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PARISH HAZARD MITIGATION UPDATE - 2016

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GRANT PARISH

HAZARD MITIGATION PLAN UPDATE

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Grant Parish

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ACKNOWLEDGMENTS

This 2016 Grant Parish Hazard Mitigation Plan Update was coordinated by the Grant Parish Hazard Mitigation Plan Update Steering Committee, in collaboration with the participating jurisdictions as well as community stakeholders and the general public. The participating jurisdictions are made up of the following communities:

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

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

Cade Fletcher	Director	Grant Parish OEP
Steven McCain	Sheriff	Grant Parish Sheriff's Office
Ossie Clark	Mayor of Colfax	Town of Colfax
Danny Moore	Mayor of Creola	Village of Creola
John L. Landry	Mayor of Dry Prong	Village of Dry Prong
Danny Olden	Mayor of Georgetown	Village of Georgetown
Vera Waters	Mayor of Montgomery	Town of Montgomery
Jerome Scott	Mayor of Pollack	Town of Pollack

The 2016 Grant Parish Hazard Mitigation Plan Update was written by the Stephenson Disaster Management Institute, Louisiana State University. Further comments should be directed to the Grant Parish Office of Homeland Security and Emergency Preparedness: 503 Main St., Colfax, LA, 71417.

Contents

1. Introduction

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

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

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

- Unincorporated 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 and Rita 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.

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

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

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

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

Location, Demography, and Economy

Location

Grant Parish is located between Alexandria and Monroe in central Louisiana. Little River forms the watery eastern border with LaSalle Parish. On the west, Red River forms the border with Natchitoches and Rapides Parishes. To the north is Winn Parish and to the south is Rapides Parish. Kisatchie National Forest encompasses sixty percent of Grant Parish. Grant Parish consists of an area of 645 square miles, or 412,798 acres.

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

The main transportation arteries through Grant Parish are Interstate I-49, U.S. Highways 71, 165, 167, and State Highways 8, 122, 123, 158, and 471. Interstate I-49 runs just south of Grant Parish in Rapides Parish, but is easily accessed via U.S. Highway 71, 167, 165, or State Highway 8. The parish is divided into thirds by U.S. Highways 71, 167, and 165, all of which run north and south. U.S. Highway 71 is on the west side of the parish, U.S. Highway 167 runs through the middle of the parish, and U.S. Highway 165 runs on the east side of the parish. State Highway 122 connects Montgomery to Dry Prong in the northwest portion of the parish.

State Highway 8 connects I-49 with the rest of the parish and runs east and west through the bottom portion of the parish. State Highway 123 runs from Colfax through Dry Prong in the middle of Kisatchie National Forest.

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 175 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 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.

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

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

Figure 1-2: Louisiana Homeland Security Regions

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

	2010 Census	2013 Census	(Current Yr) Estimate	Percent Change 2010 -2013	Percent Change 2010 -(Current Year)
Total Population	22,309	22,351	22,384	0.19%	0.34%
Population Density (Pop/Sq. Mi.)	34.7	___	___	___	___
Total Households	7,340	7,340	___	___	___

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: Business Patterns in Grant Parish
(Source: http://censtats.census.gov/cgi-bin/cbpnaic/cbpsect.pl)

Business Description	Number of Employees	Number of Establishments	Annual Payroll ($1,000)
Retail Trade	246	29	6,548
Manufacturing	250-499	11	___
Health Care and Social Assistance	244	15	5,550
Mining, Quarrying, Oil and Gas Extraction	0-19	4	230
Transportation and Warehousing	21	7	1,365
Construction	138	22	4,482
Administration and Support and Waste Management and Remediation Services	20-99	6	___
Real Estate and Rental and Leasing	20-99	3	___
Wholesale Trade	100-249	1	___
Other Services (except Public Administration)	100-249	27	1,369
Accommodation and Food Services	28	5	414
Financial and Insurance	67	12	2,349
Professional, Scientific, and Technical Services	0-19	5	___
Information	20-99	6	___
Arts, Entertainment, and Recreation	250-499	1	___
Agriculture, Forestry, Fishing and Hunting	55	8	1,805
Utilities	32	9	747

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

Hazard Mitigation

To fully understand hazard mitigation efforts in 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 before a disaster event.
- **Disaster Response**—includes actions taken to provide emergency assistance, save lives, minimize property damage, and speed recovery immediately following a disaster.
- **Disaster Recovery**—includes actions taken to return to a normal or improved operating condition following a disaster.

Figure 1-3 illustrates the basic relationship between these phases of emergency management. While hazard mitigation may occur both before and after a disaster event, it is significantly more effective when implemented before an event occurs. This is one of the key elements of this plan and its overall strategy: reduce risk before disaster strikes in order to minimize the need for post-disaster response and recovery.

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

Figure 1-3: The Four Phases of Emergency Management and their Relation to Future Hazard Mitigation
(Source: Louisiana State Hazard Mitigation Plan 2014)

Unfortunately, this cycle can be painful for a community. For instance, the risks of disasters that could create catastrophic incidents in Louisiana were thought to be relatively well-understood prior to 2005. However, the impact of the 2005 hurricane season on the Gulf Coast region of the United States prompted a new level of planning and engagement related to disaster response, recovery, and hazard mitigation. Hurricanes Katrina and Rita hit three weeks apart and together caused astonishing damage to human life and to property. The two storms highlighted a hurricane season that spawned 28 storms—unparalleled in American history. The 2005 hurricane season confirmed Louisiana's extreme exposure to natural disasters and both the positive effects and the concerns resulting from engineered flood-protection solutions.

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

General Strategy

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

Part of the ongoing integration process is that GOHSEP encourages the parishes and the local municipalities with independent hazard mitigation plans to utilize the same plan format and methodologies as the State Hazard Mitigation Plan in order to create continuity of information from local to state mitigation plans and programs.

The 2016 Grant Parish Hazard Mitigation Plan maintains much of the information from the 2006 and 2011 plan versions, but it now reflects the order and methodologies of the 2011 Louisiana State Hazard Mitigation Plan. The sections in the 2011 Grant Hazard Mitigation Plan were as follows:

- Section One Introduction
- Section Two Parish Profile
- Section Three Planning Process
- Section Four Risk Assessment
- Section Five Mitigation Strategy
- Section Six Plan Maintenance Procedures
- Section Seven Action Plan
- Tables
- Appendices
- Original Maps
- Updated Maps

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

2016 Plan Update

This 2016 plan update proceeds with the previous goals of the Grant Parish Hazard Mitigation Plan. The current goals are as follows:

- Reduce exposure to damage from flooding
- Ensure the delivery of critical services to the residents of Grant Parish before, during, and after a hazard event
- Guide development and enhance structures and infrastructures to reduce the impact of hazard events
- 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 Spatial Hazard Events and Losses Database for the United States (SHELDUS) was used as a data source for hazard identification because it incorporates all storm event data from the National Climatic Data Center (NCDC) Storm Events Database used in previous plans, as well as storm event data from other sources including the NOAA Storm Prediction Center, National Hurricane Center, and U.S. Fire Administration. Furthermore, all of the sections were updated to reflect the most current information and the most current vision of the plan update. Second, instead of eleven, separate sections for numerous tables, maps, and appendices, the present plan update has four sections and five appendices. The most significant changes are the newly developed hazard profiles and risk assessments, as well as the removal of repetition between sections from the previous plan updates. The 2016 plan update is organized generally as follows:

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

Table 1-4: Plan Crosswalk

2011 Plan	Revised Plan (2016)
Section 1: Introduction	Section 1: Introduction
Section 2: Parish Profile	Section 1: Introduction
Section 3: Planning Process	Appendix A: Planning Process
Section 4: Risk Assessment	Section 2: Hazard Identification and Risk Assessment, Section 3: Capability Assessment
Section 5: Mitigation Strategy	Section 4: Mitigation Strategy
Section 6: Plan Maintenance Procedures	Appendix B: Plan Maintenance
Section 7: Action Plan	Section 4: Mitigation Strategy
Appendices	Appendices

Despite changes in this plan update, the plan remains consistent in its emphasis on the few types of hazards that pose the most risk to loss of life, injury, and property in 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

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

The table below provides an overview of the hazards that had been previously profiled in the Grant Parish Hazard Mitigation Plan published in 2011, as well as the hazards that were identified in the state's 2014 Hazard Mitigation Plan that were considered to be of high or medium risk for the parish by the state. Those hazards identified as high or medium risk by the state or previously identified as a risk by the parish, have been determined to provide a risk to the parish and will be profiled in this section.

Table 2-1: Hazard Profile Summary

Hazard	Profiled in Last Plan	Considered Medium or High Risk in the State's HM Plan	Profiled in the 2016 Update
Subsidence/Coastal Land Loss			
Drought	X		X
Earthquakes			
Expansive Soils			
Fog			
Flooding	X	X	X
Extreme Heat			
Sinkholes			
Thunderstorms (Hail, Lightning, & Wind)	X	X	X
Tornadoes	X	X	X
Tropical Cyclones	X	X	X
Tsunamis			
Wildfires	X		X
Winter Storms	X		X
Dam Failure	*		
Levee Failure	*		X

* Hazard was discounted in previous update

Prevalent Hazards to the Community

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

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

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

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

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

The potential destructive power of tropical cyclones and flooding were determined to be the most prevalent hazards to the parish. Fourteen of the nineteen Presidential Declarations Grant Parish has received resulted from either tropical cyclones (6 declarations) or flooding (8 declarations), which validates these as the most significant hazards. Therefore, the issues of hurricanes and floods will both serve as the main focus during the mitigation planning process. Hurricanes present risks from the potential for flooding, primarily resulting from storm surge, and high wind speeds. While storm surge is considered the hazard with the most destructive potential, the risk assessment will also asses non-storm surge flooding as well. Flooding can also occur from non-hurricane events, as flash floods are a common occurrence due to heavy rainfall.

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

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

Previous Occurrences

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

Table 2-2: Grant Parish Major Disaster Declarations

Disaster Declaration Number	Date	Type of Disaster
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 Cyclone - 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

Probability of Future Hazard Events

The probability of a hazard event occurring in Grant Parish is estimated in the table on the following page. The percent chance of an event happening during any given year was calculated by posting past events and dividing by the time period. Unless otherwise indicated, the time period used to access probability followed the method used in the State of Louisiana's most current Hazard Mitigation Plan. The primary source for historical data used throughout the plan is the Spatial Hazards Events and Losses Database (SHELDUS), which provides historical hazard data from 1960 to 2014. In staying consistent with the state plan, the SHELDUS database was evaluated for the last twenty-five years (1990 – 2015) in order to determine future probability of a hazard occurring. While the 25-year record used by the State was adopted for the purpose of determining the overall probability, in order to assist with determining estimated losses, unless otherwise stated, the full 54-year record was used when Hazus-Multi-Hazard (MH) wasn't available to determine losses. This full record was used to provide a more extensive record to determine losses. All assessed damages were adjusted for inflation in order to reflect the equivalent amount of damages with the value of the U.S. dollar today. In addition, the National Climatic Data Center (NCDC) was also used to help identify hazard data specific to the municipalities. This was used due to it containing specific data for cities, whereas the data within SHELDUS is limited to parishes.

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

Table 2-3: Probability of Future Hazard Reoccurrence

Hazard	Probability						
	Grant Parish (Unincorporated)	Colfax	Creola	Dry Prong	Georgetown	Montgomery	Pollock
Drought	4%	4%	4%	4%	4%	4%	4%
Flood	16%	20%	4%	16%	4%	20%	12%
Thunderstorms (Hail)	40%	40%	40%	40%	40%	40%	40%
Thunderstorms (Lightning)	12%	12%	12%	12%	12%	12%	12%
Thunderstorms (Wind)	100%	100%	100%	100%	100%	100%	100%
Tornadoes	16%	16%	16%	16%	16%	16%	16%
Tropical Cyclones	16%	16%	16%	16%	16%	16%	16%
Wildfires	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Winter Storms	44%	44%	44%	44%	44%	44%	44%
Levee Failure	8%	8%	<1%	<1%	<1%	8%	<1%

As shown in *Table 2-3*, thunderstorm winds for the entire planning area, have the highest annual chance of occurrence in the parish (100%). Winter storms have a 44% annual chance of occurrence, followed by hail at 40%, and flooding for the incorporated areas of Montgomery and Colfax at 20%. Flood events in the remaining incorporated areas have a slightly lower chance of occurring annually. Tornadoes and tropical cyclones have an annual chance of occurrence of 16%, followed by levee failure for Unincorporated Grant Parish and the incorporated areas of Colfax and Montgomery at 8%, drought at 4% and wildfires at less than 1%. Levee Failure for the incorporated areas of Creola, Dry Prong, Georgetown, and Pollock also have a less that 1% chance of occurrence.

Inventory of Assets for the Entire Parish

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

Within the entire planning area, there is an estimated value of $2,646,134,000 in structures throughout the parish. The tables on the following page provide the total estimated value for each type of structure by occupancy.

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

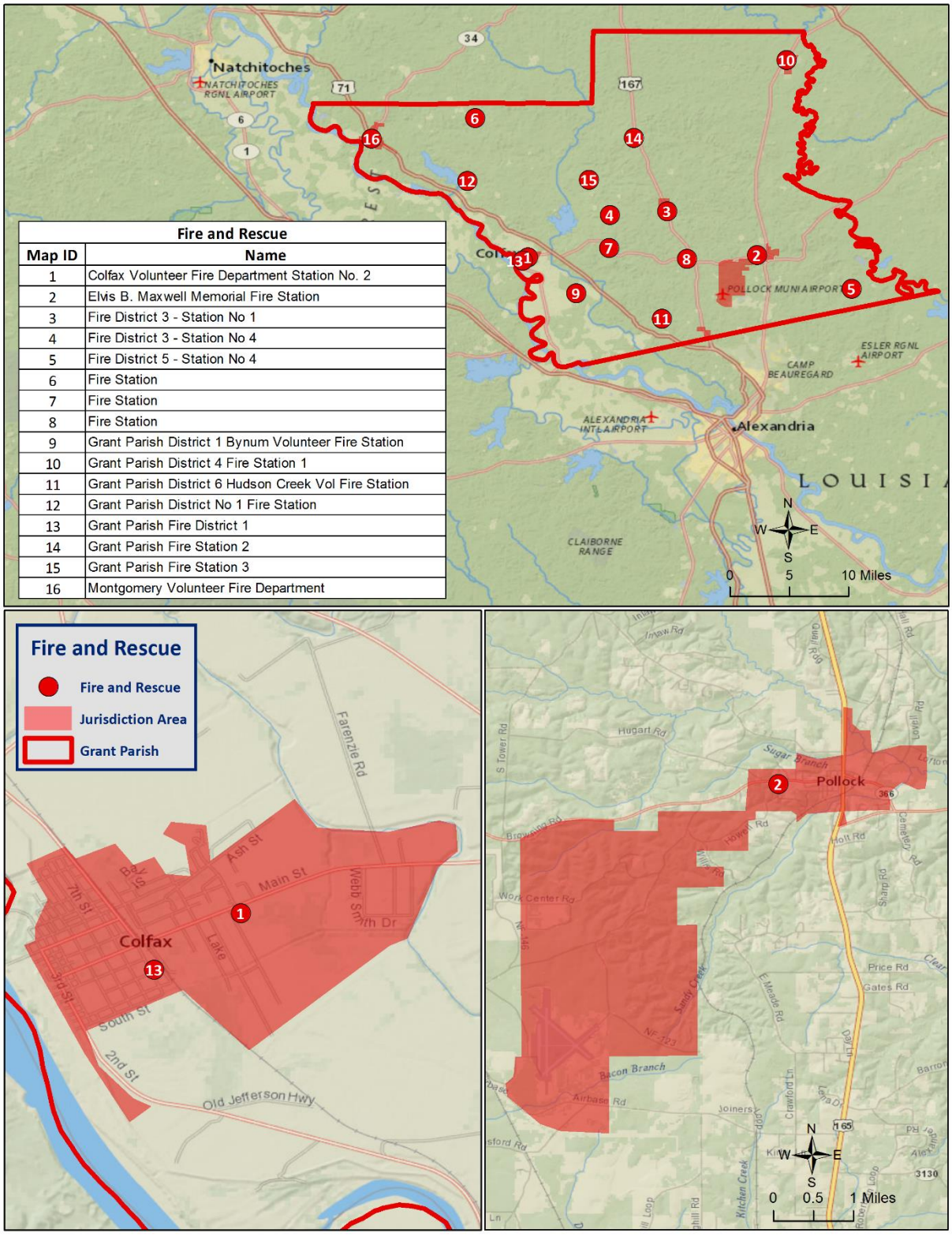
Occupancy	Grant Parish	Unincorporated Grant	Colfax	Creola
Agricultural	$8,916,000	$8,224,000	$546,000	$38,000
Commercial	$138,059,000	$92,735,000	$25,996,000	$0
Government	$32,518,000	$15,890,000	$6,189,000	$6,000
Industrial	$80,213,000	$64,494,000	$14,645,000	$0
Religion	$84,142,000	$52,736,000	$15,172,000	$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 2-4: Estimated Total of Potential Losses (Continued)

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

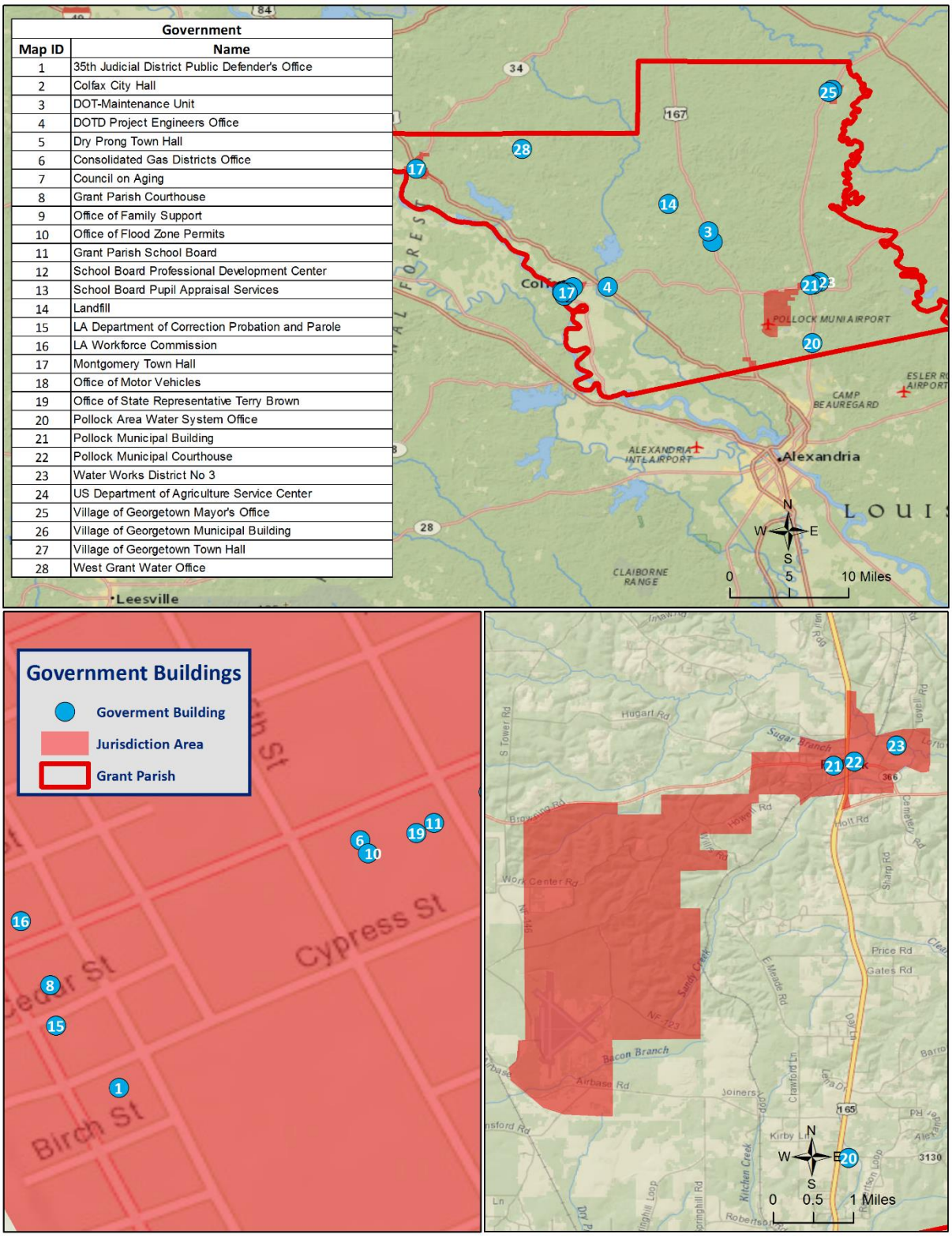
Essential Facilities of the Parish

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



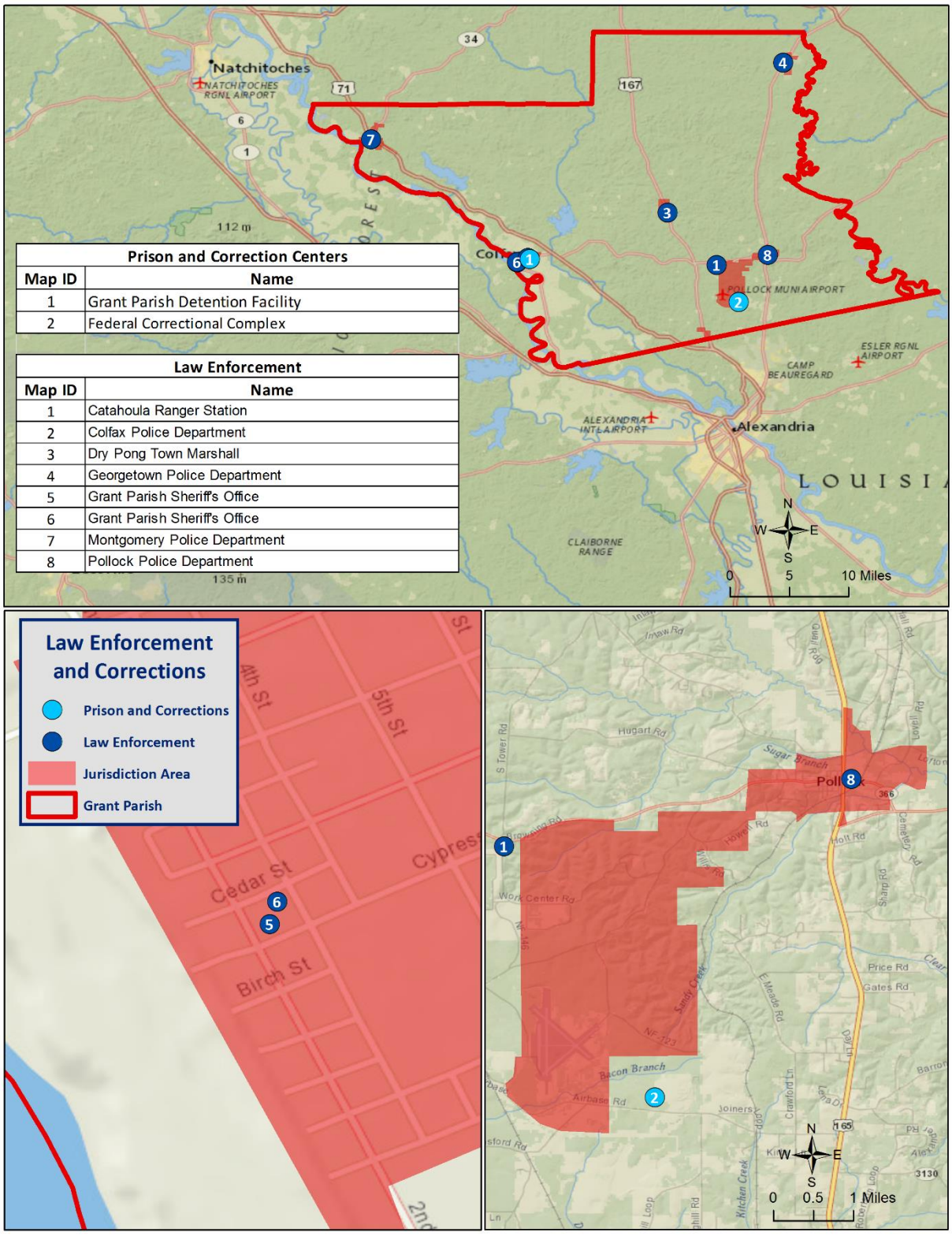
Fire and Rescue	
Map ID	Name
1	Colfax Volunteer Fire Department Station No. 2
2	Elvis B. Maxwell Memorial Fire Station
3	Fire District 3 - Station No 1
4	Fire District 3 - Station No 4
5	Fire District 5 - Station No 4
6	Fire Station
7	Fire Station
8	Fire Station
9	Grant Parish District 1 Bynum Volunteer Fire Station
10	Grant Parish District 4 Fire Station 1
11	Grant Parish District 6 Hudson Creek Vol Fire Station
12	Grant Parish District No 1 Fire Station
13	Grant Parish Fire District 1
14	Grant Parish Fire Station 2
15	Grant Parish Fire Station 3
16	Montgomery Volunteer Fire Department

Figure 2-1: Fire and Rescue Buildings in Grant Parish



Government	
Map ID	Name
1	35th Judicial District Public Defender's Office
2	Colfax City Hall
3	DOT-Maintenance Unit
4	DOTD Project Engineers Office
5	Dry Prong Town Hall
6	Consolidated Gas Districts Office
7	Council on Aging
8	Grant Parish Courthouse
9	Office of Family Support
10	Office of Flood Zone Permits
11	Grant Parish School Board
12	School Board Professional Development Center
13	School Board Pupil Appraisal Services
14	Landfill
15	LA Department of Correction Probation and Parole
16	LA Workforce Commission
17	Montgomery Town Hall
18	Office of Motor Vehicles
19	Office of State Representative Terry Brown
20	Pollock Area Water System Office
21	Pollock Municipal Building
22	Pollock Municipal Courthouse
23	Water Works District No 3
24	US Department of Agriculture Service Center
25	Village of Georgetown Mayor's Office
26	Village of Georgetown Municipal Building
27	Village of Georgetown Town Hall
28	West Grant Water Office

Figure 2-2: Government Buildings in Grant Parish



Prison and Correction Centers	
Map ID	Name
1	Grant Parish Detention Facility
2	Federal Correctional Complex

Law Enforcement	
Map ID	Name
1	Catahoula Ranger Station
2	Colfax Police Department
3	Dry Pong Town Marshall
4	Georgetown Police Department
5	Grant Parish Sheriff's Office
6	Grant Parish Sheriff's Office
7	Montgomery Police Department
8	Pollock Police Department

Figure 2-3: Law Enforcement and Correction Buildings in Grant Parish

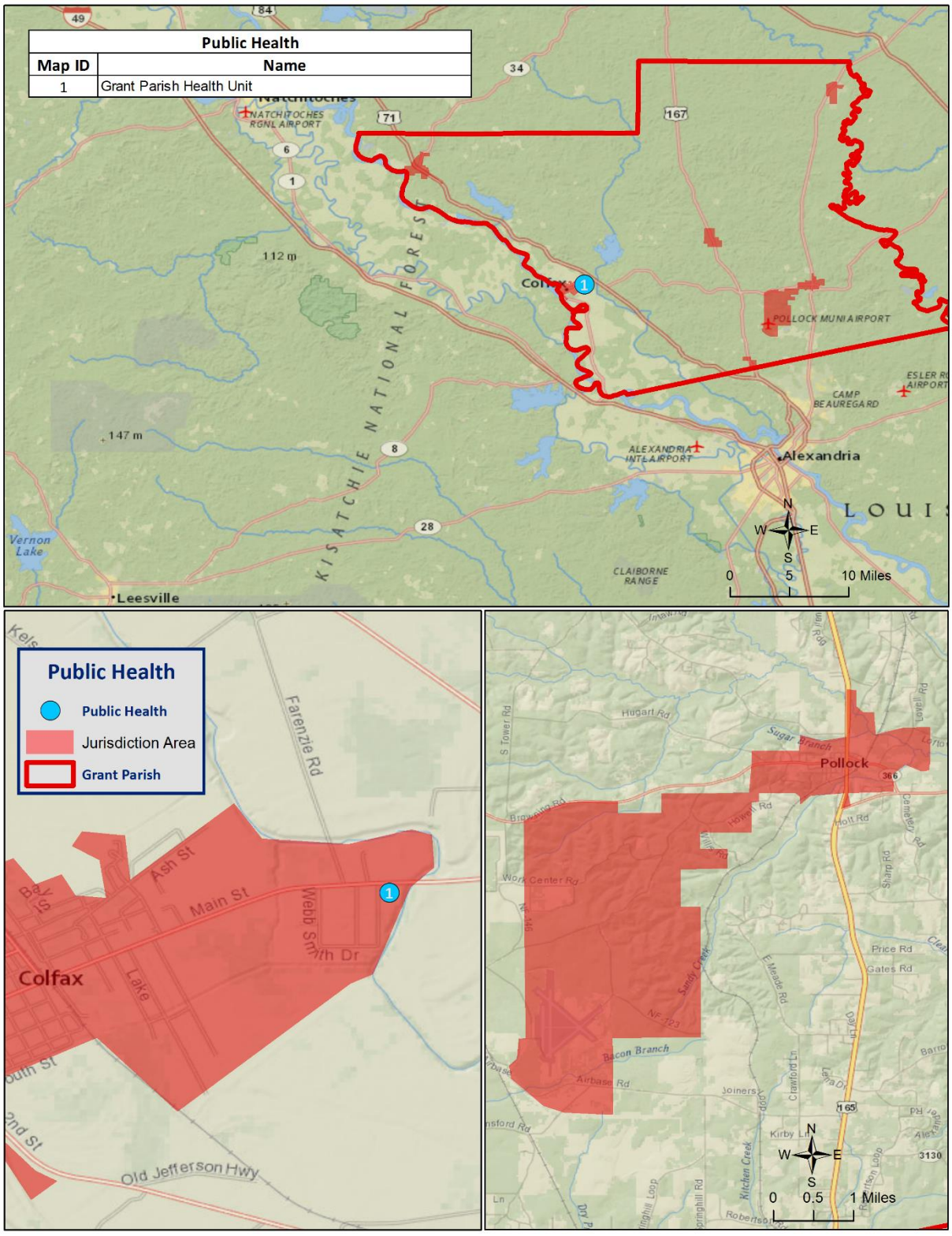
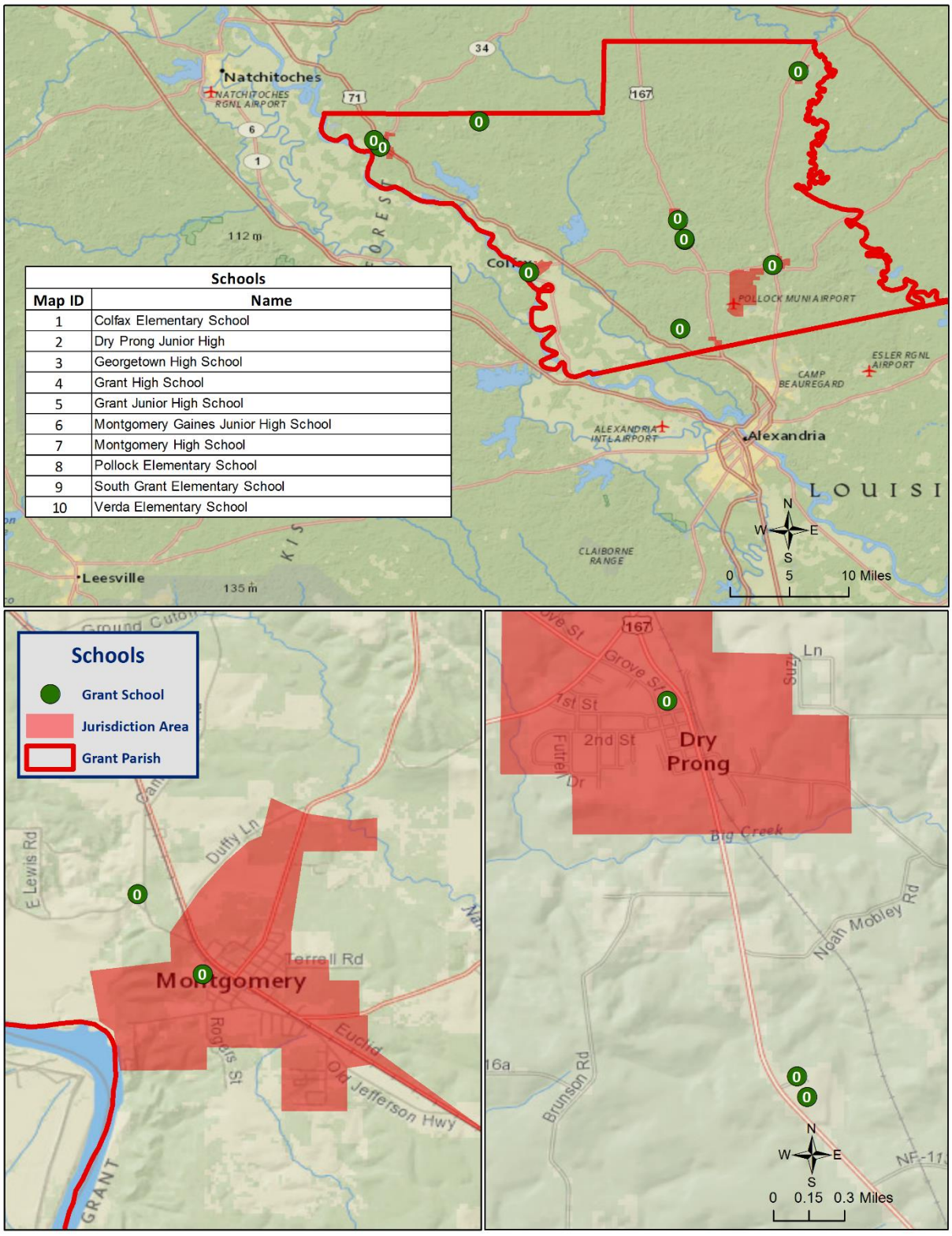


Figure 2-4: Public Health Buildings in Grant Parish



Schools	
Map ID	Name
1	Colfax Elementary School
2	Dry Prong Junior High
3	Georgetown High School
4	Grant High School
5	Grant Junior High School
6	Montgomery Gaines Junior High School
7	Montgomery High School
8	Pollock Elementary School
9	South Grant Elementary School
10	Verda Elementary School

Figure 2-5: School Buildings in Grant Parish

Future Development Trends

Grant Parish experienced a growth in population and housing between the years of 2000 and 2013, growing from a population of 18,734 with 8,531 housing units in 2000 to a population of 22,384 with 8,958 housing units in 2014. This growth was largely in the unincorporated areas of Grant Parish and in the incorporated area of Pollock from the years 2000 to 2010, and in the incorporated areas of Pollock and Dry Prong from 2010 to 2014. The incorporated areas of Colfax and Montgomery experienced a decline in population from the years of 2000 to 2010. From 2000 to 2014, the incorporated areas of Colfax, Creola, Georgetown, and Montgomery experienced a decline in population. 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 2014:

Table 2-5: Population Growth Rate for Grant Parish

Total Population	Grant Parish	Grant (Unincorporated)	Colfax	Creola	Dry Prong	Georgetown	Montgomery	Pollock
1-Apr-00	18,734	15,025	1,649	197	406	295	797	365
1-Apr-10	22,341	18,602	1,560	213	437	328	731	470
1-Jul-14	22,384	18,674	1,532	210	439	327	723	479
Population Growth between 2000 – 2010	19.3%	23.8%	-5.4%	8.1%	7.6%	11.2%	-8.3%	28.8%
Average Annual Growth Rate between 2000 – 2010	1.9%	2.4%	-0.5%	0.8%	0.8%	1.1%	-0.8%	2.9%
Population Growth between 2010 – 2014	0.2%	0.4%	-1.8%	-1.4%	0.5%	-0.3%	-1.1%	1.9%
Average Annual Growth Rate between 2010 – 2014	0.05%	0.10%	-0.45%	-0.35%	0.11%	-0.08%	-0.27%	0.48%

Table 2-6: Housing Growth Rate for Grant Parish

Total Population	Grant Parish	Grant (Unincorporated)	Colfax	Creola	Dry Prong	Georgetown	Montgomery	Pollock
1-Apr-00	8,531	6,875	709	N/A*	195	153	395	204
1-Apr-10	8,886	7,233	645	68	199	143	391	207
1-Jul-14	8,958	7,134	744	92	216	162	411	199
Housing Growth between 2000 – 2010	4.2%	5.2%	-9.0%	N/A*	2.1%	-6.5%	-1.0%	1.5%
Average Annual Growth Rate between 2000 – 2010	0.4%	0.5%	-0.9%	N/A*	0.2%	-0.7%	-0.1%	0.1%
Housing Growth between 2010 – 2014	0.8%	-1.4%	15.3%	35.3%	8.5%	13.3%	5.1%	-3.9%
Average Annual Growth Rate between 2010 – 2014	0.2%	-0.3%	3.8%	8.8%	2.1%	3.3%	1.3%	-1.0%

*Did not incorporated until 2002. Housing data unavailable for the year 2000.

