



# Bienville

## PARISH HAZARD MITIGATION UPDATE – 2017



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# BIENVILLE PARISH

## HAZARD MITIGATION PLAN UPDATE

*Prepared for:*

**Bienville Parish**



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Bienville Parish  
 Town of Arcadia  
 Village of Bienville  
 Village of Bryceland  
 Village of Castor  
 Town of Gibsland  
 Village of Jamestown  
 Village of Lucky  
 Town of Mount Lebanon  
 Town of Ringgold  
 Village of Saline

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## 1. Introduction

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

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

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

- Unincorporated Bienville Parish
- Town of Arcadia
- Village of Bienville
- Village of Bryceland
- Village of Castor
- Town of Gibsland
- Village of Jamestown
- Village of Lucky
- Town of Mount Lebanon
- Town of Ringgold
- Village of Saline

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

This Hazard Mitigation Plan is a comprehensive plan for disaster resiliency in Bienville Parish. The parish is subject to natural hazards that threaten life and health and have caused extensive property damage. To better understand these hazards and their impacts on people and property, and to identify ways to reduce those impacts, the parish's Office of Homeland Security and Emergency Preparedness undertook this Natural Hazards Mitigation Plan.

"Hazard mitigation" does not mean that all hazards are stopped or prevented. It does not suggest complete elimination of the damage or disruption caused by such incidents. Natural forces are powerful and most natural hazards are well beyond our ability to control. Mitigation does not mean quick fixes. It is a long term approach to reduce hazard vulnerability. As defined by FEMA, "hazard mitigation" means any sustained action taken to reduce or eliminate the long-term risk to life and property from a hazard event.

Why this plan? Every community faces different hazards and every community has different resources and interests to bring to bear on its problems. Because there are many ways to deal with natural hazards and many agencies that can help, there is no one solution or cookbook for managing or mitigating their effects.

Planning is one of the best ways to correct these shortcomings and produce a program of activities that will best mitigate the impact of local hazards and meet other local needs. A well-prepared plan will ensure that all possible activities are reviewed and implemented so that the problem is addressed by the most appropriate and efficient solutions. It can also ensure that activities are coordinated with each other and with other goals and programs, preventing conflicts and reducing the costs of implementing each individual activity.

Mitigation activities need funding. Under the Disaster Mitigation Act of 2000 (42 USC 5165), a mitigation plan is a requirement for federal mitigation funds. Therefore, a mitigation plan will both guide the best use of mitigation funding and meet the prerequisite for obtaining such funds from FEMA. FEMA also recognizes plans through its Community Rating System, a program that reduces flood insurance premiums in participating communities. This program is described at the end of this chapter.

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

## Location, Demography, and Economy

### Location

Located in the northwestern portion of Louisiana, Bienville Parish is an irregular-shaped parish that is located about forty miles east of Shreveport and about fifty miles west of Monroe (*Figure 1-1*). It is surrounded by Claiborne Parish to the north, Lincoln Parish to the northeast, Jackson Parish to the east, Winn Parish to the southeast, Natchitoches Parish to the south, Red River Parish to the southwest, Bossier Parish to the west, and Webster Parish to the northwest. The total area of the parish is approximately 526,185 acres, of which 8,464 acres is water.



*Figure 1-1: Location of Bienville Parish within the State of Louisiana*



The topography of Bienville Parish varies, and includes high hills, elevated plateaus, fertile valleys, and boggy swamps. While the majority of Bienville Parish is composed of woodlands and rural farmland, several waterways are also located in the parish, including Caney Creek, Caney Lake Reservoir, and Dugdemonia River. Beautiful Lake Bistineau, which is navigable and connected to the Red River by Loggy Bayou, creates part of the extreme western border of Bienville Parish. Running through the parish from north to south are Black Lake Bayou and Saline Bayou. The elevation of the parish averages 140 feet in the flood plains of the south, but ranges from 200 to 400 feet in the uplands. Driskill Mountain, in the northwest part of parish, is the highest point in Louisiana at 535 feet above sea level.

Bienville Parish is located in Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) Region 7.

As noted above, Bienville Parish is located in the northwestern region of Louisiana.

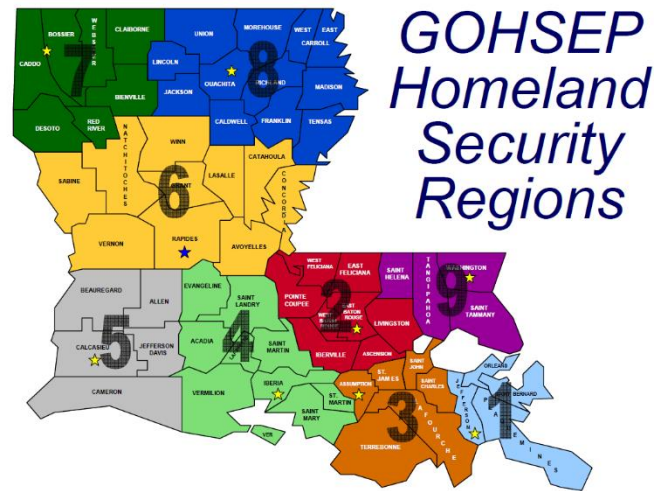


Figure 1-2: Louisiana Homeland Security Regions

Table 1-1: Bienville Parish Population  
(Source: U.S. Census Bureau)

	2010 Census	2014 Census	Current Year (If Available)	Percent Change 2010 - 2014
<b>Total Population</b>	14,353	13,885	—	-3.30%
<b>Population Density (Pop/Sq. Mi.)</b>	17.7	—	—	—
<b>Total Households</b>	7,718	7,724	—	—

### Economy

A hard-working labor force, abundant raw materials, location near a corridor of significant industrial activity, and land for commercial and industrial development make Bienville Parish an ideal prospect for business investment. Forestry is the number one agriculture product in the parish, worth more than \$47 million at the farm gate. Although agriculture dominates the local economic base, industrial manufacturing activity also impacts the local economy. A primary example of this activity, Haynes International, Inc. has a prominent presence in the parish with its fabrication plant located in the Town of Arcadia.

In recent years, tourism has become a growing part of the Bienville Parish economy. A hunting and fishing paradise, Bienville Parish offers a wide variety of ponds, lakes, and wooded areas that are prime for weekend getaways. Kepler Creek Lake offers fishing and boating opportunities, and features the "Blue Hole", a scenic fishing spot. The Mill Creek Reservoir offers fishing and outdoor recreation, as does Saline Lake, Ringgold's southwestern swatch of Lake Bistineau State and Fish Reserve.

Many visitors to Bienville Parish are interested in facts surrounding the Sailes Community, which hosts a stone marker at the scene of the demise of the notorious outlaws Bonnie and Clyde. Area museums in Gibsland and Arcadia provide facts and memorabilia about the notorious 1930's outlaws. Located in the historical district in Arcadia are antique stores, which have revitalized the downtown area. Visitors to the downtown area would also be interested in original WPA murals painted on the walls of the U. S. Post Office located on Railroad Avenue.

Industry data for business patterns in Bienville Parish can be found in the table below:

*Table 1-2: Business Patterns in Bienville Parish*  
(Source: <http://censtats.census.gov/cgi-bin/cbpnaic/cbpsect.pl>)

Business Description	Number of Employees	Number of Establishments	Annual Payroll (\$1,000)
Retail Trade	306	45	5,210
Manufacturing	1000-2499	11	30,838
Health Care and Social Assistance	488	17	10,521
Mining, Quarrying, Oil and Gas Extraction	225	12	23,454
Transportation and Warehousing	277	18	12,578
Construction	20-99	12	5,300
Administration and Support and Waste Management and Remediation Services	0-19	5	480
Real Estate and Rental and Leasing	22	4	801
Wholesale Trade	20-99	7	—
Other Services (except Public Administration)	115	31	2,454
Accommodation and Food Services	156	16	1,555
Financial and Insurance	156	20	6,042
Professional, Scientific, and Technical Services	46	10	607
Information	0-19	2	—
Educational Services	20-99	2	—
Agriculture, Forestry, Fishing and Hunting	221	17	11,227
Utilities	20-99	4	—

While nature has presented the parish with a variety of hazards, the parish has the human resources that can face those hazards and manage the impact they have on people and property. This plan will discuss hazards affecting Bienville Parish. Hazard Profiles (see Section Two) contain detailed information on the likelihood of occurrence, possible magnitude or intensity, areas of the parish that could be affected, and conditions that could influence the manifestation of the hazard.

## Hazard Mitigation

To fully understand hazard mitigation efforts in Bienville 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 before 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 1-3* 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 1-3: The Four Phases of Emergency Management and their Relation to Future Hazard Mitigation*  
(Source: Louisiana State Hazard Mitigation Plan 2014)

As *Figure 1-3* demonstrates, mitigation relies on updating in the wake of disaster. This can give the appearance that mitigation is only reactive rather than proactive. In reality, however, post-disaster revision is a vital component of improving mitigation. Each hazardous event affords an opportunity to reduce the consequences of future occurrences.

Unfortunately, this cycle can be painful for a community. For instance, the risks of disasters that could create catastrophic incidents in Louisiana were thought to be relatively well-understood prior to 2005. However, the impact of the 2005 hurricane season on the Gulf Coast region of the United States prompted a new level of

planning and engagement related to disaster response, recovery, and hazard mitigation. Hurricanes Katrina and Rita hit three weeks apart and together caused astonishing damage to human life and to property. The two storms highlighted a hurricane season that spawned 28 storms—unparalleled in American history. The 2005 hurricane season confirmed Louisiana’s extreme exposure to natural disasters and both the positive effects and the concerns resulting from engineered flood-protection solutions.

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

### General Strategy

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

Part of the ongoing integration process is that 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 2017 Bienville Parish Hazard Mitigation Plan maintains much of the information from the 2006 and 2011 plan versions, but it now reflects the order and methodologies of the 2011 Louisiana State Hazard Mitigation Plan. The sections in the 2011 Bienville Hazard Mitigation Plan were as follows:

- Section One            Introduction
- Section Two           Community Profile
- Section Three        Hazard Vulnerability Assessment
- Section Four        Mitigation Strategy
- Section Five        Implementation
- Section Six        Plan Maintenance
- 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 Bienville Parish Hazard Mitigation Steering Committee was not ignorant or dismissive of the successful analysis and mitigation planning executed in previous plan updates. This plan update remains coherent with those documents, retaining language and content when needed, deleting it when appropriate, and augmenting it when constructive.

## 2017 Plan Update

This 2017 plan update proceeds with the previous goals of the Bienville Parish Hazard Mitigation Plan. The current goals are as follows:

- Create an advanced warning system
- Reduce damages by hazards that cannot be controlled
- Create a maintenance, rehabilitation and replacement program
- Create hazard event procedures

This plan update makes a number of textual changes throughout, but the most obvious changes are data related and structural edits. 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. Second, instead of eleven, separate sections for numerous tables, maps, and appendices, the present plan update has four sections and five appendices. The most significant changes are the newly developed hazard profiles and risk assessments, as well as the removal of repetition between sections from the previous plan updates. The 2017 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 Strategy
- Appendix A           Planning Process
- Appendix B           Plan Maintenance
- Appendix C           Essential Facilities
- Appendix D           Plan Adoption
- Appendix E           State Required Worksheets

*Table 1-4: Plan Crosswalk*

2011 Plan	Revised Plan (2017)
Section 1: Introduction	Section 1: Introduction
Section 2: Community Profile	Section 1: Introduction
Section 3: Hazard Vulnerability Assessment	Section 2: Hazard Identification and Risk Assessment, Section 3: Capability Assessment
Section 4: Mitigation Strategy	Section 4: Mitigation Strategy
Section 5: Implementation	Section 4: Mitigation Strategy
Section 6: Plan Maintenance	Appendix B: Plan Maintenance
Appendices	Appendices

Despite 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 Bienville Parish and its municipalities. The extent of this risk is dictated primarily by its geographic location. Most significantly, Bienville Parish remains at high risk of water inundation from various sources, including flooding, tornadoes, and tropical cyclone activity. All of the parish is also at high risk of damages from high winds and wind-borne debris caused by various meteorological phenomena. Other hazards threaten the parish and/or its municipalities, although not to such great degrees and not in such widespread ways. In all cases, the relative social vulnerability of areas threatened and affected plays a significant role in how governmental agencies and their partners (local, parish, state, and federal) prepare for and respond to disasters.

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



## 2. Hazard Identification and Parish-Wide Risk Assessment

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

The table below provides an overview of the hazards that had been previously profiled in the Bienville Parish Hazard Mitigation Plan published in 2011, 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 2017 Update
<b>Subsidence/Coastal Land Loss</b>			
<b>Drought</b>	X		X
<b>Expansive Soils</b>			
<b>Fog</b>			
<b>Flooding</b>	X	X	X
<b>Extreme Heat</b>	X		X
<b>Sinkholes</b>			
<b>Thunderstorms (Hail, Lightning, &amp; Wind)</b>	X	X	X
<b>Tornadoes</b>	X	X	X
<b>Tropical Cyclones</b>	X	X	X
<b>Tsunamis</b>			
<b>Wildfires</b>	X		X
<b>Winter Storms</b>	X		X
<b>Dam Failure</b>	X		X

### Prevalent Hazards to the Community

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

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

- a) Drought
- b) Extreme Heat
- c) Flooding (backwater, riverine, localized stormwater event)
- d) Thunderstorms (hail, lightning, wind)
- e) Tornadoes
- f) Tropical Cyclones (flooding and high winds)
- g) Wildfires
- h) Winter Storms
- i) Dam Failure

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

- Flooding from rivers and waterways, rain storms, tropical cyclones, and hurricanes in the following forms:
  - a) Riverine
  - b) Stormwater
  - c) Surge
  - d) Backwater flooding (as the result of river flooding and surge)
- High wind damage most commonly resulting from hurricanes, thunderstorms, and tornadoes
- Property and crop damage resulting from drought, extreme heat, and wildfires

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

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

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

### Previous Occurrences

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

*Table 2-2: Bienville Parish Major Disaster Declarations*

Disaster Declaration Number	Date	Type of Disaster
3031	2/22/1977	Drought and Freezing
3090	5/15/1984	Severe Storms and Tornadoes
829	5/20/1989	Severe Storms and Flooding
835	7/17/1989	Tropical Cyclone - Tropical Storm Allison
902	4/23/1991	Severe Storms and Flooding
904	5/3/1991	Severe Storms, Tornadoes, and Flooding
1012	2/28/1994	Severe Winter Ice Storm
1264	1/21/1999	Severe Ice Storm
1314	2/15/2000	Severe Winter Storm
1357	1/12/2001	Severe Winter Ice Storm
1603	8/29/2005	Tropical Cyclone – Hurricane Katrina
1607	9/24/2005	Tropical Cyclone – Hurricane Rita
1786	9/2/2008	Tropical Cyclone – Hurricane Gustav
1792	9/13/2008	Tropical Cyclone – Hurricane Ike

### Probability of Future Hazard Events

The probability of a hazard event occurring in Bienville Parish is estimated in the tables on the following page. The percent chance of an event happening during any given year was calculated by posting past events and dividing by the time period. Unless otherwise indicated, the time period used to 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 25-year record used by the State was adopted for the purpose of determining the overall probability, in order to assist with determining estimated losses, unless otherwise stated, the full 54-year record was used when Hazus-Multi-Hazard (MH) wasn’t available to determine losses. This full record was used to provide a more extensive record to determine losses. All assessed damages were adjusted for inflation in order to reflect the equivalent amount of damages with the value of the U.S. dollar today. In addition, the National Climatic Data Center (NCDC) was also used to help identify hazard data specific to the municipalities. This was used due to it containing specific data for cities, whereas the data within SHELDUS is limited to parishes.

The following tables 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					
	Bienville Parish (Unincorporated)	Arcadia	Bienville	Bryceland	Castor	Gibbsland
Drought	4%	4%	4%	4%	4%	4%
Extreme Heat	24%	24%	24%	24%	24%	24%
Flooding	40%	32%	24%	20%	20%	20%
Thunderstorms (Hail)	100%	100%	100%	100%	100%	100%
Thunderstorms (Lightning)	12%	12%	12%	12%	12%	12%
Thunderstorms (Wind)	100%	100%	100%	100%	100%	100%
Tornadoes	28%	28%	28%	28%	28%	28%
Tropical Cyclones	12%	12%	12%	12%	2%	12%
Wildfires	< 1%	< 1%	< 1%	< 1%	< 1%	< 1%
Winter Storms	40%	40%	40%	40%	40%	40%
Dam Failure	< 1%	< 1%	< 1%	< 1%	< 1%	< 1%

*Table 2-3: Probability of Future Hazard Reoccurrence (Continued)*

Hazard	Probability				
	Jamestown	Lucky	Mount Lebanon	Ringgold	Saline
Drought	4%	4%	4%	4%	4%
Extreme Heat	24%	24%	24%	24%	24%
Flooding	20%	20%	20%	32%	20%
Thunderstorms (Hail)	100%	100%	100%	100%	100%
Thunderstorms (Lightning)	12%	12%	12%	12%	12%
Thunderstorms (Wind)	100%	100%	100%	100%	100%
Tornadoes	28%	28%	28%	28%	28%
Tropical Cyclones	12%	12%	12%	12%	12%
Wildfires	< 1%	< 1%	< 1%	< 1%	< 1%
Winter Storms	40%	40%	40%	40%	40%
Dam Failure	< 1%	< 1%	< 1%	< 1%	< 1%

As shown in [Table 2-3](#), thunderstorm winds and high winds for the entire planning area, have the highest annual chance of occurrence in the parish (100%). Winter storms and flood events for the unincorporated area of the parish have a 40% annual chance of occurrence. Flood events in the remaining incorporated areas have a slightly lower chance of occurring annually. Tornadoes have a 8% annual chance of reoccurrence, followed by extreme heat (23%), tropical cyclones (12%), drought (4%), wildfires (<1%), and dam failure (<1%).

### Inventory of Assets for the Entire Parish

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

Within the entire planning area, there is an estimated value of \$2,155,610,000 in structures throughout the parish. The tables below provide the total estimated value for each type of structure by occupancy.

*Table 2-4: Estimated Total of Potential Losses throughout Bienville Parish*

Occupancy	Bienville Parish	Unincorporated Bienville Parish	Arcadia	Bienville	Bryceland	Castor
Agricultural	\$16,068,000	\$4,774,000	\$10,752,000	\$0	\$0	\$0
Commercial	\$241,002,000	\$80,421,000	\$101,924,000	\$1,376,000	\$1,360,000	\$0
Government	\$16,163,000	\$2,690,000	\$10,327,000	\$346,000	\$0	\$520,000
Industrial	\$105,264,000	\$49,127,000	\$50,075,000	\$763,000	\$0	\$0
Religion	\$91,450,000	\$53,940,000	\$17,942,000	\$1,354,000	\$0	\$0
Residential	\$1,669,783,000	\$1,008,954,000	\$249,841,000	\$27,054,000	\$14,849,000	\$22,550,000
Education	\$15,880,000	\$5,510,000	\$5,762,000	\$0	\$0	\$0
<b>Total</b>	<b>\$2,155,610,000</b>	<b>\$1,205,416,000</b>	<b>\$446,623,000</b>	<b>\$30,893,000</b>	<b>\$16,209,000</b>	<b>\$23,070,000</b>

*Table 2-4: Estimated Total of Potential Losses throughout Bienville Parish (Continued)*

Occupancy	Gibbsland	Jamestown	Lucky	Mount Lebanon	Ringgold	Saline
Agricultural	\$0	\$0	\$262,000	\$0	\$280,000	\$0
Commercial	\$8,318,000	\$770,000	\$740,000	\$16,290,000	\$26,179,000	\$3,624,000
Government	\$1,156,000	\$346,000	\$0	\$0	\$778,000	\$0
Industrial	\$2,554,000	\$296,000	\$0	\$0	\$2,181,000	\$268,000
Religion	\$6,328,000	\$0	\$1,636,000	\$1,504,000	\$8,746,000	\$0
Residential	\$145,722,000	\$12,880,000	\$26,242,000	\$14,766,000	\$113,352,000	\$33,573,000
Education	\$0	\$0	\$0	\$0	\$702,000	\$3,906,000
<b>Total</b>	<b>\$164,078,000</b>	<b>\$14,292,000</b>	<b>\$28,880,000</b>	<b>\$32,560,000</b>	<b>\$152,218,000</b>	<b>\$41,371,000</b>

### Essential Facilities of the Parish

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

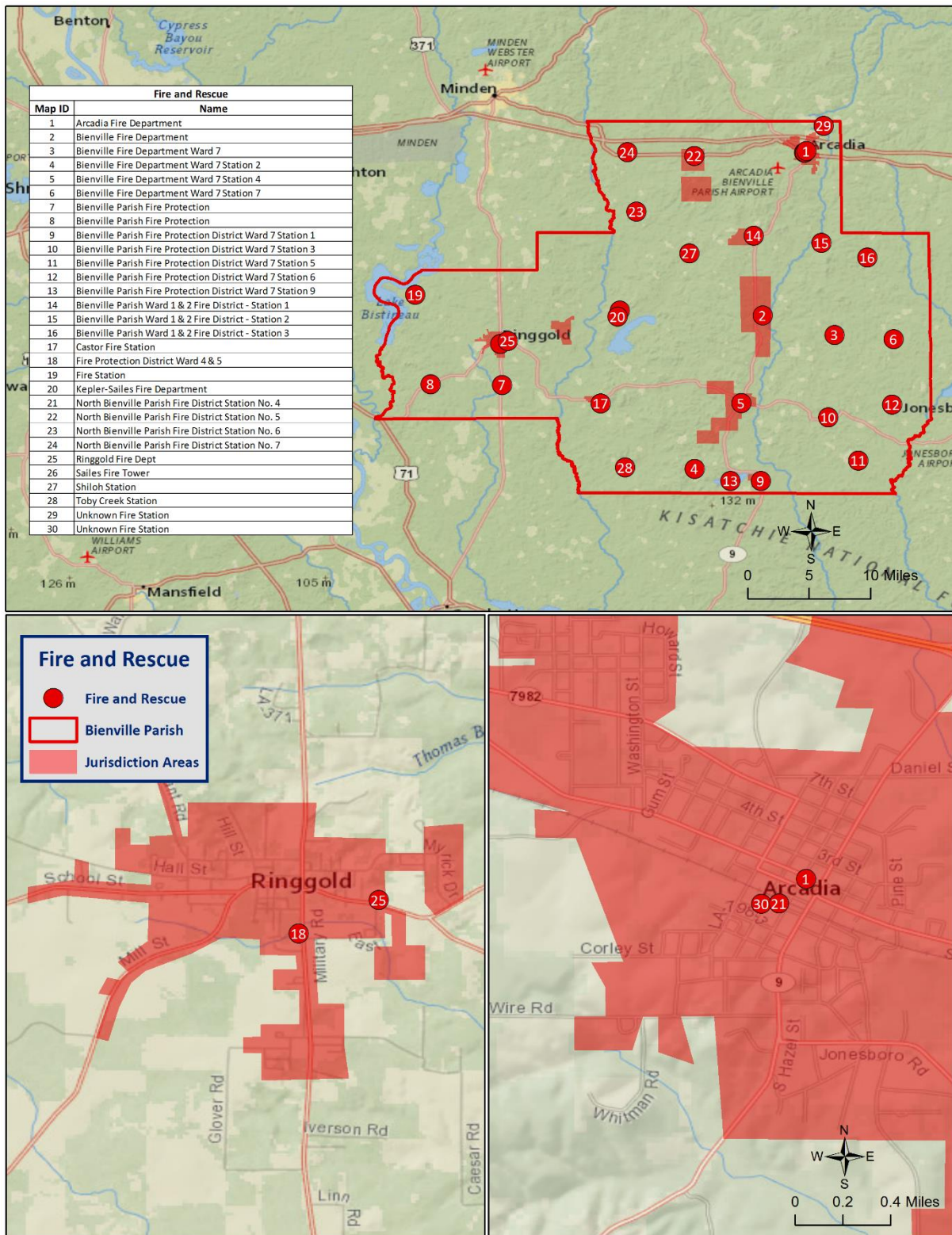


Figure 2-1: Fire and Rescue Facilities in Bienville Parish



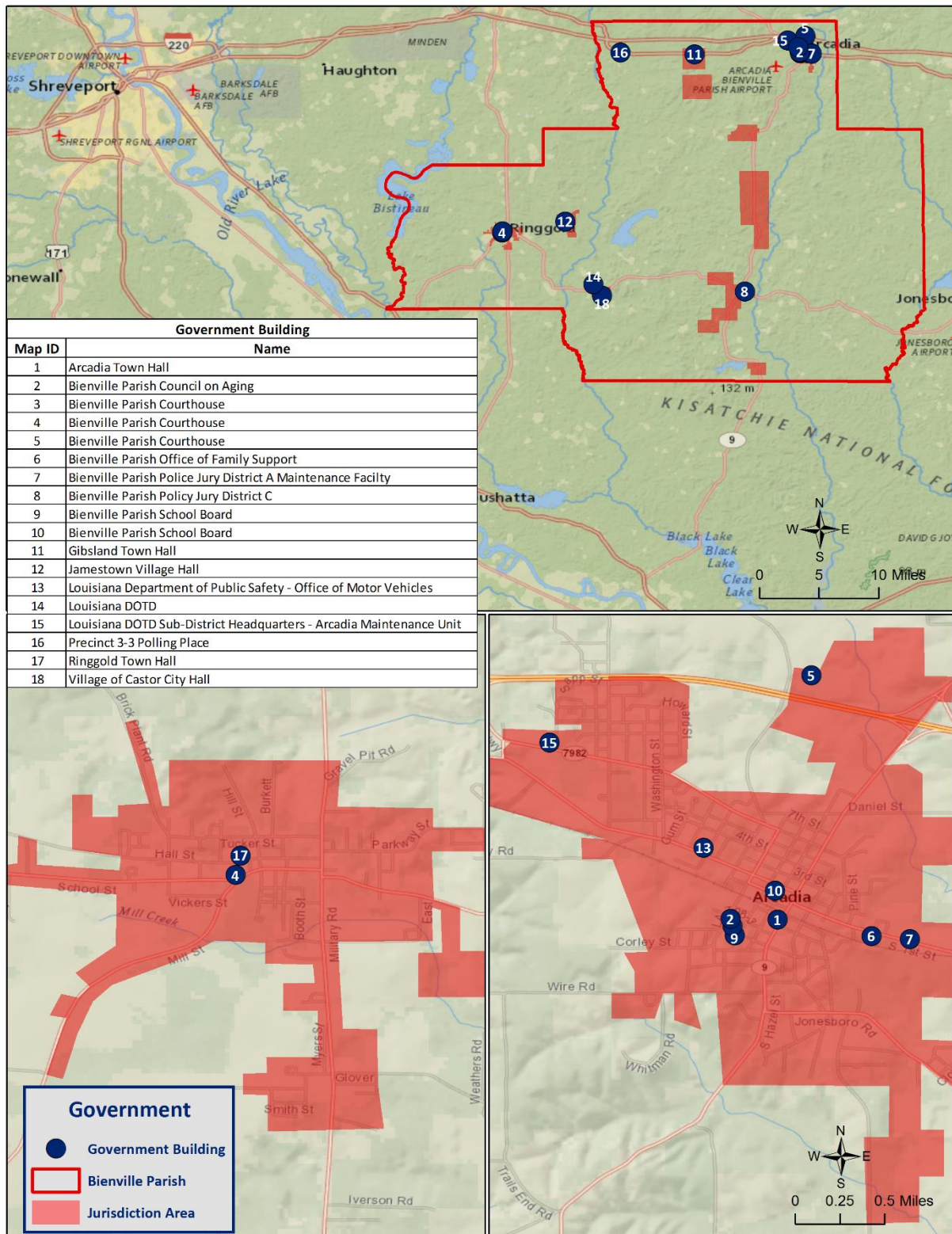


Figure 2-2: Government Facilities in Bienville Parish

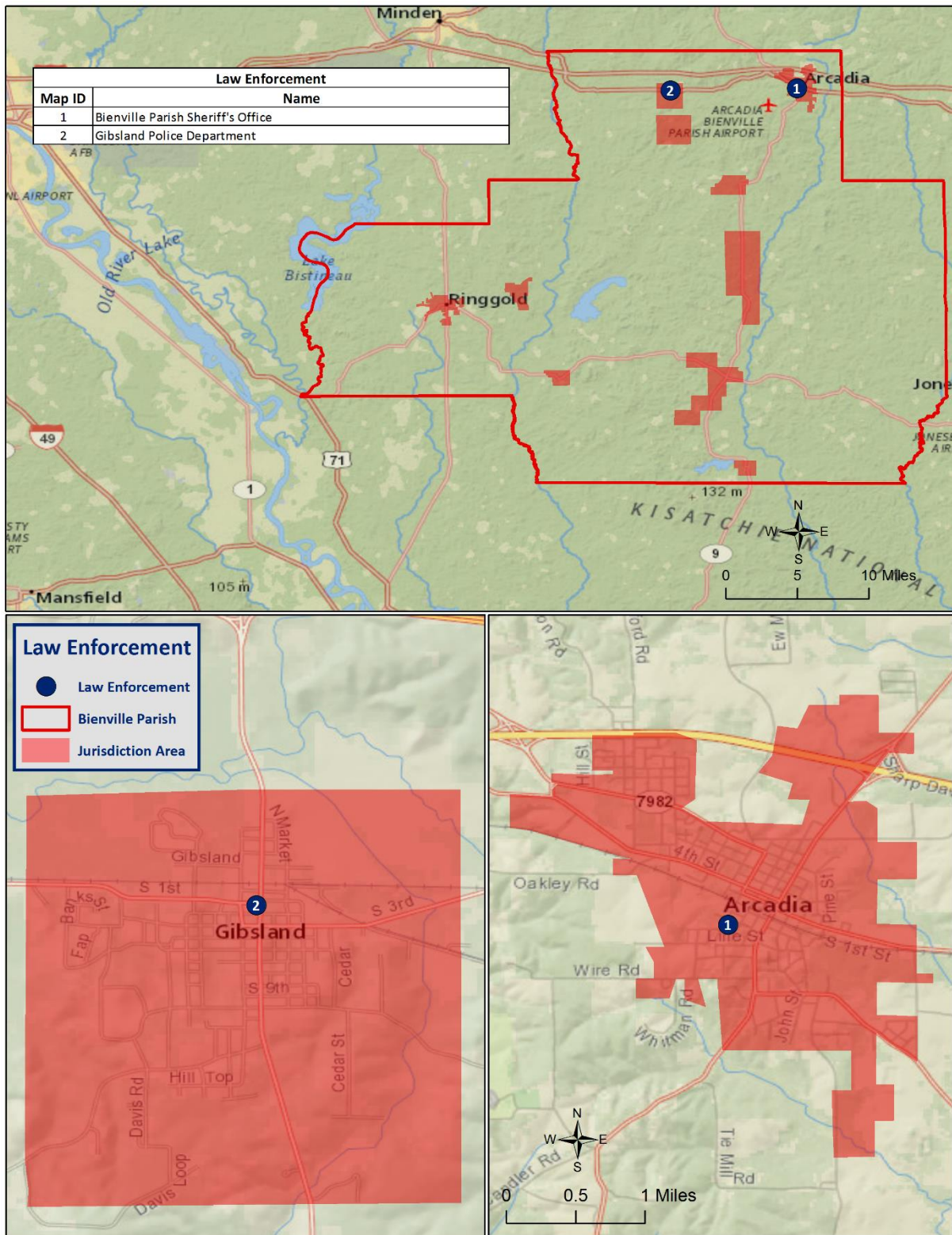


Figure 2-3: Law Enforcement Facilities in Bienville Parish



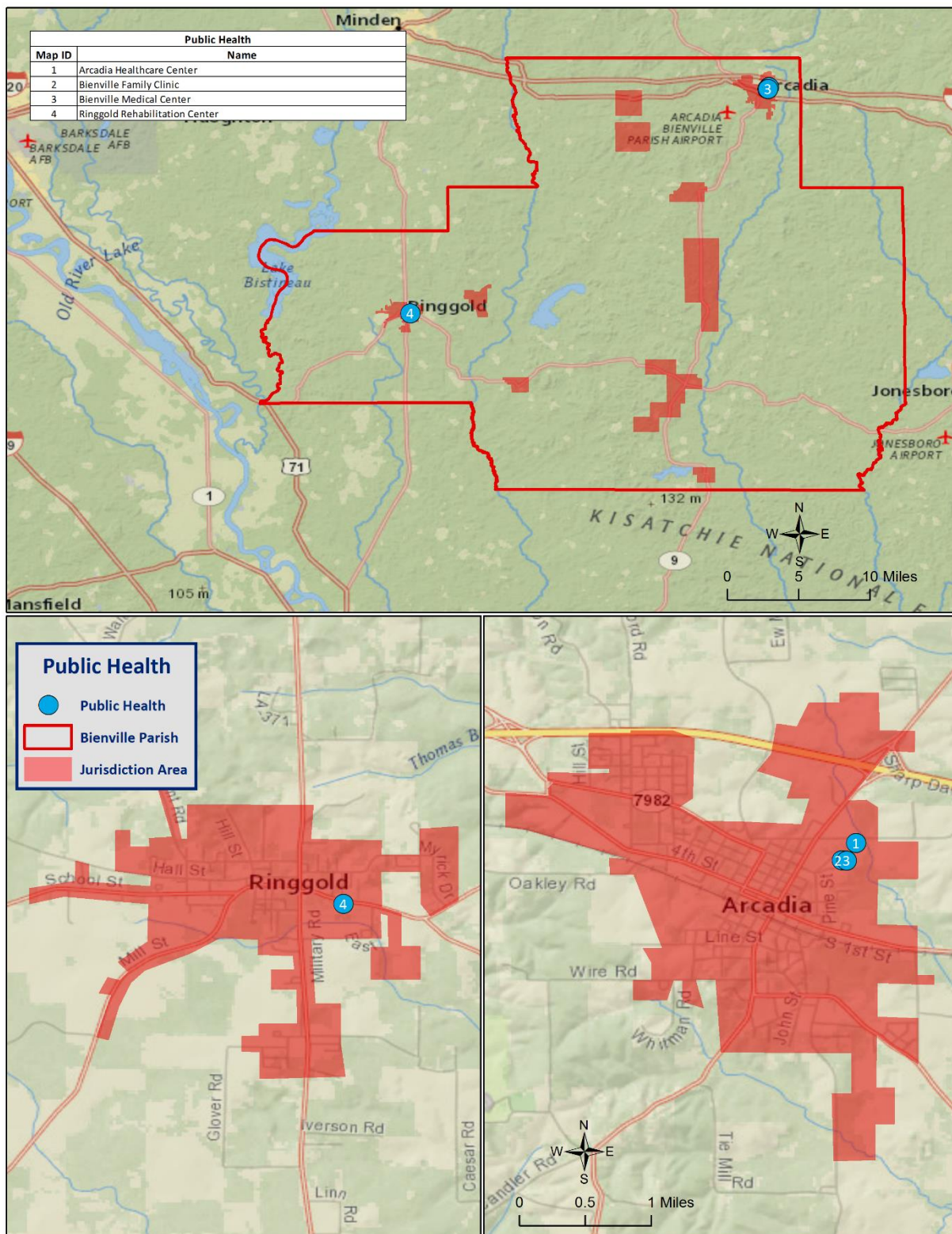


Figure 2-4: Public Health Facilities in Bienville Parish

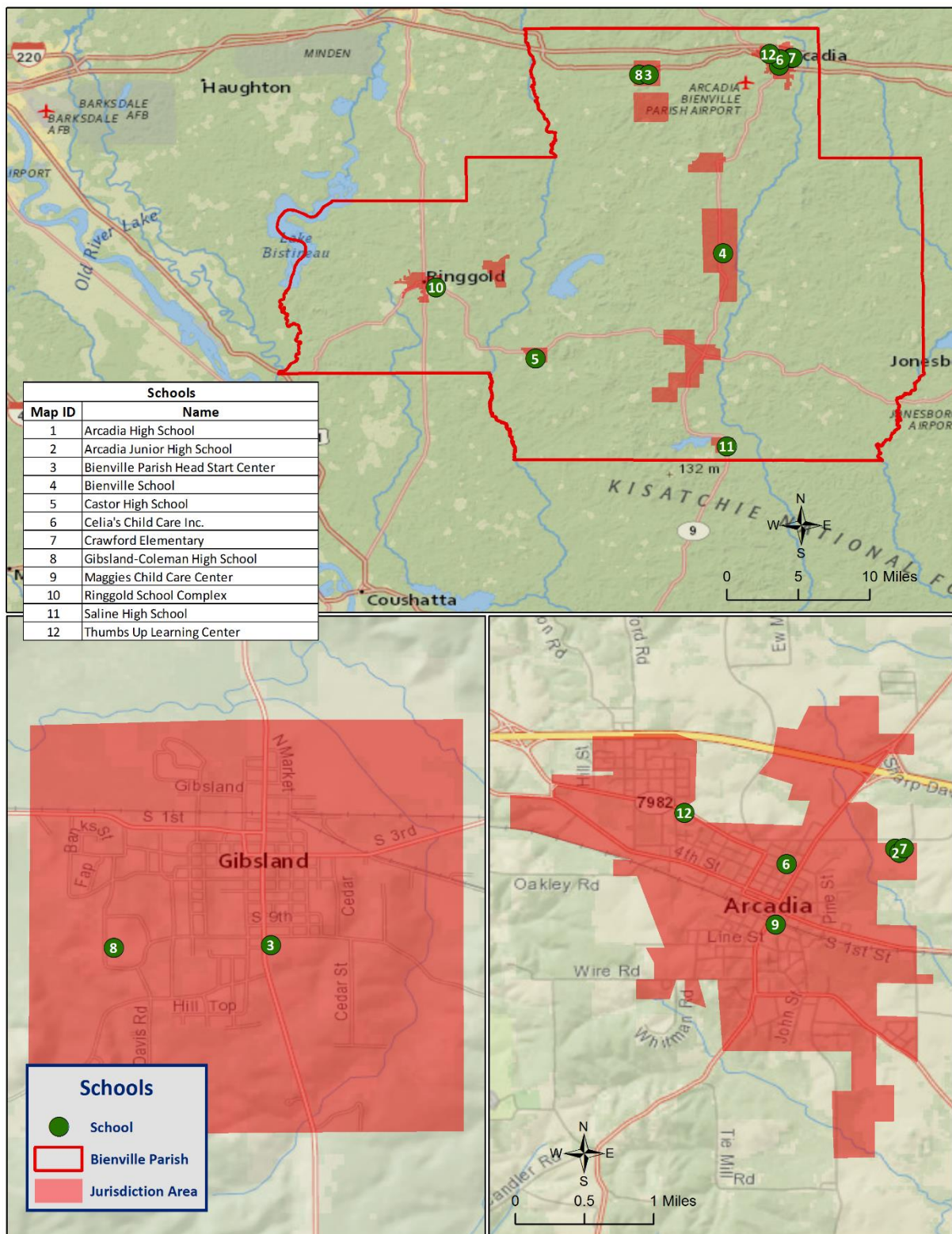


Figure 2-5: School Facilities in Bienville Parish



### Future Development Trends

Bienville Parish experienced a decline in population and housing between the years of 2000 and 2015, falling from a population of 14,330 with 7,830 housing units in 2000 to a population of 13,786 with 7,727 housing units in 2015. This decline in population was largely in the incorporated area of Castor from the year 2000 to 2010, and in the incorporated of Lucky from 2010 to 2015. The future population and number of buildings can be estimated using U.S. Census Bureau housing and population data. The following tables show population and housing unit estimates from 2000 to 2015:

*Table 2-5: Population Growth Rate for Bienville Parish*

Total Population	Bienville Parish	Bienville Parish (Unincorporated)	Arcadia	Bienville	Bryceland	Castor
1-Apr-00	14,330	7,592	2,915	218	108	258
1-Apr-10	15,717	8,197	3,160	259	131	252
1-Jul-15	13,786	7,245	2,861	209	104	247
Population Growth between 2000 – 2010	9.7%	8.0%	8.4%	18.8%	21.3%	-2.3%
Average Annual Growth Rate between 2000 – 2010	1.0%	0.8%	0.8%	1.9%	2.1%	-0.2%
Population Growth between 2010 – 2015	-12.3%	-11.6%	-9.5%	-19.3%	-20.6%	-2.0%
Average Annual Growth Rate between 2010 – 2015	-2.46%	-2.32%	-1.89%	-3.86%	-4.12%	-0.40%

*Table 2-5: Population Growth Rate for Bienville Parish (Continued)*

Total Population	Gibbsland	Jamestown	Lucky	Mount Lebanon	Ringgold	Saline
1-Apr-00	977	139	271	83	1,493	276
1-Apr-10	1,122	168	368	91	1,671	298
1-Jul-14	948	133	261	80	1,432	266
Population Growth between 2000 – 2010	14.8%	20.9%	35.8%	9.6%	11.9%	8.0%
Average Annual Growth Rate between 2000 – 2010	1.5%	2.1%	3.6%	1.0%	1.2%	0.8%
Population Growth between 2010 – 2014	-15.5%	-20.8%	-29.1%	-12.1%	-14.3%	-10.7%
Average Annual Growth Rate between 2010 – 2014	-3.10%	-4.17%	-5.82%	-2.42%	-2.86%	-2.15%

Table 2-6: Housing Growth Rate for Bienville Parish

Total Housing Units	Bienville Parish	Bienville Parish (Unincorporated)	Arcadia	Bienville	Bryceland	Castor
1-Apr-00	7,830	4,557	1,231	158	58	101
1-Apr-10	7,718	4,488	1,217	159	78	127
1-Jul-14	7,727	4,396	1,299	144	58	125
Housing Growth between 2000 – 2010	-1.4%	-1.5%	-1.1%	0.6%	34.5%	25.7%
Average Annual Growth Rate between 2000 – 2010	-0.1%	-0.2%	-0.1%	0.1%	3.4%	2.6%
Housing Growth between 2010 – 2014	0.1%	-2.0%	6.7%	-9.4%	-25.6%	-1.6%
Average Annual Growth Rate between 2010 – 2014	0.0%	-0.4%	1.3%	-1.9%	-5.1%	-0.3%

Table 2-6: Housing Growth Rate for Bienville Parish (Continued)

Total Housing Units	Gibbsland	Jamestown	Lucky	Mount Lebanon	Ringgold	Saline
1-Apr-00	568	80	151	44	749	133
1-Apr-10	534	74	139	53	720	129
1-Jul-14	528	100	143	55	728	151
Housing Growth between 2000 – 2010	-6.0%	-7.5%	-7.9%	20.5%	-3.9%	-3.0%
Average Annual Growth Rate between 2000 – 2010	-0.6%	-0.8%	-0.8%	2.0%	-0.4%	-0.3%
Housing Growth between 2010 – 2014	-1.1%	35.1%	2.9%	3.8%	1.1%	17.1%
Average Annual Growth Rate between 2010 – 2014	-0.2%	7.0%	0.6%	0.8%	0.2%	3.4%

As shown in previous tables, Bienville Parish has experienced slight decline in both population and housing units from 2000 to 2015. Housing growth rates fell at -0.1% annually from 2000 to 2010, and grew at less than 0.1% annually from 2010 to 2015. Population for the parish grew at 1% annually from 2000 to 2010, and fell at -2.46% annually from 2010 to 2015. From 2000 to 2010, the incorporated area of Lucky had the largest increase in population overall at 35.8%, followed by the incorporated area of Bryceland at 21.3%. From 2010 to 2015, the incorporated area of Lucky has the largest decrease in population at -29.1% overall, followed by the incorporated area of Jamestown at -20.8%



The incorporated area of Lucky experienced the largest decrease in housing units from 2000 to 2010 at -7.9%, followed by the incorporated area of Jamestown at -7.5%. From 2010 to 2015, the incorporated area of Bryceland experienced the largest decrease in housing units at -25.6% overall, while the incorporated area of Saline experienced the largest increase at 17.1%.

### 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 grow slightly within Bienville 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%. No changes in development have impacted the community's vulnerability since the plans last update.

*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)
<b>Flood Damage</b>				
Structures	7,729	2,806	2,809	2,812
Value of Structures	\$2,178,105,083	\$790,782,804	\$832,914,479	\$868,230,359
# of People	13,800	5,010	5,035	5,055
<b>Tropical Cyclone</b>				
Structures	7,729	7,729	7,738	7,745
Value of Structures	\$2,178,105,083	\$2,178,105,083	\$2,294,151,126	\$2,391,423,978
# of People	13,800	13,800	13,869	13,924

### Land Use

The Bienville Parish Land Use table is provided below. Residential, commercial, and industrial areas account for only 6% of the parish's land use. Forest land is the largest category at 341,324 acres, accounting for 65% of parish land. At 82,484 acres, agricultural land accounts for 16% of parish lands, while 63,359 acres of wetlands account for 12% of parish lands. The parish also consists of 8,464 acres of water areas, accounting for 2% of all parish lands.

