclone events occurring within the boundaries of Beauregard Parish between the years 2002-2014 (Table 2-51). The tropical cyclone events experienced in Beauregard Parish include depressions, storms, and

hurricanes. As a worst case scenario, Beauregard Parish can expect to experience hurricanes at the Category 4 level in the future.

Table 2-51: Historical Tropical Cyclone Events in Beauregard Parish from 2002- 2014. (Source: SHELDUS)

Date	Name	Storm Type While Impacting Parish Name Parish
October 3, 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

Hurricane Audrey (1957)

Hurricane Audrey made landfall on June 27, 1957 near the Texas/Louisiana border causing a disastrous storm surge. The highest storm surge measured was 12.4 feet in Cameron Parish. Waves associated with the storm were monstrous. In the Gulf of Mexico, seas of 45 to 50 feet were reported and waves in Cameron Parish reached as high as twenty feet above mean sea level. Approximately 526 people died due to Hurricane Audrey and damages in Louisiana totaled approximately $120 million.

Hurricane Lili (2002)

Hurricane Lili made landfall on the Louisiana coast on October 3, 2002 with an estimated intensity of 80 knots. Although Lili weakened considerably before making landfall on the central Louisiana coast, it caused significant wind and flood damage in the area. Strong winds toppled trees onto houses and into roadways, stripped shingles from roofs, and blew out windows. The wind and driving rain flattened sugar cane fields throughout southern Louisiana. A combination of storm surge and rain caused levees to fail in Montegut and Franklin, Louisiana. Lili also temporarily curtailed oil production in the Gulf of Mexico.

Beauregard Parish was subjected to 40 to 50 mile per hour winds and moderate rain of one to two inches. No parish wide evacuations were ordered, however, four shelters were established for residents living in low-lying areas, trailers, and older homes that may have been at risk to the high winds. A significant number of evacuees were sheltered as they evacuated Cameron and Calcasieu parishes. It was estimated that approximately 200 individuals were sheltered in the four shelters with an additional sixty special needs (elderly and special needs patients from nursing homes and home health agencies).

Hurricane Rita (2005)

While Hurricane Katrina and resulting levee failures captured headlines worldwide, lesser known but just as destructive Hurricane Rita wreaked havoc on southwestern Louisiana less than a month later. The storm made landfall as a Category 3 hurricane in Cameron Parish. Across southeast Louisiana, the main affect from Hurricane Rita was the substantial storm surge flooding that occurred in low lying communities across coastal areas of southern Terrebonne, southern Lafourche, and southern Jefferson Parishes where numerous homes and businesses were flooded. Some of the most substantial damage

occurred in southern Terrebonne Parish where storm surge of 5 to 7 feet above normal overtopped or breached local drainage levees inundating many small communities. Newspaper accounts indicated approximately 10,000 structures were flooded in Terrebonne Parish. Lafitte and other communities in lower Jefferson Parish also suffered extensive storm surge flooding. Storm surge flooding also occurred in areas adjacent to Lake Pontchartrain and Lake Maurepas with some homes and businesses flooded from Slidell to Mandeville and Madisonville. Approximately 1,500 structures were reported flooded in Livingston Parish near Lake Maurepas. Repaired levees damaged by Hurricane Katrina in late August were overtopped or breached along the Industrial Canal in New Orleans resulting in renewed flooding in adjacent portions of New Orleans and St. Bernard Parish, although the flooding was much more limited in areal coverage than during Hurricane Katrina.

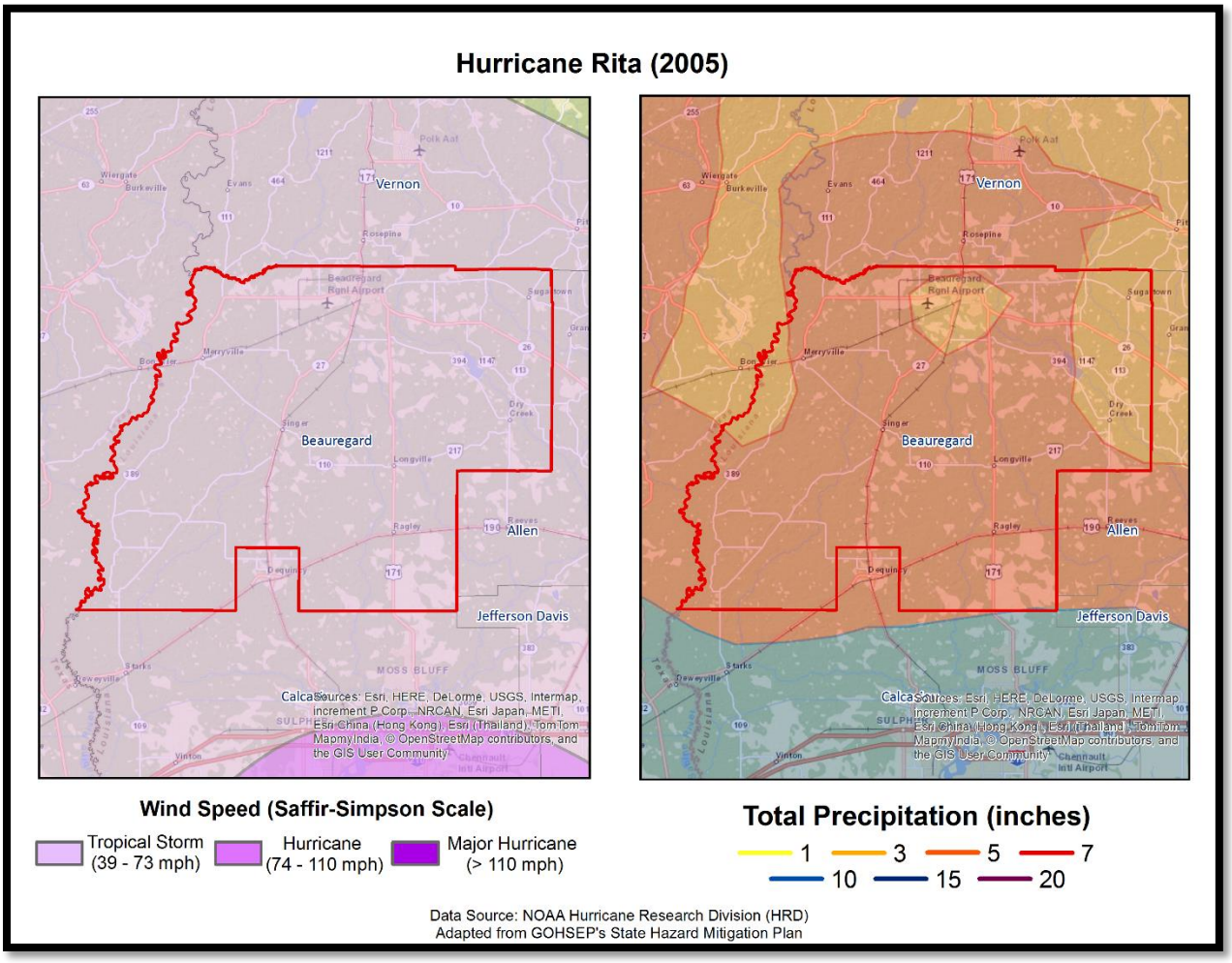

Figure 2-191: Wind Speed and Precipitation Totals for Hurricane Rita in Beauregard Parish.

The eye path of Hurricane Rita passed just west of the Sabine River in Texas putting the parish on the most destructive, northeast side of the storm. The NCDC dataset reports wind gusts in excess of 90 mph impacting Beauregard Parish, while maximum sustained winds were approximately 70 mph. The southwest quadrant of Beauregard Parish suffered the most damage. Hurricane Rita destroyed an estimated three billion board feet of timber with an estimated value of $61 million. This loss reduced

timber prices due to a short-term glut. In the long term window, it affected the timber supply and resulted in a decreased job market. Aside from the decline in the timber job market, there were other consequences associated with the damaged timber crop. Economic development was affected and the environment was impacted with a higher threat of increased flooding, insect infestation, and the spread of exotic species and forest fires.

Furthermore, the hurricane also brought along with it massive rainfall causing parts of Beauregard Parish to flood. In some parts, the National Guard had to be brought in to rescue some of the residents who were trapped in their homes by the water. Untreated waste water overflowed to streams from the Merryville treatment plant and several lift stations. An estimated 130,000 cubic yards of debris was removed from Beauregard Parish's public areas.

Along with many other damages to Beauregard Parish, commercial and business facilities in downtown DeRidder, as well as other retail districts, were also damaged. Downtown DeRidder suffered significant erosion of viability of the business district as a result of businesses relocating. In addition to timber and property damage, Beauregard Parish also endured environmental destruction.

Hurricane Gustav (2008)

Hurricane Gustav emerged into the southeast Gulf of Mexico as a major Category 3 hurricane on August 31st after developing in the Caribbean Sea and moving across western Cuba. Gustav tracked northwestward across the Gulf toward Louisiana and made landfall as a Category 2 hurricane near Cocodrie, Louisiana during the morning of September 1st. Gustav continued to move northwest across south Louisiana and weakened to a Category 1 storm over south central Louisiana later that day. The storm diminished to a tropical depression over northwestern Louisiana on September 2nd.

The highest wind gust recorded was 102 knots or 117 mph at a USGS site at the Houma Navigational Canal and at the Pilot Station East C-MAN at near the Southwest Pass of the Mississippi River. The highest sustained wind of 91 mph was recorded at the Pilot's Station East C-MAN site. However, due to the failure of equipment at some observation sites during the storm higher winds may have occurred. The minimum sea level pressure measured was 951.6 millibars at a USGS site at Caillou Lake southwest of Dulac and 954.5 millibars at the LUMCON facility near Dulac. Rainfall varied considerably across southeast Louisiana ranging from around four inches to just over eleven inches.

Gustav produced widespread wind damage across southeast Louisiana, especially in the area from Houma and Thibodaux through the greater Baton Rouge area. Hurricane force wind gusts occurred across the inland areas through the Baton Rouge area and surrounding parishes. A peak wind gust of 91 mph was recorded at the Baton Rouge (Ryan Field) Airport at 112 PM CST. This was only one mph less than the highest wind gust recorded during Hurricane Betsy in 1965. The electric utility serving most of southeast Louisiana reported 75 to 100 percent of utility customers were without power after the storm from Lafourche and Terrebonne Parishes northwest through the Baton Rouge area to southwest Mississippi and central Louisiana. Considerable damage occurred to many houses and structures as large tree limbs and trees were toppled by the hurricane force winds. Preliminary estimates from the American Red Cross indicated that around 13,000 single family dwellings were damaged by the hurricane in southeast Louisiana, and several thousand more apartments and mobile homes. Early estimates from Louisiana Economic Development indicated that Gustav caused at least $4.5 billion in property damage in Louisiana, including insured and uninsured losses.

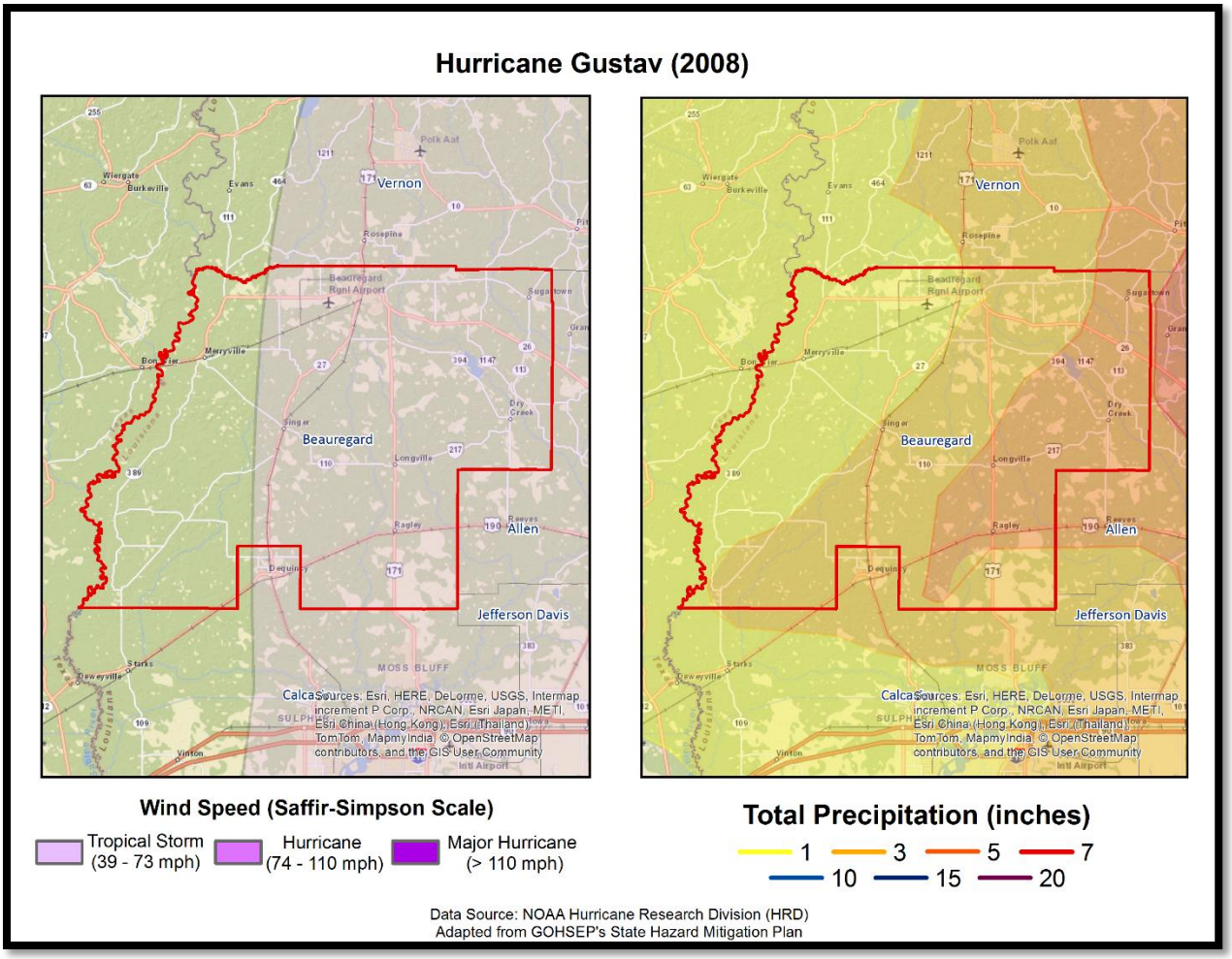

Figure 2-202: Wind Speed and Precipitation Totals for Hurricane Gustav in Beauregard Parish.