As shown in the previous tables, Grant Parish has experienced growth in both population and housing units. Housing growth rates grew at 0.4% annually from 2000 to 2010, and at 0.2% annually from 2010 to 2014. Population growth rates for the parish were 1.9% annually from 2000 to 2010, and 0.05% annually from 2010 to 2014. From 2000 to 2010, the incorporated area of Pollock had the largest increase in population at 28.8%, followed by the unincorporated areas of Grant Parish at 23.8%. The incorporated area of Montgomery had the largest decrease in population during this time period at -8.3%. From 2010 to 2014, Pollock experienced the largest growth in population at 1.9% followed by Dry Prong at 0.5%.

The unincorporated area of Grant Parish experienced the largest increase in housing units from 2000 to 2010 at 5.2%, followed by the incorporated area of Dry Prong at 2.1%. The incorporated areas of Colfax, Georgetown, and Montgomery experienced a decline in housing units during this time period. From 2010 to 2014, Creola experienced the largest increase in population at 35.3%, followed by Colfax at 15.3%.

Future Hazard Impacts

Hazard impacts were estimated for five years and ten years in the future (2019 and 2024). Yearly population and housing growth rates were applied to parish inventory assets for composite flood and tropical cyclones. Based on a review of available information, it is assumed that population and housing units will continue to grow within Grant Parish from the present until 2024. A summary of estimated future impacts is shown in the table below. Dollar values are expressed in future costs and assume an annual rate of inflation of 1.02%. No changes in development have impacted the community's vulnerability since the plans last update.

Table 2-7: Estimated Future Impacts, 2019-2024
(Source: Hazus, US Census Bureau)

Hazard / Impact	Total in Parish (2014)	Hazard Area (2014)	Hazard Area (2019)	Hazard Area (2024)
Flood Damage				
Structures	8,976	2,622	2,649	2,681
Value of Structures	$2,678,539,404	$782,466,327	$831,565,935	$894,569,176
# of People	22,395	6,542	6,558	6,577
Tropical Cyclone				
Structures	8,976	8,976	9,067	9,178
Value of Structures	$2,678,539,404	$2,678,539,404	$2,846,617,223	$3,062,289,972
# of People	22,395	22,395	22,449	22,514

Land Use

The Grant 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 accounts 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 2-8: Grant 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%

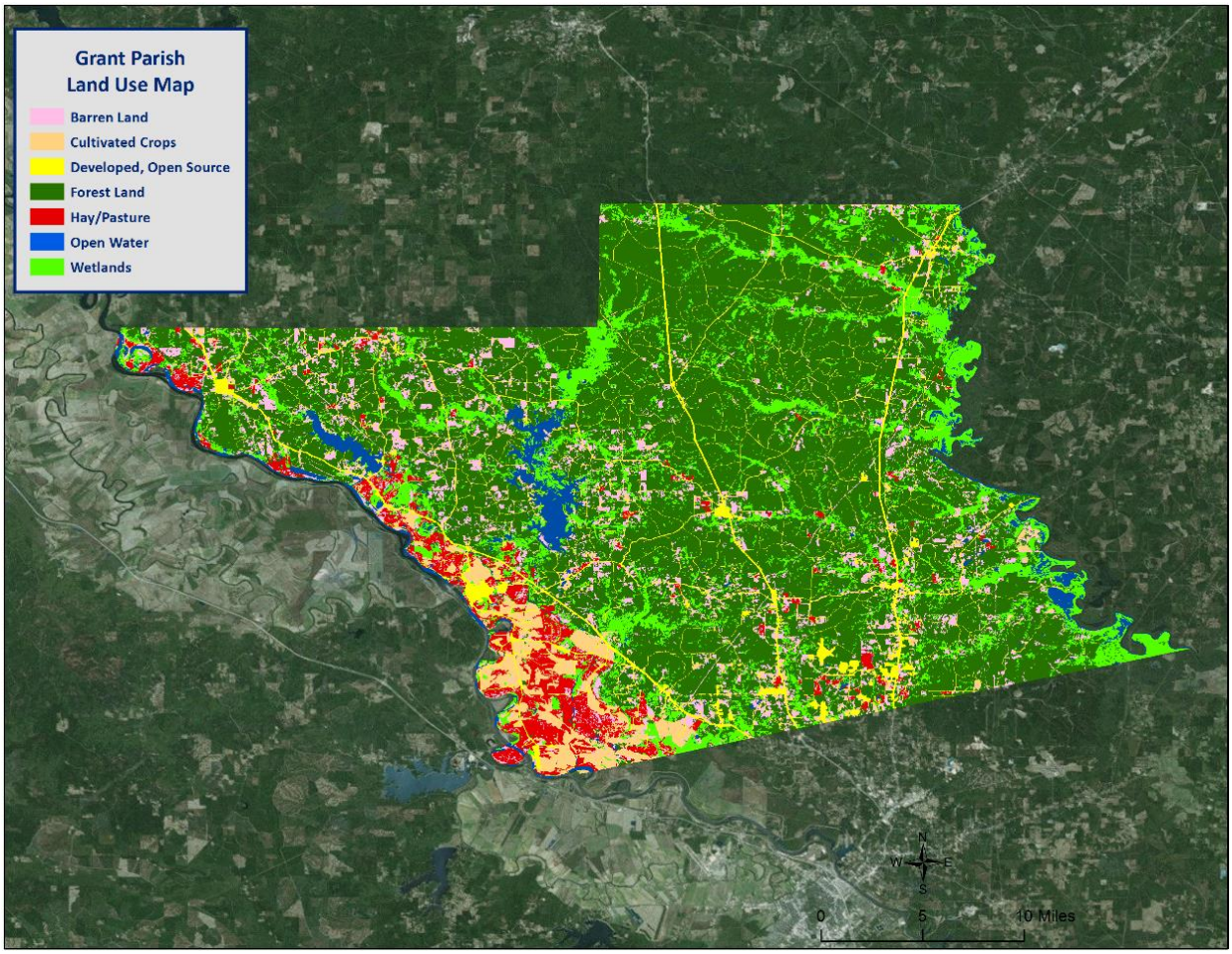


Figure 2-6: Grant Parish Land Use Map
(Source: USGS Land Use Map)

Hazard Identification

Drought

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

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

This hazard is often measured using the Palmer Drought Severity Index (PDSI, also known operationally as the Palmer Drought Index). The PDSI, first developed by Wayne Palmer in a 1965 paper for the U.S. Weather Bureau, measures drought through recent precipitation and temperature data with regard to a basic supply-and-demand model of soil moisture. It is most effective in long-term calculations. Three other indices used to measure drought are the Palmer Hydrologic Drought Index (PHDI), the Crop Moisture Index (CMI), which is derived from the PDSI, and the Keetch-Byram Drought Index (KBDI), created by John Keetch and George Byram in 1968 for the U.S. Forest Service. The KBDI is used mainly for predicting the likelihood of wildfire outbreaks. As a compromise, the PDSI is used most often for droughts since it is a medium-response drought indicator. The objective of the PDSI is to provide measurements of moisture conditions that are standardized so that comparisons using the index can be made between locations and between months. *Table 2-9* displays the range and Palmer classifications of the PDSI index. *Figure 2-7* displays the current drought monitor for the state of Louisiana and its parishes.

Table 2-9: Palmer Drought Severity Index Classification and Range

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

The PDSI best measures the duration and intensity of drought-inducing circulation patterns at a somewhat long-term time scale, although not as long-term as the PHDI. Long-term drought is cumulative, so the intensity of drought during the current month is dependent on the current weather patterns in addition to the effects of cumulative patterns of previous months. Although weather patterns can change almost overnight from a long-term drought pattern to a long-term wet pattern, as a medium-response indicator, the PDSI responds relatively rapidly. Data compiled by the National Drought Mitigation Center indicates normal conditions exist in Grant Parish at the time this plan went to publication (*Figure 2-7*).

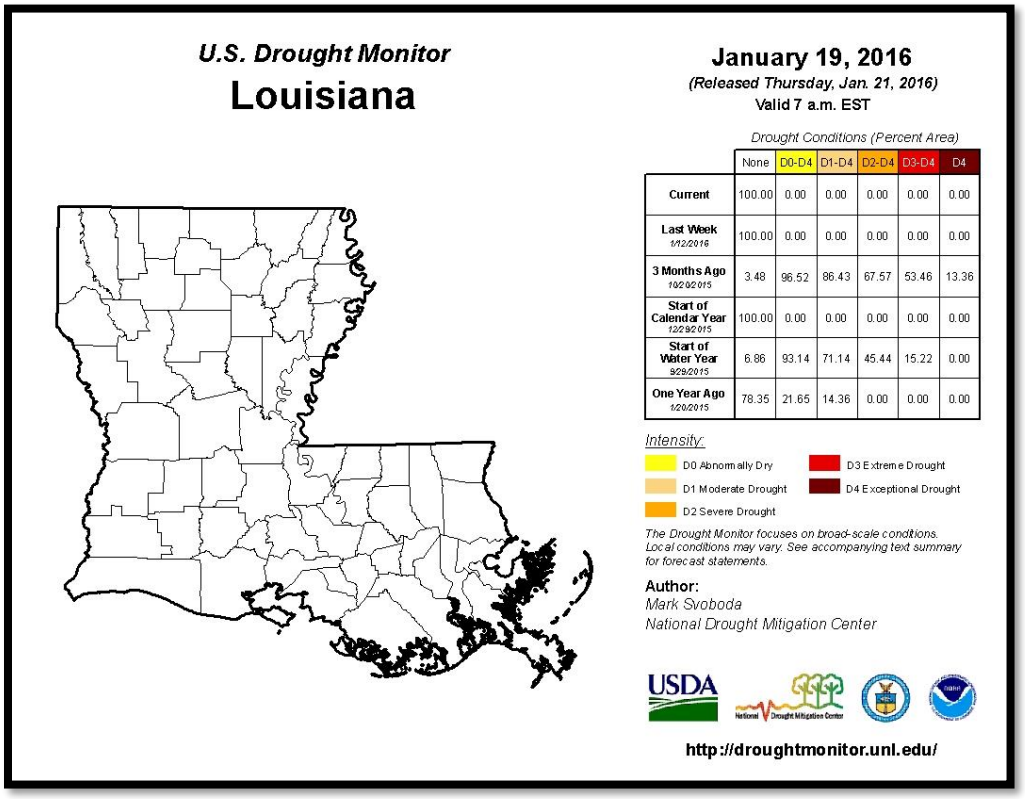


Figure 2-7: United States Drought Monitor for the State of Louisiana and its Parishes (Source: The National Drought Mitigation Center)

Location

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

Previous Occurrences / Extents

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

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

Date	Crop Damage	Palmer Classification
June 1998	$1,261,041	Severe Drought

Frequency / Probability

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

Estimated Potential Losses

According to the SHELDUS database, there has been one drought event that has caused some level of crop damage. The total agricultural damage from these events is $1,261,041, with an average cost of $1,261,041 per drought event. When annualizing the total cost over the 25-year record, total annual losses based on drought is estimated to be $50,442. *Table 2-11* presents an analysis of agricultural exposure that is susceptible to drought by major crop type for Grant Parish.

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

Agricultural Exposure by Type for Drought						
Forestry	Soybeans	Mayhaws	Pecans	Cotton	Corn	Total
$18,151,750	$4,100,649	$1,193,625	$863,100	$481,564	$436,767	$25,227,455

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

Flooding

A flood is the overflow of water onto land that is usually not inundated. The National Flood Insurance Program (NFIP) defines a flood as:

> A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties from overflow of inland or tidal waves, unusual and rapid accumulation or runoff of surface waters from any source, mudflow, or collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood as defined above.

Factors influencing the type and severity of flooding include natural variables such as precipitation, topography, vegetation, soil texture, and seasonality, as well as anthropogenic factors such as urbanization (extent of impervious surfaces), land use (agricultural and forestry tend to remove native vegetation and accelerate soil erosion), and the presence of flood-control structures such as levees and dams.

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

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

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

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

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

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

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

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

- **Flood Categories**
  - Minor Flooding: Minimal or no property damage, but possibly some public threat.
  - Moderate Flooding: Some inundation of structures and roads near streams. Some evacuations of people and/or transfer of property to higher elevations.
  - Major Flooding: Extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations.
  - Record Flooding: Flooding which equals or exceeds the highest stage or discharge at a given site during the period of record keeping.

- **Flood Warning**
  - Issued along larger streams when there is a serious threat to life or property.

- **Flood Watch**
  - Issued when current and developing hydrometeorological conditions are such that there is a threat of flooding, but the occurrence is neither certain nor imminent.

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

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

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

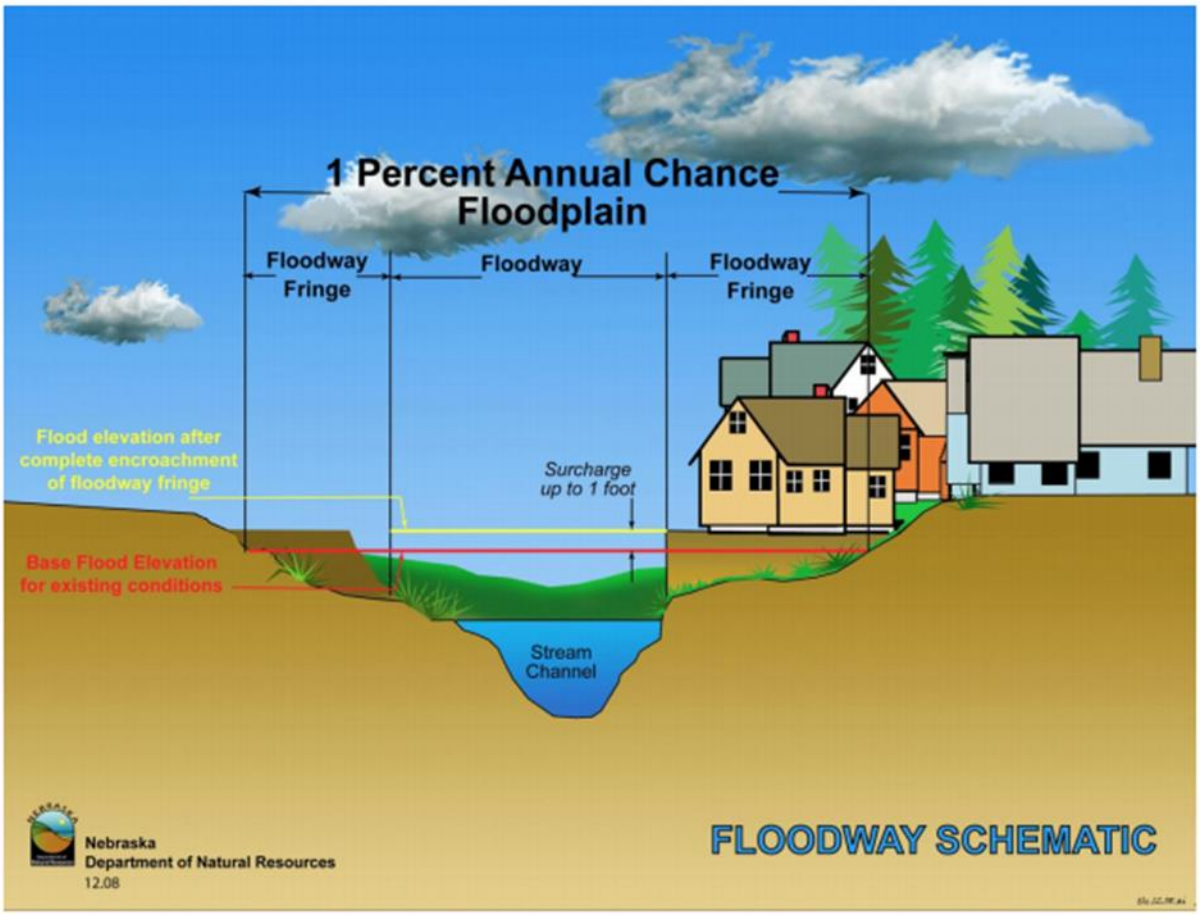


Figure 2-8: Schematic of 100-Year Floodplain. The Special Flood Hazard Area (SFHA) extends to the end of the floodway fringe.
(Source: Nebraska Department of Natural Resources)

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

Property Damage

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

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

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

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

Repetitive Loss Properties

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

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

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

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

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

Table 2-12: Repetitive Loss Structures for Grant Parish

Jurisdiction	Number of Structures	Residential	Commercial	Government	Total Claims	Total Claims Paid	Average Claim Paid
Grant Parish (Unincorporated)	75	72	3	0	242	$2,268,768	$9,375
Colfax	0	0	0	0	0	$0	$0
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	27	$251,827	$9,327
Total	79	76	3	0	269	$2,520,595	$9,370

Of the 79 repetitive loss structures, 69 were able to be geocoded in order to provide an overview of where the repetitive loss structures were located throughout the parish. *Figure 2-9* shows the approximate location of the 69 structures, while *Figure 2-10* shows where the highest concentration of repetitive loss structures are located. Through the repetitive loss map, it is clear that the primary concentrated area of repetitive loss structures is focused in the unincorporated areas of Grant Parish.

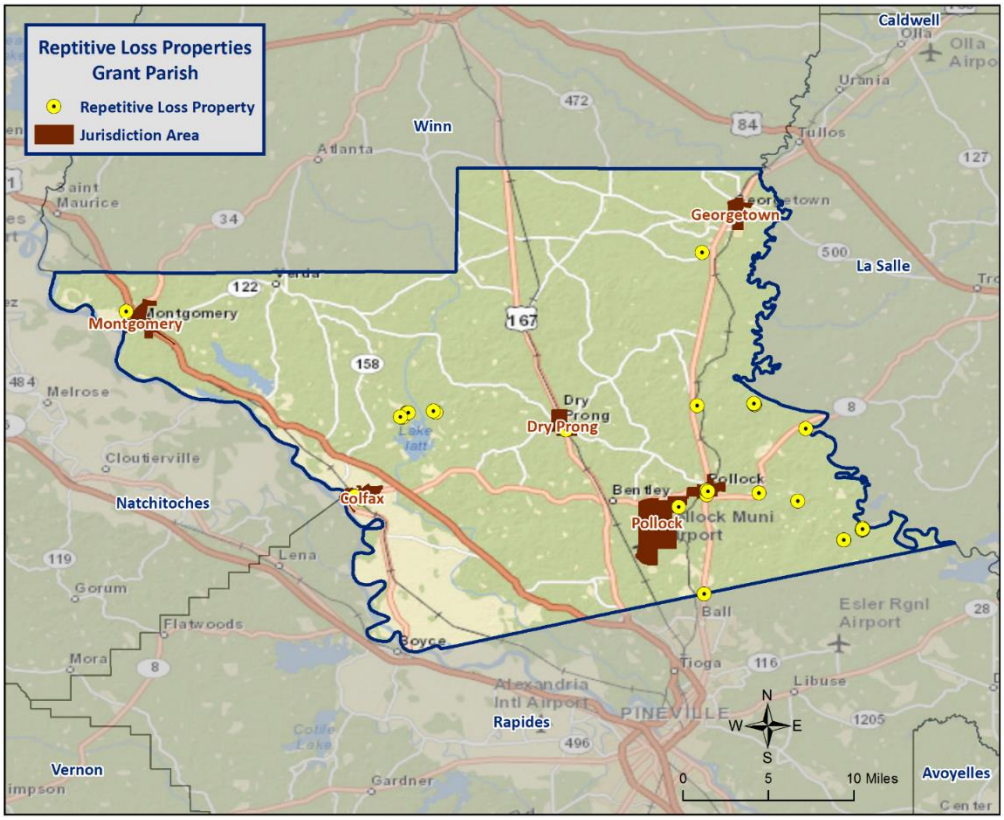


Figure 2-9: Repetitive Loss Properties in Grant Parish

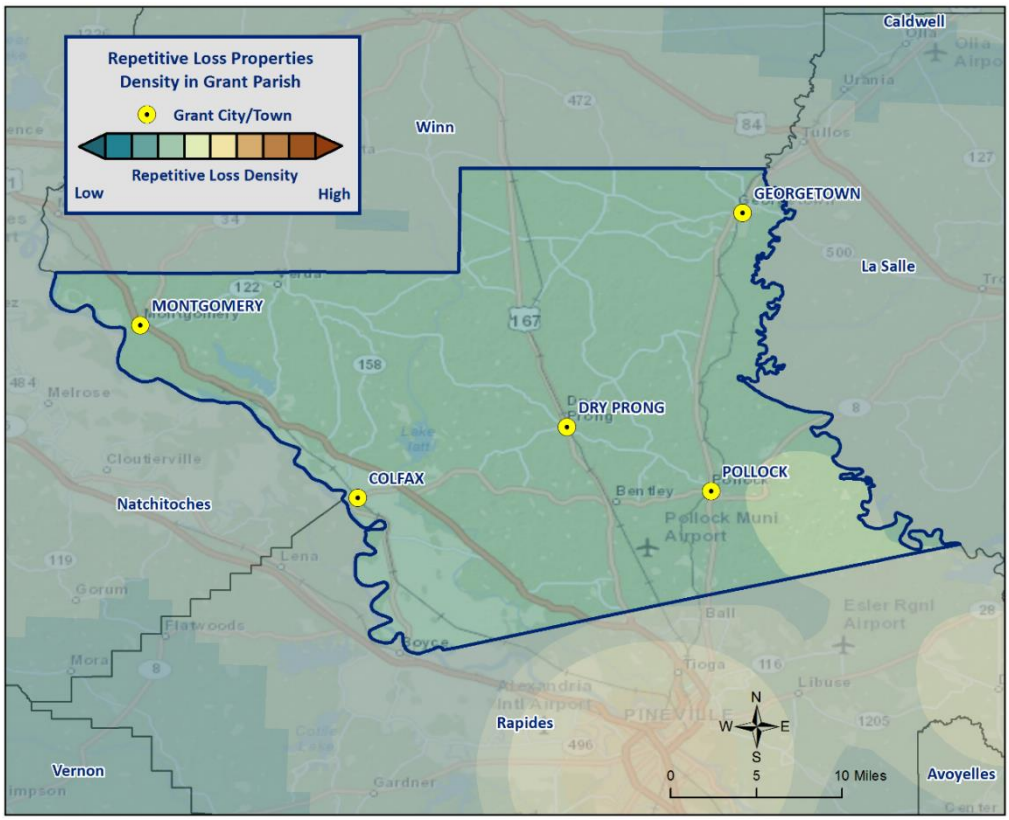


Figure 2-10: Repetitive Loss Property Densities in Grant Parish

National Flood Insurance Program

Flood insurance statistics indicate that Grant Parish has 198 flood insurance policies with the NFIP, with total annual premiums of $114,691. Grant Parish and the incorporated areas of Colfax, Montgomery, and Pollock are all participants in the NFIP. The incorporated areas of Creola, Dry Prong, and Georgetown do not participate in the NFIP. Grant Parish and each of the incorporated jurisdictions will continue to adopt and enforce floodplain management requirements, including regulating new construction Special Flood Hazard Areas, and will continue to monitor activities including local requests for new map updates. Flood insurance statistics and additional NFIP participation details for Grant Parish are provided in the tables on the following page.

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

Table 2-13: Summary of NFIP Policies for Grant Parish

Location	No. of Insured Structures	Total Insurance Coverage Value	Annual Premiums Paid	No. of Insurance Claims Filed Since 1978	Total Loss Payments
Grant Parish (Unincorporated)	139	$17,874,000	$77,957	384	$2,787,039
Colfax	56	$8,220,800	$34,683	15	$147,809
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	3	$319,800	$2,051	40	$321,429
Total	198	$26,414,600	$114,691	439	$3,256,277

*While the Village of Creola, Village of Dry Prong, Village of Georgetown, and Town of Montgomery do not have any active NFIP policies, the jurisdictions will continue to promote NFIP participation through education and outreach.

Table 2-14: Summary of Community Flood Maps for Grant Parish

CID	Community Name	Initial FHBM Identified	Initial FIRM Identified	Current Effective Map Date	Date Joined the NFIP	Tribal
220076#	Grant (Unincorporated)	6/17/1977	3/1/1987	11/16/1995	3/1/1987	No
220077#	Colfax	11/14/1975	9/5/1979	11/16/1995	9/5/1979	No
220256#	Montgomery	9/19/1975	5/4/1982	5/4/1982	5/4/1982	No
220305#	Pollock	8/15/1975	5/25/1982	5/25/1982	5/25/1982	No

According to the Community Rating System (CRS) list of eligible communities, Grant Parish and the incorporated areas of Colfax, Creola, Dry Prong, Georgetown, Montgomery, and Pollock do not participate.

