

# 2023 OUACHITA PARISH MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

UNINCORPORATED OUACHITA  
PARISH, MONROE, RICHWOOD,  
STERLINGTON, WEST MONROE





# OUACHITA PARISH MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE

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**Ouachita Parish**



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## Unincorporated Ouachita Parish

City of Monroe  
 Town of Richwood  
 Town of Sterlington  
 City of West Monroe

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

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

- Unincorporated Ouachita Parish
- City of Monroe
- Town of Richwood
- Town of Sterlington
- City of West Monroe

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/Rita, Gustav/Ike, and Laura/Delta environment in south Louisiana.

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

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

efficient solutions. It can also ensure that activities are coordinated with each other and with other goals and programs, preventing conflicts and reducing the costs of implementing each individual activity.

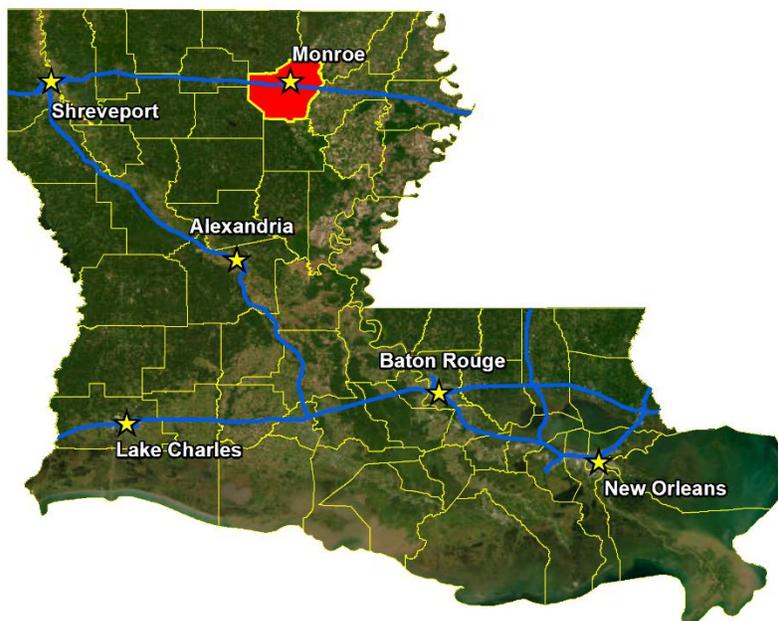
Under the Disaster Mitigation Act of 2000 (42 USC 5165), a mitigation plan is a requirement for Federal mitigation funds. Therefore, a mitigation plan will both guide the best use of mitigation funding and meet the prerequisite for obtaining such funds from FEMA. FEMA also recognizes plans through its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

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

## Geography, Population and Economy

### Geography

Ouachita Parish is located in north-eastern Louisiana and is approximately 35 miles south of the border of Arkansas from the parish's center city, Monroe. (*Figure 1-1*). Ouachita is currently the 8<sup>th</sup> most populated parish in Louisiana while being in the bottom 40% in terms of land area (610 square miles). The total area of the parish is approximately 404,480 acres, of which 13,440 acres is water. Union and Morehouse Parishes border it to the north, Richland Parish to the east, Caldwell Parish to the south, and Lincoln and Jackson Parishes to the west.



*Figure 1-1: Location of Ouachita Parish in the State of Louisiana*

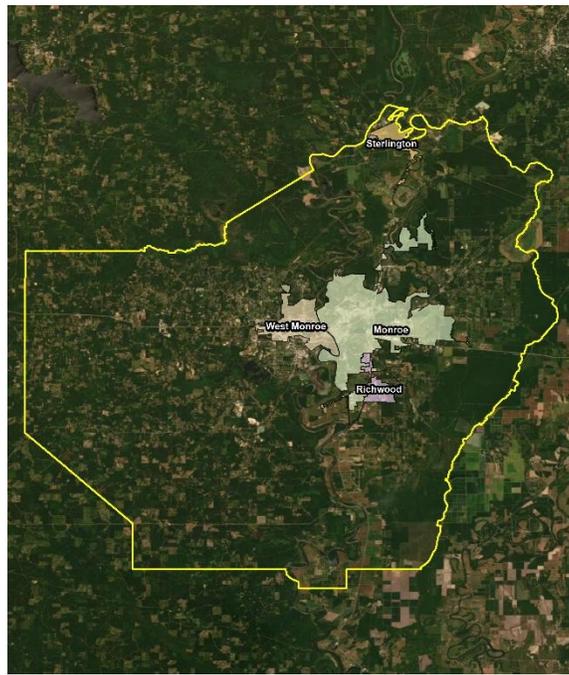


Figure 1-2: Incorporated Jurisdictions within Ouachita Parish

Ouachita Parish weather is typically warm and humid. Variations in daily temperature are determined by distance from the Gulf of Mexico and, to a much lesser degree, by differences in elevation. The average annual temperature for the state as a whole is 68°F. January is typically the coldest month for Louisiana, averaging approximately 54°F, while July is typically the warmest at an average of 83°F. Winter months are usually mild with cold spells of short duration. For Ouachita Parish in particular, the summer months are usually quite warm, with an average daily maximum temperature in July and August of 93°F. Winters are typically mild. Snowfall averages at one inch per year. Average annual rainfall for the area is 55 inches. Ouachita Parish is susceptible to the normal weather dangers, such as thunderstorms and flooding, but due to its location within the state and its proximity to the Gulf of Mexico, the parish is highly susceptible to tropical cyclones. Even though Ouachita Parish is a little over 200 miles from the Gulf of Mexico, the states proximity to the gulf still makes Ouachita parish susceptible to tropical cyclones. Hurricane season lasts from June 1st to November 30th, with most hurricanes forming in August, September, and October.

Ouachita Parish is located in Louisiana Governor’s Office of Homeland Security and Emergency Preparedness (GOHSEP) Region 8 (Figure 1-3).

As noted above, Ouachita Parish is located in the north-central region of Louisiana.



Figure 1-3: Louisiana Homeland Security Regions

## Population

The population of Ouachita Parish is estimated at 160,368 (2020 Census) with a population percent change from April 1, 2010 – April 1, 2020 of 4.14%.

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

|   | 2010<br>Census | 2014<br>Estimate | 2020<br>Census | Percent Change<br>2010 - 2020 |
|---|----------------|------------------|----------------|-------------------------------|
| <b>Total Population</b>                     | 153,734        | 156,325          | 160,368        | 4.14%                         |
| <b>Population Density<br/>(Pop/Sq. Mi.)</b> | 251.8          |                  | 262.7          | 4.15%                         |
| <b>Total Households</b>                     | 64,481         | 66,292           | 71,295         | 9.56%                         |
| <b>Persons Per<br/>Household</b>            |                |                  | 2.63           | -----                         |

## Economy

Ouachita Parish acts as a population center and economic hub for northeast Louisiana. Over time, the Ouachita Parish area economy has moved from one of dependency on the agriculture and wood/timber industries to one of industry and innovation. The parish's location on Interstate-20 makes it very enticing for manufacturers and processors, warehousing/distribution, telecommunications and back office facilities or any business looking for access to major markets and a skilled labor force. Several new primary industries, including, plastics, insurance, telecommunications, and medical services, now provide a broad base for the local economy and surrounding region. Industry data for business patterns in Ouachita Parish can be found in the table on the following page.

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

| Business Description   | Number of Establishments | Number of Employees | Annual Payroll (\$1,000) |
|--|--------------------------|---------------------|--------------------------|
| Retail Trade   | 645                      | 8,863               | 234,093                  |
| Manufacturing  | 96                       | 4,427               | 267,120                  |
| Health Care and Social Assistance                                | 673                      | 13,337              | 541,253                  |
| Transportation and Warehousing                                   | 121                      | 1,542               | 66,867                   |
| Construction   | 342                      | 3,475               | 156,993                  |
| Administration/Support and Waste Management/Remediation Services | 217                      | 4,084               | 135,914                  |
| Real Estate and Rental and Leasing                               | 229                      | 1,162               | 50,708                   |
| Wholesale Trade  | 176                      | 2,481               | 121,670                  |
| Other Services (except Public Administration)                    | 378                      | 3,083               | 90,320                   |
| Accommodation and Food Services                                  | 310                      | 6,634               | 88,498                   |
| Financial and Insurance  | 304                      | 3,324               | 190,094                  |
| Professional, Scientific, and Technical Services                 | 439                      | 2,691               | 139,776                  |
| Agriculture, Forestry, Fishing and Hunting                       | 10                       | 20                  | 481                      |
| Mining, quarrying, and oil and gas extraction                    | 17                       | 188                 | 9,769                    |
| Utilities  | 23                       | 440                 | 39,981                   |
| Arts, entertainment, and recreation                              | 56                       | 843                 | 8,590                    |
| Educational services   | 36                       | 552                 | 12,898                   |
| Information  | 90                       | 2,264               | 182,793                  |
| Management of companies and enterprises                          | 19                       | 610                 | 44,510                   |
| Industries not classified  | 5                        | 2                   | 89                       |

## Hazard Mitigation

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

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

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

*Figure 1-4* illustrates the basic relationship between these phases of emergency management. While hazard mitigation may occur both before and after a disaster event, it is significantly more effective when implemented before an event occurs. This is one of the key elements of this plan and its overall strategy: reduce risk before disaster strikes in order to minimize the need for post-disaster response and recovery.

As *Figure 1-4* 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, 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. More recently, the historically impactful 2020 hurricane season reinforced the need for proper planning and mitigation strategies.



*Figure 1-4: The Four Phases of Emergency Management and their Relation to Future Hazard Mitigation (Source: Louisiana State Hazard Mitigation Plan 2014)*

The catastrophic tropical events of 2005 and 2020, coupled with the unprecedented flooding events of 2016 have had profound impacts on emergency management and hazard mitigation throughout Louisiana. As detailed later in this document, significant funding has been made available to the State of Louisiana and its parishes for the purpose of hazard mitigation planning. The storms also raised awareness of the importance of hazard mitigation among decision-makers and the general population, which has been particularly important since natural hazards will likely be increasing in frequency, magnitude, and impact in the coming years due to climate change.

## General Strategy

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

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

The 2023 Ouachita Parish Hazard Mitigation Plan (HMP) maintains much of the information from the 2017 plan version, but it now incorporates the order and methodologies of the 2019 Louisiana State Hazard Mitigation Plan.

The sections in the 2017 Ouachita Parish HMP were 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

This plan update also coheres with the Plain Writing Act of 2010, which requires federal agencies to use clear communication that is accessible, consistent, understandable, and useful to the public. While the State of Louisiana and its political subdivisions are not required to meet such standards, the Act aligns with best practices in hazard mitigation. Since successful hazard mitigation relies on full implementation and cooperation at all levels of government and community, a successful hazard mitigation plan must also be easily used at all of these levels. Nevertheless, the Ouachita Parish Hazard Mitigation Planning Committee recognized the benefits from the successful analysis and mitigation planning executed in previous plan updates, as well as improvements to be made in the 2023 update. This plan update remains coherent with those documents, retaining language and content when needed, deleting it when appropriate, and augmenting it when constructive.

## 2023 Plan Update

This 2023 plan update proceeds with the previous goals of the Ouachita Parish Hazard Mitigation Plan. The current goals are as follows:

1. Protect health and safety
2. Protect existing properties
3. Improve the quality of life in Ouachita Parish
4. Ensure that public funds are used in the most efficient manner

This plan update makes a number of textual changes throughout, but the most obvious changes are data related and structural edits. First, the National Oceanic and Atmospheric Administration's (NOAA) National Centers for Environmental Information's (NCEI) Storm Events Database was used in the analysis, which provides historical hazard data from 1950 to 2023. The planning committee was also instrumental in providing detailed data where appropriate to more accurately reflect hazard impacts on the parish and jurisdictions. Furthermore, all of the sections were updated to reflect the most current information and the most current vision of the plan update. The most significant changes are the newly developed hazard profiles and risk assessments, as well as the removal of much repetition between sections from the previous plan updates.

The 2023 plan update is organized in the same format as the 2017 update, with one minor change to this 2023 update as outlined below:

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

*Table 1-3: 2023 Plan Update Crosswalk*

| Plan Update Crosswalk  |  |
|--|--|
| 2017 Update  | 2023 Update  |
| Section 1: Introduction  | Section 1: Introduction  |
| Section 2: Hazard Identification and Parish-Wide Risk Assessment | Section 2: Hazard Identification and Parish-Wide Risk Assessment |
| Section 3: Capability Assessment                                 | Section 3: Capability Assessment                                 |
| Section 4: Mitigation Strategy                                   | Section 4: Mitigation Strategy                                   |
| Appendix A: Planning Process                                     | Appendix A: Planning Process                                     |
| Appendix B: Plan Maintenance                                     | Appendix B: Plan Maintenance                                     |
| Appendix C: Essential Facilities                                 | Appendix C: Critical Facilities                                  |
| Appendix D: Plan Adoptions                                       | Appendix D: Plan Adoptions                                       |
| Appendix E: State Required Worksheets                            | Appendix E: State Required Worksheets                            |

Despite numerous changes in this plan update, the plan remains consistent in its emphasis on the types of hazards that pose the most risk to loss of life, injury, and property in Ouachita Parish and its communities. The extent of this risk is dictated primarily by its geographic location. Most significantly, Ouachita Parish remains at high risk of water inundation from various sources, including flooding and tropical cyclone activity. The entire parish is also at high risk of damages from high winds and wind-borne debris. The 2016 flooding events, along with the 2020 hurricane season were both felt heavily in all parts of Ouachita Parish. Other hazards threaten the parish and/or its communities, although not to such great degrees and not in such widespread ways. In all cases, the relative social vulnerability of areas threatened and affected plays a significant role in how governmental agencies and their partners (local, parish, state and federal) prepare for and respond to disasters.

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

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

### Overview

The risk assessment identifies and assesses a large variety of threats and hazards that impact the parish to identify a strategy for mitigation. Having identified the categories of hazards, emergencies, disasters, and catastrophes, this section describes the risks associated with each identified hazard of concern. Each section (1) defines the hazard, (2) explains how each hazard is measured, (3) provides the hazard's geographic extent, (4) analyzes the previous occurrences, (5) evaluates each hazard's future likelihood of occurrence, and (6) identifies the worst-case scenario for each hazard.

The following steps were used to define the risk of each hazard:

- Profile and describe each hazard
  - Geographic areas most affected by the hazard
  - Previous occurrences and detailed description of events occurring in the last 5-years
  - Occurrence probability/frequency estimates
  - Worst-case scenarios
- Determine exposure to each hazard
  - Exposure was determined by overlaying hazard maps with an inventory of structures, facilities, and systems to determine which of them would be exposed to each hazard
  - Vulnerability analysis for people and infrastructure

The primary source for historical data used throughout the risk assessment is the National Centers for Environmental Information (NCEI) Storm Events Database, which provides natural hazard event data from 1950 to the present. In staying consistent with climatological studies, the NCEI Storm Events Database was evaluated for the past 30 years (1993 – 2022) to determine the future probability and frequency of a hazard occurring when data was available.

### Data Limitations

Throughout the planning process, every effort was made to use the best available data. Much of the historic natural-hazard occurrence information was obtained through the National Oceanic and Atmospheric Administration's (NOAA) NCEI. The NCEI Storm Events Database contains data from January 1950 to the present (i.e., within the past few months); however, there are some issues with events recorded prior to 1996. From the years 1950 to 1954, the NCEI Storm Events Database only contain information on tornado events, until thunderstorm wind and hail events were added to the database for the time period between 1955 and 1992. All event types identified in the National Weather Service (NWS) Directive 10-1605 (48 in total) are recorded from 1996 to the present. For these hazards, only 27 years (1996 – 2022) worth of data was evaluated to determine the future probability and frequency of a hazard occurring. Additionally, property damage and crop damage estimates from the NCEI Storm Events Database are a "best guess" based on all available data at the time of the event publication.

The NCEI Storm Events Database does not record all events, only occurrences that have sufficient intensity to cause loss of life, injuries, significant property damage, and/or disruption to commerce. Even then, there are events that may not be covered due to changes in data collection and processing procedures over time. Also, events such as tornadoes or hailstorms rely heavily on eye-witness accounts which creates a reporting bias in urban areas. The inception of Doppler radar in 1980

significantly decreased this bias, especially for tornado events, but records prior to 1980 are not as detailed or complete as post 1980-records.

The Storm Prediction Center (SPC) National Severe Weather Database browser examines convective/thunderstorm-related winds only and does not include wind data from hurricane or non-thunderstorm wind damage. This data contains measured and estimated wind gusts including wind damage without estimated wind speeds. For many observations, this results in several thunderstorm wind events with no estimated or actual wind speed estimates.

The vulnerability estimates provided herein use the best data currently available, and the methodologies applied result in an approximation of risk. These estimates may be used to understand the relative risk from hazards and potential losses. However, uncertainties are inherent in any loss estimation methodology, arising in part from incomplete scientific knowledge concerning hazards and their effects on the built environment, as well as approximations and simplifications that are necessary for a comprehensive analysis.

### Identifying Hazards

Several emergency management and hazard mitigation documents at the state and local levels were reviewed to identify a comprehensive list of hazards that may impact the parish. These documents addressed a wide range of hazards including natural, technological, and human-caused. The two main documents referenced in finalizing the parish's comprehensive hazard list were the 2016 Hazard Mitigation Plan for the parish and the state of Louisiana's 2019 Hazard Mitigation Plan. Typically, unless otherwise noted in the plan, all hazards previously identified in the parish's 2016 Hazard Mitigation Plan and all hazards in the state of Louisiana's 2019 Hazard Mitigation Plan identified as medium or high risk by the state are profiled in the risk assessment. The table on the following page provides a comprehensive list of the hazards selected based on the above criteria.

*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 2023 Update |
|---|-----------------------|---|-----------------------------|
| Dam Failure                             | X                     |   | +                           |
| Drought                                 | X                     |   | X                           |
| Excessive Heat                          | X                     |   | X                           |
| Flooding                                | X                     | X   | X                           |
| Levee Failure                           | X                     |   | X                           |
| Thunderstorms (Hail, Lightning, & Wind) | X                     | X   | X                           |
| Tornadoes                               | X                     | X   | X                           |
| Tropical Cyclones                       | X                     | X   | X                           |
| Wildfires                               | X                     |   | X                           |
| Winter Weather                          | X                     |   | X                           |

+ Hazard was discounted.

## Historical Context and Previous Occurrences

The following table and figures display past Presidential Declaration occurrences and provides background on the type of natural disasters that have affected the parish in the past.

*Table 2-2: Major Disaster Declarations in the Parish.*

| Disaster Number | Year       | Declaration  |
|-----------------|------------|--|
| 208             | 9/10/1965  | Tropical Cyclone – Hurricane Betsy                 |
| 374             | 4/27/1973  | Severe Storms and Flooding                         |
| 418             | 2/23/1974  | Flooding   |
| 470             | 6/6/1975   | Heavy Rains, Tornadoes, and Flooding               |
| 565             | 9/20/1978  | Severe Storms and Flooding                         |
| 675             | 1/11/1983  | Severe Storms and Flooding                         |
| 829             | 5/20/1989  | Severe Storms and Flooding                         |
| 904             | 5/3/1991   | Severe Storms, Tornadoes, and Flooding             |
| 1264            | 1/21/1999  | Severe Ice Storm                                   |
| 1314            | 2/15/2000  | Severe Winter Storm                                |
| 1357            | 1/12/2001  | Severe Winter Ice Storm                            |
| 1437            | 10/3/2002  | Tropical Cyclone – Hurricane Lili                  |
| 3172            | 2/1/2003   | Loss of Space Shuttle Columbia                     |
| 1548            | 9/15/2004  | Tropical Cyclone – Hurricane Ivan                  |
| 1603            | 8/29/2005  | Tropical Cyclone – Hurricane Katrina               |
| 1607            | 9/24/2005  | Tropical Cyclone – Hurricane Rita                  |
| 1668            | 11/2/2006  | Severe Storms and Flooding                         |
| 1786            | 9/2/2008   | Tropical Cyclone – Hurricane Gustav                |
| 1863            | 12/10/2009 | Severe Storms, Tornadoes, and Flooding             |
| 4080            | 8/29/2012  | Tropical Cyclone – Hurricane Isaac                 |
| 4263            | 3/13/2016  | Flood  |
| 3416            | 7/11/2019  | Tropical Cyclone – Tropical Storm Barry            |
| 4462            | 9/19/2019  | Flood  |
| 4484            | 03/24/2020 | COVID-19 Pandemic                                  |
| 3527            | 6/7/2020   | Tropical Cyclone – Tropical Storm Cristobal        |
| 3538            | 8/23/2020  | Tropical Cyclone – Tropical Storms Laura and Marco |
| 4559            | 8/28/2020  | Tropical Cyclone – Hurricane Laura                 |
| 3543            | 9/14/2020  | Tropical Cyclone – Hurricane Sally                 |
| 4570            | 10/16/2020 | Tropical Cyclone – Hurricane Delta                 |
| 3549            | 10/27/2020 | Tropical Cyclone – Tropical Storm Zeta             |
| 3556            | 2/18/2021  | Severe Winter Weather                              |
| 4590            | 3/9/2021   | Severe Winter Weather                              |
| 4611            | 8/29/2021  | Tropical Cyclone – Hurricane Ida                   |
| 3574            | 9/13/2021  | Tropical Cyclone – Tropical Storm Nicholas         |

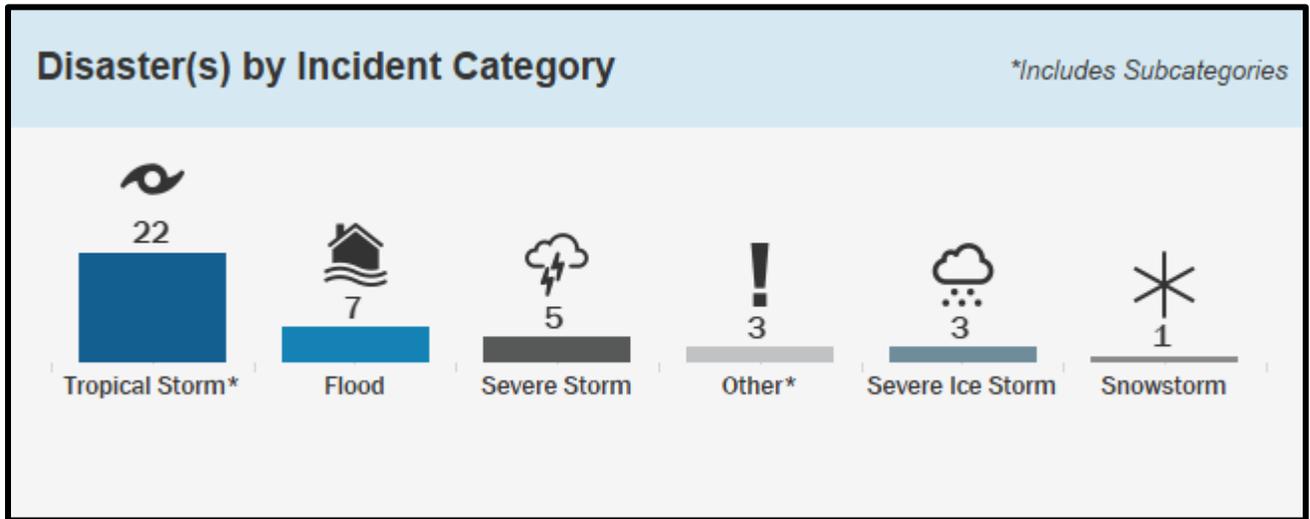


Figure 2-1: Presidential Disaster Declarations for the Parish by Disaster Type Since 1950.  
 (Source: FEMA Disaster Declarations Summary: Open Government Dataset)

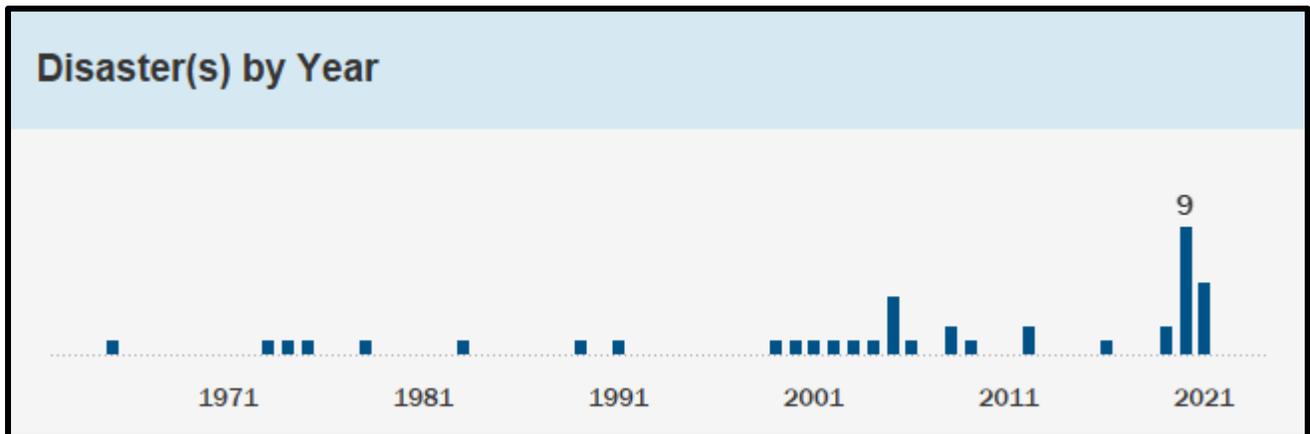


Figure 2-2: Total Presidential Disaster Declarations Yearly Totals for the Parish from 1950 to 2022.  
 (Source: FEMA Disaster Declarations Summary: Open Government Dataset)

## Probability of Future Threats and Hazards

The probability of each hazard occurring in the parish is estimated in the following table:

*Table 2-3: Probability of Future Hazard Reoccurrence.*

| Hazard                           | Probability                    |            |            |             |             |
|----------------------------------|--------------------------------|------------|------------|-------------|-------------|
|                                  | Unincorporated Ouachita Parish | Monroe     | Richwood   | Sterlington | West Monroe |
| <b>Dam Failure</b>               | Discounted                     | Discounted | Discounted | Discounted  | Discounted  |
| <b>Drought</b>                   | 26%                            | 26%        | 26%        | 26%         | 26%         |
| <b>Extreme Heat</b>              | 52%                            | 52%        | 52%        | 52%         | 52%         |
| <b>Flooding</b>                  | 100%                           | 81%        | 22%        | 26%         | 70%         |
| <b>Levee Failure</b>             | < 1%                           | < 1%       | < 1%       | < 1%        | < 1%        |
| <b>Thunderstorms - Hail</b>      | 100%                           | 100%       | 100%       | 100%        | 100%        |
| <b>Thunderstorms - Lightning</b> | 33%                            | 33%        | 33%        | 33%         | 33%         |
| <b>Thunderstorms - Winds</b>     | 100%                           | 100%       | 100%       | 100%        | 100%        |
| <b>Tornadoes</b>                 | 67%                            | 67%        | 67%        | 67%         | 67%         |
| <b>Tropical Cyclones</b>         | 24%                            | 24%        | 24%        | 24%         | 24%         |
| <b>Wildfires</b>                 | < 1%                           | < 1%       | < 1%       | < 1%        | < 1%        |
| <b>Winter Weather</b>            | 30%                            | 30%        | 30%        | 30%         | 30%         |

As shown in the above tables, flooding for the unincorporated area of the parish, hail, and winds have the highest chance of occurrence in the parish (100%). These are followed by flooding for Monroe (81%), flooding for West Monroe (70%), tornadoes (67%), extreme heat (52%), lightning (33%), winter storms (30%), drought and flooding for Sterlington (26%), tropical cyclones (24%), and flooding for Richwood (22%). Wildfires and levee failure have an annual chance of occurrence of less than 1%. Dam failure was discounted due to having no high hazard dams located in or around the parish.

## Assessing Vulnerability Overview

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

The vulnerability analysis builds upon the information provided in the risk assessment by assessing the potential impact and amount of damage that each hazard has on the parish. To complete the analysis, the best available data were collected from a variety of sources, including local, state, and federal agencies and multiple analyses were performed qualitatively and quantitatively. The estimates provided in the vulnerability analysis should be used to understand the relative risk from each hazard and the

potential losses that may be incurred; however, uncertainties are inherent in any loss estimation methodology, arising in part from incomplete scientific knowledge concerning specific hazards and their effects on the built environment, as well as incomplete datasets and from approximations and simplifications that are necessary to provide a meaningful and complete analysis. Further, most datasets used in this assessment contain relatively short periods of records, which increases the uncertainty of any statistically based analysis.

### Vulnerability Analysis Methodology

To direct the vulnerability analysis effort for the parish, two distinct methodologies were applied. The first includes a quantitative analysis that relies upon the best available data and technology, while the second methodology includes a qualitative analysis that relies more on local knowledge and rational decision-making. Upon completion, the methodologies are combined to create a vulnerability analysis that allows for some degree of quality control and assurance. The quantitative assessment focuses on potential hazard loss estimates, while the qualitative assessment is comprised of a scoring system built around values assigned by the Planning Team as to the likelihood of occurrence, spatial extent, and potential impact of each hazard.

### Quantitative Methodology

The quantitative methodology consists of utilizing Hazus, a geographic information system (GIS)-based loss estimation software available from the Federal Emergency Management Agency (FEMA), as well as a detailed GIS-based approach independent of the Hazus software. These two GIS-based studies together help form a quantitative vulnerability analysis. GIS technology allows for the identification and analysis of potentially at-risk community assets such as people and infrastructure. This analysis was completed for hazards that can be spatially defined in a meaningful manner (i.e., hazards with an official and scientifically determined geographic extent) and for which GIS data were readily available.

Additionally, the National Risk Index developed by FEMA was utilized to determine the composite risk to 18 natural hazards to include avalanche, coastal flooding, cold wave, drought, earthquake, hail, heat wave, hurricane, ice storm, landslide, lightning, riverine flooding, strong wind, tornado, tsunami, volcanic activity, wildfire, and winter weather. Historic loss ratio, expected annual loss, and overall risk factor for any of the above hazards which are profiled in this plan are provided in the vulnerability analysis to provide further context on the risk associated to the hazard. Expected annual loss and the risk factor are calculated using the following formulas:

$$\text{Expected Annual Loss} = \text{Exposure} * \text{Annualized Frequency} * \text{Historic Loss Ratio}$$

$$\text{Risk Index} = \text{Expected Annual Loss} * \text{Social Vulnerability} / \text{Community Resilience}$$

### Qualitative Methodology

The qualitative assessment relies less on technology, but more on historical and anecdotal data regarding expected hazard impacts. The qualitative assessment completed for the parish is based on the Priority Risk Index (PRI). The purpose of the PRI is to prioritize all potential hazards, and then group them into three categories of high, moderate, or low risk to identify and prioritize mitigation opportunities.

The PRI is a good practice to use when prioritizing hazards because it provides a standardized numerical value for hazards to be compared. Adapted PRI scores were calculated using five categories:

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

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

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

### Priority Risk Index and Hazard Risk

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

*Table 2-4: Summary of the Priority Risk Index.*

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

|                     |                    |                                      |   |     |
|---------------------|--------------------|--------------------------------------|---|-----|
|                     | Moderate           | Between 10 and 50% of area affected  | 3 |     |
|                     | Large              | Between 50 and 100% of area affected | 4 |     |
| <b>Warning Time</b> | More than 24 hours | Self-explanatory                     | 1 | 15% |
|                     | 12 to 24 hours     | Self-explanatory                     | 2 |     |
|                     | 6 to 12 hours      | Self-explanatory                     | 3 |     |
|                     | Less than 6 hours  | Self-explanatory                     | 4 |     |
| <b>Duration</b>     | Less than 6 hours  | Self-explanatory                     | 1 | 15% |
|                     | Less than 24 hours | Self-explanatory                     | 2 |     |
|                     | Less than one week | Self-explanatory                     | 3 |     |
|                     | More than one week | Self-explanatory                     | 4 |     |

Table 2-5: Associated Risk Factor with PRI Value Range.

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

### Vulnerability Analysis (NRI & PRI)

The first table is the overall risk associated with each threat and hazard with 2.5 or above deemed high risk, 2.0 to 2.4 deemed medium risk, and less than 2.0 deemed low risk. The final table summarizes the composite risk of 18 natural hazards outlined previously on the parish by expected annual loss, social vulnerability, community resilience, and overall risk rating.

Table 2-6: PRI Vulnerability Analysis for the Parish.

| Hazard                    | Probability | Impact | Spatial Extent | Warning Time | Duration | Overall Risk |
|---------------------------|-------------|--------|----------------|--------------|----------|--------------|
| Drought                   | 3           | 2      | 4              | 2            | 3        | 2.8          |
| Extreme Heat              | 3           | 1      | 4              | 1            | 3        | 2.4          |
| Flooding                  | 4           | 4      | 3              | 4            | 3        | 3.65         |
| Levee Failure             | 3           | 2      | 4              | 2            | 3        | 2.8          |
| Thunderstorms - Hail      | 4           | 2      | 3              | 3            | 1        | 2.7          |
| Thunderstorms - Lightning | 3           | 2      | 2              | 3            | 1        | 2.25         |
| Thunderstorms - Wind      | 4           | 2      | 3              | 3            | 1        | 2.7          |
| Tornadoes                 | 3           | 3      | 2              | 4            | 3        | 2.95         |
| Tropical Cyclones         | 3           | 4      | 4              | 1            | 4        | 3.3          |
| Wildfires                 | 1           | 3      | 4              | 1            | 2        | 2.25         |
| Winter Weather            | 3           | 3      | 4              | 1            | 2        | 2.75         |

Table 2-7: National Risk Index (NRI) Summarization of Risk to Eighteen Natural Hazards for the Parish.  
(Source: National Risk Index)

| Expected Annual Loss | Social Vulnerability | Community Resilience | Overall Risk Rating |
|----------------------|----------------------|----------------------|---------------------|
| Relatively Moderate  | Very High            | Relatively High      | Relatively Moderate |

### Inventory of Assets for the Entire Parish

As part of the Risk Assessment, the planning team identified essential facilities throughout the parish. Within the entire planning area, there is an estimated value of \$25,116,344,000 in structures throughout the parish. The table below provides the total estimated value for each type of structure by occupancy.

Table 2-8: Estimated Total of Potential Losses throughout the Parish.

| Occupancy           | Parish                  | Unincorporated Area     | Monroe                 |
|---------------------|-------------------------|-------------------------|------------------------|
| <b>Agricultural</b> | \$55,044,000            | \$36,398,000            | \$13,392,000           |
| <b>Commercial</b>   | \$5,960,373,000         | \$1,187,949,000         | \$3,278,790,000        |
| <b>Government</b>   | \$221,516,000           | \$22,391,000            | \$179,632,000          |
| <b>Industrial</b>   | \$1,200,330,000         | \$571,782,000           | \$477,556,000          |
| <b>Religion</b>     | \$666,248,000           | \$286,920,000           | \$294,188,000          |
| <b>Residential</b>  | \$16,757,019,000        | \$9,424,990,000         | \$5,427,832,000        |
| <b>Education</b>    | \$255,814,000           | \$77,569,000            | \$129,721,000          |
| <b>Total</b>        | <b>\$25,116,344,000</b> | <b>\$11,607,999,000</b> | <b>\$9,801,111,000</b> |

| Occupancy           | Richwood             | Sterlington          | West Monroe            |
|---------------------|----------------------|----------------------|------------------------|
| <b>Agricultural</b> | \$0                  | \$164,000            | \$5,090,000            |
| <b>Commercial</b>   | \$25,622,000         | \$13,564,000         | \$1,454,448,000        |
| <b>Government</b>   | \$5,624,000          | \$1,124,000          | \$12,745,000           |
| <b>Industrial</b>   | \$479,000            | \$7,357,000          | \$143,156,000          |
| <b>Religion</b>     | \$3,646,000          | \$4,334,000          | \$77,160,000           |
| <b>Residential</b>  | \$164,038,000        | \$204,295,000        | \$1,535,864,000        |
| <b>Education</b>    | \$940,000            | \$4,732,000          | \$42,852,000           |
| <b>Total</b>        | <b>\$200,349,000</b> | <b>\$235,570,000</b> | <b>\$3,271,315,000</b> |

### Critical Facilities of the Parish

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

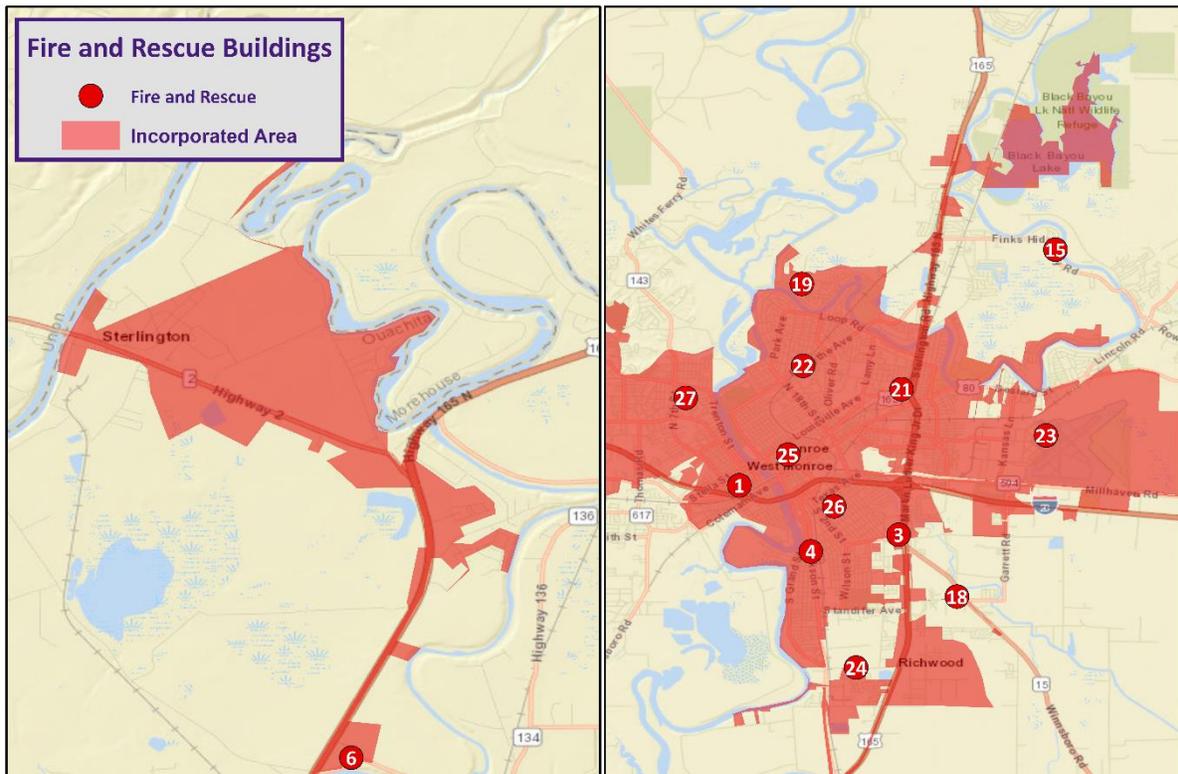
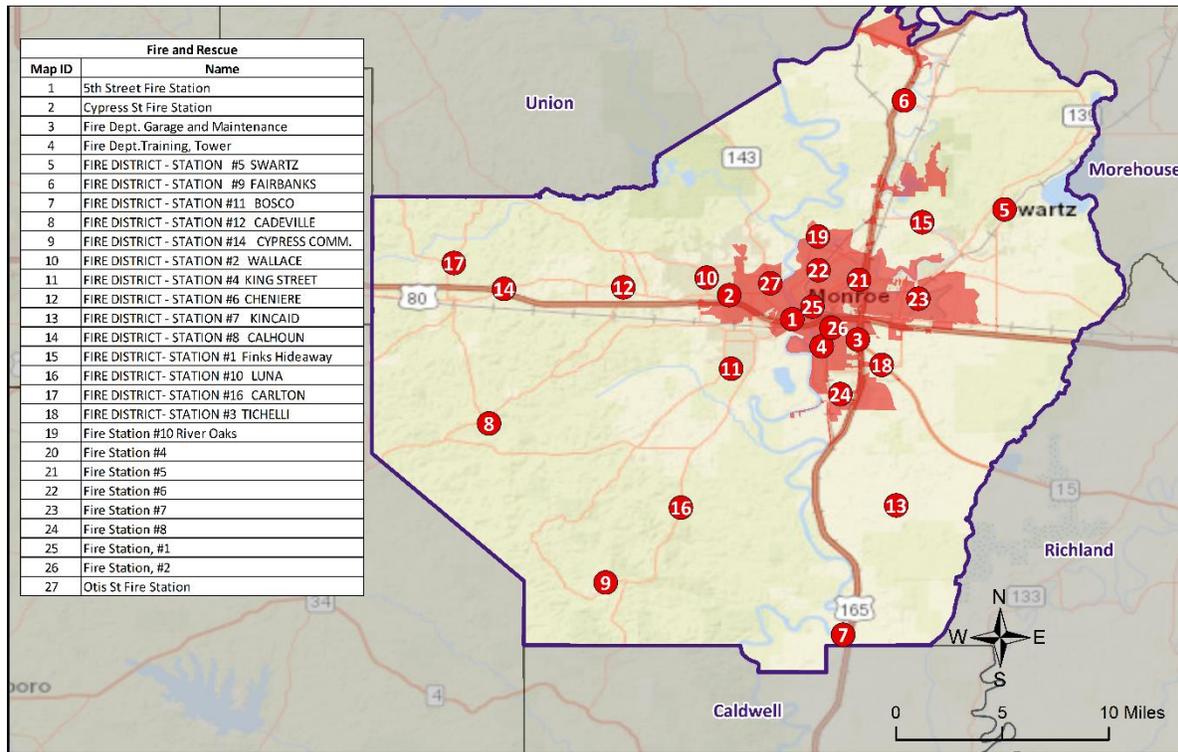


Figure 2-3: Fire and Rescue Facilities in the Parish.

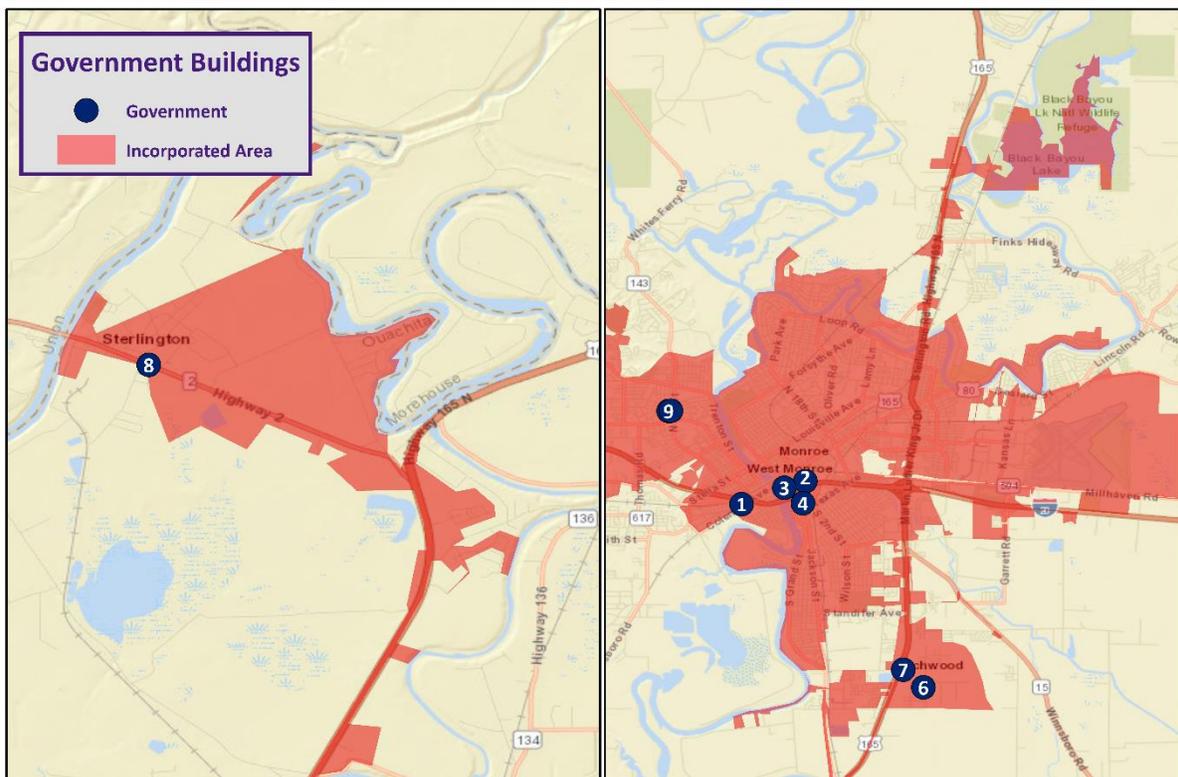
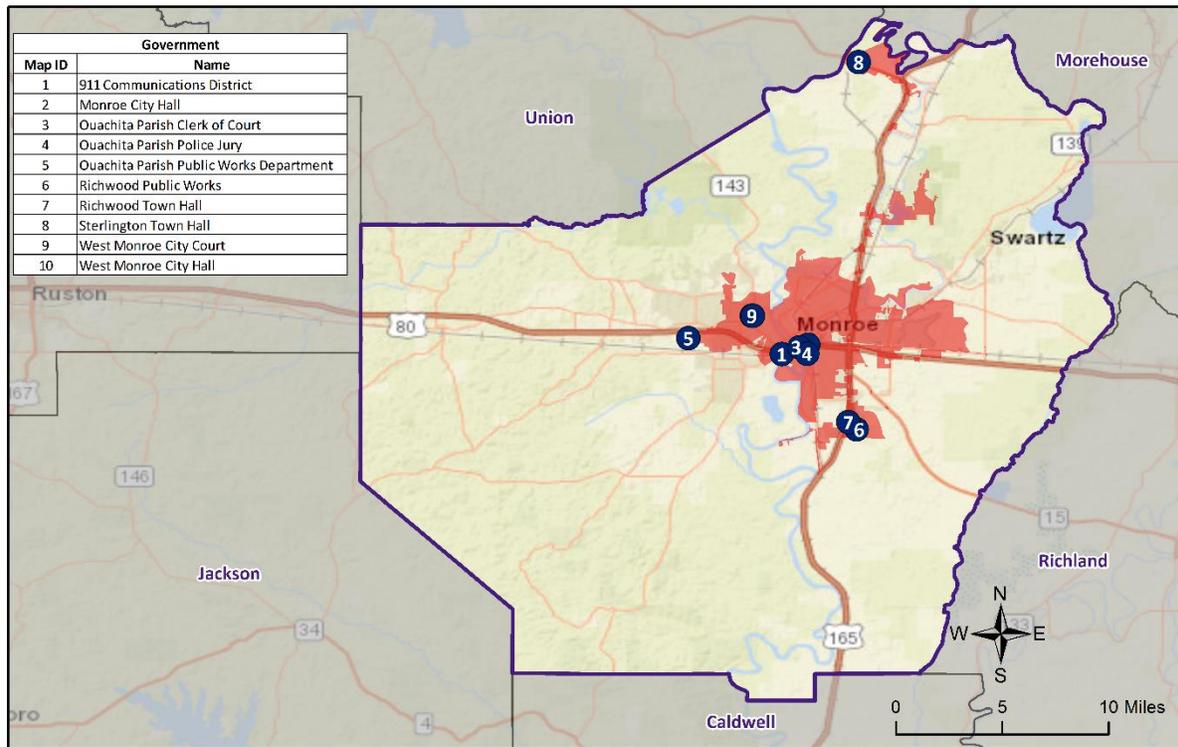


Figure 2-4: Government Buildings in the Parish.

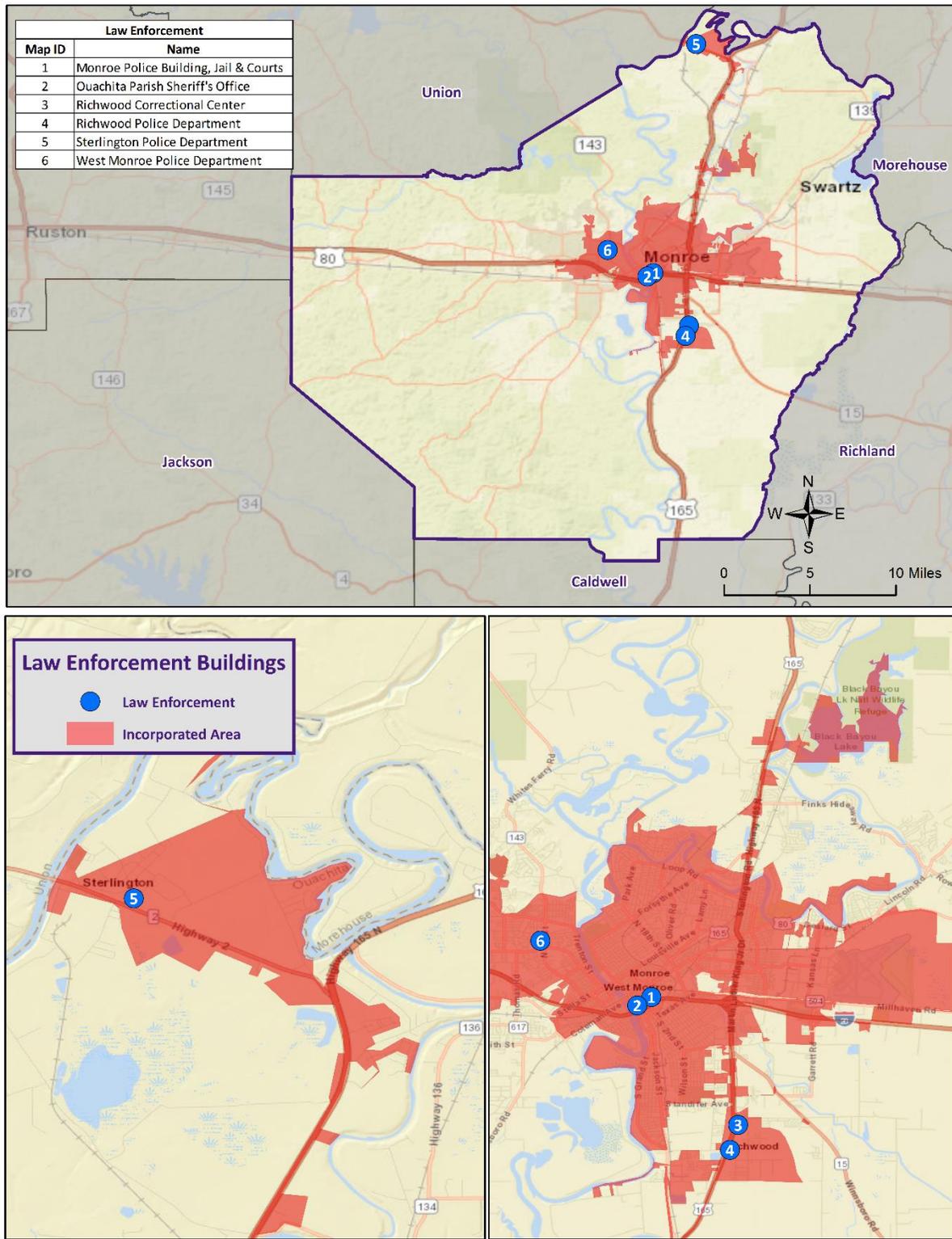


Figure 2-5: Law Enforcement in the Parish.

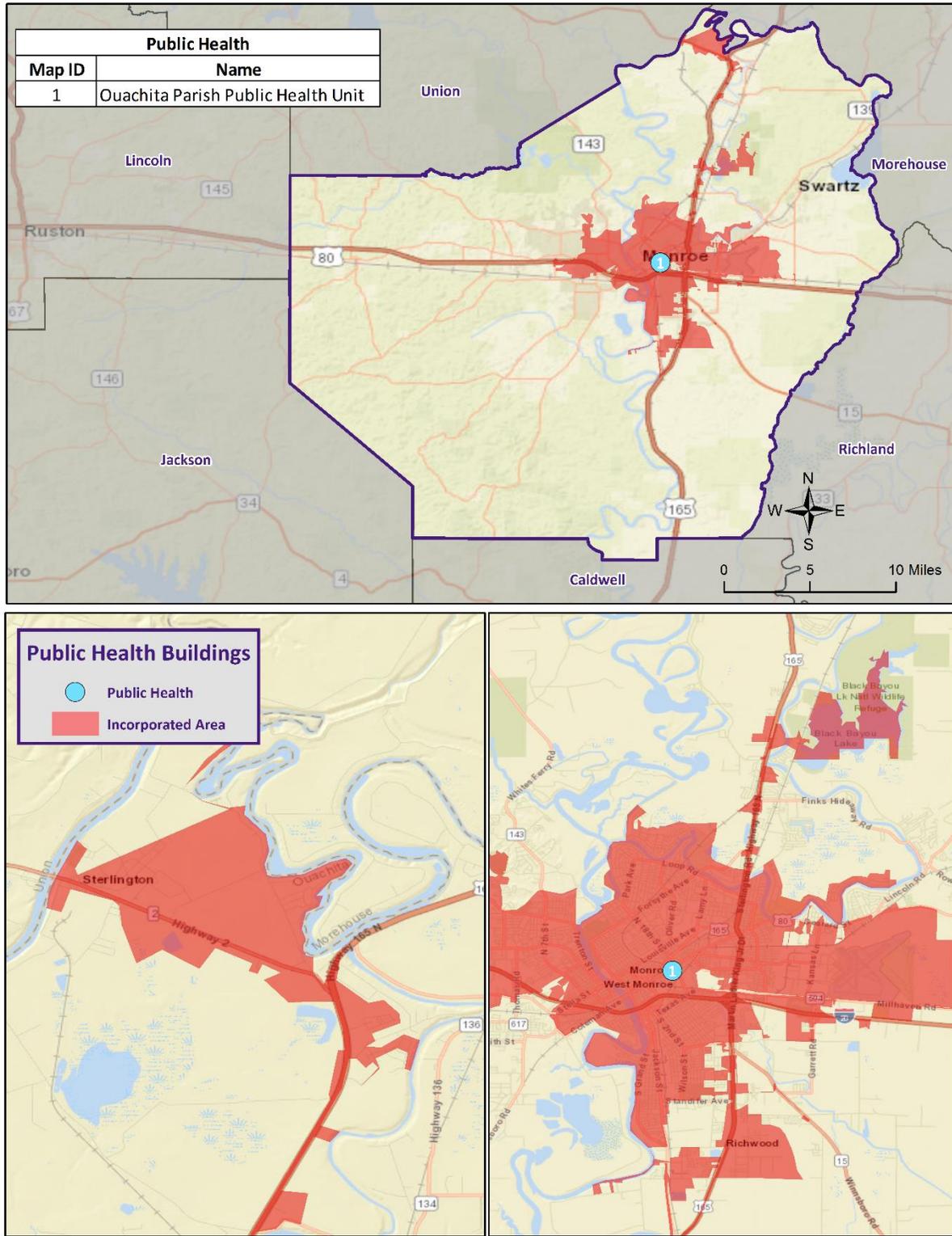


Figure 2-6: Public Health Facilities in the Parish.

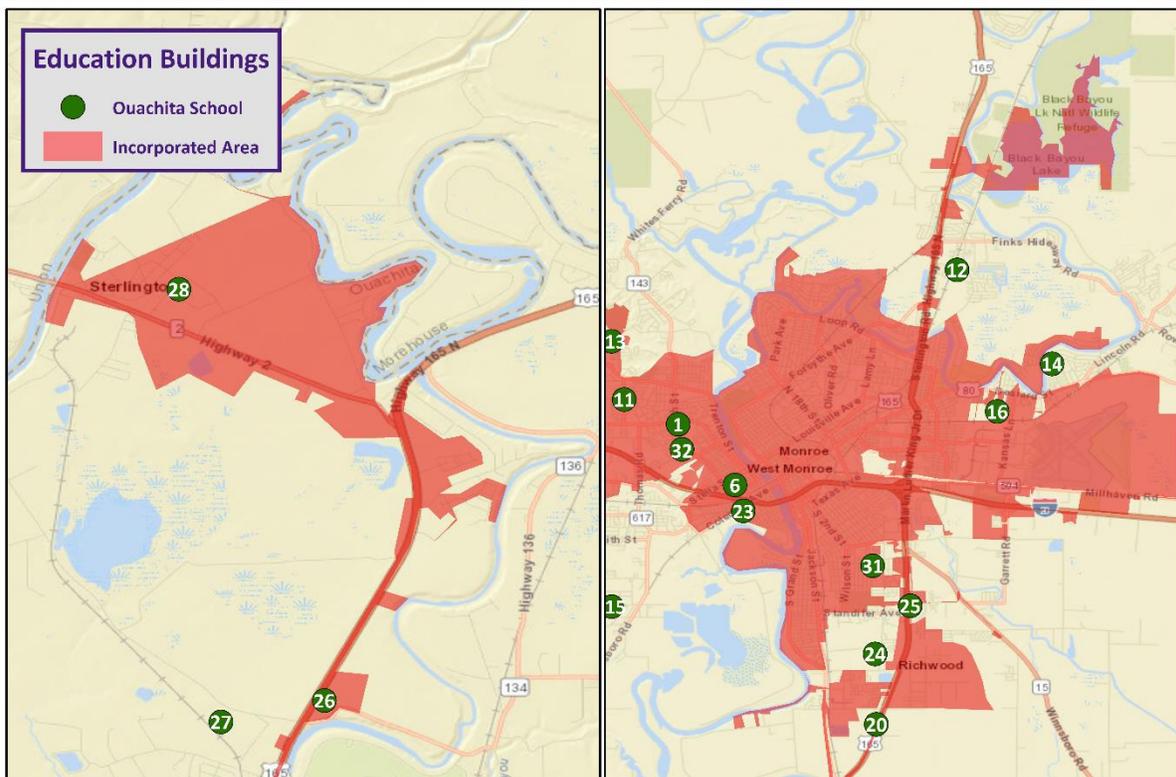
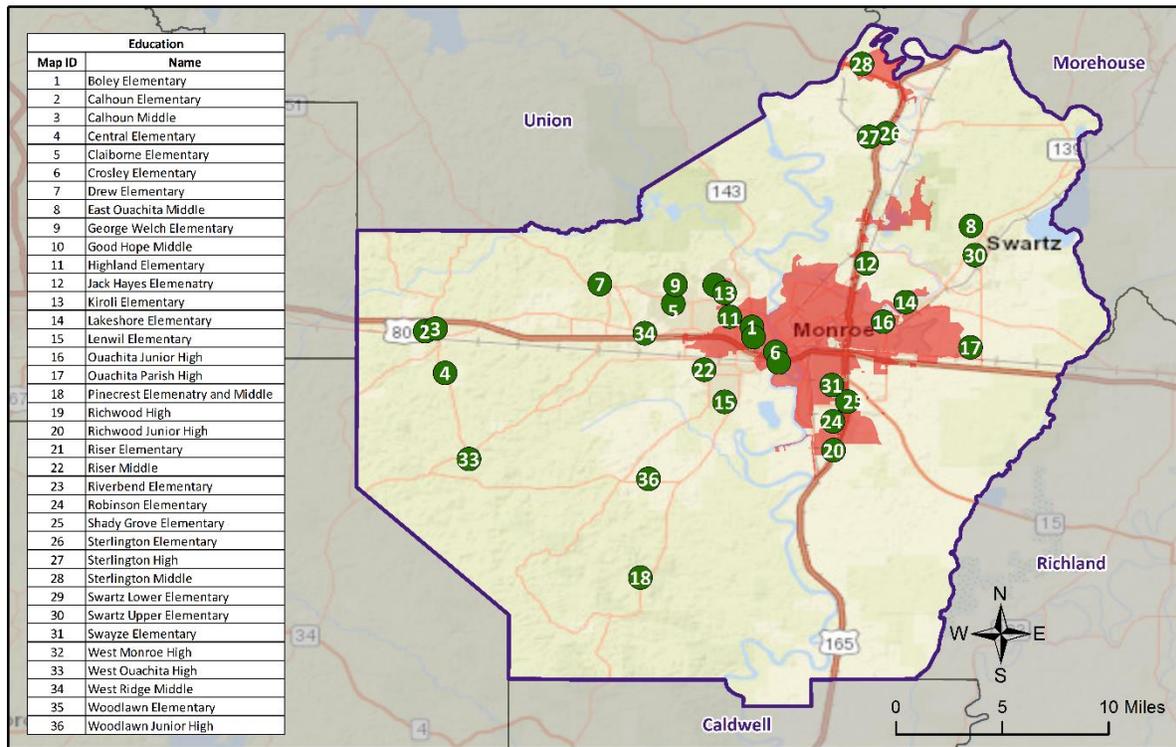


Figure 2-7: Educational Facilities in the Parish.

## Socially Vulnerable Populations

The following tables illustrate at risk populations in Ouachita Parish, and their respective jurisdictions, compared to the United States as a whole. As seen in the tables below, Ouachita Parish and their jurisdictions demonstrate an above average percentage differences than that of the U.S. when dealing with at risk communities.

Based on the parish and their incorporated jurisdictions, reliability of the information presented becomes a factor. To combat misinformation and skewed values when dealing with socially vulnerable populations, the U.S. Census Bureau along with Headwater Economics, has denoted values by color and given them a reliability denotation. Any values in **black** are denoted as “high reliability”. This means that error in data based off of the sampling size for that specific population is relatively small and should not be cause for concern. Any values in **orange** are denoted as “medium reliability”. This means that values could be skewed based off of the sampling size being inaccurately examined. Populations and values in orange should be interpreted with caution. Any values in **red** are denoted as “low reliability”. This means that population values and data taken from the census are very unreliable as the sample size included for this data incorporation were very small or insufficient. An emphasis has been placed on values in red in that anyone using them for studies, local plans and regulatory measures, or projects, should consult the respective community for a more comprehensive evaluation of said population(s). *Neighborhoods at Risk* also cites a data limitation to any community with less than 1,000 people residing in it. (US Census Beau 2021, Headwater Economics)

Additionally, there are some limitations to the data that is provided below. Families in poverty are based upon the amount families within the identifiable area. Rental units, mobile homes, and households with no car are based upon the amount of housing units within the identifiable area. People who do not speak English well is based upon the population of the identifiable area who are five years of age or older. People without a high school degree are based upon the population of the identifiable area who are 25 years of age or older. All other indicators used to identify neighborhoods at risk are based upon the identifiable area’s total population. For reference to populations with specific limitations, the table below illustrates the population sample size used to evaluate their respective areas, not the total number of people a specific indicator applies to.

