Allen

PARISH HAZARD MITIGATION UPDATE – 2017

This Page Left Intentionally Blank

ALLEN PARISH

HAZARD MITIGATION PLAN UPDATE

Prepared for:

Allen Parish

Prepared by:

Stephenson Disaster Management Institute

Mr. Chris Rippetoe
Ms. Lauren Stevens
Mr. Joseph Harris
Mr. Brant Mitchell
Dr. Carol J. Friedland, P.E., Ph.D., C.F.M.
Mr. Stuart Nolan

Louisiana State University – LA Emerging Technology Center
Baton Rouge, LA 70803

January 8, 2018

This Page Left Intentionally Blank

ACKNOWLEDGMENTS

This 2017 Allen Parish Hazard Mitigation Plan Update was coordinated by the Allen 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:

Allen Parish
Town of Elizabeth
Town of Kinder
City of Oakdale
Town of Oberlin
Village of Reeves

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

Jacob Dillehay	Parish Engineer	Allen Parish Police Jury
Joel Johnson	Allen Parish Airport Manager	Allen Parish Police Jury
Creig Vizena	President	Allen Parish Police Jury
Mandy Green	Mayor	Town of Elizabeth
Wayland LaFargue	Mayor	Town of Kinder
Gene Paul	Mayor	City of Oakdale
Joseph Manuel	Mayor	Town of Oberlin
Scott Walker	Mayor	Village of Reeves
Doug Zettlemoyer	Region 5 Coordinator	GOHSEP

The 2017 Allen Parish Hazard Mitigation Plan Update was written by the Stephenson Disaster Management Institute, Louisiana State University. Further comments should be directed to the Allen Parish Office of Homeland Security and Emergency Preparedness: 602 Court Street, Oberlin, LA 70655

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

- Unincorporated Allen Parish
- Town of Elizabeth
- Town of Kinder
- City of Oakdale
- Town of Oberlin
- Village of Reeves

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

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

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

Planning is one of the best ways to correct these shortcomings and produce a program of activities that will best mitigate the impact of local hazards and meet other local needs. A well-prepared plan will ensure that

all possible activities are reviewed and implemented so that the problem is addressed by the most appropriate and efficient solutions. It can also ensure that activities are coordinated with each other and with other goals and programs, preventing conflicts and reducing the costs of implementing each individual activity.

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

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

Location, Demography, and Economy

Location

Located in the southwestern portion of Louisiana, Allen Parish is an irregular-shaped parish that is located about thirty miles northeast of Lake Charles and about thirty-five miles southwest of Alexandria. (*Figure 1-1*). Surrounding Allen Parish is Rapides Parish to the northeast, Evangeline Parish to the east, Acadia Parish to the southeast, Jefferson Davis Parish to the south, Calcasieu Parish to the southwest, Beauregard Parish to the west, and Vernon Parish to the northwest. The total area of the parish is approximately 490,265 acres, of which 1,999 acres is water.

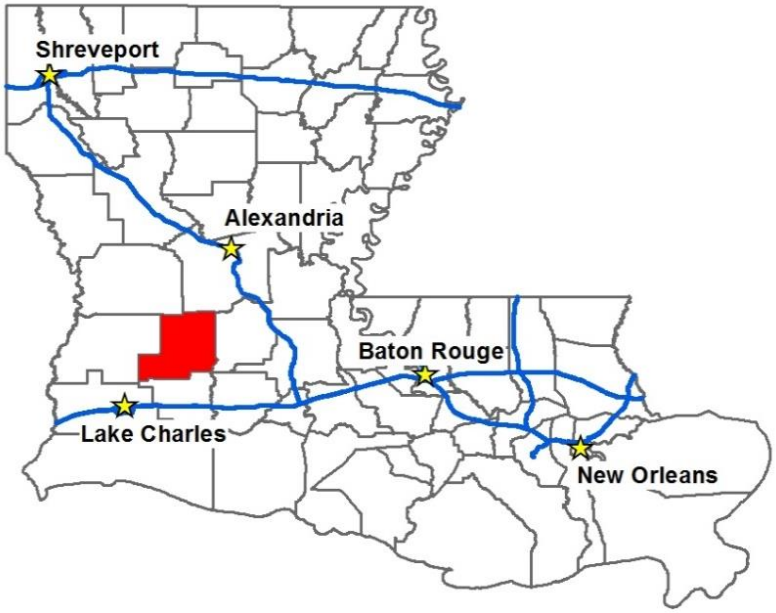


Figure 1-1: Location of Allen Parish within the State of Louisiana

The topography of Allen Parish is primarily flat, particularly in the central and southern portions of the parish. While the majority of Allen Parish is composed of rural farmland and woodlands, several waterways are also located in the parish, including the Calcasieu River, Bayou Nezpique, and Ouiska Chitto Creek—one of Louisiana's officially designated "Scenic and Natural Rivers". Allen Parish also includes the one hundred square mile West Bay Wildlife Management Area, which is located in the north-central portion of the parish to the west of the Calcasieu River. It is a forested refuge for migratory birds, deer, fish and ducks.

There are four primary transportation arteries through Allen Parish: U.S. Highway 165, U.S. Highway 190, State Highway 10, and State Highway 26. U.S. Highway 165 enters the northeast corner of the parish and exits south of Kinder. U.S. Highway 190 runs east-west across the southern half of Allen Parish, intersecting U.S. 165 at Kinder. State Highway 10 enters from the north-central border of the parish and travels in a southeast direction, intersecting U.S. Highway 165 in Oakdale. State Highway 26 also travels in a northwest-southeast direction, intersecting U.S. Highway 165 in Oberlin.

Allen Parish is located in Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) Region 5

As noted above, Allen Parish is located in the southwestern region of Louisiana.

Figure 1-2: Louisiana Homeland Security Regions

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

	2010 Census	2014 Census	Current Year (If Available)	Percent Change 2010 - 2014
Total Population	25,764	25,713	____	-0.20%
Population Density (Pop/Sq. Mi.)	33.8	____	____	____
Total Households	9,733	9,787	____	____

Economy

Very rural in nature, Allen Parish has historically had an agrarian based economy. The parish has some of the most fertile farmland in the South. This low, flat land is particularly conducive to rice and soybean cultivation, as well as cattle production. Along with the farmland, the area is also covered by dense forest, which helps to bolster the booming timber production industry.

Tourism has recently begun to emerge as a force within the Allen Parish economy. Home to four Natural and Scenic Rivers, including the spring-fed Ouiska Chitto, Allen Parish is a great location for fishing and canoeing. Other activities geared toward the outdoor enthusiast including hunting and bird watching in the West Bay Wildlife Management Area. As for some indoor recreation, the Coushatta Tribe of Louisiana operates Louisiana's premier land-based casino resort, Coushatta Casino & Resort, and Koasati Pines Golf Course, its 18-hole championship course near Kinder.

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

Table 1-2: Business Patterns in Allen 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	661	69	13,049
Manufacturing	250-499	11	___
Health Care and Social Assistance	894	41	23,253
Mining, Quarrying, Oil and Gas Extraction	20-99	2	___
Transportation and Warehousing	154	13	10,172
Construction	38	13	900
Administration and Support and Waste Management and Remediation Services	250-499	8	___
Real Estate and Rental and Leasing	9	5	314
Wholesale Trade	43	10	1,059
Other Services (except Public Administration)	211	46	4,025
Accommodation and Food Services	351	28	4,065
Financial and Insurance	131	32	3,888
Professional, Scientific, and Technical Services	20-99	23	3,311
Information	0-19	5	598
Educational Services	20-99	4	___
Arts, Entertainment, and Recreation	0-19	1	___
Management of Companies and Enterprises	0-19	1	___
Agriculture, Forestry, Fishing and Hunting	20-99	7	1,726
Utilities	0-19	4	___

While nature has presented the parish with a variety of hazards, the parish has the human resources that can face those hazards and manage the impact they have on people and property. This plan will discuss hazards affecting Allen 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 Allen 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 2017 Allen 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 Allen Hazard Mitigation Plan were as follows:

- Section One Introduction
- Section Two Adoption Process
- Section Three Parish Profile
- Section Four Planning Process
- Section Five Risk Assessment
- Section Six Mitigation Strategy
- Section Seven Plan Maintenance
- Section Eight Formal Approval and Adoption
- Appendices

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

2017 Plan Update

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

- Protect the lives and health of Parish residents from the dangers of natural hazards including ensuring access to public facilities and escape routes as necessary
- Protect Parish schools, homes, and businesses from damage
- Give special attention to repetitively flooded areas

This plan update makes a number of textual changes throughout, but the most obvious changes are data related and structural edits. First, the Spatial Hazard Events and Losses Database for the United States (SHELDUS) was used as a data source for hazard identification because it incorporates all storm event data from the National Climatic Data Center (NCDC) Storm Events Database used in previous plans, as well as storm event data from other sources including the NOAA Storm Prediction Center, National Hurricane Center, and U.S. Fire Administration. Furthermore, all of the sections were updated to reflect the most current information and the most current vision of the plan update. Second, instead of eleven, separate sections for numerous tables, maps, and appendices, the present plan update has four sections and five appendices. The most significant changes are the newly developed hazard profiles and risk assessments, as well as the removal of repetition between sections from the previous plan updates. The 2017 plan update is organized generally as follows:

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

Table 1-4: Plan Crosswalk

2011 Plan	Revised Plan (2017)
Section 1: Introduction	Section 1: Introduction
Section 2: Adoption Process	Appendix D: Plan Adoption
Section 3: Parish Profile	Section 1: Introduction
Section 4: Planning Process	Appendix A: Planning Process
Section 5: Risk Assessment	Section 2: Hazard Identification and Risk Assessment, Section 3: Capability Assessment
Section 6: Mitigation Strategy	Section 4: Mitigation Strategy
Section 7: Plan Maintenance	Appendix B: Plan Maintenance
Section 8: Formal Approval and Adoption	Appendix D: Plan Adoption
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 Allen Parish and its municipalities. The extent of this risk is dictated primarily by its geographic location. Most significantly, Allen Parish remains at high risk of water inundation from various sources, including flooding, tornadoes, and tropical cyclone activity. The entire 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 Allen 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 Allen Parish Hazard Mitigation Plan published in 2011, as well as the hazards that were identified in the state's 2014 Hazard Mitigation Plan that were considered to be of high or medium risk for the parish by the state. Those hazards identified as high or medium risk by the state or previously identified as a risk by the parish, have been determined to provide a risk to the parish and will be profiled in this section.

Table 2-1: Hazard Profile Summary

Hazard	Profiled in Last Plan	Considered Medium or High Risk in the State's HM Plan	Profiled in the 2017 Update
Subsidence/Coastal Land Loss			
Drought			
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	X		
Levee Failure			

+ Data deficiency

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. Allen Parish officials made the decision to remove the dam failure profile from this update.

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

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

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 wildfires

The potential destructive power of tropical cyclones and flooding were determined to be the most prevalent hazards to the parish. Twelve of the fourteen Presidential Declarations that Allen Parish has received resulted from either tropical cyclones (8 declarations) or flooding (4 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 Allen Parish is included in the hurricane risk assessment.

Allen Parish is also susceptible to tornadoes. Tornadoes can spawn from tropical cyclones or severe weather systems that pass through Allen 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 Allen Parish since 1965. Information includes names, dates, and types of disaster.

Table 2-2: Allen Parish Major Disaster Declarations

Disaster Declaration Number	Date	Type of Disaster
604	9/25/1979	Severe Storms and Flooding
675	1/11/1983	Severe Storms and Flooding
829	5/20/1989	Severe Storms and Flooding
835	7/17/1989	Tropical Cyclone - Tropical Storm Allison
956	8/26/1992	Tropical Cyclone – Hurricane Andrew
2337	9/11/2000	LA- Western Louisiana Fire Complex – 9/8/00
1437	10/3/2002	Tropical Cyclone – Hurricane Lili
3172	2/1/2003	Loss of Space Shuttle Columbia
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
1792	9/13/2008	Tropical Cyclone – Hurricane Ike
4080	8/29/2012	Tropical Cyclone – Hurricane Isaac

Probability of Future Hazard Events

The probability of a hazard event occurring in Allen 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					
	Allen Parish (Unincorporated)	Elizabeth	Kinder	Oakdale	Oberlin	Reeves
Flooding	4%	<1%	12%	24%	<1%	<1%
Thunderstorms (Hail)	72%	72%	72%	72%	72%	72%
Thunderstorms (Lightning)	8%	8%	8%	8%	8%	8%
Thunderstorms (Wind)	100%	100%	100%	100%	100%	100%
Tornadoes	48%	48%	48%	48%	48%	48%
Tropical Cyclones	20%	20%	20%	20%	20%	20%
Wildfires	<1%	<1%	<1%	<1%	<1%	<1%
Winter Storms	48%	48%	48%	48%	48%	48%

As shown in *Table 2-3*, thunderstorm winds for the entire planning area, have the highest annual chance of occurrence in the parish (100%). Hailstorms have a 72% annual chance of reoccurrence, followed by tornadoes and winter storms (48%), and flooding for the incorporated area of Oakdale (24%). Flood events in the remaining incorporated and unincorporated areas have a slightly lower chance of occurring annually. Tropical cyclones have a 20% chance of reoccurrence, followed by lightning (8%), and wildfires (<1%).

Inventory of Assets for the Entire Parish

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

Within the entire planning area, there is an estimated value of $3,236,081,000 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 Allen Parish

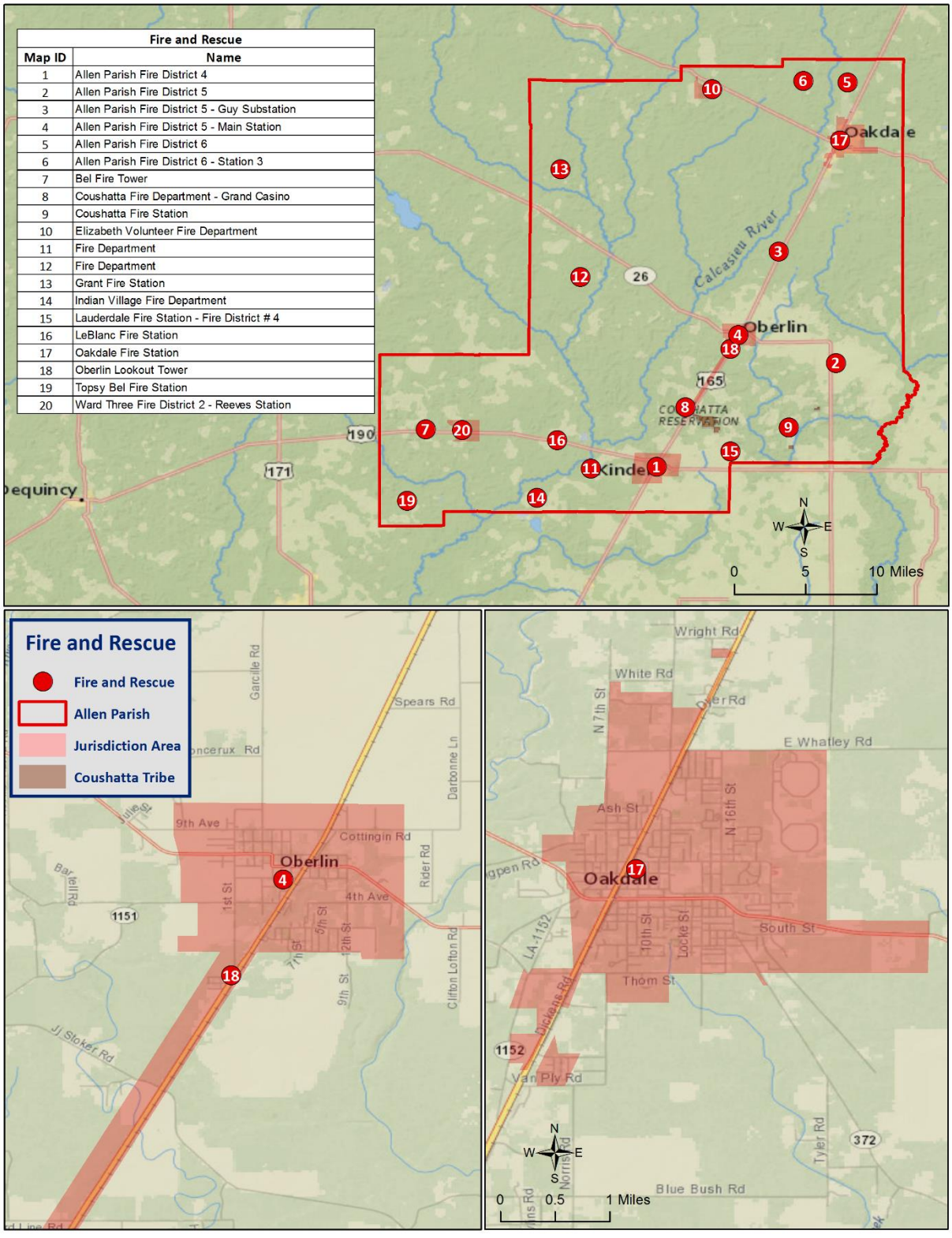
Occupancy	Allen Parish	Unincorporated Allen Parish	Elizabeth	Kinder
Agricultural	$11,376,000	$7,916,000	$894,000	$660,000
Commercial	$409,491,000	$111,199,000	$3,174,000	$88,207,000
Government	$37,434,000	$18,884,000	$530,000	$4,024,000
Industrial	$97,259,000	$64,664,000	$2,133,000	$1,112,000
Religion	$122,374,000	$60,294,000	$2,224,000	$14,500,000
Residential	$2,522,643,000	$1,345,870,000	$65,781,000	$267,760,000
Education	$35,504,000	$9,412,000	$0	$6,560,000
Total	$3,236,081,000	$1,618,239,000	$74,736,000	$382,823,000

Table 2-4: Estimated Total of Potential Losses (Continued)

Occupancy	Oakdale	Oberlin	Reeves
Agricultural	$142,000	$1,764,000	$0
Commercial	$171,909,000	$27,750,000	$1,562,000
Government	$7,926,000	$3,144,000	$266,000
Industrial	$26,638,000	$918,000	$0
Religion	$38,514,000	$4,424,000	$2,418,000
Residential	$629,787,000	$189,513,000	$17,922,000
Education	$5,592,000	$10,064,000	$3,876,000
Total	$880,508,000	$237,577,000	$26,044,000

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	Allen Parish Fire District 4
2	Allen Parish Fire District 5
3	Allen Parish Fire District 5 - Guy Substation
4	Allen Parish Fire District 5 - Main Station
5	Allen Parish Fire District 6
6	Allen Parish Fire District 6 - Station 3
7	Bel Fire Tower
8	Coushatta Fire Department - Grand Casino
9	Coushatta Fire Station
10	Elizabeth Volunteer Fire Department
11	Fire Department
12	Fire Department
13	Grant Fire Station
14	Indian Village Fire Department
15	Lauderdale Fire Station - Fire District # 4
16	LeBlanc Fire Station
17	Oakdale Fire Station
18	Oberlin Lookout Tower
19	Topsy Bel Fire Station
20	Ward Three Fire District 2 - Reeves Station

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

Government	
Map ID	Name
1	33rd Judicial District Courthouse
2	Allen Parish Council on Aging
3	Allen Parish Police Jury
4	Allen Parish Police Jury
5	Allen Parish Police Jury District 3 Maintenance Barn
6	Allen Parish Registrar of Voters
7	Allen Parish School Board
8	Allen Parish School Board
9	Allen Parish School Board Parent Command Center
10	Allen Parish Welcome Center
11	City of Oakdale Public Works
12	Coushatta Tribal Council
13	Coushatta Tribal Court
14	Coushatta Tribe Administration Building
15	Coushatta Tribe Department of Commerce
16	Coushatta Tribe Department of Education
17	Coushatta Tribe Information Technology Services
18	Elizabeth Town Hall
19	Louisiana Department of Public Safety - OMV
20	Louisiana Department of Public Safety - OMV
21	Maintenance
22	Oakdale Area Chamber of Commerce
23	Oakdale City Hall
24	Oberlin City Hall
25	Oberlin Maintenance Unit
26	Office of Homeland Security
27	Reeves City Hall
28	Solid Waste Dump Site
29	Southwest Allen Parish Water District
30	Town of Kinder Municipal Building
31	Town of Oberlin Maintenance Department
32	U.S. Department of Agriculture
33	U.S. Department of Agriculture Service Center

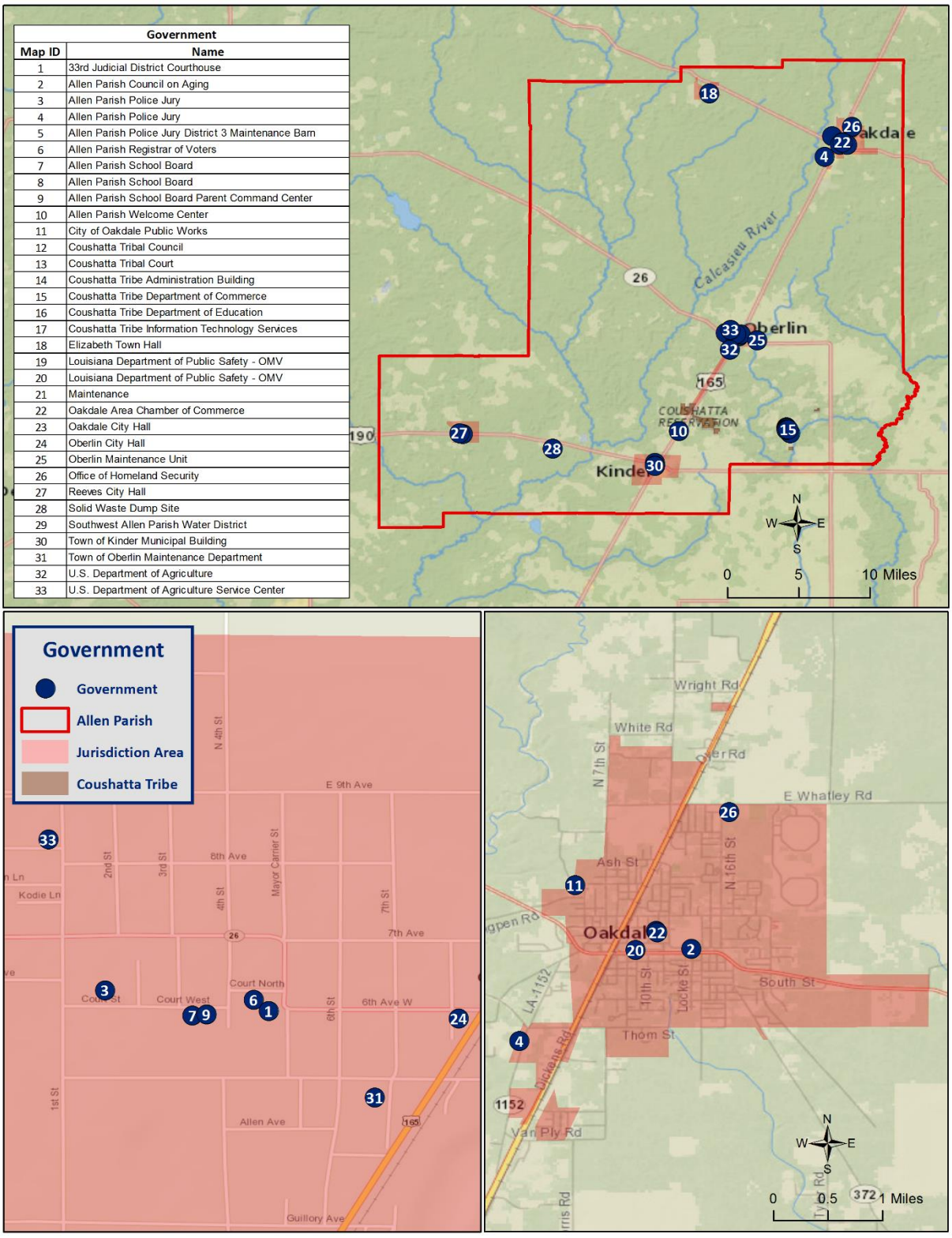


Figure 2-2: Government Buildings in Allen Parish

Prison and Correction Centers	
Map ID	Name
1	Allen Correctional Center
2	Federal Correctional Complex