Threat to People

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

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

Flooding in Grant Parish

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

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

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

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

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

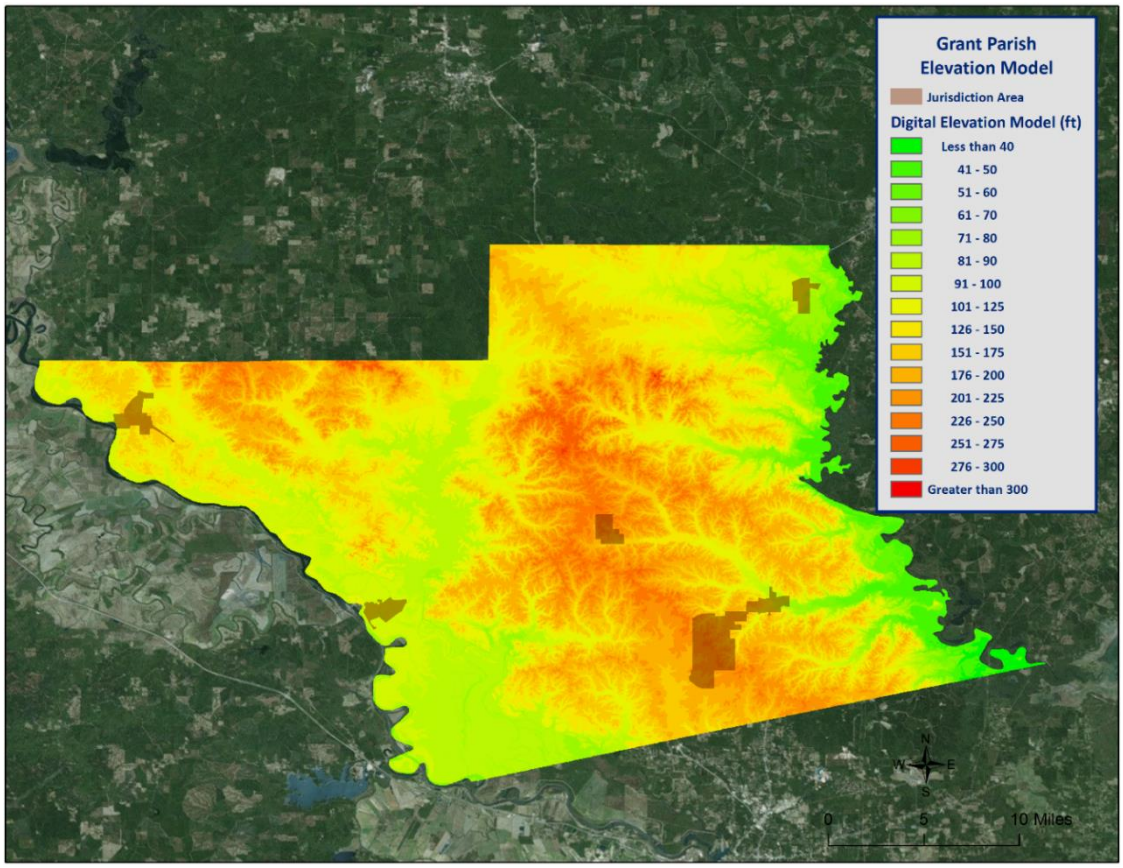


Figure 2-11: Elevation throughout Grant Parish

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

Location

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

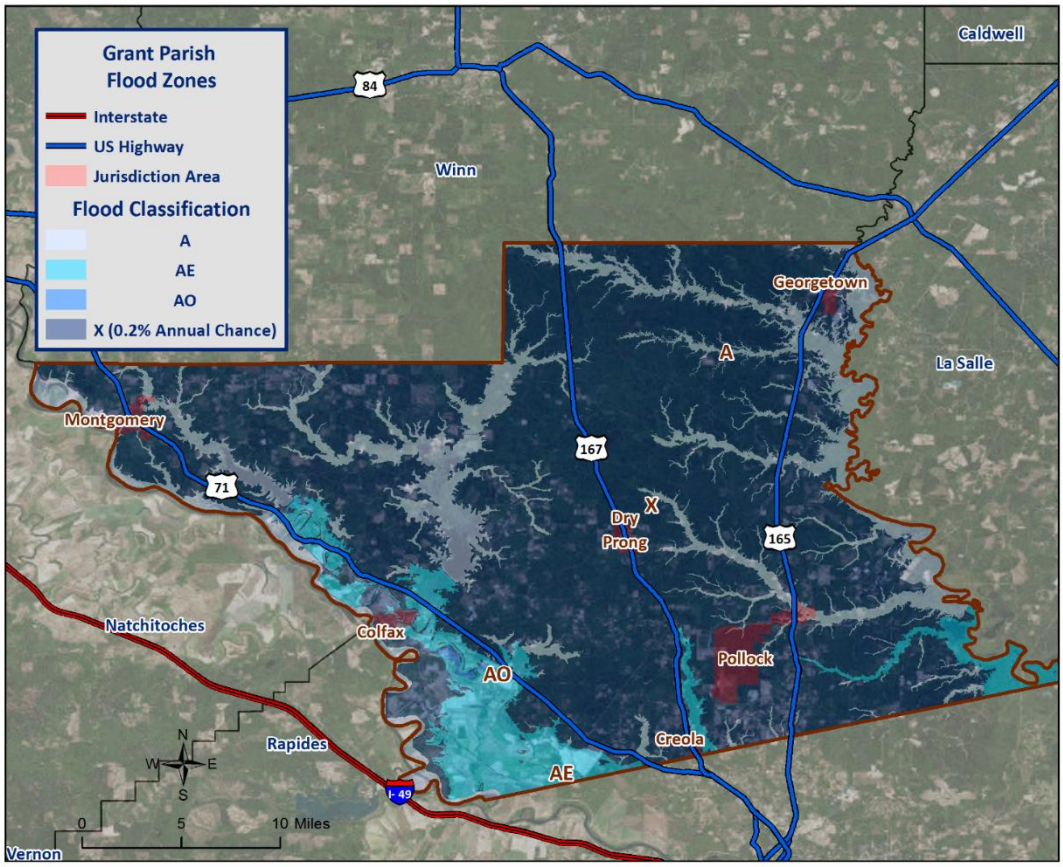


Figure 2-12: Grant Parish Areas within the Flood Zones

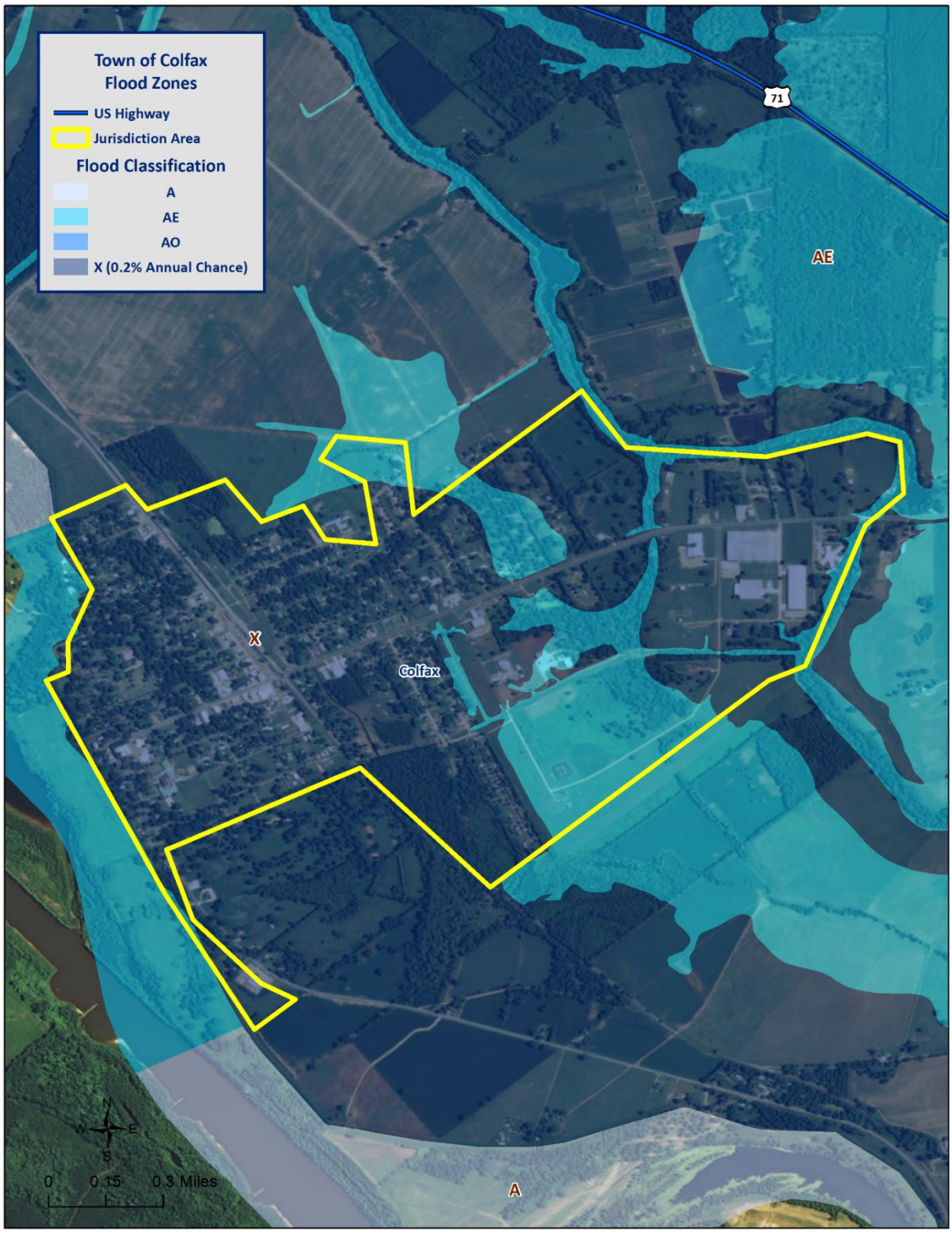


Figure 2-13: Colfax Areas within the Flood Zones

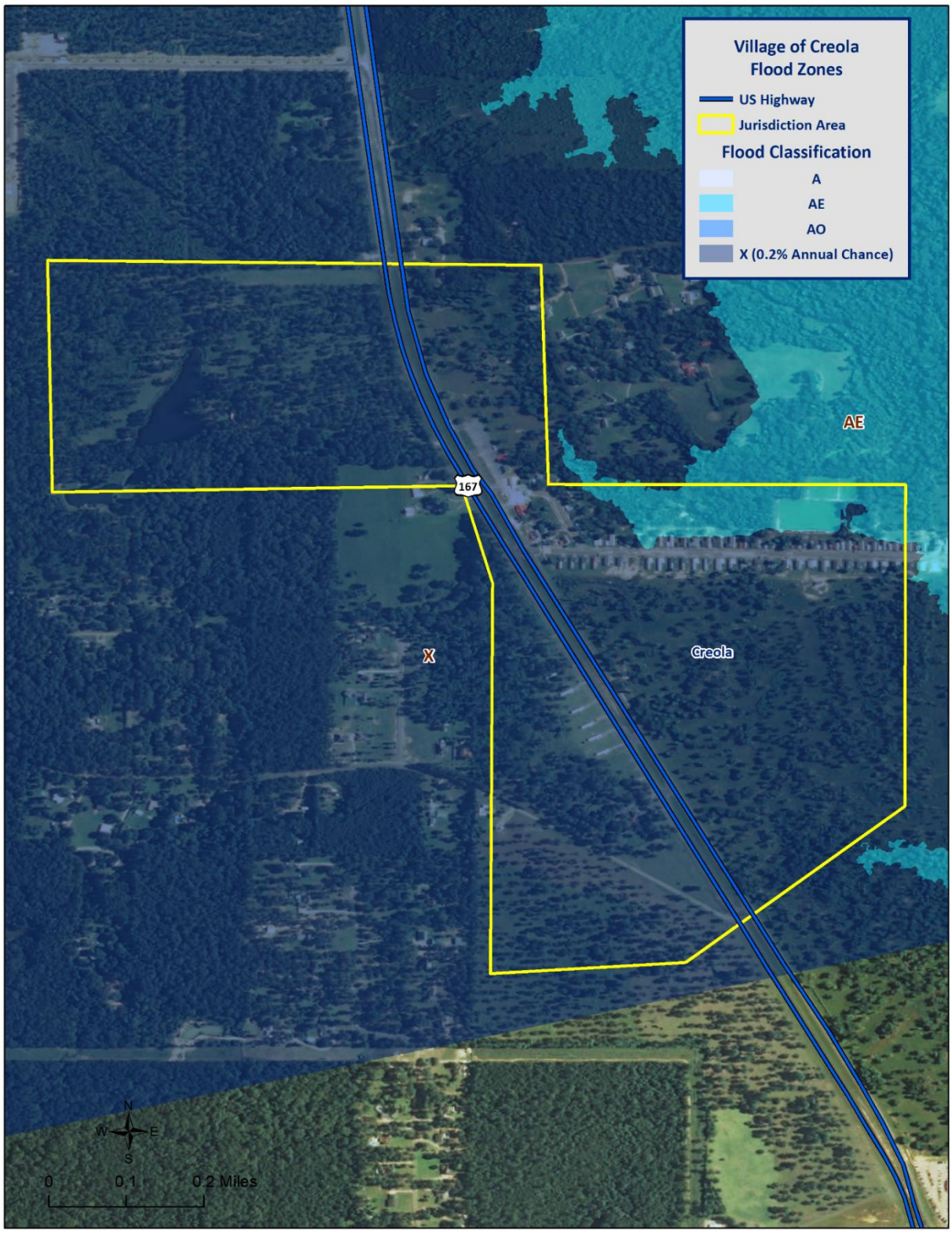


Figure 2-14: Creola Areas within the Flood Zones

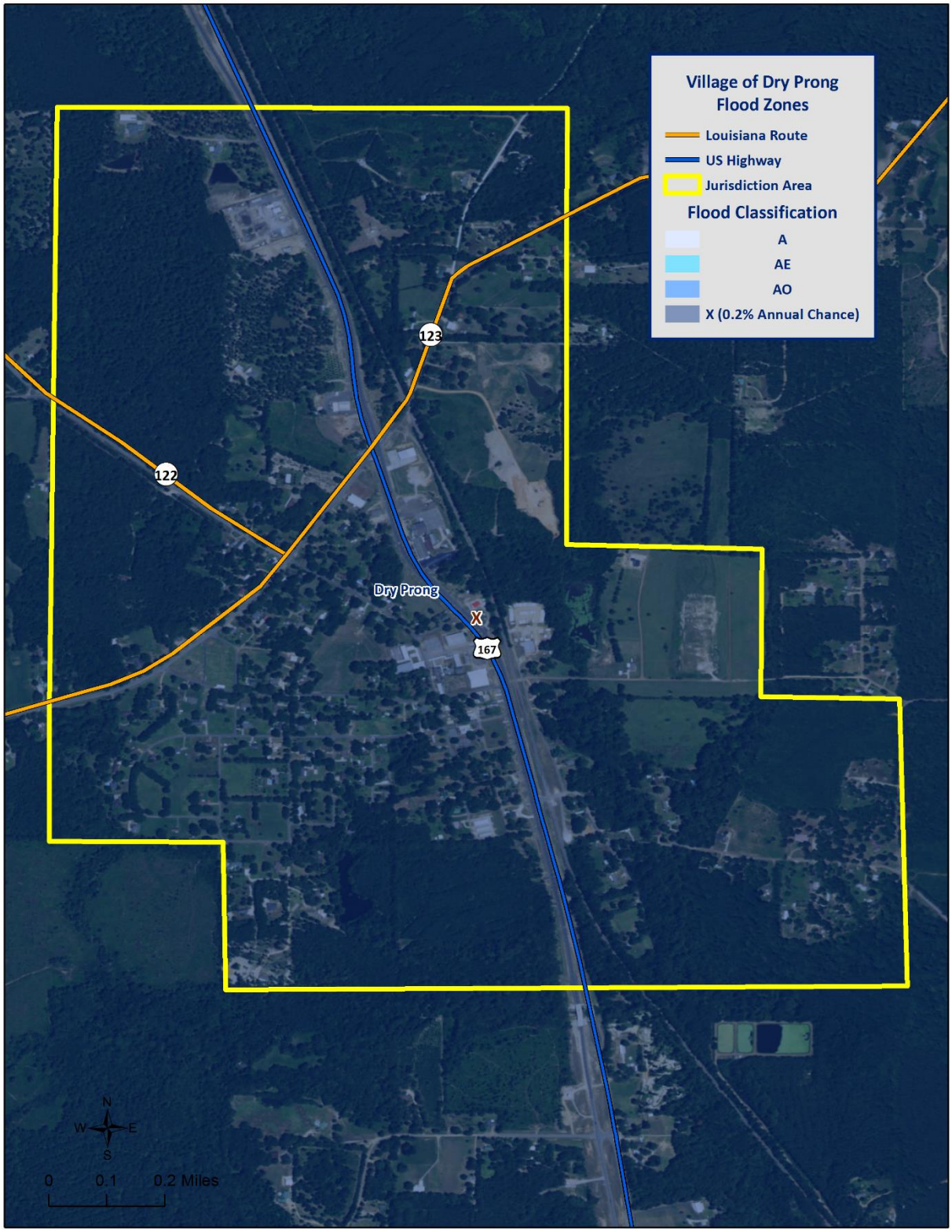


Figure 2-15: Dry Prong Areas within the Flood Zones

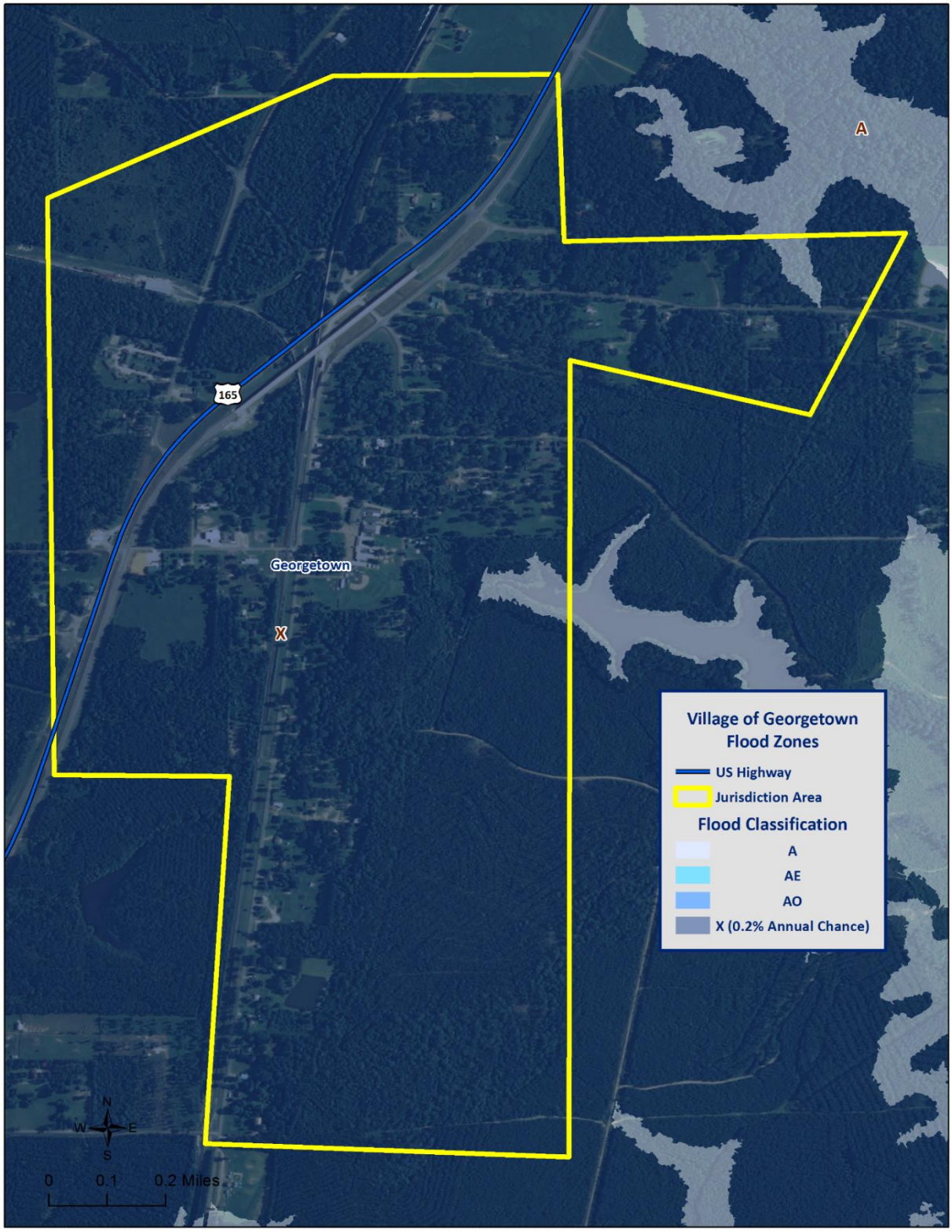


Figure 2-16: Georgetown Areas within the Flood Zones

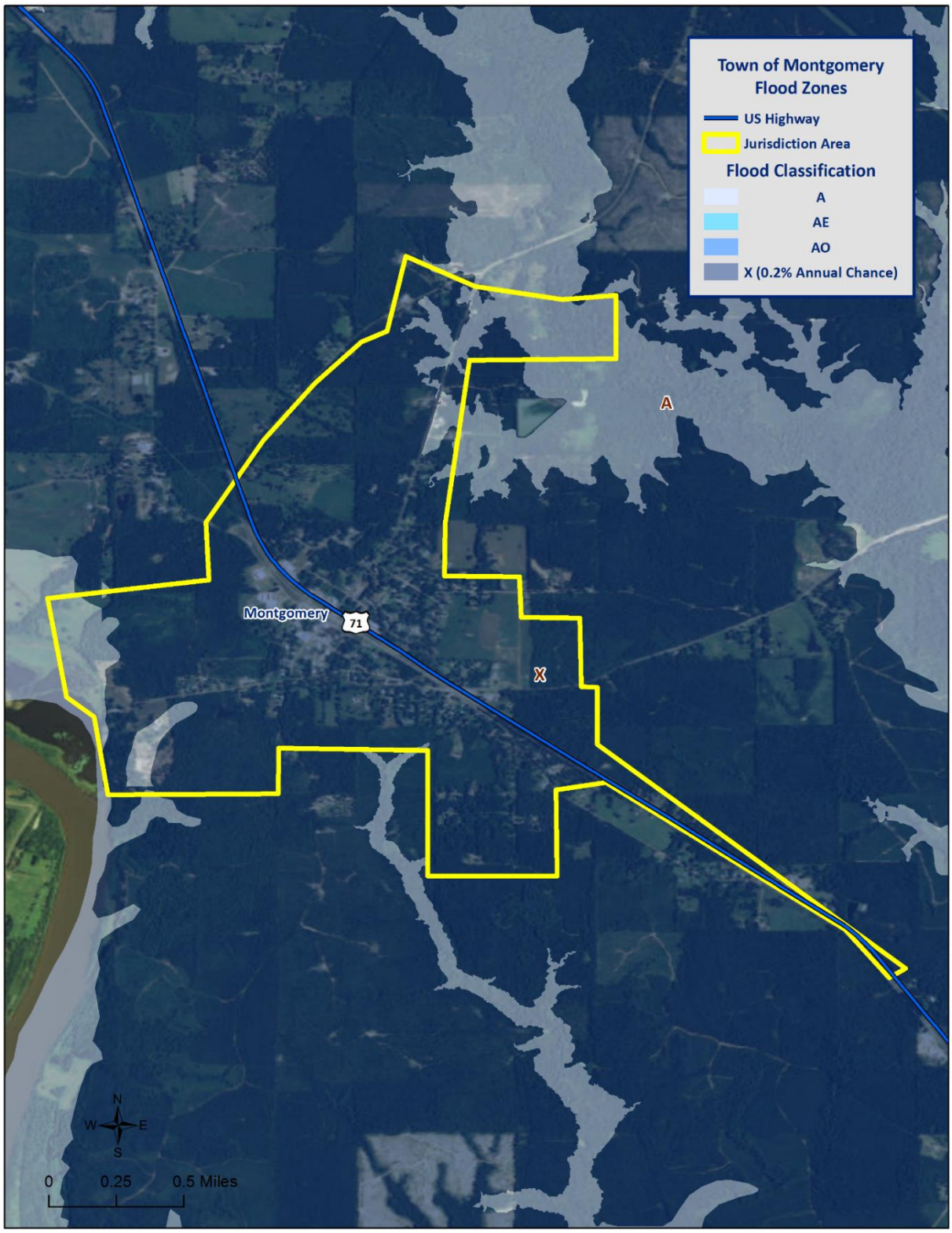


Figure 2-17: Montgomery Areas within the Flood Zones

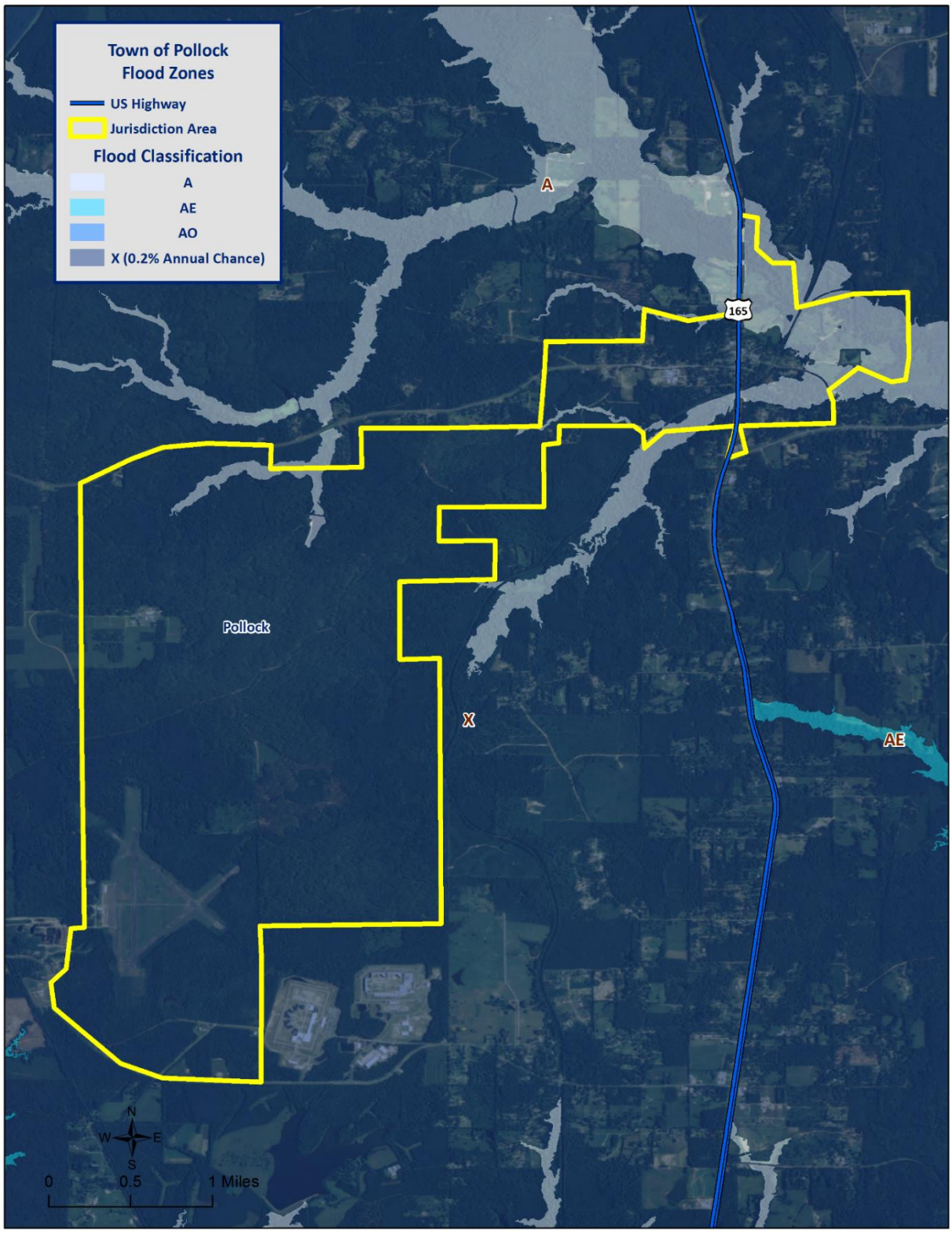


Figure 2-18: Pollock Areas within the Flood Zones

The incorporated area of Dry Prong does not have any SFHA areas; however, the entire area is located within an X Zone (0.2% annual chance of occurrence). Previous occurrences have demonstrated that this area is susceptible to flooding, and the extent of these floods is restricted to the low-lying areas of Dry Prong. These areas are located in the southwest section of Dry Prong west of US Highway 167 and south of Highway 123.

Previous Occurrences / Extents

Historically, there have been 21 flooding events that have created significant flooding in Grant Parish between 1990 and 2015. Below is a brief synopsis of the 11 flooding events that have occurred since 2010, including flooding events that have occurred since the parish's last planning update. Since 2010, there have been no significant flooding events in the incorporated areas of Colfax, Creola, and Georgetown.

Table 2-15: Historical Floods in Grant Parish with Locations from 2010 - 2015

Date	Extents	Type of Flooding	Estimated Damages	Location
March 9, 2011	Street flooding was reported in Pollock.	Flash Flood	$0	POLLOCK
February 4, 2012	Rockhill Road remains barricaded and has been partially washed out.	Flash Flood	$0	STAY
August 7, 2012	Several inches of water covered Stuart Lake Road resulting in the road having to be closed.	Flash Flood	$0	POLLOCK
June 6, 2013	Water covered the roadway on Highway 122 close to Highway 71 and near downtown Montgomery on Highway 71.	Flash Flood	$0	MONTGOMERY
June 6, 2013	High water was over Highway 471 near the Verda community.	Flash Flood	$0	VERDA
October 31, 2013	Numerous roads were closed due to flash flooding across Grant Parish.	Flash Flood	$0	MC NEELEY
May 18, 2015	Excessive heavy rainfall during the month of May resulted in very high river levels on the Red River. A crack in the levee produced a breach which sent Red River water into a local park.	Flood	$0	MONTGOMERY
May 18, 2015	Widespread flooding across the region flooded and closed multiple roads across the parish.	Flash Flood	$0	DRY PRONG
May 18, 2015	Some secondary roadways remained closed from excessive heavy rainfall.	Flash Flood	$0	DRY PRONG
June 1, 2015	Excessive heavy rainfall during the month of May resulted in very high river levels on the Red River. A crack in the levee produced a breach which sent Red River water into a local park.	Flood	$0	MONTGOMERY
October 31, 2015	Excessive heavy rainfall resulted in widespread flooding across most of Grant Parish. High water flooded at least 20 homes across the parish. Numerous roads were closed while bridges and culverts were washed out across the parish as well.	Flash Flood	$250,000	MONTGOMERY

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.

Frequency / Probability

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

Table 2-16: Annual Flood Probabilities for Grant Parish

Jurisdiction	Annual Probability	Return Frequency
Grant Parish (Unincorporated)	16%	6 – 7 years
Colfax	20%	5 years
Creola	4%	25 years
Dry Prong	16%	6 – 7 years
Georgetown	4%	25 years
Montgomery	20%	5 years
Pollock	12%	8 – 9 years

Based on historical record, the overall flooding probability for the entire Grant Parish planning area is 84%, with 21 events occurring over a 25-year period.

Estimated Potential Losses

Using the Hazus 2.2 Flood Model, along with the Parish DFIRM, the 100-year flood scenario was analyzed to determine losses from this worst-case scenario. *Table 2-17* shows the total economic losses that would result from this occurrence.

Table 2-17: Estimated Losses in Grant Parish from a 100-Year Flood Event (Source: Hazus 2.2)

Jurisdiction	Estimated Total Losses from 100-Year Flood Event
Grant Parish (Unincorporated)	$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 2.2 Flood Model also provides a breakdown by jurisdiction for seven primary sectors (Hazus occupancy) throughout the parish. The losses for each jurisdiction by sector are listed in the following tables.

Table 2-18: Estimated 100-Year Flood Losses for Unincorporated Grant Parish by Sector (Source: Hazus 2.2)

Grant Parish (Unincorporated)	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 2-19: Estimated 100-Year Flood Losses for Colfax by Sector (Source: Hazus 2.2)

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 2-20: Estimated 100-Year Flood Losses for Creola by Sector (Source: Hazus 2.2)

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 2-21: Estimated 100-Year Flood Losses for Montgomery by Sector
(Source: Hazus 2.2)

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 2-22: Estimated 100-Year Flood Losses for Pollock by Sector
(Source: Hazus 2.2)

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

Threat to People

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

Table 2-23: Vulnerable Populations Susceptible to a 100-Year Flood Event
(Source: Hazus 2.2)

Number of People Exposed to Flood Hazards			
Location	**# in Community**	**# in Hazard Area**	**% in Hazard Area**
Grant Parish (Unincorporated)	**18,576**	**6,015**	**32.4%**
Colfax	**1,558**	**129**	**8.3%**
Creola	**213**	**160**	**75.1%**
Dry Prong	**436**	**0**	**0.0%**
Georgetown	**327**	**0**	**0.0%**
Montgomery	**730**	**32**	**4.4%**
Pollock	**469**	**181**	**38.6%**
Total	**22,309**	**6,517**	**29.2%**

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

Table 2-24: Vulnerable Populations Susceptible to a 100-Year Flood Event in Unincorporated Grant Parish (Source: Hazus 2.2)

Grant Parish (Unincorporated)		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	6,015	32.4%
Persons Under 5 Years	386	6.4%
Persons Under 18 Years	1,389	23.1%
Persons 65 Years and Over	725	12.1%
White	4,893	81.4%
Minority	1,122	18.7%

Table 2-25: Vulnerable Populations Susceptible to a 100-Year Flood Event in Colfax (Source: Hazus 2.2)

Colfax		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	129	8.3%
Persons Under 5 Years	11	8.9%
Persons Under 18 Years	33	25.9%
Persons 65 Years and Over	21	16.6%
White	41	32.1%
Minority	88	67.9%

Table 2-26: Vulnerable Populations Susceptible to a 100-Year Flood Event in Creola (Source: Hazus 2.2)

Creola		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	160	75.1%
Persons Under 5 Years	14	8.9%
Persons Under 18 Years	32	20.1%
Persons 65 Years and Over	24	15.1%
White	146	91.5%
Minority	14	8.5%

Table 2-27: Vulnerable Populations Susceptible to a 100-Year Flood Event in Montgomery (Source: Hazus 2.2)

Montgomery		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	32	4.4%
Persons Under 5 Years	2	6.4%
Persons Under 18 Years	8	24.3%
Persons 65 Years and Over	6	17.5%
White	25	78.9%
Minority	7	21.1%

Table 2-28: Vulnerable Populations Susceptible to a 100-Year Flood Event in Pollock (Source: Hazus 2.2)

Pollock		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	181	38.6%
Persons Under 5 Years	16	8.7%
Persons Under 18 Years	52	29.0%
Persons 65 Years and Over	13	7.3%
White	174	96.0%
Minority	7	4.1%

Vulnerability

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

Thunderstorms

The term "thunderstorm" is usually used as a catch-all term for several kinds of storms. Here, "thunderstorm" is defined to include any precipitation event in which thunder is heard or lightning is seen. Thunderstorms are often accompanied by heavy rain and strong winds, and depending on conditions, occasionally by hail or snow. Thunderstorms form when humid air masses are heated, which causes them to become convectively unstable. Consequently, the air masses rise. Upon rising, the air masses' water vapor condenses into liquid water and/or deposits directly into ice when they rise sufficiently to cool to the dew-point temperature.

Thunderstorms are classified into four main types (single-cell, multi-cell, squall line, and supercell), depending on the degree of atmospheric instability, the change in wind speed with height (called wind shear), and the degree to which the storm's internal dynamics are coordinated with those of adjacent storms. There is no such interaction for single-cell thunderstorms, but there is significant interaction with clusters of adjacent thunderstorms in multi-cell thunderstorms, and with a linear "chain" of adjacent storms in squall line thunderstorms. Though supercell storms have no significant interactions with other storms, they have very well-organized and self-sustaining internal dynamics, which allows them to be the longest-lived and most severe of all thunderstorms.

The life of a thunderstorm proceeds through three stages: the developing (or cumulus) stage, the mature stage, and the dissipation stage. During the developing stage, the unstable air mass is lifted as an updraft into the atmosphere. This sudden lift rapidly cools the moisture in the air mass, releasing latent heat as condensation and/or deposition occurs, which warms the surrounding environment, thus making it less dense than the surrounding air. This process intensifies the updraft and creates a localized lateral rush of air from all directions into the area beneath the thunderstorm to feed continued updrafts. At the mature stage, the rising air is accompanied by downdrafts caused by the shear of falling rain (if melted completely), or hail, freezing rain, sleet, or snow (if not melted completely). The dissipation stage is characterized by the dominating presence of the downdraft as the hot surface that gave the updrafts their buoyancy is cooled by precipitation. During the dissipation stage, the moisture in the air mass largely empties out.

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

- *Severe Thunderstorm Watch*: Issued to alert people to the possibility of a severe thunderstorm developing in the area. Expected time frame for these storms is three to six hours.

- *Severe Thunderstorm Warning*: Issued when severe thunderstorms are imminent. This warning is highly localized and covers parts of one to several parishes (counties).

A variety of hazards might be produced by thunderstorms, including lightning, hail, tornadoes or waterspouts, flash flooding, and high-speed winds called downbursts. Nevertheless, given the criteria, the National Oceanic and Atmospheric Administration (NOAA) characterizes a thunderstorm as severe when it produces one or more of the following:

- Hail of one inch in diameter or larger
- Wind gusts to 58 mph or greater
- One or more tornadoes

Tornadoes and flooding hazards have been profiled within this report; therefore, for the purpose of thunderstorms, the sub-hazards of hail, high winds, and lightning will be profiled.

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

Hazard Description

Hailstorms

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

Table 2-29: 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 2-30: Spectrum of Hailstone Diameters and Their Everyday Description (Source: National Weather Service)

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

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

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

High Winds

In general, high winds can occur in a number of different ways, within and without thunderstorms. The Federal Emergency Management Agency (FEMA) distinguishes these as shown in the following table.

Table 2-31: High Winds Categorized by Source, Frequency, and Duration
(Source: Making Critical Facilities Safe from High Wind, FEMA)

High Winds Categories			
High Wind Type	**Description**	**Relative Frequency in Louisiana**	**Relative Maximum Duration in Louisiana**
Straight-line Winds	Wind blowing in straight line; usually associated with intense low-pressure area	High	Few minutes – 1 day
Downslope Winds	Wind blowing down the slope of a mountain; associated with temperature and pressure gradients	N/A	N/A
Thunderstorm Winds	Wind blowing due to thunderstorms, and thus associated with temperature and pressure gradients	High (especially in the spring and summer	Few minutes – several hours
Downbursts	Sudden wind blowing down due to downdraft in a thunderstorm; spreads out horizontally at the ground, possibly forming horizontal vortex rings around the downdraft	Medium-to-High(~5% of all thunderstorms)	~15 – 20 minutes
Northeaster (nor'easter) Winds	Wind blowing due to cyclonic storm off the east coast of North America; associated with temperature and pressure gradients between the Atlantic and land	N/A	N/A
Hurricane Winds	Wind blowing in spirals, converging with increasing speed toward eye; associated with temperature and pressure gradients between the Atlantic and Gulf and land	Low-to-Medium	Several days
Tornado Winds	Violently rotating column of air from base of a thunderstorm to the ground with rapidly decreasing winds at greater distances from center; associated with extreme temperature gradient	Low-to-Medium	Few minutes – few hours

The only high winds of present concern are thunderstorm winds and downbursts. Straight-line winds are common but are a relatively insignificant hazard (on land) compared to other high winds. Downslope winds are common but relatively insignificant in the mountainous areas of Louisiana where they occur. Nor'easters are cyclonic events that have at most a peripheral effect on Louisiana, and none associated with high winds. Winds associated with hurricanes and tornadoes will be considered in their respective sections.

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 2-32: Beaufort Wind Scale
(Source: NOAA's SPC)

Beaufort Wind Scale			
Force	**Wind (MPH)**	**WMO Classification**	**Appearance of Wind Effects on Land**
			Calm, smoke rises vertically
1	1-3	Light Air	Smoke drift indicates wind direction, still wind vanes
2	4-7	Light Breeze	Wind felt on face, leaves rustle, vanes begin to move
3	8-12	Gentle Breeze	Leaves and small twigs constantly moving, light flags extended
4	13-17	Moderate Breeze	Dust, leaves, and loose paper lifted, small tree branches move
5	18-24	Fresh Breeze	Small trees in leaf begin to sway
6	25-30	Strong Breeze	Larger tree branches moving, whistling in wires
7	31-38	Near Gale	Whole trees moving, resistance felt walking against wind
8	39-46	Gale	Twigs breaking off trees, generally impedes progress
9	47-54	Strong Gale	Slight structural damage occurs, slate blows off roofs
10	55-63	Storm	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	54-73	Violent Storm	N/A
12	74+	Hurricane	N/A

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

Lightning

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

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

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

Table 2-33: Lightning Activity Level (LAL) Grids

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

Hazard Profile

Hailstorms

Location

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

Previous Occurrences / Extents

The SHELDUS database reports ten significant hailstorm events occurring within the boundaries of Grant Parish between the years of 1990-2015. According to the National Climatic Data Center, hailstorm diameters experienced in Grant Parish have ranged from 0.75 inches to 2.75 inches since 1990. The most frequently recorded hail size has been 1.00 inch diameters. *Figure 2-19* displays the density of hailstorms in Grant Parish and adjacent parishes. Based on the National Climatic Data Center dataset, *Table 2-34* provides an overview of hailstorms that have impacted the Grant Parish planning area since 2010. Grant Parish can expect to experience hail up to 2.75 inches in diameter for future events.