*Table 2-8: Bienville Parish Land Use*

*(Source: USGS Land Use Map)*

Land Use	Acres	Percentage
Agricultural Land, Cropland, and Pasture	82,484	16%
Wetlands	63,359	12%
Forest Land (not including forested wetlands)	341,324	65%
Urban/Development	30,554	6%
Water	8,464	2%

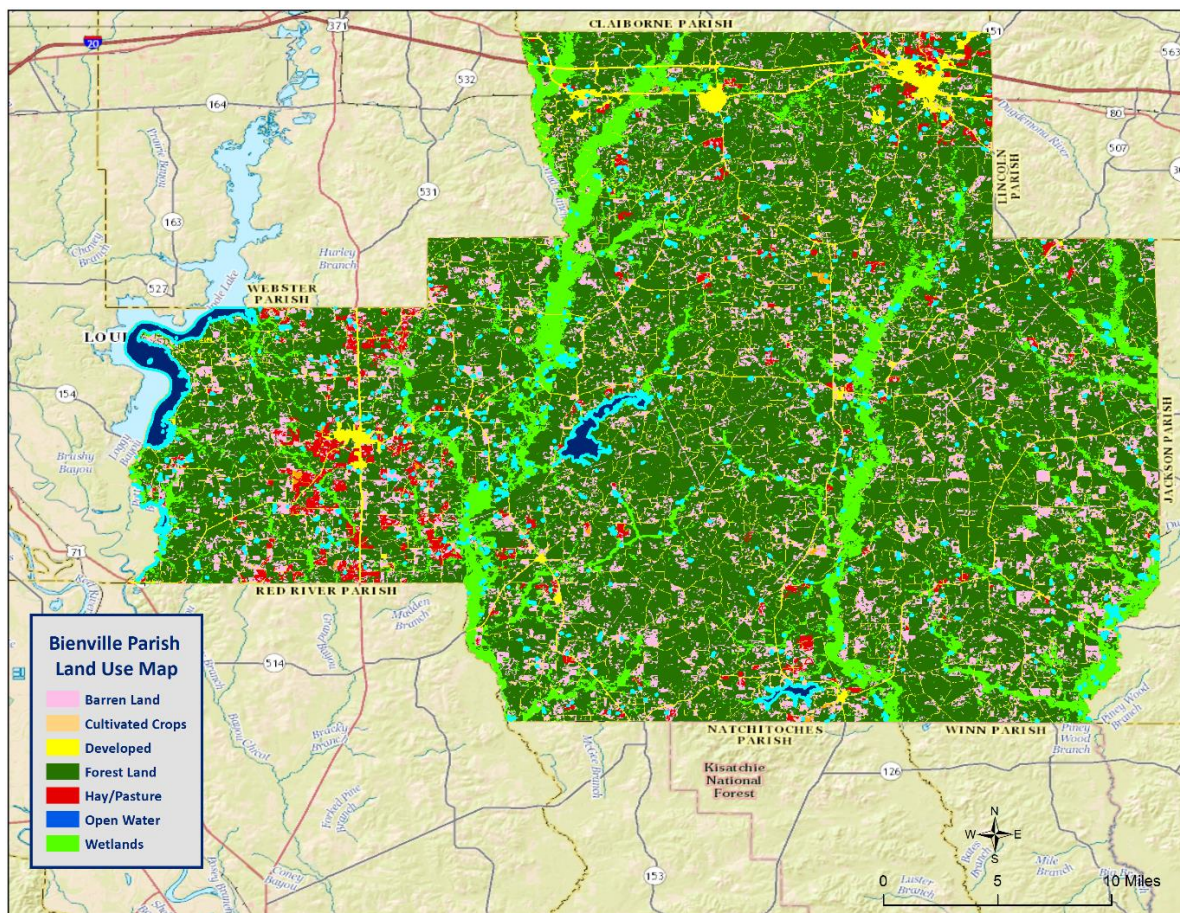


Figure 2-6: Bienville Parish Land Use Map  
(Source: USGS Land Use Map)

## 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. Drought can occur anywhere, triggered by changes in the local-to-regional-scale atmospheric circulation over an area, or by broader-scale circulation variations such as the expansion of semi-permanent oceanic high-pressure systems or the stalling of an upper-level atmospheric ridge in place over a region. The severity of a drought depends upon the degree and duration of moisture deficiency, as well as the size of the affected area. Periods of drought also tend to be associated with other hazards, such as wildfires and/or heat waves. Lastly, drought is a slow onset event, causing less direct—but tremendous indirect—damage. Depletion of aquifers, crop loss, and livestock and wildlife mortality rates are examples of direct impacts. Since the groundwater found in aquifers is the source of about 38% of all county and city water supplied to households (and comprises 97% of the water for all rural populations that are not already supplied by cities and counties), droughts can potentially have direct, disastrous effects on human populations. The indirect consequences of drought, such as unemployment, reduced tax revenues, increased food prices, reduced outdoor recreation opportunities, higher energy costs as water levels in reservoirs decrease and consumption increases, and water rationing, are not often fully known. This complex web of impacts causes drought to affect people and economies well beyond the area physically experiencing the drought.

This hazard is often measured using the Palmer Drought Severity Index (PDSI, also known operationally as the Palmer Drought Index). The PDSI, first developed by Wayne Palmer in a 1965 paper for the U.S. Weather Bureau, measures drought through recent precipitation and temperature data with regard to a basic supply-and-demand model of soil moisture. It is most effective in long-term calculations. Three other indices used to measure drought are the Palmer Hydrologic Drought Index (PHDI), the Crop Moisture Index (CMI), which is derived from the PDSI, and the Keetch-Byram Drought Index (KBDI), created by John Keetch and George Byram in 1968 for the U.S. Forest Service. The KBDI is used mainly for predicting the likelihood of wildfire outbreaks. As a compromise, the PDSI is used most often for droughts since it is a medium-response drought indicator. The objective of the PDSI is to provide measurements of moisture conditions that are standardized so that comparisons using the index can be made between locations and between months. [Table 2-9](#) displays the range and Palmer classifications of the PDSI index. [Figure 2-7](#) 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 in addition to the effects of cumulative patterns of previous months. Although weather patterns can change almost overnight from a long-term drought pattern to a long-term wet pattern, as a medium-response indicator, the PDSI responds relatively rapidly. Data compiled by the National Drought Mitigation Center indicates severe drought conditions exist in Bienville Parish at the time this plan went to publication (*Figure 2-7*).

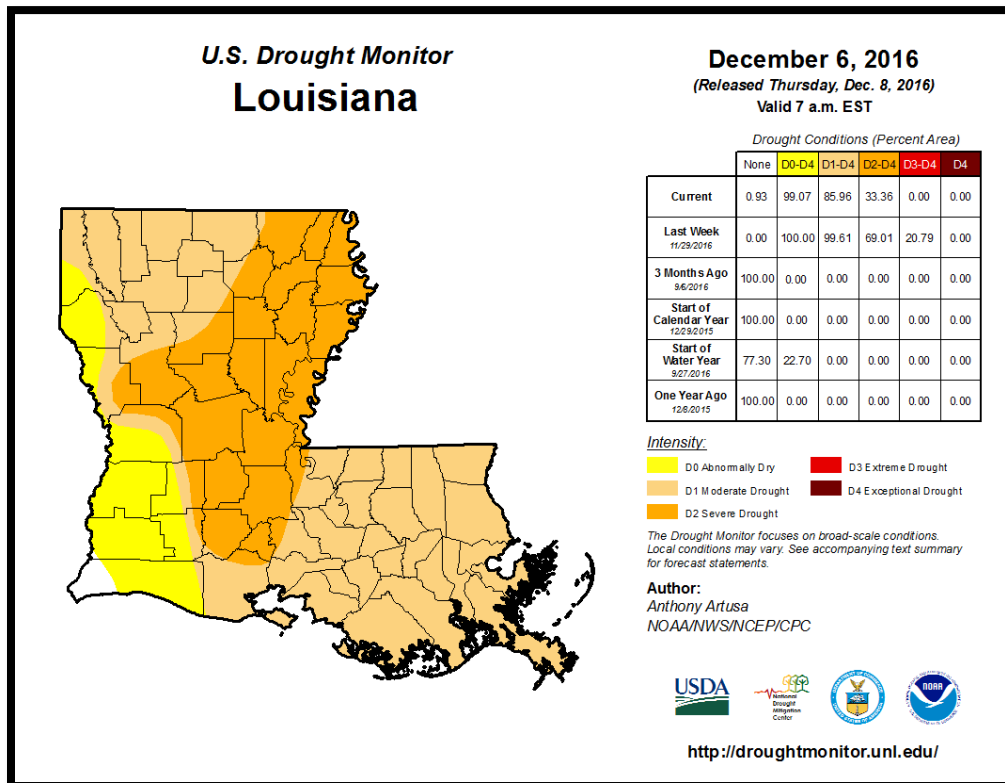


Figure 2-7: United States Drought Monitor for the State of Louisiana and its Parishes  
(Source: The National Drought Mitigation Center)



### Location

Drought typically impacts a region and not one specific parish or jurisdiction. While the entire planning area can experience drought, the major impact of a drought event in Bienville Parish is on the agricultural community.

### Previous Occurrences / Extents

The SHELDUS database reports a total of one drought event occurring within the boundaries of Bienville Parish between the years of 1990 to 2015. *Table 2-10* identifies the date of occurrence, estimated crop damage, and severity of the event that has occurred in Bienville Parish. Based on previous occurrences, and in accordance with the Palmer Drought Index, the worst case scenario for drought in Bienville Parish would be a severe drought event.

*Table 2-10: Drought Events with Crop Damage Totals for Bienville Parish  
(Source: SHELDUS)*

Date	Crop Damage	Palmer Classification
June 1998	\$1,281,496	Severe Drought

### Frequency / Probability

Based on previous occurrences of three drought events in 25 years, the probability of drought occurrence in the planning area in any given year is 4%.

### Estimated Potential Losses

According to the SHELDUS database, there has been one drought event that has caused some level of crop damage. The total agricultural damage from these events is \$1,281,497, with an average cost of \$1,281,497 per drought event. When annualizing the total cost over the 25-year record, total annual losses based on drought is estimated to be \$51,260. *Table 2-11* presents an analysis of agricultural exposure that is susceptible to drought by major crop type for Bienville Parish.

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

Agricultural Exposure by Type for Drought						
Forestry	Hay	Southern Peas	Sweet Corn	Tomatoes	Watermelon	Total
\$48,430,089	\$1,606,432	\$536,250	\$507,500	\$355,250	\$1,680,000	\$53,115,521

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

### Extreme 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 with strong, hot winds present.

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 in relation to their 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.

Extreme heat can also damage roads, bridges, utilities, and railroads. Extreme heat can cause pavement to soften, creating the buckling of roads and highways, which can result in potholes and rutting. These damaged roads can create hazardous conditions, causing motorists to find alternate transportation routes. Old water and sewer lines can deteriorate, increasing the likelihood of line ruptures during extreme heat. The demands on water supplies can result in water rationing, shortages, and restrictions. Extreme heat can also cause strain on several power grids, causing people to minimize the consumption of power during the hottest parts of the day due to overheating. The overwhelming demand of excess electrical power usage can also cause a strain on power capacities, resulting in blackout and /or brown outs. Vehicles can overheat, and tires will deteriorate. High temperatures can be partially responsible for the expansion, buckling, or deflection of rails requiring track repairs or speed restrictions to avoid derailments.

Extreme heat can also be detrimental to the agricultural community. Extreme heat stress can reduce plant photosynthetic and transpiration efficiencies and negatively impact plant root development, which collectively can negatively impact yield. Heat injury in plants includes scalding and scorching of leaves and stems, sunburn on fruits and stems, leaf drop, rapid leaf death, and reduction in growth and yield. Extreme heat is particularly impactful when extreme heat is accompanied by drought conditions. The reduced moisture in the soil further exacerbates the effects of extreme temperatures.

The agrarian issues associated with extreme heat are relevant throughout the state, but are particularly significant in rural and agricultural parishes. A reduction of crop yield will diminish the incomes of farmers and producers in the area. If the reduced crop yield lasts over an extended period of time, the resulting reduction in disposable income could have a negative impact on businesses in the affected communities. People wouldn't have any extra money to spend at local establishments, and businesses would be forced to close for good.

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

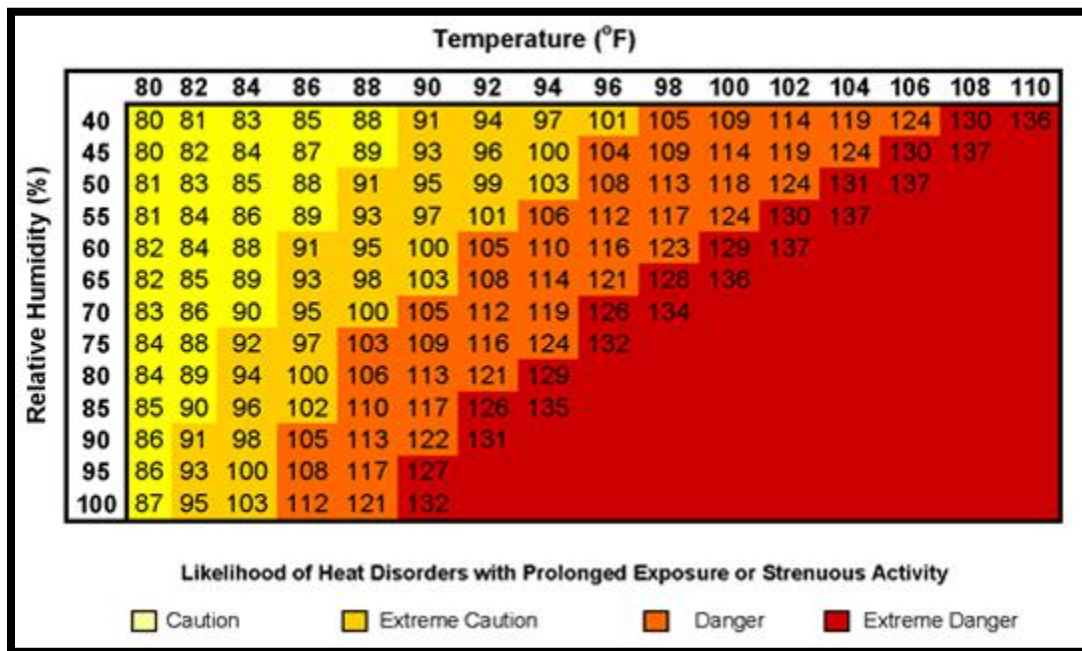


Table 2-13: Summary of Heat Index Risk Levels with Protective Measures  
(Source: National Weather Service)

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

Extreme heat typically impacts a region and not one specific parish or jurisdiction. Because extreme heat is a climatological based hazard and has the same probability of occurring in Bienville Parish as all of the adjacent parishes, the entire planning area for Bienville Parish is equally at risk for extreme heat.

#### Previous Occurrences / Extents

There are six reports of significant extreme heat events occurring within the boundaries of Bienville Parish between the years of 1990 to 2015. [Table 2-14](#) provides an overview of extreme heat events that have impacted the Bienville Parish planning area since 2010. Based on historical data, the worst case scenario for Bienville Parish involving extreme 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 Extreme Heat in Bienville Parish*  
(Source: NOAA)

Date	Temperature (°F)
August 7, 2011	103
August 14, 2013	104

#### *Frequency / Probability*

Based on the geographical location of the State of Louisiana, and Bienville Parish in particular, extreme heat events occur relatively frequently. The probability of occurrence is estimated at approximately 24%.

#### *Estimated Potential Losses*

According to the SHEL DUS database, crop damage due to extreme heat in Bienville Parish has totaled approximately \$626,857 since 1990. To estimate the potential losses of an extreme heat event on an annual basis, the total damages recorded for an extreme event is divided by the total number of years of available extreme heat data in SHEL DUS (1990 – 2015). This provides an annual estimated potential loss of \$25,074. The following tables, based on the 2010 Census data, provides an estimate of potential crop losses for Bienville Parish:

*Table 2-15: Estimated Annual Crop Losses in Bienville Parish for Extreme Heat*

Estimated Annual Potential Losses from Extreme Heat for Bienville Parish					
Unincorporated Bienville Parish (53% of Population)	Arcadia (20.3% of Population)	Bienville (1.5% of Population)	Bryceland (0.8% of Population)	Castor (1.8% of Population)	Gibbsland (6.8% of Population)
\$13,286	\$5,099	\$381	\$189	\$451	\$1,710

*Table 2-15: Estimated Annual Crop Losses in Bienville Parish for Extreme Heat (Continued)*

Estimated Annual Potential Losses from Extreme Heat for Bienville Parish				
Jamestown (1% of Population)	Lucky (1.9% of Population)	Mount Lebanon (0.6% of Population)	Ringgold (10.4% of Population)	Saline (1.9% of Population)
\$243	\$475	\$145	\$2,612	\$484

There have been no reported injuries or deaths as a direct result of extreme heat in Bienville Parish.

#### *Vulnerability*

See Appendix C for parish and municipality agricultural exposure to extreme 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 (agricultural and forestry tend to remove native vegetation and accelerate soil erosion), and the presence of flood-control structures such as levees and dams.

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

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

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

- **Riverine flooding** occurs along a river or smaller stream. It is the result of runoff from heavy rainfall or intensive snow or ice melt. The speed with which riverine flood levels rise and fall depends not only on the amount of rainfall, but even more on the capacity of the river itself, as well as the shape and land cover of its drainage basin. The smaller the river, the faster that water levels rise and fall. Thus, the Mississippi River levels rise and fall slowly due to its large capacity. Generally, elongated and intensely-developed drainage basins will reach faster peak discharges and faster falls than circular-shaped and forested basins of the same area.
- **Flash flooding** occurs when locally intense precipitation inundates an area in a short amount of time, resulting in local stream flow and drainage capacity being overwhelmed.
- **Ponding** occurs when concave areas (e.g., parking lots, roads, and clay-lined natural low areas) collect water and are unable to drain.
- **Backwater flooding** occurs when water slowly rises from a normally unexpected direction where protection has not been provided. A model example is the flooding that occurred in LaPlace during Hurricane Isaac in 2012. Although the town was protected by a levee on the side facing the

Mississippi River, floodwaters from Lake Maurepas and Lake Pontchartrain crept into the community on the side of town opposite the Mississippi River.

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

For purposes of this assessment, ponding, flash flood, and urban flooding are considered to be flooding as a result of storm water from heavy precipitation thunderstorms

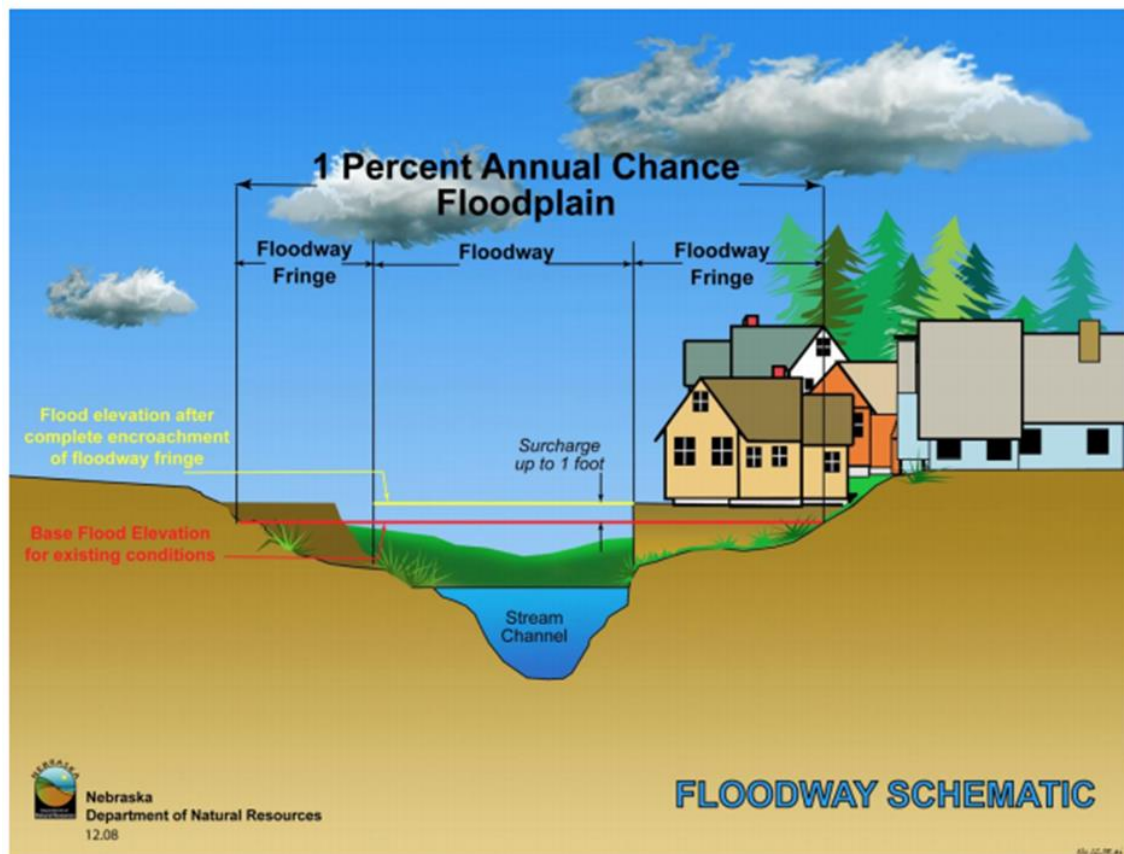
Based on stream gauge levels and precipitation forecasts, the National Weather Service (NWS) posts flood statements, watches, and warnings. The NWS issues the following weather statements with regard to flooding:

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

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

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

The 100-year flood event is of particular significance since it is the regulatory standard that determines the obligation (or lack thereof) to purchase flood insurance. Flood insurance premiums are set depending on the flood zone, as modeled by National Flood Insurance Program (NFIP) Rate Maps. The NFIP and FEMA suggest insurance rates based on Special Flood Hazard Areas (SFHAs), as diagrammed in *Figure 2-8*.



*Figure 2-8: Schematic of 100-Year Floodplain. The Special Flood Hazard Area (SFHA) extends to the end of the floodway fringe.*

*(Source: Nebraska Department of Natural Resources)*

A SFHA is the land area covered by the floodwaters of the base flood (red line in [Figure 2-8](#)), where the NFIP's floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies.

#### *Property Damage*

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

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

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

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

#### *Repetitive Loss Properties*

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

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

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

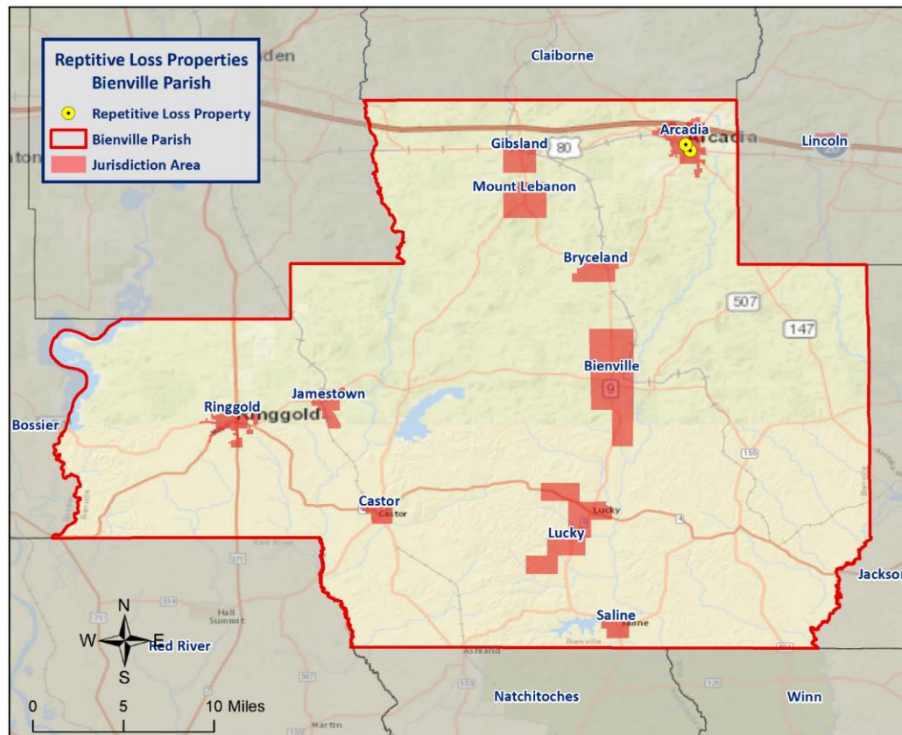
- a. It is covered under a contract for flood insurance made available under the NFIP; and
- b. It has incurred flood related damage –
  - 1) For which four or more separate claims payments have been made under flood insurance coverage with the amount of each claim exceeding \$5,000 and with the cumulative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

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

*Table 2-16: Repetitive Loss Structures for Bienville Parish*

Jurisdiction	Number of Structures	Residential	Commercial	Government	Total Claims	Total Claims Paid	Average Claim Paid
Bienville Parish (Unincorporated)	0	0	0	0	0	\$0	\$0
Arcadia	2	2	0	0	10	\$115,767	\$11,577
Bienville	0	0	0	0	0	\$0	\$0
Bryceland	0	0	0	0	0	\$0	\$0
Castor	0	0	0	0	0	\$0	\$0
Gibbsland	0	0	0	0	0	\$0	\$0
Jamestown	0	0	0	0	0	\$0	\$0
Lucky	0	0	0	0	0	\$0	\$0
Mount Lebanon	0	0	0	0	0	\$0	\$0
Ringgold	0	0	0	0	0	\$0	\$0
Saline	0	0	0	0	0	\$0	\$0
<b>Total</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>\$115,767</b>	<b>\$11,577</b>

Both repetitive loss structures were able to be geocoded in order to provide an overview of where the repetitive loss structures were located throughout the parish. [Figure 2-9](#) shows the approximate location of both structures, while [Figure 2-10](#) 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 is focused in the incorporated area of Arcadia.



*Figure 2-9: Repetitive Loss Properties in Bienville Parish*



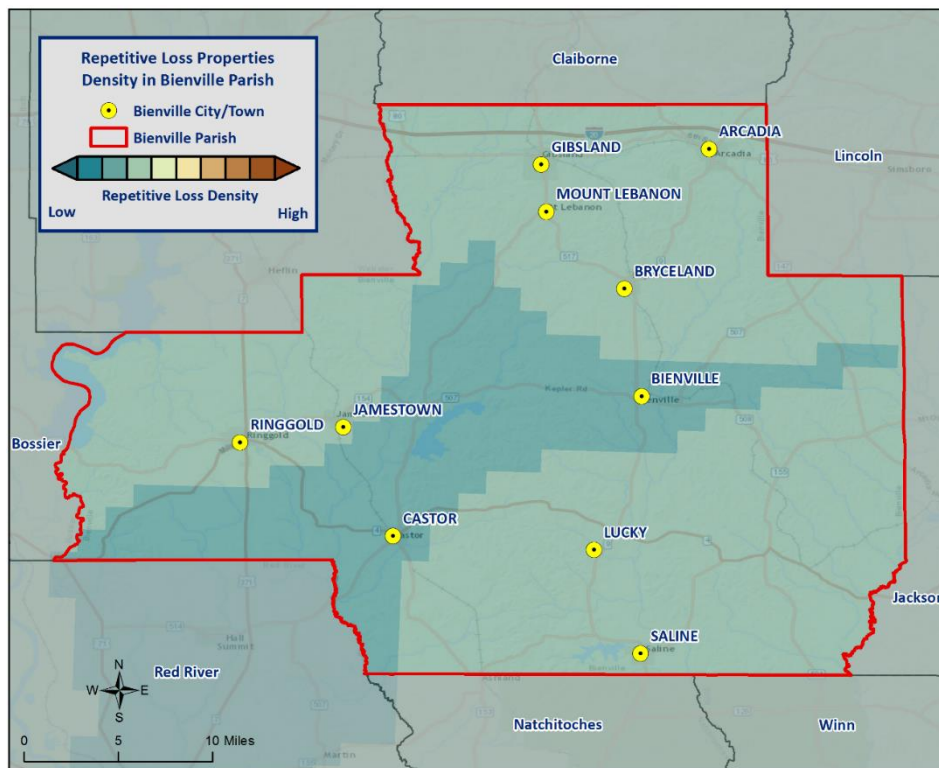


Figure 2-10: Repetitive Loss Property Densities in Bienville Parish

#### National Flood Insurance Program

Flood insurance statistics indicate that Bienville Parish has 21 flood insurance policies with the NFIP, with total annual premiums of \$14,398. Bienville Parish and the incorporated areas of Arcadia and Ringgold are participants in the NFIP. The jurisdictions of Bienville, Bryceland, Castor, Gibsland, Jamestown, Lucky, Mount Lebanon, and Saline do not participate. While the jurisdictions of Bryceland and Saline have previously adopted flood maps, the jurisdictions are very limited when it comes to personnel, funding, and resources needed to administer the NFIP program. The jurisdictions have determined that participation in the NFIP has little or no large benefit or impact for the residents or the town's economy. Bienville Parish and each of the incorporated jurisdictions will continue to adopt and enforce floodplain management requirements, including regulating new construction Special Flood Hazard Areas, and will continue to monitor activities including local requests for new map updates. Flood insurance statistics and additional NFIP participation details for Bienville Parish are provided in the tables to follow.

Bienville Parish and the communities listed above will continue their active participation in the NFIP through various education and outreach activities. These activities will include community outreach on the availability of flood insurance within the parish and incorporated municipalities, as well as flood safe building initiatives throughout the parish. The Parish Floodplain Manager will continue to work in coordination with each community to ensure floodplain management regulations are adopted and enforced. The Parish Floodplain Manager and community floodplain managers will continue to seek and attend floodplain management and NFIP continuing education.



Table 2-17: Summary of NFIP Policies for Bienville Parish

Location	No. of Insured Structures	Total Insurance Coverage Value	Annual Premiums Paid	No. of Insurance Claims Filed Since 1978	Total Loss Payments
Bienville Parish (Unincorporated)	18	\$2,783,200	\$13,232	6	\$182,094
Arcadia	0	\$0	\$0	14	\$119,761
Bienville	0	\$0	\$0	0	\$0
Bryceland	0	\$0	\$0	0	\$0
Castor	0	\$0	\$0	0	\$0
Gibbsland	0	\$0	\$0	0	\$0
Jamestown	0	\$0	\$0	0	\$0
Lucky	0	\$0	\$0	0	\$0
Mount Lebanon	0	\$0	\$0	0	\$0
Ringgold	3	\$663,000	\$1,166	3	\$29,220
Saline	0	\$0	\$0	0	\$0
<b>Total</b>	<b>21</b>	<b>\$3,446,200</b>	<b>\$14,398</b>	<b>23</b>	<b>\$331,075</b>

\*While the jurisdiction of Ringgold does not have active NFIP policies, and the jurisdictions of Bienville, Bryceland, Castor, Gibbsland, Jamestown, Lucky, Mount Lebanon, and Saline do not participate in the NFIP, the parish will continue to promote NFIP participation through education and outreach.

Table 2-18: Summary of Community Flood Maps for Bienville Parish

CID	Community Name	Initial FHBM Identified	Initial FIRM Identified	Current Effective Map Date	Date Joined the NFIP	Tribal
220029#	Arcadia	6/28/1974	3/1/1986	7/3/2006	3/1/1986	No
220360#	Bienville Parish	-	7/3/2006	7/3/2006	7/3/2006	No
220030#	Ringgold	5/3/1974	10/15/1985	7/2/2006	10/15/1985	No
220404#	Bryceland	-	7/3/2006	7/3/2006	7/3/07 Sanction Date - Not in NFIP	No
220390#	Saline	6/25/1976	7/3/2006	7/3/2006	6/25/77 Sanction Date - Not in NFIP	No

According to the Community Rating System (CRS) list of eligible communities dated October 1, 2016, Bienville Parish and the incorporated areas of Arcadia, Bienville, Bryceland, Castor, Gibbsland, Jamestown, Lucky, Mount Lebanon, Ringgold, and Saline do not participate in the CRS.

#### *Threat to People*

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

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

#### *Flooding in Bienville*

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

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

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

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

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

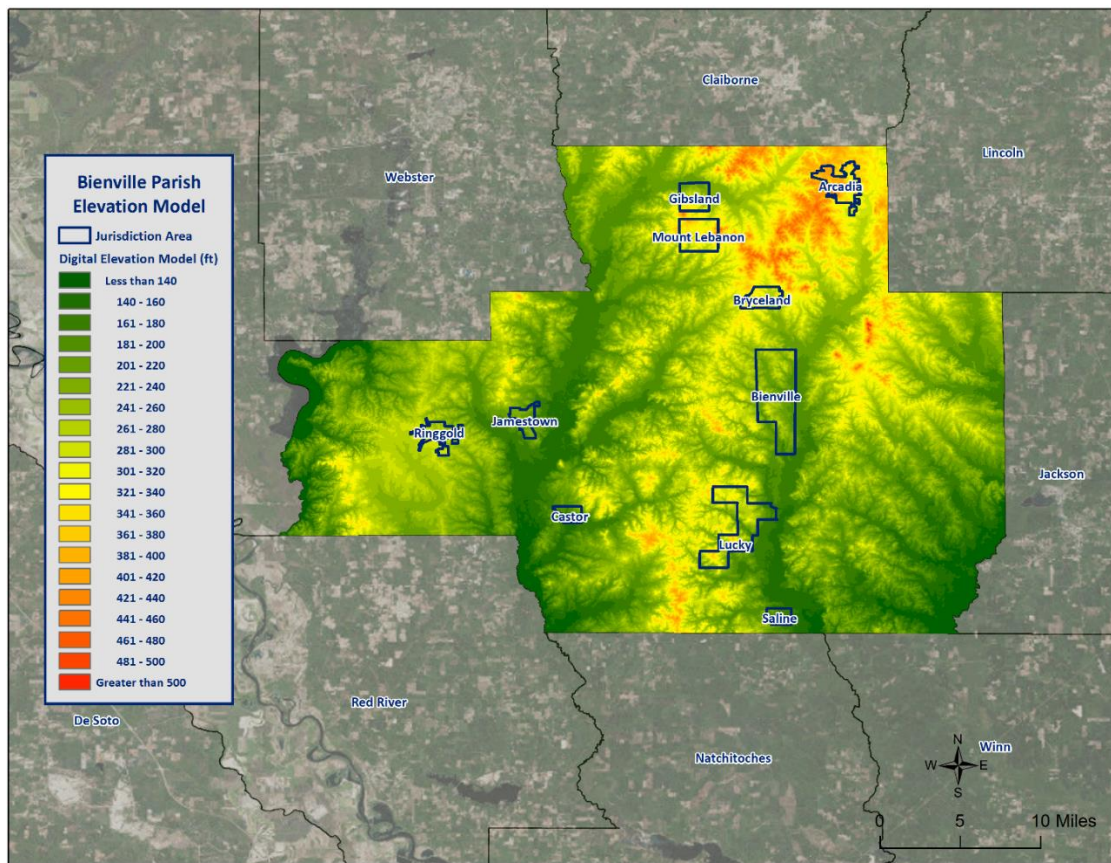


Figure 2-11: Elevation throughout Bienville Parish

Looking at the digital elevation model (DEM) in the figure above for Bienville Parish is instructive in visualizing where the low lying and high risk areas are for the parish. Elevations in the parish range from less than 140 feet to over 500 feet. The highest elevations in the parish are approximately 530 feet, located in the unincorporated area of the parish. The incorporated areas range in elevation from 174 to 384 feet, with Castor averaging 174 feet, Saline averaging 184 feet, Jamestown averaging 230 feet, Bienville averaging 243 feet, Lucky averaging 259 feet, Gibsland averaging 272 feet, Ringgold averaging 279 feet, Bryceland averaging 308 feet, Mount Lebanon averaging 338 feet, and Arcadia averaging 384 feet.

#### Location

Bienville Parish has experienced significant flooding in its history and can expect more in the future. Many parts of the parish are located in the flood classification zone of "D" which are unstudied areas that may be in a flood zone. While jurisdictions within Bienville Parish might not have flood hazard boundaries within their municipal boundaries, recent events throughout the state have demonstrated that even areas outside of flood hazard boundaries can be susceptible to flooding. For example, the jurisdictions of Bienville and Gibsland do not have any flood hazard areas within their respective boundaries; however, localized street flooding can be expected in certain areas, resulting in area streets becoming impassible by many vehicles. For the incorporated area of Bienville, localized street flooding can be expected in areas east of Highway 9 and south of Highway 507, while the incorporated area of Gibsland can expect localized street flooding west of South Main Street and south of Gibsland Street.

The following are enlarged maps of the incorporated areas showing the areas within each jurisdiction that are at risk of flooding:

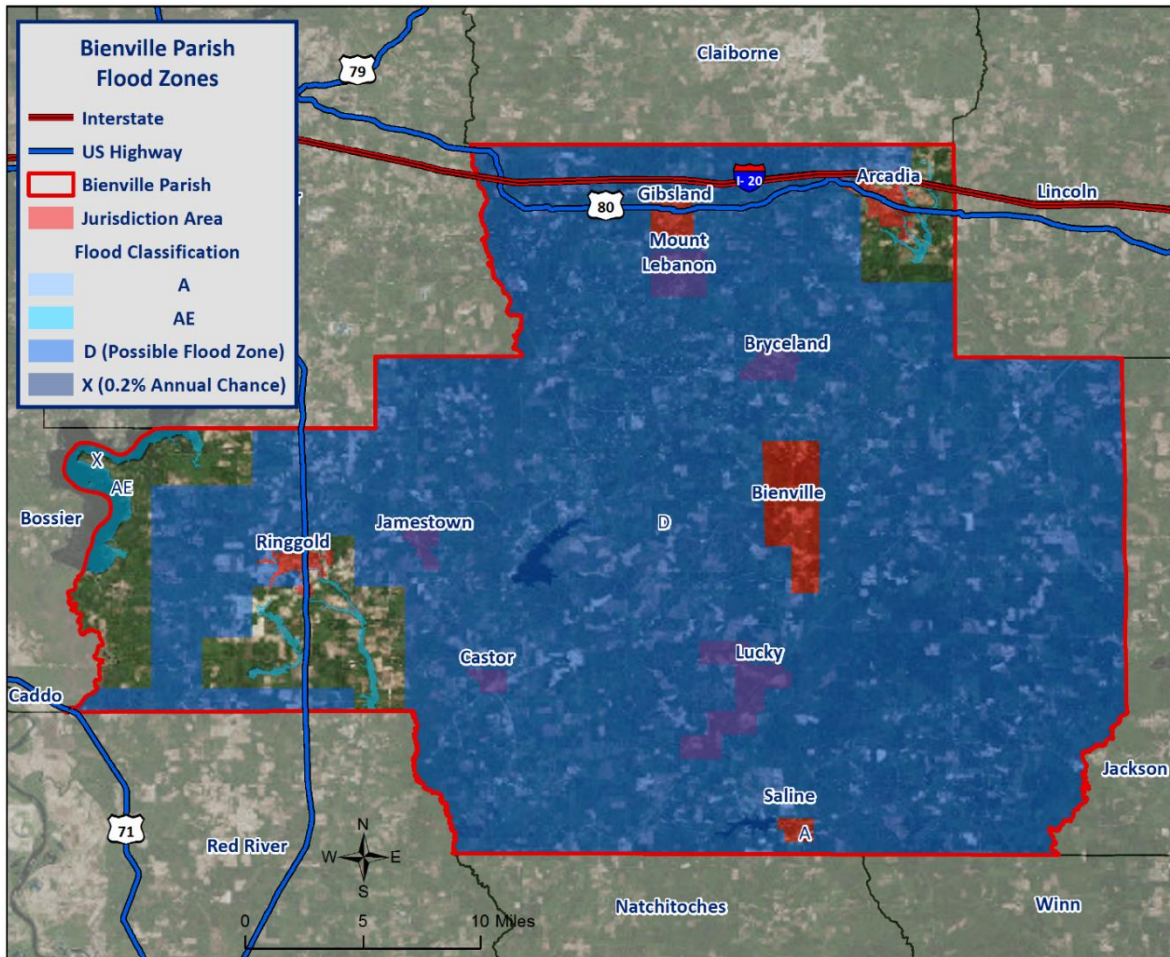


Figure 2-12: Bienville Parish Areas within the Flood Zones



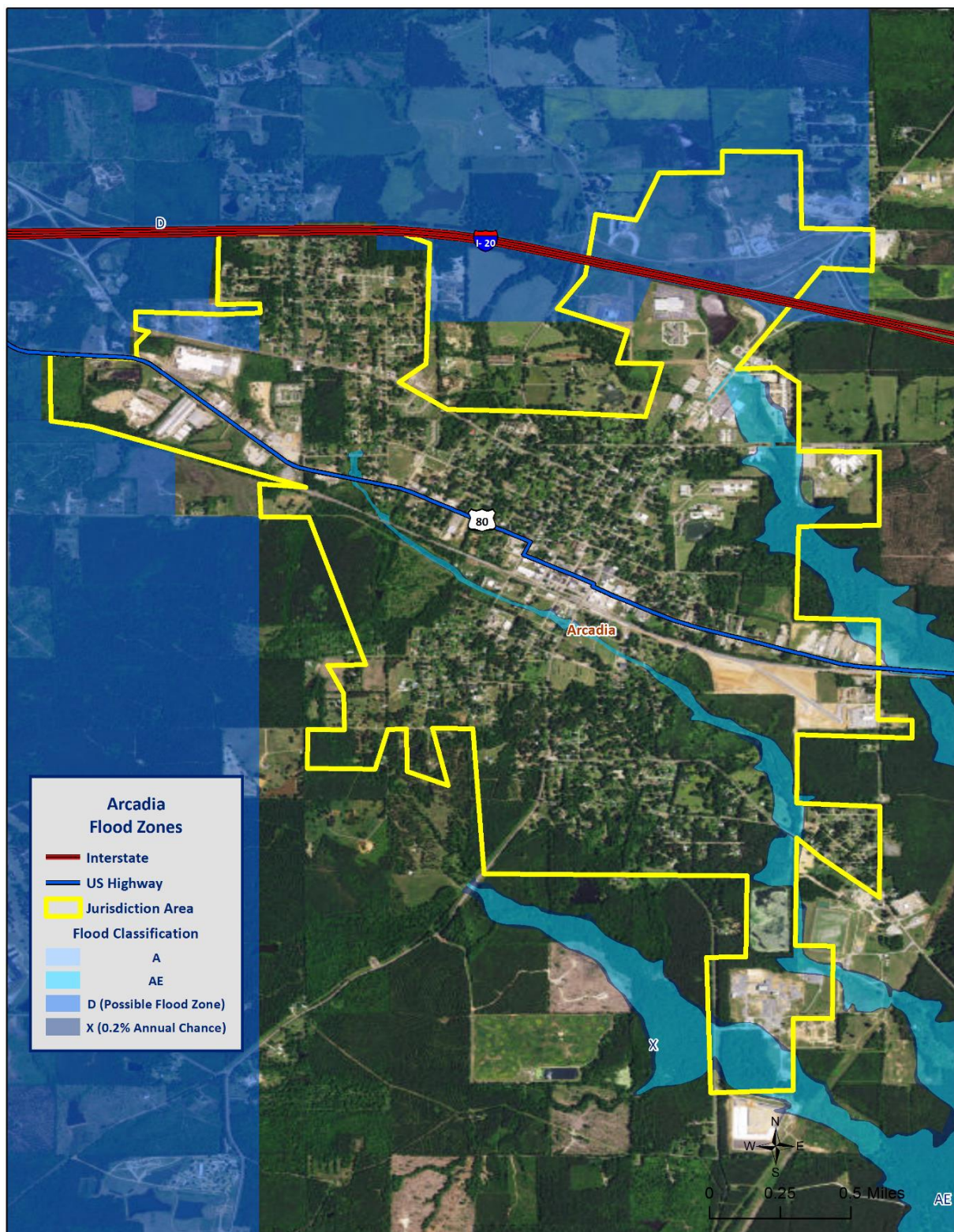


Figure 2-13: Arcadia Areas within the Flood Zones



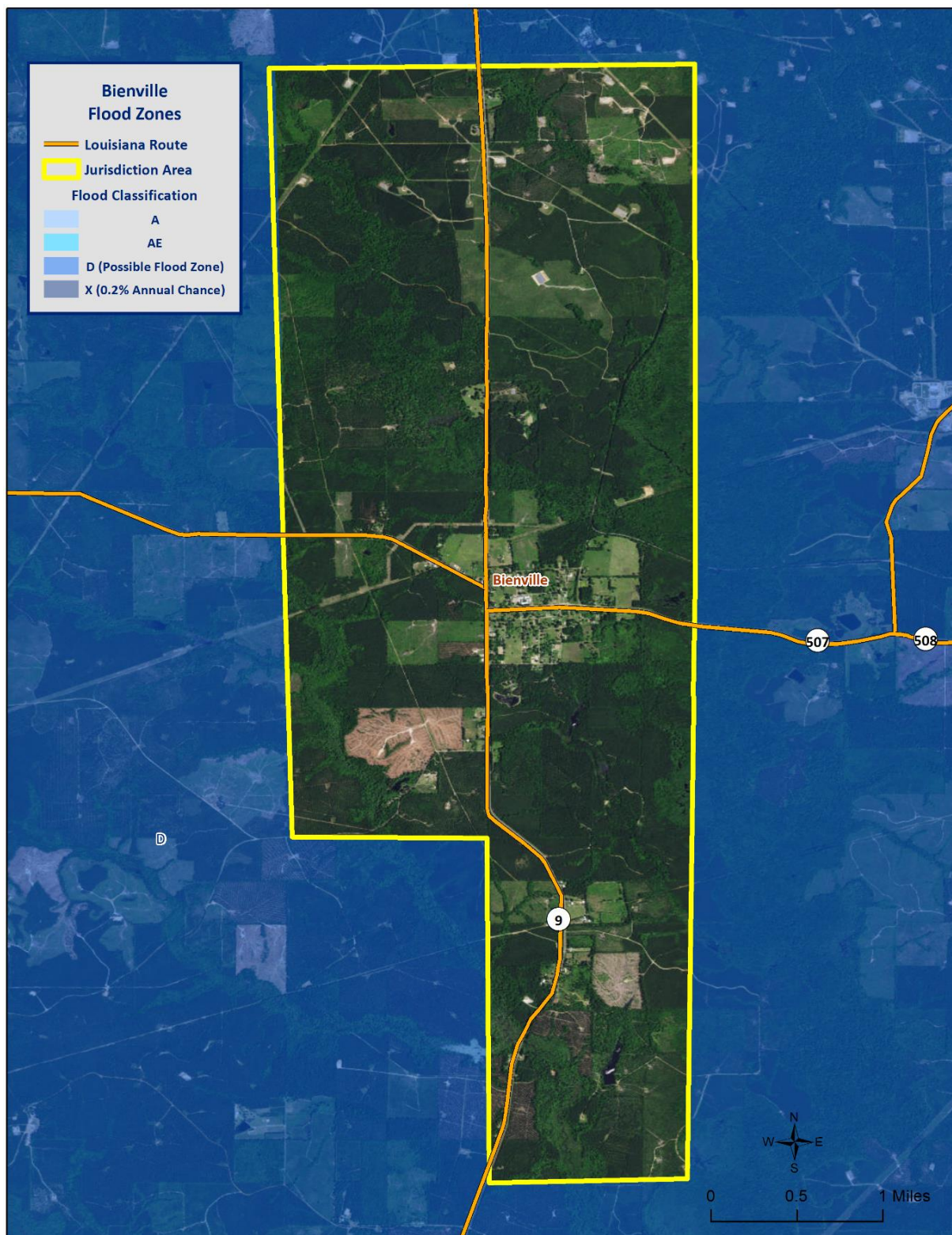


Figure 2-14: Bienville Areas within the Flood Zones



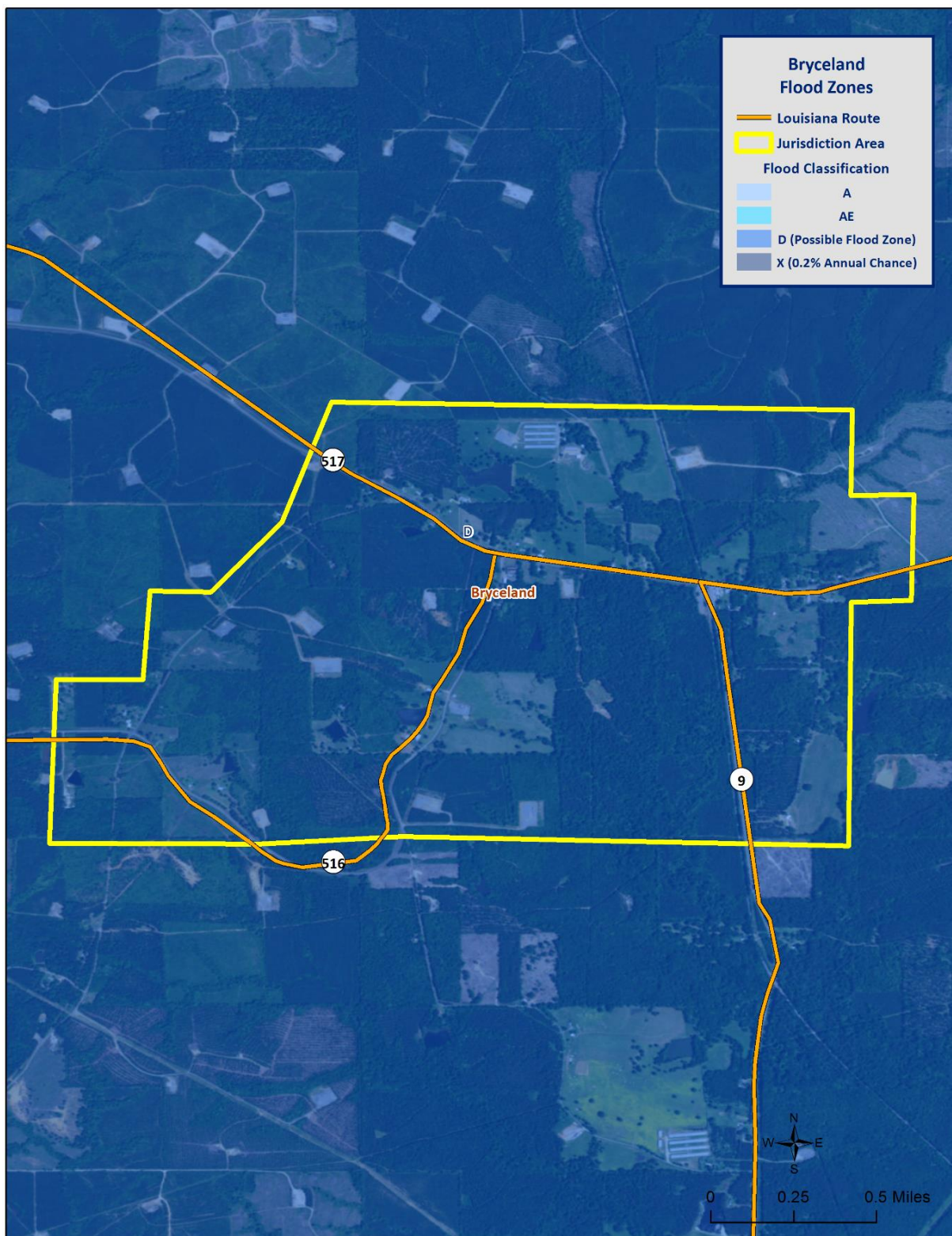


Figure 2-15: Bryceland Areas within the Flood Zones



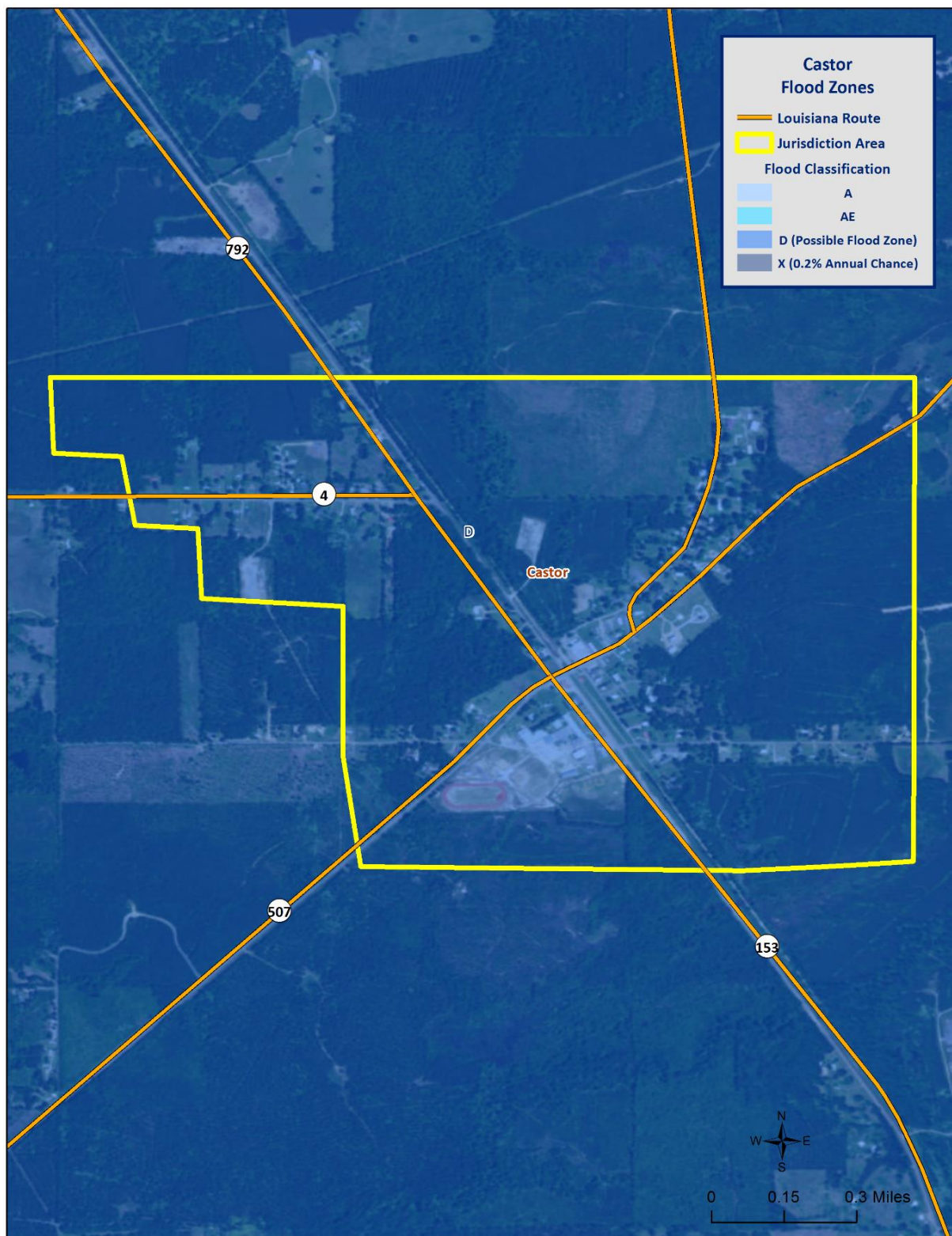


Figure 2-16: Castor Areas within the Flood Zones

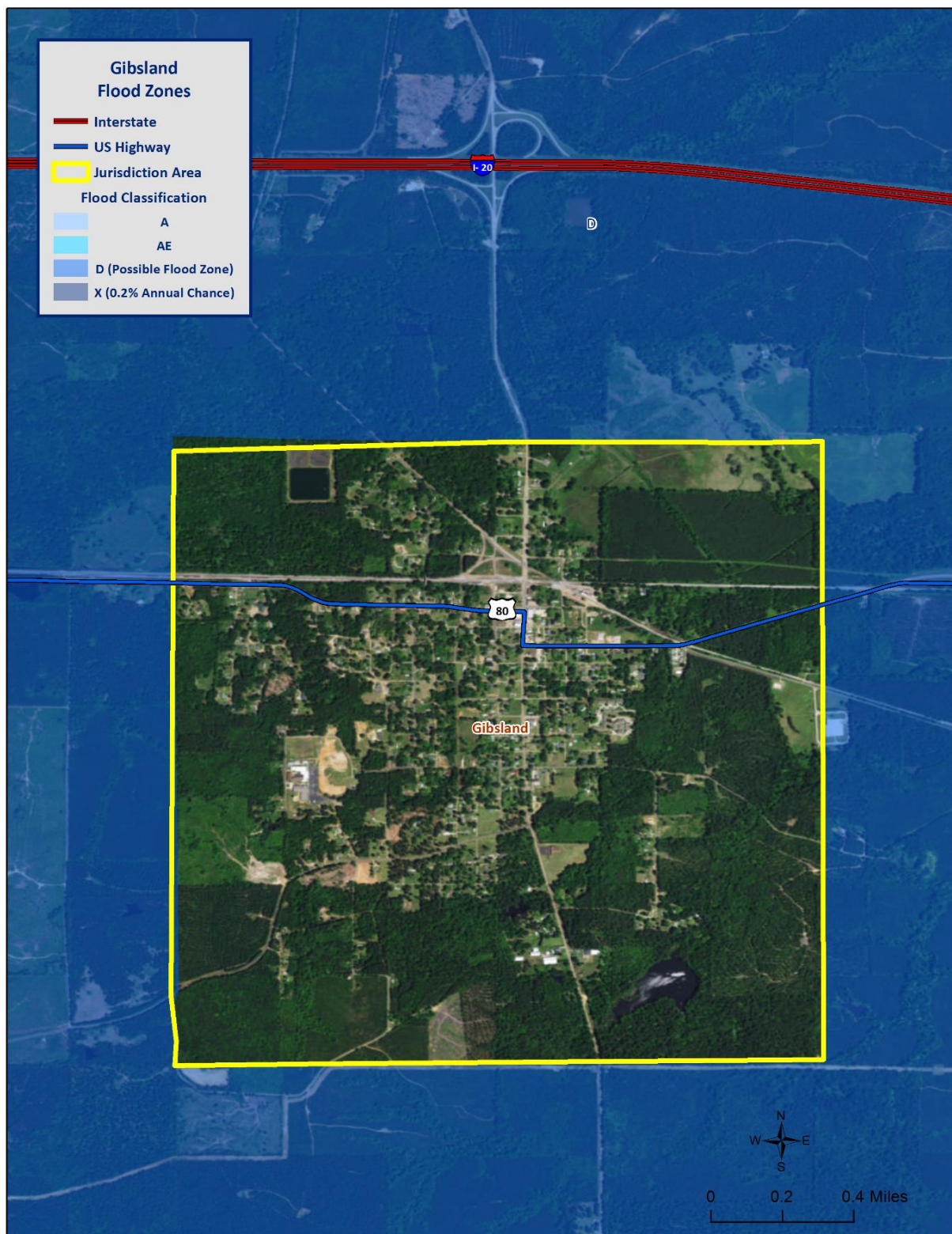


Figure 2-17: Gibsland Areas within the Flood Zones



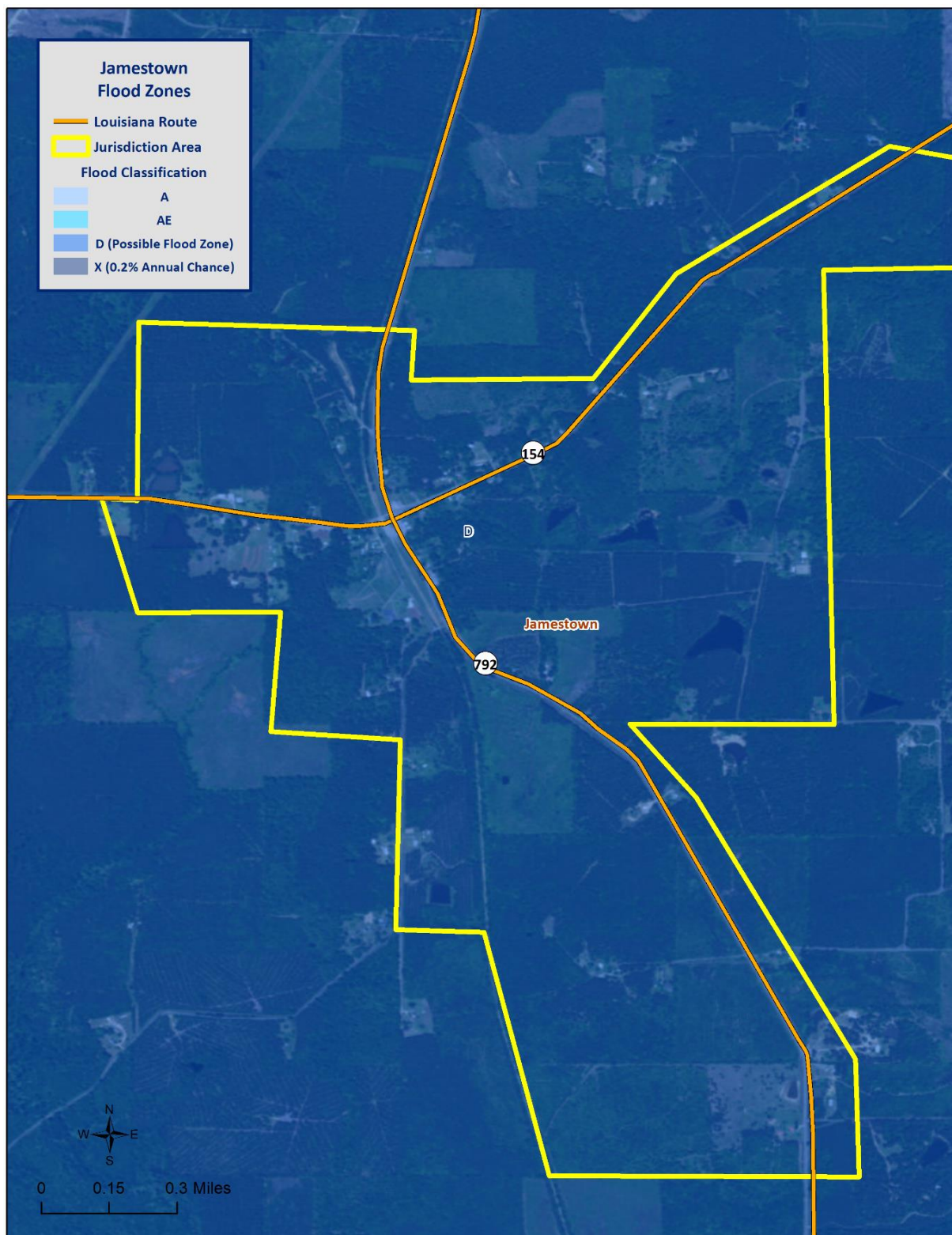


Figure 2-18: Jamestown Areas within the Flood Zones

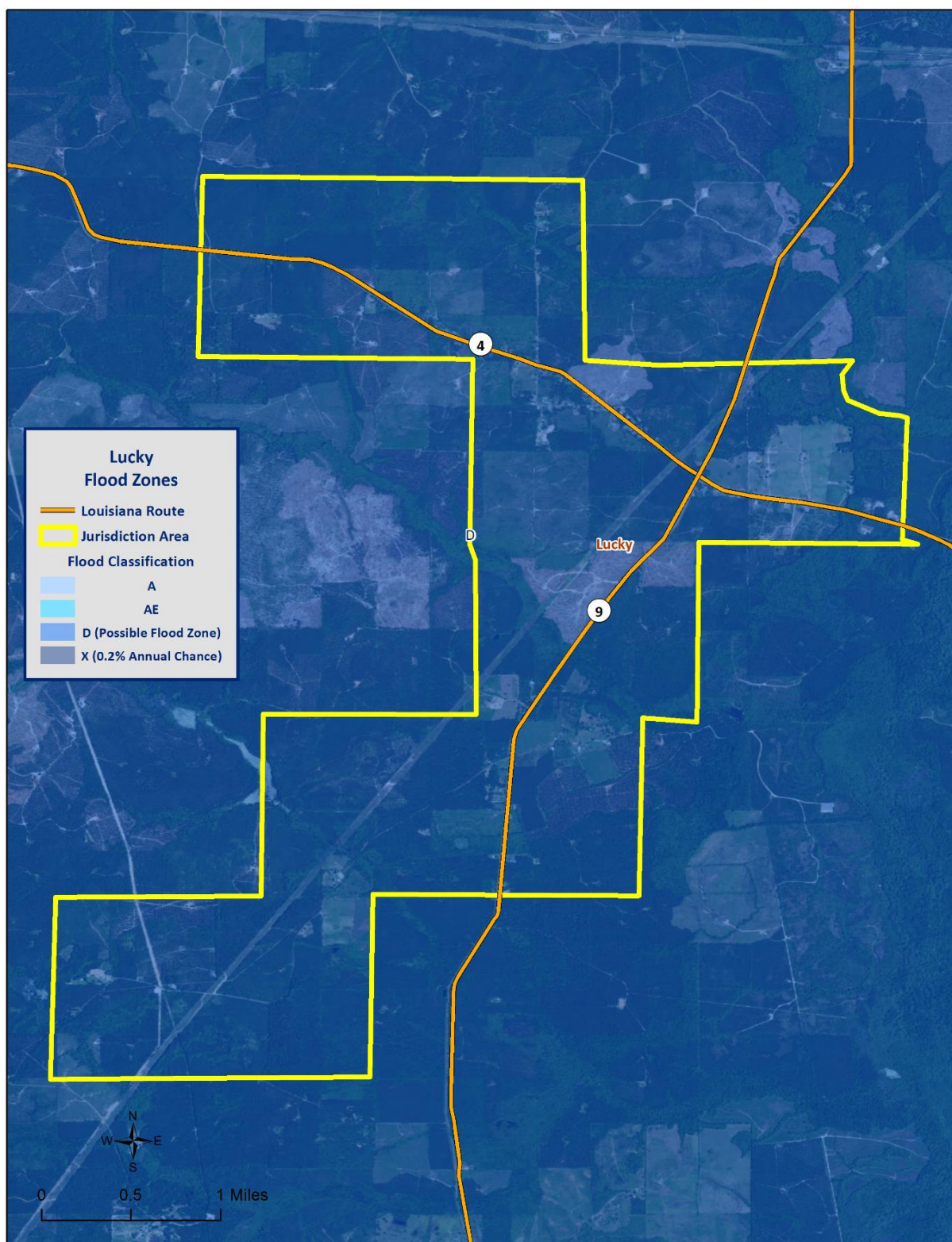


Figure 2-19: Lucky Areas within the Flood Zones



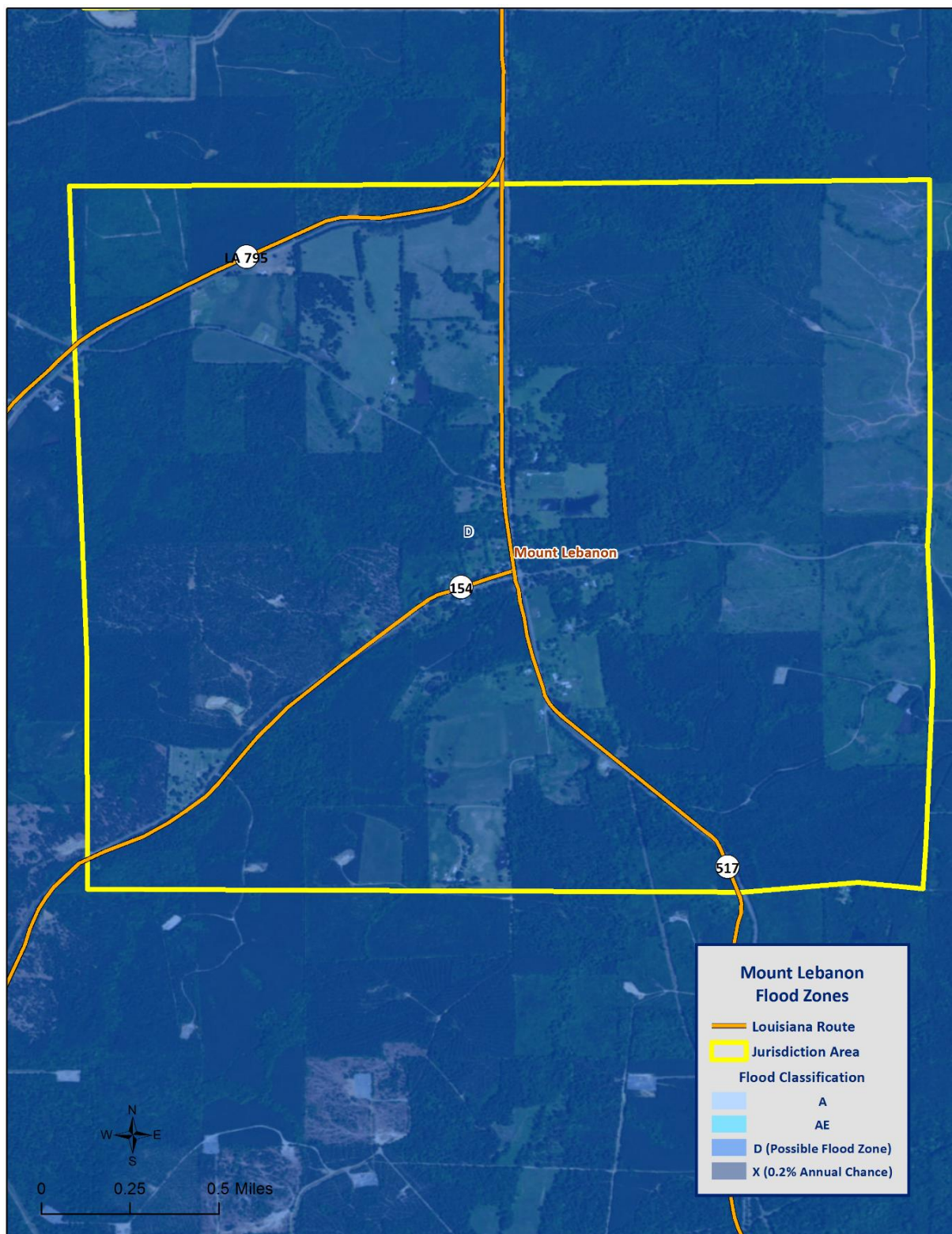


Figure 2-20: Mount Lebanon Areas within the Flood Zones



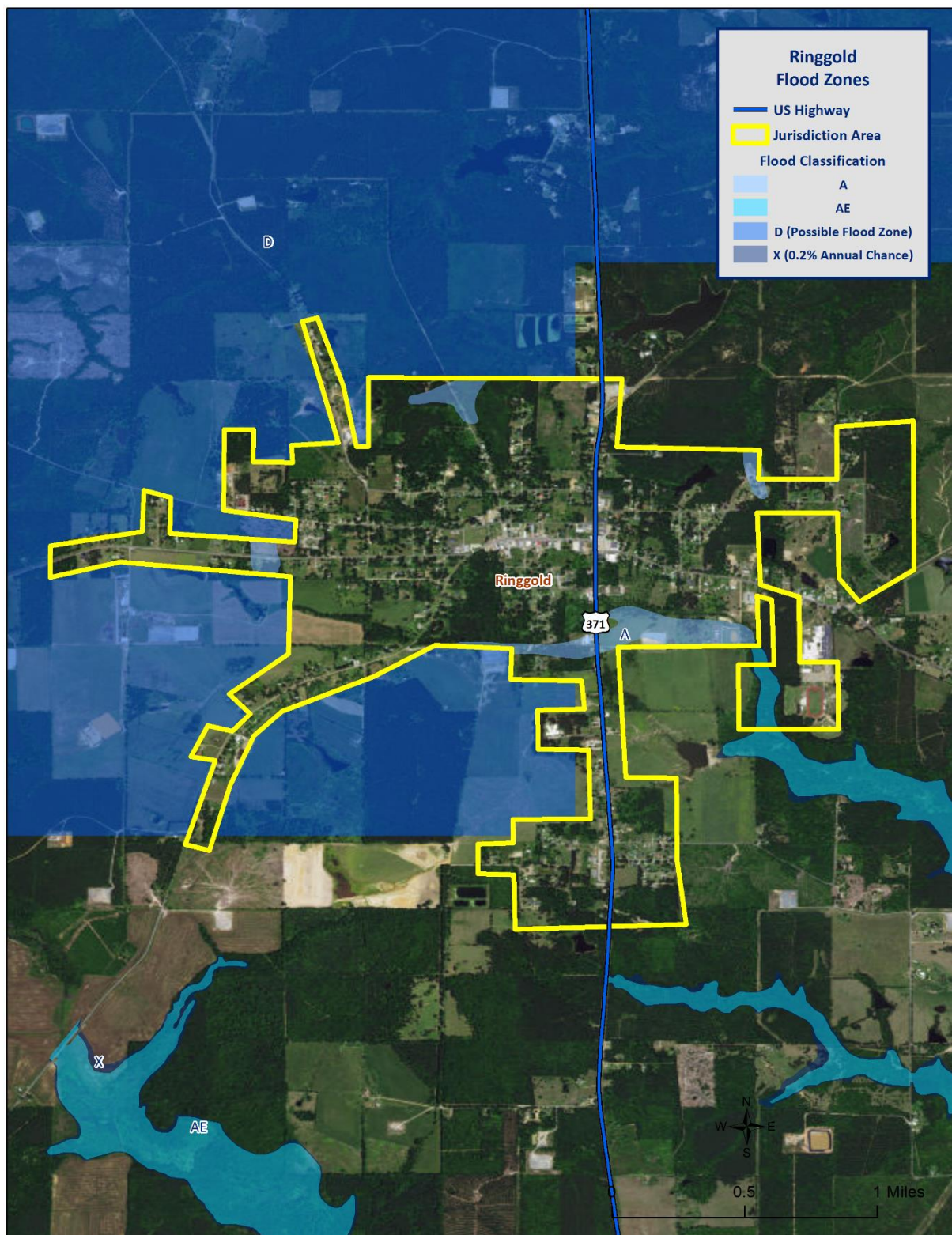


Figure 2-21: Ringgold Areas within the Flood Zones



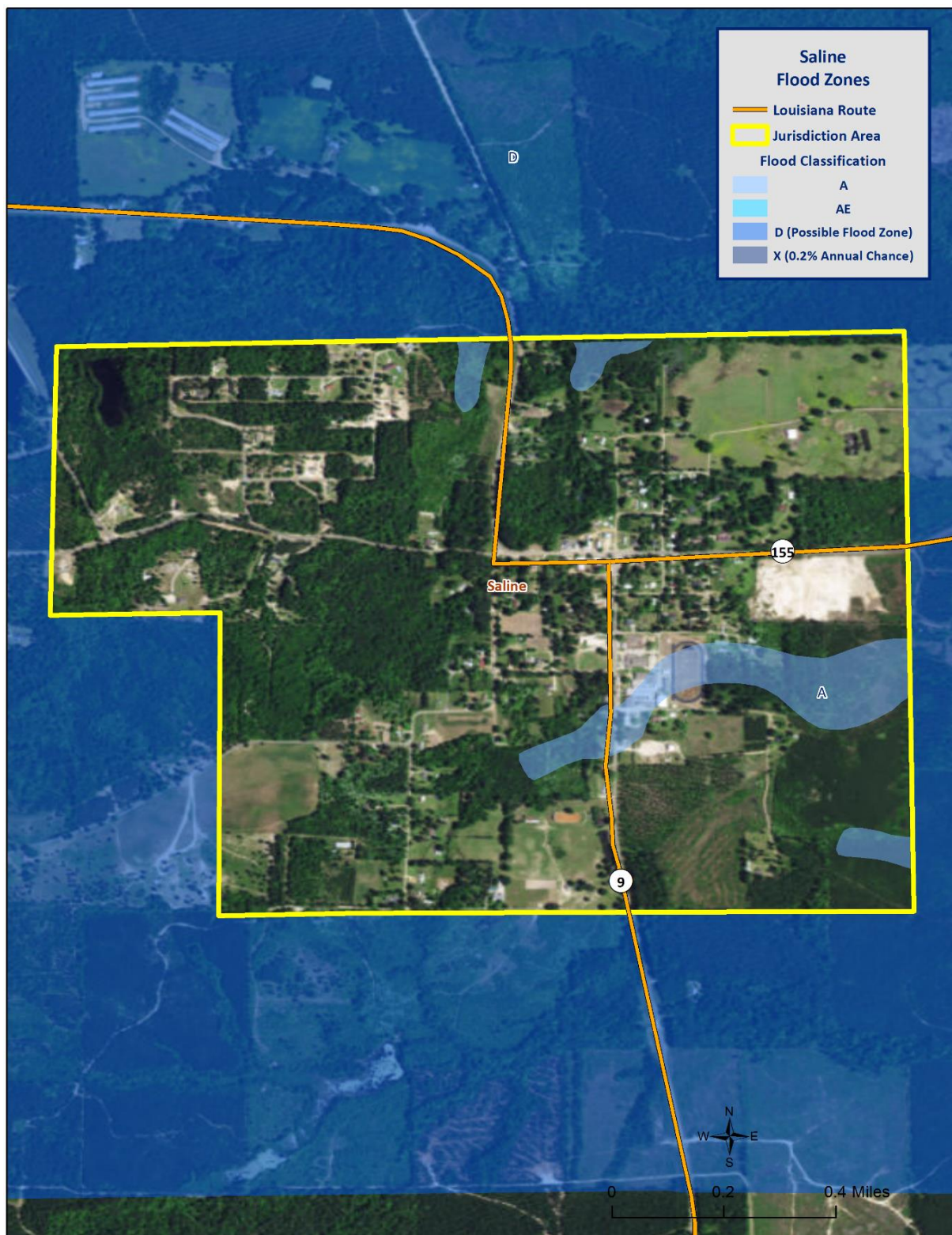


Figure 2-22: Saline Areas within the Flood Zones

The incorporated area of Bienville can expect localized street flooding east of Highway 9 and south of Highway 507, while the incorporated area of Gibsland can expect localized street flooding west of South Main Street and south of Gibsland Street.

*Previous Occurrences / Extents*

Historically, there have been 19 flooding events that have created significant flooding in Bienville Parish between 1990 and 2015. Below is a brief synopsis of the one flooding event that has occurred since 2010.

*Table 2-19: Historical Floods in Bienville Parish with Locations from 2010 - 2015*

Date	Extents	Type of Flooding	Estimated Damages	Location
March 20, 2012	Heavy rainfall caused flash floods throughout the parish. Numerous roads across Bienville Parish were flooded and closed.	Flash Flood	\$0	PARISHWIDE

The worst-case scenarios are based on several different types of flooding events. Storm water excesses and riverine flooding primarily affect the low-lying areas of the parish, and flood depths of up to six feet can be expected in the unincorporated areas of the parish, and the incorporated areas of Arcadia, Ringgold, and Jamestown. The incorporated areas of Bryceland, Castor, Lucky and Saline can expect flood depths from two to five feet, while the incorporated areas of Bienville and Gibsland can expect flooding levels of approximately one foot.

*Frequency / Probability*

While other parts of this plan, along with the State's Hazard Mitigation Plan, have relied on the SHELUS database to provide the annual probability, due to Bienville Parish having multiple jurisdictions, it was necessary to assess the historical data found in the National Climatic Data Center for Bienville 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 2-20: Annual Flood Probabilities for Bienville Parish*

Jurisdiction	Annual Probability	Return Frequency
Bienville Parish (Unincorporated)	40%	2 – 5 years
Arcadia	32%	3 – 4 years
Bienville	24%	4 – 5 years
Bryceland	20%	5 years
Castor	20%	5 years
Gibsland	20%	5 years
Jamestown	20%	5 years
Lucky	20%	5 years
Mount Lebanon	20%	5 years
Ringgold	32%	3 – 4 years
Saline	20%	5 years

Based on historical record, the overall flooding probability for the entire Bienville Parish planning area is 76%, with 19 events occurring over a 25-year period.

### *Estimated Potential Losses*

Using the Hazus 2.2 Flood Model, along with the Parish DFIRM, the 100-year flood scenario was analyzed to determine losses from this worst-case scenario. *Table 2-21* shows the total economic losses that would result from this occurrence.

*Table 2-21: Estimated Losses in Bienville Parish from a 100-Year Flood Event  
(Source: Hazus 2.2)*

Jurisdiction	Estimated Total Losses from 100-Year Flood Event
Bienville Parish (Unincorporated)	\$208,140,000
Arcadia	\$4,463,000
Bienville	\$0
Bryceland	\$161,000
Castor	\$230,000
Gibbsland	\$0
Jamestown	\$24,000
Lucky	\$287,000
Mount Lebanon	\$324,000
Ringgold	\$1,518,000
Saline	\$412,000
<b>Total</b>	<b>\$215,559,000</b>

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 following tables:

*Table 2-22: Estimated 100-Year Flood Losses for Unincorporated Bienville Parish by Sector  
(Source: Hazus 2.2)*

Bienville Parish (Unincorporated)	Estimated Total Losses from 100-Year Flood Event
Agricultural	\$1,495,000
Commercial	\$22,595,000
Government	\$1,498,000
Industrial	\$10,001,000
Religious / Non-Profit	\$8,848,000
Residential	\$162,218,000
Schools	\$1,485,000
<b>Total</b>	<b>\$208,140,000</b>

*Table 2-23: Estimated 100-Year Flood Losses for Arcadia by Sector*  
(Source: Hazus 2.2)

Arcadia	Estimated Total Losses from 100-Year Flood Event
Agricultural	\$107,000
Commercial	\$1,019,000
Government	\$103,000
Industrial	\$500,000
Religious / Non-Profit	\$179,000
Residential	\$2,498,000
Schools	\$57,000
<b>Total</b>	<b>\$4,463,000</b>

*Table 2-24: Estimated 100-Year Flood Losses for Bryceland by Sector*  
(Source: Hazus 2.2)

Bryceland	Estimated Total Losses from 100-Year Flood Event
Agricultural	\$0
Commercial	\$13,000
Government	\$0
Industrial	\$0
Religious / Non-Profit	\$0
Residential	\$148,000
Schools	\$0
<b>Total</b>	<b>\$161,000</b>

*Table 2-25: Estimated 100-Year Flood Losses for Castor by Sector*  
(Source: Hazus 2.2)

Castor	Estimated Total Losses from 100-Year Flood Event
Agricultural	\$0
Commercial	\$0
Government	\$5,000
Industrial	\$0
Religious / Non-Profit	\$0
Residential	\$225,000
Schools	\$0
<b>Total</b>	<b>\$230,000</b>



*Table 2-26: Estimated 100-Year Flood Losses for Jamestown by Sector  
(Source: Hazus 2.2)*

<b>Jamestown</b>	<b>Estimated Total Losses from 100-Year Flood Event</b>
Agricultural	\$0
Commercial	\$7,000
Government	\$3,000
Industrial	\$2,000
Religious / Non-Profit	\$0
Residential	\$12,000
Schools	\$0
<b>Total</b>	<b>\$24,000</b>

*Table 2-27: Estimated 100-Year Flood Losses for Lucky by Sector  
(Source: Hazus 2.2)*

<b>Lucky</b>	<b>Estimated Total Losses from 100-Year Flood Event</b>
Agricultural	\$2,000
Commercial	\$7,000
Government	\$0
Industrial	\$0
Religious / Non-Profit	\$16,000
Residential	\$262,000
Schools	\$0
<b>Total</b>	<b>\$287,000</b>

*Table 2-28: Estimated 100-Year Flood Losses for Mount Lebanon by Sector  
(Source: Hazus 2.2)*

<b>Mount Lebanon</b>	<b>Estimated Total Losses from 100-Year Flood Event</b>
Agricultural	\$0
Commercial	\$162,000
Government	\$0
Industrial	\$0
Religious / Non-Profit	\$15,000
Residential	\$147,000
Schools	\$0
<b>Total</b>	<b>\$324,000</b>

*Table 2-29: Estimated 100-Year Flood Losses for Ringgold by Sector*  
*(Source: Hazus 2.2)*

<b>Ringgold</b>	<b>Estimated Total Losses from 100-Year Flood Event</b>
Agricultural	\$2,000
Commercial	\$261,000
Government	\$7,000
Industrial	\$21,000
Religious / Non-Profit	\$87,000
Residential	\$1,133,000
Schools	\$7,000
<b>Total</b>	<b>\$1,518,000</b>

*Table 2-30: Estimated 100-Year Flood Losses for Saline by Sector*  
*(Source: Hazus 2.2)*

<b>Saline</b>	<b>Estimated Total Losses from 100-Year Flood Event</b>
Agricultural	\$0
Commercial	\$36,000
Government	\$0
Industrial	\$2,000
Religious / Non-Profit	\$0
Residential	\$335,000
Schools	\$39,000
<b>Total</b>	<b>\$412,000</b>

*Threat to People*

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

*Table 2-31: 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
Bienville Parish (Unincorporated)	7,605	3,753	49.3%
Arcadia	2,919	1,311	44.9%
Bienville	218	0	0.0%
Bryceland	108	14	13.0%
Castor	258	26	10.1%
Gibbsland	979	0	0.0%
Jamestown	139	29	20.9%
Lucky	272	78	28.7%
Mount Lebanon	83	11	13.3%
Ringgold	1,495	114	7.6%
Saline	277	61	22.0%
<b>Total</b>	<b>14,353</b>	<b>5,211</b>	<b>36.3%</b>

The Hazus 2.2 Flood Model was also extrapolated to provide an overview of vulnerable populations throughout the jurisdictions in the following tables:

*Table 2-32: Vulnerable Populations Susceptible to a 100-Year Flood Event in Unincorporated Bienville Parish  
(Source: Hazus 2.2)*

Bienville Parish (Unincorporated)		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	3,753	49.3%
Persons Under 5 Years	221	5.9%
Persons Under 18 Years	652	17.4%
Persons 65 Years and Over	693	18.5%
White	2,075	55.3%
Minority	1,678	44.7%

*Table 2-33: Vulnerable Populations Susceptible to a 100-Year Flood Event in Arcadia  
(Source: Hazus 2.2)*

Arcadia		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	1,070	33.1%
Persons Under 5 Years	78	7.3%
Persons Under 18 Years	210	19.7%
Persons 65 Years and Over	184	17.2%
White	826	77.2%
Minority	244	22.8%

*Table 2-34: Vulnerable Populations Susceptible to a 100-Year Flood Event in Bryceland  
(Source: Hazus 2.2)*

Bryceland		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	14	13.0%
Persons Under 5 Years	2	12.0%
Persons Under 18 Years	1	6.5%
Persons 65 Years and Over	4	25.9%
White	11	75.9%
Minority	3	24.1%

*Table 2-35: Vulnerable Populations Susceptible to a 100-Year Flood Event in Castor  
(Source: Hazus 2.2)*

Castor		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	26	10.1%
Persons Under 5 Years	2	7.0%
Persons Under 18 Years	6	23.3%
Persons 65 Years and Over	4	14.7%
White	23	88.8%
Minority	3	11.2%

*Table 2-36: Vulnerable Populations Susceptible to a 100-Year Flood Event in Jamestown  
(Source: Hazus 2.2)*

Jamestown		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	29	20.9%
Persons Under 5 Years	1	5.0%
Persons Under 18 Years	5	18.7%
Persons 65 Years and Over	4	14.4%
White	28	95.0%
Minority	1	5.0%

*Table 2-37: Vulnerable Populations Susceptible to a 100-Year Flood Event in Lucky  
(Source: Hazus 2.2)*

Lucky		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	78	28.7%
Persons Under 5 Years	3	4.0%
Persons Under 18 Years	17	21.3%
Persons 65 Years and Over	12	15.8%
White	26	32.7%
Minority	52	67.3%

*Table 2-38: Vulnerable Populations Susceptible to a 100-Year Flood Event in Mount Lebanon  
(Source: Hazus 2.2)*

Mount Lebanon		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	11	13.3%
Persons Under 5 Years	0	0.0%
Persons Under 18 Years	2	19.3%
Persons 65 Years and Over	2	14.5%
White	9	83.1%
Minority	2	16.9%



*Table 2-39: Vulnerable Populations Susceptible to a 100-Year Flood Event in Ringgold  
(Source: Hazus 2.2)*

Ringgold		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	114	7.6%
Persons Under 5 Years	7	6.4%
Persons Under 18 Years	22	19.7%
Persons 65 Years and Over	22	19.5%
White	45	39.9%
Minority	69	60.1%

*Table 2-40: Vulnerable Populations Susceptible to a 100-Year Flood Event in Saline  
(Source: Hazus 2.2)*

Saline		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	61	22.0%
Persons Under 5 Years	4	7.2%
Persons Under 18 Years	12	19.9%
Persons 65 Years and Over	8	13.4%
White	46	76.2%
Minority	15	23.8%

#### *Vulnerability*

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

## 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. Consequently, the air masses 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, which warms 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), has the ability to issue advisory messages based on forecasts and observations. The following are the advisory messages that may be issued, along 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 parishes (counties).

A variety of hazards might be produced by thunderstorms, including lightning, hail, tornadoes or waterspouts, flash flooding, and high-speed winds called downbursts. Nevertheless, given the 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 initially develops in the upper atmosphere as ice crystals that are bounced about by high-velocity updraft winds. The ice crystals grow through deposition of water vapor onto their surface. They then fall partially to a level in the cloud where the temperature exceeds the freezing point, melt partially, and then get caught in another updraft whereupon re-freezing and deposition grows another concentric layer of ice. After several trips up and down the cloud, they develop enough weight to fall. The size of hailstones varies depending on the severity and size of the thunderstorm. Higher surface temperatures generally mean stronger updrafts, which allow more massive hailstones to be supported by updrafts, leaving them suspended longer. This longer suspension time results in larger hailstone sizes. The tables on the next page display the TORRO Hailstorm Intensity Scale, along with a spectrum of hailstone diameters and their everyday equivalents.

Table 2-41: TORRO Hailstorm Intensity Scale

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

Table 2-42: 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 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 the following table.

*Table 2-43: 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 hilly 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.

The following table 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 2-44: 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	N/A
12	74+	Hurricane	N/A

Major damage directly caused by thunderstorm winds is relatively rare, while minor damage is common and pervasive, and most noticeable when it contributes to power outages. These power outages can have major negative impacts such as increased tendency for traffic accidents, loss of revenue for businesses, increased vulnerability to fire, food spoilage, and other losses that might be sustained by a loss of power. Power outages may pose a health risk for those requiring electric medical equipment and/or air conditioning.

### Lightning

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

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

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

*Table 2-45: Lightning Activity Level (LAL) Grids*

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

*Hazard Profile**Hailstorms**Location*

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

*Previous Occurrences / Extents*

The SHELDUS database reports 67 significant hailstorm events occurring within the boundaries of Bienville Parish between the years of 1990 - 2015. According to the National Climatic Data Center, hailstorm diameters experienced in Bienville Parish have ranged from 0.5 inches to 2.75 inches since 1990. The most frequently recorded hail size has been 1 inch in diameter. *Figure 2-23* displays the density of hailstorms in Bienville Parish and adjacent parishes. Based on the National Climatic Data Center dataset, *Table 2-46* provides an overview of hailstorms that have impacted the Bienville Parish planning area since 2009. Bienville Parish can expect to experience hail up to 2.75 inches in diameter for future events.

*Table 2-46: Previous Occurrences of Hailstorms in Bienville Parish*  
(Source: NCDC)

Date	Recorded Hail Size (inches)	Location
July 26, 2010	0.75	ALBERTA
March 29, 2011	0.88	ARCADIA
April 26, 2011	1	RINGGOLD
April 26, 2011	2.75	CASTOR
April 26, 2011	1.75	LUCKY
June 30, 2011	0.75	ARCADIA
April 24, 2014	0.75	GIBSLAND



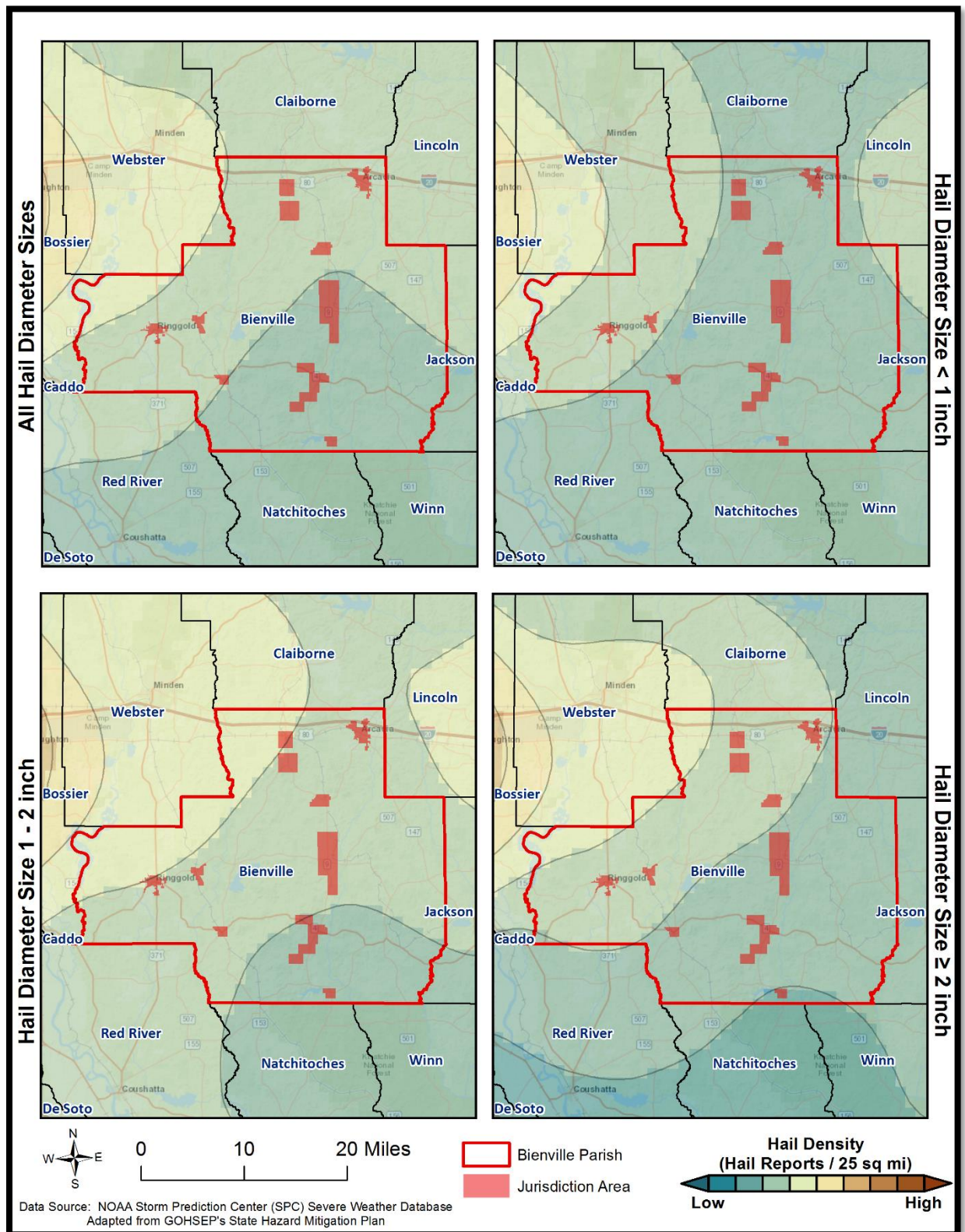


Figure 2-23: Density of Hailstorms by Diameter from 1950-2012  
(Source: State of Louisiana Hazard Mitigation Plan 2014)

Since 2010, there have been no hailstorm events in the incorporated area of Bienville, Bryceland, Jamestown, Lucky, Mount Lebanon, and Saline.