Hurricane Ike (2008)

Hurricane Ike caused wind damage, storm surge flooding, and tornadoes across southwest Louisiana. Ike made landfall near Galveston, TX early in the morning on September 13th as a strong Category 2 hurricane. Sustained hurricane force winds were confined to extreme western Cameron Parish. The highest recorded winds in southwest Louisiana were at Lake Charles Regional Airport with sustained winds of 46 kts. (53 mph) and gusts of 67 kts. (77 mph). The lowest pressure reading occurred at Southland Field near Sulphur, LA, with a low of 994.6 mb. Several tornadoes were reported across southwest Louisiana. The most significant one was near Mamou, where a home lost its roof, and another ten-fifteen homes were damaged. Storm surge was a significant event. Water levels ranged from fourteen feet in western Cameron Parish, to eight feet in St. Mary Parish. This resulted in widespread flooding of the same areas that flooded in Hurricane Rita in 2005. Most of Cameron Parish was under water. Over 3000 homes were flooded. This extended north into Calcasieu Parish, where another 1000 homes flooded in Lake Charles, Westlake, and Sulphur. In Vermilion Parish, at least 1,000 homes flooded in Pecan Island, Forked Island, Intracoastal City, and Henry. This extended east into Iberia Parish, where another 1000 homes flooded south of Highway 14 and Highway 90. In St. Mary Parish, some of the worst flooding occurred in Franklin, where a man-made levee failed, flooding over 450 homes. Maximum storm total rainfall ranged from six to eight inches across Cameron, Calcasieu, and Beauregard Parishes. No fatalities were reported in

southwest Louisiana. Total property damages, however, were high. Losses are estimated to be almost $420 million dollars across southwest Louisiana. Agricultural losses were over 225 million dollars.

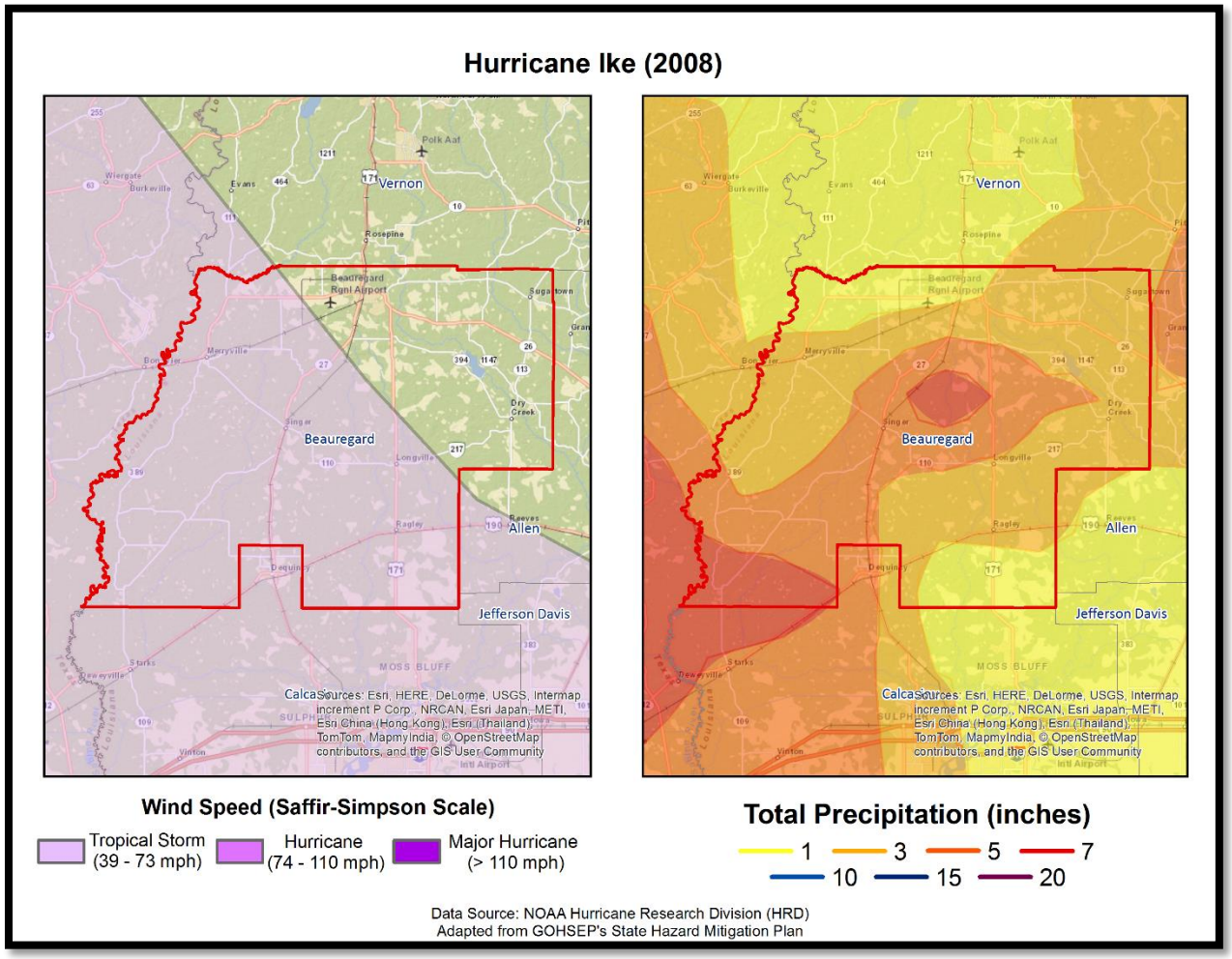

Figure 2-213: Wind Speed and Precipitation Totals for Hurricane Ike.

Hurricane Gustav and Hurricane Ike struck Beauregard Parish within two weeks of each other. Hurricane Ike re-flooded some parts of Beauregard Parish that were flooded by Hurricane Gustav. Some areas which had not yet recovered from Gustav power outages experienced additional power outages due to Hurricane Ike.

Tropical Storm Lee (2011)

Tropical Storm Lee initially developed as Tropical Depression Thirteen in the middle of the Gulf of Mexico on Thursday evening September 1st, 2011. The depression moved slowly north and gradually strengthened, eventually reaching tropical storm strength just south of the Louisiana coast on Friday afternoon September 2nd, 2011. Tropical Storm Lee made only slow and haltingly northward progress over the next 24 hours, eventually moving onshore the Louisiana coast Saturday night, September 3rd, 2011, with a maximum sustained wind estimated around 60 mph. Lee moved slowly inland to the north of Baton Rouge late Sunday September 4th, 2011, and eventually weakened to a tropical depression Sunday evening.

Tropical Depression Lee then moved steadily northeast throughout Monday, September 5th, 2011, taking on extra-tropical characteristics over the next 24 hours as it interacted with an upper level disturbance moving through the region. The maximum wind observed in Louisiana was a southerly wind of 40 kts (46 mph) sustained, 50 kts (58 mph) gust at New Orleans Lakefront Airport on September 4th, 2012 at 0528CST. The lowest minimum central pressure was 993.2 mb at Baton Rouge Ryan Field at Sept 4, 2012 at 0959CST. As Tropical Depression Lee was moving northeast and taking on mid-latitude characteristics, strong northerly winds were experienced across the region, occasionally gusting to higher levels than experienced when Lee was characterized as a tropical storm. No fatalities or injuries were associated with any Tropical Lee hazards.

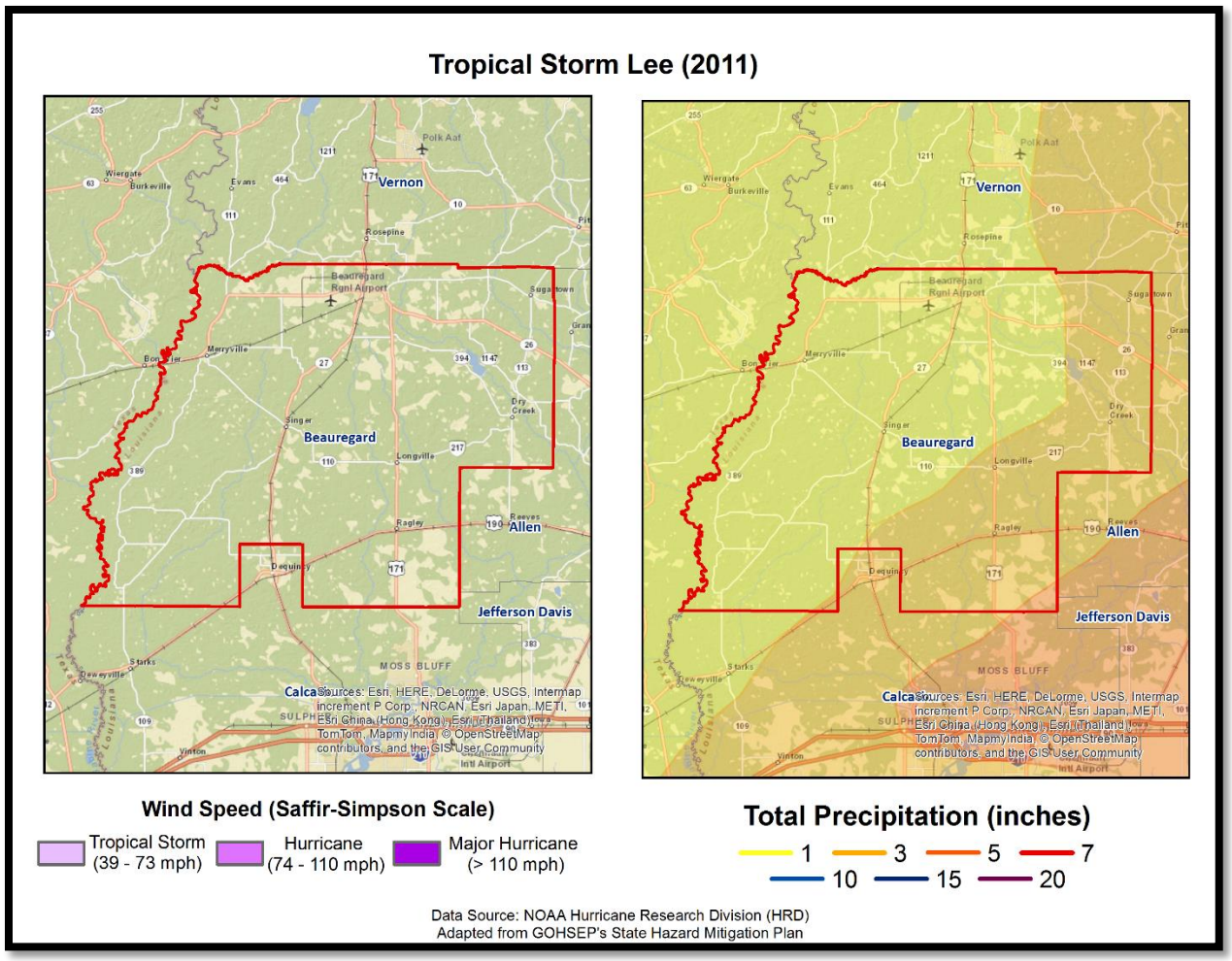

Figure 2-224: Wind Speed and Precipitation Totals for tropical Storm Lee in Beauregard Parish.

The main impacts associated with Tropical Storm Lee were associated with storm surge and rainfall. Both of these impacts were related to its slow forward speed as it crossed the region, which allowed the circulation to linger over the area for several days. Storm surge associated with Lee caused storm tides three to five feet above normal, causing lowland flooding. Additional detailed information about Tropical Storm Lee's storm surge is contained in the separate storm surge report. Four day total rainfall ranged between seven and fifteen inches across the area. A maximum of 15.48 inches was recorded near Holden

in Livingston Parish. Due to dry antecedent conditions, river flooding was minimal for the amount of rainfall that occurred. Wind impacts were generally minimal due to only tropical storm strength winds being recorded, resulting in tree limbs being blown down, and weak trees toppling, causing power outages.

In Beauregard Parish, overall there were minimal reports of damage to residences or infrastructure. Sustained wind speeds associated with Tropical Storm Lee were approximately 18 mph in DeRidder with wind gusts reaching 42 mph. Localized flooding was experienced in low-lying areas of the parish, but flood damage was minimal.

Figure 2-5 displays the wind zones that affect Beauregard Parish in relation to critical facilities throughout the Parish.

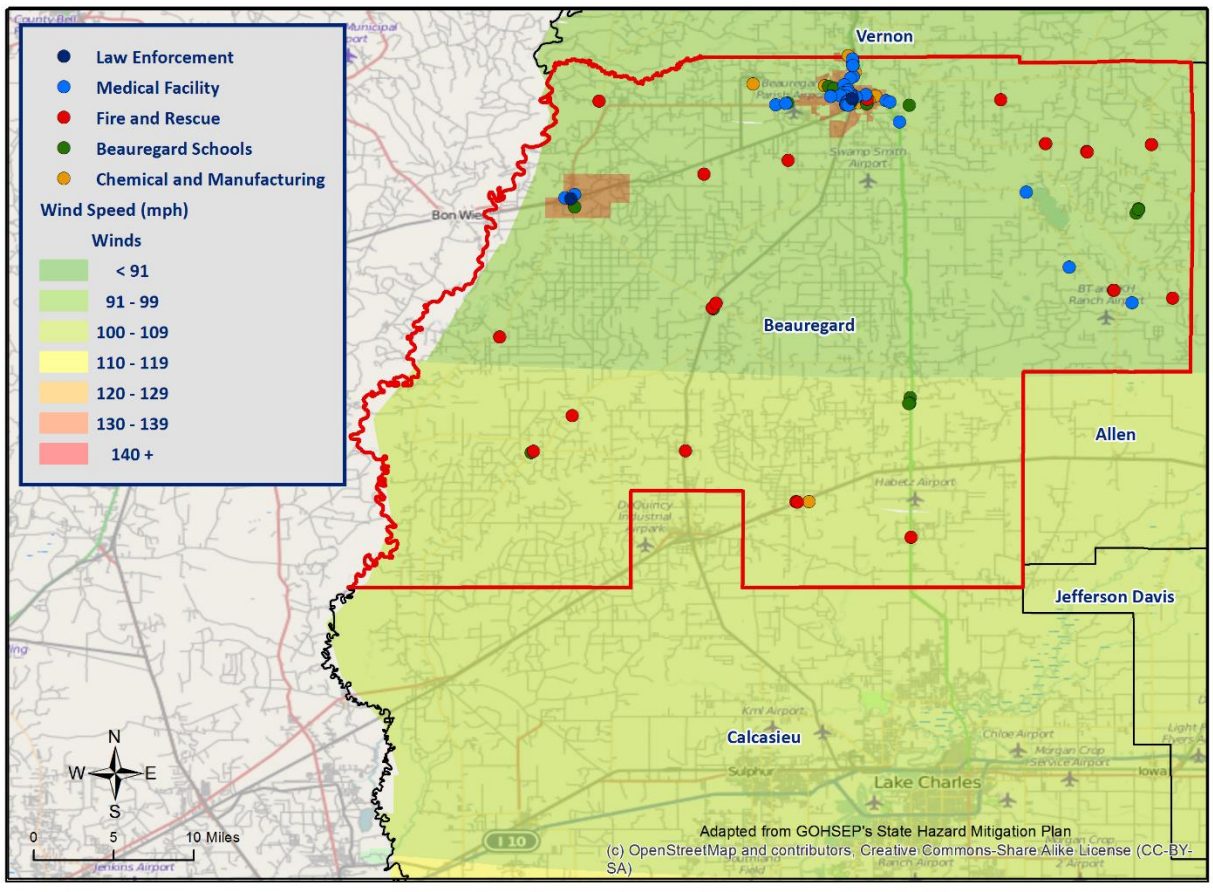

Figure 2-25: Winds Zones for Beauregard Parish in Relation to Critical Facilities.