*Table 2-9: Limiting Factors with Socially Vulnerable Populations in Ouachita Parish*

| Limiting Factors in Neighborhoods at Risk – Population Sample Size (2021) |                 |                |                  |                     |                     |                    |
|---|-----------------|----------------|------------------|---------------------|---------------------|--------------------|
| Indicators 2021   | Ouachita Parish | City of Monroe | Town of Richwood | Town of Sterlington | City of West Monroe | United States      |
| Families in poverty   | 36,838          | 9,507          | 491              | 574                 | 3,005               | 80,755,759         |
| Rental units, mobile homes, households with no car                        | 58,493          | 17,914         | 759              | 759                 | 5,443               | 124,010,992        |
| People who do not speak English well                                      | 149,612         | 44,791         | 4,571            | 1,954               | 12,348              | 310,302,360        |
| People without a high school degree                                       | 104,736         | 29,985         | 3,374            | 1,252               | 9,408               | 225,152,317        |
| <b>Total Population</b>   | <b>160,227</b>  | <b>48,105</b>  | <b>4,837</b>     | <b>2,094</b>        | <b>13,103</b>       | <b>329,725,481</b> |

Table 2-10: Socially Vulnerable Populations – Ouachita Parish

| Neighborhoods at Risk – Ouachita Parish |                            |                            |                 |  |
|---|----------------------------|----------------------------|-----------------|--|
| Indicators 2021                         | Ouachita Parish Population | Ouachita Parish Percentage | U.S. Percentage | Percentage Difference (Ouachita vs U.S.) |
| People under 5 years                    | 10,615                     | 6.6%                       | 5.9%            | 11%                                      |
| People over 65 years                    | 23,860                     | 14.9%                      | 16.0%           | -7%                                      |
| People of color (including Hispanic)    | 68,870                     | 43.0%                      | 40.6%           | 6%                                       |
| People who do not speak English well    | 400                        | 0.3%                       | 4.1%            | -173%                                    |
| People without a high school degree     | 12,376                     | 11.8%                      | 11.1%           | 6%                                       |
| Families in poverty                     | 7,092                      | 19.3%                      | 8.9%            | 74%                                      |
| Housing units that are rentals          | 23,394                     | 40.0%                      | 35.4%           | 12%                                      |
| Housing units that are mobile homes     | 6,792                      | 11.6%                      | 5.2%            | 76%                                      |
| Households with no cars                 | 5,222                      | 8.9%                       | 8.3%            | 7%                                       |
| People with disabilities                | 20,686                     | 13.3%                      | 12.6%           | 5%                                       |
| People without health insurance         | 12,636                     | 8.1%                       | 8.5%            | -5%                                      |
| Population of Ouachita Parish: 160,277  |                            |                            |                 |  |

Table 2-11: Socially Vulnerable Populations – City of Monroe

| Neighborhoods at Risk – City of Monroe |                   |                   |                 |  |
|--|-------------------|-------------------|-----------------|--|
| Indicators 2021                        | Monroe Population | Monroe Percentage | U.S. Percentage | Percentage Difference (Monroe vs U.S.) |
| People under 5 years                   | 3,314             | 6.9%              | 5.9%            | 16%                                    |
| People over 65 years                   | 7,157             | 14.9%             | 16.0%           | -7%                                    |
| People of color (including Hispanic)   | 31,106            | 64.7%             | 40.6%           | 46%                                    |
| People who do not speak English well   | 115               | 0.3%              | 4.1%            | -173%                                  |
| People without a high school degree    | 4,049             | 13.5%             | 11.1%           | 20%                                    |
| Families in poverty                    | 2,752             | 28.9%             | 8.9%            | 106%                                   |
| Housing units that are rentals         | 9,758             | 54.5%             | 35.4%           | 42%                                    |
| Housing units that are mobile homes    | 318               | 1.8%              | 5.2%            | -97%                                   |
| Households with no cars                | 2,902             | 16.2%             | 8.3%            | 64%                                    |
| People with disabilities               | 6,072             | 13.0%             | 12.6%           | 3%                                     |
| People without health insurance        | 3,723             | 8.0%              | 8.5%            | -6%                                    |
| Population of Monroe: 48,105           |                   |                   |                 |  |

Table 2-12: Socially Vulnerable Populations – Town of Richwood

| Neighborhoods at Risk – Town of Richwood |                     |                     |                 |  |
|--|---------------------|---------------------|-----------------|--|
| Indicators 2021                          | Richwood Population | Richwood Percentage | U.S. Percentage | Percentage Difference (Richwood vs U.S.) |
| People under 5 years                     | 266                 | 5.5%                | 5.9%            | -7%                                      |
| People over 65 years                     | 252                 | 5.2%                | 16.0%           | -102%                                    |
| People of color (including Hispanic)     | 3,804               | 78.6%               | 40.6%           | 64%                                      |
| People who do not speak English well     | 0                   | 0.0%                | 4.1%            | -200%                                    |
| People without a high school degree      | 1,095               | 32.5%               | 11.1%           | 98%                                      |
| Families in poverty                      | 228                 | 46.4%               | 8.9%            | 136%                                     |
| Housing units that are rentals           | 538                 | 70.9%               | 35.4%           | 67%                                      |
| Housing units that are mobile homes      | 113                 | 14.9%               | 5.2%            | 97%                                      |
| Households with no cars                  | 120                 | 15.8%               | 8.3%            | 62%                                      |
| People with disabilities                 | 316                 | 14.3%               | 12.6%           | 13%                                      |
| People without health insurance          | 354                 | 16.0%               | 8.5%            | 61%                                      |
| <b>Population of Richwood: 4,837</b>     |                     |                     |                 |  |

Table 2-13: Socially Vulnerable Populations – Town of Sterlington

| Neighborhoods at Risk – Town of Sterlington |                        |                        |                 |   |
|---|------------------------|------------------------|-----------------|---|
| Indicators 2021                             | Sterlington Population | Sterlington Percentage | U.S. Percentage | Percentage Difference (Sterlington vs U.S.) |
| People under 5 years                        | 140                    | 6.7%                   | 5.9%            | 13%   |
| People over 65 years                        | 350                    | 16.7%                  | 16.0%           | 4%  |
| People of color (including Hispanic)        | 597                    | 28.5%                  | 40.6%           | -35%  |
| People who do not speak English well        | 10                     | 0.5%                   | 4.1%            | -157%                                       |
| People without a high school degree         | 132                    | 10.5%                  | 11.1%           | -6%   |
| Families in poverty                         | 103                    | 17.9%                  | 8.9%            | 67%   |
| Housing units that are rentals              | 405                    | 53.4%                  | 35.4%           | 41%   |
| Housing units that are mobile homes         | 86                     | 11.3%                  | 5.2%            | 74%   |
| Households with no cars                     | 39                     | 5.1%                   | 8.3%            | -48%  |
| People with disabilities                    | 93                     | 4.4%                   | 12.6%           | -96%  |
| People without health insurance             | 159                    | 7.6%                   | 8.5%            | -11%  |
| <b>Population of Sterlington: 2,094</b>     |                        |                        |                 |   |

Table 2-14: Socially Vulnerable Populations – City of West Monroe

| Neighborhoods at Risk – City of West Monroe |                        |                        |                 |   |
|---|------------------------|------------------------|-----------------|---|
| Indicators 2021                             | West Monroe Population | West Monroe Percentage | U.S. Percentage | Percentage Difference (West Monroe vs U.S.) |
| People under 5 years                        | 755                    | 5.8%                   | 5.9%            | -2%   |
| People over 65 years                        | 2,293                  | 17.5%                  | 16.0%           | 9%  |
| People of color (including Hispanic)        | 6,080                  | 46.4%                  | 40.6%           | 13%   |
| People who do not speak English well        | 106                    | 0.9%                   | 4.1%            | -128%                                       |
| People without a high school degree         | 1,148                  | 12.2%                  | 11.1%           | 9%  |
| Families in poverty                         | 733                    | 24.4%                  | 8.9%            | 93%   |
| Housing units that are rentals              | 3,024                  | 55.6%                  | 35.4%           | 44%   |
| Housing units that are mobile homes         | 243                    | 4.5%                   | 5.2%            | -14%  |
| Households with no cars                     | 610                    | 11.2%                  | 8.3%            | 30%   |
| People with disabilities                    | 2,164                  | 16.6%                  | 12.6%           | 27%   |
| People without health insurance             | 1,237                  | 9.5%                   | 8.5%            | 196%  |
| <b>Population of West Monroe: 13,103</b>    |                        |                        |                 |   |

### Population and Development Trends

Ouachita Parish experienced an increase in population and housing between the years 2000 and 2020, increasing in population from 147,271 with 60,154 housing units in the year 2000 to a population of 160,368 with 71,295 housing units in the year 2020. Richwood experienced the largest population increase within the parish increasing from a populace of 3,394 in 2010 to 4,837 in 2020 (42.5% overall increase). This is followed by the incorporated area of Sterlington with a 31.2% overall increase, the unincorporated area of the parish with a 6.5% overall increase, and West Monroe with a 0.2% overall increase. The incorporated area of Monroe experienced a decline in population during the same time period.

Richwood experienced the largest growth of housing units from 2010 to 2020 increasing from 635 in 2010 to 891 in 2020. This is followed by the incorporated area of Sterlington with a 29.5% overall increase, Unincorporated Ouachita Parish with a 15.9% overall increase, the incorporated area of Monroe with a 2.3% overall increase, and the incorporated area of West Monroe with a 1.9% overall increase. The future population and number of buildings can be estimated using U.S. Census Bureau housing and population data. The tables on the following page show population and housing unit estimates from 2000 to 2020:

Table 2-15: Population Growth Rate for the Parish.

| Total Population                               | Parish  | Unincorporated Area | Monroe | Richwood | Sterlington | West Monroe |
|--|---------|---------------------|--------|----------|-------------|-------------|
| 1-Apr-00                                       | 147,271 | 78,478              | 52,016 | 2,204    | 1,258       | 13,315      |
| 1-Apr-10                                       | 153,910 | 86,965              | 48,873 | 3,394    | 1,596       | 13,082      |
| 1-Apr-20                                       | 160,368 | 92,632              | 47,702 | 4,837    | 2,094       | 13,065      |
| Population Growth between 2000 – 2010          | 4.5%    | 10.8%               | -6.0%  | 54.0%    | 26.9%       | -1.7%       |
| Average Annual Growth Rate between 2000 – 2010 | 0.5%    | 1.1%                | -0.6%  | 5.4%     | 2.7%        | -0.2%       |
| Population Growth between 2010 – 2020          | 4.2%    | 6.5%                | -2.4%  | 42.5%    | 31.2%       | -0.2%       |
| Average Annual Growth Rate between 2010 – 2020 | 0.42%   | 0.65%               | -0.24% | 4.25%    | 3.12%       | -0.02%      |

Table 2-16: Housing Growth Rate for the Parish.

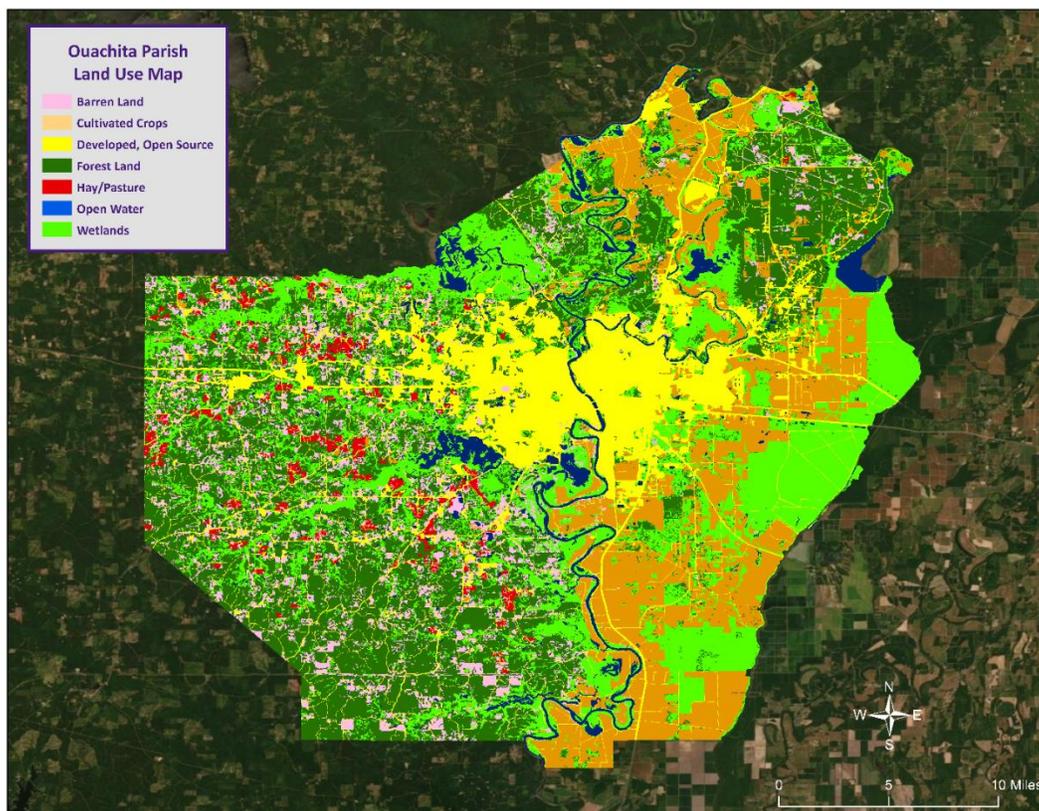
| Total Population                               | Parish | Unincorporated Area | Monroe | Richwood | Sterlington | West Monroe |
|--|--------|---------------------|--------|----------|-------------|-------------|
| 1-Apr-00                                       | 60,154 | 31,414              | 21,278 | 627      | 523         | 6,312       |
| 1-Apr-10                                       | 64,481 | 36,260              | 20,570 | 635      | 696         | 6,320       |
| 1-Apr-20                                       | 71,295 | 42,014              | 21,050 | 891      | 901         | 6,440       |
| Housing Growth between 2000 – 2010             | 7.2%   | 15.4%               | -3.3%  | 1.3%     | 33.1%       | 0.1%        |
| Average Annual Growth Rate between 2000 – 2010 | 0.7%   | 1.5%                | -0.3%  | 0.1%     | 3.3%        | 0.0%        |
| Housing Growth between 2010 – 2020             | 10.6%  | 15.9%               | 2.3%   | 40.3%    | 29.5%       | 1.9%        |
| Average Annual Growth Rate between 2010 – 2020 | 1.1%   | 1.6%                | 0.2%   | 4.0%     | 2.9%        | 0.19%       |

### Land Use

The Parish Land Use table is provided below. Residential, commercial, and industrial areas account for only 16% of the parish’s land use. Forest land is the largest category at 122,823 acres, accounting for 30% of parish land. At 103,027 acres, agricultural land accounts for 25% of parish lands, while 96,479 acres of wetlands account for 24% of parish lands. The parish also consists of 17,572 acres of water areas, accounting for 4% of all parish lands.

*Table 2-17: Parish Land Use.  
(Source: USGS Land Use Map)*

| Land Use   | Acres   | Percentage |
|--|---------|------------|
| <b>Agricultural Land, Cropland, and Pasture</b>      | 103,027 | 25%        |
| <b>Wetlands</b>                                      | 96,479  | 24%        |
| <b>Forest Land (Not including forested wetlands)</b> | 122,823 | 30%        |
| <b>Urban/Development</b>                             | 64,416  | 16%        |
| <b>Water</b>   | 17,572  | 4%         |



*Figure 2-8: Parish Land Use Map.  
(Source: USGS Land Use Map)*

### Future Hazard Impacts

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

*Table 2-18: Estimated Future Impacts, 2020 - 2030.  
(Source: Hazus, US Census Bureau)*

| Hazard / Impact            | Total in Parish (2020) | Hazard Area (2020) | Hazard Area (2025) | Hazard Area (2030) |
|----------------------------|------------------------|--------------------|--------------------|--------------------|
| <b>Flood Damage</b>        |                        |                    |                    |                    |
| <b>Structures</b>          | 72,048                 | 10,077             | 10,620             | 11,077             |
| <b>Value of Structures</b> | \$25,640,653,759       | \$3,586,090,886    | \$3,976,350,418    | \$4,318,921,755    |
| <b># of People</b>         | 160,528                | 22,451             | 22,564             | 22,654             |
| <b>Tropical Cyclones</b>   |                        |                    |                    |                    |
| <b>Structures</b>          | 72,048                 | 72,048             | 75,937             | 79,198             |
| <b>Value of Structures</b> | \$25,640,653,759       | \$25,640,653,759   | \$28,431,020,726   | \$30,880,415,710   |
| <b># of People</b>         | 160,528                | 160,528            | 161,333            | 161,979            |

Since the previous plan update in 2017, the population and housing development in the unincorporated areas of Ouachita Parish and their jurisdictions have increased. With that in mind, Ouachita Parish has been vigilant in offsetting any new development around the parish with appropriate mitigative actions. Initiatives such as active floodplain management have regulated the development of flood prone areas to continue supporting and encouraging safer communities within Ouachita Parish. The development that has occurred since 2017 has not in any knowing way altered the parish’s vulnerability to natural hazards. Ouachita Parish will continue to monitor the rise of development and ensure that any new planning project is within the limitations of this hazard mitigation plan and for the best interest of the public, especially socially vulnerable populations.

### Vulnerability with Future Development

Population increase and development can have various impacts on natural disasters and extreme weather events. The following sections below detail hazards profiled for East Baton Rouge Parish and how population and development trends can affect the areas vulnerability to said hazards.

#### *Dam Failure*

- a. **Population Increase:** With a growing population, there may be an increased demand for water resources, leading to the construction of more dams. If not adequately designed and maintained, the increase in dam construction could lead to a higher risk of dam failures due to potential engineering flaws, lack of proper maintenance, or inadequate safety measures.
- b. **Development:** Rapid development in areas near dams can increase the potential consequences of a dam failure. If there are more homes, infrastructure, and businesses downstream, a dam failure could result in more significant property damage and loss of life.

### *Drought*

- a. **Population Increase:** As the population grows, the demand for water resources also increases, leading to higher water consumption. This can exacerbate drought conditions, especially in regions already experiencing water scarcity.
- b. **Development:** Land development can alter natural landscapes, leading to reduced water retention and increased runoff. This alteration of the natural hydrological cycle can worsen drought conditions by reducing groundwater recharge and surface water availability.

### *Excessive Heat*

- a. **Population Increase:** With a growing population, there may be an increased demand for water resources, which could impact water supply for both households and agriculture during extreme heating events.
- b. **Development:** Rapid development in urban areas could increase the urban heat index which would require more planning and development strategies to mitigate.

### *Levee Failure*

- a. **Population Increase:** A higher population density in flood-prone areas may lead to more extensive levee systems to protect these communities. However, if these levees are not properly designed or maintained to handle increased stress, they become more susceptible to failure during extreme flooding events.
- b. **Development:** Construction and urbanization in floodplains can increase the pressure on existing levees, reducing their effectiveness and increasing the likelihood of levee breaches during floods.

### *Thunderstorms and Tornadoes*

- a. **Population Increase:** A higher population density in tornado-prone regions increases the potential for casualties and property damage during severe thunderstorms and tornado events.
- b. **Development:** Urbanization can lead to the creation of heat islands, altering local atmospheric conditions and potentially influencing thunderstorm development. Additionally, more infrastructure can obstruct natural wind patterns, potentially enhancing localized wind damage during tornadoes.

### *Wildfires*

- a. **Population Increase:** As more people move into wildland-urban interface areas (where human development meets natural vegetation), the risk of wildfires and their impacts on communities increase. Human activities can also inadvertently trigger wildfires.
- b. **Development:** Construction in fire-prone areas may lead to an accumulation of combustible materials, such as buildings, which can serve as fuel sources during wildfire events.

### *Winter Weather:*

- a. **Population Increase:** Higher populations in regions with cold climates can lead to increased demand for energy resources, such as electricity and heating. This higher demand can strain energy infrastructure during severe winter weather events, leading to power outages and potential hazards.
- b. **Development:** Urbanization and changes in land use can disrupt local microclimates, leading to altered patterns of snow accumulation and melt. Additionally, increased impervious surfaces in urban areas can lead to more rapid runoff during snowmelt, potentially causing flooding.

In conclusion, population increase and development can exacerbate the impacts of natural disasters and extreme weather events. Proper urban planning, infrastructure maintenance, and responsible land-use decisions are essential to mitigate these risks and build resilient communities.

## Hazard Profile, Risk Assessment, and Vulnerability Analysis

### Dam Failure

#### *Profile*

A dam is defined as an artificial barrier with the ability to impound water, wastewater, or any liquid-borne material, for the purpose of storage or control of water. A dam failure is a catastrophic type of failure characterized by the sudden, rapid, and uncontrolled release of impounded water or the likelihood of such an uncontrolled release. It is recognized that there are lesser degrees of failure and that any malfunction or abnormality outside the design assumptions and parameters that adversely affect a dam's primary function of impounding water is properly considered a failure. These lesser degrees of failure can progressively lead to or heighten the risk of a catastrophic failure. Dam failures are usually a secondary effect of massive rainfall and flooding and occur when too much water enters the spillway system. This will occur with little or no warning. Spring thaws, severe thunderstorms, and heavy rainfall are also contributory factors. Additionally, poor engineering or poor maintenance may also cause dam failures. According to the Federal Emergency Management Agency, dams can fail for one or a combination of the following reasons:

- overtopping caused by floods that exceed the capacity of the dam;
- deliberate acts of sabotage;
- structural failure of materials used in dam construction;
- movement and/or failure of the foundation supporting the dam;
- settlement and cracking of concrete or embankment dams;
- piping and internal erosion of soil in embankment dams; and
- inadequate maintenance

The National Inventory of Dams is a registry that captures information about structures that are greater than or equal to 25 feet in height or impounding 50-acre-feet or more of water (an acre-foot is equal to 325,851 gallons of water) and includes structures above six feet in height, where failure would potentially cause damage downstream. The dams are classified in terms of hazard potential as "high," "significant," or "low". The location of high-hazard dams for the parish is located on the next page.

*Table 2-19: Classification of Dams.*

| Classification | Definition  |
|----------------|---|
| Low            | No probable loss of human life and low economic and/or environmental losses are expected. Losses are principally limited to the owner's property. |
| Medium         | Loss of human life is not probable, but economic loss, environmental damage, and/or disruption of lifeline facilities can be expected.            |
| High           | Failure or maloperation will probably cause loss of human life.   |

In Louisiana, there are 513 dams included in the Army Corps of Engineers National Inventory of Dams. Of these, 41 are considered high hazard, 63 are significant hazard, and 409 are low hazard potential dams.

#### *Risk Assessment*

##### *Geographic Extent*

According to the National Inventory of Dams, the parish has no high hazard dams which are located in the incorporated areas of the parish. Therefore, the hazard of dam failure is discounted.

## Drought

### *Profile*

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 occurrence, 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, 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. The tables on the following page display the range and Palmer classifications of the PDSI index, and the United States Drought Monitor Intensity scale.

*Table 2-20: Palmer Drought Severity Index Classification and Range.*

| Range         | Palmer Classification |
|---------------|-----------------------|
| 4.0 or more   | Extremely Wet         |
| 3.0 to 3.99   | Very Wet              |
| 2.0 to 2.99   | 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       |

*Table 2-21: U.S. Drought Monitor Drought Intensity Scale.**(Source: National Drought Mitigation Center)*

| Range/Category | Description         | PDSI Equivalent |
|----------------|---------------------|-----------------|
| D0             | Abnormally Dry      | -1.0 to -1.99   |
| D1             | Moderate Drought    | -2.0 to -2.99   |
| D2             | Severe Drought      | -3.0 to -3.99   |
| D3             | Extreme Drought     | -4.0 to -4.99   |
| D4             | Exceptional Drought | -5.0 or less    |

The figure on the following page displays the drought conditions in the state of Louisiana. Data compiled by the National Drought Mitigation Center indicates abnormally dry conditions exist in the southern portion of the parish at the time this plan went to publication.

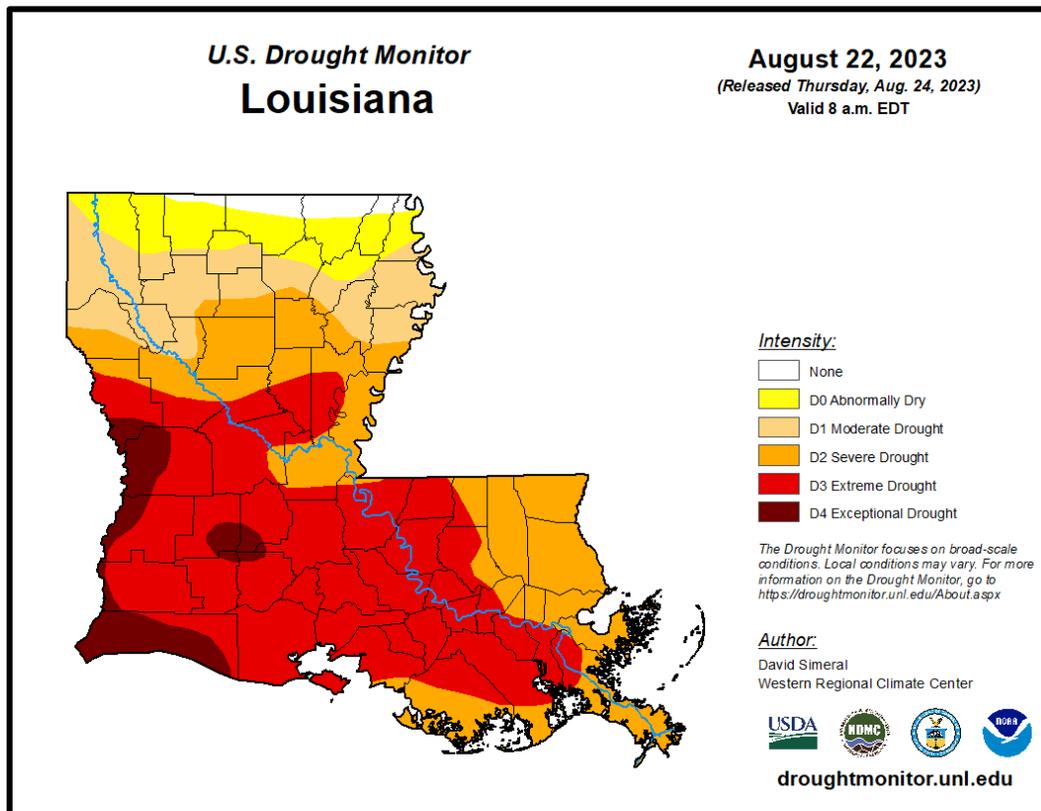


Figure 2-9: United States Drought Monitor for the State of Louisiana and its Parishes.  
(Source: The National Drought Mitigation Center)

### Risk Assessment

#### Geographic Extent

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 occurrence in the parish is on the agricultural community. However, droughts do have the potential to reduce the stability of soil leading to shifting structures and damage to foundations. The worst-case drought scenario for the parish and the jurisdictions of the parish would be a severe drought (D3).

#### Previous Occurrences

The parish experienced seven drought occurrences between the years 1996 and 2022. Since the last update in 2016, there have been two drought occurrences within the boundaries of the parish.

Table 2-22: Historical Droughts in the Parish since the 2017 Update.

| Date  | Impacts   | Crop Damage | Magnitude |
|---|---|-------------|-----------|
| <p><b>November 2017 – February 2018</b></p> | <p>Severe (D2) drought conditions expanded farther east across portions of Northcentral Louisiana during the final day of November, encompassing Bienville, Jackson, and Ouachita Parishes. This was in response to significant rainfall deficits that accumulated since the start of September following the departure of the remnants of Tropical Storm Harvey.</p> | <p>\$0</p>  | <p>D2</p> |
| <p><b>December 2021 – March 2022</b></p>    | <p>Severe (D2) drought conditions developed across parts of North-central and Northeast Louisiana toward the end of December, in response to a prolonged period of dryness which began in late July, coupled with above normal temperatures which persisted through the Fall months.</p>  | <p>\$0</p>  | <p>D3</p> |

*Probability*

The annual return rate (frequency) for periods of drought in the parish is 0.26 (26% annual probability) or approximately 1 drought occurrence every 3 to 4 years.

*Climate Change Impacts*

Climate change is expected to increase the number and intensity of droughts in the state of Louisiana. Drought can be caused by both a reduction in precipitation, as well as by heat that results in increased evaporation. Changes in temperature and types of precipitation in the state of Louisiana will affect drought characteristics. An increase in rain and a decrease in winter weather events with increased temperatures will cause peak streamflow to occur earlier in the year. This change in the hydrologic cycle will have significant impacts on natural systems in Louisiana including the intensity, duration, and frequency of droughts.

*Vulnerability Analysis*

The NRI includes data on the expected annual losses to individual natural hazards, historical losses, and overall risk at the county and Census tract level. The table on the following page provides an overview of each category at the county level for drought.

*Table 2-23: National Risk Index (NRI) Summarization of Drought Occurrences for the Parish.  
(Source: National Risk Index)*

| Expected Annual Losses | Overall Risk Rating |
|------------------------|---------------------|
| Very Low               | Very Low            |

**Estimated Impact and Potential Loss**

The parish and the jurisdictions of the parish are vulnerable to drought by means of soil desiccation (drying out), which causes foundation damage to structures as well as buckling of roads. However, the main impact of a drought occurrence is on the agricultural community. The following table presents an analysis of agricultural exposure that is susceptible to drought by major crop type for the parish.

*Table 2-24: Agricultural Exposure by Crop Type for Droughts in the Parish.  
(Source: LSU Ag Center 2020 Parish Totals)*

| Agricultural Exposure by Type for Drought |              |              |             |             |             |
|---|--------------|--------------|-------------|-------------|-------------|
| Cotton                                    | Forestry     | Soybeans     | Feed Grain  | Rice        | Wheat       |
| \$3,175,492                               | \$13,181,443 | \$11,187,433 | \$4,768,911 | \$9,131,111 | \$1,765,433 |

**Vulnerable Population**

As mentioned previously, the main impact of drought is on the agricultural community and certain infrastructure. There is no direct impact on the populace of the parish. There have been no reported deaths or injuries as a result of drought within the parish and the jurisdictions of the parish.

**Vulnerability Score**

*Table 2-25: Drought Vulnerability Score for the Parish.*

| Drought Vulnerability Score |             |        |                |              |          |             |
|-----------------------------|-------------|--------|----------------|--------------|----------|-------------|
|                             | Probability | Impact | Spatial Extent | Warning Time | Duration | Risk Factor |
| Risk Level                  | 3           | 2      | 4              | 2            | 3        | 2.8         |

## Excessive Heat

### Profile

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 the following tables. 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, pipelines, utilities, and railroads. High temperatures can be partially responsible for deflection of rails and related railroad accidents.

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

*Table 2-26: 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. |

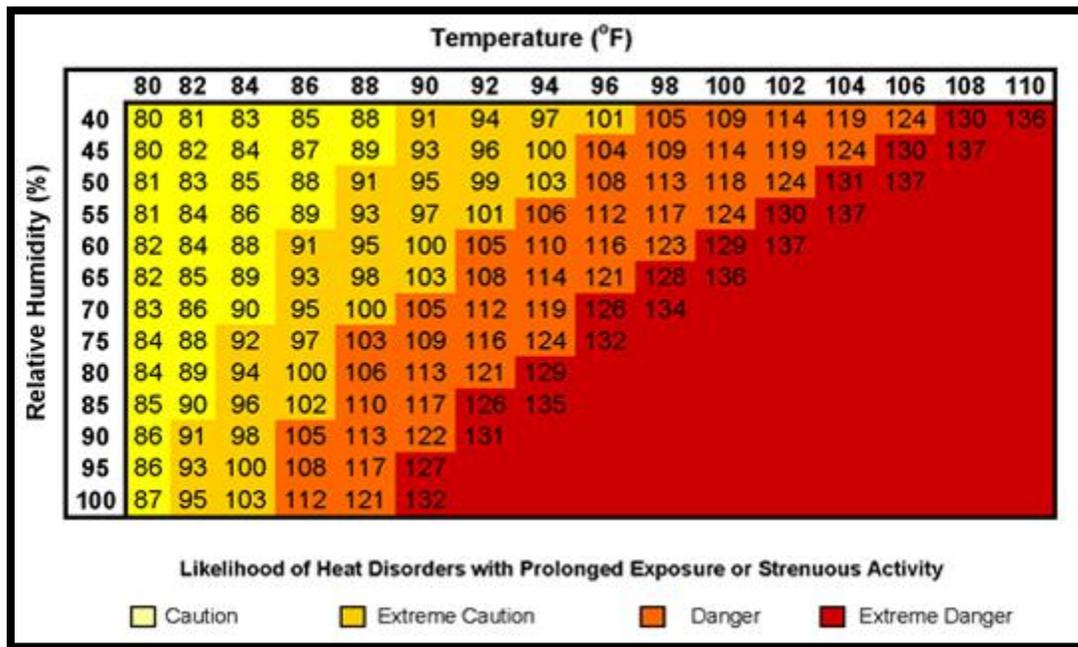


Figure 2-10: Heat Index Advisor based on Air Temperature (°F) and Relative Humidity. (Source: National Weather Service)

*Risk Assessment*

*Geographic Extent*

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

*Previous Occurrences*

The parish experienced 14 drought occurrences between the years 1996 and 2022. Since the last update in 2016, there have been eight drought occurrences within the boundaries of the parish.

Table 2-27: Historical Extreme Heat Events in the Parish since the 2016 HMP Update.

| Date      | Extents   | Magnitude (°F) | Estimated Damages |
|-----------|---|----------------|-------------------|
| 8/11/2019 | An upper level ridge of high pressure over the Southern Plains eventually shifted east and became centered over Southwest Arkansas and North Louisiana during the second week of August, resulting in a period of excessive heat as afternoon temperatures climbed into the upper 90s to in excess of 100 degrees from the 11th to the 14th.  | 110 - 114      | \$0               |
| 7/11/2020 | An upper level ridge of high pressure centered over the Southern Plains began to amplify and expand north-northeast into the Plains and Mississippi Valley through the middle portions of July, resulting in increased subsidence and hence, hotter temperatures as readings climbed into the mid to upper 90s across much of the Ark-La-Tex.   | 110 – 115      | \$0               |
| 7/30/2021 | An upper-level ridge of high pressure was anchored from Nebraska/Kansas southeast into portions of the Lower Mississippi Valley from July 30th through the end of the month, resulting in very hot temperatures across the Ark-La-Tex as readings climbed into the mid and upper 90s each day.  | 110 – 115      | \$0               |
| 8/1/2021  | An upper level ridge of high pressure was anchored from Nebraska/Kansas southeast across portions of the Lower Mississippi Valley through August 1st, resulting in very hot temperatures across the Ark-La-Tex as readings climbed into the mid and upper 90s. Very little mixing of dew points occurred throughout the day, which when combined with these hot temperatures, resulted in oppressively hot conditions as heat indices ranged from 110-115 degrees across much of North-central and Northeast Louisiana. | 110 – 115      | \$0               |
| 8/23/2021 | An upper level ridge of high pressure expanded east into the Mississippi Valley on August 23rd, resulting in temperatures climbing into the upper 90s to near 100 degrees across Union, Ouachita, and Caldwell Parishes through the 24th.   | 105 – 110      | \$0               |
| 7/9/2022  | An intensifying upper level ridge spanning much of the Southern U.S. in early July led to excessively hot temperatures across all of the Four State Region on July 9th, with daytime temperatures climbing into the upper 90s to lower and middle 100s.   | 110 – 115      | \$0               |
| 7/19/2022 | A strengthening upper level ridge spanning much of the Southern U.S. in mid July led to excessively hot temperatures across all of the Four State Region from July 19th through the 20th, with daytime temperatures climbing into the upper 90s to lower and middle 100s.   | 110 – 115      | \$0               |
| 7/21/2022 | A strengthening upper level ridge spanning much of the Southern U.S. in mid July led to excessively hot temperatures across all of the Four State Region on July 21st. However, a weak surface front backdoored southwest through Southwest Arkansas during the afternoon, resulting in compressional warming ahead of it over portions of North-central Louisiana.   | 110 - 112      | \$0               |

### Probability

The annual return rate (frequency) for extreme heat occurrences in the parish is 0.52 (52% annual probability) or approximately 1 extreme heat event every 1 to 2 years.

### Climate Change Impacts

Climate change has caused a rise in extreme heat events within Bienville Parish and its jurisdictions, especially in urban areas that experience higher temperatures due to the urban heat island effect. Cities in Louisiana are experiencing, at a minimum, two more weeks of extreme heat (days over 95° F) than compared to 50 years ago. With the rise in extreme heat events, there will be several environmental and economic implications within the state of Louisiana including the disruption of the natural system such as agriculture, forestry, fishing, mining, manufacturing, transportation, and utilities.

Climate change is driving a relentless escalation in extreme heat events, reshaping the very fabric of our environment. Rising greenhouse gas emissions are enhancing the greenhouse effect, trapping heat within the atmosphere. Consequently, extreme heat occurrences have become more frequent, intense, and prolonged. Heatwaves, once sporadic, have transformed into enduring episodes, subjecting regions to temperatures that push the boundaries of historical records. Urban areas, already prone to heat island effects due to concrete and asphalt, are rendered even more stifling. These elevated temperatures pose an array of challenges to ecosystems, agriculture, infrastructure, and human health. Vulnerable populations bear the brunt, as their reduced capacity to adapt heightens the risks of heat-related illnesses, mortality, and displacement. In addition, elevated heat negatively impacts economies, straining energy demand, reducing worker productivity, and exacerbating health care costs.

### Vulnerability Analysis

The NRI includes data on the expected annual losses to individual natural hazards, historical losses, and overall risk at the county and Census tract level. The following table provides an overview of each category at the county level for extreme heat.

*Table 2-28: National Risk Index (NRI) Summarization of Extreme Heat Occurrences for the Parish.  
(Source: National Risk Index)*

| Expected Annual Losses | Overall Risk Rating |
|------------------------|---------------------|
| Relatively High        | Relatively High     |

### Estimated Impact and Potential Loss

Since 1996, there have been 14 significant extreme heat events that have resulted in property damages according to NCEI Storm Events Database. The total property damages associated with those events have totaled approximately \$1,000. To estimate the potential losses of an extreme heat event on an annual basis, the total damages recorded for these events was divided by the total number of years of available data in the NCEI Storm Events Database (1996 - 2022). This provides an annual estimated potential loss of \$37 and \$56 per event. The table on the following page provides an estimate of potential property losses for the parish:

*Table 2-29: Estimated Annual Losses in the Parish and its Jurisdictions Resulting from Extreme Heat.*

| Extreme Heat Estimated Annual Potential Losses |                   |                    |                       |                       |
|--|-------------------|--------------------|-----------------------|-----------------------|
| Unincorporated Area<br>(53.1%)                 | Monroe<br>(21.2%) | Richwood<br>(0.7%) | Sterlington<br>(1.8%) | West Monroe<br>(6.0%) |
| \$22   | \$11              | \$1                | \$0                   | \$3                   |

### Vulnerable Population

There have been two reported fatalities and no injuries due to extreme heat in the parish. However, extreme heat poses a dire threat to vulnerable populations, magnifying existing disparities and triggering a cascade of health, social, and economic challenges. The elderly, children, low-income individuals, and those with underlying health conditions are particularly susceptible. Their compromised physiological resilience makes them more prone to heat-related illnesses, including life-threatening conditions like heat stroke. Mortality rates surge, disproportionately affecting the elderly, as soaring temperatures strain their already fragile health. Economic strain intensifies for low-income communities, unable to afford proper cooling measures, leading to discomfort and potential productivity losses. Inadequate housing exacerbates the issue, as substandard dwellings lack insulation and ventilation, turning homes into heat traps. Moreover, social isolation heightens vulnerability, as limited social connections hinder access to aid and cooler environments. The lack of resources, clean water, and medical care amplifies risks. Environmental injustices come to the fore, as marginalized neighborhoods, trapped in urban heat islands, experience even higher temperatures due to scant greenery. This extreme heat can induce migration and displacement, straining resources and instigating social tensions. Utility disruptions during heatwaves further compromise their well-being, and overburdened healthcare systems struggle to cope with the influx of heat-related cases.

### Vulnerability Score

*Table 2-30: Extreme Heat Vulnerability Score for the Parish.*

| Extreme Heat Vulnerability Score |             |        |                |              |          |             |
|----------------------------------|-------------|--------|----------------|--------------|----------|-------------|
|                                  | Probability | Impact | Spatial Extent | Warning Time | Duration | Risk Factor |
| Risk Level                       | 3           | 1      | 4              | 1            | 3        | 2.4         |

## Flooding

### *Profile*

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.

Extreme precipitation, produced from mid-latitude cyclones, thunderstorms, or hurricanes, is often the major initiating condition for flooding. During the cooler months, slow-moving frontal weather systems produce heavy rainfalls, while the summer and autumn seasons produce major precipitation in isolated thunderstorm occurrences (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.

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. For example, 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.
- **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.

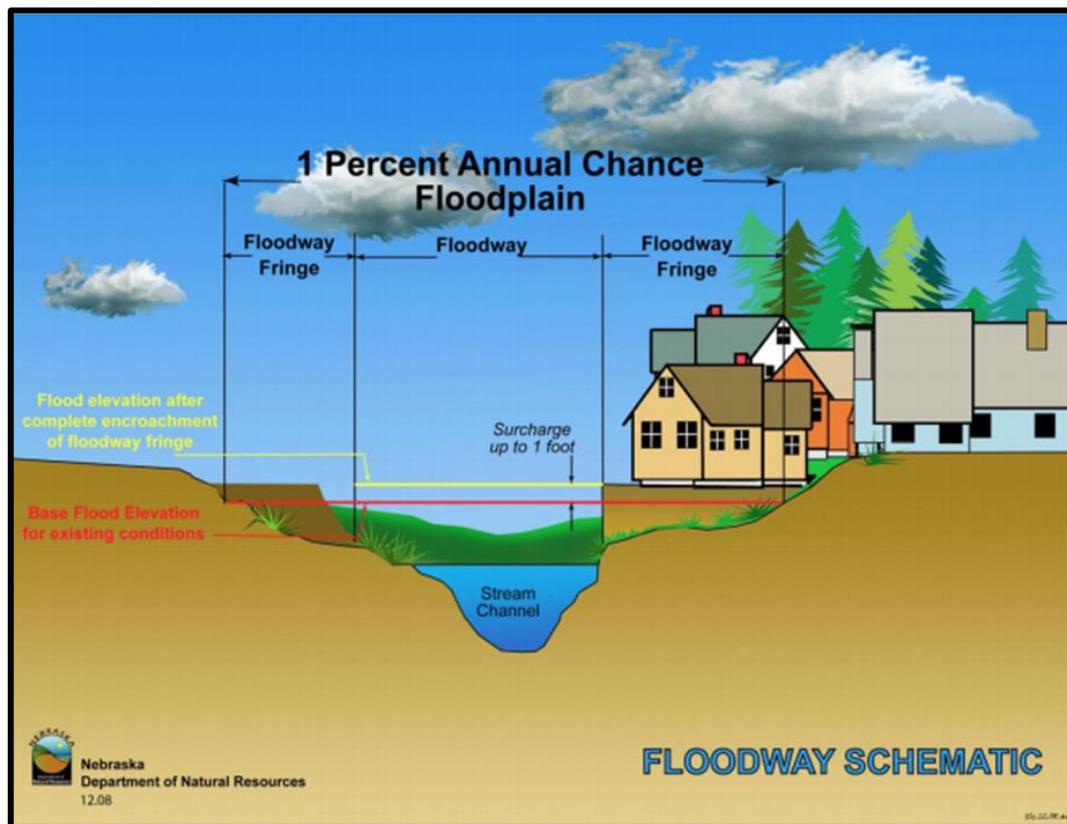
- **Coastal flooding** can appear similar to any of the other flood types, depending on its cause. It occurs when normally dry coastal land is flooded by seawater, but may be caused by direct inundation (when the sea level exceeds the elevation of the land), overtopping of a natural or artificial barrier, 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.

Based on stream gauge levels and precipitation forecasts, the 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 occurrence, for example, is an occurrence of small magnitude (in terms of stream flow or precipitation) but with a relatively high annual probability of recurrence (10%). A 100-year flood occurrence 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 occurrence and a 10-year occurrence, 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 occurrence does not mean an occurrence of that magnitude occurs only once in X years. Instead, it means that on average, we can expect a flood occurrence 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 occurrence as having a 25% chance of occurring over the life of a 30-year mortgage.

The 100-year flood occurrence 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 the following figure.



*Figure 2-11: 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 the above figure), where the NFIP's floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. Flood zones for the parish are shown in the figures on the following pages.

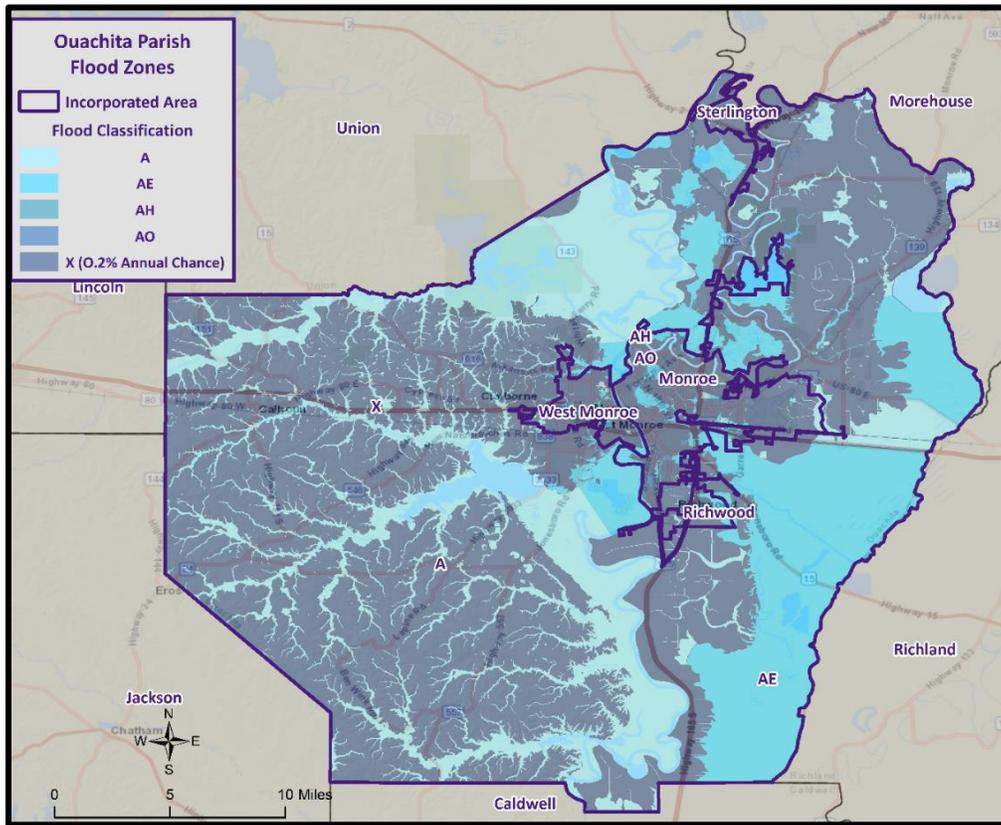


Figure 2-12: Parish Areas within the Flood Zones.

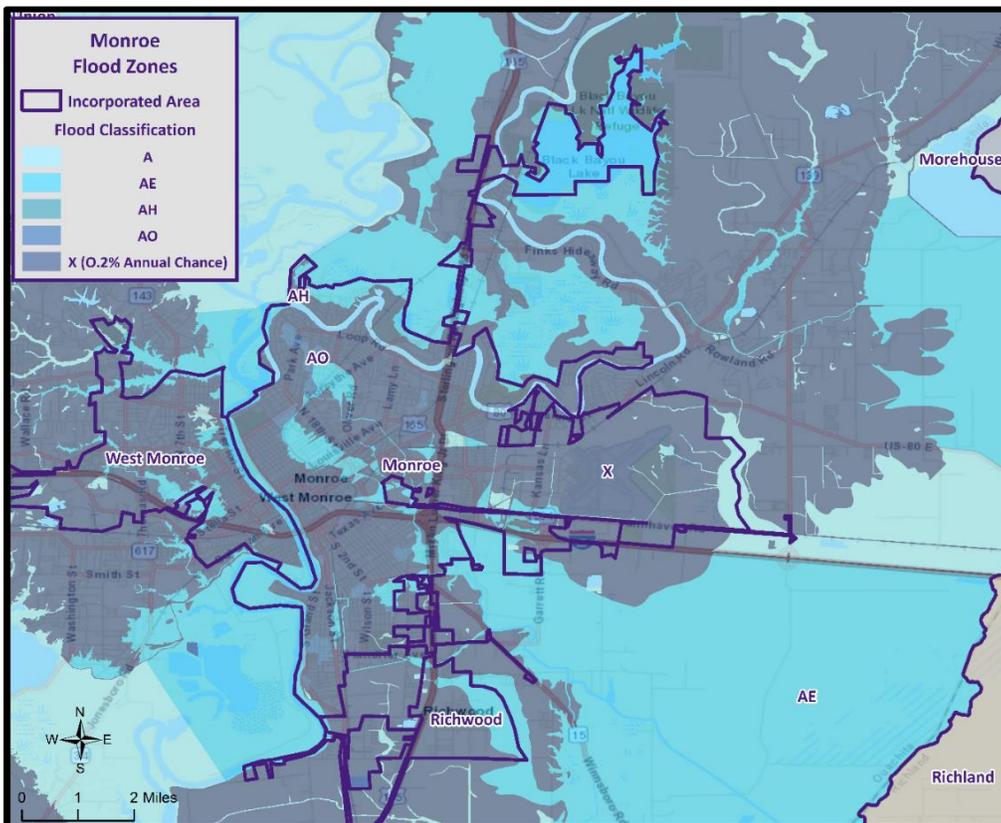


Figure 2-13: Monroe Areas within the Flood Zones.

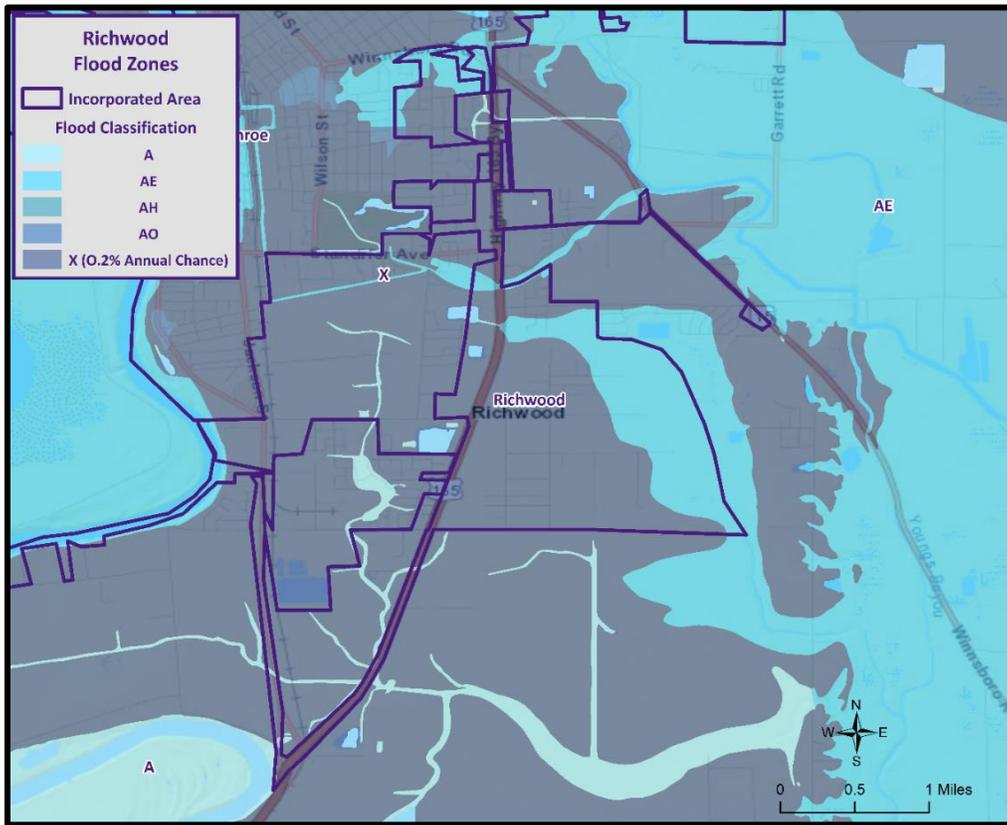


Figure 2-14: Richwood Areas within the Flood Zones.

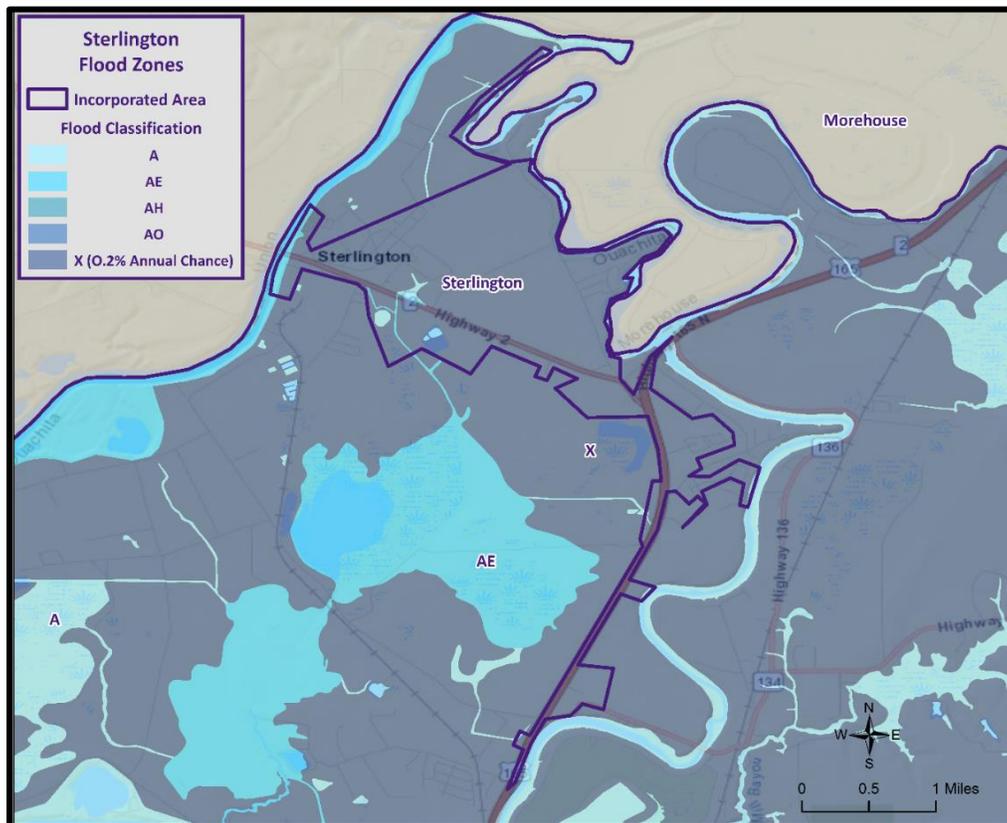


Figure 2-15: Sterlington Areas within the Flood Zones.

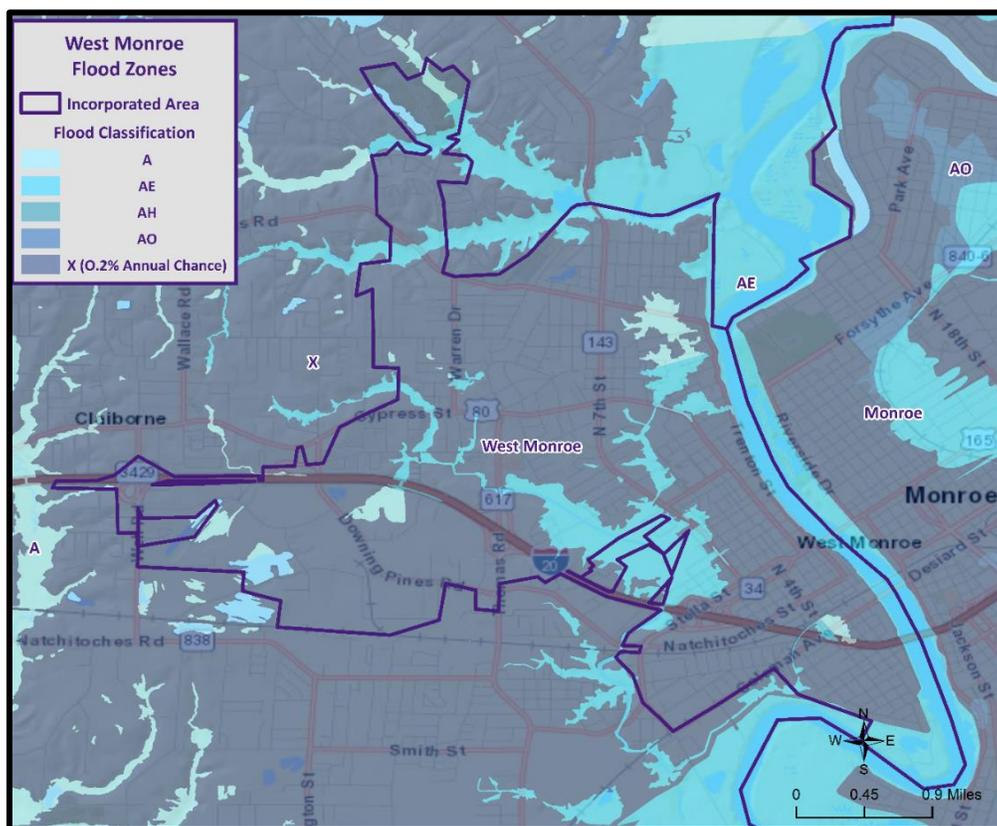


Figure 2-16: West Monroe Areas within the Flood Zones.

### Property Damage

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

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

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

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

### Repetitive Loss Properties

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

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

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

- a. It is covered under a contract for flood insurance made available under the NFIP; and
- b. It has incurred flood related damage –
  - 1) For which four or more separate claims payments have been made under flood insurance coverage with the amount of each claim exceeding \$5,000 and with the cumulative amount of such claim's 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 the parish are provided in the table below:

*Table 2-31: Repetitive Loss Structures for the Parish.*

| Jurisdiction                          | Number of Structures | Residential | Commercial | Government | Total Claims | Total Claims Paid   | Average Claim Paid |
|---------------------------------------|----------------------|-------------|------------|------------|--------------|---------------------|--------------------|
| <b>Unincorporated Ouachita Parish</b> | 192                  | 173         | 19         | 0          | 250          | \$21,774,562        | \$87,098           |
| <b>Monroe</b>                         | 555                  | 506         | 49         | 0          | 976          | \$42,528,034        | \$43,574           |
| <b>Richwood</b>                       | 1                    | 1           | 0          | 0          | 3            | \$132,800           | \$44,267           |
| <b>Sterlington</b>                    | 0                    | 0           | 0          | 0          | 0            | \$0                 | \$0                |
| <b>West Monroe</b>                    | 115                  | 94          | 21         | 0          | 277          | \$14,939,352        | \$53,933           |
| <b>TOTAL</b>                          | <b>863</b>           | <b>774</b>  | <b>89</b>  | <b>0</b>   | <b>1,506</b> | <b>\$79,374,748</b> | <b>\$52,706</b>    |

All 863 repetitive loss structures were geocoded in order to provide an overview of where the repetitive loss structures are located throughout the parish. The following figures show the approximate locations of the structures and where the highest concentration of repetitive loss structures is located. Through the repetitive loss maps, it is clear the primary concentration of repetitive loss structures is focused in and around the incorporated area of Monroe.

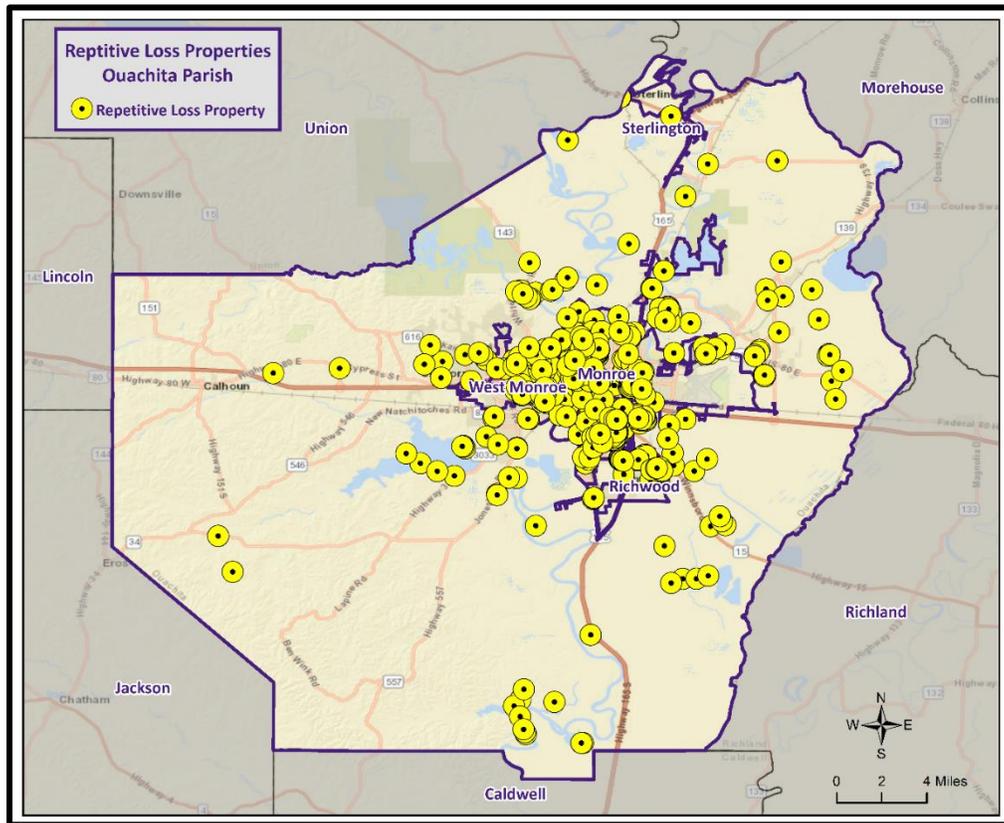


Figure 2-17: Repetitive Loss Properties in the Parish.

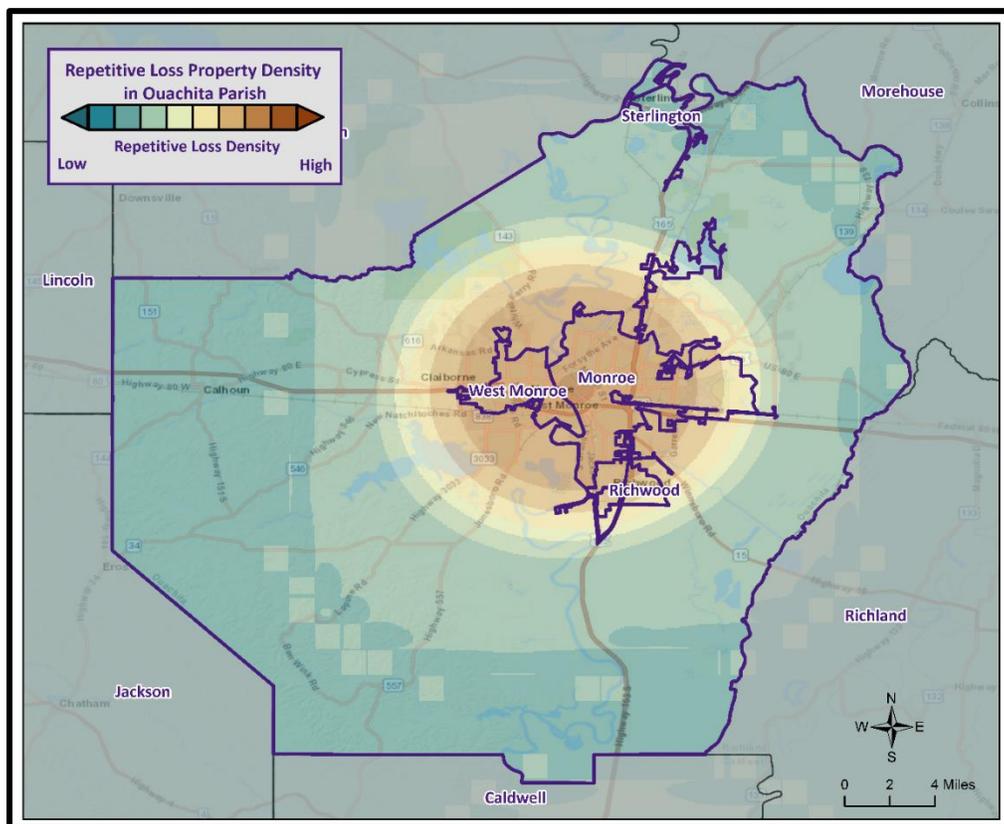


Figure 2-18: Repetitive Loss Property Densities in the Parish.

National Flood Insurance Program

Flood insurance statistics indicate that the Parish has 4,411 flood insurance policies with the NFIP, with total annual premiums of \$2,740,746. The parish and the jurisdictions of Monroe, Richwood, Sterlington, and West Monroe are all participants in the NFIP. The parish and all of its jurisdictions will continue to adopt and enforce floodplain management requirements, including regulating new construction Special Flood Hazard Areas, making substantial improvement and/or damage determinations, or determining the necessary permits required of owners to bring a substantially improved/damaged structure back into compliance. The parish will continue to monitor activities including local requests for new map updates. Flood insurance statistics and additional NFIP participation details for the parish and its jurisdictions is provided in the tables to follow.