Table 2-34: Previous Occurrences of Hailstorms in Grant Parish
(Source: NCDC)

Date	Recorded Hail Size (inches)	Location
April 4, 2014	1	POLLOCK
April 28, 2014	0.75	POLLOCK
April 19, 2015	2.75	MONTGOMERY
April 19, 2015	1	COLFAX
April 19, 2015	1	STAY
April 19, 2015	1	WILLIANA

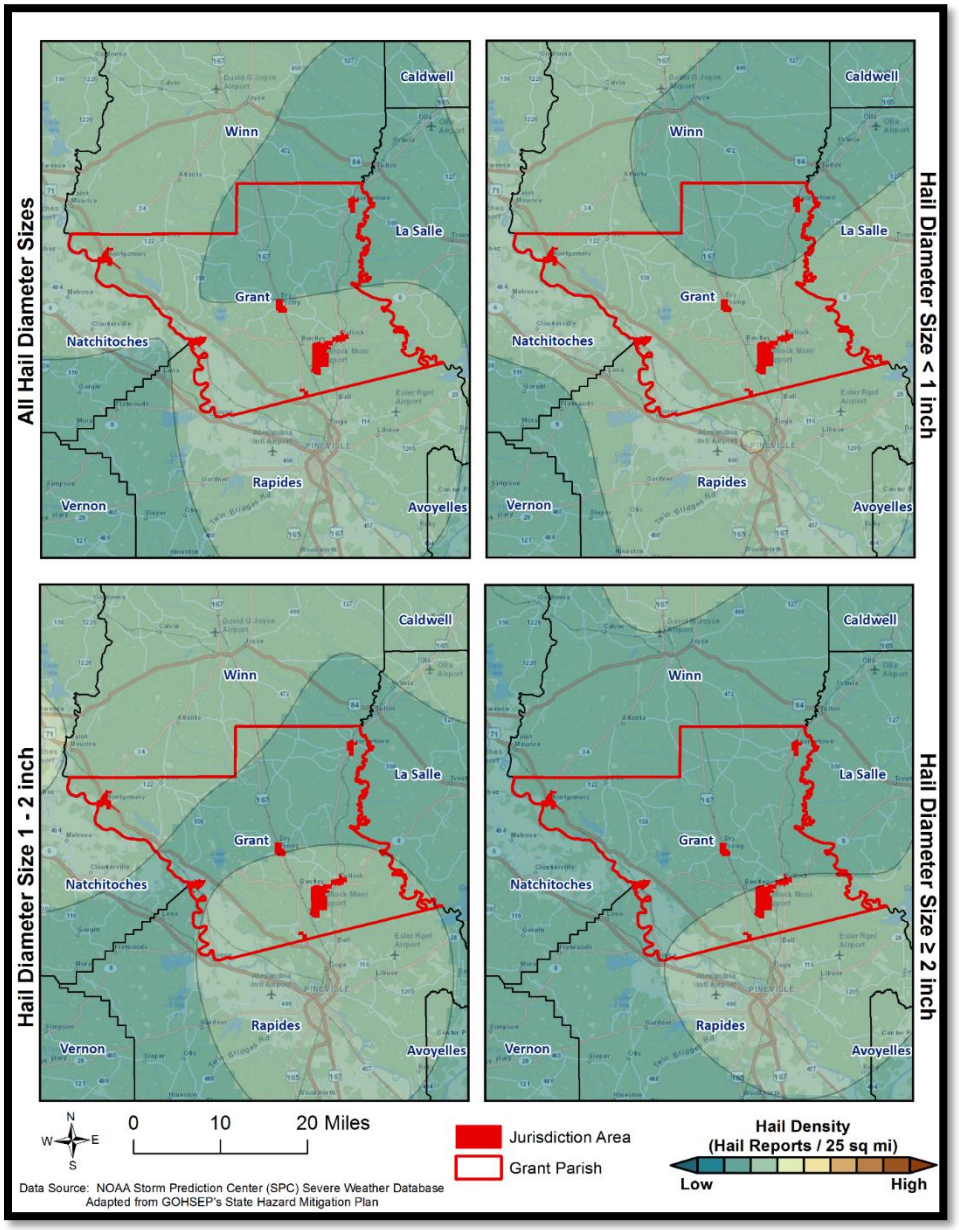


Figure 2-19: Density of Hailstorms by Diameter from 1950-2012
(Source: State of Louisiana Hazard Mitigation Plan 2014)

Since 2010, the incorporated areas of Creola, Dry Prong, and Georgetown have not experienced a significant hailstorm event.

Frequency

Based on historical data from SHELDUS for the past 25 years, it is estimated the probability of occurrence for a significant hailstorm event is approximately 40%. The probability was determined based on a review of significant hail data that has caused damages in the last 25 years, in which Grant Parish has had ten recorded events.

Estimated Potential Losses

According to the SHELDUS database, property damage due to hailstorms in Grant Parish have totaled approximately $14,356 since 1990. A list of total damages by event can be found in *Table 2-35*. To estimate the potential losses of a hail event on an annual basis, the total damages recorded for hailstorm events was divided by the total number of years of available wind data in SHELDUS (1990 – 2015). This provides an annual estimated potential loss of $574.

Table 2-35: Estimated Annual Property Losses in Grant Parish from Hailstorms

Estimated Annual Potential Losses from Hailstorms for Grant Parish						
Unincorporated Grant Parish (83.3% of Population)	**Colfax (7.0% of Population)**	**Creola (1.0% of Population)**	**Dry Prong (2.0% of Population)**	**Georgetown (1.5% of Population)**	**Montgomery (3.3% of Population)**	**Pollock (2.1% of Population)**
$478	$40	$5	$11	$8	$19	$12

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

Vulnerability

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

High Winds

Location

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

Previous Occurrences / Extents

The SHELDUS database reports a total of 33 thunderstorm wind events occurring within the boundaries of Grant Parish between the years of 1990 to 2015. The significant thunderstorm wind events experienced in Grant Parish have ranged in wind speed from 60 mph to 100 mph. Grant Parish can expect to receive thunderstorm winds up to 100 mph for future high wind events. The table on the following page provides an overview of significant high wind events over the last five years.

Table 2-36: Previous Occurrences for Thunderstorm High Wind Events in Grant Parish

Location	Date	Recorded Wind Speeds (mph)	Property Damage	Crop Damage
HARGIS	April 27, 2011	100	$103,565	$0
COLFAX	March 28, 2014	66	$0	$0
LAKE IATT	July 2, 2014	60	$0	$0
COLFAX	July 2, 2014	61	$0	$0
ANTONIA	August 11, 2014	61	$0	$0
MC NEELEY	August 11, 2014	61	$0	$0
COLFAX	August 17, 2014	60	$0	$0
NEW VERDA	August 17, 2014	61	$0	$0
MONTGOMERY	October 13, 2014	60	$0	$0
DRY PRONG	April 19, 2015	60	$0	$0
POLLOCK	April 27, 2015	62	$0	$0
WILLIANA	April 27, 2015	62	$0	$0
MONTGOMERY	May 24, 2015	61	$0	$0
WILLIANA	May 24, 2015	61	$0	$0

Since 2010, there have been no significant thunderstorm wind events in the incorporated areas of Creola and Georgetown.

Frequency

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

Estimated Potential Losses

Since 1990, there have been 33 significant wind events that have resulted in property damages according to the SHELDUS database. The total property damages associated with those storms have totaled $575,154. To estimate the potential losses of a wind event on an annual basis, the total damages recorded for wind events was divided by the total number of years of available wind data in SHELDUS (1990 – 2015). This provides an annual estimated potential loss of $23,006. The following table provides an estimate of potential property losses for Grant Parish:

Table 2-37: Estimated Annual Property Losses in Grant Parish Resulting from High Winds

Estimated Annual Potential Losses from Thunderstorm Winds for Grant Parish						
Unincorporated Grant Parish (83.3% of Population)	Colfax (7.0% of Population)	Creola (1.0% of Population)	Dry Prong (2.0% of Population)	Georgetown (1.5% of Population)	Montgomery (3.3% of Population)	Pollock (2.1% of Population)
$19,157	$1,607	$220	$450	$337	$753	$484

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

Vulnerability

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

Lightning

Location

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

Previous Occurrences / Extents

The SHELDUS database reports a total of three lightning events occurring within the boundaries of Grant Parish between the years of 1990-2015. The SHELDUS database only records lightning events that cause death, injuries, crop damage, and/or property damage, so these numbers do not accurately reflect the number of lightning events in Grant Parish, which occur on a nearly monthly basis. The planning area can expect to have a lightning density of 11-12 flashes per sq. mile per year. The table below provides an overview of significant lightning strikes over the last 25 years:

Table 2-38: Previous Occurrences of Significant Lightning Strikes in Grant Parish from 1990 – 2015 (Source: NCDC and SHELDUS)

Location	Date	Summary	Property Damage
COLFAX	February 10, 1998	A woman mail carrier on Colfax's Route 3 was struck by lightning while on her route. She was closing a mailbox off Hwy 8 when lightning struck the ground, ran up the mailbox post and into her fingers.	$0
BENTLEY	June 19, 2007	Lightning struck a home in the town of Bentley, Louisiana. The structure suffered moderate damage.	$33,706
COLFAX	December 20, 2007	Three family members died in a house explosion as a result of lightning striking near the home. It was determined that the explosion was caused by a gas leak and the lightning strike.	$168,531

Since 2010, there have been no lightning events that have caused property damage or loss of life in Grant Parish or the incorporated areas within the boundaries of Grant Parish.

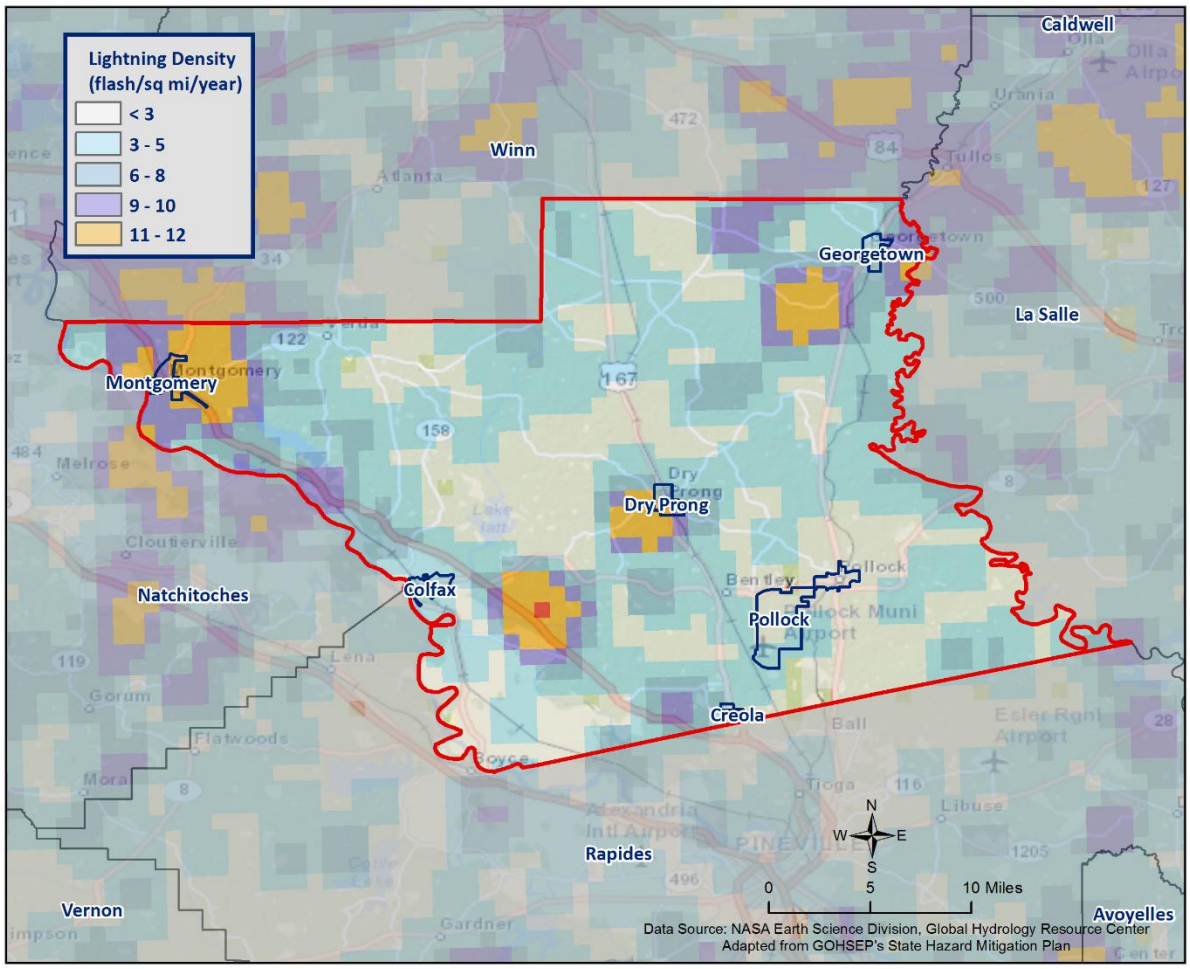


Figure 2-20: Lightning Density Reports for Grant Parish

Frequency

Lightning can strike anywhere and is produced by every thunderstorm, so the chance of lightning occurring in Grant Parish is high. However, lightning that meets the definition that is used by SHELDUS and the NCDC that actually results in damages to property and injury or death is a less likely event. According to SHELDUS, there have been three lightning events that have caused property damages or injuries over the last 25 years, establishing an annual probability of 12%.

Estimated Potential Losses

Since 1990, there have been three significant lightning events that have resulted in property damages according to the SHELDUS database. The total property damages associated with lightning events totaled $202,237. To estimate the potential losses of a lightning event on an annual basis, the total damages recorded for lightning events was divided by the total number of years of available major lightning strike data in SHELDUS (1990 – 2015). This provides an annual estimated potential loss of $8,089. The table on the following page provides an estimate of potential property losses for Grant Parish.

Table 2-39: Estimated Annual Property Losses in Grant Parish from Lightning

Estimated Annual Potential Losses from Thunderstorm Lightning for Grant Parish						
Unincorporated Grant Parish (83.3% of Population)	Colfax (7.0% of Population)	Creola (1.0% of Population)	Dry Prong (2.0% of Population)	Georgetown (1.5% of Population)	Montgomery (3.3% of Population)	Pollock (2.1% of Population)
$6,736	$565	$77	$158	$119	$265	$170

There have been three reported injuries and three fatalities in Grant Parish as a result of a lightning strikes over the 25-year record.

Vulnerability

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

Tornadoes

Tornadoes (also called twisters or cyclones) are rapidly rotating funnels of wind extending between storm clouds and the ground. For their size, tornadoes are the most severe storms, and 70% of the world's reported tornadoes occur within the continental United States, making them one of the most significant hazards Americans face. Tornadoes and waterspouts form during severe weather events, such as thunderstorms and hurricanes, when cold air overrides a layer of warm air, causing the warm air to rise rapidly. This usually results in a counterclockwise rotation in the northern hemisphere. The updraft of air in tornadoes always rotates because of wind shear (differing speeds of moving air at various heights), and it can rotate in either a clockwise or counterclockwise direction; clockwise rotations (in the northern hemisphere) will sustain the system, at least until other forces cause it to die seconds to minutes later.

Since February 1, 2007, the Enhanced Fujita (EF) Scale has been used to classify tornado intensity. The EF Scale classifies tornadoes based on their damage pattern rather than wind speed; wind speed is then derived and estimated. This contrasts with the Saffir-Simpson scale used for hurricane classification, which is based on measured wind speed. *Table 2-40* shows the EF scale in comparison with the old Fujita (F) Scale, which was used prior to February 1, 2007. When discussing past tornadoes, the scale used at the time of the hazard is used. Damage and adjustment between scales can be made using the following tables.

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

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

Table 2-41: Fujita and Enhanced Fujita Tornado Damage Scale

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

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

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

Structures within the direct path of a tornado vortex are often reduced to rubble. Structures adjacent to the tornado's path are often severely damaged by high winds flowing into the tornado vortex, known as inflow winds. It is here, adjacent to the tornado's path, that the building type and construction techniques are critical to the structure's survival. Although tornadoes strike at random, making all buildings vulnerable, mobile homes, homes with crawlspaces, and buildings with large spans are more likely to suffer damage.

The major health hazard from tornadoes is physical injury from flying debris, or being in a collapsed building or mobile home. Within a building, flying debris or projectiles are generally stopped by interior walls. However, if a building has no partitions, any glass, brick, or other debris blown into the interior is life threatening. Following a tornado, damaged buildings are a potential health hazard due to instability, electrical system damage, and gas leaks. Sewage and water lines may also be damaged.

Peak tornado activity in Louisiana occurs during the spring, as it does in the rest of the United States. Nearly one-third of observed tornadoes in the United States occur during April. About half of those in Louisiana, including many of the strongest, occur between March and June. Fall and winter tornadoes are less frequent, but the distribution of tornadoes throughout the year is more uniform in Louisiana than in locations farther north.

Location

While there is a significant tornado record in Grant Parish with actual locations, tornadoes in general are a climatological based hazard and have the same approximate probability of occurring in Grant Parish as all of its jurisdictions. Because a tornado has a similar probability of striking anywhere within the planning area for Grant Parish, all jurisdictions are equally at risk for tornadoes.

Previous Occurrences / Extents

SHELDUS reports a total of four tornadoes or waterspouts occurring within the boundaries of Grant Parish between the years of 1990-2015. The tornadoes experienced in Grant Parish were exclusively EF1 on the EF scale, and ranged from F0 to F2 on the F scale. The worst case scenario Grant Parish can expect in the future is an EF1 tornado.

The tornado that caused the most damage to property occurred on March 31, 2009. The tornado first touched down in Natchitoches Parish before crossing the Red River into Grant Parish. Numerous trees were snapped and some homes sustained minor roof damage in the town of Montgomery. Trees also fell across the railroad tracks along US 71.

Table 2-42: Historical Tornadoes in Grant Parish with Locations from 1989-2014

Date	Impacts	Property Damage	Location	Magnitude
November 12, 1992	1.5 mile path with a width of 55 yards. Destroyed a mobile home and damaged the roofs of several nearby homes.	$8,302	UNINCORPORATED AREA	F2
November 23, 2004	3 mile path with a width of 75 yards. Damage was mainly trees blown down. One home under construction collapsed.	$61,661	COLFAX	F0
March 31, 2009	2.26 mile path with a width of 200 yards. Numerous trees were snapped. Some homes sustained minor roof damage.	$271,465	MONTGOMERY	EF1
April 4, 2011	3.26 mile path with a width of 75 yards. One car was crushed from a falling tree. One house had some shingles removed from the roof. A tin roof of a shop behind the house was peeled off and thrown forward.	$51,782	ZION	EF1

The incorporated areas of Colfax, Creola, Dry Prong, Georgetown, Montgomery, and Pollock have not experienced a tornado event from 2010 to the present. Since 2010, the year in which the last update to this hazard mitigation plan was written, Grant Parish has had one tornado touch down in the unincorporated areas of the parish. The following is a brief synopsis of this event:

April 4, 2011 – EF1 Tornado in Zion

Tornado snapped/uprooted many trees and damaged several homes as it touched down just south of Georgetown, LA (Grant Parish), and crossed Highway 165 through the community of Selma into western LaSalle Parish. Numerous trees were uprooted/snapped, with some falling on homes as the tornado tore through the Zenoria community before it lifted just northeast of Highway 84 about 5 miles southeast of Tullos. Numerous trees along the path were snapped/uprooted. Falling trees blocked Highway 84. Several homes were damaged when trees fell on/through them. One car was crushed from a falling tree in the Zenoria community. One house directly affected from the tornado in Zenoria had some shingles removed from the roof, with a tin roof of a shop behind the home having been peeled off and thrown forward into some nearby trees.

Frequency / Probability

Tornadoes are a sporadic occurrence within Grant Parish, with an annual chance of occurrence calculated at 16% based on the records for the past 25 years (1990 - 2015). The figure on the following page displays the density of tornado touch downs in Grant Parish and neighboring parishes.

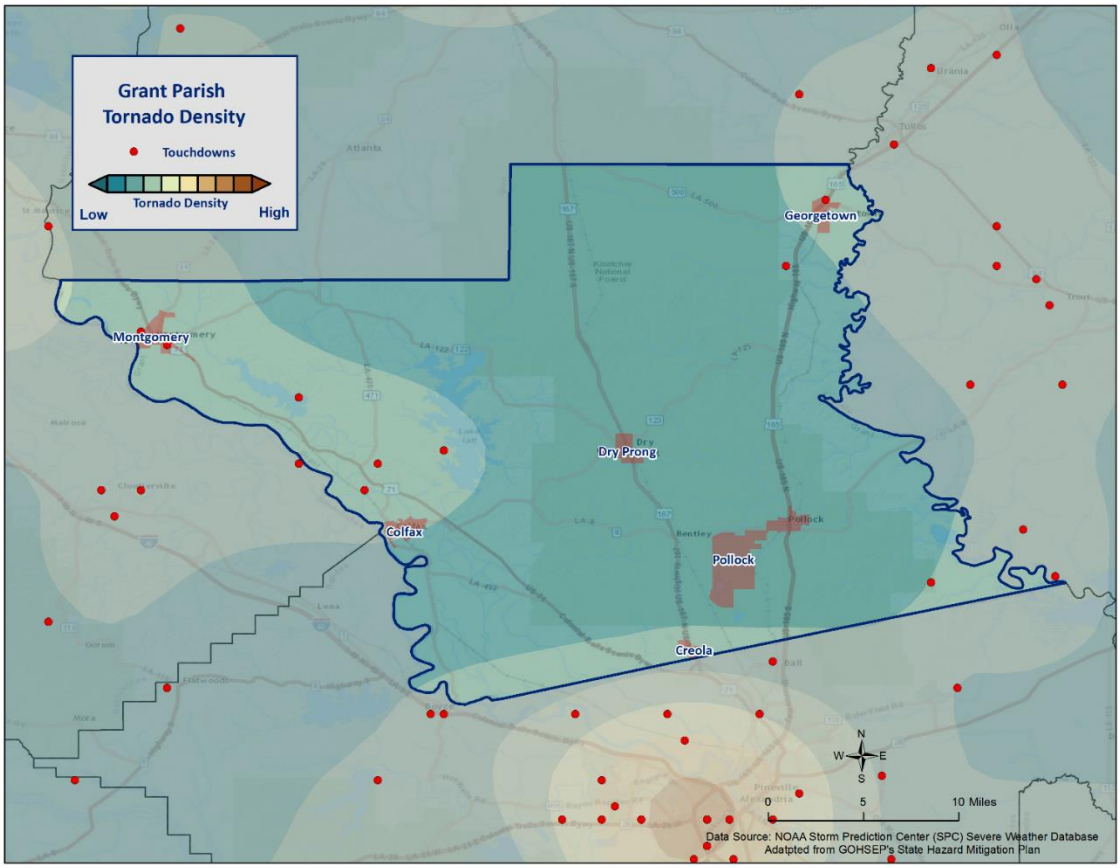


Figure 2-21: Location and Density of Tornadoes to Touch Down in Grant Parish (Source: NOAA/SPC Severe Weather Database)

Estimated Potential Losses

According to the SHELDUS database, there have been four tornadoes that have caused some level of property damage. The total damage from the actual claims for property is $393,211, with an average cost of $98,303 per tornado strike. When annualizing the total cost over the 25-year record, total annual loses based on tornadoes are estimated to be $15,728. To provide an estimated annual estimated potential loss per jurisdiction, the 2010 Census population was used to assign the estimated potential losses proportionally across the jurisdictions. Based on the 2010 Census data, the following table provides an annual estimate of potential losses for Grant Parish.

Table 2-43: Estimated Annual Losses from Tornadoes in Grant Parish

Estimated Annual Potential Losses from Tornadoes for Grant Parish						
Unincorporated Grant Parish (83.3% of Population)	Colfax (7.0% of Population)	Creola (1.0% of Population)	Dry Prong (2.0% of Population)	Georgetown (1.5% of Population)	Montgomery (3.3% of Population)	Pollock (2.1% of Population)
$185,222	$6,939	$6,426	$154,419	$43,778	$6,889	$9,798

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

Table 2-44: Building Exposure by General Occupancy Type for Tornadoes in Grant Parish (Source: FEMA's Hazus 2.2)

Building Exposure by General Occupancy Type for Tornadoes Exposure Types ($1,000)							
Residential	**Commercial**	**Industrial**	**Agricultural**	**Religion**	**Government**	**Education**	**Mobile Homes (%)**
2,281,262	138,059	80,213	8,916	84,142	32,518	21,024	17.5%

The parish has experienced no tornado-related injuries or fatalities during this 25-year period.

In assessing the overall risk to population, the most vulnerable population throughout the parish are those residing in manufacturing housing. Approximately 17.5% of all housing in Grant Parish consists of manufactured housing. Based on location data collected in a previous hazard mitigation project, there are 6 known locations where manufactured housing is concentrated. Each of those 6 locations have an overall number of manufactured houses ranging from one to 24. The location and density of manufactured houses can be seen in *Figure 2-22*.

Manufactured housing is more likely to sustain damage from a tornado than any other residential structure. The highest concentration of manufactured home parks is located in the unincorporated area of Grant Parish (*Table 2-45*). However, this does not influence the risk associated with a tornado event since they strike at random, making all structures and population within the planning area equally vulnerable.

Table 2-45: Manufactured Home Distribution throughout Grant Parish

Location	Number of Manufactured Home Parks	% of Manufactured Home Parks
Unincorporated Area	3	50.0%
Colfax	2	33.3%
Creola	1	16.7%
Dry Prong	0	0.0%
Georgetown	0	0.0%
Montgomery	0	0.0%
Pollock	0	0.0%

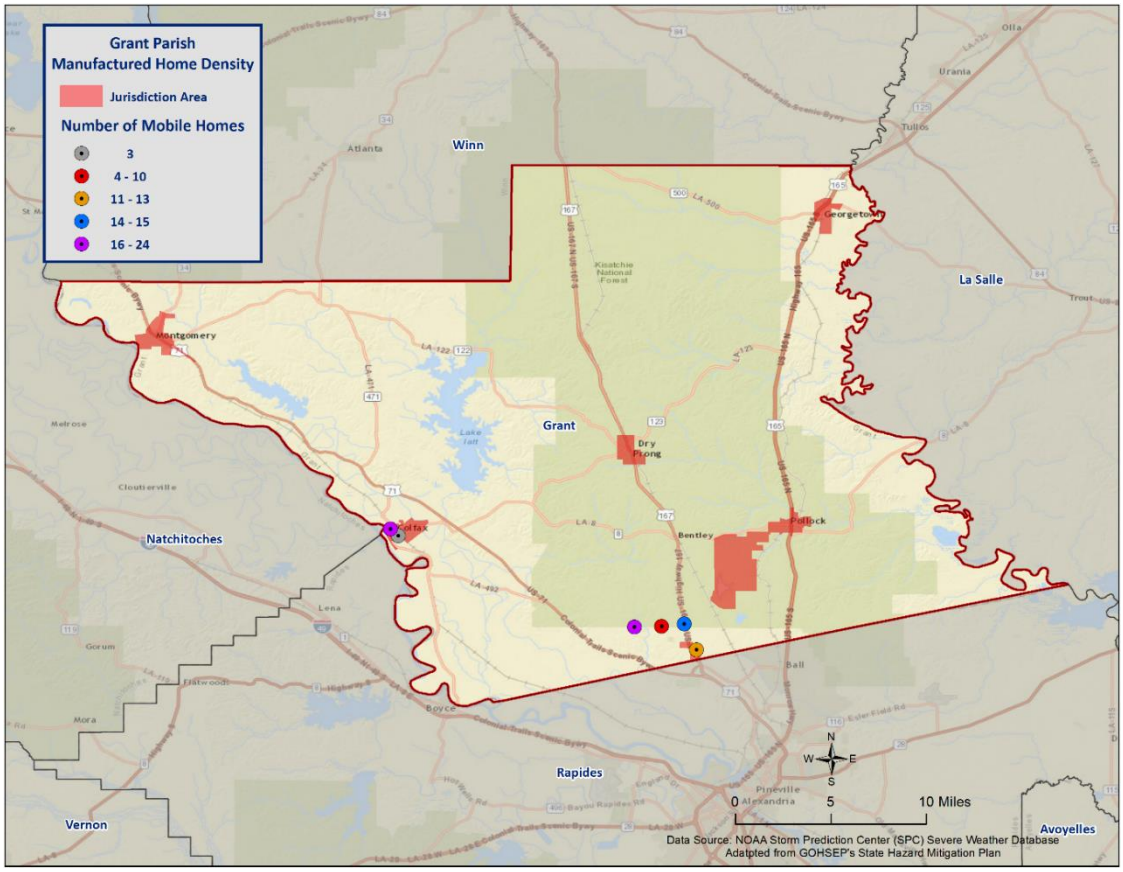


Figure 2-22: Location and Approximate Number of Units in Manufactured Housing Locations throughout Grant Parish.

Vulnerability

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

Tropical Cyclones

Tropical cyclones are among the worst hazards that Louisiana faces. These spinning, low-pressure air masses draw surface air into their centers and attain strength ranging from weak tropical waves to the most intense hurricanes. Usually, these storms begin as clusters of oceanic thunderstorms off the western coast of Africa, moving westward in the trade wind flow. The spinning of these thunderstorm clusters begins because of the formation of low pressure in a perturbation in the westerly motion of the storms associated with differential impacts of the Earth's rotation. The west-moving, counterclockwise-spinning collection of storms, now called a tropical disturbance, may then gather strength as it draws humid air toward its low-pressure center. This results in the formation of a tropical depression (defined when the maximum sustained surface wind speed is 38 mph or less), then a Tropical Cyclone (when the maximum sustained surface wind ranges from 39 mph to 73 mph), and finally a hurricane (when the maximum sustained surface wind speeds exceed 73 mph). On the next page, *Table 2-46* presents the Saffir-Simpson Hurricane Wind Scale, which categorizes tropical cyclones based on sustained winds.

Table 2-46: Saffir-Simpson Hurricane Wind Scale

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

Many associated hazards can occur during a hurricane, including heavy rains, flooding, high winds, and tornadoes. A general rule of thumb in coastal Louisiana is that the number of inches of rainfall to be expected from a tropical cyclone is approximately 100 divided by the forward velocity of the storm in mph; so a fast-moving storm (20 mph) might be expected to drop five inches of rain while a slow-moving (5 mph) storm could produce totals of around 20 inches. However, no two storms are alike, and such generalizations have limited utility for planning purposes. Hurricane Beulah, which struck Texas in 1967, spawned 115 confirmed tornadoes. In recent years, extensive coastal development has increased the storm surge resulting from

these storms so much that this has become the greatest natural hazard threat to property and loss of life in the state. Storm surge is a temporary rise in sea level generally caused by reduced air pressure and strong onshore winds associated with a storm system near the coast. Although storm surge can technically occur at any time of the year in Louisiana, surges caused by hurricanes can be particularly deadly and destructive. Such storm surge events are often accompanied by large, destructive waves (exceeding ten meters in some places) that can inflict a high number of fatalities and economic losses. In 2005, Hurricane Katrina clearly demonstrated the destructive potential of this hazard, as it produced the highest modern-day storm surge levels in the State of Louisiana, reaching up to 18.7 feet near Alluvial City in St. Bernard Parish.

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

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

Location

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

Previous Occurrences / Extents

The central Gulf of Mexico coastline is among the most hurricane-prone locations in the United States, and hurricanes can affect every part of the state. The SHELDUS database reports a total of four tropical cyclone events occurring within the boundaries of Grant Parish between the years 2002 and 2015 (*Table 2-47*). The tropical cyclone events experienced in Grant Parish include depressions, storms, and hurricanes. As a worst case scenario, Grant Parish can expect to experience hurricanes at the category 1 level in the future.

Table 2-47: Historical Tropical Cyclone Events in Grant Parish from 2002 - 2015
(Source: SHELDUS)

Date	Name	Storm Type At Time of Impact
September 23, 2005	Rita	Hurricane – Category 1
September 1, 2008	Gustav	Tropical Storm
September 13, 2008	Ike	Tropical Storm
August 30, 2012	Isaac	Tropical Storm

Hurricane Rita (2005)

While Hurricane Katrina and resulting levee failures captured headlines worldwide, lesser known (but just as destructive) Hurricane Rita wreaked havoc on southwestern Louisiana less than a month later. The storm made landfall as a Category 3 hurricane in Cameron Parish. Across southeast Louisiana, the main effect from Hurricane Rita was the substantial storm surge flooding that occurred in low lying communities across coastal areas of southern Terrebonne, southern Lafourche, and southern Jefferson Parishes, where numerous homes and businesses were flooded. Some of the most substantial damage occurred in southern Terrebonne Parish, where storm surge of five to seven feet above normal overtopped or breached local drainage levees, inundating many small communities. Newspaper accounts indicated that approximately 10,000 structures were flooded in Terrebonne Parish. Lafitte and other communities in lower Jefferson Parish also suffered extensive storm surge flooding. Storm surge flooding also occurred in areas adjacent to Lake Pontchartrain and Lake Maurepas, affecting homes and businesses from Slidell to Mandeville and Madisonville. Approximately 1,500 structures were reported as flooded in Livingston Parish near Lake Maurepas. Repaired levees damaged by Hurricane Katrina in late August were overtopped or breached along the Industrial Canal in New Orleans, resulting in renewed flooding in adjacent portions of New Orleans and St. Bernard Parish. However, the flooding was much more limited in scope than during Hurricane Katrina.

