2023 GRANT PARISH MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

UNINCORPORATED GRANT PARISH,
COLFAX, CREOLA, DRY PRONG,
GEORGETOWN, MONTGOMERY,
POLLOCK

GRANT PARISH
MULTI-JURISDICTIONAL
HAZARD MITIGATION PLAN UPDATE

Prepared for:

Grant Parish

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This 2023 Grant Parish Hazard Mitigation Plan Update was coordinated by the Grant Parish Hazard Mitigation Plan Update Planning Committee, in collaboration with community stakeholders and the general public. The participating jurisdictions are made up of the following communities:

Unincorporated Grant Parish
Town of Colfax
Village of Creola
Village of Dry Prong
Village of Georgetown
Town of Montgomery
Town of Pollock

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Contents

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

Grant Parish
Town of Colfax
Village of Creola
Village of Dry Prong
Village of Georgetown
Town of Montgomery
Town of Pollock

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

Geography, Population and Economy

Geography

Grant Parish is located in north-central Louisiana, approximately 135 miles north of the Gulf of Mexico (*Figure 1-1*). Grant Parish is approximately 645 square miles and is ranked 41st out of 64 in terms of population with other parishes in the state. Neighboring parishes are La Salle Parish to the east, Winn Parish to the north, Rapides Parish to the south and Natchitoches Parish to the west; notably, the Red River forms a border with both Natchitoches and Rapides Parishes. Kisatchie National Forest encompasses approximately 60% of Grant Parish.

Figure 1-1: Location of Grant Parish in the State of Louisiana

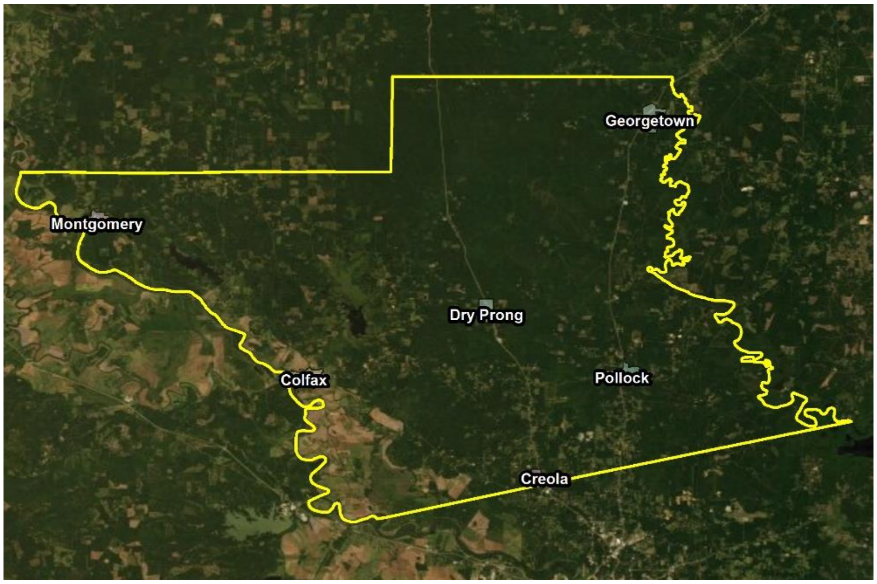


Figure 1-2: Incorporated Jurisdictions within Grant Parish

Grant Parish is a humid, subtropical climate. Variations in daily temperature are determined by distance from the Gulf of Mexico and, to a much lesser degree, by differences in elevation. The average annual temperature for the state as a whole is 68ºF. January is typically the coldest month for Louisiana, averaging approximately 54ºF, while July is typically the warmest at an average of 83ºF. Winter months are usually mild with cold spells of short duration. For Grant 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 less than one inch per year. Average annual rainfall for the area is 58 inches. Grant Parish is susceptible to the normal weather dangers, such as thunderstorms and flooding, and tornadoes. Over the past five years, Louisiana has experienced its fair share of tropical cyclones. While Grant parish is located 135 miles north of the Gulf of Mexico, the state's proximity to the gulf makes Grant parish susceptible to tropical cyclone damages. Hurricane season lasts from June 1st to November 30th, with most hurricanes forming in August, September, and October.

Grant Parish is located in Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) Region 6 (*Figure 1-3*).

As noted above, Grant Parish is located in the central region of Louisiana.

Figure 1-3: Louisiana Homeland Security Regions

Population

The population of Grant Parish is estimated at 22,169 (2020 Census) with a population percent change from April 1, 2010 – April 1, 2020 of less than one percent.

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

	2010 Census	2016 Estimate	2020 Census	Percent Change 2010 -2020
Total Population	22,309	22,351	22,169	-0.63%
Population Density (Pop/Sq. Mi.)	34.7		34.5	-0.58%
Total Households	7,340	7,340	6,989	-5.02%
Persons Per Household			2.89	-------

Economy

This area has seen growth primarily in manufacturing and distribution. In the last few years, two new wood processing plants were opened. The Jordache-Ditto plant, facing closure, was transformed into a national distribution center, expanding its Grant Parish employment. Grant Parish is an ideally located transportation hub with excellent interstate highway, river, rail and air cargo capabilities in place. The economic surge and diversity over the past ten years has been phenomenal, and is expected to maintain this unprecedented upward growth pattern. Principal crops of the parish include corn, hay, and oats. Industry data for business patterns in Grant Parish can be found in the table below:

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

Business Description	Number of Establishments	Number of Employees	Annual Payroll ($1,000)
Retail Trade	30	307	11,361
Manufacturing	8	378	17,565
Health Care and Social Assistance	22	269	7,225
Transportation and Warehousing	10	28	1,255
Construction	22	94	4,193
Administration/Support and Waste	8	19	792
Real Estate and Rental and Leasing	4	2	41
Other Services (except Public Administration)	29	83	1,770
Accommodation and Food Services	4	63	755
Financial and Insurance	11	57	2,163
Professional, Scientific, and Technical Services	8	19	535
Agriculture, Forestry, Fishing and Hunting	9	56	2,316
Utilities	8	28	1,006
Information	3	3	314

Hazard Mitigation

To fully understand hazard mitigation efforts in Grant 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.

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

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.

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 Grant 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 Grant 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 Grant 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 Grant Parish Hazard Mitigation Plan. The current goals are as follows:

1. Reduce exposure to damage from flooding
2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event
3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
4. Increase public awareness and support of hazard mitigation

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 2022. 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 changes in this plan update, the plan remains consistent in its emphasis on the few types of hazards that pose the most risk to loss of life, injury, and property in Grant Parish and its municipalities. The extent of this risk is dictated primarily by its geographic location. Most significantly, Grant Parish remains at high risk of water inundation from various sources, including flooding, tornadoes, and tropical cyclone activity. All of the parish is also at high risk of damages from high winds and wind-borne debris caused by various meteorological phenomena. Other hazards threaten the parish and/or its municipalities, although not to such great degrees and not in such widespread ways. In all cases, the relative social vulnerability of areas threatened and affected plays a significant role in how governmental agencies and their partners (local, parish, state, and federal) prepare for and respond to disasters.

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

2. Hazard Identification and Parish-Wide Risk Assessment

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 2017 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 2017 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 below 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 203 Update
Drought	X		X
Flooding	X	X	X
Levee Failure	X		+
Thunderstorms (Hail, Lightning, & Wind)	X	X	X
Tornadoes	X	X	X
Tropical Cyclones	X		X
Wildfires	X		X
Winter Weather	X		X

+ Data deficiency

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
374	4/27/1973	Severe Storms and Flooding
470	6/6/1975	Heavy Rains, Tornadoes, and Flooding
3031	2/22/1977	Drought and Freezing
675	1/11/1983	Severe Storms and Flooding
804	11/30/1987	Tornadoes and Flooding
829	5/20/1989	Severe Storms and Flooding
835	7/17/1989	Tropical Storm Allison
904	5/3/1991	Severe Storms, Tornadoes, and Flooding
1264	1/21/1999	Severe 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
4228	7/13/2015	Severe Storms and Flooding
4484	3/24/2020	COVID-19 Pandemic
3527	6/7/2020	Tropical Cyclone – Tropical Storm Cristobal
3538	8/23/2020	Tropical Cyclone – Tropical Storms Laura and Marco
4559	8/28/2020	Tropical Cyclone – Hurricane Laura
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 Storm
4590	3/9/2021	Severe Winter Storms
4611	8/29/2021	Tropical Cyclone – Hurricane Ida
3574	9/13/2021	Tropical Cyclone – Tropical Storm Nicholas

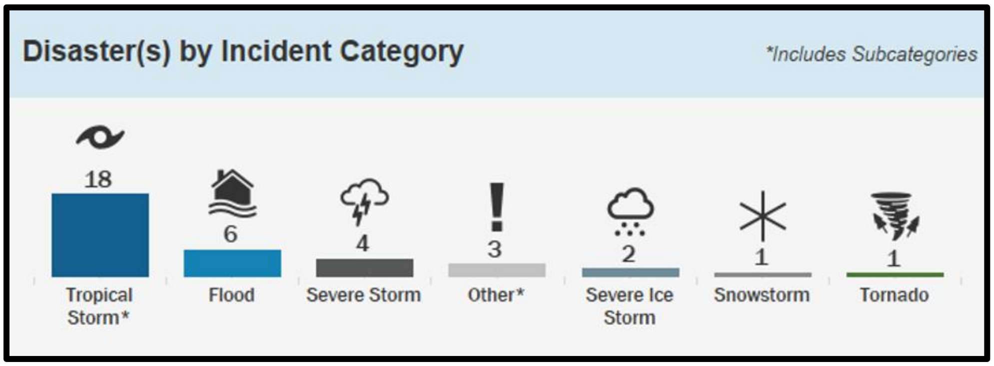


Figure 2-1: Presidential Disaster Declarations for the Parish by Disaster Type Since 1950. (Source: FEMA Disaster Declarations Summary: Open Government Dataset)

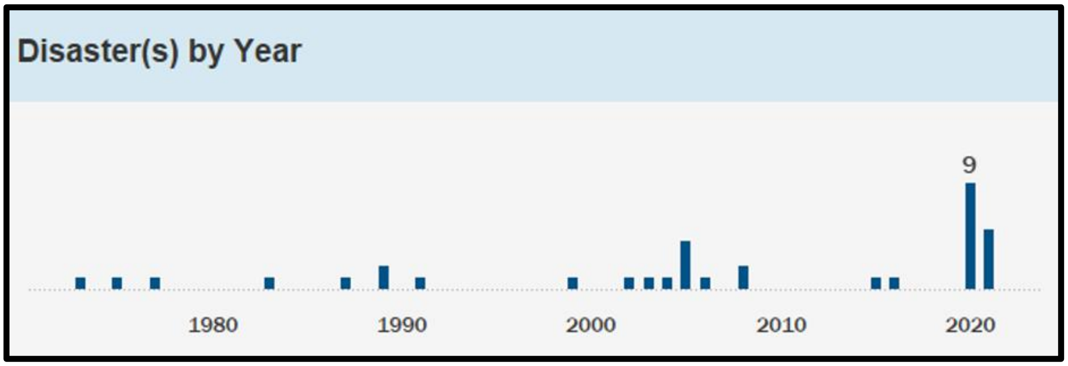


Figure 2-2: Total Presidential Disaster Declarations Yearly Totals for the Parish from 1950 to 2022. (Source: FEMA Disaster Declarations Summary: Open Government Dataset)

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 Grant Parish	Colfax	Creola	Dry Prong	Georgetown	Montgomery	Pollock
Drought	19%	19%	19%	19%	19%	19%	19%
Flooding	48%	33%	< 1%	15%	< 1%	30%	19%
Levee Failure	< 1%	< 1%	< 1%	< 1%	< 1%	< 1%	< 1%
Thunderstorms - Hail	100%	100%	100%	100%	100%	100%	100%
Thunderstorms - Lightning	15%	15%	15%	15%	15%	15%	15%
Thunderstorms - Winds	100%	100%	100%	100%	100%	100%	100%
Tornadoes	52%	52%	52%	52%	52%	52%	52%
Tropical Cyclones	27%	27%	27%	27%	27%	27%	27%
Wildfires	< 1%	< 1%	< 1%	< 1%	< 1%	< 1%	< 1%
Winter Weather	44%	44%	44%	44%	44%	44%	44%

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:

Expected Annual Loss = Exposure * Annualized Frequency * Historic Loss Ratio

Risk Index = Expected Annual Loss * Social Vulnerability / 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.

Risk Factor = [(Probability * 0.25) + (Impact * 0.25) + (Spatial Extent * 0.20) + (Warning Time *0.15) + (Duration * 0.15)]

Priority Risk Index and Hazard Risk

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

Table 2-5: 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**
Flooding	3	4	3	4	3	**3.4**
Leve Failure	1	3	1	4	3	**2.25**
Thunderstorms - Hail	4	2	3	3	1	**2.7**
Thunderstorms - Lightning	3	2	2	3	1	**2**
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	**2.5**
Winter Weather	3	4	4	1	2	**3**

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
Very Low	Relatively Moderate	Relatively Low	Very Low

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 $2,646,134,000 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.

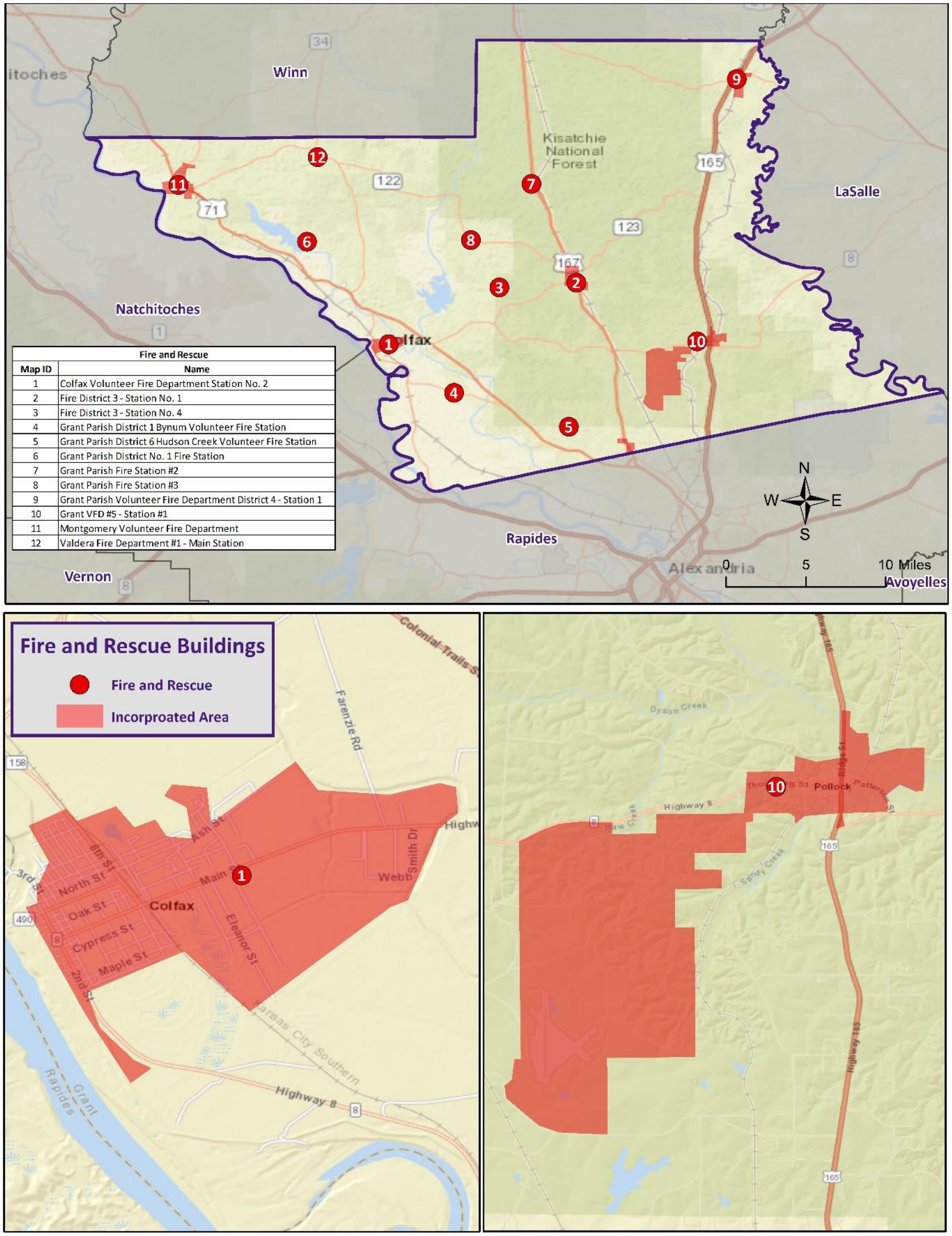
Occupancy	Grant Parish	Unincorporated Area	Colfax	Creola
Agricultural	$8,916,000	$8,224,000	$546,000	$38,000
Commercial	$138,059,000	$92,735,000	$25,996,000	$0
Government	$32,518,000	$15,890,000	$6,189,000	$6,000
Industrial	$80,213,000	$64,494,000	$14,645,000	$0
Religion	$84,142,000	$52,736,000	$15,172,000	$0
Residential	$2,281,262,000	$1,812,754,000	$164,983,000	$16,066,000
Education	$21,024,000	$13,850,000	$2,948,000	$0
Total	**$2,646,134,000**	**$2,060,683,000**	**$230,479,000**	**$16,110,000**

Table 2-9: Estimated Total of Potential Losses throughout the Parish.

Occupancy	Dry Prong	Georgetown	Montgomery	Pollock
Agricultural	$0	$0	$108,000	$0
Commercial	$1,314,000	$0	$12,062,000	$5,952,000
Government	$0	$0	$8,483,000	$1,950,000
Industrial	$788,000	$0	$0	$286,000
Religion	$606,000	$2,426,000	$5,618,000	$7,584,000
Residential	$61,359,000	$32,420,000	$76,959,000	$116,721,000
Education	$3,810,000	$0	$0	$416,000
Total	**$67,877,000**	**$34,846,000**	**$103,230,000**	**$132,909,000**

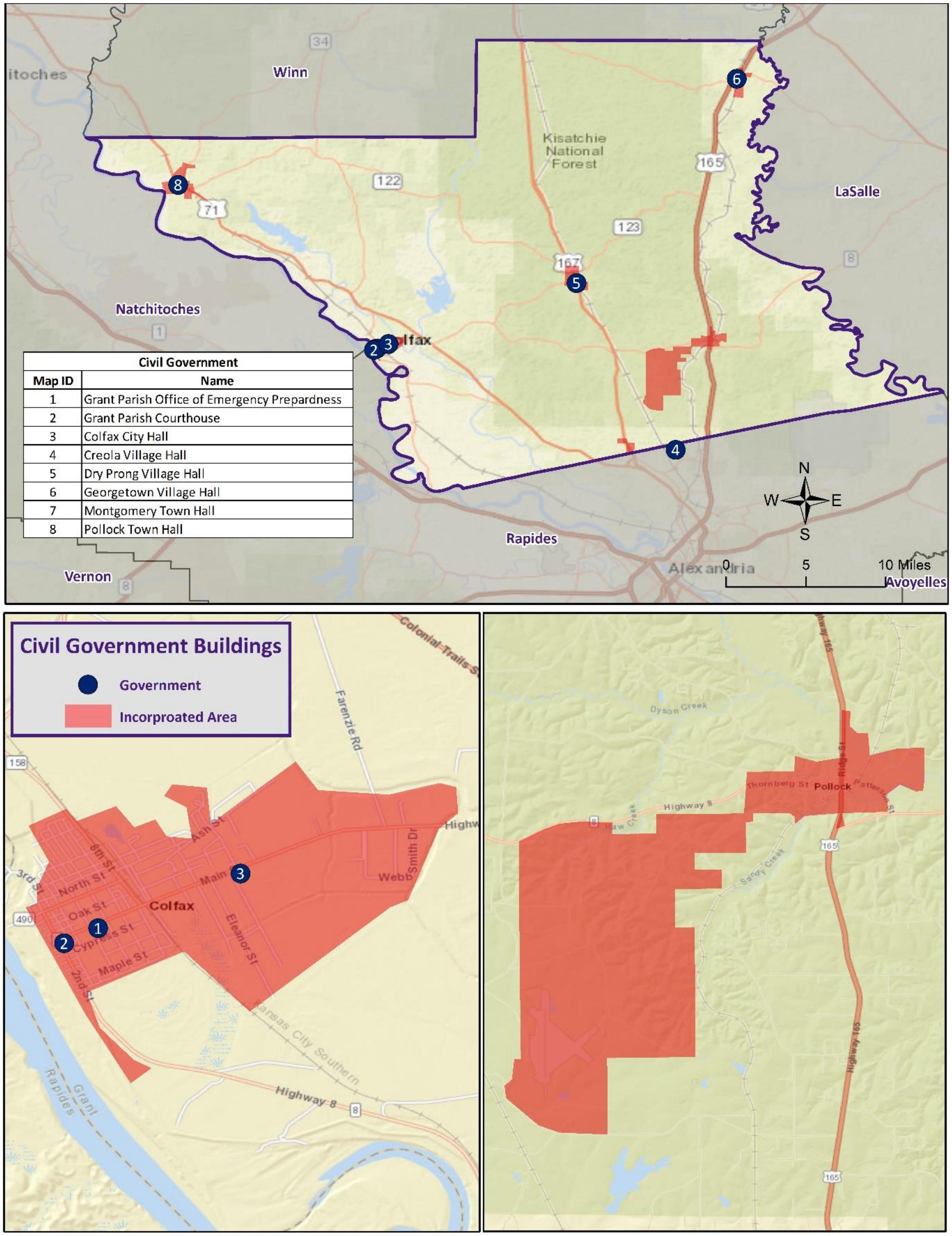
Critical Facilities of the Parish

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



Fire and Rescue	
Map ID	Name
1	Colfax Volunteer Fire Department Station No. 2
2	Fire District 3 - Station No. 1
3	Fire District 3 - Station No. 4
4	Grant Parish District 1 Bynum Volunteer Fire Station
5	Grant Parish District 6 Hudson Creek Volunteer Fire Station
6	Grant Parish District No. 1 Fire Station
7	Grant Parish Fire Station #2
8	Grant Parish Fire Station #3
9	Grant Parish Volunteer Fire Department District 4 - Station 1
10	Grant VFD #5 - Station #1
11	Montgomery Volunteer Fire Department
12	Valdera Fire Department #1 - Main Station

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



Civil Government	
Map ID	Name
1	Grant Parish Office of Emergency Prepardness
2	Grant Parish Courthouse
3	Colfax City Hall
4	Creola Village Hall
5	Dry Prong Village Hall
6	Georgetown Village Hall
7	Montgomery Town Hall
8	Pollock Town Hall

Figure 2-4: Government Buildings in the Parish.

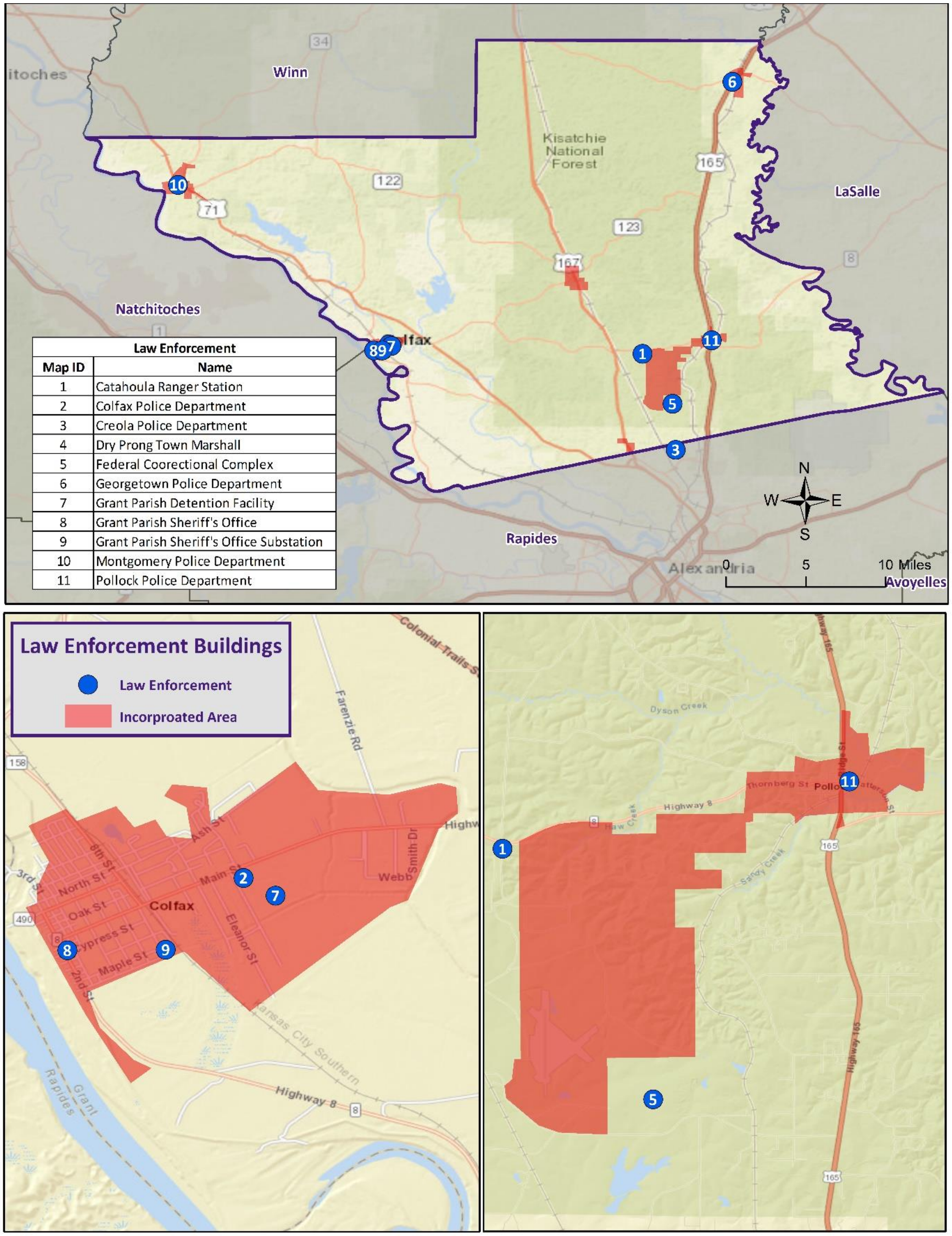


Figure 2-5: Law Enforcement in the Parish.

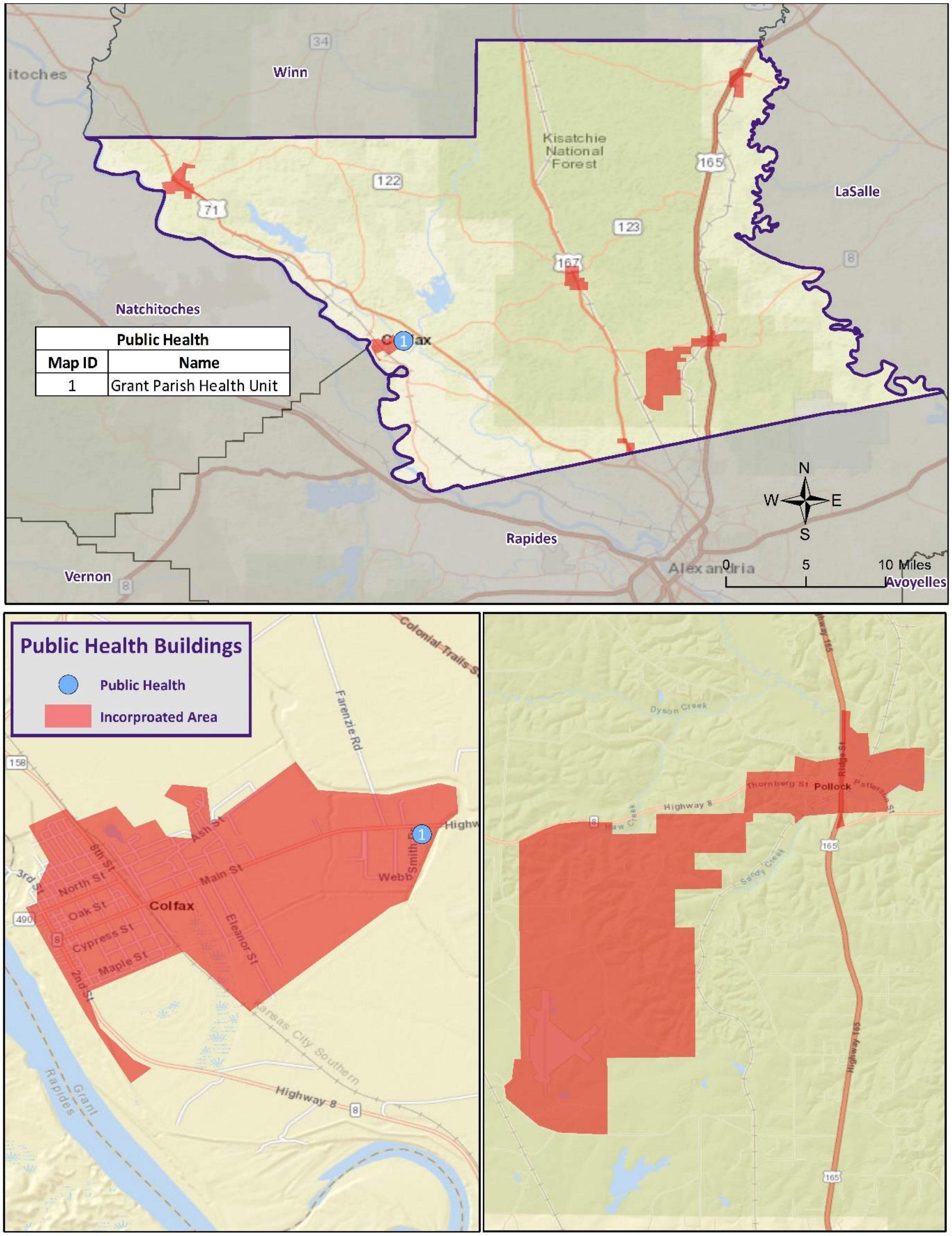
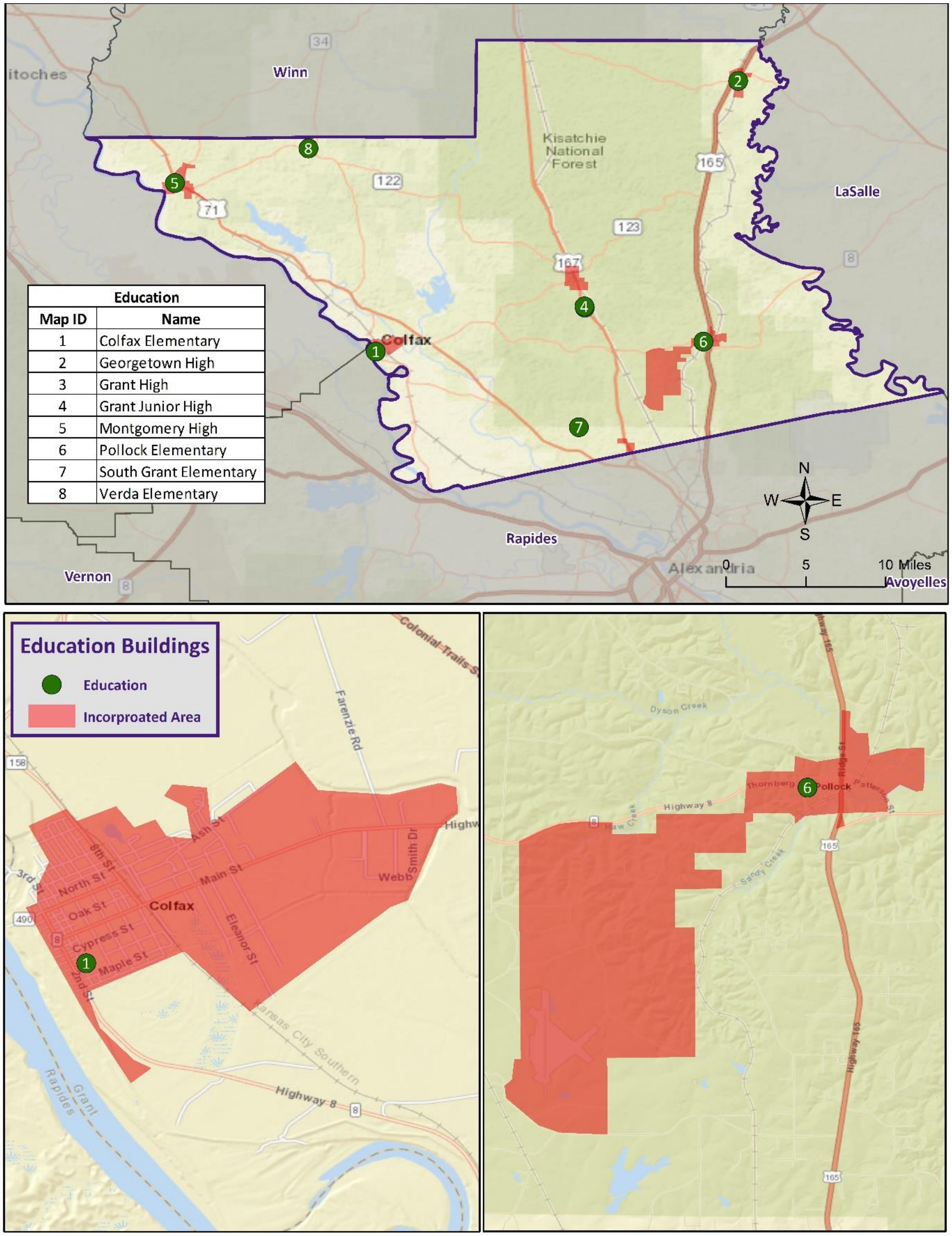


Figure 2-6: Public Health Facilities in the Parish.



Education	
Map ID	Name
1	Colfax Elementary
2	Georgetown High
3	Grant High
4	Grant Junior High
5	Montgomery High
6	Pollock Elementary
7	South Grant Elementary
8	Verda Elementary

Figure 2-7: Educational Facilities in the Parish.

Population and Development Trends

The future population and number of buildings can be estimated using U.S. Census Bureau housing and population data. The following tables show population and housing unit estimates from 2000 to 2020:

Table 2-10: Population Growth Rate for the Parish.

Total Population	Grant Parish	Unincorporated Area	Colfax	Creola
1-Apr-00	18,734	15,025	1,649	197
1-Apr-10	22,341	18,602	1,560	213
1-Apr-20	22,169	18,751	1,428	242
Population Growth between 2000 – 2010	19.3%	23.8%	-5.4%	8.1%
Average Annual Growth Rate between 2000 – 2010	1.9%	2.4%	-0.5%	0.8%
Population Growth between 2010 – 2020	-0.8%	0.8%	-8.5%	13.6%
Average Annual Growth Rate between 2010 – 2020	-0.08%	0.08%	-0.85%	1.36%

Table 2-11: Population Growth Rate for the Parish.

Total Population	Dry Prong	Georgetown	Montgomery	Pollock
1-Apr-00	406	295	797	365
1-Apr-10	437	328	731	470
1-Apr-20	455	277	622	394
Population Growth between 2000 – 2010	7.6%	11.2%	-8.3%	28.8%
Average Annual Growth Rate between 2000 – 2010	0.8%	1.1%	-0.8%	2.9%
Population Growth between 2010 – 2020	4.1%	-15.5%	-14.9%	-16.2%
Average Annual Growth Rate between 2010 – 2020	0.41%	-1.55%	-1.49%	-1.62%

Table 2-12: Housing Growth Rate for the Parish.

Total Population	Grant Parish	Unincorporated Area	Colfax	Creola
1-Apr-00	8,531	6,875	709	-
1-Apr-10	8,886	7,233	645	68
1-Apr-20	8,971	7,397	645	66
Housing Growth between 2000 – 2010	4.2%	5.2%	-9.0%	#VALUE!
Average Annual Growth Rate between 2000 – 2010	0.4%	0.5%	-0.9%	#VALUE!
Housing Growth between 2010 – 2020	1.0%	2.3%	0.0%	-2.9%
Average Annual Growth Rate between 2010 – 2020	0.1%	0.2%	0.0%	-0.3%

Table 2-13: Housing Growth Rate for the Parish.