Table 2-32: Summary of NFIP Policies for the Parish.

| Location                              | No. of Insured Structures | Total Insurance Coverage Value | Annual Premiums Paid | No. of Insurance Claims Filed Since 1978 | Total Loss Payments  |
|---------------------------------------|---------------------------|--------------------------------|----------------------|--|----------------------|
| <b>Unincorporated Ouachita Parish</b> | 1,679                     | \$402,432,500                  | \$1,053,355          | 1,968                                    | \$57,638,345         |
| <b>Monroe</b>                         | 2,433                     | \$612,022,300                  | \$1,471,653          | 4,093                                    | \$82,699,685         |
| <b>Richwood</b>                       | 5                         | \$1,200,000                    | \$2,160              | 3  | \$89,817             |
| <b>Sterlington</b>                    | 7                         | \$1,893,000                    | \$4,036              | 2  | \$145,009            |
| <b>West Monroe</b>                    | 287                       | \$77,214,000                   | \$209,542            | 716                                      | \$18,697,508         |
| <b>Total</b>                          | <b>4,411</b>              | <b>\$1,094,761,800</b>         | <b>\$2,740,746</b>   | <b>6,782</b>                             | <b>\$159,270,364</b> |

Table 2-33: Summary of Community Flood Maps for the Parish.

| CID     | Community Name  | Initial FHBM Identified | Initial FIRM Identified | Adopted Date | Current Effective Map Date | Date Joined the NFIP | Tribal |
|---------|-----------------|-------------------------|-------------------------|--------------|----------------------------|----------------------|--------|
| 220135# | Ouachita Parish | 9/13/1974               | 7/2/1980                | 1/20/2016    | 1/20/2016                  | 7/2/1980             | No     |
| 220136# | Monroe          | 9/6/1974                | 12/18/1979              | 1/20/2016    | 1/20/2016                  | 12/18/1979           | No     |
| 220378# | Richwood        | -                       | 9/30/1987               | 1/20/2016    | 1/20/2016                  | 9/30/1987            | No     |
| 220400# | Sterlington     | 1/9/1976                | 3/15/1994               | 1/20/2016    | 1/20/2016                  | 6/14/1994            | No     |
| 220138# | West Monroe     | 11/16/1973              | 12/1/1978               | 1/20/2016    | 1/20/2016                  | 12/1/1978            | No     |
| 220135# | Ouachita Parish | 9/13/1974               | 7/2/1980                | 1/20/2016    | 1/20/2016                  | 7/2/1980             | No     |

According to the Community Rating System (CRS) list of eligible communities, Unincorporated Ouachita Parish and its jurisdictions do not participate in the CRS program.

Table 2-34: Summary of Community Flood Maps for the Parish.

| CID    | Community Name  | CRS Entry Date | Current Effective Date | Current Class | % Discount for SFHA | % Discount for Non-SFHA |
|--------|-----------------|----------------|------------------------|---------------|---------------------|-------------------------|
| 220135 | Ouachita Parish | 10/1/2002      | 5/1/2008               | 9             | 5                   | 5                       |
| 220136 | Monroe          | 10/1/2003      | 10/1/2012              | 10            |                     | 0                       |

### Threat to People

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

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

### Elevations in the Parish

The digital elevation model (DEM) for the 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 30 feet (NAVD88) to over 290 feet (NAVD88). The highest elevations in the parish are approximately 290 feet (NAVD88), located in the western portions of the parish. The incorporated areas range in elevation from 56 to 82 feet (NAVD88), with the incorporated area of Sterlington averaging 56 feet (NAVD88), Richwood averaging 69 feet (NAVD88), Monroe averaging 72 feet (NAVD88), and West Monroe averaging 82 feet (NAVD88).

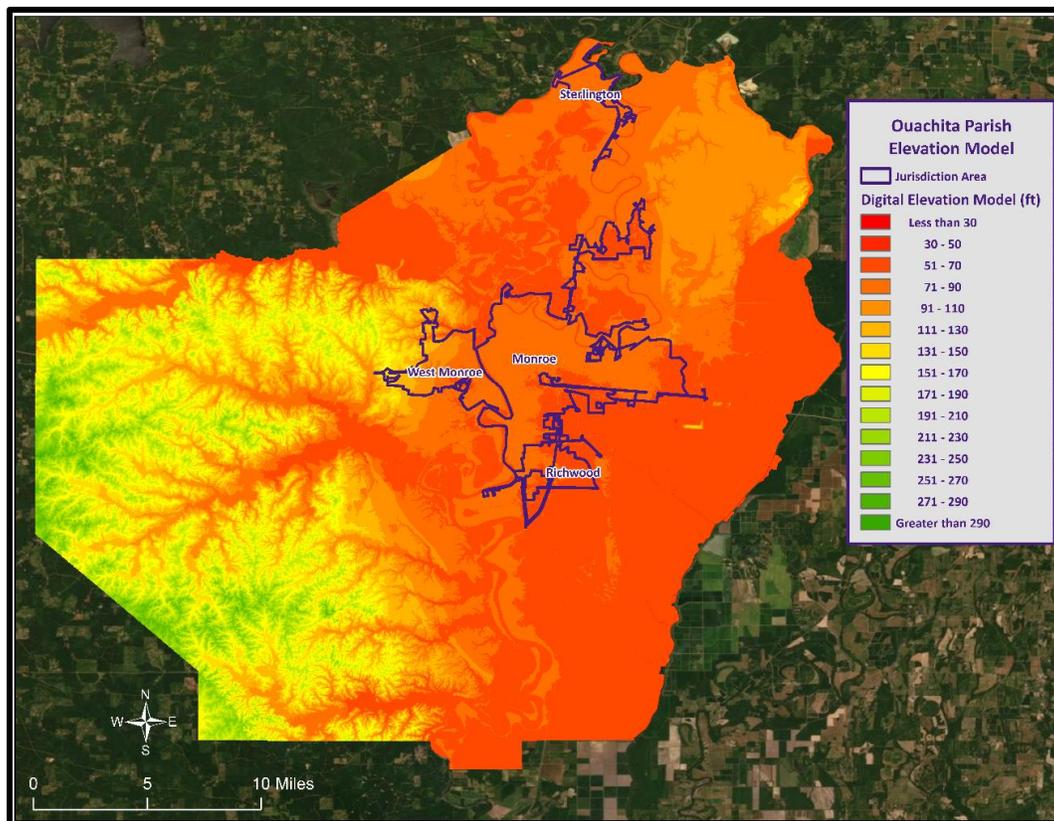


Figure 2-19: Elevation throughout the Parish.

*Risk Assessment**Geographic Extent*

Ouachita Parish has experienced significant flooding in its history and can expect more in the future. Many parts of the parish are located in the 100-year floodplain.

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 eight to ten feet can be expected in the unincorporated areas of the parish. The incorporated areas of Monroe and West Monroe can expect flood depths from three to six feet, while the incorporated areas Richwood and Sterlington can expect flood depths from two to four feet.

*Previous Occurrences*

The parish experienced 107 flooding occurrences between the years 1996 and 2022. Since the last update in 2016, there have been 18 flood occurrences within the boundaries of the parish.

*Table 2-35: Historical Flooding Events in the Parish since the 2016 Update.*

| Date       | Area          | Type of Flood | Property Damage | Fatalities | Injuries |
|------------|---------------|---------------|-----------------|------------|----------|
| 7/1/2017   | FRIZZELL      | Flash Flood   | \$0             | 0          | 0        |
| 2/21/2018  | PERRYVILLE    | Flash Flood   | \$0             | 0          | 0        |
| 2/21/2018  | WALL LAKE     | Flash Flood   | \$0             | 0          | 0        |
| 3/7/2018   | HIGHLAND PARK | Flood         | \$0             | 0          | 0        |
| 3/28/2018  | HANCOCK       | Flash Flood   | \$0             | 0          | 0        |
| 3/28/2018  | SICARD        | Flash Flood   | \$0             | 0          | 0        |
| 4/1/2018   | HIGHLAND PARK | Flood         | \$0             | 0          | 0        |
| 4/13/2019  | BAWCOMVILLE   | Flash Flood   | \$0             | 1          | 0        |
| 4/13/2019  | FOLKSVILLE    | Flash Flood   | \$0             | 0          | 0        |
| 4/13/2019  | FOLKSVILLE    | Flood         | \$0             | 1          | 0        |
| 4/14/2019  | WALL LAKE     | Flood         | \$0             | 0          | 0        |
| 5/1/2019   | PHILLIPS      | Flood         | \$0             | 0          | 0        |
| 6/1/2019   | PHILLIPS      | Flood         | \$0             | 0          | 0        |
| 4/19/2020  | KIROLI WOODS  | Flash Flood   | \$0             | 0          | 0        |
| 9/23/2020  | STERLINGTON   | Flash Flood   | \$0             | 0          | 0        |
| 10/10/2020 | STEVEN        | Flash Flood   | \$0             | 0          | 0        |
| 7/2/2021   | WEST MONROE   | Flash Flood   | \$0             | 0          | 0        |
| 8/10/2022  | HIGHLAND PARK | Flash Flood   | \$0             | 0          | 0        |
| 7/1/2017   | FRIZZELL      | Flash Flood   | \$0             | 0          | 0        |
| 2/21/2018  | PERRYVILLE    | Flash Flood   | \$0             | 0          | 0        |
| 2/21/2018  | WALL LAKE     | Flash Flood   | \$0             | 0          | 0        |
| 3/7/2018   | HIGHLAND PARK | Flood         | \$0             | 0          | 0        |
| 3/28/2018  | HANCOCK       | Flash Flood   | \$0             | 0          | 0        |
| 3/28/2018  | SICARD        | Flash Flood   | \$0             | 0          | 0        |
| 4/1/2018   | HIGHLAND PARK | Flood         | \$0             | 0          | 0        |
| 4/13/2019  | BAWCOMVILLE   | Flash Flood   | \$0             | 1          | 0        |
| 4/13/2019  | FOLKSVILLE    | Flash Flood   | \$0             | 0          | 0        |
| 4/13/2019  | FOLKSVILLE    | Flood         | \$0             | 1          | 0        |

| Date       | Area          | Type of Flood | Property Damage | Fatalities | Injuries |
|------------|---------------|---------------|-----------------|------------|----------|
| 4/14/2019  | WALL LAKE     | Flood         | \$0             | 0          | 0        |
| 5/1/2019   | PHILLIPS      | Flood         | \$0             | 0          | 0        |
| 6/1/2019   | PHILLIPS      | Flood         | \$0             | 0          | 0        |
| 4/19/2020  | KIROLI WOODS  | Flash Flood   | \$0             | 0          | 0        |
| 9/23/2020  | STERLINGTON   | Flash Flood   | \$0             | 0          | 0        |
| 10/10/2020 | STEVEN        | Flash Flood   | \$0             | 0          | 0        |
| 7/2/2021   | WEST MONROE   | Flash Flood   | \$0             | 0          | 0        |
| 8/10/2022  | HIGHLAND PARK | Flash Flood   | \$0             | 0          | 0        |

### Probability

The annual return rate (frequency) for periods of flooding in the parish is 3.96 (100% annual probability) or approximately 3 to 4 flood occurrences every year. The table below shows the probability and return frequency for each jurisdiction in the parish.

*Table 2-36: Annual Flood Probabilities for Each Jurisdiction in the Parish.*

| Jurisdiction                          | Annual Probability | Return Frequency           |
|---------------------------------------|--------------------|----------------------------|
| <b>Unincorporated Ouachita Parish</b> | 100%               | 1 to 2 events every year   |
| <b>Monroe</b>                         | 81%                | 1 event every 1 to 2 years |
| <b>Richwood</b>                       | 22%                | 1 event every 4 to 5 years |
| <b>Sterlington</b>                    | 26%                | 1 event every 3 to 4 years |
| <b>West Monroe</b>                    | 70%                | 1 event every 1 to 2 years |

### Climate Change Impacts

Atmospheric moisture, precipitation, and atmospheric circulation can be affected by climate change, since radiative forcing alters heating which affects evaporation and sensible heating at the Earth's surface. This process alters the amount, frequency, intensity, duration, and type of precipitation which is part of the hydrological cycle. The Intergovernmental Panel on Climate Change reports that over 105-year period (1901 – 2005) precipitation has increased 5 to 10%. Additionally, water resource managers observed the following:

- Historical hydrological patterns can no longer be solely relied upon to forecast the water future.
- Precipitation and runoff patterns are changing, increasing the uncertainty for water supply quality, flood management, and ecosystem functions.
- Extreme climatic events will become more frequent, necessitating improvement in flood protection and emergency response.

Climate change poses significant threats to both infrastructure and vulnerable populations in the context of flooding. Rising global temperatures have led to the intensification of extreme weather events, such as heavy rainfall and storms, which increase the frequency and severity of floods. Infrastructure, such as roads, bridges, and buildings, designed to withstand historical weather patterns, is now facing greater stress and damage due to the increased volume and intensity of floodwaters.

One of the most pressing impacts of climate change on infrastructure is the increased risk of damage and disruption to critical lifeline systems, such as water supply networks, energy grids, and transportation systems. Floods can compromise the integrity of these systems, leading to widespread power outages, disrupted water access, and road closures, hindering emergency response and recovery efforts. As floods become more frequent and severe, the cost of repairing and reinforcing infrastructure becomes a significant burden on governments and communities.

Furthermore, climate change disproportionately affects vulnerable populations, including low-income communities, the elderly, and those with limited mobility or access to resources. These communities often reside in flood-prone areas with inadequate infrastructure and limited capacity to adapt to changing conditions. Floods can exacerbate existing social inequalities, displacing vulnerable populations and exposing them to health risks, property loss, and economic hardship. Lack of access to timely information and limited evacuation resources can further endanger their lives during extreme flooding events.

Additionally, climate change can disrupt local economies in flood-affected regions. Agricultural lands can be damaged, leading to reduced crop yields and affecting livelihoods. Businesses, particularly those without insurance or financial resilience, may face bankruptcy due to flood-related losses. The overall economic impacts ripple beyond immediate flood-affected regions, affecting supply chains and markets globally.

Addressing the impacts of climate change on infrastructure and vulnerable populations requires a comprehensive approach. Building more resilient infrastructure, incorporating climate adaptation measures, and enforcing zoning regulations to prevent development in flood-prone areas are essential steps. Additionally, governments must prioritize support and resources for vulnerable communities, providing them with better access to early warning systems, evacuation plans, and social safety nets to cope with flood-related challenges. Long-term climate change mitigation efforts are also necessary to reduce the severity and frequency of floods, ultimately safeguarding both infrastructure and vulnerable populations from the detrimental effects of flooding.

*Vulnerability Analysis*

The NRI includes data on the expected annual losses to individual natural hazards, historical losses, and overall risk at the county and Census tract level. The following table provides an overview of each category at the county level for flooding.

*Table 2-37: National Risk Index (NRI) Summarization of Riverine Flood Occurrences for the Parish. (Source: National Risk Index)*

| Expected Annual Losses | Overall Risk Rating |
|------------------------|---------------------|
| Relatively Moderate    | Relatively Moderate |

*Estimated Impact and Potential Loss*

Using the Hazus Flood Model, the 100-year flood scenario was analyzed to determine losses from this scenario. The following table shows the total economic losses that would result from a 100-year flood occurrence.

*Table 2-38: Estimated Losses in the Parish from a 100-Year Flood Event.  
(Source: Hazus)*

| Jurisdiction                          | Estimated Loss       |
|---------------------------------------|----------------------|
| <b>Unincorporated Ouachita Parish</b> | \$212,718,000        |
| <b>Monroe</b>                         | \$113,451,000        |
| <b>Richwood</b>                       | \$295,000            |
| <b>Sterlington</b>                    | \$428,000            |
| <b>West Monroe</b>                    | \$165,889,000        |
| <b>Total</b>                          | <b>\$492,781,000</b> |

The Hazus Flood Model also provides a breakdown by jurisdiction for seven primary categories (Hazus occupancy) throughout the parish. The losses for each jurisdiction by sector are listed in the following tables:

*Table 2-39: Estimated 100-year Flood Losses for the Parish by Sector.  
(Source: Hazus)*

| Parish (Unincorporated)       | Estimated Total Losses from 100-Year Flood Event |
|-------------------------------|--|
| <b>Agricultural</b>           | \$1,550,000                                      |
| <b>Commercial</b>             | \$12,945,000                                     |
| <b>Government</b>             | \$3,759,000                                      |
| <b>Industrial</b>             | \$22,202,000                                     |
| <b>Religious / Non-Profit</b> | \$4,985,000                                      |
| <b>Residential</b>            | \$165,665,000                                    |
| <b>Schools</b>                | \$1,612,000                                      |
| <b>Total</b>                  | <b>\$212,718,000</b>                             |

*Table 2-40: Estimated 100-year Flood Losses for Monroe by Sector.  
(Source: Hazus)*

| Monroe                        | Estimated Total Losses from 100-Year Flood Event |
|-------------------------------|--|
| <b>Agricultural</b>           | \$10,000   |
| <b>Commercial</b>             | \$49,274,000                                     |
| <b>Government</b>             | \$5,322,000                                      |
| <b>Industrial</b>             | \$10,178,000                                     |
| <b>Religious / Non-Profit</b> | \$3,764,000                                      |
| <b>Residential</b>            | \$44,559,000                                     |
| <b>Schools</b>                | \$344,000  |
| <b>Total</b>                  | <b>\$113,451,000</b>                             |

*Table 2-41: Estimated 100-year Flood Losses for Richwood by Sector.  
(Source: Hazus)*

| Richwood               | Estimated Total Losses from 100-Year Flood Event |
|------------------------|--|
| Agricultural           | \$0  |
| Commercial             | \$44,000   |
| Government             | \$0  |
| Industrial             | \$0  |
| Religious / Non-Profit | \$100,000  |
| Residential            | \$151,000  |
| Schools                | \$0  |
| <b>Total</b>           | <b>\$295,000</b>                                 |

*Table 2-42: Estimated 100-year Flood Losses for Sterlington by Sector.  
(Source: Hazus)*

| Sterlington            | Estimated Total Losses from 100-Year Flood Event |
|------------------------|--|
| Agricultural           | \$0  |
| Commercial             | \$6,000  |
| Government             | \$0  |
| Industrial             | \$0  |
| Religious / Non-Profit | \$353,000  |
| Residential            | \$69,000   |
| Schools                | \$0  |
| <b>Total</b>           | <b>\$428,000</b>                                 |

*Table 2-43: Estimated 100-year Flood Losses for West Monroe by Sector.  
(Source: Hazus)*

| West Monroe            | Estimated Total Losses from 100-Year Flood Event |
|------------------------|--|
| Agricultural           | \$186,000  |
| Commercial             | \$68,433,000                                     |
| Government             | \$380,000  |
| Industrial             | \$7,725,000                                      |
| Religious / Non-Profit | \$11,828,000                                     |
| Residential            | \$71,379,000                                     |
| Schools                | \$5,958,000                                      |
| <b>Total</b>           | <b>\$165,889,000</b>                             |

## Vulnerable Population

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

*Table 2-44: Vulnerable Populations Susceptible to a 100-year Flood Event.  
(Source: Hazus)*

| Number of People Exposed to Flood Hazards |                |                  |                  |
|---|----------------|------------------|------------------|
| Location                                  | # in Community | # in Hazard Area | % in Hazard Area |
| Unincorporated Ouachita Parish            | 92,632         | 8,356            | 9.0%             |
| Monroe                                    | 47,702         | 8,767            | 18.4%            |
| Richwood                                  | 4,837          | 162              | 3.3%             |
| Sterlington                               | 2,094          | 21               | 1.0%             |
| West Monroe                               | 13,103         | 5,123            | 39.1%            |
| <b>Total</b>                              | <b>160,368</b> | <b>22,429</b>    | <b>14.0%</b>     |

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

*Table 2-45: Vulnerable Populations Susceptible to a 100-year Flood Event in the Parish.  
(Source: Hazus)*

| Unincorporated Ouachita Parish |               |                                     |
|--------------------------------|---------------|-------------------------------------|
| Category                       | Total Numbers | Percentage of People in Hazard Area |
| Number in Hazard Area          | 8,356         | 9.0%                                |
| Persons Under 5 Years          | 518           | 6.2%                                |
| Persons Under 18 Years         | 2,022         | 24.2%                               |
| Persons 65 Years and Over      | 1,354         | 16.2%                               |
| White                          | 4,947         | 59.2%                               |
| Minority                       | 3,409         | 40.8%                               |

*Table 2-46: Vulnerable Populations Susceptible to a 100-year Flood Event in Monroe.  
(Source: Hazus)*

| Monroe                    |               |                                     |
|---------------------------|---------------|-------------------------------------|
| Category                  | Total Numbers | Percentage of People in Hazard Area |
| Number in Hazard Area     | 8,767         | 18.4%                               |
| Persons Under 5 Years     | 605           | 6.9%                                |
| Persons Under 18 Years    | 2,271         | 25.9%                               |
| Persons 65 Years and Over | 1,306         | 14.9%                               |
| White                     | 3,147         | 35.9%                               |
| Minority                  | 5,620         | 64.1%                               |

Table 2-47: Vulnerable Populations Susceptible to a 100-year Flood Event in Richwood.  
(Source: Hazus)

| Richwood                  |               |                                     |
|---------------------------|---------------|-------------------------------------|
| Category                  | Total Numbers | Percentage of People in Hazard Area |
| Number in Hazard Area     | 162           | 3.3%                                |
| Persons Under 5 Years     | 7             | 4.3%                                |
| Persons Under 18 Years    | 29            | 17.6%                               |
| Persons 65 Years and Over | 8             | 5.2%                                |
| White                     | 35            | 21.4%                               |
| Minority                  | 127           | 78.6%                               |

Table 2-48: Vulnerable Populations Susceptible to a 100-year Flood Event in Sterlington.  
(Source: Hazus)

| Sterlington               |               |                                     |
|---------------------------|---------------|-------------------------------------|
| Category                  | Total Numbers | Percentage of People in Hazard Area |
| Number in Hazard Area     | 21            | 1.0%                                |
| Persons Under 5 Years     | 2             | 7.8%                                |
| Persons Under 18 Years    | 7             | 34.6%                               |
| Persons 65 Years and Over | 4             | 16.7%                               |
| White                     | 15            | 71.5%                               |
| Minority                  | 6             | 28.5%                               |

Table 2-49: Vulnerable Populations Susceptible to a 100-year Flood Event in West Monroe.  
(Source: Hazus)

| West Monroe               |               |                                     |
|---------------------------|---------------|-------------------------------------|
| Category                  | Total Numbers | Percentage of People in Hazard Area |
| Number in Hazard Area     | 5,123         | 39.1%                               |
| Persons Under 5 Years     | 297           | 5.8%                                |
| Persons Under 18 Years    | 1,040         | 20.3%                               |
| Persons 65 Years and Over | 897           | 17.5%                               |
| White                     | 2,802         | 54.7%                               |
| Minority                  | 2,321         | 45.3%                               |

Vulnerability Score

Table 2-50: Flood Vulnerability Score for the Parish.

| Flood Vulnerability Score |             |        |                |              |          |             |
|---------------------------|-------------|--------|----------------|--------------|----------|-------------|
|                           | Probability | Impact | Spatial Extent | Warning Time | Duration | Risk Factor |
| Risk Level                | 4           | 4      | 3              | 4            | 3        | 3.65        |

## Levee Failure

### *Profile*

Levees and floodwalls are flood control barriers constructed of earth, concrete, or other materials. For the purposes of this plan, levees are distinguished from smaller flood barriers (such as berms) by their size and extent. Berms are barriers that only protect a small number of structures, or at times only a single structure. Levees and floodwalls are barriers that protect significant areas of residential, commercial, or industrial development; at a minimum, they protect a neighborhood or small community. Levee failure involves the overtopping, breach, or collapse of the levee. Levee failure is especially destructive to nearby development during flood and hurricane events.

The northern half of Louisiana is protected by levees on the Ouachita River, under the authority of the Vicksburg District of the United States Army Corp of Engineers (USACE). The Vicksburg District encompasses 68,000 mi<sup>2</sup> in the states of Arkansas, Mississippi and Louisiana. They manage seven drainage basins, including the Yazoo, Pearl, Big Black, Red, Ouachita, and Mississippi Rivers; 12 locks and dams on the Pearl, Red, and Ouachita Rivers; 1,808 miles of levees, including 468 miles along the Mississippi River; and multiple lakes with 1,709 miles of shoreline.

Coastal and southern Louisiana are protected by an extensive levee system under the authority of the New Orleans District of the USACE. This system includes 30,000 mi<sup>2</sup> of Louisiana south of Alexandria, including 961 miles of river levees in the Mississippi River and Tributaries Project, 449 miles of river levees in the Atchafalaya Basin, and 340 miles of hurricane-protection levees. Other levees have been built along stretches of rivers throughout Louisiana by local levee districts and private citizens. The data regarding these non-federal levees are managed by the individual entity responsible for construction and subsequent maintenance and are not kept in a consistent format for comprehensive hazard analysis.

The effects of a levee failure on property is similar to that of a flood, as discussed in the flooding section. One major difference is that the velocity of the water is increased in the area of the breach, so the potential for property damage is higher in these areas.

A levee failure occurs during high water events, so the populace is normally alerted to the potential danger. Levees are normally monitored during these events and the population in danger is alerted to a possible levee failure. However, if people consider themselves safe once a levee has been breached and do not evacuate, the results could be deadly.

The Mississippi River levee system is constantly monitored during high water events by federal, state, and parish officials. Any potential failure of the Mississippi River levee would be observed long before a failure took place. Once observed, it would be mitigated to prevent any failure in the levee. As a slowly developing hazard, there is significant lead time to warn and evacuate the population in the event of a potential failure. The more likely scenario involving a potential levee failure would be an overtopping event for a major precipitation event taking place during a tropical cyclone, similar to Tropical Storm Allison in 2001. An event of this nature is less likely to produce an early warning and most likely to subject more people to flooding.

### Risk Assessment

#### Geographic Extent

Per the National Inventory of Levees, there are three levee systems located within the unincorporated areas of Ouachita Parish and the incorporated areas of Monroe, Richwood, Sterlington, and West Monroe. The areas of inundation will generally be directly adjacent of the levee failure and the low-lying areas surrounding the area of levee failure, but a working group will be established to determine the specific locations of inundation (See Ouachita Parish Mitigation Action 11, City of Monroe Mitigation Action 12, Town of Richwood Mitigation Action 12, Town of Sterlington Mitigation Action 8, and City of West Monroe Mitigation Action 7). The following figure displays the levee systems located in the parish:

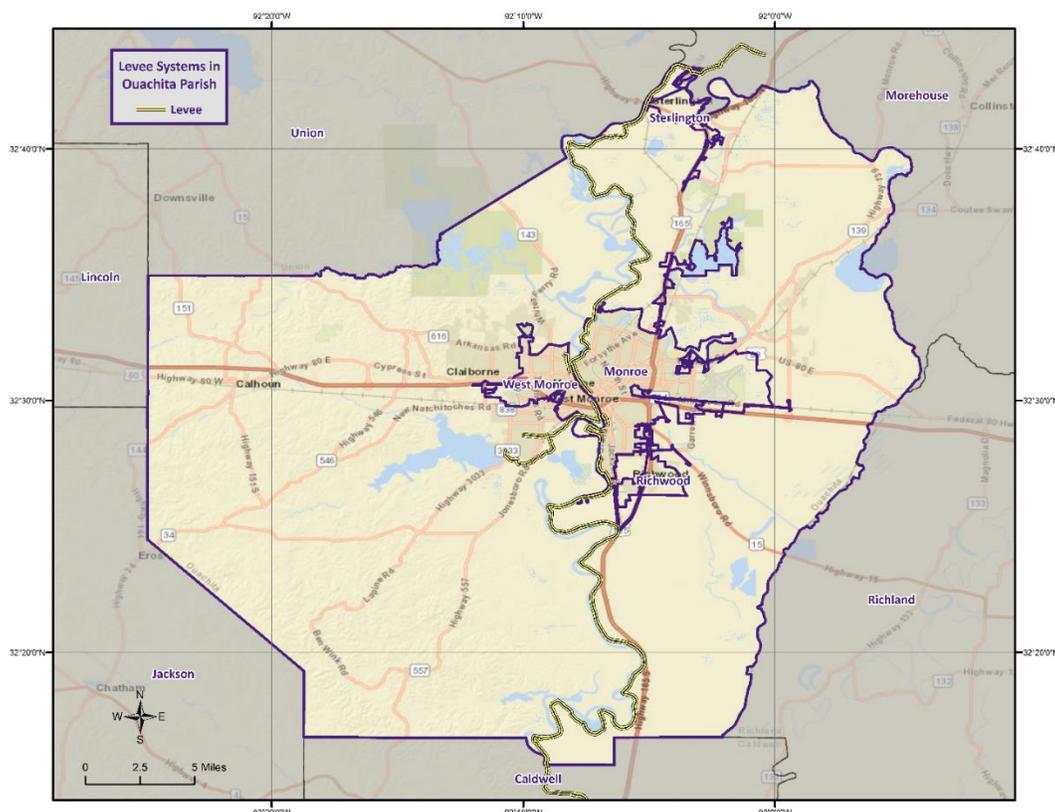


Figure 2-20: Levee Systems in the Parish.

#### Previous Occurrences

There have been no reported levee failure occurrences within the parish and the jurisdictions. The parish claims a data deficiency on the extent of dam failure for the levee system located in the parish. This data deficiency includes potential inundation areas and subsequent impacts related to the overtopping, collapse, or breaching of the levee located within the parish. As these inundation zones haven't yet been identified, the parish will continue to develop an extent and additional relevant data associated with this hazard.

#### Probability

It is nearly impossible to predict and model levee failure and its impact on the parish. Due to the unpredictability of levee failures, it is calculated that the probability of a levee failure is less than 1% annually for the unincorporated areas of the parish and its jurisdictions.

### *Climate Change Impacts*

As mentioned previously in dam failures, extreme precipitation, primarily the type that contributes to flash flooding and not widespread areal flooding, is expected to increase due to climate change. While this may not contribute to the traditional definition of a levee failure, it could increase the chances of a levee overtopping.

Climate change is contributing to the increased risk of levee failure, with severe consequences for both infrastructure and vulnerable populations. Rising global temperatures are intensifying precipitation patterns, leading to heavier rainfall events and increased pressure on levees designed to protect against flooding. As a result, the likelihood of levee breaches and failures has significantly risen, endangering critical infrastructure and communities situated in flood-prone areas.

Infrastructure is particularly vulnerable to levee failures, as many essential facilities, such as power plants, transportation systems, and industrial complexes, are often located near rivers and coastal regions protected by levees. When these flood barriers fail, floodwaters can inundate and damage these key facilities, causing widespread disruptions to electricity supply, transportation networks, and industrial operations. The financial costs of repairing and rebuilding damaged infrastructure can be enormous, putting a strain on regional economies and taxpayer resources.

However, the impacts of levee failure extend far beyond infrastructure and have dire consequences for vulnerable populations. Low-income communities and marginalized groups often reside in flood-prone areas, as these locations tend to offer more affordable housing options. When levees fail, these vulnerable populations are at a higher risk of experiencing catastrophic losses. Their homes and properties are more likely to be submerged, leading to displacement, property damage, and loss of livelihoods. Access to healthcare and emergency services can also be severely limited during flooding, further endangering vulnerable individuals' lives.

Moreover, levee failure can result in loss of life due to sudden and unpredictable inundation of floodwaters. Vulnerable populations, such as the elderly, disabled, and those without means of transportation, may find it challenging to evacuate in time, leading to tragic outcomes. Lack of access to reliable information and inadequate emergency response plans can exacerbate the risks faced by vulnerable communities during levee failures.

Addressing the impacts of climate change on infrastructure and vulnerable populations concerning levee failure necessitates urgent action. Investing in robust monitoring and maintenance of levee systems is crucial to reduce the risk of failures. Additionally, comprehensive risk assessments can help identify areas with the highest vulnerabilities and guide targeted efforts to protect and support vulnerable communities. Climate change mitigation strategies, such as reducing greenhouse gas emissions and promoting sustainable land use practices, are essential to address the root causes of levee failure and minimize its impacts on both infrastructure and vulnerable populations in the long run.

### *Vulnerability Analysis*

#### *Estimated Impact and Potential Loss*

Determining the annualized loss as a result of a levee failure is difficult in the parish due to availability of data on past levee failure events. The National Inventory of Levees was utilized to determine the levees within the parish, the risk level, and storage capacity of the reservoir. The table on the following page provides an extensive list of the dams in the parish with the risk associated with each system.

*Table 2-51: Levees and Risk Associated with each in the Parish.  
(Source: National Inventory of Levees)*

| System            | Risk     | Height (ft) | Population | Buildings | Property Value |
|-------------------|----------|-------------|------------|-----------|----------------|
| Bawcomville       | Low      | 12          | 1,703      | 838       | \$212 M        |
| Ouachita River LA | Moderate | 15          | 47,912     | 15,179    | \$5.2 B        |
| West Monroe Area  | Low      | 10          | 17,843     | 5,029     | \$2.04 B       |

**Vulnerable Population**

There have been no reported fatalities or injuries due to dam failure in the parish. However, the failure of levees can have devastating consequences on the population, leading to significant loss of life, displacement, and long-term socio-economic impacts. When a levee fails, it can result in uncontrolled flooding, posing a grave threat to the safety and well-being of the population living in the affected areas immediately adjacent and in the low-lying areas surround the were the levee failed.

One of the immediate impacts levee failures is the risk of drowning and physical harm to individuals. The sudden release of a large volume of water can inundate communities, trapping people in their homes or forcing them to seek refuge on rooftops or higher ground. Swift-moving floodwaters can sweep away individuals, making rescue and evacuation efforts extremely challenging. The loss of life due to drowning and other water-related incidents is a tragic consequence of such failures.

Moreover, the failure levees can lead to widespread displacement of the population. Residents in affected areas may be forced to evacuate their homes and seek temporary shelter in emergency facilities or with friends and relatives. Displacement disrupts lives, separates families, and strains the resources and capacities of hosting communities. It can also result in long-term homelessness and the need for extensive efforts to provide adequate housing and support for the affected population.

In addition to the immediate physical risks, levee failures can have long-term socio-economic impacts on the affected population. The loss of homes, businesses, and infrastructure disrupts local economies and livelihoods. Individuals may lose their jobs, and businesses may be unable to operate, leading to financial instability and hardship. The recovery and reconstruction process can be lengthy, causing prolonged economic disruptions and affecting the overall well-being of the population.

Furthermore, the psychological and emotional toll on the affected population cannot be overlooked. Levee failures are traumatic events that can cause immense stress, anxiety, and grief among survivors. The loss of loved ones, possessions, and a sense of security can have long-lasting psychological impacts on individuals and communities. Mental health support and counseling become crucial in helping the population cope with the trauma and rebuild their lives.

**Vulnerability Score**

*Table 2-52: Levee Vulnerability Score for the Parish.*

| Levee Vulnerability Score |             |        |                |              |          |             |
|---------------------------|-------------|--------|----------------|--------------|----------|-------------|
|                           | Probability | Impact | Spatial Extent | Warning Time | Duration | Risk Factor |
| Risk Level                | 3           | 2      | 4              | 2            | 3        | 2.8         |

## Thunderstorms (Hail, Lightning, & Thunderstorm Wind)

### *Overview*

The term “thunderstorm” is usually used as a catch-all term for several kinds of storms. Here “thunderstorm” is defined to include any precipitation occurrence in which thunder is heard or lightning is seen. Thunderstorms are often accompanied by heavy rain and strong winds, and occasionally, depending on conditions, 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 counties.

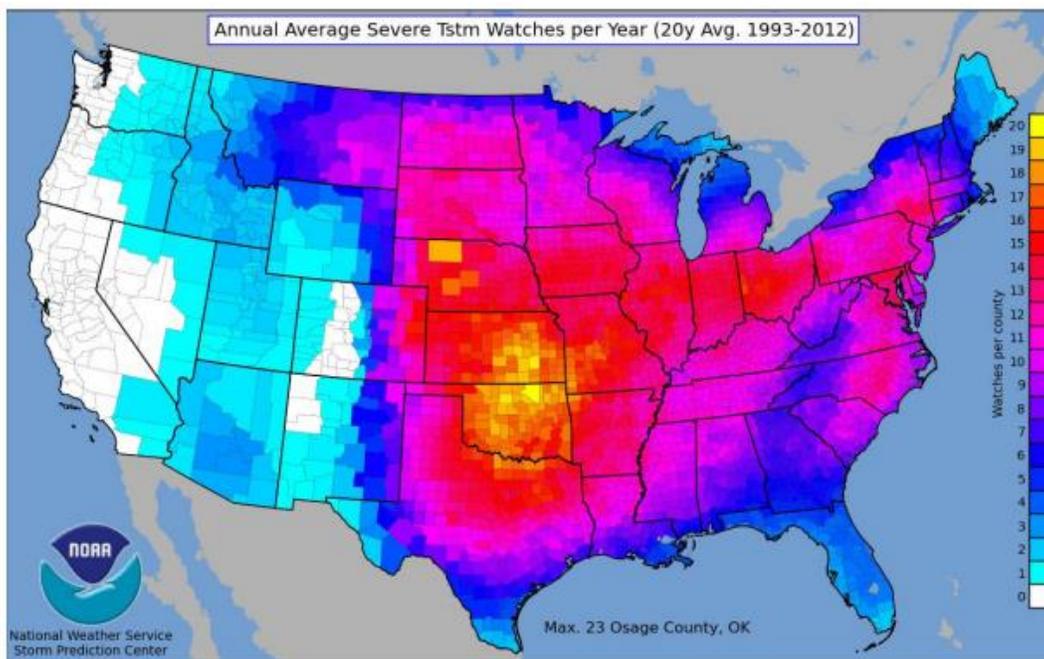


Figure 2-21: County-Level Severe Thunderstorm Watches Issued Per Year on Average.

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) characterize 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 individually within this report; therefore, for the purpose of thunderstorms, the sub-hazards of hail, high winds, and lightning will be profiled.

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

#### *Climate Change Impacts*

The impact of climate change on thunderstorms is not well understood at this time. However, thunderstorms are complex, dynamic systems fueled by heat and moisture which can be measured with CAPE (convective available potential energy). It is predicted that CAPE will increase across the Eastern United States by the second half of the 21<sup>st</sup> century, meaning there is more energy to fuel severe thunderstorms. In this same time frame, there would be a small decrease in vertical wind shear, which helps produce long-lived severe storms. However, the increase in energy outweighs the decreasing shear to produce a net increase in environmental favorability for severe thunderstorms by the end of the century. Some climate models maintained by the Goddard Institute for Space Studies indicate that the number of severe thunderstorms will not change much, but the severe storms that do occur would have stronger winds and more intense precipitation.

Climate change is influencing the frequency and severity of thunderstorms, resulting in significant impacts on infrastructure and vulnerable populations. As global temperatures rise, the atmosphere becomes more energized, leading to an increase in the intensity of thunderstorm activity. Thunderstorms bring heavy rainfall, strong winds, hail, and lightning, all of which can cause substantial damage to various types of infrastructure.

One of the most significant impacts of thunderstorms on infrastructure is the damage to power and communication lines. Strong winds and lightning strikes can lead to power outages, disrupting essential services and communication networks. This can have severe consequences for communities that rely on electricity for medical equipment, communication, and daily living. Additionally, damage to power infrastructure can result in economic losses due to business interruptions and increased repair costs.

Furthermore, heavy rainfall associated with thunderstorms can lead to flash flooding, overwhelming stormwater drainage systems and causing road and bridge damage. This not only disrupts transportation networks but also poses a safety hazard for motorists and pedestrians. Flooded roads can isolate communities and hinder emergency response efforts, leaving vulnerable populations at higher risk during and after thunderstorm events.

Vulnerable populations, such as low-income communities and the elderly, often lack access to resources and live in areas with inadequate infrastructure. They are disproportionately affected by the impacts of thunderstorms. For instance, substandard housing in flood-prone regions can suffer severe damage during storms, displacing already marginalized individuals and families. The elderly and people with limited mobility may face difficulties evacuating during severe weather events, putting their lives at risk.

Moreover, thunderstorms can lead to an increase in lightning-related accidents and wildfires. Lightning strikes can cause fires that spread rapidly, threatening communities and posing additional risks to vulnerable populations living in areas prone to wildfires. These events not only endanger lives but also strain emergency response resources and increase the financial burden on affected communities.

To address the impacts of climate change on infrastructure and vulnerable populations concerning thunderstorms, several measures are crucial. Investment in resilient infrastructure, such as strengthening power grids and stormwater drainage systems, can help mitigate damage and improve response capabilities. Additionally, raising awareness and providing resources to vulnerable communities can enhance preparedness and evacuation plans. Climate change mitigation efforts to reduce greenhouse gas emissions are also essential in curbing the intensification of thunderstorms, ultimately safeguarding both infrastructure and vulnerable populations from the adverse effects of these severe weather events.

#### *Hail Profile*

Hailstorms are severe thunderstorms in which balls or chunks of ice fall along with rain. Hailstorm densities and reports vary spatially across Louisiana. 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 2-53: 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 2-54: Spectrum of Hailstone Diameters and their Everyday Description.  
(Source: National Weather Service)*

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

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

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

#### *Lightning Profile*

Lightning is defined by the National Weather Service as any and all of the various forms of visible electrical discharge caused by thunderstorms. Thunderstorms and lightning are usually (but not always) accompanied by rain. Cloud-to-ground lightning can kill or injure people by direct or indirect means. Objects can be struck directly, which may result in an explosion, burn, or total destruction. Damage may also be indirect which occurs when the current passes through or near an object.

Intra-cloud lightning is the most common type of discharge. This occurs between oppositely charged centers within the same cloud. Usually it transpires inside the cloud and looks from the outside of the cloud like a diffuse brightening that flickers. However, the flash may exit the boundary of the cloud, and a bright channel, similar to a cloud-to-ground flash, can be visible for many miles.

Cloud-to-ground lightning is the most damaging and dangerous type of lightning, though it is also less common. Most flashes originate near the lower-negative charged center and deliver negative charge to the earth. However, a large minority of flashes carry a positive charge to earth. These positive flashes often occur during the dissipating stage of a thunderstorm. Positive flashes are also more common as a percentage of total ground strikes during the winter months. This type of lightning is particularly dangerous for several reasons. It frequently strikes away from the rain core, either ahead or behind the thunderstorm. It can strike five to ten miles from the storm in areas that most people do not consider a threat. Positive lightning also has a longer duration, so fires are more easily ignited. When positive lightning strikes, it usually carries a high peak electrical current, which can potentially result in greater damage.

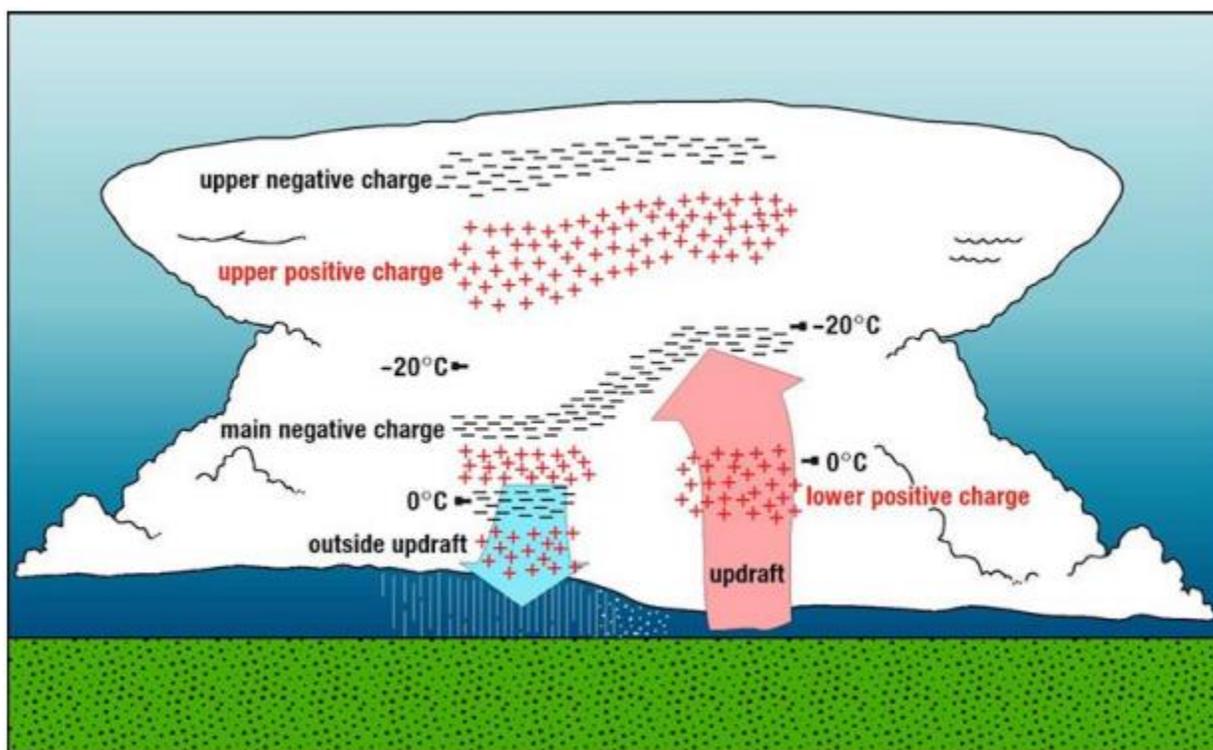


Figure 2-22: Charge Distribution in a Typical Storm Cloud.  
 (Source: The National Severe Storms Laboratory)

Lightning continues to be one of the top three storm-related killers in the United States per FEMA, but if not fatal 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 and intensity scale:

Table 2-55: 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 reaches 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   |                          |

### *Thunderstorm Wind Profile*

In general, high winds occur in a number of different ways, with and without thunderstorms. Similar to hailstorms (and often associated with the same storm), high wind damage densities and reports resulting from severe thunderstorms vary spatially across Louisiana. The only high winds of present concern from the following table 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 Louisiana. Nor'easters are cyclonic low-pressure systems that have a minimal impact if any on Louisiana while hurricane winds have a significant impact on the state due to its location.

*Table 2-56: High Winds Categorized by Source.  
(Source: Making Critical Facilities Safe from High Wind, FEMA)*

| <b>High Wind Type</b>                 | <b>Description</b>  |
|---------------------------------------|---|
| <b>Straight-Line Winds</b>            | Wind blowing in straight line; usually associated with intense low-pressure area  |
| <b>Downslope Winds</b>                | Wind blowing down the slope of a mountain; associated with temperature and pressure gradients   |
| <b>Thunderstorm Winds</b>             | Wind blowing due to thunderstorms, and thus associated with temperature and pressure gradients  |
| <b>Downbursts</b>                     | Sudden wind blowing down due to downdraft in a thunderstorm; spreads out horizontally at the ground, possible forming horizontal vortex rings around the downdraft.                   |
| <b>Northeaster (Nor'easter) Winds</b> | Wind blowing due to cyclonic storm off the east coast of North America; associated with temperature and pressure gradients between the Atlantic Ocean and land                        |
| <b>Hurricane Winds</b>                | Wind blowing in spirals, converging with increasing speed toward eye; associated with temperature and pressure gradients between the Atlantic Ocean, Gulf of Mexico, and land         |
| <b>Tornado Winds</b>                  | Violently rotating column of air from base of thunderstorm to the ground with rapidly decreasing winds at greater distances from center; associated with extreme temperature gradient |

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, increased vulnerability to fire, food spoilage, and other losses that might be sustained by a loss of power. The table on the following page 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 2-57: 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  |

#### Hail Risk Assessment

##### Geographic Extent

Because hailstorms are a climatological based occurrence that can occur anywhere, the entire planning area is at risk from hailstorms. The worst-case scenario for hailstorms is hail up to 4 inches in diameter.

##### Previous Occurrences

The parish experienced 142 hail occurrences between the years 1996 and 2022. Since the last update in 2016, there have been 19 hail occurrences within the boundaries of the parish.

Table 2-58: Historical Hail Occurrences in the Parish since the 2016 Update.

| Date      | Magnitude (inches) | Property Damage | Fatalities | Injuries |
|-----------|--------------------|-----------------|------------|----------|
| 4/6/2018  | 1.75               | \$0             | 0          | 0        |
| 4/4/2019  | 1.75               | \$0             | 0          | 0        |
| 4/7/2019  | 1                  | \$0             | 0          | 0        |
| 4/13/2019 | 1.25               | \$0             | 0          | 0        |
| 4/13/2019 | 1                  | \$0             | 0          | 0        |
| 2/5/2020  | 1.75               | \$0             | 0          | 0        |
| 4/12/2020 | 1.25               | \$0             | 0          | 0        |
| 4/12/2020 | 1                  | \$0             | 0          | 0        |
| 4/12/2020 | 0.75               | \$0             | 0          | 0        |
| 4/9/2021  | 1                  | \$0             | 0          | 0        |
| 4/9/2021  | 1.25               | \$0             | 0          | 0        |
| 4/9/2021  | 1                  | \$0             | 0          | 0        |
| 4/9/2021  | 1                  | \$0             | 0          | 0        |

| Date       | Magnitude (inches) | Property Damage | Fatalities | Injuries |
|------------|--------------------|-----------------|------------|----------|
| 4/9/2021   | 1                  | \$0             | 0          | 0        |
| 4/9/2021   | 0.88               | \$0             | 0          | 0        |
| 4/9/2021   | 1                  | \$0             | 0          | 0        |
| 7/13/2022  | 0.75               | \$0             | 0          | 0        |
| 11/29/2022 | 0.88               | \$0             | 0          | 0        |
| 12/13/2022 | 1                  | \$0             | 0          | 0        |

Probability

The annual return rate (frequency) for hail occurrences in the parish is 5.26 (100% annual probability) or approximately 5 to 6 hail occurrences every year. The following figures display the density of hailstorm events and an overview of hailstorm size based on location.

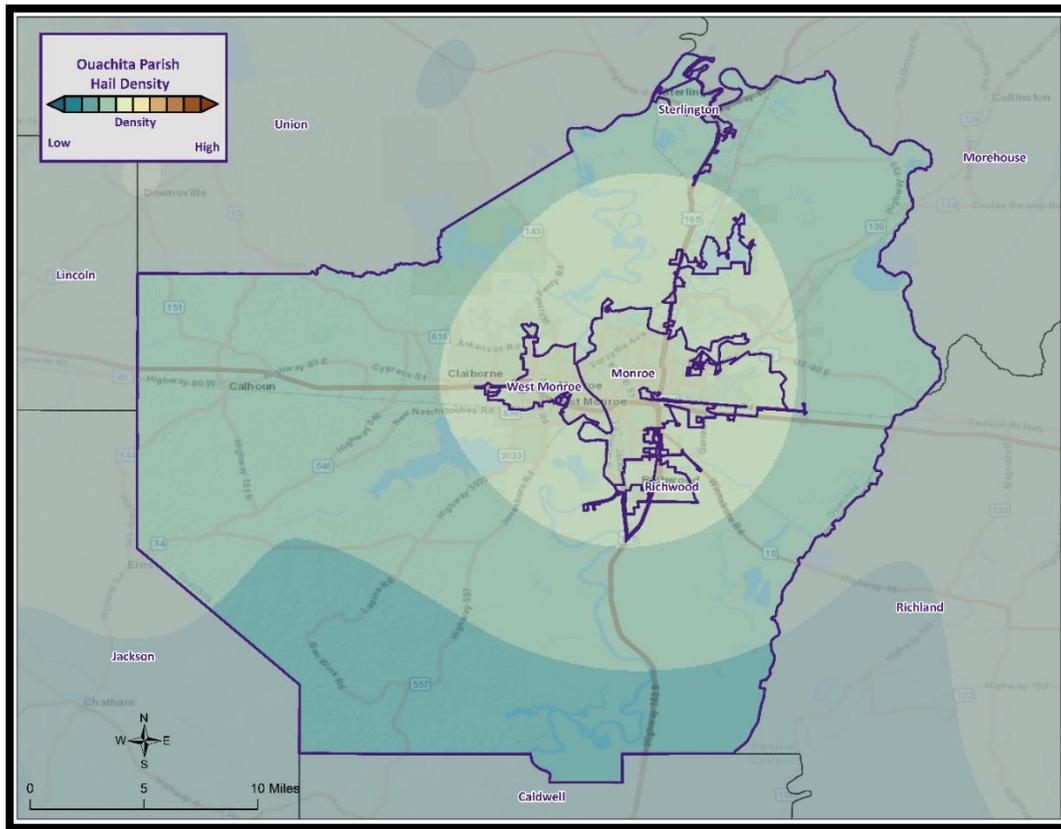


Figure 2-23: Density of Hailstorms by Diameter from 1950-2019.

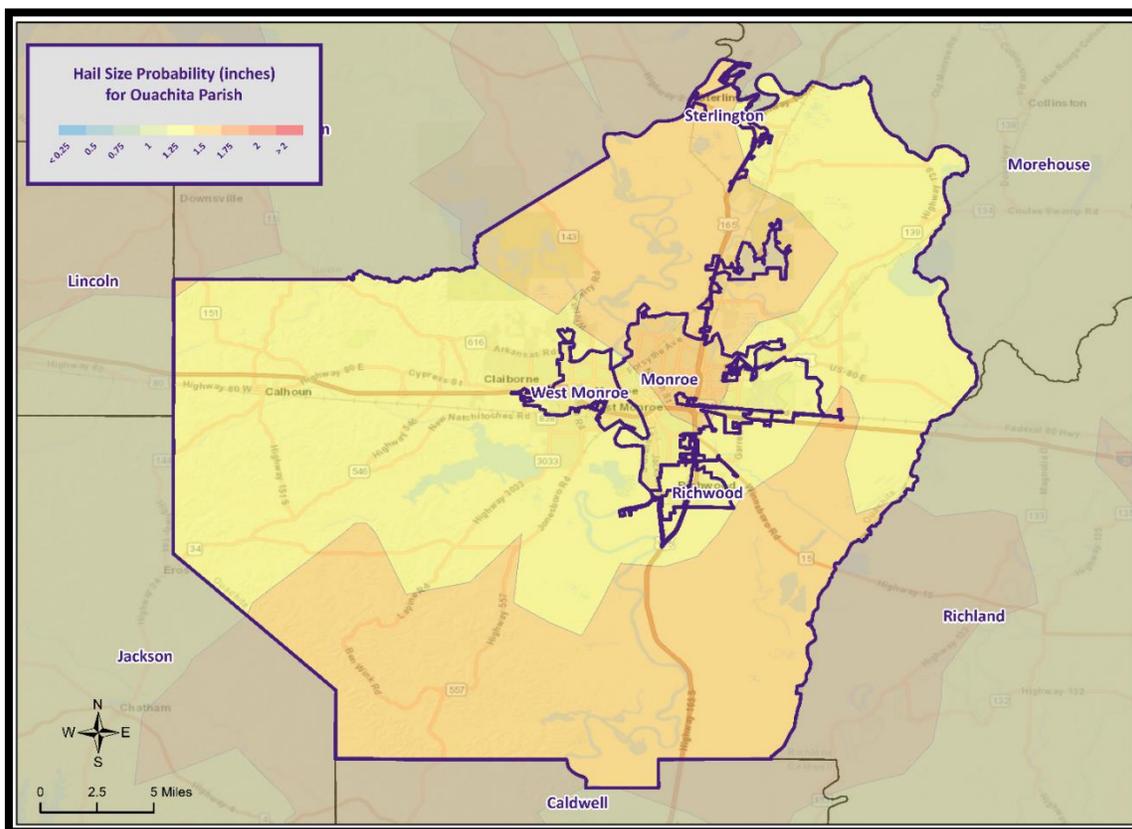


Figure 2-24: Hail Size Probability in Inches for the Parish.

### Lightning Risk Assessment

#### Geographic Extent

Because lightning strikes are a climatological based occurrence that can occur anywhere, the entire planning area is at risk from lightning strikes. The worst-case scenario for lightning incidents is a lightning activity level of 4 which is approximately 16 to 25 lightning strikes every 15 minutes.

#### Previous Occurrences

The parish experienced 9 lightning occurrences between the years 1996 and 2022. Since the last update in 2016, there have been no significant lightning occurrences within the boundaries of the parish.

#### Probability

The annual return rate (frequency) for lightning occurrences in the parish is 0.33 (33% annual probability) or approximately 1 lightning occurrences every 3 years.

### Thunderstorm Wind Risk Assessment

#### Geographic Extent

Because thunderstorm winds are a climatological-based occurrence that can occur anywhere, the entire planning area is at risk from thunderstorm wind. The worst-case scenario for thunderstorm wind occurrences is hail wind speeds of approximately 115 mph.

#### Previous Occurrences

The parish experienced 207 thunderstorm wind occurrences between the years 1996 and 2022. Since the last update in 2016, there have been 54 thunderstorm wind occurrences within the boundaries of the parish.

Table 2-59: Historical Thunderstorm Wind Occurrences in the Parish since the 2016 Update.

| Date       | Magnitude (mph) | Property Damage | Crop Damage | Fatalities | Injuries |
|------------|-----------------|-----------------|-------------|------------|----------|
| 3/24/2017  | 70              | \$0             | \$0         | 0          | 0        |
| 3/24/2017  | 70              | \$0             | \$0         | 0          | 0        |
| 3/24/2017  | 64              | \$0             | \$0         | 0          | 0        |
| 3/24/2017  | 64              | \$0             | \$0         | 0          | 0        |
| 3/24/2017  | 70              | \$0             | \$0         | 0          | 0        |
| 4/2/2017   | 70              | \$0             | \$0         | 0          | 0        |
| 4/2/2017   | 81              | \$0             | \$0         | 0          | 0        |
| 4/26/2017  | 59              | \$0             | \$0         | 0          | 0        |
| 4/30/2017  | 64              | \$0             | \$0         | 0          | 0        |
| 4/30/2017  | 64              | \$0             | \$0         | 0          | 0        |
| 3/28/2018  | 70              | \$0             | \$0         | 0          | 0        |
| 3/28/2018  | 70              | \$0             | \$0         | 0          | 0        |
| 3/28/2018  | 70              | \$0             | \$0         | 0          | 0        |
| 3/28/2018  | 70              | \$0             | \$0         | 0          | 0        |
| 4/3/2018   | 64              | \$0             | \$0         | 0          | 0        |
| 4/3/2018   | 60              | \$0             | \$0         | 0          | 0        |
| 4/3/2018   | 58              | \$0             | \$0         | 0          | 0        |
| 4/6/2018   | 64              | \$0             | \$0         | 0          | 0        |
| 4/14/2018  | 75              | \$0             | \$0         | 0          | 0        |
| 4/14/2018  | 75              | \$0             | \$0         | 0          | 0        |
| 4/14/2018  | 81              | \$0             | \$0         | 0          | 0        |
| 7/6/2018   | 67              | \$0             | \$0         | 0          | 0        |
| 7/6/2018   | 64              | \$0             | \$0         | 0          | 0        |
| 7/6/2018   | 64              | \$0             | \$0         | 0          | 0        |
| 8/20/2018  | 64              | \$0             | \$0         | 0          | 0        |
| 8/20/2018  | 70              | \$0             | \$0         | 0          | 0        |
| 8/20/2018  | 76              | \$0             | \$0         | 0          | 0        |
| 8/20/2018  | 70              | \$0             | \$0         | 0          | 0        |
| 4/13/2019  | 64              | \$0             | \$0         | 0          | 0        |
| 9/9/2019   | 60              | \$0             | \$0         | 0          | 0        |
| 12/16/2019 | 70              | \$0             | \$0         | 0          | 0        |
| 12/16/2019 | 70              | \$0             | \$0         | 0          | 0        |
| 4/12/2020  | 69              | \$0             | \$0         | 0          | 0        |
| 4/12/2020  | 81              | \$0             | \$0         | 0          | 0        |
| 4/22/2020  | 64              | \$0             | \$0         | 0          | 0        |
| 4/29/2020  | 70              | \$0             | \$0         | 0          | 0        |
| 4/29/2020  | 64              | \$0             | \$0         | 0          | 0        |
| 4/29/2020  | 64              | \$0             | \$0         | 0          | 0        |
| 4/9/2021   | 64              | \$0             | \$0         | 0          | 0        |
| 5/4/2021   | 64              | \$0             | \$0         | 0          | 0        |

| Date       | Magnitude (mph) | Property Damage | Crop Damage | Fatalities | Injuries |
|------------|-----------------|-----------------|-------------|------------|----------|
| 5/4/2021   | 64              | \$0             | \$0         | 0          | 0        |
| 6/8/2021   | 60              | \$0             | \$0         | 0          | 0        |
| 9/1/2021   | 70              | \$0             | \$0         | 0          | 0        |
| 4/5/2022   | 60              | \$0             | \$0         | 0          | 0        |
| 4/5/2022   | 60              | \$0             | \$0         | 0          | 0        |
| 4/12/2022  | 70              | \$0             | \$0         | 0          | 0        |
| 4/12/2022  | 70              | \$0             | \$0         | 0          | 0        |
| 4/12/2022  | 75              | \$0             | \$0         | 0          | 0        |
| 4/12/2022  | 70              | \$0             | \$0         | 0          | 0        |
| 4/12/2022  | 70              | \$0             | \$0         | 0          | 0        |
| 6/26/2022  | 70              | \$0             | \$0         | 0          | 0        |
| 6/26/2022  | 70              | \$0             | \$0         | 0          | 0        |
| 11/4/2022  | 64              | \$0             | \$0         | 0          | 0        |
| 11/29/2022 | 64              | \$0             | \$0         | 0          | 0        |

Probability

The annual return rate (frequency) for thunderstorm wind occurrences in the parish is 7.67 (100% annual probability) or approximately 7 to 8 thunderstorm wind occurrences every year. The following figure displays the thunderstorm wind speed probability for the parish.

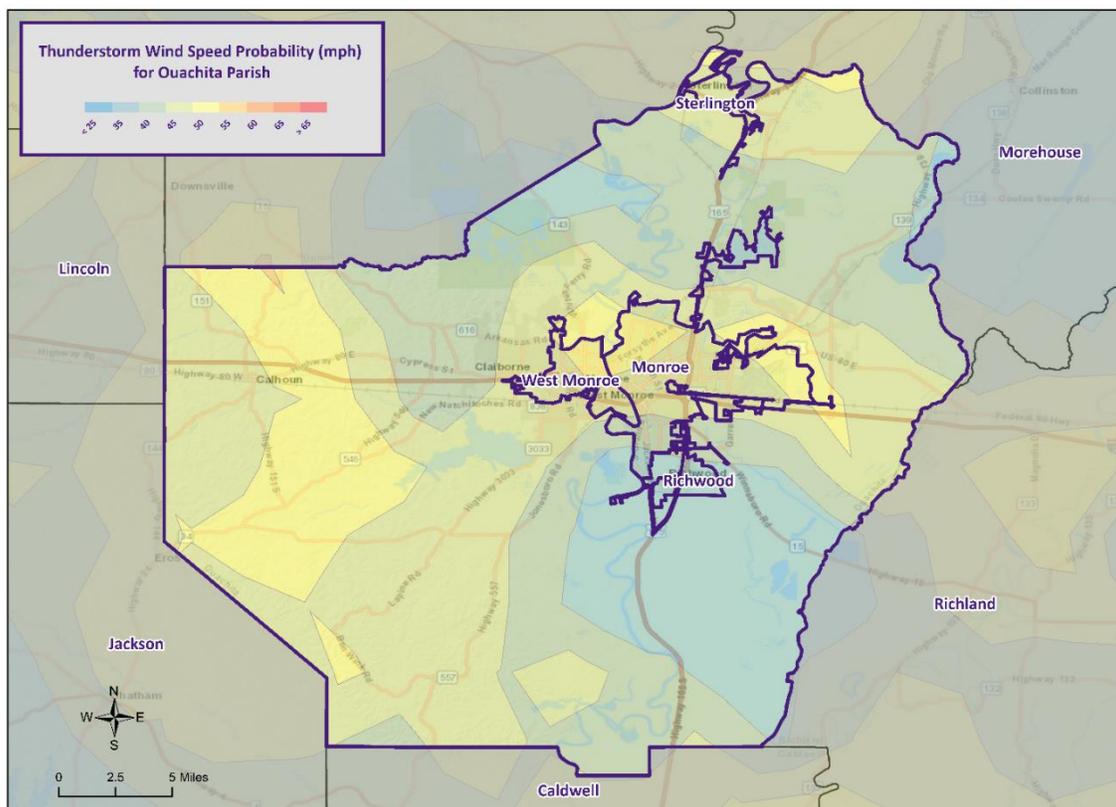


Figure 2-25: Thunderstorm High Wind Speed Probability in Miles Per Hour for the Parish.