#### *Frequency*

Based on historical data from SHELUDS for the past 25 years, it is estimated the probability of occurrence for a significant hailstorm event is approximately 100%. The probability was determined based on a review of significant hail data that has caused damages in the last 25 years, in which Bienville Parish has had 67 recorded events.

#### *Estimated Potential Losses*

According to the SHELUDS database, property damage due to hailstorms in Bienville Parish have totaled approximately \$22,445 since 1990. To estimate the potential losses of a hail event on an annual basis, the total damages recorded for hail events was divided by the total number of years of available hail data in SHELUDS (1990 – 2015). This provides an annual estimated potential loss of \$898. The tables below provide an estimate of potential property losses for Bienville Parish.

*Table 2-47: Estimated Annual Property Losses in Bienville Parish from Hailstorms*

Estimated Annual Potential Losses from Hailstorms for Bienville Parish					
Unincorporated Bienville Parish (53% of Population)	Arcadia (20.3% of Population)	Bienville (1.5% of Population)	Bryceland (0.8% of Population)	Castor (1.8% of Population)	Gibbsland (6.8% of Population)
\$476	\$183	\$14	\$7	\$16	\$61

*Table 2-47: Estimated Annual Property Losses in Bienville Parish from Hailstorms (Continued)*

Estimated Annual Potential Losses from Hailstorms for Bienville Parish				
Jamestown (1% of Population)	Lucky (1.9% of Population)	Mount Lebanon (0.6% of Population)	Ringgold (10.4% of Population)	Saline (1.9% of Population)
\$9	\$17	\$5	\$94	\$17

There have been no deaths or injuries due to hailstorms from 1990 – 2015 in Bienville Parish.

#### *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 Bienville Parish is equally at risk for high winds.

#### *Previous Occurrences / Extents*

The SHELUDS database reports a total of 161 thunderstorm wind events occurring within the boundaries of Bienville Parish between the years of 1990 to 2015. The significant thunderstorm wind events experienced

in Bienville Parish have ranged in wind speed from 50 mph to 72 mph. Bienville Parish can expect to receive thunderstorm winds up to 72 mph for future high wind events. The table below provides an overview of significant high wind events over the last five years:

*Table 2-48: Previous Occurrences for Thunderstorm High Wind Events*

Location	Date	Recorded Wind Speeds (mph)	Property Damage	Crop Damage
ARCADIA	March 25, 2010	59	\$0	\$0
MT OLIVE	March 25, 2010	59	\$0	\$0
BIENVILLE	May 20, 2010	59	\$0	\$0
WALSH	August 5, 2010	60	\$0	\$0
MT OLIVE	August 5, 2010	60	\$0	\$0
MT OLIVE	August 5, 2010	59	\$15,000	\$0
ARCADIA	August 22, 2010	56	\$0	\$0
RINGGOLD	February 24, 2011	59	\$0	\$0
RINGGOLD	February 24, 2011	59	\$0	\$0
CASTOR	February 24, 2011	59	\$0	\$0
PORT BOLIVER	April 26, 2011	60	\$40,000	\$0
RINGGOLD	April 26, 2011	64	\$250,000	\$0
JAMESTOWN	April 26, 2011	62	\$0	\$0
BIENVILLE	April 26, 2011	62	\$0	\$0
TAYLOR	June 30, 2011	61	\$0	\$0
JAMESTOWN	June 30, 2011	61	\$0	\$0
GIBSLAND	November 8, 2011	58	\$0	\$0
RINGGOLD	January 17, 2012	58	\$0	\$0
BIENVILLE	May 7, 2012	58	\$0	\$0
GIBSLAND	July 5, 2012	59	\$0	\$0
LUCKY	December 9, 2012	61	\$0	\$0
BIENVILLE	December 20, 2012	60	\$0	\$0
RINGGOLD	January 29, 2013	62	\$0	\$0
ARCADIA	January 29, 2013	65	\$0	\$0
TAYLOR	March 31, 2013	60	\$0	\$0
RINGGOLD	March 31, 2013	59	\$0	\$0
GIBSLAND	May 21, 2013	60	\$0	\$0
LUCKY	June 18, 2013	58	\$0	\$0
GIBSLAND	July 11, 2013	65	\$0	\$0
ARCADIA	July 26, 2013	61	\$0	\$0
JAMESTOWN	December 21, 2013	61	\$0	\$0
GIBSLAND	December 21, 2013	60	\$0	\$0
RINGGOLD	December 21, 2013	67	\$0	\$0
SALINE	March 28, 2014	58	\$0	\$0

Location	Date	Recorded Wind Speeds (mph)	Property Damage	Crop Damage
BEAR CREEK	April 14, 2014	58	\$0	\$0
RINGGOLD	July 2, 2014	58	\$0	\$0
RINGGOLD	July 23, 2014	59	\$0	\$0
GIBSLAND	August 10, 2014	61	\$0	\$0
RINGGOLD	September 2, 2014	60	\$0	\$0
CASTOR	September 2, 2014	60	\$0	\$0
JAMESTOWN	September 2, 2014	59	\$0	\$0
BRICE	October 2, 2014	58	\$0	\$0
CASTOR	October 13, 2014	60	\$0	\$0
ARCADIA	April 19, 2015	58	\$0	\$0
GUYNES	May 25, 2015	59	\$0	\$0
ARCADIA	June 9, 2015	59	\$0	\$0
FORDS	June 9, 2015	59	\$0	\$0
MT LEBANON	June 9, 2015	61	\$0	\$0
RINGGOLD	July 5, 2015	58	\$0	\$0
GIBSLAND	December 13, 2015	62	\$0	\$0
MT LEBANON	December 13, 2015	59	\$0	\$0
ARCADIA ARPT	December 13, 2015	59	\$0	\$0
RINGGOLD	December 27, 2015	58	\$0	\$0
ARCADIA	December 28, 2015	60	\$0	\$0

#### Frequency

High winds are a fairly common occurrence within Bienville Parish, with an annual chance of occurrence calculated at 100%.

#### Estimated Potential Losses

Since 1990, there have been 161 significant wind events that have resulted in property damages according to the SHELUDS database. The total property damages associated with those storms have totaled \$1,302,225. 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 SHELUDS (1990 – 2015). This provides an annual estimated potential loss of \$52,089. The following tables provides an estimate of potential property losses for Bienville Parish:

*Table 2-49: Estimated Annual Property Losses in Bienville Parish Resulting from High Winds*

Estimated Annual Potential Losses from Thunderstorm Winds for Bienville Parish					
Unincorporated Bienville Parish (53% of Population)	Arcadia (20.3% of Population)	Bienville (1.5% of Population)	Bryceland (0.8% of Population)	Castor (1.8% of Population)	Gibslan (6.8% of Population)
\$27,600	\$10,593	\$791	\$392	\$936	\$3,553



Table 2-49: Estimated Annual Property Losses in Bienville Parish Resulting from High Winds (Continued)

Estimated Annual Potential Losses from Thunderstorm Winds for Bienville Parish				
Jamestown (1% of Population)	Lucky (1.9% of Population)	Mount Lebanon (0.6% of Population)	Ringgold (10.4% of Population)	Saline (1.9% of Population)
\$504	\$987	\$301	\$5,426	\$1,005

There have been no reported injuries or fatalities as a result of a thunderstorm wind event over the 25-year record.

#### Vulnerability

See Appendix C 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 Bienville Parish.

##### Previous Occurrences / Extents

The SHELUDS database reports a total of three lightning events occurring within the boundaries of Bienville Parish between the years of 1990 - 2015. The SHELUDS 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 Bienville Parish, which occur on a nearly monthly basis. The planning area can expect to have a lightning density of 11-12 flashes per sq. mile per year. The table below provides an overview of significant lightning strikes over the last five years:

Table 2-50: Previous Occurrences of Significant Lightning Strikes in Bienville Parish from 2010 – 2015  
(Source: NCDC and SHELUDS)

Location	Date	Summary	Property Damage
Bryceland	August 13, 2013	Lightning set a battery of tanks ablaze at a gas storage facility on Highway 9,	\$70,00

Since 2009, there have been no lightning events that have caused property damage or loss of life in the unincorporated area of Bienville Parish, and the incorporated areas of Arcadia, Bienville, Castor, Gibsland, Jamestown, Lucky, Mount Lebanon, Ringgold, and Saline.

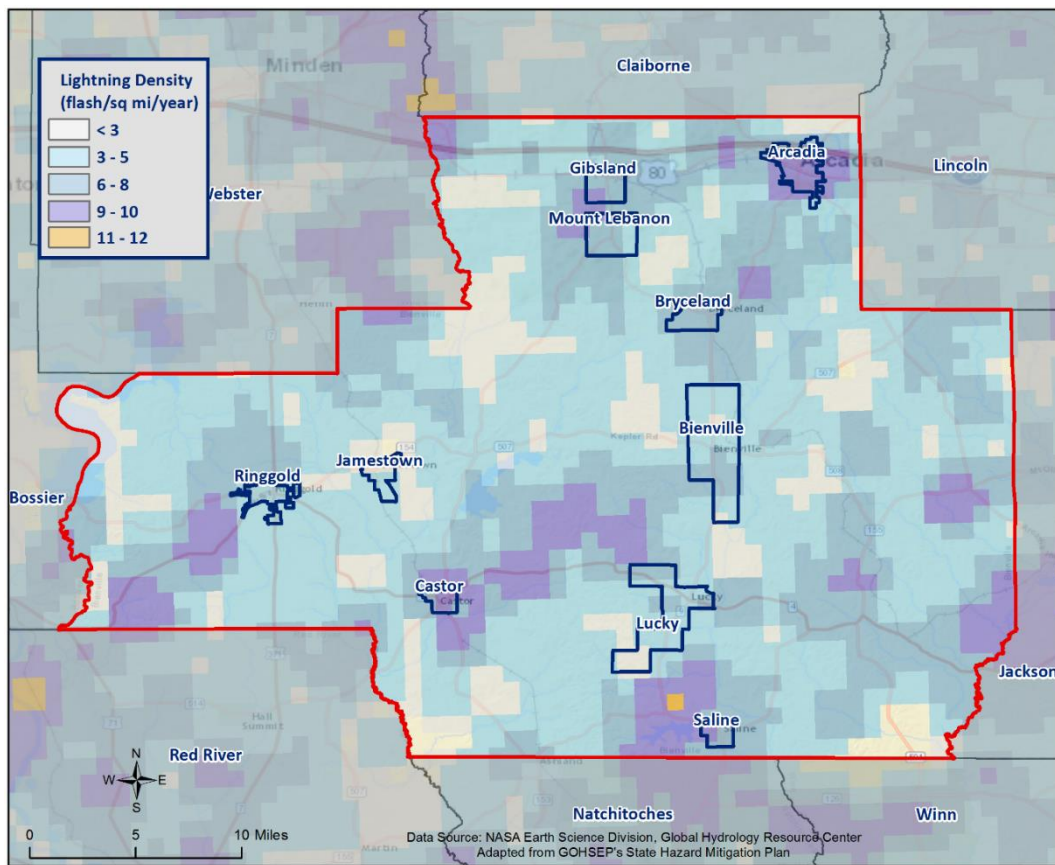


Figure 2-24: Lightning Density Reports for Bienville Parish

### Frequency

Lightning can strike anywhere and is produced by every thunderstorm, so the chance of lightning occurring in Bienville 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 is a less likely event. According to SHELDUS, there have been three lightning events that have caused property damages or injuries over the last 25 years, establishing an annual probability of 12%.

### Estimated Potential Losses

Since 1990, there have been three significant lightning events that have resulted in property damages according to the SHELDUS database. The total property damages associated with lightning events totaled \$91,000. To estimate the potential losses of a lightning event on an annual basis, the total damages recorded for lightning events was divided by the total number of years of available major lightning strike data in SHELDUS (1990 – 2015). This provides an annual estimated potential loss of \$3,640. The tables on the next page provide an estimate of potential property losses for Bienville Parish.

*Table 2-51: Estimated Annual Property Losses in Bienville Parish from Lightning*

Estimated Annual Potential Losses from Thunderstorm Lightning for Bienville Parish					
Unincorporated Bienville Parish (53% of Population)	Arcadia (20.3% of Population)	Bienville (1.5% of Population)	Bryceland (0.8% of Population)	Castor (1.8% of Population)	Gibbsland (6.8% of Population)
\$1,929	\$740	\$55	\$27	\$65	\$248

*Table 2-51: Estimated Annual Property Losses in Bienville Parish from Lightning (Continued)*

Estimated Annual Potential Losses from Thunderstorm Lightning for Bienville Parish				
Jamestown (1% of Population)	Lucky (1.9% of Population)	Mount Lebanon (0.6% of Population)	Ringgold (10.4% of Population)	Saline (1.9% of Population)
\$35	\$69	\$21	\$379	\$70

There has been one reported injury and no fatalities in Bienville Parish as a result of a lightning strikes over the 25-year record.

#### *Vulnerability*

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

## Tornadoes

Tornadoes (also called twisters or 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. This usually results in a counterclockwise rotation 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 2-52* shows the EF scale in comparison with the old Fujita (F) Scale, which was used prior to February 1, 2007. When discussing past tornadoes, the scale used at the time of the hazard is used. Damage and adjustment between scales can be made using the following tables.

*Table 2-52: Comparison of the Enhanced Fujita (EF) Scale to the Fujita (F) Scale*

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

*Table 2-53: Fujita and Enhanced Fujita Tornado Damage Scale*

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



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

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

Structures within the direct path of a tornado vortex are often reduced to rubble. Structures adjacent to the tornado’s path are often severely damaged by high winds flowing into the tornado vortex, known as inflow winds. It is here, adjacent to the tornado’s path, that the building type and construction techniques are critical to the structure’s survival. Although tornadoes strike at random, making all buildings vulnerable, mobile homes, homes with 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 projectiles 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 Bienville Parish with actual locations, tornadoes in general are a climatological based hazard and have the same approximate probability of occurring in Bienville Parish as all of its jurisdictions. Because a tornado has a similar probability of striking anywhere within the planning area for Bienville Parish, all jurisdictions are equally at risk for tornadoes.

#### *Previous Occurrences / Extents*

SHELDUS reports a total of seven tornadoes or waterspouts occurring within the boundaries of Bienville Parish between the years of 1990 - 2015. The tornadoes experienced in Bienville Parish have ranged from EF0 to EF1 on the EF scale, and ranged from F1 to F3 on the F scale. The worst case scenario Bienville Parish can expect in the future is an EF3 tornado.

The tornado that caused the most damage to property was a F3 tornado, which occurred on November 3, 1992. The F3 tornado was responsible for over \$25 million in damage. The tornado responsible for the most injuries occurred on April 5, 2005. The tornado knocked a tree over onto a mobile home injuring one person. There have been no fatalities in Bienville Parish as a result of tornadoes.

*Table 2-54: Historical Tornadoes in Bienville Parish with Locations from 2010 - 2015*

Date	Impacts	Property Damage	Location	Magnitude
April 26, 2011	5.27 mile path with a width of 100 yards. Multiple trees snapped and uprooted.	\$0	UNINCORPORATED AREA	EF1
April 27, 2013	2.29 mile path with a width of 880 yards. Snapped several hardwood and softwood trees.	\$0	UNINCORPORATED AREA	EF1

Since 2010, there have been no tornadoes in the incorporated areas of Arcadia, Bienville, Bryceland, Castor, Gibsland, Jamestown, Lucky, Mount Lebanon, Ringgold, and Saline. Since 2011, the year in which the last update to this hazard mitigation plan was written, Bienville Parish has had two tornadoes touchdown in the unincorporated areas of the parish. The following is a brief synopsis of these events:

#### *April 26, 2011 – EF1 Tornado in Union*

A tornado snapped multiple trees along a 5.5 mile track. The tornado touched down seven miles west northwest of Quitman in Bienville Parish. The tornado continued northeast crossing Highway 147 and ending eight miles southwest of Grambling near the Bienville/Jackson parish line. Winds were estimated at 85 to 95 mph.

#### *April 27, 2013 – EF1 Tornado in Sparta*

An EF1 tornado uprooted and snapped several hardwood and softwood trees along Mamie Murphy Road, Old Sparta Road, and Kepler Road. The path length was 2.28 miles while the path width was 0.5 miles with maximum winds estimated to be near 100 mph.

#### *Frequency / Probability*

Tornadoes are a sporadic occurrence within Bienville Parish, with an annual chance of occurrence calculated at 28% based on the records for the past 25 years (1990 - 2015). The figure on the next page displays the density of tornado touch downs in Bienville Parish and neighboring parishes.

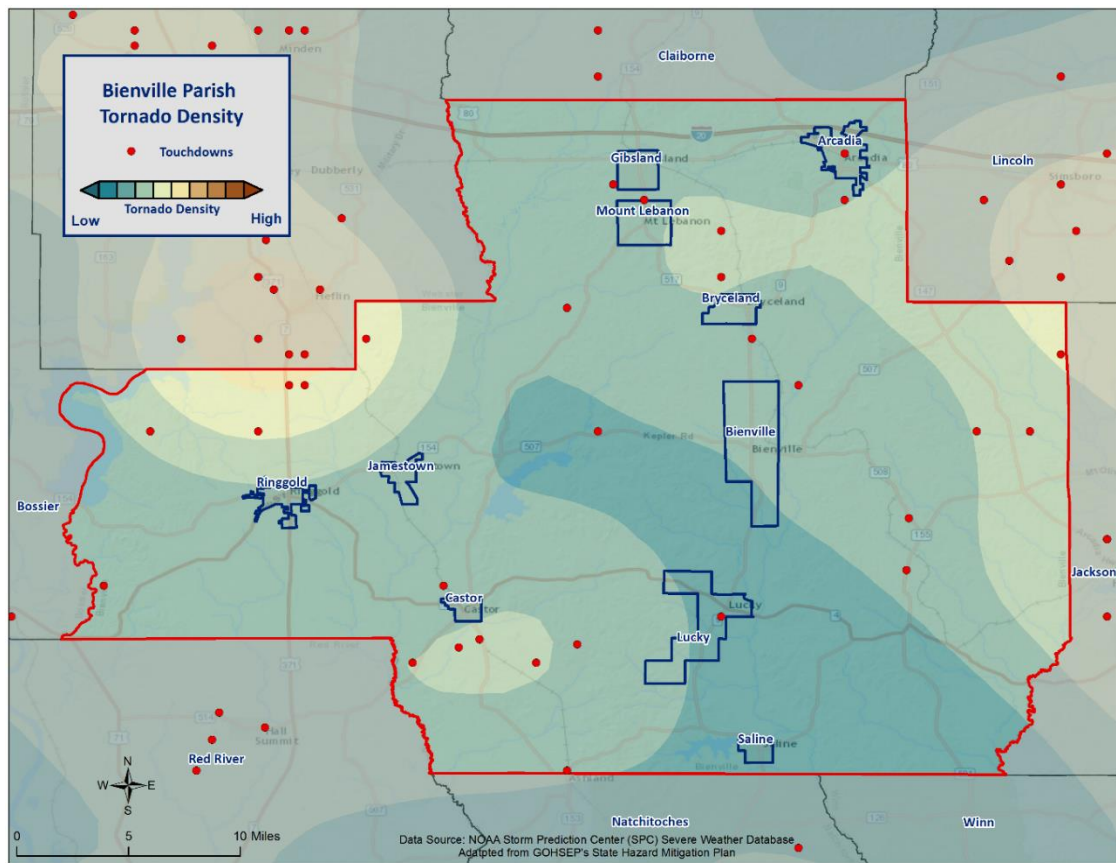


Figure 2-25: Location and Density of Tornadoes to Touch Down in Bienville Parish  
(Source: NOAA/SPC Severe Weather Database)

#### Estimated Potential Losses

According to the SHELUDS database, there have been seven tornadoes that have caused some level of property damage. The total damage from the actual claims for property is \$9,009,007, with an average cost of \$1,287,001 per tornado strike. When annualizing the total cost over the 25-year record, total annual losses based on tornadoes are estimated to be \$360,360. 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, the following tables provide an annual estimate of potential losses for Bienville Parish.

Table 2-55: Estimated Annual Losses from Tornadoes in Bienville Parish

Estimated Annual Potential Losses from Tornadoes for Bienville Parish					
Unincorporated Bienville Parish (53% of Population)	Arcadia (20.3% of Population)	Bienville (1.5% of Population)	Bryceland (0.8% of Population)	Castor (1.8% of Population)	Gibbsland (6.8% of Population)
\$190,938	\$73,287	\$5,473	\$2,712	\$6,478	\$24,580

*Table 2-55: Estimated Annual Losses from Tornadoes in Bienville Parish (Continued)*

Estimated Annual Potential Losses from Tornadoes Lightning for Bienville Parish				
Jamestown (1% of Population)	Lucky (1.9% of Population)	Mount Lebanon (0.6% of Population)	Ringgold (10.4% of Population)	Saline (1.9% of Population)
\$3,490	\$6,829	\$2,084	\$37,535	\$6,955

*Table 2-56* presents an analysis of building exposure that is susceptible to tornadoes by general occupancy type for Bienville Parish, along with the percentage of building stock that are mobile homes.

*Table 2-56: Building Exposure by General Occupancy Type for Tornadoes in Bienville 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 (%)
1,669,783	241,002	105,264	16,068	91,450	16,163	15,880	21.3%

The parish has suffered through a total of one day in which tornadoes or waterspouts have accounted for one injury and no fatalities during this 25-year period (*Table 2-57*). The average number of injuries per event for Bienville Parish is 0.14 per tornado, with an average of 0.04 per year for the 25-year period.

*Table 2-57: Tornadoes in Bienville Parish by Magnitude that Caused Injuries or Deaths*

Date	Magnitude	Deaths	Injuries
April 5, 2005	F1	0	1

In assessing the overall risk to population, the most vulnerable population throughout the parish are those residing in manufacturing housing. Approximately 21.3% of all housing in Bienville Parish consists of manufactured housing. Based on location data collected in a previous hazard mitigation project, there are 13 known locations where manufactured housing is concentrated. Each of those 13 locations have an overall number of manufactured houses ranging from one to 74. The location and density of manufactured houses can be seen in *Figure 2-26*.

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 in the unincorporated area of Bienville Parish (*Table 2-58*). 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 2-58: Manufactured Home Distribution throughout Bienville Parish

Location	Number of Manufactured Home Parks	% of Manufactured Home Parks
Unincorporated Area	7	53.8%
Arcadia	0	0.0%
Bienville	0	0.0%
Bryceland	1	7.7%
Castor	1	7.7%
Gibbsland	0	0.0%
Jamestown	0	0.0%
Lucky	1	7.7%
Mount Lebanon	0	0.0%
Ringgold	3	23.1%
Saline	0	0.0%

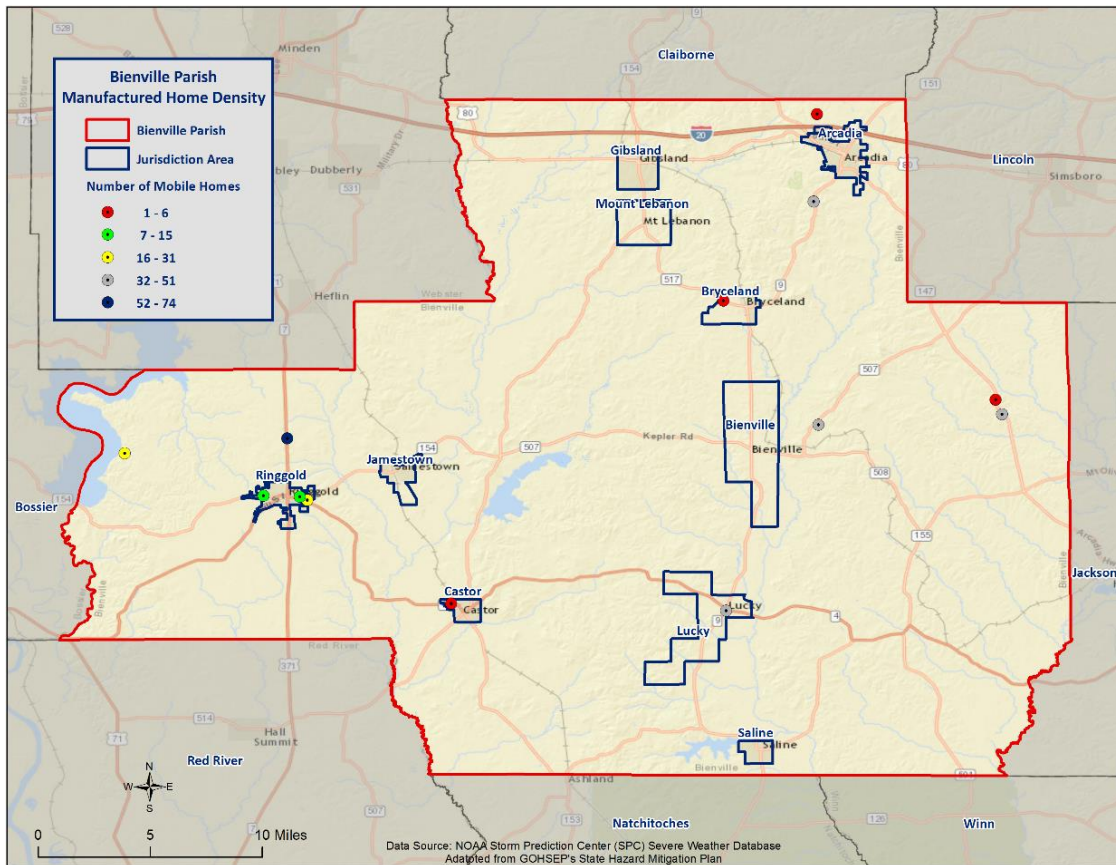


Figure 2-26: Location and Approximate Number of Units in Manufactured Housing Locations throughout Bienville Parish.

### Vulnerability

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

### Tropical Cyclones

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

Table 2-59: Saffir-Simpson Hurricane Wind Scale

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

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

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

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

#### *Location*

Hurricanes are the single biggest threat to the State of Louisiana. With any single hurricane having the potential to devastate multiple parishes at once, the risk of a tropical cyclone has the probability of impacting anywhere within the planning area for Bienville Parish. As such, all jurisdictions are equally at risk for tropical cyclones.

#### *Previous Occurrences / Extents*

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 SHELATUS database reports a total of three tropical cyclone events occurring within the boundaries of Bienville Parish between the years 2002 and 2014 (*Table 2-60*). The tropical cyclone events experienced in Bienville Parish include depressions, storms, and hurricanes. As worst case scenario, Bienville Parish can expect to experience hurricanes at the Category 1 level in the future.



*Table 2-60: Historical Tropical Cyclone Events in Bienville Parish from 2002 - 2015**(Source: SHEL DUS)*

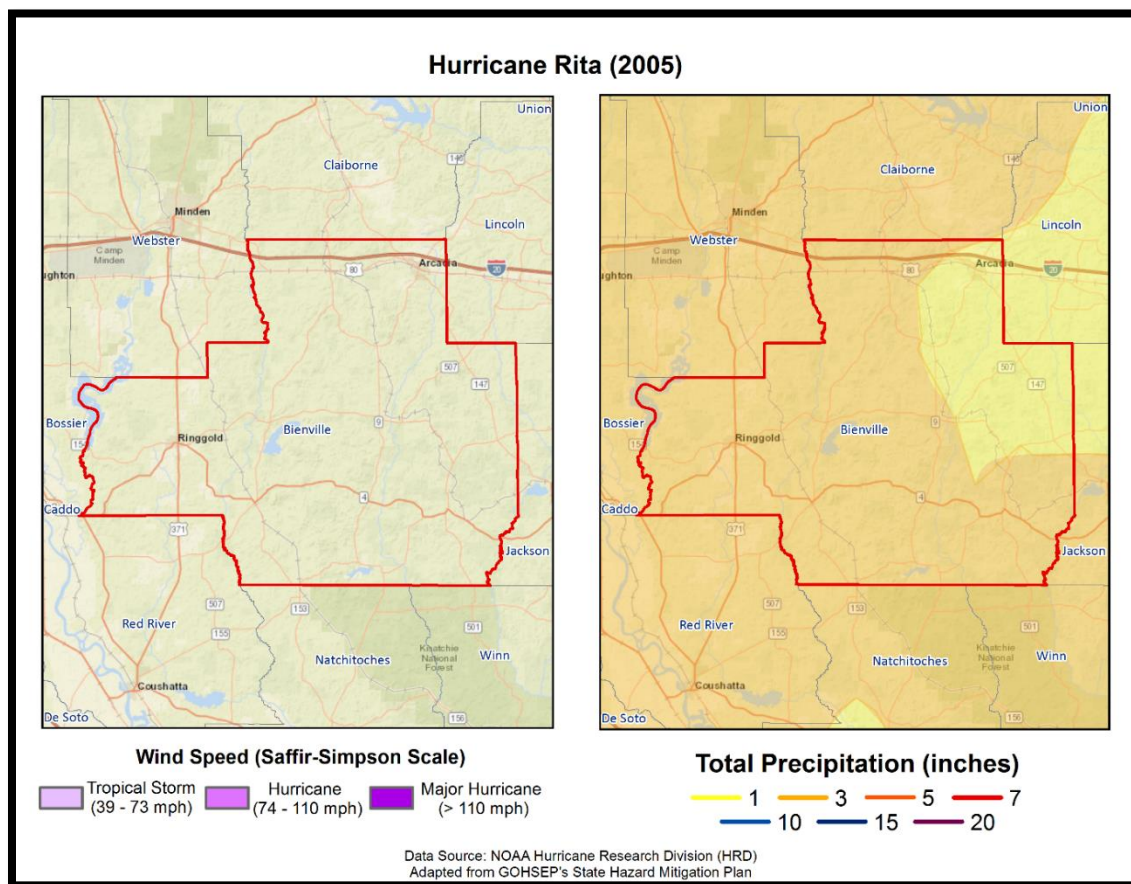
Date	Name	Storm Type At Time of Impact
September 24, 2005	Rita	Hurricane – Category 1
September 1, 2008	Gustav	Tropical Storm
September 13, 2008	Ike	Tropical Storm

#### 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 effect 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 five to seven feet above normal overtopped or breached local drainage levees, inundating many small communities. Newspaper accounts indicated that 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, affecting homes and businesses from Slidell to Mandeville and Madisonville. Approximately 1,500 structures were reported as 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. However, the flooding was much more limited in scope than during Hurricane Katrina.

Hurricane Rita was the most powerful hurricane to impact southwestern Louisiana since Hurricane Audrey in 1957. Estimated damages in southwest Louisiana totaled near \$4 billion, with the majority of those losses occurring in Cameron and Calcasieu Parishes. Entire towns were destroyed in Cameron Parish, including downtown Cameron, Creole, Holly Beach, and Grand Chenier. An estimated 90 to 95 percent of the homes in the parish were severely damaged or destroyed. Storm surge values were estimated around 15 feet in parts of Cameron Parish.

In Bienville Parish, flooding was experienced in the low-lying areas of the parish. Several areas experienced power outages and tree damage.



*Figure 2-27: Wind Speed and Precipitation Totals in Bienville Parish for Hurricane Rita*

#### Hurricane Gustav (2008)

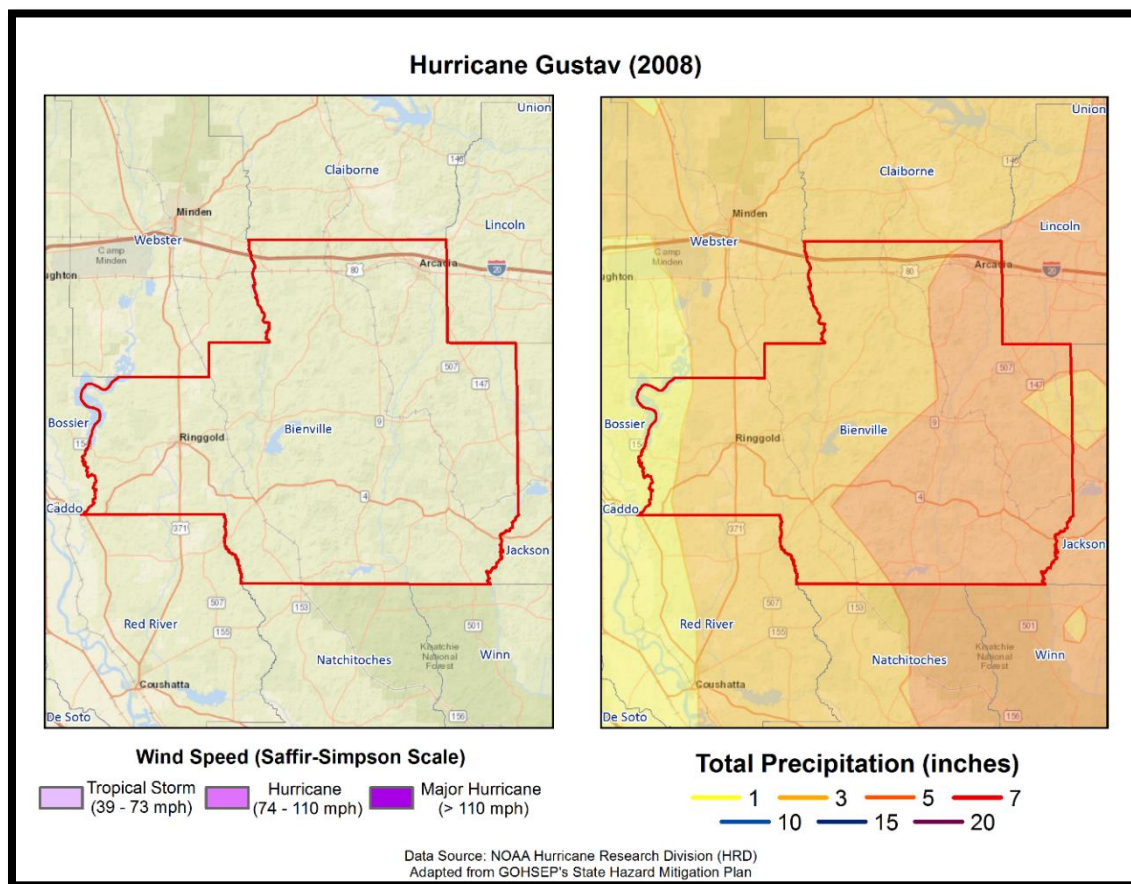
Hurricane Gustav entered the southeast Gulf of Mexico as a major Category 3 hurricane on August 31, 2008, after developing in the Caribbean Sea and moving across western Cuba. Gustav tracked northwestward across the Gulf toward Louisiana and made landfall as a Category 2 hurricane near Cocodrie, Louisiana, 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 117 mph (102 kts) at a USGS site at the Houma Navigational Canal and at the Pilot Station East C-MAN 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 11 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 also across the inland areas, including the Baton Rouge area and surrounding parishes. A peak wind gust of 91 mph was recorded at the Baton Rouge (Ryan Field) Airport at 1:12 PM CST. This was only one mph less than the highest

wind gust recorded during Hurricane Betsy in 1965. After the storm, the electric utility serving most of southeast Louisiana reported 75 to 100 percent of utility customers were without power, in areas ranging from Lafourche and Terrebonne Parishes northwest through the Baton Rouge area to central Louisiana and southwest Mississippi. 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 were also damaged. 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.

In Bienville Parish, tropical storm force winds resulted in numerous trees down across the entire parish. Along with all the downed trees, there were reports of numerous power outages throughout the parish from downed power lines.



*Figure 2-28: Wind Speed and Precipitation Totals in Bienville Parish for Hurricane Gustav*

#### 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 13, 2008, 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 experienced at Lake Charles Regional Airport, with sustained winds of 53 mph (46 kts) and gusts of 77 mph (67 kts). The lowest pressure reading occurred at Southland

Field near Sulphur, LA, with a low of 994.6 millibars. Several tornadoes were reported across southwest Louisiana. The most significant one was near Mamou, where ten to fifteen homes were damaged, including one that lost its roof. Storm surge was a significant event. Water levels ranged from 14 feet in western Cameron Parish, to eight feet in St. Mary Parish. This resulted in widespread flooding of the same areas that flooded during Hurricane Rita in 2005. Most of Cameron Parish was under water. Over 3,000 homes were flooded. This extended north into Calcasieu Parish, where another 1,000 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 1,000 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 were estimated to be almost \$420 million across southwest Louisiana. Agricultural losses were over \$225 million.

In Bienville Parish, remnants of Ike resulted in widespread trees and power lines downed throughout the parish. Power outages were widespread as well with numerous residents without power during the height of the storm and days afterward.

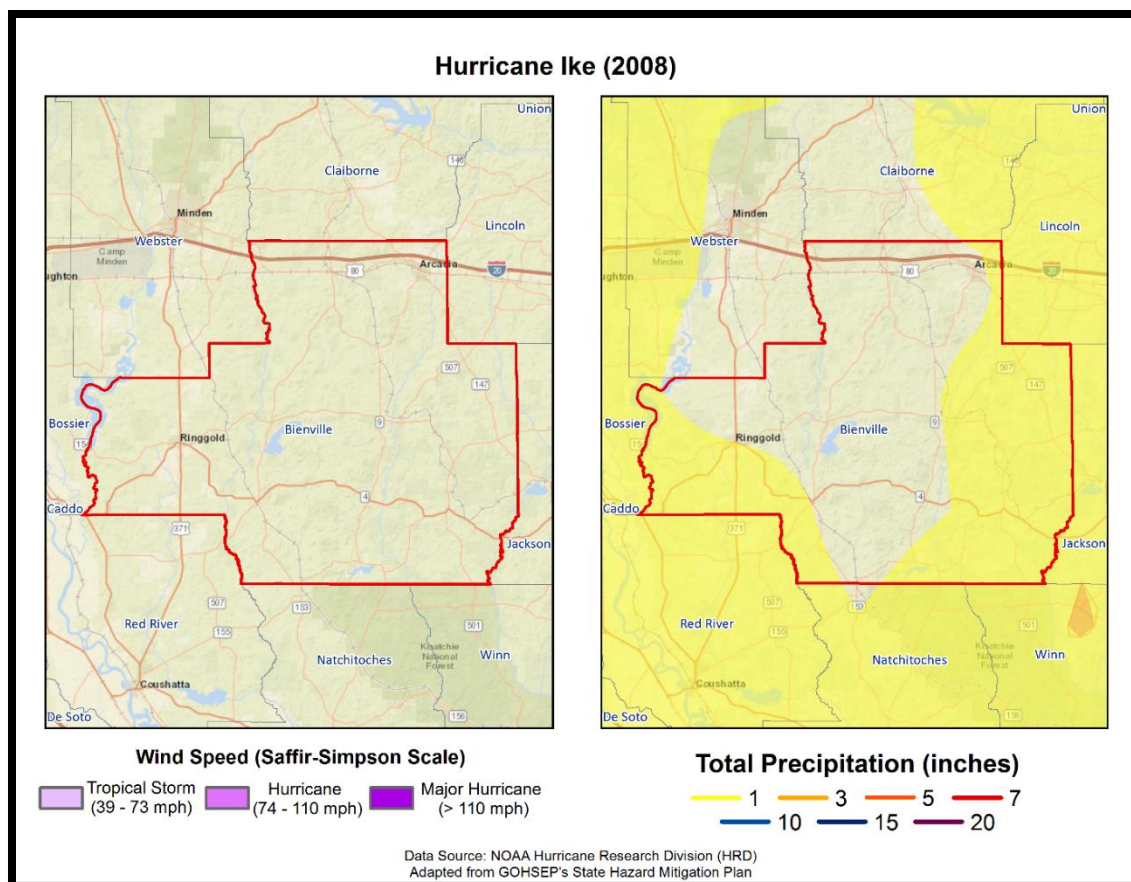


Figure 2-29: Wind Speed and Precipitation Totals in Bienville Parish for Hurricane Ike



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

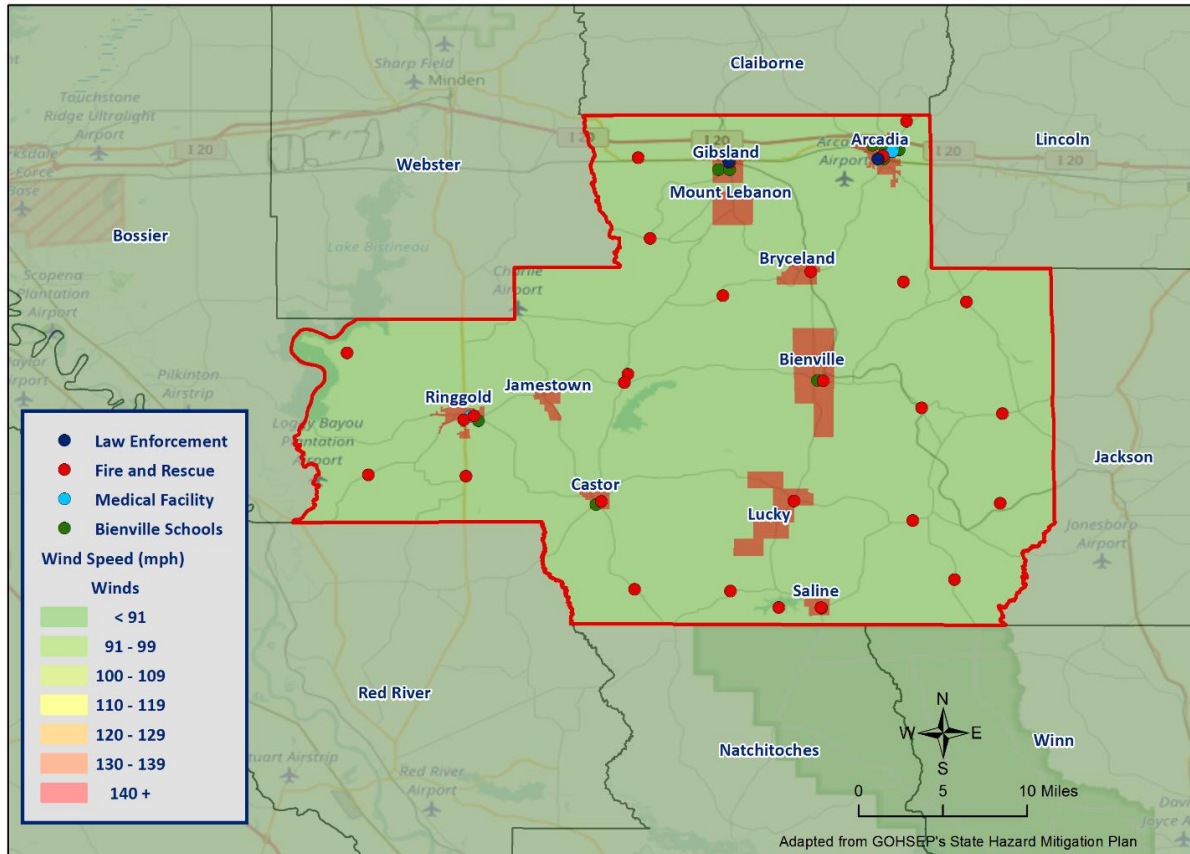


Figure 2-30: Winds Zones for Bienville Parish in Relation to Critical Facilities

#### Frequency / Probability

Tropical cyclones are large natural hazard events that regularly impact Bienville Parish. The annual chance of occurrence for a tropical cyclone is estimated at 12% for Bienville Parish and its municipalities, with three events occurring within 25 years. The tropical cyclone season for the Atlantic Basin is from June 1st through November 30<sup>th</sup>, with most of the major hurricanes (Saffir-Simpson Categories 3, 4, & 5) occurring between the months of August and October.

#### 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. The table on the next page shows the total economic losses that would result from this occurrence.

*Table 2-61: Total Estimated Losses for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

Jurisdiction	Estimated total Losses from 100-Year Hurricane Event
Bienville Parish (Unincorporated)	\$514,959
Arcadia	\$197,655
Bienville	\$14,761
Bryceland	\$7,313
Castor	\$17,470
Gibbsland	\$66,291
Jamestown	\$9,412
Lucky	\$18,418
Mount Lebanon	\$5,620
Ringgold	\$101,231
Saline	\$18,757
<b>Total</b>	<b>\$971,888</b>

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

*Table 2-62: Ratio of Total Losses to Total Estimated Value of Assets for each Jurisdiction in Bienville Parish  
(Source: Hazus 2.2)*

Jurisdiction	Estimated Total Losses from 100-Year Hurricane Event	Total Estimated Value of Assets	Ratio of Estimated Losses to Total Value
Unincorporated	\$514,959	\$1,205,416,000	0.0%
Arcadia	\$197,655	\$446,623,000	0.0%
Bienville	\$14,761	\$30,893,000	0.0%
Bryceland	\$7,313	\$16,209,000	0.0%
Castor	\$17,470	\$23,070,000	0.1%
Gibbsland	\$66,291	\$164,078,000	0.0%
Jamestown	\$9,412	\$14,292,000	0.1%
Lucky	\$18,418	\$28,880,000	0.1%
Mount Lebanon	\$5,620	\$32,560,000	0.0%
Ringgold	\$101,231	\$152,218,000	0.1%
Saline	\$18,757	\$41,371,000	0.0%

Based on the Hazus 2.2 Hurricane Model, estimated total losses range from less than 0.1% to 0.1% of the total estimated value of all assets for the unincorporated area of Bienville Parish, and the incorporated areas of Arcadia, Bienville, Bryceland, Castor, Gibbsland, Jamestown, Lucky, Mount Lebanon, Ringgold, and Saline.

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 pages.