Total Population	Dry Prong	Georgetown	Montgomery	Pollock
1-Apr-00	195	153	395	204
1-Apr-10	199	143	391	207
1-Apr-20	200	136	327	200
Housing Growth between 2000 – 2010	2.1%	-6.5%	-1.0%	1.5%
Average Annual Growth Rate between 2000 – 2010	0.2%	-0.7%	-0.1%	0.1%
Housing Growth between 2010 – 2020	0.5%	-4.9%	-16.4%	-3.4%
Average Annual Growth Rate between 2010 – 2020	0.1%	-0.5%	-1.6%	-0.3%

Socially Vulnerable Populations

The following tables illustrate at risk populations in Grant Parish, and their respective jurisdictions, compared to the United States as a whole. As seen in the tables below, Grant 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 2-14: Limiting Factors for Socially Vulnerable Populations in Grant Parish

Limiting Factors in Neighborhoods at Risk – Population Sample Size (2021)								
Indicators 2021	**Grant Parish**	**Town of Colfax**	**Village of Creola**	**Village of Dry Prong**	**Village of Georgetown**	**Town of Montgomery**	**Town of Pollock**	**United States**
Families in poverty	4,409	327	**30**	88	63	132	139	80,755,759
Rental units, mobile homes, households with no car	6,577	579	**37**	150	87	280	190	124,010,992
People who do not speak English well	20,987	1,788	123	394	237	875	503	310,302,360
People without a high school degree	15,926	1,225	87	274	141	721	352	225,152,317
Total Population	**22,236**	**2,010**	**210**	**421**	**275**	**887**	**604**	**329,725,481**

Table 2-15: Socially Vulnerable Populations in Grant Parish

Neighborhoods at Risk – Grant Parish				
Indicators 2021	**Grant Parish Population**	**Grant Parish Percentage**	**U.S. Percentage**	**Percentage Difference (Grant vs U.S.)**
People under 5 years	1,249	5.6%	5.9%	-5%
People over 65 years	3,254	14.6%	16.0%	-9%
People of color (including Hispanic)	5,419	24.4%	40.6%	-50%
People who do not speak English well	505	2.4%	4.1%	-52%
People without a high school degree	2,992	18.8%	11.1%	52%
Families in poverty	462	10.5%	8.9%	16%
Housing units that are rentals	1,536	23.4%	35.4%	-41%
Housing units that are mobile homes	1,623	24.7%	5.2%	130%
Households with no cars	511	12.0%	8.3%	36%
People with disabilities	3,318	17.5%	12.6%	33%
People without health insurance	2,007	10.6%	8.5%	22%
Population of Grant Parish: 22,236				

Table 2-16: Socially Vulnerable Populations in Colfax

Neighborhoods at Risk – Town of Colfax				
Indicators 2021	**Colfax Population**	**Colfax Percentage**	**U.S. Percentage**	**Percentage Difference (Colfax vs U.S.)**
People under 5 years	222	11.0%	5.9%	60%
People over 65 years	279	13.9%	16.0%	-14%
People of color (including Hispanic)	1,497	74.5%	40.6%	59%
People who do not speak English well	**12**	**0.7%**	4.1%	**-142%**
People without a high school degree	216	17.6%	11.1%	45%
Families in poverty	128	39.1%	8.9%	126%
Housing units that are rentals	272	47.0%	35.4%	28%
Housing units that are mobile homes	102	17.6%	5.2%	109%
Households with no cars	132	22.8%	8.3%	93%
People with disabilities	275	15.2%	12.6%	19%
People without health insurance	321	17.8%	8.5%	71%
Population of Colfax: 2,010				

Table 2-17: Socially Vulnerable Populations in Creola

Neighborhoods at Risk – Village of Creola				
Indicators 2021	**Creola Population**	**Creola Percentage**	**U.S. Percentage**	**Percentage Difference (Creola vs U.S.)**
People under 5 years	87	28.0%	5.9%	130%
People over 65 years	-	0.0%	16.0%	-200%
People of color (including Hispanic)	28	13.3%	40.6%	-101%
People who do not speak English well	-	0.0%	4.1%	-200%
People without a high school degree	12	13.8%	11.1%	22%
Families in poverty	8	26.7%	8.9%	100%
Housing units that are rentals	37	100.0%	35.4%	95%
Housing units that are mobile homes	33	89.2%	5.2%	178%
Households with no cars	-	0.0%	8.3%	-200%
People with disabilities	20	9.6%	12.6%	-27%
People without health insurance	2	1.0%	8.5%	-158%
Population of Creola: 210				

Table 2-18: Socially Vulnerable Populations in Dry Prong

Neighborhoods at Risk – Village of Dry Prong				
Indicators 2021	**Dry Prong Population**	**Dry Prong Percentage**	**U.S. Percentage**	**Percentage Difference (Dry Prong vs U.S.)**
People under 5 years	27	6.4%	5.9%	8%
People over 65 years	89	21.1%	16.0%	27%
People of color (including Hispanic)	19	4.5%	40.6%	-160%
People who do not speak English well	-	0.0%	4.1%	-200%
People without a high school degree	40	14.6%	11.1%	27%
Families in poverty	4	4.5%	8.9%	-66%
Housing units that are rentals	28	18.7%	35.4%	-62%
Housing units that are mobile homes	18	12.0%	5.2%	79%
Households with no cars	2	1.3%	8.3%	-146%
People with disabilities	51	12.1%	12.6%	-4%
People without health insurance	12	2.9%	8.5%	-98%
Population of Dry Prong: 421				

Table 2-19: Socially Vulnerable Populations in Georgetown

Neighborhoods at Risk – Village of Georgetown				
Indicators 2021	Georgetown Population	Georgetown Percentage	U.S. Percentage	Percentage Difference (Georgetown vs U.S.)
People under 5 years	38	13.8%	5.9%	80%
People over 65 years	33	12.0%	16.0%	-29%
People of color (including Hispanic)	10	3.6%	40.6%	-167%
People who do not speak English well	-	0.0%	4.1%	-200%
People without a high school degree	23	16.3%	11.1%	38%
Families in poverty	15	23.8%	8.9%	91%
Housing units that are rentals	27	31.0%	35.4%	-13%
Housing units that are mobile homes	18	20.7%	5.2%	120%
Households with no cars	1	1.1%	8.3%	-153%
People with disabilities	31	11.3%	12.6%	-11%
People without health insurance	29	10.6%	8.5%	22%
Population of Georgetown: 275				

Table 2-20: Socially Vulnerable Populations in Montgomery

Neighborhoods at Risk – Town of Mongomery				
Indicators 2021	Montgomery Population	Montgomery Percentage	U.S. Percentage	Percentage Difference (Montgomery vs U.S.)
People under 5 years	12	1.4%	5.9%	-123%
People over 65 years	149	16.8%	16.0%	5%
People of color (including Hispanic)	135	15.2%	40.6%	-91%
People who do not speak English well	-	0.0%	4.1%	-200%
People without a high school degree	166	23.0%	11.1%	70%
Families in poverty	16	12.1%	8.9%	30%
Housing units that are rentals	79	28.2%	35.4%	-23%
Housing units that are mobile homes	103	36.8%	5.2%	150%
Households with no cars	21	7.5%	8.3%	-10%
People with disabilities	298	33.6%	12.6%	91%
People without health insurance	192	21.6%	8.5%	87%
Population of Montgomery: 887				

Table 2-21: Socially Vulnerable Populations in Pollock

Neighborhoods at Risk – Town of Pollock				
Indicators 2021	**Pollock Population**	**Pollock Percentage**	**U.S. Percentage**	**Percentage Difference (Pollock vs U.S.)**
People under 5 years	**101**	**16.7%**	5.9%	**96%**
People over 65 years	**82**	**13.6%**	16.0%	**-16%**
People of color (including Hispanic)	26	4.3%	40.6%	-162%
People who do not speak English well	**3**	**0.6%**	4.1%	**-149%**
People without a high school degree	**63**	**17.9%**	11.1%	**47%**
Families in poverty	**52**	**37.4%**	8.9%	**123%**
Housing units that are rentals	106	55.8%	35.4%	45%
Housing units that are mobile homes	**12**	**6.3%**	5.2%	**19%**
Households with no cars	**7**	**3.7%**	8.3%	**-77%**
People with disabilities	**117**	**19.4%**	12.6%	**43%**
People without health insurance	**31**	**5.1%**	8.5%	**-50%**
Population of Pollock: 604				

Land Use

The Parish Land Use table is provided below. Residential, commercial, and industrial areas account for only 7% of the parish's land use. Forest land is the largest category at 251,075 acres, accounting for 65% of parish land. At 61,861 acres, wetlands account for 16% of parish lands, while 32,022 acres of agricultural areas account for 8% of parish lands. The parish also consists of 14,973 acres of water areas, accounting for 4% of all parish lands.

Table 2-22: Parish Land Use.
(Source: USGS Land Use Map)

Land Use	Acres	Percentage
Agricultural Land, Cropland, and Pasture	32,022	8%
Wetlands	61,861	16%
Forest Land (Not including forested wetlands)	251,075	65%
Urban/Development	25,729	7%
Water	14,973	4%

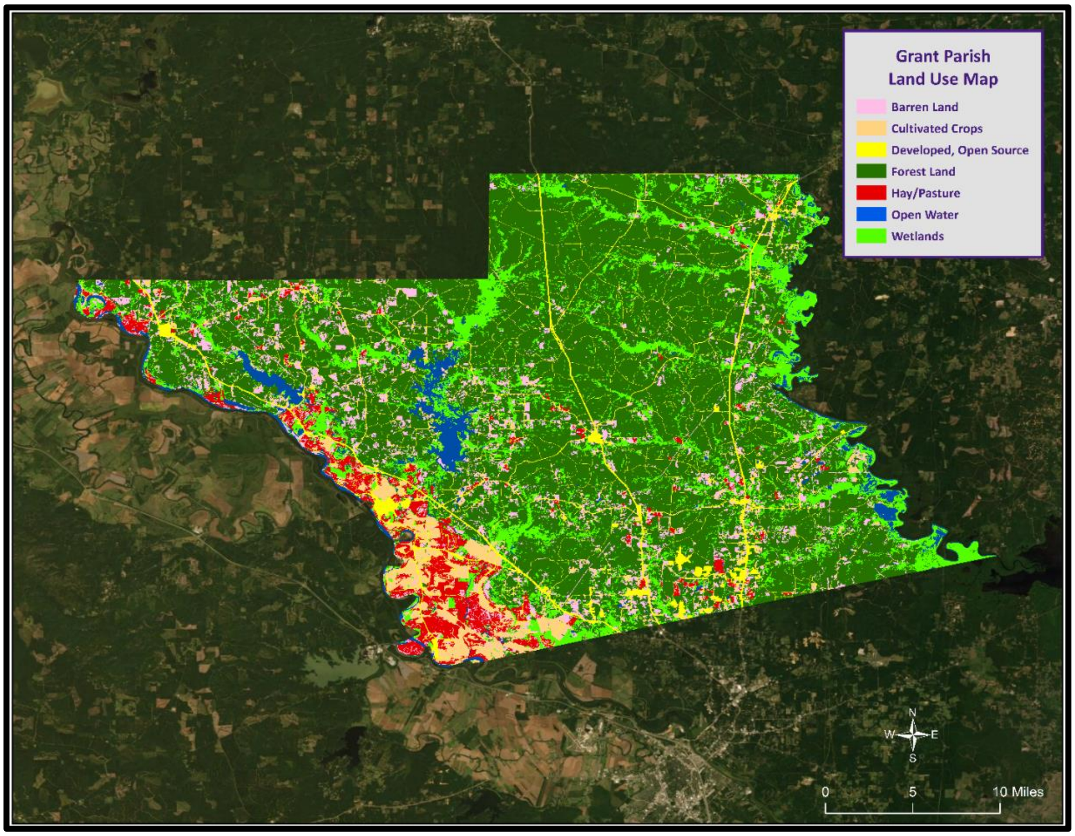


Figure 2-8: Parish Land Use Map.
(Source: USGS Land Use Map)

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 2-23: 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)
Flood Damage				
Structures	8,980	2,640	2,652	2,668
Value of Structures	$2,675,681,573	$786,567,586	$831,474,662	$888,760,178
# of People	22,152	6,512	6,487	6,457
Tropical Cyclone Damage				
Structures	8,980	8,980	9,023	9,075
Value of Structures	$2,675,681,573	$2,675,681,573	$2,828,442,807	$3,023,312,013
# of People	22,152	22,152	22,067	21,965

Since the previous plan update in 2017, the population and housing development within Grant Parish have decreased. Grant Parish will continue to be 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 Grant Parish. The development that has occurred since 2017 has not in any knowing way altered the parish's vulnerability to natural hazards. Grant 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.

Population increase and development can have various impacts on natural disasters and extreme weather events. Let's explore how each of these factors can influence drought, extreme heat, thunderstorms, tornadoes, wildfires, and winter weather:

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.

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

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

Table 2-24: 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 2-25: 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 exceptional drought conditions exist in the in the parish at the time this plan went to publication.

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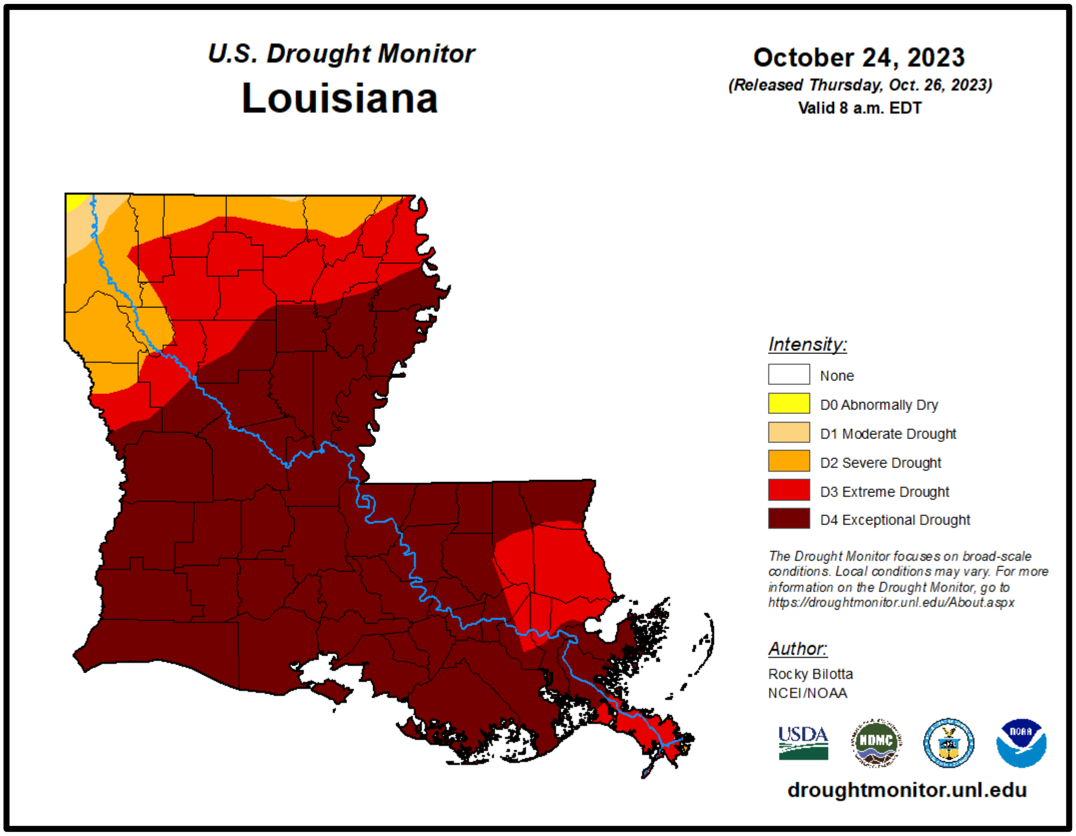

Figure 2-9: United States Drought Monitor for the State of Louisiana and its Parishes. (Source: The National Drought Mitigation Center)

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 exceptional drought (D4).

Previous Occurrences

The parish experienced five drought occurrences between the years 1996 and 2022. Since the last update in 2017, there have been two drought occurrences within the boundaries of the parish.

Table 2-26: Historical Droughts in the Parish since the 2017 Update.

Date	Impacts	Crop Damage	Magnitude
January – February 2018	Severe (D2) drought conditions continued into February across much of North Louisiana (with the exception of Sabine Parish), although widespread 1-3 inches of rain fell across this area during the first week of the month which resulted in a one category improvement to moderate drought by the February 15th issuance of the U.S. Drought Monitor.	$0	D2
January – March 2022	Severe (D2) drought conditions continued across much of Northern Louisiana throughout February. This was in response to a prolonged period of dryness which began back in mid-summer 2021, coupled with above normal temperatures which persisted through much of the fall and early winter.	$0	D2

Probability

The annual return rate (frequency) for periods of drought in the parish is 0.19 (19% annual probability) or approximately 1 drought occurrence every 5 to 6 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 following table provides an overview of each category at the county level for drought.

Table 2-27: National Risk Index (NRI) Summarization of Drought Occurrences for the Parish. (Source: National Risk Index)

Expected Annual Losses	Overall Risk Rating
Relatively Low	Relatively 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 2-28: Agricultural Exposure by Crop Type for Droughts in the Parish.
(Source: LSU Ag Center 2020 Parish Totals)

Agricultural Exposure by Type for Drought					
Corn	**Cotton**	**Forestry**	**Mayhaws**	**Pecans**	**Soybeans**
$445,671	$511,491	$19,015,901	$2,118,901	$901,123	$4,211,644

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 2-29: 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**

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 (wen 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.

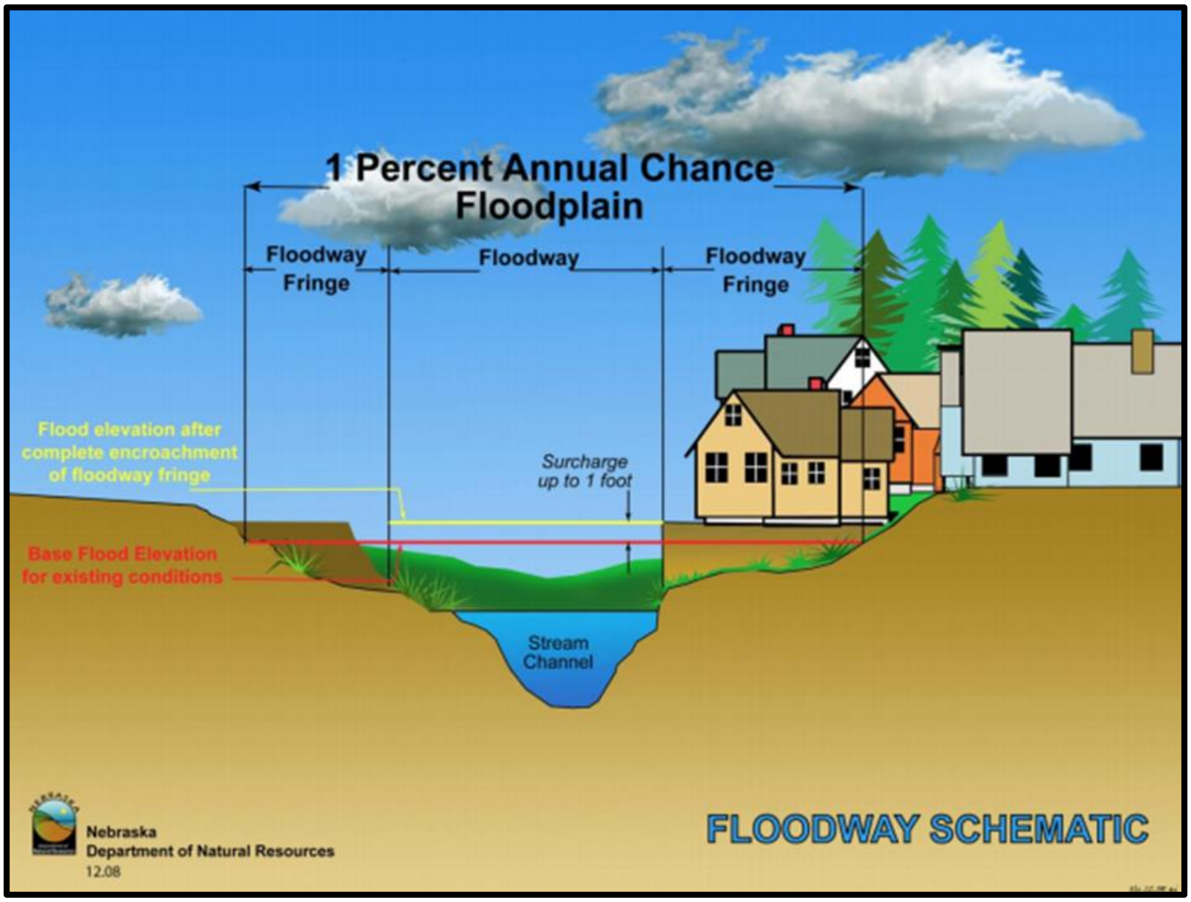

Figure 2-10: Schematic of 100-Year Floodplain.
The Special Flood Hazard Area (SFHA) extends to the end of the floodway fringe.
(Source: Nebraska Department of Natural Resources)

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 following figures.

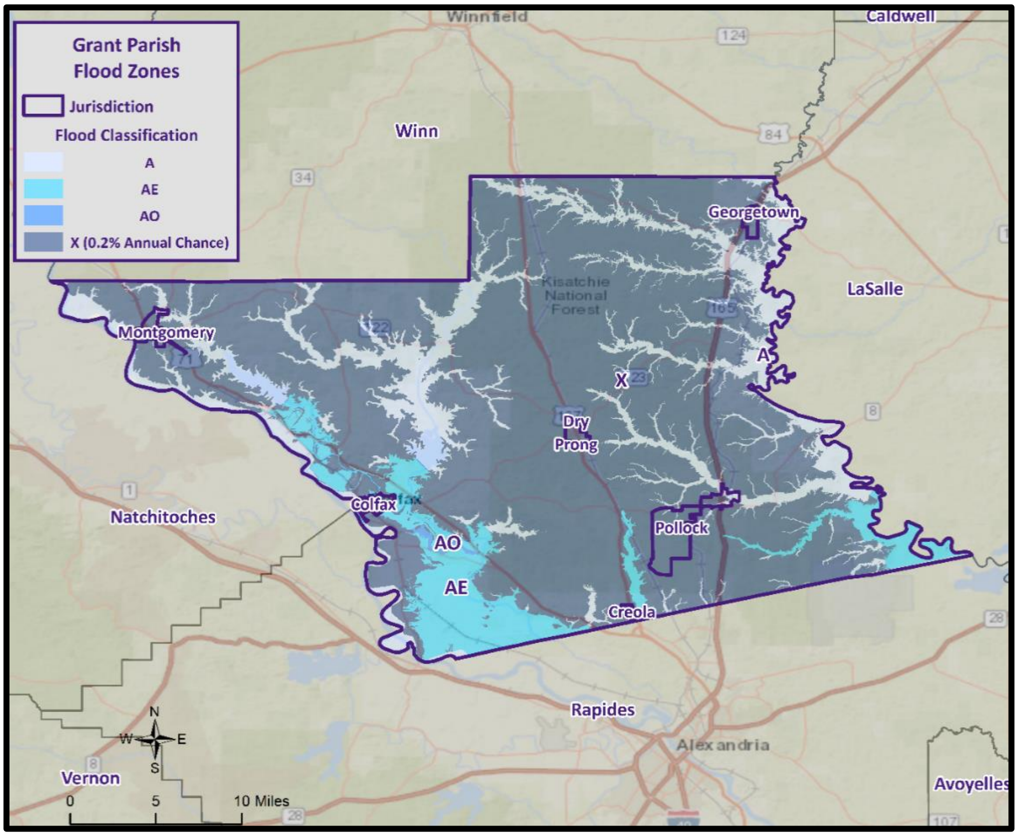

Figure 2-11: Parish Areas within the Flood Zones.

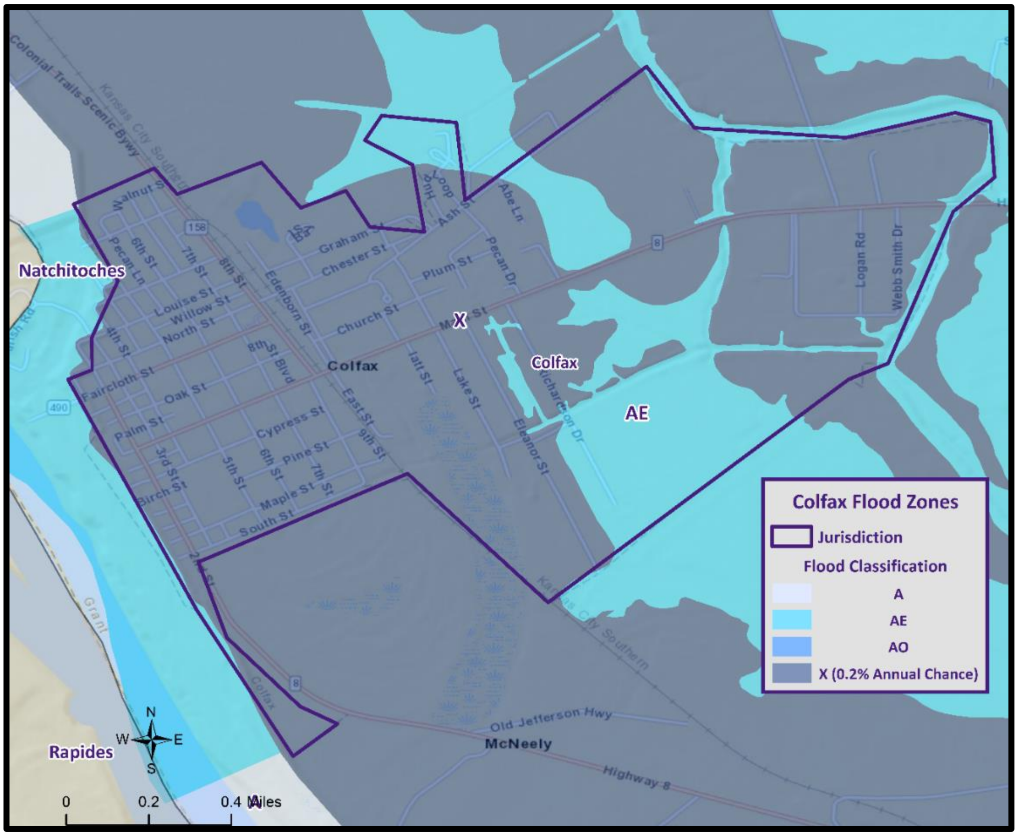

Figure 2-12: Colfax Areas within the Flood Zones.

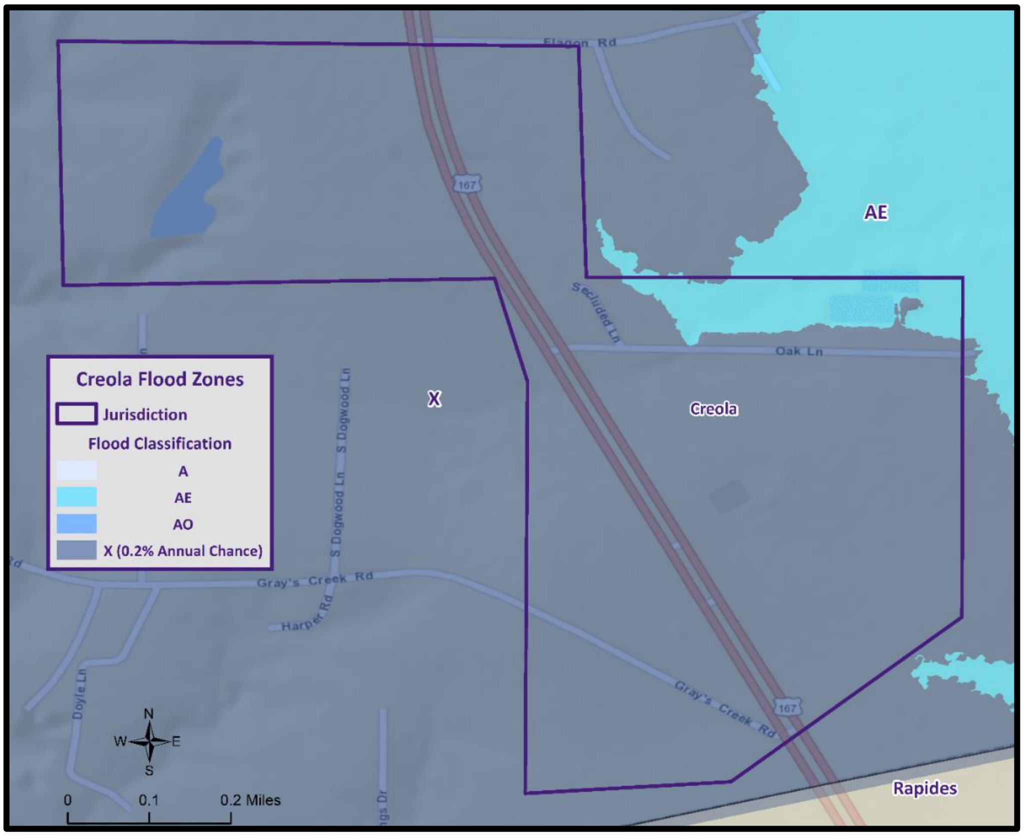

Figure 2-13: Creola Areas within the Flood Zones.

Figure 2-14: Dry Prong Areas within the Flood Zones.

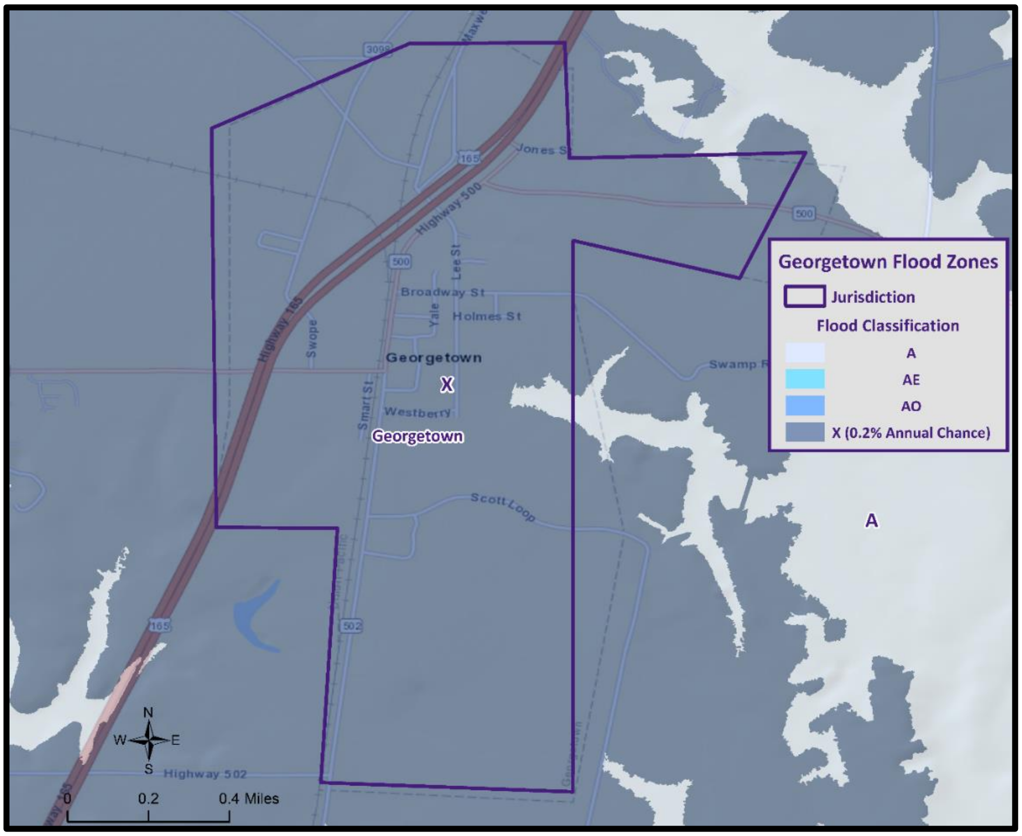

Figure 2-15: Georgetown Areas within the Flood Zones.

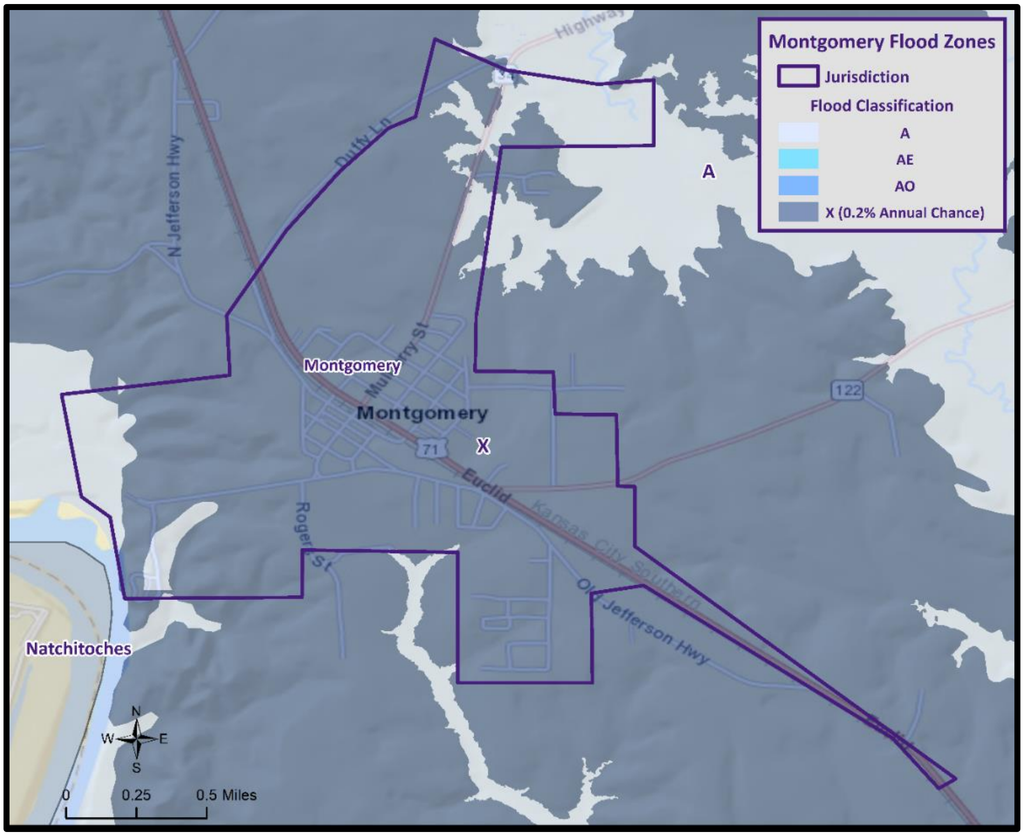

Figure 2-16: Montgomery Areas within the Flood Zones.

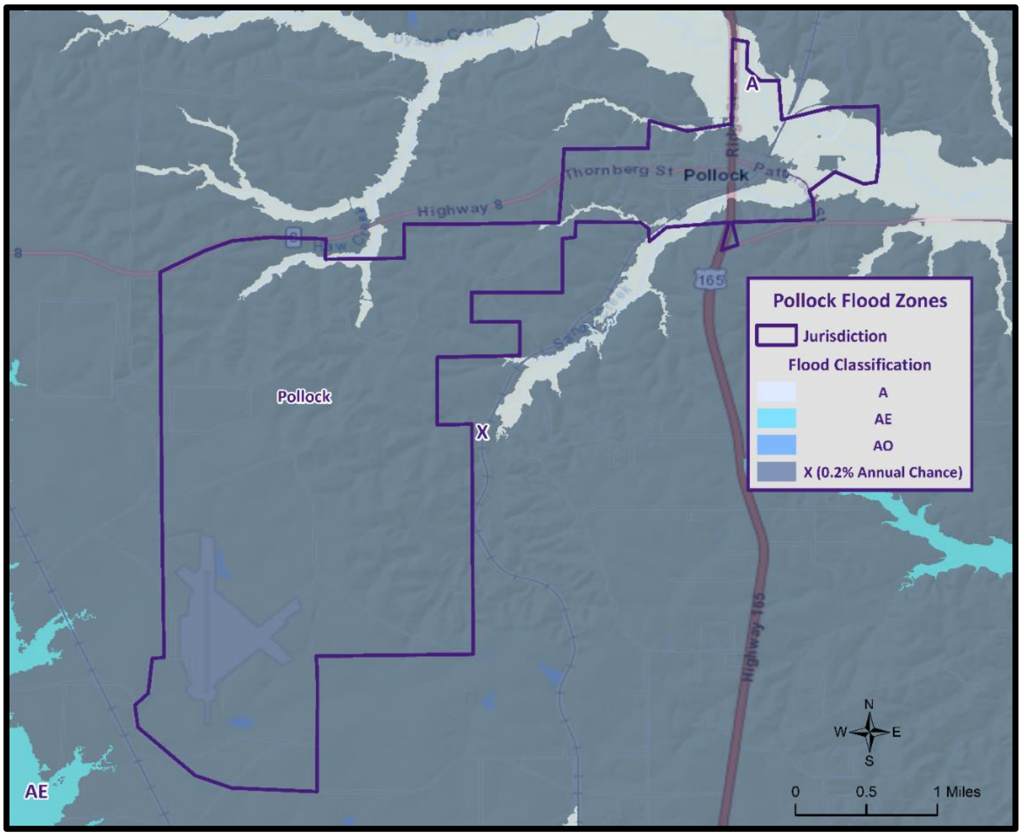

Figure 2-17: Pollock Areas within the Flood Zones.