Frequency / Probability

Tropical cyclones are large natural hazard events that occur regularly within Beauregard Parish. The annual chance of occurrence for a tropical cyclone occurrence based on historical record is estimated at 50% for Beauregard Parish and its municipalities.

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 is highly vulnerable to tropical cyclones. This area has experienced several tropical cyclone events in the past and can expect more in the future. Based

on a twenty-five year historical record, the probability of future occurrence of tropical cyclones in Beauregard Parish is approximately once every one to two years.

Estimated Potential Losses

Using Hazus 2.2 100 year hurricane model, the 100 year hurricane scenario was analyzed to determine losses from this worst-case scenario. Table 2-52 shows the total economic losses that would result from this occurrence.

Table 2-52: Total Estimated Losses for a 100 Year Hurricane Event. (Source: Hazus 2.2)

Jurisdiction	Estimated total Losses from 100 Year Hurricane Event
Beauregard Parish (Unincorporated)	$13,252,014
DeRidder	$5,847,403
Merryville	$609,726
Total	$19,709,144

Total losses from a 100-year hurricane event for each jurisdictional area were compared with the total value of assets to determine the ratio of potential damage to the total inventory value.

Table 2-433: Ratio of Total Losses to Total Estimated Value of Assets for Each Jurisdiction in Beauregard Parish.

Jurisdiction	Estimated Total Losses from 100 Year Hurricane Event	Total Estimated Value of Assets	Ratio of Estimated Losses to Total Value
Beauregard Parish (Unincorporated)	$13,252,014	$1,635,651,000	0.81%
DeRidder	$5,847,403	$1,187,605,000	0.49%
Merryville	$609,726	$78,222,000	0.78%

Based on the Hazus-2.2 hurricane model, estimated total losses are less than 1% of the total estimated value of all assets for the unincorporated areas of Beauregard Parish and the incorporated area of DeRidder and Merryville.

The Hazus 2.2 hurricane model also provides a breakdown by jurisdiction for seven primary sectors (Hazus occupancy) throughout the parish. The losses for each jurisdiction by sector are listed in the tables on the following page.

Table 2-54: Estimated Losses in Beauregard Parish for a 100 year hurricane event. (Source: Hazus 2.2)

Beauregard Parish (Unincorporated)	Estimated Total Losses from 100 Year Hurricane Event
Agricultural	$23,724
Commercial	$233,919
Government	$7,578
Industrial	$37,669
Religious / Non-Profit	$63,093
Residential	$12,870,254
Schools	$15,777
Totals	$13,252,014

Table 2-55: Estimated Losses in DeRidder for a 100 year hurricane event. (Source: Hazus 2.2)

DeRidder	Estimated Total Losses from 100 Year Hurricane Event
Agricultural	$10,468
Commercial	$103,216
Government	$3,344
Industrial	$16,621
Religious / Non-Profit	$27,839
Residential	$5,678,953
Schools	$6,962
Totals	$5,847,403

Table 2-56: Estimated Losses in Merryville for a 100 year hurricane event. (Source: Hazus 2.2)

Merryville	Estimated Total Losses from 100 Year Hurricane Event
Agricultural	$1,092
Commercial	$10,763
Government	$349
Industrial	$1,733
Religious / Non-Profit	$2,903
Residential	$592,162
Schools	$726
Totals	$609,726

Threat to People

The total population within the parish that is susceptible to a hurricane hazard are shown in the tables on the following page.

Table 2-57: Number of People Susceptible to a 100 Year Hurricane Event in Beauregard Parish. (Source: Hazus 2.2)

Number of People Exposed to Hurricane Hazards			
Location	**# in Community**	**# in Hazard Area**	**% in Hazard Area**
Parish (Unincorporated)	**23,973**	**23,973**	**100%**
DeRidder	**10,578**	**10,578**	**100%**
Merryville	**1,103**	**1103**	**100%**
Total	**35,654**	**35,654**	**100%**

The HAZUS-MH hurricane model was also extrapolated to provide an overview of vulnerable populations throughout the jurisdictions in the tables below:

Table 2-448: Vulnerable Populations in Unincorporated Beauregard Parish for a 100 year Hurricane. (Source: Hazus 2.2)

Beauregard Parish (Unincorporated)		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	23,973	100.0%
Persons Under 5 years	1,582	6.6%
Persons Under 18 years	6,041	25.2%
Persons 65 Years and Over	3,380	14.1%
White	19,682	82.1%
Minority	4,291	17.9%

Table 2-459: Vulnerable Populations in DeRidder for a 100 year Hurricane. (Source: Hazus 2.2)

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 2-60: Vulnerable Populations in Merryville for a 100 year Hurricane. (Source: Hazus 2.2)

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 hurricanes.

Wildfire

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. Figure 2-6 displays the areas of wildland-urban interaction in Beauregard Parish.

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 following page summarizes the intensity levels assigned to areas in the Southern Wildfire Assessment Portal.

Table 2-61: Southern Group of State Foresters Wildfire Risk Assessment Fire Intensity Scale. (Source: Southern Wildfire Assessment Portal)

Fire Intensity Scale	
Level	**Definition**
1	Lowest Intensity: Minimal direst 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. Because every jurisdictional area in Beauregard Parish has some form of wildland-urban interface or wildland-urban intermix, the entire planning area is equally at risk for wildfires. The following figures display the areas of wildland-urban interface and intermix in Beauregard Parish and its jurisdictions.

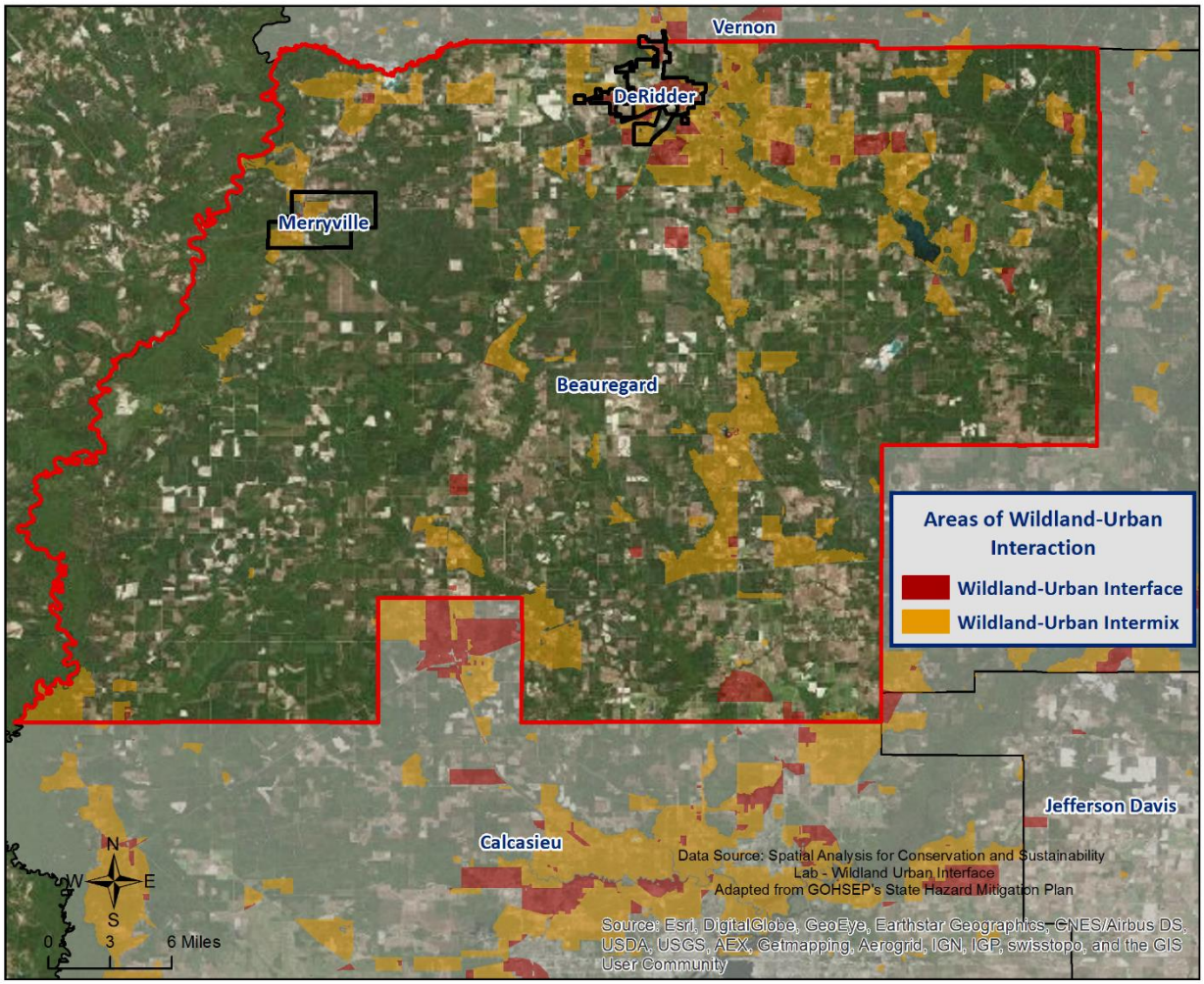

Figure 2-26: Wildland-Urban Interaction in Beauregard Parish

Previous Occurrences / Extents

Both the SHELDUS and National Climatic Data Center (NCDC) datasets report no wildfire events occurring within the boundaries of Beauregard Parish between the years of 1960-2014. Based on the Southern Group of State Foresters Risk Assessment Portal, the following table outlines the intensity each jurisdictional area within Beauregard Parish could potential experience due to a wildfire event.

Table 2-62: Potential Wildfire Intensity Levels for Beauregard Parish. (Source: Southern Wildfire Assessment Portal)

Potential Wildfire Intensity	
Beauregard Parish (Unincorporated)	Highest Intensity Level 5
DeRidder	High Intensity Level 4
Merryville	Low Intensity Level 2

Frequency / Probability

With no recorded events in 54 years, wildfire events within the boundaries of Beauregard Parish have an annual chance of occurrence calculated at less than 1% based on the NCDC and SHELDUS datasets.

Estimated Potential Losses

According to the SHELDUS database, there have been no wildfire events that have caused property damage, crop damage, injuries, or fatalities in Beauregard Parish. In assessing the overall risk to population, the most vulnerable population throughout the parish consists of those residing in areas of wildland-urban interaction.

Using Hazus 2.2 along with wildland-urban interaction areas, the following table presents an analysis of total building exposure that are located within the wildland-urban interaction areas.

Table 2-63: Total Building Exposure by Wildland-Urban Interaction Areas. (Source: Hazus 2.2)

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 2.2 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 are listed in the tables below.

Table 2-464: Estimated Exposure for Unincorporated Beauregard Parish by Sector. (Source: Hazus 2.2)

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
Totals	$1,429,800,000

Table 2-65: Estimated Exposure for DeRidder by Sector.
(Source: Hazus 2.2)

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
Totals	$956,392,000

Table 2-66: Estimated Exposure for Merryville by Sector.
(Source: Hazus 2.2)

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
Totals	$71,575,000

Threat to People

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

Table 2-67: Populations Located within a Wildland-Urban Interaction Area.
(Source: 2010 U.S. Census Data)

Number of People Located in Wildland-Urban Interaction Areas.			
Location	**# in Community**	**# in Area**	**% in 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 a wildland-urban interaction area throughout the jurisdictions in the tables below:

Table 2-68: Population in Unincorporated Beauregard Parish Located within a Wildland-Urban Interaction Area.
(Source: 2010 U.S. Census Data)

Beauregard Parish (Unincorporated)		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction 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 2-69: Population in DeRidder Located within a Wildland-Urban Interaction Area.
(Source: 2010 U.S. Census Data)

DeRidder		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	1,293	12.2%
Persons Under 5 years	102	7.9%
Persons Under 18 years	0	18.8%
Persons 65 Years and Over	0	13.8%
White	0	59.6%
Minority	0	40.4%

Table 2-70: Population in Merryville Located within a Wildland-Urban Interaction Area.
(Source: 2010 U.S. Census Data)

Merryville		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction 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.

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Section 3: Capability Assessment

This section summarizes all efforts to develop policies, programs, and activities that directly or indirectly support hazard mitigation. It also provides information on resources and gaps in the participating jurisdictions' infrastructure, as well as relevant changes in its law since the last Plan Update, in order to suggest a mitigation strategy.

Through this assessment strengths that could be used to reduce losses and reduce risk throughout the community are identified. In addition, areas where mitigation actions might be used to supplement current capabilities and create a more resilient community before, during and after a hazard event are outlined.

Policies, Plans, and Programs

Beauregard Parish and its jurisdictions' capabilities are unique to the parish as a whole, 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 all jurisdictions to continually propose ways to 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.

As of the 2015 Hazard Mitigation Plan Update, Beauregard Parish and its jurisdictions ensure that all building codes adopted are enforced and in compliance, relating to the construction of any within the boundaries of the parish. Building code, permitting, and inspections capabilities in place within Beauregard Parish and its incorporated jurisdictions can be found in the following tables.

Some jurisdictions have extensive zoning regulations, which address use and height of buildings, density of populations, open space limitation, and lot and occupancy requirements. The zoning ordinances are consistent with the parish comprehensive plan. Before the Parish Council enacts or amends development regulations or takes any land use action, and before the Zoning Board may make any recommendation to the Parish Council regarding a proposed development regulation or land use action, the Planning Department, or other department responsible for providing findings, recommendations, papers, correspondence, and records related to the regulation, amendment, or action shall provide a written recommendation to the Council and Zoning Board regarding the consistency with the plan. The following tables demonstrate land use, zoning, and ordinance requirements that address many different types of districts in the parish and its incorporated jurisdictions, ranging from suburban, conservation, and mixed-use to industrial.

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	Merryville	DeRidder	Comments
Plans	Yes / No			
Comprehensive / Master Plan	No	No	No	n/a
Capital Improvements Plan	Yes	No	No	n/a
Economic Development Plan	No	No	No	n/a
Local Emergency Operations Plan	Yes	Yes	Yes	n/a
Continuity of Operations Plan	Yes	No	No	n/a
Transportation Plan	No	No	No	n/a
Stormwater Management Plan	No	No	No	DeRidder - Within the next 12 months
Community Wildfire Protection Plan	No	No	No	n/a
Other plans (redevelopment, recovery, coastal zone management)	n/a	No	No	n/a
Building Code, Permitting and Inspections	Yes / No			
Building Code	Yes	Yes	Yes	n/a
Building Code Effectiveness Grading Schedule (BCEGS) Score	Yes	No	No	n/a
Fire Department ISO/PIAL rating	No	Yes	Yes	DeRidder - 3
Site plan review requirements	No	No	Yes	n/a
Land Use Planning and Ordinances	Yes / No			
Zoning Ordinance	No	Yes	Yes	n/a
Subdivision Ordinance	Yes	No	Yes	n/a
Floodplain Ordinance	Yes	No	No	n/a
Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)	No	No	No	n/a
Flood Insurance Rate Maps	Yes	Yes	Yes	n/a
Acquisition of land for open space and public recreation uses	Yes	No	Yes	n/a
Other	n/a	No	No	n/a

Some programs and policies, such as the ones just 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. Beauregard Parish and its jurisdictions 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 jurisdictions do not have any 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.