Law Enforcement	
Map ID	Name
1	Allen Parish Sheriff's Department - Admin Building
2	Allen Parish Sheriff's Department - Bowman Hicks Sub
3	Allen Parish Sheriff's Office - Elizabeth Substation
4	Allen Parish Sheriff's Office Substation
5	Coushatta Tribal Police Department
6	Oakdale Police Department
7	Reeves Police Department

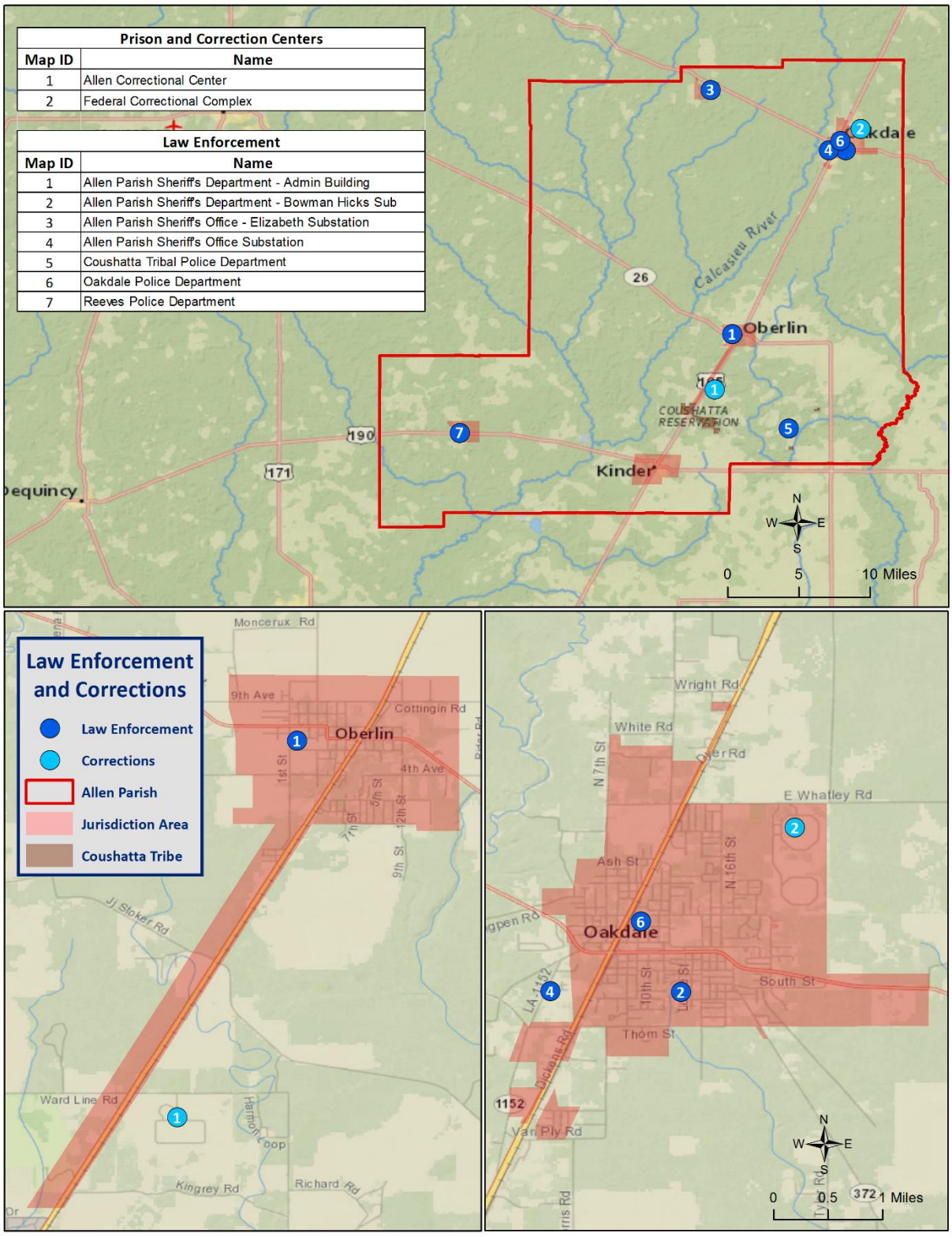


Figure 2-3: Law Enforcement and Correction Buildings in Allen Parish

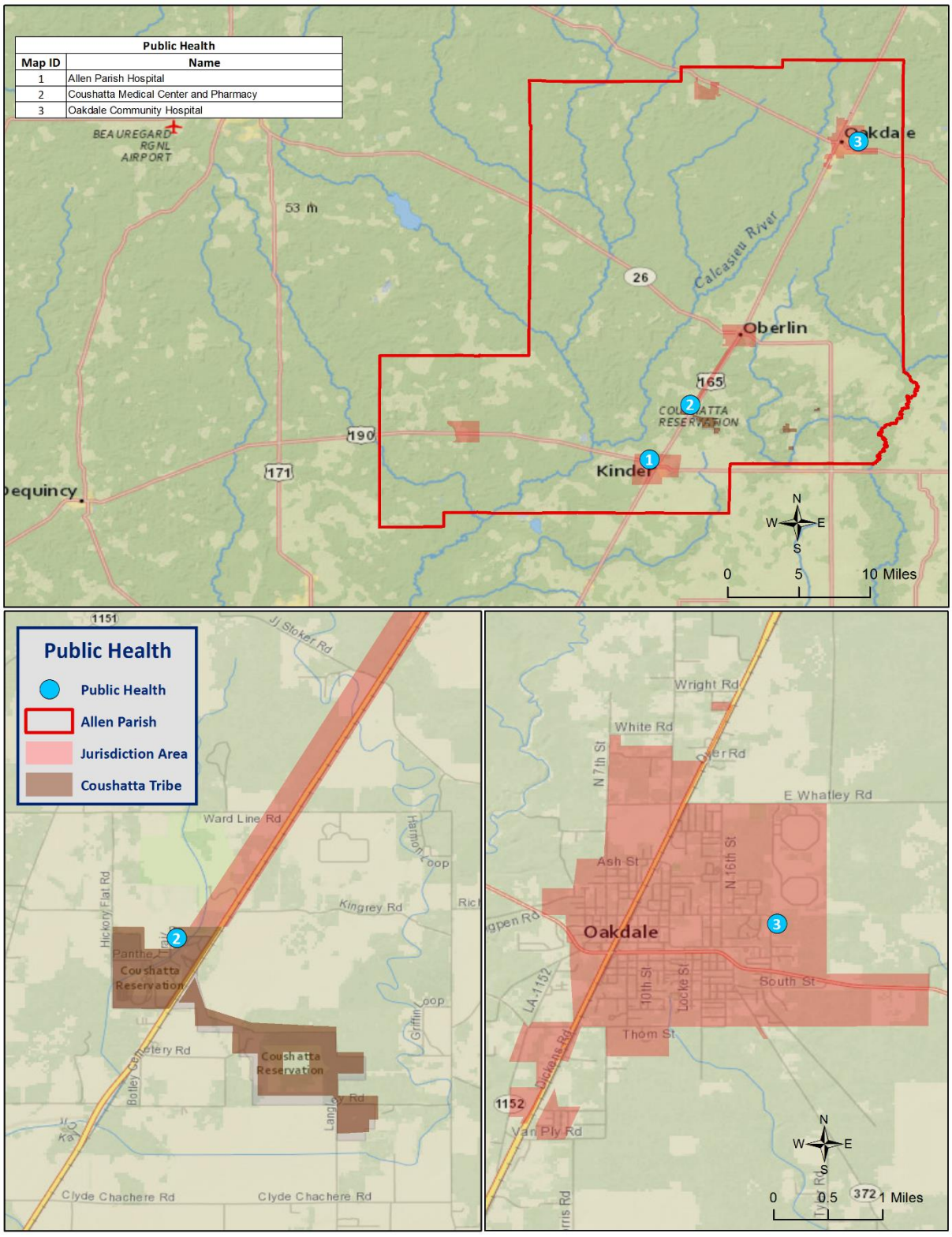


Figure 2-4: Public Health Buildings in Allen Parish

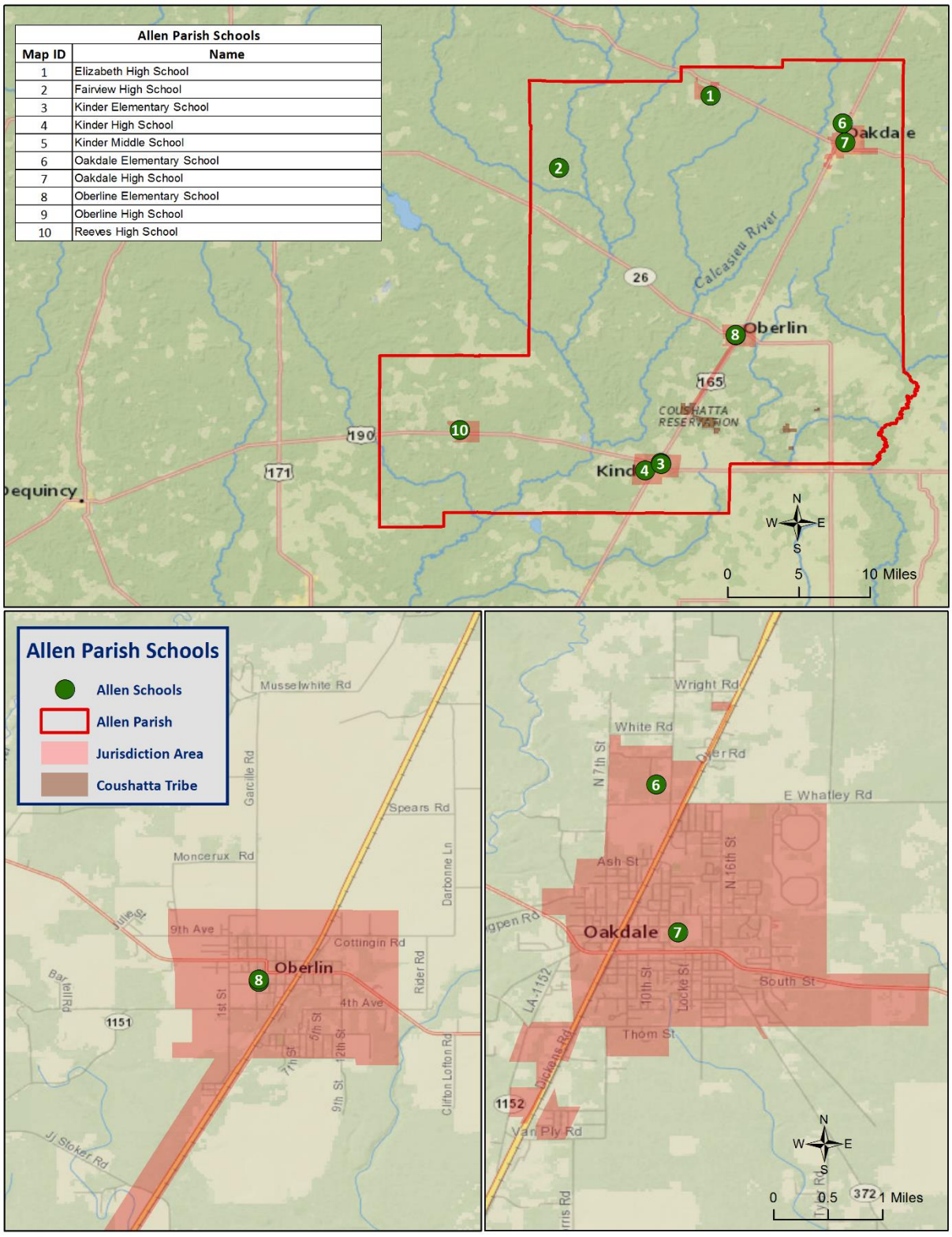


Figure 2-5: School Buildings in Baton Rouge Parish

Future Development Trends

Allen Parish experienced a small growth in population and housing between the years of 2000 and 2014, growing from a population of 25,401 with 9,157 housing units in 2000 to a population of 25,691 with 9,780 housing units in 2014. This growth was largely in the unincorporated areas of Allen Parish, and in the incorporated area of Reeves from the years 2000 to 2010, and in the incorporated areas of Reeves and Oberlin from 2010 to 2014. 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 Allen Parish

Total Population	Allen Parish	Allen (Unincorporated)	Elizabeth	Kinder	Oakdale	Oberlin	Reeves
1-Apr-00	25,401	12,152	567	2,444	8,158	1,862	218
1-Apr-10	25,732	12,956	531	2,473	7,772	1,768	232
1-Jul-14	25,691	12,272	570	2,746	7,741	2,069	293
Population Growth between 2000 – 2010	1.3%	6.6%	-6.3%	1.2%	-4.7%	-5.0%	6.4%
Average Annual Growth Rate between 2000 – 2010	0.1%	0.7%	-0.6%	0.1%	-0.5%	-0.5%	0.6%
Population Growth between 2010 – 2014	-0.2%	-5.3%	7.3%	11.0%	-0.4%	17.0%	26.3%
Average Annual Growth Rate between 2010 – 2014	-0.04%	-1.32%	1.84%	2.76%	-0.10%	4.26%	6.57%

Table 2-6: Housing Growth Rate for Allen Parish

Total Housing Units	Allen Parish	Allen (Unincorporated)	Elizabeth	Kinder	Oakdale	Oberlin	Reeves
1-Apr-00	9,157	4,609	206	950	2,512	789	91
1-Apr-10	9,733	5,064	216	1,137	2,428	792	96
1-Jul-14	9,780	4,913	239	1,237	2,540	743	108
Housing Growth between 2000 – 2010	6.3%	9.9%	4.9%	19.7%	-3.3%	0.4%	5.5%
Average Annual Growth Rate between 2000 – 2010	0.6%	1.0%	0.5%	2.0%	-0.3%	0.0%	0.5%
Housing Growth between 2010 – 2014	0.5%	-3.0%	10.6%	8.8%	4.6%	-6.2%	12.5%
Average Annual Growth Rate between 2010 – 2014	0.1%	-0.7%	2.7%	2.2%	1.2%	-1.5%	3.1%

As shown in the previous tables, Allen Parish has experienced slight growth in both population and housing units. Housing growth rates grew at 0.6% annually from 2000 to 2010, and at 0.1% annually from 2010 to 2014. Population growth rates for the parish were slightly lower at 0.1% annually from 2000 to 2010, and declined at -0.04% annually from 2010 to 2014. From 2000 to 2010, the unincorporated area of Allen Parish had the largest increase in population at an overall rate of 6.6%, followed by the incorporated area of Reeves at 6.4%. The incorporated area of Elizabeth had the largest decrease in population during this time period at -6.3%. From 2010 to 2014, Reeves experienced the largest growth in population at 26.3%, followed by Oberlin at 17%.

The incorporated area of Kinder experienced the largest increase in housing units from 2000 to 2010 at 19.7%, followed by the unincorporated area of Allen Parish at 9.9%. The only area in Allen Parish to experience a decline in housing units during this time period was Oakdale at -3.3%. From 2010 to 2014, Reeves experienced the largest increase in housing units at 12.5%, followed by Elizabeth at 10.6%.

Future Hazard Impacts

Hazard impacts were estimated for five years and ten years in the future (2019 and 2024). Yearly population and housing growth rates were applied to parish inventory assets for composite flood and tropical cyclones. Based on a review of available information, it is assumed that population and housing units will grow slightly within Allen 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	9,828	1,594	1,633	1,665
Value of Structures	$3,284,975,721	$532,833,160	$574,321,596	$609,826,466
# of People	25,712	4,171	4,188	4,201
Tropical Cyclone				
Structures	9,828	9,828	10,069	10,266
Value of Structures	$3,284,975,721	$3,284,975,721	$3,540,756,542	$3,759,648,021
# of People	25,712	25,712	25,817	25,901

Land Use

The Allen Parish Land Use table is provided on the following page. Residential, commercial, and industrial areas account for only 5% of the parish's land use. Agricultural land is the largest category at 190,183 acres, accounting for 39% of parish land. At 172,216 acres, forested land accounts for 35% of parish lands, while 99,463 acres of wetland areas account for 20% of parish lands. The parish also consists of 1,999 acres of water areas, accounting for <1% of all parish lands.

Table 2-8: Allen Parish Land Use
(Source: USGS Land Use Map)

Land Use	Acres	Percentage
Agricultural Land, Cropland, and Pasture	190,183	39%
Wetlands	99,463	20%
Forest Land (not including forested wetlands)	172,216	35%
Urban/Development	26,404	5%
Water	1,999	<1%

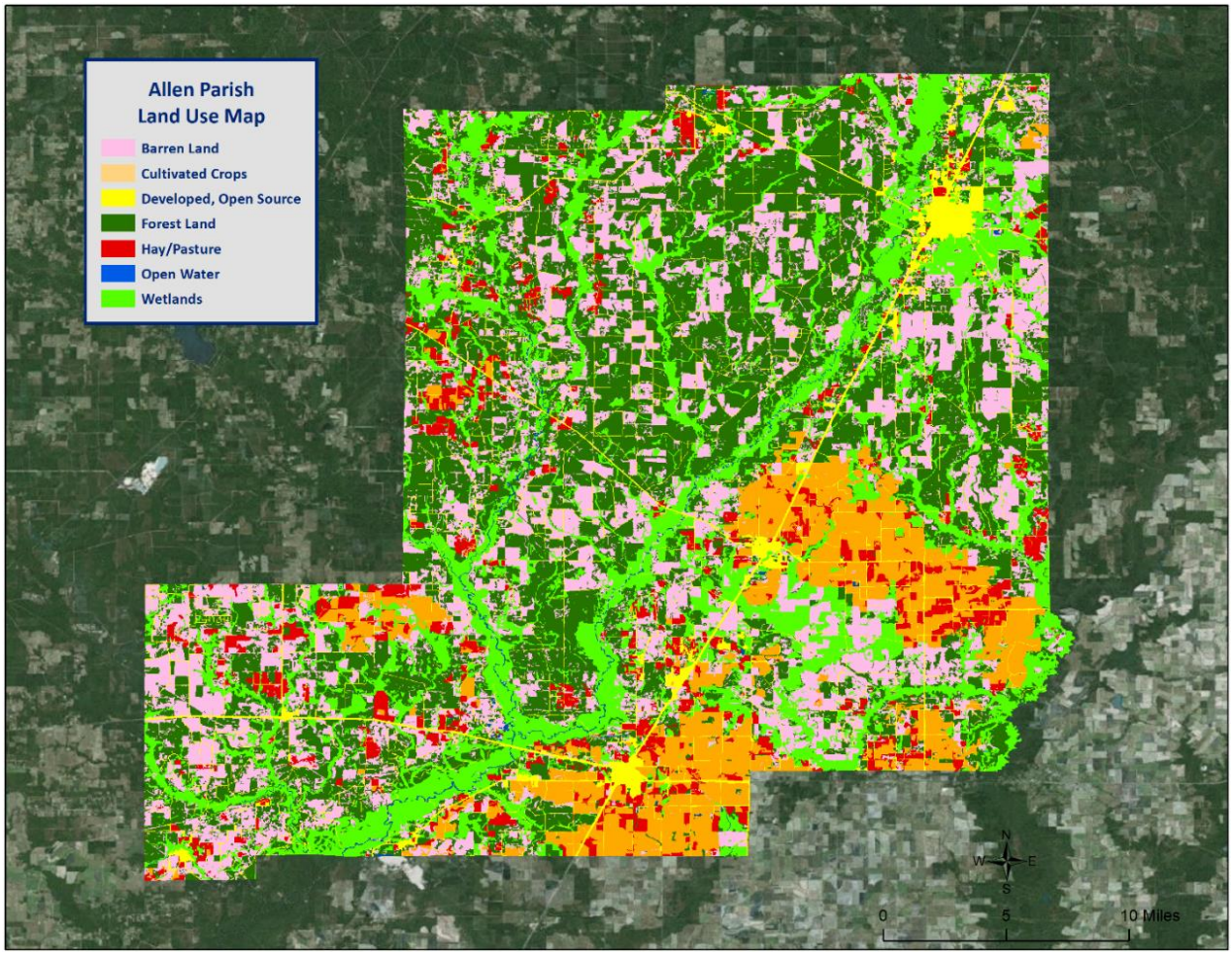


Figure 2-6: Allen Parish Land Use Map
(Source: USGS Land Use Map)

Hazard Identification

Flooding

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

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

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

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

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

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

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

Hurricane Isaac in 2012. Although the town was protected by a levee on the side facing the Mississippi River, floodwaters from Lake Maurepas and Lake Pontchartrain crept into the community on the side of town opposite the Mississippi River.

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

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

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

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

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

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

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

It is essential to understand that the magnitude of an X-year flood event for a particular area depends on the source of flooding and the area's location. The size of a specific flood event is defined through historic data of precipitation, flow, and discharge rates. Consequently, different 100-year flood events can have very different impacts. The 100-year flood event in two separate locations have the same likelihood to occur, but they do not necessarily have the same magnitude. For example, a 100-year event for the Mississippi River means something completely different in terms of discharge values (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 National Flood Insurance Program (NFIP) Rate Maps. The NFIP and FEMA suggest insurance rates based on Special Flood Hazard Areas (SFHAs), as diagrammed in *Figure 2-7*.