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 2-30: Repetitive Loss Structures for the Parish.

Jurisdiction	Number of Structures	Residential	Commercial	Government	Total Claims	Total Claims Paid	Average Claim Paid
Unincorporated Grant Parish	52	50	2	0	197	2,148,971	$10,908
Colfax	3	3	0	0	8	$107,245	$13,406
Creola	0	0	0	0	0	$0	$0
Dry Prong	0	0	0	0	0	$0	$0
Georgetown	0	0	0	0	0	$0	$0
Montgomery	0	0	0	0	0	$0	$0
Pollock	4	4	0	0	13	$163,646	$12,588
TOTAL	**59**	**57**	**2**	**0**	**218**	**$2,419,862**	**$11,100**

All 59 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 western unincorporated area.

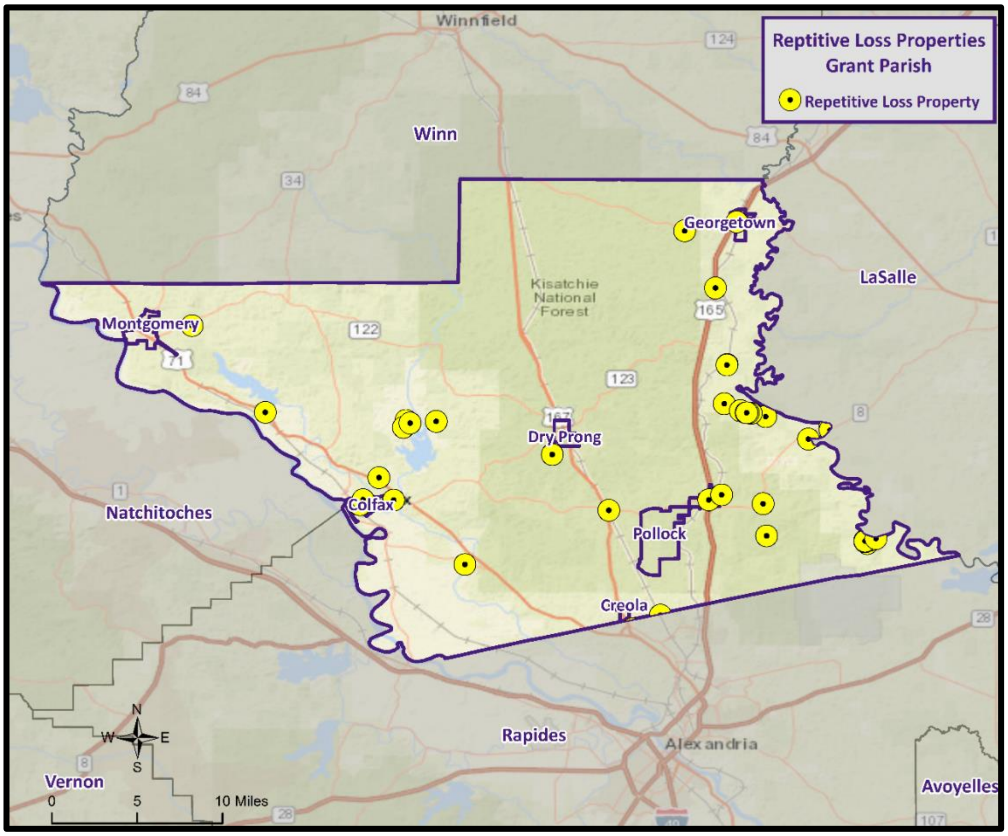

Figure 2-18: Repetitive Loss Properties in the Parish.

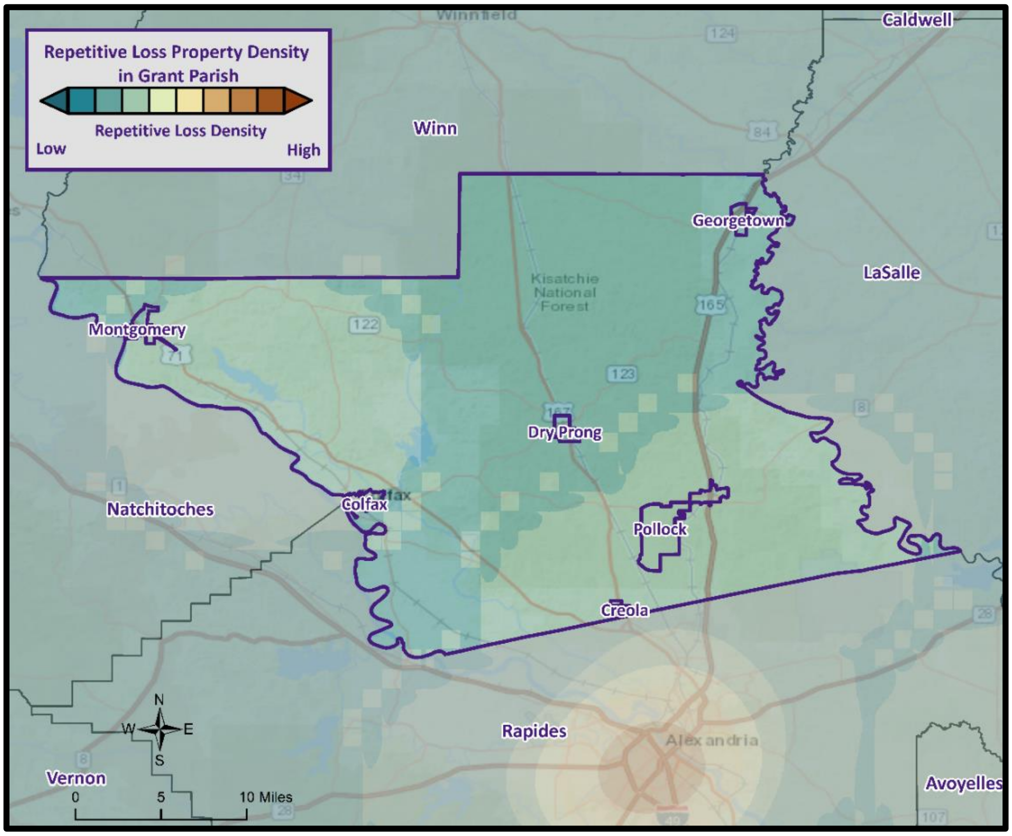

Figure 2-19: Repetitive Loss Property Densities in the Parish.

National Flood Insurance Program

Flood insurance statistics indicate that the Parish has 178 flood insurance policies with the NFIP, with total annual premiums of $111,444. The parish and the jurisdictions of Colfax, Montgomery, and Pollock are all participants in the NFIP. The jurisdictions of Creola, Dry Prong, and Georgetown do not participate in the NFIP. These particular jurisdictions are very limited when it comes to personnel, funding, and resources needed to administer the NFIP program. The jurisdictions have determined that participation in the NFIP has little or no benefit or impact on the residents and the economies of the jurisdiction. 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 2-31: 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
Unincorporated Grant Parish	141	$25,573,000	$94,972	27	$936,535
Colfax	36	$7,774,000	$15,791	1	$81,176
Creola	0	$0	$0	0	$0
Dry Prong	0	$0	$0	0	$0
Georgetown	0	$0	$0	0	$0
Montgomery	0	$0	$0	0	$0
Pollock	1	$204,000	$681	0	$0
Total	**178**	**$33,551,000**	**$111,444**	**28**	**$1,017,711**

Table 2-32: 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
220076#	Grant Parish	6/17/1977	3/1/1987	6/16/2016	6/16/2016	3/1/1987	No
220077#	Colfax	11/14/1975	9/5/1979	6/16/2016	6/16/2016	9/5/1979	No
220256#	Montgomery	9/19/1975	5/4/1982	6/16/2016	6/16/2016	5/4/1982	No
220305#	Pollock	8/15/1975	5/25/1982	6/16/2016	6/16/2016	5/25/1982	No

According to the Community Rating System (CRS) list of eligible communities, the unincorporated area of the parish and its jurisdictions do not participate in the CRS program.

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 40 feet (NAVD88) to approximately 300 feet (NAVD88). The highest elevations in the parish are approximately 300 feet (NAVD88), located in the unincorporated areas. These higher elevations are sporadic throughout the parish. The incorporated areas range in elevation from 95 to 230 feet (NAVD88), with Dry Prong averaging 230 feet (NAVD88), Creola averaging 194 feet (NAVD88), Montgomery averaging 154 feet (NAVD88), Pollock averaging 118 feet (NAVD88), Colfax averaging 95 feet (NAVD88), and Georgetown averaging 95 feet (NAVD88). The lowest elevations of the parish average less than 40 feet (NAVD88), and are located in the unincorporated areas of Grant Parish.

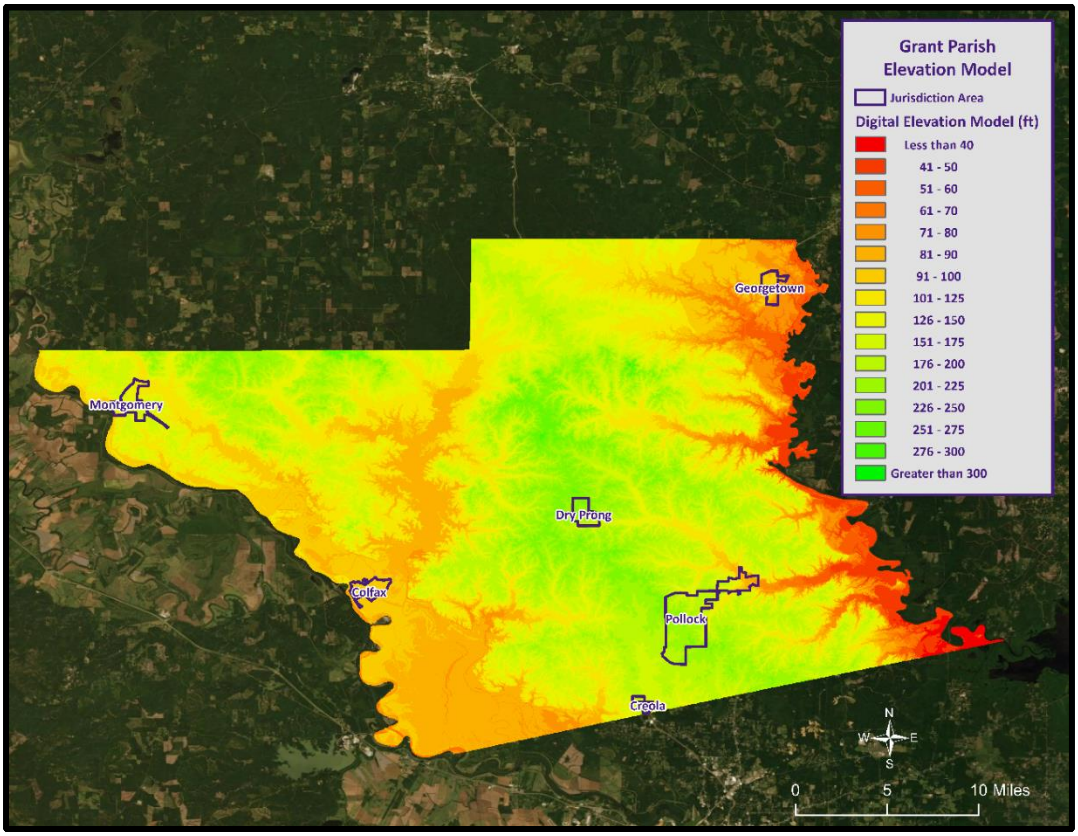

Figure 2-20: Elevation throughout the Parish.

Risk Assessment

Geographic Extent

Grant Parish has experienced significant flooding in its history and can expect more in the future. Grant Parish is fortunate in having a large portion of its land area of sufficient elevation for development. Its topography consists of rolling hills with rich alluvial bottom land with bayous and creeks, which provide rich spots for farming. Although Grant is considered topographically as a hill parish with 90% of its area being classified as hill land, its alluvial lands are more extensively populated. Its average elevation is 120 feet.

The Kisatchie National Forest runs north and south through the middle of the parish, with the highest elevation in the parish located here. Kisatchie National Forest is comprised of meadows and piney woods. The land is drained by the Red River and its tributaries on the west and by Little River and its tributaries on the east. The Red River Valley is relatively flat and low lying, increasing in elevation towards the Kisatchie National Forest. This area contains extensive agricultural acreage. The Little River area is similarly low-lying with marshland and increasingly hilly towards the middle of the parish.

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 five feet can be expected in the unincorporated areas of the parish. The incorporated areas of Montgomery and Pollock can expect flood depths from three to five feet, while the incorporated areas of Colfax, Creola, Dry Prong, and Georgetown can expect flooding levels of approximately one to three feet.

Previous Occurrences

The parish experienced 28 flooding occurrences between the years 1996 and 2022. Since the last update in 2017, there have been 16 flood occurrences within the boundaries of the parish.

Table 2-33: Historical Flooding Events in the Parish since the 2017 Update.

Date	Area	Type of Flood	Property Damage	Fatalities	Injuries
4/2/2017	BENTLEY	Flash Flood	$0	0	0
4/2/2017	POLLOCK	Flash Flood	$0	0	0
4/2/2017	COLFAX	Flash Flood	$0	0	0
4/2/2017	MC NEELEY	Flash Flood	$0	0	0
4/2/2017	MC NEELEY	Flash Flood	$0	0	0
4/2/2017	COLFAX	Flash Flood	$0	0	0
10/21/2017	COLFAX	Flash Flood	$0	0	0
2/21/2018	MONTGOMERY	Flash Flood	$0	0	0
2/21/2018	WILLIANA	Flash Flood	$0	0	0
1/3/2019	ZION	Flood	$0	0	0
4/7/2019	MONTGOMERY	Flash Flood	$0	0	0
5/8/2019	BENTLEY	Flood	$0	0	0
5/19/2019	BENTLEY	Flash Flood	$0	0	0
7/30/2019	OAKGROVE	Flash Flood	$0	0	0
10/10/2020	FISHVILLE	Flash Flood	$0	0	0
10/10/2020	POLLOCK	Flash Flood	$0	0	0

Probability

The annual return rate (frequency) for periods of flooding in the parish is 1.04 (100% annual probability) or approximately 1 to 2 flood occurrences every year. The table below shows the probability and return frequency for each jurisdiction in the parish.

Table 2-34: Annual Flood Probabilities for Each Jurisdiction in the Parish.

Jurisdiction	Annual Probability	Return Frequency
Unincorporated Grant Parish	48%	1 event every 2 to 3 years
Colfax	33%	1 event every 3 years
Creola	< 1%	1 event approximately every 27 years
Dry Prong	15%	1 event every 6 to 7 years
Georgetown	< 1%	1 event approximately every 27 years
Montgomery	30%	1 event every 3 to 4 years
Pollock	19%	1 event every 5 to 6 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 2-35: National Risk Index (NRI) Summarization of Riverine Flood Occurrences for the Parish. (Source: National Risk Index)

Expected Annual Losses	Overall Risk Rating
Very Low	Very Low

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 2-36: Estimated Losses in the Parish from a 100-Year Flood Event.
(Source: Hazus)

Jurisdiction	Estimated Loss
Unincorporated Grant Parish	$59,885,000
Colfax	$555,000
Creola	$7,000
Dry Prong	$0
Georgetown	$0
Montgomery	$176,000
Pollock	$966,000
Total	**$61,589,000**

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 2-37: Estimated 100-year Flood Losses for Unincorporated Grant Parish by Sector.
(Source: Hazus)

Unincorporated Grant Parish	Estimated Total Losses from 100-Year Flood Event
Agricultural	$165,000
Commercial	$2,671,000
Government	$1,484,000
Industrial	$2,266,000
Religious / Non-Profit	$3,687,000
Residential	$48,873,000
Schools	$739,000
Total	**$59,885,000**

Table 2-38: Estimated 100-year Flood Losses for Colfax by Sector.
(Source: Hazus)

Colfax	Estimated Total Losses from 100-Year Flood Event
Agricultural	$0
Commercial	$49,000
Government	$0
Industrial	$0
Religious / Non-Profit	$133,000
Residential	$373,000
Schools	$0
Total	**$555,000**

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

Creola	Estimated Total Losses from 100-Year Flood Event
Agricultural	$0
Commercial	$0
Government	$0
Industrial	$0
Religious / Non-Profit	$0
Residential	$7,000
Schools	$0
Total	**$7,000**

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

Montgomery	Estimated Total Losses from 100-Year Flood Event
Agricultural	$0
Commercial	$3,000
Government	$0
Industrial	$0
Religious / Non-Profit	$43,000
Residential	$130,000
Schools	$0
Total	**$176,000**

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

Pollock	Estimated Total Losses from 100-Year Flood Event
Agricultural	$0
Commercial	$16,000
Government	$119,000
Industrial	$0
Religious / Non-Profit	$41,000
Residential	$790,000
Schools	$0
Total	**$966,000**

Vulnerable Population

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

Table 2-42: 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 Grant Parish	18,751	6,015	32.1%
Colfax	1,428	129	9.0%
Creola	242	160	66.1%
Dry Prong	455	0	0.0%
Georgetown	277	0	0.0%
Montgomery	622	32	5.1%
Pollock	394	181	45.9%
Total	**22,169**	**6,517**	**29.4%**

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

Table 2-43: Vulnerable Populations Susceptible to a 100-year Flood Event in the Parish. (Source: Hazus)

Unincorporated Grant Parish		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	6,015	32.1%
Persons Under 5 Years	343	5.7%
Persons Under 18 Years	1,233	20.5%
Persons 65 Years and Over	890	14.8%
White	4,805	79.9%
Minority	1,210	20.1%

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

Colfax		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	129	9.0%
Persons Under 5 Years	16	12.1%
Persons Under 18 Years	37	28.6%
Persons 65 Years and Over	19	15.1%
White	48	37.3%
Minority	81	62.7%

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

Creola		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	160	66.1%
Persons Under 5 Years	70	43.5%
Persons Under 18 Years	95	59.1%
Persons 65 Years and Over	0	0.0%
White	119	74.4%
Minority	41	25.6%

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

Montgomery		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	32	5.1%
Persons Under 5 Years	1	1.8%
Persons Under 18 Years	6	19.5%
Persons 65 Years and Over	7	22.1%
White	21	65.4%
Minority	11	34.6%

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

Pollock		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	181	45.9%
Persons Under 5 Years	38	21.2%
Persons Under 18 Years	63	34.6%
Persons 65 Years and Over	18	9.9%
White	168	92.9%
Minority	13	7.1%

Vulnerability Score

Table 2-48: Flood Vulnerability Score for the Parish.

Flood Vulnerability Score						
	Probability	Impact	Spatial Extent	Warning Time	Duration	Risk Factor
Risk Level	3	4	3	4	3	**3.4**

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^2 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^2 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 level 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 is one levee system located within the unincorporated areas of the parish and in the incorporated area of Colfax. Levees do not pose a threat to the incorporated areas of Creola, Dry Prong, Georgetown, Montgomery, or Pollock. The areas of inundation will generally be directly downstream of the levee 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. The actions for a levee failure working group can be found in *Section 4: Mitigation Strategy.* The following figure displays the levee system located in the parish:

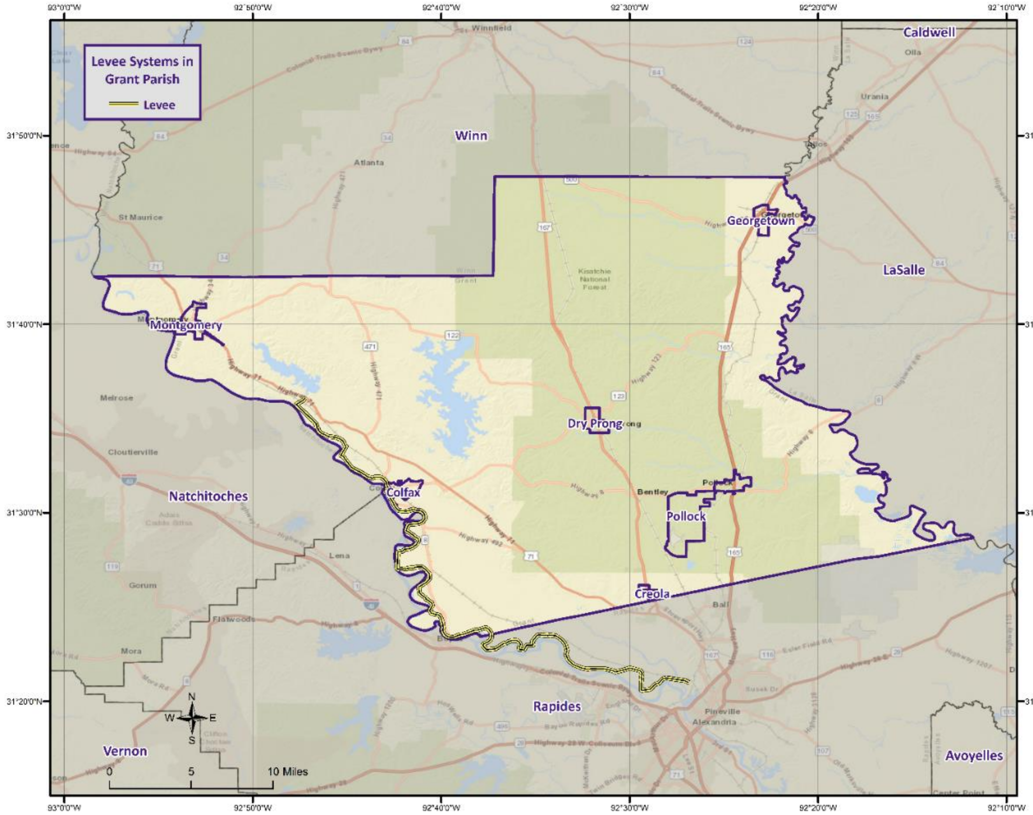

Figure 2-21: Levee Systems in the Parish.

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.

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 following table provides an extensive list of the dams in the parish with the risk associated with each system.

Table 2-49: Levees and Risk Associated with each in the Parish.
(Source: National Inventory of Levees)

System	Risk	Height (ft)	Population	Buildings	Property Value
Aloha-Rigolette LA	Moderate	15	4,906	2,343	$424 M

Vulnerable Population

There have been no reported fatalities or injuries due to dam failure in the parish.

Vulnerability Score

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

Levee Vulnerability Score						
	Probability	Impact	Spatial Extent	Warning Time	Duration	Risk Factor
Risk Level	1	3	1	4	3	**2.25**

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.

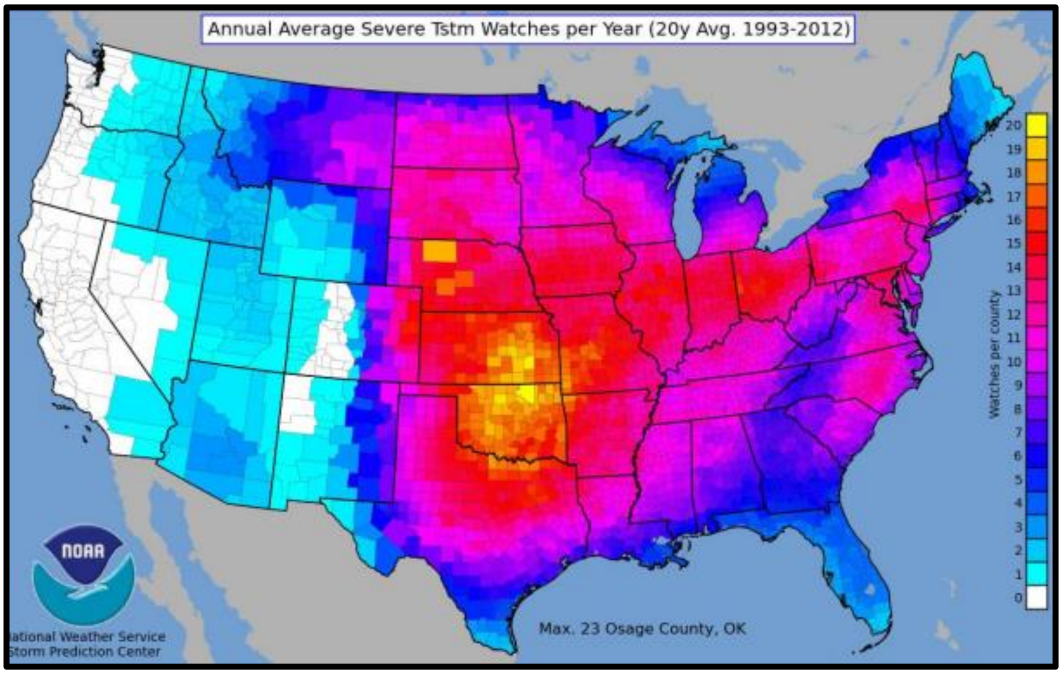

Figure 2-22: County-Level Severe Thunderstorm Watches Issued Per Year on Average.

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 21st 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 2-51: 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 2-52: 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

Spectrum of Hailstone Diameters	
Hail Diameter Size	**Description**
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.

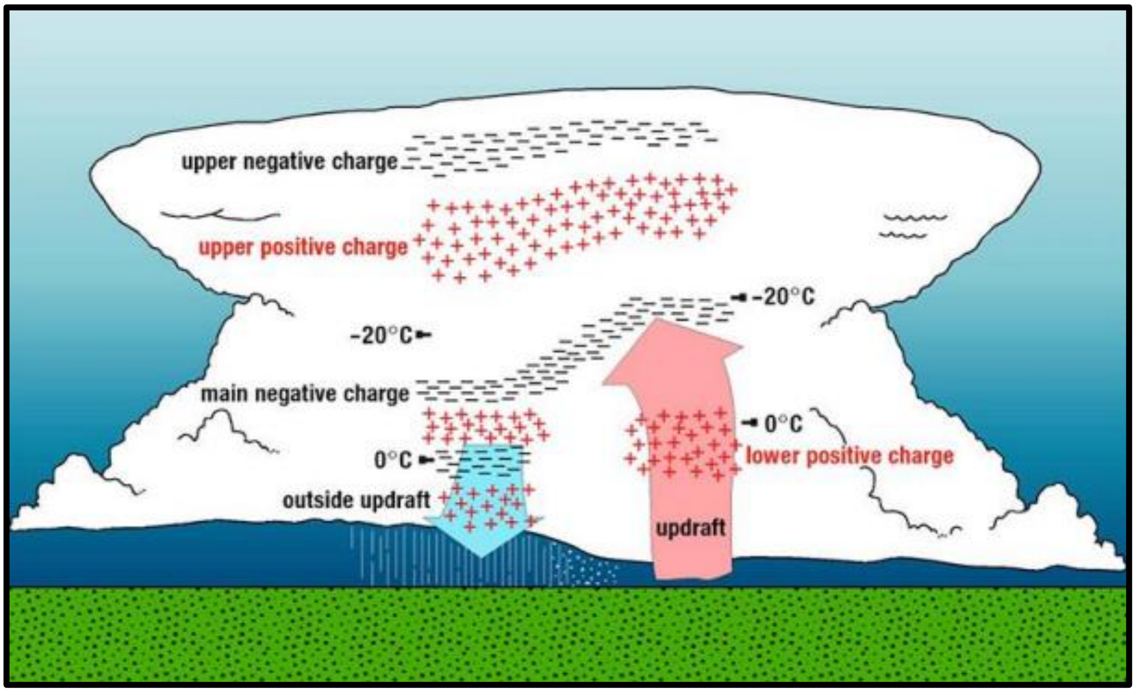

Figure 2-23: Charge Distribution in a Typical Storm Cloud.
(Source: The National Severe Storms Laboratory)

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 2-53: 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 2-54: High Winds Categorized by Source.
(Source: Making Critical Facilities Safe from High Wind, FEMA)

High Wind Type	Description
Straight-Line Winds	Wind blowing in straight line; usually associated with intense low-pressure area
Downslope Winds	Wind blowing down the slope of a mountain; associated with temperature and pressure gradients
Thunderstorm Winds	Wind blowing due to thunderstorms, and thus associated with temperature and pressure gradients
Downbursts	Sudden wind blowing down due to downdraft in a thunderstorm; spreads out horizontally at the ground, possible forming horizontal vortex rings around the downdraft.
Northeaster (Nor'easter) Winds	Wind blowing due to cyclonic storm off the east coast of North America; associated with temperature and pressure gradients between the Atlantic Ocean and land
Hurricane Winds	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
Tornado Winds	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 following table presents the Beaufort Wind Scale, first developed in 1805 by Sir Francis Beaufort, which aids in determining relative force and wind speed based on the appearance of wind effects:

Table 2-55: 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 2.75 inches in diameter.

Previous Occurrences

The parish experienced 94 hail occurrences between the years 1996 and 2022. Since the last update in 2017, there have been ten hail occurrences within the boundaries of the parish.

Table 2-56: Historical Hail Occurrences in the Parish since the 2017 Update.

Date	Magnitude (inches)	Property Damage	Fatalities	Injuries
1/21/2017	1	$0	0	0
1/21/2017	1	$0	0	0
4/2/2017	1	$0	0	0
3/18/2018	1	$0	0	0
4/6/2019	1.5	$0	0	0
4/13/2019	1.5	$0	0	0
4/14/2021	1	$0	0	0
5/1/2022	1.25	$0	0	0
6/10/2022	1	$0	0	0
10/12/2022	1.25	$0	0	0
10/12/2022	2	$0	0	0
10/12/2022	1	$0	0	0
10/12/2022	1.5	$0	0	0
10/12/2022	1.25	$0	0	0

Probability

The annual return rate (frequency) for hail occurrences in the parish is 2.3 (100% annual probability) or approximately 2 to 3 hail occurrences every year. The following figures display the density of hailstorm events and an overview of hailstorm size based on location.

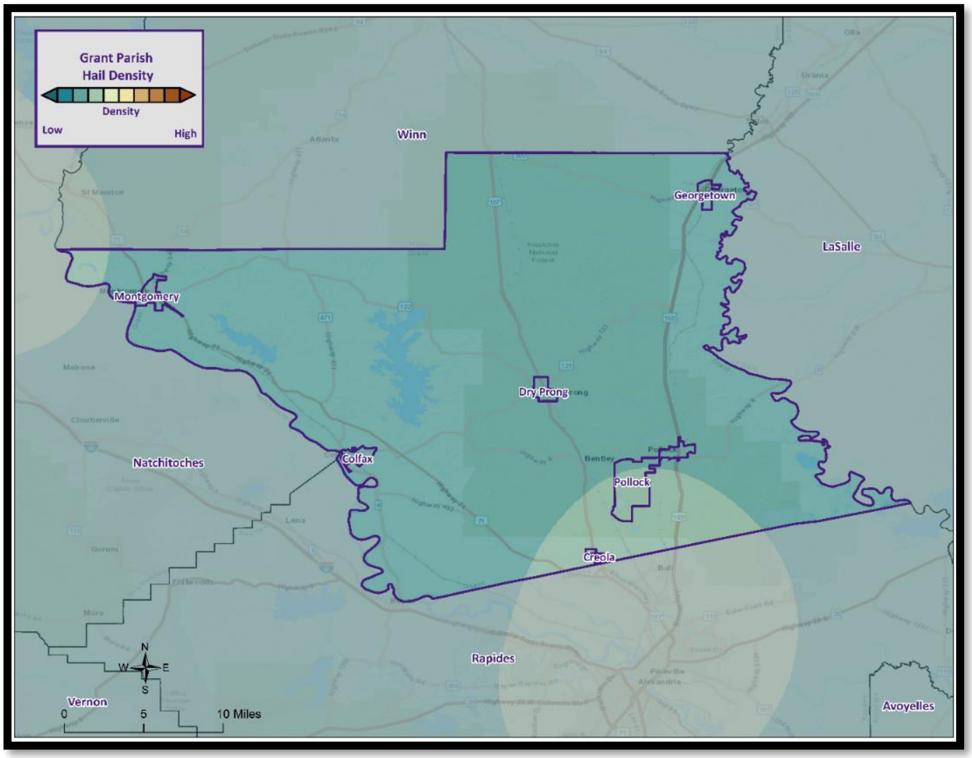

Figure 2-24: Density of Hailstorms by Diameter from 1950-2019.

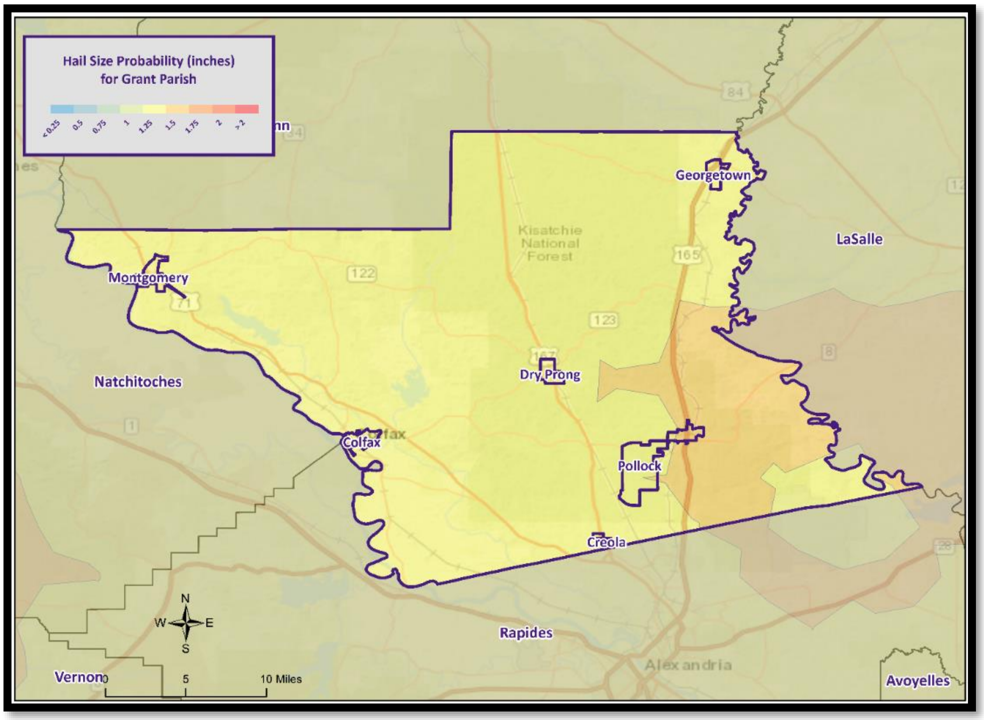

Figure 2-25: Hail Size Probability in Inches for the Parish.

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 four lightning occurrences between the years 1996 and 2022. Since the last update in 2017, 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 0.15 (15% annual probability) or approximately 1 lightning occurrence every 6 to 7 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 100 mph.

Previous Occurrences

The parish experienced 200 thunderstorm wind occurrences between the years 1996 and 2022. Since the last update in 2017, there have been 62 thunderstorm wind occurrences within the boundaries of the parish.

Table 2-57: Historical Thunderstorm Wind Occurrences in the Parish since the 2017 Update.

Date	Magnitude (mph)	Property Damage	Crop Damage	Fatalities	Injuries
1/2/2017	70	$0	$0	0	0
4/2/2017	70	$0	$0	0	0
4/2/2017	70	$0	$0	0	0
4/2/2017	70	$0	$0	0	0
4/3/2018	64	$0	$0	0	0
4/13/2018	70	$0	$0	0	0
7/29/2018	60	$0	$0	0	0
7/29/2018	60	$0	$0	0	0
4/6/2019	60	$0	$0	0	0
4/7/2019	70	$0	$0	0	0
4/7/2019	70	$0	$0	0	0
4/7/2019	70	$0	$0	1	0
4/7/2019	64	$0	$0	0	0
4/13/2019	75	$0	$0	1	0
5/8/2019	81	$0	$0	0	0
5/19/2019	60	$0	$0	0	0

Date	Magnitude (mph)	Property Damage	Crop Damage	Fatalities	Injuries
1/11/2020	70	$0	$0	0	0
1/11/2020	70	$0	$0	0	0
4/19/2020	70	$0	$0	0	0
4/19/2020	70	$0	$0	0	0
4/22/2020	70	$0	$0	0	0
7/31/2020	70	$0	$0	0	0
7/31/2020	60	$0	$0	0	0
10/27/2021	60	$0	$0	0	0
1/9/2022	60	$0	$0	0	0
4/13/2022	64	$0	$0	0	0
4/13/2022	70	$0	$0	0	0
4/13/2022	64	$0	$0	0	0
8/17/2022	60	$0	$0	0	0
8/17/2022	60	$0	$0	0	0
1/2/2017	70	$0	$0	0	0
4/2/2017	70	$0	$0	0	0
4/2/2017	70	$0	$0	0	0
4/2/2017	70	$0	$0	0	0
4/3/2018	64	$0	$0	0	0
4/13/2018	70	$0	$0	0	0
7/29/2018	60	$0	$0	0	0
7/29/2018	60	$0	$0	0	0
4/6/2019	60	$0	$0	0	0
4/7/2019	70	$0	$0	0	0
4/7/2019	70	$0	$0	0	0
4/7/2019	70	$0	$0	0	0
4/7/2019	64	$0	$0	0	0
4/13/2019	75	$0	$0	0	0
5/8/2019	81	$0	$0	0	0
5/19/2019	60	$0	$0	0	0
1/11/2020	70	$0	$0	0	0
1/11/2020	70	$0	$0	0	0
4/19/2020	70	$0	$0	0	0
4/19/2020	70	$0	$0	0	0
4/22/2020	70	$0	$0	0	0
7/31/2020	70	$0	$0	0	0
7/31/2020	60	$0	$0	0	0
10/27/2021	60	$0	$0	0	0
1/9/2022	60	$0	$0	0	0
4/13/2022	64	$0	$0	0	0
4/13/2022	70	$0	$0	0	0

Date	Magnitude (mph)	Property Damage	Crop Damage	Fatalities	Injuries
4/13/2022	64	$0	$0	0	0
8/17/2022	60	$0	$0	0	0
8/17/2022	60	$0	$0	0	0

Probability

The annual return rate (frequency) for thunderstorm wind occurrences in the parish is 4.22 (100% annual probability) or approximately 4 to 5 thunderstorm wind occurrences every year. The following figure displays the thunderstorm wind speed probability for the parish.