Administration, Technical, and Financial

As a community, Beauregard Parish and its jurisdictions have 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 following are resources in place in Beauregard Parish and its incorporated jurisdictions:

Table 3-2: Administrative 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	Merryville	DeRidder	Comments
Administration	Yes / No			
Planning Commission	No	No	Yes	n/a
Mitigation Planning Committee	Yes	No	No	n/a
Maintenance programs to reduce risk (tree trimming, clearing drainage systems)	Yes	No	Yes	n/a
Staff	Yes / No			
Chief Building Official	Yes	No	Yes	DeRidder - FT
Floodplain Administrator	Yes	No	No	DeRidder - Within the next 12 months
Emergency Manager	Yes	No	No	n/a
Community Planner	No	No	Yes	DeRidder - FT
Civil Engineer	Yes	No	Yes	DeRidder - Contracted to private firm
GIS Coordinator	No	No	No	DeRidder - Within the next 12 months
Grant Writer	No	No	No	n/a
Other	n/a	No	No	n/a
Technical	Yes / No			
Warning Systems / Service (Reverse 911, outdoor warning signals)	No	No	Yes	Utilizes city account with NIXLE
Hazard Data & Information	Yes	No	No	n/a
Grant Writing	No	No	No	n/a
Hazus Analysis	No	No	No	n/a
Other	n/a	No	No	n/a

Financial capabilities are the resources that Beauregard Parish and its incorporated jurisdictions have access to or are eligible to use in order to fund mitigation actions. The follow resources are available to fund mitigation actions in Beauregard Parish and its incorporated jurisdictions:

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	Merryville	DeRidder	Comments
Funding Resource	Yes / No			
Capital Improvements project funding	Yes	Yes	Yes	n/a
Authority to levy taxes for specific purposes	Yes	No	Yes	n/a
Fees for water, sewer, gas, or electric services	No	Yes	Yes	n/a
Impact fees for new development	No	No	Yes	n/a
Stormwater Utility Fee	No	No	No	n/a
Community Development Block Grant (CDBG)	Yes	Yes	Yes	n/a
Other Funding Programs	No	No	Yes	n/a

Beauregard Parish and its incorporated jurisdictions have existing programs to implement mitigation activities as well as communicate risk. The existing programs are as follows:

Table 3-2: 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	Merryville	DeRidder	Comments
Program / Organization	Yes / No			
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No	No	Yes	DeRidder - 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)	No	No	Yes	DeRidder - All city departments promote public education
Natural Disaster or safety related school program	No	No	No	n/a
Storm Ready certification	No	No	No	n/a
Firewise Communities certification	No	No	No	n/a
Public/Private partnership initiatives addressing disaster-related issues	Yes	No	Yes	Beauregard - LEPC, DeRidder - Local community church groups designed for disaster response
Other	No	No	No	n/a

The following municipalities and entities are recognized by the Parish of Beauregard under the Hazard Mitigation Plan allowing them to apply for available hazard mitigation funding for as long as these municipalities and entities notify the Parish of their intentions and the Parish concurs:

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

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Section 4: Mitigation Strategy

Introduction

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

The mitigation actions and projects in this 2015 HMP update are a product of analysis and review of the each participating jurisdiction under the coordination of the Beauregard Parish Office of Homeland Security and Emergency Preparedness.

A crucial component of successful mitigation is analysis of previous actions. The success or failure of mitigation actions implemented before an event should be evaluated. Self-analysis should take place during the recovery and mitigation phases of emergency management when the community can take stock of how well it prepared for an event and to what degree it needed to responded.

An online public opinion survey was conducted of Beauregard Parish residents between June and August 2015. The 25 question survey was completed by 13 parish residents over the age of 18. The survey was designed to capture public perceptions and opinions regarding natural hazards in Beauregard Parish. In addition, the survey collect information regarding the methods and techniques preferred by the respondents for reducing the risks and losses associated with local hazards. Full survey results can be found here: https://www.surveymonkey.com/results/SM-C5PTNYTY/ .

When asked to gage from a list which categories were more susceptible to impacts caused by natural hazards, the top three categories selected were:

1. Human (Loss of life and/or injuries)
2. Infrastructure (Damage or loss of bridges, utilities, schools, etc.)
3. Economic (Business closures and/or job losses).

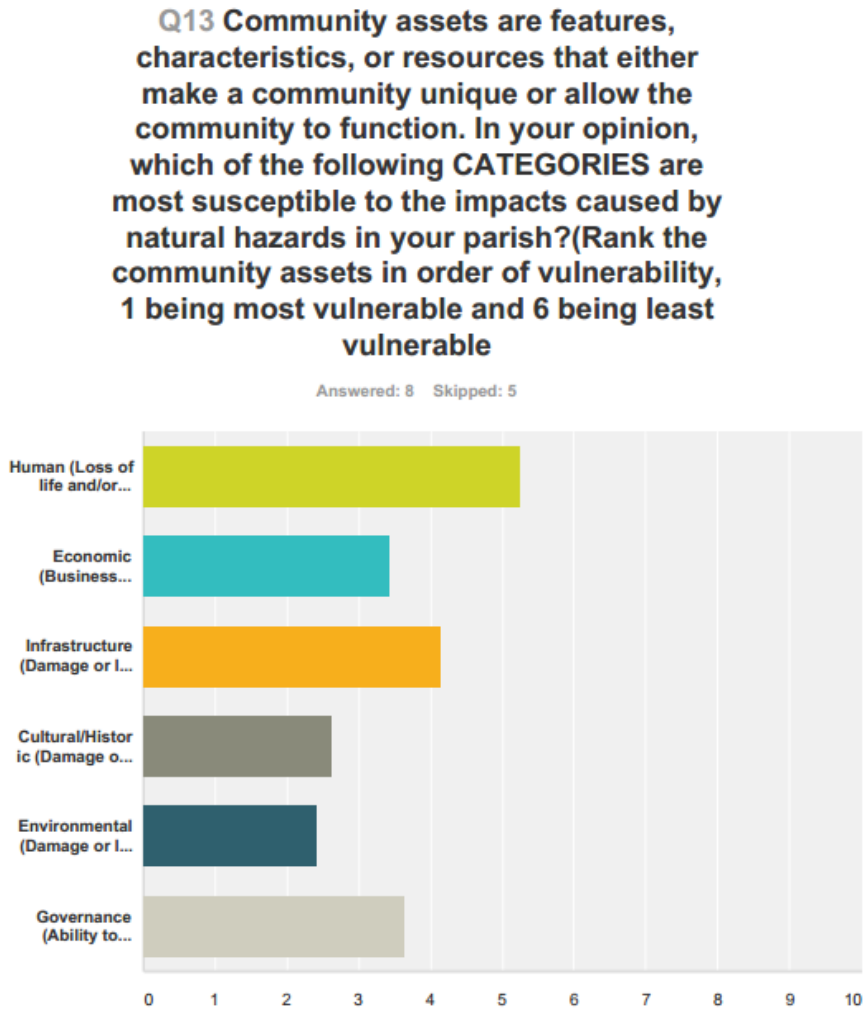

Figure 4-1: Public Opinion Survey - Community Perception of Vulnerability

Respondents to the public opinion survey ranked their top five types of community assets to be the following:

1. Fire/Police Stations
2. Hospitals
3. Major Bridges
4. Small Businesses
5. Schools (K-12)

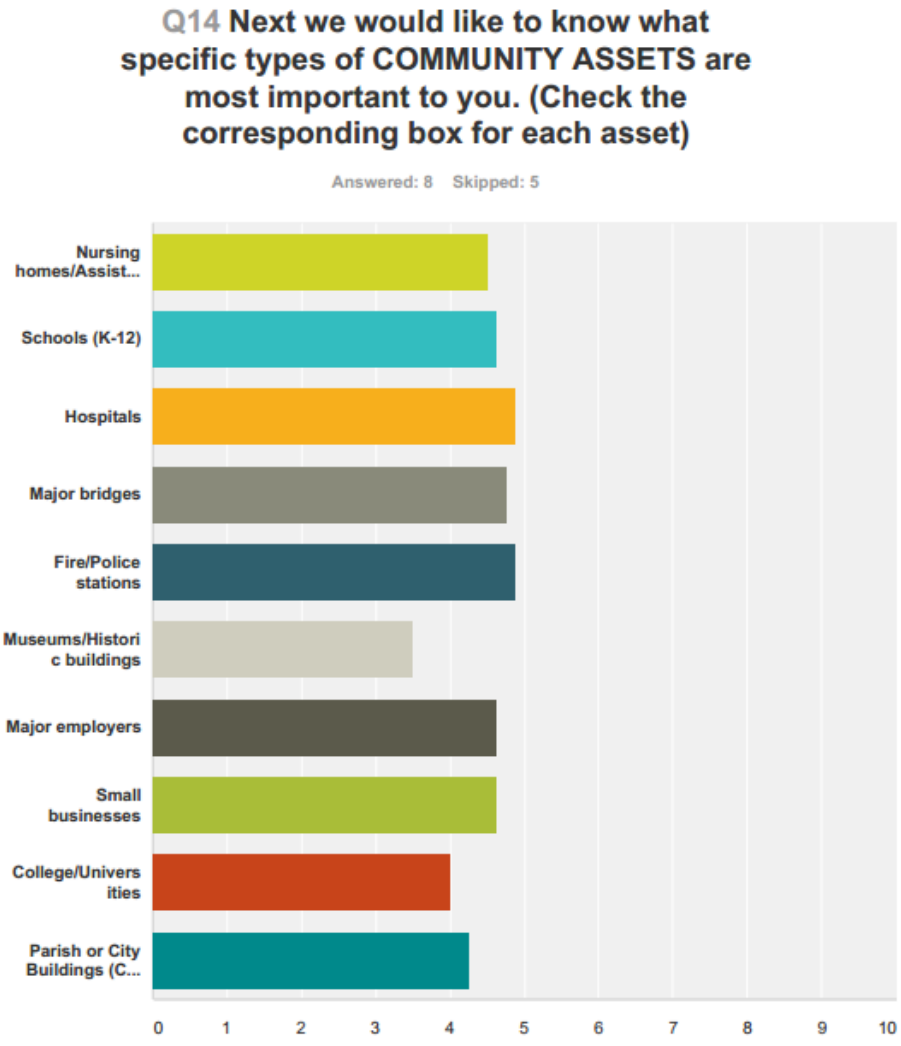

Figure 4-2: Importance of Community Assets

Conducting the public opinion survey activity qualifies that the goals and action items developed by the participating jurisdictions are representative of the outlook of the community at large.

Goals

The goals represent the guidelines 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 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, each jurisdiction 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 participating jurisdictions. After assessing these goals, the committee has decided that the current five goals are valid.

The goals are as follows:

Goal 1: Reduce the loss of life or property

Goal 2: Protect critical public facilities and thoroughfares

Goal 3: Ensure post-disaster operability of strategic facilities and thoroughfares

Goal 4: Develop incentive and community outreach/education programs that assist homeowners in protecting residential properties

Goal 5: Provide a long-term mitigation solution in locations which experience repetitive hazard damage

Goal 6: Provide a cooperative, inter-jurisdictional/inter-agency solution to a problem

Goal 7: Show development and implementation of comprehensive programs, standards, and regulations that reduce future hazard damage

Goal 8: Avoid inappropriate future development in areas that are vulnerable to hazard damage

Goal 9: Reduce the level of hazard vulnerability in existing structures and developed property

Goal 10: Restore or protect natural resources, recreational areas, open spaces, and other environmental values.

All of the activities in the Mitigation Action Plan will be focused on helping the parish and its municipalities 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.

Due to changes in priorities in Beauregard Parish and its jurisdictions, the Hazard Mitigation Plan Update Committee for each jurisdiction reviewed and evaluated the potential project list, 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.

After vigorous review of each goal, the committee established a consensus on the validity of the goals because of their coverage of all the committee's action items and priorities. Action Items from the original Hazard Mitigation Plan have been identified as being completed, ongoing, new, or in progress.

Mitigation Actions

Each participating jurisdiction identified several projects that would reduce and/or prevent future damage. In that effort, each group focused on a comprehensive range of specific mitigation actions and projects specific to their jurisdiction. These actions and projects were identified in thorough fashion by the consultant team, the steering committee, and committee by way of frequent and open communications and meetings held throughout the planning process.

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

1. **Local Plans and Regulations –** These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.
2. **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.
3. **Natural System Protection –** These actions minimize the damage and losses and also preserve or restore the functions of natural systems.
4. **Education and Awareness Programs –** These actions inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them.