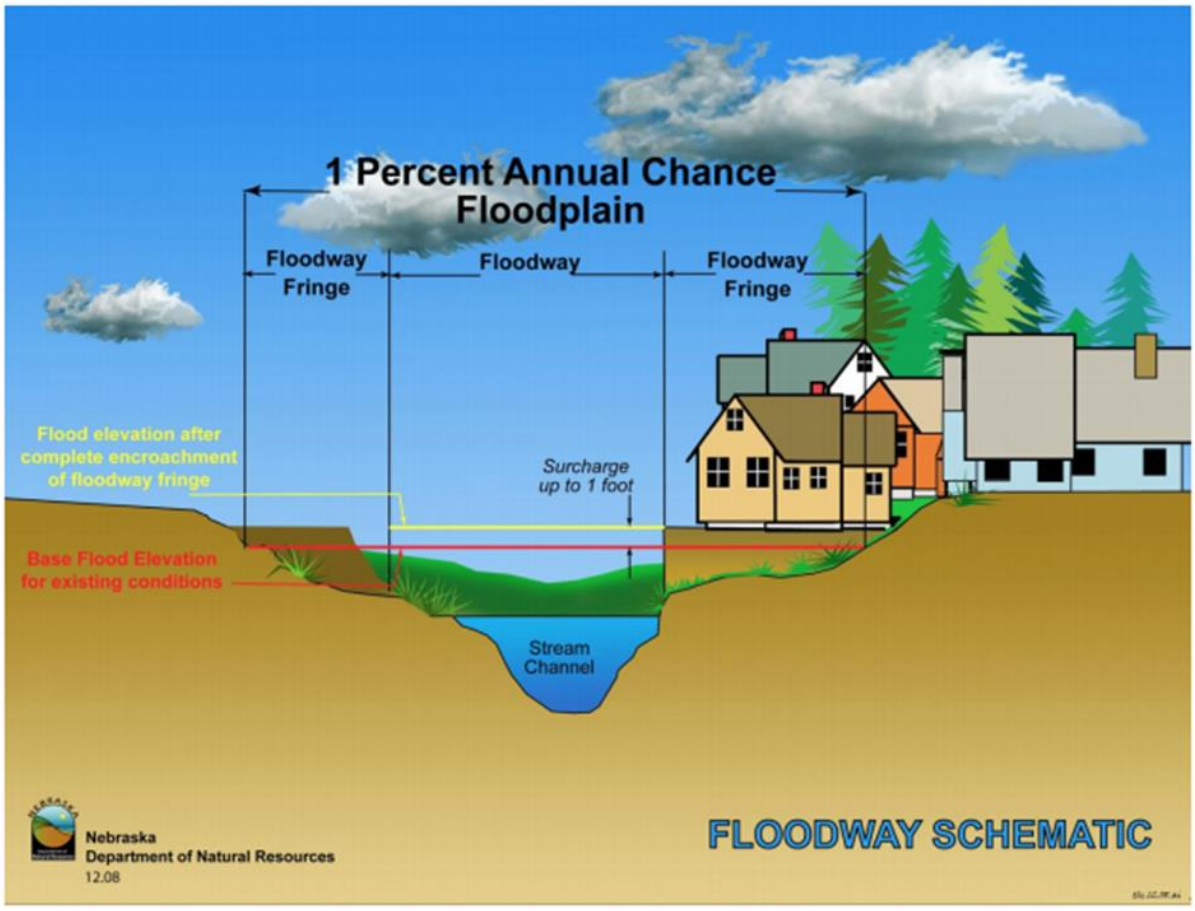


Figure 2-7: Schematic of 100-Year Floodplain. The Special Flood Hazard Area (SFHA) extends to the end of the floodway fringe.
(Source: Nebraska Department of Natural Resources)

A SFHA is the land area covered by the floodwaters of the base flood (red line in *Figure 2-7*), 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 Allen Parish are provided in the table below:

Table 2-9: Repetitive Loss Structures for Allen Parish

Jurisdiction	Number of Structures	Residential	Commercial	Government	Total Claims	Total Claims Paid	Average Claim Paid
Allen Parish (Unincorporated)	9	9	0	0	36	$534,332	$14,843
Elizabeth	0	0	0	0	0	$0	$0
Kinder	4	4	0	0	25	$149,701	$5,988
Oakdale	16	14	2	0	47	$519,820	$11,060
Oberlin	0	0	0	0	0	$0	$0
Reeves	6	6	0	0	14	$248,055	$17,718
Total	35	33	2	0	122	$1,451,908	$11,901

All 35 repetitive loss structures were able to be geocoded in order to provide an overview of where the repetitive loss structures were located throughout the parish. *Figure 2-8* shows the approximate location of the 35 structures, while *Figure 2-9* 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 and around the incorporated area of Oakdale and in the unincorporated areas.

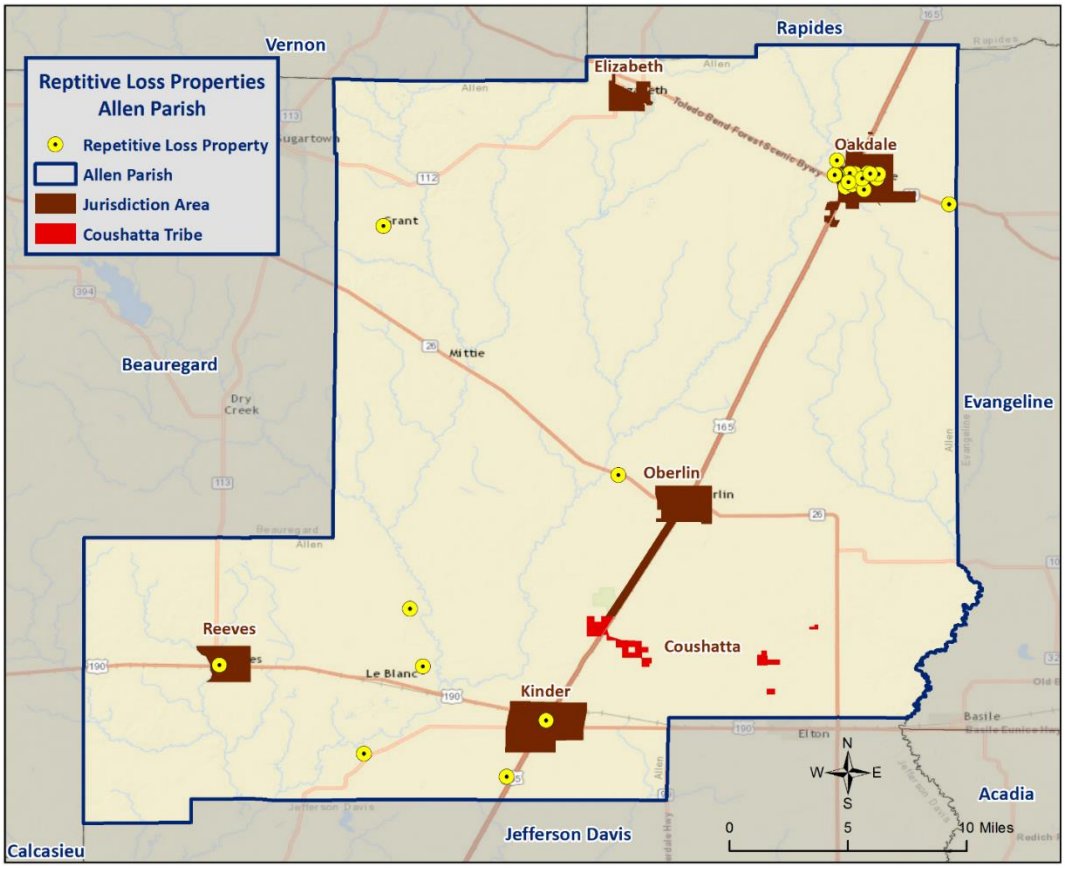


Figure 2-8: Repetitive Loss Properties in Allen Parish

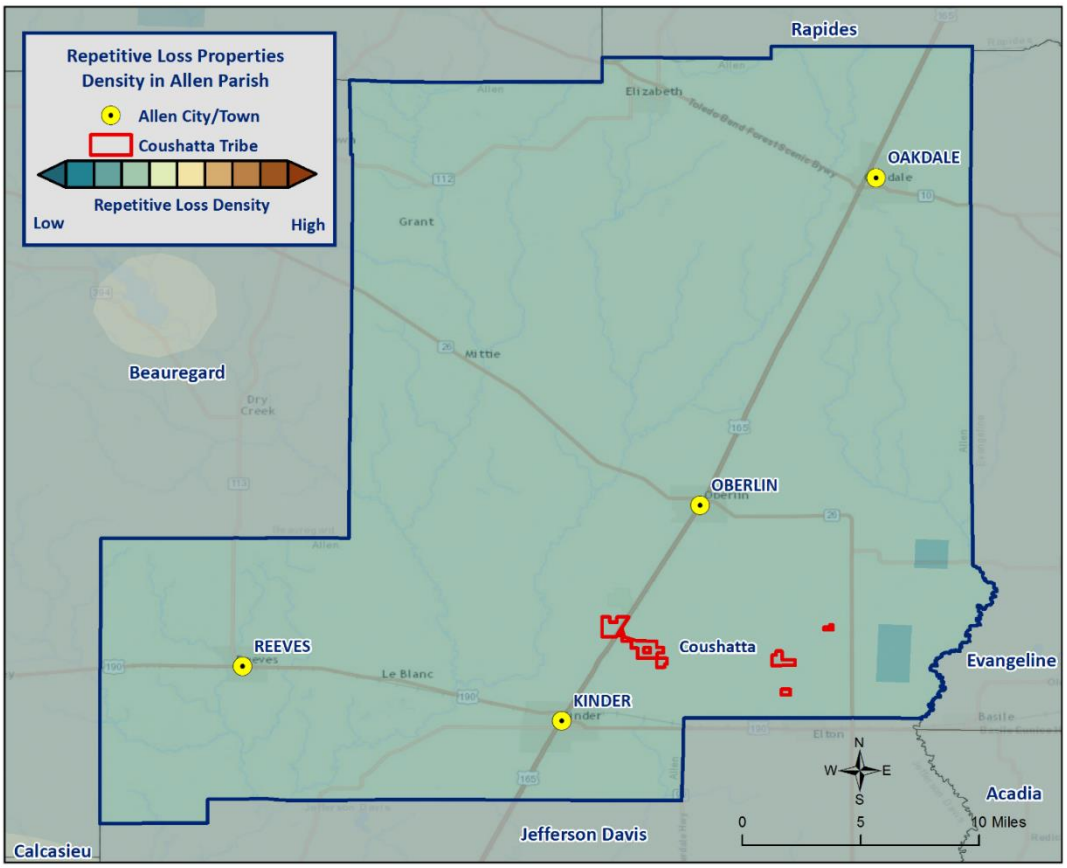


Figure 2-9: Repetitive Loss Property Densities in Allen Parish

National Flood Insurance Program

Flood insurance statistics indicate that Allen Parish has 351 flood insurance policies with the NFIP, with total annual premiums of $197,914. Allen Parish, Elizabeth, Kinder, Oakdale, Oberlin, and Reeves are all participants in the NFIP. Allen 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 Allen Parish are provided in the tables to follow.

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

Table 2-10: Summary of NFIP Policies for Allen Parish

Location	No. of Insured Structures	Total Insurance Coverage Value	Annual Premiums Paid	No. of Insurance Claims Filed Since 1978	Total Loss Payments
Allen Parish (Unincorporated)	205	$28,475,900	$116,160	126	$1,270,667
Elizabeth	7	$298,500	$3,079	0	$0
Kinder	44	$7,817,200	$25,534	41	$517,715
Oakdale	79	$13,532,300	$46,561	217	$2,283,485
Oberlin	16	$3,169,700	$6,580	20	$149,284
Reeves	0	$0	$0	0	$0
Total	351	$53,293,600	$197,914	404	$4,221,150

*While the Village of Reeves does not have any active NFIP policies, the parish will continue to promote NFIP participation through education and outreach.

Table 2-11: Summary of Community Flood Maps for Allen Parish

CID	Community Name	Initial FHBM Identified	Initial FIRM Identified	Current Effective Map Date	Date Joined the NFIP	Tribal
220009#	Allen Parish	6/7/1977	1/3/1990	3/17/2011	1/3/1990	No
220324#	Elizabeth	7/25/1975	2/1/1987	3/17/11 (M)	2/1/1987	No
220010#	Kinder	4/5/1974	11/1/1985	3/17/11 (M)	11/1/1985	No
220011#	Oakdale	11/28/1973	8/5/1985	3/17/2011	8/5/1985	No
220012#	Oberlin	6/21/1974	10/12/1982	3/17/11 (M)	10/12/1982	No
220307#	Reeves	8/15/1975	3/17/2011	3/17/11 (M)	3/17/2011	No

According to the Community Rating System (CRS) list of eligible communities dated June 1, 2014, none of the Allen Parish jurisdictions or unincorporated areas participate in the CRS.

Threat to People

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

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

Flooding in Allen 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 Allen 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 Calcasieu River crests at flood stage levels, causing extensive flooding in low-lying areas.

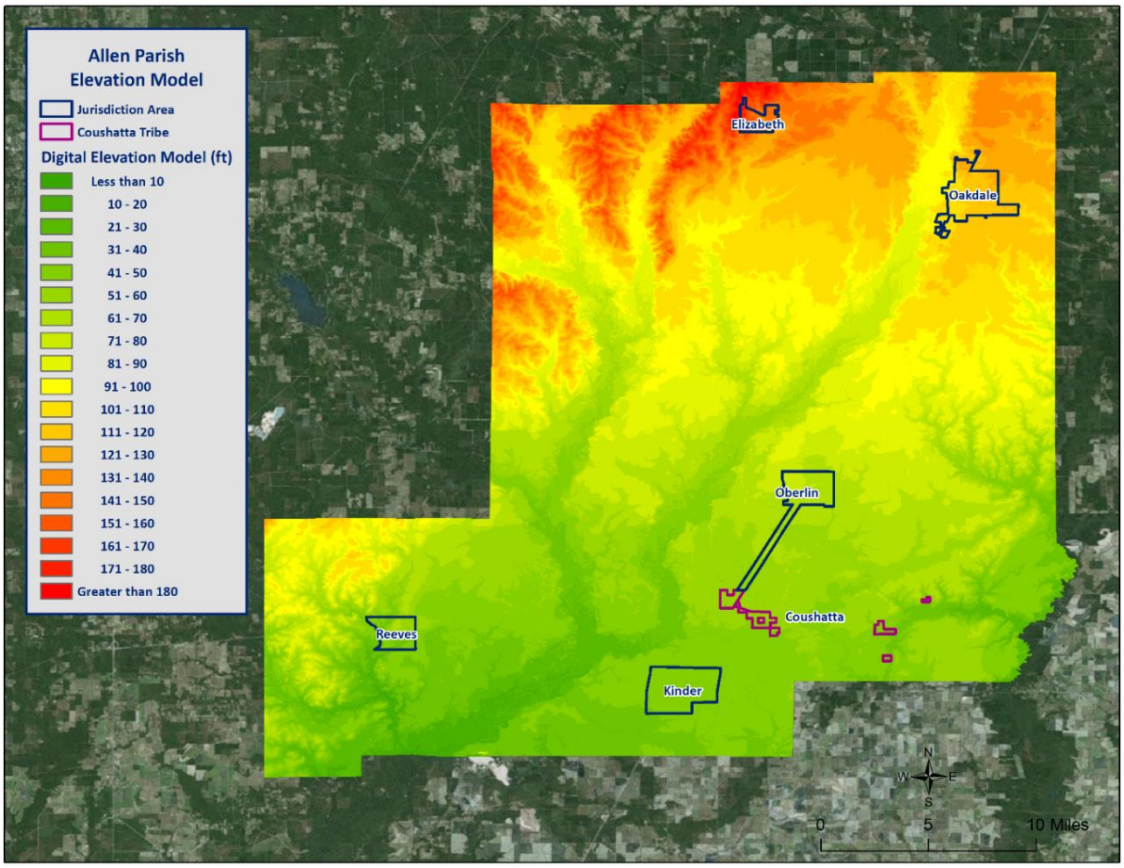


Figure 2-10: Elevation throughout Allen Parish

Looking at the digital elevation model (DEM) in the previous figure for Allen Parish is instructive in visualizing where the low lying and high risk areas are for the parish. Elevations in the parish range from near sea level to over 180 feet. The highest elevations in the parish are over 180 feet, located in the northern portions of the parish. The incorporated areas range in elevation from 46 feet to 144 feet, Kinder averaging 46 feet, Reeves averaging 56 feet, Oberlin averaging 69 feet, Oakdale averaging 112 feet, and Elizabeth averaging 144 feet.

Location

Allen has experienced significant flooding in its history and can expect more in the future. Floods have been a cause of past disaster declarations and will likely be the cause of many future hazard events that require assistance.