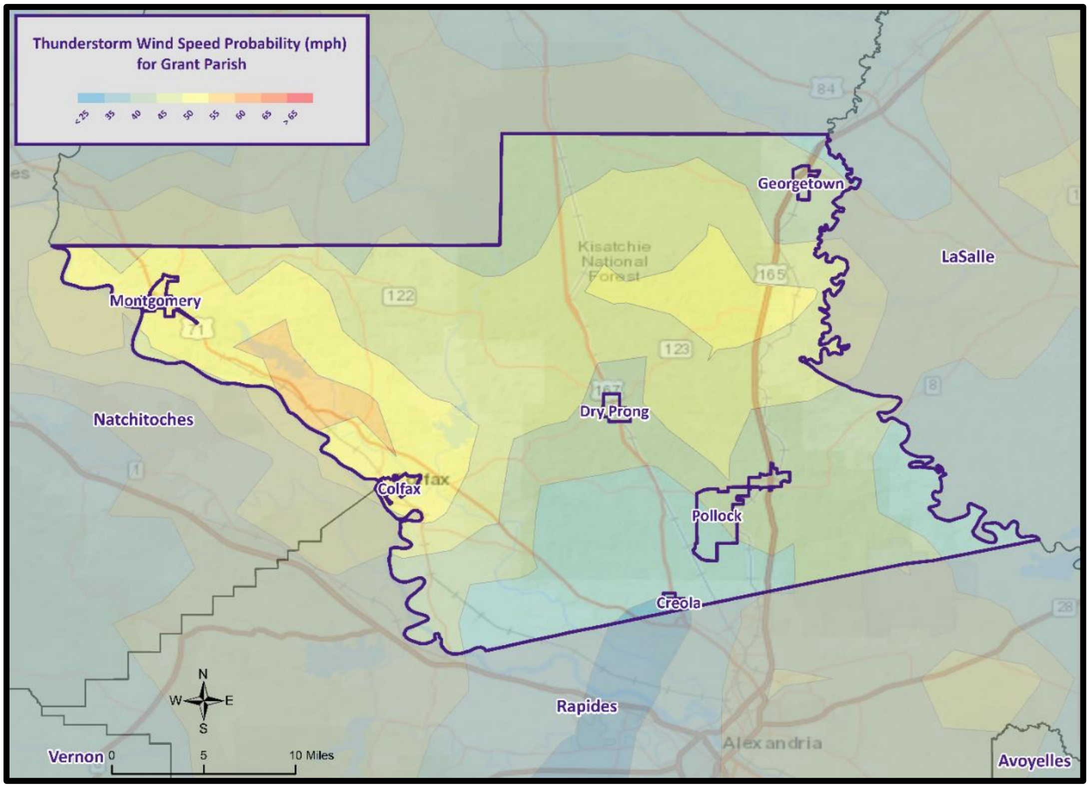

Figure 2-26: Thunderstorm High Wind Speed Probability in Miles Per Hour for the Parish.

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 2-58: 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 62 significant hail occurrences per the NCEI Storm Events Database. The total property damage associated with these storms totaled approximately $5,000. 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 $185 and $81 per event. The following table provides an estimate of potential property losses for the Parish:

Table 2-59: Estimated Annual Property Losses in the Parish resulting from Hail Damage.

Estimated Annual Potential Losses						
Unincorporated Grant Parish	Colfax	Creola	Dry Prong	Georgetown	Montgomery	Pollock
$157	$12	$2	$4	$2	$5	$3

Vulnerable Population

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

Vulnerability Score

Table 2-60: 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 2-61: 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 four significant lightning occurrences per the NCEI Storm Events Database. The total property damage associated with these storms totaled approximately $18,000. 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 $667 and $4,500 per event. The following table provides an estimate of potential property losses for the Parish:

Table 2-62: Estimated Annual Property Losses in the Parish resulting from Lightning Damage.

Estimated Annual Potential Losses						
Unincorporated Grant Parish	Colfax	Creola	Dry Prong	Georgetown	Montgomery	Pollock
$564	$43	$7	$14	$8	$19	$12

Vulnerable Population

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

Vulnerability Score

Table 2-63: 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**

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 2-64: 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 114 significant thunderstorm wind occurrences per the NCEI Storm Events Database. The total property damage associated with these storms totaled approximately $867,000. 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 $32,111 and $7,605 per event. The following table provides an estimate of potential property losses for the Parish:

Table 2-65: Estimated Annual Property Losses in the Parish resulting from Thunderstorm Wind Damage.

Estimated Annual Potential Losses						
Unincorporated Grant Parish	Colfax	Creola	Dry Prong	Georgetown	Montgomery	Pollock
$27,160	$2,068	$351	$659	$401	$901	$571

Vulnerable Population

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

Vulnerability Score

Table 2-66: 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 2-67: Comparison of the Enhanced Fujita (EF) Scale to the Fujita (F) Scale.

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

Table 2-68: Fujita and Enhanced Fujita Tornado Damage Scale.

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

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

- *Tornado Watch*: Issued to alert people to the possibility of a tornado developing in the area. A tornado has not been spotted but the conditions are favorable for tornadoes to occur.

- *Tornado Warning*: Issued when a tornado has been spotted or when Doppler radar identifies a distinctive "hook-shaped" area within a thunderstorm line.

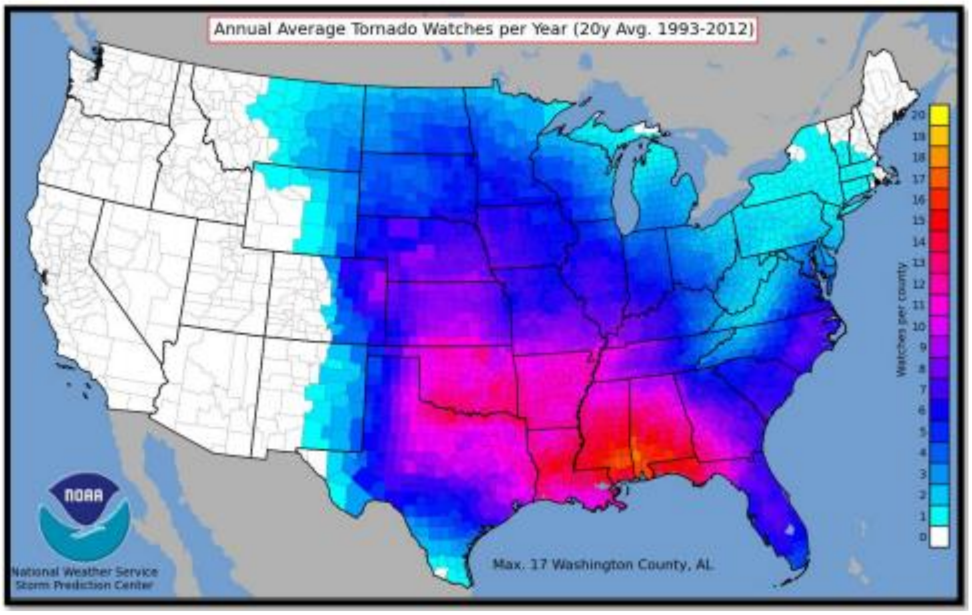

Figure 2-27: County-Level Tornado Watches Issued Per Year on Average. (Source: NOAA SPC)

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-cast scenario of a tornado occurrence is an EF3 tornado.

Previous Occurrences

The parish experienced 28 tornado occurrences between the years 1996 and 2022. Since the last update in 2017, there have been 11 tornado occurrences within the boundaries of the parish.

Table 2-69: Historical Tornado Occurrences in the Parish since the 2017 Update.

Date	Location	Magnitude	Property Damage	Crop Damage	Fatalities	Injuries
1/21/2017	ALOHA	EF1	$250,000	$0	0	1
1/21/2017	ANTONIA	EF0	$25,000	$0	0	0
4/2/2017	ZION	EF1	$0	$0	0	0
4/2/2017	HARGIS	EF1	$0	$0	0	0
10/31/2018	FISHVILLE	EF2	$200,000	$0	0	2
4/19/2020	WILLIANA	EF1	$0	$0	0	0

Probability

The annual return rate (frequency) for tornado occurrences in the parish is 0.52 (52% annual probability) or approximately 1 event every 1 to 2 years. The figure on the following page displays the tornado density for the parish.

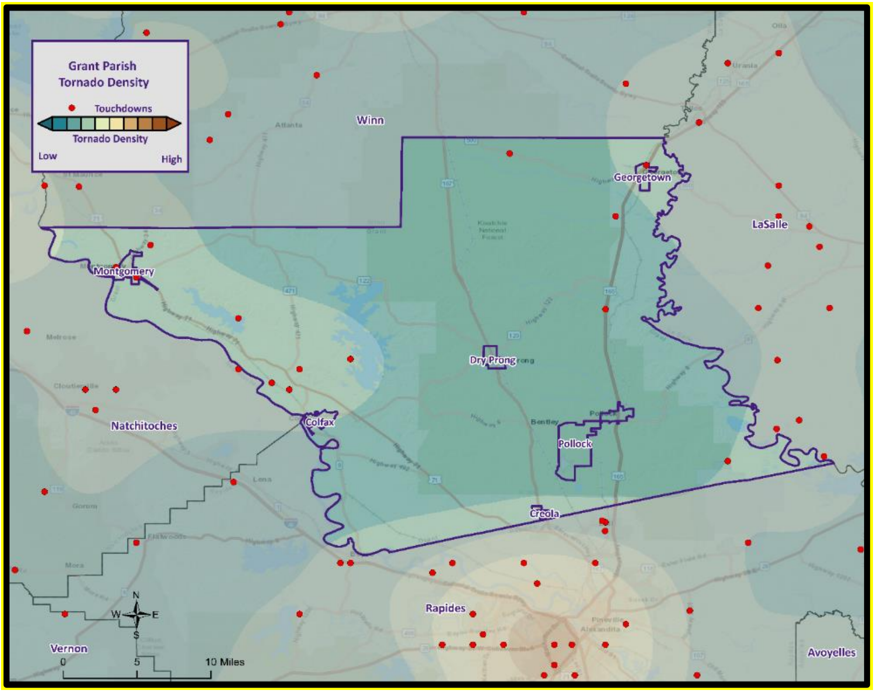

Figure 2-28: Location and Density of Tornadoes to Touchdown in the Parish (Source: NOAA/SPC Severe Weather Database

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 2-70: National Risk Index (NRI) Summarization of Tornado 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 14 significant tornado occurrences per the NCEI Storm Events Database. The total property damage associated with these storms totaled approximately $825,000. 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 $30,556 and $58,929 per event. The following table provides an estimate of potential property losses for the Parish:

Table 2-71: Estimated Annual Property Losses in the Parish resulting from Tornado Damage.

Estimated Annual Potential Losses						
Unincorporated Grant Parish	Colfax	Creola	Dry Prong	Georgetown	Montgomery	Pollock
$25,845	$1,968	$334	$627	$382	$857	$543

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 2-72: 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 (%)
2,281,262	138,059	80,213	8,916	84,142	32,518	21,024	19.4

Vulnerable Population

Per the NCEI Storm Events Database, there has been no reported fatalities and three injuries 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 19.4% of all housing in the Parish consists of manufactured housing. The location and density of manufactured houses can be seen in the following figure.

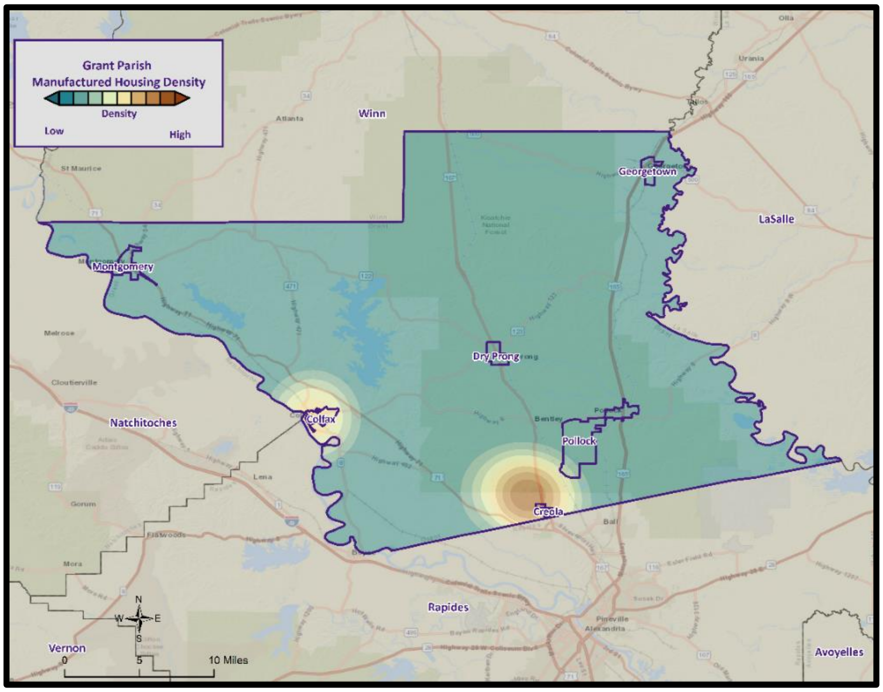

Figure 2-29: Location and Approximate Number of Units in Manufactured Housing Locations throughout the Parish.

Vulnerability Score

Table 2-73: 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 30th. 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.

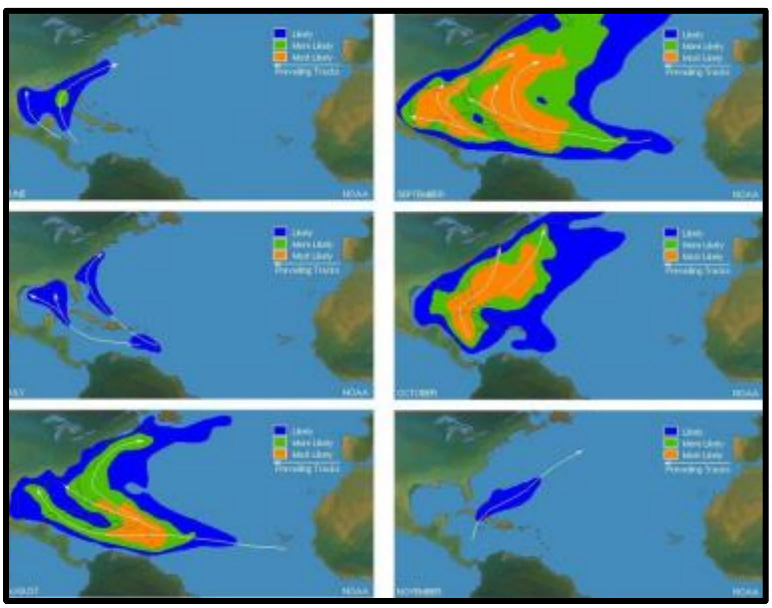

Figure 2-30: Areas of Likely Tropical Cyclone Formation and Tracking. (Source: NOAA NHC)

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:

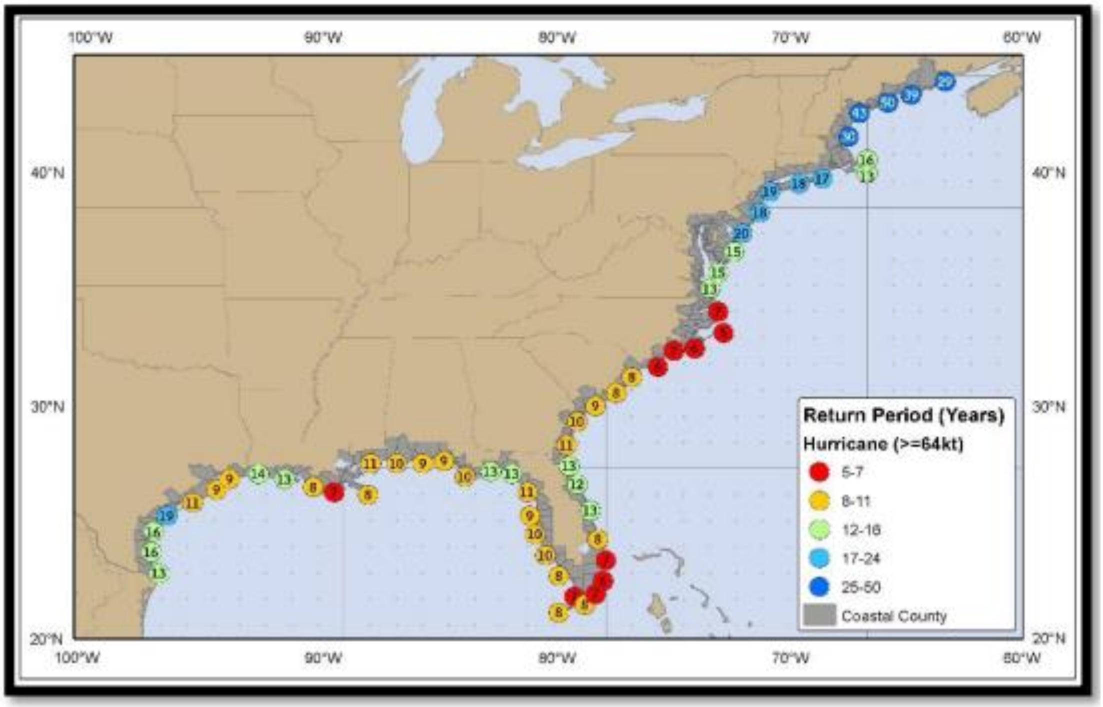

Figure 2-31: Hurricane Return Periods for the Atlantic Basin (USA).
(Source: NOAA NHC)

Table 2-74: 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 sure 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 six tropical cyclone occurrences between the years 2002 and 2022. Since the last update in 2017, there have been two tropical cyclone occurrences within the boundaries of the parish.

Table 2-75: Historical Tropical Cyclone Occurrences in the Parish since the 2017 Update.

Date	Magnitude	Name	Property Damage	Crop Damage	Fatalities	Injuries
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 16th. The wave traversed the tropical Atlantic for the next several days with little additional organization. On August 19th, 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 21st, 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 22nd. Early on August 23rd, 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 24th.

On August 25th, Laura entered the Gulf of Mexico and became a Category 1 hurricane at 10 AM CDT. Laura began to explosively intensify on August 26th, 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.

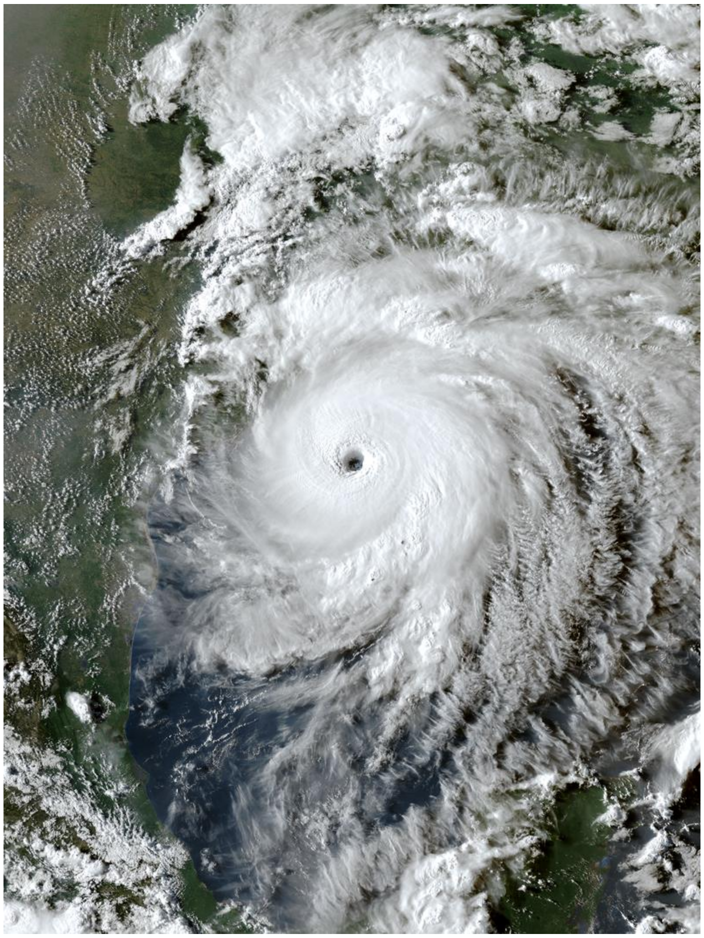

Figure 2-32: Hurricane Laura in the Gulf Coast Area.
(Source: NOAA)

With little change in strength, Laura made landfall at Cameron, Louisiana around 1 AM CDT August 27th, 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 27th. 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 Grant Parish, scattered to widespread tree damaged occurred throughout the parish. A few incidents of structural damage was observed particularly around Dry Prong. Power outages occurred across the parish.

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-sixty 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.

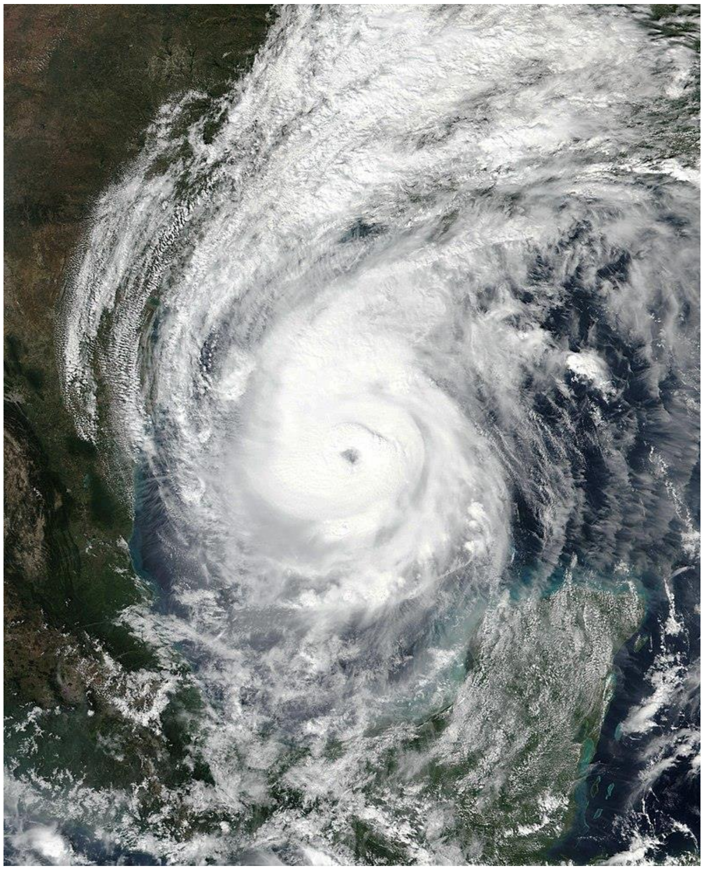

Figure 2-33: Hurricane Delta in the Gulf Coast Area.
(Source: NOAA)

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 Grant Parish, numerous trees and power lines were down throughout the parish. Widespread rainfall and flooding occurred around the parish.

Probability

The annual return rate (frequency) for tropical cyclone occurrences in the parish is 0.27 (27% annual probability) or approximately 1 tropical cyclone occurrence every 3 to 4 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 seal 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 2-76: National Risk Index (NRI) Summarization of Tropical Cyclone 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 100-Year Hurricane Model, the 100-year hurricane scenario was analyzed to determine losses from this worst-case scenario. The following table shows the total economic losses that would result from this occurrence.

Table 2-77: Total Estimated Losses for a 100-Year Hurricane Event (Source: Hazus)

Jurisdiction	Estimated Total Losses from 100-Year Hurricane Event
Unincorporated Grant Parish	$2,916,133
Colfax	$222,081
Creola	$37,636
Dry Prong	$70,761
Georgetown	$43,079
Montgomery	$96,733
Pollock	$61,274
Total	$3,447,697

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 2-78: 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
Unincorporated Grant Parish	$2,916,133	$2,060,683,000	0.1%
Colfax	$222,081	$230,479,000	0.1%
Creola	$37,636	$16,110,000	0.2%
Dry Prong	$70,761	$67,877,000	0.1%
Georgetown	$43,079	$34,846,000	0.1%
Montgomery	$96,733	$103,230,000	0.1%
Pollock	$61,274	$132,909,000	< 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 2-79: Estimated Losses in Unincorporated Grant Parish for a 100-Year Hurricane Event (Source: Hazus)

Unincorporated Grant Parish	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$540
Commercial	$9,479
Government	$1,625
Industrial	$3,691
Religious / Non-Profit	$5,241
Residential	$3,095,559
Schools	$1,085
Total	**$3,117,219**

Table 2-80: Estimated Losses in Colfax for a 100-Year Hurricane Event (Source: Hazus)

Colfax	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$38
Commercial	$675
Government	$116
Industrial	$263
Religious / Non-Profit	$373
Residential	$220,538
Schools	$77
Total	**$222,081**

Table 2-81: Estimated Losses in Creola for a 100-Year Hurricane Event (Source: Hazus)

Creola	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$7
Commercial	$114
Government	$20
Industrial	$45
Religious / Non-Profit	$63
Residential	$37,374
Schools	$13
Total	**$37,636**

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

Dry Prong	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$12
Commercial	$215
Government	$37
Industrial	$84
Religious / Non-Profit	$119
Residential	$70,269
Schools	$25
Total	**$70,761**

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

Georgetown	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$7
Commercial	$131
Government	$22
Industrial	$51
Religious / Non-Profit	$72
Residential	$42,779
Schools	$15
Total	**$43,079**

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

Montgomery	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$17
Commercial	$294
Government	$50
Industrial	$115
Religious / Non-Profit	$163
Residential	$96,061
Schools	$34
Total	**$96,733**

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

Pollock	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$11
Commercial	$186
Government	$32
Industrial	$73
Religious / Non-Profit	$103
Residential	$60,849
Schools	$21
Total	**$61,274**

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

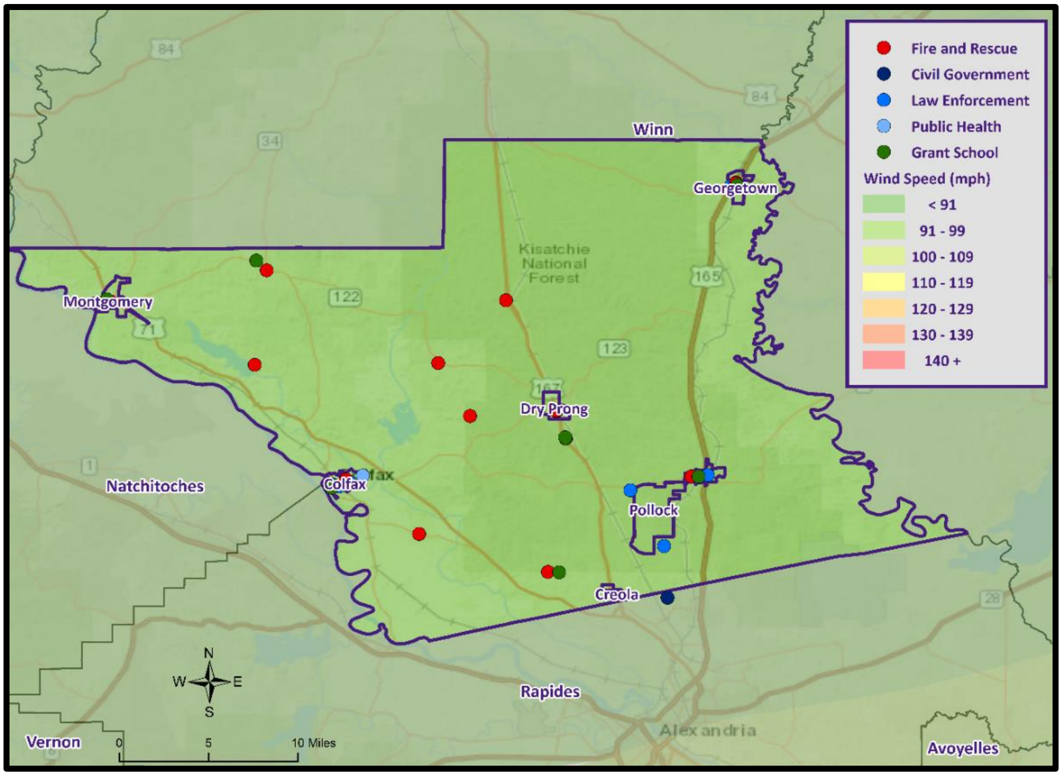

Figure 2-34: Winds Zones for the Parish in Relation to Critical Facilities

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 the Parish (Source: Hazus)

Number of People Exposed to Hurricane Hazards			
Location	**# in Community**	**# in Hazard Area**	**% in Hazard Area**
Unincorporated Grant Parish	18,751	18,751	100%
Colfax	1,428	1,428	100%
Creola	242	242	100%
Dry Prong	455	455	100%
Georgetown	277	277	100%
Montgomery	622	622	100%
Pollock	394	394	100%
Total	**22,169**	**22,169**	**100%**

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

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

Unincorporated Grant Parish		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	18,751	100.0%
Persons Under 5 Years	1,069	5.7%
Persons Under 18 Years	3,844	20.5%
Persons 65 Years and Over	2,775	14.8%
White	14,979	79.9%
Minority	3,772	20.1%

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

Colfax		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	1,428	100.0%
Persons Under 5 Years	173	12.1%
Persons Under 18 Years	408	28.6%
Persons 65 Years and Over	216	15.1%
White	533	37.3%
Minority	895	62.7%

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

Creola		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	242	100.0%
Persons Under 5 Years	105	43.5%
Persons Under 18 Years	143	59.1%
Persons 65 Years and Over	0	0.0%
White	180	74.4%
Minority	62	25.6%

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

Dry Prong		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	455	100.0%
Persons Under 5 Years	30	6.5%
Persons Under 18 Years	119	26.1%
Persons 65 Years and Over	71	15.5%
White	431	94.7%
Minority	24	5.3%

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

Georgetown		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	277	100.0%
Persons Under 5 Years	51	18.4%
Persons Under 18 Years	116	41.9%
Persons 65 Years and Over	32	11.4%
White	261	94.2%
Minority	16	5.8%

Table 2-92: Vulnerable Populations in Montgomery for a 100-Year Hurricane Event (Source: Hazus)

Montgomery		
Category	Total Numbers	Percentage of People in Hazard Area
Number in Hazard Area	622	100.0%
Persons Under 5 Years	11	1.8%
Persons Under 18 Years	121	19.5%
Persons 65 Years and Over	137	22.1%
White	407	65.4%
Minority	215	34.6%

Table 2-93: Vulnerable Populations in Pollock for a 100-Year Hurricane Event (Source: Hazus)

Pollock		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	394	100.0%
Persons Under 5 Years	84	21.2%
Persons Under 18 Years	136	34.6%
Persons 65 Years and Over	39	9.9%
White	366	92.9%
Minority	28	7.1%

Vulnerability Score

Table 2-94: 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.

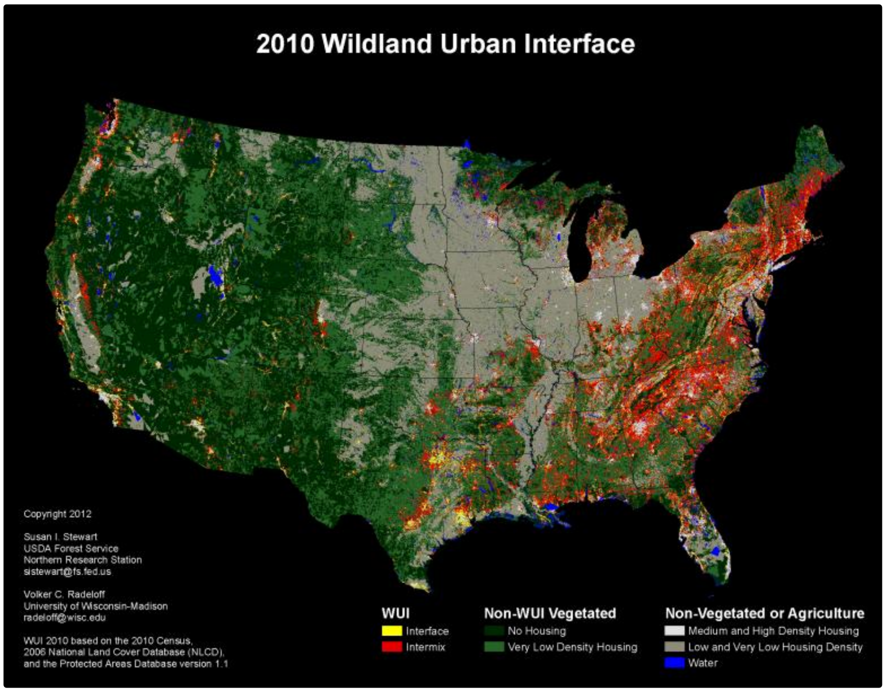

Figure 2-35: Contiguous USA Wildland Urban Interface Map.

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 2-95: 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 unincorporated area of the parish is a level 5; Dry Prong is a level 3.5; and Colfax, Creola, Georgetown, Montgomery, and Pollock are a level 3. The following figure displays the areas of wildland-urban interface and intermix in the Parish and the jurisdictions.

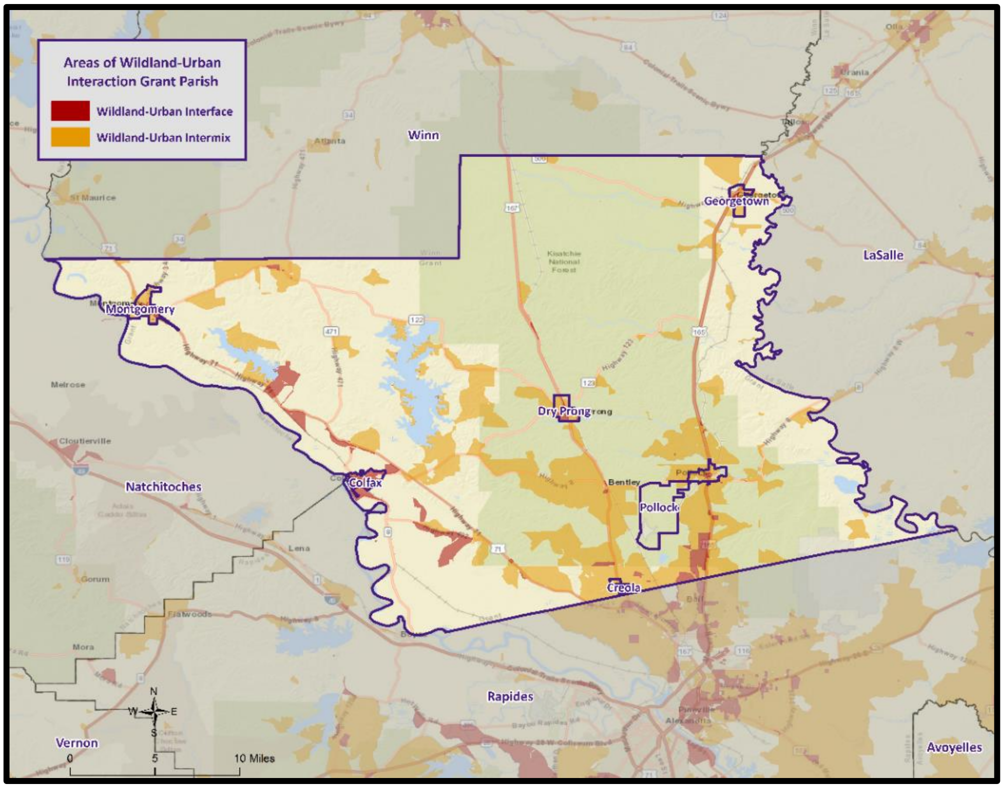

Figure 2-36: Wildland-Urban Interaction in the Parish.