Beauregard Parish Mitigation Actions

The established and agreed upon actions relative to the established goals are as follows:

Table 4-1: Beauregard Parish Unincorporated

Beauregard Parish - Unincorporated							
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Goal**	**Status**
B1: Drainage retrofit	Ensure usability of roads and buildings that serve a public purpose such as govmt, healthcare, and school districts by retrofitting drainage structures to reduce flood risk.	FEMA, local	1-10 years	BP Public Works	Flooding, Tropical Cyclone, Thunderstorms	1,2,3,4,5, 6	Not started
B2: Road improvements, including debris removal	Ensure usability of roads that serve a public purpose such as govmt,	FEMA, local	Ongoing	BP Public Works	Flooding, Tropical Cyclones, Thunderstorms, Tornadoes	2,3,5,6	Not started

Beauregard Parish - Unincorporated							
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Goal**	**Status**
	healthcare, and school districts by removing debris from nearby creeks and rivers.						
B3: 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	Ongoing	BPOHSEP	Flooding, Tropical Cyclones	1,5,8	In progress
B4: Elevation Projects	Mitigate parish flood damage by raising properties in the parish.	FEMA, local	Ongoing	BPOHSEP, Public Works	Flooding, Tropical Cyclones	1,2,5,9	Not started
B5: Relocation Projects	Mitigate parish flood damage by relocating properties in the parish.	FEMA, local	Ongoing	BPOHSEP, Public Works	Flooding, Tropical Cyclones	1,5,9,10	Not started
B6: 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	Ongoing	BP Public Works	Drought, Wildfire Flooding, Excessive Heat, Tropical Cyclones, Tornadoes, Thunderstorms – High Wind, Sinkholes	1,2,3,6	Not started

Beauregard Parish - Unincorporated							
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Goal**	**Status**
B7: Implementation of public programs and initiatives	Implement current and newly developed initiatives as directed by State and/or Federal regulations for public programs such as: (but not limited to) PPGP, Pilot Reconstruction, SRL, RFC, PDM, FMA	FEMA, local	Ongoing	BP Public Works	Drought, Wildfire Flooding, Excessive Heat, Tropical Cyclones, Tornadoes, Thunderstorms – High Wind, Hail, Lightning, Sinkholes	1,2,3,4,5,6,7,8,9,10	Not started
B8: Water Restriction Implementation	Implement water rationing program for times of drought	Local	As needed	BPOHSEP, Local	Drought	1,5,7	Not started
B9: Mitigation Outreach and Education	Public Education Campaign for all hazards, including Brochures, Fliers, PSAs, etc.	Local, FEMA	1-5 years	BPOHSEP	Drought, Wildfire Flooding, Excessive Heat, Tropical Cyclones, Tornadoes, Thunderstorms – High Wind, Hail, Lightning, Sinkholes	1,4,9	Not started
B10: Air Conditioning Accessibility for Vulnerable Populations	Implement programs to provide air conditioning to homeless, elderly, and other vulnerable citizens	FEMA, NOAA, Red Cross, Local	Ongoing	BPOHSEP	Excessive Heat	1,6	Not started
B11: Building restrictions for future development	Reduce future dev (i.e. new buildings, in floodplains, correct inappropriate development already in floodplains, i.e. existing buildings.	Police Jury	Ongoing	Local, Public Works	Flooding, Tropical Cyclones	1,7,8	Not started

Beauregard Parish - Unincorporated							
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Goal**	**Status**
	Methods include (but are not limited to): Modification of codes, zoning, etc.						
B12: Capital improvement projects - drainage improvement	Carry out long-range capital improvements projects to improve drainage, including but not limited to projects recommended by the U.S. Army Corps of Engineers related to the Sabine River.	FEMA, USA-COE, Local	As needed	BP Public Works	Flooding, Tropical Cyclones, Thunderstorms	1,2,3,5	Not started
B13: Communications systems improvements	Improve communication in the parish by implementing warning systems and communications equipment.	FEMA, Local	As needed	BP Public Works	Flooding, Tropical Cyclones, Tornadoes, Thunderstorms, Sinkholes, Wildfires	1,3,5,9	Not started
B14: Safe Room Project	Construction of a safe room for first responders in Beauregard Parish	FEMA	1-10 years	Beauregard Parish Public OHSEP/Public Works	Tornadoes, Thunderstorms – High Wind	1, 5	Not started
B15: Hardening and retrofitting projects	Hardening and retrofitting projects for governmental and critical facilities	HMGP, Local	1-5 years	Beauregard Parish OHSEP/Public Works	Hail, Thunderstorms - High wind and Hail, Tropical Cyclones, Tornadoes	1,5	Not started
B16: Lightning protection projects	Installation of lightning rods and surge protectors for governmental buildings and critical facilities	Local	1 year	Beauregard Parish OHSEP/Public Works	Lightning	1, 5	Not started

Table 4-2: City of DeRidder

City of DeRidder							
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Goal**	**Status**
D1: 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	City of DeRidder, BP Public Works	Tropical Cyclones, Tornado, Thunderstorms - High Wind, Hail	1,2,3,9	Not Started
D2: 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	1-10years	City of DeRidder, BP Public Works	Flooding, Tropical Cyclone, Thunderstorms	1,2,3,4,5 ,6	Not Started
D3: Road imprvmts, 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	Ongoing	City of DeRidder, BP Public Works	Flooding, Tropical Cyclones, Thunderstorms – High Wind and Hail, Tornadoes	2,3,5,6	Not Started
D4: Acquisition Projects	Mitigate parish flood damage by acquiring properties in the parish.	FEMA, Local	Ongoing	City of DeRidder, BPOHSEP	Flooding, Tropical Cyclones	1,5,8	Not Started
D5: Elevation Projects	Mitigate parish flood damage by raising properties in the parish.	FEMA, Local	Ongoing	City of DeRidder, BPOHSEP, Public Works	Flooding, Tropical Cyclones	1,2,5,9	Not Started
D6: Relocation projects	Mitigate parish flood damage by relocating	FEMA, Local	Ongoing	City of DeRidder,	Flooding, Tropical Cyclones	1,5,9,10	Not Started

City of DeRidder							
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Goal**	**Status**
	properties in the parish.			BPOHSEP, Public Works			
D7: Implementation of public programs and initiatives	Implement current and newly developed initiatives as directed by State and/or Federal regulations for public programs such as: (but not limited to) PPGP, Pilot Reconstruction, SRL, RFC, PDM, FMA	FEMA, Local	Ongoing	City of DeRidder, Public Works	Drought, Wildfire Flooding, Excessive Heat, Tropical Cyclones, Tornadoes, Thunderstorms – High Wind, Hail, and Lightning, Sinkholes	1,2,3,4,5,6,7,8,9,10	Not Started
D8: Water Restriction Implementation	Implement water rationing program for times of drought	Local	As needed	City of DeRidder, BPOHSEP, Local	Drought	1,5,7	Not Started
D9: Mitigation Outreach and Education	Public Education Campaign for all hazards, including Brochures, Fliers, PSAs, etc.	Local, NOAA, FEMA	1-5 years	City of DeRidder, BPOHSEP	Drought, Wildfire Flooding, Excessive Heat, Tropical Cyclones, Tornadoes, Thunderstorms – High Wind, Hail, and Lightning, Sinkholes	1,5,6,7	Not Started
D10: Capital imprvmts projects - drainage improvement	Carry out long-range capital improvements projects to improve drainage, including but not limited to projects recommended by the U.S. Army Corps of Engineers related to the Sabine River.	FEMA, USA-COE, Local	As Needed	City of DeRidder, BP Public Works	Flooding, Tropical Cyclones, Thunderstorms	1,2,3,5	Not Started

City of DeRidder							
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Goal**	**Status**
D11: Communications systems imprvmts	Improve communication in the parish by implementing warning systems and communications equipment.	FEMA, Local	As needed	City of DeRidder, BP Public Works	Flooding, Tropical Cyclones, Tornadoes, Thunderstorms – High Wind and Hail, Sinkholes, Wildfires	1,3,5,9	In Progress
D12: Air Cond. Accessibility for Vul. Populations	Implement programs to provide air conditioning to homeless, elderly, and other vulnerable citizens	FEMA, NOAA, Red Cross, Local	Ongoing	Town of Merryville, BPOHSEP	Excessive Heat	1,6	Not Started
D13: Safe Room Project	Construction of a safe room for first responders in Beauregard Parish	FEMA	1-10 years	City of DeRidder, Beauregard Parish Public OHSEP/Public Works	Tornado, Thunderstorms – High Wind	1, 5	Not started
D14: Lightning protection projects	Installation of lightning rods and surge protectors for governmental buildings and critical facilities	Local	1 year	Beauregard Parish OHSEP/Public Works	Lightning	1, 5	Not started

Table 4-3: Town of Merryville

Town of Merryville							
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Goal**	**Status**
M1: 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	FEMA	1-5 Years	Town of Merryville, BP Public Works	Tropical Cyclones, Tornado, Thunderstorms – High Wind	1,2,3,9	Not Started

Town of Merryville							
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Goal**	**Status**
	Response role the event of a natural disaster.						
M2: 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	1-10 Years	Town of Merryville, BP Public Works	Flooding, Tropical Cyclone, Thunderstorms	1,2,3,4,5,6	Not Started
M3: Road imprvmts, 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	Ongoing	Town of Merryville, BP Public Works	Flooding, Tropical Cyclones, Thunderstorms – High Wind and Hail, Tornadoes	2,3,5,6	Not Started
M4: Acquisition Projects	Mitigate parish flood damage by acquiring properties in the parish.	FEMA, Local	Ongoing	Town of Merryville, BPOHSEP	Flooding, Tropical Cyclones	1,5,8	Not Started
M5: Elevation Projects	Mitigate parish flood damage by raising properties in the parish.	FEMA, Local	Ongoing	Town of Merryville, BPOHSEP, Public Works	Flooding, Tropical Cyclones	1,2,5,9	Not Started
M6: Relocation projects	Mitigate parish flood damage by relocating properties in the parish.	FEMA, Local	Ongoing	Town of Merryville, BPOHSEP, Public Works	Flooding, Tropical Cyclones	1,5,9,10	Not Started

Town of Merryville							
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Goal**	**Status**
M7: Implementation of public programs and initiatives	Implement current and newly developed initiatives as directed by State and/or Federal regulations for public programs such as: (but not limited to) PPGP, Pilot Reconstruction, SRL, RFC, PDM, FMA	FEMA, Local	Ongoing	Town of Merryville, BP Public Works	Drought, Wildfire Flooding, Excessive Heat, Tropical Cyclones, Tornadoes, Thunderstorms – High Wind, Hail and Lightning, Sinkholes	1,2,3,4,5,6,7, 8,9,10	Not Started
M8: Water Restriction Implementation	Implement water rationing program for times of drought	Local	as needed	Town of Merryville, BPOHSEP, Local	Drought	1,5,7	Not Started
M9: Mitigation Outreach and Education	Public Education Campaign for all hazards, including Brochures, Fliers, PSAs, etc.	Local, NOAA, FEMA	1-5 years	Town of Merryville, BPOHSEP	Drought, Wildfire Flooding, Excessive Heat, Tropical Cyclones, Tornadoes, Thunderstorms – High Wind, Hail and Lightning, Sinkholes	1,5,6,7	Not Started
M10: Air Conditioning Accessibility for Vulnerable Populations	Implement programs to provide air conditioning to homeless, elderly, and other vulnerable citizens	FEMA, NOAA, Red Cross, Local	Ongoing	Town of Merryville, BPOHSEP	Excessive Heat	1,6	Not Started
M11: Building restrictions for future development	Reduce future development, i.e. new buildings, in floodplains and correct inappropriate development already in floodplains, i.e. existing	Police Jury	Ongoing	Town of Merryville, Local, Public Works	Flooding, Tropical Cyclones	1,7,8	Not Started

Town of Merryville							
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Goal**	**Status**
	buildings. Methods include (but are not limited to): Modification of codes, zoning, etc.						
M12: Capital improvement projects - drainage improvement	Carry out long-range capital improvements projects to improve drainage, including but not limited to projects recommended by the U.S. Army Corps of Engineers related to the Sabine River.	FEMA, USA-COE, Local	as needed	Town of Merryville, BP Public Works	Flooding, Tropical Cyclones, Thunderstorms	1,2,3,5	Not Started
M13: Communications systems improvements	Improve communication in the parish by implementing warning systems and communications equipment.	FEMA, Local	as needed	Town of Merryville, BP Public Works	Flooding, Tropical Cyclones, Tornadoes, Thunderstorms – High Wind and Hail, Sinkholes, Wildfires	1,3,5,9	In Progress
M14: Safe Room Project	Construction of a safe room for first responders in Beauregard Parish	FEMA	1-10 years	Town of Merryville, Beauregard Parish Public OHSEP/Public Works	Tornado, Thunderstorms – High Wind	1, 5	Not started
M15: Lightning protection projects	Installation of lightning rods and surge protectors for governmental buildings and critical facilities	Local	1 year	Beauregard Parish OHSEP/Public Works	Lightning	1, 5	Not started

Beauregard Parish Mitigation Action Update

Jurisdiction-Specific Action	Action Description	Status
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.	Have completed a retro-fitting project for the court house and jail	Completed
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	All facilities in Merryville have generators and the city is part of unified command system	Completed
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	All facilities have generators and part of the unified command system	Completed
Complete a study to determine effects of risks to parish properties and implement campaign to alert affected citizens of magnitude potential and provide mitigation suggestions. Methods may include (but not limited to): PSA's, brochures, fliers, etc.	The fire department has a continued fire safety program for the city	Completed
Implement programs to provide air conditioning to homeless, elderly, and other vulnerable citizens	n/a	Removed
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.	Is part of the flood plan system	Completed

Action Prioritization

During the prioritization process, each Jurisdiction and the Steering Committee as a whole 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, many projects were prioritized with these factors in mind.

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 Committee and individual jurisdictions prioritized the possible activities that could be pursued. The result were items that address the major hazards, are appropriate for those hazards, are cost-effective, and are affordable. Beauregard Parish and the jurisdictions will implement and administer the identified actions based off of the proposed timeframes for each reflected in the portions of this section where actions are summarized. Actions from the previous plan were validated as having no changes in prioritization as they carry over into the current plan update process.

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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 Beauregard Parish Hazard Mitigation Plan Update

The Beauregard Parish Hazard Mitigation Plan Update process began in November 2014 with a series of meetings and collaborations between the contractor (SDMI) and the participating jurisdictions. Update activities were intended to give each jurisdiction 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.

Date	Meeting or Outreach	Location	Public Invited	Purpose
11/4/2014	Coordination Meeting	SDMI, LSU	No	Discuss with Parish HM coordinator (OHSEP Director) expectations and requirements of the project.
12/3/2014	Kick-Off Meeting	OHSEP Office, DeRidder	No	Discuss with the plan steering committee expectations and requirements of the project. Assign plan worksheets to jurisdictions.
7/27/2015	Risk Assessment Meeting	OHSEP Office, DeRidder	No	The Risk Assessment meeting included a presentation of the Risk Assessment portion of the HMP. The Steering Committee had the opportunity to provide feedback.
7/1/2015	Public Survey Tool	Online	Yes	This survey asked participants about public perceptions and opinions regarding natural hazards in Beauregard Parish. In addition, we asked about the methods and techniques preferred for reducing the risks and losses associated with these hazards. Survey Results: https://www.surveymonkey.com/results/SM-C5PTNYTY/
7/27/15	Public Meeting	OHSEP Office, DeRidder	No	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.
8/27/15 – 9/27/15	Public Plan Review (Digital)	http://www.beauregardsheriff.org/	Yes	Provide a draft copy of the plan on the Beauregard Parish OHSEP website, for public review.
8/27/15 – 9/27/15	Public Plan Review (Hardcopy)	OHSEP Office, DeRidder	Yes	Provide a draft copy of the plan at the Beauregard Parish OHSEP Office, for public review.

Planning

The 7-month plan update process consisted of several phases, as displayed in Table 2 below.

Planning Phase	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9
Plan review and revision									
Data collection									
Risk Assessment									
Public outreach and input				Public meetings and survey			Draft Review		
Mitigation strategy and actions									
GOHSEP plan updates review									
Plan updates review by FEMA									
Plan adoption									
Plan approval									Final

Coordination

The Beauregard Parish Office of Homeland Security and Emergency Preparedness (OHSEP) oversaw the coordination of the 2015 Hazard Mitigation Plan Update Steering Committee during the update process. The OHSEP Director was responsible for identifying members for the committee.

The OHSEP Director and SDMI were jointly responsible for inviting the steering committees and key stakeholders to planned meetings and activities. SDMI assisted the OHSEP 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 Hazard Mitigation Team encouraged participation from a broad range of jurisdictional entities. The involvement of representatives from city, state, and regional agencies provided diverse prospective 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 2015 Hazard Mitigation Plan Update Steering Committee consisted of representatives from the following parish, municipal or community stakeholders:

- Parish of Beauregard
- City of DeRidder
- Town of Merryville
- Beauregard Parish Law Enforcement
- Beauregard Parish Fire Department
- Beauregard Parish School Board
- Beauregard Parish Public Works

The Beauregard Parish OHSEP also included outside agencies including the LSU Ag Center as well as private industry representatives to attend meetings as well as collaborate on mitigation action development.