*Table 2-63: Estimated Losses in Unincorporated Bienville Parish for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

Bienville Parish (Unincorporated)	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	\$300
Commercial	\$4,798
Government	\$296
Industrial	\$2,034
Religious / Non-Profit	\$1,592
Residential	\$505,537
Schools	\$402
<b>Total</b>	<b>\$514,959</b>

*Table 2-64: Estimated Losses in Arcadia for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

Arcadia	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	\$115
Commercial	\$1,842
Government	\$113
Industrial	\$781
Religious / Non-Profit	\$611
Residential	\$194,038
Schools	\$154
<b>Total</b>	<b>\$197,655</b>

*Table 2-65: Estimated Losses in Bienville for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

Bienville	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	\$9
Commercial	\$138
Government	\$8
Industrial	\$58
Religious / Non-Profit	\$46
Residential	\$14,491
Schools	\$12
<b>Total</b>	<b>\$14,761</b>

*Table 2-66: Estimated Losses in Bryceland for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

<b>Bryceland</b>	<b>Estimated Total Losses from 100-Year Hurricane Event</b>
Agricultural	\$4
Commercial	\$68
Government	\$4
Industrial	\$29
Religious / Non-Profit	\$23
Residential	\$7,179
Schools	\$6
<b>Total</b>	<b>\$7,313</b>

*Table 2-67: Estimated Losses in Castor for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

<b>Castor</b>	<b>Estimated Total Losses from 100-Year Hurricane Event</b>
Agricultural	\$10
Commercial	\$163
Government	\$10
Industrial	\$69
Religious / Non-Profit	\$54
Residential	\$17,150
Schools	\$14
<b>Total</b>	<b>\$17,470</b>

*Table 2-68: Estimated Losses in Gibsland for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

<b>Gibsland</b>	<b>Estimated Total Losses from 100-Year Hurricane Event</b>
Agricultural	\$39
Commercial	\$618
Government	\$38
Industrial	\$262
Religious / Non-Profit	\$205
Residential	\$65,078
Schools	\$52
<b>Total</b>	<b>\$66,291</b>



*Table 2-69: Estimated Losses in Jamestown for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

<b>Jamestown</b>	<b>Estimated Total Losses from 100-Year Hurricane Event</b>
Agricultural	\$5
Commercial	\$88
Government	\$5
Industrial	\$37
Religious / Non-Profit	\$29
Residential	\$9,240
Schools	\$7
<b>Total</b>	<b>\$9,412</b>

*Table 2-70: Estimated Losses in Lucky for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

<b>Lucky</b>	<b>Estimated Total Losses from 100-Year Hurricane Event</b>
Agricultural	\$11
Commercial	\$172
Government	\$11
Industrial	\$73
Religious / Non-Profit	\$57
Residential	\$18,081
Schools	\$14
<b>Total</b>	<b>\$18,418</b>

*Table 2-71: Estimated Losses in Mount Lebanon for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

<b>Mount Lebanon</b>	<b>Estimated Total Losses from 100-Year Hurricane Event</b>
Agricultural	\$3
Commercial	\$52
Government	\$3
Industrial	\$22
Religious / Non-Profit	\$17
Residential	\$5,517
Schools	\$4
<b>Total</b>	<b>\$5,620</b>

*Table 2-72: Estimated Losses in Ringgold for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

Ringgold	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	\$59
Commercial	\$943
Government	\$58
Industrial	\$400
Religious / Non-Profit	\$313
Residential	\$99,379
Schools	\$79
<b>Total</b>	<b>\$101,231</b>

*Table 2-73: Estimated Losses in Saline for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

Saline	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	\$11
Commercial	\$175
Government	\$11
Industrial	\$74
Religious / Non-Profit	\$58
Residential	\$18,413
Schools	\$15
<b>Total</b>	<b>\$18,757</b>

*Threat to People*

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

*Table 2-74: Number of People Susceptible to a 100-Year Hurricane Event in Bienville Parish  
(Source: Hazus 2.2)*

Number of People Exposed to Hurricane Hazards			
Location	# in Community	# in Hazard Area	% in Hazard Area
Bienville Parish (Unincorporated)	7,605	7,605	100.0%
Arcadia	2,919	2,919	100.0%
Bienville	218	218	100.0%
Bryceland	108	108	100.0%
Castor	258	258	100.0%
Gibbsland	979	979	100.0%
Jamestown	139	139	100.0%
Lucky	272	272	100.0%
Mount Lebanon	83	83	100.0%
Ringgold	1,495	1,495	100.0%
Saline	277	277	100.0%
<b>Total</b>	<b>14,353</b>	<b>14,353</b>	<b>100.0%</b>

The HAZUS-MH hurricane model was also extrapolated to provide an overview of vulnerable populations throughout the jurisdictions. These populations are illustrated in the following tables:

*Table 2-75: Vulnerable Populations in Unincorporated Bienville Parish for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

Bienville Parish (Unincorporated)		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	7,605	100.0%
Persons Under 5 Years	448	5.9%
Persons Under 18 Years	1,322	17.4%
Persons 65 Years and Over	1,405	18.5%
White	4,204	55.3%
Minority	3,401	44.7%

*Table 2-76: Vulnerable Populations in Arcadia for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

Arcadia		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	2,919	100.0%
Persons Under 5 Years	192	6.6%
Persons Under 18 Years	564	19.3%
Persons 65 Years and Over	565	19.4%
White	932	31.9%
Minority	1,987	68.1%

*Table 2-77: Vulnerable Populations in Bienville for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

Bienville		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	218	100.0%
Persons Under 5 Years	8	3.7%
Persons Under 18 Years	25	11.5%
Persons 65 Years and Over	34	15.6%
White	141	64.7%
Minority	77	35.3%

*Table 2-78: Vulnerable Populations in Bryceland for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

Bryceland		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	108	100.0%
Persons Under 5 Years	13	12.0%
Persons Under 18 Years	7	6.5%
Persons 65 Years and Over	28	25.9%
White	82	75.9%
Minority	26	24.1%

*Table 2-79: Vulnerable Populations in Castor for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

Castor		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	258	100.0%
Persons Under 5 Years	18	7.0%
Persons Under 18 Years	60	23.3%
Persons 65 Years and Over	38	14.7%
White	229	88.8%
Minority	29	11.2%

*Table 2-80: Vulnerable Populations in Gibsland for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

Gibsland		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	979	100.0%
Persons Under 5 Years	60	6.1%
Persons Under 18 Years	172	17.6%
Persons 65 Years and Over	195	20.0%
White	158	16.1%
Minority	821	83.9%

*Table 2-81: Vulnerable Populations in Jamestown for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

Jamestown		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	139	100.0%
Persons Under 5 Years	7	5.0%
Persons Under 18 Years	26	18.7%
Persons 65 Years and Over	20	14.4%
White	132	95.0%
Minority	7	5.0%



*Table 2-82: Vulnerable Populations in Lucky for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

Lucky		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	272	100.0%
Persons Under 5 Years	11	4.0%
Persons Under 18 Years	58	21.3%
Persons 65 Years and Over	43	15.8%
White	89	32.7%
Minority	183	67.3%

*Table 2-83: Vulnerable Populations in Mount Lebanon for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

Mount Lebanon		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	83	100.0%
Persons Under 5 Years	0	0.0%
Persons Under 18 Years	16	19.3%
Persons 65 Years and Over	12	14.5%
White	69	83.1%
Minority	14	16.9%

*Table 2-84: Vulnerable Populations in Ringgold for a 100-Year Hurricane Event  
(Source: Hazus 2.2)*

Ringgold		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	1,495	100.0%
Persons Under 5 Years	95	6.4%
Persons Under 18 Years	294	19.7%
Persons 65 Years and Over	292	19.5%
White	596	39.9%
Minority	899	60.1%

*Table 2-85: Vulnerable Populations in Saline for a 100-Year Hurricane Event*  
*(Source: Hazus 2.2)*

Saline		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	277	100.0%
Persons Under 5 Years	20	7.2%
Persons Under 18 Years	55	19.9%
Persons 65 Years and Over	37	13.4%
White	211	76.2%
Minority	66	23.8%

#### *Vulnerability*

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

### Wildfires

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

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

According to the State of Louisiana Forestry Division, most forest fires in Louisiana are caused by intentional acts (arson) or carelessness and negligence committed by people, exacerbated by human confrontation with nature. The wildland–urban interface is the area in which development meets wildland vegetation, where both vegetation and the built environment provide fuel for fires. As development near wildland settings continues, more people and property are exposed to wildfire danger. [Figure 2-31](#) displays the areas of wildland-urban interaction in Bienville 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 next page summarizes the intensity levels assigned to areas in the Southern Wildfire Assessment Portal.

Table 2-86: 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 direct wildfire impacts. Location has a minimal chance of being directly impacted by a wildfire.
2	Low Intensity: Small flames usually less than two feet long; small amount of very short range spotting possible. Fires are easy to suppress.
3	Moderate Intensity: Flames up to eight feet in length; short-range spotting is possible.
4	High Intensity: Large flames up to 30 feet in length; short-range spotting common; medium range spotting possible.
5	Highest Intensity: Very large flames up to 150 feet in length; profuse short-range spotting, frequent long-range spotting; strong fire induced winds.

### Location

Wildfires impact areas that are populated with forests and grasslands. The following figure displays the areas of wildland-urban interface and intermix in Bienville Parish and its jurisdictions.

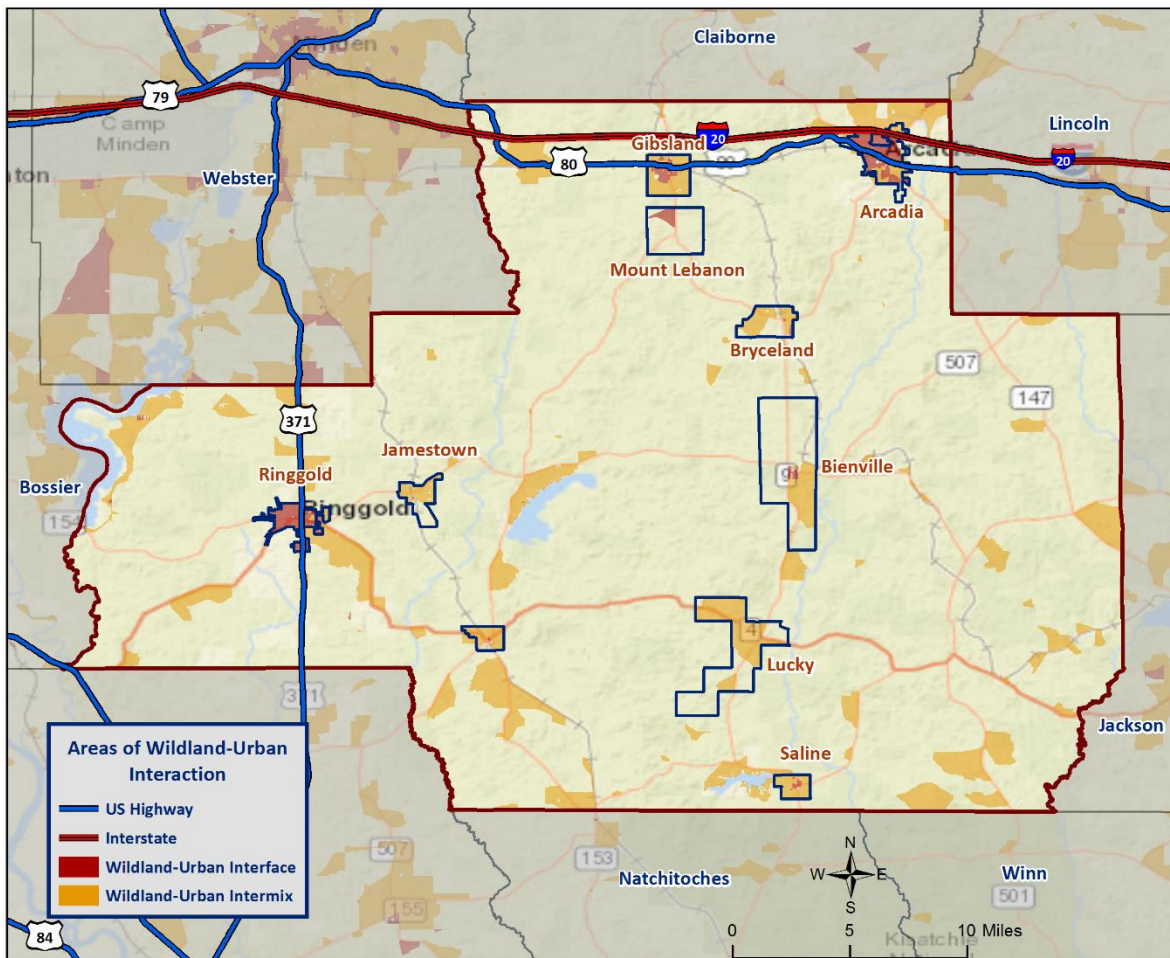


Figure 2-31: Wildland-Urban Interaction in Bienville Parish



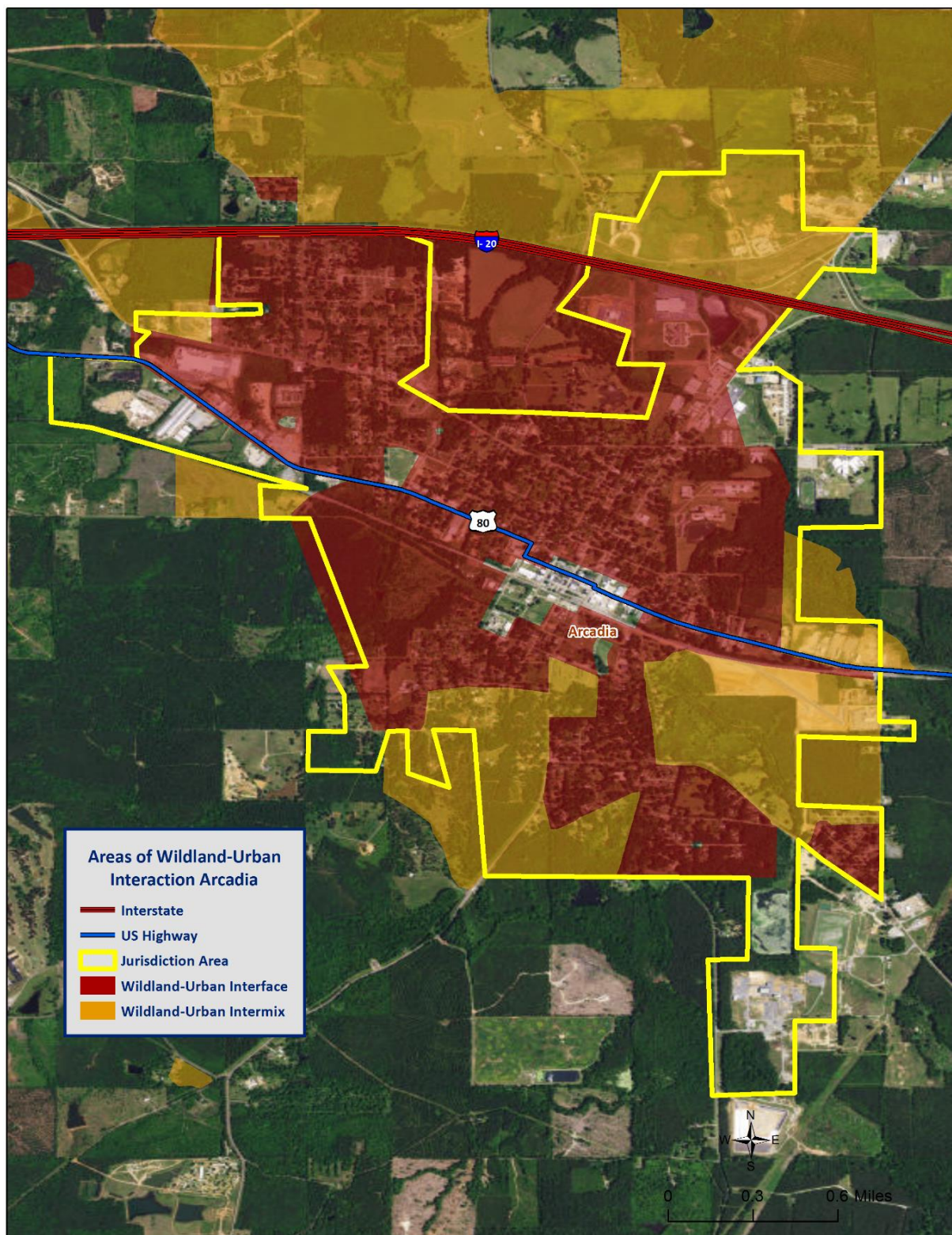


Figure 2-32: Wildland-Urban Interaction in Arcadia



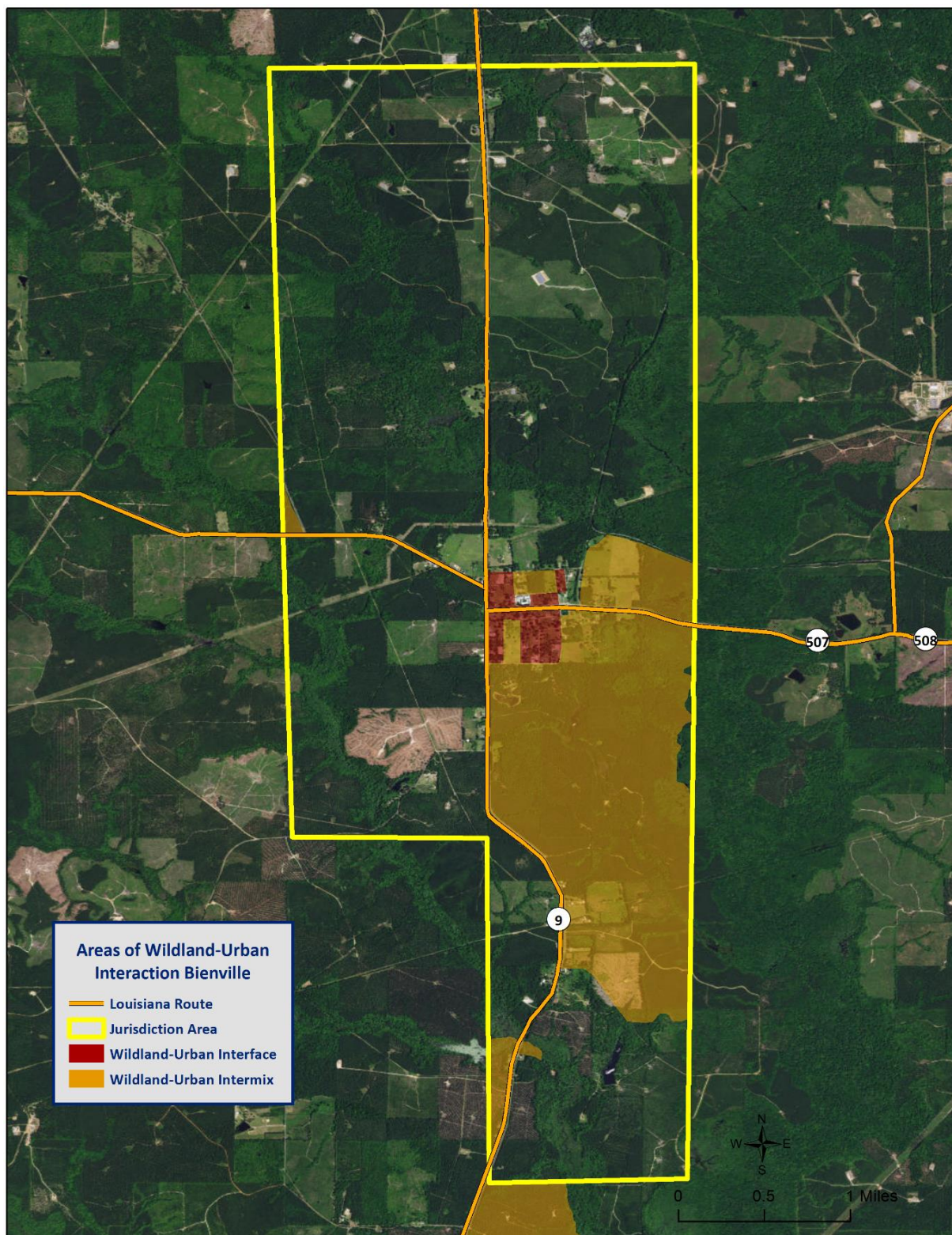


Figure 2-33: Wildland-Urban Interaction in Bienville



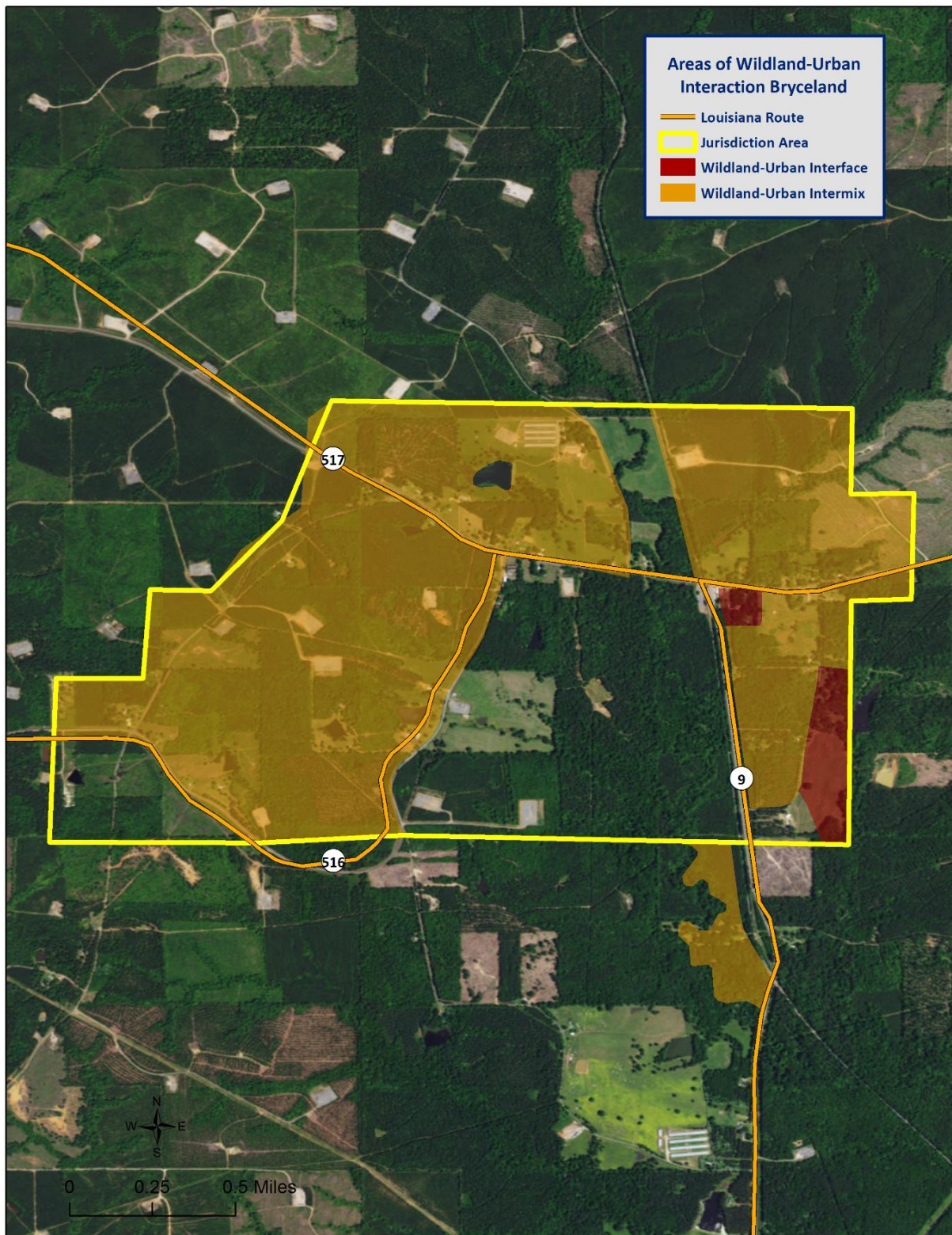


Figure 2-34: Wildland-Urban Interaction in Bryceland



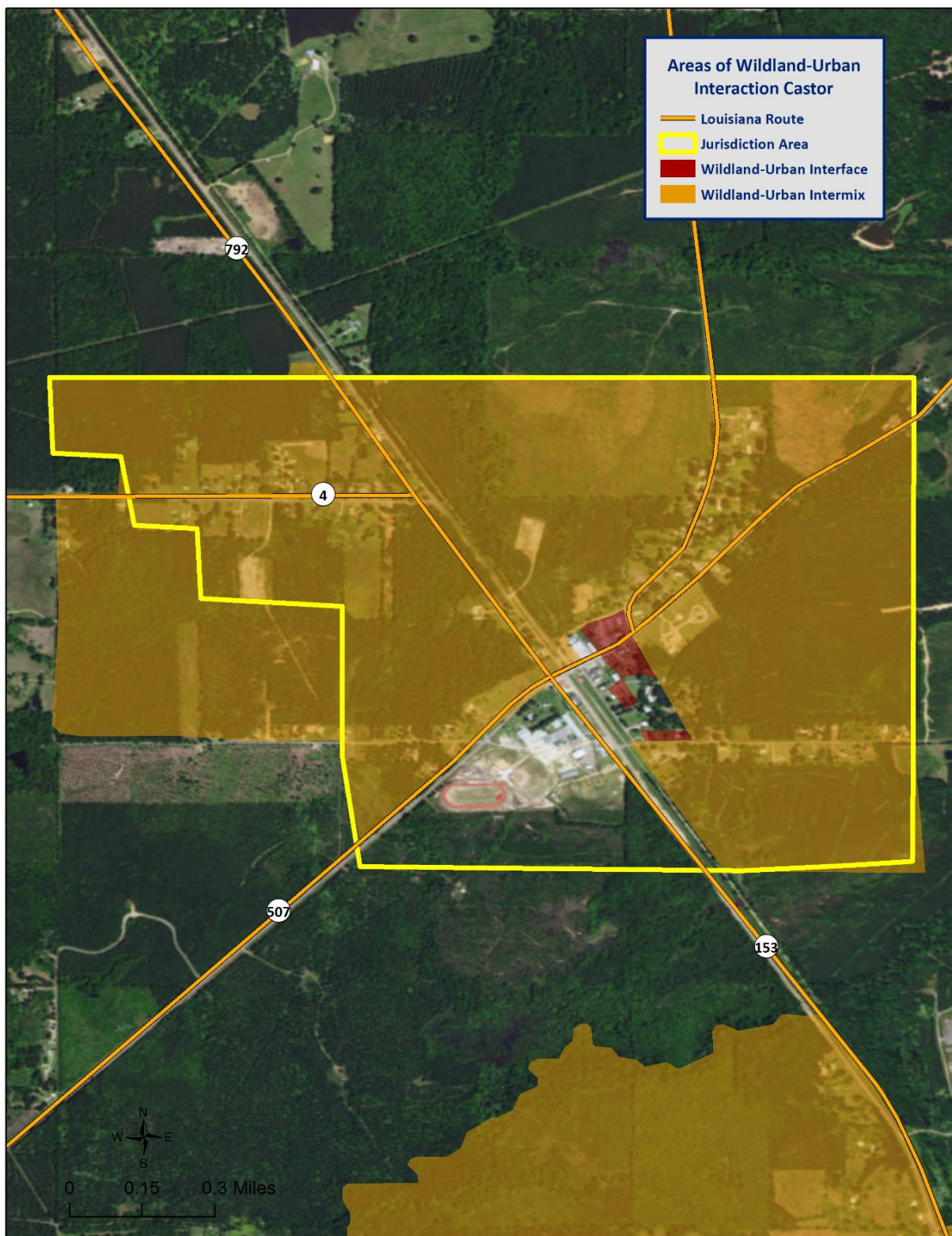


Figure 2-35: Wildland-Urban Interaction in Castor



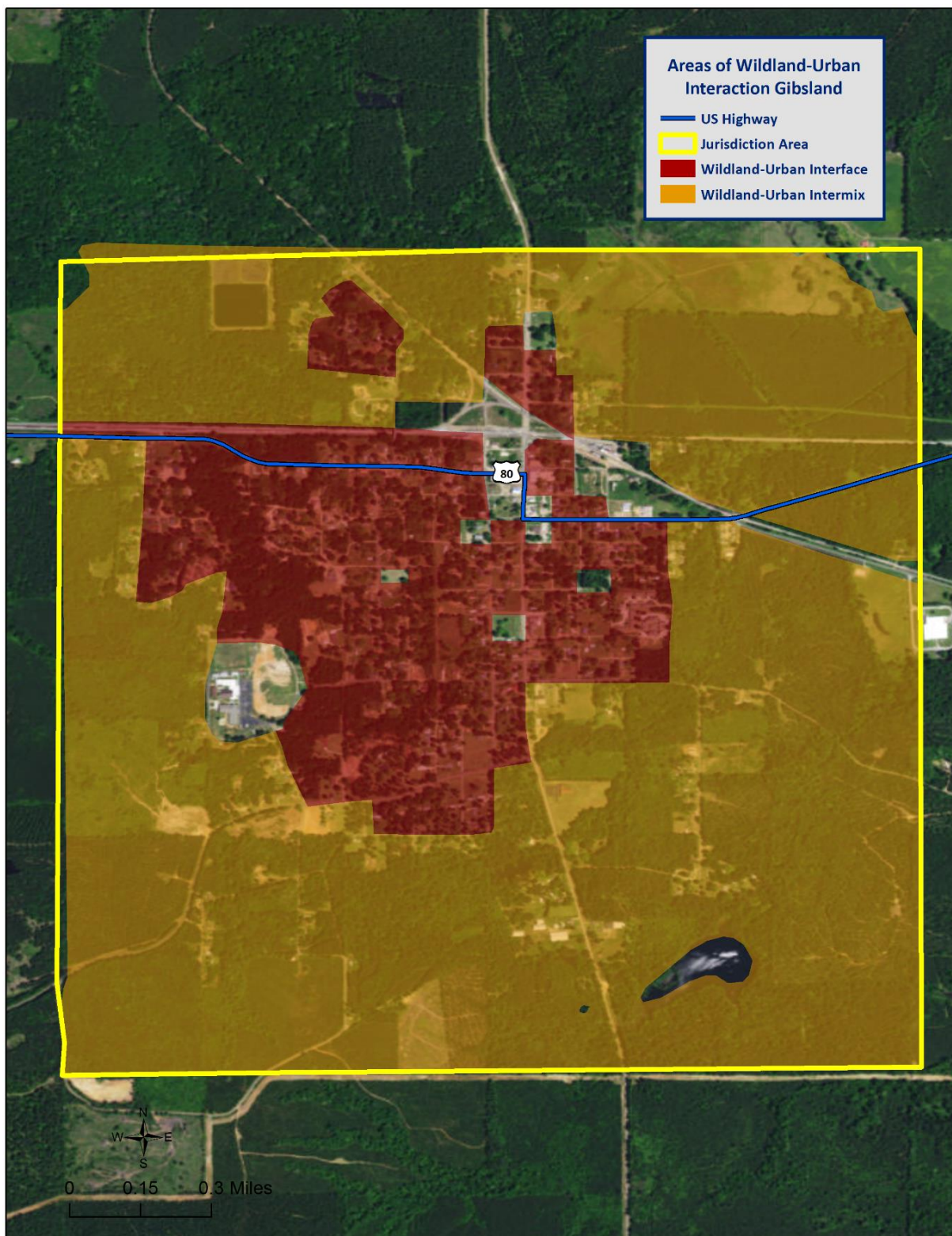


Figure 2-36: Wildland-Urban Interaction in Gibsland



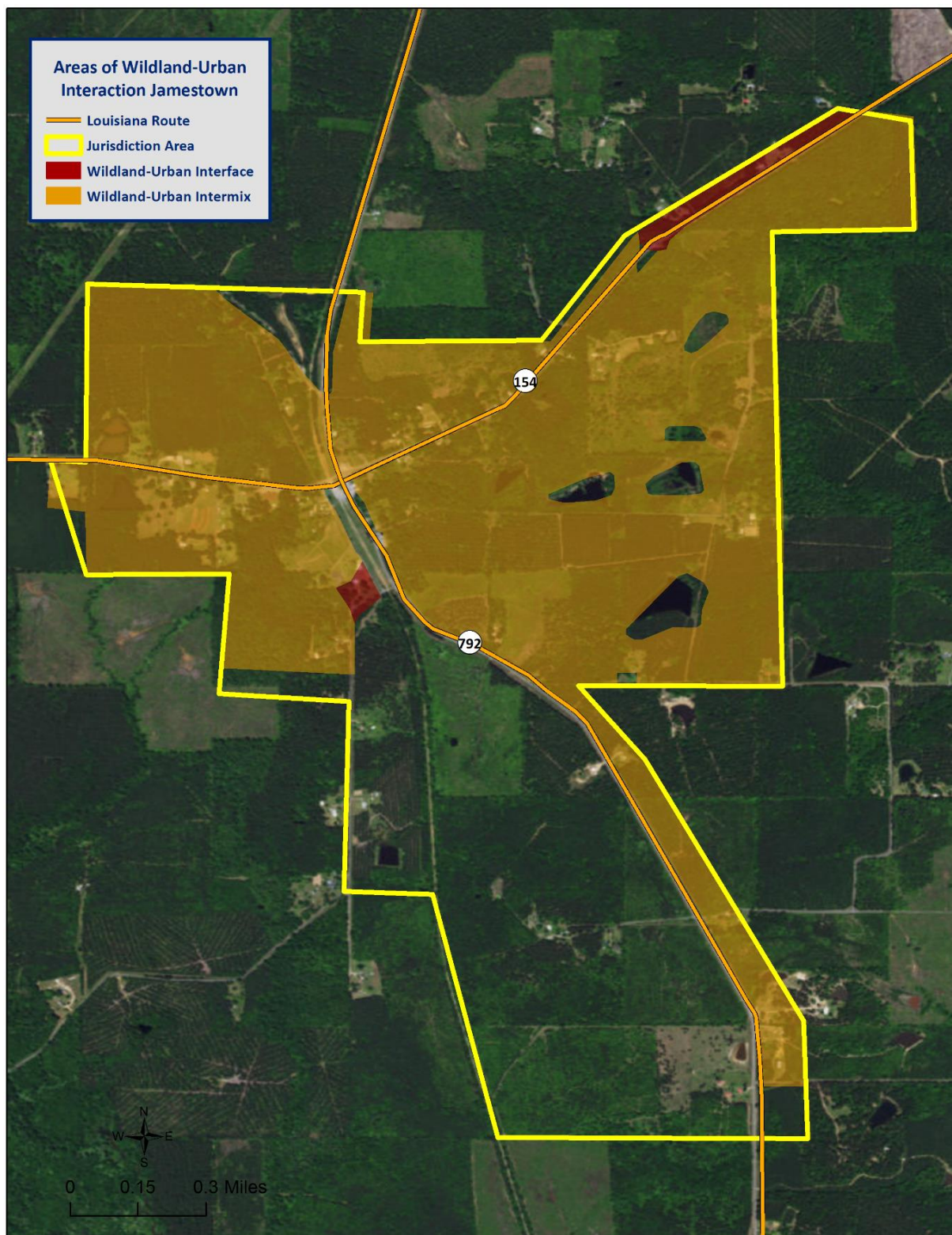


Figure 2-37: Wildland-Urban Interaction in Jamestown



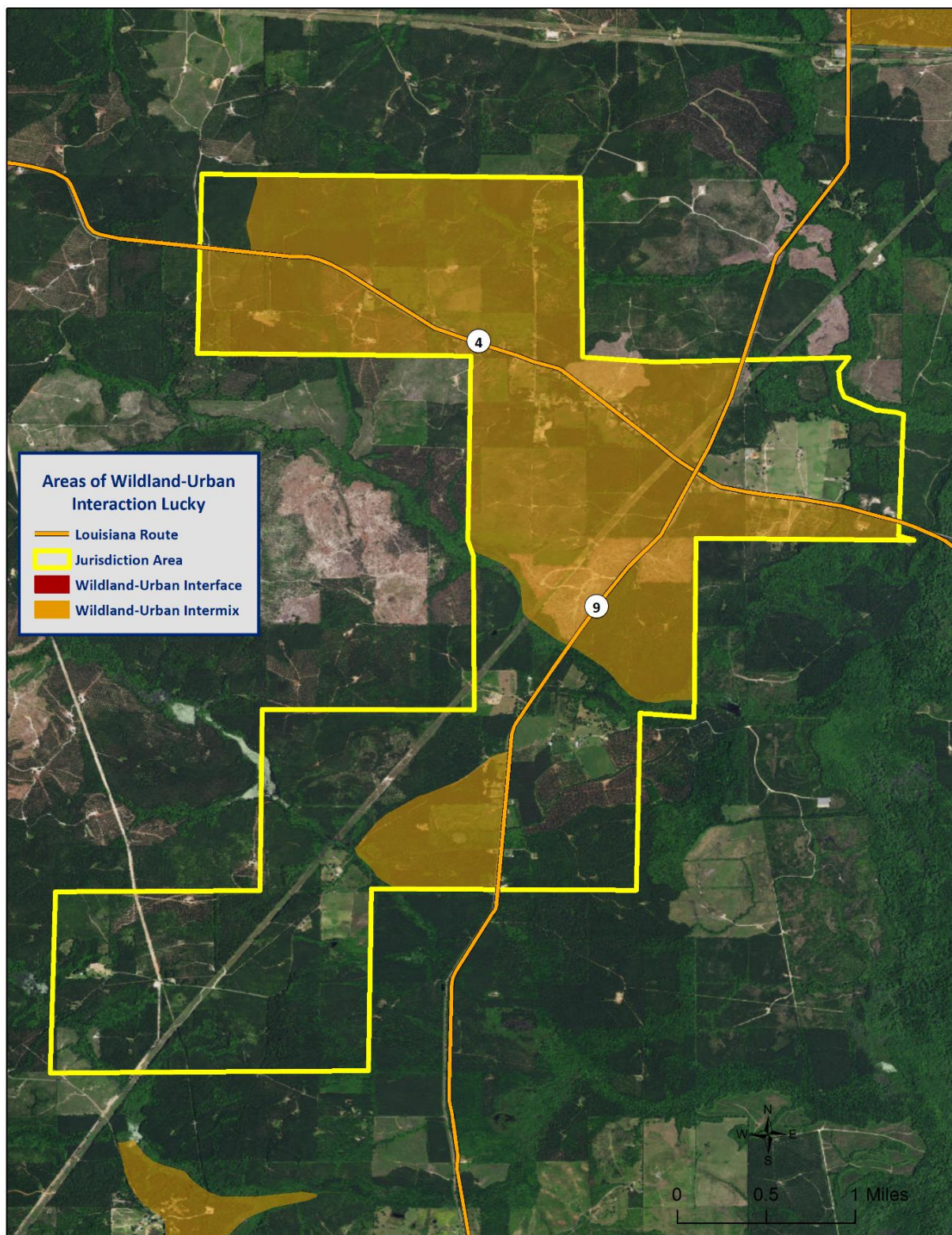


Figure 2-38: Wildland-Urban Interaction in Lucky



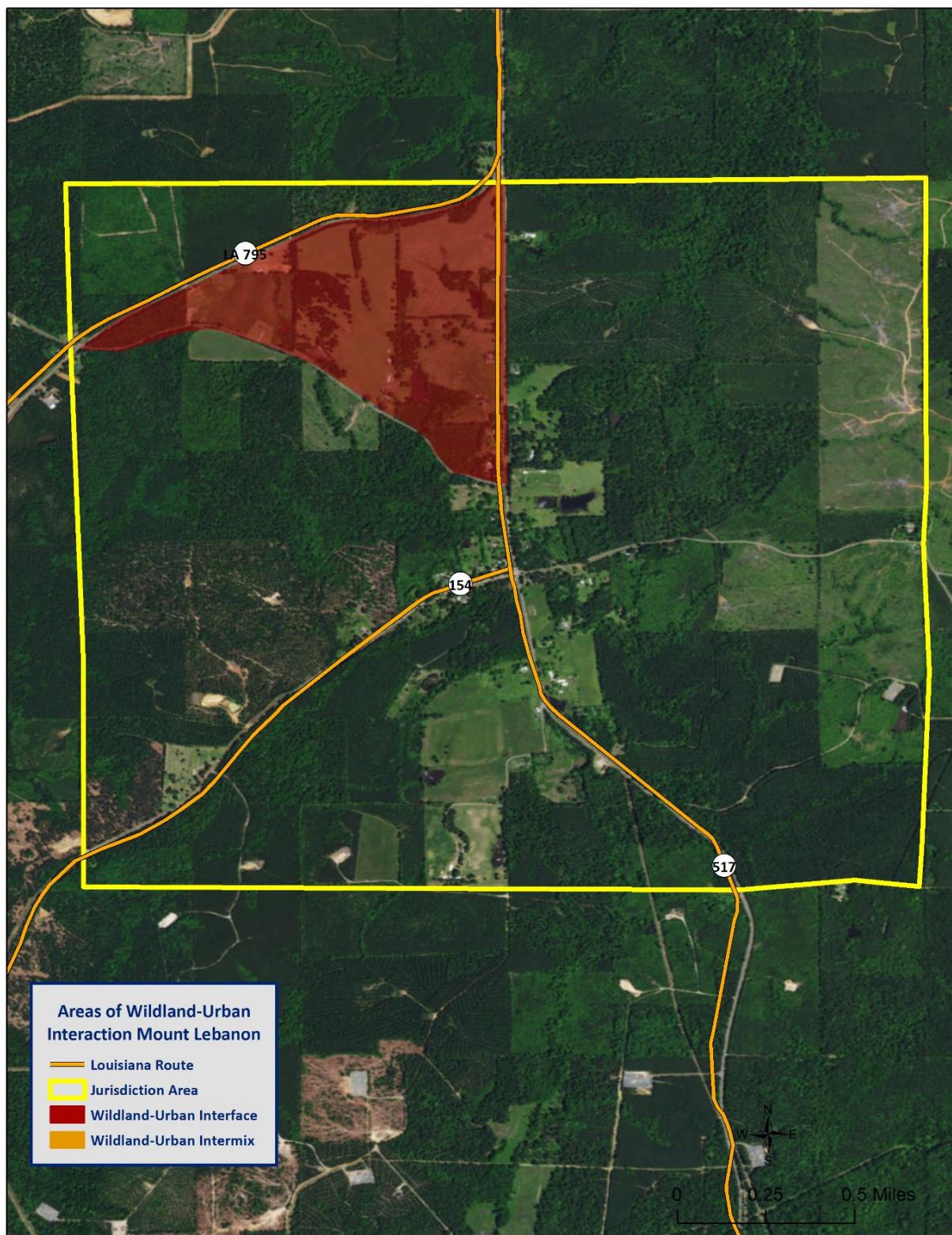


Figure 2-39: Wildland-Urban Interaction in Mount Lebanon



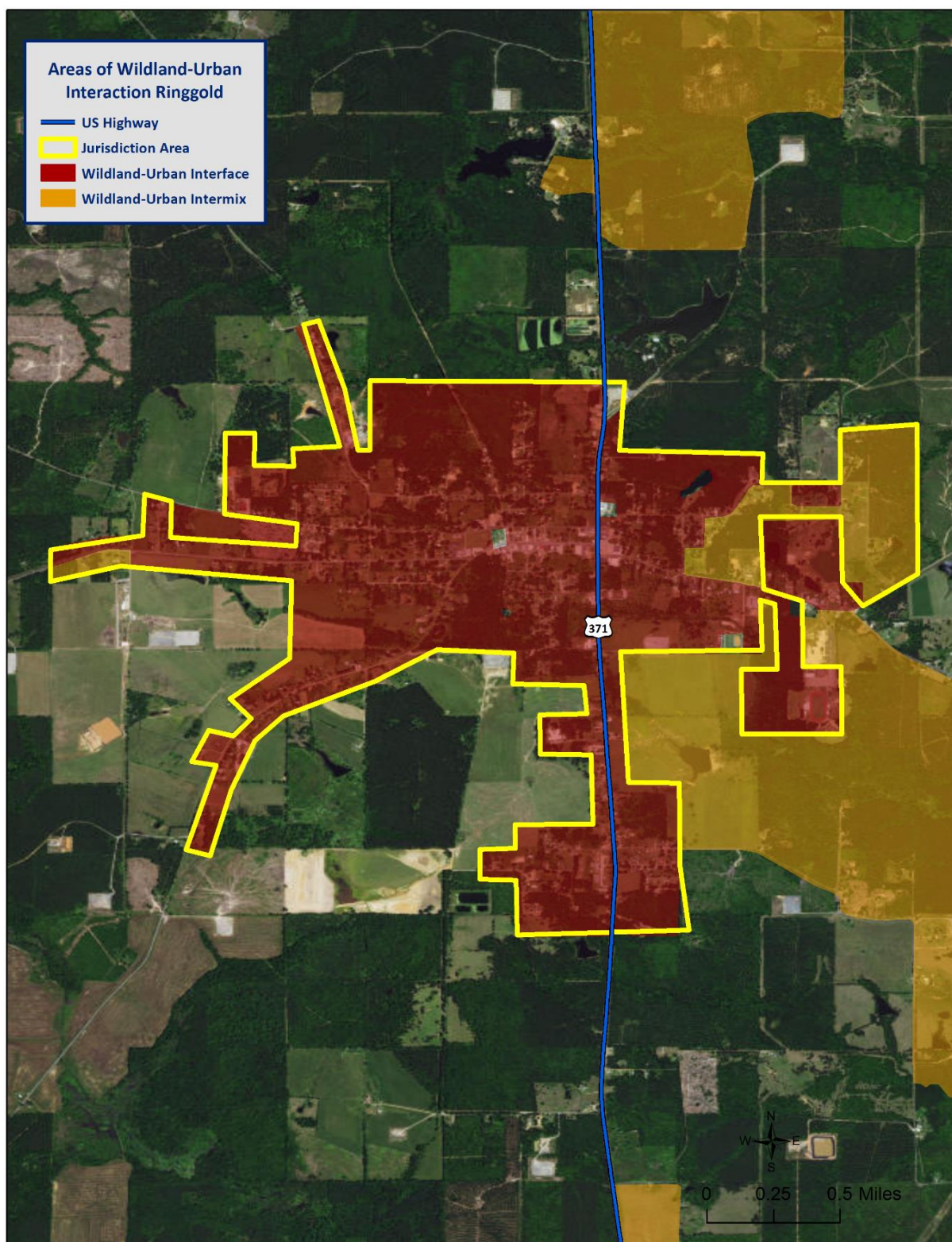


Figure 2-40: Wildland-Urban Interaction in Ringgold



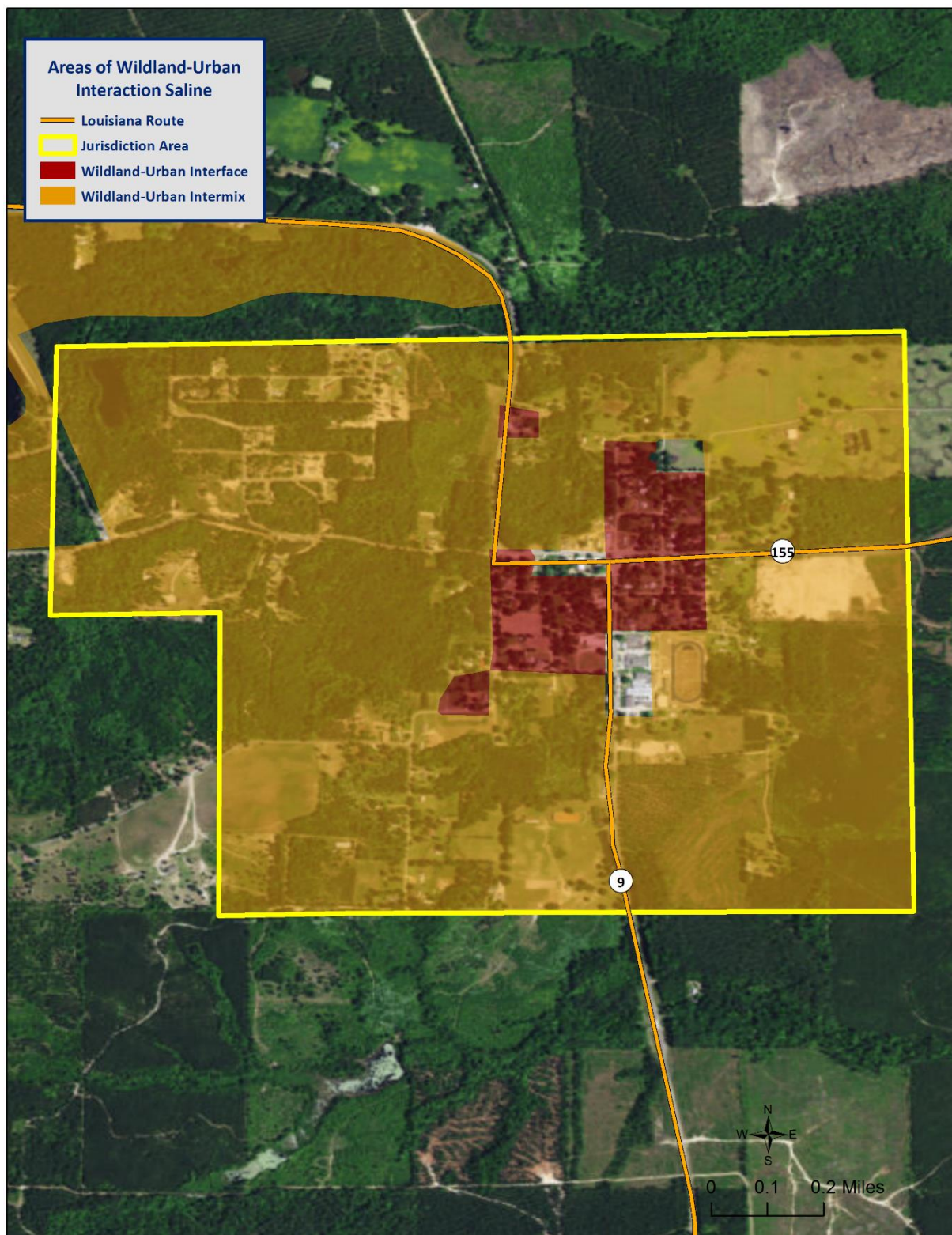


Figure 2-41: Wildland-Urban Interaction in Saline



### *Previous Occurrences / Extents*

There have been no reported wildfire events that have occurred within the boundaries of Bienville Parish between the years of 1990 and 2015.