*Hail Vulnerability Analysis*

The NRI includes data on the expected annual losses to individual natural hazards, historical losses, and overall risk at the county and Census tract level. The following table provides an overview of each category at the county level for hail.

*Table 2-60: National Risk Index (NRI) Summarization of Hail Occurrences for the Parish.  
(Source: National Risk Index)*

| Expected Annual Losses | Overall Risk Rating |
|------------------------|---------------------|
| Very Low               | Very Low            |

*Estimated Impact and Potential Loss*

Since 1996, there have been 142 significant hail occurrences per the NCEI Storm Events Database. The total property damage associated with these storms totaled approximately \$10,000. To estimate the potential losses on an annual basis, the total damages recorded were divided by the total number of years of available data in the NCEI Storm Events Database (1996 – 2022). This provides an annual estimated potential loss of \$370 and \$70 per event. The following table provides an estimate of potential property losses for the Parish:

*Table 2-61: Estimated Annual Property Losses in the Parish resulting from Hail Damage.*

| Estimated Annual Potential Losses |                   |                    |                       |                       |
|-----------------------------------|-------------------|--------------------|-----------------------|-----------------------|
| Unincorporated Area<br>(53.1%)    | Monroe<br>(21.2%) | Richwood<br>(0.7%) | Sterlington<br>(1.8%) | West Monroe<br>(6.0%) |
| \$216                             | \$110             | \$9                | \$5                   | \$30                  |

*Vulnerable Population*

Per the NCEI Storm Events Database, there have been no reported injuries or fatalities as a result of hail.

*Vulnerability Score*

*Table 2-62: Hail Vulnerability Score for the Parish.*

| Hail Vulnerability Score |             |        |                |              |          |             |
|--------------------------|-------------|--------|----------------|--------------|----------|-------------|
|                          | Probability | Impact | Spatial Extent | Warning Time | Duration | Risk Factor |
| Risk Level               | 4           | 2      | 3              | 3            | 1        | 2.7         |

*Lightning Vulnerability Analysis*

The NRI includes data on the expected annual losses to individual natural hazards, historical losses, and overall risk at the county and Census tract level. The following table provides an overview of each category at the county level for lightning.

*Table 2-63: National Risk Index (NRI) Summarization of Lightning Occurrences for the Parish.  
(Source: National Risk Index)*

| Expected Annual Losses | Overall Risk Rating |
|------------------------|---------------------|
| Relatively Low         | Relatively Low      |

*Estimated Impact and Potential Loss*

Since 1996, there have been nine significant lightning occurrences per the NCEI Storm Events Database. The total property damage associated with these storms totaled approximately \$525,000. To estimate the potential losses on an annual basis, the total damages recorded were divided by the total number of years of available data in the NCEI Storm Events Database (1996 – 2022). This provides an annual estimated potential loss of \$19,444 and \$58,333 per event. The following table provides an estimate of potential property losses for the Parish:

*Table 2-64: Estimated Annual Property Losses in the Parish resulting from Lightning Damage.*

| Estimated Annual Potential Losses |                   |                    |                       |                       |
|-----------------------------------|-------------------|--------------------|-----------------------|-----------------------|
| Unincorporated Area<br>(53.1%)    | Monroe<br>(21.2%) | Richwood<br>(0.7%) | Sterlington<br>(1.8%) | West Monroe<br>(6.0%) |
| \$11,361                          | \$5,784           | \$471              | \$240                 | \$1,589               |

*Vulnerable Population*

Per the NCEI Storm Events Database, there has been one reported fatality and no injuries as a result of lightning.

*Vulnerability Score*

*Table 2-65: Lightning Vulnerability Score for the Parish.*

| Lightning Vulnerability Score |             |        |                |              |          |             |
|-------------------------------|-------------|--------|----------------|--------------|----------|-------------|
|                               | Probability | Impact | Spatial Extent | Warning Time | Duration | Risk Factor |
| Risk Level                    | 3           | 2      | 2              | 3            | 1        | 2.25        |

*Thunderstorm Wind Vulnerability Analysis*

The NRI includes data on the expected annual losses to individual natural hazards, historical losses, and overall risk at the county and Census tract level. The following table provides an overview of each category at the county level for thunderstorm wind.

*Table 2-66: National Risk Index (NRI) Summarization of Thunderstorm Wind Occurrences for the Parish. (Source: National Risk Index)*

| Expected Annual Losses | Overall Risk Rating |
|------------------------|---------------------|
| Relatively Moderate    | Relatively Moderate |

*Estimated Impact and Potential Loss*

Since 1996, there have been 207 significant thunderstorm wind occurrences per the NCEI Storm Events Database. The total property damage associated with these storms totaled approximately \$8,091,000. To estimate the potential losses on an annual basis, the total damages recorded were divided by the total number of years of available data in the NCEI Storm Events Database (1996 – 2022). This provides an annual estimated potential loss of \$299,667 and \$39,087 per event. The following table provides an estimate of potential property losses for the Parish:

*Table 2-67: Estimated Annual Property Losses in the Parish resulting from Thunderstorm Wind Damage.*

| Estimated Annual Potential Losses |                   |                    |                       |                       |
|-----------------------------------|-------------------|--------------------|-----------------------|-----------------------|
| Unincorporated Area<br>(53.1%)    | Monroe<br>(21.2%) | Richwood<br>(0.7%) | Sterlington<br>(1.8%) | West Monroe<br>(6.0%) |
| \$175,093                         | \$89,137          | \$7,252            | \$3,700               | \$24,485              |

*Vulnerable Population*

Per the NCEI Storm Events Database, there have been four reported injuries and no fatalities as a result of thunderstorm winds.

*Vulnerability Score*

*Table 2-68: Thunderstorm Wind Vulnerability Score for the Parish.*

| Thunderstorm Wind Vulnerability Score |             |        |                |              |          |             |
|---------------------------------------|-------------|--------|----------------|--------------|----------|-------------|
|                                       | Probability | Impact | Spatial Extent | Warning Time | Duration | Risk Factor |
| Risk Level                            | 4           | 2      | 3              | 3            | 1        | 2.7         |

## Tornadoes

### Profile

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 occurrences, 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. The following table shows the EF scale in comparison with the original 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 2-69: Comparison of the Enhanced Fujita (EF) Scale to the Fujita (F) Scale.*

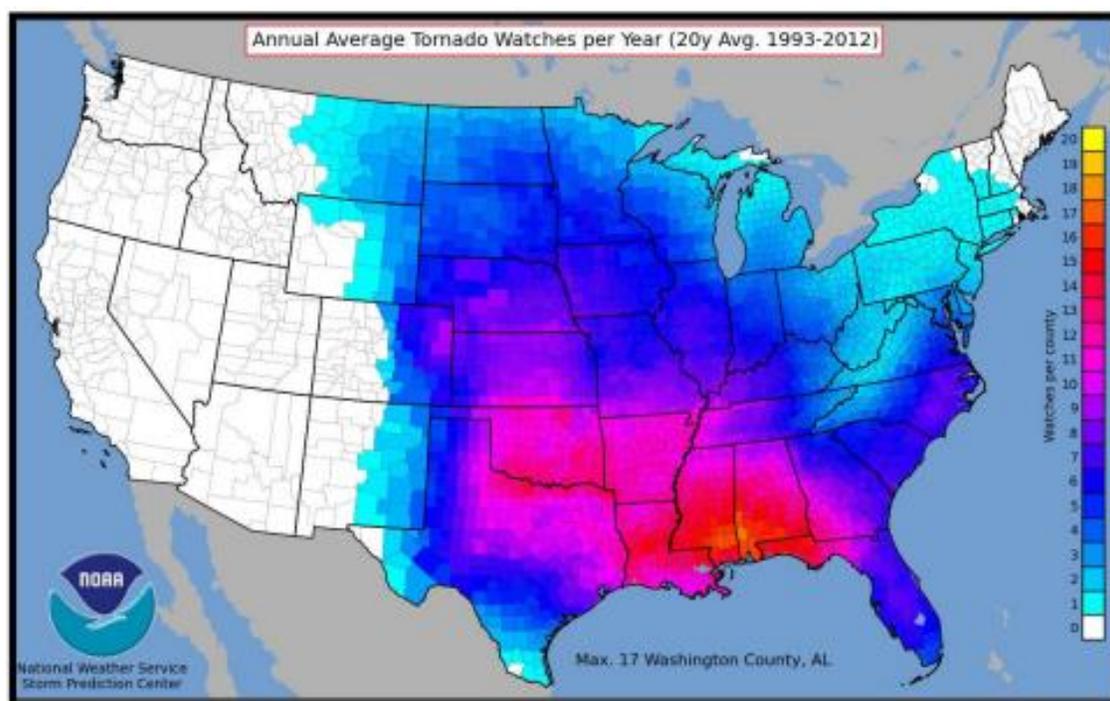
| Wind speed<br>(mph) | Enhanced Fujita Scale |        |         |         |         |      |
|---------------------|-----------------------|--------|---------|---------|---------|------|
|                     | EF0                   | EF1    | EF2     | EF3     | EF4     | EF5  |
|                     | 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 2-70: Fujita and Enhanced Fujita Tornado Damage Scale.*

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

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

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



*Figure 2-26: County-Level Tornado Watches Issued Per Year on Average.  
(Source: NOAA SPC)*

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. Tornadoes have historically impacted all areas of Louisiana.

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.

#### *Risk Assessment*

##### *Geographic Extent*

Tornadoes occur sporadically throughout the parish and the occurrence of a tornado in the parish is highly unpredictable making it impossible to forecast the exact time and locations of when a tornado will touch down or the path it will take. Because of this, the entire planning area is considered equally at risk for a tornadic incident. The worst-case scenario of a tornado occurrence is an EF4 tornado.

##### *Previous Occurrences*

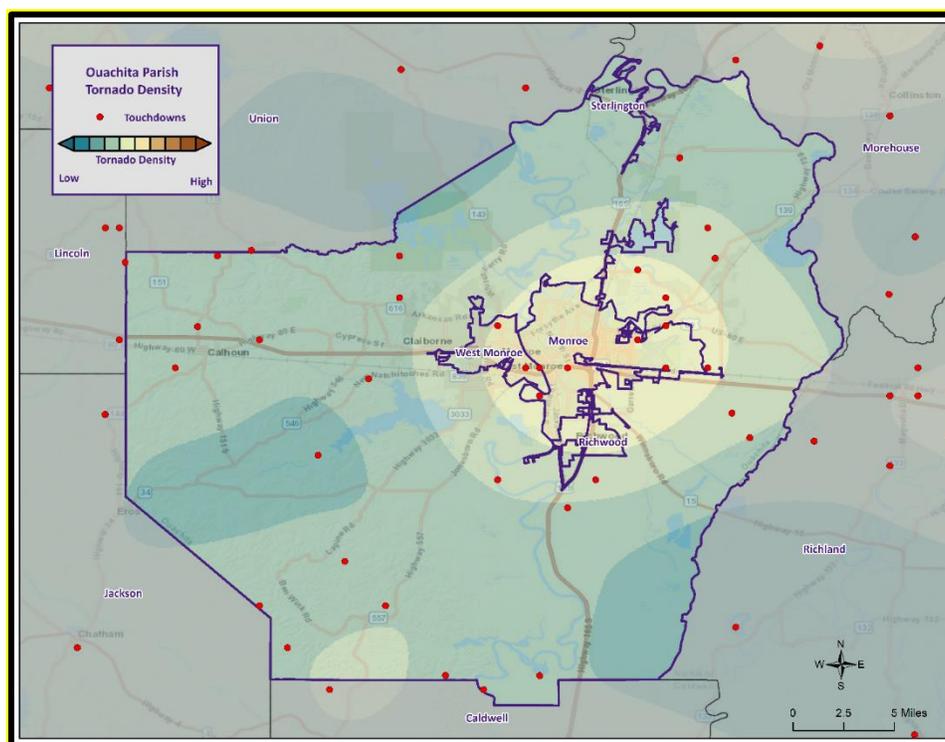
The parish experienced 18 tornado occurrences between the years 1996 and 2022. Since the last update in 2016, there have been 8 tornado occurrences within the boundaries of the parish.

*Table 2-71: Historical Tornado Occurrences in the Parish since the 2016 Update.*

| Date      | Location    | Magnitude | Property Damage | Crop Damage | Fatalities | Injuries |
|-----------|-------------|-----------|-----------------|-------------|------------|----------|
| 4/13/2018 | CALHOUN     | EF1       | \$125,000       | \$0         | 0          | 0        |
| 4/14/2018 | EUREKA      | EF1       | \$40,000        | \$0         | 0          | 0        |
| 5/8/2019  | MILLHAVEN   | EF1       | \$0             | \$0         | 0          | 0        |
| 4/12/2020 | BAWCOMVILLE | EF3       | \$250,000,000   | \$0         | 0          | 0        |
| 4/12/2020 | PHILLIPS    | EF3       | \$750,000       | \$0         | 0          | 0        |
| 4/12/2020 | FAIRBANKS   | EF1       | \$25,000        | \$0         | 0          | 0        |
| 4/7/2021  | CALHOUN     | EF0       | \$0             | \$0         | 0          | 0        |
| 4/12/2022 | FRIZZELL    | EF1       | \$50,000        | \$0         | 0          | 1        |

##### *Probability*

The annual return rate (frequency) for tornado occurrences in the parish is 0.66 (67% annual probability) or approximately 1 tornado occurrence every 1 to 2 years. The following figure displays the tornado density for the parish.



*Figure 2-27: Location and Density of Tornadoes to Touchdown in the Parish  
(Source: NOAA/SPC Severe Weather Database)*

### Climate Change Impacts

Similar to thunderstorms, the impacts of climate change on the occurrence and strength of tornadoes is not well understood at this time, but is an area of ongoing research. While only about 1% of thunderstorms will produce a tornado, preliminary research and climate models indicate that the environmental suitability for severe thunderstorms, and therefore tornadoes, could increase over the Eastern United States by the end of the century.

Climate change is contributing to the increasing frequency and intensity of tornadoes, leading to significant impacts on both infrastructure and vulnerable populations. As global temperatures rise, the atmosphere becomes more unstable, creating conditions favorable for the development of severe thunderstorms and tornadoes. Tornadoes are powerful and destructive, capable of causing widespread damage to various types of infrastructure.

One of the most significant impacts of tornadoes on infrastructure is the destruction of buildings and critical facilities. Tornadoes can flatten homes, schools, hospitals, and businesses, leaving communities devastated and in need of urgent assistance. The damage to infrastructure disrupts essential services, such as electricity, water supply, and communication networks, exacerbating the challenges faced by affected communities during recovery and rebuilding efforts.

Vulnerable populations are particularly at-risk during tornadoes. Low-income communities often live in substandard housing and lack access to proper storm shelters, leaving them more exposed to the destructive forces of tornadoes. Furthermore, elderly individuals and people with disabilities may struggle to seek shelter and escape the path of these fast-moving storms, increasing their vulnerability to injury or death. Tornadoes can also disproportionately affect marginalized communities due to limited access to emergency response services and resources.

Moreover, tornadoes can lead to economic hardships for vulnerable populations. Homes and properties are often uninsured or underinsured in these areas, leaving residents with significant financial burdens after tornadoes strike. As a result, vulnerable communities may face challenges in recovering and rebuilding their lives, perpetuating cycles of poverty and inequality.

To address the impacts of climate change on infrastructure and vulnerable populations concerning tornadoes, proactive measures are essential. Building tornado-resistant infrastructure and implementing better early warning systems can help minimize the damage caused by tornadoes. For vulnerable populations, providing accessible storm shelters and ensuring access to emergency resources and support are critical to saving lives and reducing the long-term impacts of tornadoes. Additionally, climate change mitigation efforts are crucial to addressing the root causes of tornado intensification, as reducing greenhouse gas emissions can help stabilize the climate and potentially mitigate the future increase in tornado frequency and severity.

*Vulnerability Analysis*

The NRI includes data on the expected annual losses to individual natural hazards, historical losses, and overall risk at the county and Census tract level. The following table provides an overview of each category at the county level for tornadoes.

*Table 2-72: National Risk Index (NRI) Summarization of Tornado Occurrences for the Parish. (Source: National Risk Index)*

| Expected Annual Losses | Overall Risk Rating |
|------------------------|---------------------|
| Relatively High        | Relatively High     |

*Estimated Impact and Potential Loss*

Since 1996, there have been 18 significant tornado occurrences per the NCEI Storm Events Database. The total property damage associated with these storms totaled approximately \$255,565,000. To estimate the potential losses on an annual basis, the total damages recorded were divided by the total number of years of available data in the NCEI Storm Events Database (1996 – 2022). This provides an annual estimated potential loss of \$14,198,056 and \$9,465,370 per event. The following table provides an estimate of potential property losses for the Parish:

*Table 2-73: Estimated Annual Property Losses in the Parish resulting from Tornado Damage.*

| Estimated Annual Potential Losses |                   |                    |                       |                       |
|-----------------------------------|-------------------|--------------------|-----------------------|-----------------------|
| Unincorporated Area<br>(53.1%)    | Monroe<br>(21.2%) | Richwood<br>(0.7%) | Sterlington<br>(1.8%) | West Monroe<br>(6.0%) |
| \$5,530,556                       | \$2,815,506       | \$229,068          | \$116,865             | \$773,376             |

The following table presents an analysis of building exposure that are susceptible to tornadoes by general occupancy type for the parish along with the percentage of building stock that are mobile homes.

Table 2-74: Building Exposure by General Occupancy Type for Tornadoes in the Parish.  
(Source: Hazus)

| Building Exposure by General Occupancy Type for Tornadoes |            |            |              |          |            |           |                  |
|---|------------|------------|--------------|----------|------------|-----------|------------------|
| Exposure Types (\$1,000)                                  |            |            |              |          |            |           |                  |
| Residential   | Commercial | Industrial | Agricultural | Religion | Government | Education | Mobile Homes (%) |
| 16,757,019  | 5,960,373  | 1,200,330  | 55,044       | 666,248  | 221,516    | 255,814   | 22.3             |

Vulnerable Population

Per the NCEI Storm Events Database, there have been no reported fatalities and one injury as a result of tornadoes.

In accessing the overall risk to population, the most vulnerable population throughout the parish are those residing in manufacturing housing. Approximately 22.3% of all housing in the Parish consists of manufactured housing. The location and density of manufactured houses can be seen in the following figure.

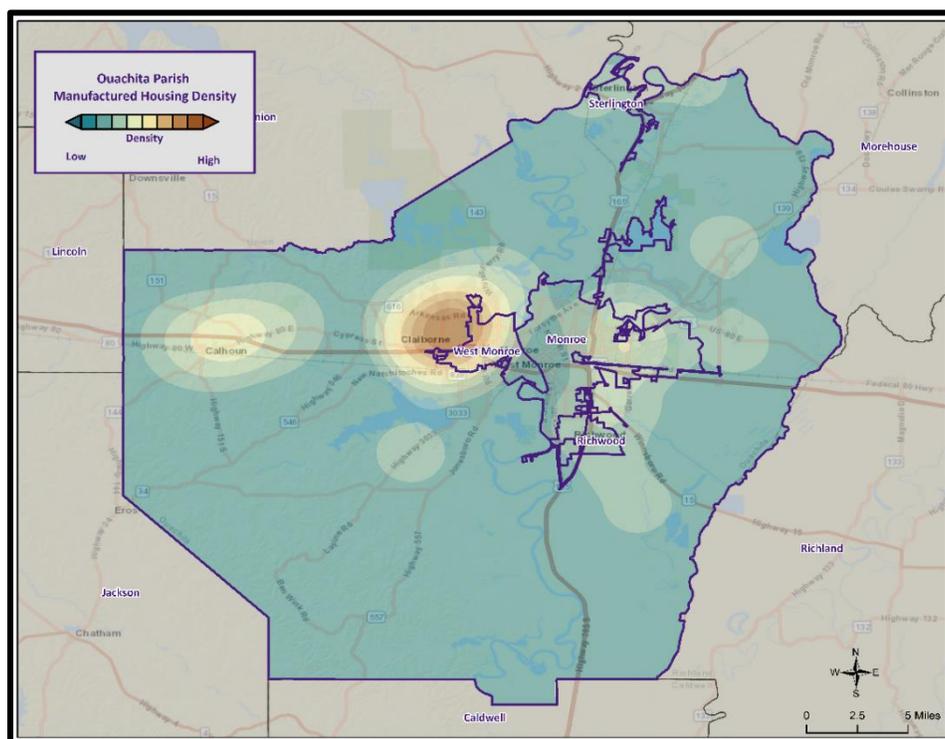


Figure 2-28: Location and Approximate Number of Units in Manufactured Housing Locations throughout the Parish.

Vulnerability Score

Table 2-75: Tornado Vulnerability Score for the Parish.

| Tornado Vulnerability Score |             |        |                |              |          |             |
|-----------------------------|-------------|--------|----------------|--------------|----------|-------------|
|                             | Probability | Impact | Spatial Extent | Warning Time | Duration | Risk Factor |
| Risk Level                  | 3           | 3      | 2              | 4            | 3        | 2.95        |

## Tropical Cyclones

### Profile

Hurricanes, typhoons, and cyclones, are names for powerful tropical storms in which winds rotate around a closed circulation of low-pressure. In the Atlantic and eastern Pacific basins, they are known as hurricanes, in Asia (western Pacific) they are known as typhoons, and in Australia they are called cyclones. In the Northern Hemisphere, hurricane winds rotate in a counter-clockwise direction (clockwise in the Southern Hemisphere). The key energy source for a hurricane is the release of latent heat energy from condensation.

This energy is found where there is a deep layer of warm water to fuel the system. Conditions for hurricane formation include warm waters, rotational force from the earth's spin (Coriolis Effect), and the absence of vertical wind shear (stability in the lower atmosphere). Tropical disturbances that affect North America typically originate off the west coast of Africa. If the tropical disturbance lowers in pressure and starts to rotate around a low pressure center, it may turn into a tropical depression. Barometric pressure (measured in millibars or inches) continues to fall in the center as these storm systems develop in intensity. When sustained wind speeds reach 39 mph, the system becomes a tropical storm and is given a name by the National Hurricane Center. When sustained wind speeds reach 74 mph, it becomes a hurricane. Hurricanes are much larger and powerful storms with an average diameter of 350 miles. The start of the official Atlantic hurricane season is June 1st and ends November 30<sup>th</sup>. Peak hurricane season is August and September in the Northern Hemisphere, when water temperatures and evaporation rates are greatest. Associated with these storms are damaging winds, heavy precipitation, and tornadoes. Coastal areas are also vulnerable to storm surge, wind-driven waves, and tidal flooding, which can cause more destruction than cyclone winds.

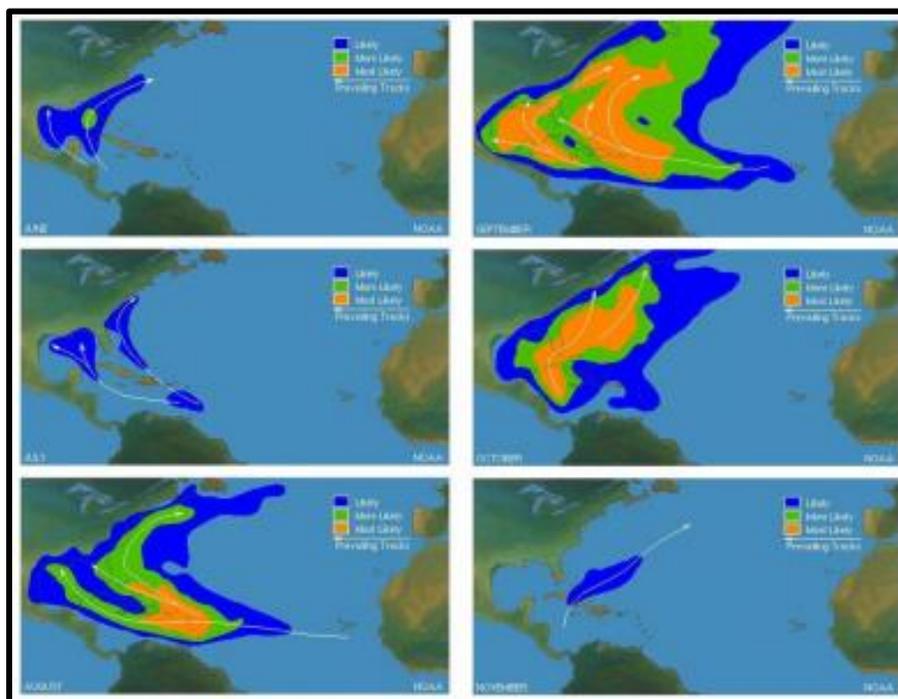


Figure 2-29: Areas of Likely Tropical Cyclone Formation and Tracking.  
(Source: NOAA NHC)

Hurricane intensity is classified by the Saffir-Simpson Scale, which categorizes hurricane intensity based upon maximum sustained wind speeds on a scale of one to five, with five being the most intense. Typically, higher category hurricanes have lower pressure and greater storm surge. Categories three, four, and five are classified as “major” hurricanes, and while hurricanes within this range comprise only 20 percent of total landfalls, they account for over 70 percent of the damage incurred in the United States. Hurricane (Category 1 or higher) return periods are shown the following figure:

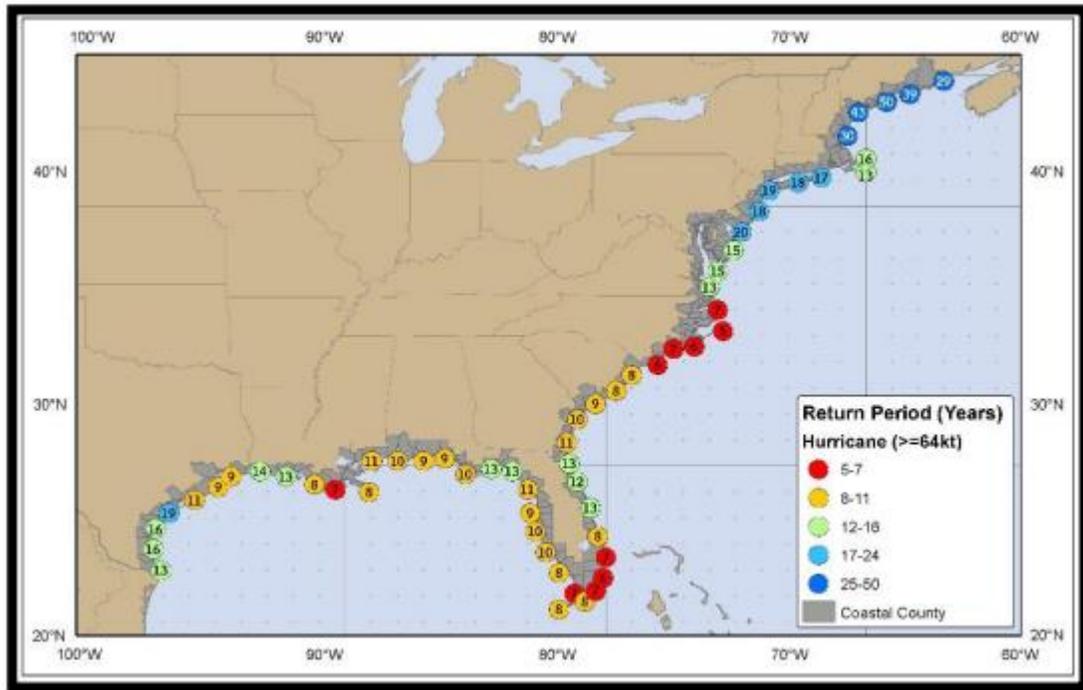


Figure 2-30: Hurricane Return Periods for the Atlantic Basin (USA).  
(Source: NOAA NHC)

Table 2-76: 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.  |

Storm surge is elevated water level that is pushed towards the shore by the force of strong winds that result in the piling up of water. The advancing surge combines with the normal tides, which in extreme cases can increase the normal water height over 20 feet. The storm surge arrives ahead of the storm's actual landfall and the more intense the hurricane is, the sooner the surge arrives. Water rise can be very rapid and can move far inland, posing a serious threat to those who have not yet evacuated flood-prone areas. Debris carried by the waves can also contribute to the devastation. As the storm approaches shore, the greatest storm surge will be to the north of the hurricane eye, in the right-front quadrant of the direction in which the hurricane is moving. Such a surge of high water topped by waves driven by hurricane force winds can be devastating to coastal regions, causing severe beach erosion and property damage along the immediate coast. Storm surge heights, and associated waves, are dependent upon the shape of the continental shelf (narrow or wide) and the depth of the ocean bottom (bathymetry). A narrow shelf, or one that drops steeply from the shoreline and subsequently produces deep water close to the shoreline, tends to produce a lower surge but higher and more powerful storm waves. While disassociated with the Saffir-Simpson Scale, storm surge remains the leading killer of residents along immediate coastal areas. Researchers at the Southern Regional Climate Center have indicated that hurricane strength at approximately 12-18 hours prior to landfall is a better indicator of storm surge strength (compared to wind speeds at landfall).

Many other 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 freshwater intrusions from storm surge send animals, such as snakes, into areas occupied by humans.

#### *Risk Assessment*

##### *Geographic Extent*

Tropical cyclones typically impact multiple regions and not one specific jurisdiction or campus. Because of this, all of the planning area is susceptible to the effects of tropical cyclones. Tropical cyclones are the single biggest threat to all of South Louisiana. With any single tropical cyclone event having the potential to devastate multiple parishes at once, tropical cyclones are a significant threat to the entire parish planning area. The worst-case scenario for a tropical cyclone event in the parish is a tropical storm.

##### *Previous Occurrences*

The parish experienced five tropical cyclone occurrences between the years 2002 and 2022. Since the last update in 2016, there have been two tropical cyclone occurrences within the boundaries of the parish.

*Table 2-77: Historical Tropical Cyclone Occurrences in the Parish since the 2016 Update.*

| Date      | Magnitude      | Name   | Property Damage | Crop Damage | Fatalities | Injuries |
|-----------|----------------|--------|-----------------|-------------|------------|----------|
| 9/1/2008  | Tropical Storm | Gustav | \$300,000       | \$0         | 0          | 0        |
| 9/13/2008 | Tropical Storm | Ike    | \$200,000       | \$0         | 0          | 0        |
| 8/30/2012 | Tropical Storm | Isaac  | \$0             | \$0         | 0          | 0        |
| 8/27/2020 | Tropical Storm | Laura  | \$0             | \$0         | 0          | 0        |
| 10/9/2020 | Tropical Storm | Delta  | \$0             | \$0         | 0          | 0        |

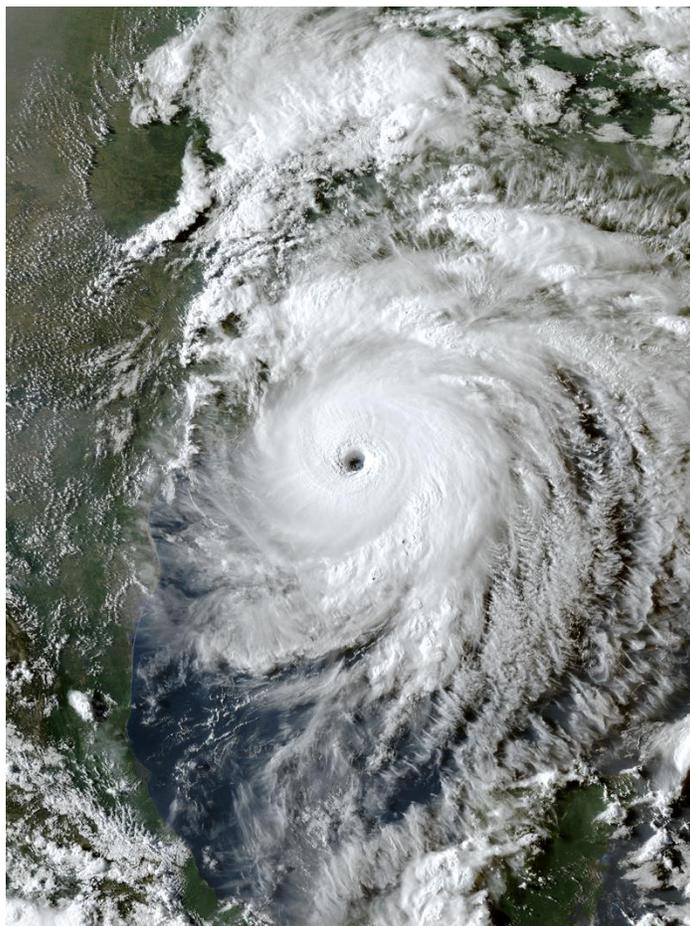
##### *Tropical Storm Laura (2020)*

Laura began as a large tropical wave that emerged off the west coast of Africa on August 16<sup>th</sup>. The wave traversed the tropical Atlantic for the next several days with little additional organization. On August 19<sup>th</sup>, the system became better organized, closed off a low-level circulation, and subsequently the National Hurricane Center began issuing advisories on Tropical Depression Thirteen late that evening.

On the morning of August 21<sup>st</sup>, Tropical Depression Thirteen strengthened into Tropical Storm Laura, which was the earliest twelfth named Atlantic storm, beating the previous record of Hurricane Luis of 1995 by eight days. As Laura moved westward, little additional strengthening took place as the center moved over the northern Lesser Antilles later that evening, and south of Puerto Rico on August 22<sup>nd</sup>. Early on August 23<sup>rd</sup>, Tropical Storm Laura made landfall across Hispaniola, traversed the entire island, and made landfall across Eastern Cuba later that evening. Tropical Storm Laura continued west northwestward, traveling just south of the island with a second landfall across Western Cuba late on August 24<sup>th</sup>.

On August 25<sup>th</sup>, Laura entered the Gulf of Mexico and became a Category 1 hurricane at 10 AM CDT. Laura began to explosively intensify on August 26<sup>th</sup>, reaching category 2 by 1 AM CDT, category 3 by 7 AM

CDT, and category 4 by 1 PM CDT. Laura reached a peak intensity of 150 mph (130 knots) and a minimum central pressure of 937 millibars (27.67 inches of mercury) by 8 PM CDT.



*Figure 2-31: Hurricane Laura in the Gulf Coast Area.  
(Source: NOAA)*

With little change in strength, Laura made landfall at Cameron, Louisiana around 1 AM CDT August 27<sup>th</sup>, with sustained winds of 150 mph (130 knots) and a minimum central pressure of 938 millibars (27.70 inches of mercury). Laura was the strongest hurricane to strike Southwest Louisiana since records began in 1851. Laura slowly weakened after landfall but maintained major hurricane status throughout its passage across Cameron, Calcasieu, and southern Beauregard Parishes, and category 2 status across northern Beauregard and Vernon parishes as daybreak approached on August 27<sup>th</sup>. Laura finally weakened below hurricane strength by Noon as it was crossing I-20 in North Louisiana. With this being the strongest hurricane to affect Southwest Louisiana, wind damage to buildings and trees was major to catastrophic across Cameron and Calcasieu parishes, with considerable damage across Beauregard and Vernon parishes where the core of the hurricane passed.

The National Weather Service in Lake Charles, Louisiana recorded a station record highest peak wind gust of 116 knots (133 mph) at 1:42 AM CDT before the Automated Surface Observing System (ASOS) wind equipment failed. However, the ASOS barometer sensor that was safely within the NWS building (which received very little damage) recorded a station record minimum sea level pressure of 956 millibars (28.23 inches of mercury) at 2:20 AM CDT when the eye of Hurricane Laura passed nearly overhead.

A total of 33 fatalities occurred throughout the state with four of them coming from falling trees. They included a 14-year-old girl in Vernon Parish, a 68-year-old man in Acadia Parish, a 51-year-old man in Jackson Parish, and a 64-year-old man in Allen Parish. Carbon monoxide poisoning from generators being inside homes, which is strongly discouraged, led to the deaths of twelve people in Calcasieu Parish and two people in Allen Parish. Another man died of drowning while aboard a sinking boat during the storm. Finally, one person died in Calcasieu Parish in a house fire, four people died in Calcasieu Parish, Natchitoches Parish, and Morehouse Parish during the cleanup process, and eight others died in Beauregard Parish, Grant Parish, Morehouse Parish, and Vernon Parish due to heat-related illnesses following the loss of electricity.

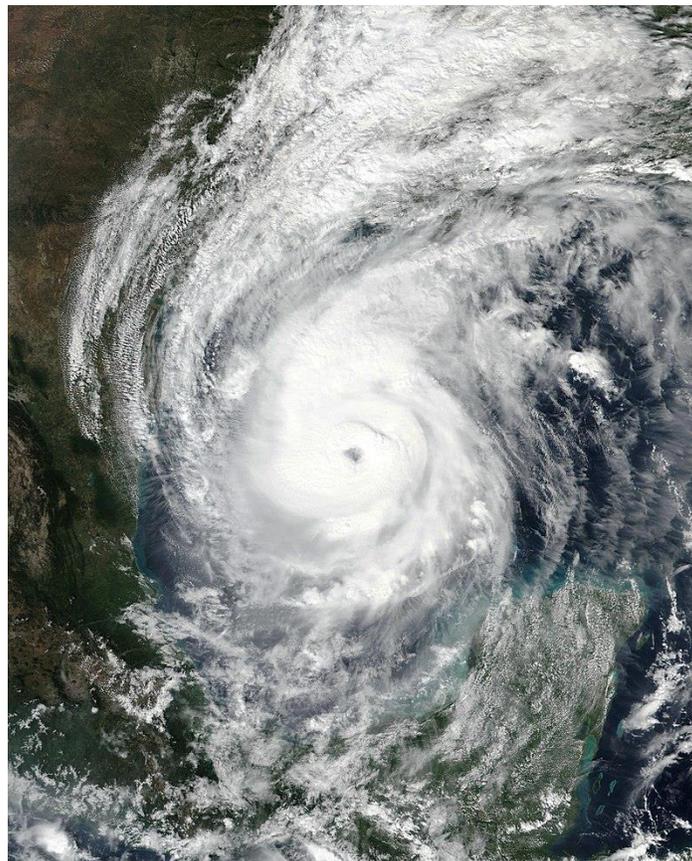
In Ouachita Parish, numerous trees and power lines down parish wide. Power outages to nearly 80 percent of parish residents. Some trees fell on homes in West Monroe and Monroe. The awning at a Chevron gas station in West Monroe was significantly damaged. The damage and power outages led to the cancellation of classes at the University of Louisiana-Monroe for the following week.

#### Tropical Storm Delta (2020)

Hurricane Delta was the record-tying fourth named storm of 2020 to strike Louisiana, as well as the record-breaking tenth named storm to strike the United States in that year. The twenty-sixth tropical cyclone, twenty-fifth named storm, ninth hurricane, and third major hurricane of the record breaking 2020 Atlantic hurricane season, Delta formed from a tropical wave which was first monitored by the National Hurricane Center on October 1. As it tracked across the western Caribbean, it rapidly intensified into a Category 4 hurricane. In fact, intensifying from tropical depression to Category strength in 40 hours is the fastest rate of intensification of any storm on record in the Atlantic Basin and accomplished by Delta. Delta quickly weakened to a category 1 hurricane after making its first landfall on the Yucatan Peninsula. It gradually recurved north towards the Louisiana coastline, fluctuating in intensity between category 2 and 3.

Hurricane Delta made landfall around 5 pm as a category 2 storm east of Cameron, Louisiana or about 15 miles east of where category 4 Hurricane Laura made landfall just a couple of months earlier of the same year. Local impacts included 50 to 70 mph wind gusts across the area, storm surge of 2 to 3 feet above ground, and widespread tree and structural damage. There were six injuries due to Hurricane Delta. In addition, outer bands of Delta produced a significant amount of rainfall on the north side of Baton Rouge Metro. Upwards of five to 10 inches of rain fell, causing street flooding in Baton Rouge and moderate river flooding in the region. Delta caused approximately \$100 million worth of damage across southeast Louisiana.

In Ouachita Parish, numerous trees and power lines were down throughout the parish. Over 50 trees were down in Kiroli Park in West Monroe, resulting in structural damage to walkways and foot bridges. Power outages to nearly 40 percent of the parish residents. Flooding was reported in the low-lying areas around Monroe and Bawcomville.



*Figure 2-32: Hurricane Delta in the Gulf Coast Area.  
(Source: NOAA)*

#### Probability

The annual return rate (frequency) for tropical cyclone occurrences in the parish is 0.24 (24% annual probability) or approximately 1 tropical cyclone occurrence every 4 to 5 years.

#### Climate Change Impacts

Climate change has the potential to alter the prevalence and severity of extreme incidents such as tropical cyclones. Louisiana is expected to experience more days with temperatures above 95°F this century which means an increase in sea surface and ambient temperatures, alterations in the hydrological cycle, and an increase in sea level which collectively may increase the frequency of large storm incidents and impacts. Research indicates that the warming climate will increase the frequency of Category 4 and 5 hurricanes but decrease the frequency of less severe tropical cyclone incidents by the end of the century. This increase in the frequency of Category 4 and 5 hurricanes will lead to an increase in damage to the built environment and increased negative effects on the economy and ecosystem.

Climate change is amplifying the impacts of tropical cyclones on both infrastructure and vulnerable populations, making them more frequent and severe. As ocean temperatures rise due to global warming, tropical cyclones have access to greater energy, leading to stronger and more destructive storms. The intensification of cyclones poses significant risks to infrastructure located in coastal regions.

One of the primary impacts of tropical cyclones on infrastructure is the damage caused by strong winds and storm surges. Cyclones can rip apart buildings, topple power lines, and uproot trees, leading to widespread destruction of homes, businesses, and public facilities. Coastal areas are particularly

vulnerable to storm surges, which can inundate low-lying regions and cause severe flooding, damaging roads, bridges, and critical lifeline infrastructure such as water and sewage systems.

Vulnerable populations face disproportionate risks during tropical cyclones, especially in low-lying coastal communities. People with limited mobility, the elderly, and low-income households often lack resources and access to evacuation options, making them more susceptible to the devastating impacts of cyclones. Displacement, property damage, and loss of livelihoods are common consequences for vulnerable populations affected by cyclones, exacerbating existing social inequalities and pushing them further into hardship.

Moreover, tropical cyclones can have long-lasting effects on the mental and physical health of vulnerable populations. The trauma caused by experiencing such extreme weather events can lead to long-term psychological distress. Lack of access to healthcare and resources after cyclones can also result in a higher risk of waterborne diseases and malnutrition for vulnerable communities.

To mitigate the impacts of climate change on infrastructure and vulnerable populations concerning tropical cyclones, several actions are crucial. Investing in more resilient infrastructure that can withstand stronger storms and higher storm surges is essential to minimize damage and ensure the continuity of critical services. Enhancing early warning systems and evacuation plans can save lives and improve the preparedness of vulnerable populations. Additionally, providing social safety nets and support to vulnerable communities can aid in their recovery and reduce the long-term impacts of cyclones on their well-being. Mitigating climate change by reducing greenhouse gas emissions is also vital to curbing the intensification of tropical cyclones and protecting both infrastructure and vulnerable populations from their devastating effects.

#### *Vulnerability Analysis*

The NRI includes data on the expected annual losses to individual natural hazards, historical losses, and overall risk at the county and Census tract level. The following table provides an overview of each category at the county level for tropical cyclones.

*Table 2-78: National Risk Index (NRI) Summarization of Tropical Cyclone Occurrences for the Parish.  
(Source: National Risk Index)*

| Expected Annual Losses | Overall Risk Rating |
|------------------------|---------------------|
| Relatively Low         | Relatively Low      |

#### *Estimated Impact and Potential Loss*

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

*Table 2-79: Total Estimated Losses for a 100-Year Hurricane Event  
(Source: Hazus)*

| Jurisdiction                          | Estimated Total Losses from 100-Year Hurricane Event |
|---------------------------------------|--|
| <b>Unincorporated Ouachita Parish</b> | \$4,591,840  |
| <b>Monroe</b>                         | \$2,364,625  |
| <b>Richwood</b>                       | \$239,774  |
| <b>Sterlington</b>                    | \$103,801  |
| <b>West Monroe</b>                    | \$649,526  |
| <b>Total</b>                          | <b>\$7,949,565</b>                                   |

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

*Table 2-80: Ratio of Total Losses to Total Estimated Value of Assets for the Parish.  
(Source: Hazus)*

| Jurisdiction                          | Estimated Total Losses from 100-Year Hurricane Event | Total Estimated Value of Assets | Ratio of Estimated Losses to Total Value |
|---------------------------------------|--|---------------------------------|--|
| <b>Unincorporated Ouachita Parish</b> | \$4,591,840  | \$11,607,999,000                | < 0.1%                                   |
| <b>Monroe</b>                         | \$2,364,625  | \$9,801,111,000                 | < 0.1%                                   |
| <b>Richwood</b>                       | \$239,774  | \$200,349,000                   | 0.1%                                     |
| <b>Sterlington</b>                    | \$103,801  | \$235,570,000                   | < 0.1%                                   |
| <b>West Monroe</b>                    | \$649,526  | \$3,271,315,000                 | < 0.1%                                   |

Based on the Hazus Hurricane Model, estimated total losses for the parish and the jurisdictions ranged from less than 0.1% to 0.1% of the total estimated value of all assets.

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

*Table 2-81: Estimated Losses in Unincorporated Ouachita Parish for a 100-Year Hurricane Event  
(Source: Hazus)*

| Parish (Unincorporated)       | Estimated Total Losses from 100-Year Hurricane Event |
|-------------------------------|--|
| <b>Agricultural</b>           | \$1,598  |
| <b>Commercial</b>             | \$31,759   |
| <b>Government</b>             | \$5,963  |
| <b>Industrial</b>             | \$4,951  |
| <b>Religious / Non-Profit</b> | \$19,359   |
| <b>Residential</b>            | \$4,520,893  |
| <b>Schools</b>                | \$7,316  |
| <b>Total</b>                  | <b>\$4,591,840</b>                                   |

*Table 2-82: Estimated Losses in Monroe for a 100-Year Hurricane Event  
(Source: Hazus)*

| Monroe                 | Estimated Total Losses from 100-Year Hurricane Event |
|------------------------|--|
| Agricultural           | \$823  |
| Commercial             | \$16,355   |
| Government             | \$3,071  |
| Industrial             | \$2,550  |
| Religious / Non-Profit | \$9,969  |
| Residential            | \$2,328,090  |
| Schools                | \$3,767  |
| <b>Total</b>           | <b>\$2,364,625</b>                                   |

*Table 2-83: Estimated Losses in Richwood for a 100-Year Hurricane Event  
(Source: Hazus)*

| Richwood               | Estimated Total Losses from 100-Year Hurricane Event |
|------------------------|--|
| Agricultural           | \$83   |
| Commercial             | \$1,658  |
| Government             | \$311  |
| Industrial             | \$259  |
| Religious / Non-Profit | \$1,011  |
| Residential            | \$236,069  |
| Schools                | \$382  |
| <b>Total</b>           | <b>\$239,774</b>                                     |

*Table 2-84: Estimated Losses in Sterlington for a 100-Year Hurricane Event  
(Source: Hazus)*

| Sterlington            | Estimated Total Losses from 100-Year Hurricane Event |
|------------------------|--|
| Agricultural           | \$36   |
| Commercial             | \$718  |
| Government             | \$135  |
| Industrial             | \$112  |
| Religious / Non-Profit | \$438  |
| Residential            | \$102,197  |
| Schools                | \$165  |
| <b>Total</b>           | <b>\$103,801</b>                                     |

Table 2-85: Estimated Losses in West Monroe for a 100-Year Hurricane Event  
(Source: Hazus)

| West Monroe            | Estimated Total Losses from 100-Year Hurricane Event |
|------------------------|--|
| Agricultural           | \$226  |
| Commercial             | \$4,492  |
| Government             | \$844  |
| Industrial             | \$700  |
| Religious / Non-Profit | \$2,738  |
| Residential            | \$639,490  |
| Schools                | \$1,035  |
| <b>Total</b>           | <b>\$649,526</b>                                     |

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

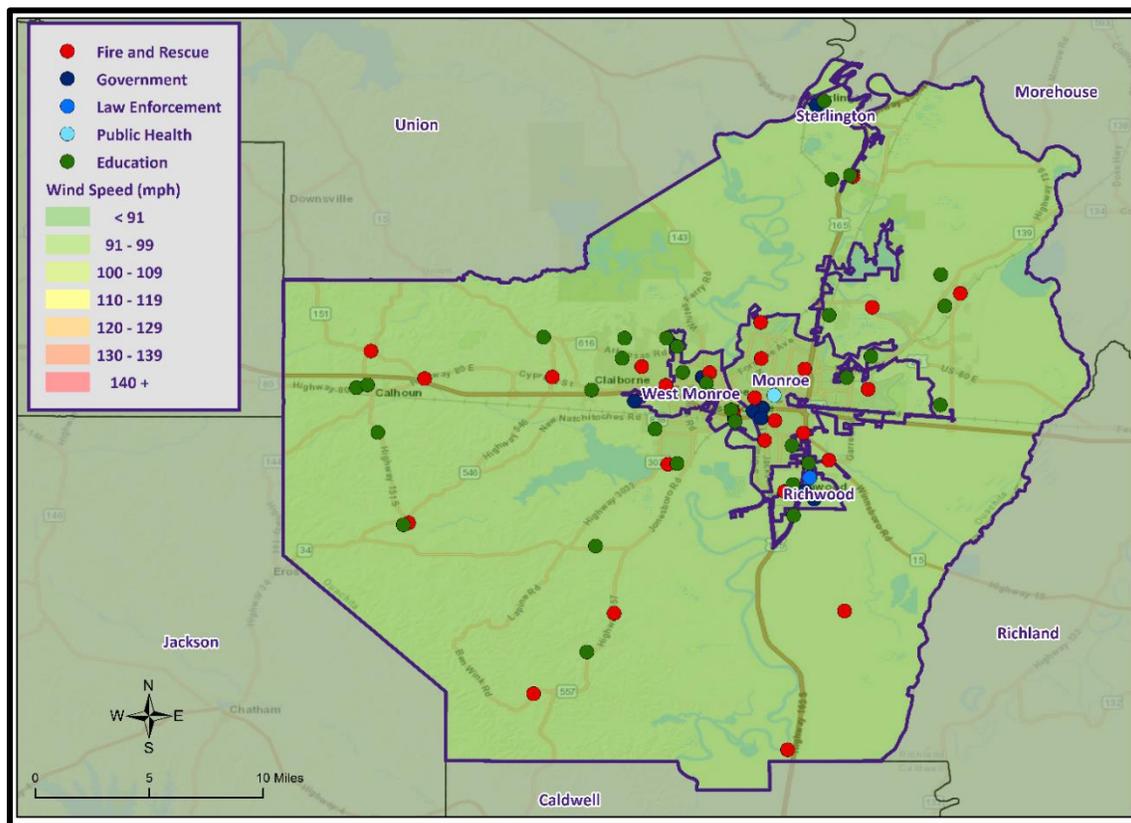


Figure 2-33: Winds Zones for the Parish in Relation to Critical Facilities

Vulnerable Population

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

*Table 2-86: Number of People Susceptible to a 100-Year Hurricane Event in Ouachita Parish  
(Source: Hazus)*

| Number of People Exposed to Hurricane Hazards |                |                  |                  |
|---|----------------|------------------|------------------|
| Location                                      | # in Community | # in Hazard Area | % in Hazard Area |
| <b>Unincorporated Ouachita Parish</b>         | 86,854         | 86,854           | 100%             |
| <b>Monroe</b>                                 | 48,815         | 48,815           | 100%             |
| <b>Richwood</b>                               | 3,392          | 3,392            | 100%             |
| <b>Sterlington</b>                            | 1,594          | 1,594            | 100%             |
| <b>West Monroe</b>                            | 13,065         | 13,065           | 100%             |
| <b>Total</b>                                  | 153,720        | 153,720          | 100%             |

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

*Table 2-87: Vulnerable Populations in Unincorporated Ouachita Parish for a 100-Year Hurricane Event  
(Source: Hazus)*

| Unincorporated Ouachita Parish   |               |                                     |
|----------------------------------|---------------|-------------------------------------|
| Category                         | Total Numbers | Percentage of People in Hazard Area |
| <b>Number in Hazard Area</b>     | 86,854        | 100.0%                              |
| <b>Persons Under 5 Years</b>     | 5,385         | 6.2%                                |
| <b>Persons Under 18 Years</b>    | 21,019        | 24.2%                               |
| <b>Persons 65 Years and Over</b> | 14,070        | 16.2%                               |
| <b>White</b>                     | 51,418        | 59.2%                               |
| <b>Minority</b>                  | 35,436        | 40.8%                               |

*Table 2-88: Vulnerable Populations in Monroe for a 100-Year Hurricane Event  
(Source: Hazus)*

| Monroe                           |               |                                     |
|----------------------------------|---------------|-------------------------------------|
| Category                         | Total Numbers | Percentage of People in Hazard Area |
| <b>Number in Hazard Area</b>     | 48,815        | 100.0%                              |
| <b>Persons Under 5 Years</b>     | 3,368         | 6.9%                                |
| <b>Persons Under 18 Years</b>    | 12,643        | 25.9%                               |
| <b>Persons 65 Years and Over</b> | 7,273         | 14.9%                               |
| <b>White</b>                     | 17,525        | 35.9%                               |
| <b>Minority</b>                  | 31,290        | 64.1%                               |

Table 2-89: Vulnerable Populations in Richwood for a 100-Year Hurricane Event  
(Source: Hazus)

| Richwood                  |               |                                     |
|---------------------------|---------------|-------------------------------------|
| Category                  | Total Numbers | Percentage of People in Hazard Area |
| Number in Hazard Area     | 3,392         | 100.0%                              |
| Persons Under 5 Years     | 146           | 4.3%                                |
| Persons Under 18 Years    | 597           | 17.6%                               |
| Persons 65 Years and Over | 176           | 5.2%                                |
| White                     | 726           | 21.4%                               |
| Minority                  | 2,666         | 78.6%                               |

Table 2-90: Vulnerable Populations in Sterlington for a 100-Year Hurricane Event  
(Source: Hazus)

| Sterlington               |               |                                     |
|---------------------------|---------------|-------------------------------------|
| Category                  | Total Numbers | Percentage of People in Hazard Area |
| Number in Hazard Area     | 1,594         | 100.0%                              |
| Persons Under 5 Years     | 124           | 7.8%                                |
| Persons Under 18 Years    | 552           | 34.6%                               |
| Persons 65 Years and Over | 266           | 16.7%                               |
| White                     | 1,140         | 71.5%                               |
| Minority                  | 454           | 28.5%                               |

Table 2-91: Vulnerable Populations in West Monroe for a 100-Year Hurricane Event  
(Source: Hazus)

| West Monroe               |               |                                     |
|---------------------------|---------------|-------------------------------------|
| Category                  | Total Numbers | Percentage of People in Hazard Area |
| Number in Hazard Area     | 13,065        | 100.0%                              |
| Persons Under 5 Years     | 758           | 5.8%                                |
| Persons Under 18 Years    | 2,652         | 20.3%                               |
| Persons 65 Years and Over | 2,286         | 17.5%                               |
| White                     | 7,147         | 54.7%                               |
| Minority                  | 5,918         | 45.3%                               |

Vulnerability Score

Table 2-92: Tropical Cyclone Vulnerability Score for the Parish.

| Tropical Cyclone Vulnerability Score |             |        |                |              |          |             |
|--------------------------------------|-------------|--------|----------------|--------------|----------|-------------|
|                                      | Probability | Impact | Spatial Extent | Warning Time | Duration | Risk Factor |
| Risk Level                           | 3           | 4      | 4              | 1            | 4        | 3.3         |

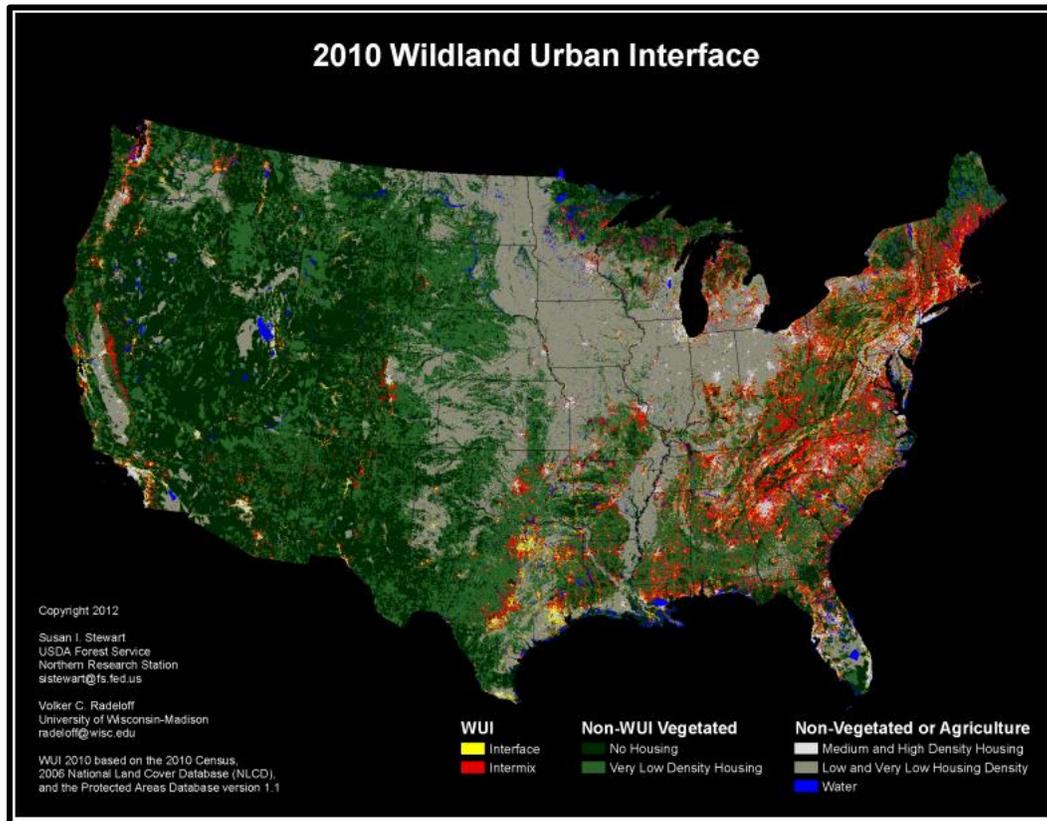
## Wildfires

### *Profile*

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 (e.g., leaves, small sticks) 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 aims 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).

The wildland-urban interface and intermix land cover surface, developed by the SILVIS Lab at the University of Wisconsin in Madison, can be used to determine areas at risk. Wildland-urban interface is defined as the zone of transition between unoccupied land and human development. This usually includes communities or areas of human development that are within 0.5 miles of the zone. Wildland-urban intermix is defined as areas in which human development is intermixed with wildland fuels. Intermix and interface areas are at risk of wildfires.



*Figure 2-34: Contiguous USA Wildland Urban Interface Map.*

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

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

Table 2-93: Southern Group of State Foresters Wildfire Risk Assessment Fire Intensity Scale.  
 (Source: Southern Wildfire Assessment Portal)

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

Risk Assessment

Geographic Extent

Wildfires impact areas that are populated with forests and grasslands. The worst-case scenario for the parish is a level 5; Sterlington a level 4, West Monroe a level 3.5, and Monroe and Richwood a level 3. The following figure displays the areas of wildland-urban interface and intermix in the Parish and the jurisdictions.

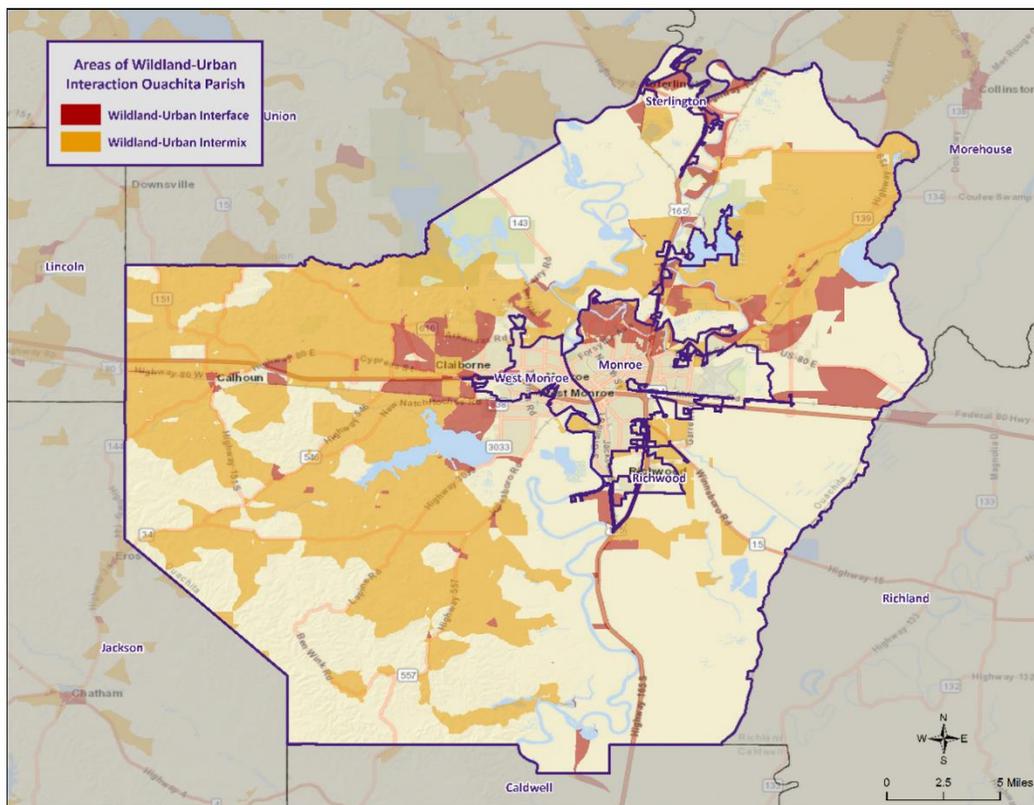


Figure 2-35: Wildland-Urban Interaction in the Parish.

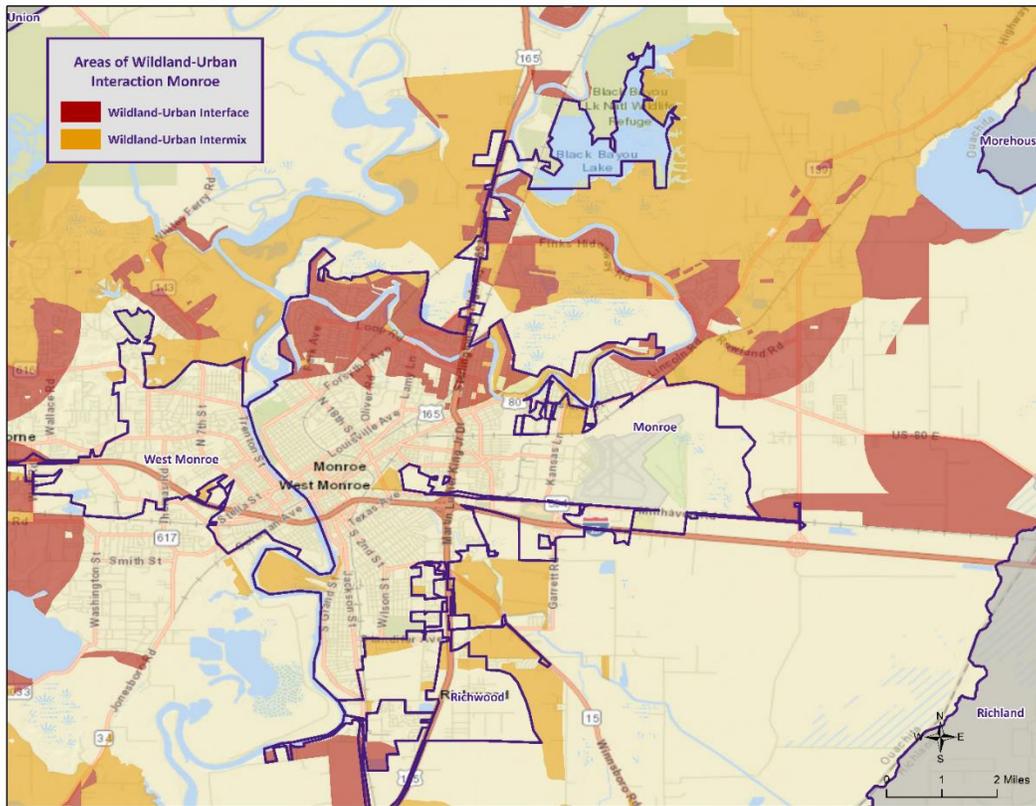


Figure 2-36: Wildland-Urban Interaction in Monroe.