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

In Grant Parish, peak winds associated with Hurricane Rita exceeded 50 mph throughout the parish. Damage within Grant Parish was generally limited as most of the damage was concentrated along Rita's path in western Louisiana and eastern Texas. Tree damage and power outages were widespread throughout the parish.

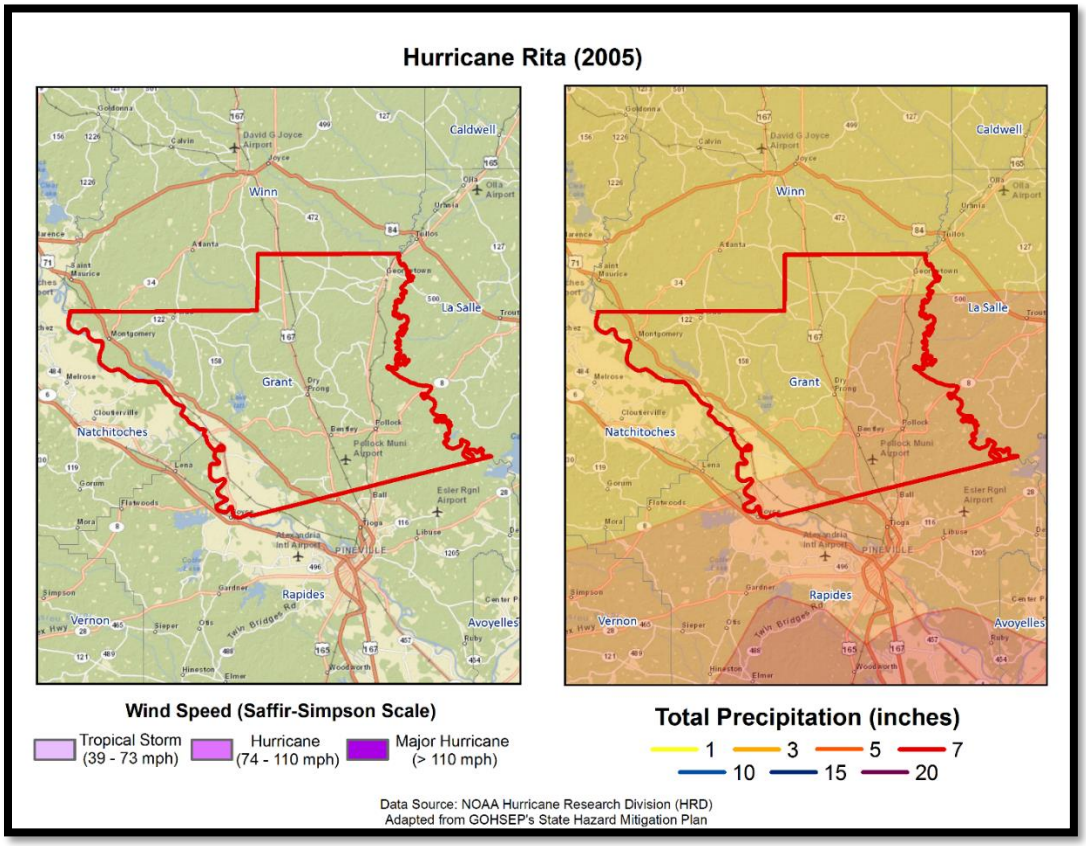


Figure 2-23: Wind Speed and Precipitation Totals in Grant Parish for Hurricane Rita

Hurricane Gustav (2008)

Hurricane Gustav entered the southeast Gulf of Mexico as a major Category 3 hurricane on August 31, 2008, after developing in the Caribbean Sea and moving across western Cuba. Gustav tracked northwestward across the Gulf toward Louisiana and made landfall as a Category 2 hurricane near Cocodrie, Louisiana, during the morning of September 1st. Gustav continued to move northwest across south Louisiana and weakened to a Category 1 storm over south central Louisiana later that day. The storm diminished to a tropical depression over northwestern Louisiana on September 2nd.

The highest wind gust recorded was 117 mph (102 kts) at a USGS site at the Houma Navigational Canal and at the Pilot Station East C-MAN near the Southwest Pass of the Mississippi River. The highest sustained wind of 91 mph was recorded at the Pilot's Station East C-MAN site. However, due to the failure of equipment at some observation sites during the storm, higher winds may have occurred. The minimum sea level pressure measured was 951.6 millibars at a USGS site at Caillou Lake, southwest of Dulac, and 954.5 millibars at the LUMCON facility near Dulac. Rainfall varied considerably across southeast Louisiana, ranging from around four inches to just over 11 inches.

Gustav produced widespread wind damage across southeast Louisiana, especially in the area from Houma and Thibodaux through the greater Baton Rouge area. Hurricane force wind gusts occurred also across the inland areas, including the Baton Rouge area and surrounding parishes. A peak wind gust of 91 mph was recorded at the Baton Rouge (Ryan Field) Airport at 1:12 PM CST. This was only one mph less than the highest wind gust recorded during Hurricane Betsy in 1965. After the storm, the electric utility serving most of southeast Louisiana reported 75 to 100 percent of utility customers were without power, in areas ranging

from Lafourche and Terrebonne Parishes northwest through the Baton Rouge area to central Louisiana and southwest Mississippi. Considerable damage occurred to many houses and structures as large tree limbs and trees were toppled by the hurricane force winds. Preliminary estimates from the American Red Cross indicated that around 13,000 single family dwellings were damaged by the hurricane in southeast Louisiana, and several thousand more apartments and mobile homes were also damaged. Early estimates from Louisiana Economic Development indicated that Gustav caused at least $4.5 billion in property damage in Louisiana, including insured and uninsured losses.

Tropical storm force winds resulted in widespread trees and power lines downed across Grant Parish. Numerous parish and secondary roads were impassable during the height of the storm from fallen debris and fallen trees. Nearly all of the parish was without power during the storm as well. The storm resulted in the death of a woman in Bentley, Louisiana when a tree hit her home. Three other people were injured when trees fell across other homes across the parish. The other injuries were not considered life threatening. The roof was torn off a school administration building in Colfax, Louisiana.

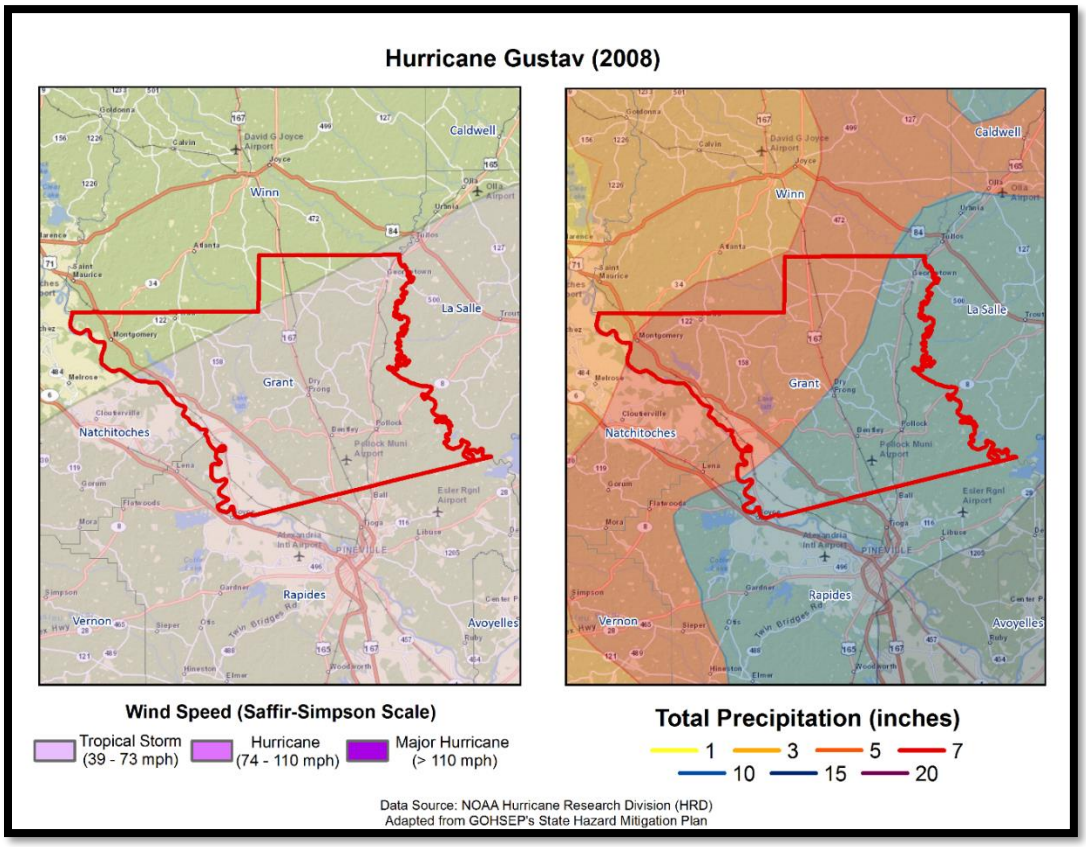


Figure 2-24: Wind Speed and Precipitation Totals in Grant Parish for Hurricane Gustav

Hurricane Ike (2008)

Hurricane Ike caused wind damage, storm surge flooding, and tornadoes across southwest Louisiana. Ike made landfall near Galveston, TX early in the morning on September 13, 2008, as a strong category 2 hurricane. Sustained hurricane force winds were confined to extreme western Cameron Parish. The highest recorded winds in southwest Louisiana were experienced at Lake Charles Regional Airport, with sustained winds of 53 mph (46 kts) and gusts of 77 mph (67 kts). The lowest pressure reading occurred at Southland Field near Sulphur, LA, with a low of 994.6 millibars. Several tornadoes were reported across southwest Louisiana. The most significant one was near Mamou, where ten to fifteen homes were damaged, including one that lost its roof. Storm surge was a significant event. Water levels ranged from 14 feet in western Cameron Parish, to eight feet in St. Mary Parish. This resulted in widespread flooding of the same areas that flooded during Hurricane Rita in 2005. Most of Cameron Parish was under water. Over 3,000 homes were flooded. This extended north into Calcasieu Parish, where another 1,000 homes flooded in Lake Charles, Westlake, and Sulphur. In Vermilion Parish, at least 1,000 homes flooded in Pecan Island, Forked Island, Intracoastal City, and Henry. This extended east into Iberia Parish, where another 1,000 homes flooded south of Highway 14 and Highway 90. In St. Mary Parish, some of the worst flooding occurred in Franklin, where a man-made levee failed, flooding over 450 homes. Maximum storm total rainfall ranged from six to eight inches across Cameron, Calcasieu, and Beauregard Parishes. No fatalities were reported in southwest Louisiana. Total property damages, however, were high. Losses were estimated to be almost $420 million across southwest Louisiana. Agricultural losses were over $225 million.

Tropical storm force winds resulted in widespread trees and power lines downed throughout the parish. Power outages were widespread as well with numerous residents without power during the height of the storm and well after the storm.

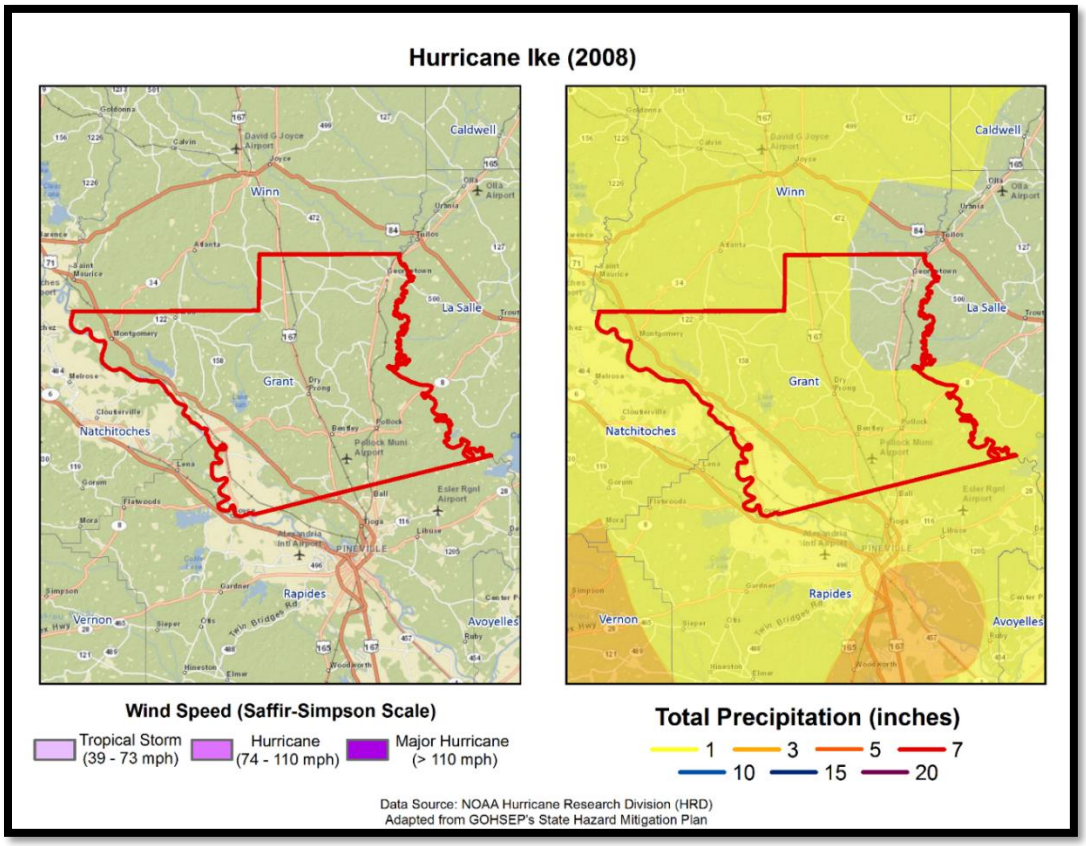


Figure 2-25: Wind Speed and Precipitation Totals in Grant Parish for Hurricane Ike

Hurricane Isaac (2012)

Hurricane Isaac made its second landfall during the predawn hours of August 29th across Southeast Louisiana. This hurricane moved very slowly north and east and was downgraded to a tropical storm later that same afternoon but due to its slow northeast movement...tropical storm force winds were not felt across portions of East Central and Northeast Louisiana until the early morning hours of August 30th. These winds estimated to be sustained at 35 to 50 mph with gusts as high as 70 mph produced winds that downed multiple trees across a few parishes. Excessive heavy rainfall also resulted well after the storm moved north into Arkansas with flash flooding being reported across portions of the region on August 31 with the remnants to Isaac. Tropical Storm force winds were felt in Grant, Jackson, La Salle, Jackson, Caldwell and Ouachita Parishes

Overall, there were minimal reports of damage to residences or infrastructure in Grant Parish. Several trees and power lines were downed across the entire parish.

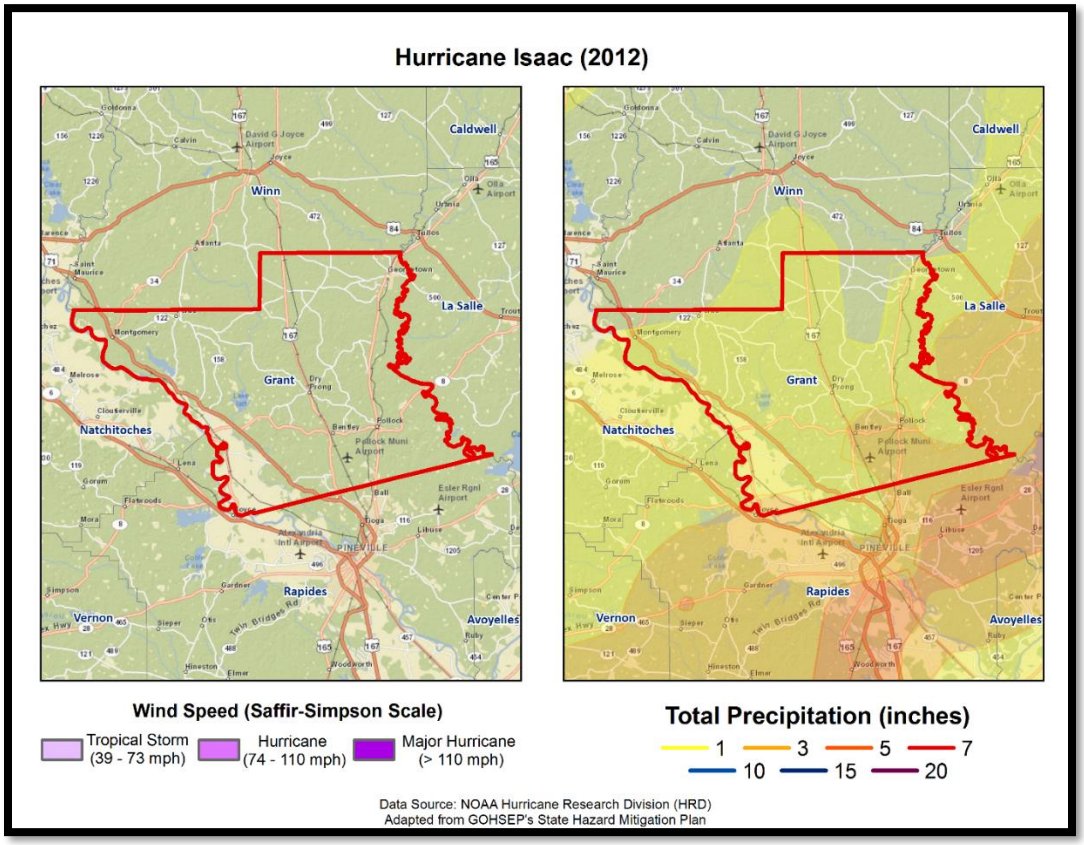


Figure 2-26: Wind Speed and Precipitation Totals in Grant Parish for Hurricane Isaac

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

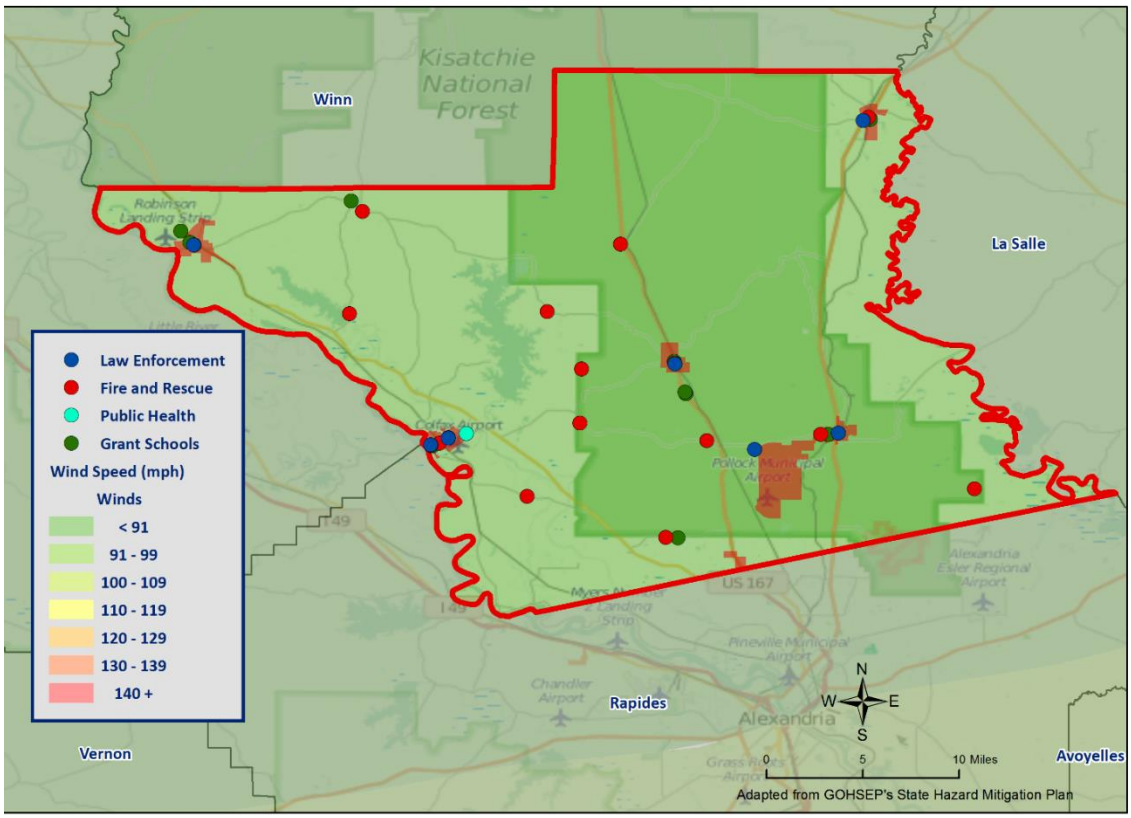


Figure 2-27: Winds Zones for Grant Parish in Relation to Critical Facilities

Frequency / Probability

Tropical cyclones are large natural hazard events that regularly impact Grant Parish. The annual chance of occurrence for a tropical cyclone is estimated at 16% for Grant Parish and its municipalities, with four events occurring within 25 years. The tropical cyclone season for the Atlantic Basin is from June 1st through November 30th, with most of the major hurricanes (Saffir-Simpson Categories 3, 4, & 5) occurring between the months of August and October.

Estimated Potential Losses

Using Hazus 2.2 100-Year Hurricane Model, the 100-year hurricane scenario was analyzed to determine losses from this worst-case scenario. The table on the following page shows the total economic losses that would result from this occurrence.

Table 2-48: Total Estimated Losses for a 100-Year Hurricane Event
(Source: Hazus 2.2)

Jurisdiction	Estimated Total Losses from 100-Year Hurricane Event
Grant Parish (Unincorporated)	$2,870,788
Colfax	$240,778
Creola	$32,918
Dry Prong	$67,381
Georgetown	$50,536
Montgomery	$112,816
Pollock	$72,481
Total	$3,447,697

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

Table 2-49: Ratio of Total Losses to Total Estimated Value of Assets for each Jurisdiction in Grant Parish
(Source: Hazus 2.2)

Jurisdiction	Estimated Total Losses from 100-Year Hurricane Event	Total Estimated Value of Assets	Ratio of Estimated Losses to Total Value
Unincorporated	$3,106,620	$2,060,683,000	0.1%
Colfax	$240,778	$230,479,000	0.1%
Creola	$32,918	$16,110,000	0.2%
Dry Prong	$67,381	$67,877,000	0.1%
Georgetown	$50,536	$34,846,000	0.1%
Montgomery	$112,816	$103,230,000	0.1%
Pollock	$72,481	$132,909,000	0.1%

Based on the Hazus 2.2 Hurricane Model, estimated total losses range from 0.1% to 0.2% of the total estimated value of all assets for the unincorporated area of Grant Parish, and the incorporated areas of Colfax, Creola, Dry Prong, Georgetown, Montgomery, and Pollock.

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

Table 2-50: Estimated Losses in Unincorporated Grant Parish for a 100-Year Hurricane Event (Source: Hazus 2.2)

Grant Parish (Unincorporated)	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$538
Commercial	$9,446
Government	$1,619
Industrial	$3,678
Religious / Non-Profit	$5,223
Residential	$3,085,034
Schools	$1,081
Total	$3,106,620

Table 2-51: Estimated Losses in Colfax for a 100-Year Hurricane Event (Source: Hazus 2.2)

Colfax	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$42
Commercial	$732
Government	$126
Industrial	$285
Religious / Non-Profit	$405
Residential	$239,105
Schools	$84
Total	$240,778

Table 2-52: *Estimated Losses in Creola for a 100-Year Hurricane Event (Source: Hazus 2.2)*

Creola	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$6
Commercial	$100
Government	$17
Industrial	$39
Religious / Non-Profit	$55
Residential	$32,689
Schools	$11
Total	$32,918

Table 2-53: Estimated Losses in Dry Prong for a 100-Year Hurricane Event (Source: Hazus 2.2)

Dry Prong	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$12
Commercial	$205
Government	$35
Industrial	$80
Religious / Non-Profit	$113
Residential	$66,912
Schools	$23
Total	$67,381

Table 2-54: Estimated Losses in Georgetown for a 100-Year Hurricane Event (Source: Hazus 2.2)

Georgetown	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$9
Commercial	$154
Government	$26
Industrial	$60
Religious / Non-Profit	$85
Residential	$50,184
Schools	$18
Total	$50,536

Table 2-55: Estimated Losses in Montgomery for a 100-Year Hurricane Event (Source: Hazus 2.2)

Montgomery	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$20
Commercial	$343
Government	$59
Industrial	$134
Religious / Non-Profit	$190
Residential	$112,032
Schools	$39
Total	$112,816

Table 2-56: Estimated Losses in Pollock for a 100-Year Hurricane Event
(Source: Hazus 2.2)

Pollock	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$13
Commercial	$220
Government	$38
Industrial	$86
Religious / Non-Profit	$122
Residential	$71,977
Schools	$25
Total	$72,481

Threat to People

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

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

Number of People Exposed to Hurricane Hazards			
Location	**# in Community**	**# in Hazard Area**	**% in Hazard Area**
Parish (Unincorporated)	**18,576**	**18,576**	**100.0%**
Colfax	**1,558**	**1,558**	**100.0%**
Creola	**213**	**213**	**100.0%**
Dry Prong	**436**	**436**	**100.0%**
Georgetown	**327**	**327**	**100.0%**
Montgomery	**730**	**730**	**100.0%**
Pollock	**469**	**469**	**100.0%**
Total	**22,309**	**22,309**	**100.0%**

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

Table 2-58: Vulnerable Populations in Unincorporated Grant Parish for a 100-Year Hurricane Event
(Source: Hazus 2.2)

Grant Parish (Unincorporated)		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	18,576	100.0%
Persons Under 5 Years	1,193	6.4%
Persons Under 18 Years	4,289	23.1%
Persons 65 Years and Over	2,240	12.1%
White	15,112	81.4%
Minority	3,464	18.7%

Table 2-59: Vulnerable Populations in Colfax for a 100-Year Hurricane Event (Source: Hazus 2.2)

Colfax		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	1,558	100.0%
Persons Under 5 Years	138	8.9%
Persons Under 18 Years	404	25.9%
Persons 65 Years and Over	258	16.6%
White	500	32.1%
Minority	1,058	67.9%

Table 2-60: Vulnerable Populations in Creola for a 100-Year Hurricane Event (Source: Hazus 2.2)

Creola		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	213	100.0%
Persons Under 5 Years	0	0.0%
Persons Under 18 Years	0	0.0%
Persons 65 Years and Over	0	0.0%
White	195	91.5%
Minority	18	8.5%

Table 2-61: Vulnerable Populations in Dry Prong for a 100-Year Hurricane Event (Source: Hazus 2.2)

Dry Prong		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	436	100.0%
Persons Under 5 Years	26	6.0%
Persons Under 18 Years	100	22.9%
Persons 65 Years and Over	76	17.4%
White	427	97.9%
Minority	9	2.1%

Table 2-62: Vulnerable Populations in Georgetown for a 100-Year Hurricane Event (Source: Hazus 2.2)

Georgetown		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	327	100.0%
Persons Under 5 Years	23	7.0%
Persons Under 18 Years	107	32.7%
Persons 65 Years and Over	40	12.2%
White	315	96.3%
Minority	12	3.7%

Table 2-63: Vulnerable Populations in Montgomery for a 100-Year Hurricane Event (Source: Hazus 2.2)

Montgomery		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	730	100.0%
Persons Under 5 Years	47	6.4%
Persons Under 18 Years	177	24.3%
Persons 65 Years and Over	128	17.5%
White	576	78.9%
Minority	154	21.1%

Table 2-64: Vulnerable Populations in Pollock for a 100-Year Hurricane Event (Source: Hazus 2.2)

Pollock		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	469	100.0%
Persons Under 5 Years	41	8.7%
Persons Under 18 Years	136	29.0%
Persons 65 Years and Over	34	7.3%
White	450	96.0%
Minority	19	4.1%

Vulnerability

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

Wildfires

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

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

According to the State of Louisiana Forestry Division, most forest fires in Louisiana are caused by intentional acts (arson) or carelessness and negligence committed by people, exacerbated by human confrontation with nature. The wildland–urban interface is the area in which development meets wildland vegetation, where both vegetation and the built environment provide fuel for fires. As development near wildland settings continues, more people and property are exposed to wildfire danger. Figure 2-28 displays the areas of wildland-urban interaction in Grant Parish.

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

Table 2-65: Southern Group of State Foresters Wildfire Risk Assessment Fire Intensity Scale (Source: Southern Wildfire Assessment Portal)