Adjacent communities were invited by email to participate in each step of the planning process including Calcasieu, Vernon, and Allen. The potential for collaboration with neighboring communities exists within the mitigation projects listed in this update. Beauregard and neighboring Calcasieu Parish will collaborate on the newly profiled sinkhole hazard as a result of sharing the two mile buffer zone within a salt dome location. These parishes will collaborate on any future sinkhole mitigation measures. 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 Worksheets.

Below is a detailed list of the 2015 HMPU Steering Committee:

Name	Title	Agency	Address	Email	Phone
Bobby Hennigan	Parish Manager	Beauregard Parish	P.O. Box 310, DeRidder	bhennigan@beauparish.org	337-462-0675
Brent Rutherford	Tax Assessor	Parish Mapping	P.O. Box 477, DeRidder	brutherford@bpassessor.com	337-463-8945
Chip Suire	Representative	Fire District 4	P.O. Box 608, DeRidder	n/a	337-348-1306
Chris Rudy	Assistant Police Chief	DeRidder Police Department	200 South Jefferson St., DeRidder	crudy@cityofderidder.org	337-462-8911
Connie Granger	Director	Beauregard Parish Council on Aging	P.O. Box 534, DeRidder	cigcoa@aol.com	337-463-6578
Darrell Kelly	District Chief	Fire District 3	P.O. Box 340, Dry Creek	darrell@bpvfd3.org	337-396-0524
David Eaves	Mayor	Town of Merryville	P.O. Box 607, Merryville	merryvilletownof@bellsouth.net	337-825-8740
Gary Crowe	President	Beauregard Parish Police Jury	n/a	tdehoven@beauparish.org	337-463-7019
Glen Mears	Director	OHSEP	P.O. Box 370, DeRidder	glen139@centurylink.net	337-460-5441
Greg Crain	Safety Coordinator	Mead West Vaco	400 Crosby Road, DeRidder	j.crain@mwv.com	337-462-4284
Greg Neely	Director Plant Operations	Beauregard Memorial Hospital	600 South Pine Street, DeRidder	g.neely@beauregard.org	337-462-7176
Jay Williams	District Chief	Fire District 1	P.O. Box 53, Singer	beafiredist1@bellsouth.net	337-462-4848
Joe Toler	Chief Deputy	Beauregard Parish Sheriff's Office	P.O. Box 370, DeRidder	joetopcop@aol.com	337-463-3282 ext.1118
John Gott	Police Chief	DeRidder Police Department	200 South Jefferson St., DeRidder	jgott@cityofderidder.org	337-463-8911
Kail Page	Safety Coordinator	Packaging Coorporation of America	4200 US 190 West, DeRidder	kailpage@boiseinc.com	337-462-4139
Keith Hawkins	Agent	LSU Ag Center	n/a	khawkings@agcenter.lsu.edu	337-463-7006
Ken Harlow	Fire Chief	DeRidder Fire Department	200 South Jefferson St., DeRidder	kharlow@cityofderidder.org	337-462-8929

Kevin Reeves	Manager Consumer Services	Beauregard Electric COOP	P.O. Drawer , DeRidder	kreeves@beci.org	337-462-8339
Linda Ellis	Director	Parish Communications District	412 Bolivar Bishop Drive, DeRidder	beau911@suddenlink.com	337-463-9911
Mark Dagenhart	District Chief	Fire District 2	P.O. Box 338, Longville	fchiefmark@gmail.com	n/a
Michael Stelly	Police Chief	Merryville Police Department	P.O. Box 607, Merryville	mikestelly21@yahoo.com	337-825-6240
Ricky Moses	Sheriff	Beauregard Parish Sheriff's Office	P.O. Box 370, DeRidder	rmoses@bpsheriff.com	337-462-2400
Ron Roberts	Mayor	City of DeRidder	200 South Jefferson St., DeRidder	rroberts@cityofderidder.org	n/a
Tim Cooley	Superintendent	Beauregard Parish School Board	P.O. Drawer 936, DeRidder	tcooley@beau.k12.la.us	337-463-5551
Todd Sherman	Director	DeRidder Public Works	200 South Jefferson St., DeRidder	tsherman@cityofderidder.org	337-462-8900

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), coastal protection and restoration, parish planning and zoning and building code enforcement.

Once the Beauregard Parish Multi-Jurisdictional Hazard Mitigation Plan is formally adopted, the mitigation actions will be considered for funding through federal and state grant programs; other funds are available through the parish. The Beauregard Parish OHSEP will be the coordinating agency for mitigation action implementation. The Beauregard Parish OHSEP has the capacity to organize resources, prepare grant applications, and oversee mitigation action implementation, monitoring, and evaluation. Coordinating organizations may include local, parish, or regional agencies that are capable of, responsible for, implementing activities and programs. The Director of the Beauregard Parish OHSEP will be responsible for mitigation action administration.

Beauregard Parish and its incorporated jurisdictions will have the opportunity to implement hazard mitigation actions through existing programs and procedures. Local officials will work with the parish

departments to ensure hazard mitigation actions are consistent with planning goals and integrating them where appropriate.

Upon formal approval of the Multi-Jurisdictional Hazard Mitigation Plan, the administering agency for each mitigation action will contact the owners of the respective plans/programs and determine the best approach to implement the actions. The mitigation actions will be incorporated into the existing plans during their respective review cycles by including the review process's agenda. This would allow for the appropriate discussion of the mitigation action and its incorporation into the existing plan/programs/procedures.

Opportunities to integrate the requirements of this Hazard Mitigation Plan into other local planning mechanisms will continue to be identified through future meetings of the Parish and Jurisdictions 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 each jurisdiction's 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 jurisdictions or agencies are consistent with the goals and actions of the Hazard Mitigation Plan, and will not contribute to increased hazard vulnerability in Parish. Existing plans, studies, and technical information were incorporated in the planning process. Examples include flood data from FEMA, the U. S. Army Corps of Engineers (USACE or Corps), 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 2005 Hazard Mitigation Plan was also used in the planning process. Other existing data and plans used in the planning process include those listed below:

- Beauregard Parish Emergency Operations Plan
- Urban/Wildlife Interface Plan
- Debris Management Plan
- Beauregard Parish Ordinance on Burning
- Beauregard Parish Emergency Alert System Plan.

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

Documentation (Meetings and Public Outreach)

The following pages contain documentation of the agendas, attendees, and presentations, as well as any other related documents, for the meetings and public outreach activities conducted during this hazard mitigation plan update for Beauregard parish. For each meeting held, agendas were distributed, sign-in sheets were collected to record attendance, and PowerPoint presentations were given. For each meeting involving the public, notification was given via newspaper, social media, press releases, and public notices.

Meeting #1: Coordination Meeting

Date: November 4, 2014
Location: SDMI, LSU Baton Rouge, LA
Purpose: Discuss with the hazard mitigation lead for the parish (OHSEP director), as well as the parish's lead planner, the expectations and requirements of the hazard mitigation plan update process and to establish and initial project timeline.

Public Initiation: No

Meeting #2: Hazard Mitigation Plan Update Kick-Off

Date: August 27, 2014
Location: Beauregard Parish OHSEP, DeRidder, Louisiana
Purpose: Discuss the expectations and requirements of the hazard mitigation plan update process and to establish and initial project timeline with the Parish's Hazard Mitigation Plan Steering Committee. Assign each individual jurisdiction and the parish data collection for the plan update.
Public Initiation: No
Meeting #2 Invitees:

Name	Title	Agency
Bobby Hennigan	Parish Manager	Beauregard Parish
Brent Rutherford	Tax Assessor	Parish Mapping
Chip Suire	Representative	Fire District 4
Chris Rudy	Assistant Police Chief	DeRidder Police Department
Connie Granger	Director	Beauregard Parish Council on Aging
Darrell Kelly	District Chief	Fire District 3
David Eaves	Mayor	Town of Merryville
Gary Crowe	President	Beauregard Parish Police Jury
Glen Mears	Director	OHSEP
Greg Crain	Safety Coordinator	Mead West Vaco
Greg Neely	Director Plant Operations	Beauregard Memorial Hospital
Jay Williams	District Chief	Fire District 1
Joe Toler	Chief Deputy	Beauregard Parish Sheriff's Office
John Gott	Police Chief	DeRidder Police Department
Kail Page	Safety Coordinator	Packaging Coorporation of America
Keith Hawkins	Agent	LSU Ag Center
Ken Harlow	Fire Chief	DeRidder Fire Department
Kevin Reeves	Manager Consumer Services	Beauregard Electric COOP
Linda Ellis	Director	Parish Communications District
Mark Dagenhart	District Chief	Fire District 2
Michael Stelly	Police Chief	Merryville Police Department
Ricky Moses	Sheriff	Beauregard Parish Sheriff's Office
Ron Roberts	Mayor	City of DeRidder
Tim Cooley	Superintendent	Beauregard Parish School Board

Todd Sherman	Director	DeRidder Public Works
Representative	OHSEP Staff	Allen Parish OHSEP
Representative	OHSEP Staff	Calcasieu Parish OHSEP
Representative	OHSEP Staff	Vernon Parish OHSEP

Meeting #3: Public Meeting

Date: July 27, 2015

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 provide for the meeting attendees to identify specific areas where localized hazards occur.

Public Initiation: Yes

Meeting #3 Invitees:

Name	Title	Agency
Bobby Hennigan	Parish Manager	Beauregard Parish
Brent Rutherford	Tax Assessor	Parish Mapping
Chip Suire	Representative	Fire District 4
Chris Rudy	Assistant Police Chief	DeRidder Police Department
Connie Granger	Director	Beauregard Parish Council on Aging
Darrell Kelly	District Chief	Fire District 3
David Eaves	Mayor	Town of Merryville
Gary Crowe	President	Beauregard Parish Police Jury
Glen Mears	Director	OHSEP
Greg Crain	Safety Coordinator	Mead West Vaco
Greg Neely	Director Plant Operations	Beauregard Memorial Hospital
Jay Williams	District Chief	Fire District 1
Joe Toler	Chief Deputy	Beauregard Parish Sheriff's Office
John Gott	Police Chief	DeRidder Police Department
Kail Page	Safety Coordinator	Packaging Coorporation of America
Keith Hawkins	Agent	LSU Ag Center
Ken Harlow	Fire Chief	DeRidder Fire Department
Kevin Reeves	Manager Consumer Services	Beauregard Electric COOP
Linda Ellis	Director	Parish Communications District
Mark Dagenhart	District Chief	Fire District 2
Michael Stelly	Police Chief	Merryville Police Department
Ricky Moses	Sheriff	Beauregard Parish Sheriff's Office
Ron Roberts	Mayor	City of DeRidder
Tim Cooley	Superintendent	Beauregard Parish School Board
Todd Sherman	Director	DeRidder Public Works

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

Date: Public Meeting Activity
Location: Public Meeting
Purpose:
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.
Public Initiation: Yes

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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 Hazard Mitigation Plan Update must be reviewed and re-submitted for approval every five years. To determine the need to update the plan, the plan administrator, currently the Director of the Beauregard Parish OHSEP, will be responsible for monitoring and evaluating the plan.

On a quarterly basis, the plan administrator will monitor the plan to assess if significant changes have occurred in the premises upon which the plan was updated. The plan administrator will look at items such as:

- Changes in data used to determine vulnerabilities and loss estimates, in terms of quality and availability
- Changes in Federal or state plans that could affect the continued implementation of any mitigation actions
- The identification of new hazards requiring new mitigation actions
- Changes in the parish residents' perceptions relative to specific hazards.

The administering agency for each mitigation action is responsible for providing a quarterly status report to the plan administrator detailing the progress of the mitigation action, difficulties encountered, success of coordination efforts, and any suggested revisions. The plan administrator will consolidate this information for the active mitigation action and will produce a status report for the plan as a whole.

The plan's status reports will be published in public places and communicated within the community through service, religious, professional, and social organizations.

On an annual basis, the plan administrator will reconvene the Beauregard Parish HMP Steering Committee including additional stakeholders to:

- Review the progress and goals of the mitigation actions to determine their relevance to changing situations in the parish, as well as changes in state or Federal policy, and to ensure they are addressing current and expected condition
- Review the risk assessment portion of the plan to determine if this information should be updated or modified, given any new available data
- Review the list of critical facilities and modify as needed

- Any items that may have changed the level of risk to the parish and parish residents.

Additionally, the public will be canvassed to solicit public 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.

For all revisions, prior to the required five-year update and for the five-year update, the plan administrator will assign plan update responsibilities to the Steering Committee members and other available resources as applicable. The plan administrator will manage the update process through to the completion of the next revision of the plan. The plan administrator will be responsible for having the revision reviewed and approved.

The review in the fourth year of the plan will become the basis for the five-year update revision. The plan administrator will have six months to make appropriate changes to the plan and obtain approval from the Beauregard Parish Police Jury before submitting the updated plan to the State of Louisiana Hazard Mitigation Officer and FEMA for acceptance and re-approval. In order to provide the sufficient time for an iterative review and approval process, the plan should be submitted six months prior to the five-year deadline.

The plan administrator will notify all interested parties when changes have been made to the parish plan.

2015 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. 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

When appropriate, local governments, by way of the individuals who served on the Beauregard Parish Hazard Mitigation Evaluation Committee, will address the need to incorporate requirements of the mitigation plan into their respective zoning ordinances, comprehensive plans, and/or capital improvement plans if deemed necessary and if not previously included. An effort will be made by all Hazard Mitigation Evaluation Committee members to ensure consistency in all future planning efforts with the mitigation goals and Risk Assessment presented in this plan. Consistency between all planning efforts will ensure a decrease in losses related to hazard events within future and existing developments. During the life of the plan since the previous update process, the Hazard Mitigation Evaluation Committee was not incorporated into other formal planning mechanisms as none occurred during that time period. However, goals and actions items were frequently discussed at both Parish and Municipal council meetings.

If amendments to existing ordinances or new ordinances are required, each political jurisdiction will be responsible for its respective updates. However, based upon the findings of this plan, little need exists for creating new ordinances or revising existing ordinances as the parish has been dealing with the flood mitigation issues for decades as its livelihood depends on it.

On behalf of the jurisdictions of the Town of Merryville and the City of DeRidder, Beauregard Parish has the authority to incorporate contents of the Hazard Mitigation Plan into the parish's existing regulatory mechanisms. Agreements are currently in place with each jurisdiction to allow for the parish incorporation mechanisms to take place.

The following parish and local plans incorporate requirements of this Hazard Mitigation Plan Update as follows:

Beauregard Unincorporated

- Capital Improvements Plan – Updated as needed, Beauregard Parish OHSEP is the responsible agency.
- Local Emergency Operations Plan – Updated every five years, reviewed following each disaster or state declared emergency in which it is used. Beauregard Parish OHSEP is the responsible agency.
- Continuity of Operations Plan – Updated as needed, Beauregard Parish OHSEP is the responsible agency.

DeRidder

- Local Emergency Operations Plan – Updated every five years, the City of DeRidder and the Beauregard Parish OHSEP are the responsible agencies.

Merryville

- Local Emergency Operations Plan – Updated every five years, Town of Merryville and the Beauregard Parish OHSEP are the responsible agencies.