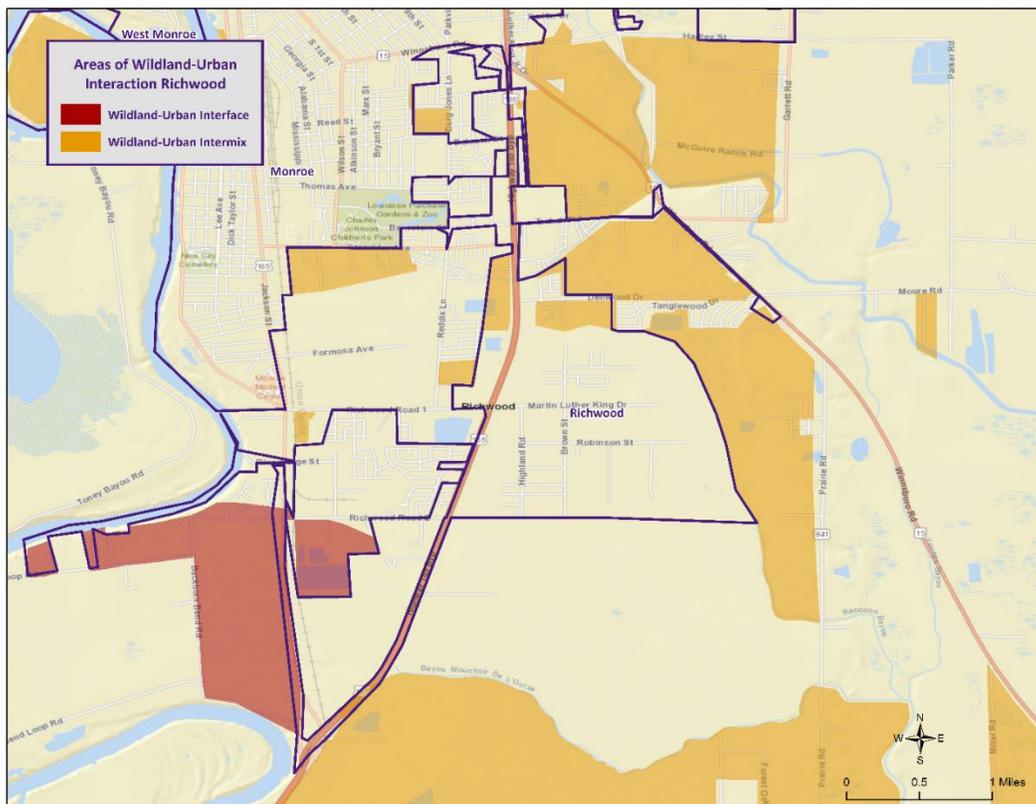


Figure 2-37: Wildland-Urban Interaction in Richwood.

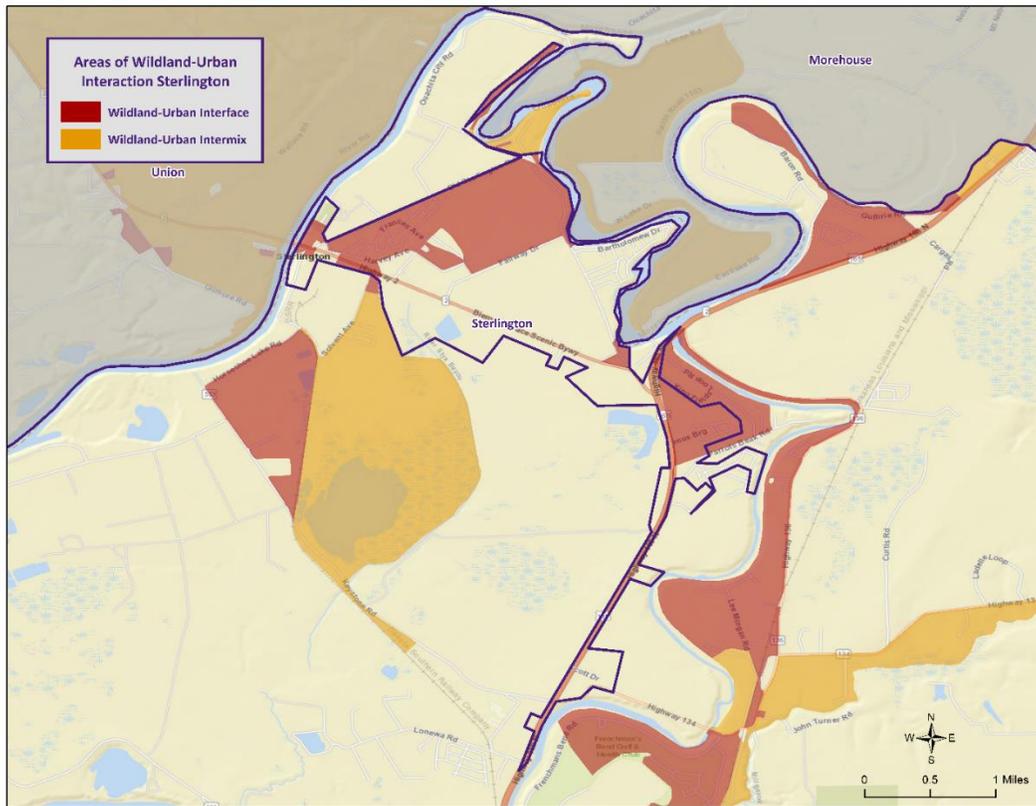


Figure 2-38: Wildland-Urban Interaction in Sterlington.

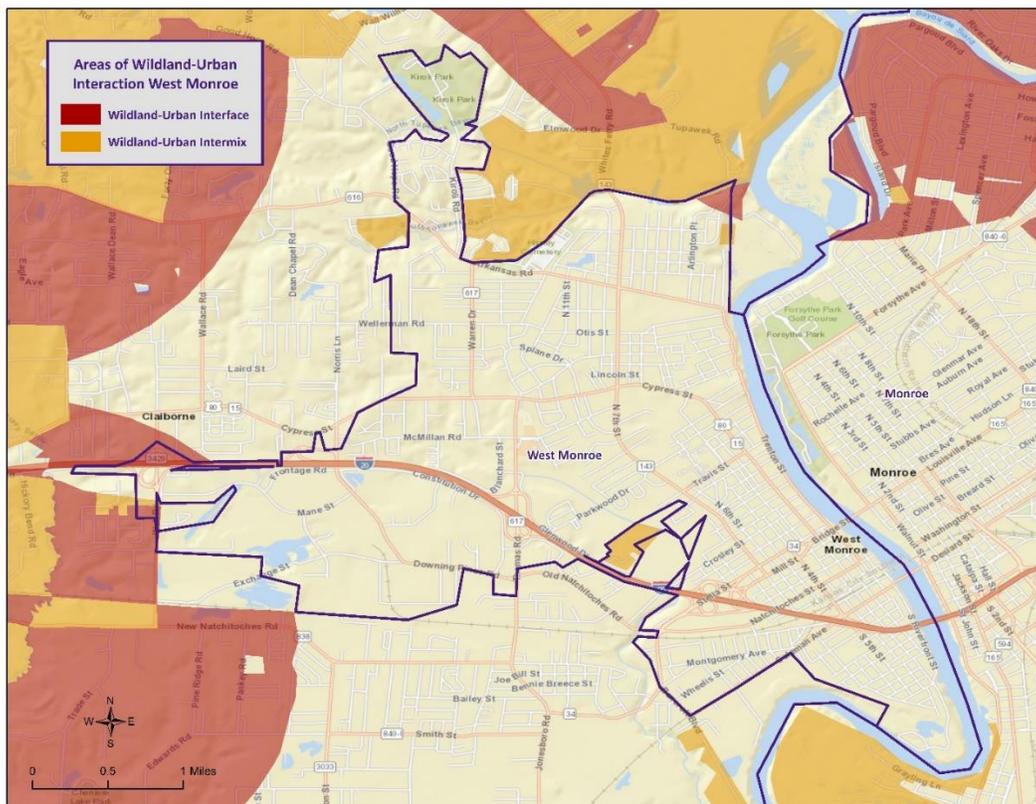


Figure 2-39: Wildland-Urban Interaction in West Monroe.

### Previous Occurrences

The parish has experienced no wildfire occurrences between the years 1996 and 2022 per the NCEI Storm Events Database.

### Probability

The annual return rate (frequency) for wildfire occurrences in the parish is 0 (< 1% annual probability) or approximately 1 wildfire event every 27 years.

### Climate Change Impacts

The increasing probability and intensity of drought caused by climate change across Louisiana indicates that the risk of wildfires will also increase. The presence of drought or prolonged dry spells will lead to an increase in dry grasses, brush, and forests that act as fuel for fires.

Climate change is playing a significant role in the increasing frequency and severity of wildfires, resulting in substantial impacts on infrastructure and vulnerable populations. Rising temperatures, prolonged droughts, and altered precipitation patterns create ideal conditions for wildfires to ignite and spread rapidly. The destruction of critical infrastructure is one of the most profound consequences of wildfires. Roads, power lines, telecommunication networks, and water supply systems are vulnerable to damage, hindering emergency response efforts and disrupting access to essential services for communities affected by wildfires.

Vulnerable populations face unique challenges during wildfires. Those living in fire-prone areas often lack the means to adequately protect their homes and properties, making them more susceptible to property loss and displacement. Low-income communities may also have limited access to resources for evacuation and recovery, further exacerbating the impacts of wildfires on their well-being. Additionally, the elderly, children, and individuals with respiratory conditions are at heightened health risks due to poor air quality caused by wildfire smoke, which can lead to respiratory problems and other health issues.

Furthermore, wildfires can have long-term social and economic impacts on vulnerable populations. Displacement and property loss can force people to leave their homes and communities, leading to disruptions in education, employment, and social connections. The loss of livelihoods, particularly for those dependent on agriculture or tourism in affected regions, can exacerbate poverty and economic inequality.

To address the impacts of climate change on infrastructure and vulnerable populations concerning wildfires, various strategies are necessary. Investing in fire-resistant infrastructure and implementing better land use planning can help reduce the risk of infrastructure damage during wildfires. Creating and improving evacuation plans and warning systems can aid in ensuring the safety of vulnerable communities. Additionally, providing support and resources for those affected by wildfires, such as temporary housing, healthcare, and financial assistance, is essential for their recovery and well-being. To mitigate future wildfires and their impacts, it is imperative to take urgent action on climate change by reducing greenhouse gas emissions and implementing sustainable land management practices to protect both infrastructure and vulnerable populations from the increasing threats of wildfires.

### Vulnerability Analysis

The NRI includes data on the expected annual losses to individual natural hazards, historical losses, and overall risk at the county and Census tract level. The following table provides an overview of each category at the county level for wildfires.

*Table 2-94: National Risk Index (NRI) Summarization of Wildfire Occurrences for the Parish.  
(Source: National Risk Index)*

| Expected Annual Losses | Overall Risk Rating |
|------------------------|---------------------|
| Very Low               | Very Low            |

#### Estimated Impact and Potential Loss

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

*Table 2-95: Total Building Exposure by Wildland-Urban Interaction Areas.  
(Source: Hazus)*

| Jurisdiction                          | Estimated Total Building Exposure |
|---------------------------------------|-----------------------------------|
| <b>Unincorporated Ouachita Parish</b> | \$9,550,213,000                   |
| <b>Monroe</b>                         | \$3,110,908,000                   |
| <b>Richwood</b>                       | \$84,704,000                      |
| <b>Sterlington</b>                    | \$140,415,000                     |
| <b>West Monroe</b>                    | \$181,933,000                     |
| <b>Total</b>                          | <b>\$13,068,173,000</b>           |

Hazus also provides a breakdown by jurisdiction for seven primary sectors (Hazus occupancy) throughout the parish. Utilizing this information with the wildland-urban interaction areas allows for identifying the total exposure by jurisdiction.

*Table 2-96: Estimated Exposure for Unincorporated Ouachita Parish by Sector.  
(Source: Hazus)*

| Unincorporated Ouachita Parish | Estimated Total Building Exposure by Sector |
|--------------------------------|---|
| <b>Agricultural</b>            | \$32,892,000                                |
| <b>Commercial</b>              | \$813,834,000                               |
| <b>Government</b>              | \$11,846,000                                |
| <b>Industrial</b>              | \$338,208,000                               |
| <b>Religious / Non-Profit</b>  | \$215,306,000                               |
| <b>Residential</b>             | \$8,072,524,000                             |
| <b>Schools</b>                 | \$65,603,000                                |
| <b>Total</b>                   | <b>\$9,550,213,000</b>                      |

*Table 2-97: Estimated Exposure for Monroe by Sector.  
(Source: Hazus)*

| Monroe                 | Estimated Total Building Exposure by Sector |
|------------------------|---|
| Agricultural           | \$6,042,000                                 |
| Commercial             | \$555,425,000                               |
| Government             | \$9,082,000                                 |
| Industrial             | \$49,327,000                                |
| Religious / Non-Profit | \$56,750,000                                |
| Residential            | \$2,407,009,000                             |
| Schools                | \$27,273,000                                |
| <b>Total</b>           | <b>\$3,110,908,000</b>                      |

*Table 2-98: Estimated Exposure for Richwood by Sector.  
(Source: Hazus)*

| Richwood               | Estimated Total Building Exposure by Sector |
|------------------------|---|
| Agricultural           | \$0   |
| Commercial             | \$6,673,000                                 |
| Government             | \$2,868,000                                 |
| Industrial             | \$479,000                                   |
| Religious / Non-Profit | \$2,480,000                                 |
| Residential            | \$72,204,000                                |
| Schools                | \$0   |
| <b>Total</b>           | <b>\$84,704,000</b>                         |

*Table 2-99: Estimated Exposure for Sterlington by Sector.  
(Source: Hazus)*

| Sterlington            | Estimated Total Building Exposure by Sector |
|------------------------|---|
| Agricultural           | \$164,000                                   |
| Commercial             | \$7,882,000                                 |
| Government             | \$1,124,000                                 |
| Industrial             | \$1,072,000                                 |
| Religious / Non-Profit | \$3,052,000                                 |
| Residential            | \$127,121,000                               |
| Schools                | \$0   |
| <b>Total</b>           | <b>\$140,415,000</b>                        |

Table 2-100: Estimated Exposure for West Monroe by Sector.  
(Source: Hazus)

| West Monroe            | Estimated Total Building Exposure by Sector |
|------------------------|---|
| Agricultural           | \$98,000                                    |
| Commercial             | \$39,596,000                                |
| Government             | \$0   |
| Industrial             | \$8,197,000                                 |
| Religious / Non-Profit | \$8,644,000                                 |
| Residential            | \$125,398,000                               |
| Schools                | \$0   |
| <b>Total</b>           | <b>\$181,933,000</b>                        |

Vulnerable Population

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

Table 2-101: Population Located within a Wildland-Urban Interaction Areas.  
(Source: 2020 U.S. Census Data)

| Number of People Located in Wildland-Urban Interaction Areas |                |                  |                  |
|--|----------------|------------------|------------------|
| Location   | # in Community | # in Hazard Area | % in Hazard Area |
| <b>Unincorporated Ouachita Parish</b>                        | 92,632         | 27,380           | 29.6%            |
| Monroe   | 47,702         | 12,159           | 25.5%            |
| Richwood   | 4,837          | 131              | 2.7%             |
| Sterlington  | 2,094          | 732              | 35.0%            |
| West Monroe  | 13,103         | 122              | 0.9%             |
| <b>Total</b>   | <b>160,368</b> | <b>40,524</b>    | <b>25.3%</b>     |

The 2020 U.S. Census data was also extrapolated to provide an overview of populations located within wildland-urban interaction areas throughout the jurisdictions. The data is illustrated in the following tables:

Table 2-102: Population in Unincorporated Ouachita Parish Located within a Wildland-Urban Interaction Area.  
(Source: 2020 Census Data)

| Unincorporated Ouachita Parish |               |                                     |
|--------------------------------|---------------|-------------------------------------|
| Category                       | Total Numbers | Percentage of People in Hazard Area |
| Number in Hazard Area          | 27,380        | 29.6%                               |
| Persons Under 5 Years          | 1,698         | 6.2%                                |
| Persons Under 18 Years         | 6,626         | 24.2%                               |
| Persons 65 Years and Over      | 4,436         | 16.2%                               |
| White                          | 16,209        | 59.2%                               |
| Minority                       | 11,171        | 40.8%                               |

*Table 2-103: Population in Monroe Located within a Wildland-Urban Interaction Area.  
(Source: 2020 Census Data)*

| Monroe                    |               |                                     |
|---------------------------|---------------|-------------------------------------|
| Category                  | Total Numbers | Percentage of People in Hazard Area |
| Number in Hazard Area     | 12,159        | 25.5%                               |
| Persons Under 5 Years     | 839           | 6.9%                                |
| Persons Under 18 Years    | 3,149         | 25.9%                               |
| Persons 65 Years and Over | 1,812         | 14.9%                               |
| White                     | 4,365         | 35.9%                               |
| Minority                  | 7,794         | 64.1%                               |

*Table 2-104: Population in Richwood Located within a Wildland-Urban Interaction Area.  
(Source: 2020 Census Data)*

| Richwood                  |               |                                     |
|---------------------------|---------------|-------------------------------------|
| Category                  | Total Numbers | Percentage of People in Hazard Area |
| Number in Hazard Area     | 131           | 2.7%                                |
| Persons Under 5 Years     | 6             | 4.3%                                |
| Persons Under 18 Years    | 23            | 17.6%                               |
| Persons 65 Years and Over | 7             | 5.2%                                |
| White                     | 28            | 21.4%                               |
| Minority                  | 103           | 78.6%                               |

*Table 2-105: Population in Sterlington Located within a Wildland-Urban Interaction Area.  
(Source: 2020 Census Data)*

| Sterlington               |               |                                     |
|---------------------------|---------------|-------------------------------------|
| Category                  | Total Numbers | Percentage of People in Hazard Area |
| Number in Hazard Area     | 732           | 35.0%                               |
| Persons Under 5 Years     | 57            | 7.8%                                |
| Persons Under 18 Years    | 253           | 34.6%                               |
| Persons 65 Years and Over | 122           | 16.7%                               |
| White                     | 523           | 71.5%                               |
| Minority                  | 209           | 28.5%                               |

Table 2-106: Population in West Monroe Located within a Wildland-Urban Interaction Area.  
(Source: 2020 Census Data)

| West Monroe               |               |                                     |
|---------------------------|---------------|-------------------------------------|
| Category                  | Total Numbers | Percentage of People in Hazard Area |
| Number in Hazard Area     | 122           | 0.9%                                |
| Persons Under 5 Years     | 7             | 5.8%                                |
| Persons Under 18 Years    | 25            | 20.3%                               |
| Persons 65 Years and Over | 21            | 17.5%                               |
| White                     | 67            | 54.7%                               |
| Minority                  | 55            | 45.3%                               |

Vulnerability Score

Table 2-107: Wildfire Vulnerability Score for the Parish.

| Wildfire Vulnerability Score |             |        |                |              |          |             |
|------------------------------|-------------|--------|----------------|--------------|----------|-------------|
|                              | Probability | Impact | Spatial Extent | Warning Time | Duration | Risk Factor |
| Risk Level                   | 1           | 3      | 4              | 1            | 2        | 2.25        |

## Winter Storms

### *Profile*

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 following 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 2-108: 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.          |

*Risk Assessment*

*Geographic Extent*

All of the parish planning area is susceptible to the effects of winter storms. The worst-case scenario for winter storms is a 2 on the Sperry-Piltz Ice Accumulation Index.

*Previous Occurrences*

The parish has experienced 8 winter storm occurrences between the years 1996 and 2022 per the NCEI Storm Events Database. There have been three winter storm events since the 2017 update.

*Table 2-109: Historical Tornado Occurrences in the Parish since the 2017 Update.*

| Date      | Synopsis   | Property Damage | Crop Damage | Fatalities | Injuries |
|-----------|--|-----------------|-------------|------------|----------|
| 1/10/2021 | Snowfall amounts ranged from two to near five inches across much of North Louisiana. These accumulations resulted in treacherous travel conditions across these areas, with the weight of the heavy wet snow contributing to a total of 56,128 customers without power across the AEP SWEPCO service area across East Texas and North Louisiana. | \$0             | \$0         | 0          | 0        |

| Date      | Synopsis   | Property Damage | Crop Damage | Fatalities | Injuries |
|-----------|--|-----------------|-------------|------------|----------|
| 2/14/2021 | Widespread snow and sleet amounts of 2-6 inches fell across much of North Louisiana.   | \$0             | \$0         | 0          | 0        |
| 2/16/2021 | Strong overrunning of warmer air atop the shallow freezing air mass in place resulted in areas of freezing rain developing over the southern and eastern sections of North-central Louisiana, with ice accumulations of a tenth to a half inch observed. | \$0             | \$0         | 0          | 0        |

#### Probability

The annual return rate (frequency) for winter storm occurrences in the parish is 0.30 (30% annual probability) or approximately 1 winter storm event every 3 to 4 years.

#### Climate Change Impacts

Winter weather is likely to become less frequent as the winter season decreases in length over the next century due to an increase in ambient and sea surface temperatures. By the end of the century, Louisiana is expected to experience a 5°F to 10°F increase in average ambient temperatures which will drastically reduce the number of days below freezing and lower the chance of winter weather. Precipitation is expected to increase during the winter months.

Climate change is influencing winter weather patterns, leading to significant impacts on both infrastructure and vulnerable populations. While it may seem counterintuitive, global warming can cause more frequent and intense winter storms. The warming of the Arctic and the disruption of the polar jet stream can result in polar vortex shifts, causing freezing temperatures and extreme winter conditions in regions that typically experience milder winters.

Winter weather impacts infrastructure in various ways. Freezing temperatures can damage roads, bridges, and other transportation networks, leading to increased maintenance costs and travel disruptions. Ice and snow accumulation on power lines can cause blackouts and outages, leaving communities without electricity and heating during frigid temperatures. Water supply systems can also be affected, as frozen pipes can burst, leading to water shortages and damage to properties.

Vulnerable populations are particularly at risk during severe winter weather events. Homeless individuals may struggle to find shelter and protection from the cold, leading to an increased risk of hypothermia and frostbite. Low-income households may face difficulties in affording heating costs, potentially exposing them to unsafe living conditions. The elderly and those with limited mobility may find it challenging to access essential services and resources during snowstorms, leading to isolation and health risks.

Moreover, winter storms can have economic consequences for vulnerable populations. Closures of schools and businesses during severe weather can lead to loss of income and educational disruptions,

impacting families already facing financial challenges. In regions where winter tourism is vital, extreme winter weather can affect local economies, leading to job losses and reduced economic opportunities for vulnerable communities.

To address the impacts of climate change on infrastructure and vulnerable populations concerning winter weather, various measures are essential. Investing in winter-ready infrastructure, such as weather-resistant roads and insulated power lines, can help mitigate damage and improve resilience. Implementing programs to support vulnerable populations, such as providing emergency shelters, fuel assistance, and resources for winter preparedness, can protect them during extreme winter events. Climate change mitigation efforts to reduce greenhouse gas emissions are also crucial to addressing the root causes of extreme winter weather patterns, helping to protect both infrastructure and vulnerable populations from the adverse effects of winter storms in the long run.

*Vulnerability Analysis*

The NRI includes data on the expected annual losses to individual natural hazards, historical losses, and overall risk at the county and Census tract level. The following table provides an overview of each category at the county level for winter storms.

*Table 2-110: National Risk Index (NRI) Summarization of Winter Storm Occurrences for the Parish. (Source: National Risk Index)*

| Expected Annual Losses | Overall Risk Rating |
|------------------------|---------------------|
| Relatively Low         | Relatively Low      |

*Estimated Impact and Potential Loss*

Since 1996, there have been eight significant winter storm occurrences per the NCEI Storm Events Database. The total property damage associated with these storms totaled approximately \$250,000. To estimate the potential losses on an annual basis, the total damages recorded were divided by the total number of years of available data in the NCEI Storm Events Database (1996 – 2022). This provides an annual estimated potential loss of \$9,259 and \$31,250 per event. The following table provides an estimate of potential property losses for the Parish:

*Table 2-111: Estimated Annual Property Losses in the Parish resulting from Winter Storm Damage.*

| Estimated Annual Potential Losses |                   |                    |                       |                       |
|-----------------------------------|-------------------|--------------------|-----------------------|-----------------------|
| Unincorporated Area<br>(53.1%)    | Monroe<br>(21.2%) | Richwood<br>(0.7%) | Sterlington<br>(1.8%) | West Monroe<br>(6.0%) |
| \$5,410                           | \$2,754           | \$224              | \$114                 | \$757                 |

### Vulnerable Population

Per the NCEI Storm Events Database, there have been no reported fatalities or injuries as a result of winter weather. However, winter storms can have a significant impact the population. They can cause physical injuries and even fatalities. High winds, falling trees, and structural collapses can pose immediate risks to people's safety during a storm. These storms can displace individuals and families from their homes, either temporarily or permanently. In cases of extensive property damage, people may be forced to evacuate or seek emergency shelter. The displacement can result in temporary homelessness or the need for long-term housing solutions.

Winter storms can disrupt critical infrastructure such as transportation systems, power grids, and water supply networks. Disruption in these services could lead to health issues or the inability to access essential services that are needed to meet basic needs. This can lead to not only physical issues but psychological effects as well.

Everyone in the parish is vulnerable to the impacts of winter storms; however, they can have a disproportionate impact on vulnerable populations exacerbating existing social, economic, and health disparities. Vulnerable populations, including low-income individuals, the homeless, and those living in standardized housing, are often more susceptible to the effects of winter storms.

### Vulnerability Score

*Table 2-112: Winter Storm Vulnerability Score for the Parish.*

| Winter Storm Vulnerability Score |             |        |                |              |          |             |
|----------------------------------|-------------|--------|----------------|--------------|----------|-------------|
|                                  | Probability | Impact | Spatial Extent | Warning Time | Duration | Risk Factor |
| Risk Level                       | 3           | 3      | 4              | 1            | 2        | 2.75        |

### 3. Capability Assessment

This section summarizes the results of efforts by each jurisdiction and other agency 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, Ouachita Parish and the incorporated jurisdictions are able to identify strengths that could be used to reduce losses and reduce risk throughout the communities. It also identifies areas where mitigation actions might be used to supplement current capabilities and create a more resilient community before, during, and after a hazard event.

#### Policies, Plans and Programs

These capabilities are unique to the parish and jurisdictions, including planning, regulatory, administrative, technical, financial, and education and outreach resources. There are a number of mitigation-specific acts, plans, executive orders, and policies that lay out specific goals, objectives, and policy statements which already support or could support pre- and post-disaster hazard mitigation. Many of the ongoing plans and policies hold significant promise for hazard mitigation, and take an integrated and strategic look holistically at hazard mitigation in the Ouachita Parish planning area 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 include the following:

Table 3-1: Planning and Regulatory Capabilities

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

All jurisdictions within the Ouachita Parish planning area will work to expand their capabilities by adding to these plans, as well as work to create new plans that will address a long-term recovery and resiliency framework. In instances where there are no existing plans, there will be a concerted effort to explore opportunities to create new plans that will address long-term recovery and resiliency framework as parish and local resources allow.

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

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

As of the 2023 update, Ouachita Parish and the incorporated communities ensure that all adopted building codes are enforced and in compliance relating to the construction of any structure within the boundaries of the parish. Building permits are required prior to beginning any type of construction or renovation projects, installation of electrical wiring, plumbing or gas piping, moving manufactured/modular or portable buildings, and reroofing or demolitions.

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

The Ouachita 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, the jurisdictions within the Ouachita Parish planning area as a whole have a system in place to coordinate and share these capabilities through the OHSEP and through this Parish Hazard Mitigation Plan.

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

### Administration, Technical, and Financial

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

Table 3-2: Administration and Technical Capabilities

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

Financial capabilities are the resources that Ouachita 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 parish may vary from little to no cost actions, such as outreach efforts, or substantial action costs such acquisition of flood prone properties.

The following financial resources are available to fund mitigation actions in the Ouachita Parish planning area:

Table 3-3: Financial Capabilities

| Financial   |                 |        |          |             |             |          |
|---|-----------------|--------|----------|-------------|-------------|----------|
| Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation. |                 |        |          |             |             |          |
|   | Ouachita Parish | Monroe | Richwood | Sterlington | West Monroe | Comments |
| <b>Funding Resource</b>   | <b>Yes / No</b> |        |          |             |             |          |
| Capital Improvements project funding  | Yes             | Yes    | No       | Yes         | Yes         |          |
| Authority to levy taxes for specific purposes   | Yes             | Yes    | Yes      | Yes         | Yes         |          |
| Fees for water, sewer, gas, or electric services  | Yes             | Yes    | No       | Yes         | Yes         |          |
| Impact fees for new development   | No              | No     | No       | No          | No          |          |
| Stormwater Utility Fee  | No              | No     | No       | No          | No          |          |
| Community Development Block Grant (CDBG)  | Yes             | Yes    | No       | Yes         | Yes         |          |
| Other Funding Programs  |                 |        |          |             | Yes         |          |

### Education and Outreach

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

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

*Table 3-4: Education and Outreach Capabilities*

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

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

### Flood Insurance and Community Rating System

Participation in the CRS strengthens local capabilities by lowering flood insurance premiums for jurisdictions that exceed NFIP minimum requirements. As noted in the CRS Eligible Communities List effective April 1, 2023 Unincorporated Ouachita Parish is rated a Class 9 community and the City of Monroe is rated a Class 10 community

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

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

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

| CLASS | DISCOUNT | CLASS | DISCOUNT |
|-------|----------|-------|----------|
| 1     | 45%      | 6     | 20%      |
| 2     | 40%      | 7     | 15%      |
| 3     | 35%      | 8     | 10%      |
| 4     | 30%      | 9     | 5%       |
| 5     | 25%      | 10    | –        |

SFHA (Zones A, AE, A1–A30, V, V1–V30, AO, and AH): Discount varies depending on class.  
 SFHA (Zones A99, AR, AR/A, AR/AE, AR/A1–A30, AR/AH, and AR/AO): 10% discount for Classes 1–6; 5% discount for Classes 7–9.\*  
 Non-SFHA (Zones B, C, X, D): 10% discount for Classes 1–6; 5% discount for Classes 7–9.

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

As of April 2023, 318 communities in the State of Louisiana participate in the Federal Emergency Management Agency’s National Flood Insurance Program (NFIP). Of these communities, 47 (or 13%) participate in the Community Rating System (CRS). Jefferson Parish leads the state with a rating of Class 5, followed by four cities with a rating of Class 6: the Cities of Gretna and Kenner in Jefferson Parish and the Cities of Mandeville and Slidell

in St. Tammany Parish. Of the top fifty Louisiana communities, in terms of total flood insurance policies held by residents, 29 participate in the CRS. The remaining 21 communities present an outreach opportunity for encouraging participation in the CRS.

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

In 2011<sup>1</sup>, the National Flood Insurance Program (NFIP) completed a comprehensive review of the Community Rating System (CRS) that resulted in the release of a new CRS Coordinator’s Manual. The changes to the 2013 CRS Coordinator’s Manual are the result of a multi-year program evaluation that included input from a broad group of contributors to evaluate the CRS and refine the program to meet its stated goals. The changes helped to drive new achievements in the following six core flood loss reduction areas important to the NFIP: (1) reduce liabilities to the NFIP Fund; (2) improve disaster resiliency and sustainability of communities; (3) integrate a Whole Community approach to addressing emergency management; (4) promote natural and beneficial functions of floodplains; (5) increase understanding of risk, and; (6) strengthen adoption and enforcement of disaster-resistant building codes.

Since the revision of the 2013 Coordinator’s Manual, FEMA released the 2017 CRS Coordinator’s Manual which continued the evolution of the CRS program and its mission to reward communities that prioritize mindful floodplain regulations. As with the 2013 manual, the changes made in the 2017 manual impact each CRS community differently. Some communities see an increase in the points they receive since points for certain activities have increased (e.g., Activity 420 Open Space Preservation). Other communities receive fewer points for certain activities (e.g., Activity 320 Map Information Service). It is

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

likely that some communities with marginal CRS Class 9 programs have to identify new CRS credits in order to remain in the CRS class. Most notably, as it relates to this hazard mitigation plan, more credit was made available for Activity 410 Floodplain Mapping.

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

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

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

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

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

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

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

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

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

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

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

## NFIP Worksheets

Parish NFIP worksheets can be found in [Appendix E: State Required Worksheets](#).

## 4. Mitigation Strategy

### Introduction

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

Officials from all jurisdictions within the planning area confirmed the goals, objectives, actions and projects over the period of the hazard mitigation plan update process. The mitigation actions and projects in this 2023 HMP update are a product of analysis and review of the Ouachita Parish Hazard Mitigation Plan Planning Committee under the coordination of the Ouachita Parish Office of Homeland Security and Emergency Preparedness. The committee was presented a list of projects and actions, new and from the 2017 plan, for review from January 2023 – June 2023

An online public opinion survey of Ouachita Parish residents was conducted between January 2023 – August 2023. The survey was designed to capture public perceptions and opinions regarding natural hazards in the Ouachita Parish planning area. In addition, the survey collected information regarding the methods and techniques preferred by the respondents for reducing the risks and losses associated with local hazards.

This activity was created in an effort to confirm that the goals and action items developed by the Ouachita Parish Hazard Mitigation Plan Planning 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 Ouachita Parish survey can be found at the following link:

<https://www.surveymonkey.com/r/OuachitaHM2022>

### 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 Ouachita 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, Ouachita Parish can make progress toward reducing identified risks.

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

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

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

The goals are as follows:

1. Protect health and safety
2. Protect existing properties
3. Improve the quality of life in Ouachita Parish
4. Ensure that public funds are used in the most efficient manner

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

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

### 2023 Mitigation Actions and Update on Previous Plan Actions

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

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

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

Status updates for actions included in the previous plan can be found on the following pages. Additionally, new mitigation actions agreed upon by the parish and its jurisdictions are included.

## Unincorporated Ouachita Parish

## Previous Action Update

| Unincorporated Ouachita Parish - New Mitigation Actions   |  |                        |                        |  |  |  |
|---|--|------------------------|------------------------|--|--|--|
| Jurisdiction-Specific Action  | Action Description   | Funding Source         | Target Completion Date | Responsible Party, Agency, or Department             | Hazard   | Status   |
| O1: 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.  | HGMP, BRIC, Local      | 1-5 years              | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | Not Started - Carried Over (See Ouachita Parish Mitigation Action 1) |
| O2: 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 problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods. | HGMP, BRIC, FMA, Local | 1-5 years              | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | In Progress - Carried Over (See Ouachita Parish Mitigation Action 2) |
| O3: 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.  | HGMP, BRIC, FMA, Local | 1-5 years              | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | Ongoing - Carried Over (See Ouachita Parish Mitigation Action 3)     |
| O4: Safe Room Projects  | Construction of a safe room for first responders located in Ouachita Parish. Other locations will be identified based on funding availability.   | HGMP, BRIC, Local      | 1-5 years              | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | Not Started - Carried Over (See Ouachita Parish Mitigation Action 4) |

|  |   |                        |           |  |  |   |
|--|---|------------------------|-----------|--|--|---|
| O5: 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, Levee Failure, and Winter Storm 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. | HGMP, BRIC, FMA, Local | 1-5 years | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfire, Winter Weather  | Ongoing - Carried Over (See Ouachita Parish Mitigation Action 5)      |
| O6: Generators for Continuity of Operations and Government | Procurement and installation of generators at public facilities to ensure continued operations during and after events.   | HGMP, BRIC, Local      | 1-5 years | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather                          | Not Started - Carried Over (See Ouachita Parish Mitigation Action 6)  |
| O7: Lightning Mitigation                                   | Procurement and installation of lightning rods and surge protectors for public buildings to preserve life and property  | HGMP, BRIC, Local      | 1-5 years | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP | Thunderstorms  | Not Started - Carried Over (See Ouachita Parish Mitigation Action 7)  |
| O8: Warning Systems  | Update/upgrade public warning system components throughout Ouachita Parish as necessary. Install audible and/or reverse 911 warning system(s)   | HGMP, BRIC, Local      | 1-5 years | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather                          | Not Started - Carried Over (See Ouachita Parish Mitigation Action 8)  |
| O9: 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.  | HGMP, BRIC, Local      | 1-5 years | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP | Drought, Flooding, Excessive Heat, Levee Failure, Thunderstorms, Tropical Cyclones, Tornadoes, Wildfires, Winter Weather | Not Started - Carried Over (See Ouachita Parish Mitigation Action 9)  |
| O10: 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).   | HGMP, BRIC, FMA, Local | 1-5 years | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | Ongoing   |
| O11: Flood Control Measures                                | Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.  | HGMP, BRIC, FMA, Local | 1-5 years | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP | Flooding, Levee Failure, Tropical Cyclones   | Not Started - Carried Over (See Ouachita Parish Mitigation Action 10) |

|                                     |   |                        |              |  |   |   |
|-------------------------------------|---|------------------------|--------------|--|---|---|
| O12: Levee Failure Working Group    | Create a working group in order to assess the extent and determine the possible effects of a levee failure.   | HGMP, BRIC, FMA, Local | 1-5 years    | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP,<br>Army Corps of Engineers | Flooding, Levee Failure, Tropical Cyclones  | Not Started - Carried Over (See Ouachita Parish Mitigation Action 11) |
| O13: Drought Ordinances             | Adopt ordinances requiring water-saving measures in time of drought.  | HGMP, BRIC, Local      | 1-5 years    | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP                             | Drought   | Not Started - Carried Over (See Ouachita Parish Mitigation Action 12) |
| O14: Wildfire Ordinances            | Strengthen penalties and improve enforcement capabilities of burn ban ordinances  | HGMP, BRIC, Local      | 1-5 years    | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP                             | Wildfires   | Not Started - Carried Over (See Ouachita Parish Mitigation Action 13) |
| O15: Shelter Structures             | Continually inventory and Retrofit/upgrade existing structures and/or construct new structures to act as shelters during and after Hurricanes/Tropical Storms and other severe weather events.                      | HGMP, BRIC, Local      | 12-48 Months | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP                             | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather                | Deleted - Duplicate of O4 Action                                      |
| O16: Harden Critical Facilities     | Storm harden/retrofit critical facilities throughout Ouachita Parish. Actions can include but are not limited to window shutters, roof straps, flood proofing, roll-up door reinforcement (i.e. for fire stations). | HGMP, BRIC, FMA, Local | 12-48 Months | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP                             | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather                | Deleted - Duplicate of O1 Action                                      |
| O17: Warning Sirens                 | Purchase warning sirens for the parish. The parish is already in the process of purchasing indoor warning systems through Alert FM. The parish is purchasing 50 portable and one wall unit.                         | HGMP, BRIC, FMA, Local | 12-48 Months | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP                             | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | Deleted - Duplicate of O8 Action                                      |
| O18: Outdoor Warning Sirens         | Purchase outdoor warning sirens to place in areas throughout the Parish.  | HGMP, BRIC, FMA, Local | 12-48 Months | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP                             | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | Deleted - Duplicate of O8 Action                                      |
| O19: Elevate Flood Prone Structures | Elevate new and existing flood prone structures and infrastructure and key electrical equipment throughout Ouachita Parish.   | HGMP, BRIC, FMA, Local | 36 Months    | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP                             | Flooding, Levee Failure, Thunderstorms, Tropical Cyclones                                       | Completed   |
| O20: Upgrade Bridges and Crossings  | Replace and/or upgrade bridges and other crossings throughout Ouachita Parish.  | HGMP, BRIC, FMA, Local | 1-5 Years    | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP                             | Flooding, Levee Failure, Thunderstorms, Tropical Cyclones                                       | Not Started - Carried Over (See Ouachita Parish Mitigation Action 14) |

|   |  |                        |              |   |   |                                  |
|---|--|------------------------|--------------|---|---|----------------------------------|
| O21: Drainage Improvements  | Pursue drainage improvements throughout Ouachita Parish. Actions can include but are not limited to installing/upgrading culverts and headwalls as well as enlarging storm water ditches and canals. See Appendix C for specific locations and projects.   | HGMP, BRIC, FMA, Local | 12-48 Months | Ouachita Parish Police Jury/Ouachita Parish OHSEP | Flooding, Tropical Cyclones   | Deleted - Duplicate of O2 Action |
| O22: Generators and Back Up Power Systems for Critical Facilities | Provide generators/back-up power systems for critical facilities (including but not limited to lift stations, water plants, police, EMS, Fire and other first responder facilities) throughout the Ouachita Parish.  | HGMP, BRIC, Local      | 12-48 Months | Ouachita Parish Police Jury/Ouachita Parish OHSEP | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather                         | Deleted - Duplicate of O6 Action |
| O23: Improve Detention / Retention Ponds                          | Construct or improve existing detention/retention ponds where appropriate to collect storm water to reduce flooding.   | HGMP, BRIC, FMA, Local | 12-48 Months | Ouachita Parish Police Jury/Ouachita Parish OHSEP | Flooding, Tropical Cyclones   | Deleted - Duplicate of O2 Action |
| O24: Safe Rooms   | Retrofit existing structures or construct new structures to act as safe rooms during tornados or other severe weather events.  | HGMP, BRIC, Local      | 1-3 Years    | Ouachita Parish Police Jury/Ouachita Parish OHSEP | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather  | Deleted - Duplicate of O4 Action |
| O25: Educational Programs   | Provide educational programs and information to the public regarding the hazards identified in this 2011 Hazard Mitigation Plan update. Programs and informational items include presentations at community meetings and schools, pamphlets that are provided at public facilities and schools, and public service announcements and advertisements on local cable channels. | HGMP, BRIC, FMA, Local | 6-12 Months  | Ouachita Parish Police Jury/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfire, Winter Weather | Deleted - Duplicate of O5 Action |

|  |   |                        |             |  |   |   |
|--|---|------------------------|-------------|--|---|---|
| O26: Minimize Tree Damage                      | Minimize damage to structures and infrastructure from falling trees. Actions include but are not limited to the following: <ul style="list-style-type: none"> <li>• Pursue and coordinate a dangerous tree and limb removal program to protect infrastructure and critical facilities from damage. This includes working with private homeowners for voluntary removal of hazardous trees and limbs on private property.</li> <li>• Coordinate contracting to remove and/or trim trees that endanger structures, infrastructure, and vital roadways.</li> </ul> | HGMP, BRIC, Local      | 6-12 Months | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP | Thunderstorms, Tornadoes, Tropical Cyclones   | Not Started - Carried Over (See Ouachita Parish Mitigation Action 15) |
| O27: Community Education Program               | Develop a community education program for presentation to local schools and community groups. Establish a speaker's bureau to schedule and make presentations.  | HGMP, BRIC, FMA, Local | 6-12 Months | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfire, Winter Weather | Deleted - Duplicate of O5 Action                                      |
| O28: Funding for Project Implementation        | Pursue all possible funding opportunities for project implementation.   | HGMP, BRIC, FMA, Local | 6-12 Months | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfire, Winter Weather | Ongoing - Carried Over (See Ouachita Parish Mitigation Action 16)     |
| O29: PSAs                                      | Coordinate PSA's with local television and radio stations.  | HGMP, BRIC, FMA, Local | 6-12 Months | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather                         | Deleted - Duplicate of O8 Action                                      |
| O30: Advance Public Notice                     | Coordinate advance public notice by local television and radio stations.  | HGMP, BRIC, FMA, Local | 6-12 Months | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather                         | Deleted - Duplicate of O8 Action                                      |
| O31: Water Reduction and Conservation Programs | Establish and coordinate water reduction and water conservation programs with local water providers and utility companies. Prepare brochures to be mailed to water customers.   | HGMP, BRIC, Local      | 6-12 Months | Ouachita Parish Police<br>Jury/Ouachita Parish OHSEP | Drought   | Deleted - Duplicate of O13 Action                                     |

|  |   |                        |              |   |   |   |
|--|---|------------------------|--------------|---|---|---|
| O32: Wildfire Educational Campaigns      | Design and implement comprehensive educational campaign for wildfire.   | HGMP, BRIC, Local      | 6-12 Months  | Ouachita Parish Police Jury/Ouachita Parish OHSEP | Wildfires   | Deleted - Duplicate of O5 Action                                      |
| O33: Wildfire Building Standards         | Educate homeowners on mitigating damage due to wildfire by encouraging and implementing the use of building standards outlined in the national Fire Wise Program.   | HGMP, BRIC, FMA, Local | 12-48 Months | Ouachita Parish Police Jury/Ouachita Parish OHSEP | Wildfires   | Deleted - Duplicate of O14 Action                                     |
| O34: GIS Commission                      | Establish a parish wide G.I.S. commission, develop implementation structure and establish and adopt base maps.  | HGMP, BRIC, FMA, Local | 6-12 Months  | Ouachita Parish Police Jury/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms<br>Tornadoes, Tropical Cyclones, Wildfire, Winter Weather | Not Started - Carried Over (See Ouachita Parish Mitigation Action 17) |
| O35: Flood Property Mitigation Program   | Establish and implement a Flood Property Mitigation Program.  | HGMP, BRIC, FMA, Local | 6-12 Months  | Ouachita Parish Police Jury/Ouachita Parish OHSEP | Flooding, Tropical Cyclones   | Deleted - Duplicate of O3 Action                                      |
| O36: Update NFIP Repetitive Loss List    | Review the current FEMA NFIP Repetitive Loss List for Ouachita Parish to identify the correct, updated address and exact location of each individual structure. Many structures on the list are not mapped due to inaccurate or outdated addresses. Purge the list of any repetitive loss structure that is located within an incorporated area of the Parish, and, transfer responsibility for mitigation to the appropriate NFIP community. Submit any corrections to the State Floodplain Manager of Louisiana and FEMA Region VI. | HGMP, BRIC, FMA, Local | 6-12 Months  | Ouachita Parish Police Jury/Ouachita Parish OHSEP | Flood, Levee Failure, Tropical Cyclones, Thunderstorms  | Ongoing   |
| O37: Drive Development Away From Hazards | Continue to Update and enforce ordinances that drive development away from known hazard areas. This can include but is not limited to developing and/or updating floodplain ordinances that require new structures built in Special Flood Hazard Areas to have a minimum building elevation at least one foot above base flood elevation.   | HGMP, BRIC, FMA, Local | 12-48 Months | Ouachita Parish Police Jury/Ouachita Parish OHSEP | Flooding, Tropical Cyclones   | Deleted - Duplicate of O3 Action                                      |

|  |   |                        |              |   |  |  |
|--|---|------------------------|--------------|---|--|--|
| O38: DFIRMs                            | Upon completion of levee stability studies and pending any necessary modifications to the preliminary D-FIRMS (issued in 2009), adopt new DFIRMS once available from FEMA and approved by the Parish (incorporated and unincorporated areas). | HGMP, BRIC, FMA, Local | 12-48 Months | Ouachita Parish Police Jury/Ouachita Parish OHSEP | Flooding, Levee Failure, Tropical Cyclones | Deleted - Duplicate of O12 Action                  |
| O39: Relocate Flood Prone Properties   | Relocate flood prone properties throughout the Parish to locations out of the floodplain to prevent future flood losses.  | HGMP, BRIC, FMA, Local | 36 Months    | Ouachita Parish Police Jury/Ouachita Parish OHSEP | Flooding, Tropical Cyclones                | Deleted - Duplicate of O3 Action                   |
| O40: Dam Failure                       | Work with those individual dam owners to analyze the potential dam inundation zones and levels that could occur due to dam failure.   | HGMP, BRIC, Local      | 12-48 Months | Ouachita Parish Police Jury/Ouachita Parish OHSEP | Dam Failure, Flooding                      | Deleted – Action not applicable to Ouachita Parish |
| O41: Acquire Flood Prone Properties    | Acquire flood prone properties (including Repetitive Loss and Severe Repetitive Loss Properties).   | HGMP, BRIC, FMA, Local | 12-36 Months | Ouachita Parish Police Jury/Ouachita Parish OHSEP | Flooding, Tropical Cyclones                | Deleted - Duplicate of O3 Action                   |
| O42: Water Retention Ponds             | Construct water retention ponds to collect storm water run-off and use as an alternate water source throughout Ouachita Parish.   | HGMP, BRIC, Local      | 12-48 Months | Ouachita Parish Police Jury/Ouachita Parish OHSEP | Drought                                    | Deleted - Duplicate of O11                         |
| O43: Wildfire Defensible Space Program | Develop a defensible space program in order to reduce fuels surrounding homes in the urban-wildland interface.  | HGMP, BRIC, Local      | 12-48 Months | Ouachita Parish Police Jury/Ouachita Parish OHSEP | Wildfire                                   | Deleted - Duplicate of O14 Action                  |

*New Mitigation Actions*

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>OUACHITA PARISH |  |
|---|--|
|   | DESCRIPTION  |
| <b>OUACHITA PARISH MITIGATION ACTION 1</b>                                    | Building Retrofits   |
| <b>LEAD AGENCY</b>  | Ouachita Parish Police Jury  |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Retrofit public buildings exterior shell to maintain use during and after storm events   |
| <b>Type of Mitigation Action</b>  | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                  | Reduces damage from high wind related events, and helps assure that the public buildings can be used, occupied and operable during or after storms.  |
| <b>Current Status of Action</b>   | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>OUACHITA PARISH |  |
|---|--|
|   | DESCRIPTION  |
| <b>OUACHITA PARISH MITIGATION ACTION 2</b>                                    | Drainage Improvements  |
| <b>LEAD AGENCY</b>  | Ouachita Parish Police Jury  |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | High   |
| <b>Action Description</b>   | 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.   |
| <b>Type of Mitigation Action</b>  | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                  | 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. |
| <b>Current Status of Action</b>   | In Progress – Carried Over   |
| <b>Hazard Addressed</b>   | Flooding, Thunderstorms, Tropical Cyclones   |

**Supporting Information:** Since the previous plan update, Ouachita Parish has started multiple drainage projects throughout the parish. The Parish plans to start more drainage projects over the next five years and wants this action carried over.

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>OUACHITA PARISH |  |
|---|--|
|   | DESCRIPTION  |
| <b>OUACHITA PARISH MITIGATION ACTION 3</b>                                    | Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures  |
| <b>LEAD AGENCY</b>  | Ouachita Parish Police Jury  |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | High   |
| <b>Action Description</b>   | Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.  |
| <b>Type of Mitigation Action</b>  | Local Plans and Regulations, Structure and Infrastructure Projects, Natural System Protection  |
| <b>How Action Aligns with Risk Reduction</b>                                  | Eliminates flooding risk of repetitive and severe repetitive loss structures.  |
| <b>Current Status of Action</b>   | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Levee Failure, Tropical Cyclones   |

**Supporting Information:** Since the previous plan update, Ouachita Parish has formed a team to research RPL structures in the parish and engage in a possible buyout program. The Parish plans to continue their efforts over the next five years and wants this action carried over.

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>OUACHITA PARISH |  |
|---|--|
|   | DESCRIPTION  |
| <b>OUACHITA PARISH MITIGATION ACTION 4</b>                                    | Safe Room Projects   |
| <b>LEAD AGENCY</b>  | Ouachita Parish Police Jury  |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Construction of a safe room for first responders located in Ouachita Parish. Other locations will be identified based on funding availability.   |
| <b>Type of Mitigation Action</b>  | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                  | Allows for continued operations of essential personal to actively respond during a natural hazard event  |
| <b>Current Status of Action</b>   | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>OUACHITA PARISH |  |
|---|--|
|   | DESCRIPTION  |
| <b>OUACHITA PARISH MITIGATION ACTION 5</b>                                    | Education and Outreach   |
| <b>LEAD AGENCY</b>  | Ouachita Parish Police Jury  |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol>   |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for levee failure, drought, excessive heat, flooding, thunderstorms, tornadoes, tropical cyclones, wildfires, and winter weather hazards as well as providing information on high risk areas |
| <b>Type of Mitigation Action</b>  | Education and Awareness Programs   |
| <b>How Action Aligns with Risk Reduction</b>                                  | Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.   |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfire, Winter Weather  |

**Supporting Information:** Since the previous plan update, Ouachita Parish has engaged several outreach programs surrounding hazards and the dangers that come with it. The Parish plans to continue their efforts over the next five years and wants this action carried over.

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>OUACHITA PARISH |  |
|---|--|
|   | DESCRIPTION  |
| <b>OUACHITA PARISH MITIGATION ACTION 6</b>                                    | Generators for continuity of operations and government   |
| <b>LEAD AGENCY</b>  | Ouachita Parish Police Jury  |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Procurement and Installation of generators at public facilities to ensure continued operations during and after events.  |
| <b>Type of Mitigation Action</b>  | Local Plans and Regulations, Structure and Infrastructure Projects   |
| <b>How Action Aligns with Risk Reduction</b>                                  | Installation of generators will allow public facilities to run accordingly and aid with local relief efforts   |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>OUACHITA PARISH |  |
|---|--|
|   | DESCRIPTION  |
| <b>OUACHITA PARISH MITIGATION ACTION 7</b>                                    | Lightning Mitigation   |
| <b>LEAD AGENCY</b>  | Ouachita Parish Police Jury  |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property   |
| <b>Type of Mitigation Action</b>  | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                  | The installation of lightning rods and surge protectors in public buildings and critical infrastructure will reduce losses due to lightning strikes and surges in electricity.   |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Thunderstorms  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>OUACHITA PARISH |  |
|---|--|
|   | DESCRIPTION  |
| <b>OUACHITA PARISH MITIGATION ACTION 8</b>                                    | Warning Systems  |
| <b>LEAD AGENCY</b>  | Ouachita Parish Police Jury  |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Update/upgrade public warning system components throughout Ouachita Parish as necessary. Install audible and/or reverse 911 warning system(s).   |
| <b>Type of Mitigation Action</b>  | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                  | An upgraded public warning system will increase the likelihood of public notification immediately prior to an event  |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>OUACHITA PARISH |  |
|---|--|
|   | DESCRIPTION  |
| <b>OUACHITA PARISH MITIGATION ACTION 9</b>                                    | Potable Water  |
| <b>LEAD AGENCY</b>  | Ouachita Parish Police Jury  |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | 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.                       |
| <b>Type of Mitigation Action</b>  | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                  | Creating a redundancy of potable water for critical facilities will reduce downtime and allow for the continuity of essential operations during and after an event.  |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Drought, Flooding, Excessive Heat, Levee Failure, Thunderstorms, Tropical Cyclones, Tornadoes, Wildfires, Winter Weather   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>OUACHITA PARISH |  |
|---|--|
|   | DESCRIPTION  |
| <b>OUACHITA PARISH MITIGATION ACTION 10</b>                                   | Flood Control Measures   |
| <b>LEAD AGENCY</b>  | Ouachita Parish Police Jury  |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | High   |
| <b>Action Description</b>   | Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.   |
| <b>Type of Mitigation Action</b>  | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                  | Creation of flood control structures can prevent flood damage  |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Levee Failure, Tropical Cyclones   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>OUACHITA PARISH |  |
|---|--|
|   | DESCRIPTION  |
| <b>OUACHITA PARISH MITIGATION ACTION 11</b>                                   | Levee Failure Working Group  |
| <b>LEAD AGENCY</b>  | Ouachita Parish Police Jury  |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Create a working group in order to assess the extent and determine the possible impact of a levee failure.   |
| <b>Type of Mitigation Action</b>  | Natural System Protection  |
| <b>How Action Aligns with Risk Reduction</b>                                  | Create a working group in order to assess the extent and determine the specific areas of inundation related to levee failure in Ouachita Parish  |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Levee Failure  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>OUACHITA PARISH |  |
|---|--|
|   | DESCRIPTION  |
| <b>OUACHITA PARISH MITIGATION ACTION 12</b>                                   | Drought Ordinances   |
| <b>LEAD AGENCY</b>  | Ouachita Parish Police Jury  |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Adopt ordinances requiring water-saving measures in time of drought.   |
| <b>Type of Mitigation Action</b>  | Local Plans and Regulations, Natural System Protection   |
| <b>How Action Aligns with Risk Reduction</b>                                  | Adopting water saving ordinances will allow for water to be regulated and distributed throughout the community when drought related events are imminent  |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Drought  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>OUACHITA PARISH |  |
|---|--|
|   | DESCRIPTION  |
| <b>OUACHITA PARISH MITIGATION ACTION 13</b>                                   | Wildfire Ordinances  |
| <b>LEAD AGENCY</b>  | Ouachita Parish Police Jury  |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, Local  |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Strengthen penalties and improve enforcement capabilities of burn ban ordinances   |
| <b>Type of Mitigation Action</b>  | Local Plans and Regulations, Natural Systems Protection  |
| <b>How Action Aligns with Risk Reduction</b>                                  | Adopting wildfire ordinances will reduce the chances of wildfire taking place due to penalties and restrictions laid forth by the ordinance  |
| <b>Current Status of Action</b>   | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Wildfires  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>OUACHITA PARISH |  |
|---|--|
|   | DESCRIPTION  |
| <b>OUACHITA PARISH MITIGATION ACTION 14</b>                                   | Upgrade Bridges and Crossings  |
| <b>LEAD AGENCY</b>  | Ouachita Parish Police Jury  |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Replace and/or upgrade bridges and other crossings throughout Ouachita Parish.   |
| <b>Type of Mitigation Action</b>  | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                  | Upgrading bridges will prevent roadways from being susceptible to flooding   |
| <b>Current Status of Action</b>   | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Levee Failure, Thunderstorms, Tropical Cyclones  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>OUACHITA PARISH |  |
|---|--|
|   | DESCRIPTION  |
| <b>OUACHITA PARISH MITIGATION ACTION 15</b>                                   | Minimize Tree Damage   |
| <b>LEAD AGENCY</b>  | Ouachita Parish Police Jury  |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol>   |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | <p>Minimize damage to structures and infrastructure from falling trees. Actions include but are not limited to the following:</p> <ul style="list-style-type: none"> <li>• Pursue and coordinate a dangerous tree and limb removal program to protect infrastructure and critical facilities from damage. This includes working with private homeowners for voluntary removal of hazardous trees and limbs on private property.</li> <li>• Coordinate contracting to remove and/or trim trees that endanger structures, infrastructure, and vital roadways.</li> </ul> |
| <b>Type of Mitigation Action</b>  | Natural Systems Protection   |
| <b>How Action Aligns with Risk Reduction</b>                                  | Minimizing tree damage within the parish will allow certain areas to be less susceptible to damage when hazard events are prevalent  |
| <b>Current Status of Action</b>   | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Thunderstorms, Tornadoes, Tropical Cyclones  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>OUACHITA PARISH |  |
|---|--|
|   | DESCRIPTION  |
| <b>OUACHITA PARISH<br/>MITIGATION ACTION 16</b>                               | Funding for Project implementation   |
| <b>LEAD AGENCY</b>  | Ouachita Parish Police Jury  |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Pursue all possible funding opportunities for project implementation.  |
| <b>Type of Mitigation Action</b>  | Local plans and Regulations  |
| <b>How Action Aligns with Risk Reduction</b>                                  | Pursuing funding opportunities will allow the parish to coordinate with local and federal funding sources so that pertinent mitigation actions get completed   |
| <b>Current Status of Action</b>   | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms Tornadoes, Tropical Cyclones, Wildfire, Winter Weather   |

**Supporting Information:** Since the previous plan update, Ouachita Parish has pursued all funding possibilities for various projects throughout the parish. The Parish plans to continue their efforts over the next five years and wants this action carried over.