Since 2010, there have been no reported wildfire events in the Bienville Parish planning area.

Based on the Southern Group of State Foresters Risk Assessment Portal, the following table outlines the intensity that each jurisdictional area within Bienville Parish could potential experience due to a wildfire event.

*Table 2-87: Potential Wildfire Intensity Levels for Bienville Parish  
(Source: Southern Wildfire Assessment Portal)*

Potential Wildfire Intensity	
Bienville Parish (Unincorporated)	Highest Intensity Level 5
Arcadia	Moderate Intensity Level 3
Bienville	Moderate Intensity Level 3
Bryceland	Moderate to High Intensity Level 3.5
Castor	Low Intensity Level 2
Gibbsland	Moderate Intensity Level 3
Jamestown	Low Intensity Level 2
Lucky	Moderate to High Intensity Level 3.5
Mount Lebanon	Low Intensity Level 2
Ringgold	Low Intensity Level 2
Saline	Moderate to High Intensity Level 3.5

### *Frequency / Probability*

With no recorded events in 25 years, wildfire events within the boundaries of Bienville Parish have an annual chance of occurrence calculated at less than 1%.

### *Estimated Potential Losses*

There have been no wildfire events that have caused property damage, crop damage, injuries, or fatalities in Bienville 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. [Figure 2-31](#) displays the areas of wildland-urban interaction in Bienville Parish.

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

*Table 2-88: Total Building Exposure by Wildland-Urban Interaction Areas  
(Source: Hazus 2.2)*

Jurisdiction	Estimated Total Building Exposure
Bienville Parish (Unincorporated)	\$435,519,000
Arcadia	\$390,921,000
Bienville	\$19,959,000
Bryceland	\$14,963,000
Castor	\$22,228,000
Gibbsland	\$155,573,000
Jamestown	\$10,620,000
Lucky	\$19,260,000
Mount Lebanon	\$3,544,000
Ringgold	\$148,914,000
Saline	\$37,197,000
<b>Total</b>	<b>\$1,258,698,000</b>

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 is listed in the following tables:

*Table 2-89: Estimated Exposure for Unincorporated Bienville Parish by Sector  
(Source: Hazus 2.2)*

Bienville Parish (Unincorporated)	Estimated Total Building Exposure by Sector
Agricultural	\$382,000
Commercial	\$21,044,000
Government	\$86,000
Industrial	\$5,163,000
Religious / Non-Profit	\$10,488,000
Residential	\$394,920,000
Schools	\$3,436,000
<b>Total</b>	<b>\$435,519,000</b>

Table 2-90: Estimated Exposure for Arcadia by Sector

(Source: Hazus 2.2)

Arcadia	Estimated Total Building Exposure by Sector
Agricultural	\$280,000
Commercial	\$82,608,000
Government	\$3,141,000
Industrial	\$35,540,000
Religious / Non-Profit	\$17,942,000
Residential	\$247,692,000
Schools	\$3,718,000
<b>Total</b>	<b>\$390,921,000</b>

Table 2-91: Estimated Exposure for Bienville by Sector

(Source: Hazus 2.2)

Bienville	Estimated Total Building Exposure by Sector
Agricultural	\$0
Commercial	\$1,156,000
Government	\$346,000
Industrial	\$0
Religious / Non-Profit	\$0
Residential	\$18,457,000
Schools	\$0
<b>Total</b>	<b>\$19,959,000</b>

Table 2-92: Estimated Exposure for Bryceland by Sector

(Source: Hazus 2.2)

Bryceland	Estimated Total Building Exposure by Sector
Agricultural	\$0
Commercial	\$890,000
Government	\$0
Industrial	\$0
Religious / Non-Profit	\$0
Residential	\$14,073,000
Schools	\$0
<b>Total</b>	<b>\$14,963,000</b>

*Table 2-93: Estimated Exposure for Castor by Sector**(Source: Hazus 2.2)*

<b>Castor</b>	<b>Estimated Total Building Exposure by Sector</b>
Agricultural	\$0
Commercial	\$0
Government	\$520,000
Industrial	\$0
Religious / Non-Profit	\$0
Residential	\$21,708,000
Schools	\$0
<b>Total</b>	<b>\$22,228,000</b>

*Table 2-94: Estimated Exposure for Gibsland by Sector**(Source: Hazus 2.2)*

<b>Gibsland</b>	<b>Estimated Total Building Exposure by Sector</b>
Agricultural	\$0
Commercial	\$3,760,000
Government	\$166,000
Industrial	\$1,117,000
Religious / Non-Profit	\$5,416,000
Residential	\$145,114,000
Schools	\$0
<b>Total</b>	<b>\$155,573,000</b>

*Table 2-95: Estimated Exposure for Jamestown by Sector**(Source: Hazus 2.2)*

<b>Jamestown</b>	<b>Estimated Total Building Exposure by Sector</b>
Agricultural	\$0
Commercial	\$0
Government	\$346,000
Industrial	\$0
Religious / Non-Profit	\$0
Residential	\$10,274,000
Schools	\$0
<b>Total</b>	<b>\$10,620,000</b>



*Table 2-96: Estimated Exposure for Lucky by Sector**(Source: Hazus 2.2)*

<b>Lucky</b>	<b>Estimated Total Building Exposure by Sector</b>
Agricultural	\$0
Commercial	\$0
Government	\$0
Industrial	\$0
Religious / Non-Profit	\$0
Residential	\$19,260,000
Schools	\$0
<b>Total</b>	<b>\$19,260,000</b>

*Table 2-97: Estimated Exposure for Mount Lebanon by Sector**(Source: Hazus 2.2)*

<b>Mount Lebanon</b>	<b>Estimated Total Building Exposure by Sector</b>
Agricultural	\$0
Commercial	\$0
Government	\$0
Industrial	\$0
Religious / Non-Profit	\$0
Residential	\$3,544,000
Schools	\$0
<b>Total</b>	<b>\$3,544,000</b>

*Table 2-98: Estimated Exposure for Ringgold by Sector**(Source: Hazus 2.2)*

<b>Ringgold</b>	<b>Estimated Total Building Exposure by Sector</b>
Agricultural	\$280,000
Commercial	\$23,577,000
Government	\$778,000
Industrial	\$2,181,000
Religious / Non-Profit	\$8,746,000
Residential	\$113,352,000
Schools	\$0
<b>Total</b>	<b>\$148,914,000</b>

Table 2-99: Estimated Exposure for Saline by Sector

(Source: Hazus 2.2)

Saline	Estimated Total Building Exposure by Sector
Agricultural	\$0
Commercial	\$3,624,000
Government	\$0
Industrial	\$0
Religious / Non-Profit	\$0
Residential	\$33,573,000
Schools	\$0
<b>Total</b>	<b>\$37,197,000</b>

*Threat to People*

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

Table 2-100: 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
Bienville Parish (Unincorporated)	7,605	1,335	17.6%
Arcadia	2,919	2,497	85.5%
Bienville	218	62	28.4%
Bryceland	108	21	19.4%
Castor	258	20	7.8%
Gibbsland	979	800	81.7%
Jamestown	139	5	3.6%
Lucky	272	16	5.9%
Mount Lebanon	83	18	21.7%
Ringgold	1,495	801	53.6%
Saline	277	118	42.6%
<b>Total</b>	<b>14,353</b>	<b>4,756</b>	<b>33.1%</b>

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

*Table 2-101: Population in Unincorporated Bienville Parish Located within a Wildland-Urban Interaction Area*

*(Source: 2010 U.S. Census Data)*

Bienville Parish (Unincorporated)		
Category	Total Numbers	Percentage of People in Wildland-Urban Interaction Area
Number in Hazard Area	1,335	17.6%
Persons Under 5 Years	79	5.9%
Persons Under 18 Years	232	17.4%
Persons 65 Years and Over	247	18.5%
White	738	55.3%
Minority	597	44.7%

*Table 2-102: Population in Arcadia Located within a Wildland-Urban Interaction Area*

*(Source: 2010 U.S. Census Data)*

Arcadia		
Category	Total Numbers	Percentage of People in Wildland-Urban Interaction Area
Number in Hazard Area	2,497	85.5%
Persons Under 5 Years	164	6.6%
Persons Under 18 Years	482	19.3%
Persons 65 Years and Over	483	19.4%
White	797	31.9%
Minority	1,700	68.1%

*Table 2-103: Population in Bienville Located within a Wildland-Urban Interaction Area*

*(Source: 2010 U.S. Census Data)*

Bienville		
Category	Total Numbers	Percentage of People in Wildland-Urban Interaction Area
Number in Hazard Area	62	28.4%
Persons Under 5 Years	2	3.7%
Persons Under 18 Years	7	11.5%
Persons 65 Years and Over	10	15.6%
White	40	64.7%
Minority	22	35.3%

*Table 2-104: Population in Bryceland Located within a Wildland-Urban Interaction Area  
(Source: 2010 U.S. Census Data)*

Bryceland		
Category	Total Numbers	Percentage of People in Wildland-Urban Interaction Area
Number in Hazard Area	21	19.4%
Persons Under 5 Years	3	12.0%
Persons Under 18 Years	1	6.5%
Persons 65 Years and Over	5	25.9%
White	16	75.9%
Minority	5	24.1%

*Table 2-105: Population in Castor Located within a Wildland-Urban Interaction Area  
(Source: 2010 U.S. Census Data)*

Castor		
Category	Total Numbers	Percentage of People in Wildland-Urban Interaction Area
Number in Hazard Area	20	7.8%
Persons Under 5 Years	1	7.0%
Persons Under 18 Years	5	23.3%
Persons 65 Years and Over	3	14.7%
White	18	88.8%
Minority	2	11.2%

*Table 2-106: Population in Gibsland Located within a Wildland-Urban Interaction Area  
(Source: 2010 U.S. Census Data)*

Gibsland		
Category	Total Numbers	Percentage of People in Wildland-Urban Interaction Area
Number in Hazard Area	800	81.7%
Persons Under 5 Years	49	6.1%
Persons Under 18 Years	141	17.6%
Persons 65 Years and Over	160	20.0%
White	129	16.1%
Minority	671	83.9%



*Table 2-107: Population in Jamestown Located within a Wildland-Urban Interaction Area  
(Source: 2010 U.S. Census Data)*

Jamestown		
Category	Total Numbers	Percentage of People in Wildland-Urban Interaction Area
Number in Hazard Area	5	3.6%
Persons Under 5 Years	0	5.0%
Persons Under 18 Years	1	18.7%
Persons 65 Years and Over	1	14.4%
White	5	95.0%
Minority	0	5.0%

*Table 2-108: Population in Lucky Located within a Wildland-Urban Interaction Area  
(Source: 2010 U.S. Census Data)*

Lucky		
Category	Total Numbers	Percentage of People in Wildland-Urban Interaction Area
Number in Hazard Area	16	5.9%
Persons Under 5 Years	1	4.0%
Persons Under 18 Years	3	21.3%
Persons 65 Years and Over	3	15.8%
White	5	32.7%
Minority	11	67.3%

*Table 2-109: Population in Mount Lebanon Located within a Wildland-Urban Interaction Area  
(Source: 2010 U.S. Census Data)*

Mount Lebanon		
Category	Total Numbers	Percentage of People in Wildland-Urban Interaction Area
Number in Hazard Area	18	21.7%
Persons Under 5 Years	0	0.0%
Persons Under 18 Years	3	19.3%
Persons 65 Years and Over	3	14.5%
White	15	83.1%
Minority	3	16.9%

*Table 2-110: Population in Ringgold Located within a Wildland-Urban Interaction Area  
(Source: 2010 U.S. Census Data)*

Ringgold		
Category	Total Numbers	Percentage of People in Wildland-Urban Interaction Area
Number in Hazard Area	801	53.6%
Persons Under 5 Years	51	6.4%
Persons Under 18 Years	158	19.7%
Persons 65 Years and Over	156	19.5%
White	319	39.9%
Minority	482	60.1%

*Table 2-111: Population in Saline Located within a Wildland-Urban Interaction Area  
(Source: 2010 U.S. Census Data)*

Saline		
Category	Total Numbers	Percentage of People in Wildland-Urban Interaction Area
Number in Hazard Area	118	42.6%
Persons Under 5 Years	9	7.2%
Persons Under 18 Years	23	19.9%
Persons 65 Years and Over	16	13.4%
White	90	76.2%
Minority	28	23.8%

#### *Vulnerability*

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

### Winter Storms

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

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

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

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

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

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

*Table 2-112: Sperry-Piltz Ice Accumulation Index*

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

*Location*

Because a winter storm is a climatological based hazard and has the same probability of occurring in Bienville Parish as all of the adjacent parishes, the entire planning area for Bienville Parish is equally at risk for winter storms.

*Previous Occurrences / Extents*

According to SHEL DUS, there have been 10 reported winter storm events that have occurred within the boundaries of Bienville Parish between the years of 1989 and 2014. The table on the next page provides a brief synopsis of each event since 2010. Based on historic data, Bienville Parish can expect an ice damage index of 2 on the Sperry-Piltz Ice Accumulation Index.



*Table 2-113: Previous Occurrences for Winter Storm Events 2010 - 2015*

Date	Synopsis	Property Damage	Crop Damage
January 9, 2011	A significant winter storm affected the parish. Freezing rain was reported throughout the parish. Isolated power outages were experienced by the parish.	\$0	\$0
February 3, 2011	A cold arctic air mass caused significant snowfall throughout Bienville Parish. Approximately 1.75 inches of snow was recorded in the parish.	\$0	\$0
January 14, 2013	A strong cold front moved through the parish bringing rain and storms. With surface temperatures near or slightly below freezing, the precipitation fell as a mixture of freezing rain and sleet.	\$0	\$0
February 11, 2014	A mixture of ice and snow fell throughout the parish causing thousands of power outages. Freezing rain and snow accumulation was experienced throughout the parish.	\$0	\$0

Based on previous winter storm events, the worst-case scenario for the unincorporated area of Bienville Parish and the incorporated areas of Bienville Parish are approximately two to four inches of snow accumulation and approximately one tenth to one-quarter inch of ice accumulation.

#### *Frequency / Probability*

With 10 recorded events in 25 years, winter storm events within the boundaries of Bienville Parish have an annual chance of occurrence calculated at 40% based on the SHELUDS dataset.

#### *Estimated Potential Losses*

Since 1990, there have been 10 reported winter weather events that have resulted in property and/or crop damages according to the SHELUDS database. The total property damages associated with these storms have totaled \$21,996,173. To estimate the potential losses of a winter weather event on an annual basis, the total damage recorded for winter weather events was divided by the total number of years of available winter weather data in SHELUDS (1990 – 2015). This provides an annual estimated potential loss of \$879,847. To assess potential losses to the participating jurisdictions, the 2010 Census population was used to assign the estimated potential losses proportionally across the jurisdictions. The tables on the next page provide an estimate of potential property losses for Bienville Parish based on the 2010 Census data.

*Table 2-114: Estimated Annual Losses for Winter Weather Events in Bienville Parish*

Estimated Annual Potential Losses from Winter Weather for Bienville Parish					
Unincorporated Bienville Parish (53% of Population)	Arcadia (20.3% of Population)	Bienville (1.5% of Population)	Bryceland (0.8% of Population)	Castor (1.8% of Population)	Gibbsland (6.8% of Population)
\$466,191	\$178,936	\$13,364	\$6,620	\$15,816	\$60,013

*Table 2-114: Estimated Annual Losses for Winter Weather Events in Bienville Parish (Continued)*

Estimated Annual Potential Losses from Winter Weather for Bienville Parish				
Jamestown (1% of Population)	Lucky (1.9% of Population)	Mount Lebanon (0.6% of Population)	Ringgold (10.4% of Population)	Saline (1.9% of Population)
\$8,521	\$16,674	\$5,088	\$91,644	\$16,980

From 1990 to 2015, there have been no injuries or fatalities as a result of winter weather in Bienville Parish.

#### *Vulnerability*

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

## Dam Failure

Dams are water storage, control, or diversion barriers that impound water upstream in reservoirs. Dams are a vital part of our nation's infrastructure, providing drinking water, flood protection, renewable hydroelectric power, navigation, irrigation, and recreation. These critical daily benefits are also inextricably linked to the potential harmful consequences of a dam failure.

Dam failure is a collapse or breach in the structure. A dam failure can result in severe loss of life, economic disaster, and extensive environmental damage. While most dams have storage volumes small enough that failures have few repercussions, dams with large storage volumes can cause significant flooding downstream. Dam failures often have a rapid rate of onset, leaving little time for evacuation. The first signs of the failure may go unnoticed upon visual inspection of the dam structure. However, continual maintenance and inspection of dams often provide the opportunity to identify possible deficiencies in their early stages and can prevent a possible catastrophic failure event.

The duration of the flooding event caused by the failure depends largely on the amount of water and downstream topography. Given smaller volumes of water and a topography suited for transporting the water rapidly downstream, the event may only last hours. Because of the lack of seasonality and other predictive factors, a predictive frequency or likelihood of dam failures cannot be determined. However, the National Dam Safety Program (NDSP) produces hazard rankings (high, significant, and low) and definitions of dam structures, based on potential impact.

Dam/reservoir failures can result from any one of or a combination of the following causes:

- Prolonged periods of rainfall and flooding, which cause most failures;
- Inadequate spillway capacity, resulting in excess overtopping flows;
- Internal erosion caused by embankment or foundation leakage or piping;
- Improper maintenance, including failure to remove trees, repair internal seepage problems, replace lost material from the cross-section of the dam and abutments, or maintain gates, valves, and other operational components;
- Improper design, including the use of improper construction materials and construction practices;
- Negligent operation, including the failure to remove or open gates or valves during high flow periods;
- Failure of upstream dams on the same waterway;
- Landslides into reservoirs, which cause surges that result in overtopping;
- High winds, which can cause significant wave action and result in substantial erosion; and

## Location

Bienville Parish has four dams located within the planning area. The four dams are Kepler Dam, Mill Creek Dam, Continental Lake Dam, and Toulon Bayou Number One Dam (Figure 2-42).

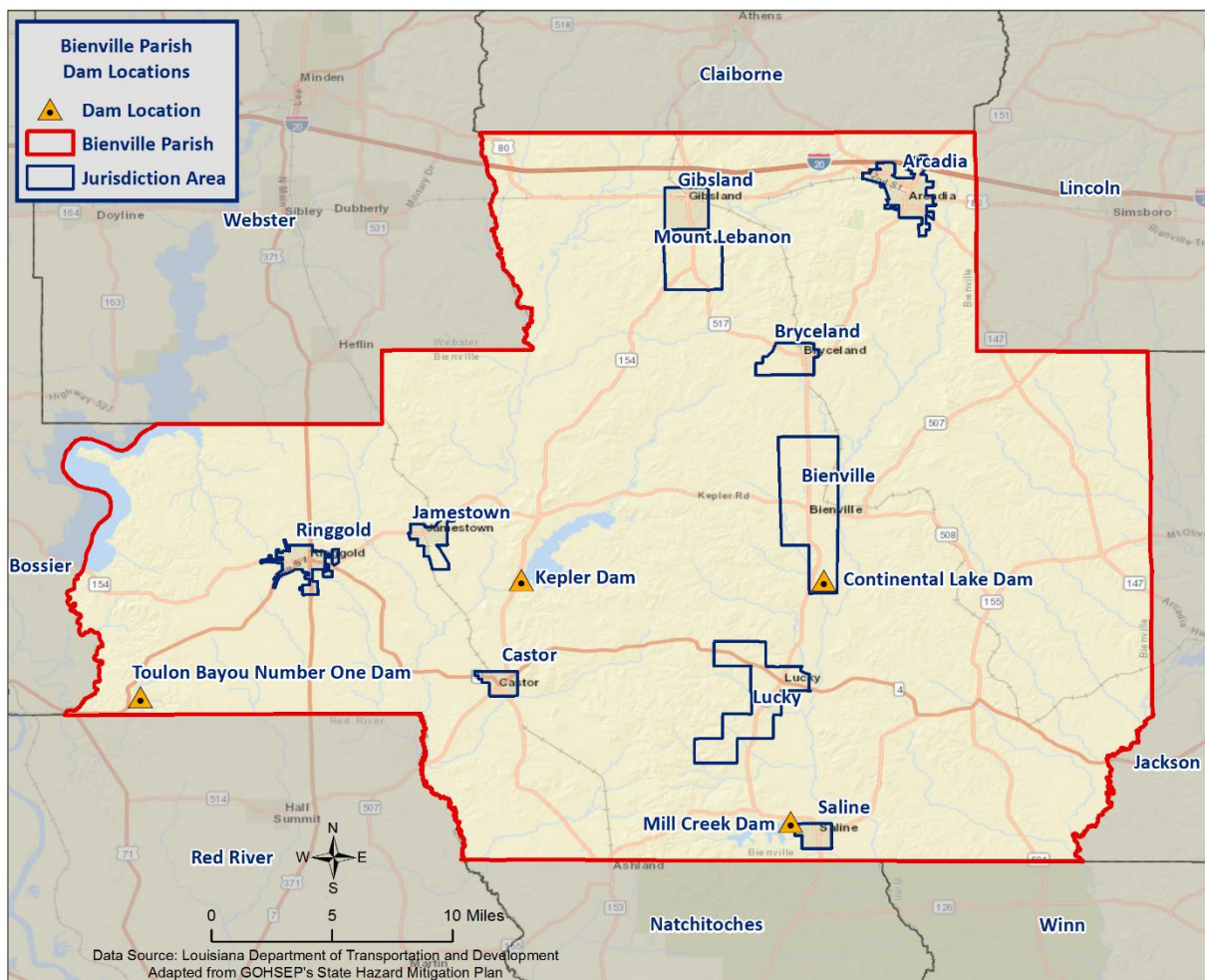


Figure 2-42: Dam Locations in Bienville Parish

#### Previous Occurrences / Extents

There have been no reported dam failures in Bienville Parish from 1990 to 2015. Of the four dams, only one (Mill Creek) has any residential structures near the downstream area in the incorporated area of Saline. The worst case scenario for a dam failure of Mill Creek Dam would be flood inundation levels of approximately six feet in the incorporated area of Saline.

#### Frequency / Probability

Based on the 25-year record, it is determined that a dam failure has less than a 1% annual chance of occurrence in the Bienville Parish planning area.

#### Estimated Potential Losses

Since 1990, there have been no reports of a dam failure in Bienville Parish. Of the four dams, only one (Mill Creek) has the potential to impact any structures. According to Bienville Parish officials, approximately 20 structures would be impacted by a dam failure of the Mill Creek Dam with an estimated potential loss of \$500,000.



*Table 2-115: Estimated Potential Losses from a Dam Failure*  
(Source: U.S. 2010 Census Data and Hazus 2.2)

Dam Name	Total Building Exposure	Critical Infrastructure Exposure	Number of People Exposed	Number of Structures Exposed
Continental Lake Dam	\$0	0	0	0
Kepler Dam	\$0	0	0	0
Mill Creek Dam	\$500,000	0	60	20
Toulon Bayou Number One Dam	\$0	0	0	0

#### *Vulnerability*

See Appendix C for parish and municipality building exposure to dam failure.

### 3. Capability Assessment

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

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

#### Policies, Plans, and Programs

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

Table 3-1: Bienville Parish Planning and Regulatory Capabilities

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

### Building Codes, Permitting, Land Use Planning and Ordinances

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

As of the 2017 update, Bienville Parish and its jurisdictions ensure that all adopted building codes are enforced and in compliance relating to the construction of any structure within the boundaries of the parish. Building permits are required prior to beginning any type of construction or renovation projects, installation of electrical wiring, plumbing or gas piping, moving manufactured/modular or portable buildings, and reroofing or demolitions.

The Bienville Parish Police Jury is also responsible for enforcing the Parish Ordinances relating to health and safety, property maintenance standards, and condemnation of unsafe structures.

The Bienville Parish Police Jury meets regularly to consider any proposed ordinance changes, and to take final actions on proposed changes.

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

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

### Administration, Technical, and Financial

As a community, Bienville Parish has administrative and technical capabilities in place that may be utilized in reducing hazard impacts or implementing hazard mitigation activities. Such capabilities include staff, skillset, and tools available in the community that may be accessed to implement mitigation activities and to

effectively coordinate resources. The ability to access and coordinate these resources is also important. The table below shows examples of resources in place in Bienville Parish and its jurisdictions.

*Table 3-2: Bienville Parish 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.												
	Bienville Parish	Aradia	Bienville	Bryceland	Castor	Gibbsland	Jamestown	Lucky	Mount Lebanon	Ringgold	Saline	
<b>Administration</b>	Yes / No											
Planning Commission	No	No	No	No	No	No	No	No	No	No	No	
Mitigation Planning Committee	No	No	No	No	No	No	No	No	No	No	No	
Maintenance programs to reduce risk (tree trimming, clearing drainage systems)	Yes	No	No	No	No	No	No	No	No	No	Yes	
<b>Staff</b>	Yes / No; FT/PT; % Hazard Mitigation											
Chief Building Official	Yes	Community Developer	No	No	No	No	No	No	No	No	No	
Floodplain Administrator	Yes	No	No	No	No	No	No	No	No	No	No	
Emergency Manager	Yes	No	No	No	No	No	No	No	No	No	No	
Community Planner	No	No	No	No	No	No	No	No	No	No	No	
Civil Engineer	Yes	No	No	No	No	No	No	No	No	No	No	
GIS Coordinator	No	No	No	No	No	No	No	No	No	No	No	
Grant Writer	No	No	No	No	No	No	No	No	No	No	No	
Other	No	No	No	No	No	No	No	No	No	No	No	
<b>Technical</b>	Yes / No											
Warning Systems / Service (Reverse 911, outdoor warning signals)	No	No	No	No	No	No	No	No	No	No	No	
Hazard Data & Information	Yes	No	No	No	No	No	No	No	No	No	No	
Grant Writing	No	No	No	No	No	No	No	No	No	No	No	
Hazus Analysis	No	No	No	No	No	No	No	No	No	No	No	
Other	No	No	No	No	No	No	No	No	No	No	No	

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

The following resources are available to fund mitigation actions in Bienville Parish and its jurisdictions:

*Table 3-3: Bienville Parish Financial Capabilities*

Financial												
Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.												
	Bienville Parish	Aradia	Bienville	Bryceland	Castor	Gibbsland	Jamestown	Lucky	Mount Lebanon	Ringgold	Saline	
<b>Funding Resource</b>	Yes / No											
Capital Improvements project funding	No	Yes	No	No	Yes	Yes	No	No	No	No	No	
Authority to levy taxes for specific purposes	Yes	Yes	No	No	Yes	No	Yes	No	No	No	Yes	
Fees for water, sewer, gas, or electric services	No	Yes	No	No	Yes	Yes	No	No	No	No	Yes	
Impact fees for new development	No	Yes	No	No	No	No	No	No	No	No	No	
Stormwater Utility Fee	No	Yes	No	No	No	No	No	No	No	No	No	
Community Development Block Grant (CDBG)	Yes	Yes	No	No	Yes	Yes	No	No	No	No	Yes	
Other Funding Programs	No	Yes	No	No	No	Yes	No	No	No	No	No	

## Education and Outreach

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



Bienville Parish and its jurisdictions have existing education and outreach programs to implement mitigation activities, as well as to communicate risk and hazard related information to its communities. The existing programs are as follows:

*Table 3-4: Bienville Parish 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.												
	Bienville Parish	Arcadia	Bienville	Bryceland	Castor	Gibbsland	Jamestown	Lucky	Mount Lebanon	Ringgold	Saline	
Program / Organization	Yes / No											
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Yes	No	No	No	No	None	No	No	No	No	Yes	
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	No	No	No	No	Yes	None	No	No	No	No	Yes	
Natural Disaster or safety related school program	No	No	No	No	Yes	None	No	No	No	No	No	
Storm Ready certification	No	No	No	No	No	None	No	No	No	No	No	
Firewise Communities certification	No	No	No	No	No	None	No	No	No	No	Yes	
Public/Private partnership initiatives addressing disaster-related issues	No	No	No	No	No	None	No	No	No	No	No	
Other	No	No	No	No	No	None	No	No	No	No	No	

In some cases, the jurisdictions rely on Bienville Parish OHSEP and/or Bienville Parish Government Agencies for the above listed planning and regulatory, administrative and technical, financial, and education and outreach capabilities. Comments regarding the jurisdictions utilization or intentions to utilize and leverage the capabilities of the parish government can be found in Appendix E in the jurisdictional specific worksheets.

As reflected in the aforementioned existing regulatory mechanisms, programs, and resources within each jurisdiction, Bienville Parish and its jurisdiction remains committed to expanding and improving on the existing capabilities within the parish. All participating jurisdictions will work toward increased participation in funding opportunities and available mitigation programs. Should funding become available, the hiring of additional personnel to dedicate to hazard mitigation initiatives and programs, as well as increasing ordinances within the jurisdictions, will help to enhance and expand risk reduction measures within the parish.

With the sharing of these capabilities, the following municipalities and entities are recognized by the Parish of Bienville 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:

- Unincorporated Bienville Parish
- Town of Arcadia
- Village of Bienville
- Village of Bryceland
- Village of Castor
- Town of Gibbsland
- Village of Jamestown
- Village of Lucky
- Town of Mount Lebanon
- Town of Ringgold
- Village of Saline

### Flood Insurance and Community Rating System

Bienville Parish is not a participant in the Community Rating System (CRS), nor are any of its jurisdictions. Obtaining the CRS rating for the parish and participating jurisdictions is recognized as an eventual goal by the Hazard Mitigation Steering Committee. Participation in the CRS strengthens local capabilities by lowering flood insurance premiums for jurisdictions that exceed NFIP minimum requirements.

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

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

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

During the last update, 38 Louisiana communities participated, including Lake Charles (class 8) and Calcasieu Parish (class 8). Mandeville, Shreveport, and Jefferson and East Baton Rouge Parishes had the best classifications in the state, class 7. As of the 2017 update, Jefferson, East Baton Rouge, and Terrebonne Parishes all lead the state with best classifications, class 6.

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

\* In determining CRS Premium Discounts, all AR and A99 Zones are treated as non-SFHAs.

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

As of May 2012, 310 communities in the State of Louisiana participate in the Federal Emergency Management Agency's NFIP. Of these communities, 41 (or 13%) participate in the Community Rating System (CRS). Of the top fifty Louisiana communities, in terms of total flood insurance policies held by residents, 27 participate in the CRS. The remaining 23 communities present an outreach opportunity for encouraging participation in the CRS.

The CRS provides an incentive not just to start new mitigation programs, but to keep them going. There are two requirements that "encourage" a community to implement flood mitigation activities.

First, the parish will receive CRS credit for this plan when it is adopted. To retain that credit, though, the parish must submit an evaluation report on progress toward implementing this plan to FEMA by October 1st of each year. That report must be made available to the media and the public.

Second, the parish must annually recertify to FEMA that it is continuing to implement its CRS credited activities. Failure to maintain the same level of involvement in flood protection can result in a loss of CRS credit points and a resulting increase in flood insurance rates to residents.

In 2011<sup>1</sup>, the National Flood Insurance Program (NFIP) completed a comprehensive review of the Community Rating System that will result in the release of a new CRS Coordinator's Manual.

The changes to the 2013 CRS Coordinator's Manual are the result of a multi-year program evaluation that included input from a broad group of contributors in order to evaluate the CRS and refine the program to meet its stated goals.

The upcoming changes will drive new achievements in the following six core flood loss reduction areas important to the NFIP: (1) reduce liabilities to the NFIP Fund; (2) improve disaster resiliency and sustainability of communities; (3) integrate a whole community approach to addressing emergency management; (4) promote natural and beneficial functions of floodplains; (5) increase understanding of risk, and; (6) strengthen adoption and enforcement of disaster-resistant building codes.

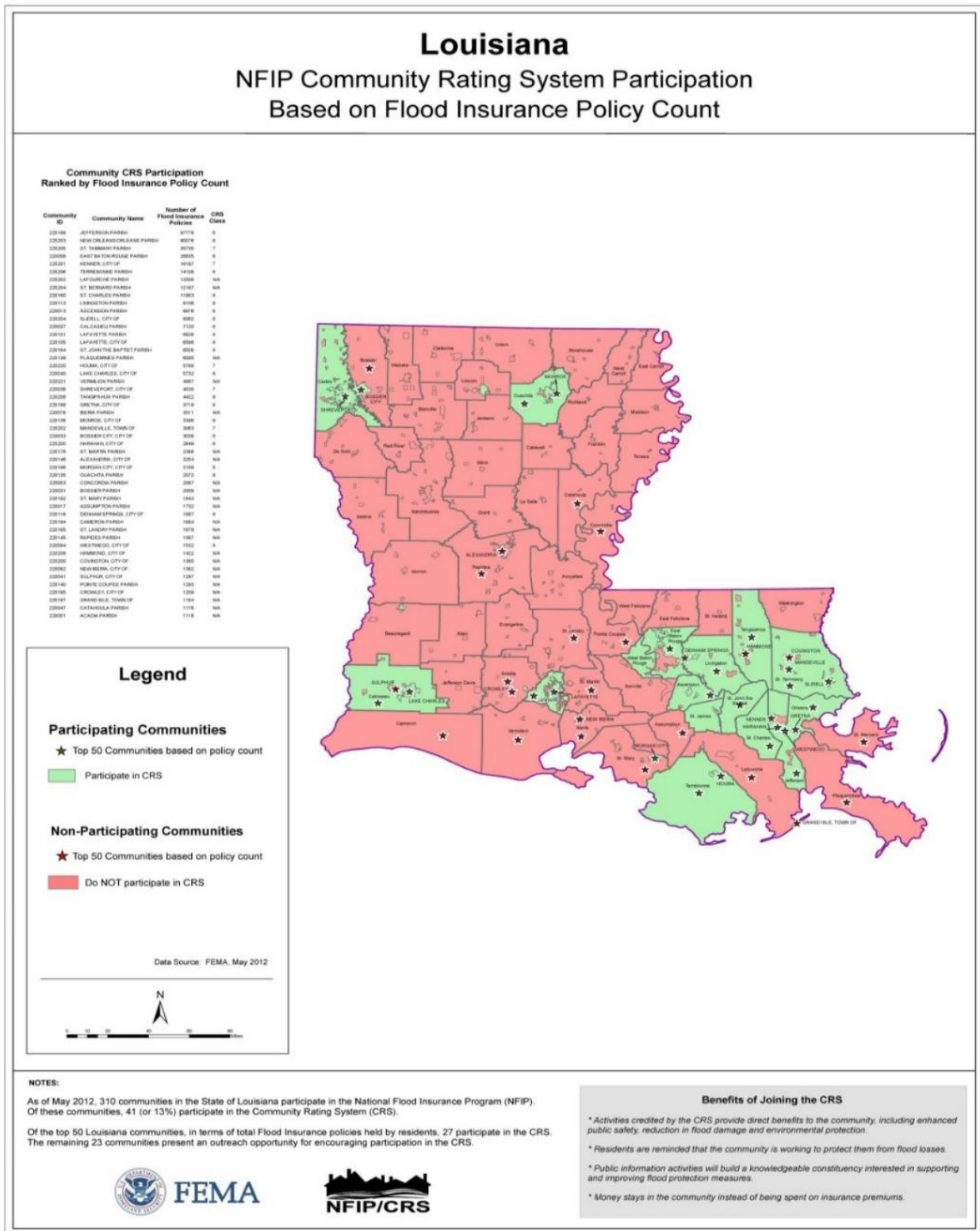
The 2013 CRS Coordinator's Manual changes will impact each CRS community differently. Some communities will see an increase in the points they receive since points for certain activities have increased (e.g., Activity 420 Open Space Preservation). Other communities will receive fewer points for certain activities (e.g., Activity 320 Map Information Service). It is likely that some communities with marginal CRS class 9 programs will have to identify new CRS credits in order to remain in the CRS.

Typically, CRS communities do not request credit for all the activities they are currently implementing unless it would earn enough credit to advance the community to a higher CRS class. A community that finds itself losing CRS credit with the 2013 manual could likely identify activities deserving credit they had not previously received.

Due to the changes in both activities and CRS points, community CRS coordinators should speak with their ISO/CRS Specialist to understand how and when the 2013 manual will impact their community.

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

Figure 3-2: Louisiana CRS NFIP Participation (Source: FEMA<sup>2</sup>)<sup>2</sup> [http://www.fema.gov/media-library-data/20130726-2128-31471-9581/ks\\_ky\\_la\\_crs\\_may\\_2012\\_508.zip](http://www.fema.gov/media-library-data/20130726-2128-31471-9581/ks_ky_la_crs_may_2012_508.zip)



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

1. The activities credited by the CRS provide direct benefits to residents, including:
  - Enhanced public safety
  - A reduction in damage to property and public infrastructure
  - Avoidance of economic disruption and losses
  - Reduction of human suffering
  - Protection of the environment
2. A community’s flood programs will be better organized and more formal. Ad hoc activities, such as responding to drainage complaints rather than an inspection program, will be conducted on a sounder, more equitable basis.
3. A community can evaluate the effectiveness of its flood programs against a nationally recognized benchmark.
4. Technical assistance in designing and implementing a number of activities is available at no charge from the Insurance Services Office.
5. The public information activities will build a knowledgeable constituency interested in supporting and improving flood protection measures.
6. A community would have an added incentive to maintain its flood programs over the years. The fact that its CRS status could be affected by the elimination of a flood related activity or a weakening of the regulatory requirements for new developments would be taken into account by the governing board when considering such actions.
7. Every time residents pay their insurance premiums, they are reminded that the community is working to protect them from flood losses, even during dry years.

**\*\*More information on the Community Rating System can be found at [www.fema.gov/nfip/crs.shtm](http://www.fema.gov/nfip/crs.shtm)\*\***

### NFIP Worksheets

Parish and participating jurisdiction NFIP worksheets can be found in Appendix E: State Required Worksheets

## 4. Mitigation Strategy

### Introduction

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

Bienville Parish confirmed the goals, objectives, actions, and projects over the period of the Hazard Mitigation Plan Update process. The mitigation actions and projects in this 2017 update are a product of analysis and review of the Bienville Parish Hazard Mitigation Plan Steering Committee, under the coordination of the Bienville Parish Office of Homeland Security and Emergency Preparedness. The committee was presented a list of projects and actions, new and from the 2011 plan, for review from March 2017 – June 2017.

An online public opinion survey was conducted of Bienville Parish residents between March and June 2017. The survey was designed to capture public perceptions and opinions regarding natural hazards in Bienville Parish. In addition, the survey sought to collect information regarding the methods and techniques preferred by the respondents for reducing the risks and losses associated with local hazards.

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

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

During the public meeting in May, the committee provided a status of the projects from 2011 and the proposed actions for the 2017 update. Committee members then agreed on the submission of each project based on feasibility for funding, ease of completion and other community specific factors. The actions were later prioritized.

### Goals

The goals represent the guidelines that the parish and its communities want to achieve with this plan update. To help implement the strategy and adhere to the mission of the Hazard Mitigation Plan, the preceding section of the plan update was focused on identifying and quantifying the risks faced by the residents and property owners in Bienville Parish from natural and manmade hazards. By articulating goals and objectives based on the previous plans, the risk assessment results, and intending to address those results, this section sets the stage for identifying, evaluating, and prioritizing feasible, cost effective, and environmentally sound actions to be promoted at the parish and municipal level – and to be undertaken by the state for its own property and assets. By doing so, Bienville Parish and its jurisdictions 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 Bienville Parish Hazard Mitigation Plan Update Steering Committee represent long-term commitments by the parish and its jurisdictions. After assessing these goals, the committee decided that the current two goals remain valid.

The goals are as follows:

- Create an advanced warning system
- Reduce damages by hazards that cannot be controlled
- Create a maintenance, rehabilitation and replacement program
- Create hazard event procedures

The Mitigation Action Plan focuses on actions to be taken by Bienville Parish and its jurisdictions. 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.