Continued Public Participation

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

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

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Appendix C – Beauregard Parish Essential Facilities

Beauregard Unincorporated Essential Facilities											
Type	Name	Drought	Flood	Excessive Heat	Sinkhole	Hail	Lightning	Wind	Tornado	Tropical Cyclones	Wildfire
Fire and Rescue	Beauregard Fire District 2 - Longville Station					X	X	X	X	X	
	Beauregard Parish Fire District 4					X	X	X	X	X	
	Beauregard Fire District 2 Gordon Station					X	X	X	X	X	
	Bivens Fire Station					X	X	X	X	X	
	Broadland's Fire Station District 2					X	X	X	X	X	
	Dry Creek Volunteer Fire Department					X	X	X	X	X	
	East Beauregard Volunteer Fire Department Station 1					X	X	X	X	X	
	Fields Fire Dept					X	X	X	X	X	
	Fire District 2 Meadow Village Station					X	X	X	X	X	
	Fire District Four - Pine Ridge Volunteer Fire					X	X	X	X	X	
	Fire Protection District 3					X	X	X	X	X	
	Junction Fire District 1					X	X	X	X	X	
	Kipling Volunteer Fire Department					X	X	X	X	X	
	Oretta Beauregard Fire District 1					X	X	X	X	X	
	Pujo Fire Station					X	X	X	X	X	

Beauregard Unincorporated Essential Facilities											
Type	Name	Drought	Flood	Excessive Heat	Sinkhole	Hail	Lightning	Wind	Tornado	Tropical Cyclones	Wildfire
	Ragley Fire Station Fire District 2					X	X	X	X	X	
	Singer - Beauregard Fire District 1					X	X	X	X	X	
Government	Beauregard Parish Library South Branch					X	X	X	X	X	
	Beauregard Parish Police Jury - Zone 5 Maintenance Yard					X	X	X	X	X	
	Beauregard Parish Police Jury - Zone 7 Maintenance Yard					X	X	X	X	X	
	Beauregard Parish Police Jury Zone 2 Maintenance Yard					X	X	X	X	X	X
	Beauregard Parish Police Jury Zone 4 Maintenance Yard					X	X	X	X	X	
	Beauregard Parish Police Jury Zone 6 Maintenance Yard					X	X	X	X	X	
	Beauregard Parish water					X	X	X	X	X	
	City Hall					X	X	X	X	X	
	Dry Creek Post Office		X			X	X	X	X	X	X
	Louisiana Farm Bureau					X	X	X	X	X	
	Waterworks District #2					X	X	X	X	X	
Schools	Beauver Christian Academy					X	X	X	X	X	X
	Deridder Christian Academy					X	X	X	X	X	X
	East Beauregard Elementary					X	X	X	X	X	X
	East Beauregard High School					X	X	X	X	X	X
	East Beauregard Stadium					X	X	X	X	X	
	Hyatt High School					X	X	X	X	X	

Beauregard Unincorporated Essential Facilities											
Type	Name	Drought	Flood	Excessive Heat	Sinkhole	Hail	Lightning	Wind	Tornado	Tropical Cyclones	Wildfire
	Singer High School					X	X	X	X	X	
	South Beauregard Elementary					X	X	X	X	X	X
	South Beauregard High School					X	X	X	X	X	X

De Ridder Essential Facilities											
Type	Name	Drought	Flood	Excessive Heat	Sinkhole	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Wildfire
Fire and Rescue	Deridder Fire Department - Eastside Station					X	X	X	X	X	X
	DeRidder Fire Department - North Side Station					X	X	X	X	X	X
Government	Beauregard Council on Aging					X	X	X	X	X	X
	Beauregard Courthouse					X	X	X	X	X	X
	Beauregard Parish Assessors Office					X	X	X	X	X	X
	Beauregard Parish Police Jury					X	X	X	X	X	X
	Central Office Building - Beauregard Parish School Board					X	X	X	X	X	X
	City Hall					X	X	X	X	X	X
	Louisiana Workforce Commission					X	X	X	X	X	X
	LSU Agricultural Center					X	X	X	X	X	X
	Office of Beauregard Parish Sheriff					X	X	X	X	X	X
	Office of Community Services, DSS.		X			X	X	X	X	X	X
	Office of District Attorney					X	X	X	X	X	X

De Ridder Essential Facilities											
Type	Name	Drought	Flood	Excessive Heat	Sinkhole	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Wildfire
	Office of Family Support, DSS.					X	X	X	X	X	X
	Registrar of Voters					X	X	X	X	X	X
	USDA - NRCS					X	X	X	X	X	X
Law Enforcement	DeRidder Police Department					X	X	X	X	X	X
Public Health	Beauregard Hospital Outpatient Service					X	X	X	X	X	X
	Beauregard Memorial Hospital					X	X	X	X	X	X
	Beauregard Memorial Hospital Home Health					X	X	X	X	X	X
	Beauregard Parish Health Unit					X	X	X	X	X	X
Schools	Beauregard Alternative School					X	X	X	X	X	X
	Beauregard Parish School Board - Title 1 Center					X	X	X	X	X	X
	DeRidder High School					X	X	X	X	X	X
	Deridder Junior High					X	X	X	X	X	X
	DeRidder Junior High					X	X	X	X	X	X
	G.W. Carver Elementary					X	X	X	X	X	X
	K R Hanchey Elementary School					X	X	X	X	X	X
	K.R. Hanchey					X	X	X	X	X	X
	Pinewood Elementary School					X	X	X	X	X	X
Nursing Homes	Beaucare Head Start Nursing Home					X	X	X	X	X	X

Merryville Essential Facilities											
Type	Name	Drought	Flood	Excessive Heat	Sinkhole	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Wildfire
Fire and Rescue	Slayter Fire Station					X	X	X	X	X	X
Government	Merryville Town Hall					X	X	X	X	X	X
Law Enforcement	Merryville Police Station					X	X	X	X	X	X
Public Health	Merryville Health Clinic					X	X	X	X	X	
Schools	Merryville High School					X	X	X	X	X	X
Nursing Homes	Merryville Nursing Home					X	X	X	X	X	

Appendix D – Plan Adoption

The following resolution was offered by Gerald McLeod and seconded by N.R. "Rusty" Williamson:

RESOLUTION NO. 23-2015

WHEREAS in accordance with Section 404 of the Stafford Act, FEMA and the State of Louisiana Hazard Mitigation Division a Hazard Mitigation Plan must be updated by the police jury as required; and

WHEREAS the Multi-Jurisdictional Hazard Mitigation Plan has been approved by the State Office of Homeland Security and Emergency Preparedness, Hazard Mitigation and the Federal Emergency Management Agency, at Region 6 office pending adoption of same by the Beauregard Parish Police Jury, City of DeRidder and Town of Merryville; and

WHEREAS, the adoption of this plan by the Beauregard Parish Police Jury is an important step in receiving Federal and State Hazard Mitigation funding due to damages and (or) destructions caused by natural disasters, ie hurricane floods, high winds, tornados, etc.

NOW, THEREFORE, BE IT RESOLVED, that the Beauregard Parish Police Jury does hereby adopt the Beauregard Parish Hazard Mitigation Plan as presented by Deputy Glen Mears, Beauregard Parish's Director of the Division of Homeland Security and Emergency Preparedness.

BE IT FURTHER RESOLVED that the Beauregard Parish Police Jury approves this Hazard Mitigation Plan in an effort to receive Federal and State Hazard Mitigation funding to assist in recovery from damage and (or) destruction covered in accordance with state and federal disaster guidelines.

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

YEAS: Gary Crowe, S. E. "Teddy" Welch, Johnnie Bennett, Jerry Shirley, Brad Harris, N. R. "Rusty" Williamson, Carlos Archield, Ronnie Libick, and Gerald McLeod.

NAYS: None.

ABSENT: Llewellyn Smith.

And the resolution was adopted by the majority present on this 13th day of October, 2015.

TAYRA S. DEHOVEN
SECRETARY-TREASURER

GARY CROWE
PRESIDENT

STATE OF LOUISIANA

PARISH OF BEAUREGARD

I, Tayra S. DeHoven, 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 October 13, 2015, and

RESOLUTION NO. R-2015-05

A RESOLUTION ADOPTING THE BEAUREGARD PARISH 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 Beauregard Parish Hazard Mitigation Plan Update 2015 in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, Beauregard Parish Hazard Mitigation Plan Update 2015 identifies mitigation goals and actions 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 the hazard mitigation and achieving the goals outlined in Beauregard Parish Hazard Mitigation Plan Update 2015.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of DeRidder does hereby adopt the Beauregard Parish Hazard Mitigation Plan Update 2015 all in accordance with Section 404 of the Stafford Act, FEMA and the State of Louisiana Hazard Mitigation Division.

BE IT FURTHER RESOLVED that the City Council of the City of DeRidder does approve and adopt this Hazard Mitigation Plan Update 2015 in an effort to receive Federal and State Hazard Mitigation funding to assist in recovering from damages and/or destruction covered in accordance with state and federal disaster guidelines.

THUS DONE AND ADOPTED by the City Council of the City of DeRidder, Louisiana on this 28th day of September, 2015 in regular session duly convened in Council Chambers in DeRidder, Louisiana.

ATTEST:

Kerri D. Broussard
KERRI D. BROUSSARD
CITY CLERK

Elizabeth S. Granger
ELIZABETH S. GRANGER
PRESIDENT

President Granger opened the public hearing and asked if anyone wished to speak in favor or in opposition to the above resolution. There being no response the public hearing was closed. Councilman Steele made a motion to adopt the above stated resolution as presented and Councilman Jenkins offered a second. The motion having been submitted to a vote, the vote thereon was as follows, to-wit:

YEAS: Elizabeth Granger, Keith Hooper, Kimaron Moore, Vincent Labue, Gordon Jenkins, Faith Scott, Hayward Steele.

NAYS: None

ABSENT: None

State of Louisiana
Parish of Beauregard

Office of City Council Clerk
City of DeRidder

Certificate

I hereby certify that the within and foregoing is a true and correct copy of the original Resolution No. R-2015-05, Beauregard Parish Mitigation Plan Update 2015, as adopted by the Council of the City of DeRidder, Louisiana, in regular session on September 28, 2015 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 office at DeRidder, Louisiana, this 30th day of September, 2015.

Kerri D. Broussard

Kerri D. Broussard, City Clerk

The following resolution was offered by Councilwoman Amanda Pointer and seconded by Councilman Mark Allen:

Town of Merryville

Louisiana

RECEIVED NOV 14 2015

RESOLUTION 110915-2

A RESOLUTION OF THE TOWN OF MERRYVILLE

BEAUREGARD PARISH HAZARD MITIGATION PLAN, SEPTEMBER 14, 2015

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, September 12, 2015 in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the Beauregard Parish Mitigation Plan, September 12, 2015, 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, September 12, 2015.

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, September 12, 2015.

ADOPTED by a vote of 4 in favor and 0 against, and 0 abstaining, this the 9th day of November 2015.

By: David E Eaves Jr

David E Eaves, Jr. Mayor

ATTEST:

By: Jennifer Hatfield

Jennifer Hatfield, Town Clerk

APPROVED AS TO FORM:

BY: Jennifer Hatfield

Jennifer Hatfield, Town Clerk

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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 by each jurisdiction. The worksheets were presented at the Kickoff Meeting by the contractor as tools for assisting in the update of the Hazard Mitigation Plan. The plan update worksheets allowed for collection of information such as planning team members, community capabilities, critical infrastructure, hazard profiling, and project identification. The following pages contain documentation of the worksheets.

Beauregard Parish - Building Inventory (Beauregard, DeRidder, Merryville)

Name of Building	Purpose of Building	Address	City	Latitude	Longitude
Beauregard					
Ragley Library	Library	6715 Hwy. 12, Suite A	Ragley	30.510833	93.236388
Fields Library	Library	13487 Hwy. 389	Fields	30.524444	93.575277
Singer Library	Library	9130 Hwy. 27	Singer	30.654999	93.413055
Oretta Fire Station	Fire Department	114 Parker Road	Singer	n/a	n/a
Singer Fire Station	Fire Department	9088 Highway 27	Singer	n/a	n/a
Fire District #1 Office	Fire Department	1287 Newlin Cemetery Road	Singer	30-39.613n	93-24.554w
Singer High School	School	152 Highway 110 East	Singer	n/a	n/a
South Beauregard Elementary School	School	12380 Highway 171	Longville	n/a	n/a
South Beauregard High School	School	151 Longville Church Road	Longville	n/a	n/a
East Beauregard High School	School	5368 Highway 113	Dry Creek	n/a	n/a
East Beauregard Elementary School	School	5364 Highway 113	Dry Creek	n/a	n/a
South Beauregard Water System	Water System	7213 Highway 190 East (Main Office)	Ragley	30-30-619n	93-13.076w
Beauregard Parish Water District 2	Water System	9080 Highway 27 (Main Office)	Singer	30-39.345n	93-24.750w
Beauregard Fire District #1 Main Office	Fire Department	1287 Newline Cem. Road	Singer	30-39.613n	93-24.554w
Oretta Fire Department	Fire Department	114 Parker Road	Singer	30-31.593n	93-26.208w
Singer Fire Department	Fire Department	9088 Highway 27	Singer	30-39.345n	93-24.717w
Beauregard Fire District #2 Main Office	Fire Department	11080 Hwy 171	Longville	30-36.000n	93-13.964n
Longville Fire Department	Fire Department	11078 Highway 171	Longville	30-36.000n	93-13.964n
Ragley Fire Department	Fire Department	160 1st Pentacostal Church Road	Longville	30-31.601n	93-14.084w
Meadow Village Fire Department	Fire Department	16793 Highway 171	Ragley	30-26.872n	93-13.944w