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>OUACHITA PARISH |  |
|---|--|
|   | DESCRIPTION  |
| <b>OUACHITA PARISH MITIGATION ACTION 17</b>                                   | GIS Commission   |
| <b>LEAD AGENCY</b>  | Ouachita Parish Police Jury  |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Establish a parish wide G.I.S. commission, develop implementation structure and establish and adopt base maps.   |
| <b>Type of Mitigation Action</b>  | Local Plans and Regulations  |
| <b>How Action Aligns with Risk Reduction</b>                                  | Obtaining GIS personnel for the parish will allow for data to be collected and administered in the event of a disaster   |
| <b>Current Status of Action</b>   | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms Tornadoes, Tropical Cyclones, Wildfire, Winter Weather   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>OUACHITA PRISH |  |
|--|--|
|  | DESCRIPTION  |
| <b>OUACHITA PARISH MITIGATION ACTION 18</b>                                  | Fans and Cooling Devices   |
| <b>LEAD AGENCY</b>   | Ouachita Parish Police Jury  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, Local  |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Provide fans and cooling devices for the public, especially at risk populations  |
| <b>Type of Mitigation Action</b>   | Structure and infrastructure Projects, Local Plans and Regulations   |
| <b>How Action Aligns with Risk Reduction</b>                                 | Cooling devices will serve as a backup in the event of a widespread power outage during excessive heat events  |
| <b>Current Status of Action</b>  | New  |
| <b>Hazard Addressed</b>  | Excessive Heat   |

## City of Monroe

## Previous Action Update

| City of Monroe  |  |                        |                        |   |  |   |
|---|--|------------------------|------------------------|---|--|---|
| 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.   | HGMP, BRIC, Local      | 1-5 years              | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | Not Started - Carried Over (See City of Monroe Mitigation Action 1) |
| M2: 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 problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods. | HGMP, BRIC, FMA, Local | 1-5 years              | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | Not Started - Carried Over (See City of Monroe Mitigation Action 2) |
| 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.  | HGMP, BRIC, FMA, Local | 1-5 years              | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | Not Started - Carried Over (See City of Monroe Mitigation Action 3) |
| M4: Safe Room Projects  | Construction of a safe room for first responders located in Monroe. Other locations will be identified based on funding availability.  | HGMP, BRIC, Local      | 1-5 years              | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | Not Started - Carried Over (See City of Monroe Mitigation Action 4) |

|  |   |                        |           |   |  |  |
|--|---|------------------------|-----------|---|--|--|
| 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, , Levee Failure, and Winter Storm 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. | HGMP, BRIC, FMA, Local | 1-5 years | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms Tornadoes, Tropical Cyclones, Wildfire, Winter Weather   | Not Started - Carried Over (See City of Monroe Mitigation Action 5)  |
| M6: Generators for Continuity of Operations and Government | Procurement and installation of generators at public facilities to ensure continued operations during and after events.   | HGMP, BRIC, Local      | 1-5 years | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather                          | Not Started - Carried Over (See City of Monroe Mitigation Action 6)  |
| M7: Lightning Mitigation                                   | Procurement and installation of lightning rods and surge protectors for public buildings to preserve life and property  | HGMP, BRIC, Local      | 1-5 years | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Thunderstorms  | Not Started - Carried Over (See City of Monroe Mitigation Action 7)  |
| M8: Warning Systems  | Update/upgrade public warning system components throughout Monroe as necessary. Install audible and/or reverse 911 warning system(s)  | HGMP, BRIC, Local      | 1-5 years | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather                          | Not Started - Carried Over (See City of Monroe Mitigation Action 8)  |
| M9: Potable Water  | Create redundancy of potable water supply to critical facilities, especially hospitals, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.  | HGMP, BRIC, Local      | 1-5 years | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms, Tropical Cyclones, Tornadoes, Wildfires, Winter Weather | Not Started - Carried Over (See City of Monroe Mitigation Action 9)  |
| 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).   | HGMP, BRIC, FMA, Local | 1-5 years | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | Not Started - Carried Over (See City of Monroe Mitigation Action 10) |

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| M11: Flood Control Measures   | Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.   | HGMP, BRIC, FMA, Local | 1-5 years   | City of Monroe Mayor's Office/Ouachita Parish OHSEP                          | Flooding, Levee Failure, Tropical Cyclones  | Not Started - Carried Over (See City of Monroe Mitigation Action 11) |
| M12: Levee Failure Working Group  | Create a working group in order to assess the extent and determine the possible effects of levee failure.  | HGMP, BRIC, FMA, Local | 1-5 years   | City of Monroe Mayor's Office/Ouachita Parish OHSEP, Army Corps of Engineers | Flooding, Levee Failure, Tropical Cyclones  | Not Started - Carried Over (See City of Monroe Mitigation Action 12) |
| M13: Drought Ordinances   | Adopt ordinances requiring water-saving measures in time of drought.   | HGMP, BRIC, Local      | 1-5 years   | City of Monroe Mayor's Office/Ouachita Parish OHSEP                          | Drought   | Not Started - Carried Over (See City of Monroe Mitigation Action 13) |
| M14: Wildfire Ordinances  | Strengthen penalties and improve enforcement capabilities of burn ban ordinances   | HGMP, BRIC, Local      | 1-5 years   | City of Monroe Mayor's Office/Ouachita Parish OHSEP                          | Wildfires   | Not Started - Carried Over (See City of Monroe Mitigation Action 14) |
| M15: Auxiliary Power Sources for New and Existing Critical Infrastructure | Provide portable generators and backup or redundancy in electric power to critical city services including primary power stations, primary emergency shelters, potable water, sewage systems(73 sewer lift stations), and emergency responder facilities.  | HGMP, BRIC, FMA, Local | 1-5 Years   | City of Monroe Mayor's Office/Ouachita Parish OHSEP                          | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | Deleted - Duplicate of M6 Action                                     |
| M16: Sewer System Rehabilitation  | Continue sewer line rehabilitation program.  | HGMP, BRIC, FMA, Local | 1-5 Years   | City of Monroe Mayor's Office/Ouachita Parish OHSEP                          | Flooding, Tropical Cyclones   | Deleted - Duplicate of M2 Action                                     |
| M17: New Chemical Storage Building  | Construct new chemical storage building that meets 100-mph wind load.  | HGMP, BRIC, Local      | 6-24 Months | City of Monroe Mayor's Office/Ouachita Parish OHSEP                          | Thunderstorms, Tornadoes, Tropical Cyclones, Winter Weather                                     | Not Started - Carried Over (See City of Monroe Mitigation Action 15) |
| M18: Storage Capacity Enhancement of Bayous and Drainage Canals           | Develop and implement a sustainable bayou and canal program that either enhances or restores the capacities of the bayous and drainage canals. Other than general revenue, another funding alternative could be for the city to establish special stormwater taxing districts for areas within the 100-year flood zones. | HGMP, BRIC, FMA, Local | 6-24 Months | City of Monroe Mayor's Office/Ouachita Parish OHSEP                          | Flooding, Tropical Cyclones   | Deleted - Duplicate of M2 Action                                     |

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| M19: Debris Reduction Public Outreach Program       | Develop a public outreach program focused on debris reduction in the City's drainage canals. Working through the Beautification Department, pattern a program following its annual fall volunteer cleanup along Bayou Desiard and the Ouachita River.  | HGMP, BRIC, FMA, Local | 6-24 Months | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding  | Deleted - Duplicate of M5 Action                                     |
| M20: School-based All-Hazard Education Program      | Incorporate an all-hazard education program into all City of Monroe school curriculums.  | HGMP, BRIC, FMA, Local | 6-24 Months | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms<br>Tornadoes, Tropical Cyclones, Wildfire, Winter Weather | Deleted - Duplicate of M5 Action                                     |
| M21: Recertification of Floodwall Levee             | The Monroe City Council will provide the TBLB with a formal letter strongly supporting the recertification of the floodwall along the Ouachita River.  | HGMP, BRIC, FMA, Local | 6-24 Months | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Tropical Cyclones  | Deleted - Duplicate of M12 Action                                    |
| M22: Commodity Flows Study                          | Conduct a transportation chemical commodity flows study.   | HGMP, BRIC, Local      | 6-24 Months | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Hazardous Materials   | Deleted - Not a profiable hazard                                     |
| M23: Community Rating System (CRS) Strategy         | Develop strategy that identifies actions the city can take to enhance its CRS rating.  | HGMP, BRIC, FMA, Local | 6-24 Months | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding  | Not Started - Carried Over (See City of Monroe Mitigation Action 16) |
| M24: Hazard Mitigation Plan for Historic Structures | Conduct a study that includes a highly detailed structural inventory of historic buildings within the City that are listed on the National Register of Historic Places, an analysis of the vulnerability of each structure to high winds and flood, and a recommended actions needed to be taken to create more resilient historic structures. | HGMP, BRIC, FMA, Local | 6-24 Months | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones   | Deleted - Duplicate of M3 Action                                     |

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|---|--|------------------------|-------------|---|--|--|
| M25: Transportation Evacuation Study                  | Working with the North Delta Regional Planning and Development District, identify those roadway links that frequently flood, impeding or jeopardizing evacuation during flood events. The City needs to coordinate this planning effort with Ouachita Parish Office of Homeland Security and Emergency Preparedness. The results of the study should be integrated into the North Delta Long-Range Transportation Plan and Transportation Improvement Program. | HGMP, BRIC, FMA, Local | 6-24 Months | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Tropical Cyclones   | Not Started - Carried Over (See City of Monroe Mitigation Action 17) |
| M26: Mitigation Planning Coordination                 | Attend all relevant disaster mitigation seminars and meetings with various regional, parish, or municipal organizations.   | HGMP, BRIC, FMA, Local | 6-24 Months | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms Tornadoes, Tropical Cyclones, Wildfire, Winter Weather | Deleted - Duplicate of M3 Action                                     |
| M27: Calypso Street Stormwater Station Reconstruction | Elevate floor of pump station, modify piping, and replace all three pumps and controls.  | HGMP, BRIC, FMA, Local | 6-24 Months | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | Deleted - Duplicate of M2 Action                                     |
| M28: Phillips Lake Drainage Project                   | Modify existing Marquette Street pump station, build small pump station in lake, install suction line, and put in various piping changes.  | HGMP, BRIC, FMA, Local | 6-24 Months | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | Deleted - Duplicate of M2 Action                                     |
| M29: Storm Drainage Pump Stations Upgrades            | Modify and upgrade nine pump stations; purchase portable diesel generators.  | HGMP, BRIC, FMA, Local | 6-24 Months | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | Deleted - Duplicate of M2 Action                                     |
| M30: Structural Assessment of Fire Stations           | Conduct fire station structural assessment study.  | HGMP, BRIC, FMA, Local | 6-24 Months | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather                                       | Deleted - Duplicate of M1 Action                                     |
| M31: Citywide Drainage Study                          | Conduct a citywide drainage study.   | HGMP, BRIC, FMA, Local | 1-5 Years   | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | Deleted - Duplicate of M2 Action                                     |
| M33: Storm Drainage Cleanup Program                   | Create a storm drain cleanup program.  | HGMP, BRIC, FMA, Local | 6-24 Months | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | Deleted - Duplicate of M2 Action                                     |

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| M34: Weatherization Assistance Program   | Weatherize homes of low-income households to sustain winter storms.   | HGMP, BRIC, Local      | 1-5 Years   | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather                                       | Deleted - Duplicate of M1 Action                                     |
| M35: Weatherization/Hazardous Materials Education Program  | Develop a weatherization education program.   | HGMP, BRIC, Local      | 1-5 Years   | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms Tornadoes, Tropical Cyclones, Wildfire, Winter Weather | Deleted - Duplicate of M5 Action                                     |
| M36: Airport Canal Erosion Project   | Construct a Gunite drainage membrane in the Airport Canal from White Street to Owl Street.  | HGMP, BRIC, FMA, Local | 6-24 Months | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | Deleted - Duplicate of M2 Action                                     |
| M37: Long-Term Post-Disaster Redevelopment Plan  | Prepare a long-term post disaster redevelopment plan  | HGMP, BRIC, FMA, Local | 1-5 Years   | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms Tornadoes, Tropical Cyclones, Wildfire, Winter Weather | Not Started - Carried Over (See City of Monroe Mitigation Action 18) |
| M38: Require all utilities for new construction projects to be installed underground               | Constructing utilities underground where available will during the City's vulnerable to utility damage and power outages from wind events and winter storms.  | HGMP, BRIC, Local      | 1-5 Years   | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Thunderstorms, Tornadoes, Tropical Cyclones, Winter Weather  | Not Started - Carried Over (See City of Monroe Mitigation Action 19) |
| M39: Elevation/acquisition/flood proofing projects for new and existing repetitive loss structures | Elevate, acquire, or flood proof new and existing repetitive loss structures throughout the City.   | HGMP, BRIC, FMA, Local | 1-5 Years   | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | Deleted - Duplicate of M3 Action                                     |
| M40: Structurally harden all existing and future critical facilities to withstand strong winds     | The hardening of critical facilities will mitigate potential damages associated with high wind events, including thunderstorms, tornadoes, and hurricanes/tropical storms. Hardening can include, but is not limited to, shatter-proof windows, reinforced walls, and reinforced foundations. | HGMP, BRIC, Local      | 1-5 Years   | City of Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather                                       | Deleted - Duplicate of M1 Action                                     |

*New Mitigation Actions*

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
|--|--|
|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 1</b>                                    | Building Retrofits   |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor's Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Retrofit public buildings exterior shell to maintain use during and after storm events   |
| <b>Type of Mitigation Action</b>   | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                 | Reduces damage from high wind related events, and helps assure that the public buildings can be used, occupied and operable during or after storms.  |
| <b>Current Status of Action</b>  | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
|--|--|
|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 2</b>                                    | Drainage Improvements  |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | High   |
| <b>Action Description</b>  | 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.   |
| <b>Type of Mitigation Action</b>   | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                 | 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. |
| <b>Current Status of Action</b>  | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Thunderstorms, Tropical Cyclones   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
|--|--|
|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 3</b>                                    | Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures  |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | High   |
| <b>Action Description</b>  | Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.  |
| <b>Type of Mitigation Action</b>   | Local Plans and Regulations, Structure and Infrastructure Projects, Natural System Protection  |
| <b>How Action Aligns with Risk Reduction</b>                                 | Eliminates flooding risk of repetitive and severe repetitive loss structures.  |
| <b>Current Status of Action</b>  | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Levee Failure, Tropical Cyclones   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
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|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 4</b>                                    | Safe Room Projects   |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Construction of a safe room for first responders located in Monroe. Other locations will be identified based on funding availability.  |
| <b>Type of Mitigation Action</b>   | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                 | Allows for continued operations of essential personal to actively respond during a natural hazard event  |
| <b>Current Status of Action</b>  | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
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|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 5</b>                                    | Education and Outreach   |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol>                                     |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for levee failure, drought, flooding, thunderstorms, tornadoes, tropical cyclones, wildfires, and winter weather hazards as well as providing information on high risk areas |
| <b>Type of Mitigation Action</b>   | Education and Awareness Programs   |
| <b>How Action Aligns with Risk Reduction</b>                                 | Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.   |
| <b>Current Status of Action</b>  | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms Tornadoes, Tropical Cyclones, Wildfire, Winter Weather   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
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|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 6</b>                                    | Generators for continuity of operations and government   |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Procurement and Installation of generators at public facilities to ensure continued operations during and after events.  |
| <b>Type of Mitigation Action</b>   | Local Plans and Regulations, Structure and Infrastructure Projects   |
| <b>How Action Aligns with Risk Reduction</b>                                 | Installation of generators will allow public facilities to run accordingly and aid with local relief efforts   |
| <b>Current Status of Action</b>  | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
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|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 7</b>                                    | Lightning Mitigation   |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property   |
| <b>Type of Mitigation Action</b>   | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                 | The installation of lightning rods and surge protectors in public buildings and critical infrastructure will reduce losses due to lightning strikes and surges in electricity.   |
| <b>Current Status of Action</b>  | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Thunderstorms  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
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|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 8</b>                                    | Warning Systems  |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Update/upgrade public warning system components throughout Monroe as necessary. Install audible and/or reverse 911 warning system(s).  |
| <b>Type of Mitigation Action</b>   | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                 | An upgraded public warning system will increase the likelihood of public notification immediately prior to an event  |
| <b>Current Status of Action</b>  | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
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|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 9</b>                                    | Potable Water  |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | 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.                       |
| <b>Type of Mitigation Action</b>   | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                 | Creating a redundancy of potable water for critical facilities will reduce downtime and allow for the continuity of essential operations during and after an event.  |
| <b>Current Status of Action</b>  | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Drought, Flooding, Excessive Heat, Levee Failure, Thunderstorms, Tropical Cyclones, Tornadoes, Wildfires, Winter Weather   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
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|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 10</b>                                   | Promote Flood Insurance  |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | High   |
| <b>Action Description</b>  | Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).  |
| <b>Type of Mitigation Action</b>   | Education and Awareness Programs   |
| <b>How Action Aligns with Risk Reduction</b>                                 | Educating the public on flood insurance will allow public to obtain insurance at a cost that’s affordable to them and will help gain relief to their home and personal items during post-flood events  |
| <b>Current Status of Action</b>  | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Levee Failure, Tropical Cyclones   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
|--|--|
|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 11</b>                                   | Flood Control Measures   |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | High   |
| <b>Action Description</b>  | Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.   |
| <b>Type of Mitigation Action</b>   | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                 | Creation of flood control structures can prevent flood damage  |
| <b>Current Status of Action</b>  | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Levee Failure, Tropical Cyclones   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
|--|--|
|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 12</b>                                   | Levee Failure Working Group  |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Create a working group in order to assess the extent and determine the possible impact of a levee failure.   |
| <b>Type of Mitigation Action</b>   | Natural System Protection  |
| <b>How Action Aligns with Risk Reduction</b>                                 | Create a working group in order to assess the extent and determine the specific areas of inundation related to levee failure in Monroe   |
| <b>Current Status of Action</b>  | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Levee Failure  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
|--|--|
|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 13</b>                                   | Drought Ordinances   |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Adopt ordinances requiring water-saving measures in time of drought.   |
| <b>Type of Mitigation Action</b>   | Local Plans and Regulations, Natural System Protection   |
| <b>How Action Aligns with Risk Reduction</b>                                 | Adopting water saving ordinances will allow for water to be regulated and distributed throughout the community when drought related events are imminent  |
| <b>Current Status of Action</b>  | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Drought  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
|--|--|
|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 14</b>                                   | Wildfire Ordinances  |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, Local  |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Strengthen penalties and improve enforcement capabilities of burn ban ordinances   |
| <b>Type of Mitigation Action</b>   | Local Plans and Regulations, Natural Systems Protection  |
| <b>How Action Aligns with Risk Reduction</b>                                 | Adopting wildfire ordinances will reduce the chances of wildfire taking place due to penalties and restrictions laid forth by the ordinance  |
| <b>Current Status of Action</b>  | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Wildfires  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
|--|--|
|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 15</b>                                   | New Chemical Storage Building  |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, Local  |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Construct new chemical storage building that meets 100-mph wind load.  |
| <b>Type of Mitigation Action</b>   | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                 | Constructing a chemical storage building able to withstand high winds will reduce the chance of chemical materials spilling during high wind events  |
| <b>Current Status of Action</b>  | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Thunderstorms, Tornadoes, Tropical Cyclones, Winter Weather  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
|--|--|
|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 16</b>                                   | Community Rating System (CRS) Strategy   |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Develop strategy that identifies actions the city can take to enhance its CRS rating.  |
| <b>Type of Mitigation Action</b>   | Local Plans and Regulations  |
| <b>How Action Aligns with Risk Reduction</b>                                 | Increasing the CRS rating for the community will allow those who participate to receive greater discounts on insurance premiums  |
| <b>Current Status of Action</b>  | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
|--|--|
|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 17</b>                                   | Transportation Evacuation Study  |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol>   |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Working with the North Delta Regional Planning and Development District, identify those roadway links that frequently flood, impeding or jeopardizing evacuation during flood events. The city needs to coordinate this planning effort with Ouachita Parish Office of Homeland Security and Emergency Preparedness. The results of the study should be integrated into the North Delta Long-Range Transportation Plan and Transportation Improvement Program. |
| <b>Type of Mitigation Action</b>   | Local Plans and Regulations  |
| <b>How Action Aligns with Risk Reduction</b>                                 | Developing a transportation evacuation plan will help determine which routes will be best for evacuation as well as highlight certain areas with high poverty that may not have reliable access to public transportation during hazard eminent events  |
| <b>Current Status of Action</b>  | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Levee Failure, Tropical Cyclones   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
|--|--|
|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 18</b>                                   | Long-Term Post-Disaster Redevelopment Plan   |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Prepare a long-term post disaster redevelopment plan   |
| <b>Type of Mitigation Action</b>   | Local Plans and Regulations  |
| <b>How Action Aligns with Risk Reduction</b>                                 | Redevelopment plans will allow for a cohesive effort of prioritization when dealing with relief efforts after natural disasters have taken place   |
| <b>Current Status of Action</b>  | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfire, Winter Weather  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
|--|--|
|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 19</b>                                   | Require all utilities for new construction projects to be installed underground  |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, Local  |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Constructing utilities underground where available will during the City’s vulnerable to utility damage and power outages from wind events and winter storms.   |
| <b>Type of Mitigation Action</b>   | Structure and infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                 | Constructing utilities underground will reduce the risk of power outages and allow essential personnel to function properly during hazard events   |
| <b>Current Status of Action</b>  | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Thunderstorms, Tornadoes, Tropical Cyclones, Winter Weather  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF MONROE |  |
|--|--|
|  | DESCRIPTION  |
| <b>CITY OF MONROE MITIGATION ACTION 20</b>                                   | Fans and Cooling Devices   |
| <b>LEAD AGENCY</b>   | City of Monroe Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, Local  |
| <b>ASSOCIATED GOALS</b>  | 1. Protect health and safety<br>3. Improve the quality of life in Ouachita Parish<br>4. Ensure that public funds are used in the most efficient manner |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Provide fans and cooling devices for the public, especially at risk populations  |
| <b>Type of Mitigation Action</b>   | Structure and infrastructure Projects, Local Plans and Regulations   |
| <b>How Action Aligns with Risk Reduction</b>                                 | Cooling devices will serve as a backup in the event of a widespread power outage during excessive heat events  |
| <b>Current Status of Action</b>  | New  |
| <b>Hazard Addressed</b>  | Excessive Heat   |

## Town of Richwood

## Previous Action Update

| Town of Richwood  |  |                        |                        |   |  |   |
|---|--|------------------------|------------------------|---|--|---|
| 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.  | HGMP, BRIC, Local      | 1-5 years              | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | Not Started - Carried Over (See Town of Richwood Mitigation Action 1) |
| R2: 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 problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods. | HGMP, BRIC, FMA, Local | 1-5 years              | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | Not Started - Carried Over (See Town of Richwood Mitigation Action 2) |
| 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.  | HGMP, BRIC, FMA, Local | 1-5 years              | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | Not Started - Carried Over (See Town of Richwood Mitigation Action 3) |
| R4: Safe Room Projects  | Construction of a safe room for first responders located in Richwood. Other locations will be identified based on funding availability.  | HGMP, BRIC, Local      | 1-5 years              | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | Not Started - Carried Over (See Town of Richwood Mitigation Action 4) |

|  |   |                        |           |   |  |  |
|--|---|------------------------|-----------|---|--|--|
| 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, Levee Failure, and Winter Storm 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. | HGMP, BRIC, FMA, Local | 1-5 years | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms Tornadoes, Tropical Cyclones, Wildfire, Winter Weather   | Not Started - Carried Over (See Town of Richwood Mitigation Action 5)  |
| R6: Generators for Continuity of Operations and Government | Procurement and installation of generators at public facilities to ensure continued operations during and after events.   | HGMP, BRIC, Local      | 1-5 years | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather                          | Not Started - Carried Over (See Town of Richwood Mitigation Action 6)  |
| R7: Lightning Mitigation                                   | Procurement and installation of lightning rods and surge protectors for public buildings to preserve life and property  | HGMP, BRIC, Local      | 1-5 years | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Thunderstorms  | Not Started - Carried Over (See Town of Richwood Mitigation Action 7)  |
| R8: Warning Systems  | Update/upgrade public warning system components throughout Richwood as necessary. Install audible and/or reverse 911 warning system(s)  | HGMP, BRIC, Local      | 1-5 years | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather                          | Not Started - Carried Over (See Town of Richwood Mitigation Action 8)  |
| 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.  | HGMP, BRIC, Local      | 1-5 years | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms, Tropical Cyclones, Tornadoes, Wildfires, Winter Weather | Not Started - Carried Over (See Town of Richwood Mitigation Action 9)  |
| 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).   | HGMP, BRIC, FMA, Local | 1-5 years | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | Not Started - Carried Over (See Town of Richwood Mitigation Action 10) |

|                                     |   |                        |              |   |   |  |
|-------------------------------------|---|------------------------|--------------|---|---|--|
| R11: Flood Control Measures         | Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.  | HGMP, BRIC, FMA, Local | 1-5 years    | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Tropical Cyclones                | Not Started - Carried Over (See Town of Richwood Mitigation Action 11) |
| R12: Levee Failure Working Group    | Create a working group in order to assess the extent and determine the possible effects of a levee failure.   | HGMP, BRIC, FMA, Local | 1-5 years    | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Tropical Cyclones                | Not Started - Carried Over (See Town of Richwood Mitigation Action 12) |
| R13: Drought Ordinances             | Adopt ordinances requiring water-saving measures in time of drought.  | HGMP, BRIC, Local      | 1-5 years    | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Drought   | Not Started - Carried Over (See Town of Richwood Mitigation Action 13) |
| R14: Wildfire Ordinances            | Strengthen penalties and improve enforcement capabilities of burn ban ordinances  | HGMP, BRIC, Local      | 1-5 years    | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Wildfires   | Not Started - Carried Over (See Town of Richwood Mitigation Action 14) |
| R15: New Shelters for Hurricanes    | Continually inventory and Retrofit/upgrade existing structures and/or construct new structures to act as shelters during and after Hurricanes/Tropical Storms and other severe weather events.        | HGMP, BRIC, Local      | 12-48 Months | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Tropical Storms   | Deleted - Duplicate of R4 Action                                       |
| R16: Elevate Flood Prone Structures | Elevate new and existing flood prone structures and infrastructure and key electrical equipment throughout Town of Richwood.  | HGMP, BRIC, FMA, Local | 36 Months    | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Thunderstorms, Tropical Cyclones | Deleted - Duplicate of R3 Action                                       |
| R17: Upgrade Bridges and Crossings  | Replace and/or upgrade bridges and other crossings throughout Town of Richwood.   | HGMP, BRIC, FMA, Local | 1-5 Years    | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Thunderstorms, Tropical Cyclones | Not Started - Carried Over (See Town of Richwood Mitigation Action 15) |
| R18: Drainage Improvements          | Pursue drainage improvements throughout Town of Richwood. Actions can include but are not limited to installing/upgrading culverts and headwalls as well as enlarging storm water ditches and canals. | HGMP, BRIC, FMA, Local | 12-48 Months | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones                               | Deleted - Duplicate of R2 Action                                       |

|   |  |                        |              |   |  |  |
|---|--|------------------------|--------------|---|--|--|
| R19: Generators and Back Up Power for Critical Facilities | Provide generators/back-up power systems for critical facilities throughout the Town of Richwood.  | HGMP, BRIC, Local      | 12-48 Months | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather                        | Deleted - Duplicate of R6 Action                                       |
| R20: New Shelters for Tornadoes                           | Retrofit existing structures or construct new structures to act as safe rooms during tornados or other severe weather events.  | HGMP, BRIC, Local      | 1-3 Years    | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Tornadoes  | Deleted - Duplicate of R4 Action                                       |
| R821: Educational Programs                                | Provide educational programs and information to the public regarding the hazards identified in this 2011 Hazard Mitigation Plan update. Programs and informational items include presentations at community meetings and schools, pamphlets that are provided at public facilities and schools, and public service announcements and advertisements on local cable channels. | HGMP, BRIC, FMA, Local | 6-12 Months  | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms Tornadoes, Tropical Cyclones, Wildfire, Winter Weather | Deleted - Duplicate of R5 Action                                       |
| R22: Funding for Project Implementation                   | Pursue all possible funding opportunities for project implementation.  | HGMP, BRIC, FMA, Local | 6-12 Months  | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms Tornadoes, Tropical Cyclones, Wildfire, Winter Weather | Not Started - Carried Over (See Town of Richwood Mitigation Action 16) |
| R23: Water Conservation Programs                          | Establish a water conservation programs with local water providers and utility companies. Prepare brochures to be mailed to water customers.   | HGMP, BRIC, Local      | 6-12 Months  | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Drought  | Deleted - Duplicate of R13 Action                                      |

|                                       |  |                        |              |   |  |  |
|---------------------------------------|--|------------------------|--------------|---|--|--|
| R24: Update NFIP Repetitive Loss List | Review the current FEMA NFIP Repetitive Loss List for Town of Richwood to identify the correct, updated address and exact location of each individual structure. Many structures on the list are not mapped due to inaccurate or outdated addresses. Purge the list of any repetitive loss structure that is located within an incorporated area of the Parish, and, transfer responsibility for mitigation to the appropriate NFIP community. Submit any corrections to the State Floodplain Manager of Louisiana and FEMA Region VI. | HGMP, BRIC, FMA, Local | 6-12 Months  | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Flood, Levee Failure, Tropical Cyclones, Thunderstorms | Not Started - Carried Over (See Town of Richwood Mitigation Action 17) |
| R25: DFIRMS                           | Adopt new DFIRMS once available from FEMA and approved by the town (incorporated and unincorporated areas).  | HGMP, BRIC, FMA, Local | 12-48 Months | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Tropical Cyclones             | Deleted - Duplicate of R12 Action                                      |
| R26: Acquire Flood Prone Properties   | Acquire flood prone properties (including Repetitive Loss and Severe Repetitive Loss Properties).  | HGMP, BRIC, FMA, Local | 12-36 Months | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones                            | Deleted - Duplicate of R3 Action                                       |
| R27: Defensible Space Program         | Develop a defensible space program in order to reduce fuels surrounding homes in the urban-wildland interface.   | HGMP, BRIC, Local      | 12-48 Months | Town of Richwood Mayor's Office/Ouachita Parish OHSEP | Wildfire   | Deleted - Duplicate of R14 Action                                      |

*New Mitigation Actions*

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF RICHWOOD |  |
|--|--|
|  | DESCRIPTION  |
| <b>TOWN OF RICHWOOD MITIGATION ACTION 1</b>                                    | Building Retrofits   |
| <b>LEAD AGENCY</b>   | Town of Richwood Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Retrofit public buildings exterior shell to maintain use during and after storm events   |
| <b>Type of Mitigation Action</b>   | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                   | Reduces damage from high wind related events, and helps assure that the public buildings can be used, occupied and operable during or after storms.  |
| <b>Current Status of Action</b>  | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF RICHWOOD |  |
|--|--|
|  | DESCRIPTION  |
| <b>TOWN OF RICHWOOD MITIGATION ACTION 2</b>                                    | Drainage Improvements  |
| <b>LEAD AGENCY</b>   | Town of Richwood Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | High   |
| <b>Action Description</b>  | 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.   |
| <b>Type of Mitigation Action</b>   | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                   | 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. |
| <b>Current Status of Action</b>  | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Thunderstorms, Tropical Cyclones   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF RICHWOOD |  |
|--|--|
|  | DESCRIPTION  |
| <b>TOWN OF RICHWOOD MITIGATION ACTION 3</b>                                    | Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures  |
| <b>LEAD AGENCY</b>   | Town of Richwood Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | High   |
| <b>Action Description</b>  | Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.  |
| <b>Type of Mitigation Action</b>   | Local Plans and Regulations, Structure and Infrastructure Projects, Natural System Protection  |
| <b>How Action Aligns with Risk Reduction</b>                                   | Eliminates flooding risk of repetitive and severe repetitive loss structures.  |
| <b>Current Status of Action</b>  | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Levee Failure, Tropical Cyclones   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF RICHWOOD |  |
|--|--|
|  | DESCRIPTION  |
| <b>TOWN OF RICHWOOD MITIGATION ACTION 4</b>                                    | Safe Room Projects   |
| <b>LEAD AGENCY</b>   | Town of Richwood Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Construction of a safe room for first responders located in Richwood. Other locations will be identified based on funding availability.  |
| <b>Type of Mitigation Action</b>   | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                   | Allows for continued operations of essential personal to actively respond during a natural hazard event  |
| <b>Current Status of Action</b>  | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF RICHWOOD |  |
|--|--|
|  | DESCRIPTION  |
| <b>TOWN OF RICHWOOD MITIGATION ACTION 5</b>                                    | Education and Outreach   |
| <b>LEAD AGENCY</b>   | Town of Richwood Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol>                                     |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for levee failure, drought, flooding, thunderstorms, tornadoes, tropical cyclones, wildfires, and winter weather hazards as well as providing information on high risk areas |
| <b>Type of Mitigation Action</b>   | Education and Awareness Programs   |
| <b>How Action Aligns with Risk Reduction</b>                                   | Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.   |
| <b>Current Status of Action</b>  | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms Tornadoes, Tropical Cyclones, Wildfire, Winter Weather   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF RICHWOOD |  |
|--|--|
|  | DESCRIPTION  |
| <b>TOWN OF RICHWOOD MITIGATION ACTION 6</b>                                    | Generators for continuity of operations and government   |
| <b>LEAD AGENCY</b>   | Town of Richwood Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Procurement and Installation of generators at public facilities to ensure continued operations during and after events.  |
| <b>Type of Mitigation Action</b>   | Local Plans and Regulations, Structure and Infrastructure Projects   |
| <b>How Action Aligns with Risk Reduction</b>                                   | Installation of generators will allow public facilities to run accordingly and aid with local relief efforts   |
| <b>Current Status of Action</b>  | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF RICHWOOD |  |
|--|--|
|  | DESCRIPTION  |
| <b>TOWN OF RICHWOOD MITIGATION ACTION 7</b>                                    | Lightning Mitigation   |
| <b>LEAD AGENCY</b>   | Town of Richwood Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property   |
| <b>Type of Mitigation Action</b>   | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                   | The installation of lightning rods and surge protectors in public buildings and critical infrastructure will reduce losses due to lightning strikes and surges in electricity.   |
| <b>Current Status of Action</b>  | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Thunderstorms  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF RICHWOOD |  |
|--|--|
|  | DESCRIPTION  |
| <b>TOWN OF RICHWOOD MITIGATION ACTION 8</b>                                    | Warning Systems  |
| <b>LEAD AGENCY</b>   | Town of Richwood Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Update/upgrade public warning system components throughout Richwood as necessary. Install audible and/or reverse 911 warning system(s).  |
| <b>Type of Mitigation Action</b>   | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                   | An upgraded public warning system will increase the likelihood of public notification immediately prior to an event  |
| <b>Current Status of Action</b>  | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF RICHWOOD |  |
|--|--|
|  | DESCRIPTION  |
| <b>TOWN OF RICHWOOD MITIGATION ACTION 9</b>                                    | Potable Water  |
| <b>LEAD AGENCY</b>   | Town of Richwood Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | 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.                       |
| <b>Type of Mitigation Action</b>   | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                   | Creating a redundancy of potable water for critical facilities will reduce downtime and allow for the continuity of essential operations during and after an event.  |
| <b>Current Status of Action</b>  | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Drought, Flooding, Excessive Heat, Levee Failure, Thunderstorms, Tropical Cyclones, Tornadoes, Wildfires, Winter Weather   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF RICHWOOD |  |
|--|--|
|  | DESCRIPTION  |
| <b>TOWN OF RICHWOOD MITIGATION ACTION 10</b>                                   | Promote Flood Insurance  |
| <b>LEAD AGENCY</b>   | Town of Richwood Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | High   |
| <b>Action Description</b>  | Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).  |
| <b>Type of Mitigation Action</b>   | Education and Awareness Programs   |
| <b>How Action Aligns with Risk Reduction</b>                                   | Educating the public on flood insurance will allow public to obtain insurance at a cost that’s affordable to them and will help gain relief to their home and personal items during post-flood events  |
| <b>Current Status of Action</b>  | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Levee Failure, Tropical Cyclones   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF RICHWOOD |  |
|--|--|
|  | DESCRIPTION  |
| <b>TOWN OF RICHWOOD MITIGATION ACTION 11</b>                                   | Flood Control Measures   |
| <b>LEAD AGENCY</b>   | Town of Richwood Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | High   |
| <b>Action Description</b>  | Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.   |
| <b>Type of Mitigation Action</b>   | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                   | Creation of flood control structures can prevent flood damage  |
| <b>Current Status of Action</b>  | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Levee Failure, Tropical Cyclones   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF RICHWOOD |  |
|--|--|
|  | DESCRIPTION  |
| <b>TOWN OF RICHWOOD MITIGATION ACTION 12</b>                                   | Levee Failure Working Group  |
| <b>LEAD AGENCY</b>   | Town of Richwood Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Create a working group in order to assess the extent and determine the possible impact of a levee failure.   |
| <b>Type of Mitigation Action</b>   | Natural System Protection  |
| <b>How Action Aligns with Risk Reduction</b>                                   | Create a working group in order to assess the extent and determine the specific areas of inundation related to levee failure in Richwood   |
| <b>Current Status of Action</b>  | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Levee Failure  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF RICHWOOD |  |
|--|--|
|  | DESCRIPTION  |
| <b>TOWN OF RICHWOOD MITIGATION ACTION 13</b>                                   | Drought Ordinances   |
| <b>LEAD AGENCY</b>   | Town of Richwood Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, Local  |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Adopt ordinances requiring water-saving measures in time of drought.   |
| <b>Type of Mitigation Action</b>   | Local Plans and Regulations, Natural System Protection   |
| <b>How Action Aligns with Risk Reduction</b>                                   | Adopting water saving ordinances will allow for water to be regulated and distributed throughout the community when drought related events are imminent  |
| <b>Current Status of Action</b>  | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Drought  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF RICHWOOD |  |
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|  | DESCRIPTION  |
| <b>TOWN OF RICHWOOD MITIGATION ACTION 14</b>                                   | Wildfire Ordinances  |
| <b>LEAD AGENCY</b>   | Town of Richwood Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, Local  |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Strengthen penalties and improve enforcement capabilities of burn ban ordinances   |
| <b>Type of Mitigation Action</b>   | Local Plans and Regulations, Natural Systems Protection  |
| <b>How Action Aligns with Risk Reduction</b>                                   | Adopting wildfire ordinances will reduce the chances of wildfire taking place due to penalties and restrictions laid forth by the ordinance  |
| <b>Current Status of Action</b>  | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Wildfires  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF RICHWOOD |  |
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|  | DESCRIPTION  |
| <b>TOWN OF RICHWOOD MITIGATION ACTION 15</b>                                   | Upgrade Bridges and Crossings  |
| <b>LEAD AGENCY</b>   | Town of Richwood Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Replace and/or upgrade bridges and other crossings throughout Ouachita Parish.   |
| <b>Type of Mitigation Action</b>   | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                   | Upgrading bridges will prevent roadways from being susceptible to flooding   |
| <b>Current Status of Action</b>  | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Levee Failure, Thunderstorms, Tropical Cyclones  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF RICHWOOD |  |
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|  | DESCRIPTION  |
| <b>TOWN OF RICHWOOD MITIGATION ACTION 16</b>                                   | Funding for Project implementation   |
| <b>LEAD AGENCY</b>   | Town of Richwood Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Pursue all possible funding opportunities for project implementation.  |
| <b>Type of Mitigation Action</b>   | Local plans and Regulations  |
| <b>How Action Aligns with Risk Reduction</b>                                   | Pursuing funding opportunities will allow the parish to coordinate with local and federal funding sources so that pertinent mitigation actions get completed   |
| <b>Current Status of Action</b>  | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms Tornadoes, Tropical Cyclones, Wildfire, Winter Weather   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF RICHWOOD |  |
|--|--|
|  | DESCRIPTION  |
| <b>TOWN OF RICHWOOD MITIGATION ACTION 17</b>                                   | Update NFIP RPL  |
| <b>LEAD AGENCY</b>   | Town of Richwood Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>  | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol>   |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Review the current FEMA NFIP Repetitive Loss List for Richwood to identify the correct, updated address and exact location of each individual structure. Many structures on the list are not mapped due to inaccurate or outdated addresses. Purge the list of any repetitive loss structure that is located within an incorporated area of the Parish, and, transfer responsibility for mitigation to the appropriate NFIP community. Submit any corrections to the State Floodplain Manager of Louisiana and FEMA Region VI. |
| <b>Type of Mitigation Action</b>   | Local Plans and Regulations, Natural Systems Protection  |
| <b>How Action Aligns with Risk Reduction</b>                                   | Constantly updating NFIP data when concerning RPL will allow the parish to administer services to area that are most vulnerable  |
| <b>Current Status of Action</b>  | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>  | Flooding, Levee Failure, Tropical Cyclones, Thunderstorms  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF RICHWOOD |  |
|--|--|
|  | DESCRIPTION  |
| <b>TOWN OF RICHWOOD MITIGATION ACTION 18</b>                                   | Fans and Cooling Devices   |
| <b>LEAD AGENCY</b>   | Town of Richwood Mayor’s Office  |
| <b>SUPPORTING AGENCIES</b>   | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>  | 1-5 years  |
| <b>COST ESTIMATE</b>   | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>  | HGMP, BRIC, Local  |
| <b>ASSOCIATED GOALS</b>  | 1. Protect health and safety<br>3. Improve the quality of life in Ouachita Parish<br>4. Ensure that public funds are used in the most efficient manner |
| <b>PRIORITY</b>  | Medium   |
| <b>Action Description</b>  | Provide fans and cooling devices for the public, especially at risk populations  |
| <b>Type of Mitigation Action</b>   | Structure and infrastructure Projects, Local Plans and Regulations   |
| <b>How Action Aligns with Risk Reduction</b>                                   | Cooling devices will serve as a backup in the event of a widespread power outage during excessive heat events  |
| <b>Current Status of Action</b>  | New  |
| <b>Hazard Addressed</b>  | Excessive Heat   |

## Town of Sterlington

## Previous Action Update

| Town of Sterlington   |  |                        |                        |   |  |  |
|---|--|------------------------|------------------------|---|--|--|
| 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.  | HGMP, BRIC, Local      | 1-5 years              | Town of Sterlington<br>Mayor's Office/Ouachita Parish OHSEP | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | In Progress - Carried Over (See Town of Sterlington Mitigation Action 1) |
| S2: 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 problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods. | HGMP, BRIC, FMA, Local | 1-5 years              | Town of Sterlington<br>Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | In Progress  |
| 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.  | HGMP, BRIC, FMA, Local | 1-5 years              | Town of Sterlington<br>Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | Not Started - Carried Over (See Town of Sterlington Mitigation Action 2) |
| S4: Safe Room Projects  | Construction of a safe room for first responders located in Sterlington. Other locations will be identified based on funding availability.   | HGMP, BRIC, Local      | 1-5 years              | Town of Sterlington<br>Mayor's Office/Ouachita Parish OHSEP | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | Not Started - Carried Over (See Town of Sterlington Mitigation Action 3) |

|  |   |                        |           |  |  |  |
|--|---|------------------------|-----------|--|--|--|
| 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, Levee Failure, and Winter Storm 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. | HGMP, BRIC, FMA, Local | 1-5 years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Drought, Flooding, Levee Failure, Thunderstorms Tornadoes, Tropical Cyclones, Wildfire, Winter Weather                   | Ongoing  |
| S6: Generators for Continuity of Operations and Government | Procurement and installation of generators at public facilities to ensure continued operations during and after events.   | HGMP, BRIC, Local      | 1-5 years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather                          | Not Started - Carried Over (See Town of Sterlington Mitigation Action 4) |
| S7: Lightning Mitigation                                   | Procurement and installation of lightning rods and surge protectors for public buildings to preserve life and property  | HGMP, BRIC, Local      | 1-5 years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Thunderstorms  | In Progress  |
| S8: Warning Systems  | Update/upgrade public warning system components throughout Sterlington as necessary. Install audible and/or reverse 911 warning system(s)   | HGMP, BRIC, Local      | 1-5 years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather                          | Not Started - Carried Over (See Town of Sterlington Mitigation Action 5) |
| 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.  | HGMP, BRIC, Local      | 1-5 years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms, Tropical Cyclones, Tornadoes, Wildfires, Winter Weather | In Progress  |
| 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).   | HGMP, BRIC, FMA, Local | 1-5 years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | Not Started - Carried Over (See Town of Sterlington Mitigation Action 6) |

|   |  |   |           |  |  |   |
|---|--|---|-----------|--|--|---|
| S11: Flood Control Measures                         | Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.               | HGMP, BRIC, FMA, Local                      | 1-5 years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Tropical Cyclones   | Not Started - Carried Over (See Town of Sterlington Mitigation Action 7)  |
| S12: Levee Failure Working Group                    | Create a working group in order to assess the extent and determine the possible effects of a levee failure.                        | HGMP, BRIC, FMA, Local                      | 1-5 years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Tropical Cyclones   | Not Started - Carried Over (See Town of Sterlington Mitigation Action 8)  |
| S13: Drought Ordinances                             | Adopt ordinances requiring water-saving measures in time of drought.   | HGMP, BRIC, Local                           | 1-5 years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Drought  | Not Started - Carried Over (See Town of Sterlington Mitigation Action 9)  |
| S14: Wildfire Ordinances                            | Strengthen penalties and improve enforcement capabilities of burn ban ordinances   | HGMP, BRIC, Local                           | 1-5 years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Wildfires  | Not Started - Carried Over (See Town of Sterlington Mitigation Action 10) |
| S15: Public Education and Outreach                  | Develop disaster education program, to include information from FEMA, NWS, and USDA, to educate citizens about the drought hazard  | HGMP, BRIC, Local                           | 1-5 Years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms Tornadoes, Tropical Cyclones, Wildfire, Winter Weather | Deleted - Duplicate of A5 Action  |
| S16: Training for First Responders                  | Provide training for EMS personnel   | HGMP, BRIC, FMA, Local                      | 1-5 Years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms Tornadoes, Tropical Cyclones, Wildfire, Winter Weather | Ongoing   |
| S17: Conduct Commodity Flow Study                   | Develop transportation chemical commodity flow study   | Homeland Security Funds, DOTD, Local Budget | 1-5 Years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Hazardous Materials  | Deleted - Not a profiable hazard  |
| S18: Alternate Evacuation Route                     | Work with Ouachita Parish and LADOTD to examine alternate exit route for the Power Avenue area                                     | HGMP, BRIC, FMA, Local                      | 1-5 Years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Tropical Cyclones, Wildfires  | Completed   |
| S19: Previous Occurrence and Extent Data Collection | Begin gathering town specific previous occurrence and extent data; this data will be incorporated into future updates of the plan. | HGMP, BRIC, FMA, Local                      | 1-5 Years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms Tornadoes, Tropical Cyclones, Wildfire, Winter Weather | Not Started - Carried Over (See Town of Sterlington Mitigation Action 11) |

|   |  |                        |           |  |   |                                   |
|---|--|------------------------|-----------|--|---|-----------------------------------|
| S20: Building Code Implementation   | Implement and enforce International Building Codes   | HGMP, BRIC, FMA, Local | 1-5 Years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms<br>Tornadoes, Tropical Cyclones, Wildfire, Winter Weather | Completed                         |
| S21: Floodplain Regulation – Limit Development  | Continue to include and update mitigation requirements in floodplain development regulations   | HGMP, BRIC, FMA, Local | 2 Years   | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Flooding  | Deleted - Duplicate of S11 Action |
| S22: Warning Systems  | Upgrade or expand warning system for Town of Sterlington   | HGMP, BRIC, FMA, Local | 2 Years   | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms<br>Tornadoes, Tropical Cyclones, Wildfire, Winter Weather | Deleted - Duplicate of S8 Action  |
| S23: Emergency Generator  | Install emergency generator at Sterlington waste water treatment facility, Sterlington Police Station, sewer lift stations, Sterlington Elementary School, and East Ouachita Recreation Center.  | HGMP, BRIC, FMA, Local | 4 Years   | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms<br>Tornadoes, Tropical Cyclones, Wildfire, Winter Weather | Deleted - Duplicate of S6 Action  |
| S24: Retrofit, or incorporate mitigation into the design of, existing buildings and infrastructure to reduce the impacts of flood | Drainage projects to alleviate standing water issues throughout town.; Add backflow protection to homes to prevent sewer backup issues.; Resize culverts at Francis, and Ronaldson, Davis, Taylor and Rogers, Highway 2 and Old Sterlington Rd, Old Sterlington Rd. east of Ronaldson, and Francis and High St.; Increase capacity of local drainage canals; increase capacity of lift station at Harvey and Francis Streets; increase capacity of lift station at District 10 on Power Ave. | HGMP, BRIC, FMA, Local | 1-5 Years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones   | Deleted - Duplicate of S1 Action  |
| S25: Hail-Proofing Public Buildings   | Hail-proof public buildings  | HGMP, BRIC, Local      | 1-5 Years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Thunderstorms   | Deleted - Duplicate of S1 Action  |

|   |   |                                      |           |  |  |   |
|---|---|--------------------------------------|-----------|--|--|---|
| S26: Retrofit of Critical Facilities                        | Retrofit/harden roof and facility for Sterlington Public Works Facility and East Ouachita Recreation Center   | HGMP, BRIC, Local                    | 1-5 Years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Thunderstorms, Tornadoes, Tropical Cyclones                                      | Deleted - Duplicate of S1 Action  |
| S27: Protection of Critical Facilities                      | Create wildfire safety zones around critical facilities by managing and altering landscaping and vegetation   | HGMP, BRIC, Local                    | 1-5 Years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Wildfires  | Deleted - Duplicate of S14 Action   |
| S28: Protection of Critical Facilities                      | Winterize/weatherize Sterlington Water System and sewer system infrastructure   | HGMP, BRIC, Local                    | 1-5 Years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Winter Weather   | Deleted - Duplicate of S1 Action  |
| S29: Retrofit Existing Structures to Function as Safe Rooms | Retrofit Sterlington Town Hall, East Ouachita Recreation Center, Sterlington Middle School, Sterlington Elementary School, and Sterlington Police Station to protect life and prevent injury of those housed inside | HMGP, Local, Non-Disaster HMA Grants | 1-5 Years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | Deleted - Duplicate of S1 Action  |
| S30: Community Shelters                                     | Construct multi-purpose community shelter to provide immediate life protection for events with little or no warning as well as serve as new town hall and government complex.                                       | HMGP, Local, Non-Disaster HMA Grants | 1-5 Years | Town of Sterlington Mayor's Office/Ouachita Parish OHSEP | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | Not Started - Carried Over (See Town of Sterlington Mitigation Action 12) |

*New Mitigation Actions*

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF STERLINGTON |  |
|---|--|
|   | DESCRIPTION  |
| <b>TOWN OF STERLINGTON MITIGATION ACTION 1</b>                                    | Building Retrofits   |
| <b>LEAD AGENCY</b>  | Town of Sterlington Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Retrofit public buildings exterior shell to maintain use during and after storm events   |
| <b>Type of Mitigation Action</b>  | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                      | Reduces damage from high wind related events, and helps assure that the public buildings can be used, occupied and operable during or after storms.  |
| <b>Current Status of Action</b>   | In Progress – Carried Over   |
| <b>Hazard Addressed</b>   | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather   |

**Supporting Information:** Since the last Plan Update, the Town of Sterlington has retrofitted the roof of their town hall. Sterlington plans on retrofitting more municipal buildings within the town and wants this action carried over

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF STERLINGTON |  |
|---|--|
|   | DESCRIPTION  |
| <b>TOWN OF STERLINGTON MITIGATION ACTION 2</b>                                    | Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures  |
| <b>LEAD AGENCY</b>  | Town of Sterlington Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | High   |
| <b>Action Description</b>   | Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.  |
| <b>Type of Mitigation Action</b>  | Local Plans and Regulations, Structure and Infrastructure Projects, Natural System Protection  |
| <b>How Action Aligns with Risk Reduction</b>                                      | Eliminates flooding risk of repetitive and severe repetitive loss structures.  |
| <b>Current Status of Action</b>   | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Levee Failure, Tropical Cyclones   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF STERLINGTON |  |
|---|--|
|   | DESCRIPTION  |
| <b>TOWN OF STERLINGTON MITIGATION ACTION 3</b>                                    | Safe Room Projects   |
| <b>LEAD AGENCY</b>  | Town of Sterlington Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Construction of a safe room for first responders located in Sterlington. Other locations will be identified based on funding availability.   |
| <b>Type of Mitigation Action</b>  | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                      | Allows for continued operations of essential personal to actively respond during a natural hazard event  |
| <b>Current Status of Action</b>   | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF STERLINGTON |  |
|---|--|
|   | DESCRIPTION  |
| <b>TOWN OF STERLINGTON<br/>MITIGATION ACTION 4</b>                                | Generators for continuity of operations and government   |
| <b>LEAD AGENCY</b>  | Town of Sterlington Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Procurement and Installation of generators at public facilities to ensure continued operations during and after events.  |
| <b>Type of Mitigation Action</b>  | Local Plans and Regulations, Structure and Infrastructure Projects   |
| <b>How Action Aligns with Risk Reduction</b>                                      | Installation of generators will allow public facilities to run accordingly and aid with local relief efforts   |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF STERLINGTON |  |
|---|--|
|   | DESCRIPTION  |
| <b>TOWN OF STERLINGTON MITIGATION ACTION 5</b>                                    | Warning Systems  |
| <b>LEAD AGENCY</b>  | Town of Sterlington Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Update/upgrade public warning system components throughout Sterlington as necessary. Install audible and/or reverse 911 warning system(s).   |
| <b>Type of Mitigation Action</b>  | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                      | An upgraded public warning system will increase the likelihood of public notification immediately prior to an event  |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF STERLINGTON |  |
|---|--|
|   | DESCRIPTION  |
| <b>TOWN OF STERLINGTON MITIGATION ACTION 6</b>                                    | Promote Flood Insurance  |
| <b>LEAD AGENCY</b>  | Town of Sterlington Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | High   |
| <b>Action Description</b>   | Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).  |
| <b>Type of Mitigation Action</b>  | Education and Awareness Programs   |
| <b>How Action Aligns with Risk Reduction</b>                                      | Educating the public on flood insurance will allow public to obtain insurance at a cost that’s affordable to them and will help gain relief to their home and personal items during post-flood events  |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Levee Failure, Tropical Cyclones   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF STERLINGTON |  |
|---|--|
|   | DESCRIPTION  |
| <b>TOWN OF STERLINGTON MITIGATION ACTION 7</b>                                    | Flood Control Measures   |
| <b>LEAD AGENCY</b>  | Town of Sterlington Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | High   |
| <b>Action Description</b>   | Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.   |
| <b>Type of Mitigation Action</b>  | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                      | Creation of flood control structures can prevent flood damage  |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Levee Failure, Tropical Cyclones   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF STERLINGTON |  |
|---|--|
|   | DESCRIPTION  |
| <b>TOWN OF STERLINGTON MITIGATION ACTION 8</b>                                    | Levee Failure Working Group  |
| <b>LEAD AGENCY</b>  | Town of Sterlington Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Create a working group in order to assess the extent and determine the possible impact of a levee failure.   |
| <b>Type of Mitigation Action</b>  | Natural System Protection  |
| <b>How Action Aligns with Risk Reduction</b>                                      | Create a working group in order to assess the extent and determine the specific areas of inundation related to levee failure in Sterlington  |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Levee Failure  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF STERLINGTON |  |
|---|--|
|   | DESCRIPTION  |
| <b>TOWN OF STERLINGTON MITIGATION ACTION 9</b>                                    | Drought Ordinances   |
| <b>LEAD AGENCY</b>  | Town of Sterlington Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, Local  |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Adopt ordinances requiring water-saving measures in time of drought.   |
| <b>Type of Mitigation Action</b>  | Local Plans and Regulations, Natural System Protection   |
| <b>How Action Aligns with Risk Reduction</b>                                      | Adopting water saving ordinances will allow for water to be regulated and distributed throughout the community when drought related events are imminent  |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Drought  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF STERLINGTON |  |
|---|--|
|   | DESCRIPTION  |
| <b>TOWN OF STERLINGTON MITIGATION ACTION 10</b>                                   | Wildfire Ordinances  |
| <b>LEAD AGENCY</b>  | Town of Sterlington Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, Local  |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Strengthen penalties and improve enforcement capabilities of burn ban ordinances   |
| <b>Type of Mitigation Action</b>  | Local Plans and Regulations, Natural Systems Protection  |
| <b>How Action Aligns with Risk Reduction</b>                                      | Adopting wildfire ordinances will reduce the chances of wildfire taking place due to penalties and restrictions laid forth by the ordinance  |
| <b>Current Status of Action</b>   | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Wildfires  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF STERLINGTON |  |
|---|--|
|   | DESCRIPTION  |
| <b>TOWN OF STERLINGTON MITIGATION ACTION 11</b>                                   | Previous Occurrence and Extent Data Collection   |
| <b>LEAD AGENCY</b>  | Town of Sterlington Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Begin gathering town specific previous occurrence and extent data; this data will be incorporated into future updates of the plan.   |
| <b>Type of Mitigation Action</b>  | Local Plans and Regulations  |
| <b>How Action Aligns with Risk Reduction</b>                                      | Additional input from the parish will make hazard mitigation plans more comprehensive and allow for better understanding of each hazards impact on the community   |
| <b>Current Status of Action</b>   | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfire, Winter Weather  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF STERLINGTON |  |
|---|--|
|   | DESCRIPTION  |
| <b>TOWN OF STERLINGTON MITIGATION ACTION 12</b>                                   | Community Shelters   |
| <b>LEAD AGENCY</b>  | Town of Sterlington Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Construct multi-purpose community shelter to provide immediate life protection for events with little or no warning as well as serve as new town hall and government complex.  |
| <b>Type of Mitigation Action</b>  | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk Reduction</b>                                      | Community shelters will benefit those who are in immediate danger of a hazard  |
| <b>Current Status of Action</b>   | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>TOWN OF STERLINGTON |  |
|---|--|
|   | DESCRIPTION  |
| <b>TOWN OF STERLINGTON<br/>MITIGATION ACTION 13</b>                               | Fans and Cooling Devices   |
| <b>LEAD AGENCY</b>  | Town of Sterlington Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING SOURCE(S)</b>   | HGMP, BRIC, Local  |
| <b>ASSOCIATED GOALS</b>   | 1. Protect health and safety<br>3. Improve the quality of life in Ouachita Parish<br>4. Ensure that public funds are used in the most efficient manner |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Provide fans and cooling devices for the public, especially at-risk populations  |
| <b>Type of Mitigation Action</b>  | Structure and infrastructure Projects, Local Plans and Regulations   |
| <b>How Action Aligns with Risk Reduction</b>                                      | Cooling devices will serve as a backup in the event of a widespread power outage during excessive heat events  |
| <b>Current Status of Action</b>   | New  |
| <b>Hazard Addressed</b>   | Excessive Heat   |

## City of West Monroe

## Previous Action Update

| City of West Monroe  |  |                        |                        |  |  |  |
|--|--|------------------------|------------------------|--|--|--|
| Jurisdiction-Specific Action   | Action Description   | Funding Source         | Target Completion Date | Responsible Party, Agency, or Department                 | Hazard   | Status   |
| WM1: 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.  | HGMP, BRIC, Local      | 1-5 years              | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | Not Started - Carried Over (See City of West Monroe Mitigation Action 1) |
| WM2: 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 problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods. | HGMP, BRIC, FMA, Local | 1-5 years              | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | In Progress  |
| WM3: 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.  | HGMP, BRIC, FMA, Local | 1-5 years              | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | In Progress  |
| WM4: Safe Room Projects  | Construction of a safe room for first responders located in West Monroe. Other locations will be identified based on funding availability.   | HGMP, BRIC, Local      | 1-5 years              | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | Not Started - Carried Over (See City of West Monroe Mitigation Action 2) |

|   |   |                        |           |  |  |  |
|---|---|------------------------|-----------|--|--|--|
| WM5: 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, Levee Failure, and Winter Storm 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. | HGMP, BRIC, FMA, Local | 1-5 years | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | Not Started - Carried Over (See City of West Monroe Mitigation Action 3) |
| WM6: Generators for Continuity of Operations and Government | Procurement and installation of generators at public facilities to ensure continued operations during and after events.   | HGMP, BRIC, Local      | 1-5 years | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather                          | Not Started - Carried Over (See City of West Monroe Mitigation Action 4) |
| WM7: Lightning Mitigation                                   | Procurement and installation of lightning rods and surge protectors for public buildings to preserve life and property.   | HGMP, BRIC, Local      | 1-5 years | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Thunderstorms  | Not Started - Carried Over (See City of West Monroe Mitigation Action 5) |
| WM8: Warning Systems  | Update/upgrade public warning system components throughout West Monroe as necessary. Install audible and/or reverse 911 warning system(s).  | HGMP, BRIC, Local      | 1-5 years | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather                          | Not Started - Carried Over (See City of West Monroe Mitigation Action 6) |
| WM9: 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.  | HGMP, BRIC, Local      | 1-5 years | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms, Tropical Cyclones, Tornadoes, Wildfires, Winter Weather | Ongoing  |
| WM10: 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).   | HGMP, BRIC, FMA, Local | 1-5 years | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | Ongoing  |

|  |   |                        |           |  |  |  |
|--|---|------------------------|-----------|--|--|--|
| WM11: Flood Control Measures               | Install and/or upgrade minor flood control structures including berms and floodwalls to protect critical facilities.  | HGMP, BRIC, FMA, Local | 1-5 years | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Tropical Cyclones | Ongoing  |
| WM12: Levee Failure Working Group          | Create a working group in order to assess the extent and determine the possible effects of a levee failure.   | HGMP, BRIC, FMA, Local | 1-5 years | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Tropical Cyclones | Not Started - Carried Over (See City of West Monroe Mitigation Action 7) |
| WM13: Drought Ordinances                   | Adopt ordinances requiring water-saving measures in time of drought.  | HGMP, BRIC, Local      | 1-5 years | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Drought                                    | Not Started - Carried Over (See City of West Monroe Mitigation Action 8) |
| WM14: Wildfire Ordinances                  | Strengthen penalties and improve enforcement capabilities of burn ban ordinances  | HGMP, BRIC, Local      | 1-5 years | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Wildfires                                  | Not Started - Carried Over (See City of West Monroe Mitigation Action 9) |
| WM15: Master Drainage Plan                 | The Master Drainage Plan will include information on the existing storm sewer system and potential projects to help alleviate flooding. It will include flood plans for Black Bayou. The Master Drainage Plan will also include an analysis of future development and possible solutions for maintaining pre-developed runoff rates.  | HGMP, BRIC, FMA, Local | 4 Years   | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones                | Deleted - Duplicate of WM2 Action  |
| WM16: Stormwater Pollution Prevention Plan | Determine the need for stormwater pollution prevention greater than what is required by the EPA. By reducing sediment that infiltrates the storm sewer system, the City can reduce flooding caused by congested storm sewers. The Stormwater Pollution Prevention Plan will also analyze the amount of pollutants that accumulate in the storm sewer system and possible projects and ordinances to prevent and reduce the amount of pollutants in the storm sewer system and ultimately in Black Bayou and the Ouachita River. | HGMP, BRIC, FMA, Local | 3 Years   | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones                | Deleted - Duplicate of WM2 Action.                                       |

|                                       |   |                        |           |  |   |                                     |
|---------------------------------------|---|------------------------|-----------|--|---|-------------------------------------|
| WM17: Levee Failure - Evacuation Plan | Develop an evacuation and notification plan for a potential levee failure. The plan will identify the residents and critical facilities most susceptible to damage.   | HGMP, BRIC, FMA, Local | 2 Years   | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure   | Deleted - Duplicate of WM12 Action. |
| WM18: Targeted Drainage Projects      | Upon completion of the Master Drainage Plan, several drainage projects will be prioritized to reduce flooding. Until that time, the drainage projects found in the Project Scoping Report should take precedent.  | HGMP, BRIC, FMA, Local | 1-5 years | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones   | Deleted - Duplicate of WM2 Action.  |
| WM19: Warning System                  | Investigate the feasibility of implementing several options in the warning system. Some mitigation options may be deemed too expensive for the benefit provided. An audible warning system installed around the city will be investigated. The City will also place a link to real-time weather information on the West Monroe website. | HGMP, BRIC, FMA, Local | 1-5 years | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | Deleted - Duplicate of WM8 Action.  |
| WM20: Review Building Codes           | The Building Department will review the current Building Codes and determine whether any changes should be made.  | HGMP, BRIC, FMA, Local | 1-5 years | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Winter Weather                           | Ongoing                             |
| WM21: Public Service Announcements    | Plan a public service announcement program through which all potential hazards will be addressed and announcements will be made throughout the year   | HGMP, BRIC, FMA, Local | 1 Year    | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | Deleted - Duplicate of WM8 Action.  |
| WM22: Maintain Storm Sewer System     | Attempt to budget more money towards maintenance and replacement but will also seek funding from outside sources. The Department of Public Works continues to inspect the existing infrastructure to determine the priority of repairs and replacements.  | HGMP, BRIC, FMA, Local | 1-5 years | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones   | Deleted - Duplicate of WM2 Action.  |

|   |   |                        |           |  |  |                                      |
|---|---|------------------------|-----------|--|--|--------------------------------------|
| WM23: School Program                              | Preparing a school program to inform children about the dangers that certain hazards cause.   | HGMP, BRIC, FMA, Local | 1 Year    | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms<br>Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | Deleted - Duplicate of WM5 Action.   |
| WM24: Heat/Winter Elderly Plan - Council on Aging | The West Ouachita Senior Center Division will continue to check in on the elderly during extreme heat and provide fans for those homes without air conditioning. They will also contact them during winter weather to make sure they have proper medication and transportation if necessary. Information will be provided to residents concerning the dangers of extreme heat and ways to keep cool. The City will also conduct public service announcements with shelter locations and other areas to keep cool or warm. | HGMP, BRIC, Local      | 1-5 years | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Excessive Heat, Winter Weather   | Ongoing                              |
| WM25: Enhance/Upgrade Sanitary Sewer              | The Public Works Department will be responsible for inspecting all sanitary sewer lines and manholes for inflow/infiltration.   | HGMP, BRIC, FMA, Local | 1-5 years | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding   | In Progress                          |
| WM26: Water Conservation Plan                     | The Department of Public Works will coordinate with the Department of Economic Development to prepare and implement a water conservation plan.  | HGMP, BRIC, Local      | 3 Years   | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Drought  | Deleted - Duplicate of WM 13 Action. |
| WM27: GIS System                                  | The City is currently creating a geographic information system (GIS). The GIS will include the water, sanitary sewer and storm sewer facilities of the City. It will also include information from this Plan such as special flood hazard areas and critical facilities.  | HGMP, BRIC, FMA, Local | 1-5 years | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms<br>Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | Ongoing                              |

|   |  |                        |           |  |  |  |
|---|--|------------------------|-----------|--|--|--|
| WM28: Repetitive Floodloss Structures/Buyouts       | The Planning and Zoning Department will review the Repetitive Flood Loss Structures list and make any changes or corrections that are necessary to the list. The Department will also prioritize the structures so that facilities are not removed in a checkerboard type fashion. | HGMP, BRIC, FMA, Local | 1-5 years | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding, Tropical Cyclones  | Deleted - Duplicate of WM3 Action.   |
| WM29: Review Data Gaps                              | The Hazard Mitigation Advisory Team will continue to research past hazard events that little historical information was given such as hailstorms and lightning.  | HGMP, BRIC, Local      | 5 Years   | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Thunderstorms  | Deleted - This action/project is no longer needed and does not need to be carried over into the 2023 update. |
| WM30: Hazard Map Availability                       | Provide the hazard maps generated during the planning process for public access at the library and City website.   | HGMP, BRIC, FMA, Local | <1 Year   | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms<br>Tornadoes, Tropical Cyclones, Wildfires, Winter Weather | In Progress  |
| WM31: Water Level Gauge/Call System                 | The Public Works Department will determine the feasibility of placing water level gauges on Black Bayou and the Ouachita River to help determine flood risk.   | HGMP, BRIC, FMA, Local | 5 Years   | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Flooding   | In Progress  |
| WM32: Mosquito Abatement Program                    | West Monroe will continue to work with the Ouachita Parish Mosquito Abatement District to inform the public of the dangers of mosquito carried diseases. The City will also conduct mosquito fogging in conjunction with Ouachita Parish's treatment schedule.                     | General Fund           | 2 Years   | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Disease  | Deleted - Not a profitable hazard.   |
| WM33: Generators, Lightning rods & Surge Protection | The City will enhance critical facilities by adding lightning rods, surge protection, and generators to the facilities. These will be added to both current and new facilities.  | HGMP, BRIC, Local      | 2 Years   | City of West Monroe Mayor's Office/Ouachita Parish OHSEP | Thunderstorms  | Deleted - Duplicate of WM6 & WM8 Actions.  |

|   |   |                               |                  |   |  |  |
|---|---|-------------------------------|------------------|---|--|--|
| <p>WM34: Evaluate Detention Pond Construction</p>       | <p>The City recently completed a drainage project, Restoration Park, which created wetlands, provided detention, and beautified the area. The project will help reduce runoff rates to Black Bayou. Additional projects like Restoration Park will be necessary if future development is not required to discharge stormwater at pre-developed conditions. The Department of Public Works and City Engineer will be responsible for monitoring the situation and determining whether additional projects will be necessary.</p> | <p>HGMP, BRIC, FMA, Local</p> | <p>1-5 years</p> | <p>City of West Monroe Mayor's Office/Ouachita Parish OHSEP</p> | <p>Flooding</p>                                    | <p>Deleted - Duplicate of WM2 Action.</p>  |
| <p>WM35: Encourage underground Utility Construction</p> | <p>The Keep West Monroe Beautiful Department will investigate the feasibility of placing above ground utility facilities below ground.</p>  | <p>HGMP, BRIC, Local</p>      | <p>1-5 years</p> | <p>City of West Monroe Mayor's Office/Ouachita Parish OHSEP</p> | <p>Thunderstorms, Tornadoes, tropical Cyclones</p> | <p>Not Started - Carried Over (See City of West Monroe Mitigation Action 10)</p> |