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

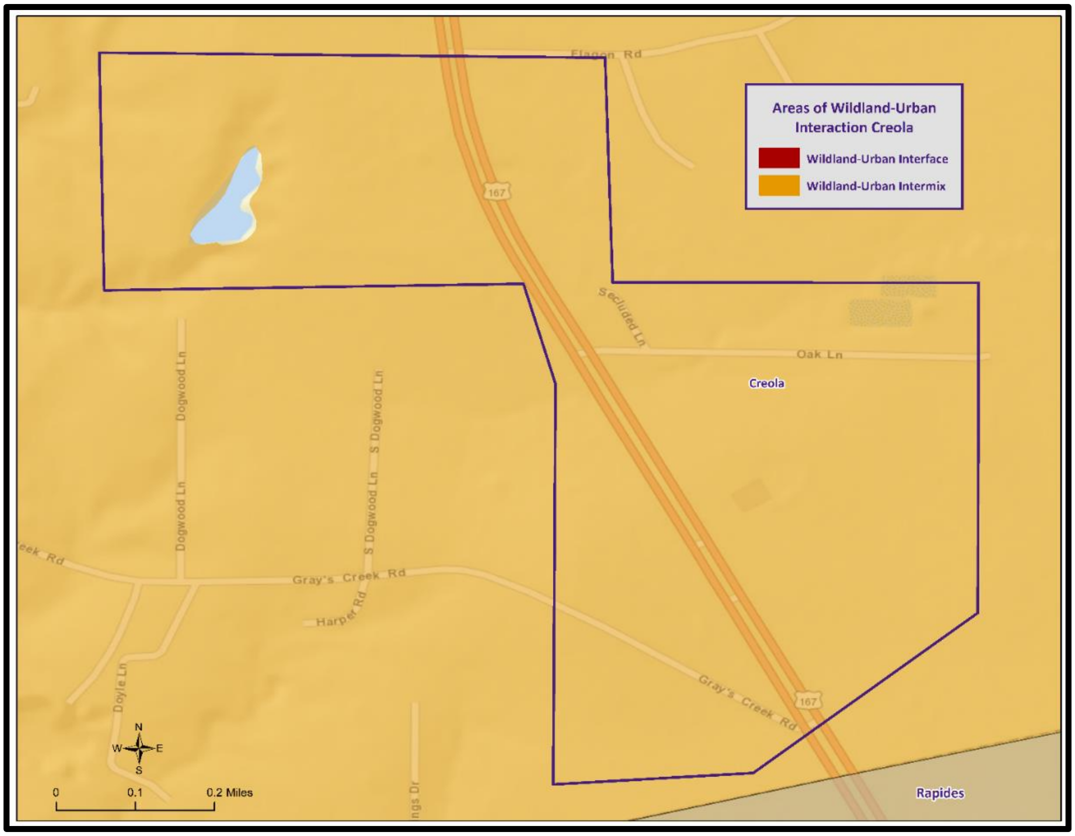

Figure 2-38: Wildland-Urban Interaction in Creola.

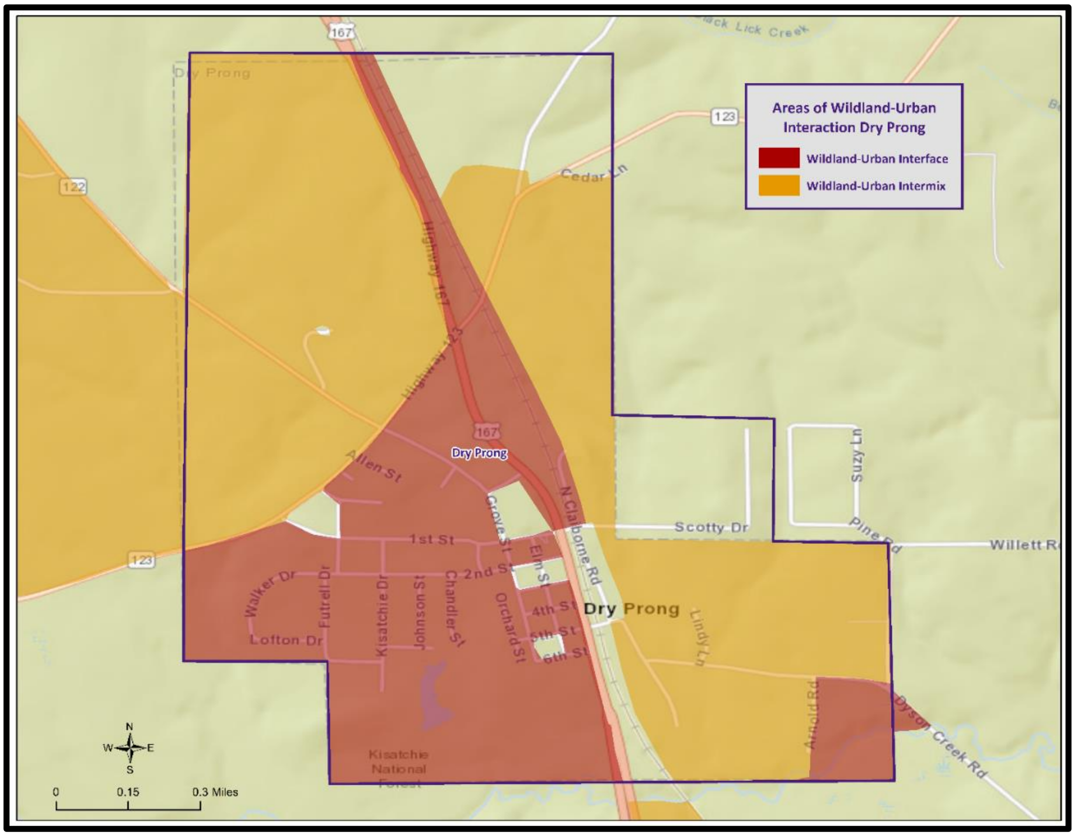

Figure 2-39: Wildland-Urban Interaction in Dry Prong.

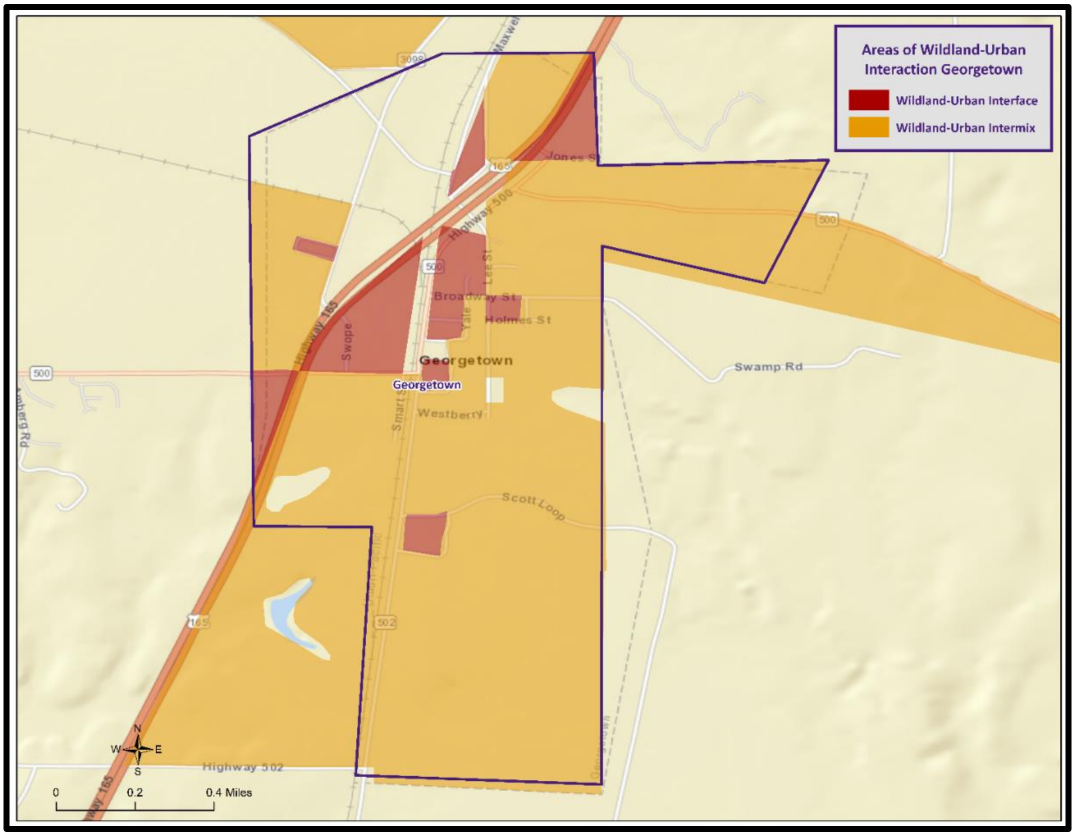

Figure 2-40: Wildland-Urban Interaction in Georgetown.

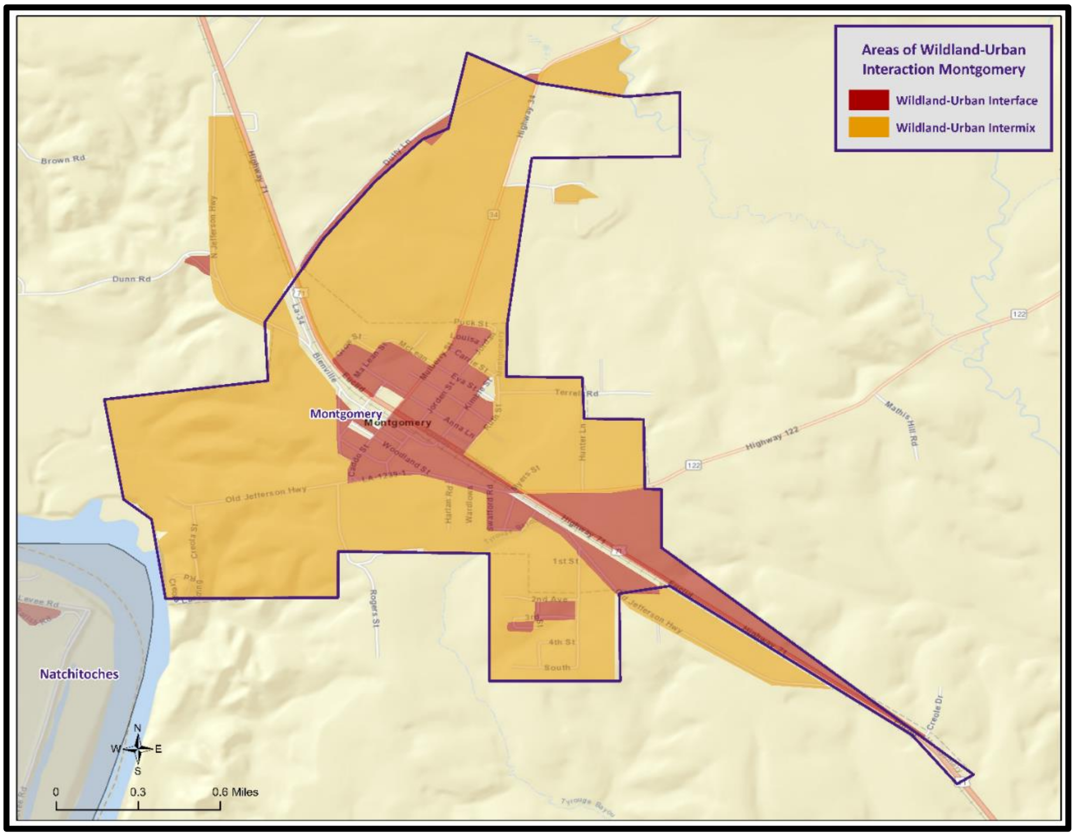

Figure 2-41: Wildland-Urban Interaction in Montgomery.

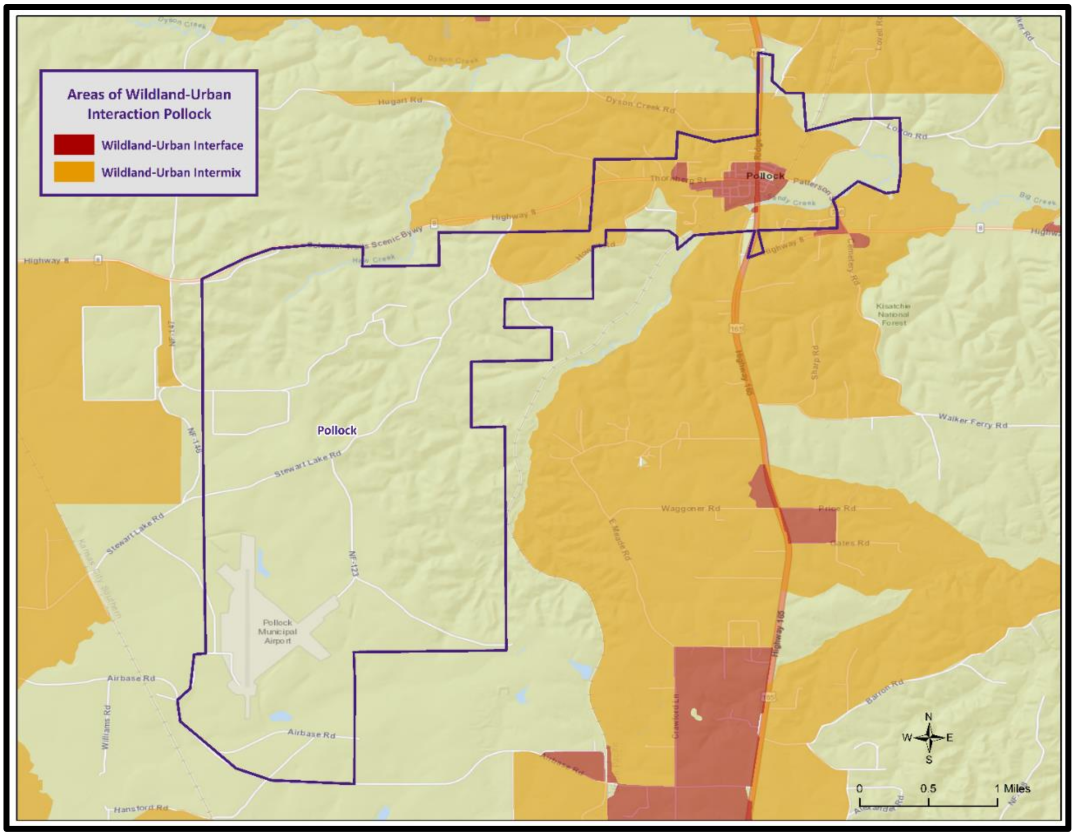

Figure 2-42: Wildland-Urban Interaction in Pollock.

Previous Occurrences

The parish has experienced no significant 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 less than 0.01 (< 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 2-96: 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 2-97: Total Building Exposure by Wildland-Urban Interaction Areas. (Source: Hazus)

Jurisdiction	Estimated Total Building Exposure
Unincorporated Grant Parish	$2,004,275,000
Colfax	$229,132,000
Creola	$16,110,000
Dry Prong	$67,877,000
Georgetown	$37,956,000
Montgomery	$104,102,000
Pollock	$58,118,000
Total	**$2,517,570,000**

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

Table 2-98: Estimated Exposure for Unincorporated Grant Parish by Sector. (Source: Hazus)

Unincorporated Grant Parish	Estimated Total Building Exposure by Sector
Agricultural	$6,926,000
Commercial	$77,678,000
Government	$15,208,000
Industrial	$59,874,000
Religious / Non-Profit	$43,190,000
Residential	$1,788,729,000
Schools	$12,670,000
Total	**$2,004,275,000**

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

Colfax	Estimated Total Building Exposure by Sector
Agricultural	$674,000
Commercial	$27,822,000
Government	$3,272,000
Industrial	$14,645,000
Religious / Non-Profit	$13,686,000
Residential	$166,085,000
Schools	$2,948,000
Total	**$229,132,000**

Table 2-100: Estimated Exposure in Creola Rouge by Sector.
(Source: Hazus)

Creola	Estimated Total Building Exposure by Sector
Agricultural	$38,000
Commercial	$0
Government	$6,000
Industrial	$0
Religious / Non-Profit	$0
Residential	$16,066,000
Schools	$0
Total	**$16,110,000**

Table 2-101: Estimated Exposure for Dry Prong by Sector.
(Source: Hazus)

Dry Prong	Estimated Total Building Exposure by Sector
Agricultural	$0
Commercial	$1,314,000
Government	$0
Industrial	$788,000
Religious / Non-Profit	$606,000
Residential	$61,359,000
Schools	$3,810,000
Total	**$67,877,000**

Table 2-102: Estimated Exposure for Georgetown by Sector.
(Source: Hazus)

Georgetown	Estimated Total Building Exposure by Sector
Agricultural	$0
Commercial	$0
Government	$0
Industrial	$680,000
Religious / Non-Profit	$2,834,000
Residential	$33,262,000
Schools	$1,180,000
Total	**$37,956,000**

Table 2-103: Estimated Exposure for Montgomery by Sector.
(Source: Hazus)

Montgomery	Estimated Total Building Exposure by Sector
Agricultural	$108,000
Commercial	$12,934,000
Government	$8,483,000
Industrial	$0
Religious / Non-Profit	$5,618,000
Residential	$76,959,000
Schools	$0
Total	**$104,102,000**

Table 2-104: Estimated Exposure in Pollock by Sector.
(Source: Hazus)

Pollock	Estimated Total Building Exposure by Sector
Agricultural	$0
Commercial	$3,824,000
Government	$1,950,000
Industrial	$170,000
Religious / Non-Profit	$7,584,000
Residential	$44,174,000
Schools	$416,000
Total	**$58,118,000**

Vulnerable Population

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

Table 2-105: 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**
Unincorporated Grant Parish	18,751	18,864	100.6%
Colfax	1,428	1,428	100.0%
Creola	242	213	88.0%
Dry Prong	455	436	95.8%
Georgetown	277	277	100.0%
Montgomery	622	622	100.0%
Pollock	394	288	73.1%
Total	**22,169**	**22,128**	**99.8%**

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 date is illustrated in the following tables:

Table 2-106: Population in Unincorporated Grant Parish Located in a Wildland-Urban Interaction Area. (Source: 2020 Census Data)

Unincorporated Grant Parish		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	18,864	100.6%
Persons Under 5 Years	1,075	5.7%
Persons Under 18 Years	3,867	20.5%
Persons 65 Years and Over	2,792	14.8%
White	15,069	79.9%
Minority	3,795	20.1%

Table 2-107: Population in Colfax Located within a Wildland-Urban Interaction Area. (Source: 2020 Census Data)

Colfax		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	1,428	100.0%
Persons Under 5 Years	173	12.1%
Persons Under 18 Years	408	28.6%
Persons 65 Years and Over	216	15.1%
White	533	37.3%
Minority	895	62.7%

Table 2-108: Population in Creola Located within a Wildland-Urban Interaction Area. (Source: 2020 Census Data)

Creola		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	213	88.0%
Persons Under 5 Years	93	43.5%
Persons Under 18 Years	126	59.1%
Persons 65 Years and Over	0	0.0%
White	158	74.4%
Minority	55	25.6%

Table 2-109: Population in Dry Prong Located within a Wildland-Urban Interaction Area. (Source: 2020 Census Data)

Dry Prong		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	436	95.8%
Persons Under 5 Years	28	6.5%
Persons Under 18 Years	114	26.1%
Persons 65 Years and Over	68	15.5%
White	413	94.7%
Minority	23	5.3%

Table 2-110: Population in Georgetown Located within a Wildland-Urban Interaction Area. (Source: 2020 Census Data)

Georgetown		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	277	100.0%
Persons Under 5 Years	51	18.4%
Persons Under 18 Years	116	41.9%
Persons 65 Years and Over	32	11.4%
White	261	94.2%
Minority	16	5.8%

Table 2-111: Population in Montgomery Located within a Wildland-Urban Interaction Area. (Source: 2020 Census Data)

Montgomery		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	622	100.0%
Persons Under 5 Years	11	1.8%
Persons Under 18 Years	121	19.5%
Persons 65 Years and Over	137	22.1%
White	407	65.4%
Minority	215	34.6%

Table 2-112: Population in Pollock Located within a Wildland-Urban Interaction Area. (Source: 2020 Census Data)

Pollock		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	288	73.1%
Persons Under 5 Years	61	21.2%
Persons Under 18 Years	100	34.6%
Persons 65 Years and Over	29	9.9%
White	268	92.9%
Minority	20	7.1%

Vulnerability Score

Table 2-113: 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	**2.5**

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 following table shows the Sperry-Piltz Ice Accumulation Index which is utilized to predict the potential damage to overhead utility systems from freezing rain and ice storms.

Table 2-114: 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 12 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 2-115: Historical Winter Weather Occurrences in the Parish since the 2017 Update.

Date	Synopsis	Property Damage	Crop Damage	Fatalities	Injuries
1/6/2017	An arctic air mass began to spill southward across East Texas and North Louisiana during the evening hours on January 5th, ahead of a shortwave trough that translated east through the Rockies and across Oklahoma/the Red River Valley during the morning hours on January 6th.	$0	$0	0	0

Date	Synopsis	Property Damage	Crop Damage	Fatalities	Injuries
12/8/2017	A deep, cold yet modified arctic airmass was in place across the Southern Plains and Lower Mississippi Valley during evening hours of December 7th through the mid morning hours of December 8th.	$0	$0	0	0
1/16/2018	A trough of low pressure spread east across the Southern Plains during the evening hours of January 15th, with a arctic air mass quickly spilling south into the Ark-La-Tex during the late afternoon through the evening hours behind a strong cold front.	$0	$0	0	0
2/8/2019	An arctic cold front progressed southeast across the Ark-La-Tex during the daytime hours on February 7th, with temperatures falling from the 70s on the 7th, into the 20s and lower 30s by the morning of February 8th.	$0	$0	0	0
2/14/2021	A very cold, arctic air mass continued to deepen as it shifted south across Southeast Oklahoma, Southwest Arkansas, Northeast Texas, and North Louisiana on February 14th-15th, ahead of a large upper trough that traversed east across the Southern Plains. Ahead of this trough, ample Pacific moisture was transported northeast across much of Texas, Oklahoma, Arkansas, and the northern half of Louisiana, as large scale forcing increased atop this very cold air mass. Meanwhile, an associated cold front was able to push south off the Southeast Texas and Southern Louisiana coasts, with overrunning of a milder, moist air mass atop the front that streamed north into Deep East Texas and North Louisiana. The combined forcing ahead of the trough and overrunning	$0	0$	0	0

Date	Synopsis	Property Damage	Crop Damage	Fatalities	Injuries
	resulted in a large winter storm affecting across all of the Southern Plains and much of the Lower Mississippi Valley, where areas of heavy snow were observed across much of Central and North Texas, Oklahoma, and Arkansas. Farther south over South and East-Central Texas and North Louisiana, a mix of sleet and freezing rain was observed, before the precipitation transitioned over to snow during the early morning hours of the 15th. Widespread snow and sleet amounts of 2-6 inches fell across much of North Louisiana, with isolated higher amounts up to 8 inches across extreme Northern Caddo and Bossier Parishes.				

Probability

The annual return rate (frequency) for winter storm occurrences in the parish is 0.44 (44% annual probability) or approximately 1 winter storm event every 2 to 3 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 2-116: National Risk Index (NRI) Summarization of Winter Storm 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 five significant winter storm 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 $2,000 per event. The following table provides an estimate of potential property losses for the Parish:

Table 2-117: Estimated Annual Property Losses in the Parish resulting from Winter Storm Damage.

Estimated Annual Potential Losses						
Unincorporated Grant Parish	Colfax	Creola	Dry Prong	Georgetown	Montgomery	Pollock
$157	$12	$2	$4	$2	$5	$3

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 2-118: Winter Storm Vulnerability Score for the Parish.

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

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, Grant 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 Grant 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.

	Grant Parish	Colfax	Creola	Dry Prong	Georgetown	Montgomery	Pollock	Comments
Plans	**Yes / No**							
Comprehensive / Master Plan	Yes	No	Yes	No	No	Yes	No	
Capital Improvements Plan	Yes	No	No	No	No	No	Yes	
Economic Development Plan	Yes	No	No	No	No	No	Yes	
Local Emergency Operations Plan	Yes	Yes	No	Yes	Yes	No	Yes	
Continuity of Operations Plan	Yes	No	Yes	Yes	No	Yes	Yes	
Transportation Plan	Yes	No	No	No	No	No	Yes	
Stormwater Management Plan	Yes	No	No	No	No	No	Yes	
Community Wildfire Protection Plan	Yes	No	No	No	No	No	No	
Other plans (redevelopment, recovery, coastal zone management)	N/A	No	No	No	No	No	No	
Building Code, Permitting and Inspections	**Yes / No**							
Building Code	Yes	Yes	No	No	Yes	No	Yes	
Building Code Effectiveness Grading Schedule (BCEGS) Score	N/A	No	No	N/A	No	No	Yes	
Fire Department ISO/PIAL rating	Varies	6	5	4	Yes	6	4	
Site plan review requirements	Yes	Yes	No	No	yes	No	Yes	
Land Use Planning and Ordinances	**Yes / No**							
Zoning Ordinance	No	No	No	Yes	No	No	Yes	
Subdivision Ordinance	Yes	No	No	Yes	No	No	Yes	
Floodplain Ordinance	Yes	Yes	No	No	No	Yes	Yes	
Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)	Yes	No	No	No	No	No	Yes	
Flood Insurance Rate Maps	Yes	Yes	No	No	No	Yes	Yes	
Acquisition of land for open space and public recreation uses	Yes	No	No	Yes	No	No	No	
Other	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

All jurisdictions within the Grant 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

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

As of the 2023 update, Grant 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 Grant 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 Grant 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 Grant 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 Grant 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								
	Grant Parish	Colfax	Creola	Dry Prong	Georgetown	Montgomery	Pollock	Comments
Administration	Yes / No							
Planning Commission	Yes	Yes	Yes	No	Yes	Yes	Yes	
Mitigation Planning Committee	Yes	No	No	No	No	No	Yes	
Maintenance programs to reduce risk (tree trimming, clearing drainage systems)	Yes	Yes	No	Yes	Yes	Yes	Yes	
Mutual Aid Agreements								
Staff	Yes / No							
Chief Building Official	No	No	No	No	No	No	Yes	
Floodplain Administrator	Yes	Yes	No	No	No	Yes	Yes	
Emergency Manager	Yes	No	Yes	No	Yes	Yes	Yes	
Community Planner	No	No	No	Yes	No	No	Yes	
Civil Engineer	Yes	Yes	Yes	Yes	No	No	Yes	
GIS Coordinator	No	No	No	No	No	No	No	
Grant Writer	Yes	No	Yes	Yes	Yes	Yes	Yes	
Other			N/A	N/A				
Technical	Yes / No							
Warning Systems / Service (Reverse 911, outdoor warning signals)	Yes	No	No	No	No	No	No	
Hazard Data & Information	Yes	No	No	No	No	Yes	No	
Grant Writing	Yes	No	Yes	Yes	Yes	Yes	Yes	
Hazus Analysis	Yes	No	No	No	No	No	No	
Other	N/A	N/A	N/A	N/A	N/A			

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

Education and Outreach

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

The jurisdictions within the Grant 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.								
	Grant Parish	Colfax	Creola	Dry Prong	Georgetown	Montgomery	Pollock	Comments
Program / Organization	**Yes / No**							
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	No	No	No	No	No	No	Yes	
Ongoing public education or information program (responsible water use, fire safety, household preparedness, environmental education)	Yes	Yes	No	Yes	Yes	Yes	Yes	
Natural Disaster or safety related school program	Yes	No	No	Yes	Yes	No	Yes	
Storm Ready certification	No	No	No	No	No	No	Yes	
Firewise Communities certification	No	No	No	No	No	No	Unknown	
Public/Private partnership initiatives addressing disaster-related issues	No	Yes	No	Yes	Yes	No	Yes	
Other	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

As reflected with the above existing regulatory mechanisms, programs and resources within the parish, the jurisdictions within the Grant Parish planning area remain committed to expanding and improving on the existing capabilities within the parish. Communities will work together along with Grant 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 Grant 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, neither Grant Parish nor the incorporated jurisdictions participate in the CRS program.

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, 352 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[1], the National Flood Insurance Program (NFIP) completed a comprehensive review of the Community Rating System (CRS) that resulted in the release of a new CRS Coordinator's Manual. The changes to the 2013 CRS Coordinator's Manual are the result of a multi-year program evaluation that included input from a broad group of contributors to evaluate the CRS and refine the program to meet its 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

[1] 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 Grant 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 Grant Parish Hazard Mitigation Plan Planning Committee under the coordination of the Grant 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 April 2023 – October 2023

An online public opinion survey of Grant Parish residents was conducted between April 2023 and October 2023. The survey was designed to capture public perceptions and opinions regarding natural hazards in the Grant 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 Grant 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 Grant Parish survey can be found at the following link:

https://lsu.qualtrics.com/jfe/form/SV_cA3ljXArMSTfyx8

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 Grant 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, Grant 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 Grant 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. Reduce exposure to damage from flooding
2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event
3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
4. Increase public awareness and support of hazard mitigation

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

Grant Parish Mitigation Actions

Previous Action Update

Unincorporated Grant Parish - Mitigation Action Update						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
GRA1: 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; CDBG	1-5 years	Grant Parish Police Jury/Grant Parish OHSEP	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Winter Weather	Not Started - Carried Over (See Grant Parish Mitigation Action 1)
GRA2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	HGMP; BRIC; CDBG	1-5 years	Grant Parish Police Jury/Grant Parish OHSEP	Flooding, Thunderstorms, Tropical Cyclones	Not Started - Carried Over (See Grant Parish Mitigation Action 2)
GRA3: 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; CDBG	1-5 years	Grant Parish OHSEP/Grant Parish Police Jury	Flooding, Tropical Cyclones	Not Started - Carried Over (See Grant Parish Mitigation Action 3)
GRA4: Safe Room Projects	Construction of a safe room for first responders located in Grant Parish. Other locations will be identified based on funding availability.	HGMP; BRIC; CDBG	1-5 years	Grant Parish OHSEP/Grant Parish Police Jury	Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Grant Parish Mitigation Action 4)

GRA5: 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, Thunderstorms (lightning, high wind, hail), Drought, 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; CDBG	1-5 years	Grant Parish OHSEP/Grant Parish Police Jury	Drought, Flooding, Levee Failure Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Grant Parish Mitigation Action 5)
GRA6: 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; CDBG	1-5 years	Grant Parish OHSEP/Grant Parish Police Jury	Drought, Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Grant Parish Mitigation Action 6)
GRA7: Lightning Mitigation	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property	HGMP; BRIC; CDBG	1-5 years	Grant Parish OHSEP/Grant Parish Police Jury	Thunderstorms	Not Started - Carried Over (See Grant Parish Mitigation Action 7)
GRA8: Warning Systems	Update/upgrade public warning system components throughout Grant Parish as necessary. Install audible and/or reverse 911 warning system(s)	HGMP; BRIC; CDBG	1-5 years	Grant Parish OHSEP/Grant Parish Police Jury	Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Grant Parish Mitigation Action 8)
GRA9: 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; CDBG	1-5 years	Grant Parish OHSEP/Grant Parish Police Jury	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Grant Parish Mitigation Action 9)
GRA10: 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; CDBG	1-5 years	Grant Parish Police Jury/Grant Parish OHSEP	Flooding, Tropical Cyclones	Not Started - Carried Over (See Grant Parish Mitigation Action 10)

GRA11: Flood Proofing	Pursue elevation / acquisition / flood proofing projects and structural solutions to flooding using available grant funding for the repetitive loss structures and the repetitive target structures. Annually review and correct the Repetitive Loss List by submitting correction worksheets to FEMA.	Parish Budget	1-5 years	Grant Parish Police Jury/Floodplain Manager	Flooding, Thunderstorms, Tropical Cyclones	Deleted (Duplicate of GRA3 Action)
GRA12: Community Rating System	Participate in the "Community Rating system (CRS)" of the NFIP. Inform the public about the CRS program and the fact that it could result in a discount in Flood Insurance Premiums. Review the existing floodplain ordinance and see how it could be augmented to increase CRS potential and further reduce the flood insurance premiums.	HGMP; BRIC	1-5 years	Grant Parish Police Jury/Floodplain Manager	Flooding	Not Started - Carried Over (See Grant Parish Mitigation Action 11)
GRA13: Flood Reduction	Develop additional development guidelines that would help reduce flooding, such as requiring proper drainage with adequate sloping; storm water retention ponds; dikes; levees and floodwalls if appropriate, and requiring freeboard above the Base Flood Elevation (BFE) in flood prone areas. Incentivize new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.	HGMP; BRIC	1-5 years	Grant Parish Police Jury/Parish Planning Director and Floodplain Manager	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Not Started - Carried Over (See Grant Parish Mitigation Action 12)

GRA14: Harden Critical Facilities	Harden critical facilities including but not limited to the Grant Parish EOC and Civic Center by utilizing applicable floodproofing techniques, window/roof/door hardening and add back up power supply/generators at the 4-H Camp Grant Walker, Grant Parish Sheriff's Office, South Grant Elementary School, the Grant Parish Courthouse, the Woodland Sewage Treatment Plant and various water treatment facilities.	HGMP; BRIC	1-5 years	Grant Parish OHSEP/Grant Parish Police Jury	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Winter Weather	Deleted (Duplicate of GRA1 Action)
GRA15: Grant Parish Courthouse	Harden critical facilities for the Grant Parish Courthouse.	Parish Budget	1-5 years	Grant Parish OHSEP/Grant Parish Police Jury	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Deleted (Duplicate of GRA1 Action)
GRA16: Harden Levees	Harden levees to meet certification requirements; partner with Rapides Parish.	US Army Corps of Engineers	1-5 years	Grant Parish Engineer/ Grant Parish Police Jury	Flooding, Levee Failure, Tropical Cyclones	Not Started - Carried Over (See Grant Parish Mitigation Action 13)
GRA17: Harden Weir	Harden weir that was previously installed to enhance levee protection and flooding protection; includes technical assistance.	HMGP	1-5 years	Grant Parish Engineer/ Grant Parish Police Jury	Flooding, Levee Failure, Tropical Cyclones	Not Started - Carried Over (See Grant Parish Mitigation Action 14)
GRA18: Multi-Hazard Awareness Week	Sponsor a "Multi-Hazard Awareness Week", to educate the public on severe storms, hurricanes, winter storms and tornadoes, (sheltering in place, evacuation, emergency preparedness, and structural retrofitting), flooding (evacuation, emergency preparedness, retrofitting, and flood insurance), thunderstorms and lightning (emergency preparedness).	Parish and Town Budgets, Business and Industry	1-5 years	Grant Parish OHSEP/Grant Parish Police Jury	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Deleted (Duplicate of GRA5 Action)

GRA19: Public Awareness	Increase public awareness of hazards and hazardous areas. Distribute public awareness information regarding flood hazards, SFHA's, and potential mitigation measures using the local newspaper, utility bill inserts, inserts in the phone book, and parish hazards awareness website, and an educational program for school age children or "how to" classes in retrofitting by local merchants. Integrate "Disaster Resistance Education" into the public school curriculum. Provide public education on the importance of maintaining the ditches. Implement a public notification system, such as sirens or a call down system with a backup communication system.	Parish Budget, Grant Funding	1-5 years	Parish School Board and Parish Emergency Manager	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Winter Weather	Deleted (Duplicate of GRA5 Action)
GRA20: Communication	Communicate potential mitigation techniques and funding opportunities by public service announcements, mail out, flyers, utility bill inserts and parish hazards awareness website.	Parish and Town Budgets, Grants; Business and Industry	1-5 years	Grant Parish OHSEP/Grant Parish Police Jury	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Deleted (Duplicate of GRA5 Action)
GRA21: Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	Parish Budget	1-5 years	Grant Parish Police Jury/Floodplain Manager	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Deleted (Duplicate of GRA10 Action)
GRA22: International Building Codes	Adopt the current International Building Codes by ordinance, which would result in additional techniques to harden structures.	HGMP; BRIC	1-5 years	Grant Parish Police Jury/Parish Planning Director and Floodplain Manager	Drought, Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Grant Parish Mitigation Action 15)
GRA23: Drainage Ways	Improve drainage ways, including but not limited to Bayou Rigolette area, Bob's and Lonnie's Landing, the area between Kansas City Southern Railroad and the Red River levee and along Clear, Big, Fish, Bear, Little and Indian Creeks, by increasing drainage capacities.	Parish Budget	1-5 years	Parish Engineer and/or Parish Department of Public Works	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Deleted (Duplicate of GRA2 Action)