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

### 2017 Mitigation Actions and Update on Previous Plan Actions

The Bienville Parish Hazard Mitigation Plan Steering Committee and participating jurisdictions each identified actions that would reduce and/or prevent future damage within Bienville Parish and their respective communities. In that effort, each jurisdiction focused on a comprehensive range of specific mitigation actions. These actions were identified in thorough fashion by the consultant team, the committee, and the individual jurisdictions 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:

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

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

### Bienville 2012 Hazard Mitigation Action Update

Bienville Parish and Jurisdiction Actions						
Jurisdiction-Specific Action	Action Description	Funding Source	Target Completion Date	Responsible Party, Agency, or Department	Hazard	Status
B1: Backup Water Systems	The BOHSEP and BPPJ will continue to seek funding sources to connect individual water system together throughout the parish. This helps to protect communities from fire and localized drought. The parish is currently awaiting word on one such project that was applied for under CDBG. The cost of connecting all of the systems within Bienville Parish would be over \$1,500,000.	LGAP,CWEEF	6-60 months	Bienville Parish Police Jury (BPPJ)	Drought, Flooding, Lightning, Tornadoes, Wildfires, Winter Storms	In Progress
B2: Backup Power Generators	In order to keep emergency services operational during hazard events, the Parish will provide critical facilities with backup generators. Also 3 portable generators will be provided for use throughout the parish. This project was scoped under the Planning Pilot Grant Program. The results from the scoping can be found in the Project Scoping Summary Report. According to this report, the portable generators have a cost of \$42,480 each. The fixed generators will range from \$3,032 to \$42,480.	SHSP, EMPG	6-60 months	BOHSEP / Public Works	Extreme Heat, Flooding, Lightning, Tornadoes, Winter Storms	Completed
B3: Emergency Roadblock Equipment	The Sheriff's Office and Public Works will be responsible for the research and purchase of emergency roadblock equipment. Placing of emergency roadblock equipment during hazard events which justify their usage will also be the responsibility of the Sheriff's Office and Public Works. The estimated cost of this project is \$3,500.	BPPJ, S/O	6-60 months	Sheriff's Office, Public Works	Flooding, Hazardous Materials, Wildfires, Winter Storms, Tornadoes	Completed
B4: Hazard Contact List	BOHSEP will prepare a list of contact information for both public and private entities that should be notified for various hazard situations. BOHSEP will be responsible for maintaining and distributing this list. This mitigation option will cost approximately \$500 to implement	BPPJ	6-60 months	BOHSEP	Drought, Extreme Heat, Flooding, Hazardous Materials, Hailstorms, Lightning, Tornadoes, Wildfires, Winter Storms	Completed



B5: Audible Warning System	The Bienville Parish Police Jury will be responsible for seeking funds for the installation of audible warning systems installed throughout the parish. This project was scoped under the Planning Pilot Grant Program. The result can be found in the Bienville Parish Project Scoping Report. According to the Scoping Report, the potential cost for nine warning systems strategically placed throughout the parish is approximately \$150,000.	LGAP, BPPJ, Municipalities	6-60 months	All Jurisdictions	Hailstorms, Lightning, Tornadoes, Wildfires	Planning stage
B6: Reverse 9-1-1 System	A reverse 9-1-1 system would alert citizens of impending dangers more quickly than traditional methods. This notification, and thus additional time to prepare for the hazard, could result in the difference between life and death. This system was scoped under the Planning Pilot Grant Program. According to the results of the scoping, the system would have an initial cost of \$30,000 and a yearly cost of \$3,000.	BPPJ	6-60 months	BOHSEP	Flooding, Hazardous Materials, Hailstorms, Lightning, Tornadoes, Wildfires, Winter Storms	Planning stage
B7: Winter Heat Plan	The Bienville Office of Homeland Security and Emergency Preparedness will work with Bienville Voluntary Council on Aging, Inc. to check in on the elderly during winter weather conditions and provide space heater for those homes without central heating. They will also contact them during winter weather to make sure they have proper medication and transportation if necessary. The Parish will conduct public service announcements with shelter locations and other areas to keep warm. Announcements will be posted at the nursing homes, churches, etc. Implementing this program is likely to cost approximately \$3,500 annually.	BPPJ	6-60 months	BOHSEP	Winter Storms	In Progress
B8: Summer Cooling Plan	The Bienville Office of Homeland Security and Emergency Preparedness will work with Bienville Voluntary Council on Aging, Inc. to check in on the elderly during extreme heat and provide fans for those homes without air conditioning. Information will be provided to residents concerning the dangers of extreme heat and ways to keep cool. The Parish will also conduct public service announcements with shelter locations and other areas to keep cool. Announcements will be posted at the nursing homes, churches, etc. Implementing this program is likely to cost approximately \$3,500 annually.	BPPJ	6-60 months	BOHSEP	Extreme Heat	In Progress

B9: NOAA Weather Radio in Public Buildings	NOAA Weather Radio (NWR) broadcasts weather warnings, watches, forecasts and additional hazard information. The BOHSEP will be responsible for researching the cost to provide NWR in all public buildings as well as assisted living facilities. The NWR system will help provide warning and post-disaster information that can be helpful. The City would like for the system to be in place within a year. The potential cost of the weather radios is estimated to be over \$2,500.	BPPJ	6-60 months	Public Works	Extreme Heat, Flooding, Hailstorms, Lightning, Tornadoes, Winter Storms	Planning stage
B10: Critical Facilities Hardenings	BPPJ, BOHSEP, and Public Works will be responsible for reviewing information on existing and future critical facilities and infrastructure to prioritize projects that protect these from hazards. There exist a shortfall of funds to provide for these projects however all entities participating in this Plan should continue to seek funding sources to harden these existing and future facilities and infrastructure.	BPPJ	6-60 months	BPPJ	Flooding, Hailstorms, Lightning, Tornadoes	In Progress
B11: Public Awareness Campaign	The Parish will immediately begin planning a public awareness campaign to be maintained by the Bienville Office of Homeland Security and Emergency Preparedness. The program is scheduled to take approximately one year to organize all of the necessary information before beginning announcements. All potential hazards will be addressed by the program and announcements will be made throughout the year. The service announcements will be posted in newspapers, at public buildings, and on the radio during the year when particular hazards are more prone to strike. As part of the public awareness program, the Bienville Parish Multi-Hazard Mitigation Plan will be available at the public library. The public will be encouraged to comment and give recommendations on how the Plan may be improved. It is estimated that this mitigation option will cost \$10,000 annually.	All Jurisdictions	6-60 months	All Jurisdictions	Drought, Extreme Heat, Tornadoes, Wildfires, Winter Storms	In Progress
B12: Targeted Drainage Projects	The Parish currently has several drainage projects planned but do not have the funding necessary to complete them. Projects are completed as funding becomes available, with precedence determined by the Police Jurors. Costs for projects all targeted drainage projects is unknown, but the cost could exceed \$1,500,000.	All Jurisdictions	6-60 months	BPPJ	Flooding	Planning stage

B13: Improve Existing Building Codes	The Building Department will review the current Building Codes and determine whether any changes should be made. Any proposed changes will be evaluated for effectiveness. The Building Department will continue to require inspection of all new construction for compliance with the Code. This will help to protect new buildings and infrastructure from the effects of hazards. The approximate annual cost for reviewing the building codes and inspecting development is \$2,500.	BPPJ	6-60 months	BPPJ	Flooding, Hailstorms, Lightning, Tornadoes	In Progress
B14: Warning Signs	The Public Works Department will be responsible for monitoring conditions throughout the parish and placing these signs as needed. These signs will inform citizens of current hazardous conditions (i.e. flooding, burn bans, and wildfires). The cost to provide warning signs for use throughout the Parish is approximately \$7,000.	Fire Departments	6-60 months	BOHSEP / Public Works	Drought, Flooding, Wildfires	Completed
B15: Tree Trimming Program	BOHSEP will work with the local electricity provider (Entergy) to establish a program to identify and maintain overhead lines that are at risk during winter storms. Although many lines are at risk, this program should identify the strategic lines and work to maintain those. Cost of this program is unknown but estimates range from \$25,000 to \$100,000 yearly.	Utility Companies	6-60 months	Entergy / Public Works	Winter Storms	In Progress
B16: Construction of safe rooms/shelters	Bienville Office of Homeland Security and Emergency Preparedness will investigate the need for safe rooms in existing and newly constructed public buildings and critical facilities. Safe rooms would supply emergency workers with a safe refuge from tornados and other hazard events. The Police Jury will be responsible for determining the placement and necessity of these mitigation measures. The analysis of constructing safe rooms is expected to be \$2,500.	BPPJ	6-60 months	BPPJ	Hailstorms, Tornadoes	Not pursued
B17: Lightning rods & Surge Protection	In order to keep emergency services operational during hazard events, the Parish will enhance critical facilities by adding lightning rods and surge protection to the facilities. These will be added to both current and new facilities. The lightning rods and surge protection would be useful to reduce or prevent damage to critical computer facilities and communication equipment. This mitigation option's cost is dependent on the number of critical facilities protected. Cost could range from \$2,500 to \$25,000.	BPPJ	6-60 months	BOHSEP	Lightning	Completed

B18: Parish-Wide Crisis Rehearsal	BOHSEP will be responsible for organizing a large-scale mobilization of all emergency response agencies in order to provide an exercise of local emergency response capabilities. Strengths and weaknesses will be identified for both critical facility operations and the local emergency response planning. The cost of this option is approximately \$2,500.	All Jurisdictions	6-60 months	All Jurisdictions	Droughts, Flooding, Hazardous Materials, Hailstorms, Lightning, Tornadoes, Wildfires, Winter Storms	In Progress
B19: CRS Participation	The Parish will research the requirements of participation in the Community Rating System. Once requirements have been established, BOHSEP will pursue participation in the CRS by fulfilling these requirements. BOHSEP will also work with participating NFIP municipalities to meet the necessary CRS requirements.	All Jurisdictions	6-60 months	BPPJ	Flooding	Planning stage
B20: Collect Data on Wildfires & Hailstorms	The members of the Mitigation Team shall collect event specific information regarding wildfire. This information shall be used in the next Plan Update.	All Jurisdictions	6-60 months	All Jurisdictions	Wildfires, Hailstorms	In Progress
B21: McLemore Shopping Center Drainage	The Bienville Parish Police Jury will be responsible for securing funds and managing this project. It involves increasing capacity of existing drainage structures in the most commercialized area of Bienville Parish. During heavy rainfall businesses in this area continued to flood. This project has already been scoped and the results can be found in Bienville's Project Scoping Summary Report. Estimated cost of this project is approximately \$290,000.	BPPJ, Town of Arcadia	6-60 months	BPPJ	Flooding	Planning stage
B22: Acquisition/elevation of Rep. Loss and Other Flood-prone Properties	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	BPPJ	6-60 months	BPPJ	Flooding	In Progress
B23: Ringgold Courthouse Annex Retrofit	Retrofitting the courthouse extension building to resist the impacts of the prioritized hazards will enable key functions housed in the structure (Sheriff's substation, tax assessor's office, clerk of court, etc.) to continue functioning in the event of an emergency. Details of this project can be found in Bienville Parish's Project Scoping Report.	BPPJ	6-60 months	BPPJ	Flooding, Hailstorms, Tornadoes	Completed



## Unincorporated Bienville - New Mitigation Actions

Bienville Unincorporated - New Mitigation Actions						
Jurisdiction-Specific Action	Action Description	Funding Source	Target Completion Date	Responsible Party, Agency, or Department	Hazard	Status
B1: Building Retrofits	Retrofit public buildings exterior shell to maintain use during and after storm events. Benefits: Reduces damage from high winds, and helps assure that the public buildings can be used, occupied and operable during or after storms.	FEMA HMGP, Local	1-5 years	Bienville Parish OHSEP	High Wind, Tropical Cyclones, Tornadoes	New
B2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	FEMA HMGP, Local	1-5 years	Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
B3: Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.	FEMA HMGP, Local	1-5 years	Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
B4: Safe Room Projects	Construction of a safe room for first responders located in Bienville Parish. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Bienville Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
B5: Education and Outreach	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Drought, Winter Storm, and Dam Failure hazards as well as providing information on high risk areas. Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.	FEMA HMGP, Local	1-5 years	Bienville Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Winter Storms, Drought, Dam Failure	New

B6: Generators for Continuity of Operations and Government	Procurement and installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Bienville Parish OHSEP	Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Extreme Heat	New
B7: Lightning Mitigation	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Bienville Parish OHSEP	Lightning	New
B8: Warning Systems	Update/upgrade public warning system components throughout Bienville Parish as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Bienville Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
B9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Bienville Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes, Drought, Extreme Heat	New
B10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Bienville Parish OHSEP	Tropical Cyclones, Flooding	New
B11: Flood Control Measures	Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.	FEMA HMGP, Local	1-5 years	Bienville Parish OHSEP	Tropical Cyclones, Flooding, Dam Failure	New
B12: Drought Ordinances	Adopt ordinances requiring water-saving measures in time of drought.	FEMA HMGP, Local	1-5 years	Bienville Parish OHSEP	Drought	New
B13: Wildfire Ordinances	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Bienville Parish OHSEP	Wildfires	New

## Town of Arcadia - New Mitigation Actions

Town of Arcadia						
Jurisdiction-Specific Action	Action Description	Funding Source	Target Completion Date	Responsible Party, Agency, or Department	Hazard	Status
A1: Building Retrofits	Retrofit public buildings exterior shell to maintain use during and after storm events. Benefits: Reduces damage from high winds, and helps assure that the public buildings can be used, occupied and operable during or after storms.	FEMA HMGP, Local	1-5 years	Town of Arcadia/Bienville Parish OHSEP	High Wind, Tropical Cyclones, Tornadoes	New
A2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	FEMA HMGP, Local	1-5 years	Town of Arcadia/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
A3: Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.	FEMA HMGP, Local	1-5 years	Town of Arcadia/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
A4: Safe Room Projects	Construction of a safe room for first responders located in Arcadia. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Town of Arcadia/Bienville Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
A5: Education and Outreach	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Drought, Winter Storm, and Dam Failure hazards as well as providing information on high risk areas. Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.	FEMA HMGP, Local	1-5 years	Town of Arcadia/Bienville Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Winter Storms, Drought, Dam Failure	New

A6: Generators for Continuity of Operations and Government	Procurement and installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Town of Arcadia/Bienville Parish OHSEP	Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Extreme Heat	New
A7: Lightning Mitigation	Procurement and installation of lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Town of Arcadia/Bienville Parish OHSEP	Lightning	New
A8: Warning Systems	Update/upgrade public warning system components throughout Arcadia as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Town of Arcadia/Bienville Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
A9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Town of Arcadia/Bienville Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes, Drought, Extreme Heat	New
A10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Town of Arcadia/Bienville Parish OHSEP	Tropical Cyclones, Flooding	New
A11: Flood Control Measures	Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.	FEMA HMGP, Local	1-5 years	Town of Arcadia/Bienville Parish OHSEP	Tropical Cyclones, Flooding, Dam Failure	New
A12: Drought Ordinances	Adopt ordinances requiring water-saving measures in time of drought.	FEMA HMGP, Local	1-5 years	Town of Arcadia/Bienville Parish OHSEP	Drought	New
A13: Wildfire Ordinances	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Town of Arcadia/Bienville Parish OHSEP	Wildfires	New

## Village of Bienville - New Mitigation Actions

Village of Bienville						
Jurisdiction-Specific Action	Action Description	Funding Source	Target Completion Date	Responsible Party, Agency, or Department	Hazard	Status
B1: Building Retrofits	Retrofit public buildings exterior shell to maintain use during and after storm events. Benefits: Reduces damage from high winds, and helps assure that the public buildings can be used, occupied and operable during or after storms.	FEMA HMGP, Local	1-5 years	Village of Bienville/Bienville Parish OHSEP	High Wind, Tropical Cyclones, Tornadoes	New
B2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	FEMA HMGP, Local	1-5 years	Village of Bienville/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
B3: Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.	FEMA HMGP, Local	1-5 years	Village of Bienville/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
B4: Safe Room Projects	Construction of a safe room for first responders located in Bienville. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Village of Bienville/Bienville Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
B5: Education and Outreach	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Drought, Winter Storm, and Dam Failure hazards as well as providing information on high risk areas. Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.	FEMA HMGP, Local	1-5 years	Village of Bienville/Bienville Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Winter Storms, Drought, Dam Failure	New



B6: Generators for Continuity of Operations and Government	Procurement and installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Village of Bienville/Bienville Parish OHSEP	Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Extreme Heat	New
B7: Lightning Mitigation	Procurement and installation of lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Village of Bienville/Bienville Parish OHSEP	Lightning	New
B8: Warning Systems	Update/upgrade public warning system components throughout Bienville as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Village of Bienville/Bienville Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
B9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Village of Bienville/Bienville Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes, Drought, Extreme Heat	New
B10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Village of Bienville/Bienville Parish OHSEP	Tropical Cyclones, Flooding	New
B11: Flood Control Measures	Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.	FEMA HMGP, Local	1-5 years	Village of Bienville/Bienville Parish OHSEP	Tropical Cyclones, Flooding, Dam Failure	New
B12: Drought Ordinances	Adopt ordinances requiring water-saving measures in time of drought.	FEMA HMGP, Local	1-5 years	Village of Bienville/Bienville Parish OHSEP	Drought	New
B13: Wildfire Ordinances	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Village of Bienville/Bienville Parish OHSEP	Wildfires	New

## Village of Bryceland - New Mitigation Actions

Village of Bryceland						
Jurisdiction-Specific Action	Action Description	Funding Source	Target Completion Date	Responsible Party, Agency, or Department	Hazard	Status
B1: Building Retrofits	Retrofit public buildings exterior shell to maintain use during and after storm events. Benefits: Reduces damage from high winds, and helps assure that the public buildings can be used, occupied and operable during or after storms.	FEMA HMGP, Local	1-5 years	Village of Bryceland/Bienville Parish OHSEP	High Wind, Tropical Cyclones, Tornadoes	New
B2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	FEMA HMGP, Local	1-5 years	Village of Bryceland/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
B3: Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.	FEMA HMGP, Local	1-5 years	Village of Bryceland/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
B4: Safe Room Projects	Construction of a safe room for first responders located in Bryceland. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Village of Bryceland/Bienville Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
B5: Education and Outreach	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Drought, Winter Storm, and Dam Failure hazards as well as providing information on high risk areas. Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.	FEMA HMGP, Local	1-5 years	Village of Bryceland/Bienville Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Winter Storms, Drought, Dam Failure	New

B6: Generators for Continuity of Operations and Government	Procurement and installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Village of Bryceland/Bienville Parish OHSEP	Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Extreme Heat	New
B7: Lightning Mitigation	Procurement and installation of lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Village of Bryceland/Bienville Parish OHSEP	Lightning	New
B8: Warning Systems	Update/upgrade public warning system components throughout Bryceland as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Village of Bryceland/Bienville Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
B9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Village of Bryceland/Bienville Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes, Drought, Extreme Heat	New
B10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Village of Bryceland/Bienville Parish OHSEP	Tropical Cyclones, Flooding	New
B11: Flood Control Measures	Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.	FEMA HMGP, Local	1-5 years	Village of Bryceland/Bienville Parish OHSEP	Tropical Cyclones, Flooding, Dam Failure	New
B12: Drought Ordinances	Adopt ordinances requiring water-saving measures in time of drought.	FEMA HMGP, Local	1-5 years	Village of Bryceland/Bienville Parish OHSEP	Drought	New
B13: Wildfire Ordinances	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Village of Bryceland/Bienville Parish OHSEP	Wildfires	New

## Village of Castor - New Mitigation Actions

Village of Castor						
Jurisdiction-Specific Action	Action Description	Funding Source	Target Completion Date	Responsible Party, Agency, or Department	Hazard	Status
C1: Building Retrofits	Retrofit public buildings exterior shell to maintain use during and after storm events. Benefits: Reduces damage from high winds, and helps assure that the public buildings can be used, occupied and operable during or after storms.	FEMA HMGP, Local	1-5 years	Village of Castor/Bienville Parish OHSEP	High Wind, Tropical Cyclones, Tornadoes	New
C2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	FEMA HMGP, Local	1-5 years	Village of Castor/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
C3: Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.	FEMA HMGP, Local	1-5 years	Village of Castor/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
C4: Safe Room Projects	Construction of a safe room for first responders located in Castor. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Village of Castor/Bienville Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
C5: Education and Outreach	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Drought, Winter Storm, and Dam Failure hazards as well as providing information on high risk areas. Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.	FEMA HMGP, Local	1-5 years	Village of Castor/Bienville Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Winter Storms, Drought, Dam Failure	New

C6: Generators for Continuity of Operations and Government	Procurement and installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Village of Castor/Bienville Parish OHSEP	Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Extreme Heat	New
C7: Lightning Mitigation	Procurement and installation of lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Village of Castor/Bienville Parish OHSEP	Lightning	New
C8: Warning Systems	Update/upgrade public warning system components throughout Castor as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Village of Castor/Bienville Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
C9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Village of Castor/Bienville Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes, Drought, Extreme Heat	New
C10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Village of Castor/Bienville Parish OHSEP	Tropical Cyclones, Flooding	New
C11: Flood Control Measures	Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.	FEMA HMGP, Local	1-5 years	Village of Castor/Bienville Parish OHSEP	Tropical Cyclones, Flooding, Dam Failure	New
C12: Drought Ordinances	Adopt ordinances requiring water-saving measures in time of drought.	FEMA HMGP, Local	1-5 years	Village of Castor/Bienville Parish OHSEP	Drought	New
C13: Wildfire Ordinances	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Village of Castor/Bienville Parish OHSEP	Wildfires	New



## Town of Gibsland - New Mitigation Actions

Town of Gibsland						
Jurisdiction-Specific Action	Action Description	Funding Source	Target Completion Date	Responsible Party, Agency, or Department	Hazard	Status
G1: Building Retrofits	Retrofit public buildings exterior shell to maintain use during and after storm events. Benefits: Reduces damage from high winds, and helps assure that the public buildings can be used, occupied and operable during or after storms.	FEMA HMGP, Local	1-5 years	Town of Gibsland/Bienville Parish OHSEP	High Wind, Tropical Cyclones, Tornadoes	New
G2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	FEMA HMGP, Local	1-5 years	Town of Gibsland/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
G3: Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.	FEMA HMGP, Local	1-5 years	Town of Gibsland/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
G4: Safe Room Projects	Construction of a safe room for first responders located in Gibsland. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Town of Gibsland/Bienville Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
G5: Education and Outreach	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Drought, Winter Storm, and Dam Failure hazards as well as providing information on high risk areas. Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.	FEMA HMGP, Local	1-5 years	Town of Gibsland/Bienville Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Winter Storms, Drought, Dam Failure	New

G6: Generators for Continuity of Operations and Government	Procurement and installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Town of Gibsland/Bienville Parish OHSEP	Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Extreme Heat	New
G7: Lightning Mitigation	Procurement and installation of lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Town of Gibsland/Bienville Parish OHSEP	Lightning	New
G8: Warning Systems	Update/upgrade public warning system components throughout Gibsland as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Town of Gibsland/Bienville Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
G9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Town of Gibsland/Bienville Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes, Drought, Extreme Heat	New
G10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Town of Gibsland/Bienville Parish OHSEP	Tropical Cyclones, Flooding	New
G11: Flood Control Measures	Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.	FEMA HMGP, Local	1-5 years	Town of Gibsland/Bienville Parish OHSEP	Tropical Cyclones, Flooding, Dam Failure	New
G12: Drought Ordinances	Adopt ordinances requiring water-saving measures in time of drought.	FEMA HMGP, Local	1-5 years	Town of Gibsland/Bienville Parish OHSEP	Drought	New
G13: Wildfire Ordinances	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Town of Gibsland/Bienville Parish OHSEP	Wildfires	New

## Village of Jamestown - New Mitigation Actions

Village of Jamestown						
Jurisdiction-Specific Action	Action Description	Funding Source	Target Completion Date	Responsible Party, Agency, or Department	Hazard	Status
J1: Building Retrofits	Retrofit public buildings exterior shell to maintain use during and after storm events. Benefits: Reduces damage from high winds, and helps assure that the public buildings can be used, occupied and operable during or after storms.	FEMA HMGP, Local	1-5 years	Village of Jamestown/Bienville Parish OHSEP	High Wind, Tropical Cyclones, Tornadoes	New
J2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	FEMA HMGP, Local	1-5 years	Village of Jamestown/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
J3: Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.	FEMA HMGP, Local	1-5 years	Village of Jamestown/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
J4: Safe Room Projects	Construction of a safe room for first responders located in Jamestown. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Village of Jamestown/Bienville Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
J5: Education and Outreach	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Drought, Winter Storm, and Dam Failure hazards as well as providing information on high risk areas. Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.	FEMA HMGP, Local	1-5 years	Village of Jamestown/Bienville Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Winter Storms, Drought, Dam Failure	New

J6: Generators for Continuity of Operations and Government	Procurement and installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Village of Jamestown/Bienville Parish OHSEP	Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Extreme Heat	New
J7: Lightning Mitigation	Procurement and installation of lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Village of Jamestown/Bienville Parish OHSEP	Lightning	New
J8: Warning Systems	Update/upgrade public warning system components throughout Jamestown as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Village of Jamestown/Bienville Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
J9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Village of Jamestown/Bienville Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes, Drought, Extreme Heat	New
J10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Village of Jamestown/Bienville Parish OHSEP	Tropical Cyclones, Flooding	New
J11: Flood Control Measures	Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.	FEMA HMGP, Local	1-5 years	Village of Jamestown/Bienville Parish OHSEP	Tropical Cyclones, Flooding, Dam Failure	New
J12: Drought Ordinances	Adopt ordinances requiring water-saving measures in time of drought.	FEMA HMGP, Local	1-5 years	Village of Jamestown/Bienville Parish OHSEP	Drought	New
J13: Wildfire Ordinances	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Village of Jamestown/Bienville Parish OHSEP	Wildfires	New

## Village of Lucky - New Mitigation Actions

Village of Lucky						
Jurisdiction-Specific Action	Action Description	Funding Source	Target Completion Date	Responsible Party, Agency, or Department	Hazard	Status
L1: Building Retrofits	Retrofit public buildings exterior shell to maintain use during and after storm events. Benefits: Reduces damage from high winds, and helps assure that the public buildings can be used, occupied and operable during or after storms.	FEMA HMGP, Local	1-5 years	Village of Lucky/Bienville Parish OHSEP	High Wind, Tropical Cyclones, Tornadoes	New
L2: Drainage Improvements	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	FEMA HMGP, Local	1-5 years	Village of Lucky/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
L3: Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.	FEMA HMGP, Local	1-5 years	Village of Lucky/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
L4: Safe Room Projects	Construction of a safe room for first responders located in Lucky. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Village of Lucky/Bienville Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
L5: Education and Outreach	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Drought, Winter Storm, and Dam Failure hazards as well as providing information on high risk areas. Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.	FEMA HMGP, Local	1-5 years	Village of Lucky/Bienville Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Winter Storms, Drought, Dam Failure	New



L6: Generators for Continuity of Operations and Government	Procurement and installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Village of Lucky/Bienville Parish OHSEP	Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Extreme Heat	New
L7: Lightning Mitigation	Procurement and installation of lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Village of Lucky/Bienville Parish OHSEP	Lightning	New
L8: Warning Systems	Update/upgrade public warning system components throughout Lucky as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Village of Lucky/Bienville Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
L9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Village of Lucky/Bienville Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes, Drought, Extreme Heat	New
L10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Village of Lucky/Bienville Parish OHSEP	Tropical Cyclones, Flooding	New
L11: Flood Control Measures	Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.	FEMA HMGP, Local	1-5 years	Village of Lucky/Bienville Parish OHSEP	Tropical Cyclones, Flooding, Dam Failure	New
L12: Drought Ordinances	Adopt ordinances requiring water-saving measures in time of drought.	FEMA HMGP, Local	1-5 years	Village of Lucky/Bienville Parish OHSEP	Drought	New
L13: Wildfire Ordinances	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Village of Lucky/Bienville Parish OHSEP	Wildfires	New

## Town of Mount Lebanon - New Mitigation Actions

Town of Mount Lebanon						
Jurisdiction-Specific Action	Action Description	Funding Source	Target Completion Date	Responsible Party, Agency, or Department	Hazard	Status
M1: Building Retrofits	Retrofit public buildings exterior shell to maintain use during and after storm events. Benefits: Reduces damage from high winds, and helps assure that the public buildings can be used, occupied and operable during or after storms.	FEMA HMGP, Local	1-5 years	Town of Mount Lebanon/Bienville Parish OHSEP	High Wind, Tropical Cyclones, Tornadoes	New
M2: Drainage Improvements	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	FEMA HMGP, Local	1-5 years	Town of Mount Lebanon/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
M3: Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.	FEMA HMGP, Local	1-5 years	Town of Mount Lebanon/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
M4: Safe Room Projects	Construction of a safe room for first responders located in Mount Lebanon. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Town of Mount Lebanon/Bienville Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
M5: Education and Outreach	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Drought, Winter Storm, and Dam Failure hazards as well as providing information on high risk areas. Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.	FEMA HMGP, Local	1-5 years	Town of Mount Lebanon/Bienville Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Winter Storms, Drought, Dam Failure	New

M6: Generators for Continuity of Operations and Government	Procurement and installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Town of Mount Lebanon/Bienville Parish OHSEP	Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Extreme Heat	New
M7: Lightning Mitigation	Procurement and installation of lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Town of Mount Lebanon/Bienville Parish OHSEP	Lightning	New
M8: Warning Systems	Update/upgrade public warning system components throughout Mount Lebanon as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Town of Mount Lebanon/Bienville Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
M9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Town of Mount Lebanon/Bienville Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes, Drought, Extreme Heat	New
M10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Town of Mount Lebanon/Bienville Parish OHSEP	Tropical Cyclones, Flooding	New
M11: Flood Control Measures	Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.	FEMA HMGP, Local	1-5 years	Town of Mount Lebanon/Bienville Parish OHSEP	Tropical Cyclones, Flooding, Dam Failure	New
M12: Drought Ordinances	Adopt ordinances requiring water-saving measures in time of drought.	FEMA HMGP, Local	1-5 years	Town of Mount Lebanon/Bienville Parish OHSEP	Drought	New
M13: Wildfire Ordinances	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Town of Mount Lebanon/Bienville Parish OHSEP	Wildfires	New

## Town of Ringgold - New Mitigation Actions

Town of Ringgold						
Jurisdiction-Specific Action	Action Description	Funding Source	Target Completion Date	Responsible Party, Agency, or Department	Hazard	Status
R1: Building Retrofits	Retrofit public buildings exterior shell to maintain use during and after storm events. Benefits: Reduces damage from high winds, and helps assure that the public buildings can be used, occupied and operable during or after storms.	FEMA HMGP, Local	1-5 years	Town of Ringgold/Bienville Parish OHSEP	High Wind, Tropical Cyclones, Tornadoes	New
R2: Drainage Improvements	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	FEMA HMGP, Local	1-5 years	Town of Ringgold/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
R3: Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.	FEMA HMGP, Local	1-5 years	Town of Ringgold/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
R4: Safe Room Projects	Construction of a safe room for first responders located in Ringgold. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Town of Ringgold/Bienville Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
R5: Education and Outreach	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Drought, Winter Storm, and Dam Failure hazards as well as providing information on high risk areas. Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.	FEMA HMGP, Local	1-5 years	Town of Ringgold/Bienville Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Winter Storms, Drought, Dam Failure	New

R6: Generators for Continuity of Operations and Government	Procurement and installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Town of Ringgold/Bienville Parish OHSEP	Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Extreme Heat	New
R7: Lightning Mitigation	Procurement and installation of lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Town of Ringgold/Bienville Parish OHSEP	Lightning	New
R8: Warning Systems	Update/upgrade public warning system components throughout Ringgold as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Town of Ringgold/Bienville Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
R9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Town of Ringgold/Bienville Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes, Drought, Extreme Heat	New
R10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Town of Ringgold/Bienville Parish OHSEP	Tropical Cyclones, Flooding	New
R11: Flood Control Measures	Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.	FEMA HMGP, Local	1-5 years	Town of Ringgold/Bienville Parish OHSEP	Tropical Cyclones, Flooding, Dam Failure	New
R12: Drought Ordinances	Adopt ordinances requiring water-saving measures in time of drought.	FEMA HMGP, Local	1-5 years	Town of Ringgold/Bienville Parish OHSEP	Drought	New
R13: Wildfire Ordinances	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Town of Ringgold/Bienville Parish OHSEP	Wildfires	New



## Village of Saline - New Mitigation Actions

Village of Saline						
Jurisdiction-Specific Action	Action Description	Funding Source	Target Completion Date	Responsible Party, Agency, or Department	Hazard	Status
S1: Building Retrofits	Retrofit public buildings exterior shell to maintain use during and after storm events. Benefits: Reduces damage from high winds, and helps assure that the public buildings can be used, occupied and operable during or after storms.	FEMA HMGP, Local	1-5 years	Village of Saline/Bienville Parish OHSEP	High Wind, Tropical Cyclones, Tornadoes	New
S2: Drainage Improvements	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	FEMA HMGP, Local	1-5 years	Village of Saline/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
S3: Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.	FEMA HMGP, Local	1-5 years	Village of Saline/Bienville Parish OHSEP	Flooding, Tropical Cyclones	New
S4: Safe Room Projects	Construction of a safe room for first responders located in Saline. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Village of Saline/Bienville Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
S5: Education and Outreach	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Drought, Winter Storm, and Dam Failure hazards as well as providing information on high risk areas. Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.	FEMA HMGP, Local	1-5 years	Village of Saline/Bienville Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Extreme Heat, Thunderstorms (lightning, high wind, hail), Winter Storms, Drought, Dam Failure	New

S6: Generators for Continuity of Operations and Government	Procurement and installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Village of Saline/Bienville Parish OHSEP	Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Extreme Heat	New
S7: Lightning Mitigation	Procurement and installation of lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Village of Saline/Bienville Parish OHSEP	Lightning	New
S8: Warning Systems	Update/upgrade public warning system components throughout Saline as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Village of Saline/Bienville Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
S9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Village of Saline/Bienville Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes, Drought, Extreme Heat	New
S10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Village of Saline/Bienville Parish OHSEP	Tropical Cyclones, Flooding	New
S11: Flood Control Measures	Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.	FEMA HMGP, Local	1-5 years	Village of Saline/Bienville Parish OHSEP	Tropical Cyclones, Flooding, Dam Failure	New
S12: Drought Ordinances	Adopt ordinances requiring water-saving measures in time of drought.	FEMA HMGP, Local	1-5 years	Village of Saline/Bienville Parish OHSEP	Drought	New
S13: Wildfire Ordinances	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Village of Saline/Bienville Parish OHSEP	Wildfires	New

### Action Prioritization

During the prioritization process, each jurisdiction and the steering committee considered the costs and relative benefits of each new action. Costs can usually be listed in terms of dollars, although at times it involves staff time rather than the purchase of equipment or services that can be readily measured in dollars. In most cases, benefits, such as lives saved or future damage prevented, are hard to measure in dollars, many projects were prioritized with these factors in mind.

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

The steering committee met internally for mitigation action meetings to review and approve Bienville Parish and the jurisdiction's mitigation actions. On-going actions, as well as actions which can be undertaken by existing parish or local staff without need for additional funding, were given high priority. The actions with high benefit and low cost, political support, and public support but require additional funding from parish or external sources were given medium priority. The actions that require substantial funding from external sources with relatively longer completion time were given low priority. There have been no changes in financial, legal and political priorities within the past 5 years, with the methodology and prioritization process remaining the same.

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

## Appendix A: Planning Process

### Purpose

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

### The Bienville Parish Hazard Mitigation Plan Update

The Bienville Parish Hazard Mitigation Plan Update process began in February 2017 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.

Bienville Parish includes the unincorporated areas of the parish, as well as the ten incorporated municipalities that participated in the plan update process – the Town of Acadia, Village of Bienville, Village of Bryceland, Village of Castor, Town of Gibsland, Village of Jamestown, Village of Lucky, Town of Mount Lebanon, Town of Ringgold, and Village of Saline. Bienville Parish Office of Homeland Security and Emergency Preparedness (OHSEP) invited communities' representatives to meetings, where they supplied critical infrastructure data and reviewed work-in-progress for the plan update.

Similar to the development of the original Hazard Mitigation Plan, the role of the steering committee members during the plan update was to attend the planning meetings and provide valuable information on the parish, develop parts of the plan update, and review the results of research conducted by SDMI. Tasks completed by the steering committee include:

- Reviewing and revising the list of potential hazards included in the plan update
- Assembling a list of critical facilities, such as hospitals, police stations, and shelters
- Updating mitigation goals and objectives
- Determining prudent mitigation measures
- Prioritization of identified mitigation measures

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

Date	Meeting or Outreach	Location	Public Invited	Purpose
2/14/2017	Initial Coordination	Telephone/ Email	No	Discuss with Parish HM coordinator and any Steering Committee members expectations and requirements of the project.
3/15/2017	Kick-Off Meeting	Arcadia, LA	No	Discuss with the plan steering committee expectations and requirements of the project. Assign plan worksheets to jurisdictions.
5/16/2017	Risk Assessment Overview	Arcadia, LA	No	Discuss and review the risk assessment with the steering committee discuss and review expectations for public meeting.
5/16/2017	Public Meeting	Arcadia, LA	Yes	The public meeting allowed the public and community stakeholders to participate and provide input into the hazard mitigation planning process. Maps of the Bienville Parish communities were provide for the meeting attendees to identify specific areas where localized hazards occur.
Ongoing	Public Survey Tool	Online	Yes	This survey asked participants about public perceptions and opinions regarding natural hazards in Bienville Parish. In addition, we asked about the methods and techniques preferred for reducing the risks and losses associated with these hazards. Survey Results: <a href="https://www.surveymonkey.com/r/BienvilleParish">https://www.surveymonkey.com/r/BienvilleParish</a>
2 Week Period	Public Plan Review (Digital)		Yes	Parish Website and Bienville Parish OHSEP



## Planning

The plan update process consisted of several phases:

Phase	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8
Plan Revision								
Data Collection								
Risk Assessment								
Public Input								
Mitigation Strategy and Actions								
Plan Review by GOHSEP and FEMA								
Plan Adoption								
Plan Approval								

## Coordination

The Bienville Parish OHSEP oversaw the coordination of the 2017 Hazard Mitigation Plan Update Steering Committee during the update process. The Bienville Parish OHSEP and participating jurisdictions were responsible for identifying members for the committee.

The Parish Director and SDMI were jointly responsible for inviting the Steering Committee and key stakeholders to all planned meetings and activities by email invitations and calendar invites. SDMI assisted the Parish Director with meeting notices, website 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 the city, state, and regional agencies provided diverse perspectives and mitigation ideas.

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

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

The 2017 Hazard Mitigation Plan Update Steering Committee consisted of representatives from the following parish, municipal, or community stakeholders:

- Bienville Parish Police Jury
- Bienville Office of Homeland Security and Emergency Preparedness
- Town of Arcadia
- Village of Bienville
- Village of Bryceland
- Village of Castor
- Town of Gibsland
- Village of Jamestown
- Village of Lucky
- Town of Mount Lebanon
- Town of Ringgold
- Village of Saline

The Claiborne Parish OHSEP Director was invited by the Bienville Parish OHSEP via email invitation to participate in all meetings and activities as well in an effort to collaborate with neighboring communities. In addition, the participation of the GOHSEP Region 7 Coordinator during the process also contributed to neighboring community representation.

As part of the coordination and planning process, each jurisdiction was provided the State Required Hazard Mitigation Plan Update Worksheet. Jurisdictions with the capability to complete and return these worksheets returned them to assist with the 2017 update. The completed worksheets can be found in Appendix E – State Required Plan Update Worksheets.

A detailed list of the 2017 Hazard Mitigation Plan Update Steering Committee can be found below.

Name	Title	Agency	Address	Phone
Rodney Warren	OHSEP Director	Bienville Parish OHSEP	100 Courthouse Drive, Arcadia, LA 71001	(318) 263-2019
Darryl Ryder	President	Bienville Parish Police Jury	100 Courthouse Drive, Arcadia, LA 71001	(318) 263-2019
Eugene Smith	Mayor	Town of Arcadia	P.O. Box 75, Arcadia, LA 71001	(318) 263-9741
Wesley Boddie	Mayor	Village of Bienville	P.O. Box 109, Bienville, LA 71008	(318) 385-7562
Donald Byrd	Mayor	Village of Bryceland	P.O. Box 302, Arcadia, LA 71001	(318) 263-2439
Vikki Pickett	Mayor	Village of Castor	2093 Hwy. 507, Castor, LA 71016	(318) 544-8723
Terry Wilson	Mayor	Town of Gibsland	P.O. Box 6, Gibsland, LA 71028	(318) 843-6556
James Wiggins	Mayor	Village of Jamestown	5915 Hwy. 154, Jamestown, LA 71045	(318) 422-0723
Tommy Thompson	Mayor	Village of Lucky	13415 Hwy. 4, Castor, LA 71016	(318) 576-8891
Charles Andrews	Mayor	Town of Mount Lebanon	P.O. Box 60, Gibsland, LA 71028	(318) 843-6991
Donna Wiggins	Mayor	Town of Ringgold	P.O. Box 69, Ringgold, LA 71068	(318) 894-4441
Dorothy Satcher	Mayor	Village of Saline	P.O. Box 105, Saline, LA 71070	(318) 576-3272
O'Landis Millican	Community Developer	Town of Arcadia	1819 S. Railroad Ave., Arcadia, LA 71001	(318) 263-8450
Victor Rogers	Chief of Police	Arcadia Police Department	1819 S. Railroad Ave., Arcadia, LA 71001	(318) 263-8455

### 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 Bienville Parish programs and planning.

A measure of integration and coordination is achieved through the Hazard Mitigation Plan participation of steering committee members and community stakeholders, who administer programs such as floodplain management under the National Flood Insurance Program (NFIP) and parish planning and zoning and building code enforcement.

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 Bienville 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 the 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 parish and jurisdiction data and plans reviewed and/or incorporated into the planning process include those listed below:

- Emergency Operations Plan
- State of Louisiana's Hazard Mitigation Plan
- Flood Insurance Rate Maps

Further information on other plans and capabilities reviewed is found in the Capability Assessment, Section 3.

### Meeting Documentation and Public Outreach Activities

The following pages contain information from the meetings and public outreach activities conducted during this Hazard Mitigation Plan Update for Bienville Parish.

## Meeting #1: Coordination Discussion

**Date:** February 14, 2017**Location:** Email**Purpose:** Discuss with the Hazard Mitigation Lead for the parish (OHSEP Director) the expectations and requirements of the Hazard Mitigation Plan Update process and to establish and initial project timeline.**Public Initiation:** No**Invitees Included:** Bienville Parish OHSEP, SDMI Staff

## Meeting #2: Hazard Mitigation Plan Update Kick-Off

**Date:** May 15, 2017**Location:** Arcadia, LA**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**Invitees Included:**

Name	Title	Agency
Rodney Warren	OHSEP Director	Bienville Parish OHSEP
Darryl Ryder	President	Bienville Parish Police Jury
Eugene Smith	Mayor	Town of Arcadia
Wesley Boddie	Mayor	Village of Bienville
Donald Byrd	Mayor	Village of Bryceland
Vikki Pickett	Mayor	Village of Castor
Terry Wilson	Mayor	Town of Gibsland
James Wiggins	Mayor	Village of Jamestown
Tommy Thompson	Mayor	Village of Lucky
Charles Andrews	Mayor	Town of Mount Lebanon
Donna Wiggins	Mayor	Town of Ringgold
Dorothy Satcher	Mayor	Village of Saline
O'Landis Millican	Community Developer	Town of Arcadia
Victor Rogers	Chief of Police	Arcadia Police Department

## Meeting #3: Risk Assessment Overview

**Date:** May 16, 2017**Location:** Arcadia, LA

**Purpose:** Members of the Hazard Mitigation Plan Update Steering Committee were invited and were presented the results of the most recent risk assessment and an overview of the public meeting presentation during this overview. The assessment was conducted based on hazards identified during previous plans.

**Public Initiation:** No**Invitees Included:**

Name	Title	Agency
Rodney Warren	OHSEP Director	Bienville Parish OHSEP
Darryl Ryder	President	Bienville Parish Police Jury
Eugene Smith	Mayor	Town of Arcadia
Wesley Boddie	Mayor	Village of Bienville
Donald Byrd	Mayor	Village of Bryceland
Vikki Pickett	Mayor	Village of Castor
Terry Wilson	Mayor	Town of Gibsland
James Wiggins	Mayor	Village of Jamestown
Tommy Thompson	Mayor	Village of Lucky
Charles Andrews	Mayor	Town of Mount Lebanon
Donna Wiggins	Mayor	Town of Ringgold
Dorothy Satcher	Mayor	Village of Saline
O'Landis Millican	Community Developer	Town of Arcadia
Victor Rogers	Chief of Police	Arcadia Police Department



## Meeting #4: Public Meeting

**Date:** May 16, 2017**Location:** Arcadia, LA

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

**Public Initiation:** Yes**Invitees Included:**

Name	Title	Agency
Rodney Warren	OHSEP Director	Bienville Parish OHSEP
Darryl Ryder	President	Bienville Parish Police Jury
Eugene Smith	Mayor	Town of Arcadia
Wesley Boddie	Mayor	Village of Bienville
Donald Byrd	Mayor	Village of Bryceland
Vikki Pickett	Mayor	Village of Castor
Terry Wilson	Mayor	Town of Gibsland
James Wiggins	Mayor	Village of Jamestown
Tommy Thompson	Mayor	Village of Lucky
Charles Andrews	Mayor	Town of Mount Lebanon
Donna Wiggins	Mayor	Town of Ringgold
Dorothy Satcher	Mayor	Village of Saline
O'Landis Millican	Community Developer	Town of Arcadia
Victor Rogers	Chief of Police	Arcadia Police Department

**\*\*Subject Matter Experts from parish government were present to answer specific questions about proposed projects from any citizens\*\***

**Meeting Public Notice**

BIENVILLE PARISH

OFFICE OF HOMELAND SECURITY &amp; EMERGENCY PREPAREDNESS

MEETING NOTICE –May 9, 2017

**Bienville Parish to hold Public Meetings for Hazard Mitigation Plan Update**

Arcadia, LA – Bienville Parish Office of Homeland Security & Emergency Preparedness is in the process of updating the Bienville Parish Hazard Mitigation Plan and are required to hold public meetings on the plan update. The Public meeting will be held on May 16, 2017 in the Bienville Parish Courthouse located at 100 Courthouse Drive, Arcadia, LA from 1:30PM to 2:30PM.

Natural hazards have the potential to cause property loss, loss of life, economic hardship, and threats to public health and safety. While an important aspect of emergency management deals with disaster recovery (the actions that a community takes to repair damages), an equally important aspect of emergency management involves hazard mitigation - sustained actions taken to reduce long-term risk to life and property. They are things we do today to be more protected in the future. For example, elevating buildings in flood hazard areas, installing hurricane clips and storm shutters, relocating critical facilities out of hazard areas, using fire-resistant construction materials in wildfire hazard areas, etc. Hazard mitigation actions are essential to breaking the typical disaster cycle of damage, reconstruction, and repeated damage. With careful selection, they can be long-term, cost-effective means of reducing risk and helping to create a more sustainable and disaster-resilient community.

A hazard mitigation plan describes an area's vulnerability to the various natural hazards that are typically present, along with an array of actions and projects for reducing key risks. While natural disasters cannot be prevented from occurring, the continued implementation of mitigation strategies identified in the plan will gradually, but steadily, make our communities more sustainable and disaster-resilient.

The Disaster Mitigation Act of 2000 (DMA 2000) requires all states and local governments to have a hazard mitigation plan in order to be eligible to apply for certain types of federal hazard mitigation project grants. Hazard mitigation plans must be: (a) implemented on an ongoing basis, and (b) updated every five years to ensure that they remain applicable representations of local risk and locally-preferred risk reduction strategies.

Bienville Parish is in the beginning stages of updating its hazard mitigation plan. Public meeting will be held on May 16, 2017 for all citizens interested in learning about and participating in discussions concerning the Bienville Hazard Mitigation Plan.

Residents of Bienville Parish are asked to participate in a survey about public perceptions and opinions regarding natural hazards in the parish. The survey results will be used in the development of the plan. This short web-based survey can be found at <https://www.surveymonkey.com/r/BienvilleParish>

For more information, please contact: Rodney Warren, Director OHSEP

#### Outreach Activity #1: Public Opinion Survey

**Date:** Ongoing throughout planning process

**Location:** Web Survey

**Public Initiation:** Yes

#### Outreach Activity #2: Incident Questionnaire

**Date:** Public Meeting Activity

**Location:** Public Meeting

**Public Initiation:** Yes

#### Outreach Activity #3: Mapping Activities

Public meeting attendees were asked to identify areas on jurisdictional 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 section, 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 Plan Review Documentation

The Bienville Parish Hazard Mitigation Draft Plan was placed on the SDMI website to collect comments and feedback from the public. This outreach provided the public an opportunity to comment on the plan during the drafting stage and prior to plan approval. No feedback or public comment was received during this time.

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

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

### Responsible Parties

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

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

### Methods for Monitoring and Evaluating the Plan and Plan Evaluation Criteria

Bienville Parish has developed a method to ensure monitoring, evaluating, and updating of the HMP occurs during the five-year cycle of the plan. The planning committee will become a permanent body and will be responsible for monitoring, evaluating, and updating of the plan. The planning committee meeting will be held annually in order to monitor, evaluate, and update the plan. The Bienville Parish OHSEP Director will be responsible for conducting the annual planning committee meetings.

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

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

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

In addition to monitoring and evaluating the progress of the mitigation plan actions and projects, the mitigation plan is required to be maintained and monitored annually, and updated every five years. The annual maintenance, monitoring and evaluation of the plan will be conducted in the annual planning committee meeting. The planning committee will review each goal and objective to determine their relevance to changing situations in the parish, as well as changes to state or federal policy, and to ensure that they are addressing current and expected conditions. The planning committee will evaluate if any change in hazard profile and risk in the parish occurred during the past year. In addition, the evaluation will include the following criteria in respect of plan implementation:

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

The HMP will be updated every five years to remain eligible for continued HMGP funding. The planning committee will be responsible for updating the HMP. The OHSEP Director will be the lead person for the HMP update. The HMP update process will commence at least one year prior to the expiration of the plan. The HMP will be updated after a major disaster if an annual evaluation of the plan indicate a substantial change in hazard profile and risk assessment in the parish.



Additionally, the public will be canvassed to solicit public input to continue Bienville 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.

Annual Reports on the progress of actions, plan maintenance, monitoring, evaluation, incorporation into existing planning programs, and continued public involvement will be documented at each annual meeting of the committee and kept by the Parish OHSEP Director. The Steering Committee will work together as a team, with each member sharing responsibility for completing the monitoring, evaluation and updates. It is the responsibility of the Parish OHSEP Director for contacting committee members, organizing the meeting and providing public noticing for the meeting to solicit public input.