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

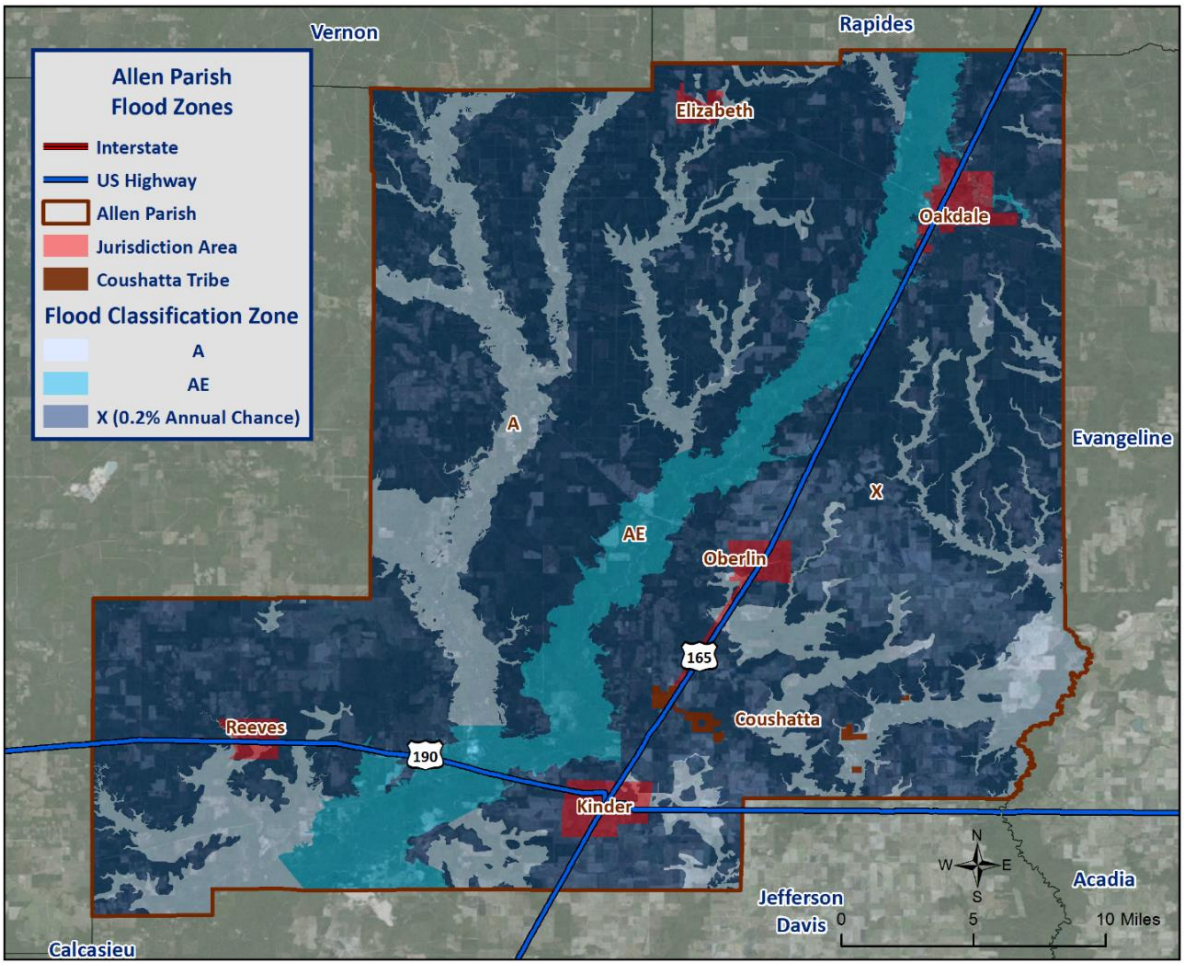


Figure 2-11: Allen Parish Areas within the Flood Zones

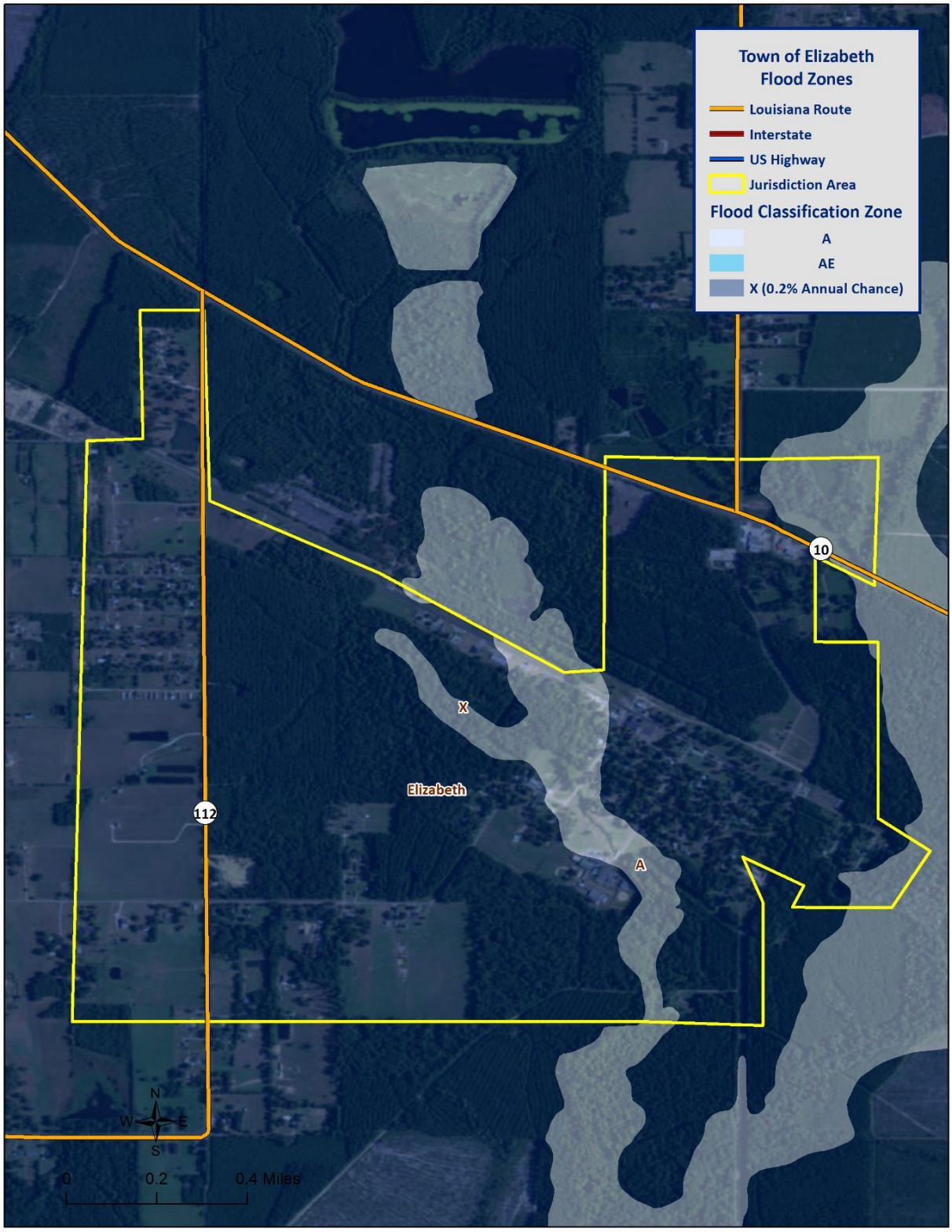


Figure 2-12: Town of Elizabeth Areas within the Flood Zones

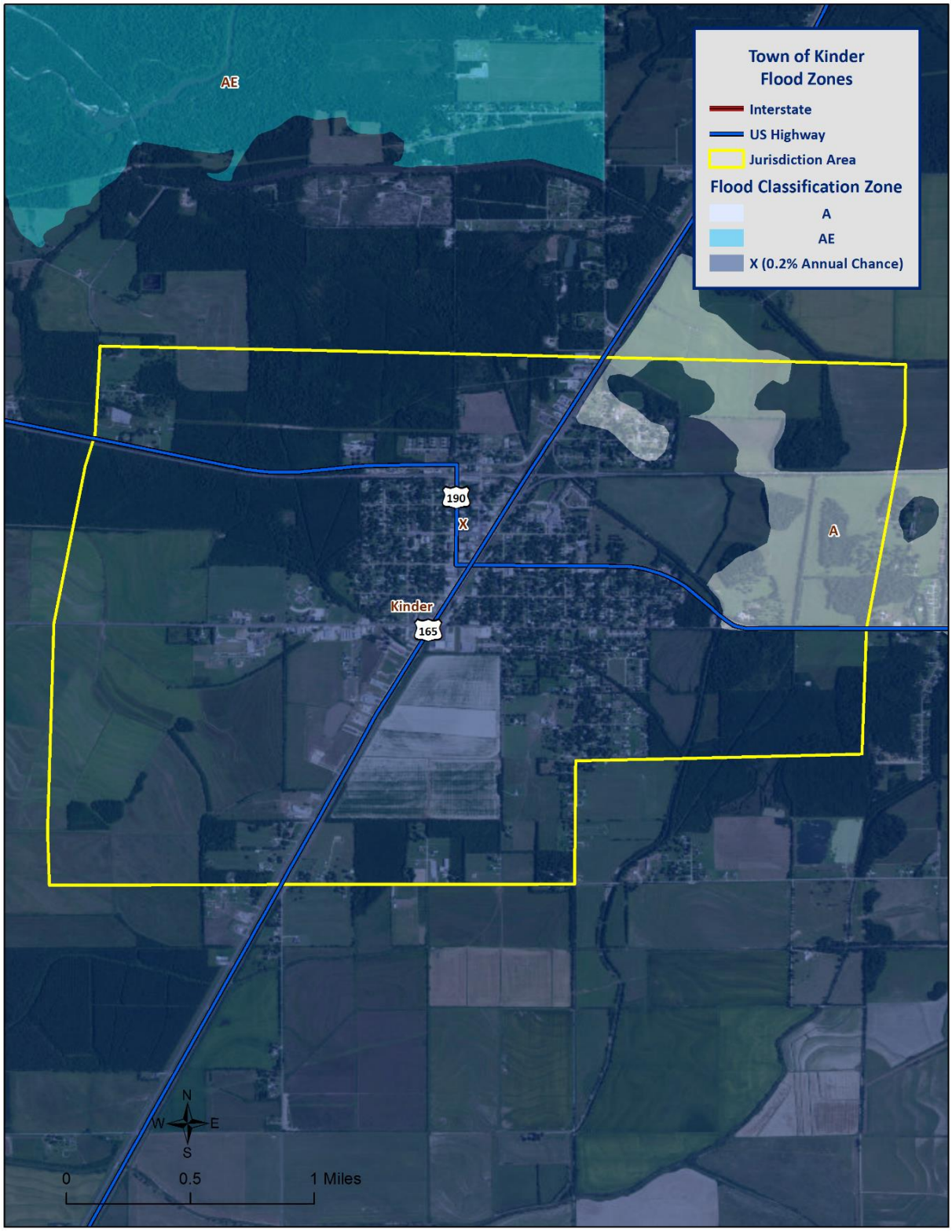


Figure 2-13: Town of Kinder Areas within the Flood Zones

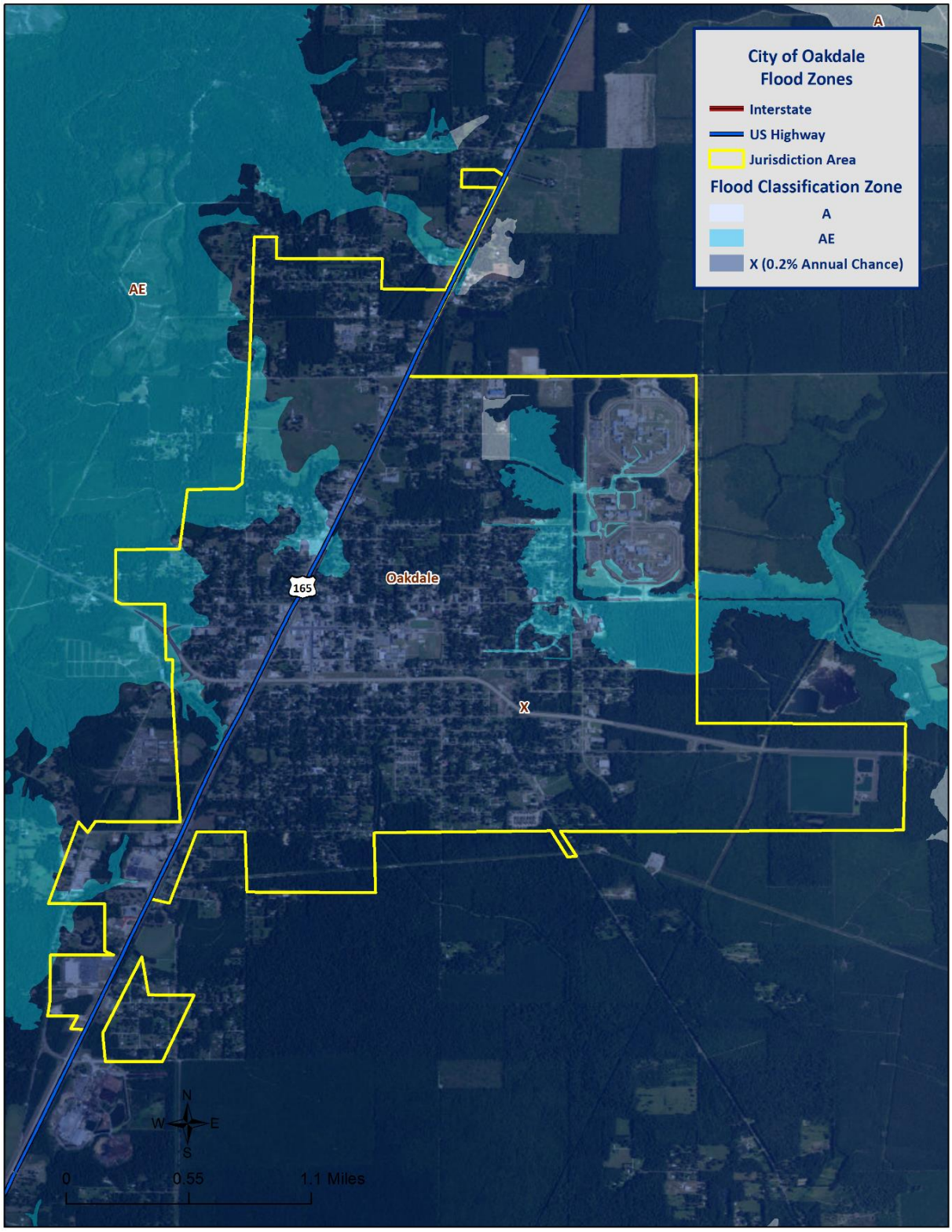


Figure 2-14: City of Oakdale Areas within the Flood Zones

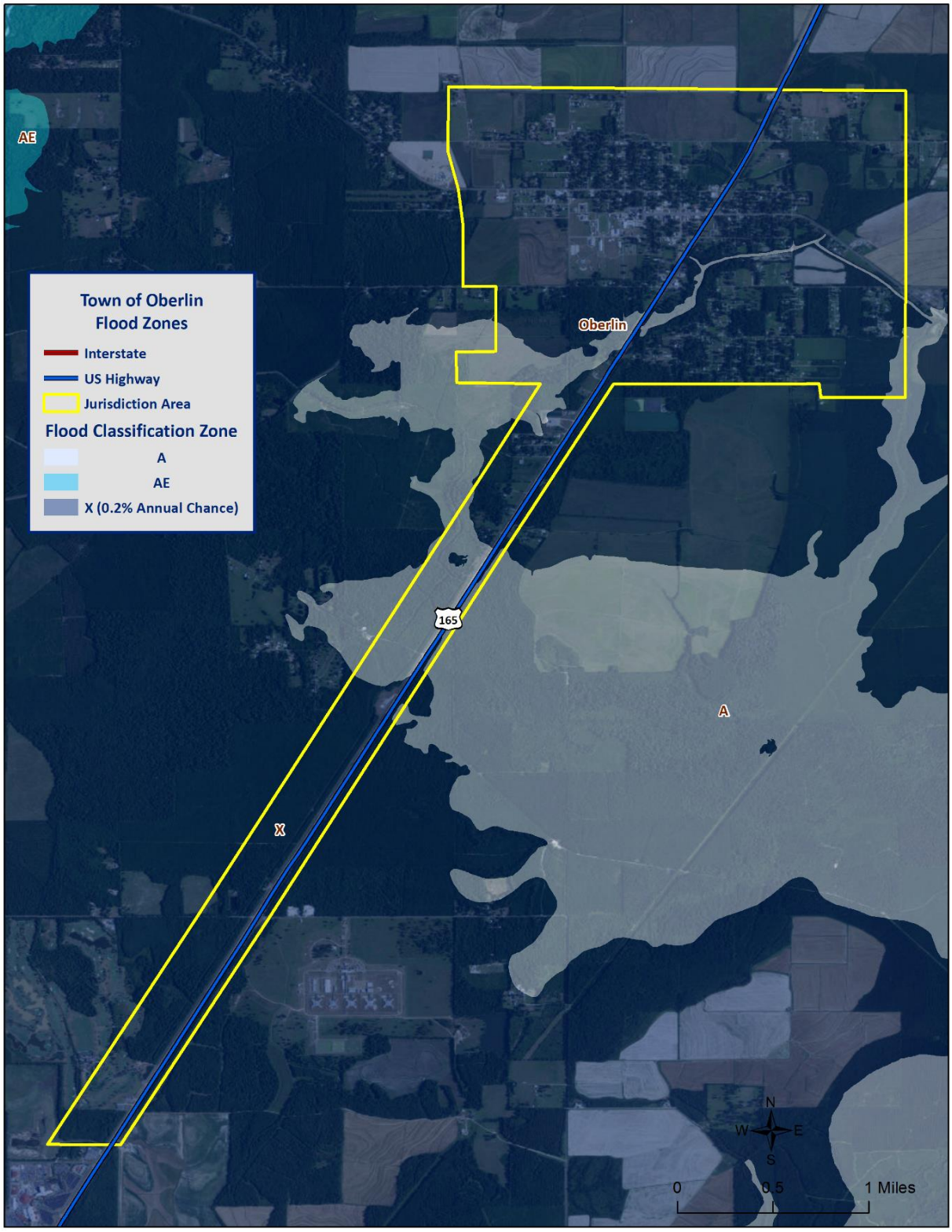


Figure 2-15: Town of Oberlin Areas within the Flood Zones

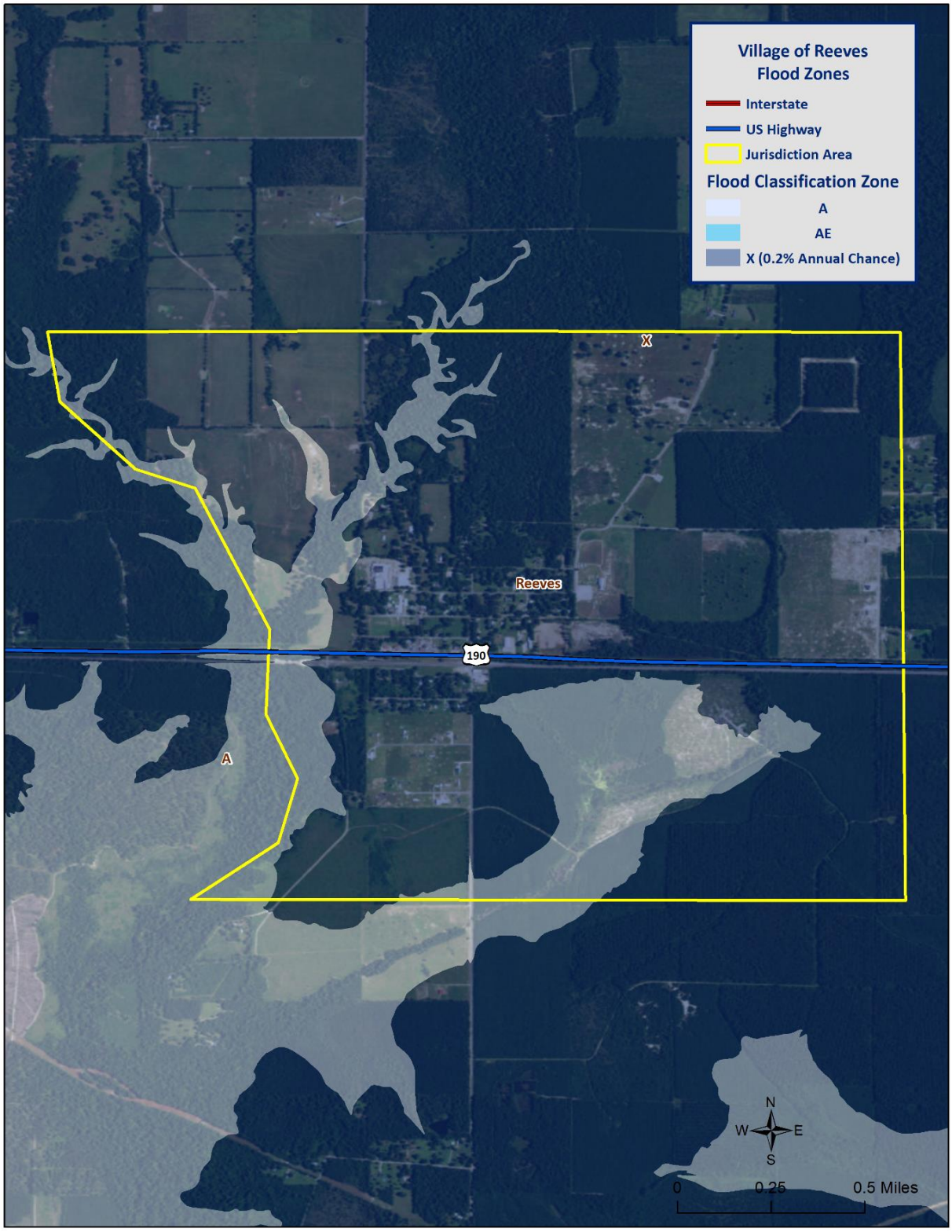


Figure 2-16: Village of Reeves Areas within the Flood Zones

Previous Occurrences / Extents

Historically, there have been 10 flooding events that have created significant flooding in Allen Parish between 1990 and 2015. Below is a brief synopsis of the one flooding event that has occurred since 2010, including flooding events that have occurred since the parish's last planning update.

Table 2-12: Historical Floods in Allen Parish with Locations from 2010 - 2015

Date	Extents	Type of Flooding	Estimated Damages	Location
August 30, 2014	Heavy rainfall caused flash floods that closed multiple streets around the town of Kinder during the morning and into the early afternoon.	Flash Flood	$5,000	KINDER

Since 2010, there have been no significant flooding events in the unincorporated areas of Allen Parish, or in the incorporated areas of Elizabeth, Oakdale, Oberlin, and Reeves.

The worst-case scenarios are based on several different types of flooding events. Storm water excesses and riverine flooding primarily affect the low-lying areas of the parish, and flood depths of up to six feet can be expected in the unincorporated areas of the parish and in the incorporated areas of Oakdale and Kinder. The incorporated areas of Elizabeth, Oberlin, and Reeves can expect flood depths of 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 Allen Parish having multiple jurisdictions, it was necessary to assess the historical data found in the National Climatic Data Center for Allen Parish and its jurisdictions to properly determine probability for future flood events. The table below shows the probability and return frequency for each jurisdiction.

Table 2-13: Annual Flood Probabilities for Allen Parish

Jurisdiction	Annual Probability	Return Frequency
Allen Parish (Unincorporated)	4%	25 years
Elizabeth	<1%	>25 years
Kinder	12%	8 – 9 years
Oakdale	24%	4 – 5 years
Oberlin	<1%	>25 years
Reeves	<1%	>25 years

Based on historical record, the overall flooding probability for the entire Allen Parish planning area is 40%, with 10 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 2-14* shows the total economic losses that would result from this occurrence.

Table 2-14: Estimated Losses in Allen Parish from a 100-Year Flood Event (Source: Hazus 2.2)

Jurisdiction	Estimated Total Losses from 100-Year Flood Event
Allen Parish (Unincorporated)	$27,334,000
Elizabeth	$8,000
Kinder	$156,000
Oakdale	$97,000
Oberlin	$8,876,000
Reeves	$219,000
Total	$36,690,000

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. These sectors are comprised of privately owned structures/facilities, as well as locally, state, and federally owned structures/facilities.

Table 2-15: Estimated 100-Year Flood Losses for Unincorporated Allen Parish by Sector (Source: Hazus 2.2)

Allen Parish (Unincorporated)	Estimated Total Losses from 100-Year Flood Event
Agricultural	$50,000
Commercial	$1,422,000
Government	$528,000
Industrial	$355,000
Religious / Non-Profit	$2,325,000
Residential	$22,654,000
Schools	$0
Total	$27,334,000

Table 2-16: Estimated 100-Year Flood Losses for Elizabeth by Sector (Source: Hazus 2.2)

Elizabeth	Estimated Total Losses from 100-Year Flood Event
Agricultural	$0
Commercial	$0
Government	$0
Industrial	$0
Religious / Non-Profit	$0
Residential	$8,000
Schools	$0
Total	$8,000

Table 2-17: Estimated 100-Year Flood Losses for Kinder by Sector
(Source: Hazus 2.2)

Kinder	Estimated Total Losses from 100-Year Flood Event
Agricultural	$0
Commercial	$4,000
Government	$0
Industrial	$0
Religious / Non-Profit	$0
Residential	$152,000
Schools	$0
Total	$156,000

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

Oakdale	Estimated Total Losses from 100-Year Flood Event
Agricultural	$0
Commercial	$0
Government	$0
Industrial	$0
Religious / Non-Profit	$0
Residential	$97,000
Schools	$0
Total	$97,000

Table 2-19: Estimated 100-Year Flood Losses for Oberlin by Sector
(Source: Hazus 2.2)

Oberlin	Estimated Total Losses from 100-Year Flood Event
Agricultural	$99,000
Commercial	$1,388,000
Government	$17,000
Industrial	$37,000
Religious / Non-Profit	$8,000
Residential	$7,327,000
Schools	$0
Total	$8,876,000

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

Reeves	Estimated Total Losses from 100-Year Flood Event
Agricultural	$0
Commercial	$0
Government	$0
Industrial	$0
Religious / Non-Profit	$6,000
Residential	$50,000
Schools	$163,000
Total	$219,000

Threat to People

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

Table 2-21: 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**
Allen Parish (Unincorporated)	**12,063**	**3,091**	**25.6%**
Elizabeth	**532**	**4**	**0.8%**
Kinder	**2,477**	**225**	**9.1%**
Oakdale	**7,780**	**18**	**0.2%**
Oberlin	**1,770**	**817**	**46.2%**
Reeves	**232**	**14**	**6.0%**
Total	**25,764**	**4,179**	**16.2%**

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

Table 2-22: Vulnerable Populations Susceptible to a 100-Year Flood Event in Unincorporated Allen Parish (Source: Hazus 2.2)

Allen Parish (Unincorporated)		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	3,091	25.6%
Persons Under 5 Years	200	6.5%
Persons Under 18 Years	507	16.4%
Persons 65 Years and Over	399	12.9%
White	2,212	71.6%
Minority	879	28.5%

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

Elizabeth		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	4	0.8%
Persons Under 5 Years	0	10.3%
Persons Under 18 Years	1	24.6%
Persons 65 Years and Over	0	10.3%
White	4	97.2%
Minority	0	2.8%

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

Kinder		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	225	9.1%
Persons Under 5 Years	21	9.5%
Persons Under 18 Years	40	17.6%
Persons 65 Years and Over	39	17.2%
White	159	70.6%
Minority	66	29.4%

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

Oakdale		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	18	0.2%
Persons Under 5 Years	1	5.2%
Persons Under 18 Years	2	12.8%
Persons 65 Years and Over	2	11.0%
White	11	62.4%
Minority	7	37.6%

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

Oberlin		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	817	46.2%
Persons Under 5 Years	50	6.1%
Persons Under 18 Years	149	18.2%
Persons 65 Years and Over	146	17.9%
White	445	54.5%
Minority	372	45.5%

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

Reeves		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	14	6.0%
Persons Under 5 Years	1	6.5%
Persons Under 18 Years	4	26.3%
Persons 65 Years and Over	1	8.2%
White	13	94.4%
Minority	1	5.6%

Vulnerability

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

Thunderstorms

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

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

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

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

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

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

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

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

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

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

Hazard Description

Hailstorms

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

Table 2-28: 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 2-29: 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 tables.

Table 2-30: High Winds Categorized by Source, Frequency, and Duration
(Source: Making Critical Facilities Safe from High Wind, FEMA)

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

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

The following table presents the Beaufort Wind Scale, first developed in 1805 by Sir Francis Beaufort, which aids in determining relative force and wind speed based on the appearance of wind effects.

Table 2-31: 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 2-32: 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 Allen Parish is equally at risk for hailstorms.

Previous Occurrences / Extents

The SHELDUS database reports 18 significant hailstorm events occurring within the boundaries of Allen Parish between the years of 1990 - 2015. According to the National Climatic Data Center, hailstorm diameters experienced in Allen Parish have ranged from 0.75 inches to 1.75 inches since 1990. The most frequently recorded hail size has been 1 inch diameters. *Figure 2-17* displays the density of hailstorms in Allen Parish and adjacent parishes. Based on the National Climatic Data Center dataset, *Table 2-33* provides an overview of hailstorms that have impacted the Allen Parish planning area since 2010. Allen Parish can expect to experience hail up to 1.75 inches in diameter for future events.