Texas Eastern Fire Department	Fire Department	2190 Texas Eastern Road	Ragley	30-27.437n	93-8.871w
Gordon Fire DePartment	Fire Department	3285 Highway 12	DeQunicy	30-28.789n	93-20.132w
Dry Creek Fire Department	Fire Department	8352 Highway 394	Dry Creek	30-40.314n	93-2.736w
East Beauregard FD Station #1	Fire Department	3141 Highway 113	Sugartown	30-50.183n	93-2.891w
Beauregard Electric Substation Ragley	Utilities	US 171 and Conley Rd	Ragley	30-31.299n	93-13.964w
Beauregard Electric Substation Longville	Utilities	US 171 (Barnes Creek Area)	Longville	30-39.879n	93-13.964w
Beauregard Electric Substation Dry Creek	Utilities	La. 113 and La. 394	Dry Creek	n/a	n/a
Beauregard Electric Substation DeQunicy/Fields	Utilities	La. 389 at Dee Gilland Rd	DeQunicy	30-31.195n	93-30.234w
Beauregarsd Electric Substation Junction Area	Utilities	La. 111 and April Road	Junction	30-50.813n	93-30.539w
CLECO Substation Sugartown	Utilities	La. 113 Sugartown	Sugartown	n/a	n/a
Parker Propane	Utilities	La. 27 &Snuffy Rd	Singer	30-35.912n	93-25.854w
Tennessee Gas Pipeline	Transportation	15449 Parish Line Rd.	Kinder	n/a	n/a
Texas Eastern Gas Pipeline	Transportation	2240 Texas Eastern Road	Ragley	30-27.518n	93-8.872w
Transcontinental Gas Pipeline	Transportation	17333 Highway 171	Ragley	30-25.945n	93-13.964w
Trunkline Gas Pipeline	Transportation	Highway 171	Longville	30-35.760n	93-13.964w
Gulf South Pipeline	Transportation	1415 Miller Street	West Lake	n/a	n/a
Temple Inland	Chemical Industry	Highway 12 East	Dequincy	30-28.841n	93-19.766w
US Post Office	Postal and Shipping	8243 Highway 113	Dry Creek	n/a	n/a
US Post Office	Postal and Shipping	126 Longville Road	Longville	30-36.331n	93-13.893w
US Post Office	Postal and Shipping	7619 Highway 190 East	Ragley	30-30.685n	93-12.318w
US Post Office	Postal and Shipping	9054 Singer Highway	Singer	30-39.391n	93-24.731w
Phellps Coorectional Center	Government Facilities	14925 Highway 27	DeQunicy	30-29.940n	93-26.204w
Singer School	School	153 Highway 110 East	Singer	30-39.264n	93-24.717w
South Beauregard Lower Elementary School	School	12380 Highway 171	Longville	n/a	n/a
South Beauregard Upper Elementary School	School	12378 Highway 171	Longville	30-35.974n	93-13.964w
South Beauregard High School	School	151 Longville Church Road	Longville	30-35.974n	93-13.964w
East Beauregard High School	School	5368 Highway 113	Dry Creek	30-44.61n	93-1.57w
East Beauregard Elementary School	School	5364 Highway 113	Dry Creek	30-44.61n	93-1.57w
Boy Scouts Camp Edgewood	School	Camp Edgewood Road	DeQunciy	30-26n	93-22w
Dry Creek Baptist Camp	School	8237 Highway 113	Dry Creek	30-40.95n	93-2.74w

DeRidder					
Sheriff's Office/Homeland Security	Law enforcement, corrections	412 Bolivar Bishop Drive	DeRidder	30.841944	93.28388
Security EOC and Jail Complex	n/a	n/a	n/a	n/a	n/a
Police Jury Building	Parish Government Offices	201 West 2nd Street	DeRidder	30.845555	93.2874
Beauregard Parish Library	Library	205 S. Washington Street	DeRidder	30.845277	93.286666
BCAA Offices	n/a	204 West 1st. Street	DeRidder	30.846944	93.287777
Annex Buildings	Sheriff and D.A. Office	120 S. Stewart Street	DeRidder	30.846111	93.287222
Temporary Courthouse	Parish Government Offices	201 West 2nd Street	DeRidder	30.846111	93.288611
Parish Activities Building	Community Activities	201 West 2nd Street	DeRidder	30.845555	93.288611
Tax Assessors Building	Parish Government Offices	214 West 2nd Street	DeRidder	30.846111	93.288333
City of DeRidder	Governmental	Ball Road	DeRidder	30-46.877n	93-14.510w
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	n/a	n/a
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
DeRidder Fire Department-Eastside Station	Fire Department	201 Martin Luther King Drive	DeRidder	30-50.673n	93-16.324w
DeRidder Fire Department-Westside Station	Fire Department	102 Wilson Street	DeRidder	30-50.818n	93-17.679w
DeRidder Fire Department-Northside Station	Fire Department	1809 North Pine St	DeRidder	30-52.748n	93-17.107w
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
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
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	n/a	n/a
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	n/a	n/a
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					
Merryville Library	Library	1007 Hwy. 110	Merryville	30.754166	93.540555
Junction Fire Department	Fire Department	272 Mouth of Creek Road	Merryville	n/a	n/a
Merryville Fire Station	Fire Department	637 Hennigan Street	Merryville	n/a	n/a
Bivens Fire Station	Fire Department	5163 Highway 389	Merryville	n/a	n/a
Fields Fire Station	Fire Department	13491 Highwa389	Merryville	n/a	n/a
Merryville High School	School	7061 Highway 110 West	Merryville	n/a	n/a
Merryville Water System	Water System	530 Hennigan Street (Main Office)	Merryville	30-44.649n	93-33.334w
South Merryville Water System	Water System	3189 Highway 389 (Main Office and Well site)	Merryville	30-40.669n	93-34.800w
City of Merryville	Governmental	480 Highway 389	Merryville	30-44.649n	93-33.334w
Town Of Merryville Police Dept	Law Enforcement	1009 Highway 110	Merryville	30-45.288n	93-32.427w
Beauregard Electric Substation Merryville	Utilities	La. 389 and Daniel Hollingsworth Rd.	Merryville	n/a	n/a
Eott Engery	Utilities	2001 Neale Oil Filed Road	Merryville	30-45n	93-26w
Sabine State Bank	Financial Institution	1470 Highway 190	Merryville	30-52.416n	93-17.117w
US Post Office	Postal	La. 110	Meeryville	30-45.179n	93-32.439w
Merryville City Hall	Governmental	530 Hennigan Street	Merryville	93-32.382w	n/a
Merryville High School Office	School	7061 Highway 110 W	Merryville	30-44.807n	93-32.260w
Play Pen Daycare	School	831 Highway 110 W	Merryville	30-45.478n	93-32.322w

Vulnerable Populations Worksheet

Beauregard Parish

Name	Street	City	Zip Code	Latitude	Longitude
All Hospitals (Private or Public)					
Beauregard Memorial Hospital	600 South Pine Street	DeRidder	70634	30.841528	-93.288336
Oceans Behavioral Hospital	1420 Blankenship Drive	DeRidder	70634	30.841932	-93.31072
MOB Building	501 South Pine Street	DeRidder	70634	n/a	n/a
Beauregard Urgent Care	200 West 5th Street	DeRidder	70634	n/a	n/a
Cardiology Clinic DeRidder	101 West 6th Street	DeRidder	70634	n/a	n/a
Washington Street Clinic	301 South Washington Street	DeRidder	70634	n/a	n/a
South Beauregard Health Center	12186 Highway 171	Longville	70634	n/a	n/a
BPG Billing Office	401 South Pine Street	DeRidder	70634	n/a	n/a
Fourth Street Clinic	109 West 4th Street	DeRidder	70634	n/a	n/a
*** There are no Hospitals located in the Town of Merryville**					
Nursing Homes (Private or Public)					
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 Nursing Home	900 Bryan Street	Merryville	70634	30.45354	-93.32761
Mobile Home Parks					
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
A & B Mobile Home Park	1246 Highway 112	DeRidder	70634	n/a	n/a
Back 40 RV Park	690 Highway 26	DeRidder	70634	n/a	n/a
Burnett Trailer Park	Kmatt Drive	Dequincy	70634	n/a	n/a
Bypass Trailer Park	2844 Highway 3226	DeRidder	70634	n/a	n/a
C & B Trailer Park	422 Tilley Street	DeRidder	70634	n/a	n/a
Mathis Trailer Park	193 Thunder Valley Road	DeRidder	70634	n/a	n/a
Camp Edgewood	3419 Camp Edgewood Road	Dequincy	70634	n/a	n/a
Clear Creek Trailer Park	445 Cooper Street	Merryville	70634	n/a	n/a
Juanita Mobile Home Park	100 Cloud Loop	Singer	70634	n/a	n/a
D & A Mobile Home Park	Herman Smith Road	DeRidder	70634	n/a	n/a
Evergreen Mobile Home Park	7643 Highway 171	Longville	70634	n/a	n/a
Fees Trailer Park	Granberry Road	DeRidder	70634	n/a	n/a
G & A Trailer Park	Kulaga Road	DeRidder	70634	n/a	n/a
G & S Trailer Park	411 Tilley Street	DeRidder	70634	n/a	n/a
Holidays Mobile Home Park	422 Louis Street	DeRidder	70634	n/a	n/a
Mockingbird Mobile Home Park	114 Mockingbird Lane	DeRidder	70634	n/a	n/a
Legend Lane Trailer Park	1685 Highway 27	DeRidder	70634	n/a	n/a
Longville Lake Trailer Park	711 South Highway 110	Longville	70634	n/a	n/a
Longville RV Park and Campground	Longville Lake	Longville	70634	n/a	n/a
Pine Hill Mobile Home Park	Highway 26	DeRidder	70634	n/a	n/a
Pates Trailer Park	Franklin Road	DeRidder	70634	n/a	n/a

ELEMENT F: STATE REQUIREMENT

National Flood Insurance Program (NFIP)

Jurisdiction: Beauregard Unincorporated

	Beauregard Parish	
Insurance Summary		**Comments**
How many NFIP polices are in the community? What is the total premium and coverage?	281; $108,488; $40,874,000	n/a
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?	438	n/a
How many structures are exposed to flood risk with in the community?	212	n/a
Describe any areas of flood risk with limited NFIP policy coverage.	n/a	n/a
Staff Resources		

Is the Community FPA or NFIP Coordinator certified?	No	n/a
Is flood plain management an auxiliary function?	No	n/a
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability)	Parish permit tech under parish admin	parish admin/engineer
What are the barriers to running an effective NFIP program in the community, if any?	None	n/a
Compliance History		
Is the community in good standing with the NFIP?	Yes	n/a
Are there any outstanding compliance issues (i.e., current violations)?	No	n/a
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown	n/a
Is a CAV or CAC scheduled or needed? If so when?	No	n/a
Regulation		
When did the community enter the NFIP?	5/3/1990	n/a
Are the FIRMs digital or paper?	Both	n/a
Do floodplain development regulations meet or exceed FEMA or State minimum requirements? If so, in what ways?	Yes	n/a
Community Rating System (CRS)		
Does the community participate in CRS?	No	n/a
What is the community's CRS Class Ranking?	n/a	n/a
Does the plan include CRS planning requirements?	n/a	n/a

DeRidder – National Flood Insurance Program

ELEMENT F: STATE REQUIREMENT

National Flood Insurance Program (NFIP)

Jurisdiction: City of DeRidder

Insurance Summary		Comments
How many NFIP polices are in the community? What is the total premium and coverage?	n/a; $39,495; $16,222,400	n/a
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?	63	n/a
How many structures are exposed to flood risk with in the community?	67	n/a
Describe any areas of flood risk with limited NFIP policy coverage.	n/a	n/a
Staff Resources		

Is the Community FPA or NFIP Coordinator certified?	No	n/a
Is flood plain management an auxiliary function?	No	n/a
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability)	No	parish admin/engineer
What are the barriers to running an effective NFIP program in the community, if any?	No	n/a
Compliance History		
Is the community in good standing with the NFIP?	Yes	n/a
Are there any outstanding compliance issues (i.e., current violations)?	No	n/a
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown	n/a
Is a CAV or CAC scheduled or needed? If so when?	Unknown	n/a
Regulation		
When did the community enter the NFIP?	2/1/1987	n/a
Are the FIRMs digital or paper?	Digital	n/a
Do floodplain development regulations meet or exceed FEMA or State minimum requirements? If so, in what ways?	Unknown	n/a
Community Rating System (CRS)		
Does the community participate in CRS?	Yes	n/a
What is the community's CRS Class Ranking?	9	n/a
Does the plan include CRS planning requirements?	Yes	n/a

ELEMENT F: STATE REQUIREMENT

National Flood Insurance Program (NFIP)

Jurisdiction: Town of Merryville

Insurance Summary		Comments
How many NFIP polices are in the community? What is the total premium and coverage?	n/a; $850; $242,000	n/a
How many claims have been paid in the community? What is the total amount of paid claims? How many of the claims were for substantial damage?	4	n/a
How many structures are exposed to flood risk with in the community?	2	n/a
Describe any areas of flood risk with limited NFIP policy coverage.	n/a	n/a
Staff Resources		
Is the Community FPA or NFIP Coordinator certified?	NO	n/a

Is flood plain management an auxiliary function?	NO	n/a
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability)	NO	parish admin/engineer
What are the barriers to running an effective NFIP program in the community, if any?	NO	n/a
Compliance History		
Is the community in good standing with the NFIP?	YES	n/a
Are there any outstanding compliance issues (i.e., current violations)?	NO	n/a
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	UNKNOWN	n/a
Is a CAV or CAC scheduled or needed? If so when?	UNKNOWN	n/a
Regulation		
When did the community enter the NFIP?	10/19/1982	n/a
Are the FIRMs digital or paper?	Digital	n/a
Do floodplain development regulations meet or exceed FEMA or State minimum requirements? If so, in what ways?	Unknown	n/a
Community Rating System (CRS)		
Does the community participate in CRS?	NO	n/a
What is the community's CRS Class Ranking?	n/a	n/a
Does the plan include CRS planning requirements?	n/a	n/a

Capability Assessment

Beauregard Parish

Planning and Regulatory		
Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.		
	Beauregard Parish	Comments
Plans	**Yes / No**	
Comprehensive / Master Plan	No	n/a
Capital Improvements Plan	Yes	n/a
Economic Development Plan	No	n/a
Local Emergency Operations Plan	Yes	n/a
Continuity of Operations Plan	Yes	n/a
Transportation Plan	No	n/a
Stormwater Management Plan	No	n/a
Community Wildfire Protection Plan	No	n/a
Other plans (redevelopment, recovery, coastal zone management)	n/a	n/a
Building Code, Permitting and Inspections	**Yes / No**	
Building Code	Yes	n/a
Building Code Effectiveness Grading Schedule (BCEGS) Score	Yes	n/a
Fire Department ISO/PIAL rating	No	n/a
Site plan review requirements	No	n/a
Land Use Planning and Ordinances	**Yes / No**	
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 witho		
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	Comments
Administration	Yes / No	
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	
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	
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	Beauregard Parish: 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	Beauregard Parish: 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	Yes	Beauregard - LEPC, DeRidder - Local community church groups designed for disaster response
Other	No	n/a

DeRidder

Planning and Regulatory		
Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.		
Plans	**Yes / No**	
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	Within the next 12 months
Community Wildfire Protection Plan	No	n/a
Other plans (redevelopment, recovery, coastal zone management)	No	n/a
Building Code, Permitting and Inspections	**Yes / No**	
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**	
Zoning Ordinance	Yes	n/a
Subdivision Ordinance	Yes	n/a
Floodplain Ordinance	No	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 witho		
local staff resources, if there are public resources at the next higher level government that can provide technical assistanc		
indicate so in your comments.		
Administration	Yes / No	
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;	
Chief Building Official	Yes	FT
Floodplain Administrator	No	Within the next 12 months
Emergency Manager	No	n/a
Community Planner	Yes	FT
Civil Engineer	Yes	Contracted to private firm
GIS Coordinator	No	Within the next 12 months
Grant Writer	No	n/a
Other	No	n/a
Technical	Yes / No	
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	
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	
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

Merryville

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**	
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**	
Zoning Ordinance	YES	n/a
Subdivision Ordinance	NO	n/a
Floodplain Ordinance	NO	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	
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;	
Chief Building Official	NO	n/a
Floodplain Administrator	NO	n/a
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	
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	
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
	n/a	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	
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