*New Mitigation Actions*

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF WEST MONROE |  |
|---|--|
|   | DESCRIPTION  |
| <b>CITY OF WEST MONROE<br/>MITIGATION ACTION 1</b>                                | Building Retrofits   |
| <b>LEAD AGENCY</b>  | City of West Monroe Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING<br/>SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Retrofit public buildings exterior shell to maintain use during and after storm events   |
| <b>Type of Mitigation<br/>Action</b>  | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk<br/>Reduction</b>                                  | Reduces damage from high wind related events, and helps assure that the public buildings can be used, occupied and operable during or after storms.  |
| <b>Current Status of Action</b>   | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF WEST MONROE |  |
|---|--|
|   | DESCRIPTION  |
| <b>CITY OF WEST MONROE<br/>MITIGATION ACTION 2</b>                                | Safe Room Projects   |
| <b>LEAD AGENCY</b>  | City of West Monroe Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING<br/>SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Construction of a safe room for first responders located in West Monroe. Other locations will be identified based on funding availability.   |
| <b>Type of Mitigation<br/>Action</b>  | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk<br/>Reduction</b>                                  | Allows for continued operations of essential personal to actively respond during a natural hazard event  |
| <b>Current Status of Action</b>   | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather   |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF WEST MONROE |  |
|---|--|
|   | DESCRIPTION  |
| <b>CITY OF WEST MONROE<br/>MITIGATION ACTION 3</b>                                | Education and Outreach   |
| <b>LEAD AGENCY</b>  | City of West Monroe Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING<br/>SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol>   |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for levee failure, drought, excessive heat, flooding, thunderstorms, tornadoes, tropical cyclones, wildfires, and winter weather hazards as well as providing information on high risk areas |
| <b>Type of Mitigation<br/>Action</b>  | Education and Awareness Programs   |
| <b>How Action Aligns with Risk<br/>Reduction</b>                                  | Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.   |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Drought, Excessive Heat, Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfire, Winter Weather  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF WEST MONROE |  |
|---|--|
|   | DESCRIPTION  |
| <b>CITY OF WEST MONROE<br/>MITIGATION ACTION 4</b>                                | Generators for continuity of operations and government   |
| <b>LEAD AGENCY</b>  | City of West Monroe Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING<br/>SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Procurement and Installation of generators at public facilities to ensure continued operations during and after events.  |
| <b>Type of Mitigation<br/>Action</b>  | Local Plans and Regulations, Structure and Infrastructure Projects   |
| <b>How Action Aligns with Risk<br/>Reduction</b>                                  | Installation of generators will allow public facilities to run accordingly and aid with local relief efforts   |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF WEST MONROE |  |
|---|--|
|   | DESCRIPTION  |
| <b>CITY OF WEST MONROE<br/>MITIGATION ACTION 5</b>                                | Lightning Mitigation   |
| <b>LEAD AGENCY</b>  | City of West Monroe Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING<br/>SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property   |
| <b>Type of Mitigation<br/>Action</b>  | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk<br/>Reduction</b>                                  | The installation of lightning rods and surge protectors in public buildings and critical infrastructure will reduce losses due to lightning strikes and surges in electricity.   |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Thunderstorms  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF WEST MONROE |  |
|---|--|
|   | DESCRIPTION  |
| <b>CITY OF WEST MONROE<br/>MITIGATION ACTION 6</b>                                | Warning Systems  |
| <b>LEAD AGENCY</b>  | City of West Monroe Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING<br/>SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Update/upgrade public warning system components throughout West Monroe as necessary. Install audible and/or reverse 911 warning system(s).   |
| <b>Type of Mitigation<br/>Action</b>  | Structure and Infrastructure Projects  |
| <b>How Action Aligns with Risk<br/>Reduction</b>                                  | An upgraded public warning system will increase the likelihood of public notification immediately prior to an event  |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF WEST MONROE |  |
|---|--|
|   | DESCRIPTION  |
| <b>CITY OF WEST MONROE<br/>MITIGATION ACTION 7</b>                                | Levee Failure Working Group  |
| <b>LEAD AGENCY</b>  | City of West Monroe Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING<br/>SOURCE(S)</b>   | HGMP, BRIC, FMA, Local   |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Create a working group in order to assess the extent and determine the possible impact of a levee failure.   |
| <b>Type of Mitigation<br/>Action</b>  | Natural System Protection  |
| <b>How Action Aligns with Risk<br/>Reduction</b>                                  | Create a working group in order to assess the extent and determine the specific areas of inundation related to levee failure in West Monroe  |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Flooding, Levee Failure  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF WEST MONROE |  |
|---|--|
|   | DESCRIPTION  |
| <b>CITY OF WEST MONROE<br/>MITIGATION ACTION 8</b>                                | Drought Ordinances   |
| <b>LEAD AGENCY</b>  | City of West Monroe Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING<br/>SOURCE(S)</b>   | HGMP, BRIC, Local  |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Adopt ordinances requiring water-saving measures in time of drought.   |
| <b>Type of Mitigation<br/>Action</b>  | Local Plans and Regulations, Natural System Protection   |
| <b>How Action Aligns with Risk<br/>Reduction</b>                                  | Adopting water saving ordinances will allow for water to be regulated and distributed throughout the community when drought related events are imminent  |
| <b>Current Status of Action</b>   | Not Started - Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Drought  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF WEST MONROE |  |
|---|--|
|   | DESCRIPTION  |
| <b>CITY OF WEST MONROE<br/>MITIGATION ACTION 9</b>                                | Wildfire Ordinances  |
| <b>LEAD AGENCY</b>  | City of West Monroe Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING<br/>SOURCE(S)</b>   | HGMP, BRIC, Local  |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Strengthen penalties and improve enforcement capabilities of burn ban ordinances   |
| <b>Type of Mitigation<br/>Action</b>  | Local Plans and Regulations, Natural Systems Protection  |
| <b>How Action Aligns with Risk<br/>Reduction</b>                                  | Adopting wildfire ordinances will reduce the chances of wildfire taking place due to penalties and restrictions laid forth by the ordinance  |
| <b>Current Status of Action</b>   | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Wildfires  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF WEST MONROE |  |
|---|--|
|   | DESCRIPTION  |
| <b>CITY OF WEST MONROE<br/>MITIGATION ACTION 10</b>                               | Encourage Underground Utility construction   |
| <b>LEAD AGENCY</b>  | City of West Monroe Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING<br/>SOURCE(S)</b>   | HGMP, BRIC, Local  |
| <b>ASSOCIATED GOALS</b>   | <ol style="list-style-type: none"> <li>1. Protect health and safety</li> <li>2. Protect existing properties</li> <li>3. Improve the quality of life in Ouachita Parish</li> <li>4. Ensure that public funds are used in the most efficient manner</li> </ol> |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Constructing utilities underground where available will during the City’s vulnerable to utility damage and power outages from wind events and winter storms.   |
| <b>Type of Mitigation<br/>Action</b>  | Structure and infrastructure Projects  |
| <b>How Action Aligns with Risk<br/>Reduction</b>                                  | Constructing utilities underground will reduce the risk of power outages and allow essential personnel to function properly during hazard events   |
| <b>Current Status of Action</b>   | Not Started – Carried Over from 2017 Plan  |
| <b>Hazard Addressed</b>   | Thunderstorms, Tornadoes, Tropical Cyclones, Winter Weather  |

| IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS<br>CITY OF WEST MONROE |  |
|---|--|
|   | DESCRIPTION  |
| <b>CITY OF WEST MONROE<br/>MITIGATION ACTION 11</b>                               | Fans and Cooling Devices   |
| <b>LEAD AGENCY</b>  | City of West Monroe Mayor’s Office   |
| <b>SUPPORTING AGENCIES</b>  | Ouachita Parish OHSEP  |
| <b>TIMELINE</b>   | 1-5 years  |
| <b>COST ESTIMATE</b>  | Unknown  |
| <b>POSSIBLE FUNDING<br/>SOURCE(S)</b>   | HGMP, BRIC, Local  |
| <b>ASSOCIATED GOALS</b>   | 1. Protect health and safety<br>3. Improve the quality of life in Ouachita Parish<br>4. Ensure that public funds are used in the most efficient manner |
| <b>PRIORITY</b>   | Medium   |
| <b>Action Description</b>   | Provide fans and cooling devices for the public, especially at risk populations  |
| <b>Type of Mitigation<br/>Action</b>  | Structure and infrastructure Projects, Local Plans and Regulations   |
| <b>How Action Aligns with Risk<br/>Reduction</b>                                  | Cooling devices will serve as a backup in the event of a widespread power outage during excessive heat events  |
| <b>Current Status of Action</b>   | New  |
| <b>Hazard Addressed</b>   | Excessive Heat   |

### Action Prioritization

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

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

The planning committee prioritized the possible activities that could be pursued. Planning committee members consulted appropriate agencies in order to assist with the prioritizations. The results were items that address the major hazards, are appropriate for those hazards, are cost-effective, and are affordable. The planning committee met internally for mitigation action meetings to review and approve mitigation actions for Ouachita Parish and the incorporated jurisdictions. On-going actions, as well as actions which will provide maximum benefit that can be undertaken by existing parish staff with or without additional external funding were given high priority. The actions with medium benefit and relatively 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 and would result in limited benefit to the community were given low priority.

Ouachita Parish and the incorporated 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. This plan is intended to offer priorities based on an examination of hazards.

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## Appendix A: Planning Process

### Purpose

The Hazard Mitigation Plan Update process prompts local jurisdictions to keep their hazard mitigation plan current and moving toward a more resilient community. The plan update builds on the research and planning efforts of previous plans while reviewing recent trends. The planning 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 Ouachita Parish Hazard Mitigation Plan Update

The Ouachita Parish Hazard Mitigation Plan Update process began in October 2022 with a series of emails, phone calls, meetings, and collaborations between the contractor (SDMI) and a diverse group of participating agencies and stakeholders. Update activities were intended to give each participating agency and stakeholder the opportunity to shape the plan to best fit their community's mitigation goals. Community stakeholders and the general public were invited to attend and contribute information to the planning process during specific time periods or meetings.

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

| Date                 | Meeting or Outreach                       | Location         | Public Invited | Purpose  |
|----------------------|---|------------------|----------------|--|
| 2/15/2023            | Kick Off Meeting                          | Phone Conference | No             | Discuss with the Parish OHSEP Director expectations and requirements of the project. Discuss meeting schedules, committee make up, and next steps.   |
| 3/23/2023            | Initial Planning Committee Meeting        | Monroe, LA       | No             | Discuss with Ouachita Parish Hazard Mitigation Planning Committee the process and expectations of plan participants. Discuss timeline and action items for parish and each jurisdiction.   |
| 8/15/2023            | Planning Committee Risk Assessment Review | Monroe, LA       | No             | Presentation of Risk Assessment and profiled hazards to Planning Committee.  |
| 8/15/2023            | Public Meeting                            | Monroe, LA       | Yes            | Presentation of Risk Assessment and profiled hazards to public. Presentation also includes current mitigation project highlights within communities and public survey discussion.  |
| 1/6/2023 – 8/15/2023 | Public Opinion Survey                     | Online           | Yes            | This survey asked participants about public perceptions and opinions regarding natural hazards in Ouachita Parish. In addition, questions covered the methods and techniques preferred for reducing the risks and losses associated with these hazards. Survey link: <a href="https://www.surveymonkey.com/r/OuachitaHM2022">https://www.surveymonkey.com/r/OuachitaHM2022</a> |

### Planning

The plan update process consisted of several phases:

|                                | Month 1 | Month 2 | Month 3 | Month 4 | Month 5 | Month 6 | Month 7 | Month 8 | Month 9 | Month 10 | Month 11 |  |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|----------|--|
| Plan Revision                  | Active  |         |         |         |         |         |         |         |         |          |          |  |
| Data Collection                | Active  |         |         |         |         |         |         |         |         |          |          |  |
| Risk Assessment                | Active  |         |         |         |         |         |         |         |         |          |          |  |
| Public Input                   |         | Active  |         |         |         |         |         |         |         |          |          |  |
| Mitigation Strategy            |         |         | Active  |         |         |         |         |         |         |          |          |  |
| Plan Review by GOHSEP and FEMA |         |         |         |         |         |         |         | Active  |         |          |          |  |
| FEMA APA                       |         |         |         |         |         |         |         |         |         |          |          |  |
| Plan Adoptions                 |         |         |         |         |         |         |         |         |         |          |          |  |
| Final Plan Approval            |         |         |         |         |         |         |         |         |         |          |          |  |

### Coordination

The Ouachita Parish Office of Homeland Security and Emergency Preparedness (OHSEP) oversaw the coordination of the 2023 Hazard Mitigation Plan Update Planning Committee during the update process. The parish OHSEP was responsible for identifying members for the committee. Representatives of relevant local and parish government departments were invited for inclusion in the planning process via email from SDMI and the Bienville Parish OHSEP Director. Ouachita Parish and their jurisdictions identified and reached out, via email, to representatives of non-profits, local businesses and organizations, and private organizations that provide for the betterment and benefit of populations identified as socially vulnerable and work directly with communities that are deemed as underserved so that they could be involved in the entirety of this plan update process and participate as key stakeholders. Some directors of organizations contacted included the Council of Aging, and the local American Red Cross chapter, but no response was received. Administration from the University of Louisiana Monroe was invited via email to attend various meetings throughout the planning process, but no response was received. However, SDMI is an institution under the Louisiana State University system, so this plan update received constant feedback from academia personnel on LSU’s campus. Therefore, LSU was able to be included for academic participation during the plan update process.

The Parish Director was responsible for inviting the planning committee and key stakeholders to scheduled meetings and activities via phone call and/or email. SDMI assisted the Parish Director with

press releases and social media statements for notification to the media and general public for public meetings and public outreach activities.

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

### Neighboring Community, Local and Regional Planning Process Involvement

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

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

- Participation in Hazard Mitigation planning meetings at the local and parish level
- Sharing local data and information with jurisdictions
- Incorporation of other planning documents, studies and efforts
- Action item development and action progress from 2017 update
- Risk Assessment review
- Plan document draft review
- Formal adoption of the Hazard Mitigation Plan

The Union Parish OHSEP Director was invited to attend the Initial Planning and Risk Assessment Meetings for Ouachita Parish in an effort to coordinate mitigation efforts where possible as neighboring communities. The Union OHSEP Director was invited via email and phone call to participate in an effort to collaborate with neighboring communities. SDMI assisted Ouachita Parish with encouraging the collaboration with these neighboring communities via email by extending an invitation to the Ouachita Hazard Mitigation Plan Update Meetings.

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

The 2023 Hazard Mitigation Plan Update Planning Committee consisted of representatives from the following parish, municipal or community stakeholders. Below is a detailed list of the 2023 HMPU Planning Committee:

| Ouachita Parish Hazard Mitigation Planning Committee |                         |                                 |  |
|--|-------------------------|---------------------------------|--|
| Name   | Title                   | Agency                          | Email  |
| Rodger McConnell                                     | Director                | Ouachita Parish OHSEP           | <a href="mailto:rodger.mcconnell@ohsep.net">rodger.mcconnell@ohsep.net</a>         |
| Todd Smith   | Region 8 Coordinator    | GOHSEP                          | <a href="mailto:todd.smith@la.gov">todd.smith@la.gov</a>                           |
| Shane Smiley   | Police Jury President   | Ouachita Parish Police Jury     | <a href="mailto:ssmiley@oppi.org">ssmiley@oppi.org</a>                             |
| Matt Talbert   | Mayor                   | Town of Sterlington             | <a href="mailto:mtalbert@townofsterlington.com">mtalbert@townofsterlington.com</a> |
| Tom Malmay   | Parish Consultant       | Malmay and Associates           | <a href="mailto:tom@malmay.com">tom@malmay.com</a>                                 |
| Gary Eldridge  | Engineer                | City of West Monroe             | <a href="mailto:geldridge@westmonroe.la.gov">geldridge@westmonroe.la.gov</a>       |
| Robbie George  | President/Engineer      | S.E. Huey/City of West Monroe   | <a href="mailto:rgeorge@seheuy.com">rgeorge@seheuy.com</a>                         |
| Charles Huggins                                      | Fire Protection Officer | West Monroe Fire Department     | <a href="mailto:chuggins@westmonroe.la.gov">chuggins@westmonroe.la.gov</a>         |
| Jason Pleasant                                       | Police Chief            | West Monroe Police Department   | <a href="mailto:jpleasant@westmonroe.la.gov">jpleasant@westmonroe.la.gov</a>       |
| Friday Ellis   | Mayor                   | City of Monroe Mayor            | <a href="mailto:Friday.Ellis@ci.monroe.la.us">Friday.Ellis@ci.monroe.la.us</a>     |
| Gerald Brown   | Mayor                   | Town of Richwood Mayor          | <a href="mailto:mayorbrown@townofrichwood.com">mayorbrown@townofrichwood.com</a>   |
| Kevin Crosby   | Parish Engineer         | Ouachita Parish/Lazenby & Assoc | <a href="mailto:kcrosby@lazenbyengr.com">kcrosby@lazenbyengr.com</a>               |
| Pat Hemphill   | Fire Chief              | Ouachita Parish Fire Department | <a href="mailto:phemphill@ouachitafire.org">phemphill@ouachitafire.org</a>         |
| Jay Russell  | Sheriff                 | Ouachita Parish Sheriff         | <a href="mailto:jrussell@opso.net">jrussell@opso.net</a>                           |
| Terry Williams                                       | Fire Chief              | City of Monroe                  | <a href="mailto:terry.williams@ci.monroe.la.us">terry.williams@ci.monroe.la.us</a> |

## 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 Ouachita Parish programs and planning.

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

Since the last update in 2017, Ouachita Parish has used the hazard mitigation plan as a reference point to various projects and mitigation strategies that take place throughout the planning area. Along with the mitigation actions outlined for each parish, Ouachita has used vulnerability statistics and integration strategies within the plan to help guide their mitigation practices. The strategies and practices in this plan update build upon the practices that have been used since the previous update. Those strategies and practices can be found in various sections throughout the risk assessment that address climate change, vulnerable populations, and future development trends. Furthermore, the parish has held and will continue to hold annual meetings to discuss any changes that have occurred within the parish that could alter the vulnerability of Ouachita, and how to combat any issues that have arisen within the means and regulations of the hazard mitigation plan.

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

The members of the Ouachita Parish Hazard Mitigation Planning Committee will remain charged with ensuring that the goals and strategies of new and updated local planning documents for their communities or agencies are consistent with the goals and actions of the Hazard Mitigation Plan and will not contribute to increased hazard vulnerability in the parish. Existing plans, studies, and technical information were incorporated in the planning process. Examples include flood data from FEMA and the U. S. Geological Survey. Much of this data was incorporated into the Risk Assessment component of the plan relative to plotting historical events and the magnitude of damages that occurred. The parish's 2017 Hazard Mitigation Plan was also used in the planning process. Other existing data and plans used in the planning process include those listed below.

- Parish Emergency Operations Plan
- Stormwater Management Plan
- Flood Insurance Rate Maps
- State of Louisiana Hazard Mitigation Plan

Further information on the plans can be found in [Section 3: Capability Assessment](#).

## Meeting Documentation and Public Outreach Activities

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

### Meeting #1: Hazard Mitigation Plan Update Kick-Off

**Date:** February 15, 2023

**Location:** Phone Call

**Purpose:** Discuss with the Parish OHSEP Director expectations and requirements of the project. Discuss meeting schedules, committee make up, and next steps.

**Public Invitation:** No

**Meeting Invitees:**

| Ouachita Parish Hazard Mitigation Planning Committee |                              |                       |
|--|------------------------------|-----------------------|
| Name   | Title                        | Agency                |
| Neal Brown   | Director                     | Ouachita Parish OHSEP |
| Chris Rippetoe                                       | Program Manager              | LSU-SDMI              |
| Jason Martin   | Emergency Management Analyst | LSU-SDMI              |

### Meeting #2: Hazard Mitigation Plan Update Initial Planning Committee Meeting

**Date:** March 23, 2023

**Location:** Monroe, LA

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

**Public Invitation:** No

**Meeting Invitees:**

| Ouachita Parish Hazard Mitigation Planning Committee |                         |                                 |
|--|-------------------------|---------------------------------|
| Name   | Title                   | Agency                          |
| Rodger McConnell                                     | Director                | Ouachita Parish OHSEP           |
| Todd Smith   | Region 8 Coordinator    | GOHSEP                          |
| Shane Smiley   | Police Jury President   | Ouachita Parish Police Jury     |
| Matt Talbert   | Mayor                   | Town of Sterlington             |
| Tom Malmay   | Parish Consultant       | Malmay and Associates           |
| Gary Eldridge  | Engineer                | City of West Monroe             |
| Robbie George  | President/Engineer      | S.E. Huey/City of West Monroe   |
| Charles Huggins                                      | Fire Protection Officer | West Monroe Fire Department     |
| Jason Pleasant                                       | Police Chief            | West Monroe Police Department   |
| Friday Ellis   | Mayor                   | City of Monroe Mayor            |
| Gerald Brown   | Mayor                   | Town of Richwood Mayor          |
| Kevin Crosby   | Parish Engineer         | Ouachita Parish/Lazenby & Assoc |
| Pat Hemphill   | Fire Chief              | Ouachita Parish Fire Department |
| Jay Russell  | Sheriff                 | Ouachita Parish Sheriff         |
| Terry Williams                                       | Fire Chief              | City of Monroe                  |

## Meeting #3: Hazard Mitigation Plan Update Planning Committee Risk Assessment Review

**Date:** August 15, 2023**Location:** Monroe**Purpose:** Presentation of Risk Assessment hazards and maps to Planning Committee.**Public Invitation:** No**Meeting Invitees:**

| Ouachita Parish Hazard Mitigation Planning Committee |                         |                                 |
|--|-------------------------|---------------------------------|
| Name   | Title                   | Agency                          |
| Rodger McConnell                                     | Director                | Ouachita Parish OHSEP           |
| Todd Smith   | Region 8 Coordinator    | GOHSEP                          |
| Shane Smiley   | Police Jury President   | Ouachita Parish Police Jury     |
| Matt Talbert   | Mayor                   | Town of Sterlington             |
| Tom Malmay   | Parish Consultant       | Malmay and Associates           |
| Gary Eldridge  | Engineer                | City of West Monroe             |
| Robbie George  | President/Engineer      | S.E. Huey/City of West Monroe   |
| Charles Huggins                                      | Fire Protection Officer | West Monroe Fire Department     |
| Jason Pleasant                                       | Police Chief            | West Monroe Police Department   |
| Friday Ellis   | Mayor                   | City of Monroe Mayor            |
| Gerald Brown   | Mayor                   | Town of Richwood Mayor          |
| Kevin Crosby   | Parish Engineer         | Ouachita Parish/Lazenby & Assoc |
| Pat Hemphill   | Fire Chief              | Ouachita Parish Fire Department |
| Jay Russell  | Sheriff                 | Ouachita Parish Sheriff         |
| Terry Williams                                       | Fire Chief              | City of Monroe                  |

#### Meeting #4: Hazard Mitigation Plan Update Public Meeting

**Date:** August 15, 2023

**Location:** Monroe, LA

**Purpose:** The Public Meeting allowed the public and community stakeholders to participate and provide input into the hazard mitigation planning process. Presentation also included highlights of current mitigation projects highlights, as well as public survey discussion. The public meeting notice on the following page was presented to stakeholders as well as the general public, including those in underserved communities and those populations deemed as socially vulnerable. This notice was distributed via email as well as posted on the front door of the courthouse, published in the local newspaper, and posted via social media. This public meeting was also open to many different representatives from private, local community-based organizations and businesses, and non-profits that provide for the betterment of socially vulnerable populations and those areas that have been deemed as underserved. The parish and jurisdictions involved in the plan update were in charge of identifying these specific organizations so that they may be invited to participate at this public meeting and in the plan update process as a whole. This effort was carried out by Ouachita Parish, their jurisdictions, and with assistance from SDMI.

**Public Invitation:** Yes

**Meeting Invitees:**

| Ouachita Parish Hazard Mitigation Planning Committee |                         |                                 |
|--|-------------------------|---------------------------------|
| Name   | Title                   | Agency                          |
| Rodger McConnell                                     | Director                | Ouachita Parish OHSEP           |
| Todd Smith   | Region 8 Coordinator    | GOHSEP                          |
| Shane Smiley   | Police Jury President   | Ouachita Parish Police Jury     |
| Matt Talbert   | Mayor                   | Town of Sterlington             |
| Tom Malmay   | Parish Consultant       | Malmay and Associates           |
| Gary Eldridge  | Engineer                | City of West Monroe             |
| Robbie George  | President/Engineer      | S.E. Huey/City of West Monroe   |
| Charles Huggins                                      | Fire Protection Officer | West Monroe Fire Department     |
| Jason Pleasant                                       | Police Chief            | West Monroe Police Department   |
| Friday Ellis   | Mayor                   | City of Monroe Mayor            |
| Gerald Brown   | Mayor                   | Town of Richwood Mayor          |
| Kevin Crosby   | Parish Engineer         | Ouachita Parish/Lazenby & Assoc |
| Pat Hemphill   | Fire Chief              | Ouachita Parish Fire Department |
| Jay Russell  | Sheriff                 | Ouachita Parish Sheriff         |
| Terry Williams                                       | Fire Chief              | City of Monroe                  |

**Meeting Announcement:**

OUACHITA PARISH OFFICE OF HOMELAND SECURITY & EMERGENCY PREPAREDNESS

**PUBLIC MEETING ANNOUNCEMENT**

**Ouachita Parish and its partners are seeking community input for the 2023 Ouachita Parish Hazard Mitigation Plan update!**

Ouachita Parish OHSEP, in partnership with The Louisiana Governor's Office of Homeland Security and Emergency Preparedness and the Stephenson Disaster Management Institute at LSU, is leading the process to update the plan. The Ouachita Parish Hazard Mitigation Multi-Jurisdictional Plan describes the **naturally occurring** risks to the region and outlines strategies to reduce these risks to save lives, reduce property damage, and lessen the impact of future disasters.

Are you passionate about building a more resilient future for your parish? Do you have questions about the natural hazards your community is at risk to? Please join us on Tuesday, August 15<sup>th</sup>, for a public meeting at 11AM to learn more about the plan and share your input on the risks and vulnerabilities that most impact you and your community.

**Meeting Location:**

Ouachita Parish Office of Homeland Security  
1000 New Natchitoches Road  
West Monroe, LA 71292

Residents of Ouachita 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 the following link:

<https://www.surveymonkey.com/r/OuachitaHM2022>

The Parish appreciates your input.

If you have questions, please contact the Ouachita Parish OHSEP Office

### Outreach Activity #1: Public Opinion Survey

**Date:** Ongoing throughout planning process

**Location:** Web survey

**Public Invitation:** Yes

As referenced in the *Mitigation Strategy* section of this document, an online public opinion survey of Ouachita Parish residents was conducted between January and August 2023. The survey was designed to capture public perceptions and opinions regarding natural hazards in Ouachita Parish. In addition, the survey collected information regarding the methods and techniques preferred by the respondents for reducing the risks and losses associated with local hazards. As of August 15, 2023, there have been zero responses to the Ouachita Parish Hazard Mitigation Survey, therefore, public input could not be included in this plan update. A link to the survey can be found here:

<https://www.surveymonkey.com/r/OuachitaHM2022>

### Outreach Activity #2: Public Meeting Activity - Incident Questionnaire

**Date:** TBD

**Location:** Public Meeting – Monroe, LA

**Public Invitation:** Yes

An incident/issue questionnaire was provided at the public meeting in an effort to collect additional information from residents of Ouachita Parish regarding hazard events and their localized impacts. While the information collected via the questionnaire was to be integrated into this planning document, there was no public turnout for the meeting, and subsequently no results could be collected. A copy of the incident questionnaire can be found on the next page.

### Outreach Activity #3: 2023 Ouachita Parish Hazard Mitigation Plan Public Review

**Date:** Ongoing

**Location:** SDMI Hazard Mitigation Website

**Public Invitation:** Yes

After an initial review by the Ouachita Parish Planning Committee was completed, the 2023 Ouachita Parish Hazard Mitigation Plan was made available for public review and comment. The plan was hosted on SDMI's Hazard Mitigation website: <https://hmpans.sdmi.lsu.edu/Home/Parish/ouachita>

## OUACHITA PARISH PUBLIC MEETING

### PUBLIC ACTIVITY: INCIDENT/ ISSUE QUESTIONNAIRE

#### 1. HAZARD TYPE(S):

- A. DROUGHT
- B. EXCESSIVE HEAT
- C. FLOODING
- D. LEVEE FAILURE
- E. THUNDERSTORMS
- F. TORNADOES
- G. TROPICAL CYCLONES
- H. WILDFIRES
- I. WINTER WEATHER

#### 2. DESCRIBE INCIDENT OR ISSUE:

Empty text area for describing the incident or issue.

#### 3. LOCATION:

A. CITY:

B. ADDRESS OR AREA:

#### 4. INTENSITY:

A. DEPTH (FLOODING) OR SIZE (HAIL ETC.):

B. WIND STRENGTH

#### 5. RECURRING OR ONE TIME:

A. IF RECURRING, HOW OFTEN:

6. WHAT TYPE OF INTERRUPTIONS DOES/DID THE INCIDENT OR ISSUE CAUSE? (BUSINESS CLOSURE, DAMAGE, EVACUATION, ETC.)

Empty text area for describing the type of interruptions.

7. HOW LONG WAS THE INTERRUPTION (HOURS, DAYS, WEEKS ETC.)

Empty text area for describing the duration of the interruption.

8. HOW COULD THIS HAZARD OR IMPACT BE PREVENTED, FIXED OR ALLEVIATED?

Empty text area for describing prevention, fixing, or alleviation measures.

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## Appendix B: Plan Maintenance

### Purpose

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

### Implementing, Monitoring, Evaluating, and Updating the Plan

The Ouachita Parish Hazard Mitigation Planning Committee will be responsible for implementing, 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 and jurisdictions' other plans where applicable. 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 buildings and SDMI HM website. This section describes the update process as a whole, which includes the following:

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

### Responsible Parties

Ouachita Parish has developed a method to ensure that a regular review and update of this Hazard Mitigation Plan occurs. This will be the responsibility of the planning 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 planning committee.

Although the people filling the positions may change from year to year, the parish and its stakeholders will have representatives on the planning committee. The future planning committee will continue to be comprised of the same job functions as currently evident in the planning 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

Ouachita Parish has developed a method to ensure implementation, monitoring, evaluating, and updating of the HMP occurs during the five-year cycle of the plan. Implementation will be accomplished through constant and transparent efforts to network and highlight the multi-objective, win-win benefits of each project proposed in the *Mitigation Strategy* section. These efforts include the routine actions of monitoring agendas, attending meetings, and promoting a safe and resilient community. The planning committee will seek to 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 Ouachita 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 reduced/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 fully 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 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) Any new or existing procedures that can be done more efficiently
- 4) Any additional ways to gain more diverse and widespread cooperation
- 5) Any different or additional funding sources available for mitigation planning and implementation

The HMP will be updated every five years to remain eligible for continued HMGP funding. The planning committee will be responsible for updating the HMP. The OHSEP Director will be the lead person for the

HMP update. The HMP update process will commence at least one year prior to the expiration of the plan. The HMP will be updated after a major disaster if an annual evaluation of the plan indicates a substantial change in hazard profile and risk assessment in the parish.

Additionally, the public will be canvassed to solicit public input to continue Ouachita 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 SDMI Hazard Mitigation Website.

The review by the planning 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 planning 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.

### 2023 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 2023 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 Ouachita Parish Hazard Mitigation Plan Planning Committee and participating jurisdictions to determine additional implementation procedures when appropriate. This may include integrating the requirements of the Ouachita Parish Hazard Mitigation Plan into each jurisdiction's planning documents, processes, or mechanisms as follows:

- Ordinances, Resolutions, Regulations
- Floodplain Ordinances
- Comprehensive/Master Plans
- Capital Improvement Plans
- Economic Development Plans
- Emergency Operations Plans
- Continuity of Operations Plans
- Transportation Plan
- Stormwater Management Plan

Opportunities to integrate the requirements of this plan into other local planning mechanisms will continue to be identified through future meetings of the Ouachita Parish Hazard Mitigation Planning 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.).

While there have been no instances of the mitigation strategy being incorporated into other planning documents since the adoption of the 2017 Ouachita Hazard Mitigation Plan, the committee members recognize the importance of a holistic approach across all planning efforts and will use their standing to integrate the mitigation strategy outlined in the 2023 Ouachita Hazard Mitigation Plan into other planning documents when appropriate.

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 planning committee to be the most effective and appropriate method to ensure implementation of Parish and local hazard mitigation actions.

On behalf of the City of Monroe, the Town of Richwood, the Town of Sterlington, the City of West Monroe, and Unincorporated Ouachita 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 planning committee member and jurisdiction representation throughout the planning process as described above:

| Ouachita Parish                           |                   |                             |   |
|---|-------------------|-----------------------------|---|
| <i>Capital Improvements Plan</i>          | Updated as needed | Ouachita Parish Police Jury | ✓ |
| <i>Economic Development Plan</i>          | Updated as needed | Ouachita Parish Police Jury | ✓ |
| <i>Local emergency Operations Plan</i>    | Updated as needed | Ouachita Parish OHSEP       | ✓ |
| <i>Continuity of Operations Plan</i>      | Updated as needed | Ouachita Parish OHSEP       | ✓ |
| <i>Transportation Plan</i>                | Updated as needed | Ouachita Parish OHSEP       | ✓ |
| <i>Stormwater Management Plan</i>         | Updated as needed | Ouachita Parish Police Jury | ✓ |
| <i>Community Wildfire Protection Plan</i> | Updated as needed | Ouachita Parish OHSEP       | ✓ |
| <i>Shelter Plan for Incoming Evacuees</i> | Updated as needed | Ouachita Parish OHSEP       | ✓ |

City of Monroe

|   |                   |                             |   |
|---|-------------------|-----------------------------|---|
| <i>Comprehensive Master Plan</i>          | Updated as needed | Ouachita Parish Police Jury | ✓ |
| <i>Capital Improvements Plan</i>          | Updated as needed | Ouachita Parish Police Jury | ✓ |
| <i>Economic Development Plan</i>          | Updated as needed | Ouachita Parish Police Jury | ✓ |
| <i>Local emergency Operations Plan</i>    | Updated as needed | Ouachita Parish OHSEP       | ✓ |
| <i>Continuity of Operations Plan</i>      | Updated as needed | Ouachita Parish OHSEP       | ✓ |
| <i>Transportation Plan</i>                | Updated as needed | Ouachita Parish OHSEP       | ✓ |
| <i>Stormwater Management Plan</i>         | Updated as needed | Ouachita Parish Police Jury | ✓ |
| <i>Community Wildfire Protection Plan</i> | Updated as needed | Ouachita Parish OHSEP       | ✓ |

Town of Richwood

|   |                   |                             |   |
|---|-------------------|-----------------------------|---|
| <i>Local emergency Operations Plan</i>    | Updated as needed | Ouachita Parish OHSEP       | ✓ |
| <i>Continuity of Operations Plan</i>      | Updated as needed | Ouachita Parish OHSEP       | ✓ |
| <i>Transportation Plan</i>                | Updated as needed | Ouachita Parish OHSEP       | ✓ |
| <i>Stormwater Management Plan</i>         | Updated as needed | Ouachita Parish Police Jury | ✓ |
| <i>Community Wildfire Protection Plan</i> | Updated as needed | Ouachita Parish OHSEP       | ✓ |

Town of Sterlington

|   |                   |                             |   |
|---|-------------------|-----------------------------|---|
| <i>Local emergency Operations Plan</i>    | Updated as needed | Ouachita Parish OHSEP       | ✓ |
| <i>Continuity of Operations Plan</i>      | Updated as needed | Ouachita Parish OHSEP       | ✓ |
| <i>Transportation Plan</i>                | Updated as needed | Ouachita Parish OHSEP       | ✓ |
| <i>Stormwater Management Plan</i>         | Updated as needed | Ouachita Parish Police Jury | ✓ |
| <i>Community Wildfire Protection Plan</i> | Updated as needed | Ouachita Parish OHSEP       | ✓ |

City of West Monroe

|  |                   |                             |   |
|--|-------------------|-----------------------------|---|
| <i>Comprehensive Master Plan</i>       | Updated as needed | Ouachita Parish Police Jury | ✓ |
| <i>Capital Improvements Plan</i>       | Updated as needed | Ouachita Parish Police Jury | ✓ |
| <i>Economic Development Plan</i>       | Updated as needed | Ouachita Parish Police Jury | ✓ |
| <i>Local emergency Operations Plan</i> | Updated as needed | Ouachita Parish OHSEP       | ✓ |
| <i>Continuity of Operations Plan</i>   | Updated as needed | Ouachita Parish OHSEP       | ✓ |
| <i>Transportation Plan</i>             | Updated as needed | Ouachita Parish OHSEP       | ✓ |
| <i>Stormwater Management Plan</i>      | Updated as needed | Ouachita Parish Police Jury | ✓ |

### Continued Public Participation

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

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

## Appendix C: Critical Facilities

### Critical Facilities within the Ouachita Parish Planning Area

| Ouachita Parish Planning Area Critical Facilities |   |         |          |               |               |           |                   |           |                |            |             |
|---|---|---------|----------|---------------|---------------|-----------|-------------------|-----------|----------------|------------|-------------|
| Type  | Name                                    | Drought | Flooding | Levee Failure | Thunderstorms | Tornadoes | Tropical Cyclones | Wildfires | Winter Weather | Latitude   | Longitude   |
| Civil Government                                  | 911 Communications District             | x       |          |               | x             | x         | x                 |           | x              | 32.494774  | -92.128762  |
|   | Monroe City Hall                        | x       |          |               | x             | x         | x                 |           | x              | 32.501169  | -92.110922  |
|   | Ouachita Parish Clerk of Court          | x       |          |               | x             | x         | x                 |           | x              | 32.4993547 | -92.1167813 |
|   | Ouachita Parish Police Jury             | x       |          |               | x             | x         | x                 |           | x              | 32.494998  | -92.111602  |
|   | Ouachita Parish Public Works Department | x       |          |               | x             | x         | x                 | x         | x              | 32.5056945 | -92.1923656 |
|   | Richwood Public Works                   | x       |          |               | x             | x         | x                 |           | x              | 32.4434678 | -92.0779246 |
|   | Richwood Town Hall                      | x       |          |               | x             | x         | x                 |           | x              | 32.4484042 | -92.0835454 |
|   | Sterlington Town Hall                   | x       |          |               | x             | x         | x                 | x         | x              | 32.693637  | -92.0765741 |
|   | West Monroe City Court                  | x       |          |               | x             | x         | x                 |           | x              | 32.5208475 | -92.1491452 |
|   | West Monroe City Hall                   | x       |          |               | x             | x         | x                 |           | x              | 32.520912  | -92.148531  |
| Fire & SAR  | 5th Street Fire Station                 | x       |          |               | x             | x         | x                 |           | x              | 32.499313  | -92.129384  |
|   | Cypress St Fire Station                 | x       |          |               | x             | x         | x                 |           | x              | 32.515745  | -92.172332  |
|   | Fire Dept. Garage and Maintenance       | x       | x        |               | x             | x         | x                 |           | x              | 32.485507  | -92.084841  |
|   | Fire Dept. Training Tower               | x       |          |               | x             | x         | x                 |           | x              | 32.480819  | -92.109396  |
|   | FIRE DISTRICT - STATION #5 SWARTZ       | x       |          |               | x             | x         | x                 | x         | x              | 32.5741209 | -91.9851159 |

|   |   |   |  |   |   |   |   |   |            |             |
|---|---|---|--|---|---|---|---|---|------------|-------------|
| FIRE DISTRICT - STATION #9 FAIRBANKS      | x |   |  | x | x | x |   | x | 32.648291  | -92.053366  |
| FIRE DISTRICT - STATION #11 BOSCO         | x |   |  | x | x | x |   | x | 32.284409  | -92.094857  |
| FIRE DISTRICT - STATION #12 CADEVILLE     | x |   |  | x | x | x | x | x | 32.4283534 | -92.3357414 |
| FIRE DISTRICT - STATION #14 CYPRESS COMM. | x |   |  | x | x | x |   | x | 32.3199484 | -92.2563737 |
| FIRE DISTRICT - STATION #2 WALLACE        | x |   |  | x | x | x |   | x | 32.527624  | -92.187625  |
| FIRE DISTRICT - STATION #4 KING STREET    | x |   |  | x | x | x |   | x | 32.465659  | -92.170974  |
| FIRE DISTRICT - STATION #6 CHENIERE       | x |   |  | x | x | x | x | x | 32.521031  | -92.244367  |
| FIRE DISTRICT - STATION #7 KINCAID        | x |   |  | x | x | x |   | x | 32.3724846 | -92.0586512 |
| FIRE DISTRICT - STATION #8 CALHOUN        | x |   |  | x | x | x | x | x | 32.5199648 | -92.325559  |
| FIRE DISTRICT- STATION #1 Finks Hideaway  | x |   |  | x | x | x | x | x | 32.565346  | -92.041005  |
| FIRE DISTRICT- STATION #10 LUNA           | x |   |  | x | x | x | x | x | 32.371041  | -92.205166  |
| FIRE DISTRICT- STATION #16 CARLTON        | x |   |  | x | x | x | x | x | 32.537567  | -92.359663  |
| FIRE DISTRICT- STATION #3 TICHELLI        | x |   |  | x | x | x |   | x | 32.468155  | -92.068572  |
| Fire Station #10 River Oaks               | x | x |  | x | x | x | x | x | 32.555726  | -92.111899  |
| Fire Station #4                           | x |   |  | x | x | x |   | x | 32.480819  | -92.109396  |
| Fire Station #5                           | x |   |  | x | x | x |   | x | 32.526213  | -92.084030  |
| Fire Station #6                           | x | x |  | x | x | x |   | x | 32.532750  | -92.111560  |

|                        |                                       |   |   |   |   |   |   |   |            |             |              |
|------------------------|---------------------------------------|---|---|---|---|---|---|---|------------|-------------|--------------|
|                        | Fire Station #7                       | x |   |   | x | x | x |   | x          | 32.513279   | -92.043634   |
|                        | Fire Station #8                       | x |   |   | x | x | x |   | x          | 32.448279   | -92.096738   |
|                        | Fire Station, #1                      | x |   |   | x | x | x |   | x          | 32.507858   | -92.115730   |
|                        | Fire Station, #2                      | x |   |   | x | x | x |   | x          | 32.493425   | -92.102878   |
|                        | Otis St Fire Station                  | x |   |   | x | x | x |   | x          | 32.523806   | -92.144376   |
| <b>Law Enforcement</b> | Monroe Police Building, Jail & Courts | x |   |   | x | x | x |   | x          | 32.501372   | -92.110734   |
|                        | Ouachita Parish Sheriff's Office      | x |   |   | x | x | x |   | x          | 32.49844975 | -92.11562073 |
|                        | Richwood Correctional Center          | x | x |   | x | x | x |   | x          | 32.457055   | -92.080726   |
|                        | Richwood Police Department            | x |   |   | x | x | x |   | x          | 32.4484042  | -92.0835454  |
|                        | Sterlington Police Department         | x |   |   | x | x | x |   | x          | 32.694361   | -92.074644   |
|                        | West Monroe Police Department         | x |   |   | x | x | x |   | x          | 32.5208475  | -92.1491452  |
| <b>Public Health</b>   | Ouachita Parish Public Health Unit    | x |   |   | x | x | x |   | x          | 32.5094148  | -92.103444   |
| <b>Schools</b>         | Boley Elementary                      | x |   |   | x | x | x |   | x          | 32.5171156  | -92.1465041  |
|                        | Calhoun Elementary                    | x |   |   | x | x | x | x | x          | 32.5142359  | -92.3688942  |
|                        | Calhoun Middle                        | x |   |   | x | x | x | x | x          | 32.5160273  | -92.3618346  |
|                        | Central Elementary                    | x |   |   | x | x | x |   | x          | 32.4858627  | -92.3553489  |
|                        | Claiborne Elementary                  | x |   |   | x | x | x | x | x          | 32.5328407  | -92.2000367  |
|                        | Crosley Elementary                    | x |   |   | x | x | x |   | x          | 32.5001185  | -92.1305879  |
|                        | Drew Elementary                       | x |   |   | x | x | x | x | x          | 32.5463928  | -92.2499847  |
|                        | East Ouachita Middle                  | x |   |   | x | x | x | x | x          | 32.5860932  | -91.9974776  |
|                        | George Welch Elementary               | x |   |   | x | x | x | x | x          | 32.5457603  | -92.1985783  |
|                        | Good Hope Middle                      | x |   |   | x | x | x |   | x          | 32.545749   | -92.1718802  |
|                        | Highland Elementary                   | x |   |   | x | x | x |   | x          | 32.5240862  | -92.1616027  |
|                        | Jack Hayes Elementary                 | x |   |   | x | x | x | x | x          | 32.5603682  | -92.0685081  |
|                        | Kiroli Elementary                     | x |   |   | x | x | x |   | x          | 32.5403416  | -92.1650968  |
|                        | Lakeshore Elementary                  | x |   |   | x | x | x |   | x          | 32.5340531  | -92.0419473  |
| Lenwil Elementary      | x                                     |   |   | x | x | x |   | x | 32.4660948 | -92.1650977 |              |

|  |                                 |   |   |  |   |   |   |   |   |            |             |
|--|---------------------------------|---|---|--|---|---|---|---|---|------------|-------------|
|  | Ouachita Junior High            | x |   |  | x | x | x |   | x | 32.5207125 | -92.0572817 |
|  | Ouachita Parish High            | x |   |  | x | x | x |   | x | 32.5032973 | -91.9978852 |
|  | Pinecrest Elementary and Middle | x | x |  | x | x | x | x | x | 32.3464438 | -92.2224387 |
|  | Richwood High                   | x |   |  | x | x | x |   | x | 32.4331438 | -92.0910374 |
|  | Richwood Junior High            | x |   |  | x | x | x |   | x | 32.4331438 | -92.0910374 |
|  | Riser Elementary                | x |   |  | x | x | x | x | x | 32.4880381 | -92.1790835 |
|  | Riser Middle                    | x |   |  | x | x | x | x | x | 32.4880381 | -92.1790835 |
|  | Riverbend Elementary            | x |   |  | x | x | x |   | x | 32.492885  | -92.1282671 |
|  | Robinson Elementary             | x |   |  | x | x | x |   | x | 32.4528263 | -92.0914095 |
|  | Shady Grove Elementary          | x |   |  | x | x | x |   | x | 32.4663436 | -92.0815696 |
|  | Sterlington Elementary          | x |   |  | x | x | x |   | x | 32.6491209 | -92.0549925 |
|  | Sterlington High                | x |   |  | x | x | x |   | x | 32.6466699 | -92.06685   |
|  | Sterlington Middle              | x |   |  | x | x | x |   | x | 32.6962995 | -92.0716734 |
|  | Swartz Lower Elementary         | x | x |  | x | x | x | x | x | 32.5660935 | -91.9949533 |
|  | Swartz Upper Elementary         | x | x |  | x | x | x | x | x | 32.5660935 | -91.9949533 |
|  | Swayze Elementary               | x | x |  | x | x | x | x | x | 32.4775059 | -92.0920962 |
|  | West Monroe High                | x |   |  | x | x | x |   | x | 32.5101567 | -92.1454339 |
|  | West Ouachita High              | x |   |  | x | x | x |   | x | 32.4272152 | -92.3390861 |
|  | West Ridge Middle               | x | x |  | x | x | x | x | x | 32.5128806 | -92.2194779 |
|  | Woodlawn Elementary             | x |   |  | x | x | x | x | x | 32.413674  | -92.2169303 |
|  | Woodlawn Junior High            | x |   |  | x | x | x | x | x | 32.413674  | -92.2169303 |

## Appendix D: Plan Adoption

### Unincorporated Ouachita Parish

\*\*\*WILL UPDATE ONCE JURISDICTIONS FORMALLY ADOPT HMP AFTER FEMA REVIEW\*\*\*

City of Monroe



Town of Richwood



Town of Sterlington



City of West Monroe



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## Appendix E: State Required Worksheets

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

### Mitigation Planning Team

| Ouachita Parish Hazard Mitigation Planning Committee |                         |                                 |  |
|--|-------------------------|---------------------------------|--|
| Name   | Title                   | Agency                          | Email  |
| Rodger McConnell                                     | Director                | Ouachita Parish OHSEP           | <a href="mailto:rodger.mcconnell@ohsep.net">rodger.mcconnell@ohsep.net</a>         |
| Todd Smith   | Region 8 Coordinator    | GOHSEP                          | <a href="mailto:todd.smith@la.gov">todd.smith@la.gov</a>                           |
| Shane Smiley   | Police Jury President   | Ouachita Parish Police Jury     | <a href="mailto:ssmiley@oppi.org">ssmiley@oppi.org</a>                             |
| Matt Talbert   | Mayor                   | Town of Sterlington             | <a href="mailto:mtalbert@townofsterlington.com">mtalbert@townofsterlington.com</a> |
| Tom Malmay   | Parish Consultant       | Malmay and Associates           | <a href="mailto:tom@malmay.com">tom@malmay.com</a>                                 |
| Gary Eldridge  | Engineer                | City of West Monroe             | <a href="mailto:geldridge@westmonroe.la.gov">geldridge@westmonroe.la.gov</a>       |
| Robbie George  | President/Engineer      | S.E. Huey/City of West Monroe   | <a href="mailto:rgeorge@seheuy.com">rgeorge@seheuy.com</a>                         |
| Charles Huggins                                      | Fire Protection Officer | West Monroe Fire Department     | <a href="mailto:chuggins@westmonroe.la.gov">chuggins@westmonroe.la.gov</a>         |
| Jason Pleasant                                       | Police Chief            | West Monroe Police Department   | <a href="mailto:jpleasant@westmonroe.la.gov">jpleasant@westmonroe.la.gov</a>       |
| Friday Ellis   | Mayor                   | City of Monroe Mayor            | <a href="mailto:Friday.Ellis@ci.monroe.la.us">Friday.Ellis@ci.monroe.la.us</a>     |
| Gerald Brown   | Mayor                   | Town of Richwood Mayor          | <a href="mailto:mayorbrown@townofrichwood.com">mayorbrown@townofrichwood.com</a>   |
| Kevin Crosby   | Parish Engineer         | Ouachita Parish/Lazenby & Assoc | <a href="mailto:kcrosby@lazenbyengr.com">kcrosby@lazenbyengr.com</a>               |
| Pat Hemphill   | Fire Chief              | Ouachita Parish Fire Department | <a href="mailto:phephill@ouachitafire.org">phephill@ouachitafire.org</a>           |
| Jay Russell  | Sheriff                 | Ouachita Parish Sheriff         | <a href="mailto:jrussell@opso.net">jrussell@opso.net</a>                           |
| Terry Williams                                       | Fire Chief              | City of Monroe                  | <a href="mailto:terry.williams@ci.monroe.la.us">terry.williams@ci.monroe.la.us</a> |

Capability Assessment  
Unincorporated Ouachita Parish

| Capability Assessment Worksheet - Ouachita Parish  |                                    |   |
|--|------------------------------------|---|
| Local mitigation capabilities are existing authorities, polices and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible. |                                    |   |
| Planning and Regulatory  |                                    |   |
| Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.   |                                    |   |
| Plans  | Yes/No                             | Comments                                  |
| Comprehensive / Master Plan  | No                                 |   |
| Capital Improvements Plan  | Yes                                | This is done during the yearly budget mtg |
| Economic Development Plan  | Yes                                | North Delta Planning                      |
| Local Emergency Operations Plan  | Yes                                | Through OHSEP                             |
| Continuity of Operations Plan  | Yes                                | Covered in Emerg Op Plan                  |
| Transportation Plan  | Yes                                | Covered in Emerg Op Plan                  |
| Stormwater Management Plan   | Yes                                | Covered in Emerg Op Plan                  |
| Community Wildfire Protection Plan   | Yes                                | Covered in Emerg Op Plan                  |
| Other plans (redevelopment, recovery, coastal zone management)   | Shelter plan for incoming evacuees | Covered in Parish Shelter Plan            |
| Building Code, Permitting and Inspections  | Yes/No                             | Comments                                  |
| Building Code  | Yes                                |   |
| Building Code Effectiveness Grading Schedule (BCEGS) Score   |                                    |   |
| Fire Department ISO/PIAL rating  | Yes                                | Rating - 4                                |
| Site plan review requirements  | Yes                                | For all new developments                  |
| Land Use Planning and Ordinances   | Yes/No                             | Comments                                  |
| Zoning Ordinance   | No                                 |   |
| Subdivision Ordinance  | Yes                                | approved 2016                             |
| Floodplain Ordinance   | Yes                                | approved 2016                             |
| Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)  | No                                 |   |
| Flood Insurance Rate Maps  | Yes                                | New map effective 01/20/16                |
| Acquisition of land for open space and public recreation uses  | No                                 |   |
| Other  |                                    |   |

| 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  | Yes    | OHSEP & PEMAC  |
| Maintenance programs to reduce risk (tree trimming, clearing drainage systems)   | Yes    | Dept of Public Works                                 |
| Staff  | Yes/No | Comments   |
| Chief Building Official  | Yes    | Certified Contractor                                 |
| Floodplain Administrator   | Yes    | Certified  |
| Emergency Manager  | Yes    | OHSEP Director                                       |
| Community Planner  | No     |  |
| Civil Engineer   | Yes    | Certified P.E. (Contract)                            |
| GIS Coordinator  | Yes    | Public Works has certified GIS contractor            |
| Grant Writer   | No     |  |
| Other  |        |  |
| Technical  | Yes/No | Comments   |
| Warning Systems / Service<br>(Reverse 911, outdoor warning signals)  | Yes    | Rave, NWS, IPAWS                                     |
| Hazard Data & Information  | No     |  |
| Grant Writing  | No     | This will be hired on an as needed basis by contract |
| Hazus Analysis   | Yes    | In Mitigation Plan                                   |
| 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  | Yes    | Local, Federal and State Funding       |
| Authority to levy taxes for specific purposes   | Yes    |  |
| Fees for water, sewer, gas, or electric services  | Yes    | Sewer                                  |
| Impact fees for new development   | No     |  |
| Stormwater Utility Fee  | No     |  |
| Community Development Block Grant (CDBG)  | Yes    | We apply for any for which we qualify. |
| Other Funding Programs  |        |  |

| Education and Outreach   |        |   |
|--|--------|---|
| Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information. |        |   |
| Program / Organization   | Yes/No | Comments                                |
| Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.              | Yes    | VOAD, CERT                              |
| Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)                                    | Yes    | MFD, WMFD, OPFD, MPD, WMPD, OPSO, OHSEP |
| Natural Disaster or safety related school program  | Yes    | Review all School Hat Mit plans yearly  |
| Storm Ready certification  | Yes    | Certified Storm Ready Community by NWS  |
| Firewise Communities certification   |        |   |
| Public/Private partnership initiatives addressing disaster-related issues  | Yes    | United Way, Red Cross, VOAD,            |
| Other  |        |   |

City of Monroe

| Capability Assessment Worksheet - Monroe   |        |                                       |
|--|--------|---------------------------------------|
| Local mitigation capabilities are existing authorities, polices and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible. |        |                                       |
| Planning and Regulatory  |        |                                       |
| Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.   |        |                                       |
| Plans  | Yes/No | Comments                              |
| Comprehensive / Master Plan  | Yes    | City has an Updated ComPlan           |
| Capital Improvements Plan  | Yes    | Engineering Dept in charge            |
| Economic Development Plan  | Yes    | City /North La.Eco. Dev. and Chamber  |
| Local Emergency Operations Plan  | Yes    | City/Interagency Plan                 |
| Continuity of Operations Plan  | Yes    | Install generators/ on duty personnel |
| Transportation Plan  | Yes    | Coord.with Monroe Trans. Sytm         |
| Stormwater Management Plan   | Yes    | State Approv. Storm. Manag. Plan      |
| Community Wildfire Protection Plan   | Yes    | State/Parish & City Fire Marshal      |
| Other plans (redevelopment, recovery, coastal zone management)   | Yes    | Commt. Redevel.Plan/state Recovery    |
| Building Code, Permitting and Inspections  | Yes/No | Comments                              |
| Building Code  | Yes    | Adopted State IBC Code                |
| Building Code Effectiveness Grading Schedule (BCEGS) Score   |        |                                       |
| Fire Department ISO/PIAL rating  | Yes    | Monroe Fire Dpt. Is No 1 rated        |
| Site plan review requirements  | Yes    | For all new Develop. and additions    |
| Land Use Planning and Ordinances   | Yes/No | Comments                              |
| Zoning Ordinance   | Yes    | Newly Updated                         |
| Subdivision Ordinance  | Yes    | Newly Updated                         |
| Floodplain Ordinance   | Yes    | Approved by state                     |
| Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)  | Yes    | SWEPP (Fire Dept.)                    |
| Flood Insurance Rate Maps  | Yes    | New Maps Effic. Jan. 20, 2016         |
| Acquisition of land for open space and public recreation uses  | Yes    |                                       |
| Other  |        |                                       |

| Administration and Technical   |        |                                   |
|--|--------|-----------------------------------|
| Identify whether your community has the following administrative and technical capabilities. For smaller jurisdictions without local staff resources, if there are public resources at the next higher level government that can provide technical assistance, indicate so in your comments. |        |                                   |
| Administration   | Yes/No | Comments                          |
| Planning Commission  | Yes    |                                   |
| Mitigation Planning Committee  | Yes    | Eng. Police.Planning. Fire & Pwk  |
| Maintenance programs to reduce risk (tree trimming, clearing drainage systems)   | Yes    | Public Works Department           |
| Staff  | Yes/No | Comments                          |
| Chief Building Official  | Yes    | Certified                         |
| Floodplain Administrator   | Yes    |                                   |
| Emergency Manager  | Yes    | Mayor                             |
| Community Planner  | Yes    | Certified                         |
| Civil Engineer   | Yes    | Certified                         |
| GIS Coordinator  | Yes    |                                   |
| Grant Writer   | Yes    |                                   |
| Other  |        |                                   |
| Technical  | Yes/No | Comments                          |
| Warning Systems / Service<br>(Reverse 911, outdoor warning signals)  | Yes    | National Weather Service          |
| Hazard Data & Information  | Yes    |                                   |
| Grant Writing  | Yes    |                                   |
| Hazus Analysis   | Yes    | Done in the last Haz. Mitig. Plan |
| 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  | Yes    | City Capital Bonding |
| Authority to levy taxes for specific purposes   | Yes    | Millage              |
| Fees for water, sewer, gas, or electric services  | Yes    | Water, Sewer         |
| Impact fees for new development   | No     |                      |
| Stormwater Utility Fee  | No     |                      |
| Community Development Block Grant (CDBG)  | Yes    |                      |
| Other Funding Programs  |        |                      |

| Education and Outreach   |        |   |
|--|--------|---|
| Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information. |        |   |
| Program / Organization   | Yes/No | Comments                                |
| Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.              | Yes    | Keep Monroe/Ouachita Beau.              |
| Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)                                    | Yes    | PWD,Fire, PUD Police, Eng.              |
| Natural Disaster or safety related school program  | Yes    | Hazard Mitigation Mat. Diliver to schs. |
| Storm Ready certification  |        |   |
| Firewise Communities certification   |        |   |
| Public/Private partnership initiatives addressing disaster-related issues  | Yes    | City, United Way,Red Cross, Cham        |
| Other  |        |   |

Town of Richwood

| Capability Assessment Worksheet - Richwood   |        |  |
|--|--------|--|
| Local mitigation capabilities are existing authorities, polices and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible. |        |  |
| Planning and Regulatory  |        |  |
| Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.   |        |  |
| Plans  | Yes/No | Comments                               |
| Comprehensive / Master Plan  | No     |  |
| Capital Improvements Plan  | No     |  |
| Economic Development Plan  | No     |  |
| Local Emergency Operations Plan  | Yes    | Through Ouachita OHSEP                 |
| Continuity of Operations Plan  | Yes    | Covered in Parish Emerg Op Plan        |
| Transportation Plan  | Yes    | Covered in Parish Emerg Op Plan        |
| Stormwater Management Plan   | Yes    | Covered in Parish Emerg Op Plan        |
| Community Wildfire Protection Plan   | Yes    | Covered in Parish Emerg Op Plan        |
| Other plans (redevelopment, recovery, coastal zone management)   |        |  |
| Building Code, Permitting and Inspections  | Yes/No | Comments                               |
| Building Code  | Yes    | Covered by Ouachita Parish Police Jury |
| Building Code Effectiveness Grading Schedule (BCEGS) Score   |        |  |
| Fire Department ISO/PIAL rating  | 4      | Rating - 4 (Parish Fire Dept)          |
| Site plan review requirements  | Yes    | Covered by Ouachita Parish Police Jury |
| Land Use Planning and Ordinances   | Yes/No | Comments                               |
| Zoning Ordinance   | Yes    | Covered by Ouachita Parish Police Jury |
| Subdivision Ordinance  | Yes    | approved 2016 (Parish)                 |
| Floodplain Ordinance   | Yes    | approved 2016 (Parish)                 |
| Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)  | Yes    | Covered by Ouachita Parish Police Jury |
| Flood Insurance Rate Maps  | Yes    | New map effective 01/20/16 (Parish)    |
| Acquisition of land for open space and public recreation uses  | No     |  |
| Other  |        |  |

| Administration and Technical   |        |  |
|--|--------|--|
| Identify whether your community has the following administrative and technical capabilities. For smaller jurisdictions without local staff resources, if there are public resources at the next higher level government that can provide technical assistance, indicate so in your comments. |        |  |
| Administration   | Yes/No | Comments                               |
| Planning Commission  | Yes    | Covered by Ouachita Parish Police Jury |
| Mitigation Planning Committee  | Yes    | Covered by Ouachita Parish Police Jury |
| Maintenance programs to reduce risk (tree trimming, clearing drainage systems)   | Yes    | Covered by Ouachita Parish Police Jury |
| Staff  | Yes/No | Comments                               |
| Chief Building Official  | No     |  |
| Floodplain Administrator   | Yes    | Covered by Ouachita Parish Police Jury |
| Emergency Manager  | Yes    | OHSEP Director                         |
| Community Planner  | Yes    | Covered by Ouachita Parish Police Jury |
| Civil Engineer   | Yes    | Covered by Ouachita Parish Police Jury |
| GIS Coordinator  | Yes    | Covered by Ouachita Parish Police Jury |
| Grant Writer   | No     |  |
| Other  |        |  |
| Technical  | Yes/No | Comments                               |
| Warning Systems / Service<br>(Reverse 911, outdoor warning signals)  | Yes    | Alert FM, NWS, IPAWS by OHSEP          |
| Hazard Data & Information  | No     |  |
| Grant Writing  | No     |  |
| Hazus Analysis   | Yes    | Covered in Parish Plan                 |
| 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)  | No     |          |
| Other Funding Programs  |        |          |