Table 2-33: Previous Occurrences of Hailstorms in Allen Parish (Source: NCDC)

Date	Recorded Hail Size (inches)	Location
February 21, 2010	0.88	OAKDALE ARPT
March 29, 2011	1	INDIAN VLG
June 2, 2011	0.75	KINDER
September 28, 2011	1.75	OBERLIN
June 13, 2012	1	REEVES
June 8, 2013	1	OBERLIN
June 13, 2014	0.88	REEVES
June 13, 2014	1	LE BLANC
April 27, 2015	1	KINDER

Since 2010, there have been no significant hailstorm events in the incorporated area of Elizabeth.

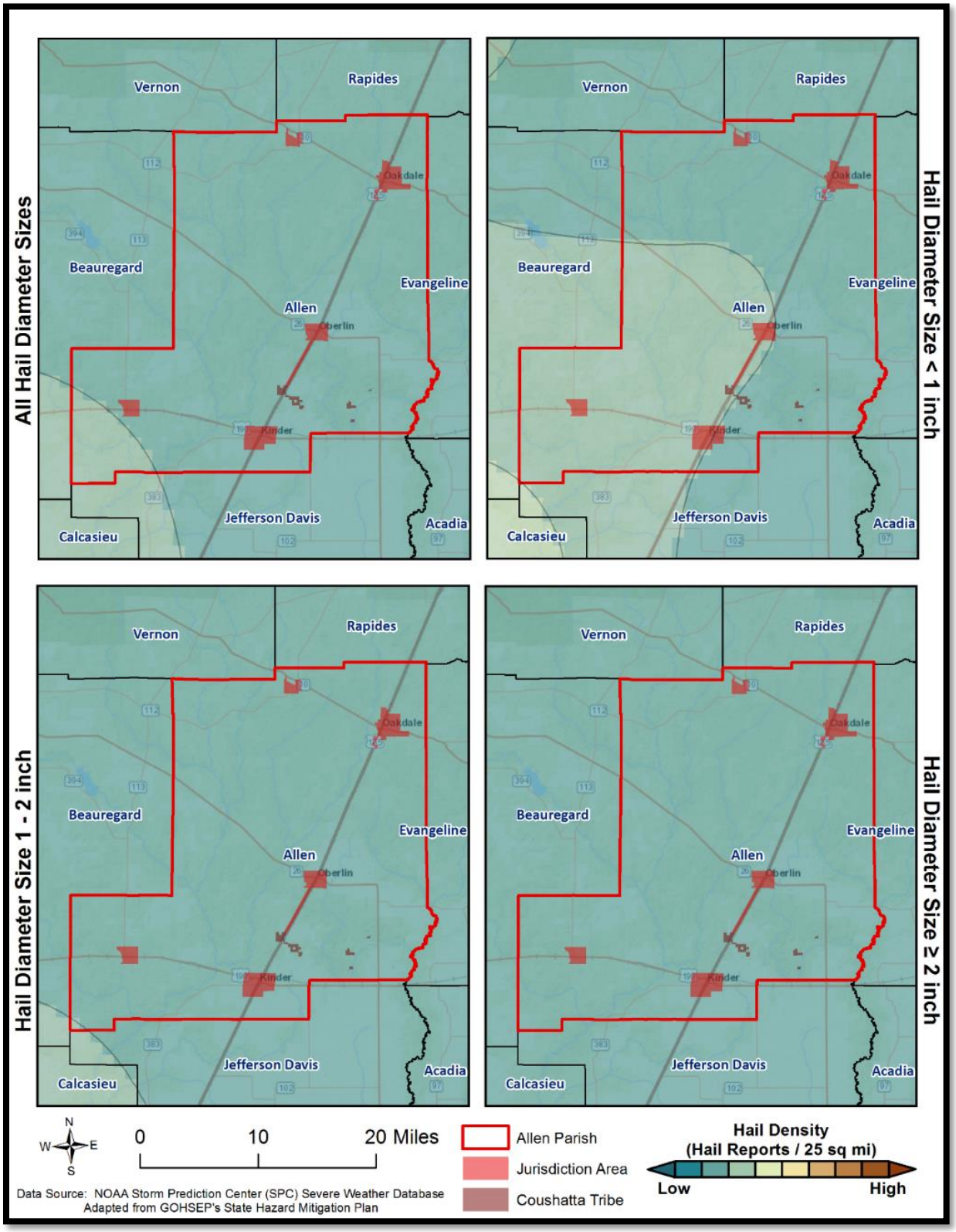


Figure 2-17: Density of Hailstorms by Diameter from 1950-2012
(Source: State of Louisiana Hazard Mitigation Plan 2014)

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 72%. The probability was determined based on a review of significant hail data that has caused damages in the last 25 years, in which Allen Parish has had 18 recorded events.

Estimated Potential Losses

According to the SHELDUS database, property damage due to hailstorms in Allen Parish have totaled approximately $11,904 since 1990. To estimate the potential losses of a hail event on an annual basis, the total damages recorded for hail events was divided by the total number of years of available hail data in SHELDUS (1990 – 2015). This provides an annual estimated potential loss of $476. *Table 2-34* provides an estimate of potential property losses for Allen Parish.

Table 2-34: Estimated Annual Property Losses in Allen Parish from Hailstorms

Estimated Annual Potential Losses from Hailstorms for Allen Parish					
Unincorporated Allen Parish (46.8% of Population)	**Elizabeth (2.1% of Population)**	**Kinder (9.6% of Population)**	**Oakdale (30.2% of Population)**	**Oberlin (6.9% of Population)**	**Reeves (0.9% of Population)**
$223	$10	$46	$144	$33	$4

There have been no deaths or injuries due to hailstorms from 1990 – 2015 in Allen 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 Allen Parish is equally at risk for high winds.

Previous Occurrences / Extents

The SHELDUS database reports a total of 85 thunderstorm wind events occurring within the boundaries of Allen Parish between the years of 1990 to 2015. The significant thunderstorm wind events experienced in Allen Parish have ranged in wind speed from 50 mph to 75 mph. Allen Parish can expect to receive thunderstorm winds up to 75 mph for future high wind events. The table on the next page provides an overview of significant high wind events over the last five years.

Table 2-35: Previous Occurrences for Thunderstorm High Wind Events

Location	Date	Recorded Wind Speeds (mph)	Property Damage	Crop Damage
INDIAN VLG	March 29, 2011	70	$15,000	$0
BOND	April 4, 2011	75	$10,000	$0
OBERLIN	April 26, 2011	60	$2,000	$0
OAKDALE	June 2, 2011	58	$5,000	$0
MITTIE	June 2, 2011	58	$10,000	$0
OBERLIN	August 24, 2011	58	$2,000	$0
GRANT	February 4, 2012	58	$10,000	$0
REEVES	June 13, 2012	58	$1,000	$0
OAKDALE	July 20, 2012	58	$2,000	$0
REEVES	April 24, 2015	58	$1,000	$0
LE BLANC	April 24, 2015	58	$2,000	$0
MITTIE	February 15, 2016	58	$1,000	$0
INDIAN VLG	March 29, 2011	70	$15,000	$0
BOND	April 4, 2011	75	$10,000	$0
OBERLIN	April 26, 2011	60	$2,000	$0
OAKDALE	June 2, 2011	58	$5,000	$0
MITTIE	June 2, 2011	58	$10,000	$0
OBERLIN	August 24, 2011	58	$2,000	$0
GRANT	February 4, 2012	58	$10,000	$0
REEVES	June 13, 2012	58	$1,000	$0
OAKDALE	July 20, 2012	58	$2,000	$0
REEVES	April 24, 2015	58	$1,000	$0
LE BLANC	April 24, 2015	58	$2,000	$0
MITTIE	February 15, 2016	58	$1,000	$0

Since 2010, there have been no significant hailstorm events in the incorporated areas of Elizabeth and Kinder.

Frequency

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

Estimated Potential Losses

Since 1990, there have been 85 significant wind events that have resulted in property damages according to the SHELDUS database. The total property damages associated with those storms have totaled $983,036. 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 $39,321. The table below provides an estimate of potential property losses for Allen Parish.

Table 2-36: Estimated Annual Property Losses in Allen Parish Resulting from High Winds

Estimated Annual Potential Losses from Thunderstorm Winds for Allen Parish					
Unincorporated Allen Parish (46.8% of Population)	Elizabeth (2.1% of Population)	Kinder (9.6% of Population)	Oakdale (30.2% of Population)	Oberlin (6.9% of Population)	Reeves (0.9% of Population)
$18,411	$812	$3,780	$11,874	$2,701	$354

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

Vulnerability

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

Lightning

Location

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

Previous Occurrences / Extents

The SHELDUS database reports a total of two lightning events occurring within the boundaries of Allen 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 Allen 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. Since 2010, there have been no significant lightning events in the Allen Parish Planning area.

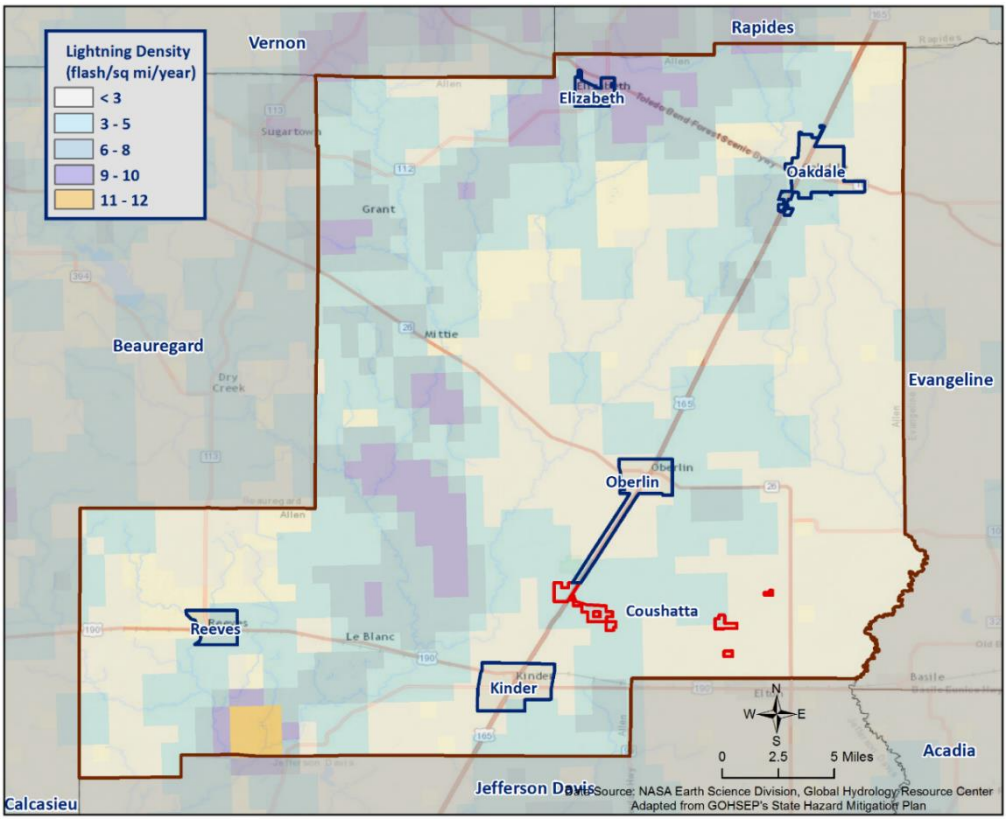


Figure 2-18: Lightning Density Reports for Allen Parish

Frequency

Lightning can strike anywhere and is produced by every thunderstorm, so the chance of lightning occurring in Allen 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 two lightning events that have caused property damages or injuries over the last 25 years, establishing an annual probability of 8%.

Estimated Potential Losses

Since 1990, there have been two significant lightning events that have resulted in property damages according to the SHELDUS database. The total property damages associated with lightning events totaled $2,731. 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 $109. The table on the next page provides an estimate of potential property losses for Allen Parish.

Table 2-37: Estimated Annual Property Losses in Allen Parish from Lightning

Estimated Annual Potential Losses from Thunderstorm Lightning for Allen Parish					
Unincorporated Allen Parish (46.8% of Population)	Elizabeth (2.1% of Population)	Kinder (9.6% of Population)	Oakdale (30.2% of Population)	Oberlin (6.9% of Population)	Reeves (0.9% of Population)
$51	$2	$11	$33	$8	$1

There have been no reported injuries or fatalities in Allen 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 2-38* 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 2-38: 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 2-39: 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 Allen Parish with actual locations, tornadoes in general are a climatological based hazard and have the same approximate probability of occurring in Allen Parish as all of its jurisdictions. Because a tornado has a similar probability of striking anywhere within the planning area for Allen Parish, all jurisdictions are equally at risk for tornadoes.

Previous Occurrences / Extents

SHELDUS reports a total of 12 tornadoes or waterspouts occurring within the boundaries of Allen Parish between the years of 1990 - 2015. The tornadoes experienced in Allen Parish have been EF0 on the EF scale, and ranged from F0 to F3 on the F scale. The worst case scenario Allen Parish can expect in the future is an EF3 tornado.

The tornado that caused the most damage to property occurred on January 2, 1999. The F1 tornado was responsible for over $85,000 in damage. The tornado destroyed a barn and removed the roof from a home.

Table 2-40: Historical Tornadoes in Allen Parish with Locations from 2010 - 2015

Date	Impacts	Property Damage	Location	Magnitude
February 1, 2012	3.73 mile path with a width of 20 yards. Peeled a portion of a roof off a small barn and snapped a dozen pine trees.	$89,119	OBERLIN	EF0
October 31, 2013	0.82 mile path with a width of 75 yards. The tornado damaged several trees.	$0	REEVES	EF0

The unincorporated area of Allen Parish, and the incorporated areas Elizabeth, Kinder, and Oakdale have not experienced a tornado event from 2010 to the present.

Since 2011, the year in which the last update to this hazard mitigation plan was written, Allen Parish has had two tornadoes touchdown in the incorporated areas of Oberlin and Reeves. The following is a brief synopsis of these events:

February 1, 2012 – EF0 Tornado in Oberlin

A tornado touched down near the Calcasieu River west of Oberlin along Highway 26, snapping at least a dozen pine trees. Before it dissipated, it peeled a portion of a roof off a small barn on Garcile Road north of Oberlin.

October 31, 2013 – EF0 Tornado in Reeves

A weak tornado formed south of Highway 190 and dissipated on the north side of the highway. The tornado only damaged trees along the path.

Frequency / Probability

Tornadoes are a sporadic occurrence within Allen Parish, with an annual chance of occurrence calculated at 48% based on the records for the past 25 years (1990 - 2015). The figure on the next page displays the density of tornado touch downs in Allen Parish and neighboring parishes.

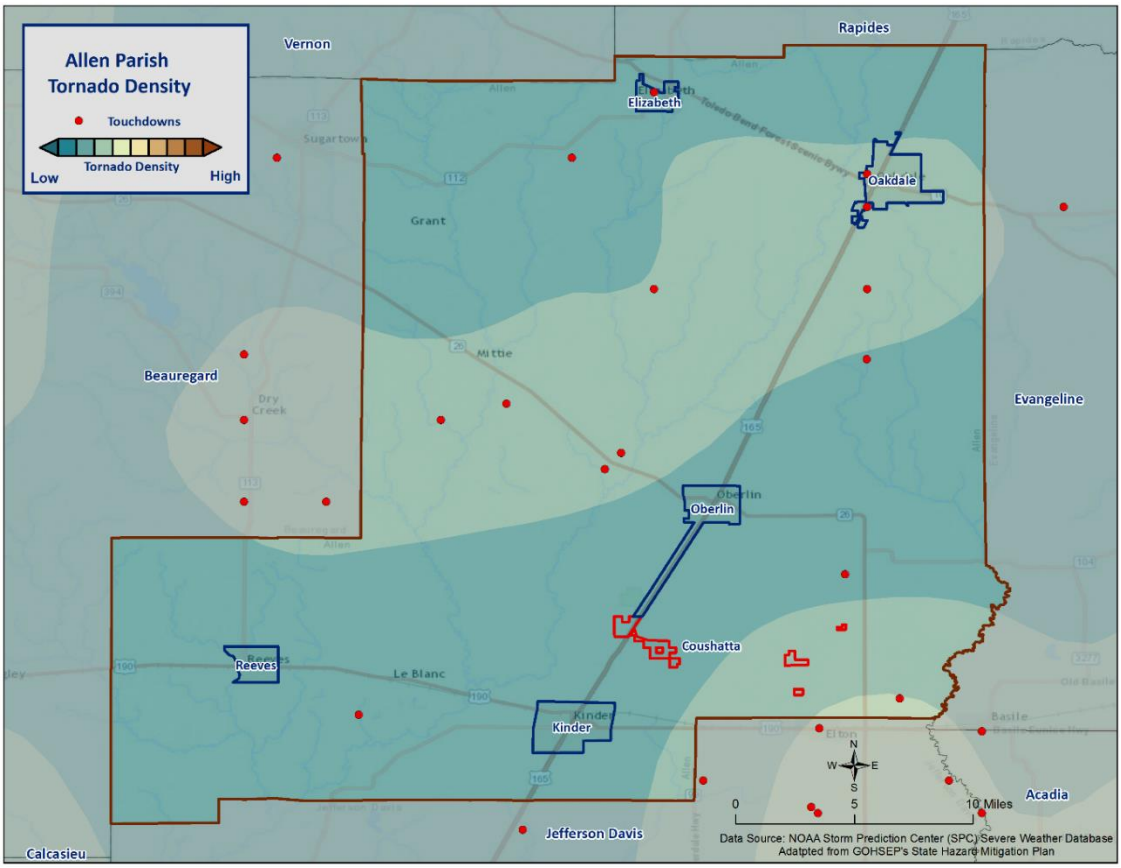


Figure 2-19: Location and Density of Tornadoes to Touch Down in Allen Parish (Source: NOAA/SPC Severe Weather Database)

Estimated Potential Losses

According to the SHELDUS database, there have been 12 tornadoes that have caused some level of property damage. The total damage from the actual claims for property is $742,900, with an average cost of $61,908 per tornado strike. When annualizing the total cost over the 25-year record, total annual loses based on tornadoes are estimated to be $29,716. 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 Allen Parish.

Table 2-41: Estimated Annual Losses from Tornadoes in Allen Parish

Estimated Annual Potential Losses from Tornadoes for Allen Parish					
Unincorporated Allen Parish (46.8% of Population)	**Elizabeth (2.1% of Population)**	**Kinder (9.6% of Population)**	**Oakdale (30.2% of Population)**	**Oberlin (6.9% of Population)**	**Reeves (0.9% of Population)**
$185,222	$6,939	$6,426	$154,419	$43,778	$6,889

Table 2-42 presents an analysis of building exposure that is susceptible to tornadoes by general occupancy type for Allen Parish, along with the percentage of building stock that are mobile homes.

Table 2-42: Building Exposure by General Occupancy Type for Tornadoes in Allen 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 (%)
2,522,643	409,491	97,259	11,376	122,374	37,434	35,504	19.8%

The parish has suffered through a total of one day in which tornadoes or waterspouts have accounted for one injury and no fatalities during this 25-year period (*Table 2-43*). The average number of injuries per event for Allen Parish is 0.08 per tornado, with an average of 0.04 per year for the 25-year period.

Table 2-43: Tornadoes in Allen Parish by Magnitude that Caused Injuries or Deaths

Date	Magnitude	Deaths	Injuries
May 18, 1995	F1	0	1

In assessing the overall risk to population, the most vulnerable population throughout the parish are those residing in manufacturing housing. Approximately 19.8% of all housing in Allen Parish consists of manufactured housing. Based on location data collected in a previous hazard mitigation project, there are one known location where manufactured housing is concentrated. The one location has an overall number of manufactured houses of 22. The location and density of manufactured houses can be seen in *Figure 2-20*.

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 incorporated area of Oakdale (*Table 2-44*). 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 2-44: Manufactured Home Distribution throughout Allen Parish

Location	Number of Manufactured Home Parks	% of Manufactured Home Parks
Unincorporated Area	0	0%
Elizabeth	0	0%
Kinder	0	0%
Oakdale	1	100%
Oberlin	0	0%
Reeves	0	0%

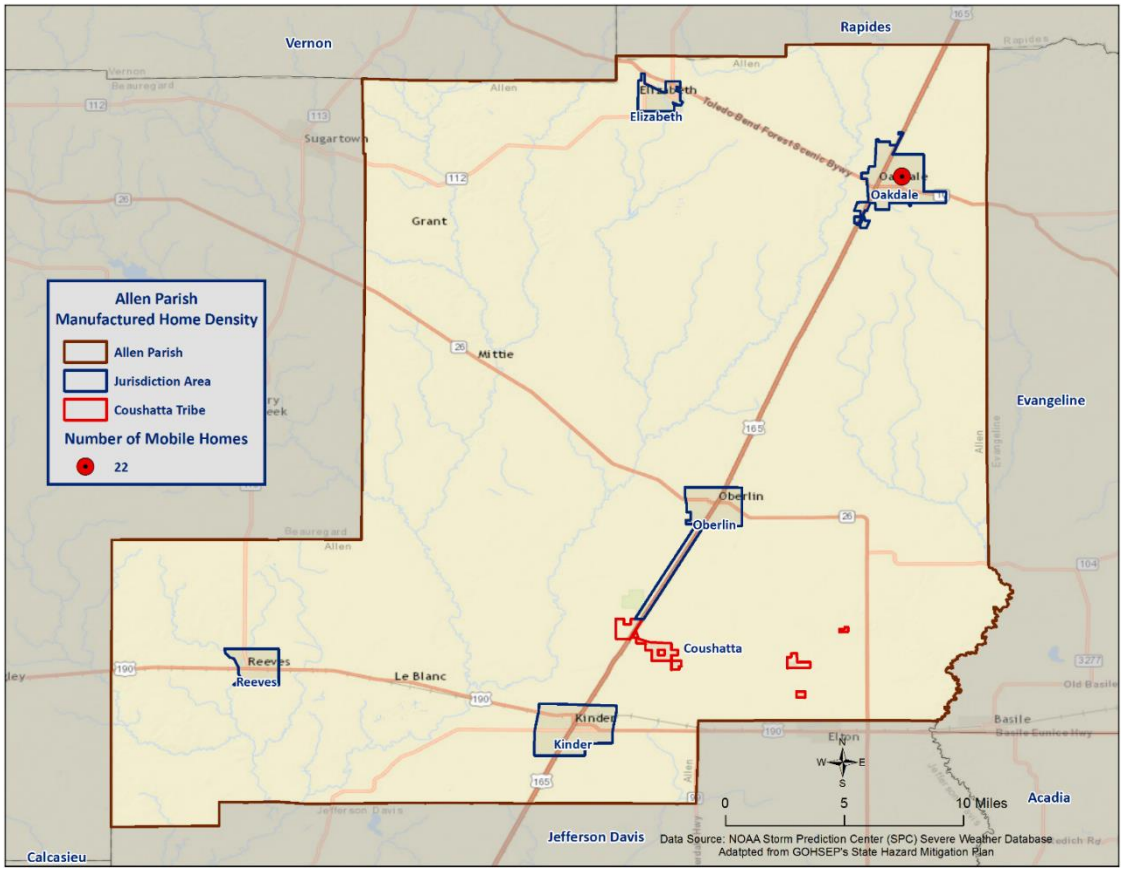


Figure 2-20: Location and Approximate Number of Units in Manufactured Housing Locations throughout Allen Parish.