GRA24: Master Drainage Plan	Develop a master drainage plan which will evaluate drainage projects at major drainage laterals to determine best method of increasing drainage capacity. Implement recommended projects resulting from drainage plan.	HGMP; BRIC; CDBG	1-5 years	Grant Parish Police Jury/Parish Planning Director and Floodplain Manager	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Not Started - Carried Over (See Grant Parish Mitigation Action 16)
GRA25: Interior Drainage Projects	Investigate and implement a localized interior drainage projects including but not limited to those areas along U.S. Highway 165, Louisiana Highways 8, 71 & 471, and the Parish roads Bob's, Jack's and Lonnie's Landing Roads, which are repetitive loss areas, and reduce its flood potential.	Community Development Black Grant (CDBG), Flood Mitigation Assistance (FMA) Project Funds, Hazard Mitigation Grant Program (HMGP) Funds, Small Business Administration (SBA), U.S. Army Corps of Engineers - Section 205, and State Capital Outlay, Local Drainage Funds	1-5 years	Parish and Town Floodplain Managers / Public Works Director	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Deleted (Duplicate of GRA2 Action)
GRA26: Creation of Levee Failure Working Group	Create a levee failure working group to identify the impact and extent resulting from a levee failure	HGMP; BRIC; CDBG	1-5 years	Grant Parish Police Jury/Grant Parish OHSEP/USACE	Levee Failure	Not Started - Carried Over (See Grant Parish Mitigation Action 17)

New Mitigation Actions

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS GRANT PARISH	
	DESCRIPTION
GRANT PARISH MITGATION ACTION 1	Building Retrofits
LEAD AGENCY	Grant Parish Police Jury
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Retrofit public buildings exterior shell to maintain use during and after storm events
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Reduces damage from high wind related events and helps assure that the public buildings can be used, occupied and operable during or after storms.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS GRANT PARISH	
	DESCRIPTION
GRANT PARISH MITGATION ACTION 2	Drainage Improvements
LEAD AGENCY	Grant Parish Police Jury
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	High
Action Description	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.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS GRANT PARISH	
	DESCRIPTION
GRANT PARISH MITGATION ACTION 3	Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures
LEAD AGENCY	Grant Parish Police Jury
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	High
Action Description	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects, Natural System Protection
How Action Aligns with Risk Reduction	Eliminates flooding risk of repetitive and severe repetitive loss structures.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Levee Failure, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS GRANT PARISH	
	DESCRIPTION
GRANT PARISH MITGATION ACTION 4	Safe Room Projects
LEAD AGENCY	Grant Parish Police Jury
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event
PRIORITY	Medium
Action Description	Construction of a safe room for first responders located in Grant Parish. Other locations will be identified based on funding availability.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Allows for continued operations of essential personal to actively respond during a natural hazard event
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS GRANT PARISH	
	DESCRIPTION
GRANT PARISH MITGATION ACTION 5	Education and Outreach
LEAD AGENCY	Grant Parish Police Jury
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for dam and levee failure, drought, flooding, thunderstorms, tornadoes, tropical cyclones, wildfires, and winter weather hazards as well as providing information on high risk areas
Type of Mitigation Action	Education and Awareness Programs
How Action Aligns with Risk Reduction	Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Drought, Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfire, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS GRANT PARISH	
	DESCRIPTION
GRANT PARISH MITGATION ACTION 6	Generators for continuity of operations and government
LEAD AGENCY	Grant Parish Police Jury
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Procurement and Installation of generators at public facilities to ensure continued operations during and after events.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Installation of generators will allow public facilities to run accordingly and aid with local relief efforts
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS GRANT PARISH	
	DESCRIPTION
GRANT PARISH MITGATION ACTION 7	Lightning Mitigation
LEAD AGENCY	Grant Parish Police Jury
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Thunderstorms

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS GRANT PARISH	DESCRIPTION
GRANT PARISH MITGATION ACTION 8	Warning Systems
LEAD AGENCY	Grant Parish Police Jury
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Update/upgrade public warning system components throughout Grant Parish as necessary. Install audible and/or reverse 911 warning system(s).
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	An upgraded public warning system will increase the likelihood of public notification immediately prior to an event
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS GRANT PARISH	
	DESCRIPTION
GRANT PARISH MITGATION ACTION 9	Potable Water
LEAD AGENCY	Grant Parish Police Jury
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	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.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Drought, Flooding, Levee Failure, Thunderstorms, Tropical Cyclones, Tornadoes, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS GRANT PARISH	DESCRIPTION
GRANT PARISH MITGATION ACTION 10	Promote Flood Insurance
LEAD AGENCY	Grant Parish Police Jury
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 4. Increase public awareness and support of hazard mitigation
PRIORITY	High
Action Description	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).
Type of Mitigation Action	Education and Awareness Programs
How Action Aligns with Risk Reduction	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
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Flooding, Levee Failure, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS GRANT PARISH	DESCRIPTION
GRANT PARISH MITGATION ACTION 11	Community Rating System
LEAD AGENCY	Grant Parish Police Jury
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Participate in the "Community Rating system (CRS)" of the NFIP. Inform the public about the CRS program and the fact that it could result in a discount in Flood Insurance Premiums. Review the existing floodplain ordinance and see how it could be augmented to increase CRS potential and further reduce the flood insurance premiums.
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Enrollment in the CRS program will allow flood insurance policy holders to receive a discount on their flood insurance premiums
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Levee Failure, Thunderstorms, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS GRANT PARISH	
	DESCRIPTION
GRANT PARISH MITGATION ACTION 12	Flood Reduction
LEAD AGENCY	Grant Parish Police Jury
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding
PRIORITY	High
Action Description	Develop additional development guidelines that would help reduce flooding, such as requiring proper drainage with adequate sloping; storm water retention ponds; dikes; levees and floodwalls if appropriate, and requiring freeboard above the Base Flood Elevation (BFE) in flood prone areas. Incentivize new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Developmental guidelines for flooding reduction will decrease the chance of property loss that can occur during hazard events
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS GRANT PARISH	DESCRIPTION
GRANT PARISH MITGATION ACTION 13	Harden Levees
LEAD AGENCY	Grant Parish Police Jury
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	High
Action Description	Harden levees to meet certification requirements; partner with Rapides Parish.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Hardening levees will reduce the chance of a breach or levee failure from occurring
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Levee Failure, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS GRANT PARISH	
	DESCRIPTION
GRANT PARISH MITGATION ACTION 14	Harden Weir
LEAD AGENCY	Grant Parish Police Jury
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	High
Action Description	Harden weir that was previously installed to enhance levee protection and flooding protection; includes technical assistance.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Hardening weirs on dams can prevent an overtopping or dam failure event from occurring
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Levee Failure, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS GRANT PARISH	DESCRIPTION
GRANT PARISH MITGATION ACTION 15	International Building Codes
LEAD AGENCY	Grant Parish Police Jury
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Adopt the current International Building Codes by ordinance, which would result in additional techniques to harden structures.
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Hardening structures according to international building codes will allow property owners to be less susceptible to hazard events
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Drought, Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS GRANT PARISH	
	DESCRIPTION
GRANT PARISH MITGATION ACTION 16	Master Drainage Plan
LEAD AGENCY	Grant Parish Police Jury
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Develop a master drainage plan which will evaluate drainage projects at major drainage laterals to determine the best method of increasing drainage capacity. Implement recommended projects resulting from drainage plan.
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Master drainage plans will allow for new development to be up to date with the latest requirements, thus reducing the chances of flooding occurring in that area
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS GRANT PARISH	
	DESCRIPTION
GRANT PARISH MITGATION ACTION 17	Levee Failure Working Group
LEAD AGENCY	Grant Parish Police Jury
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Create a working group in order to assess the extent and determine the specific areas of inundation related to a levee failure in Grant Parish
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Creation of levee failure working group can help identify inundation zones within the parish, thus highlighting the most vulnerable areas during the hazard event
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Levee Failure, Tropical Cyclones

Additional Supporting Information:

Town of Colfax Mitigation Actions

Previous Action Update

Town of Colfax						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
COL1: 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; CDBG	1-5 years	Town of Colfax Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Winter Weather	Not Started - Carried Over (See Colfax Mitigation Action 1)
COL2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	HGMP; BRIC; CDBG	1-5 years	Town of Colfax Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tropical Cyclones	Not Started - Carried Over (See Colfax Mitigation Action 2)
COL3: 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; CDBG	1-5 years	Town of Colfax Mayor's Office/Grant Parish OHSEP	Flooding, Tropical Cyclones	Not Started - Carried Over (See Colfax Mitigation Action 3)
COL4: Safe Room Projects	Construction of a safe room for first responders located in Colfax. Other locations will be identified based on funding availability.	HGMP; BRIC; CDBG	1-5 years	Town of Colfax Mayor's Office/Grant Parish OHSEP	Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Colfax Mitigation Action 4)

COL5: 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, Thunderstorms (lightning, high wind, hail), Drought, 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; CDBG	1-5 years	Town of Colfax Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Levee Failure Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Colfax Mitigation Action 5)
COL6: 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; CDBG	1-5 years	Town of Colfax Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Colfax Mitigation Action 6)
COL7: Lightning Mitigation	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property	HGMP; BRIC; CDBG	1-5 years	Town of Colfax Mayor's Office/Grant Parish OHSEP	Thunderstorms	Not Started - Carried Over (See Colfax Mitigation Action 7)
COL8: Warning Systems	Update/upgrade public warning system components throughout Colfax as necessary. Install audible and/or reverse 911 warning system(s)	HGMP; BRIC; CDBG	1-5 years	Town of Colfax Mayor's Office/Grant Parish OHSEP	Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Colfax Mitigation Action 8)
COL9: 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; CDBG	1-5 years	Town of Colfax Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Colfax Mitigation Action 9)
COL10: 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; CDBG	1-5 years	Town of Colfax Mayor's Office/Grant Parish OHSEP	Flooding, Tropical Cyclones	Not Started - Carried Over (See Colfax Mitigation Action 10)
COL11: Drainage Way Improvement	Improve drainage ways by increasing drainage capacity and upgrading bridge crossings along bayous and drainage laterals additionally investigate and implement local drainage projects to reduce repetitive loss properties.	Town Budget, Grant Funding	1-5 years	Town of Colfax Mayor's Office/Town Engineer	Flooding, Thunderstorms, Tropical Cyclones	Deleted (Duplicate of COL2 Action)

COL12: Drainage Plan	As a community, Colfax should be prepared to participate and facilitate the creation of a Parish-wide drainage plan.	HGMP; BRIC; CDBG	1-5 years	Town of Colfax Mayor's Office	Flooding	Not Started - Carried Over (See Colfax Mitigation Action 11)
COL13: Repetitive Loss Structures	Pursue elevation / acquisition / floodproofing of repetitive loss structures.	HMGP; CDBG; LGA Grants	1-5 years	Town of Colfax Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tropical Cyclones	Deleted (Duplicate COL3 Action)
COL14: Community Rating System	Participate in Community Rating System (CRS).	HGMP; BRIC	1-5 years	Town of Colfax Mayor's Office/ Public Works Director	Flooding	Not Started - Carried Over (See Colfax Mitigation Action 12)
COL15: Generators	Support the Parish to add back up power supply / generators at the critical facilities in Colfax including Grant Parish Civic Center, the Grant Parish EOC, Grant Parish Sheriff's Office and the Grant Parish Courthouse.	Town Budgets; Grants	1-5 years	Town of Colfax Mayor's Office	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Deleted (Duplicate of COL6 Action)
COL16: Flood Reduction	Develop additional development guidelines that would help reduce flooding, such as requiring proper drainage with adequate sloping; storm water retention ponds; dikes; levees and floodwalls if appropriate, and requiring freeboard above the Base Flood Elevation (BFE) in flood prone areas.	HGMP; BRIC	1-5 years	Town of Colfax Mayor's Office/Town Planning Director and Floodplain Manager	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Not Started - Carried Over (See Colfax Mitigation Action 13)
COL17: Underground Utilities	Encouage new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.	HGMP; BRIC; CDBG	1-5 years	Town of Colfax Mayor's Office/Town Planning Director and Floodplain Manager	Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Colfax Mitigation Action 14)

COL18: Additional Generators	Harden and provide generators to existing and future critical facilities, infrastructure and facilities that house vulnerable populations against hazards, including but not limited to the Civic Center.	HMGP; CDBG; LGA Grants; Town and Parish Budgets	1-5 years	Town of Colfax Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Deleted (Duplicate of COL6 Action)
COL19: Multi-Hazard Awareness	Participate with the Parish in sponsoring a "Multi-Hazard Awareness", to educate the public on severe storms, hurricanes, tornadoes, and flooding (evacuation, emergency preparedness, retrofitting, and flood insurance) and thunderstorms and lightning (emergency preparedness).	Parish and Town Budgets, Business and Industry	1-5 years	Town of Colfax Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Deleted (Duplicate of COL5 Action)
COL20: Creation of Levee Failure Working Group	Create a levee failure working group to identify the impact and extent resulting from a levee failure	HGMP; BRIC; CDBG	1-5 years	Town of Colfax Mayor's Office/Grant Parish OHSEP/USACE	Levee Failure	Not Started - Carried Over (See Colfax Mitigation Action 15)

New Mitigation Actions

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF COLFAX	
	DESCRIPTION
TOWN OF COLFAX MITGATION ACTION 1	Building Retrofits
LEAD AGENCY	Town of Colfax Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Retrofit public buildings exterior shell to maintain use during and after storm events
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Reduces damage from high wind related events and helps assure that the public buildings can be used, occupied and operable during or after storms.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF COLFAX	
	DESCRIPTION
TOWN OF COLFAX MITGATION ACTION 2	Drainage Improvements
LEAD AGENCY	Town of Colfax Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	High
Action Description	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.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Levee Failure, Thunderstorms, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF COLFAX	
	DESCRIPTION
TOWN OF COLFAX MITGATION ACTION 3	Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures
LEAD AGENCY	Town of Colfax Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	High
Action Description	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects, Natural System Protection
How Action Aligns with Risk Reduction	Eliminates flooding risk of repetitive and severe repetitive loss structures.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Levee Failure, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF COLFAX	
	DESCRIPTION
TOWN OF COLFAX MITGATION ACTION 4	Safe Room Projects
LEAD AGENCY	Town of Colfax Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event
PRIORITY	Medium
Action Description	Construction of a safe room for first responders located in Colfax. Other locations will be identified based on funding availability.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Allows for continued operations of essential personal to actively respond during a natural hazard event
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF COLFAX	
	DESCRIPTION
TOWN OF COLFAX MITGATION ACTION 5	Education and Outreach
LEAD AGENCY	Town of Colfax Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for dam and levee failure, drought, flooding, thunderstorms, tornadoes, tropical cyclones, wildfires, and winter weather hazards as well as providing information on high risk areas
Type of Mitigation Action	Education and Awareness Programs
How Action Aligns with Risk Reduction	Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Drought, Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfire, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF COLFAX	
	DESCRIPTION
TOWN OF COLFAX MITGATION ACTION 6	Generators for continuity of operations and government
LEAD AGENCY	Town of Colfax Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Procurement and Installation of generators at public facilities to ensure continued operations during and after events.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Installation of generators will allow public facilities to run accordingly and aid with local relief efforts
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF COLFAX	
	DESCRIPTION
TOWN OF COLFAX MITGATION ACTION 7	Lightning Mitigation
LEAD AGENCY	Town of Colfax Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Thunderstorms

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF COLFAX	DESCRIPTION
TOWN OF COLFAX MITGATION ACTION 8	Warning Systems
LEAD AGENCY	Town of Colfax Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Update/upgrade public warning system components throughout Colfax as necessary. Install audible and/or reverse 911 warning system(s).
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	An upgraded public warning system will increase the likelihood of public notification immediately prior to an event
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Drought, Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF COLFAX	
	DESCRIPTION
TOWN OF COLFAX MITGATION ACTION 9	Potable Water
LEAD AGENCY	Town of Colfax Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	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.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Drought, Flooding, Levee Failure, Thunderstorms, Tropical Cyclones, Tornadoes, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF COLFAX	
	DESCRIPTION
TOWN OF COLFAX MITGATION ACTION 10	Promote Flood Insurance
LEAD AGENCY	Town of Colfax Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 4. Increase public awareness and support of hazard mitigation
PRIORITY	High
Action Description	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).
Type of Mitigation Action	Education and Awareness Programs
How Action Aligns with Risk Reduction	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
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Flooding, Levee Failure, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF COLFAX	
	DESCRIPTION
TOWN OF COLFAX MITGATION ACTION 11	Drainage Plan
LEAD AGENCY	Town of Colfax Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	As a community, Colfax should be prepared to participate and facilitate the creation of a Parish-wide drainage plan
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Drainage plans will allow for new development to be up to date with the latest requirements, thus reducing the chances of flooding occurring in that area
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF COLFAX	
	DESCRIPTION
TOWN OF COLFAX MITGATION ACTION 12	Community Rating System
LEAD AGENCY	Town of Colfax Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Participate in the "Community Rating system (CRS)" of the NFIP. Inform the public about the CRS program and the fact that it could result in a discount in Flood Insurance Premiums. Review the existing floodplain ordinance and see how it could be augmented to increase CRS potential and further reduce the flood insurance premiums.
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Enrollment in the CRS program will allow flood insurance policy holders to receive a discount on their flood insurance premiums
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Levee Failure, Thunderstorms, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF COLFAX	
	DESCRIPTION
TOWN OF COLFAX MITGATION ACTION 13	Flood Reduction
LEAD AGENCY	Town of Colfax Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding
PRIORITY	High
Action Description	Develop additional development guidelines that would help reduce flooding, such as requiring proper drainage with adequate sloping; storm water retention ponds; dikes; levees and floodwalls if appropriate, and requiring freeboard above the Base Flood Elevation (BFE) in flood prone areas. Incentivize new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Developmental guidelines for flooding reduction will decrease the chance of property loss that can occur during hazard events
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF COLFAX	DESCRIPTION
TOWN OF COLFAX MITGATION ACTION 14	Underground Utilities
LEAD AGENCY	Town of Colfax Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Encourage new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Underground utilities will decrease the chances of outages from occurring, allowing emergency response personal to function without interruption
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Levee Failure, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF COLFAX	
	DESCRIPTION
TOWN OF COLFAX MITGATION ACTION 15	Levee Failure Working Group
LEAD AGENCY	Town of Colfax Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Create a working group in order to assess the extent and determine the specific areas of inundation related to a levee failure in Colfax
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Creation of dam and levee failure working group can help identify inundation zones within the parish, thus highlighting the most vulnerable areas during the hazard event
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Levee Failure, Tropical Cyclones

Additional Supporting Information:

Village of Creola Mitigation Actions

Previous Action Update

Village of Creola						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
CRE1: 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; CDBG	1-5 years	Village of Creola Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Winter Weather	Not Started - Carried Over (See Creola Mitigation Action 1)
CRE2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	HGMP; BRIC; CDBG	1-5 years	Village of Creola Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tropical Cyclones	Not Started - Carried Over (See Creola Mitigation Action 2)
CRE3: 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; CDBG	1-5 years	Village of Creola Mayor's Office/Grant Parish OHSEP	Flooding, Tropical Cyclones	Not Started - Carried Over (See Creola Mitigation Action 3)
CRE4: Safe Room Projects	Construction of a safe room for first responders located in Creola. Other locations will be identified based on funding availability.	HGMP; BRIC; CDBG	1-5 years	Village of Creola Mayor's Office/Grant Parish OHSEP	Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Creola Mitigation Action 4)

CRE5: 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, Thunderstorms (lightning, high wind, hail), Drought, 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; CDBG	1-5 years	Village of Creola Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Creola Mitigation Action 5)
CRE6: 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; CDBG	1-5 years	Village of Creola Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Creola Mitigation Action 6)
CRE7: Lightning Mitigation	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property	HGMP; BRIC; CDBG	1-5 years	Village of Creola Mayor's Office/Grant Parish OHSEP	Thunderstorms	Not Started - Carried Over (See Creola Mitigation Action 7)
CRE8: Warning Systems	Update/upgrade public warning system components throughout Creola as necessary. Install audible and/or reverse 911 warning system(s)	HGMP; BRIC; CDBG	1-5 years	Village of Creola Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Creola Mitigation Action 8)
CRE9: 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; CDBG	1-5 years	Village of Creola Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Creola Mitigation Action 9)
CRE10: 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; CDBG	1-5 years	Village of Creola Mayor's Office/Grant Parish OHSEP	Flooding, Tropical Cyclones	Not Started - Carried Over (See Creola Mitigation Action 10)
CRE11: Drainage Way Improvement	Improve drainage ways by increasing drainage capacity and upgrading bridge crossings along bayous and drainage laterals additionally investigate and implement local drainage projects to reduce repetitive loss properties.	Town Budget, Grant Funding	1-5 years	Village of Creola Mayor's Office/Town Engineer	Flooding, Thunderstorms, Tropical Cyclones	Deleted (Duplicate of CRE2 Action)
CRE12: Drainage Plan	As a community, Creola should be prepared to participate and facilitate the creation of a Parish-wide drainage plan.	HGMP; BRIC; CDBG	1-5 years	Village of Creola Mayor's Office	Flooding	Not Started - Carried Over (See Creola Mitigation Action 11)

CRE13: Repetitive Loss Structures	Pursue elevation / acquisition / floodproofing of repetitive loss structures.	HMGP; CDBG; LGA Grants	1-5 years	Village of Creola Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tropical Cyclones	Deleted (Duplicate of CRE3 Action)
CRE14: Community Rating System	Participate in Community Rating System (CRS).	HGMP; BRIC	1-5 years	Village of Creola Mayor's Office/ Public Works Director	Flooding	Not Started - Carried Over (See Creola Mitigation Action 12)
CRE15: Flood Reduction	Develop additional development guidelines that would help reduce flooding, such as requiring proper drainage with adequate sloping; storm water retention ponds; dikes; levees and floodwalls if appropriate, and requiring freeboard above the Base Flood Elevation (BFE) in flood prone areas. Encourage new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.	HGMP; BRIC	1-5 years	Village of Creola Mayor's Office/Town Planning Director and Floodplain Manager	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Not Started - Carried Over (See Creola Mitigation Action 13)
CRE16: Multi-Hazard Awareness	Develop additional development guidelines that would help reduce flooding, such as requiring proper drainage with adequate sloping; storm water retention ponds; dikes; levees and floodwalls if appropriate, and requiring freeboard above the Base Flood Elevation (BFE) in flood prone areas.	Parish and Village Budgets, Business and Industry	1-5 years	Mayor and Village Emergency Manager	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Deleted (Duplicate of CRE5 Action)
CRE17: Underground Utilities	Encourage new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.	HGMP; BRIC; CDBG	1-5 years	Village of Creola Mayor's Office/Town Planning Director and Floodplain Manager	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Creola Mitigation Action 14)

New Mitigation Actions

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF CREOLA	
	DESCRIPTION
VILLAGE OF CREOLA MITGATION ACTION 1	Building Retrofits
LEAD AGENCY	Village of Creola Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Retrofit public buildings exterior shell to maintain use during and after storm events
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Reduces damage from high wind related events and helps assure that the public buildings can be used, occupied and operable during or after storms.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF CREOLA	
	DESCRIPTION
VILLAGE OF CREOLA MITGATION ACTION 2	Drainage Improvements
LEAD AGENCY	Village of Creola Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	High
Action Description	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.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF CREOLA	
	DESCRIPTION
VILLAGE OF CREOLA MITGATION ACTION 3	Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures
LEAD AGENCY	Village of Creola Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	High
Action Description	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects, Natural System Protection
How Action Aligns with Risk Reduction	Eliminates flooding risk of repetitive and severe repetitive loss structures.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF CREOLA	DESCRIPTION
VILLAGE OF CREOLA MITGATION ACTION 4	Safe Room Projects
LEAD AGENCY	Village of Creola Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event
PRIORITY	Medium
Action Description	Construction of a safe room for first responders located in Creola. Other locations will be identified based on funding availability.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Allows for continued operations of essential personal to actively respond during a natural hazard event
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF CREOLA	
	DESCRIPTION
VILLAGE OF CREOLA MITGATION ACTION 5	Education and Outreach
LEAD AGENCY	Village of Creola Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for drought, flooding, thunderstorms, tornadoes, tropical cyclones, wildfires, and winter weather hazards as well as providing information on high risk areas
Type of Mitigation Action	Education and Awareness Programs
How Action Aligns with Risk Reduction	Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfire, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF CREOLA	
	DESCRIPTION
VILLAGE OF CREOLA MITGATION ACTION 6	Generators for continuity of operations and government
LEAD AGENCY	Village of Creola Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Procurement and Installation of generators at public facilities to ensure continued operations during and after events.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Installation of generators will allow public facilities to run accordingly and aid with local relief efforts
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF CREOLA	
	DESCRIPTION
VILLAGE OF CREOLA MITGATION ACTION 7	Lightning Mitigation
LEAD AGENCY	Village of Creola Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Thunderstorms

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF CREOLA	
	DESCRIPTION
VILLAGE OF CREOLA MITGATION ACTION 8	Warning Systems
LEAD AGENCY	Village of Creola Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Update/upgrade public warning system components throughout Creola as necessary. Install audible and/or reverse 911 warning system(s).
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	An upgraded public warning system will increase the likelihood of public notification immediately prior to an event
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF CREOLA	
	DESCRIPTION
VILLAGE OF CREOLA MITGATION ACTION 9	Potable Water
LEAD AGENCY	Village of Creola Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	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.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Drought, Flooding, Thunderstorms, Tropical Cyclones, Tornadoes, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF CREOLA	
	DESCRIPTION
VILLAGE OF CREOLA MITGATION ACTION 10	Promote Flood Insurance
LEAD AGENCY	Village of Creola Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 4. Increase public awareness and support of hazard mitigation
PRIORITY	High
Action Description	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).
Type of Mitigation Action	Education and Awareness Programs
How Action Aligns with Risk Reduction	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
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Flooding, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF CREOLA	
	DESCRIPTION
VILLAGE OF CREOLA MITGATION ACTION 11	Drainage Plan
LEAD AGENCY	Village of Creola Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	As a community, Creola should be prepared to participate and facilitate the creation of a Parish-wide drainage plan
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Drainage plans will allow for new development to be up to date with the latest requirements, thus reducing the chances of flooding occurring in that area
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF CREOLA	DESCRIPTION
VILLAGE OF CREOLA MITGATION ACTION 12	Community Rating System
LEAD AGENCY	Village of Creola Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Participate in the "Community Rating system (CRS)" of the NFIP. Inform the public about the CRS program and the fact that it could result in a discount in Flood Insurance Premiums. Review the existing floodplain ordinance and see how it could be augmented to increase CRS potential and further reduce the flood insurance premiums.
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Enrollment in the CRS program will allow flood insurance policy holders to receive a discount on their flood insurance premiums
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF CREOLA	
	DESCRIPTION
VILLAGE OF CREOLA MITGATION ACTION 13	Flood Reduction
LEAD AGENCY	Village of Creola Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding
PRIORITY	High
Action Description	Develop additional development guidelines that would help reduce flooding, such as requiring proper drainage with adequate sloping; storm water retention ponds; dikes; levees and floodwalls if appropriate, and requiring freeboard above the Base Flood Elevation (BFE) in flood prone areas. Incentivize new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Developmental guidelines for flooding reduction will decrease the chance of property loss that can occur during hazard events
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF CREOLA	
	DESCRIPTION
VILLAGE OF CREOLA MITGATION ACTION 14	Underground Utilities
LEAD AGENCY	Village of Creola Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Encourage new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Underground utilities will decrease the chances of outages from occurring, allowing emergency response personal to function without interruption
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

Village of Dry Prong Mitigation Actions

Previous Action Update

Village of Dry Prong						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
DRY1: 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; CDBG	1-5 years	Village of Dry Prong Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Winter Weather	Not started - Carried Over (See Dry Prong Mitigation Action 1)
DRY2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	HGMP; BRIC; CDBG	1-5 years	Village of Dry Prong Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tropical Cyclones	Not started - Carried Over (See Dry Prong Mitigation Action 2)
DRY3: 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; CDBG	1-5 years	Village of Dry Prong Mayor's Office/Grant Parish OHSEP	Flooding, Tropical Cyclones	Not started - Carried Over (See Dry Prong Mitigation Action 3)
DRY4: Safe Room Projects	Construction of a safe room for first responders located in Dry Prong. Other locations will be identified based on funding availability.	HGMP; BRIC; CDBG	1-5 years	Village of Dry Prong Mayor's Office/Grant Parish OHSEP	Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not started - Carried Over (See Dry Prong Mitigation Action 4)

DRY5: 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, Thunderstorms (lightning, high wind, hail), Drought, 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; CDBG	1-5 years	Village of Dry Prong Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not started - Carried Over (See Dry Prong Mitigation Action 5)
DRY6: 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; CDBG	1-5 years	Village of Dry Prong Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not started - Carried Over (See Dry Prong Mitigation Action 6)
DRY7: Lightning Mitigation	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property	HGMP; BRIC; CDBG	1-5 years	Village of Dry Prong Mayor's Office/Grant Parish OHSEP	Thunderstorms	Not started - Carried Over (See Dry Prong Mitigation Action 7)
DRY8: Warning Systems	Update/upgrade public warning system components throughout Dry Prong as necessary. Install audible and/or reverse 911 warning system(s)	HGMP; BRIC; CDBG	1-5 years	Village of Dry Prong Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not started - Carried Over (See Dry Prong Mitigation Action 8)
DRY9: 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; CDBG	1-5 years	Village of Dry Prong Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not started - Carried Over (See Dry Prong Mitigation Action 9)
DRY10: 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; CDBG	1-5 years	Village of Dry Prong Mayor's Office/Grant Parish OHSEP	Flooding, Tropical Cyclones	Not started - Carried Over (See Dry Prong Mitigation Action 10)
DRY11: Drainage Way Improvement	Improve drainage ways by increasing drainage capacity and upgrading bridge crossings along bayous and drainage laterals additionally investigate and implement local drainage projects to reduce repetitive loss properties.	Town Budget, Grant Funding	1-5 years	Village of Dry Prong Mayor's Office/Town Engineer	Flooding, Thunderstorms, Tropical Cyclones	Deleted (Duplicate of DP2 Action)

DRY12: Drainage Plan	As a community, Dry Prong should be prepared to participate and facilitate the creation of a Parish-wide drainage plan.	HGMP; BRIC; CDBG	1-5 years	Village of Dry Prong Mayor's Office	Flooding	Not started - Carried Over (See Dry Prong Mitigation Action 11)
DRY13: Repetitive Loss Structures	Pursue elevation / acquisition / floodproofing of repetitive loss structures.	HMGP; CDBG; LGA Grants	1-5 years	Village of Dry Prong Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tropical Cyclones	Deleted (Duplicate of DP3 Action)
DRY14: Community Rating System	Participate in Community Rating System (CRS).	HGMP; BRIC	1-5 years	Village of Dry Prong Mayor's Office/ Public Works Director	Flooding	Not started - Carried Over (See Dry Prong Mitigation Action 12)
DRY15: Generators	Support the Parish to add back up power supply / generators at the critical facilities in Dry Prong including the water and sewer plants as well as the South Grant Elementary (used as shelter).	Town Budgets; Grants	1-5 years	Village of Dry Prong Mayor's Office	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Deleted (Duplicate of DP6 Action)
DRY16: Flood Reduction	Develop additional development guidelines that would help reduce flooding, such as requiring proper drainage with adequate sloping; storm water retention ponds; dikes; levees and floodwalls if appropriate, and requiring freeboard above the Base Flood Elevation (BFE) in flood prone areas.	HGMP; BRIC	1-5 years	Village of Dry Prong Mayor's Office/Town Planning Director and Floodplain Manager	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Not started - Carried Over (See Dry Prong Mitigation Action 13)
DRY17: Underground Utilities	Encourage new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.	HGMP; BRIC; CDBG	1-5 years	Village of Dry Prong Mayor's Office/Town Planning Director and Floodplain Manager	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not started - Carried Over (See Dry Prong Mitigation Action 14)
DRY18: Multi-Hazard Awareness	Participate with the Parish in sponsoring a "Multi-Hazard Awareness", to educate the public on severe storms, hurricanes, tornadoes, and flooding (evacuation, emergency preparedness, retrofitting, and flood insurance) and thunderstorms and lightning (emergency preparedness).	Parish and Village Budgets, Business and Industry	1-5 years	Mayor and Village Emergency Manager	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Deleted (Duplicate of DP5 Action)

New Mitigation Actions

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF DRY PRONG	
	DESCRIPTION
VILLAGE OF DRY PRONG MITGATION ACTION 1	Building Retrofits
LEAD AGENCY	Village of Dry Prong Mayor’s Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Retrofit public buildings exterior shell to maintain use during and after storm events
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Reduces damage from high wind related events and helps assure that the public buildings can be used, occupied and operable during or after storms.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF DRY PRONG	
	DESCRIPTION
VILLAGE OF DRY PRONG MITGATION ACTION 2	Drainage Improvements
LEAD AGENCY	Village of Dry Prong Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	High
Action Description	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.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF DRY PRONG	
	DESCRIPTION
VILLAGE OF DRY PRONG MITGATION ACTION 3	Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures
LEAD AGENCY	Village of Dry Prong Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	High
Action Description	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects, Natural System Protection
How Action Aligns with Risk Reduction	Eliminates flooding risk of repetitive and severe repetitive loss structures.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF DRY PRONG	
	DESCRIPTION
VILLAGE OF DRY PRONG MITGATION ACTION 4	Safe Room Projects
LEAD AGENCY	Village of Dry Prong Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event
PRIORITY	Medium
Action Description	Construction of a safe room for first responders located in Dry Prong. Other locations will be identified based on funding availability.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Allows for continued operations of essential personal to actively respond during a natural hazard event
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF DRY PRONG	
	DESCRIPTION
VILLAGE OF DRY PRONG MITGATION ACTION 5	Education and Outreach
LEAD AGENCY	Village of Dry Prong Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for drought, flooding, thunderstorms, tornadoes, tropical cyclones, wildfires, and winter weather hazards as well as providing information on high risk areas
Type of Mitigation Action	Education and Awareness Programs
How Action Aligns with Risk Reduction	Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfire, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF DRY PRONG	DESCRIPTION
VILLAGE OF DRY PRONG MITGATION ACTION 6	Generators for continuity of operations and government
LEAD AGENCY	Village of Dry Prong Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Procurement and Installation of generators at public facilities to ensure continued operations during and after events.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Installation of generators will allow public facilities to run accordingly and aid with local relief efforts
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF DRY PRONG	
	DESCRIPTION
VILLAGE OF DRY PRONG MITGATION ACTION 7	Lightning Mitigation
LEAD AGENCY	Village of Dry Prong Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Thunderstorms

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF DRY PRONG	
	DESCRIPTION
VILLAGE OF DRY PRONG MITGATION ACTION 8	Warning Systems
LEAD AGENCY	Village of Dry Prong Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Update/upgrade public warning system components throughout Dry Prong as necessary. Install audible and/or reverse 911 warning system(s).
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	An upgraded public warning system will increase the likelihood of public notification immediately prior to an event
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF DRY PRONG	
	DESCRIPTION
VILLAGE OF DRY PRONG MITGATION ACTION 9	Potable Water
LEAD AGENCY	Village of Dry Prong Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	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.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Drought, Flooding, Thunderstorms, Tropical Cyclones, Tornadoes, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF DRY PRONG	
	DESCRIPTION
VILLAGE OF DRY PRONG MITGATION ACTION 10	Promote Flood Insurance
LEAD AGENCY	Village of Dry Prong Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 4. Increase public awareness and support of hazard mitigation
PRIORITY	High
Action Description	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).
Type of Mitigation Action	Education and Awareness Programs
How Action Aligns with Risk Reduction	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
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Flooding, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF DRY PRONG	
	DESCRIPTION
VILLAGE OF DRY PRONG MITGATION ACTION 11	Drainage Plan
LEAD AGENCY	Village of Dry Prong Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	As a community, Dry Prong should be prepared to participate and facilitate the creation of a Parish-wide drainage plan
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Drainage plans will allow for new development to be up to date with the latest requirements, thus reducing the chances of flooding occurring in that area
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF DRY PRONG	
	DESCRIPTION
VILLAGE OF DRY PRONG MITGATION ACTION 12	Community Rating System
LEAD AGENCY	Village of Dry Prong Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Participate in the "Community Rating system (CRS)" of the NFIP. Inform the public about the CRS program and the fact that it could result in a discount in Flood Insurance Premiums. Review the existing floodplain ordinance and see how it could be augmented to increase CRS potential and further reduce the flood insurance premiums.
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Enrollment in the CRS program will allow flood insurance policy holders to receive a discount on their flood insurance premiums
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF DRY PRONG	DESCRIPTION
VILLAGE OF DRY PRONG MITGATION ACTION 13	Flood Reduction
LEAD AGENCY	Village of Dry Prong Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding
PRIORITY	High
Action Description	Develop additional development guidelines that would help reduce flooding, such as requiring proper drainage with adequate sloping; storm water retention ponds; dikes; levees and floodwalls if appropriate, and requiring freeboard above the Base Flood Elevation (BFE) in flood prone areas. Incentivize new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Developmental guidelines for flooding reduction will decrease the chance of property loss that can occur during hazard events
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF DRY PRONG	
	DESCRIPTION
VILLAGE OF DRY PRONG MITGATION ACTION 14	Underground Utilities
LEAD AGENCY	Village of Dry Prong Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Encourage new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Underground utilities will decrease the chances of outages from occurring, allowing emergency response personal to function without interruption
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