#### 2017 Plan Version Plan Method and Schedule Evaluation

For the current plan update, the previously approved plan's method and schedule were evaluated to determine if the elements and processes involved in the required 2017 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

It is and has been the responsibility of the Bienville Parish Hazard Mitigation Plan Steering Committee and participating jurisdictions to determine additional implementation procedures when appropriate. This may include integrating the requirements of the Bienville Parish Hazard Mitigation Plan into each jurisdiction's planning documents, processes, or mechanisms as follows:

- Ordinances, Resolutions, Regulations
- Floodplain Ordinances
- Capital Improvements Plan
- Economic Development Plan
- Emergency Operations Plan
- Continuity of Operations Plan
- Transportation Plan
- Community Wildfire Protection Plan

Opportunities to integrate the requirements of this plan into other local planning mechanisms will continue to be identified through future meetings of the Bienville Parish Hazard Mitigation Steering Committee and through the five-year review process described herein. The primary means for integrating mitigation strategies into other local planning mechanisms will be through the revision, update and implementation of each jurisdiction's individual plans that require specific planning and administrative tasks (e.g. risk assessment, plan amendments, ordinance revisions, capital improvement projects, etc.). The members of the steering committee will meet with Department Heads to discuss what should be included in the changes that are necessary before the changes are introduced to the city council or police jury meetings. Steering committee members 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 Bienville Parish Hazard Mitigation Plan, and will not contribute to increased hazard vulnerability within the parish.

During the planning process for new and updated local planning documents at the parish and jurisdiction level, such as a risk assessment, comprehensive plan, capital improvements plan, or emergency operations plan, the jurisdictions will provide a copy of the Parish Hazard Mitigation Plan to the appropriate parties and recommend that all goals and strategies of new and updated local planning documents are consistent with and support the goals of the Parish Hazard Mitigation Plan and will not contribute to increased hazards.

Although it is recognized that there are many possible benefits to integrating components of this plan into other parish and jurisdiction planning mechanisms, the development and maintenance of this stand-alone Hazard Mitigation Plan is deemed by the steering committee to be the most effective and appropriate method to ensure implementation of parish and local hazard mitigation actions.

On behalf of the unincorporated portions of Bienville Parish, as well as the Town of Arcadia, Village of Bienville, Village of Bryceland, Village of Castor, Town of Gibsland, Village of James town, Village of Lucky, Town of Mount Lebanon, Town of Ringgold, and Village of Saline, Bienville Parish has the authority to incorporate the contents of the Hazard Mitigation Plan into the parish's existing regulatory mechanisms. Agreements are currently in place with jurisdictions to allow for the parish incorporation mechanisms to take place.

The following parish and local plans incorporate requirements of this HMP Update as follows through steering committee member and jurisdiction representation throughout the planning process as described above:

**Bienville Unincorporated**

Capital Improvements Plan/Updated as needed/Bienville Parish Police Jury  
Local Emergency Operations Plan/Updated as needed/Bienville Parish OHSEP  
Continuity of Operations Plan/Updated as needed/Bienville Parish OHSEP  
Transportation Plan/Updated as needed/Bienville Parish OHSEP

**Town of Arcadia**

Economic Development Plan/Updated as needed/Bienville Parish Police Jury and Mayor of Arcadia

**Village of Bienville**

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

**Village of Bryceland**

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

**Village of Castor**

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

**Town of Gibsland**

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

**Village of Jamestown**

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

**Village of Lucky**

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

**Town of Mount Lebanon**

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

**Town of Ringgold**

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

**Village of Saline**

Local Emergency Operations Plan/Updated as needed/Bienville Parish OHSEP and Mayor of Saline  
Continuity of Operations Plan/Updated as needed/Bienville Parish OHSEP and Mayor of Saline  
Community Wildfire Plan/Updated as needed/Bienville Parish OHSEP and Mayor of Saline

**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 will include at least one of the following:

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

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## Appendix C: Essential Facilities

## Bienville Parish Essential Facilities – All Jurisdictions

Bienville Parish Unincorporated Essential Facilities												
Type	Name	Drought*	Extreme Heat*	Flooding	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Wildfire	Winter Storms*	Dam Failure*
Fire and Rescue	Bienville Fire Department Ward 7			X	X	X	X	X	X			
	Bienville Fire Department Ward 7 Station 2			X	X	X	X	X	X			
	Bienville Fire Department Ward 7 Station 7			X	X	X	X	X	X			
	Bienville Parish Fire Protection			X	X	X	X	X	X			
	Bienville Parish Fire Protection			X	X	X	X	X	X			
	Bienville Parish Fire Protection District Ward 7 Station 3			X	X	X	X	X	X			
	Bienville Parish Fire Protection District Ward 7 Station 5			X	X	X	X	X	X			
	Bienville Parish Fire Protection District Ward 7 Station 6			X	X	X	X	X	X			
	Bienville Parish Fire Protection District Ward 7 Station 9			X	X	X	X	X	X			
	Bienville Parish Ward 1&2 Fire District - Station 2			X	X	X	X	X	X			
	Bienville Parish Ward 1&2 Fire District - Station 3			X	X	X	X	X	X			
	Fire Station			X	X	X	X	X	X			
	North Bienville Parish Fire District Station No 6			X	X	X	X	X	X			
	North Bienville Parish Fire District Station No 7			X	X	X	X	X	X	X		
	Sailes Fire Tower			X	X	X	X	X	X			
	Shiloh Station			X	X	X	X	X	X			
	Toby Creek Station			X	X	X	X	X	X			
Government	Louisiana DOTD			X	X	X	X	X	X			
	Precinct 3-3 Polling Place			X	X	X	X	X	X	X		
Schools	Ringgold School Complex				X	X	X	X	X	X		



Arcadia Essential Facilities												
Type	Name	Drought*	Extreme Heat*	Flooding	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Wildfire	Winter Storms*	Dam Failure*
Fire and Rescue	Arcadia Fire Department				X	X	X	X	X			
	North Bienville Parish Fire District No. 4				X	X	X	X	X			
Government	Arcadia Town Hall				X	X	X	X	X	X		
	Bienville Parish Council of Aging				X	X	X	X	X			
	Bienville Parish Courthouse			X	X	X	X	X	X	X		
	Bienville Parish Office of Family Support				X	X	X	X	X	X		
	Bienville Parish Police Jury District A Maintenance Facility				X	X	X	X	X			
	Bienville Parish School Board				X	X	X	X	X	X		
	Bienville Parish School Board				X	X	X	X	X			
	LA Department of Public Safety				X	X	X	X	X	X		
	LA DOTD Sub-District HQ				X	X	X	X	X	X		
Law Enforcement	Bienville Parish Sheriff's Office				X	X	X	X	X			
Public Health	Arcadia Healthcare Center			X	X	X	X	X	X	X		
	Bienville Family Clinic				X	X	X	X	X	X		
	Bienville Medical Center				X	X	X	X	X	X		
Schools	Arcadia High School				X	X	X	X	X			
	Arcadia Junior High School				X	X	X	X	X			
	Celia's Child Care				X	X	X	X	X	X		
	Crawford Elementary				X	X	X	X	X			
	Maggie's Child Care Center				X	X	X	X	X	X		
	Thumbs Up Learning Center				X	X	X	X	X	X		



Gibbsland Essential Facilities												
Type	Name	Drought*	Extreme Heat*	Flooding	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Wildfire	Winter Storms*	Dam Failure*
Fire and Rescue	North Bienville Parish Fire District Station No. 5				X	X	X	X	X			
Government	Gibbsland Town Hall				X	X	X	X	X	X		
Law Enforcement	Gibbsland Police Department				X	X	X	X	X			
Schools	Bienville Parish Head Start Center				X	X	X	X	X	X		
	Gibbsland-Coleman High School				X	X	X	X	X			

Jamestown Essential Facilities												
Type	Name	Drought*	Extreme Heat*	Flooding	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Wildfire	Winter Storms*	Dam Failure*
Government	Jamestown Village Hall			X	X	X	X	X	X	X		

Lucky Essential Facilities												
Type	Name	Drought*	Extreme Heat*	Flooding	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Wildfire	Winter Storms*	Dam Failure*
Fire and Rescue	Bienville Fire Department Ward 7 Station 4			X	X	X	X	X	X			
Government	Bienville Parish Police Jury District C				X	X	X	X	X			

Mount Lebanon Essential Facilities												
Type	Name	Drought*	Extreme Heat*	Flooding	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Wildfire	Winter Storms*	Dam Failure*
Fire and Rescue	North Bienville Parish Fire District Station No. 6				X	X	X	X	X			
Government	Municipal Building				X	X	X	X	X			

Ringgold Essential Facilities												
Type	Name	Drought*	Extreme Heat*	Flooding	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Wildfire	Winter Storms*	Dam Failure*
Fire and Rescue	Fire Protection District 4 and 5			X	X	X	X	X	X	X		
	Ringgold Fire Department				X	X	X	X	X			
Government	Bienville Parish Courthouse				X	X	X	X	X			
	Ringgold Town Hall			X	X	X	X	X	X	X		
Law Enforcement	Ringgold Police Department				X	X	X	X	X			
Public Health	Ringgold Rehabilitation Center				X	X	X	X	X	X		

Saline Essential Facilities												
Type	Name	Drought*	Extreme Heat*	Flooding	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Wildfire	Winter Storms*	Dam Failure*
Fire and Rescue	Bienville Parish Fire Protection District Ward 7 Station 1				X	X	X	X	X			
Schools	Saline High School				X	X	X	X	X			

\* There are no critical facilities vulnerable to the hazard.

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## Appendix D: Plan Adoption

BIENVILLE PARISH

STATE OF LOUISIANA

### RESOLUTION

#### A RESOLUTION ADOPTING THE BIENVILLE PARISH HAZARD MITIGATION PLAN 2017

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

WHEREAS the Bienville Parish Police Jury has prepared a multi-hazard mitigation plan, hereby known as Bienville Parish Hazard Mitigation Plan 2017 in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS Bienville Parish Hazard Mitigation Plan 2017 identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Bienville Parish from the impacts of future hazards and disasters; and

WHEREAS adoption by the Bienville Parish Police Jury demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the Bienville Parish Hazard Mitigation Plan 2017.

NOW THEREFORE, BE IT RESOLVED that the BIENVILLE PARISH POLICE JURY hereby adopts the Bienville Parish Hazard Mitigation Plan 2017.

The above resolution was submitted by Mr. Malone, seconded by Mr. Bates, and a roll call vote was as follows:

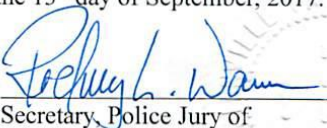
YEAS:	Sims, Roberson, Ryder, Bates, Lawson, Nelson and Malone.
NAYS:	None.
ABSENT:	None.
ABSTAINING:	None.

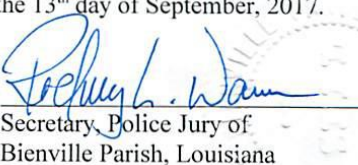
/s/ Rodney L. Warren  
Secretary

/s/ Darryl Ryder  
President

I, Rodney L. Warren, Secretary to the Bienville Parish Police Jury, certify that the foregoing is a true copy of the transaction of said body in regular session convened on the 13<sup>th</sup> day of September, 2017.

Given under my hand and seal of office this the 13<sup>th</sup> day of September, 2017.

  
Secretary, Police Jury of  
Bienville Parish, Louisiana



## RESOLUTION

A RESOLUTION ADOPTING THE BIENVILLE PARISH HAZARD  
MITIGATION PLAN 2017

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

WHEREAS: the Bienville Parish Police Jury has prepared a multi-hazard mitigation plan, hereby known as Bienville Parish Mitigation Plan 2017 in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS: Bienville Parish Hazard Mitigation Plan 2017 identifies mitigation goals and actions to reduce or eliminate long – term risk to people and property in Bienville Parish from the impacts of future hazards and disasters; and

WHEREAS: adoption by the Bienville Parish Police Jury demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the Bienville Parish Hazard Mitigation Plan 2017.

NOW THEREFORE, BE IT RESOLVED that the TOWN OF ARCADIA hereby adopts the Bienville Parish Hazard Mitigation Plan 2017.

The above Resolution was motioned by Gary Carlisle and seconded by Melanie Morroe, and a roll call was as follows;

YEAS: 3

NAYS: 0

ABSTAIN: 0

ABSENT: 2

I Richard Partington, Town Clerk of the Town of Arcadia, do hereby certify that the foregoing Resolution is a true and exact copy adopted by the Town of Arcadia Town Council at a meeting thereof legally held on the 10<sup>th</sup> day of April, 2018.

Richard Partington

Richard Partington, Town Clerk

VILLAGE OF BIENVILLE  
STATE OF LOUISIANA  
RESOLUTION # 201705

HAZARD MITIGATION PLAN RESOLUTION

BE IT KNOWN, that in public meeting of the VILLAGE OF BIENVILLE, LOUISIANA held on the 2<sup>nd</sup> day of October, 2017, that the following resolution was introduced, made and adopted by the Council of the Village of Bienville:

WHEREAS, the Village of Bienville recognizes the threat that natural hazards and disasters pose to people and property within the Village of Bienville; AND,

WHEREAS, the Village of Bienville has prepared a multi-hazard mitigation plan, hereby known as the VILLAGE DISASTER MITIGATION PLAN in accordance with the Disaster Mitigation Act of 2000; AND,

WHEREAS, the VILLAGE DISASTER MITIGATION PLAN clearly identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Village of Bienville from the impacts of future hazards and disasters; AND

WHEREAS, the adoption by the Village of Bienville demonstrated their commitment to hazard mitigation and to achieving the goals outlined in the VILLAGE DISASTER MITIGATION PLAN.

THEREFORE, BE IT RESOLVED BY THE VILLAGE OF BIENVILLE that in accordance with law, the Village of Bienville does hereby adopt the VILLAGE DISASTER MITIGATION PLAN.

Said Resolution having been duly introduced, read aloud, and a vote having been taken thereon, said vote recorded as follows:

YEAS: 2

NAYS: 0

VOTE TALLY: YEAS: 2 NAYS: 0

CERTIFIED:

  
MAYOR

I, the undersigned clerk of the Village of Bienville, certify that the above resolution was duly offered, seconded and PASSED on this the 2<sup>nd</sup> day of October, 2017 at Bienville, Louisiana.

  
VILLAGE CLERK

## VILLAGE OF BRYCELAND

## STATE OF LOUISIANA

## RESOLUTION

A RESOLUTION ADOPTING THE VILLAGE OF BRYCELAND HAZARD  
MITIGATION PLAN 2017

WHEREAS the Village of BRYCELAND recognizes that the threat that natural hazards pose to people and property within Bryceland and

WHEREAS the Village of Bryceland has prepared a multi-hazard mitigation plan, hereby known as Village of Bryceland Hazard Mitigation Plan 2017 in accordance with the Disaster Mitigation Act of 2000;  
and

WHEREAS the Village Of Bryceland Mitigation Plan 2017 identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Bryceland from the impacts of future hazards and disasters: and

WHEREAS adoption by the Village Of Bryceland demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the Village Of Bryceland Hazard Mitigation Plan 2017.

NOW THEREFORE, BE IT RESOLVED THAT THE VILLAGE OF BRYCELAND hereby adopts the Village Of Bryceland Hazard Mitigation Plan 2017.

The above resolution was submitted by Mr. MOSS, seconded by Mrs. MAYUEX, and a roll call vote was as follows:

YEAS: 3

NAYS: 0

This 12<sup>th</sup> day of SEPT, 2017.

Donald L. Bynl  
Mayor, Village Of Bryceland



RESOLUTION***A RESOLUTION ADOPTING THE BIENVILLE PARISH HAZARD MITIGATION PLAN 2017***

**WHEREAS**, the Village of Castor Mayor and Town Council recognize the threat that natural hazards pose to people and property within the Village of Castor; and

**WHEREAS**, Bienville Parish Government has prepared a multi-hazard mitigation plan, hereby known as Bienville Parish Hazard Mitigation Plan 2017 in accordance with the Disaster Mitigation Act of 2000; and

**WHEREAS**, Bienville Parish Hazard Mitigation Plan 2017 identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Village of Castor from the impacts of future hazards and disasters; and

**WHEREAS**, adoption by the Village of Castor Town Council demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the Bienville Parish Hazard Mitigation Plan 2017.

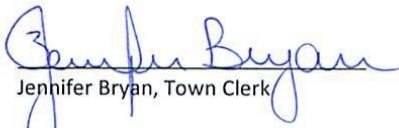
**NOW THEREFORE, BE IT RESOLVED** that the Village of Castor Town Council hereby adopts the Bienville Parish Hazard Mitigation Plan 2017.

The above resolution having been submitted to the Town Council and discussed at a public meeting on September 11, 2017; after a motion by Willard Sullivan and second by Kerry Girouard, and having been submitted for a vote, the vote was as follows:

YEAS: 3  
NAYS: 0  
ABSTAIN: 0  
ABSENT: 0

  
Vicki S. Pickett, MayorCERTIFICATE

I, Jennifer Bryan, Town Clerk of the Village of Castor, do hereby certify that the foregoing resolution is a true and exact copy adopted by the Village of Castor Town Council at a meeting thereof legally held on the 11<sup>th</sup> day of September, 2017.

  
Jennifer Bryan, Town Clerk



09-13-17;14:32 ;From:

To:2637404

;3188439409

# 2/ 2

**BIENVILLE PARISH  
STATE OF LOUISIANA  
RESOLUTION  
A RESOLUTION ADOPTING THE BIENVILLE PARISH HAZARD MITIGATION  
PLAN**

**WHEREAS** the Town of Gibsland recognizes the threat that natural hazards pose to people and property within Bienville Parish; and

**WHEREAS** the Town of Gibsland has prepared a multi-hazard mitigation plan, hereby known as Bienville Parish Hazard Mitigation Plan 2017 in accordance with Disaster Mitigation Act of 2000; and

**WHEREAS** Bienville Parish Hazard Mitigation Plan 2017 identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Bienville Parish from the impacts of future hazards and disasters; and

**WHEREAS** adoption by the Town of Gibsland demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the Bienville Parish Hazard Mitigation Plan 2017.

**NOW THEREFORE, BE IT RESOLVED** that the Town of Gibsland hereby adopts the Bienville Parish Hazard Mitigation Plan 2017.

The above resolution was motioned by, Alderman Jeanine Richardson seconded by Alderman Eddie Thompson, and a roll call vote was as follows:

**YEAS: 4**

**NAYS: 0**

**ABSENT: 1**

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JAMES WIGGINS

PAGE 02/02

VILLAGE OF JAMESTOWN

BIENVILLE PARISH

STATE OF LOUISIANA

RESOLUTION # 2017-02

A RESOLUTION ADOPTING THE BIENVILLE PARISH HAZARD MITIGATION PLAN 2017

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

WHEREAS the Bienville Parish Police Jury has prepared a multi-hazard mitigation plan, hereby known as Bienville Parish Hazard Mitigation Plan 2017 in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS Bienville Parish Hazard Mitigation Plan 2017 identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Bienville Parish from the impacts of future hazards and disasters; and

WHEREAS adoption by the Bienville Parish Police Jury demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the Bienville Parish Hazard Mitigation Plan 2017.

NOW THEREFORE, BE IT RESOLVED that the VILLAGE OF JAMESTOWN hereby adopts the Bienville Parish Hazard Mitigation Plan 2017.

The above resolution was submitted by Mr. Ralph Todd, seconded by Mr. Ray Bare, and a roll call vote was as follows:

YEAS: Jannet Wiggins, Ray Bare, Ralph Todd

NAYS: None.

Abstaining: None.

BIENVILLE PARISH

STATE OF LOUISIANA

RESOLUTION

A RESOLUTION ADOPTING THE BIENVILLE PARISH HAZARD MITIGATION PLAN 2017

WHEREAS the Village of Lucky recognizes the threat that natural hazards pose to people and property with Bienville Parish; and

WHEREAS the Village of Lucky has prepared a multi-hazard mitigation plan, hereby known as Bienville Parish Hazard Mitigation Plan 2017 in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS Bienville Parish Hazard Mitigation Plan 2017 identifies mitigation goals and action to reduce or eliminate long-term risk to people and property in Bienville Parish from the impacts of future hazards and disasters; and

WHEREAS adoption by the Village of Lucky demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the Bienville Parish Hazard Mitigation Plan 2017.

NOW THEREFORE< BIT RESOLVED that the VILLAGE OF LUCKY hereby adopts the Bienville Parish Hazard Mitigation Plan 2017.

The above resolution was submitted by Mr. Devertis Lard, Sr., seconded by Mr. Raymond Calep, and a roll call vote was as follows:

YEAS: Thompson, Lard and Calep

NAYS: None.

ABSTAINING: None.

## VILLAGE OF MT LEBANON

P.O. BOX 742

GIBSLAND, LOUISIANA 71028

09/12/2017

### RESOLUTION-2017-01

#### A RESOLUTION OF THE VILLAGE OF MT LEBANON

#### MITIGATION PLAN

**WHEREAS**, the VILLAGE OF MT LEBANON recognizes the threat that natural hazards to people and property within the VILLAGE OF MT LEBANON; and

hazard mitigation and achieving the goals outlined in the mitigation plan in the Parish of Bienville and State of Louisiana.

**NOW THEREFORE, BE IT RESOLVED BY THE VILLAGE OF MT LEBANON, LOUISIANA, THAT:**

In accordance with the VILLAGE OF MT LEBANON, PARISH OF BIENVILLE, THE COUNCIL  
ADOPTS THE BIENVILLE PARISH HAZARD MITIGATION PLAN

YEAS\_3\_\_NAYS\_\_ABSTAINED\_\_ABSENT\_1\_\_

#### CERTIFICATION

I hereby certify that the foregoing is a true and exact copy of the resolution adopted at a regular scheduled board meeting held on September 12, 2017 at 6:30pm, in Gibsland Louisiana at the Village of Mt Lebanon council meeting, at which a quorum was present.

Mayor



Charles Andrews

Clerk



Mary Rochelle

# **RESOLUTION**

## **A RESOLUTION ADOPTING THE BIENVILLE PARISH HAZARD MITIGATION PLAN 2017**

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

**WHEREAS:** the Bienville Parish Police Jury has prepared a multi-hazard mitigation plan, hereby known as Bienville Parish Mitigation Plan 2017 in accordance with the Disaster Mitigation Act of 2000; and

**WHEREAS:** Bienville Parish Hazard Mitigation Plan 2017 identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Bienville Parish from the impacts of future hazards and disasters; and

**WHEREAS:** adoption by the Bienville Parish Police Jury demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the Bienville Parish Hazard Mitigation Plan 2017.

**NOW THEREFORE, BE IT RESOLVED** that the TOWN OF RINGGOLD hereby adopts the Bienville Parish Hazard Mitigation Plan 2017.

The above Resolution was motioned by Alan Clayborn and seconded by Keith Johnson, and a roll call was as follows:

**YEAS: 3**

**NAYS: 0**

**ABSTAIN: 0**

**ABSENT: 2**

I, Susan Bryan, Town Clerk of the Town of Ringgold, do hereby certify that the foregoing Resolution is a true and exact copy adopted by the Town of Ringgold Town Council at a meeting thereof legally held on the 14<sup>th</sup> day of September, 2017.

  
Susan Bryan, Town Clerk



**BIENVILLE PARISH**

**STATE OF LOUISIANA**

**RESOLUTION**

**A RESOLUTION ADOPTING THE BIENVILLE PARISH HAZARD MITIGATION PLAN  
2017**

**WHEREAS** the Village of Saline Mayor and City Council recognizes the threat that natural hazards pose to people and property within the Village of Saline and

**WHEREAS** the Bienville Parish Police Jury has prepared a multi-hazard mitigation plan, hereby known as Bienville Parish Hazard Mitigation Plan 2017 in accordance with the Disaster Mitigation Act of 2000; and

**WHEREAS** Bienville Parish Hazard Mitigation Plan 2017 identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Bienville Parish from the impacts of future hazards and disasters; and

**WHEREAS** adoption by the Village of Saline demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the Bienville Parish Hazard Mitigation Plan 2017.

**NOW THEREFORE, BE IT RESOLVED** that the Village of Saline hereby adopts the Bienville Parish Hazard Mitigation Plan 2017.

The above resolution was submitted by Brenda Matthews  
seconded by Patricia Sullivan and a roll call vote was as follows:

**YEAS:** Brenda Matthews, Patricia Sullivan, Becky Chestwood

**NAYS:** None

**ABSTAINING:** None

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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 and vulnerable populations and NFIP information. The following pages contain documentation of the worksheets.

### Mitigation Planning Team

Name	Title	Agency	Address	Phone
Rodney Warren	OHSEP Director	Bienville Parish OHSEP	100 Courthouse Drive, Arcadia, LA 71001	(318) 263-2019
Darryl Ryder	President	Bienville Parish Police Jury	100 Courthouse Drive, Arcadia, LA 71001	(318) 263-2019
Eugene Smith	Mayor	Town of Arcadia	P.O. Box 75, Arcadia, LA 71001	(318) 263-9741
Wesley Boddie	Mayor	Village of Bienville	P.O. Box 109, Bienville, LA 71008	(318) 385-7562
Donald Byrd	Mayor	Village of Bryceland	P.O. Box 302, Arcadia, LA 71001	(318) 263-2439
Vikki Pickett	Mayor	Village of Castor	2093 Hwy. 507, Castor, LA 71016	(318) 544-8723
Terry Wilson	Mayor	Town of Gibsland	P.O. Box 6, Gibsland, LA 71028	(318) 843-6556
James Wiggins	Mayor	Village of Jamestown	5915 Hwy. 154, Jamestown, LA 71045	(318) 422-0723
Tommy Thompson	Mayor	Village of Lucky	13415 Hwy. 4, Castor, LA 71016	(318) 576-8891
Charles Andrews	Mayor	Town of Mount Lebanon	P.O. Box 60, Gibsland, LA 71028	(318) 843-6991
Donna Wiggins	Mayor	Town of Ringgold	P.O. Box 69, Ringgold, LA 71068	(318) 894-4441
Dorothy Satcher	Mayor	Village of Saline	P.O. Box 105, Saline, LA 71070	(318) 576-3272
O'Landis Millican	Community Developer	Town of Arcadia	1819 S. Railroad Ave., Arcadia, LA 71001	(318) 263-8450
Victor Rogers	Chief of Police	Arcadia Police Department	1819 S. Railroad Ave., Arcadia, LA 71001	(318) 263-8455

## Capability Assessment

## Bienville Unincorporated

<b>Planning and Regulatory</b>		
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Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.

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

## Administration and Technical

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

Administration	Yes/No	Comments
Planning Commission	No	
Mitigation Planning Committee	No	
Maintenance programs to reduce risk (tree trimming, clearing drainage systems)	Yes	
<b>Staff</b>		
Chief Building Official	Yes	
Floodplain Administrator	Yes	
Emergency Manager	Yes	
Community Planner	No	
Civil Engineer	Yes	
GIS Coordinator	No	
Grant Writer	No	
Other		
<b>Technical</b>		
Warning Systems / Service (Reverse 911, outdoor warning signals)	No	
Hazard Data & Information	Yes	
Grant Writing	No	
Hazus Analysis	No	
Other		



## Financial

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

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

Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information.

Program / Organization	Yes/No	Comments
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Yes	
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	No	
Natural Disaster or safety related school program	No	
Storm Ready certification	No	
Firewise Communities certification	No	
Public/Private partnership initiatives addressing disaster-related issues	No	
Other		

## Town of Arcadia

<b>Planning and Regulatory</b>		
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Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.

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

## Administration and Technical

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

Administration	Yes/No	Comments
Planning Commission	No	
Mitigation Planning Committee	No	
Maintenance programs to reduce risk (tree trimming, clearing drainage systems)	No	
Staff		
Chief Building Official	Community Developer	
Floodplain Administrator	No	
Emergency Manager	No	
Community Planner	No	
Civil Engineer	No	
GIS Coordinator	No	
Grant Writer	No	
Other	No	
Technical		
Warning Systems / Service (Reverse 911, outdoor warning signals)	No	
Hazard Data & Information	No	
Grant Writing	No	
Hazus Analysis	No	
Other	No	

## Financial

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

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

Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information.

Program / Organization	Yes/No	Comments
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No	
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	No	
Natural Disaster or safety related school program	No	
Storm Ready certification	No	
Firewise Communities certification	No	
Public/Private partnership initiatives addressing disaster-related issues	No	
Other		

## Village of Bienville

<b>Planning and Regulatory</b>		
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Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.

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



## Administration and Technical

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

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

## Financial

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

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

Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information.

Program / Organization	Yes/No	Comments
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No	
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	No	
Natural Disaster or safety related school program	No	
Storm Ready certification	No	
Firewise Communities certification	No	
Public/Private partnership initiatives addressing disaster-related issues	No	
Other		

## Village of Bryceland

<b>Planning and Regulatory</b>		
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Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.

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

## Administration and Technical

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

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

## Financial

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

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

Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information.

Program / Organization	Yes/No	Comments
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No	
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	No	
Natural Disaster or safety related school program	No	
Storm Ready certification	No	
Firewise Communities certification	No	
Public/Private partnership initiatives addressing disaster-related issues	No	
Other		



## Village of Castor

<b>Planning and Regulatory</b>		
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Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.

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

## Administration and Technical

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

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

## Financial

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

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

Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information.

Program / Organization	Yes/No	Comments
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No	
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	Yes	
Natural Disaster or safety related school program	Yes	
Storm Ready certification	No	
Firewise Communities certification	No	
Public/Private partnership initiatives addressing disaster-related issues	No	
Other	No	

## Town of Gibsland

<b>Planning and Regulatory</b>		
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Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.

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

## Administration and Technical

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

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



## Financial

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

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

Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information.

Program / Organization	Yes/No	Comments
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	None	
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	None	
Natural Disaster or safety related school program	None	
Storm Ready certification	None	
Firewise Communities certification	None	
Public/Private partnership initiatives addressing disaster-related issues	None	
Other	None	

## Village of Jamestown

<b>Planning and Regulatory</b>		
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Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.

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

## Administration and Technical

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

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

## Financial

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

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

Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information.

Program / Organization	Yes/No	Comments
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No	
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	No	
Natural Disaster or safety related school program	No	
Storm Ready certification	No	
Firewise Communities certification	No	
Public/Private partnership initiatives addressing disaster-related issues	No	
Other		

## Village of Lucky

<b>Planning and Regulatory</b>		
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Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.

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

## Administration and Technical

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

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



## Financial

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

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

Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information.

Program / Organization	Yes/No	Comments
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No	
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	No	
Natural Disaster or safety related school program	No	
Storm Ready certification	No	
Firewise Communities certification	No	
Public/Private partnership initiatives addressing disaster-related issues	No	
Other		

## Town of Mount Lebanon

<b>Planning and Regulatory</b>		
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Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.

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

## Administration and Technical

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

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

## Financial

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

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

Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information.

Program / Organization	Yes/No	Comments
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No	
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	No	
Natural Disaster or safety related school program	No	
Storm Ready certification	No	
Firewise Communities certification	No	
Public/Private partnership initiatives addressing disaster-related issues	No	
Other		

## Town of Ringgold

<b>Planning and Regulatory</b>		
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Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.

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

## Administration and Technical

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

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



## Financial

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

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

Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information.

Program / Organization	Yes/No	Comments
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No	
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	No	
Natural Disaster or safety related school program	No	
Storm Ready certification	No	
Firewise Communities certification	No	
Public/Private partnership initiatives addressing disaster-related issues	No	
Other		

## Village of Saline

<b>Planning and Regulatory</b>		
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Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.

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

## Administration and Technical

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

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

## Financial

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

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

Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information.

Program / Organization	Yes/No	Comments
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Yes	
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	Yes	
Natural Disaster or safety related school program	No	
Storm Ready certification	No	
Firewise Communities certification	Yes	
Public/Private partnership initiatives addressing disaster-related issues	No	
Other		

## Building Inventory

Critical Facility (If Yes, Mark X)	Name of Building	Purpose of Building	Address	City	Latitude	Longitude	Assessed Value	Date Built	Const. Type
<b>Bienville Unincorporated</b>									
X	Bienville Parish Fire Protection District Ward 7 Station 6	Fire Search and Rescue	Danville Road	Danville	32.2519425	-92.82023296	\$5,625.00		Metal
X	Bienville Parish Fire Protection District Ward 7 Station 3	Fire Search and Rescue	Louisiana 155	Friendship	32.23693878	-92.89527827	\$10,875.00		Metal
X	Bienville Parish Fire Protection District Ward 7 Station 5	Fire Search and Rescue	10401-10599 Louisiana 501	Shady Grove	32.18630638	-92.85967504	\$6,225.00		Metal
X	North Bienville Parish Fire District Station No. 7	Fire Search and Rescue	Taylor Church Road	Taylor	32.54855532	-93.13117235	\$19,800.00		Metal
X	Bienville Parish Ward 1 & 2 Fire District - Station 2	Fire Search and Rescue	Par Road 163	Union	32.44200882	-92.90323795	\$6,675.00		Metal
X	Precinct 3-3 Polling Place	Civil Government	146-198 Woodard Walker Road	Ada	32.54720353	-93.14328098	\$4,200.00		Metal
X	Sailes Fire Tower	Fire Search and Rescue	Sailes Firetower Road	Sailes	32.36252225	-93.14002386			Metal
X	Bienville Parish Courthouse	Governmental Functions	100 Courthouse Drive	Arcadia	32.567386	-92.918847	12,000,000	2013	Concrete
<b>Arcadia</b>									
X	Arcadia High School	Education	Arcadia	Arcadia	32.55529566	-92.90800688	\$1,185,705.00		Reinforced Masonry
X	Arcadia Junior High School	Education	Arcadia School Road	Arcadia	32.55487824	-92.90757371	\$1,185,705.00		Reinforced Masonry
X	Crawford Elementary	Education	935 Daniel Street	Arcadia	32.55532716	-92.90708541	\$371,790.00		Reinforced Masonry
	Vacant School	Education	1068 Crawford Street	Arcadia	32.56080294	-92.93494462	\$118,260.00		Reinforced Masonry
X	Pafford Emergency Medical Service	Emergency Medical Services	Nearby: 1202 Daniel Street	Arcadia	32.55592472	-92.91278248	\$20,520.00		Metal
X	Unknown Fire Station	Fire Search and Rescue	Earl White Road	Arcadia	32.57987746	-92.90067278	\$6,600.00		Metal
X	Unknown Fire Station	Fire Search and Rescue	2578 Maple Street	Arcadia	32.54846532	-92.92372298	\$21,450.00		Metal
X	North Bienville Parish Fire District Station No. 4	Fire Search and Rescue	1934 South Railroad Avenue	Arcadia	32.5484853	-92.92263752	\$41,175.00		Metal
X	Arcadia Fire Department	Fire Search and Rescue	1819 South Railroad Avenue	Arcadia	32.54996893	-92.92099418	\$41,175.00		Metal
X	Bienville Parish Sheriff's Office	Law Enforcement	Nearby: 100-106 Courthouse Drive	Arcadia	32.54726709	-92.92543057	\$193,185.00		Concrete
	Bienville Parish Office of Family Support	Civil Government	1183-1353 U.S. 80	Arcadia	32.54624158	-92.91399457	\$86,670.00		Reinforced Masonry

	Bienville Parish School Board	Civil Government	Bienville Parish School Board	Arcadia	32.54629936	-92.92506856	\$182,790.00		Reinforced Masonry
X	Bienville Parish Courthouse	Civil Government	100 Courthouse Drive # 103	Arcadia	32.54706807	-92.92527376	\$193,185.00		Concrete
X	Arcadia Town Hall	Civil Government	1819 South Railroad Avenue	Arcadia	32.54757308	-92.92159563	\$113,130.00		Reinforced Masonry
	Louisiana DOTD Sub-District Headquarters - Arcadia Maintenance Unit	Civil Government	18601-18699 6th Street	Arcadia	32.56191878	-92.94011354	\$69,300.00		Metal
X	Bienville Parish Courthouse	Civil Government	100 Courthouse Drive # 103	Arcadia	32.56737895	-92.91886432	\$193,185.00		Reinforced Masonry
	Bienville Parish Police Jury District A Maintenance Facility	Civil Government	1228 U.S. 80	Arcadia	32.54599949	-92.91088764	\$39,100.00		Metal
	Bienville Parish Council on Aging	Civil Government	600 Factory Outlet Drive # 15	Arcadia	32.54763258	-92.92542448	\$36,990.00		Reinforced Masonry
X	Bienville Medical Center	Hospital or Medical Center	1175 Pine Street	Arcadia	32.5539309	-92.91308003	\$683,400.00		Reinforced Masonry
	Unknown Airport	Airports and Airfields	Nearby: Arcadia-Bienville Parish Airport	Arcadia	32.53186799	-92.95260773	\$135,000.00		
<b>Bienville</b>									
X	Bienville School	Education	Claiborne Street	Bienville	32.35744199	-92.97723727	\$493,965.00		Reinforced Masonry
X	Bienville Fire Department	Fire Search and Rescue	Bienville	Bienville	32.35676253	-92.97225712	\$13,875.00		Metal
X	Bienville Fire Department Ward 7	Fire Search and Rescue	Louisiana 508	Bienville	32.33385064	-92.8877657	\$6,975.00		Metal
X	Bienville Fire Department Ward 7 Station 7	Fire Search and Rescue	1119-1199 Louisiana 155	Bienville	32.32877188	-92.81837969	\$5,850.00		Metal
X	Bienville Parish Policy Jury District C	Civil Government	Nearby: Par Road 1401	Bienville	32.25677913	-92.99246963	\$21,675.00		Metal
<b>Bryceland</b>									
X	Bienville Parish Ward 1 & 2 Fire District - Station 1	Fire Search and Rescue	Fire Station Road	Bryceland	32.45065454	-92.98291405	\$12,675.00	1980	Metal
X	Bienville Parish Ward 1 & 2 Fire District - Station 3	Fire Search and Rescue	Louisiana 147	Bryceland	32.42475846	-92.84926629	\$13,200.00	1980	Metal
X	Shiloh Station	Fire Search and Rescue	5903-5905 Louisiana 516	Bryceland	32.42996418	-93.05844662	\$4,500.00	1980	Metal
<b>Castor</b>									
X	Community Center	Gatherings, Emergency Shelter, Meetings	111 Lodge St.	Castor			\$23,700.00	2007	Metal
X	Fire Station	Training, Fire Equipment, Meetings	9140 Hwy 4	Castor	32.25337855	-93.16291117	\$30,450.00	2010	Metal
X	Castor High School	Education	140 Front Street	Castor	32.25069312	-93.16719337	\$1,096,605.00	1952	Reinforced Masonry
X	Bienville Parish Fire Protection	Fire Search and Rescue	1505 U.S. 371	Castor	32.2750132	-93.27875864	\$13,275.00		Metal



X	Village of Castor City Hall	Civil Government	126 Front Street	Castor	32.25178856	-93.16583277	\$42,390.00	2001	Reinforced Masonry
	Louisiana DOTD	Civil Government	Louisiana 792	Castor	32.2653976	-93.17629133	\$27,750.00		Metal
X	Community Center	Gatherings, Emergency Shelter, Meetings	111 Lodge St.	Castor			\$23,700.00	2007	Metal
<b>Gibbsland</b>									
X	Gibbsland-Coleman High School	Education	501 10th St	Gibbsland	32.53819365	-93.06217023	\$833,085.00		Reinforced Masonry
X	North Bienville Parish Fire District Station No. 5	Fire Search and Rescue	2452 South Main	Gibbsland	32.54438406	-93.05284526	\$12,900.00		Metal
X	Gibbsland Police Department	Law Enforcement	Nearby: 1120 South 1st	Gibbsland	32.5451043	-93.05329568	\$59,805.00		Reinforced Masonry
X	Gibbsland Town Hall	Civil Government	1819 South Railroad Avenue	Gibbsland	32.54501996	-93.05328801	\$59,805.00		Reinforced Masonry
<b>Jamestown</b>									
X	City Hall	Town Administration/ Fire Service/Reserve Service	4219 E. Front St.	Jamestown			\$9,000.00	1985	Metal
X	Fire Station	Fire Search and Rescue	190 Memorial Park Drive	Jamestown	32.38099517	-93.38092856	\$12,900.00		Metal
X	Kepler-Sailes Fire Department	Fire Search and Rescue	Louisiana 154	Jamestown	32.35543538	-93.1429138	\$18,675.00		Metal
X	Jamestown Village Hall	Civil Government	4333-5153 East Front Street	Jamestown	32.34179365	-93.2106889	\$25,125.00		Metal
<b>Lucky</b>									
X	Bienville Fire Department Ward 7 Station 4	Fire Search and Rescue	Louisiana 9	Lucky	32.25373626	-92.99743452	\$11,400.00		Metal
X	Bienville Fire Department Ward 7 Station 2	Fire Search and Rescue	10314-10498 Louisiana 155	Lucky	32.17658936	-93.05205088	\$6,750.00		Metal
X	Toby Creek Station	Fire Search and Rescue	2555-2565 Louisiana 153	Lucky	32.17810262	-93.13414938	\$9,150.00		Metal
<b>Mount Lebanon</b>									
X	North Bienville Parish Fire District Station No. 6	Fire Search and Rescue	875 Louisiana 793	Mt. Lebanon	32.47903204	-93.12090073	\$6,600.00		Metal
X	Municipal Building	Civil Government	12000 LA HWY 154	Mt. Lebanon	32.503309	-93.048819	\$29,835.00		Reinforced Masonry
<b>Ringgold</b>									
X	Ringgold School Complex	Education	140 Front Street	Ringgold	32.32275939	-93.26833311	\$1,563,840.00		Reinforced Masonry
X	Fire Protection District Ward 4 & 5	Fire Search and Rescue	1901-1999 U.S. 371	Ringgold	32.32329104	-93.28063975	\$73,500.00		Metal
X	Ringgold Fire Dept	Fire Search and Rescue	1721 Military Road	Ringgold	32.32691043	-93.27194797	\$31,350.00		Metal
X	Bienville Parish Fire Protection	Fire Search and Rescue	Louisiana 4	Ringgold	32.27611743	-93.3626519	\$13,875.00		Metal

X	Bienville Parish Courthouse	Civil Government	1801-1949 School Street	Ringgold	32.32819478	-93.28721153	\$138,780.00		Reinforced Masonry
X	Ringgold Police	Civil Government	1927 Hall Street	Ringgold	32.32972556	-93.2868077	\$147,015.00		Reinforced Masonry
X	Ringgold Town Hall	Civil Government	1927 Hall Street	Ringgold	32.32972556	-93.2868077	\$147,015.00		Reinforced Masonry
Saline									
X	Saline High School	Education	None	Saline	32.16176963	-92.97374182	\$703,080.00		Reinforced Masonry
X	Bienville Parish Fire Protection District Ward 7 Station 9	Fire Search and Rescue	277-803 Par Road 700	Saline	32.1624366	-93.01039002	\$6,450.00		Metal
X	Bienville Parish Fire Protection District Ward 7 Station 1	Fire Search and Rescue	Cooper Street	Saline	32.1622256	-92.97417608	\$13,950.00		Metal

## Vulnerable Populations

## Vulnerable Populations Worksheet

## Bienville Parish

Name	Street	City	Zip Code	Latitude	Longitude
<b>All Hospitals (Private or Public)</b>					
Bienville Medical Center (Private)	1175 Pine Street	Arcadia	71001	32.554101	-92.913065
<b>Nursing Homes (Private or Public)</b>					
Willow Ridge Nursing & Rehabilitation Center	660 Factory Outlet Drive	Arcadia	71001	32.561897	-92.915825
Leslie lakes Retirement Center	1355 6th Street	Arcadia	71001	32.552872	-92.914702
Ringgold Nursing & Rehabilitation Center	2501 Kenneth Street	Ringgold	71068	32.318145	-93.282468
Premier Hospice	Nearby: 1202-1753 Daniel Street	Arcadia	71001	32.55589322	-92.91594855
Arcadia Haven	Nearby: 1202-1753 Daniel Street	Arcadia	71001	32.5566493	-92.91391659
Arcadia Place	Nearby: 1202-1753 Daniel Street	Arcadia	71001	32.55668868	-92.91320777
Leslie Lakes Retirement Center	Nearby: 2180 Pine Street	Arcadia	71001	32.55246254	-92.91507274
Willow Ridge	Nearby: 700 Factory Outlet Drive	Arcadia	71001	32.56189235	-92.91611102
Ringgold Nursing Home and Rehabilitation Center	Nearby: Kenneth Street	Ringgold	71068	32.31812578	-93.28243261
<b>Mobile Home Parks</b>					
Freeman's Trailer Park	8775 Hwy 4	Castor	71016		
Williams	Cooper	Saline	71020		
Bonnie & Clyde Trade Days & RV Park	20550 Louisiana 9	Arcadia	71001	32.51886192	-92.93997129
Unknown Trailer Park	Hampton Road	Arcadia	71001	32.57529383	-92.93797848
Wispering Pines RV Park	4080 U.S. 371	Jamestown	71039	32.36559825	-93.28038591
Unknown	148-472 Shiloh Cemetery Road	Bryceland	71028	32.45459824	-92.99847753
Gilcrease	Louisiana 507	Bryceland	71008	32.37442389	-92.93691976
Unknown	5090-5108 Louisiana 147	Union	71275	32.39065746	-92.8224498
Lowes Camp	Louisiana 147	Union	71268	32.3812663	-92.81832509

T&T RV Park	3973 Bienville Road	Ringgold	71068	32.3256464	-93.26736044
Ringgold RV Park	3561 Bienville Road	Ringgold	71068	32.327842	-93.27229027
Oak Tree Apartments	Oaktree Apartment	Ringgold	71068	32.32854463	-93.2957712
Blue Pond RV Park	B P 402	Ringgold	71068	32.35595907	-93.38561662
RV Campsite	Louisiana 9	Lucky	71016	32.25408892	-92.99676714
Unknown	8700-8998 Louisiana 4	Castor	71016	32.25873239	-93.1745297

## National Flood Insurance Program (NFIP)

## Bienville Parish

## ELEMENT F: STATE REQUIREMENT

### National Flood Insurance Program (NFIP)

## Bienville Parish

	Bienville Parish	Arcadia	Bienville	Bryceland	Castor	Gibbsland	Jamestown	Lucky	Mount Lebanon	Ringgold	Saline	
<b>Insurance Summary</b>												<b>Comments</b>
How many NFIP policies are in the community? What is the total premium and coverage?	18; \$13,232; \$2,783,200	0; \$0; \$0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3; \$1,166; \$663,000	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?	6; \$182,094	14; \$119,761	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3; \$29,220	N/A	
How many structures are exposed to flood risk with in the community?			N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	
Describe any areas of flood risk with limited NFIP policy coverage.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
<b>Staff Resources</b>												
Is the Community FPA or NFIP Coordinator certified?	No	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No	N/A	
Is flood plain management an auxiliary function?	Yes	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No	N/A	
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability)			N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	

[illegible]