Vulnerability

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

Tropical Cyclones

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

Table 2-45: Saffir-Simpson Hurricane Wind Scale

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

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

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

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

Location

Hurricanes are the single biggest threat to the State of Louisiana. With any single hurricane having the potential to devastate multiple parishes at once, the risk of a tropical cyclone has the probability of impacting anywhere within the planning area for Allen 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 five tropical cyclone events occurring within the boundaries of Allen Parish between the years 2002 and 2014 (*Table 2-46*). The tropical cyclone events experienced in Allen Parish include depressions, storms, and hurricanes. As a worst case scenario, Allen Parish can expect to experience hurricanes at the category 3 level in the future.

Table 2-46: Historical Tropical Cyclone Events in Allen Parish from 2002- 2015
(Source: SHELDUS)

Date	Name	Storm Type At Time of Impact
October 3, 2002	Lili	Hurricane –Category 1
September 23, 2005	Rita	Hurricane – Category 3
September 13, 2007	Humberto	Hurricane – Category 1
September 12, 2008	Ike	Tropical Storm
September 3, 2011	Lee	Tropical Storm

Hurricane Lili (2002)

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

The primary impact in Allen Parish was localized flooding, with downed trees and power lines.

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.

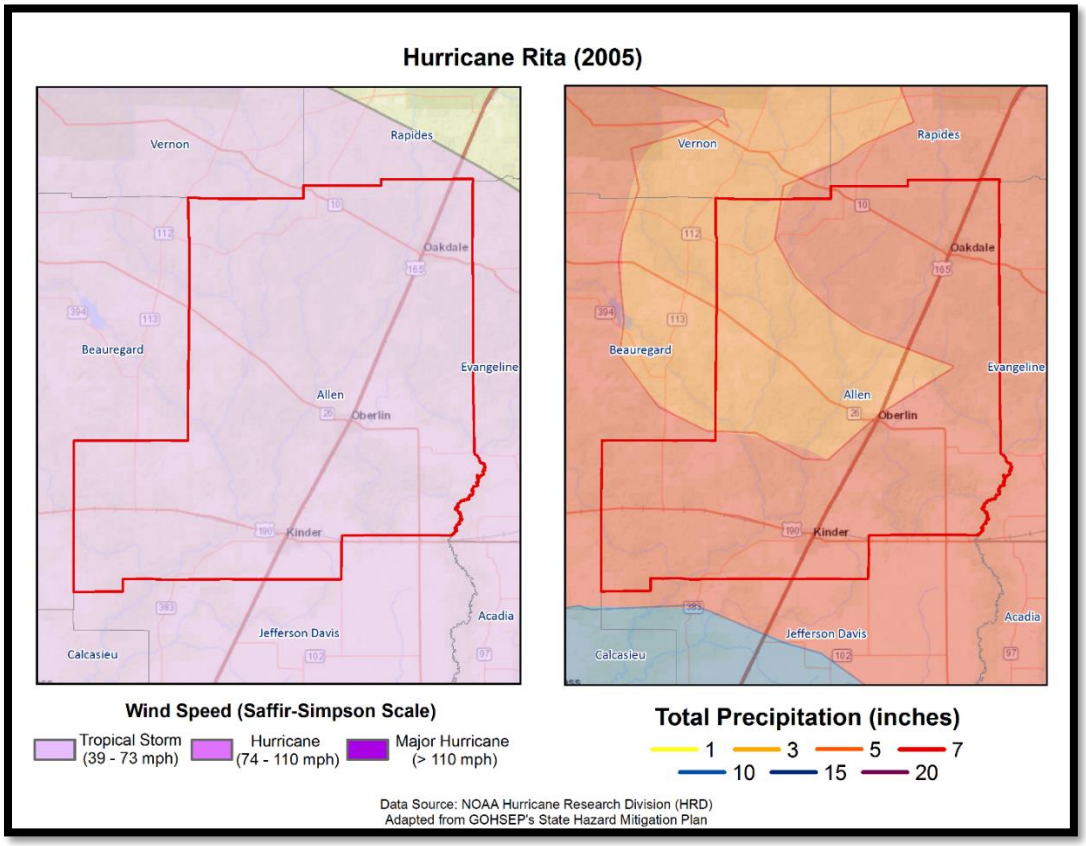


Figure 2-21: Wind Speed and Precipitation Totals in Allen Parish for Hurricane Rita

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 Allen Parish, tropical storm force winds were felt throughout the parish. Several trees and power lines were downed causing power outages in several parts of the parish. Localized flooding was experienced in the low-lying areas of the parish.

Hurricane Humberto (2007)

In 2007, southeastern Texas and southwestern Louisiana were impacted by Hurricane Humberto, which was a rapidly developing storm that made landfall on September 13th as a Category 1 hurricane. Hurricane Humberto tracked into a northeasterly direction along the Texas coastline between High Island, Texas and Sea Rim State Park, then onward into the State of Louisiana. The most significant damages occurred in Jefferson, Orange, and Newton counties in Texas.

In Allen Parish, tropical storm force winds impacted parts of the parish during the morning of September 13th. Minor wind damage to trees and power lines were observed.

Hurricane Ike (2008)

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

In Allen Parish, Ike caused tropical storm wind gusts of 50 to 60 mph, resulting in minor wind damage across the parish.

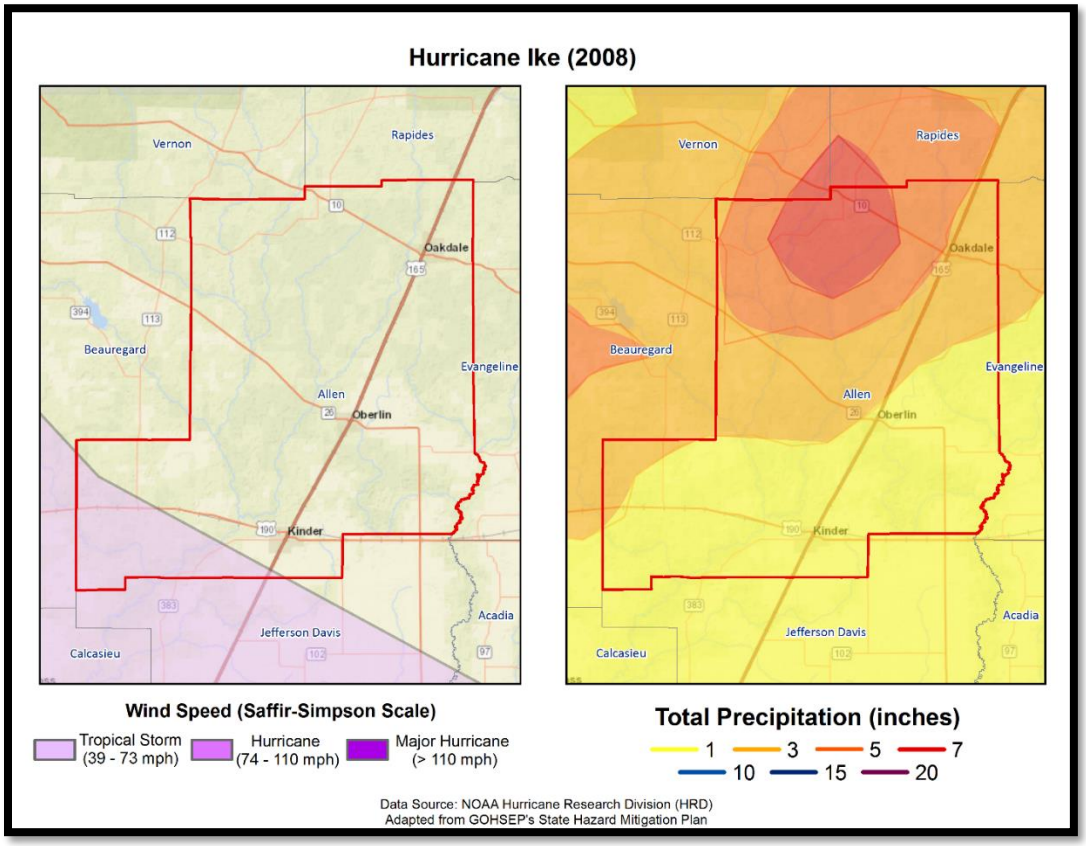


Figure 2-22: Wind Speed and Precipitation Totals in Allen Parish for Hurricane Ike

Tropical Storm Lee (2011)

Tropical Storm Lee initially developed as Tropical Depression Thirteen in the middle of the Gulf of Mexico on the evening of Thursday, September 1, 2011. The depression moved slowly north and gradually strengthened, eventually reaching Tropical Storm strength just south of the Louisiana coast on Friday afternoon September 2, 2011. Tropical Storm Lee made only slow and haltingly northward progress over the next 24 hours, eventually moving onshore at the Louisiana coast Saturday night, September 3, 2011, with a maximum sustained wind estimated around 60 mph. Lee moved slowly inland to the north of Baton Rouge late Sunday September 4, 2011, and eventually weakened to a tropical depression Sunday evening. Tropical Depression Lee then moved steadily northeast throughout Monday, September 5, 2011, taking on extra-tropical characteristics over the next 24 hours as it interacted with an upper level disturbance moving through the region. The maximum winds observed in Louisiana were a southerly wind of 46 mph (40 kts) sustained, with a 58 mph (50 kts) gust at New Orleans Lakefront Airport on September 4, 2012, at 0528CST. The lowest minimum central pressure was 993.2 millibars, recorded at Baton Rouge Ryan Field on September 4, 2012, at 0959CST. As Tropical Depression Lee was moving northeast and taking on mid-latitude characteristics, strong northerly winds were experienced across the region, occasionally gusting to higher levels than experienced when Lee was characterized as a tropical cyclone. No fatalities or injuries were associated with any Tropical Storm Lee hazards.

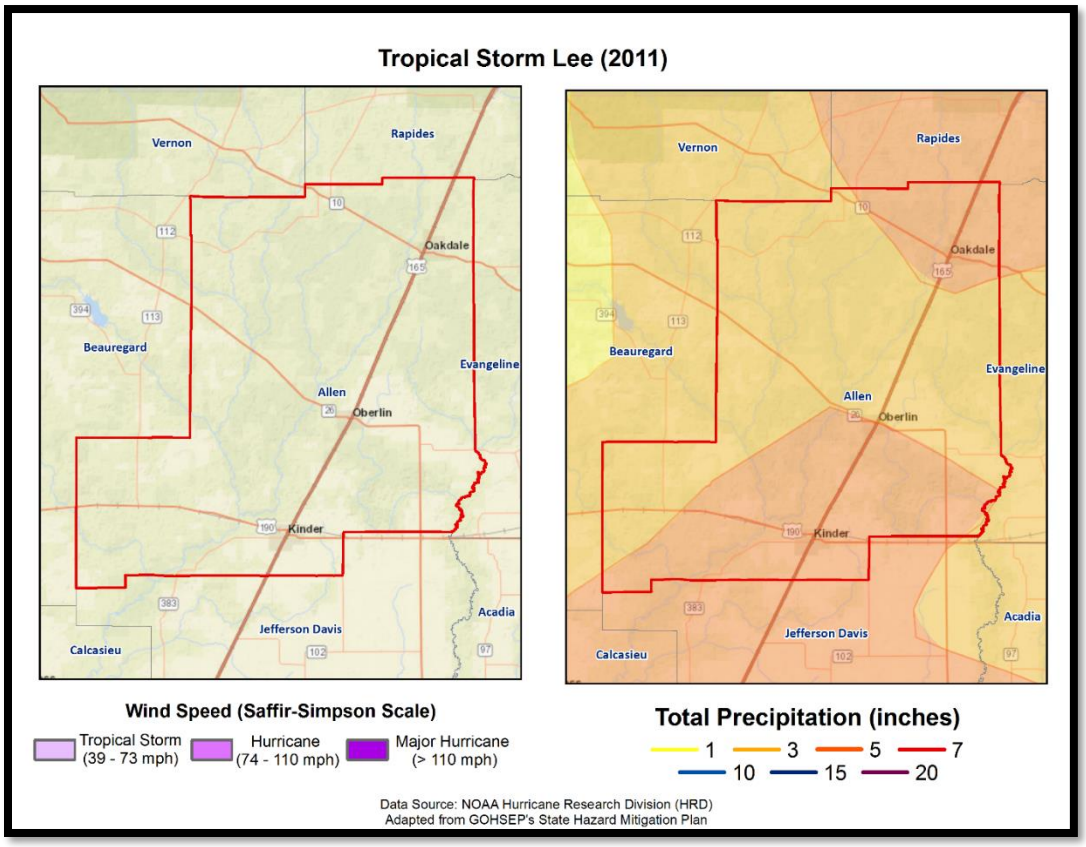


Figure 2-23: Wind Speed and Precipitation Totals in Allen Parish for Tropical Storm Lee

The main impacts associated with Tropical Storm Lee were storm surge and rainfall. Both of these impacts were related to its slow speed as it crossed the region, which allowed the circulation to linger over the area for several days. Storm surge associated with Lee caused storm tides three to five feet above normal, resulting in lowland flooding. Additional detailed information about Tropical Storm Lee's storm surge is

contained in the separate storm surge report. Four day rainfall totals ranged from seven to 15 inches across the area. A maximum of 15.48 inches was recorded near Holden in Livingston Parish. Due to dry antecedent conditions, river flooding was minimal for the amount of rainfall that occurred. Wind impacts were generally minimal due to only tropical cyclone strength winds being recorded, resulting in tree limbs being blown down and weak trees toppling, causing power outages.

Overall, there were minimal reports of damage to residences or infrastructure in Allen Parish. Isolated power outages were reported due to a few trees that were blown over into power lines.

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

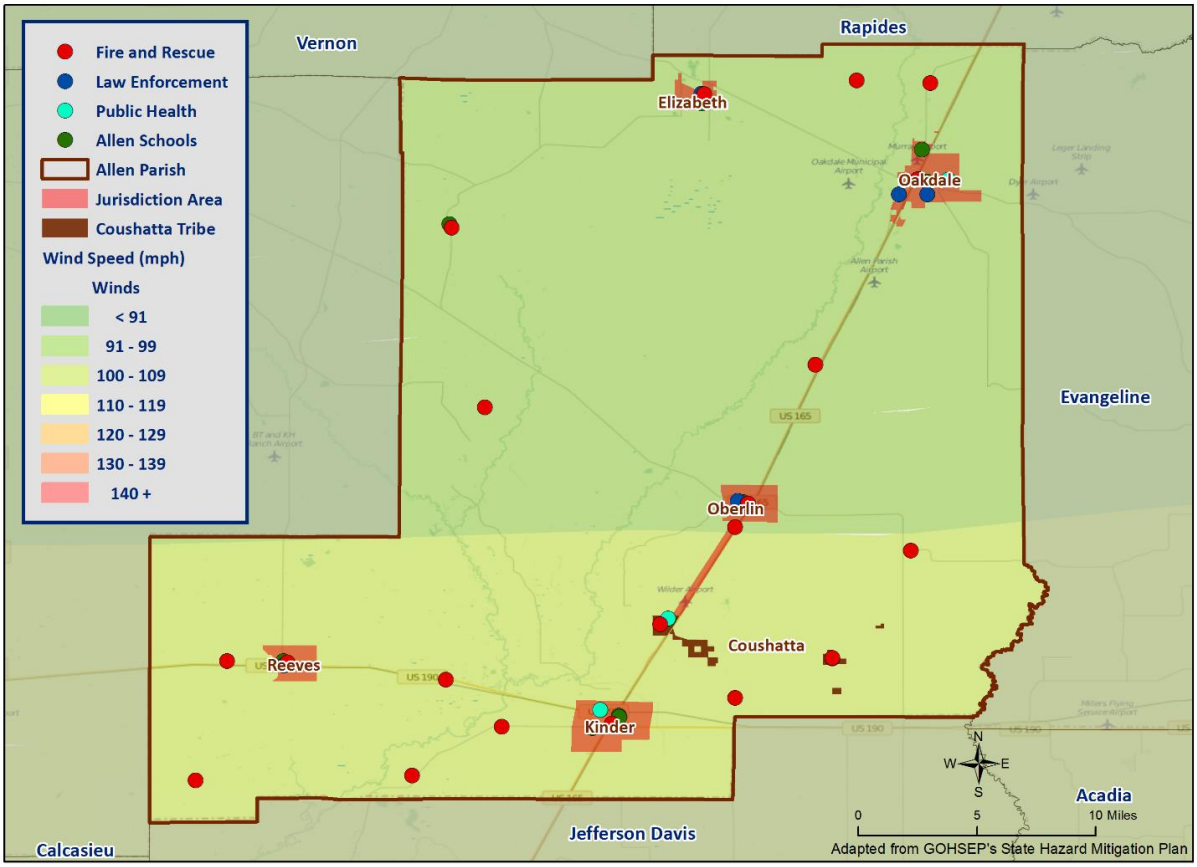


Figure 2-24: Winds Zones for Allen Parish in Relation to Critical Facilities

Frequency / Probability

Tropical cyclones are large natural hazard events that regularly impact Allen Parish. The annual chance of occurrence for a tropical cyclone is estimated at 20% for Allen Parish and its municipalities, with fix 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 following table shows the total economic losses that would result from this occurrence.

Table 2-47: Total Estimated Losses for a 100-Year Hurricane Event
(Source: Hazus 2.2)

Jurisdiction	Estimated Total Losses from 100-Year Hurricane Event
Allen Parish (Unincorporated)	$8,299,564
Elizabeth	$366,026
Kinder	$1,704,221
Oakdale	$5,352,782
Oberlin	$1,217,792
Reeves	$159,620
Total	$17,100,005

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 2-48: Ratio of Total Losses to Total Estimated Value of Assets for each Jurisdiction in Allen 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	$8,299,564	$1,618,239,000	0.5%
Elizabeth	$366,026	$74,736,000	0.5%
Kinder	$1,704,221	$382,823,000	0.4%
Oakdale	$5,352,782	$880,508,000	0.6%
Oberlin	$1,217,792	$237,577,000	0.5%
Reeves	$159,620	$26,044,000	0.6%

Based on the Hazus 2.2 Hurricane Model, estimated total losses range from 0.4% to 0.6% of the total estimated value of all assets for the Allen Parish Planning Area.

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. These sectors are comprised of privately owned structures/facilities, as well as locally, state, and federally owned structures/facilities.

Table 2-49: Estimated Losses in Unincorporated Allen Parish for a 100-Year Hurricane Event (Source: Hazus 2.2)

Allen Parish (Unincorporated)	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$9,516
Commercial	$190,783
Government	$5,442
Industrial	$17,745
Religious / Non-Profit	$20,118
Residential	$8,050,554
Schools	$5,407
Total	$8,299,564

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

Elizabeth	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$420
Commercial	$8,414
Government	$240
Industrial	$783
Religious / Non-Profit	$887
Residential	$355,044
Schools	$238
Total	$366,026

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

Kinder	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$1,954
Commercial	$39,175
Government	$1,117
Industrial	$3,644
Religious / Non-Profit	$4,131
Residential	$1,653,090
Schools	$1,110
Total	$1,704,221

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

Oakdale	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$6,137
Commercial	$123,045
Government	$3,510
Industrial	$11,444
Religious / Non-Profit	$12,975
Residential	$5,192,184
Schools	$3,487
Total	$5,352,782

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

Oberlin	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$1,396
Commercial	$27,993
Government	$798
Industrial	$2,604
Religious / Non-Profit	$2,952
Residential	$1,181,255
Schools	$793
Total	$1,217,792

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

Reeves	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$183
Commercial	$3,669
Government	$105
Industrial	$341
Religious / Non-Profit	$387
Residential	$154,831
Schools	$104
Total	$159,620

Threat to People

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

Table 2-55: Number of People Susceptible to a 100-Year Hurricane Event in Allen Parish (Source: Hazus 2.2)

Number of People Exposed to Hurricane Hazards			
Location	**# in Community**	**# in Hazard Area**	**% in Hazard Area**
Allen Parish (Unincorporated)	**12,063**	**12,063**	**100%**
Elizabeth	**532**	**532**	**100%**
Kinder	**2,477**	**2,477**	**100%**
Oakdale	**7,780**	**7,780**	**100%**
Oberlin	**1,770**	**1,770**	**100%**
Reeves	**232**	**232**	**100%**
Total	**25,764**	**25,764**	**100%**

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

Table 2-56: Vulnerable Populations in Unincorporated Allen Parish for a 100-Year Hurricane Event (Source: Hazus 2.2)

Allen Parish (Unincorporated)		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	12,063	100.0%
Persons Under 5 Years	780	6.5%
Persons Under 18 Years	1,978	16.4%
Persons 65 Years and Over	1,559	12.9%
White	8,631	71.6%
Minority	3,432	28.5%

Table 2-57: Vulnerable Populations in Elizabeth for a 100-Year Hurricane Event (Source: Hazus 2.2)

Elizabeth		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	532	100.0%
Persons Under 5 Years	55	10.3%
Persons Under 18 Years	131	24.6%
Persons 65 Years and Over	55	10.3%
White	517	97.2%
Minority	15	2.8%

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

Kinder		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	2,477	100.0%
Persons Under 5 Years	235	9.5%
Persons Under 18 Years	437	17.6%
Persons 65 Years and Over	426	17.2%
White	1,748	70.6%
Minority	729	29.4%

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

Oakdale		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	7,780	100.0%
Persons Under 5 Years	401	5.2%
Persons Under 18 Years	997	12.8%
Persons 65 Years and Over	858	11.0%
White	4,855	62.4%
Minority	2,925	37.6%

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

Oberlin		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	1,770	100.0%
Persons Under 5 Years	108	6.1%
Persons Under 18 Years	322	18.2%
Persons 65 Years and Over	316	17.9%
White	965	54.5%
Minority	805	45.5%

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

Reeves		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	232	100.0%
Persons Under 5 Years	15	6.5%
Persons Under 18 Years	61	26.3%
Persons 65 Years and Over	19	8.2%
White	219	94.4%
Minority	13	5.6%

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 2-25* displays the areas of wildland-urban interaction in Allen 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 2-62: 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 Allen Parish and its jurisdictions.