Village of Georgetown Mitigation Actions

Previous Action Update

Village of Georgetown						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
GEO1: 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; CDBG	1-5 years	Village of Georgetown Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Winter Weather	Not Started - Carried Over (See Georgetown Mitigation Action 1)
GEO2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	HGMP; BRIC; CDBG	1-5 years	Village of Georgetown Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tropical Cyclones	Not Started - Carried Over (See Georgetown Mitigation Action 2)
GEO3: 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; CDBG	1-5 years	Village of Georgetown Mayor's Office/Grant Parish OHSEP	Flooding, Tropical Cyclones	Not Started - Carried Over (See Georgetown Mitigation Action 3)
GEO4: Safe Room Projects	Construction of a safe room for first responders located in Georgetown. Other locations will be identified based on funding availability.	HGMP; BRIC; CDBG	1-5 years	Village of Georgetown Mayor's Office/Grant Parish OHSEP	Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Georgetown Mitigation Action 4)

GEO5: 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, Thunderstorms (lightning, high wind, hail), Drought, 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; CDBG	1-5 years	Village of Georgetown Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Georgetown Mitigation Action 5)
GEO6: 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; CDBG	1-5 years	Village of Georgetown Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Georgetown Mitigation Action 6)
GEO7: Lightning Mitigation	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property	HGMP; BRIC; CDBG	1-5 years	Village of Georgetown Mayor's Office/Grant Parish OHSEP	Thunderstorms	Not Started - Carried Over (See Georgetown Mitigation Action 7)
GEO8: Warning Systems	Update/upgrade public warning system components throughout Georgetown as necessary. Install audible and/or reverse 911 warning system(s)	HGMP; BRIC; CDBG	1-5 years	Village of Georgetown Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Georgetown Mitigation Action 8)
GEO9: 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; CDBG	1-5 years	Village of Georgetown Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Georgetown Mitigation Action 9)
GEO10: 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; CDBG	1-5 years	Village of Georgetown Mayor's Office/Grant Parish OHSEP	Flooding, Tropical Cyclones	Not Started - Carried Over (See Georgetown Mitigation Action 10)
GEO11: Drainage Way Improvement	Improve drainage ways by increasing drainage capacity and upgrading bridge crossings along bayous and drainage laterals additionally investigate and implement local drainage projects to reduce repetitive loss properties.	Town Budget, Grant Funding	1-5 years	Village of Georgetown Mayor's Office/Town Engineer	Flooding, Thunderstorms, Tropical Cyclones	Deleted (Duplicate of GEO2 Action)

GEO12: Drainage Plan	As a community, Georgetown should be prepared to participate and facilitate the creation of a Parish-wide drainage plan.	HGMP; BRIC; CDBG	1-5 years	Village of Georgetown Mayor's Office	Flooding	Not Started - Carried Over (See Georgetown Mitigation Action 11)
GEO13: Repetitive Loss Structures	Pursue elevation / acquisition / floodproofing of repetitive loss structures.	HMGP; CDBG; LGA Grants	1-5 years	Village of Georgetown Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tropical Cyclones	Deleted (Duplicate of GEO3 Action)
GEO14: Community Rating System	Participate in Community Rating System (CRS).	HGMP; BRIC	1-5 years	Village of Georgetown Mayor's Office/ Public Works Director	Flooding	Not Started - Carried Over (See Georgetown Mitigation Action 12)
GEO15: Flood Reduction	Develop additional development guidelines that would help reduce flooding, such as requiring proper drainage with adequate sloping; storm water retention ponds; dikes; levees and floodwalls if appropriate, and requiring freeboard above the Base Flood Elevation (BFE) in flood prone areas. Encouage new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.	HGMP; BRIC	1-5 years	Village of Georgetown Mayor's Office/Town Planning Director and Floodplain Manager	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Not Started - Carried Over (See Georgetown Mitigation Action 13)
GEO16: Multi-Hazard Awareness	Develop additional development guidelines that would help reduce flooding, such as requiring proper drainage with adequate sloping; storm water retention ponds; dikes; levees and floodwalls if appropriate, and requiring freeboard above the Base Flood Elevation (BFE) in flood prone areas.	Parish and Village Budgets, Business and Industry		Mayor and Village Emergency Manager	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Deleted (Duplicate GEO5 Action)
GEO17: Underground Utilities	Encouage new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.	HGMP; BRIC; CDBG	1-5 years	Village of Georgetown Mayor's Office/Town Planning Director and Floodplain Manager	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Georgetown Mitigation Action 14)
GEO18: Generators	Support the Parish to add back up power supply / generators at the critical facilities including the water and sewer plants.	Parish and Village Budgets		GOHSEP Director	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Deleted (Duplicate of GEO6 Action)

New Mitigation Actions

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF GEORGETOWN	
	DESCRIPTION
VILLAGE OF GEORGETOWN MITGATION ACTION 1	Building Retrofits
LEAD AGENCY	Village of Georgetown Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Retrofit public buildings exterior shell to maintain use during and after storm events
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Reduces damage from high wind related events and helps assure that the public buildings can be used, occupied and operable during or after storms.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF GEORGETOWN	
	DESCRIPTION
VILLAGE OF GEORGETOWN MITGATION ACTION 2	Drainage Improvements
LEAD AGENCY	Village of Georgetown Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	High
Action Description	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.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF GEORGETOWN	
	DESCRIPTION
VILLAGE OF GEORGETOWN MITGATION ACTION 3	Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures
LEAD AGENCY	Village of Georgetown Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	High
Action Description	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects, Natural System Protection
How Action Aligns with Risk Reduction	Eliminates flooding risk of repetitive and severe repetitive loss structures.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF GEORGETOWN	
	DESCRIPTION
VILLAGE OF GEORGETOWN MITGATION ACTION 4	Safe Room Projects
LEAD AGENCY	Village of Georgetown Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event
PRIORITY	Medium
Action Description	Construction of a safe room for first responders located in Georgetown. Other locations will be identified based on funding availability.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Allows for continued operations of essential personal to actively respond during a natural hazard event
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF GEORGETOWN	
	DESCRIPTION
VILLAGE OF GEORGETOWN MITGATION ACTION 5	Education and Outreach
LEAD AGENCY	Village of Georgetown Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for drought, flooding, thunderstorms, tornadoes, tropical cyclones, wildfires, and winter weather hazards as well as providing information on high risk areas
Type of Mitigation Action	Education and Awareness Programs
How Action Aligns with Risk Reduction	Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfire, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF GEORGETOWN	
	DESCRIPTION
VILLAGE OF GEORGETOWN MITGATION ACTION 6	Generators for continuity of operations and government
LEAD AGENCY	Village of Georgetown Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Procurement and Installation of generators at public facilities to ensure continued operations during and after events.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Installation of generators will allow public facilities to run accordingly and aid with local relief efforts
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF GEORGETOWN	
	DESCRIPTION
VILLAGE OF GEORGETOWN MITGATION ACTION 7	Lightning Mitigation
LEAD AGENCY	Village of Georgetown Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Thunderstorms

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF GEORGETOWN	DESCRIPTION
VILLAGE OF GEORGETOWN MITGATION ACTION 8	Warning Systems
LEAD AGENCY	Village of Georgetown Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Update/upgrade public warning system components throughout Georgetown as necessary. Install audible and/or reverse 911 warning system(s).
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	An upgraded public warning system will increase the likelihood of public notification immediately prior to an event
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF GEORGETOWN	
	DESCRIPTION
VILLAGE OF GEORGETOWN MITGATION ACTION 9	Potable Water
LEAD AGENCY	Village of Georgetown Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	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.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Drought, Flooding, Thunderstorms, Tropical Cyclones, Tornadoes, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF GEORGETOWN	
	DESCRIPTION
VILLAGE OF GEORGETOWN MITGATION ACTION 10	Promote Flood Insurance
LEAD AGENCY	Village of Georgetown Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 4. Increase public awareness and support of hazard mitigation
PRIORITY	High
Action Description	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).
Type of Mitigation Action	Education and Awareness Programs
How Action Aligns with Risk Reduction	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
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Flooding, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF GEORGETOWN	
	DESCRIPTION
VILLAGE OF GEORGETOWN MITGATION ACTION 11	Drainage Plan
LEAD AGENCY	Village of Georgetown Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	As a community, Georgetown should be prepared to participate and facilitate the creation of a Parish-wide drainage plan
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Drainage plans will allow for new development to be up to date with the latest requirements, thus reducing the chances of flooding occurring in that area
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF GEORGETOWN	
	DESCRIPTION
VILLAGE OF GEORGETOWN MITGATION ACTION 12	Community Rating System
LEAD AGENCY	Village of Georgetown Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Participate in the "Community Rating system (CRS)" of the NFIP. Inform the public about the CRS program and the fact that it could result in a discount in Flood Insurance Premiums. Review the existing floodplain ordinance and see how it could be augmented to increase CRS potential and further reduce the flood insurance premiums.
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Enrollment in the CRS program will allow flood insurance policy holders to receive a discount on their flood insurance premiums
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF GEORGETOWN	
	DESCRIPTION
VILLAGE OF GEORGETOWN MITGATION ACTION 13	Flood Reduction
LEAD AGENCY	Village of Georgetown Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding
PRIORITY	High
Action Description	Develop additional development guidelines that would help reduce flooding, such as requiring proper drainage with adequate sloping; storm water retention ponds; dikes; levees and floodwalls if appropriate, and requiring freeboard above the Base Flood Elevation (BFE) in flood prone areas. Incentivize new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Developmental guidelines for flooding reduction will decrease the chance of property loss that can occur during hazard events
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS VILLAGE OF GEORGETOWN	
	DESCRIPTION
VILLAGE OF GEORGETOWN MITGATION ACTION 14	Underground Utilities
LEAD AGENCY	Village of Georgetown Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Encourage new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Underground utilities will decrease the chances of outages from occurring, allowing emergency response personal to function without interruption
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

Town of Montgomery Mitigation Actions

Previous Action Update

Town of Montgomery						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
MON1: 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; CDBG	1-5 years	Town of Montgomery Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Winter Weather	Not Started - Carried Over (See Montgomery Mitigation Action 1)
MON2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	HGMP; BRIC; CDBG	1-5 years	Town of Montgomery Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tropical Cyclones	Not Started - Carried Over (See Montgomery Mitigation Action 2)
MON3: 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; CDBG	1-5 years	Town of Montgomery Mayor's Office/Grant Parish OHSEP	Flooding, Tropical Cyclones	Not Started - Carried Over (See Montgomery Mitigation Action 3)
MON4: Safe Room Projects	Construction of a safe room for first responders located in Montgomery. Other locations will be identified based on funding availability.	HGMP; BRIC; CDBG	1-5 years	Town of Montgomery Mayor's Office/Grant Parish OHSEP	Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Montgomery Mitigation Action 4)

MON5: 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, Thunderstorms (lightning, high wind, hail), Drought, 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; CDBG	1-5 years	Town of Montgomery Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Montgomery Mitigation Action 5)
MON6: 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; CDBG	1-5 years	Town of Montgomery Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Montgomery Mitigation Action 6)
MON7: Lightning Mitigation	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property	HGMP; BRIC; CDBG	1-5 years	Town of Montgomery Mayor's Office/Grant Parish OHSEP	Thunderstorms	Not Started - Carried Over (See Montgomery Mitigation Action 7)
MON8: Warning Systems	Update/upgrade public warning system components throughout Montgomery as necessary. Install audible and/or reverse 911 warning system(s)	HGMP; BRIC; CDBG	1-5 years	Town of Montgomery Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Montgomery Mitigation Action 8)
MON9: 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; CDBG	1-5 years	Town of Montgomery Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Montgomery Mitigation Action 9)
MON10: 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; CDBG	1-5 years	Town of Montgomery Mayor's Office/Grant Parish OHSEP	Flooding, Tropical Cyclones	Not Started - Carried Over (See Montgomery Mitigation Action 10)
MON11: Drainage Way Improvement	Improve drainage ways by increasing drainage capacity and upgrading bridge crossings along bayous and drainage laterals additionally investigate and implement local drainage projects to reduce repetitive loss properties.	Town Budget, Grant Funding	1-5 years	Town of Montgomery Mayor's Office/Town Engineer	Flooding, Thunderstorms, Tropical Cyclones	Deleted (Duplicate of MON2 Action)

MON12: Drainage Plan	As a community, Montgomery should be prepared to participate and facilitate the creation of a Parish-wide drainage plan.	HGMP; BRIC; CDBG	1-5 years	Town of Montgomery Mayor's Office	Flooding	Not Started - Carried Over (See Montgomery Mitigation Action 11)
MON13: Repetitive Loss Structures	Pursue elevation / acquisition / floodproofing of repetitive loss structures.	HMGP; CDBG; LGA Grants	1-5 years	Town of Montgomery Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tropical Cyclones	Deleted (Duplicate of MON3 Action)
MON14: Community Rating System	Participate in Community Rating System (CRS).	HGMP; BRIC	1-5 years	Town of Montgomery Mayor's Office/ Public Works Director	Flooding	Not Started - Carried Over (See Montgomery Mitigation Action 12)
MON15: Generators	Support the Parish to add back up power supply / generators at the critical facilities including the water and sewer plants.	Town Budgets; Grants	1-5 years	Town of Montgomery Mayor's Office	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Deleted (Duplicate of MON6 Action)
MON16: Flood Reduction	Develop additional development guidelines that would help reduce flooding, such as requiring proper drainage with adequate sloping; storm water retention ponds; dikes; levees and floodwalls if appropriate, and requiring freeboard above the Base Flood Elevation (BFE) in flood prone areas.	HGMP; BRIC	1-5 years	Town of Montgomery Mayor's Office/Town Planning Director and Floodplain Manager	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Not Started - Carried Over (See Montgomery Mitigation Action 13)
MON17: Underground Utilities	Encouage new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.	HGMP; BRIC; CDBG	1-5 years	Town of Montgomery Mayor's Office/Town Planning Director and Floodplain Manager	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Montgomery Mitigation Action 14)

MON18: Multi-Hazard Awareness	Participate with the Parish in sponsoring a "Multi-Hazard Awareness", to educate the public on severe storms, hurricanes, tornadoes, and flooding (evacuation, emergency preparedness, retrofitting, and flood insurance) and thunderstorms and lightning (emergency preparedness).	Parish and Town Budgets, Business and Industry	1-5 years	Town of Montgomery Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Deleted (Duplicate of MON5 Action)

New Mitigation Actions

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF MONTGOMERY	
	DESCRIPTION
TOWN OF MONTGOMERY MITGATION ACTION 1	Building Retrofits
LEAD AGENCY	Town of Montgomery Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Retrofit public buildings exterior shell to maintain use during and after storm events
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Reduces damage from high wind related events and helps assure that the public buildings can be used, occupied and operable during or after storms.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF MONTGOMERY	
	DESCRIPTION
TOWN OF MONTGOMERY MITGATION ACTION 2	Drainage Improvements
LEAD AGENCY	Town of Montgomery Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	High
Action Description	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.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF MONTGOMERY	
	DESCRIPTION
TOWN OF MONTGOMERY MITGATION ACTION 3	Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures
LEAD AGENCY	Town of Montgomery Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	High
Action Description	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects, Natural System Protection
How Action Aligns with Risk Reduction	Eliminates flooding risk of repetitive and severe repetitive loss structures.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF MONTGOMERY	
	DESCRIPTION
TOWN OF MONTGOMERY MITGATION ACTION 4	Safe Room Projects
LEAD AGENCY	Town of Montgomery Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event
PRIORITY	Medium
Action Description	Construction of a safe room for first responders located in Montgomery. Other locations will be identified based on funding availability.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Allows for continued operations of essential personal to actively respond during a natural hazard event
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF MONTGOMERY	
	DESCRIPTION
TOWN OF MONTGOMERY MITGATION ACTION 5	Education and Outreach
LEAD AGENCY	Town of Montgomery Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for drought, flooding, thunderstorms, tornadoes, tropical cyclones, wildfires, and winter weather hazards as well as providing information on high risk areas
Type of Mitigation Action	Education and Awareness Programs
How Action Aligns with Risk Reduction	Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfire, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF MONTGOMERY	
	DESCRIPTION
TOWN OF MONTGOMERY MITGATION ACTION 6	Generators for continuity of operations and government
LEAD AGENCY	Town of Montgomery Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Procurement and Installation of generators at public facilities to ensure continued operations during and after events.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Installation of generators will allow public facilities to run accordingly and aid with local relief efforts
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF MONTGOMERY	
	DESCRIPTION
TOWN OF MONTGOMERY MITGATION ACTION 7	Lightning Mitigation
LEAD AGENCY	Town of Montgomery Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Thunderstorms

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF MONTGOMERY	
	DESCRIPTION
TOWN OF MONTGOMERY MITGATION ACTION 8	Warning Systems
LEAD AGENCY	Town of Montgomery Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Update/upgrade public warning system components throughout Montgomery as necessary. Install audible and/or reverse 911 warning system(s).
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	An upgraded public warning system will increase the likelihood of public notification immediately prior to an event
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF MONTGOMERY	DESCRIPTION
TOWN OF MONTGOMERY MITGATION ACTION 9	Potable Water
LEAD AGENCY	Town of Montgomery Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	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.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Drought, Flooding, Thunderstorms, Tropical Cyclones, Tornadoes, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF MONTGOMERY	
	DESCRIPTION
TOWN OF MONTGOMERY MITGATION ACTION 10	Promote Flood Insurance
LEAD AGENCY	Town of Montgomery Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 4. Increase public awareness and support of hazard mitigation
PRIORITY	High
Action Description	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).
Type of Mitigation Action	Education and Awareness Programs
How Action Aligns with Risk Reduction	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
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Flooding, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF MONTGOMERY	
	DESCRIPTION
TOWN OF MONTGOMERY MITGATION ACTION 11	Drainage Plan
LEAD AGENCY	Town of Montgomery Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	As a community, Montgomery should be prepared to participate and facilitate the creation of a Parish-wide drainage plan
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Drainage plans will allow for new development to be up to date with the latest requirements, thus reducing the chances of flooding occurring in that area
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF MONTGOMERY	
	DESCRIPTION
TOWN OF MONTGOMERY MITGATION ACTION 12	Community Rating System
LEAD AGENCY	Town of Montgomery Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Participate in the "Community Rating system (CRS)" of the NFIP. Inform the public about the CRS program and the fact that it could result in a discount in Flood Insurance Premiums. Review the existing floodplain ordinance and see how it could be augmented to increase CRS potential and further reduce the flood insurance premiums.
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Enrollment in the CRS program will allow flood insurance policy holders to receive a discount on their flood insurance premiums
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF MONTGOMERY	
	DESCRIPTION
TOWN OF MONTGOMERY MITGATION ACTION 13	Flood Reduction
LEAD AGENCY	Town of Montgomery Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding
PRIORITY	High
Action Description	Develop additional development guidelines that would help reduce flooding, such as requiring proper drainage with adequate sloping; storm water retention ponds; dikes; levees and floodwalls if appropriate, and requiring freeboard above the Base Flood Elevation (BFE) in flood prone areas. Incentivize new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Developmental guidelines for flooding reduction will decrease the chance of property loss that can occur during hazard events
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF MONTGOMERY	DESCRIPTION
TOWN OF MONTGOMERY MITGATION ACTION 14	Underground Utilities
LEAD AGENCY	Town of Montgomery Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Encourage new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Underground utilities will decrease the chances of outages from occurring, allowing emergency response personal to function without interruption
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

Town of Pollock Mitigation Actions

Previous Action Update

Town of Pollock						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
POL1: 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; CDBG	1-5 years	Town of Pollock Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Winter Weather	Not Started - Carried Over (See Pollock Mitigation Action 1)
POL2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	HGMP; BRIC; CDBG	1-5 years	Town of Pollock Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tropical Cyclones	Not Started - Carried Over (See Pollock Mitigation Action 2)
POL3: 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; CDBG	1-5 years	Town of Pollock Mayor's Office/Grant Parish OHSEP	Flooding, Tropical Cyclones	Not Started - Carried Over (See Pollock Mitigation Action 3)
POL4: Safe Room Projects	Construction of a safe room for first responders located in Pollock. Other locations will be identified based on funding availability.	HGMP; BRIC; CDBG	1-5 years	Town of Pollock Mayor's Office/Grant Parish OHSEP	Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Pollock Mitigation Action 4)

POL5: 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, Thunderstorms (lightning, high wind, hail), Drought, 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; CDBG	1-5 years	Town of Pollock Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Pollock Mitigation Action 5)
POL6: 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; CDBG	1-5 years	Town of Pollock Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Pollock Mitigation Action 6)
POL7: Lightning Mitigation	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property	HGMP; BRIC; CDBG	1-5 years	Town of Pollock Mayor's Office/Grant Parish OHSEP	Thunderstorms	Not Started - Carried Over (See Pollock Mitigation Action 7)
POL8: Warning Systems	Update/upgrade public warning system components throughout Pollock as necessary. Install audible and/or reverse 911 warning system(s)	HGMP; BRIC; CDBG	1-5 years	Town of Pollock Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Pollock Mitigation Action 8)
POL9: 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; CDBG	1-5 years	Town of Pollock Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Pollock Mitigation Action 9)
POL10: 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; CDBG	1-5 years	Town of Pollock Mayor's Office/Grant Parish OHSEP	Flooding, Tropical Cyclones	Not Started - Carried Over (See Pollock Mitigation Action 10)
POL11: Drainage Way Improvement	Improve drainage ways by increasing drainage capacity and upgrading bridge crossings along bayous and drainage laterals additionally investigate and implement local drainage projects to reduce repetitive loss properties.	Town Budget, Grant Funding	1-5 years	Town of Pollock Mayor's Office/Town Engineer	Flooding, Thunderstorms, Tropical Cyclones	Deleted (Duplicate of POL2 Action)
POL12: Drainage Plan	As a community, Pollock should be prepared to participate and facilitate the creation of a Parish-wide drainage plan.	HGMP; BRIC; CDBG	1-5 years	Town of Pollock Mayor's Office	Flooding	Not Started - Carried Over (See Pollock Mitigation Action 11)

POL13: Repetitive Loss Structures	Pursue elevation / acquisition / floodproofing of repetitive loss structures.	HMGP; CDBG; LGA Grants	1-5 years	Town of Pollock Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tropical Cyclones	Deleted (Duplicate of POL3 Action)
POL14: Community Rating System	Participate in Community Rating System (CRS).	HGMP; BRIC	1-5 years	Town of Pollock Mayor's Office/ Public Works Director	Flooding	Not Started - Carried Over (See Pollock Mitigation Action 12)
POL15: Generators	Add back up power supply / generators at the critical facilities in Pollock including the ground storage facility.	Town Budgets; Grants	1-5 years	Town of Pollock Mayor's Office	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Deleted (Duplicate of POL6 Action)
POL16: Flood Reduction	Develop additional development guidelines that would help reduce flooding, such as requiring proper drainage with adequate sloping; storm water retention ponds; dikes; levees and floodwalls if appropriate, and requiring freeboard above the Base Flood Elevation (BFE) in flood prone areas.	HGMP; BRIC	1-5 years	Town of Pollock Mayor's Office/Town Planning Director and Floodplain Manager	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Not Started - Carried Over (See Pollock Mitigation Action 13)
POL17: Underground Utilities	Encouage new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.	HGMP; BRIC; CDBG	1-5 years	Town of Pollock Mayor's Office/Town Planning Director and Floodplain Manager	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Not Started - Carried Over (See Pollock Mitigation Action 14)
POL18: Additional Generators	Harden and provide generators to existing and future critical facilities, infrastructure and facilities that house vulnerable populations against hazards, including but not limited to the Civic Center.	HMGP; CDBG; LGA Grants; Town and Parish Budgets	1-5 years	Town of Pollock Mayor's Office/Grant Parish OHSEP	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather	Deleted (Duplicate of POL6 Action)
POL19: Multi-Hazard Awareness	Participate with the Parish in sponsoring a "Multi-Hazard Awareness", to educate the public on severe storms, hurricanes, tornadoes, and flooding (evacuation, emergency preparedness, retrofitting, and flood insurance) and thunderstorms and lightning (emergency preparedness).	Parish and Town Budgets, Business and Industry	1-5 years	Town of Pollock Mayor's Office/Grant Parish OHSEP	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones	Deleted (Duplicate of POL5 Action)

New Mitigation Actions

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF POLLOCK	
	DESCRIPTION
TOWN OF POLLOCK MITGATION ACTION 1	Building Retrofits
LEAD AGENCY	Town of Pollock Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Retrofit public buildings exterior shell to maintain use during and after storm events
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Reduces damage from high wind related events and helps assure that the public buildings can be used, occupied and operable during or after storms.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF POLLOCK	
	DESCRIPTION
TOWN OF POLLOCK MITGATION ACTION 2	Drainage Improvements
LEAD AGENCY	Town of Pollock Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	High
Action Description	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.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF POLLOCK	
	DESCRIPTION
TOWN OF POLLOCK MITGATION ACTION 3	Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures
LEAD AGENCY	Town of Pollock Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	High
Action Description	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects, Natural System Protection
How Action Aligns with Risk Reduction	Eliminates flooding risk of repetitive and severe repetitive loss structures.
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF POLLOCK	
	DESCRIPTION
TOWN OF POLLOCK MITGATION ACTION 4	Safe Room Projects
LEAD AGENCY	Town of Pollock Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event
PRIORITY	Medium
Action Description	Construction of a safe room for first responders located in Pollock. Other locations will be identified based on funding availability.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Allows for continued operations of essential personal to actively respond during a natural hazard event
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF POLLOCK	
	DESCRIPTION
TOWN OF POLLOCK MITGATION ACTION 5	Education and Outreach
LEAD AGENCY	Town of Pollock Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for drought, flooding, thunderstorms, tornadoes, tropical cyclones, wildfires, and winter weather hazards as well as providing information on high risk areas
Type of Mitigation Action	Education and Awareness Programs
How Action Aligns with Risk Reduction	Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Drought, Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfire, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF POLLOCK	
	DESCRIPTION
TOWN OF POLLOCK MITGATION ACTION 6	Generators for continuity of operations and government
LEAD AGENCY	Town of Pollock Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Procurement and Installation of generators at public facilities to ensure continued operations during and after events.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Installation of generators will allow public facilities to run accordingly and aid with local relief efforts
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF POLLOCK	
	DESCRIPTION
TOWN OF POLLOCK MITGATION ACTION 7	Lightning Mitigation
LEAD AGENCY	Town of Pollock Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Thunderstorms

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF POLLOCK	DESCRIPTION
TOWN OF POLLOCK MITGATION ACTION 8	Warning Systems
LEAD AGENCY	Town of Pollock Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Update/upgrade public warning system components throughout Pollock as necessary. Install audible and/or reverse 911 warning system(s).
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	An upgraded public warning system will increase the likelihood of public notification immediately prior to an event
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF POLLOCK	
	DESCRIPTION
TOWN OF POLLOCK MITGATION ACTION 9	Potable Water
LEAD AGENCY	Town of Pollock Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	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.
Type of Mitigation Action	Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	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.
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Drought, Flooding, Thunderstorms, Tropical Cyclones, Tornadoes, Wildfires, Winter Weather

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF POLLOCK	DESCRIPTION
TOWN OF POLLOCK MITGATION ACTION 10	Promote Flood Insurance
LEAD AGENCY	Town of Pollock Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 4. Increase public awareness and support of hazard mitigation
PRIORITY	High
Action Description	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).
Type of Mitigation Action	Education and Awareness Programs
How Action Aligns with Risk Reduction	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
Current Status of Action	Not Started - Carried Over from 2017 Plan
Hazard Addressed	Flooding, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF POLLOCK	
	DESCRIPTION
TOWN OF POLLOCK MITGATION ACTION 11	Drainage Plan
LEAD AGENCY	Town of Pollock Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	As a community, Pollock should be prepared to participate and facilitate the creation of a Parish-wide drainage plan
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Drainage plans will allow for new development to be up to date with the latest requirements, thus reducing the chances of flooding occurring in that area
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF POLLOCK	
	DESCRIPTION
TOWN OF POLLOCK MITGATION ACTION 12	Community Rating System
LEAD AGENCY	Town of Pollock Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 4. Increase public awareness and support of hazard mitigation
PRIORITY	Medium
Action Description	Participate in the "Community Rating system (CRS)" of the NFIP. Inform the public about the CRS program and the fact that it could result in a discount in Flood Insurance Premiums. Review the existing floodplain ordinance and see how it could be augmented to increase CRS potential and further reduce the flood insurance premiums.
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Enrollment in the CRS program will allow flood insurance policy holders to receive a discount on their flood insurance premiums
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF POLLOCK	
	DESCRIPTION
TOWN OF POLLOCK MITGATION ACTION 13	Flood Reduction
LEAD AGENCY	Town of Pollock Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding
PRIORITY	High
Action Description	Develop additional development guidelines that would help reduce flooding, such as requiring proper drainage with adequate sloping; storm water retention ponds; dikes; levees and floodwalls if appropriate, and requiring freeboard above the Base Flood Elevation (BFE) in flood prone areas. Incentivize new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.
Type of Mitigation Action	Local Plans and Regulations, Structure and Infrastructure Projects
How Action Aligns with Risk Reduction	Developmental guidelines for flooding reduction will decrease the chance of property loss that can occur during hazard events
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones

Additional Supporting Information:

IMPLEMENTATION KEY FOR POTENTIAL HAZARD MITIGATION ACTIONS TOWN OF POLLOCK	
	DESCRIPTION
TOWN OF POLLOCK MITGATION ACTION 14	Underground Utilities
LEAD AGENCY	Town of Pollock Mayor's Office
SUPPORTING AGENCIES	Grant Parish OHSEP
TIMELINE	1-5 years
COST ESTIMATE	Unknown
POSSIBLE FUNDING SOURCE(S)	HGMP, BRIC, FMA, Local
ASSOCIATED GOALS	1. Reduce exposure to damage from flooding 2. Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event 3. Guide development and enhance structures and infrastructures to reduce the impact of hazard events
PRIORITY	Medium
Action Description	Encourage new developments to install underground utilities, which would help reduce the chances of power outages during high winds and other severe storms.
Type of Mitigation Action	Local Plans and Regulations
How Action Aligns with Risk Reduction	Underground utilities will decrease the chances of outages from occurring, allowing emergency response personal to function without interruption
Current Status of Action	Not Started – Carried Over from 2017 Plan
Hazard Addressed	Flooding, Thunderstorms, Tornadoes, Tropical Cyclones, Wildfires, Winter Weather

Additional Supporting Information:

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 Grant 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.

Grant 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 Grant Parish Hazard Mitigation Plan Update

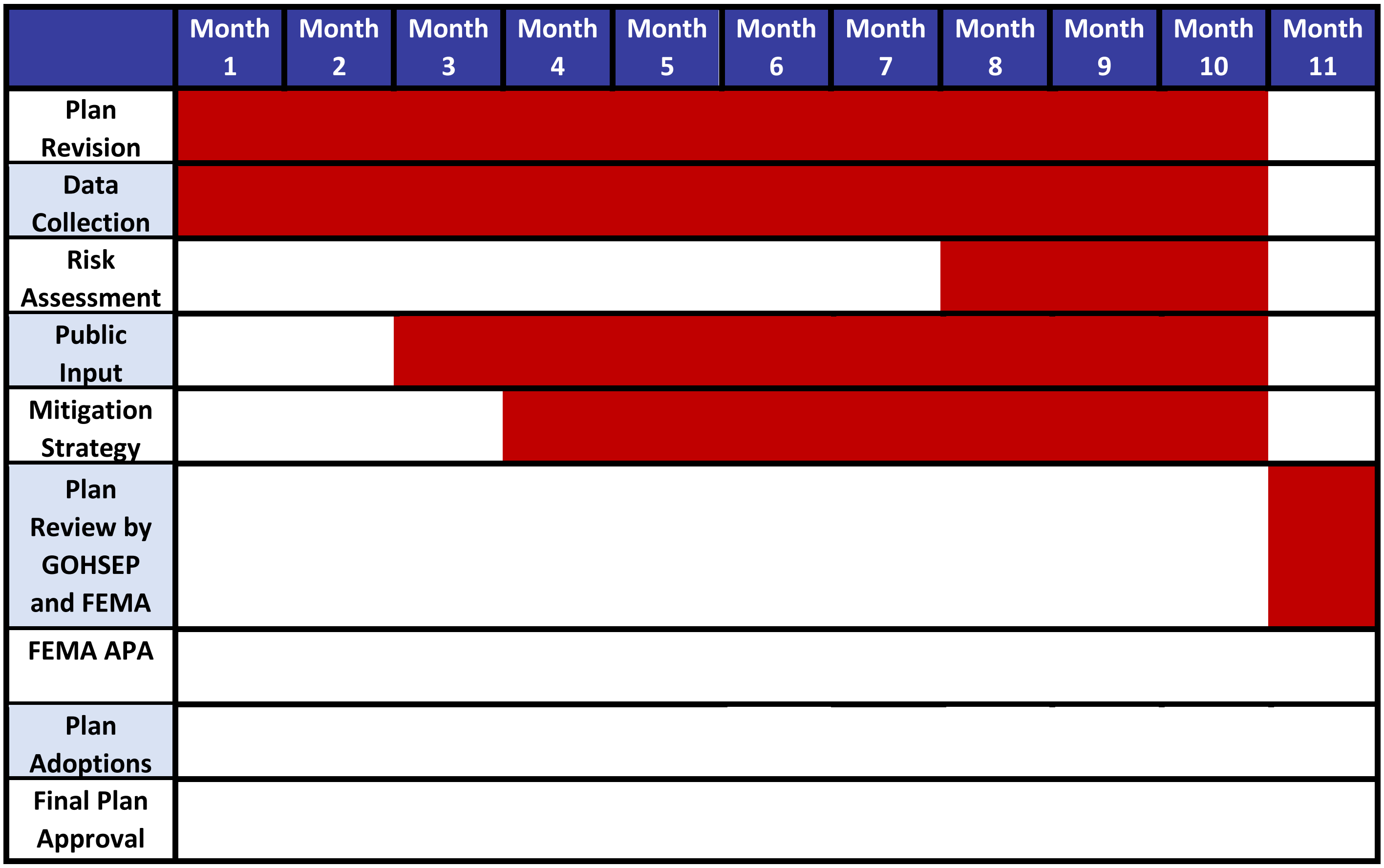
The Grant Parish Hazard Mitigation Plan Update process began in May 2022 with a series of emails, phone calls, meetings, and collaborations between the contractor (SDMI) and a diverse group of participating agencies and stakeholders. Update activities were intended to give each participating agency and 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
12/15/2022	Kick Off Meeting	Colfax, LA	No	Discuss with the Parish OHSEP Director expectations and requirements of the project. Discuss meeting schedules, committee make up, and next steps.
5/25/2023	Initial Planning Committee Meeting	Colfax, LA	No	Discuss with Grant Parish Hazard Mitigation Planning Committee the process and expectations of plan participants. Discuss timeline and action items for parish and each jurisdiction.
10/24/2023	Planning Committee Risk Assessment Review	Colfax, LA	Yes	Presentation of Risk Assessment and profiled hazards to Planning Committee.
10/24/2023	Public Meeting	Colfax, LA	Yes	Presentation of Risk Assessment s and profiled hazards to public. Presentation also includes current mitigation project highlights within communities and public survey discussion.
4/18/2023 – 10/24/2023	Public Opinion Survey	Online	Yes	This survey asked participants about public perceptions and opinions regarding natural hazards in Grant Parish. In addition, questions covered the methods and techniques preferred for reducing the risks and losses associated with these hazards. Survey Link: https://lsu.qualtrics.com/jfe/form/SV_cA3ljXArMSTfyx8

Planning

The plan update process consisted of several phases:



Coordination

The Grant 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. Grant Parish and their jurisdictions identified and reached out 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 organizations contacted included the Council of Aging and the American red Cross, but no response was received. There are no higher education institutions in Grant Parish; therefore, no members of academia could be included in the planning process on a parish level. 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 LaSalle Parish OHSEP Director was invited to attend the Initial Planning and Risk Assessment Meetings for Grant Parish in an effort to coordinate mitigation efforts where possible as neighboring communities. The LaSalle OHSEP Director was invited via email and phone call to participate in an effort to collaborate with neighboring communities. SDMI assisted Grant Parish with encouraging the collaboration with these neighboring communities via email by extending an invitation to the Grant 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:

Grant Parish Hazard Mitigation Planning Committee			
Name	**Title**	**Agency**	**Email**
Cade Fletcher	Deputy Director	Grant Parish OHSEP	fletcher@grantso.org
Mark Ball	President	Grant Parish Police Jury	gppj5ball@gmail.com
Don Arnold	District 8 Juror	Grant Parish Police Jury	don.arnold34@gmail.com
Cephas Bowie, Jr.	District 3 Juror	Grant Parish Police Jury	cbowiejr1953@gmail.com
Denise Guillot	Human Resources	Grant Parish Police Jury	
Garland Brosette	Mayor	Town of Colfax	
Delores LeBaron	Mayor	Town of Montgomery	
Tiffany Reitzell	Clerk	Village of Creola	
Nathan LaCombe	Chief	Village of Creola	
Lisa Locker	Clerk	Village of Dry Prong	
Danny Olden	Mayor	Village of Georgetown	
Jerome Scott	Mayor	Village of Pollock	

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 Grant 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, Grant 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, Grant Parish also uses vulnerability statistics and integration strategies to help guide their mitigation practices. These strategies and practices can be found at the end of each profiled hazard in the risk assessment. Furthermore, the parish holds annual meetings to discuss any changes that have occurred within the parish that could alter the vulnerability of Grant Parish and how to combat any issues that have arisen.