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

Location

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

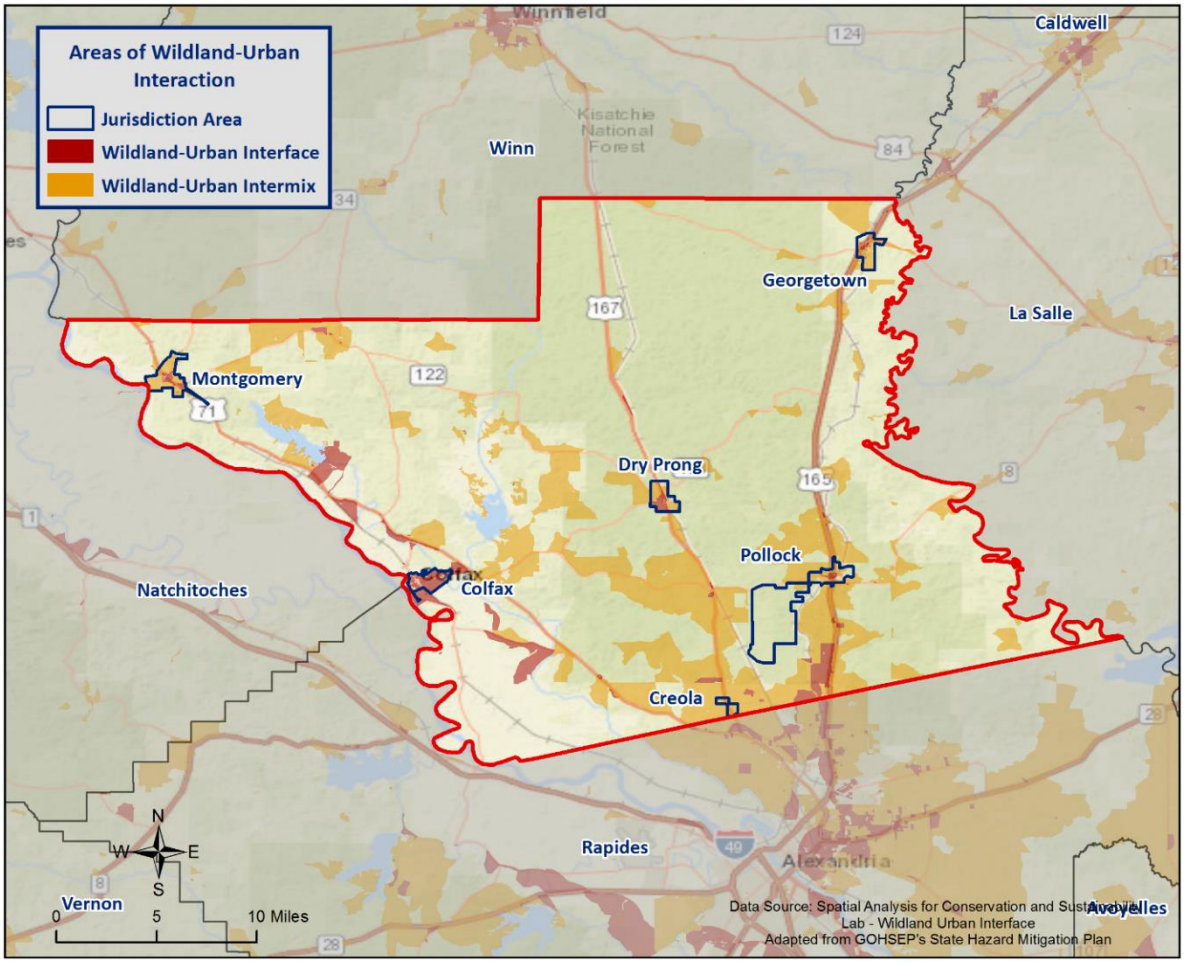


Figure 2-28: Wildland-Urban Interaction in Grant Parish

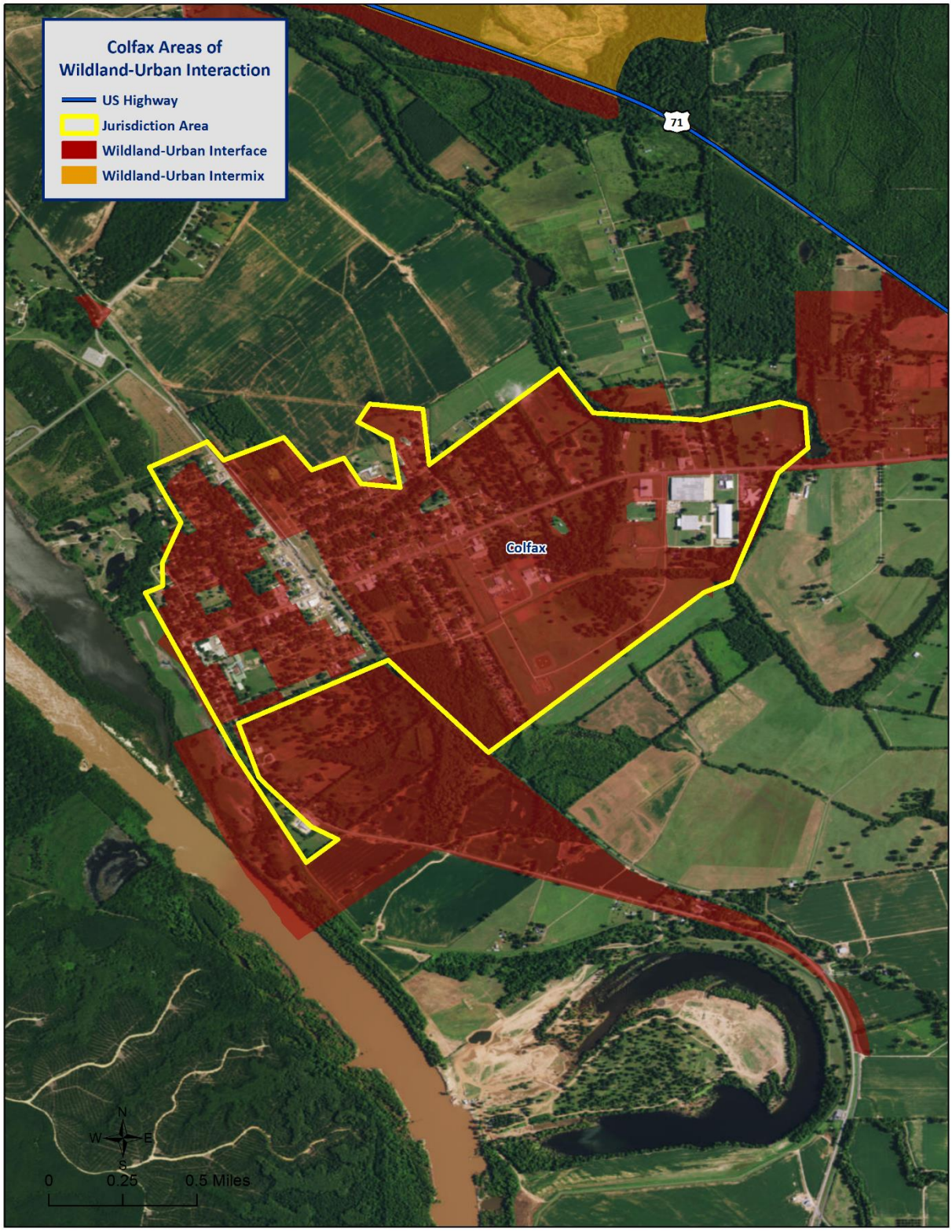


Figure 2-29: Wildland-Urban Interaction in Colfax

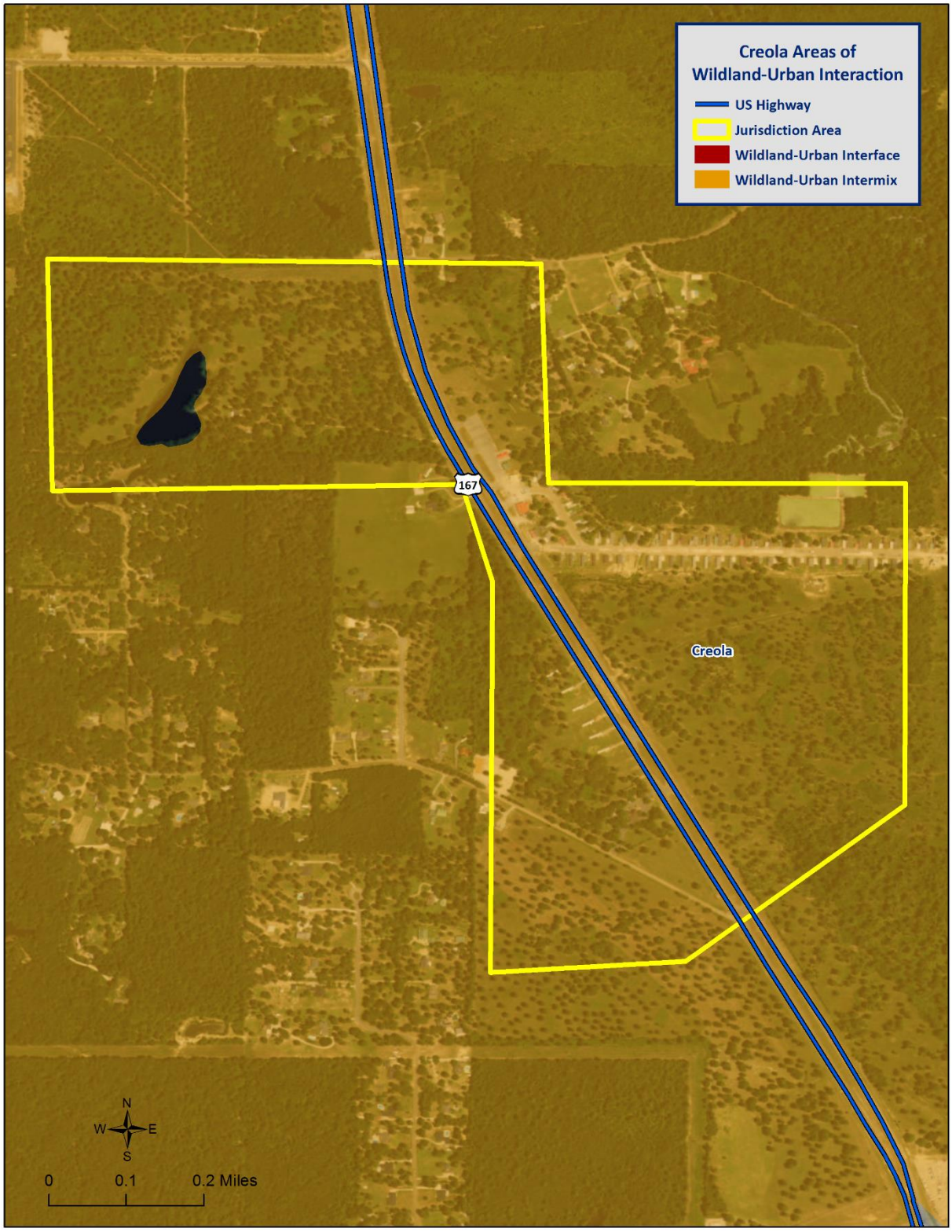


Figure 2-30: Wildland-Urban Interaction in Creola

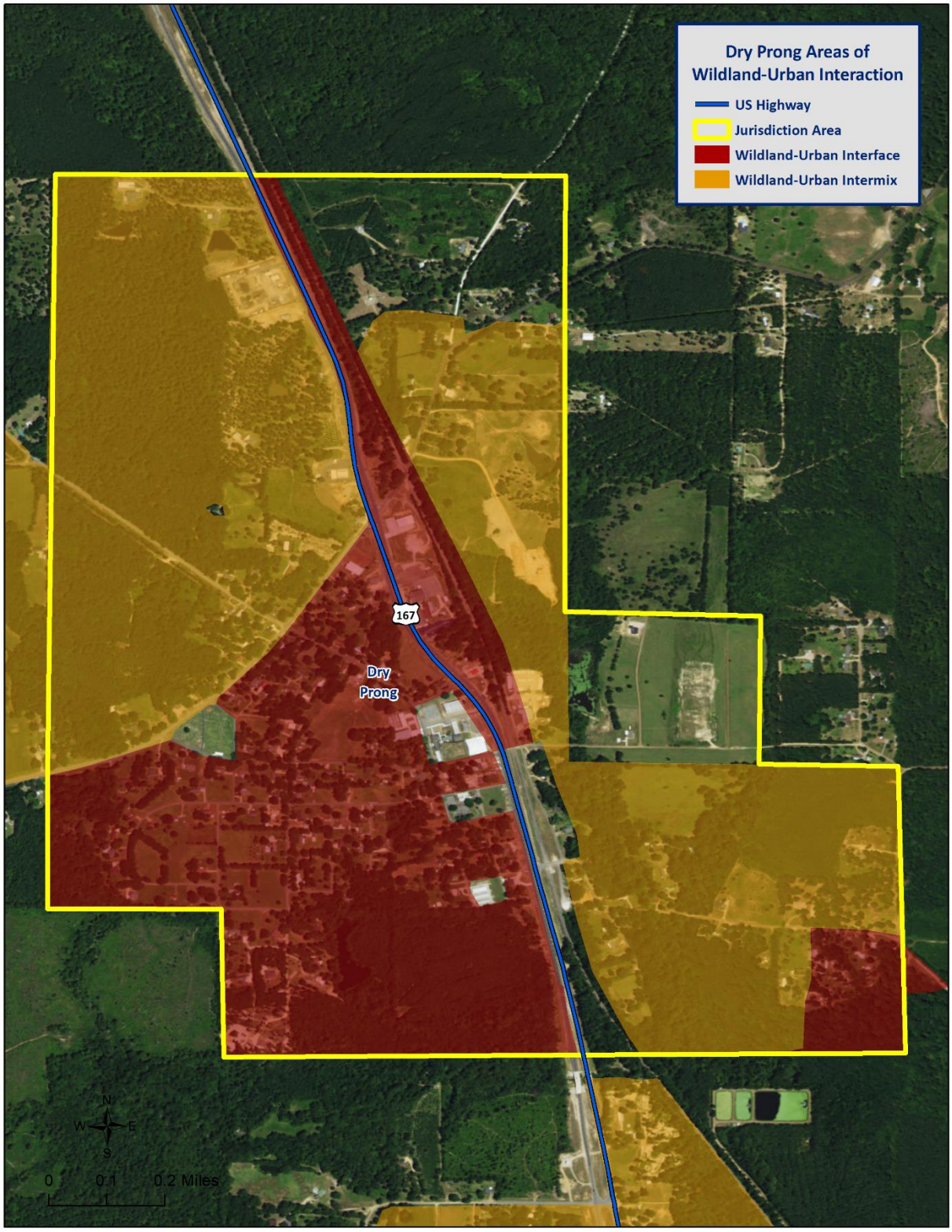


Figure 2-31: Wildland-Urban Interaction in Dry Prong

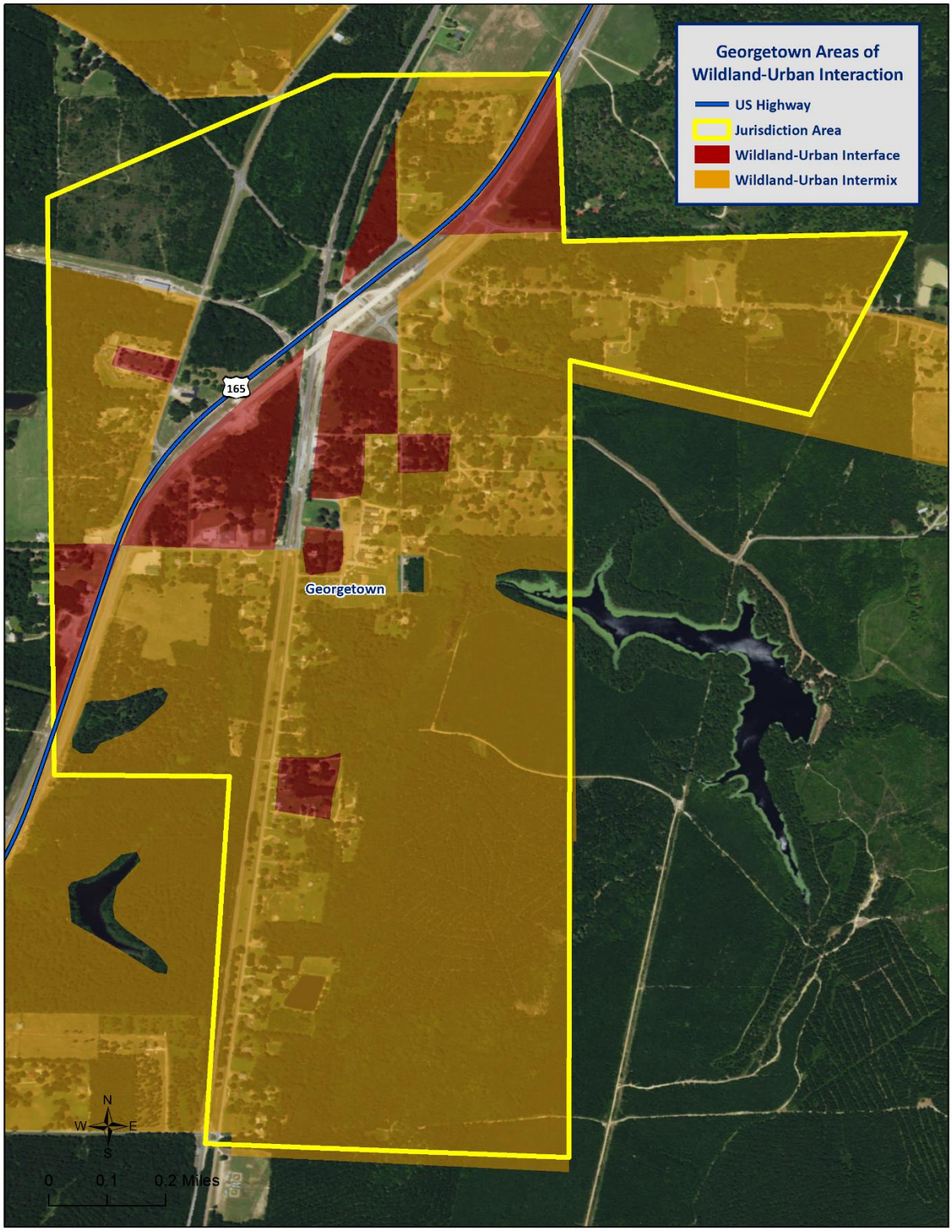


Figure 2-32: Wildland-Urban Interaction in Georgetown

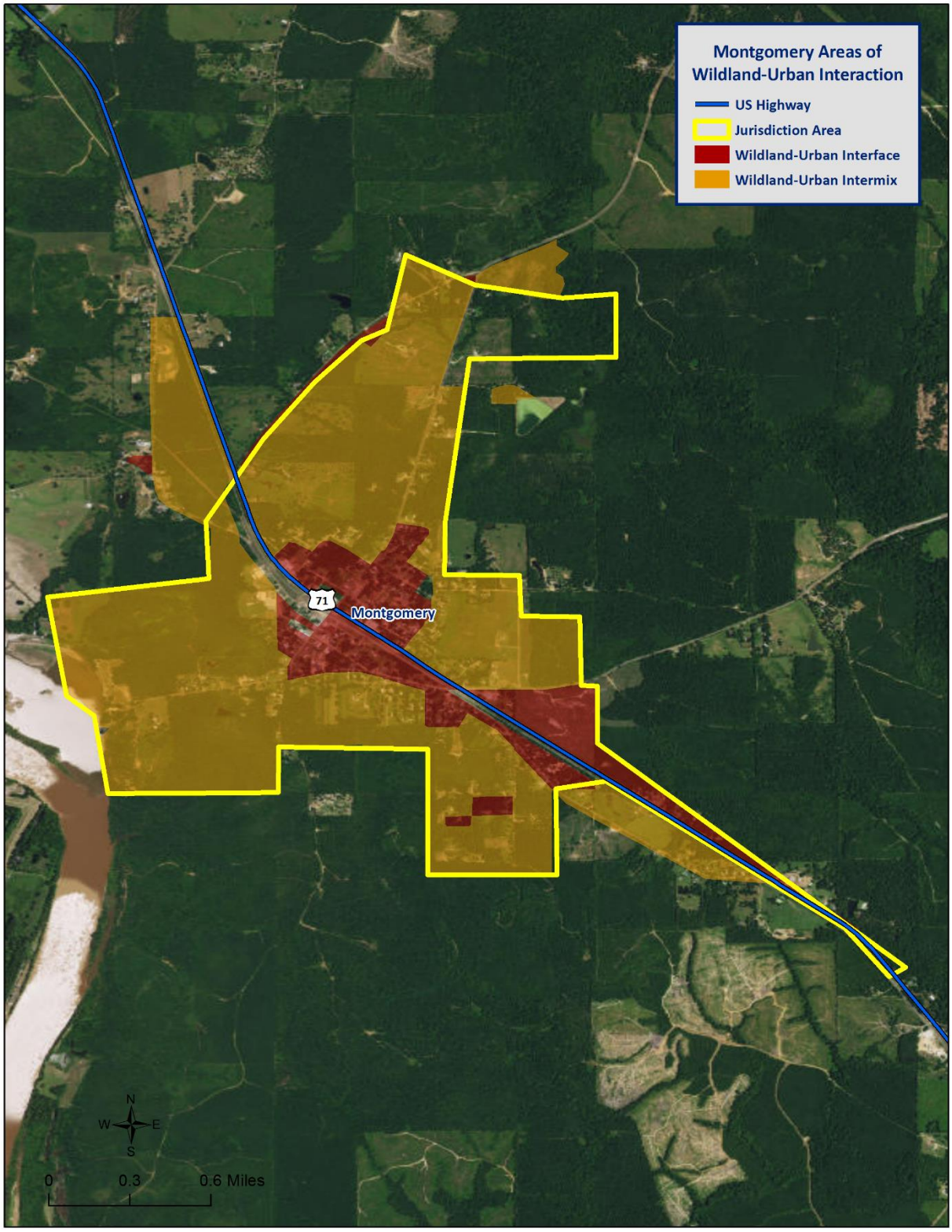


Figure 2-33: Wildland-Urban Interaction in Montgomery

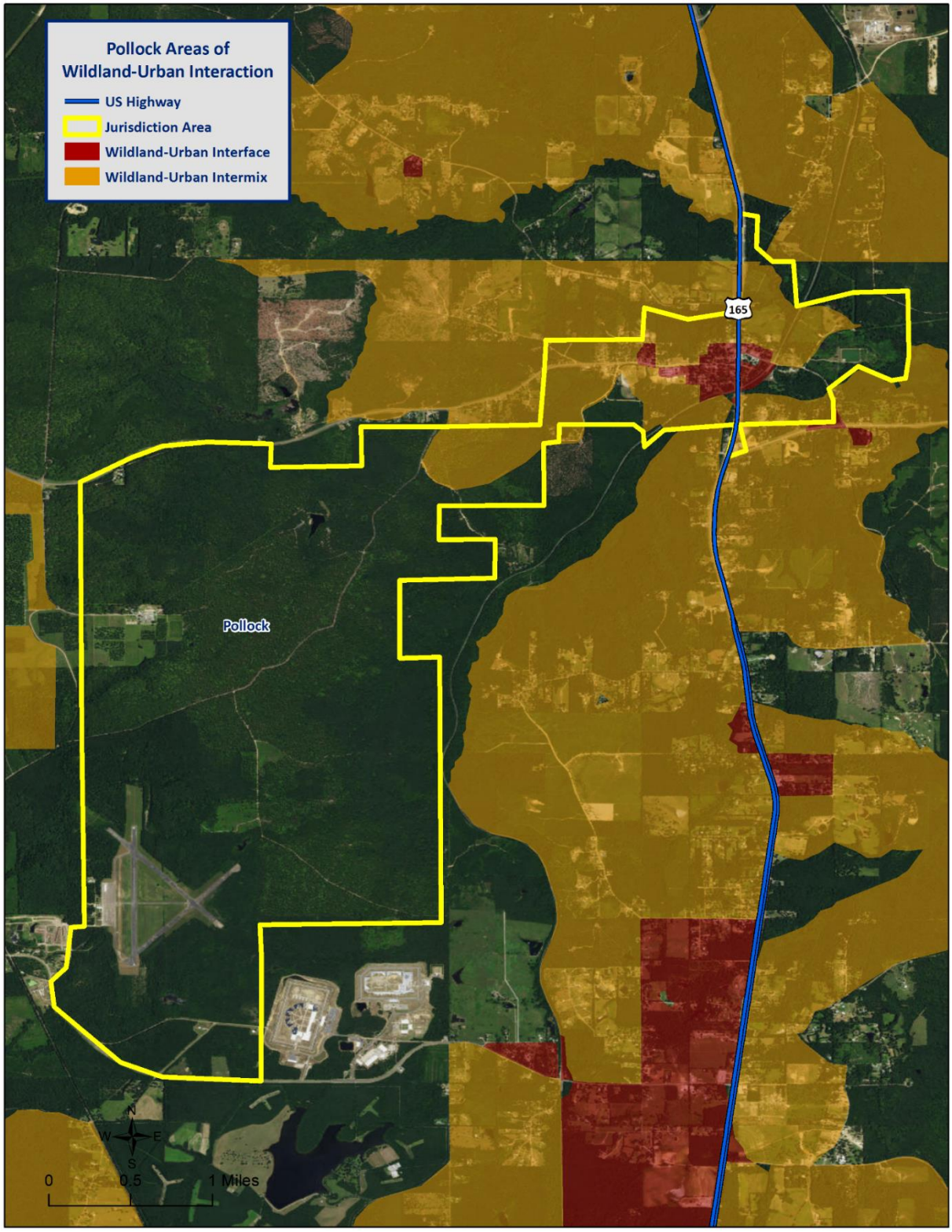


Figure 2-34: Wildland-Urban Interaction in Pollock

Previous Occurrences / Extents

Then have been no reported wildfire events within the boundaries of Grant Parish and its jurisdictions from 1990 to 2015.

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

Table 2-66: Potential Wildfire Intensity Levels for Grant Parish
(Source: Southern Wildfire Assessment Portal)

Potential Wildfire Intensity	
Grant Parish (Unincorporated)	Highest Intensity Level 5
Colfax	Moderate Intensity Level 3
Creola	Moderate Intensity Level 3
Dry Prong	Moderate to High Intensity Level 3.5
Georgetown	Moderate Intensity Level 3
Montgomery	Moderate Intensity Level 3
Pollock	Moderate Intensity Level 3

Frequency / Probability

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

Estimated Potential Losses

There have been no wildfire events that have caused property damage, crop damage, injuries, or fatalities in Grant Parish. In assessing the overall risk to population, the most vulnerable population throughout the parish consists of those residing in areas of wildland-urban interaction. Figure 2-28 displays the areas of wildland-urban interaction in Grant Parish.

Using Hazus 2.2, 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 2-67: Total Building Exposure by Wildland-Urban Interaction Areas
(Source: Hazus 2.2)

Jurisdiction	Estimated Total Building Exposure
Grant Parish (Unincorporated)	$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 2.2 also provides a breakdown by jurisdiction for seven primary sectors (Hazus occupancy) throughout the parish. Utilizing this information with the wildland-urban interaction areas allows for identifying the total exposure by jurisdiction. The total exposure for each jurisdiction by sector is listed in the following tables:

Table 2-68: Estimated Exposure for Unincorporated Grant Parish by Sector (Source: Hazus 2.2)

Grant Parish (Unincorporated)	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 2-69: Estimated Exposure for Colfax by Sector (Source: Hazus 2.2)

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 2-70: Estimated Exposure for Creola by Sector (Source: Hazus 2.2)

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 2-71: Estimated Exposure for Dry Prong by Sector
(Source: Hazus 2.2)

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 2-72: Estimated Exposure for Georgetown by Sector
(Source: Hazus 2.2)

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 2-73: Estimated Exposure for Montgomery by Sector
(Source: Hazus 2.2)

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 2-74: Estimated Exposure for Pollock by Sector
(Source: Hazus 2.2)

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

Threat to People

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

Table 2-75: Populations Located within a Wildland-Urban Interaction Area
(Source: 2010 U.S. Census Data)

Number of People Located in Wildland-Urban Interaction Areas			
Location	**# in Community**	**# in Area**	**% in Area**
Grant (Unincorporated)	**18,576**	**18,576**	**100.0%**
Colfax	**1,558**	**1,558**	**100.0%**
Creola	**213**	**213**	**100.0%**
Dry Prong	**436**	**436**	**100.0%**
Georgetown	**327**	**327**	**100.0%**
Montgomery	**730**	**730**	**100.0%**
Pollock	**469**	**288**	**61.4%**
Total	**22,309**	**22,128**	**99.2%**

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

Table 2-76: Population in Unincorporated Grant Parish Located within a Wildland-Urban Interaction Area (Source: 2010 U.S. Census Data)

Grant Parish (Unincorporated)		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	18,576	100.0%
Persons Under 5 Years	1,193	6.4%
Persons Under 18 Years	4,289	23.1%
Persons 65 Years and Over	2,240	12.1%
White	15,112	81.4%
Minority	3,464	18.7%

Table 2-77: Population in Colfax Located within a Wildland-Urban Interaction Area (Source: 2010 U.S. Census Data)

Colfax		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	1,558	100.0%
Persons Under 5 Years	138	8.9%
Persons Under 18 Years	404	25.9%
Persons 65 Years and Over	258	16.6%
White	500	32.1%
Minority	1,058	67.9%

Table 2-78: Population in Creola Located within a Wildland-Urban Interaction Area (Source: 2010 U.S. Census Data)

Creola		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	213	100.0%
Persons Under 5 Years	19	8.9%
Persons Under 18 Years	43	20.1%
Persons 65 Years and Over	32	15.1%
White	195	91.5%
Minority	18	8.5%

Table 2-79: Population in Dry Prong Located within a Wildland-Urban Interaction Area (Source: 2010 U.S. Census Data)

Dry Prong		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	436	100.0%
Persons Under 5 Years	26	6.0%
Persons Under 18 Years	100	22.9%
Persons 65 Years and Over	76	17.4%
White	427	97.9%
Minority	9	2.1%

Table 2-80: Population in Georgetown Located within a Wildland-Urban Interaction Area (Source: 2010 U.S. Census Data)

Georgetown		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	327	100.0%
Persons Under 5 Years	23	7.0%
Persons Under 18 Years	107	32.7%
Persons 65 Years and Over	40	12.2%
White	315	96.3%
Minority	12	3.7%

Table 2-81: Population in Montgomery Located within a Wildland-Urban Interaction Area (Source: 2010 U.S. Census Data)

Montgomery		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	730	100.0%
Persons Under 5 Years	47	6.4%
Persons Under 18 Years	177	24.3%
Persons 65 Years and Over	128	17.5%
White	576	78.9%
Minority	154	21.1%

Table 2-82: Population in Pollock Located within a Wildland-Urban Interaction Area (Source: 2010 U.S. Census Data)

Pollock		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	288	61.4%
Persons Under 5 Years	25	8.7%
Persons Under 18 Years	84	29.0%
Persons 65 Years and Over	21	7.3%
White	276	96.0%
Minority	12	4.1%

Vulnerability

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

Winter Storms

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

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

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

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

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

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

Table 2-83: Sperry-Piltz Ice Accumulation Index

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

Location

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

Previous Occurrences / Extents

According to SHELDUS, there have been 11 reported winter storm events that have occurred within the boundaries of Grant Parish between the years of 1990 and 2015. The following table provides a brief synopsis of each event. Based on historic data, Grant Parish can expect an ice damage index of 2 on the Sperry-Piltz Ice Accumulation Index.

Table 2-84: Previous Occurrences for Winter Storm Events

Date	Synopsis	Property Damage	Crop Damage
March 14, 1993	A widespread, damaging freeze occurred as temperatures fell into the upper teens and 20s. Due to the relatively mild winter, many crops were in early bloom. Severe damage occurred to the strawberry, peach, blueberry, citrus, tomato, and ryegrass crops.	$0	$224,191
December 22, 1998	Ice accumulated mainly across exposed surfaces such as trees and power lines as well as bridges and overpasses. Over a quarter million people were without power, some for over a week.	$84,070	$0
January 7, 2010	Overnight and early morning low temperatures were well into the teens with daytime high temperatures struggling to make it to the freezing mark. The cold temperatures froze water pipes of many homes throughout the parish.	$40,063	$0
January 5, 2014	An arctic air mass infiltrated the region early on the 5th with falling temperatures and strong northwest winds. Wind chill values ranged	$0	$0

Date	Synopsis	Property Damage	Crop Damage
	from near zero to ten degrees above zero. Low temperatures experienced on the 6th and 7th were some of the coldest temperatures Northwest Louisiana had seen since 1996.		
January 23, 2014	A strong ridge of high pressure moved into Louisiana and the 23rd. Precipitation began as light rain during the morning hours on the 23rd, but the precipitation transitioned to snowfall by the end of the day. Snow came down moderately heavy at times reducing visibilities to near one mile. Accumulations near three inches were experienced in the Colfax area.	$0	$0
January 28, 2014	Another arctic front moved into the region on the 27th, resulting in very cold temperatures. An upper level disturbance generated snow, sleet, and freezing rain for the second time in less than a week. Snowfall accumulations were up to 2.5 inches in the Colfax area and two inches in the Dry Prong area.	$0	$0
February 10, 2014	A very cold yet shallow air mass moved into the region. Warm moist air overran the air mass closer to the surface and generated light freezing rain across portions of Northwest Louisiana. Freezing rain accumulations were mainly near or less than a tenth of an inch.	$0	$0
February 11, 2014	An upper level storm system moved out of the Texas Hill Country and into Northwest Louisiana during the afternoon hours of February 11. Precipitation began as a mixture of rain and sleet with some areas receiving one inch of sleet. Overnight, the transition turned to predominantly freezing rain with ice accumulations of one quarter of an inch across much of the region.	$0	$0
February 23, 2015	Embedded disturbances within a cold dome of arctic air generated widespread winter precipitation across the region. Precipitation fell as freezing rain mixed with sleet. Accumulations were mainly less than one tenth of an inch.	$0	$0
February 25, 2015	An upper level trough moved into the Texas Hill Country and developed widespread precipitation. Precipitation initially fell as a mixture of light rain or freezing rain but transitioned to sleet and light snow after sunrise. Accumulations were minimal.	$0	$0
March 4, 2015	A cold, arctic air mass entered the region, and disturbances embedded in the flow generated precipitation. Precipitation began as a cold rain but transitioned to sleet and eventually sleet/snow mix. Freezing rain amounts were mainly less than one tenth of an inch with sleet amounts near one half to one inch and snow amounts ranging from trace amounts to near one inch accumulations.	$0	$0

Based on previous winter storm events, the worst-case scenario for the unincorporated area of Grant Parish and the incorporated areas of Colfax, Creola, Dry Prong, Georgetown, Montgomery, and Pollock is approximately three inches of snow accumulation and approximately one quarter to one half inch of ice accumulation

Frequency / Probability

With 11 recorded events in 25 years, winter storm events within the boundaries of Grant Parish have an annual chance of occurrence calculated at 44% based on the SHELDUS dataset.

Estimated Potential Losses

Since 1990, there have been 11 reported winter weather events that have resulted in property and/or crop damages according to the SHELDUS database. The total property damages associated with these storms have totaled $138,039. To estimate the potential losses of a winter weather event on an annual basis, the total damage recorded for winter weather events was divided by the total number of years of available winter weather data in SHELDUS (1990 – 2015). This provides an annual estimated potential loss of $5,522. To assess potential losses to the participating jurisdictions, the 2010 Census population was used to assign the estimated potential losses proportionally across the jurisdictions. The following table provides an estimate of potential property losses for Grant Parish based on the 2010 Census data:

Table 2-85: Estimated Annual Losses for Winter Weather Events in Grant Parish

Estimated Annual Potential Losses from Winter Storms for Grant Parish						
Unincorporated Grant Parish (83.3% of Population)	Colfax (7.0% of Population)	Creola (1.0% of Population)	Dry Prong (2.0% of Population)	Georgetown (1.5% of Population)	Montgomery (3.3% of Population)	Pollock (2.1% of Population)
$4,598	$386	$53	$108	$81	$181	$116

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

Vulnerability

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

Levee Failure

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.

Location

Grant Parish is awaiting a response from the U.S. Army Corps of Engineers on levee locations within the Grant Parish Planning area. Currently, a data deficiency exists for levee failure in Red River Parish.

Previous Occurrences / Extents

There have been two reported levee failures in Grant Parish from 1990 to 2015. The table on the following page provides a brief synopsis of each event. Levee information including the extent of a levee failure has been requested from the U.S. Army Corps of Engineers. Grant Parish is awaiting a response from the USACE, and will continue to update this information as new data is received.

Table 2-86: Previous Occurrences for Levee Failure in Grant Parish

Date	Extents	Estimated Damages	Location
May 18, 2015	Excessive heavy rainfall during the month of May resulted in very high river levels on the Red River. A crack in the levee produced a breach which sent Red River water into a local park.	$0	MONTGOMERY
June 1, 2015	Excessive heavy rainfall during the month of May resulted in very high river levels on the Red River. A crack in the levee produced a breach which sent Red River water into a local park.	$0	MONTGOMERY

Frequency / Probability

Based on the 25-year record, it is determined that a levee failure has an 8% annual chance of occurrence in the Grant Parish planning area. Grant Parish is awaiting a response from the USACE, and will continue to work to update this information as new data is received.

3. Capability Assessment

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

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

Policies, Plans, and Programs

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

Table 3-1: Grant Parish Planning and Regulatory Capabilities

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	
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	

Building Codes, Permitting, Land Use Planning and Ordinances

The Grant Parish Police Jury provides oversight for building codes for the parish, as well as the jurisdictions of Colfax, Georgetown, and Colfax, and all parish ordinances where applicable.

As of the 2016 update, Grant Parish and its jurisdictions ensure that all adopted building codes are enforced and in compliance relating to the construction of any structure within the boundaries of the parish. Building permits are required prior to beginning any type of construction or renovation projects, installation of electrical wiring, plumbing or gas piping, moving manufactured/modular or portable buildings, and reroofing or demolitions.

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

The 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, Grant Parish as a whole has a system in place to coordinate and share these capabilities through Grant Parish Government and through this Parish Hazard Mitigation Plan.

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

Administration, Technical, and Financial

As a community, Grant Parish has administrative and technical capabilities in place that may be utilized in reducing hazard impacts or implementing hazard mitigation activities. Such capabilities include staff, skillset, and tools available in the community that may be accessed to implement mitigation activities and to effectively coordinate resources. The ability to access and coordinate these resources is also important. The table below shows examples of resources in place in Grant Parish and its jurisdictions.

Table 3-2: Grant Parish Administrative and Technical Capabilities

Administration and Technical								
Identify whether your community has the following administrative and technical capabilities. For smaller jurisdictions without local staff resources, if there are public resources								
	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; FT/PT; % Hazard Mitigation							
Chief Building Official	No	No	No	No	No	No	Yes	
Floodplain Administrator	Yes	Yes	No	No	No	No	Yes	Montgomery - Relies on Parish
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 jurisdictions may vary from little/no cost actions, such as outreach efforts, to substantial action costs such acquisition of flood prone properties.

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

Table 3-3: Grant Parish 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	
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 jurisdictions and parish as a whole to maximize opportunities for implementation of activities through greater acceptance and consensus of the community.

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

Table 3-4: Grant Parish Education and Outreach Capabilities

Education and Outreach								
Identify education and outreach programs and methods, already in place that could be used to implement mitigation activities and communicate hazard-related								
	Grant Parish	Colfax	Creola	Dry Prong	Georgetown	Montgomery	Pollock	
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	

In some cases, the jurisdictions rely on Grant Parish OHSEP and/or Grant Parish Government Agencies for the above listed planning and regulatory, administrative and technical, financial, and education and outreach capabilities. Comments regarding the jurisdictions utilization or intentions to utilize and leverage the capabilities of the parish government can be found in Appendix E in the jurisdictional specific worksheets.
As reflected in the aforementioned existing regulatory mechanisms, programs, and resources within each jurisdiction, Grant Parish and its jurisdiction remains committed to expanding and improving on the existing capabilities within the parish. All participating jurisdictions will work toward increased participation in funding opportunities and available mitigation programs. Should funding become available, the hiring of additional personnel to dedicate to hazard mitigation initiatives and programs, as well as increasing ordinances within the jurisdictions, will help to enhance and expand risk reduction measures within the parish.