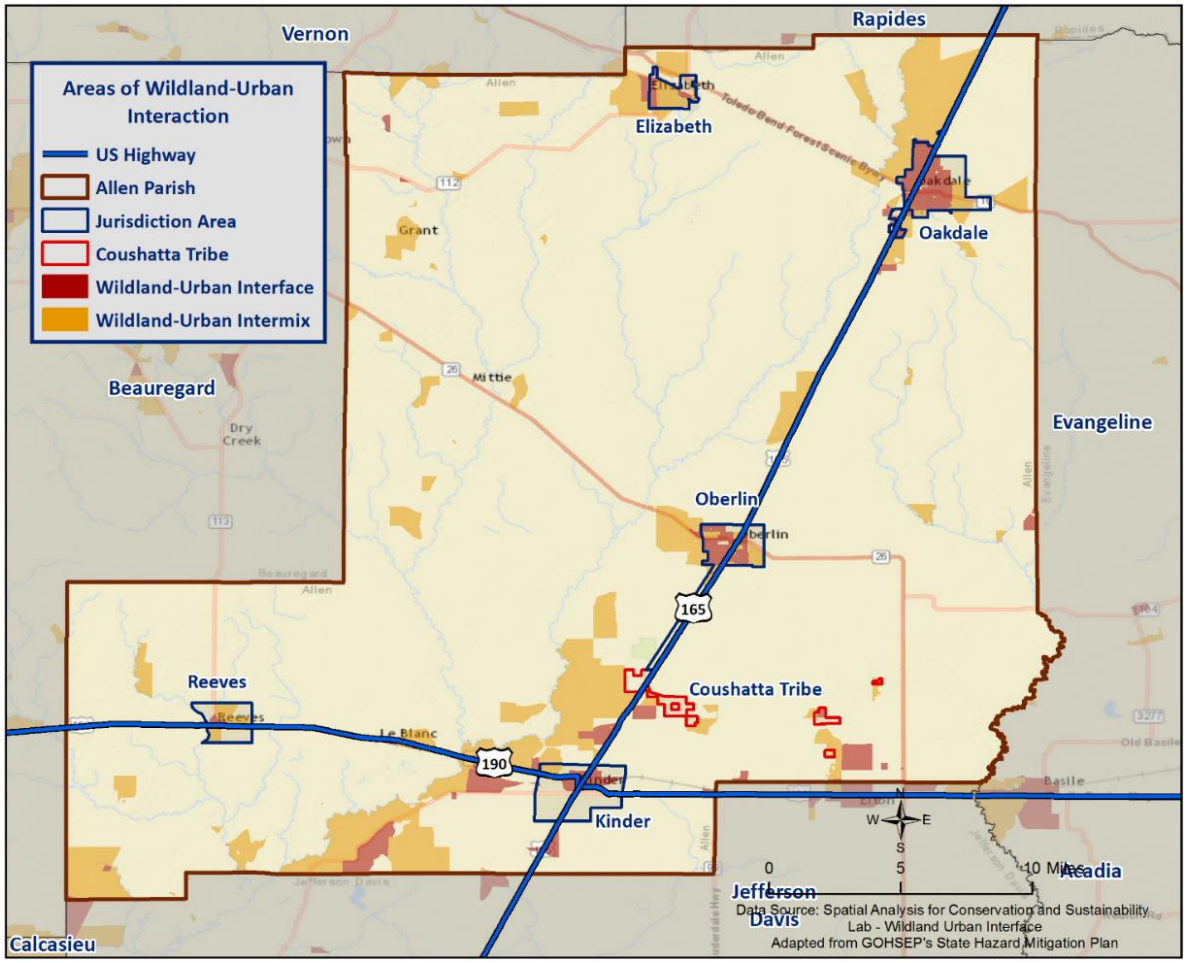


Figure 2-25: Wildland-Urban Interaction in Allen Parish

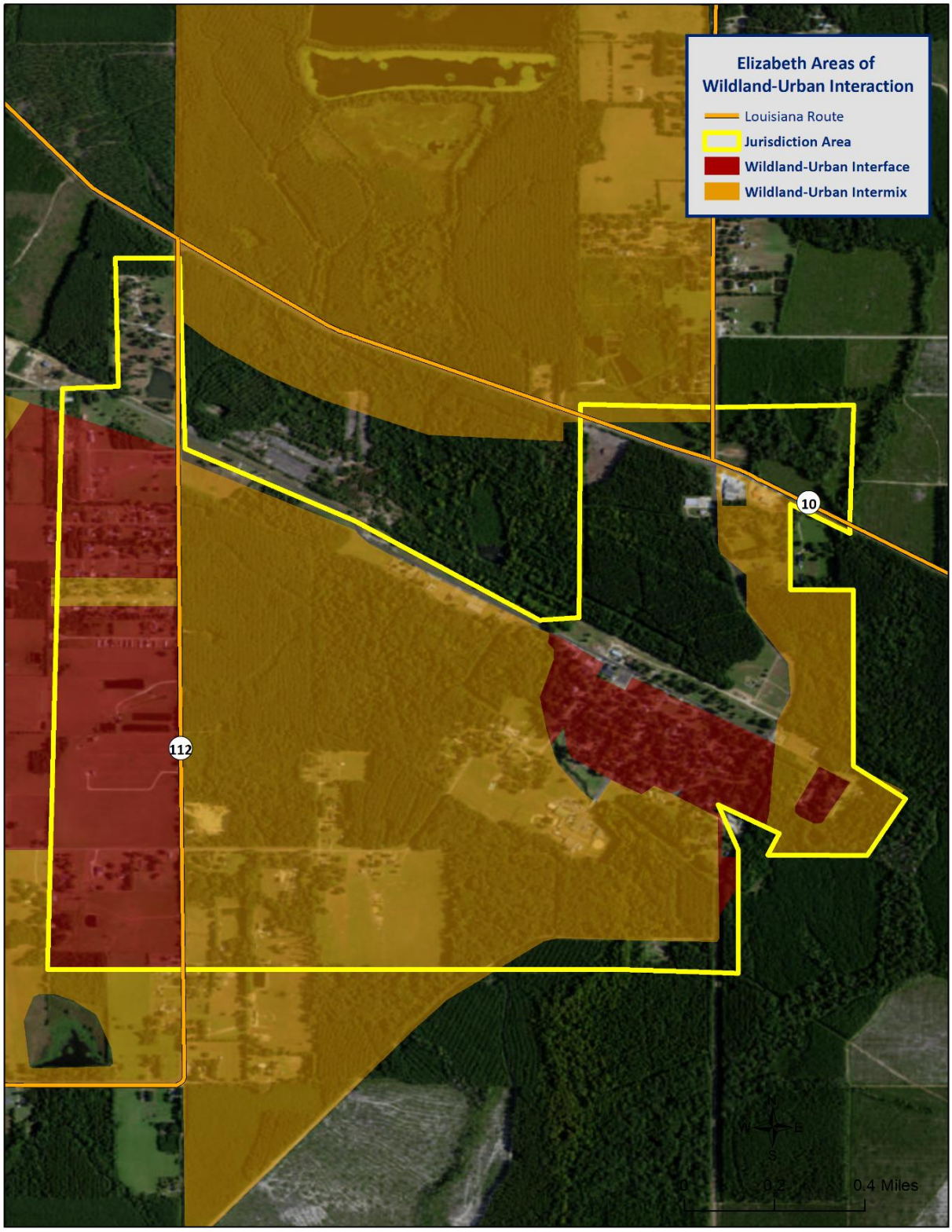


Figure 2-26: Town of Elizabeth Areas of Wildland-Urban Interaction

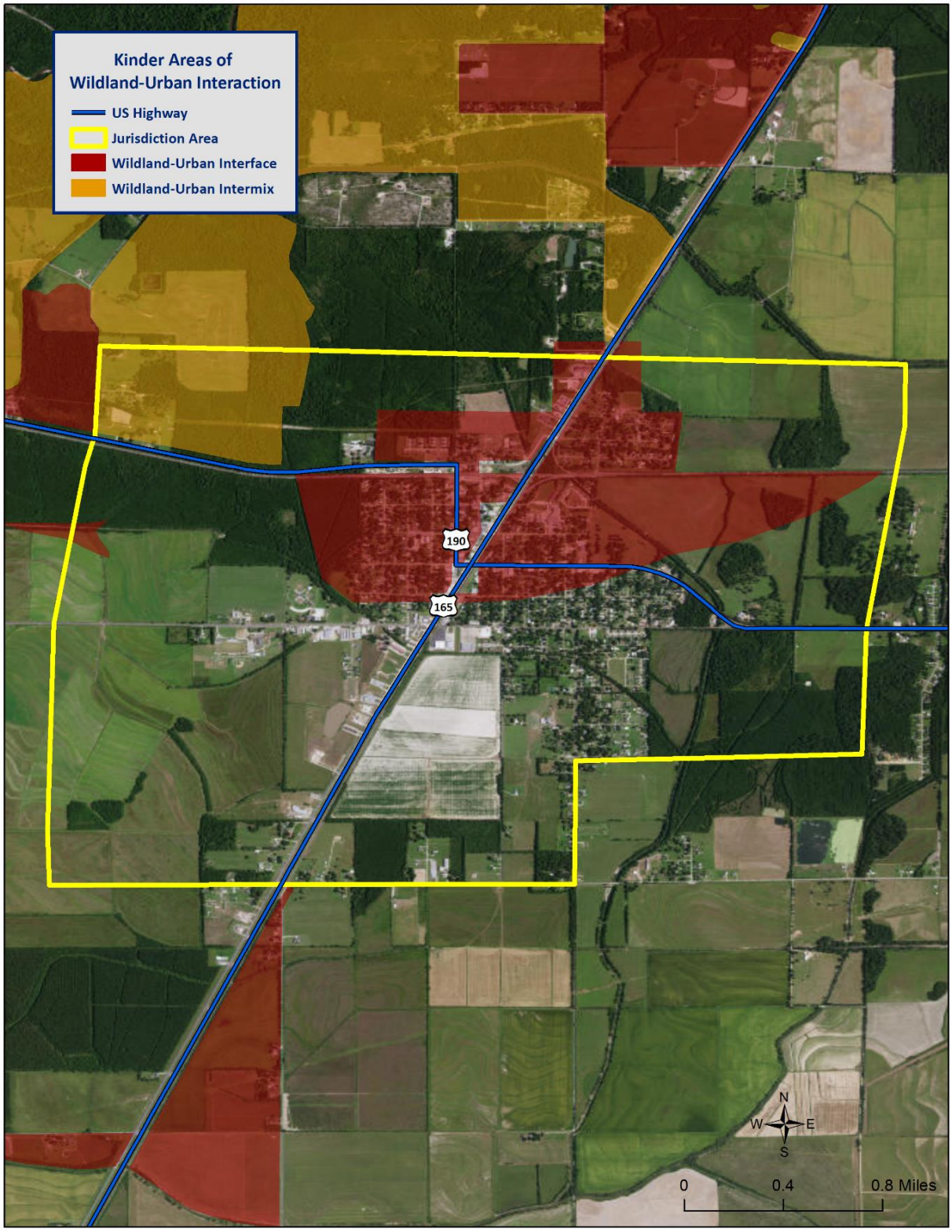


Figure 2-27: Town of Kinder Areas of Wildland-Urban Interaction

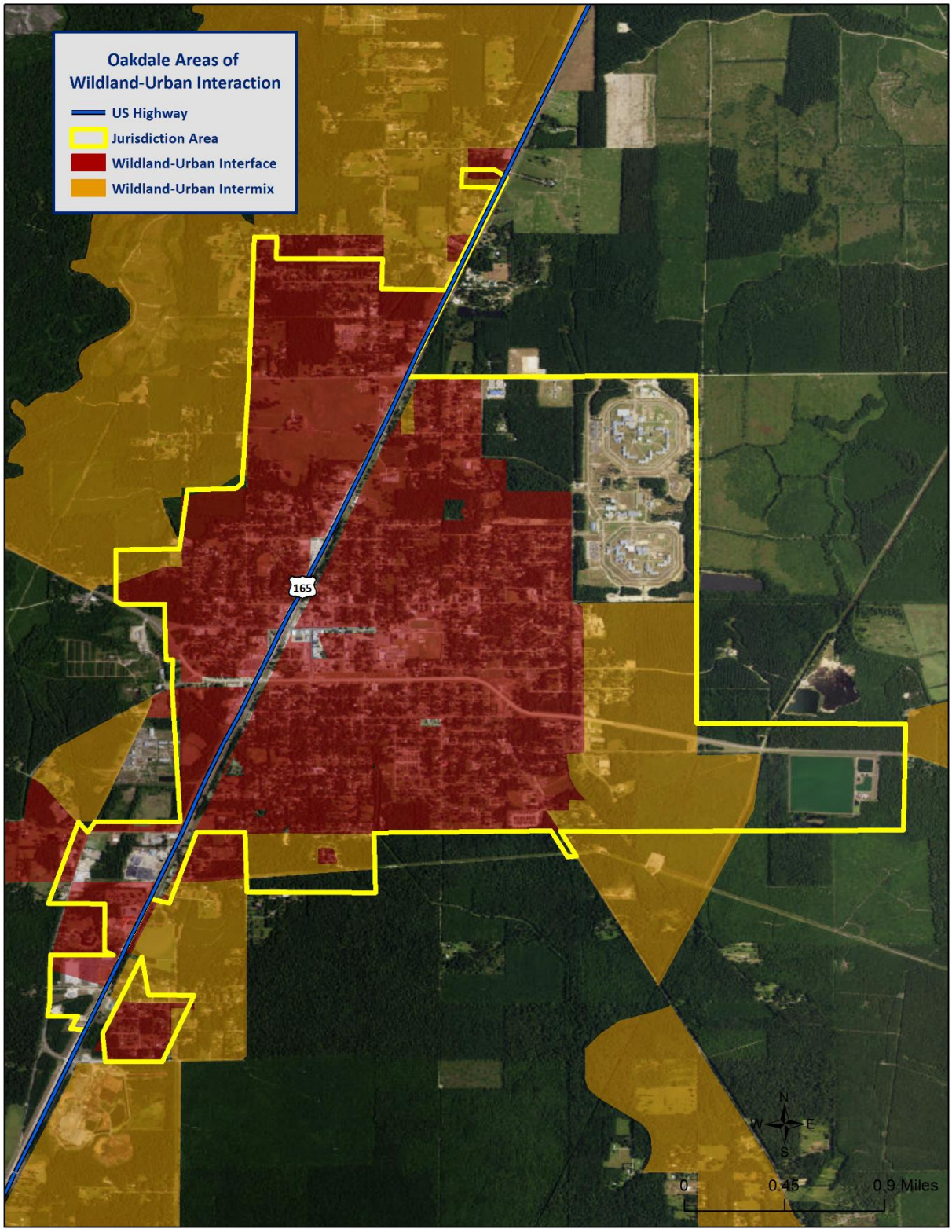


Figure 2-28: City of Oakdale Areas of Wildland-Urban Interaction

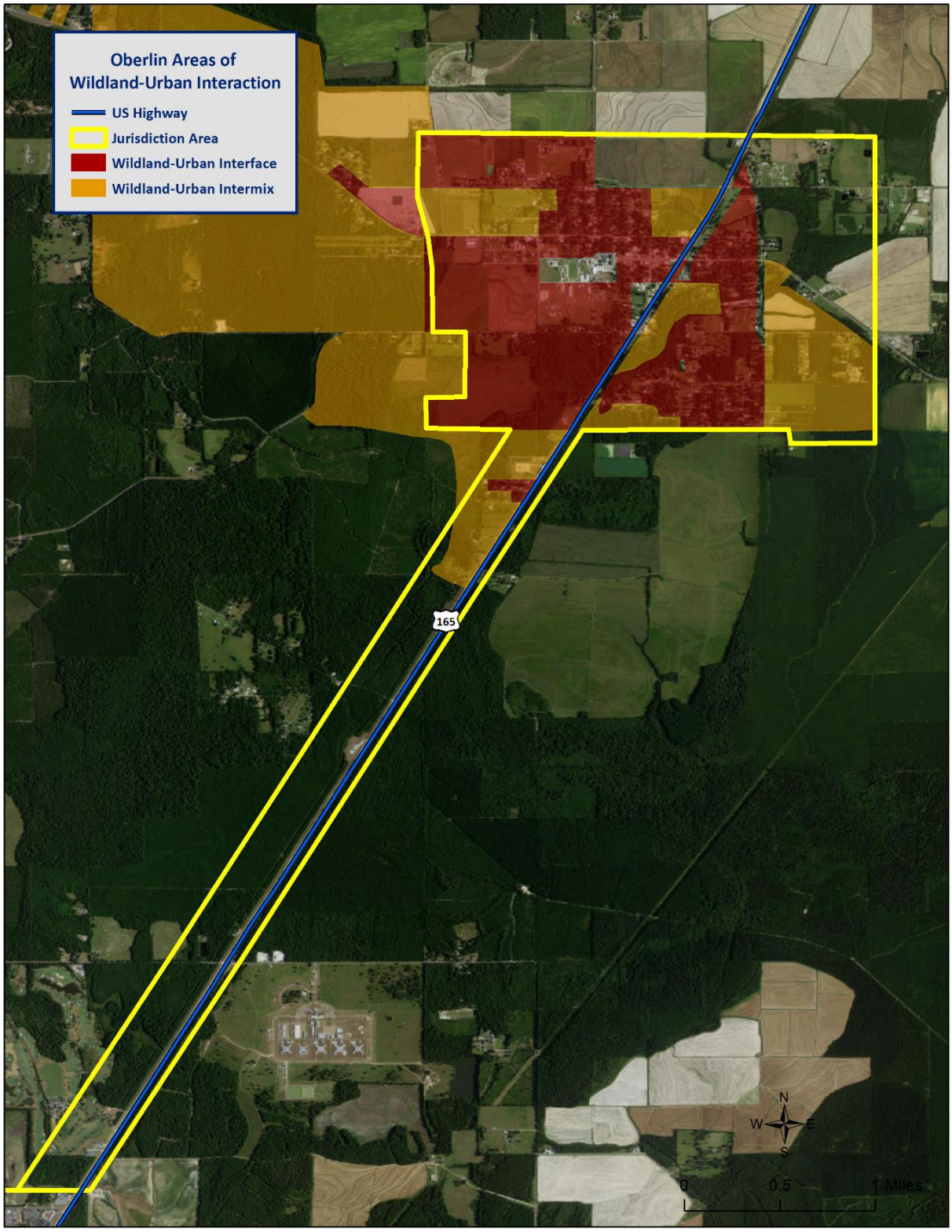


Figure 2-29: Town of Oberlin Areas of Wildland-Urban Interaction

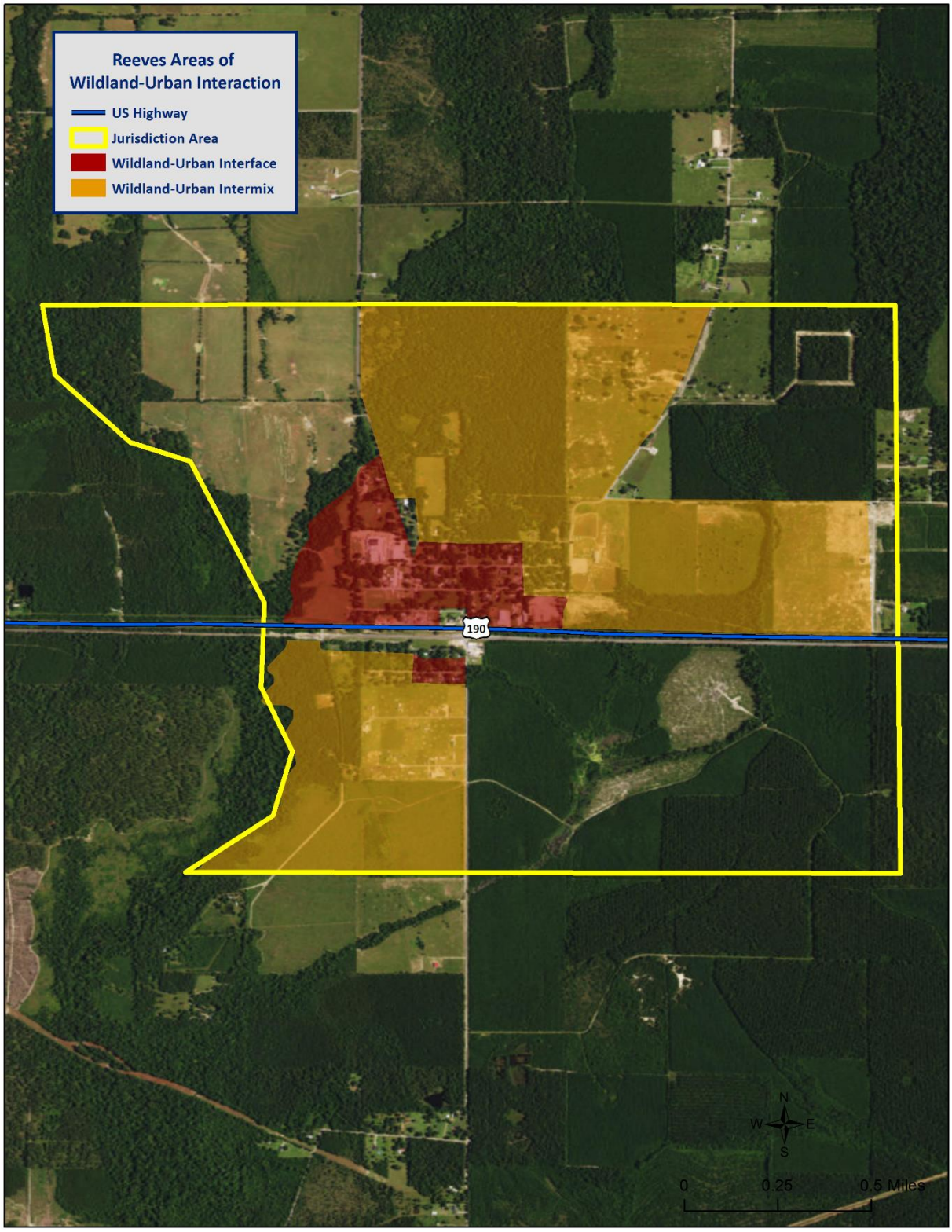


Figure 2-30: Village of Reeves Areas of Wildland-Urban Interaction

Previous Occurrences / Extents

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

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

Table 2-63: Potential Wildfire Intensity Levels for Allen Parish
(Source: Southern Wildfire Assessment Portal)

Potential Wildfire Intensity	
Allen Parish (Unincorporated)	Highest Intensity Level 5
Elizabeth	Moderate Intensity Level 3
Kinder	Moderate Intensity Level 3
Oakdale	Moderate Intensity Level 3
Oberlin	High Intensity Level 4
Reeves	Moderate Intensity Level 3

Frequency / Probability

With no recorded events in 25 years, wildfire events within the boundaries of Allen 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 Allen 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 2-25* displays the areas of wildland-urban interaction in Allen 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 2-64: Total Building Exposure by Wildland-Urban Interaction Areas
(Source: Hazus 2.2)

Jurisdiction	Estimated Total Building Exposure
Allen Parish (Unincorporated)	$1,301,025,000
Elizabeth	$74,736,000
Kinder	$265,257,000
Oakdale	$870,392,000
Oberlin	$232,049,000
Reeves	$28,717,000
Total	$2,783,222,000

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. These sectors are comprised of privately owned structures/facilities, as well as locally, state, and federally owned structures/facilities.