Grant 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 Grant 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: December 15, 2022

Location: Colfax, LA

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:

Grant Parish Hazard Mitigation Planning Committee		
Name	**Title**	**Agency**
Cade Fletcher	Deputy Director	Grant 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: May 25, 2023

Location: Colfax, 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:

Grant Parish Hazard Mitigation Planning Committee		
Name	**Title**	**Agency**
Cade Fletcher	Deputy Director	Grant Parish OHSEP
Mark Ball	President	Grant Parish Police Jury
Don Arnold	District 8 Juror	Grant Parish Police Jury
Cephas Bowie, Jr.	District 3 Juror	Grant Parish Police Jury
Denise Guillot	Human Resources	Grant Parish Police Jury
Garland Brosette	Mayor	Town of Colfax
Delores LeBaron	Mayor	Town of Montgomery
Tiffany Reitzell	Clerk	Village of Creola
Nathan LaCombe	Chief	Village of Creola
Lisa Locker	Clerk	Village of Dry Prong
Danny Olden	Mayor	Village of Georgetown
Jerome Scott	Mayor	Village of Pollock

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

Date: October 24, 2023

Location: Colfax, LA

Purpose: Presentation of Risk Assessment hazards and maps to Planning Committee.

Public Invitation: No

Meeting Invitees:

Grant Parish Hazard Mitigation Planning Committee		
Name	**Title**	**Agency**
Cade Fletcher	Deputy Director	Grant Parish OHSEP
Mark Ball	President	Grant Parish Police Jury
Don Arnold	District 8 Juror	Grant Parish Police Jury
Cephas Bowie, Jr.	District 3 Juror	Grant Parish Police Jury
Denise Guillot	Human Resources	Grant Parish Police Jury
Garland Brosette	Mayor	Town of Colfax
Delores LeBaron	Mayor	Town of Montgomery
Tiffany Reitzell	Clerk	Village of Creola
Nathan LaCombe	Chief	Village of Creola
Lisa Locker	Clerk	Village of Dry Prong
Danny Olden	Mayor	Village of Georgetown
Jerome Scott	Mayor	Village of Pollock

Meeting #4: Hazard Mitigation Plan Update Public Meeting

Date: October 24, 2023

Location: Colfax, 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 Grant Parish, their jurisdictions, and with assistance from SDMI.

Public Invitation: Yes

Meeting Invitees:

Grant Parish Hazard Mitigation Planning Committee		
Name	**Title**	**Agency**
Cade Fletcher	Deputy Director	Grant Parish OHSEP
Mark Ball	President	Grant Parish Police Jury
Don Arnold	District 8 Juror	Grant Parish Police Jury
Cephas Bowie, Jr.	District 3 Juror	Grant Parish Police Jury
Denise Guillot	Human Resources	Grant Parish Police Jury
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Delores LeBaron	Mayor	Town of Montgomery
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Nathan LaCombe	Chief	Village of Creola
Lisa Locker	Clerk	Village of Dry Prong
Danny Olden	Mayor	Village of Georgetown
Jerome Scott	Mayor	Village of Pollock
Ashley Dozier	Emergency Management Specialist	Louisiana State University

Meeting Announcement:

GRANT PARISH OFFICE OF HOMELAND SECURITY & EMERGENCY PREPAREDNESS

PUBLIC MEETING ANNOUNCEMENT

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

Grant 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 Grant 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, October 24th, for a public meeting at 2:30 PM to learn more about the plan and share your input on the risks and vulnerabilities that most impact you and your community.

Meeting Location:
Grant Parish Police Jury Meeting Room
200 Main Street
Colfax, LA 71417

Residents of Grant Parish are asked to participate in a survey about public perceptions and opinions regarding natural hazards in the parish. The survey results will be used in the development of the plan. This short web-based survey can be found at the following link:

https://lsu.qualtrics.com/jfe/form/SV_cA3ljXArMSTfyx8

The Parish appreciates your input.

If you have questions, please contact the Grant 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 Grant Parish residents was conducted between April 2023 and October 2023. The survey was designed to capture public perceptions and opinions regarding natural hazards in Grant 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 October 24, 2023, there have been zero responses survey so therefore, no public input could be incorporated into this plan update. A link to the full Grant Parish survey can be found here: https://lsu.qualtrics.com/jfe/form/SV_cA3ljXArMSTfyx8

Outreach Activity #2: Public Meeting Activity - Incident Questionnaire

Date: October 24, 2023
Location: Public Meeting
Public Invitation: Yes

An incident/issue questionnaire was provided at the public meeting in an effort to collect additional information from residents of Grant 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 Grant Parish Hazard Mitigation Plan Public Review

Date: Ongoing
Location: SDMI Hazard Mitigation Website
Public Initiation: Yes

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

GRANT PARISH PUBLIC MEETING

PUBLIC ACTIVITY: INCIDENT/ ISSUE QUESTIONNAIRE

1. HAZARD TYPE(S):

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

2. DESCRIBE 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/DIDTHE INCIDENT OR ISSUE CAUSE? (BUSINESS CLOSURE,DAMAGE, EVACUATION, ETC.)

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

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

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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 Grant 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 the 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

Grant 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

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

- Ordinances, Resolutions, Regulations
- Floodplain Ordinances
- 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 Grant 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.). Specific to High Hazard Profile Dams, community officials and dam owners work very closely to ensure the structural integrity and mitigation efforts of any high hazard dams in the parish.

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

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

On behalf of the Town of Colfax, Village of Creola, Village of Dry Prong, Village of Georgetown, Town of Montgomery, Village of Pollock, and the Unincorporated areas of Grant 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:

Grant Parish

Comprehensive Master Plan	Updated as needed	Grant Parish Police Jury	✓
Capital Improvements Plan	Updated as needed	Grant Parish Police Jury	✓
Continuity of Operations Plan	Updated as needed	Grant Parish OHSEP	✓
Local Emergency Operations Plan	Updated as needed	Grant Parish OHSEP	✓
Transportation Plan	Updated as needed	Grant Parish OHSEP	✓
Economic Development Plan	Updated as needed	Grant Parish Police Jury	✓
Stormwater Management Plan	Updated as needed	Grant Parish Police Jury	✓
Community Wildfire Protection Plan	Updated as needed	Grant Parish OHSEP	✓

Town of Colfax

Local Emergency Operations Plan	Updated as needed	Town of Colfax Mayor's Office	✓

Village of Creola

Comprehensive Master Plan	Updated as needed	Village of Creola Mayor's Office	✓
Continuity of Operations Plan	Updated as needed	Village of Creola Mayor's Office	✓

Village of Dry Prong

Local Emergency Operations Plan	Updated as needed	Village of Dry Prong Mayor's Office	✓
Continuity of Operations Plan	Updated as needed	Village of Dry Prong Mayor's Office	✓

Village of Georgetown

Local Emergency Operations Plan	Updated as needed	Village of Georgetown Mayor's Office	✓

Town of Montgomery

Comprehensible Master Plan	Updated as needed	Town of Montgomery Mayor's Office	✓
Continuity of Operations Plan	Updated as needed	Town of Montgomery Mayor's Office	✓

Village of Pollock

Capital Improvement Plan	Updated as needed	Village of Pollock Mayor's Office	✓
Economic Development Plan	Updated as needed	Village of Pollock Mayor's Office	✓
Local Emergency Operations Plan	Updated as needed	Village of Pollock Mayor's Office	✓
Stormwater Management Plan	Updated as needed	Village of Pollock Mayor's Office	✓
Transportation Plan	Updated as needed	Village of Pollock Mayor's Office	✓
Continuity of Operations Plan	Updated as needed	Village of Pollock Mayor's Office	✓

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 Grant Parish Planning Area

Grant Parish Planning Area Critical Facilities											
Type	**Name**	**Drought**	**Flooding**	**Levee Failure**	**Thunderstorms**	**Tornadoes**	**Tropical Cyclones**	**Wildfires**	**Winter Weather**	**Latitude**	**Longitude**
Civil Government	Grant Parish Office of Emergency Preparedness	X			X	X	X	X	X	31.51758687	-92.70995741
	Grant Parish Courthouse	X			X	X	X		X	31.51646179	-92.71251011
	Colfax City Hall	X			X	X	X	X	X	31.52170563	-92.69924833
	Creola Village Hall	X			X	X	X		X	31.425723	-92.438828
	Dry Prong Village Hall	X			X	X	X		X	31.57706132	-92.5288586
	Georgetown Village Hall	X			X	X	X	X	X	31.7624849	-92.38346221
	Montgomery Town Hall	X			X	X	X	X	X	31.66613991	-92.89019064
	Pollock Town Hall	X			X	X	X	X	X	31.66613991	-92.89019064
Fire & SAR	Valdera Fire Department #1 - Main Station	X			X	X	X	X	X	31.69131271	-92.76352438
	Grant Parish Volunteer Fire Department District 4 - Station 1	X			X	X	X	X	X	31.76216562	-92.3834331
	Colfax Volunteer Fire Department Station No. 2	X			X	X	X	X	X	31.52155118	-92.69916011
	Grant Parish District 6 Hudson Creek Volunteer Fire Station	X			X	X	X		X	31.44663548	-92.53571791
	Grant Parish District 1 Bynum Volunteer Fire Station	X	X		X	X	X	X	X	31.47744989	-92.63994085
	Fire District 3 - Station No. 1	X			X	X	X	X	X	31.57739962	-92.52899622
	Grant Parish Fire Station #3	X			X	X	X		X	31.61610762	-92.62462455
	Grant Parish Fire Station #2	X			X	X	X		X	31.66702796	-92.56973757
	Fire District 3 - Station No. 4	X			X	X	X	X	X	31.57305245	-92.59881731
	Montgomery Volunteer Fire Department	X			X	X	X	X	X	31.66612179	-92.88993693
	Grant Parish District No. 1 Fire Station	X			X	X	X	X	X	31.614625	-92.77325747
	Grant VFD #5 - Station #1	X			X	X	X	X	X	31.52414082	-92.41937914

Law Enforcement	Catahoula Ranger Station	X			X	X	X		X	31.51290679	-92.46892333
	Grant Parish Sheriff's Office	X			X	X	X		X	31.51592839	-92.71225885
	Grant Parish Sheriff's Office Substation	X			X	X	X		X	31.51597388	-92.70487592
	Grant Parish Detention Facility	X	X		X	X	X	X	X	31.5200363	-92.69661609
	Colfax Police Department	X			X	X	X	X	X	31.52136316	-92.69901826
	Creola Police Department	X			X	X	X		X	31.425723	-92.438828
	Dry Prong Town Marshall	X			X	X	X	X	X	31.75968229	-92.38743191
	Georgetown Police Department	X			X	X	X	X	X	31.75968229	-92.38743191
	Montgomery Police Department	X			X	X	X	X	X	31.66618069	-92.89024501
	Pollock Police Department	X			X	X	X		X	31.52508234	-92.4061565
	Federal Correctional Complex	X			X	X	X		X	31.46754581	-92.44165452
Public Health	Grant Parish Health Unit	X			X	X	X	X	X	31.52465234	-92.68562376
Education	Colfax Elementary	X			X	X	X		X	31.51495514	-92.7108461
	Georgetown High	X			X	X	X	X	X	31.76050906	-92.38224438
	Grant Junior High	X			X	X	X	X	X	31.55586463	-92.52172369
	Grant High	X			X	X	X	X	X	31.55474926	-92.52127308
	Montgomery High	X			X	X	X	X	X	31.66789128	-92.89306657
	Pollock Elementary	X			X	X	X	X	X	31.5239719	-92.41370732
	South Grant Elementary	X			X	X	X		X	31.44628183	-92.52667124
	Verda Elementary	X			X	X	X	X	X	31.69925085	-92.77189863

Appendix D: Plan Adoption

Unincorporated Grant Parish

WILL UPDATE ONCE JURISDICTIONS FORMALLY ADOPT HMP AFTER FEMA REVIEW

Town of Colfax

Village of Creola

Village of Dry Prong

Village of Georgetown

Town of Montgomery

Village of Pollock

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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

Grant Parish Hazard Mitigation Planning Committee			
Name	**Title**	**Agency**	**Email**
Cade Fletcher	Deputy Director	Grant Parish OHSEP	fletcher@grantso.org
Mark Ball	President	Grant Parish Police Jury	gppj5ball@gmail.com
Don Arnold	District 8 Juror	Grant Parish Police Jury	don.arnold34@gmail.com
Cephas Bowie, Jr.	District 3 Juror	Grant Parish Police Jury	cbowiejr1953@gmail.com
Denise Guillot	Human Resources	Grant Parish Police Jury	
Garland Brosette	Mayor	Town of Colfax	
Delores LeBaron	Mayor	Town of Montgomery	
Tiffany Reitzell	Clerk	Village of Creola	
Nathan LaCombe	Chief	Village of Creola	
Lisa Locker	Clerk	Village of Dry Prong	
Danny Olden	Mayor	Village of Georgetown	
Jerome Scott	Mayor	Village of Pollock	

Capability Assessment

Unincorporated Grant Parish

Capability Assessment Worksheet - Unincorporated Grant 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	Yes	
Capital Improvements Plan	Yes	
Economic Development Plan	Yes	
Local Emergency Operations Plan	Yes	
Continuity of Operations Plan	Yes	
Transportation Plan	Yes	
Stormwater Management Plan	Yes	
Community Wildfire Protection Plan	Yes	
Other plans (redevelopment, recovery, coastal zone management)	N/A	
Building Code, Permitting and Inspections	**Yes/No**	**Comments**
Building Code	Yes	
Building Code Effectiveness Grading Schedule (BCEGS) Score	N/A	
Fire Department ISO/PIAL rating	Varies	
Site plan review requirements	Yes	
Land Use Planning and Ordinances	**Yes/No**	**Comments**
Zoning Ordinance	No	
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	N/A	

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

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

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	Yes	
Storm Ready certification	No	
Firewise Communities certification	No	
Public/Private partnership initiatives addressing disaster-related issues	No	
Other	N/A	

Town of Colfax

Capability Assessment Worksheet - Colfax		
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	
Continuity of Operations Plan	No	
Transportation Plan	No	
Stormwater Management Plan	No	
Community Wildfire Protection Plan	No	
Other plans (redevelopment, recovery, coastal zone management)	No	
Building Code, Permitting and Inspections	**Yes/No**	**Comments**
Building Code	Yes	
Building Code Effectiveness Grading Schedule (BCEGS) Score	No	
Fire Department ISO/PIAL rating	6	
Site plan review requirements	Yes	Rapides Planning Comm.
Land Use Planning and Ordinances	**Yes/No**	**Comments**
Zoning Ordinance	No	
Subdivision Ordinance	No	
Floodplain Ordinance	Yes	
Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)	No	
Flood Insurance Rate Maps	Yes	
Acquisition of land for open space and public recreation uses	No	
Other	N/A	

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

Financial		
Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.		
Funding Resource	**Yes/No**	**Comments**
Capital Improvements project funding	Yes	
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	LGAP, CWEF

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	Yes	
Other	N/A	

Village of Creola

Capability Assessment Worksheet – Creola		
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	
Capital Improvements Plan	No	
Economic Development Plan	No	
Local Emergency Operations Plan	No	
Continuity of Operations Plan	Yes	
Transportation Plan	No	
Stormwater Management Plan	No	
Community Wildfire Protection Plan	No	
Other plans (redevelopment, recovery, coastal zone management)	No	
Building Code, Permitting and Inspections	**Yes/No**	**Comments**
Building Code	No	
Building Code Effectiveness Grading Schedule (BCEGS) Score	No	
Fire Department ISO/PIAL rating	5	
Site plan review requirements	No	
Land Use Planning and Ordinances	**Yes/No**	**Comments**
Zoning Ordinance	No	
Subdivision Ordinance	No	
Floodplain Ordinance	No	
Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)	No	
Flood Insurance Rate Maps	No	
Acquisition of land for open space and public recreation uses	No	
Other	N/A	

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

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

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

Village of Dry Prong

Capability Assessment Worksheet – Dry Prong		
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	
Continuity of Operations Plan	Yes	
Transportation Plan	No	
Stormwater Management Plan	No	
Community Wildfire Protection Plan	No	
Other plans (redevelopment, recovery, coastal zone management)	No	
Building Code, Permitting and Inspections	**Yes/No**	**Comments**
Building Code	No	
Building Code Effectiveness Grading Schedule (BCEGS) Score	N/A	
Fire Department ISO/PIAL rating	4	
Site plan review requirements	No	
Land Use Planning and Ordinances	**Yes/No**	**Comments**
Zoning Ordinance	Yes	
Subdivision Ordinance	Yes	
Floodplain Ordinance	No	
Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)	No	
Flood Insurance Rate Maps	No	
Acquisition of land for open space and public recreation uses	Yes	
Other	N/A	

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

Financial		
Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.		
Funding Resource	**Yes/No**	**Comments**
Capital Improvements project funding	Yes	
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	LGAP, CWEF

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	Yes	
Storm Ready certification	No	
Firewise Communities certification	No	
Public/Private partnership initiatives addressing disaster-related issues	Yes	
Other	N/A	

Village of Georgetown

Capability Assessment Worksheet – Georgetown		
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	
Continuity of Operations Plan	No	
Transportation Plan	No	
Stormwater Management Plan	No	
Community Wildfire Protection Plan	No	
Other plans (redevelopment, recovery, coastal zone management)	No	
Building Code, Permitting and Inspections	**Yes/No**	**Comments**
Building Code	Yes	
Building Code Effectiveness Grading Schedule (BCEGS) Score	No	
Fire Department ISO/PIAL rating	Yes	
Site plan review requirements	yes	
Land Use Planning and Ordinances	**Yes/No**	**Comments**
Zoning Ordinance	No	
Subdivision Ordinance	No	
Floodplain Ordinance	No	
Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)	No	
Flood Insurance Rate Maps	No	
Acquisition of land for open space and public recreation uses	No	
Other	N/A	

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

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

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

Town of Montgomery

Capability Assessment Worksheet - Montgomery		
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	
Capital Improvements Plan	No	
Economic Development Plan	No	
Local Emergency Operations Plan	No	
Continuity of Operations Plan	Yes	
Transportation Plan	No	
Stormwater Management Plan	No	
Community Wildfire Protection Plan	No	
Other plans (redevelopment, recovery, coastal zone management)	No	
Building Code, Permitting and Inspections	**Yes/No**	**Comments**
Building Code	No	
Building Code Effectiveness Grading Schedule (BCEGS) Score	No	
Fire Department ISO/PIAL rating	6	
Site plan review requirements	No	
Land Use Planning and Ordinances	**Yes/No**	**Comments**
Zoning Ordinance	No	
Subdivision Ordinance	No	
Floodplain Ordinance	Yes	
Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)	No	
Flood Insurance Rate Maps	Yes	
Acquisition of land for open space and public recreation uses	No	
Other	no	

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

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

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		

Village of Pollock

Capability Assessment Worksheet - Pollock		
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	Yes	
Local Emergency Operations Plan	Yes	
Continuity of Operations Plan	Yes	
Transportation Plan	Yes	
Stormwater Management Plan	Yes	
Community Wildfire Protection Plan	No	
Other plans (redevelopment, recovery, coastal zone management)	No	
Building Code, Permitting and Inspections	**Yes/No**	**Comments**
Building Code	Yes	
Building Code Effectiveness Grading Schedule (BCEGS) Score	Yes	
Fire Department ISO/PIAL rating	4	
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	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	Rapides Planning Comm.
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	Pan American Engineers
GIS Coordinator	No	
Grant Writer	Yes	
Other	No	
Technical	**Yes/No**	**Comments**
Warning Systems / Service (Reverse 911, outdoor warning signals)	No	
Hazard Data & Information	No	
Grant Writing	Yes	
Hazus Analysis	No	
Other	No	

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

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

Building Inventory

Grant Parish and Jurisdiction Owned Building Information								
Unincorporated Grant Parish								
Name of Building	Purpose of Building	Address	City	Latitude	Longitude	Assessed Value	Date Built	Construction Type
Grant Parish VFD #1 - Main Station	Fire Search and Rescue	123 Firehouse Road	Atlanta	31.69131271	-92.76352438	300,000	1960s	Metal
West Grant Water Office	Civil Government	2900 La Hwy 122	Atlanta	31.6906366	-92.76157505	125,000	2008	Metal
Catahoula Ranger Station	Law Enforcement	5325 La Hwy 8	Bentley	31.51290679	-92.46892333	Unknown (Federal)	1990s	Reinforced Masonry
Grant Parish District 4 Fire Station #1	Fire Search and Rescue	3435 U.S. 165	Georgetown	31.76216562	-92.3834331	30,000	1970s	Metal
Colfax Volunteer Fire Department Station No. 2	Fire Search and Rescue	401 Richardson Drive	Colfax	31.52155118	-92.69916011	45,000	1970s	Reinforced Masonry
Grant Parish District 6 Hudson Creek Volunteer Fire Station	Fire Search and Rescue	848 Hudson Creek Road	Colfax	31.44663548	-92.53571791	45,000	1980s	Metal
Grant Parish District 1 Bynum Volunteer Fire Station	Fire Search and Rescue	1250 LA Hwy 492	Colfax	31.47744989	-92.63994085	65,000	1980s	Metal
Colfax Elementary School	Education	250 3rd Street	Colfax	31.51532571	-92.71095649	3,000,000	1940s	Reinforced Masonry
Grant Parish Office of Emergency Preparedness	Emergency Operations Center	506 Main Street	Colfax	31.51758687	-92.70995741	95,000	1970s	Reinforced Masonry
Grant Parish Sheriff's Office	Law Enforcement	205 Cypress Street	Colfax	31.51592839	-92.71225885	2,000,000	2000	Reinforced Masonry
Grant Parish Sheriff's Office	Law Enforcement	220 Cedar Street	Colfax	31.51620327	-92.71217017	175,000	1983	Reinforced Masonry
Grant Parish Detention Facility	Prisons and Correctional Facilities	485 Richardson Drive	Colfax	31.5200363	-92.69661609	5,000,000	2005	Concrete
Grant Parish Courthouse	Civil Government	200 Main Street	Colfax	31.51646179	-92.71251011	10,000,000	1953	Reinforced Masonry
Grant Parish School Board Pupil Appraisal Services	Civil Government	608 Main Street	Colfax	31.51822301	-92.70854793	1,500,000	1980s	Reinforced Masonry

Grant Parish School Board Professional Development Center	Civil Government	608 Main Street	Colfax	31.51803412	-92.70894707	500,000	1980s	Reinforced Masonry
Grant Parish School Board	Civil Government	600 Main Street	Colfax	31.51778109	-92.70939255	5,000,000	1970s	Reinforced Masonry
Grant Parish Consolidated Gas Districts Office	Civil Government	506 Main Street	Colfax	31.51764032	-92.70999305	1,000,000	1960s	Reinforced Masonry
Grant Parish Office of Flood Zone Permits	Civil Government	211 Main Street	Colfax	31.51753341	-92.7099289	1,000,000	1960s	Reinforced Masonry
Grant Parish Council on Aging	Civil Government	706 Maple St	Colfax	31.51552442	-92.70596512	300,000	1990s	Metal
Grant Parish Health Unit	Health Services	340a Webb Smith Drive	Colfax	31.52465234	-92.68562376	3,000,000	1980s	Reinforced Masonry
Fire District 3 - Station No. 1	Fire Search and Rescue	751 2nd Street	Dry Prong	31.57739962	-92.52899622	45,000	1970s	Steel
Grant Parish Fire Station #3	Fire Search and Rescue	705 Russell Hataway Drive	Dry Prong	31.61610762	-92.62462455	45,000	1970s	Steel
Grant Parish Fire Station #2	Fire Search and Rescue	171 Military Road	Dry Prong	31.66702796	-92.56973757	45,000	1970s	Steel
Fire District 3 - Station No. 4	Fire Search and Rescue	105 Richardson Loop	Dry Prong	31.57302422	-92.59898038	45,000	1970s	Steel
Grant High School	Education	17771 U.S. 167	Dry Prong	31.5545899	-92.52079031	50,000,000	1960s	Reinforced Masonry
Grant Junior High School	Education	17763 U.S. 167	Dry Prong	31.55582965	-92.52141018	30,000,000	2009	Reinforced Masonry
South Grant Elementary School	Education	1000 La Hwy 1241	Dry Prong	31.44627727	-92.5266326	30,000,000	1990s	Reinforced Masonry
Georgetown High School	Education	4528 La Hwy 500	Georgetown	31.760583	-92.38214807	15,000,000	1950s	Reinforced Masonry
Grant Parish Housing Authority Office	Multi Family Dwelling	1370 La Hwy 3098	Georgetown	31.764348	-92.387182	Unknown (Federal)	1990s	Reinforced Masonry
Montgomery Volunteer Fire Department	Fire Search and Rescue	631 Woodland Street	Montgomery	31.66612179	-92.88993693	75,000	1970S	Metal
Grant Parish District No. 1 Fire Station	Fire Search and Rescue	102 Hall Subdivision Road	Montgomery	31.614625	-92.77325747	75,000	1970S	Metal
Montgomery High School	Education	900 Harrison Drive	Montgomery	31.66802018	-92.89302988	15,000,000	1960S	Reinforced Masonry
Verda Elementary School	Education	2580 La Hwy 122	Montgomery	31.69926976	-92.77194056	10,000,000	1950S	Metal

Name of Building	Purpose of Building	Address	City	Latitude	Longitude	Assessed Value	Date Built	Construction Type
Grant VFD #5 - Station #1	Fire Search and Rescue	2623 La Hwy 8	Pollock	31.52414082	-92.41937914	125,000	1970s	Metal
Pollock Elementary School	Education	4001 La Hwy 8	Pollock	31.52400076	-92.41366253	10,000,000	1960s	Reinforced Masonry
Grant Walker 4-H Education Center	Education	3000 La Hwy 8	Pollock	31.52026519	-92.37535692	Unknown (State)	Unknown	Reinforced Masonry
Town of Colfax								
Name of Building	**Purpose of Building**	**Address**	**City**	**Latitude**	**Longitude**	**Assessed Value**	**Date Built**	**Construction Type**
Colfax City Hall	Civil Government	1208 Main Street	Colfax	31.52170563	-92.69924833	1,500,000	1970s	Metal
Landfill	Civil Government	1145 Landfill Road	Colfax	31.62329443	-92.58297573	100,000	1980s	Metal
Colfax Police Department	Law Enforcement	1208 Main Street	Colfax	31.52136316	-92.69901826	65,000	1970s	Metal
Village of Creola								
Name of Building	**Purpose of Building**	**Address**	**City**	**Latitude**	**Longitude**	**Assessed Value**	**Date Built**	**Construction Type**
Creola Town Hall	Civil Government	241 Grays Creek Road	Dry Prong	31.425723	-92.438828	30,000	2010	Metal
Creola Police Department	Law Enforcement	241 Grays Creek Road	Dry Prong	31.425723	-92.438828	25,000	2010	Metal
Village of Dry Prong								
Name of Building	**Purpose of Building**	**Address**	**City**	**Latitude**	**Longitude**	**Assessed Value**	**Date Built**	**Construction Type**
Dry Prong Town Hall	Civil Government	607 Russell Hataway Street	Dry Prong	31.57706132	-92.5288586	125,000	1960s	Wood
Dry Prong Town Marshall	Law Enforcement	607 Elm Street	Dry Prong	31.57692658	-92.52886092	60,000	1960s	Wood
Village of Georgetown								
Name of Building	**Purpose of Building**	**Address**	**City**	**Latitude**	**Longitude**	**Assessed Value**	**Date Built**	**Construction Type**
Georgetown Police Department	Law Enforcement	4570 La Hwy 500	Georgetown	31.75968229	-92.38743191	1,000,000	2012	Steel
Village of Georgetown Town Hall	Civil Government	4570 La Hwy 500	Georgetown	31.7624849	-92.38346221	Same as Above	2012	Steel
Village of Georgetown Mayor's Office	Civil Government	4570 La Hwy 500	Georgetown	31.75970839	-92.387458	Same as Above	2012	Steel
Town of Montgomery								

Name of Building	Purpose of Building	Address	City	Latitude	Longitude	Assessed Value	Date Built	Construction Type
Montgomery Police Department	Law Enforcement	625 Woodland Street	Montgomery	31.66618069	-92.89024501	75,000	1960S	Wood
Montgomery Town Hall	Civil Government	625 Woodland Street	Montgomery	31.66613991	-92.89019064	200,000	1960S	Wood
Montgomery Family Clinic	Primary Care	641 Rowena Street	Montgomery	31.66521255	-92.89028882	300,000	1970S	Reinforced Masonry
Town of Pollock								
Name of Building	**Purpose of Building**	**Address**	**City**	**Latitude**	**Longitude**	**Assessed Value**	**Date Built**	**Construction Type**
Pollock Police Department	Law Enforcement	3813 Patterson Street	Pollock	31.52508234	-92.4061565	75,000	1970s	Reinforced Masonry
Federal Correctional Complex	Prisons and Correctional Facilities	1000 Airbase Road	Pollock	31.46754581	-92.44165452	Unknown (Federal)	1990s	Reinforced Masonry
Pollock Area Water System Office	Civil Government	130 Louisiana 3130	Pollock	31.45362386	-92.40729801	50,000	1980s	Metal
Pollock Municipal Airport	Transportation	1700 Airbase Road	Pollock	31.47688188	-92.46115076	500,000	1970s	Metal
Pollock Municipal Building	Civil Government	3911 La Hwy 8	Pollock	31.52445157	-92.40998096	1,500,000	2013	Reinforced Masonry

Vulnerable Populations

Vulnerable Populations Worksheet - Grant Parish					
All Hospitals (Private or Public)					
Name	**Street**	**City**	**Zip Code**	**Latitude**	**Longitude**
Grant Community Health Center	340 Webb Smith Dr	Colfax	71417	31.52465234	-92.68562376
Nursing Homes (Private or Public)					
Name	**Street**	**City**	**Zip Code**	**Latitude**	**Longitude**
Colfax Reunion	Nearby: Webb Smith Road	Colfax	71417	31.5238207	-92.6856893
Woods Haven	Nearby: Kisatchie National Forest	Pollock	71467	31.5145595	-92.40832748
Mobile Home Parks					
Name	**Street**	**City**	**Zip Code**	**Latitude**	**Longitude**
Horizon Homes	Nearby: Kisatchie National Forest	Bently	71423	31.44988672	-92.48853944
Triangle Mobile Homes	2606 Hwy 28 East	Prospect	71360	31.44812415	-92.50572558
Unkown	Nearby: 1101 Louisiana 1241	Prospect	71423	31.44746972	-92.52640619
Williana R.V. Park & Campground	Nearby: Kisatchie National Forest	Williana	71423	31.66709722	-92.56704809
Unkown Trailer Park	Nearby: 210-222 8th Street	Colfax	71417	31.51671171	-92.70513882
Unkown Trailer Park	Nearby: 501 Louise Street	Colfax	71417	31.52172794	-92.71102691
Riverside RV Park	Nearby: 1015-1023 Pecan Lane	Colfax	71417	31.52259248	-92.713183
Colfax Housing Authority	Nearby: 401-407 Horseshoe Drive	Colfax	71417	31.52269101	-92.70111715
Colfax Housing Authority	Nearby: 120-130 Hud Loop	Colfax	71417	31.52573056	-92.70245975
Colfax Housing Authority	Nearby: 101-199 Park Lane	Colfax	71417		
Colfax RV Park	150 Control House	Colfax	71417	31.52668233	-92.72361821
Pake's Lakewood Retreat & RV Park	Nearby: 444-454 Lacour	Colfax	71417	31.4430259	-92.67653059
Country Living Estates		Dry Prong	71423		
Grant Parish Housing Authority Office	1370 Highway 3098	Georgetown	71432	31.76486786	-92.38853916
Grant Parish Housing Authority Apartments	Nearby: 4000-4046 Highway 3098	Georgetown	71432	31.76468308	-92.38766673
Unkown RV Park	Nearby: 3811-3829 U.S. 71	Montgomery	71454	31.60707638	-92.80162572
Unkown RV Park	Nearby: Whispering Pine	Montgomery	71454	31.64495845	-92.85476456
Montgomery RV Park	500 Old Jefferson Highway	Montgomery	71454	31.66449313	-92.90183547
Traders Rendezvous RV Camp	5926 Louisiana 8	Pollock	71407	31.51793281	-92.49174459

White Acres RV Park	8611 U.S. 165	Pollock	71467	31.49855558	-92.40551275
Family & Friends RV Park	6017 Old Boyce Road	Pollock	71409	31.46364377	-92.42617349
Rolling Hills RV Resort	9552 U.S. 165	Pollock	71467	31.46516099	-92.4102103
Magnolia Mobile Home Park	Circle Oak St	Pollock	71467		
Pecan Wood Mobile Home Park	Ludlow/Harvey St	Pollock	71467		
Scott Mobile Home Park	Scott Loop	Pollock	71467		

National Flood Insurance Program (NFIP)

National Flood Insurance Program							
	Grant Parish	Colfax	Creola	Dry Prong	Georgetown	Montgomery	Pollock
Insurance Summary							
How many NFIP polices are in the community? What is the total premium and coverage?	# of Policies: 110; Total Premiums: $60,748; Total Coverage: $19,939,000	# of Policies: 31; Total Premiums: $12,055; Total Coverage: $6,512,000	***Jurisdiction does not participate in the NFIP***	***Jurisdiction does not participate in the NFIP***	***Jurisdiction does not participate in the NFIP***	# of Policies: 0; Total Premiums: $0; Total Coverage: $0	# of Policies: 1; Total Premiums: $634; Total Coverage: $204,000
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: 471; Total amount of paid claims: $5,091,714; Substantial Damage: 131	# of paid claims: 20; Total amount of paid claims: $275,089; Substantial Damage: 2				# of paid claims: 0; Total amount of paid claims: $0; Substantial Damage: 0	# of paid claims: 43; Total amount of paid claims: $321,682; Substantial Damage: 13
How many structures are exposed to flood risk with in the community?							
Describe any areas of flood risk with limited NFIP policy coverage.							
Staff Resources							
Is the Community FPA or NFIP Coordinator certified?			***Jurisdiction does not participate in the NFIP***	***Jurisdiction does not participate in the NFIP***	***Jurisdiction does not participate in the NFIP***		
Is flood plain management an auxiliary function?							
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability)							
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	***Jurisdiction does not participate in the NFIP***	***Jurisdiction does not participate in the NFIP***	***Jurisdiction does not participate in the NFIP***	Yes	Yes
Are there any outstanding compliance issues(i.e., current violations)?	No	No				No	No

When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact(CAC)?	**CAV:** 03/15/2022; **CAC:** 05/09/2016	**CAV:** 01/24/2007; **CAC: 12**/15/2003				**CAV:** 01/12/2009; **CAC:** 05/15/2007	**CAV:** 01/12/2009; **CAC:** 03/26/2004
Is a CAV or CAC scheduled or needed? If so when?							
Regulation							
When did the community enter the NFIP?	**E** = 05/07/1973; **R** = 03/01/1987	**E** = 05/21/1973; **R** = 09/05/1979	***Jurisdiction does not participate in the NFIP***	***Jurisdiction does not participate in the NFIP***	***Jurisdiction does not participate in the NFIP***	**E** = 03/06/1979; **R** = 05/04/1982	**E** = 08/14/1978; **R** = 05/25/1982
Are the FIRMs digital or paper?	Digital	Digital				Digital	Digital
When did the communities adopt the FIRMs?	6/16/2016	6/16/2016				6/16/2016	6/16/2016
Do floodplain development regulations meet or exceed FEMA or State minimum requirements? If so, in what ways?	Meets	Meets				Meets	Meets
Community Rating System (CRS)							
Does the community participate in CRS?	No	No	***Jurisdiction does not participate in the NFIP***	***Jurisdiction does not participate in the NFIP***	***Jurisdiction does not participate in the NFIP***	No	No
What is the community's CRS Class Ranking?	N/A	N/A				N/A	N/A
Does the plan include CRS planning requirements?							