With the sharing of these capabilities, the following municipalities and entities are recognized by the Parish of Grant under the Hazard Mitigation Plan, allowing them to apply for available hazard mitigation funding for as long as these municipalities and entities notify the parish of their intentions and the parish concurs:

- Town of Colfax
- Village of Creola
- Village of Dry Prong
- Village of Georgetown
- Town of Montgomery
- Town of Pollock

Flood Insurance and Community Rating System

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

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

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

There are ten CRS classes: class 1 requires the most credit points and gives the largest premium reduction; class 10 receives no premium reduction (see *Figure 3-1*). A community that does not apply for the CRS or that does not obtain the minimum number of credit points is a class 10 community.
During the last update, 38 Louisiana communities participated. Mandeville, Shreveport, and Jefferson and East Baton Rouge Parishes had the best classifications in the state, class 7. As of the 2016 update, Jefferson, East Baton Rouge, and Terrebonne Parishes all lead the state with best classifications, class 6.

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

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

SFHA (Zones A, AE, A1–A30, V, V1–V30, AO, and AH): Discount varies depending on class.

SFHA (Zones A99, AR, AR/A, AR/AE, AR/A1–A30, AR/AH, and AR/AO): 10% discount for Classes 1–6; 5% discount for Classes 7–9.*

Non-SFHA (Zones B, C, X, D): 10% discount for Classes 1–6; 5% discount for Classes 7–9.

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

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

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

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

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

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

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

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

The 2013 CRS Coordinator's Manual changes will impact each CRS community differently. Some communities will see an increase in the points they receive since points for certain activities have increased (e.g., Activity 420 Open Space Preservation). Other communities will receive fewer points for certain activities (e.g., Activity 320 Map Information Service). It is likely that some communities with marginal CRS class 9 programs will have to identify new CRS credits in order to remain in the CRS.
Typically, CRS communities do not request credit for all the activities they are currently implementing unless it would earn enough credit to advance the community to a higher CRS class. A community that finds itself losing CRS credit with the 2013 manual could likely identify activities deserving credit they had not previously received.

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

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

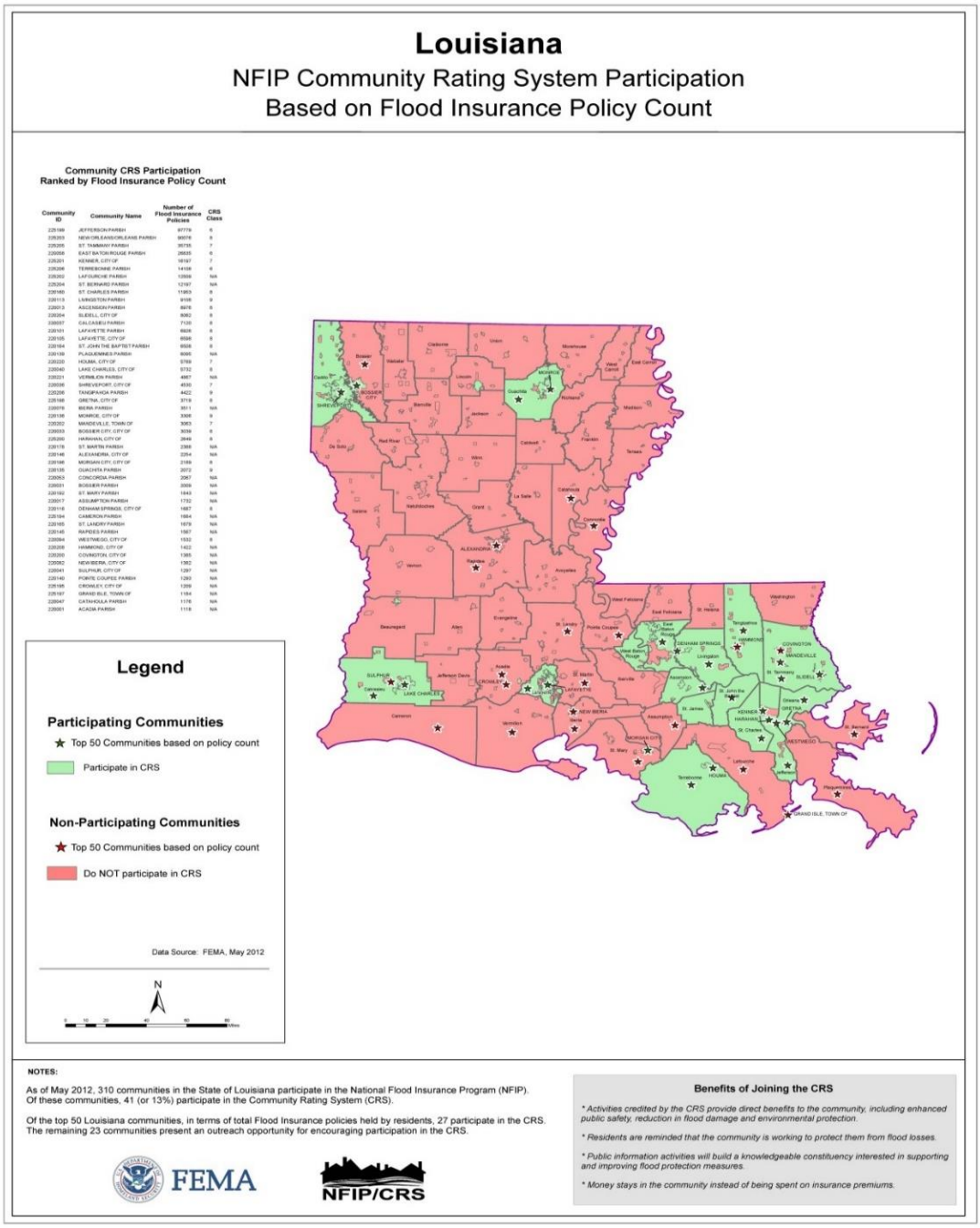


Figure 3-2: Louisiana CRS NFIP Participation
(Source: FEMA[2])

[2] http://www.fema.gov/media-library-data/20130726-2128-31471-9581/ks_ky_la_crs_may_2012_508.zip

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

1. The activities credited by the CRS provide direct benefits to residents, including:
   – Enhanced public safety
   – A reduction in damage to property and public infrastructure
   – Avoidance of economic disruption and losses
   – Reduction of human suffering
   – Protection of the environment

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

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

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

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

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

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

More information on the Community Rating System can be found at www.fema.gov/nfip/crs.shtm

NFIP Worksheets

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

4. Mitigation Strategy

Introduction

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

Grant Parish confirmed the goals, objectives, actions, and projects over the period of the Hazard Mitigation Plan Update process. The mitigation actions and projects in this 2016 update are a product of analysis and review of the Grant Parish Hazard Mitigation Plan Steering 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 2011 plan, for review from February 2016 – September 2016.

An online public opinion survey was conducted of Grant Parish residents between February and October 2016. The survey was designed to capture public perceptions and opinions regarding natural hazards in Grant Parish. In addition, the survey sought to collect information regarding the methods and techniques preferred by the respondents for reducing the risks and losses associated with local hazards.

This activity was created in an effort to confirm that the goals and action items developed by the Grant Parish Hazard Mitigation Plan Steering Committee are representative of the outlook of the community at large. The full Grant Parish survey can be found at the following link:

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

During the public meeting in July, the committee provided a status of the projects from 2011 and the proposed actions for the 2016 update. Committee members then agreed on the submission of each project based on feasibility for funding, ease of completion and other community specific factors. The actions were later prioritized.

Goals

The goals represent the guidelines that the parish and its communities want to achieve with this plan update. To help implement the strategy and adhere to the mission of the Hazard Mitigation Plan, the preceding section of the plan update was focused on identifying and quantifying the risks faced by the residents and property owners in 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 and its jurisdictions can make progress toward reducing identified risks. For the purposes of this plan update, goals and action items are defined as follows:

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

The current goals of the Grant Parish Hazard Mitigation Plan Update Steering Committee represent long-term commitments by the parish and its jurisdictions. After assessing these goals, the committee decided that the current four goals remain valid.

The goals are as follows:

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

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

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

2016 Mitigation Actions and Update on Previous Plan Actions

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

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

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

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

Grant 2011 Hazard Mitigation Action Update

Grant Parish- Unincorporated Areas					
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
G1: 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	Floodplain Manager	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes	Carried Over
G2: 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.	Parish Budget	Floodplain Manager	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes	Carried Over
G3: 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.	Parish and Town Budgets; Grants	Mayor, Town Planning Director and Floodplain Manager	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes, Tornadoes	Carried Over
G4: Harden Critical Facilities	Harden critical facilities including but not limited to the Grant Parish EOC and Civic Center by utilizing applicable flood proofing techniques, window/roof/door hardening and add backup 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.	Parish Budget	OHLS/EP Director	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes, Tornadoes, Winter Storms	Carried Over
G5: Grant Parish Courthouse	Harden critical facilities for the Grant Parish Courthouse.	Parish Budget	OHLS/EP Director	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes, Tornadoes	Carried Over

G6: Harden Levees	Harden levees to meet certification requirements; partner with Rapides Parish.	US Army Corps of Engineers	Parish Engineer; Parish Manager	Levee and Dam Failure, Flooding; Hurricanes	Carried Over
G7: Harden Weir	Harden weir that was previously installed to enhance levee protection and flooding protection; includes technical assistance.	HMGP	Parish Manager	Levee and Dam Failure, Flooding	Carried Over
G8: 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	Mayors and Parish Emergency Manager	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes, Tornadoes	Carried Over
G9: 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	Parish School Board and Parish Emergency Manager	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes, Tornadoes, Winter Storms	Carried Over
G10: 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	Parish Emergency Manager and Town Mayors	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes, Tornadoes	Carried Over
G11: 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	Parish Emergency Manager	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes, Tornadoes	Carried Over
G12: International Building Codes	Adopt the current International Building Codes by ordinance, which would result in additional techniques to harden structures.	Parish Budget	Parish Police Jury	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes, Tornadoes	Carried Over

G13: 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	Parish Engineer and/or Parish Department of Public Works	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes	Carried Over
G14: 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.	Parish and/or Drainage Board Budget	Parish Engineer and/or Parish Department of Public Works	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes	Carried Over
G15: 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 Block 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	Parish and Town Floodplain Managers / Public Works Director	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes	Carried Over

Town of Colfax					
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
C1: 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	Town Engineer	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes	Carried Over
C2: Drainage Plan	As a community, Pollock should be prepared to participate and facilitate the Parish-wide drainage plan.	Parish and Town Budgets	Mayor	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes	Carried Over
C3: Repetitive Loss Structures	Pursue elevation / acquisition / flood proofing of repetitive loss structures.	HMGP; CDBG; LGA Grants	Mayor; GOHSEP Director	Floods, Hurricanes, Thunderstorms	Carried Over
C4: Community Rating System	Participate in Community Rating System (CRS).	Town Budget	Mayor; PW Director	Floods, Hurricanes, Thunderstorms	Carried Over
C5: 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.	Parish and Town Budgets; Grants	GOHSEP Director	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes / Tornadoes	Carried Over
C6: 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.	Parish and Town Budgets; Grants	Mayor, Town Planning Director and Floodplain Manager	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes / Tornadoes	Carried Over
C7: 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	Mayor and Town Emergency Manager	All Hazards	Carried Over
C8: 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	Mayor and Town Emergency Manager	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes / Tornadoes	Carried Over

Village of Creola					
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
C1: 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.	Village Budget, Grant Funding	Mayor, Village Engineer	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes	Carried Over
C2: Drainage Plan	As a community, Pollock should be prepared to participate and facilitate the Parish-wide drainage plan.	Parish and Village Budgets	Mayor	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes	Carried Over
C3: Repetitive Loss Structures	Pursue elevation / acquisition / flood proofing of repetitive loss structures.	HMGP; CDBG; LGA Grants	Mayor; GOHSEP Director	Floods, Hurricanes, Thunderstorms	Carried Over
C4: Community Rating System	Participate in Community Rating System (CRS).	Village Budget	Mayor; PW Director	Floods, Hurricanes, Thunderstorms	Carried Over
C5: 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.	Parish and Village Budgets; Grants	Mayor, Village Planning Director and Floodplain Manager	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes / Tornadoes	Carried Over
C6: 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	Mayor and Village Emergency Manager	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes / Tornadoes	Carried Over

Village of Dry Prong					
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
D1: 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.	Village Budget, Grant Funding	Mayor, Village Engineer	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes	Carried Over
D2: Drainage Plan	As a community, Pollock should be prepared to participate and facilitate the Parish-wide drainage plan.	Parish and Village Budgets	Mayor	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes	Carried Over
D3: Repetitive Loss Structures	Pursue elevation / acquisition / flood proofing of repetitive loss structures.	HMGP; CDBG; LGA Grants	Mayor; GOHSEP Director	Floods, Hurricanes, Thunderstorms	Carried Over
D4: Community Rating System	Participate in Community Rating System (CRS).	Village Budget	Mayor; PW Director	Floods, Hurricanes, Thunderstorms	Carried Over
D5: 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).	Parish and Village Budgets	GOHSEP Director	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes / Tornadoes	Carried Over
D6: 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.	Parish and Village Budgets; Grants	Mayor, Village Planning Director and Floodplain Manager	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes / Tornadoes	Carried Over
D7: 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	Mayor and Village Emergency Manager	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes / Tornadoes	Carried Over

Village of Georgetown					
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
G1: 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.	Village Budget, Grant Funding	Mayor, Village Engineer	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes	Carried Over
G2: Drainage Plan	As a community, Pollock should be prepared to participate and facilitate the Parish-wide drainage plan.	Parish and Village Budgets	Mayor	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes	Carried Over
G3: Repetitive Loss Structures	Pursue elevation / acquisition / flood proofing of repetitive loss structures.	HMGP; CDBG; LGA Grants	Mayor; GOHSEP Director	Floods, Hurricanes, Thunderstorms	Carried Over
G4: Community Rating System	Participate in Community Rating System (CRS).	Village Budget	Mayor; PW Director	Floods, Hurricanes, Thunderstorms	Carried Over
G5: 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.	Parish and Village Budgets; Grants	Mayor, Village Planning Director and Floodplain Manager	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes / Tornadoes	Carried Over
G6: 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	Mayor and Village Emergency Manager	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes / Tornadoes	Carried Over

Town of Montgomery					
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
M1: 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.	Village Budget, Grant Funding	Mayor, Village Engineer	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes	Carried Over
M2: Drainage Plan	As a community, Pollock should be prepared to participate and facilitate the Parish-wide drainage plan.	Parish and Village Budgets	Mayor	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes	Carried Over
M3: Repetitive Loss Structures	Pursue elevation / acquisition / flood proofing of repetitive loss structures.	HMGP; CDBG; LGA Grants	Mayor; GOHSEP Director	Floods, Hurricanes, Thunderstorms	Carried Over
M4: Community Rating System	Participate in Community Rating System (CRS).	Village Budget	Mayor; PW Director	Floods, Hurricanes, Thunderstorms	Carried Over
M5: 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	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes / Tornadoes	Carried Over
M6: 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.	Parish and Village Budgets; Grants	Mayor, Village Planning Director and Floodplain Manager	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes / Tornadoes	Carried Over
M7: 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	Mayor and Village Emergency Manager	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes / Tornadoes	Carried Over

Town of Pollock					
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
P1: 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	Town Engineer	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes	Carried Over
P2: Drainage Plan	As a community, Pollock should be prepared to participate and facilitate the Parish-wide drainage plan.	Parish and Town Budgets	Mayor	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes	Carried Over
P3: Repetitive Loss Structures	Pursue elevation / acquisition / flood proofing of repetitive loss structures.	HMGP; CDBG; LGA Grants	Mayor; GOHSEP Director	Floods, Hurricanes, Thunderstorms	Carried Over
P4: Community Rating System	Participate in Community Rating System (CRS).	Town Budget	Mayor; PW Director	Floods, Hurricanes, Thunderstorms	Carried Over
P5: Generators	Add back up power supply / generators at the critical facilities in Pollock including the ground storage facility.	Town Budgets; Grants	Mayor	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes / Tornadoes	Carried Over
P6: 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.	Parish and Town Budgets; Grants	Mayor, Town Planning Director and Floodplain Manager	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes / Tornadoes	Carried Over
P7: 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	Mayor and Town Emergency Manager	All Hazards	Carried Over
P8: 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	Mayor and Town Emergency Manager	Severe Storms (thunderstorms with lightning and high winds), Floods, Hurricanes / Tornadoes	Carried Over

Unincorporated Grant New Mitigation Actions

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

G6: Generators for Continuity of Operations and Government	Procurement and Installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Grant Parish OHSEP	Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail)	New
G7: Lightning Mitigation	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Grant Parish OHSEP	Lightning	New
G8: Warning Systems	Update/upgrade public warning system components throughout Grant Parish as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Grant Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
G9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Grant Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes	New
G10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Grant Parish OHSEP	Tropical Cyclones, Flooding	New
G11: Wildfire Ordinance	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Grant Parish OHSEP	Wildfires	New
G12: Levee Failure Working Group	Create a working group in order to assess the extent and determine the possible effects of a levee failure	FEMA HMGP, Local	1-5 years	Grant Parish OHSEP	Levee Failure	New

Town of Colfax - New Mitigation Actions

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

C6: Generators for Continuity of Operations and Government	Procurement and Installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Town of Colfax/Grant Parish OHSEP	Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail)	New
C7: Lightning Mitigation	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Town of Colfax/Grant Parish OHSEP	Lightning	New
C8: Warning Systems	Update/upgrade public warning system components throughout Colfax as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Town of Colfax/Grant Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
C9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Town of Colfax/Grant Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes	New
C10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Town of Colfax/Grant Parish OHSEP	Tropical Cyclones, Flooding	New
C11: Wildfire Ordinance	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Town of Colfax/Grant Parish OHSEP	Wildfires	New
C12: Levee Failure Working Group	Create a working group in order to assess the extent and determine the possible effects of a levee failure	FEMA HMGP, Local	1-5 years	Town of Colfax/Grant Parish OHSEP	Levee Failure	New

Village of Creola - New Mitigation Actions

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

C6: Generators for Continuity of Operations and Government	Procurement and Installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Village of Creola/Grant Parish OHSEP	Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail)	New
C7: Lightning Mitigation	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Village of Creola/Grant Parish OHSEP	Lightning	New
C8: Warning Systems	Update/upgrade public warning system components throughout Creola as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Village of Creola/Grant Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
C9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Village of Creola/Grant Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes	New
C10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Village of Creola/Grant Parish OHSEP	Tropical Cyclones, Flooding	New
C11: Wildfire Ordinance	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Village of Creola/Grant Parish OHSEP	Wildfires	New
C12: Levee Failure Working Group	Create a working group in order to assess the extent and determine the possible effects of a levee failure	FEMA HMGP, Local	1-5 years	Village of Creola/Grant Parish OHSEP	Levee Failure	New

Village of Dry Prong - New Mitigation Actions

Village of Dry Prong						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
D1: Building Retrofits	Retrofit public buildings exterior shell to maintain use during and after storm events. Benefits: Reduces damage from high winds, and helps assure that the public buildings can be used, occupied and operable during or after storms.	FEMA HMGP, Local	1-5 years	Village of Dry Prong/Grant Parish OHSEP	High Winds, Tropical Cyclones, Tornadoes, Hail	New
D2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	FEMA HMGP, Local	1-5 years	Village of Dry Prong/Grant Parish OHSEP	Flooding, High Winds, Tropical Cyclones	New
D3: Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.	FEMA HMGP, Local	1-5 years	Village of Dry Prong/Grant Parish OHSEP	Flooding, Tropical Cyclones	New
D4: Safe Room Projects	Construction of a safe room for first responders located in Dry Prong. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Village of Dry Prong/Grant Parish OHSEP	Tornadoes, High Winds, Tropical Cyclones	New
D5: 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, Levee Failure, and Winter Storm hazards as well as providing information on high risk areas. Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.	FEMA HMGP, Local	1-5 years	Village of Dry Prong/Grant Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Thunderstorms (lightning, high wind, hail), Winter Storms, Drought, Levee Failure	New

D6: Generators for Continuity of Operations and Government	Procurement and Installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Village of Dry Prong/Grant Parish OHSEP	Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail)	New
D7: Lightning Mitigation	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Village of Dry Prong/Grant Parish OHSEP	Lightning	New
D8: Warning Systems	Update/upgrade public warning system components throughout Dry Prong as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Village of Dry Prong/Grant Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
D9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Village of Dry Prong/Grant Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes	New
D10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Village of Dry Prong/Grant Parish OHSEP	Tropical Cyclones, Flooding	New
D11: Wildfire Ordinance	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Village of Dry Prong/Grant Parish OHSEP	Wildfires	New
D12: Levee Failure Working Group	Create a working group in order to assess the extent and determine the possible effects of a levee failure	FEMA HMGP, Local	1-5 years	Village of Dry Prong/Grant Parish OHSEP	Levee Failure	New

Village of Georgetown - New Mitigation Actions

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

G6: Generators for Continuity of Operations and Government	Procurement and Installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Village of Georgetown/Grant Parish OHSEP	Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail)	New
G7: Lightning Mitigation	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Village of Georgetown/Grant Parish OHSEP	Lightning	New
G8: Warning Systems	Update/upgrade public warning system components throughout Georgetown as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Village of Georgetown/Grant Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
G9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Village of Georgetown/Grant Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes	New
G10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Village of Georgetown/Grant Parish OHSEP	Tropical Cyclones, Flooding	New
G11: Wildfire Ordinance	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Village of Georgetown/Grant Parish OHSEP	Wildfires	New
G12: Levee Failure Working Group	Create a working group in order to assess the extent and determine the possible effects of a levee failure	FEMA HMGP, Local	1-5 years	Village of Gerogetown/Grant Parish OHSEP	Levee Failure	New

Town of Montgomery - New Mitigation Actions

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

M6: Generators for Continuity of Operations and Government	Procurement and Installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Town of Montgomery/Grant Parish OHSEP	Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail)	New
M7: Lightning Mitigation	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Town of Montgomery/Grant Parish OHSEP	Lightning	New
M8: Warning Systems	Update/upgrade public warning system components throughout Montgomery as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Town of Montgomery/Grant Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
M9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Town of Montgomery/Grant Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes	New
M10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Town of Montgomery/Grant Parish OHSEP	Tropical Cyclones, Flooding	New
M11: Wildfire Ordinance	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Town of Montgomery/Grant Parish OHSEP	Wildfires	New
M12: Levee Failure Working Group	Create a working group in order to assess the extent and determine the possible effects of a levee failure	FEMA HMGP, Local	1-5 years	Town of Montgomery/Grant Parish OHSEP	Levee Failure	New

Town of Pollock - New Mitigation Actions

Town of Pollock						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
P1: Building Retrofits	Retrofit public buildings exterior shell to maintain use during and after storm events. Benefits: Reduces damage from high winds, and helps assure that the public buildings can be used, occupied and operable during or after storms.	FEMA HMGP, Local	1-5 years	Town of Pollock/Grant Parish OHSEP	High Winds, Tropical Cyclones, Tornadoes, Hail	New
P2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	FEMA HMGP, Local	1-5 years	Town of Pollock/Grant Parish OHSEP	Flooding, High Winds, Tropical Cyclones	New
P3: Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.	FEMA HMGP, Local	1-5 years	Town of Pollock/Grant Parish OHSEP	Flooding, Tropical Cyclones	New
P4: Safe Room Projects	Construction of a safe room for first responders located in Pollock. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Town of Pollock/Grant Parish OHSEP	Tornadoes, High Winds, Tropical Cyclones	New
P5: 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, Levee Failure, and Winter Storm hazards as well as providing information on high risk areas. Informing communities, business and citizens on proper mitigation efforts and activities will create resiliency within the parish and its communities.	FEMA HMGP, Local	1-5 years	Town of Pollock/Grant Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Thunderstorms (lightning, high wind, hail), Winter Storms, Drought, Levee Failure	New

P6: Generators for Continuity of Operations and Government	Procurement and Installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Town of Pollock/Grant Parish OHSEP	Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail)	New
P7: Lightning Mitigation	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Town of Pollock/Grant Parish OHSEP	Lightning	New
P8: Warning Systems	Update/upgrade public warning system components throughout Pollock as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Town of Pollock/Grant Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
P9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Town of Pollock/Grant Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes	New
P10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Town of Pollock/Grant Parish OHSEP	Tropical Cyclones, Flooding	New
P11: Wildfire Ordinance	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Town of Pollock/Grant Parish OHSEP	Wildfires	New
P12: Levee Failure Working Group	Create a working group in order to assess the extent and determine the possible effects of a levee failure	FEMA HMGP, Local	1-5 years	Town of Pollock/Grant Parish OHSEP	Levee Failure	New

Action Prioritization

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

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

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

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

Appendix A: Planning Process

Purpose

The Hazard Mitigation Plan Update process prompts local jurisdictions to keep their hazard mitigation plan current and moving toward a more resilient community. The plan update builds on the research and planning efforts of previous plans while reviewing recent trends. The steering committee followed FEMA HMGP's hazard mitigation planning process per the FEMA HMGP 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 2015 with a series of meetings and collaborations between the contractor (SDMI) and the participating jurisdictions. Update activities were intended to give each jurisdiction the opportunity to shape the plan to best fit their community's goals. Community stakeholders and the general public were invited to attend and contribute information to the planning process during specific time periods or meetings.

Grant Parish includes the unincorporated areas of the parish, as well as the six incorporated municipalities that participated in the plan update process – Town of Colfax, Village of Creola, Village of Dry Prong, Village of Georgetown, Town of Montgomery, and Town of Pollock. Grant Parish Office of Homeland Security and Emergency Preparedness (OHSEP) invited communities' representatives to meetings, where they supplied critical infrastructure data and reviewed work-in-progress for the plan update.

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

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

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

Date	Meeting or Outreach	Location	Public Invited	Purpose
5/26/2015	Initial Coordination	Telephone/ Email	No	Discuss with Parish HM coordinator and any Steering Committee members expectations and requirements of the project.
2/16/2016	Kick-Off Meeting	Colfax, LA	No	Discuss with the plan steering committee expectations and requirements of the project. Assign plan worksheets to jurisdictions.
7/12/2016	Risk Assessment Overview	Dry Prong, LA	No	Discuss and review the risk assessment with the steering committee discuss and review expectations for public meeting.
7/12/2016	Public Meeting	Dry Prong, LA	Yes	The public meeting allowed the public and community stakeholders to participate and provide input into the hazard mitigation planning process. Maps of the Grant Parish communities were provide for the meeting attendees to identify specific areas where localized hazards occur.
Ongoing	Public Survey Tool	Online	Yes	This survey asked participants about public perceptions and opinions regarding natural hazards in Grant Parish. In addition, we asked about the methods and techniques preferred for reducing the risks and losses associated with these hazards. Survey Results: https://www.surveymonkey.com/r/PCBGTPS
2 Week Period	Public Plan Review (Digital)		Yes	Parish Website and Grant Parish OHSEP

Planning

The plan update process consisted of several phases:

Phase	Month 1-2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9
Plan Revision								
Data Collection								
Risk Assessment								
Public Input								
Mitigation Strategy and Actions								
Plan Review by GOHSEP and FEMA HMGP								
Plan Adoption								
Plan Approval								

Coordination

The Grant Parish OHSEP oversaw the coordination of the 2016 Hazard Mitigation Plan Update Steering Committee during the update process. The Grant Parish OHSEP and participating jurisdictions were responsible for identifying members for the committee.

The Parish Director and SDMI were jointly responsible for inviting the Steering Committees and key stakeholders to all planned meetings and activities by email invitations and calendar invites. SDMI assisted the Parish Director with meeting notices, website and social media statements for notification to the media and general public for public meetings and public outreach activities.

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

Neighboring Community, Local and Regional Planning Process Involvement

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

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

- Participation in Hazard Mitigation Team meetings at the local and parish level

- Sharing local data and information
- Local action item development
- Plan document draft review
- Formal adoption of the Hazard Mitigation Plan document by each jurisdiction following provisional approval by The State of Louisiana and FEMA HMGP

The 2016 Hazard Mitigation Plan Update Steering Committee consisted of representatives from the following parish, municipal, or community stakeholders:

- Grant Parish Police Jury
- Grant Office of Homeland Security and Emergency Preparedness
- Town of Colfax
- Village of Creola
- Village of Dry Prong
- Village of Georgetown
- Town of Montgomery
- Town of Pollock

The OEP Director of LaSalle Parish was invited by the Grant Parish OHSEP via email to participate in all meetings and activities as well in an effort to collaborate with neighboring communities. In addition, the participation of the GOHSEP Region 6 Coordinator during the process also contributed to neighboring community representation.

As part of the coordination and planning process, each jurisdiction was provided the State Required Hazard Mitigation Plan Update Worksheet. Jurisdictions with the capability to complete and return these worksheets returned them to assist with the 2016 update. The completed worksheets can be found in Appendix E – State Required Plan Update Worksheets.

Below is a detailed list of the 2016 Hazard Mitigation Plan Update Steering Committee:

Name	Title	Agency	Address	Phone
Cade Fletcher	Director	Grant Parish OEP	503 Main Street Colfax, LA	(318) 627-3041
Steven McCain	Sheriff	GPSO	205 Cypress Street Colfax, LA	(318) 627-3261
Ossie Clark	Mayor of Colfax	Town of Colfax	1208 Main St Colfax, LA	(318) 627-3711
Danny Moore	Mayor of Creola	Village of Creola	241 Grays Creek Rd Dry Prong, LA	(318) 641-0430
John L. Landry	Mayor of Dry Prong	Village of Dry Prong	607 Russell Hataway Dr. Dry Prong, LA	(318) 899-5341
Danny Olden	Mayor of Georgetown	Village of Georgetown	4570 Hwy 500 Georgetown, LA	(318) 827-5527
Vera Waters	Mayor of Montgomery	Town of Montgomery	623 Woodland St Montgomery, LA	(318) 646-3110
Jerome Scott	Mayor of Pollack	Town of Pollack	3911 Highway 8 West Pollack, LA	(318) 765-3796
Teresa Basco	Regional Coordinator	GOHSEP	7667 Independence Blvd Baton Rouge, LA	(225) 925-7507
Dana Chapman	Assistant Director	LaSalle Parish OHSEP	Jena, LA	(318) 992-3026

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

Opportunities to integrate the requirements of this Hazard Mitigation Plan into other local planning mechanisms will continue to be identified through future meetings of the parish and jurisdictions, and through the five-year review process described in the Plan Maintenance section. The primary means for integrating mitigation strategies into other local planning mechanisms will be through the revision, update, and implementation of each jurisdiction's individual city/town plans that require specific planning and administrative tasks (e.g. risk assessment, plan amendments, ordinance revisions, capital improvement projects, etc.).

The members of the Grant Parish Hazard Mitigation Steering Committee will remain charged with ensuring that the goals and strategies of new and updated local planning documents for their jurisdictions or agencies are consistent with the goals and actions of the Hazard Mitigation Plan, and will not contribute to increased hazard vulnerability in the parish. Existing plans, studies, and technical information were incorporated in the planning process. Examples include flood data from FEMA HMGP, the U.S. Army Corps of Engineers (USACE or Corps), and the U.S. Geological Survey. Much of this data was incorporated into the risk assessment component of the plan relative to plotting historical events and the magnitude of damages that occurred. The parish's 2005 Hazard Mitigation Plan was also used in the planning process. Other existing parish and jurisdiction data and plans reviewed and/or incorporated into the planning process include those listed below:

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

Further information on other plans and capabilities reviewed can be found in the Capabilities Assessment, Section 3.

Meeting Documentation and Public Outreach Activities

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

Meeting #1: Coordination Discussion

Date: May 26, 2015
Location: Email
Purpose: Discuss with the Hazard Mitigation Lead for the parish (OHSEP Director) the expectations and requirements of the Hazard Mitigation Plan Update process and to establish and initial project timeline.
Public Initiation: No
Invitees Included: Grant Parish OHSEP, SDMI Staff

Meeting #2: Hazard Mitigation Plan Update Kick-Off

Date: February 16, 2016

Location: Colfax, LA

Purpose: Discuss the expectations and requirements of the Hazard Mitigation Plan Update process and to establish and initial project timeline with the parish's Hazard Mitigation Plan Steering Committee. Assign each individual jurisdiction and the parish data collection for the plan update.