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

Town of Sterlington

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

| Administration and Technical   |        |                                   |
|--|--------|-----------------------------------|
| Identify whether your community has the following administrative and technical capabilities. For smaller jurisdictions without local staff resources, if there are public resources at the next higher level government that can provide technical assistance, indicate so in your comments. |        |                                   |
| Administration   | Yes/No | Comments                          |
| Planning Commission  | Yes    |                                   |
| Mitigation Planning Committee  | Yes    | OHSEP & PEMAC                     |
| Maintenance programs to reduce risk (tree trimming, clearing drainage systems)   | No     |                                   |
| Staff  | Yes/No | Comments                          |
| Chief Building Official  | Yes    | Chad Parker Inspections Unlimited |
| Floodplain Administrator   | Yes    | Parish F.P. Administrator is used |
| Emergency Manager  | Yes    | Parish OHSEP Director is used     |
| Community Planner  | No     |                                   |
| Civil Engineer   | Yes    | Volkert Engineering               |
| GIS Coordinator  | No     |                                   |
| Grant Writer   | No     |                                   |
| Other  |        |                                   |
| Technical  | Yes/No | Comments                          |
| Warning Systems / Service<br>(Reverse 911, outdoor warning signals)  | Yes    | Alert FM, NWS, IPAWS              |
| Hazard Data & Information  | No     |                                   |
| Grant Writing  | No     |                                   |
| Hazus Analysis   | Yes    | In Parish Mitigation Plan         |
| 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  | Yes    | Local, Federal and State Funding       |
| Authority to levy taxes for specific purposes   | Yes    |  |
| Fees for water, sewer, gas, or electric services  | Yes    | Sewer                                  |
| Impact fees for new development   | No     |  |
| Stormwater Utility Fee  | No     |  |
| Community Development Block Grant (CDBG)  | Yes    | We apply for any for which we qualify. |
| Other Funding Programs  |        |  |

| Education and Outreach   |        |          |
|--|--------|----------|
| Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information. |        |          |
| Program / Organization   | Yes/No | Comments |
| Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.              | No     |          |
| 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   | No     |          |
| Public/Private partnership initiatives addressing disaster-related issues  | No     |          |
| Other  |        |          |

City of West Monroe

| Capability Assessment Worksheet - West Monroe  |        |  |
|--|--------|--|
| Local mitigation capabilities are existing authorities, polices and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible. |        |  |
| Planning and Regulatory  |        |  |
| Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.   |        |  |
| Plans  | Yes/No | Comments   |
| Comprehensive / Master Plan  | Yes    | City has an updated Plan                           |
| Capital Improvements Plan  | Yes    | City Engineer                                      |
| Economic Development Plan  | Yes    | Economic Dir                                       |
| Local Emergency Operations Plan  | Yes    |  |
| Continuity of Operations Plan  | Yes    |  |
| Transportation Plan  | Yes    | 2045 Metropolitan Transportation Plan (Monroe MPO) |
| Stormwater Management Plan   | Yes    |  |
| Community Wildfire Protection Plan   | No     |  |
| Other plans (redevelopment, recovery, coastal zone management)   | Yes    | Downtown Master Plan Citywide Master Plan          |
| Building Code, Permitting and Inspections  | Yes/No | Comments   |
| Building Code  | Yes    | Adopted State Code                                 |
| Building Code Effectiveness Grading Schedule (BCEGS) Score   | No     |  |
| Fire Department ISO/PIAL rating  | Yes    | COWM Fire Dpt No 1 Rating                          |
| Site plan review requirements  | Yes    |  |
| Land Use Planning and Ordinances   | Yes/No | Comments   |
| Zoning Ordinance   | Yes    |  |
| Subdivision Ordinance  | Yes    |  |
| Floodplain Ordinance   | Yes    |  |
| Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)  | Yes    |  |
| Flood Insurance Rate Maps  | Yes    |  |
| Acquisition of land for open space and public recreation uses  | Yes    |  |
| Other  |        |  |

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

| Education and Outreach   |        |   |
|--|--------|---|
| Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related information. |        |   |
| Program / Organization   | Yes/No | Comments  |
| Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.              | Yes    | KWMB  |
| Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)                                    | Yes    | WMFD Fire Prevention; KWMB; City of WM regularly posts PSAs about responsible water use             |
| Natural Disaster or safety related school program  | Yes    | WMFD Fire Prevention Bureau visits each elementary school yearly to deliver fire safety information |
| Storm Ready certification  | No     |   |
| Firewise Communities certification   | No     |   |
| Public/Private partnership initiatives addressing disaster-related issues  | Yes    | United Way, Red Cross   |
| Other  |        |   |

Building Inventory

| Ouachita Parish and Jurisdiction Owned Building Information |  |                      |             |            |            |                |            |                    |
|---|--|----------------------|-------------|------------|------------|----------------|------------|--------------------|
| Unincorporated Ouachita Parish                              |  |                      |             |            |            |                |            |                    |
| Name of Building  | Purpose of Building  | Address              | City        | Latitude   | Longitude  | Assessed Value | Date Built | Construction Type  |
| MAIN COURTHOUSE (4th floor sprinklered)                     | Parish Office and Court Rooms                                      | 300 ST. JOHN         | MONROE      | 32.4997766 | -92.116104 | \$30,675,000   | 1929       | Reinforced Masonry |
| PUBLIC WORKS-MAIN BLDG/OFF-SHOP                             | Public Works Offices and Shop                                      | 337 WELL RD          | WEST MONROE | 32.50569   | -92.189796 | \$1,650,000    | 1979       | Reinforced Masonry |
| COURTHOUSE ANNEX - 3 Story                                  | Parish Office and Court Rooms                                      | 400 ST. JOHN         | MONROE      | 32.4982929 | -92.114963 | \$4,600,000    | 1950       | Reinforced Masonry |
| COURTHOUSE ANNEX - 1 Story                                  | Parish Office and Court Rooms                                      | 400 ST. JOHN         | MONROE      | 32.4982929 | -92.114963 | \$2,540,000    | 1950       | Reinforced Masonry |
| COMMUNICATIONS DISTRICT - 911                               | 911 System   | 800 COLEMAN AVE      | WEST MONROE | 32.494774  | -92.128762 | \$816,509      | 2002       | Reinforced Masonry |
| SANITARY SEWER LIFT STATION                                 | sewer Lift Station   | 4801 HWY 165 S       | MONROE      | 32.453519  | -92.106063 | \$197,000      | 1997       | Reinforced Masonry |
| HEALTH UNIT   | Ouachita Parish Public Health Unit and State Public Health Offices | 1650 DESARD          | Monroe      | 32.509598  | -92.102760 | \$7,850,000    | 2003       | Reinforced Masonry |
| RECREATION CENTER   | Recreation Center/Emergency Shelter                                | 710 HOLLAND DR.      | OSTERLAND   | 32.56453   | -92.050533 | \$1,200,000    | 1981       | Reinforced Masonry |
| RECREATION CENTER   | Recreation Center/Emergency Shelter                                | 701 LINCOLN          | HILL SWARTZ | 32.563934  | -92.9909   | \$1,200,000    | 1981       | Reinforced Masonry |
| REC CENTER  | Recreation Center/Emergency Shelter                                | 709 FRANCIS AVENUE   | STERLINGTON | 32.698799  | -92.07311  | \$1,200,000    | 1996       | Reinforced Masonry |
| PUBLIC LIB - OUCHITA VALLEY                                 | Library/Emergency Shelter  | 581 MCMILLAN RD      | WEST MONROE | 32.514369  | -92.153597 | \$3,150,000    | 1976       | Reinforced Masonry |
| PUBLIC LIB - WEST MONROE                                    | Library/Emergency Shelter  | 315 CYPRESS STREET   | WEST MONROE | 32.502286  | -92.127192 | \$1,919,250    | 1976       | Reinforced Masonry |
| PUBLIC LIB - CARVER   | Library/Emergency Shelter  | 2941 RENWICK STREET  | MONROE      | 32.514436  | -92.085572 | \$1,302,300    | 1976       | Reinforced Masonry |
| PUBLIC LIB - ANNA MEYER                                     | Library/Emergency Shelter  | 1808 HWY 165 SOUTH   | MONROE      | 32.518072  | -92.106187 | \$1,482,075    | 1994       | Reinforced Masonry |
| PUBLIC LIB - MAIN   | Library/Emergency Shelter  | 1800 STUBBS AVENUE   | MONROE      | 32.52023   | -92.108209 | \$7,324,200    | 1976       | Reinforced Masonry |
| PUBLIC LIB - WEST OUACHITA                                  | Library/Emergency Shelter  | 188 HWY 546          | WEST MONROE | 32.516684  | -92.245815 | \$2,025,000    | 2001       | Reinforced Masonry |
| PUBLIC LIB - LOUISE WILLIAMS BRANCH                         | Library/Emergency Shelter  | 140 BAYOU OAKS DRIVE | MONROE      | 32.547149  | -92.01617  | \$2,250,000    | 2005       | Reinforced Masonry |
| PUBLIC LIB - STERLINGTON BRANCH                             | Library/Emergency Shelter  | 305 KEYSTONE ROAD    | STERLINGTON | 32.64764   | -92.064411 | \$1,732,500    | 2005       | Reinforced Masonry |
| PUBLIC LIB - OLLIE BURNS BRANCH                             | Library/Emergency Shelter  | 5601 U.S. 165 SOUTH  | RICHWOOD    | 32.632209  | -92.063184 | \$2,500,000    | 2010       | Reinforced Masonry |

|  |  |                               |             |           |            |             |      |                    |
|--|--|-------------------------------|-------------|-----------|------------|-------------|------|--------------------|
| PUBLIC LIB - SEARCY MEMORIAL                   | Library/Emergency Shelter                          | 5775 Jonesboro Road           | West Monroe | 32.411468 | -92.208785 | \$2,500,000 | 2010 | Reinforced Masonry |
| FIRE DISTRICT- STATION #1 Finks Hideaway       | Fire Station                                       | 1148 FINK'S HIDEAWAY          | MONROE      | 32.565346 | -92.041005 | \$467,000   | 1988 | Reinforced Masonry |
| FIRE DISTRICT - STATION #2 WALLACE             | Fire Station                                       | 717 WALLACE RD                | WEST MONROE | 32.527624 | -92.187625 | \$467,000   | 1967 | Reinforced Masonry |
| FIRE DISTRICT- STATION #3 TICHELLI             | Fire Station                                       | 2557 TICHELLI RD              | MONROE      | 32.468155 | -92.068572 | \$315,000   | 1967 | Reinforced Masonry |
| FIRE DISTRICT - STATION #4 KING STREET         | Fire Station                                       | 514 KING STREET               | WEST MONROE | 32.465659 | -92.170974 | \$467,000   | 1967 | Reinforced Masonry |
| FIRE DISTRICT - STATION #7 KINCAID             | Fire Station                                       | 3167 PRAIRIE                  | MONROE      | 32.363902 | -92.083213 | \$505,000   | 1967 | Reinforced Masonry |
| FIRE DISTRICT - STATION #5 SWARTZ              | Fire Station                                       | 3413 Hwy 594 Swartz           | MONROE      | 32.574406 | -91.985492 | \$360,000   | 1987 | Reinforced Masonry |
| FIRE DISTRICT - STATION #9 FAIRBANKS           | Fire Station                                       | 232 HWY 134                   | MONROE      | 32.648291 | -92.053366 | \$655,000   | 1987 | Reinforced Masonry |
| FIRE DISTRICT - STATION #6 CHENIERE            | Fire Station                                       | 152 CHENIERE DREW RD          | WEST MONROE | 32.521031 | -92.244367 | \$600,000   | 1988 | Reinforced Masonry |
| FIRE DISTRICT - STATION #8 CALHOUN             | Fire Station                                       | 133 COWBOY LANE               | WEST MONROE | 32.520364 | -92.325234 | \$372,000   | 1988 | Reinforced Masonry |
| FIRE DISTRICT - STATION #12 CADEVILLE          | Fire Station                                       | 3947 CAPLES RD                | WEST MONROE | 32.4378   | -92.301722 | \$600,000   | 1988 | Reinforced Masonry |
| FIRE DISTRICT- STATION #10 LUNA                | Fire Station                                       | 2323 HWY LA 557               | WEST MONROE | 32.371041 | -92.205166 | \$550,000   | 1988 | Reinforced Masonry |
| FIRE DISTRICT - STATION #11 BOSCO              | Fire Station                                       | 226 BLANKSTON RD.             | MONROE      | 32.284409 | -92.094857 | \$525,000   | 1994 | Reinforced Masonry |
| FIRE DISTRICT - STATION #14 CYPRESS COMM.      | Fire Station                                       | 936 CYPRESS SCHOOL            | WEST MONROE | 32.314771 | -92.259555 | \$525,000   | 1994 | Reinforced Masonry |
| FIRE DISTRICT- STATION #16 CARLTON             | Fire Station                                       | 1257 HWY 151 NORTH            | CALHOUN     | 32.537567 | -92.359663 | \$525,000   | 1994 | Reinforced Masonry |
| Ouachita Parish EOC and Ouachita Fire Dispatch | OPFD Dispatch & Parish Emergency Operations Center | 1000 NEW NATCHITOCHES         | WEST MONROE | 32.495519 | -92.177626 | \$3,019,000 | 2003 | Reinforced Masonry |
| CHAUVIN BAYOU PUMP STATION                     | Main Parish Pump Station                           | 4141 Levee Drive              | MONROE      | 32.435948 | -92.127203 | \$5,435,600 | 1993 | Concrete           |
| RIVER STYX BAYOU PUMP STATION                  | Main Parish Pump Station                           | 924 HORSELAKE ROAD            | MONROE      | 32.597791 | -92.082812 | \$5,290,630 | 1990 | Concrete           |
| SEWER DISTRICT #16 LIFT STATION                | Sewer Lift Station                                 | 120 HERITAGE DR LOT 25        | WEST MONROE | 32.527328 | -92.22687  | \$75,000    | 2001 | Concrete           |
| SEWER DISTRICT #16 AER PAC TREATMENT PLANT     | Sewer Lift Station                                 | E. OF 118 COUNTRY WAY TRACT 4 | WEST MONROE | 32.525193 | -92.22706  | \$175,000   | 2001 | Non-Combustible    |
| SEWER DISTRICT #16 AER PAC TREATMENT PLANT     | Sewer Lift Station                                 | 221 CREEK STONE DR LOT 49     | WEST MONROE | 32.529346 | -92.219937 | \$125,000   | 2001 | Non-Combustible    |
| SEWER DISTRICT #16 AER PAC TREATMENT PLANT     | Sewer Lift Station                                 | 503 HODGE WATSON LOT 37       | CALHOUN     | 32.544461 | -92.292835 | \$200,000   | 2001 | Non-Combustible    |

|   |                                    |                                  |             |            |             |             |                       |                 |
|---|------------------------------------|----------------------------------|-------------|------------|-------------|-------------|-----------------------|-----------------|
| SEWER DISTRICT #16 LIFT STATION                       | Sewer Lift Station                 | 713 HODGE WATSON LOT 54          | CALHOUN     | 32.545523  | -92.297981  | \$31,555    | 2001                  | Non-Combustible |
| SEWER DISTRICT #16 LIFT STATION                       | Sewer Lift Station                 | 115 AUGUSTA DRIVE LOT 24         | CALHOUN     | 32.542432  | -92.298909  | \$31,555    | 2001                  | Non-Combustible |
| SEWER DISTRICT #16 AER PAC TREATMENT PLANT            | Sewer Lift Station                 | 105 GREENFIELD DIRCLE LOT 29     | WEST MONROE | 32.525359  | -92.203638  | \$300,000   | 2001                  | Non-Combustible |
| SEWER DISTRICT #16 AER PAC TREATMENT PLANT            | Sewer Lift Station                 | 607 TEAL CIRCLE LOT 11           | WEST MONROE | 32.514213  | -92.208101  | \$350,000   | 2004                  | Non-Combustible |
| SEWER DISTRICT #16 LIFT STATION                       | Sewer Lift Station                 | 108 TEAL LOOP LOT 30             | WEST MONROE | 32.514869  | -92.210929  | \$75,000    | 2004                  | Non-Combustible |
| SEWER DISTRICT #16 AER PAC TREATMENT PLANT            | Sewer Lift Station                 | 155 BIEDENHARN DRIVE             | WEST MONROE | 32.530974  | -92.207053  | \$250,000   | 2004                  | Non-Combustible |
| SEWER DISTRICT #16 AER PAC TREATMENT PLANT            | Sewer Lift Station                 | E. OF 107 IBERIA CIRCLE LOT 16   | WEST MONROE | 32.532609  | -92.207531  | \$75,000    | 2004                  | Non-Combustible |
| SEWER DISTRICT #16 LIFT STATION                       | Sewer Lift Station                 | 218 STANDARD REED RD E. OF LOT 1 | WEST MONROE | 32.554197  | -92.197224  | \$75,000    | 2004                  | Non-Combustible |
| Fresh Water Plant                                     | Fresh Water Treatment and Storage  | 1020 A&B Miller Road             | MONROE      | 32.4100339 | -92.0346195 | \$875,000   | 1973                  | Steel           |
| HUNTINGTON PARK WELL - <b>PLUGGED &amp; ABANDONED</b> | Water Storage Tank                 | 1612 GARRETT ROAD                | MONROE      | 32.488184  | -92.055179  | \$125,000   | Plugged and abandoned | Steel           |
| STORAGE TANK 70,000 GALLONS                           | Water Storage Tank                 | 190 PARKER ROAD                  | MONROE      | 32.462279  | -92.038931  | \$125,000   | 2015                  | Steel           |
| WATER TOWER - CLEO - ELEVATED - 200,000 gallons       | Water Storage Tank                 | 293 CLEO RD                      | MONROE      | 32.457034  | -92.039079  | \$175,000   | 1983                  | Steel           |
| WTR TANK/TWR - W. Ouachita Ind. District              | Water Storage Tank                 | INDUSTRIAL PARKWAY               | MONROE      | 32.512038  | -92.277064  | \$450,000   | 1976                  | Steel           |
| TREATMENT PLANT                                       | Fresh Water Treatment Plant        | HUEY LEONARD LOOP                | MONROE      | 32.509132  | -92.28519   | \$800,000   | 2009                  | Steel           |
| TREATMENT PLANT                                       | Fresh Water Treatment Plant        | 98 COMANCHE TRAIL                | MONROE      | 32.56629   | -92.239444  | \$850,000   | 1960                  | Concrete        |
| OPPJ Office Building                                  | Police Jury Administrative Offices | 100 Bry Street                   | MONROE      | 32.494998  | -92.111602  | \$3,105,960 | 1930                  | Joisted Masonry |

**City of Monroe**

| Name of Building                         | Purpose of Building  | Address            | City   | Latitude  | Longitude  | Assessed Value | Date Built | Contstruction Type |
|--|----------------------|--------------------|--------|-----------|------------|----------------|------------|--------------------|
| JPS Aviation Offices                     | Airports & Airfields | 5410 Operations Rd | Monroe | 32.511948 | -92.043450 | 112,320        | 1967       | 2                  |
| Flight Control Tower                     | Airports & Airfields | 5403 Operations Rd | Monroe | 32.511077 | -92.044126 | 397,000        | 1980       | 3                  |
| Monroe Regional Airport Main Building, A | Airports & Airfields | 5400 Operations Rd | Monroe | 32.511948 | -92.043450 | 6,112,566      | 2011       | 2                  |
| Boarding Building, Building B            | Airports & Airfields | 5400 Operations Rd | Monroe | 32.511948 | -92.043450 | 6,174,618      | 2011       | 2                  |
| Ticketing Building, Building C           | Airports & Airfields | 5400 Operations Rd | Monroe | 32.511948 | -92.043450 | 4,313,330      | 2011       | 2                  |

|   |                      |                             |        |           |            |            |      |   |
|---|----------------------|-----------------------------|--------|-----------|------------|------------|------|---|
| Baggage Claim, Building D                           | Airports & Airfields | 5400 Operations Rd          | Monroe | 32.511948 | -92.043450 | 3,633,000  |      | 2 |
| Rental Car Offices, Building E                      | Airports & Airfields | 5413 Operations Rd          | Monroe | 32.511948 | -92.043450 | 849,213    | 2011 | 2 |
| Car Wash Building, Building F                       | Airports & Airfields | 5413 Operations Rd          | Monroe | 32.511948 | -92.043450 | 460,940    | 2011 | 2 |
| Gas Station, Building G                             | Airports & Airfields | 5413 Operations Rd          | Monroe | 32.511948 | -92.043450 | 671,238    | 2011 | 2 |
| Toll Booth, Building H                              | Airports & Airfields | 5413 Operations Rd          | Monroe | 32.511948 | -92.043450 | 92,233     | 2011 | 2 |
| Monroe City Hall                                    | Civil Government     | 400 Lea Joyner Expressway   | Monroe | 32.502158 | -92.108645 | 3,540,935  | 1966 | 5 |
| Dept Public Works Off & Check-In room               | Civil Government     | 1200 Grammont               | Monroe | 32.506005 | -92.106023 | 587,035    | 1970 | 3 |
| City Hall Annex                                     | Civil Government     | 316 Breard St               | Monroe | 32.505804 | -92.117467 | 656,670    | 1960 | 2 |
| Drivers License Office                              | Civil Government     | 5171 Northeast Rd           | Monroe | 32.512595 | -92.047727 | 1,000,000  | 2004 | 3 |
| City Hall Annex - Jackson St.                       | Civil Government     | 3901 Jackson St             | Monroe | 32.461922 | -92.107009 | 11,009,445 | 1980 | 4 |
| Public Safety Building                              | Civil Government     | 1810 Martin Luther King     | Monroe | 32.485507 | -92.084841 | 5,278,995  | 2006 | 4 |
| Fire Station, #1                                    | Fire & SAR           | 508 Olive St                | Monroe | 32.507858 | -92.115730 | 570,242    | 1960 | 4 |
| Fire Station, #2                                    | Fire & SAR           | 915 Orange St               | Monroe | 32.493425 | -92.102878 | 129,900    | 1965 | 2 |
| Fire Station #6                                     | Fire & SAR           | 2001 Forsythe Ave           | Monroe | 32.532750 | -92.111560 | 129,900    | 1975 | 2 |
| Fire Station #4                                     | Fire & SAR           | 300 Forrest Ave.            | Monroe | 32.480819 | -92.109396 | 129,900    | 1966 | 4 |
| Fire Station #5                                     | Fire & SAR           | 3110 Breard                 | Monroe | 32.526213 | -92.084030 | 129,900    | 1966 | 2 |
| Fire Station #7                                     | Fire & SAR           | 5500 Operations Road        | Monroe | 32.513279 | -92.043634 | 129,900    | 1980 | 2 |
| Fire Dept. Training, Tower                          | Fire & SAR           | 300 Forest                  | Monroe | 32.480819 | -92.109396 | 120,674    | 1965 | 1 |
| Fire Station #8                                     | Fire & SAR           | 1204 Richwood Rd #1         | Monroe | 32.448279 | -92.096738 | 122,028    | 1965 | 2 |
| Midway Fire Station #9                              | Fire & SAR           | 1015 Inabnet Blvd           | Monroe | 32.541015 | -92.028866 | 121,528    | 1970 | 2 |
| Fire Station #10 River Oaks                         | Fire & SAR           | 3702 Barbados               | Monroe | 32.555726 | -92.111899 | 228,000    | 1970 | 2 |
| Fire Dept Training Bldg                             | Fire & SAR           | 300 Forest Avenue           | Monroe | 32.480819 | -92.109396 | 43,000     | 1980 | 2 |
| Fire Dept. Garage and Maintenance                   | Fire & SAR           | 1810R Martin Luther King    | Monroe | 32.485507 | -92.084841 | 542,000    | 2008 | 3 |
| Fire Station  | Fire & SAR           | 300 Forrest Avenue          | Monroe | 32.480819 | -92.109396 | 1,025,000  | 2011 | 2 |
| Police Building, Jail & Courts                      | Law Enforcement      | 700 Wood Street/600 Calypso | Monroe | 32.501372 | -92.110734 | 4,061,899  | 1966 | 4 |
| Jail Extension Bldg.                                | Law Enforcement      | 700 Wood Street             | Monroe | 32.501372 | -92.110734 | 539,852    | 1970 | 4 |
| Masur Museum  | Museum               | 1400 South Grand            | Monroe | 32.490127 | -92.113117 | 632,564    | 1930 | 2 |
| Colonial Dames Museum                               | Museum               | 528 South Grand             | Monroe | 32.497148 | -92.115976 | 38,220     | 1970 | 2 |
| Steel elevated water tank<br>Grammont Elevated Tank | Public Works         | 1200 Grammont               | Monroe | 32.506005 | -92.106023 | 264,600    | 1960 | 3 |
| Rochelle Ave., Pumping Station                      | Public Works         | 901 Rochelle Ave            | Monroe | 32.520492 | -92.120502 | 1,495,000  | 1970 | 3 |
| Monroe Transit System Garage & Office               | Public Works         | 604 Washington Street       | Monroe | 32.506132 | -92.113378 | 1,121,609  | 1970 | 4 |

|  |              |                          |         |           |            |           |      |   |
|--|--------------|--------------------------|---------|-----------|------------|-----------|------|---|
| Monroe Transit System Terminal                   | Public Works | 205 Catalpa              | Monroe  | 32.502512 | -92.113977 | 244,380   | 1970 | 1 |
| Allen St. Pump Station 1 & 2 Story, Brick        | Public Works | 110 Allen Avenue         | Monroe  | 32.469644 | -92.114815 | 165,000   | 1965 | 2 |
| Pine St. Pump Station 1 & 2 Story Brick          | Public Works | 7 Olive Street           | Monroe  | 32.505430 | -92.120940 | 1,026,000 | 1965 | 2 |
| Willow St. Pump Station 1 Story Brick 1100       | Public Works | 107 Willow Street        | Monroe  | 32.529193 | -92.127583 | 495,000   | 1965 | 2 |
| Sewer Pump Station                               | Public Works | 103 Standifer Ave        | Monroe  | 32.464645 | -92.114284 | 55,440    | 1972 | 6 |
| City Cemetery Office & Storage                   | Public Works | 3701 South Grand         | Monroe  | 32.464540 | -92.114863 | 71,400    | 1966 | 2 |
| Utility Engineering Bldg., Office, Brick         | Public Works | 910 North 9th            | Monroe  | 32.513454 | -92.115863 | 232,260   | 1960 | 2 |
| Welding Shop & Office                            | Public Works | 400 S 18th St 300        | Monroe  | 32.509062 | -92.099550 | 71,480    | 1975 | 3 |
| Street Dept., Office                             | Public Works | 401 S 18th St            | Monroe  | 32.509062 | -92.099550 | 80,730    | 1975 | 3 |
| Plum St. Pump Station, Brick                     | Public Works | 13 Plum St               | Monroe  | 32.495328 | -92.134725 | 105,000   | 1975 | 3 |
| Lamy Lane Pump Station, Brick                    | Public Works | 2003 Lamy Ln             | Monroe  | 32.534461 | -92.093082 | 709,000   | 1975 | 4 |
| Hadley St. Pump Station, Brick                   | Public Works | 311 Hadley St            | Monroe  | 32.484802 | -92.078800 | 16,800    | 1960 | 3 |
| Maintenance Construction Office & Shop           | Public Works | 1201 Oak Street          | Monroe  | 32.504620 | -92.105087 | 54,200    | 1960 | 1 |
| Ouachita River Pump Station                      | Public Works | 817 Park Ave             | Monroe  | 32.529045 | -92.127512 | 197,400   | 1960 | 2 |
| Waterworks Pump & filtration plant,AAA Old Plant | Public Works | 2405 North 10th Street   | Monroe  | 32.527917 | -92.126597 | 2,265,600 | 1960 | 3 |
| Steel Water Storage Tank 3.1 Million Gals        | Public Works | 2401 N 10th              | Monroe  | 32.527917 | -92.126597 | 460,800   | 1960 | 2 |
| Water treatment plant #2 New Plant               | Public Works | 2401 N 10th              | Monroe  | 32.527917 | -92.126597 | 3,087,000 | 1960 | 2 |
| Water treatment plant Chemical Feed bldg.        | Public Works | 2401 N 10th              | Monroe  | 32.527917 | -92.126597 | 278,900   | 1960 | 2 |
| Steel elevated water tank Powell Elevated Tank   | Public Works | Powell Ave               | Monroe  | 32.511924 | -92.074858 | 264,600   | 1960 | 3 |
| Booster Pump Station Thomas St. Pump Station     | Public Works | 790 Thomas               | Monroe  | 32.470592 | -92.105179 | 123,480   | 1960 | 6 |
| Steel Water tank on ground                       | Public Works | 790 Thomas               | Monroe  | 32.470592 | -92.105179 | 298,800   | 1960 | 3 |
| Bayou DeSiard Pump Station                       | Public Works | 2530 Levee Dr            | Monroe  | 32.554370 | -92.119616 | 192,000   | 1960 | 3 |
| Selman Field Pump Station                        | Public Works | 4960 Transport Ave       | Monroe  | 32.515060 | -92.050227 | 496,100   | 1960 | 3 |
| Selman 4.0MG Storage Tank Station                | Public Works | 4960 Transport Dr        | Monroe  | 32.515060 | -92.050227 | 736,500   | 1960 | 3 |
| Bayou Bartholomew Pump Station                   | Public Works | 1595 Levee Dr            | Bastrop | 32.721831 | -92.039029 | 424,500   | 1960 | 3 |
| Garage & supplies.                               | Public Works | 1400-1401 Wood St        | Monroe  | 32.506739 | -92.103613 | 205,100   | 1960 | 6 |
| Ruffin Drive Storage Tank                        | Public Works | 2100 Ruffin Dr Extension | Monroe  | 32.486179 | -92.079177 | 505,000   | 1960 | 3 |
| Ruffin Drive Pump Station                        | Public Works | 2100 Ruffin Dr Extension | Monroe  | 32.486179 | -92.079177 | 362,800   | 1965 | 5 |
| Waste Water Treatment Office Building            | Public Works | 770 Richwood Road #2     | Monroe  | 32.437424 | -92.103050 | 78,000    | 1970 | 4 |

|  |              |                          |        |           |            |           |      |   |
|--|--------------|--------------------------|--------|-----------|------------|-----------|------|---|
| Hawes St. Pump Station ., brick                          | Public Works | 2708 Hawes St            | Monroe | 32.477329 | -92.115446 | 1,135,000 | 1977 | 2 |
| Flood Control Pump Station<br>Pope/Westminister          | Public Works | 2505 Oliver Rd           | Monroe | 32.539591 | -92.107807 | 1,705,988 | 1975 | 2 |
| Chenault Park, Pumping Station                           | Public Works | 8475 Milhaven Rd         | Monroe | 32.493956 | -92.028888 | 75,000    | 1960 | 1 |
| City Shop & mtnc Warehouse<br>complex                    | Public Works | 209 N 11th St            | Monroe | 32.504747 | -92.106481 | 2,600,000 | 1960 | 3 |
| Calypso Street, Pumping Station                          | Public Works | 500 South Grand          | Monroe | 32.497373 | -92.116486 | 295,000   | 1960 | 2 |
| Marquette Street Pumping Station                         | Public Works | 2151 Island Drive        | Monroe | 32.544865 | -92.124432 | 300,000   | 1960 | 6 |
| Pepsi-Cola/Royal Crown water<br>pump station             | Public Works | 1700 Blk S Grand         | Monroe | 32.487814 | -92.111547 | 95,000    | 1960 | 2 |
| Stubbs Ave Pumping Station                               | Public Works | 901 Stubbs Ave           | Monroe | 32.515346 | -92.117022 | 340,000   | 1970 | 4 |
| Water Treatment Plant, office bldg.                      | Public Works | 2401 North 10th          | Monroe | 32.527917 | -92.126597 | 200,384   | 1970 | 1 |
| Maintenance & Facility Storage<br>Bldg in Chennault Park | Public Works | 8475 Millhave<br>Road    | Monroe | 32.493956 | -92.028888 | 100,000   | 2004 | 1 |
| Water Distribution                                       | Public Works | 1350 Grammont St         | Monroe | 32.505964 | -92.105908 | 200,134   |      | 3 |
| Water Distribution Rec Room                              | Public Works | 1350 1/2<br>Grammont St  | Monroe | 32.505964 | -92.105908 | 45,000    |      | 1 |
| AARF Station   | Public Works | 5706 Operations<br>Road  | Monroe | 32.516246 | -92.046360 | 2,051,559 | 2015 | 1 |
| MLU Gasoline Street Building                             | Public Works | 5000 Gasoline Alley      | Monroe | 32.504994 | -92.048143 | 108,250   | 2016 | 3 |
| Adm. Bldg. La Purchase Garden &<br>Zoo                   | Recreation   | 1405 Bernstein Dr        | Monroe | 32.468229 | -92.096809 | 65,000    | 1965 | 1 |
| Bismark Trading Post Concession                          | Recreation   | 1405 Bernstein Dr        | Monroe | 32.468229 | -92.096809 | 75,000    | 1960 | 1 |
| Small animal & primate bldg.                             | Recreation   | 1405 Bernstein Dr        | Monroe | 32.468229 | -92.096809 | 1,655,600 | 1970 | 2 |
| Reptile Building located                                 | Recreation   | 1405 Bernstein Dr        | Monroe | 32.468229 | -92.096809 | 63,000    | 1970 | 1 |
| Restrooms located @ LA Purchase<br>Gardens & Zoo         | Recreation   | 1405 Bernstein Dr        | Monroe | 32.468229 | -92.096809 | 31,000    | 1970 | 1 |
| LA Purchase-Office/Kitchen BV                            | Recreation   | 1405 Bernstein Dr        | Monroe | 32.468229 | -92.096809 | 74,000    | 1970 | 2 |
| One Story, BV, Building known as<br>Kangaroo Building    | Recreation   | 1405 Bernstein Dr        | Monroe | 32.468229 | -92.096809 | 40,000    | 1970 | 2 |
| Giraffe Building & Animal Hospital                       | Recreation   | 1405 Bernstein Dr        | Monroe | 32.468229 | -92.096809 | 216,000   | 1970 | 1 |
| Small Primate Building                                   | Recreation   | 1405 Bernstein Dr        | Monroe | 32.468229 | -92.096809 | 75,000    | 1970 | 1 |
| Education Building & Office                              | Recreation   | 1405 Bernstein Dr        | Monroe | 32.468229 | -92.096809 | 138,000   | 1970 | 1 |
| CPA Building Kitchen/RR                                  | Recreation   | 1405 Bernstein Dr        | Monroe | 32.468229 | -92.096809 | 111,000   | 2000 | 2 |
| Powell Ave. Community Center                             | Recreation   | 1401 Powell<br>Avenue    | Monroe | 32.511888 | -92.074494 | 1,000,700 | 1970 | 3 |
| Chenault Park Golf Club                                  | Recreation   | 8475 Millhaven<br>Road   | Monroe | 32.498034 | -92.020579 | 246,000   | 1970 | 2 |
| Saul Adler Community Center                              | Recreation   | 3900 Westminister<br>Ave | Monroe | 32.536049 | -92.086172 | 1,181,041 | 1970 | 3 |
| Saul Adler Community Center<br>(Batting Cages)           | Recreation   | 3900 Westminister<br>Ave | Monroe | 32.536049 | -92.086172 | 200,000   | 2015 | 3 |
| Saul Adler Community Center<br>(restrooms)               | Recreation   | 3900 Westminister<br>Ave | Monroe | 32.536049 | -92.086172 | 71,420    | 2016 | 4 |

|   |            |                           |        |           |            |           |      |   |
|---|------------|---------------------------|--------|-----------|------------|-----------|------|---|
| Harvey H. Benoit Community Center                 | Recreation | 1700 Oaklawn              | Monroe | 32.493848 | -92.088055 | 1,565,076 | 1970 | 4 |
| Pavilion, ICM situated Benoit Rec. Family Pav.    | Recreation | 1700 Oaklawn              | Monroe | 32.493848 | -92.088055 | 90,000    | 2004 | 2 |
| Pavilion, ICM situated Benoit Recreation 1 of 3   | Recreation | 1700 Oaklawn              | Monroe | 32.493848 | -92.088055 | 66,500    | 2004 | 2 |
| Pavilion, ICM situated Benoit Recreation 2 of 3   | Recreation | 1700 Oaklawn              | Monroe | 32.493848 | -92.088055 | 66,500    | 1977 | 2 |
| Pavilion, ICM situated Benoit Recreation 3 of 3   | Recreation | 1700 Oaklawn              | Monroe | 32.493848 | -92.088055 | 66,500    | 1990 | 2 |
| Harvey H. Benoit Community Center (Restrooms)     | Recreation | 1700 Oaklawn              | Monroe | 32.493848 | -92.088055 | 71,420    | 2016 | 4 |
| Miller Maddox Marbles Community Center            | Recreation | 2950 Renwick St           | Monroe | 32.514150 | -92.084490 | 1,181,040 | 1970 | 3 |
| Henrietta Windom Johnson Community Center         | Recreation | 2800 Burg Jones Lane      | Monroe | 32.474114 | -92.088940 | 1,181,040 | 1970 | 3 |
| Henrietta W. Johnson Community Center (restrooms) | Recreation | 2800 Burg Jones Lane      | Monroe | 32.474114 | -92.088940 | 71,420    | 2016 | 4 |
| B. J. Washington Community Center                 | Recreation | 1300 Richwood Rd          | Monroe | 32.448159 | -92.095941 | 328,860   | 1970 | 2 |
| Selman Field Golf Storage                         | Recreation | 1051 Kansas Ln            | Monroe | 32.502442 | -92.056337 | 72,820    | 1955 | 3 |
| Selman Golf Pro Shop                              | Recreation | 1051 Kansas Ln            | Monroe | 32.502442 | -92.056337 | 358,000   | 1960 | 1 |
| Selman Golf Cart Storage                          | Recreation | 1051 Kansas Ln            | Monroe | 32.502442 | -92.056337 | 53,000    | 1960 | 2 |
| Forsythe Golf & Cart Storage                      | Recreation | 2500 Sycamore Street      | Monroe | 32.523334 | -92.130319 | 110,000   | 1960 | 2 |
| Forsythe Park Restrooms                           | Recreation | Sycamore Street           | Monroe | 32.523334 | -92.130319 | 40,000    | 1975 | 2 |
| Emily P Robinson Community Center                 | Recreation | 3504 Jackson St.          | Monroe | 32.465823 | -92.107814 | 1,390,000 | 1960 | 3 |
| Veterinary Office, Zoo                            | Recreation | 1405 Bernstein Park Drive | Monroe | 32.468229 | -92.096809 | 35,000    |      | 2 |
| Liller Maddox Marbles Community Center            | Recreation | 2950 Renwick St           | Monroe | 32.514150 | -92.084490 | 71,420    | 2016 | 4 |
| Mt. Nebo Neighborhood Park                        | Recreation | 3013 Jackson St           | Monroe | 32.470877 | -92.107986 | 71,420    | 2016 | 4 |
| Lida Benton Neighborhood Park                     | Recreation | 3317 Lee Ave              | Monroe | 32.466976 | -92.111109 | 71,420    | 2016 | 4 |

**Town of Richwood**

| Name of Building         | Purpose of Building                          | Address             | City     | Latitude  | Longitude  | Assessed Value | Date Built | Construction Type  |
|--------------------------|--|---------------------|----------|-----------|------------|----------------|------------|--------------------|
| Richwood Town Hall       | Town Hall, Mayors, Office, Police Department | 2710 MLK Dr.        | Richwood |           |            | \$550,000      | 2005       | Metal              |
| Richwood Public Works    | Public Works department                      | 5214 Brown Rd.      | Richwood |           |            | \$350,000      | 2000       | Metal              |
| Former Town Hall         | former town hall, old Richwood High School   | 5130 Brown Rd.      | Richwood | 32.447196 | -92.077097 |                |            |                    |
| Ollie Burns Lift Station | Lift Station                                 | 5601 U.S. 165 SOUTH | RICHWOOD |           |            | \$2,500,000    | 2010       | Reinforced Masonry |

| Town of Sterlington            |  |                      |             |           |            |                |            |                    |
|--------------------------------|--|----------------------|-------------|-----------|------------|----------------|------------|--------------------|
| Name of Building               | Purpose of Building                              | Address              | City        | Latitude  | Longitude  | Assessed Value | Date Built | Construction Type  |
| Sterlington Town hall          | Town Hall  | 105 High Ave         | Sterlington | 32.693872 | -92.07498  | \$1,100,000    | 1965       | Reinforced Masonry |
| Sterlington Police Department  | Sterlington PD offices                           | 103 High Ave         | Sterlington | 32.694361 | -92.074644 | \$85,000       | 1985       | Metal              |
| Sterlington Recreation Center  | Recreation Center/Emergency Shelter              | 709 FRANCIS AVENUE   | STERLINGTON | 32.698799 | -92.07311  | \$1,200,000    | 1996       | Reinforced Masonry |
| City of West Monroe            |  |                      |             |           |            |                |            |                    |
| Name of Building               | Purpose of Building                              | Address              | City        | Latitude  | Longitude  | Assessed Value | Date Built | Construction Type  |
| Restoration Park Admin         | Admin Office for Restoration Park                | 651 Downing Pines Rd | West Monroe | 32.508147 | -92.172064 | 190,333        | 2000       | Wood               |
| Elevated Water Tank            | Elevated Water Storage Tank                      | 706 Slack St         | West Monroe | 32.510825 | -92.143909 |                |            |                    |
| WM Community Cntr Admin        | Emergency Evacuation Shelter / Community Center  | 400 S 5th St         | West Monroe | 32.494372 | -92.124533 | 561,580        | 1994       | Reinforced Masonry |
| WM Community Cntr Gym          | Emergency Evacuation Shelter / Community Center  | 400 S 5th St         | West Monroe | 32.494372 | -92.124533 | 878,460        | 1995       | Steel              |
| WM Community Cntr Educatin Bld | Emergency Evacuation Shelter / Community Center  | 400 S 5th St         | West Monroe | 32.494372 | -92.124533 | 1,195,150      | 2011       | Steel              |
| Recreation Center              | Emergency Evacuation Shelter / Recreation Center | 1801 N 7th St        | West Monroe | 32.511413 | -92.145924 | 1,178,865      | 1973       | Steel              |
| Convention Center              | Emergency Evacuation Shelter/ Convention Center  | 901 Ridge Ave        | West Monroe | 32.520848 | -92.149563 | 8,491,780      | 1979       | Reinforced Masonry |
| West Ouachita Senior Center    | Emergency Evacuation Shelter/ Senior Center      | 1717 N 7th St        | West Monroe | 32.511244 | -92.145057 | 3,042,490      | 1989       | Reinforced Masonry |
| Fire Administration Building   | Emergency Response Admin / Fire Admin            | 4341 Cypress St      | West Monroe | 32.515907 | -92.171688 | 415,179        | 1990       | Wood               |
| Convention Cntr Storage Build  | Equipment Storage                                | 901 Ridge Ave        | West Monroe | 32.520274 | -92.149522 | 29,282         | 1979       | Metal              |
| KIROLI Lodge                   | Event Building                                   | 820 Kiroli Rd        | West Monroe | 32.548598 | -92.165446 | 695,448        | 1987       | Wood               |
| Farmer's Market                | Farmer's Market                                  | 1700 N 7th St        | West Monroe | 32.510854 | -92.144653 | 113,102        | 1973       | Wood               |
| Cypress St Fire Station        | Fire Station                                     | 4343 Cypress St      | West Monroe | 32.515745 | -92.172332 | 805,255        | 2001       | Steel              |
| 5th Street Fire Station        | Fire Station                                     | 306 N 5th St         | West Monroe | 32.499313 | -92.129384 | 930,250        | 1956       | Wood               |
| Otis St Fire Station           | Fire Station                                     | 404 Otis St          | West Monroe | 32.523806 | -92.144376 | 577,500        | 2012       | Steel              |
| Trenton St Pro Shop            | Leased to YMCA after school                      | 2410 Trenton St      | West Monroe | 32.525623 | -92.137833 | 256,218        | 2003       | Reinforced Masonry |
| City Hall                      | Main City Administration Building                | 2305 N 7th St        | West Monroe | 32.520912 | -92.148531 | 6,006,440      | 1978       | Reinforced Masonry |
| West Monroe DMV                | Office of Motor Vehicles                         | 501 Natchitoches St  | West Monroe | 32.500279 | -92.125917 | 497,794        | 1995       | Reinforced Masonry |
| KIROLI Office Building         | Park Office Building                             | 820 Kiroli Rd        | West Monroe | 32.545244 | -92.163828 | 131,769        | 1987       | Wood               |
| Park Ranger Residence          | Park Security Residence                          | 820 Kiroli Rd        | West Monroe | 32.544791 | -92.164192 | 117,128        | 1987       | Wood               |
| Lazarre House                  | Park Security Residence                          | 60 S Riverfront St   | West Monroe | 32.489486 | -92.116409 | 73,205         | 2000       | Wood               |

|                            |   |                                  |             |           |            |             |      |                         |
|----------------------------|---|----------------------------------|-------------|-----------|------------|-------------|------|-------------------------|
| Police/Court Building      | Police Dpt, Jail, and City Court Building                               | 2301-2303 N 7th St               | West Monroe | 32.520243 | -92.14856  | 115,169,074 | 1978 | Reinforced<br>Masonry   |
| Police Maint Shop          | Police Vehicle Maint  | 474 Lincoln St                   | West Monroe | 32.519766 | -92.149442 | 256,218     | 1978 | Steel                   |
| Public Works Complex       | Public Works Admin, Vehicle Maint,<br>Staging                           | 301 W Pavillion Dr               | West Monroe | 32.500057 | -92.177305 | 2,342,560   | 2001 | Steel                   |
| IKE Hamilton Exp Center    | Sandbag staging area, Large animal evac,<br>RV evac / Exposition Center | 501 Mane St                      | West Monroe | 32.505544 | -92.181103 | 19,033,300  | 2001 | Steel                   |
| Constitution Lift Station  | Sewer Lift Station  | 700 Downing Pines                | West Monroe | 32.508233 | -92.171945 |             | 2000 | Unreinforced<br>Masonry |
| Black Bayou Lift Station   | Sewer Lift Station  | 1500 Old<br>Natchitoches         | West Monroe | 32.495122 | -92.145241 |             | 2020 |                         |
| Montgomery St Lift Station | Sewer Lift Station  | Jonesboro &<br>Montgomery        | West Monroe | 32.491403 | -92.142816 |             | 1956 | Unreinforced<br>Masonry |
| Austin Street Lift Station | Sewer Lift Station  | End of Austin @<br>levee         | West Monroe | 32.490154 | -92.127710 |             | 1956 | Unreinforced<br>Masonry |
| S 5th St Lift Station      | Sewer Lift Station  | S 5th St & Coleman               | West Monroe | 32.497138 | -92.127015 |             | 1969 |                         |
| Plum St Lift Station       | Sewer Lift Station  | Plum &<br>Natchitoches           | West Monroe | 32.495326 | -92.134526 |             | 1945 | Unreinforced<br>Masonry |
| N 9th St Lift Station      | Sewer Lift Station  | End of 9th by Stella             | West Monroe | 32.500137 | -92.136182 |             | 2018 | Unreinforced<br>Masonry |
| Drago Lift Station         | Sewer Lift Station  | End of Drago by<br>Canal         | West Monroe | 32.505735 | -92.142858 |             | 1956 | Unreinforced<br>Masonry |
| Pine Terrace Lift Station  | Sewer Lift Station  | Behind Sonic on<br>1910 N 7th    | West Monroe | 32.512635 | -92.147203 |             | 1960 |                         |
| McMillian Lift Station     | Sewer Lift Station  | 401 McMillian &<br>Polk          | West Monroe | 32.514129 | -92.153423 |             | 1965 |                         |
| Old K-Mart Lift Station    | Sewer Lift Station  | 3426 Cypress S -<br>3400 Cypress | West Monroe | 32.517532 | -92.158904 |             | 1965 | Unreinforced<br>Masonry |
| Greenwood Lift Station     | Sewer Lift Station  | Greenwood & N<br>7th             | West Monroe | 32.535515 | -92.147906 |             | 1960 | Reinforced<br>Masonry   |
| Olympic Lift Station       | Sewer Lift Station  | On Olympic                       | West Monroe | 32.533503 | -92.143184 |             | 1960 | Unreinforced<br>Masonry |
| Golf Course Lift Station   | Sewer Lift Station  | On Arkansas by<br>Golf Course    | West Monroe | 32.527037 | -92.143189 |             | 1962 |                         |
| City Hall Lift Station     | Sewer Lift Station  | N 7th & Ridge                    | West Monroe | 32.521350 | -92.147873 |             | 1965 |                         |
| Laurel St Lift Station     | Sewer Lift Station  | Laurel & Pelican                 | West Monroe | 32.521583 | -92.139100 |             | 1963 | Unreinforced<br>Masonry |
| Jackson St Lift Station    | Sewer Lift Station  | Jackson & Cypress                | West Monroe | 32.517952 | -92.141741 |             | 1964 | Unreinforced<br>Masonry |
| Boley Lift Station         | Sewer Lift Station  | Boley School                     | West Monroe | 32.517772 | -92.145127 |             | 1965 |                         |
| Plum Creek Lift Station    | Sewer Lift Station  | Behind Texas Rd<br>House         | West Monroe | 32.495317 | -92.134895 |             | 1993 |                         |
| Slack St Lift Station      | Sewer Lift Station  | 704 Slack by Lady<br>Rebel Field | West Monroe | 32.512085 | -92.141962 |             | 1975 |                         |

|                            |  |                      |             |           |            |            |      |                      |
|----------------------------|--|----------------------|-------------|-----------|------------|------------|------|----------------------|
| Dopson Lift Station        | Sewer Lift Station                           | End of Dobson Place  | West Monroe | 32.523196 | -92.170994 |            | 1966 |                      |
| Hicks Street Lift Station  | Sewer Lift Station                           | On Arkansas by Canal | West Monroe | 32.532746 | -92.164790 |            |      |                      |
| 12th Street Lift Station   | Sewer Lift Station                           | 1201 Arkansas        | West Monroe | 32.528605 | -92.154094 |            |      | Unreinforced Masonry |
| SPARTA Reuse Facility      | Sewer Treatment Facility / Water Reclamation | 101 E Martin St      | West Monroe | 32.462495 | -92.151019 | 21,670,000 | 2012 | Steel                |
| Tony Bayou Pumping Station | Stormwater pumping station                   | Bancroft Blvd.       | West Monroe | 32.481639 | -92.139926 |            | 1992 |                      |
| Tony Bayou Pumping Station | Stormwater pumping station                   | Bancroft Blvd.       | West Monroe | 32.482327 | -92.140302 |            | 1955 | Brick                |
| Tony Bayou Pumping Station | Stormwater pumping station                   | Bancroft Blvd.       | West Monroe | 32.482508 | -92.140194 |            | 1936 | Metal                |
| Water Well #2              | Water Treatment and Admin Office             | 4339 Cypress St      | West Monroe | 32.515617 | -92.171233 |            |      |                      |
| Water Well #5              | Water Well                                   | 118 N Hilton St      | West Monroe | 32.518987 | -92.170439 |            |      |                      |
| Water Well #6              | Water Well                                   | 203 Thomas Rd        | West Monroe | 32.512314 | -92.155942 |            |      |                      |
| Water Well #7 & #9         | Water Well                                   | 145 Fairlane Dr      | West Monroe | 32.529406 | -92.170455 |            |      |                      |
| Water Well #8              | Water Well                                   | 121 Wassan St        | West Monroe | 32.498863 | -92.170226 |            |      |                      |
| Water Well #11             | Water Well                                   | 604 Mane Street      | West Monroe | 32.510411 | -92.183159 |            |      |                      |
| Water Well #10             | Water Well and Elevated Storage Tank         | 400 Exchange St      | West Monroe | 32.502263 | -92.182840 |            |      |                      |

Vulnerable Populations

| Vulnerable Populations Worksheet            |                          |             |          |           |            |
|---|--------------------------|-------------|----------|-----------|------------|
| Ouachita Parish                             |                          |             |          |           |            |
| All Hospitals (Private or Public)           | Street                   | City        | Zip Code | Latitude  | Longitude  |
| University Health                           | 4864 Jackson St.         | Monroe      | 71202    | 32.450261 | -92.106643 |
| St. Francis Medical Center                  | 309 Jackson St.          | Monroe      | 71201    | 32.499181 | -92.11407  |
| St. Francis Community Health                | 920 Oliver Rd            | Monroe      | 71201    | 32.521822 | -92.103175 |
| St. Francis Community Health Center         | 2600 Tower Dr.           | Monroe      | 71201    | 32.52899  | -92.096933 |
| North Monroe Medical Center                 | 3510 Medical Park Dr. #1 | Monroe      | 71203    | 32.579075 | -92.070626 |
| Glenwood Regional Medical Center            | 503 McMillan Rd          | West Monroe | 71291    | 35.512932 | -92.156153 |
| Nursing Homes (Private or Public)           | Street                   | City        | Zip Code | Latitude  | Longitude  |
| Christus St. Josephs Home                   | 2301 Sterlington Rd      | Monroe      | 71203    | 32.541643 | -92.079473 |
| Azalea Estates of Monroe                    | 4380 Old Sterlington Rd  | Monroe      | 71203    | 32.575931 | -92.066743 |
| Avalon Place                                | 4385 Old Sterlington Rd  | Monroe      | 71203    | 32.576154 | -92.068482 |
| Landmark Nursing & Rehab                    | 1611 Wellerman Rd        | West Monroe | 71291    | 32.523507 | -92.163080 |
| Ridgecrest Nursing Home                     | 1616 Wellerman Rd        | West Monroe | 71291    | 32.525762 | -92.165177 |
| Savannah Grand of West Monroe               | 3702 Cypress St          | West Monroe | 71291    | 32.518274 | -92.166294 |
| Stoneybrook Alzheimer's Assisted            | 308 Norris Lane          | West Monroe | 71291    | 32.517558 | -92.173921 |
| Northeast Louisiana Veterans Home           | 6700 US-165              | Monroe      | 71203    | 32.586814 | -92.068934 |
| Ouachita Healthcare & Rehabilitation Center | 7950 Millhaven Rd.       | Monroe      | 71203    | 32.496444 | -92.027325 |
| Bastrop Rehabilitation Hospital             | 4310 South Grand St.     | Monroe      | 71202    | 32.457191 | -92.115858 |
| The Oaks                                    | 1000 Mckeen Pl.          | Monroe      | 71201    | 32.522276 | 92.118788  |
| Mary Goss Nursing Home                      | 3300 White St.           | Monroe      | 71203    | 32.517356 | -92.078183 |
| Savannah Grand of WM                        | 3702 Cypress St          | West Monroe | 71291    | 32.517825 | -92.166162 |
| Rosemont Assisted Living                    | 110 Regency Pl           | West Monroe | 71291    | 32.513980 | -92.144457 |
| Ridgecrest Nursing Home                     | 1616 Wellerman Rd        | West Monroe | 71291    | 32.525790 | -92.165403 |
| Landmark Nursing & Rehab Center             | 1611 Wellerman Rd        | West Monroe | 71291    | 32.523344 | -92.163110 |
| West Monroe Guest House                     | 109 McClendon Church Rd  | West Monroe | 71291    | 32.503355 | -92.163071 |
| Mobile Home Parks                           | Street                   | City        | Zip Code | Latitude  | Longitude  |
| Millstead's Mobile Home Park                | 191 US-80                | Calhoun     | 71225    | 32.515056 | -92.356421 |
| Deer Run Mobile Home Park                   | 161 Cowboy Rd            | Calhoun     | 71225    | 32.519684 | -92.325291 |

|  |                          |             |       |           |            |
|--|--------------------------|-------------|-------|-----------|------------|
| Pine Hill Mobile Home Park                 | 191 US-80                | Calhoun     | 71225 | 32.527066 | -92.275508 |
| Drew Mobile Home Park                      | 755 Ole Hwy 15           | West Monroe | 71291 | 32.534020 | -92.236236 |
| Country Village Mobile Home Park           | 3100 Arkansas Rd         | West Monroe | 71291 | 32.537903 | -92.203105 |
| Canaan Land Mobile Home Park               | 2809 Arkansas Rd         | West Monroe | 71291 | 32.535750 | -92.200258 |
| Caldwell Estates                           | 113 Caldwell Rd          | West Monroe | 71291 | 32.545812 | -92.193406 |
| Belair Mobile Home Park                    | 182 Betty Lane           | West Monroe | 71291 | 32.518292 | -92.179071 |
| River City Mobile Home Park                | 4700 Cypress St          | West Monroe | 71291 | 32.514531 | -92.179830 |
| Pavilion RV Park                           | 309 Well Rd              | West Monroe | 71292 | 32.506594 | -92.191499 |
| Northwood Mobile Home Park                 | 103 Briarwood Dr         | West Monroe | 71291 | 32.538294 | -92.164071 |
| Sterling Oaks Mobile Home Estates          | 1315 New Natchitoches Rd | West Monroe | 71292 | 32.493762 | -92.179721 |
| Caddo Ridge Mobile Home park               | 616 Washington St        | West Monroe | 71292 | 32.474635 | -92.176751 |
| Oak Alley Mobile Home Park                 | 268 Sandal St            | West Monroe | 71292 | 32.474583 | -92.159236 |
| Morning Meadow Manufactured Home Community | 307 New Natchitoches     | West Monroe | 71292 | 32.489592 | -92.161332 |
| Circle Drive Mobile Home Park              | 5415 Whites Ferry Rd     | West Monroe | 71291 | 32.563622 | -92.161836 |
| Pecanland Mobile Home & RV Park            | 2300 Garrett Rd          | Monroe      | 71202 | 32.479704 | -92.057517 |
| Azalea Garden Community                    | 400 Dolly Drive          | Monroe      | 71203 | 32.565085 | -91.978591 |
| Double K Estates                           | 2216 US-80               | Monroe      | 71203 | 32.51697  | -91.970374 |
| Regan Mobile Home Park                     | 4414 Winnsboro Rd        | Monroe      | 71202 | 32.421085 | -92.034404 |
| University Estates                         | 5310 Desiard St.         | Monroe      | 71203 | 32.525811 | -92.061404 |
| Blanks St. MHP                             | 5103 Blanks St.          | Monroe      | 71203 | 32.523707 | -92.060651 |
| Aurora Mobile Home Park                    | 5602 Desiard St. #79     | Monroe      | 71203 | 32.524889 | -92.056286 |
| Francis Drive MHP                          | 301-385 Francis Dr.      | Monroe      | 71203 | 32.526346 | -92.06262  |
| Harvester Dr. MHP                          | 3505-3669 Harvester Dr.  | Monroe      | 71203 | 32.505459 | -92.079275 |
| P&R Properties of Ouachita LLC             | 5000 Hwy 165 South       | Richwood    | 71202 |           |            |
| Warren Place Home Park                     | 1103 Warren Drive        | West Monroe | 71291 | 32.527191 | -92.163509 |
| Northwood Mobile Home Park                 | 107 Briarwood Drive      | West Monroe | 71291 | 32.538235 | -92.163879 |
| Shelby's Trailer Park                      | 125 Splane Drive         | West Monroe | 71291 | 32.518912 | -92.152036 |

National Flood Insurance Program (NFIP)

| National Flood Insurance Program (NFIP)   |   |   |   |  |   |
|---|---|---|---|--|---|
|   | Ouachita Parish   | Monroe  | Richwood  | Sterlington  | West Monroe   |
| <b>Insurance Summary</b>  |   |   |   |  |   |
| How many NFIP policies are in the community? What is the total premium and coverage?  | # of Policies: 1,540; Total Premiums: \$687,706; Total Coverage: \$378,683,000              | # of Policies: 2,228; Total Premiums: \$942,558; Total Coverage: \$568,251,000              | # of Policies: 5; Total Premiums: \$1,917; Total Coverage: \$1,200,000            | # of Policies: 7; Total Premiums: \$3,035; Total Coverage: \$1,924,000             | # of Policies: 266; Total Premiums: \$154,105; Total Coverage: \$73,965,000               |
| How many claims have been paid in the community? What is the total amount of paid claims? How many of the claims were for substantial damage? | # of paid claims: 2,022; Total amount of paid claims: \$58,560,340; Substantial Damage: 362 | # of paid claims: 4,125; Total amount of paid claims: \$82,983,608; Substantial Damage: 523 | # of paid claims: 3; Total amount of paid claims: \$89,817; Substantial Damage: 0 | # of paid claims: 4; Total amount of paid claims: \$156,412; Substantial Damage: 1 | # of paid claims: 735; Total amount of paid claims: \$18,968,590; Substantial Claims: 105 |
| How many structures are exposed to flood risk with in the community?  |   |   |   |  |   |
| Describe any areas of flood risk with limited NFIP policy coverage.   |   |   |   |  |   |
| <b>Staff Resources</b>  |   |   |   |  |   |
| Is the Community FPA or NFIP Coordinator certified?   | Yes   | Yes   | Yes   | Yes  | Yes   |
| Is flood plain management an auxiliary function?  | Yes   | Yes   | Yes   | Yes  | Yes   |
| Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability) | Permit review and Inspections   | Permit review and Inspections   | Permit review and Inspections   | Permit review and Inspections  | Permit review and Inspections   |
| What are the barriers to running an effective NFIP program in the community, if any?  |   |   |   |  |   |

| Compliance History  |  |  |  |  |                                 |
|---|--|--|--|--|---------------------------------|
| Is the community in good standing with the NFIP?  | Yes  | Yes  | Yes  | Yes  | Yes                             |
| Are there any outstanding compliance issues(i.e., current violations)?  | No   | No   | No   | No   | No                              |
| When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact(CAC)?               | <b>CAV:</b> 07/26/2022; <b>CAC:</b> 05/09/2016 | <b>CAV:</b> 06/25/2019; <b>CAC:</b> 07/29/2022 | <b>CAV:</b> 10/05/2000; <b>CAC:</b> 02/23/2007 | <b>CAV:</b> 02/27/2003; <b>CAC:</b> 11/10/2016 | CAV:09/16/2014; CAC: 07/18/2022 |
| Is a CAV or CAC scheduled or needed? If so when?  | No   | No   | No   | No   | No                              |
| Regulation  |  |  |  |  |                                 |
| When did the community enter the NFIP?  | E = 01/29/1974; R = 07/02/1980                 | E = 09/06/1974; R = 12/18/1979                 | E = 02/09/1978; R = 09/30/1987                 | R = 06/14/1994                                 | E = 04/06/1973; R = 12/01/1978  |
| Are the FIRMs digital or paper?   | Digital  | Digital  | Digital  | Digital  | Digital                         |
| When did the communities adopt the FIRM's   | 1/20/2016                                      | 1/20/2016                                      | 1/20/2016                                      | 1/20/2016                                      | 1/20/2016                       |
| Do floodplain development regulations meet or exceed FEMA or State minimum requirements? If so, in what ways? | Meets  | Meets  | Meets  | Meets  | Meets                           |
| Community Rating System (CRS)   |  |  |  |  |                                 |
| Does the community participate in CRS?  | Yes  | Yes  | No   | No   | No                              |
| What is the community's CRS Class Ranking?  | 9  | 10   | N/A  | N/A  | N/A                             |
| Does the plan include CRS planning requirements?  |  |  |  |  |                                 |