Public Initiation: No

Invitees Included:

Name	Title	Agency	Address	Phone
Cade Fletcher	Director	Grant Parish OEP	503 Main Street Colfax, LA	(318) 627-3041
Steven McCain	Sheriff	Grant Parish Sheriff's Office	205 Cypress Street Colfax, LA	(318) 627-3261
Ossie Clark	Mayor of Colfax	Town of Colfax	1208 Main St Colfax, LA	(318) 627-3711
Danny Moore	Mayor of Creola	Village of Creola	241 Grays Creek Rd Dry Prong, LA	(318) 641-0430
John L. Landry	Mayor of Dry Prong	Village of Dry Prong	607 Russell Hataway Dr. Dry Prong, LA	(318) 899-5341
Danny Olden	Mayor of Georgetown	Village of Georgetown	4570 Hwy 500 Georgetown, LA	(318) 827-5527
Vera Waters	Mayor of Montgomery	Town of Montgomery	623 Woodland St Montgomery, LA	(318) 646-3110
Jerome Scott	Mayor of Pollack	Town of Pollack	3911 Highway 8 West Pollack, LA	(318) 765-3796
Teresa Basco	Regional Coordinator	GOHSEP	7667 Independence Blvd Baton Rouge, LA	(225) 925-7507
Dana Chapman	Assistant Director	LaSalle Parish OHSEP	Jena, LA	(318) 992-3026

Meeting #3: Risk Assessment Overview

Date: July 12, 2016

Location: Dry Prong, LA

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

Public Initiation: No

Invitees Included:

Name	Title	Agency	Address	Phone
Cade Fletcher	Director	Grant Parish OEP	503 Main Street Colfax, LA	(318) 627-3041
Steven McCain	Sheriff	Grant Parish Sheriff's Office	205 Cypress Street Colfax, LA	(318) 627-3261
Ossie Clark	Mayor of Colfax	Town of Colfax	1208 Main St Colfax, LA	(318) 627-3711
Danny Moore	Mayor of Creola	Village of Creola	241 Grays Creek Rd Dry Prong, LA	(318) 641-0430
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Teresa Basco	Regional Coordinator	GOHSEP	7667 Independence Blvd Baton Rouge, LA	(225) 925-7507
Dana Chapman	Assistant Director	LaSalle Parish OHSEP	Jena, LA	(318) 992-3026

Meeting #4: Public Meeting

Date: July 12, 2016

Location: Dry Prong, LA

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

Public Initiation: Yes

Invitees Included:

Name	Title	Agency	Address	Phone
Cade Fletcher	Director	Grant Parish OEP	503 Main Street Colfax, LA	(318) 627-3041
Steven McCain	Sheriff	Grant Parish Sheriff's Office	205 Cypress Street Colfax, LA	(318) 627-3261
Ossie Clark	Mayor of Colfax	Town of Colfax	1208 Main St Colfax, LA	(318) 627-3711
Danny Moore	Mayor of Creola	Village of Creola	241 Grays Creek Rd Dry Prong, LA	(318) 641-0430
John L. Landry	Mayor of Dry Prong	Village of Dry Prong	607 Russell Hataway Dr. Dry Prong, LA	(318) 899-5341
Danny Olden	Mayor of Georgetown	Village of Georgetown	4570 Hwy 500 Georgetown, LA	(318) 827-5527
Vera Waters	Mayor of Montgomery	Town of Montgomery	623 Woodland St Montgomery, LA	(318) 646-3110
Jerome Scott	Mayor of Pollack	Town of Pollack	3911 Highway 8 West Pollack, LA	(318) 765-3796
Teresa Basco	Regional Coordinator	GOHSEP	7667 Independence Blvd Baton Rouge, LA	(225) 925-7507
Dana Chapman	Assistant Director	LaSalle Parish OHSEP	Jena, LA	(318) 992-3026

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

Meeting Public Notice

STEPHENSON DISASTER MANAGEMENT INSTITUTE

GRANT OFFICE OF HOMELAND SECURITY & EMERGENCY PREPAREDNESS

MEETING NOTICE – July 12, 2016

Grant Parish to hold Public Meetings for Hazard Mitigation Plan Update

Colfax, LA – Grant Parish Office of Homeland Security & Emergency Preparedness is in the process of updating the Grant Parish Hazard Mitigation Plan and are required to hold public meetings on the plan update. The Public meeting will be held on July 12, 2016 in Bentley UPC Meeting Room from 9:30AM to 10:30AM.

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

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

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

Grant Parish is in the beginning stages of updating its hazard mitigation plan. Public meeting will be held on July 12th for all citizens interested in learning about and participating in discussions concerning the Grant Parish Hazard Mitigation Plan.

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

For more information, please contact: Cade Fletcher – OEP Director; fletcher@grantso.org

Stephenson Disaster Management Institute
Louisiana State University • 3000 Business Education Complex • Baton Rouge, Louisiana 70803

Outreach Activity #1: Public Opinion Survey

Date: Ongoing throughout planning process
Location: Web Survey
Public Initiation: Yes

Outreach Activity #2: Incident Questionnaire

Date: Public Meeting Activity
Location: Public Meeting
Public Initiation: Yes
The public was asked to provide information regarding which types of hazards concerned them the most. No public elected to participate in this activity, therefore no feedback was collected at this time.

Outreach Activity #3: Mapping Activities

Public meeting attendees were asked to identify areas on jurisdictional maps provided that were "problem areas". They were also asked to indicate any areas of new development. This activity gave the public an opportunity to interact with SDMI's GIS Mapping section, as well as provide valuable input on areas that may flood repeatedly during rain events that may not get reported to local emergency managers as significant events.

Public Plan Review Documentation

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

Appendix B: Plan Maintenance

Purpose

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

Monitoring, Evaluating, and Updating the Plan

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

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

Responsible Parties

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

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

Methods for Monitoring and Evaluating the Plan and Plan Evaluation Criteria

Grant Parish has developed a method to ensure monitoring, evaluating, and updating of the HMP occurs during the five-year cycle of the plan. The planning committee will become a permanent body and will be responsible for monitoring, evaluating, and updating of the plan. The planning committee meeting will be held annually in order to monitor, evaluate, and update the plan. The 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 eliminated the problem; and any changes recommended to improve the implementation of the project etc. In addition, the progress report will provide status monitoring on the plan evaluation, changes to the hazard profile, changes to the risk assessment, and public input on the Hazard Mitigation Plan updates and reviews.

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

1) Whether the action was implemented and reasons, if the action was not implemented

2) What were the results of the implemented action

3) Were the outcomes as expected, and reasons if the outcomes were not as expected

4) Did the results achieve the stated goals and objectives

5) Was the action cost-effective

6) What were the losses avoided after completion of the project

7) In case of a structural project, did it change the hazard profile

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

1) Any local staffing changes that would warrant inviting different members to the planning committee

2) Any new organizations that would be valuable in the planning process or project implementation need to be included in the planning committee

3) Are there any procedures that can be done more efficiently

4) Are there more ways to gain more diverse and widespread cooperation

5) Are there any different or additional funding sources available for mitigation planning and implementation

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

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

The review by the steering committee and input from the public will determine whether a plan update is needed prior to the required five-year update.

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

2016 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 2016 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 Steering 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
- Capital Improvements Plan
- Emergency Operations Plan
- Comprehensive Master Plan
- Economic Development Plan
- Stormwater Management Plan
- Continuity of Operations Plan
- Transportation Plan
- Community Wildfire Protection Plan

Opportunities to integrate the requirements of this plan into other local planning mechanisms will continue to be identified through future meetings of the Grant Parish Hazard Mitigation Steering Committee and through the five-year review process described herein. The primary means for integrating mitigation strategies into other local planning mechanisms will be through the revision, update and implementation of each jurisdiction's individual plans that require specific planning and administrative tasks (e.g. risk assessment, plan amendments, ordinance revisions, capital improvement projects, etc.). The members of the steering committee will meet with Department Heads to discuss what should be included in the changes

that are necessary before the changes are introduced to the city council or police jury meetings. Steering committee members will remain charged with ensuring that the goals and strategies of new and updated local planning documents for their jurisdictions or agencies are consistent with the goals and actions of the Grant Parish Hazard Mitigation Plan, and will not contribute to increased hazard vulnerability within the parish.

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

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

On behalf of the jurisdictions of Unincorporated Grant Parish, Town of Colfax, Village of Creola, Village of Dry Prong, Village of Georgetown, Town of Montgomery, and Town of Pollock, 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 steering committee member and jurisdiction representation throughout the planning process as described above:

Unincorporated Grant
Comprehensive Master Plan/Updated as needed/Grant Parish Police Jury
Capital Improvement Plan/Updated as needed/Grant Parish Police Jury
Economic Development Plan/Updated as needed/Grant Parish Police Jury
Local Emergency Operations Plan/Updated as needed/ Grant Parish OHSEP
Continuity of Operations Plan/Updated as needed/ Grant Parish OHSEP
Transportation Plan/Updated as needed/ Grant Parish OHSEP
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/ Grant Parish OHSEP and Mayor of Colfax

Village of Creola
Comprehensive Master Plan/Updated as needed/Grant Parish Police Jury and Mayor of Creola
Continuity of Operations Plan/Updated as needed/ Grant Parish OHSEP and Mayor of Creola

Village of Dry Prong
Local Emergency Operations Plan/Updated as needed/ Grant Parish OHSEP and Mayor of Dry Prong
Continuity of Operations Plan/Updated as needed/ Grant Parish OHSEP and Mayor of Dry Prong

Village of Georgetown
Local Emergency Operations Plan/Updated as needed/ Grant Parish OHSEP and Mayor of Georgetown

Town of Montgomery
Comprehensive Master Plan/Updated as needed/Grant Parish Police Jury and Mayor of Montgomery
Continuity of Operations Plan/Updated as needed/ Grant Parish OHSEP and Mayor of Montgomery

Town of Pollock
Capital Improvement Plan/Updated as needed/Grant Parish Police Jury and Mayor of Pollock
Economic Development Plan/Updated as needed/Grant Parish Police Jury and Mayor of Pollock
Local Emergency Operations Plan/Updated as needed/ Grant Parish OHSEP and Mayor of Pollock
Continuity of Operations Plan/Updated as needed/ Grant Parish OHSEP and Mayor of Pollock
Transportation Plan/Updated as needed/ Grant Parish OHSEP and Mayor of Pollock
Stormwater Management Plan/Updated as needed/Grant Parish Police Jury and Mayor of Pollock

Continued Public Participation

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

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

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Appendix C: Essential Facilities

Grant Parish Essential Facilities – All Jurisdictions

Grant Parish Unincorporated Essential Facilities										
Type	Name	Drought*	Flooding	Hail	Lightning	Wind	Tornadoes	Tropical Cyclones	Wildfire	Winter Storms*
Fire and Rescue	Fire District 3 Station No 4			X	X	X	X	X	X	
	Fire District 5 Station No 5			X	X	X	X	X	X	
	Fire Station			X	X	X	X	X	X	
	Fire Station			X	X	X	X	X	X	
	Fire Station			X	X	X	X	X	X	
	Fire Station			X	X	X	X	X	X	
	Grant Fire District 1 Bynum Vol Fire Stat		X	X	X	X	X	X	X	
	Grant Fire District 6 Hudson Creek			X	X	X	X	X	X	
	Grant Fire District 1 Fire Station			X	X	X	X	X	X	
	Grant Fire Station 2			X	X	X	X	X	X	
	Grant Fire Station 3			X	X	X	X	X	X	
Government	West Grant Water Office			X	X	X	X	X	X	
	DOTD Project Engineers Office			X	X	X	X	X	X	
	Pollock Area Water Systems Office		X	X	X	X	X	X	X	
	Landfill			X	X	X	X	X	X	
	US Department of Agriculture			X	X	X	X	X	X	
Corrections	Federal Correctional Complex			X	X	X	X	X	X	
Law Enforcement	Catahoula Ranger Station			X	X	X	X	X	X	
Schools	Montgomery Gaines Junior High School			X	X	X	X	X	X	
	Verda Elementary School			X	X	X	X	X	X	
	Grant High School			X	X	X	X	X	X	
	Grant Junior High School			X	X	X	X	X	X	
	South Grant Elementary School			X	X	X	X	X	X	

Colfax Essential Facilities										
Type	Name	Drought*	Flooding	Hail	Lightning	Wind	Tornadoes	Tropical Cyclones	Wildfire	Winter Storms*
Fire and Rescue	Colfax Volunteer Fire Department 2			X	X	X	X	X	X	
	Grant Parish Fire District 1			X	X	X	X	X	X	
Government	Grant Parish Office of Family Support			X	X	X	X	X	X	
	LA Department of Correction			X	X	X	X	X	X	
	Grant Parish Courthouse			X	X	X	X	X	X	
	LA Workforce Commission			X	X	X	X	X	X	
	School Board Pupil Appraisal Services			X	X	X	X	X	X	
	School Board Professional Development			X	X	X	X	X	X	
	School Board			X	X	X	X	X	X	
	State Representative Terry Brown			X	X	X	X	X	X	
	Consolidated Gas Districts Office			X	X	X	X	X	X	
	Office of Flood Zone Permits			X	X	X	X	X	X	
	Office of Motor Vehicles			X	X	X	X	X	X	
	Colfax City Hall			X	X	X	X	X	X	
	Council on Aging			X	X	X	X	X	X	
	35th Judicial District Public Defender			X	X	X	X	X	X	
Law Enforcement	Grant Parish Sheriff's Office			X	X	X	X	X	X	
	Grant Parish Sheriff's Office			X	X	X	X	X	X	
	Colfax Police Department			X	X	X	X	X	X	
Corrections	Grant Parish Detention Facility		X	X	X	X	X	X	X	
Public Health	Grant Parish Health Unit			X	X	X	X	X	X	
Schools	Colfax Elementary School			X	X	X	X	X	X	

Creola Essential Facilities										
Type	Name	Drought*	Flooding	Hail	Lightning	Wind	Tornadoes	Tropical Cyclones	Wildfire	Winter Storms*
Government	Creola Town Hall			X	X	X	X	X	X	
Law Enforcement	Creola Police Department			X	X	X	X	X	X	

Dry Prong Essential Facilities										
Type	Name	Drought*	Flooding	Hail	Lightning	Wind	Tornadoes	Tropical Cyclones	Wildfire	Winter Storms*
Fire and Rescue	Fire District 3 Station No 1			X	X	X	X	X	X	
Government	Dry Prong Town Hall			X	X	X	X	X		
	DOT - Maintenance Unit			X	X	X	X	X		
Law Enforcement	Dry Prong Town Marshall			X	X	X	X	X	X	
Schools	Dry Prong Junior High School			X	X	X	X	X	X	

Georgetown Essential Facilities										
Type	Name	Drought*	Flooding	Hail	Lightning	Wind	Tornadoes	Tropical Cyclones	Wildfire	Winter Storms*
Fire and Rescue	Grant District 4 Fire Station 1			X	X	X	X	X	X	
Government	Town Hall			X	X	X	X	X	X	
	Municipal Building								X	
	Mayor's Office			X	X	X	X	X	X	
Law Enforcement	Georgetown Police Department			X	X	X	X	X	X	
Schools	Georgetown High School			X	X	X	X	X	X	

Montgomery Essential Facilities										
Type	Name	Drought*	Flooding	Hail	Lightning	Wind	Tornadoes	Tropical Cyclones	Wildfire	Winter Storms*
Fire and Rescue	Montgomery Volunteer Fire Department			X	X	X	X	X	X	
Government	Montgomery Town Hall			X	X	X	X	X	X	
Law Enforcement	Montgomery Police Department			X	X	X	X	X	X	
Schools	Montgomery High School			X	X	X	X	X	X	

Pollock Essential Facilities										
Type	Name	Drought*	Flooding	Hail	Lightning	Wind	Tornadoes	Tropical Cyclones	Wildfire	Winter Storms*
Fire and Rescue	Elvis B. Maxwell Memorial Fire Station			X	X	X	X	X	X	
Government	Water Works District No 3			X	X	X	X	X	X	
	Pollock Municipal Courthouse			X	X	X	X	X	X	
	Pollock Municipal Building		X	X	X	X	X	X	X	
Law Enforcement	Pollock Police Department			X	X	X	X	X	X	
Schools	Pollock Elementary School			X	X	X	X	X	X	

*Hazard does not impact critical facilities.

Appendix D: Plan Adoption

State of Louisiana

Parish of Grant
In the Name and By the Authority of The Police Jury of Grant Parish

MOTION BY Mr. Cephas Bowie, Jr. , seconded by Mr. Winston Roberts and carried to adopt the following Resolution:

RESOLUTION
04-2017
A RESOLUTION ADOPTING THE
GRANT PARISH HAZARD MITIGATION PLAN 2016

WHEREAS the Parish of Grant has prepared a multi-hazard mitigation plan hereby known as the Grant PARISH HAZARD MITIGATION PLAN 2016 in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the Parish of Grant has participated in the process to prepare a DMA compliant Hazard Mitigation Plan based in the FEMA guidance available in the How to Guides;

WHEREAS the Parish of Grant is participating in the Hazard Mitigation Plan prepared by the Grant Parish Government under the oversight of a Steering Committee comprised of Parish-Wide representatives;

WHEREAS Grant Parish and local city representatives and governments have participated in the mitigation planning process;

WHEREAS appropriate opportunity for input by public and community officials has been provided through meeting notices, open meetings and availability of draft documents;

WHEREAS the Plan has been recommended for adoption by the steering committee;

WHEREAS adoption of the Plan is required prior to further consideration for FEMA funding under the following programs:

- Pre-Disaster Mitigation
- Hazard Mitigation Grant Program
- Flood Mitigation Assistance Program

Therefore, the Grant Parish Police Jury does hereby adopt the Grant Parish Hazard Mitigation Plan Update 2016.

ADOPTED by a vote of 8 in favor and 0 against, and 0 abstaining, on this the 9th day of February, 2017.

Cynthia Jamison
Sec/Treas/Parish Manager
Grant Parish Police Jury

Arnold Murrell
President
Grant Parish Police Jury

I, Cynthia Jamison, Secretary/Treasurer of the Grant Parish Police Jury, do hereby certify the forgoing is a true and correct copy of a Resolution adopted by the said Police Jury in a regular session on the 9th day of February, 2017, at which a quorum was present.

GIVEN UNDER MY OFFICIAL SIGNATURE and Seal of Office on this 9th day of February, 2017.

Cynthia Jamison
Grant Parish Police Jury

TOWN OF COLFAX, LOUISIANA
RESOLUTION
GRANT PARISH HAZARD MITIGATION PLAN 2016

WHEREAS, the Parish of Grant has prepared a multi-hazard mitigation plan known as the GRANT PARISH HAZARD MITIGATION PLAN 2016 in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the Parish of Grant has participated in the process to prepare a DMA compliant Hazard Mitigation Plan based in the FEMA guidance available in the How to Guides; and

WHEREAS, the Town of Colfax is participating in the Hazard Mitigation Plan prepared by the Grant Parish Government under the oversight of a Steering Committee comprised of Parish-Wide representatives; and

WHEREAS, the Town of Colfax and local city representatives and governments have participated in the mitigation planning process; and

WHEREAS, appropriate opportunity for input by public and community officials has been provided through meeting notices, open meetings and availability of draft documents; and

WHEREAS, the Plan has been recommended for adoption by the steering committee; and

WHEREAS, adoption of the Plan is required prior to further consideration for FEMA funding under the following programs:

- Pre-Disaster Mitigation
- Hazard Mitigation Grant Program
- Flood Mitigation Assistance Program

NOW THEREFORE BE IT RESOLVED, the Town of Colfax does hereby adopt the Grant Parish Hazard Mitigation Plan Update 2016.

YEAS: NAYS: ABSTAIN: ABSENT:

Donna Tyler
Town Clerk
Town of Colfax, Louisiana

Ossie Clark
Mayor
Town of Colfax, Louisiana

CERTIFICATE

I, Donna Tyler, Town Clerk of the Town of Colfax, Louisiana, do hereby certify that the foregoing is a true and correct copy of the Resolution adopted by the Mayor and Board of Aldermen meeting in regular session on the 14th day of March 2017.

GIVEN UNDER MY OFFICIAL SIGNATURE AND Seal of Office on this 14th day of March 2017.

Donna Tyler
Town Clerk
Town of Colfax, Louisiana

TOWN OF MONTGOMERY
PARISH OF GRANT
STATE OF LOUISIANA
REGULAR MEETING
MARCH 2017

Resolution
#01-2017
A RESOLUTION ADOPTING THE
GRANT PARISH HAZARD MITIGATION PLAN 2016

WHEREAS the Town of Montgomery has prepared a multi-hazard mitigation plan hereby known as the GRANT PARISH HAZARD MITIGATION PLAN 2016 in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the Town of Montgomery has participated in the process to prepare a DMA complaint Hazard Mitigation Plan based in the FEMA guidance available in the How to guides;

WHEREAS the Town of Montgomery is participating in the Hazard Mitigation Plan prepared by the Grant Parish Government under the Oversight of a Steering Committee comprised of Parish-Wide Representatives;

WHEREAS the Town of Montgomery and local city representatives and governments have participated in the mitigation planning process;

WHEREAS appropriate opportunity for input by public and community officials has been provided through meeting notices, open meetings and availability of draft documents;

WHEREAS the Plan has been recommended for adoption by the steering committee;

WHEREAS adoption of the Plan is required prior to further consideration for FEMA funding under the following programs:

- Pre-Disaster Mitigation
- Hazard Mitigation Grant Program
- Flood Mitigation Assistance Program

Therefore, the Town of Montgomery hereby adopts the Grant Parish Hazard Mitigation Plan Update 2016.

Adopted by the vote of 5 in favor and 0 against, and 0 abstaining, on the 13th day of March, 2017.

Shanequa Hardy, Town Clerk

Vera Waters, Mayor

I, Shanequa Hardy, Town Clerk of the Town of Montgomery, do hereby certify the forgoing is a true and correct copy of a Resolution adopted by the said police jury in a regular session on the 13th day of March, 2017.

Shanequa Hardy, Town Clerk

Town of Pollock

In the Name and By the Authority of The Town Council

MOTION BY CouncilWoman Zeh, seconded by CouncilWoman Tamminello and carried to adopt the following Resolution:

RESOLUTION
03-06-2017
A RESOLUTION ADOPTING THE
TOWN OF POLLOCK HAZARD MITIGATION PLAN 2017

WHEREAS the Town of Pollock has prepared a multi-hazard mitigation plan hereby known as the TOWN OF POLLOCK HAZARD MITIGATION PLAN 2017 in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the Town of Pollock has participated in the process to prepare a DMA compliant Hazard Mitigation Plan based on the FEMA guidance available in the How-To Guides;

WHEREAS the Town of Pollock is participating in the Hazard Mitigation Plan prepared by the Town Council under the oversight of a Steering Committee comprised of Town representatives;

WHEREAS the Town of Pollock and the Town Council has participated in the mitigation planning process;

WHEREAS appropriate opportunity for input by public and community officials has been provided through meeting notices, open meetings and availability of draft documents;

WHEREAS the Plan has been recommended for adoption by the Steering Committee;

WHEREAS adoption of the Plan is required prior to further consideration for FEMA funding under the following programs:

- Pre-Disaster Mitigation
- Hazard Mitigation Grant Program
- Flood Mitigation Assistance Program

Therefore, the Town Council does hereby adopt the Town of Pollock Hazard Mitigation Plan Update 2017.

ADOPTED by a vote of 4 in favor and 0 against, and 0 abstaining, on this the 6th day of March, 2017. 1 absent

Jerome Scott
Mayor
Town of Pollock

I, Judy Shelton, Clerk of the Town of Pollock, do hereby certify the forgoing is a true and correct copy of a Resolution adopted by the said Town Council in a regular session on the 6th day of March, 2017, at which a quorum was present.

GIVEN UNDER MY OFFICIAL SIGNATURE and Seal of Office on this 6th day of March, 2017.

Judy Shelton
Town Clerk

RESOLUTION NUMBER 2017-2

AN RESOLUTION ADOPTING THE GRANT PARISH
HAZARD MITIGATION PLAN

BE IT RESOLVED, BY THE MAYOR AND BOARD OF ALDERMEN OF THE VILLAGE OF CREOLA, LOUISIANA, in legal session convened,

Whereas the Grant Parish Police Jury has prepared a multi-hazard plan known as the Grant Parish Hazard Mitigation Plan 2016 in accordance with the Disaster Mitigation Act of 2000; and

The Grant Parish Police Jury has participated in the process to prepare a DMA compliant Hazard Mitigation Plan based on the FEMA guidance available in the How to Guides;

The Parish of Grant is participating in the Hazard Mitigation Plan prepared by the Grant Parish Government under the oversight of a Steering Committee comprised of parishwide representatives;

The Grant Parish Police Jury and local municipal representatives and governments have participated in the mitigation planning process;

Appropriate opportunity for input by public and community officials has been provided through meeting notices, open meetings, and the availability of draft documents for review;

The Plan has been recommended for adoption by the steering committee.

Adoption of the Plan is required prior to further consideration for FEMA funding under the following programs:

Pre-Disaster Mitigation
Hazard Mitigation Grant Program
Flood Mitigation Assistant Program

Therefore, the Board of Aldermen for the Village of Creola does hereby adopt the Grant Parish Hazard Mitigation Plan Update 2016.

Adopted by a vote of 2 in favor and 0 against, and 0 abstaining on the 16th day of March, 2017.

Danny Moore, Mayor

Yeas:
Calvin Vogel, Alderman
Linda Gammons, Alderman

Nays:

Absent:
Kyle Clinton, Alderman

I, Haley Johnson, village clerk, do hereby certify the foregoing a true and correct copy of a Resolution adopted by the Board of Aldermen of the Village of Creola in regular session on the 16th day of March, 2017, at which a quorum was present.

Haley Johnson, Village Clerk

STATE OF LOUISIANA

RESOLUTION

A RESOLUTION ADOPTING THE GRANT PARISH HAZARD MITIGATION PLAN 2016

WHEREAS, the Parish of Grant has prepared a multi-hazard mitigation plan hereby known as the GRANT PARISH HAZARD MITIGATION PLSN 2016 in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the Parish of Grant of participated in the process to prepare a DMA compliant Hazard Mitigation Plan based in the FEMA guidance available in the How to Guides;

WHERAS, the Parish of Grant is participating in the Hazard Mitigation Plan prepared by the Grant Parish Government under the oversight of a steering committee comprised of Parish-Wide representatives;

WHEREAS, Grant Parish and local city representatives and governments have participated in the mitigation planning process;

WHEREAS, appropriate opportunity for input by public and community officials has been provided through meeting notices, open meetings and availability of draft documents;

WHEREAS, the Plan has been recommended for adoption by the steering committee;

WHEREAS, adoption of the Plan is required prior to further consideration for FEMA funding under the following programs:

- Pre-Disaster Mitigation
- Hazard Mitigation Grant Program
- Flood Mitigation Assistance Program

Therefore, the Grant Parish Police Jury does hereby adopt the Grant Parish Hazard Mitigation Plan Update 2016.

ADOPTED by vote of ___2__ in favor and __0____ against, and ___0_ abstaining, on this the 8th day of March, 2017. One absent.

Lisa Locker

Lisa Locker

Village of Dry Prong

Clerk

Shane Davis

Shane Davis

Village of Dry Prong

Mayor

I Lisa Locker, Clerk of the Village of Dry Prong do hereby certify the forgoing is a true and correct copy of a Resolution adopted by the Village of Dry Prong in a special meeting on the 8th day of March, 2017, at which a quorum was present.

GIVEN UNDER MY OFICIAL SIGNATURE and Seal of Office

RESOLUTION 3-2017

A RESOLUTION ADOPTING THE GRANT PARISH HAZARD MITIGATION PLAN 2016

WHEREAS the Parish of Grant has prepared a multi-hazard mitigation plan hereby known as the Grant PARISH HAZARD MITIGATION PLAN 2016 in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the Parish of Grant has participated in the process to prepare a DMA compliant Hazard Mitigation Plan based in the FEMA guidance available in the How to Guides;

WHEREAS the Parish of Grant is participating in the Hazard Mitigation Plan prepared by the Grant Parish Government under the oversight of a Steering Committee comprised of Parish-Wide representatives;

WHEREAS Grant Parish and local city representatives and governments have participated in the mitigation planning process;

WHEREAS appropriate opportunity for input by public and community officials has been provided through meeting notices, open meetings and availability of draft documents;

WHEREAS the Plan has been recommended for adoption by the steering committee;

WHEREAS adoption of the Plan is required prior to further consideration for FEMA funding under the following programs:

- Pre-Disaster Mitigation
- Hazard Mitigation Grant Program
- Flood Mitigation Assistance Program

Therefore, the Village of Georgetown does hereby adopt the Grant Parish Hazard Mitigation Plan Update 2016.

ADOPTED by a vote of 3 in favor and 0 against, and 0 abstaining, on this 7th day of March, 2017.

Frances Glenn

Frances Glenn, Town Clerk

Danny Olden

Danny Olden, Mayor

I, Frances Glenn, Town Clerk of the Village of Georgetown, do hereby certify the foregoing is a true and correct copy of a Resolution adopted by the said Village of Georgetown in a special meeting on the 7th day of March, 2017, at which a quorum was present.

Frances Glenn

Frances Glenn, Town Clerk

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Appendix E: State Required Worksheets

During the planning process (Appendix A) the Hazard Mitigation Plan Update Steering Committee was provided state-required plan update process worksheets to be filled out by each jurisdiction. The worksheets were presented at the Kickoff Meeting by the contractor as tools for assisting in the update of the Hazard Mitigation Plan. The plan update worksheets allowed for collection of information such as planning team members, community capabilities, critical infrastructure and vulnerable populations and NFIP information. The following pages contain documentation of the worksheets.

Mitigation Planning Team

Name	Title	Agency	Address	Phone
Cade Fletcher	Director	Grant Parish OEP	503 Main Street Colfax, LA	(318) 627-3041
Steven McCain	Sheriff	Grant Parish Sheriff's Office	205 Cypress Street Colfax, LA	(318) 627-3261
Ossie Clark	Mayor of Colfax	Town of Colfax	1208 Main St Colfax, LA	(318) 627-3711
Danny Moore	Mayor of Creola	Village of Creola	241 Grays Creek Rd Dry Prong, LA	(318) 641-0430
John L. Landry	Mayor of Dry Prong	Village of Dry Prong	607 Russell Hataway Dr. Dry Prong, LA	(318) 899-5341
Danny Olden	Mayor of Georgetown	Village of Georgetown	4570 Hwy 500 Georgetown, LA	(318) 827-5527
Vera Waters	Mayor of Montgomery	Town of Montgomery	623 Woodland St Montgomery, LA	(318) 646-3110
Jerome Scott	Mayor of Pollack	Town of Pollack	3911 Highway 8 West Pollack, LA	(318) 765-3796
Teresa Basco	Regional Coordinator	GOHSEP	7667 Independence Blvd Baton Rouge, LA	(225) 925-7507
Dana Chapman	Assistant Director	LaSalle Parish OHSEP	Jena, LA	(318) 992-3026

Capability Assessment

Grant Unincorporated

Worksheet 4.1: 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 Unincorporated		
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		
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		
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		
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		
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

Worksheet 4.1: 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.

Colfax		
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		
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		
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		
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		
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

Worksheet 4.1: 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.

Creola		
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		
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		
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		
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		
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

Worksheet 4.1: 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.

Dry Prong		
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		
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		
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		
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		
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

Worksheet 4.1: 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.

Georgetown		
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		
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		
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		
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		
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

Worksheet 4.1: 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.

Montgomery		
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		
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		
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		
Chief Building Official	No	
Floodplain Administrator	No	Relies on Parish
Emergency Manager	Yes	
Community Planner	No	
Civil Engineer	No	
GIS Coordinator	No	
Grant Writer	Yes	Cographsmoke
Other		
Technical		
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		

Town of Pollock

Worksheet 4.1: 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.

Pollock		
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		
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		
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		
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		
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

Critical Facility (If Yes, Mark X)	Name of Building	Purpose of Building	Address	City	Latitude	Longitude	Assessed Value	Date Built	Const. Type
Grant									
X	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
X	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
	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
X	Montgomery Volunteer Fire Department	Fire Search and Rescue	631 Woodland Street	Montgomery	31.66612179	-92.88993693	75,000	1970S	Metal
X	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
X	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
Colfax									
	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
Creola									
	Creola Town Hall	Civil Government	241 Grays Creek Road	Creola	31.425723	-92.438828	30,000	2010	Metal
X	Creola Police Department	Law Enforcement	241 Grays Creek Road	Creola	31.425723	-92.438828	25,000	2010	Metal

Dry Prong									
	Dry Prong Town Hall	Civil Government	607 Russell Hataway Street	Dry Prong	31.57706132	-92.5288586	125,000	1960s	Wood
X	Dry Prong Town Marshall	Law Enforcement	607 Elm Street	Dry Prong	31.57692658	-92.52886092	60,000	1960s	Wood
Georgetown									
X	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
Montgomery									
X	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
Pollock									
X	Pollock Police Department	Law Enforcement	3813 Patterson Street	Pollock	31.52508234	-92.4061565	75,000	1970s	Reinforced Masonry
X	Pollock Area Water System Office	Civil Government	130 Louisiana 3130	Pollock	31.45362386	-92.40729801	50,000	1980s	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

Name	Street	City	Zip Code	Latitude	Longitude
All Hospitals (Private or Public)					
** No Hospitals In Grant Parish **					
Nursing Homes (Private or Public)					
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					
Horizon Homes	Nearby: Kisatchie National Forest	Bentley	71423	31.44988672	-92.48853944
Triangle Mobile Homes	2606 Hwy 28 East	Prospect	71360	31.44812415	-92.50572558
Unknown	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
Unknown Trailer Park	Nearby: 210-222 8th Street	Colfax	71417	31.51671171	-92.70513882
Unknown 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
Unknown RV Park	Nearby: 3811-3829 U.S. 71	Montgomery	71454	31.60707638	-92.80162572

Unknown 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)

Grant Parish

ELEMENT F: STATE REQUIREMENT
National Flood Insurance Program (NFIP)

Jurisdiction: Grant
Parish Unincorporated

	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?	139 policies, $77,957 premium, $17,874,000 coverage	56 policies, $34,683 premium, $8,220,800 coverage	None	None	None	None	3 policies, $2,051 premium, $319,800 coverage
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?	384 claims, $2,787,039	15 claims, $147,809	None	None	None	None	40 claims, $321,429
How many structures are exposed to flood risk with in the community?	139 structures	56 structures	None	None	None	None	unknown
Describe any areas of flood risk with limited NFIP policy coverage.	none	none	none	none	none	none	none
Staff Resources							
Is the Community FPA or NFIP Coordinator certified?	Yes	Yes	N/A	N/A	N/A	Yes	Yes

Is flood plain management an auxiliary function?	Yes	Yes	N/A	N/A	N/A	Yes	Yes
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability)	inspections and permits	inspections and permits	N/A	N/A	N/A	inspections and permits	inspections and permits
What are the barriers to running an effective NFIP program in the community, if any?	Manpower and availability of funding	staffing	N/A	N/A	N/A	staffing and funding	staffing and funding
Compliance History							
Is the community in good standing with the NFIP?	Yes	Yes	N/A	N/A	N/A	Yes	Yes
Are there any outstanding compliance issues(i.e., current violations)?	None known	None known	N/A	N/A	N/A	None known	None known
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact(CAC)?	not known	not known	N/A	N/A	N/A	not known	not known
Is a CAV or CAC scheduled or needed? If so when?	No	No	N/A	N/A	N/A	No	No
Regulation							
When did the community enter the NFIP?	3/1/1987	9/5/1979	N/A	N/A	N/A	5/4/1982	5/25/1982
Are the FIRMs digital or paper?	both	both	N/A	N/A	N/A	both	both
Do floodplain development regulations meet or exceed FEMA HMGP or State minimum requirements? If so, in what ways?	meet	meet	N/A	N/A	N/A	meet	meet
Community Rating System (CRS)							
Does the community participate in CRS?	N/A	N/A	N/A	N/A	N/A	N/A	N/A
What is the community's CRS Class Ranking?	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Does the plan include CRS planning requirements?	N/A	N/A	N/A	N/A	N/A	N/A	N/A