Table 2-65: Estimated Exposure for Unincorporated Allen Parish by Sector (Source: Hazus 2.2)

Allen Parish (Unincorporated)	Estimated Total Building Exposure by Sector
Agricultural	$4,310,000
Commercial	$74,469,000
Government	$12,124,000
Industrial	$47,737,000
Religious / Non-Profit	$45,980,000
Residential	$1,108,317,000
Schools	$8,088,000
Total	$1,301,025,000

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

Elizabeth	Estimated Total Building Exposure by Sector
Agricultural	$894,000
Commercial	$3,174,000
Government	$530,000
Industrial	$2,133,000
Religious / Non-Profit	$2,224,000
Residential	$65,781,000
Schools	$0
Total	$74,736,000

Table 2-67: Estimated Exposure for Kinder by Sector (Source: Hazus 2.2)

Kinder	Estimated Total Building Exposure by Sector
Agricultural	$0
Commercial	$72,303,000
Government	$886,000
Industrial	$990,000
Religious / Non-Profit	$9,318,000
Residential	$178,634,000
Schools	$3,126,000
Total	$265,257,000

Table 2-68: Estimated Exposure for Oakdale by Sector
(Source: Hazus 2.2)

Oakdale	Estimated Total Building Exposure by Sector
Agricultural	$142,000
Commercial	$160,721,000
Government	$8,038,000
Industrial	$26,470,000
Religious / Non-Profit	$39,124,000
Residential	$630,305,000
Schools	$5,592,000
Total	$870,392,000

Table 2-69: Estimated Exposure for Oberlin by Sector
(Source: Hazus 2.2)

Oberlin	Estimated Total Building Exposure by Sector
Agricultural	$1,764,000
Commercial	$27,330,000
Government	$3,144,000
Industrial	$918,000
Religious / Non-Profit	$4,352,000
Residential	$184,477,000
Schools	$10,064,000
Total	$232,049,000

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

Reeves	Estimated Total Building Exposure by Sector
Agricultural	$0
Commercial	$990,000
Government	$266,000
Industrial	$0
Religious / Non-Profit	$2,418,000
Residential	$21,167,000
Schools	$3,876,000
Total	$28,717,000

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 2-71: 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**
Allen Parish (Unincorporated)	**12,063**	**1,062**	**8.8%**
Elizabeth	**532**	**379**	**71.2%**
Kinder	**2,477**	**1,050**	**42.4%**
Oakdale	**7,780**	**4,470**	**57.5%**
Oberlin	**1,770**	**1,253**	**70.8%**
Reeves	**232**	**103**	**44.4%**
Total	**25,764**	**8,385**	**32.5%**

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 below and on the following pages.

Table 2-72: Population in Unincorporated Allen Parish Located within a Wildland-Urban Interaction Area
(Source: 2010 U.S. Census Data)

Allen Parish (Unincorporated)		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	1,062	8.8%
Persons Under 5 Years	69	6.5%
Persons Under 18 Years	174	16.4%
Persons 65 Years and Over	137	12.9%
White	760	71.6%
Minority	302	28.5%

Table 2-73: Population in Elizabeth Located within a Wildland-Urban Interaction Area (Source: 2010 U.S. Census Data)

Elizabeth		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	379	71.2%
Persons Under 5 Years	39	10.3%
Persons Under 18 Years	93	24.6%
Persons 65 Years and Over	39	10.3%
White	368	97.2%
Minority	11	2.8%

Table 2-74: Population in Kinder Located within a Wildland-Urban Interaction Area (Source: 2010 U.S. Census Data)

Kinder		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	1,050	42.4%
Persons Under 5 Years	100	9.5%
Persons Under 18 Years	185	17.6%
Persons 65 Years and Over	181	17.2%
White	741	70.6%
Minority	309	29.4%

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

Oakdale		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	4,470	57.5%
Persons Under 5 Years	230	5.2%
Persons Under 18 Years	573	12.8%
Persons 65 Years and Over	493	11.0%
White	2,789	62.4%
Minority	1,681	37.6%

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

Oberlin		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	1,253	70.8%
Persons Under 5 Years	76	6.1%
Persons Under 18 Years	228	18.2%
Persons 65 Years and Over	224	17.9%
White	683	54.5%
Minority	570	45.5%

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

Reeves		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	103	44.4%
Persons Under 5 Years	7	6.5%
Persons Under 18 Years	27	26.3%
Persons 65 Years and Over	8	8.2%
White	97	94.4%
Minority	6	5.6%

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 have experienced the fewest severe winter events. The table on the next page shows the Sperry-Piltz Ice Accumulation Index which is utilized to predict the potential damage to overhead utility systems from freezing rain and ice storms.

Table 2-78: 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 Allen Parish as all of the adjacent parishes, the entire planning area for Allen Parish is equally at risk for winter storms.

Previous Occurrences / Extents

According to SHELDUS, there have been 12 reported winter storm events that have occurred within the boundaries of Allen Parish between the years of 1990 and 2015. The following table provides a brief synopsis of each event since 2010. Based on historic data, Allen Parish can expect an ice damage index of 2 on the Sperry-Piltz Ice Accumulation Index.

Table 2-79: Previous Occurrences for Winter Storm Events

Date	Synopsis	Property Damage	Crop Damage
January 8, 2010	A bitterly cold Arctic air mass entered the area causing below freezing temperatures. Water service in Kinder was shut off due to low water levels in the city water tower.	$13,571	$0
February 11, 2010	An intense storm system moved across the area bringing widespread sleet and snow. The wintery mix turned to snow during the evening hours.	$0	$0
December 8, 2010	An upper level disturbance moved across the region and combined with cold air at the surface to produce a mix of rain, light sleet, and light snow across the area. No accumulation resulted as temperatures remained above freezing.	$0	$0
January 23, 2014	Sleet and snow fell across Allen Parish. Mostly snow fell in the northern portions of the parish and accumulations of approximately 2.75 inches occurred. The southern portions received a wintery mix and ice accumulation of one to two tenths of an inch was recorded.	$0	$0

Date	Synopsis	Property Damage	Crop Damage
January 28, 2014	Light freezing rain and sleet fell in the morning hours across Allen Parish before changing to snow. Under one tenth of an inch of ice accumulated across the area with snow accumulations ranging from half an inch to just under two inches.	$0	$0
February 11, 2014	Far northwest sections of Allen Parish received near one tenth of an inch of ice accumulation. No issues from the ice were reported.	$0	$0
March 4, 2014	Freezing rain began early in the morning across the area with some locations in the parish reaching to around two tenths of an inch by the end of the event. The ice melted during the afternoon when temperatures rose above freezing.	$0	$0
February 23, 2015	Light freezing rain accumulated to a total of 0.005 inches in Oberlin before the ice melted. No travel problems were reported.	$0	$0

Based on previous winter storm events, the worst-case scenario for the Allen Parish Planning Area is four to eight inches of snow and one tenth to one half inch of ice accumulation.

Frequency / Probability

With 12 recorded events in 25 years, winter storm events within the boundaries of Allen Parish have an annual chance of occurrence calculated at 48% based on the SHELDUS dataset.

Estimated Potential Losses

Since 1990, there have been 12 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 $3,095,507. 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 $123,820. 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 Allen Parish based on the 2010 Census data:

Table 2-80: Estimated Annual Losses for Winter Weather Events in Allen Parish

Estimated Annual Potential Losses from Winter Weather for Allen Parish					
Unincorporated Allen Parish (46.8% of Population)	Elizabeth (2.1% of Population)	Kinder (9.6% of Population)	Oakdale (30.2% of Population)	Oberlin (6.9% of Population)	Reeves (0.9% of Population)
$57,974	$2,557	$11,904	$37,390	$8,507	$1,115

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

Vulnerability

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

3. Capability Assessment

This section summarizes the results of the Allen 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, Allen 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

Allen 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 Allen 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 Allen Parish and its jurisdictions are shown in the table on the following page.

Table 3-1: Allen Parish Planning and Regulatory Capabilities

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

Building Codes, Permitting, Land Use Planning and Ordinances

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

As of the 2017 update, Allen 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 Allen Parish Police Jury is also responsible for enforcing the Parish Ordinances relating to health and safety, property maintenance standards, condemnation of unsafe structures, and zoning compliance.

The Allen 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, Allen Parish as a whole has a system in place to coordinate and share these capabilities through Allen 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, Allen 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 Allen Parish and its jurisdictions.

Table 3-2: Allen Parish Administrative and Technical Capabilities

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

Financial capabilities are the resources that Allen 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 Allen Parish and its jurisdictions:

Table 3-3: Allen Parish Financial Capabilities

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

Education and Outreach

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

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

In some cases, the jurisdictions rely on Allen Parish OHSEP and/or Allen 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, Allen 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 Allen under the Hazard Mitigation Plan, allowing them to apply for available hazard mitigation funding for as long as these municipalities and entities notify the parish of their intentions and the parish concurs:

- Unincorporated Allen Parish
- Town of Elizabeth
- Town of Kinder
- City of Oakdale
- Town of Oberlin
- Village of Reeves

Flood Insurance and Community Rating System

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

In 2011[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

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

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.

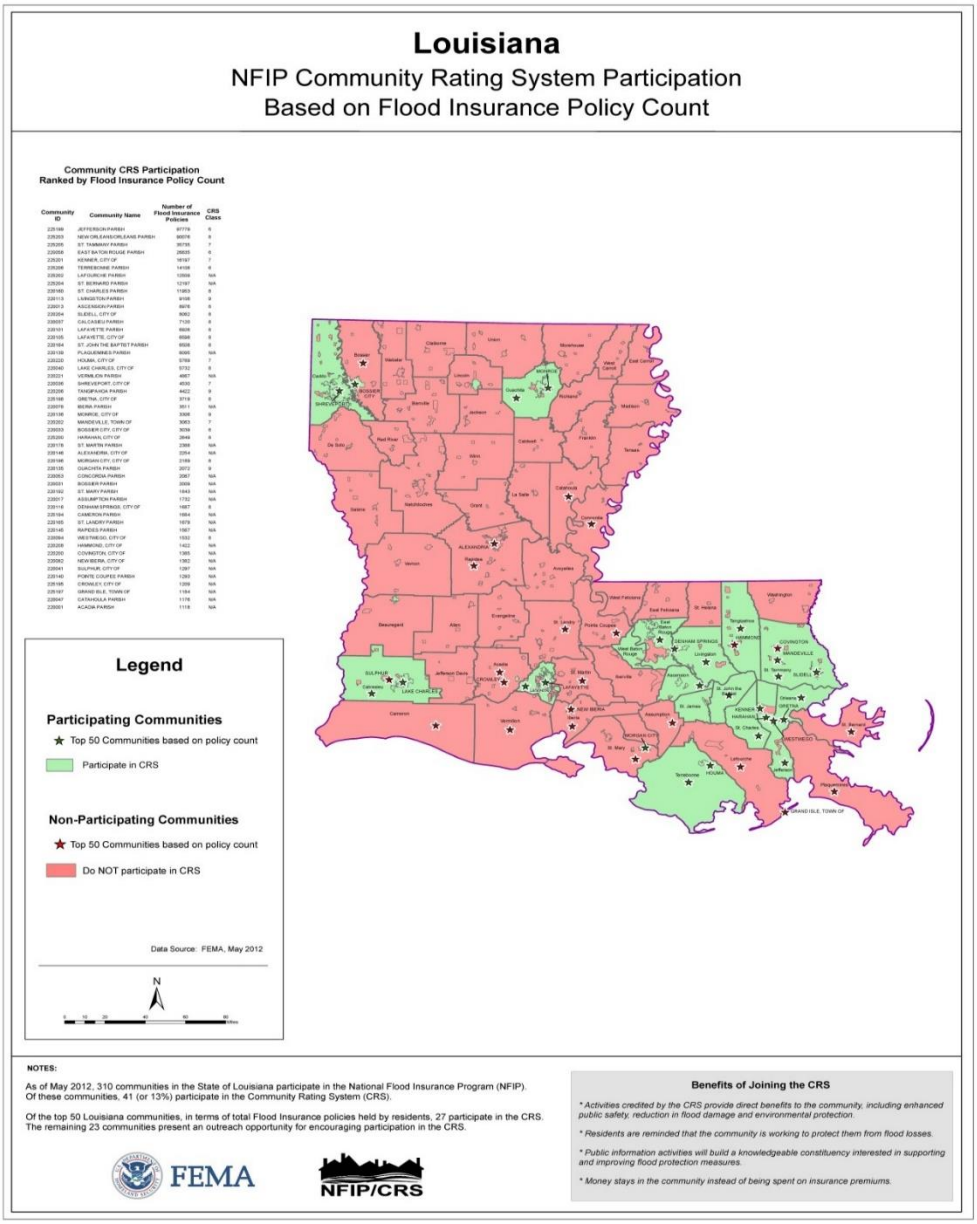


Figure 3-2: Louisiana CRS NFIP Participation
(Source: FEMA[2])

[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

Allen 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.

Allen Parish confirmed the goals, objectives, actions, and projects over the period of the Hazard Mitigation Plan Update process. The mitigation actions and projects in this 2017 update are a product of analysis and review of the Allen Parish Hazard Mitigation Plan Steering Committee, under the coordination of the Allen 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 December 2016 – August 2017

An online public opinion survey was conducted of Allen Parish residents between January 2017 – August 2017. The survey was designed to capture public perceptions and opinions regarding natural hazards in Allen 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 Allen Parish Hazard Mitigation Plan Steering Committee are representative of the outlook of the community at large. However, because there were no responses to the survey, this public feedback could not be incorporated into the plan. The full Allen Parish survey can be found at the following link:

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

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

Goals

The goals represent the guidelines that the parish and its communities want to achieve with this plan update. To help implement the strategy and adhere to the mission of the Hazard Mitigation Plan, the preceding section of the plan update was focused on identifying and quantifying the risks faced by the residents and property owners in Allen 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, Allen 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 Allen 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 three goals remain valid.

The goals are as follows:

- Protect the lives and health of Parish residents from the dangers of natural hazards including ensuring access to public facilities and escape routes as necessary
- Protect Parish schools, homes, and businesses from damage
- Give special attention to repetitively flooded areas

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

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

2017 Mitigation Actions and Update on Previous Plan Actions

The Allen Parish Hazard Mitigation Plan Steering Committee and participating jurisdictions each identified actions that would reduce and/or prevent future damage within Allen 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.

Allen 2011 Hazard Mitigation Action Update

Allen Parish - Unincorporated Areas Action Update			
Jurisdiction-Specific Action	**Action Description**	**Hazard**	**Status**
A1: Wildfire Education and Outreach	Education of citizens about causes of wildland fires and proper safety measures	Wildfires	Carried Over
A2: Open Space Ordinances	Codes/ordinances for requiring open space between forests and urban or residential areas	Wildfires	Carried Over
A3: Water Conservation	Water conservation and rationing procedures	Wildfires	Carried Over
A4: Property Acquisition	Acquire and destroy properties in floodplain areas	Flooding	In Progress
A5: Property Relocation	Relocate structures in floodplain areas	Flooding	In Progress
A6: Flood-proofing and/or Elevation	Flood-proof, elevate or consider mitigation reconstruction for properties in floodplain areas	Flooding	In Progress
A7: Flood Forecasting	Develop flood forecasting systems and warning systems	Flooding	Carried Over
A8: Bayou Drainage	Drain Bayou serving Coushatta Tribal Land	Flooding	In Progress
A9: WarnSpot Weather Software Distribution	Distribute WarnSpot Weather Warning Software to Local Government Agencies, Schools, and Healthcare Facilities	Flooding	In Progress
A10: Repetitive Loss Structure List	Maintain lists, at the Parish and municipal level, of structures which suffer from repetitive flood loss	Flooding	In Progress
A11: Hazard Mitigation Awareness and Education Week	Initiation of an annual Hazard Mitigation Awareness and Education week targeting residents on proper safety and response to a severe storm (which may be followed by flash floods)	Thunderstorms (Lightning, High Winds)	Carried Over
A12: Mobile Home Ordinances	Codes/ordinances for mobile home construction and commercial and residential building construction	Thunderstorms (Lightning, High Winds,)	Completed
A13: International Building Code Adoption	Adoption of the International Building Code until such time as the State of Louisiana requires the adoption and enforcement of the State Building Code	Thunderstorms (Lightning, High Winds)	Completed
A14: Purchase Auxiliary Generators	Purchase Auxiliary Generators for Allen Parish Hospital	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
A15: Backup Power and Utilities	Backup power generation and lifeline utilities for critical care facilities	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
A16: Public Alerts	Alerts and public announcements about dangerous conditions (including fires and flash floods during thunderstorms)	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
A17: Air Siren Installation	Install Radio- or Phone-Activated Air Sirens throughout the Parish of Allen	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress

Town of Elizabeth Action Update			
Jurisdiction-Specific Action	**Action Description**	**Hazard**	**Status**
E1: Wildfire Education and Outreach	Education of citizens about causes of wildland fires and proper safety measures	Wildfires	Carried Over
E2: Open Space Ordinances	Codes/ordinances for requiring open space between forests and urban or residential areas	Wildfires	Carried Over
E3: Water Conservation	Water conservation and rationing procedures	Wildfires	Carried Over
E4: Property Acquisition	Acquire and destroy properties in floodplain areas	Flooding	In Progress
E5: Property Relocation	Relocate structures in floodplain areas	Flooding	In Progress
E6: Flood-proofing and/or Elevation	Flood-proof, elevate or consider mitigation reconstruction for properties in floodplain areas	Flooding	In Progress
E7: Flood Forecasting	Develop flood forecasting systems and warning systems	Flooding	Carried Over
E8: Bayou Drainage	Drain Bayou serving Coushatta Tribal Land	Flooding	In Progress
E9: WarnSpot Weather Software Distribution	Distribute WarnSpot Weather Warning Software to Local Government Agencies, Schools, and Healthcare Facilities	Flooding	In Progress
E10: Repetitive Loss Structure List	Maintain lists, at the Parish and municipal level, of structures which suffer from repetitive flood loss	Flooding	In Progress
E11: Hazard Mitigation Awareness and Education Week	Initiation of an annual Hazard Mitigation Awareness and Education week targeting residents on proper safety and response to a severe storm (which may be followed by flash floods)	Thunderstorms (Lightning, High Winds)	Carried Over
E12: Mobile Home Ordinances	Codes/ordinances for mobile home construction and commercial and residential building construction	Thunderstorms (Lightning, High Winds,)	Completed
E13: International Building Code Adoption	Adoption of the International Building Code until such time as the State of Louisiana requires the adoption and enforcement of the State Building Code	Thunderstorms (Lightning, High Winds)	Completed
E14: Purchase Auxiliary Generators	Purchase Auxiliary Generators for Allen Parish Hospital	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
E15: Backup Power and Utilities	Backup power generation and lifeline utilities for critical care facilities	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
E16: Public Alerts	Alerts and public announcements about dangerous conditions (including fires and flash floods during thunderstorms)	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
E17: Air Siren Installation	Install Radio- or Phone-Activated Air Sirens throughout the Parish of Allen	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress

Town of Kinder Action Update			
Jurisdiction-Specific Action	**Action Description**	**Hazard**	**Status**
K1: Wildfire Education and Outreach	Education of citizens about causes of wildland fires and proper safety measures	Wildfires	Carried Over
K2: Open Space Ordinances	Codes/ordinances for requiring open space between forests and urban or residential areas	Wildfires	Carried Over
K3: Water Conservation	Water conservation and rationing procedures	Wildfires	Carried Over
K4: Property Acquisition	Acquire and destroy properties in floodplain areas	Flooding	In Progress
K5: Property Relocation	Relocate structures in floodplain areas	Flooding	In Progress
K6: Flood-proofing and/or Elevation	Flood-proof, elevate or consider mitigation reconstruction for properties in floodplain areas	Flooding	In Progress
K7: Flood Forecasting	Develop flood forecasting systems and warning systems	Flooding	Carried Over
K8: Bayou Drainage	Drain Bayou serving Coushatta Tribal Land	Flooding	In Progress
K9: WarnSpot Weather Software Distribution	Distribute WarnSpot Weather Warning Software to Local Government Agencies, Schools, and Healthcare Facilities	Flooding	In Progress
K10: Repetitive Loss Structure List	Maintain lists, at the Parish and municipal level, of structures which suffer from repetitive flood loss	Flooding	In Progress
K11: Hazard Mitigation Awareness and Education Week	Initiation of an annual Hazard Mitigation Awareness and Education week targeting residents on proper safety and response to a severe storm (which may be followed by flash floods)	Thunderstorms (Lightning, High Winds)	Carried Over
K12: Mobile Home Ordinances	Codes/ordinances for mobile home construction and commercial and residential building construction	Thunderstorms (Lightning, High Winds,)	Completed
K13: International Building Code Adoption	Adoption of the International Building Code until such time as the State of Louisiana requires the adoption and enforcement of the State Building Code	Thunderstorms (Lightning, High Winds)	Completed
K14: Purchase Auxiliary Generators	Purchase Auxiliary Generators for Allen Parish Hospital	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
K15: Backup Power and Utilities	Backup power generation and lifeline utilities for critical care facilities	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
K16: Public Alerts	Alerts and public announcements about dangerous conditions (including fires and flash floods during thunderstorms)	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
K17: Air Siren Installation	Install Radio- or Phone-Activated Air Sirens throughout the Parish of Allen	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
K18: Flood Protection Construction	Build dams, reservoirs, levees, floodwalls	Flooding	In Progress
K19: Flood Water Diversion Projects	Create waterways for flood water diversion	Flooding	In Progress
K20: Install Larger Culvert	Build a Larger-Diameter Culvert from 8th Street to 4th Street	Flooding	In Progress
K21: Ditch Widening	Widen the Ditch from 4th Street to LA-383	Flooding	In Progress

City of Oakdale Action Update			
Jurisdiction-Specific Action	**Action Description**	**Hazard**	**Status**
O1: Wildfire Education and Outreach	Education of citizens about causes of wildland fires and proper safety measures	Wildfires	Carried Over
O2: Open Space Ordinances	Codes/ordinances for requiring open space between forests and urban or residential areas	Wildfires	Carried Over
O3: Water Conservation	Water conservation and rationing procedures	Wildfires	Carried Over
O4: Property Acquisition	Acquire and destroy properties in floodplain areas	Flooding	In Progress
O5: Property Relocation	Relocate structures in floodplain areas	Flooding	In Progress
O6: Flood-proofing and/or Elevation	Flood-proof, elevate or consider mitigation reconstruction for properties in floodplain areas	Flooding	In Progress
O7: Flood Forecasting	Develop flood forecasting systems and warning systems	Flooding	Carried Over
O8: Bayou Drainage	Drain Bayou serving Coushatta Tribal Land	Flooding	In Progress
O9: WarnSpot Weather Software Distribution	Distribute WarnSpot Weather Warning Software to Local Government Agencies, Schools, and Healthcare Facilities	Flooding	In Progress
O10: Repetitive Loss Structure List	Maintain lists, at the Parish and municipal level, of structures which suffer from repetitive flood loss	Flooding	In Progress
O11: Hazard Mitigation Awareness and Education Week	Initiation of an annual Hazard Mitigation Awareness and Education week targeting residents on proper safety and response to a severe storm (which may be followed by flash floods)	Thunderstorms (Lightning, High Winds)	Carried Over
O12: Mobile Home Ordinances	Codes/ordinances for mobile home construction and commercial and residential building construction	Thunderstorms (Lightning, High Winds,)	Completed
O13: International Building Code Adoption	Adoption of the International Building Code until such time as the State of Louisiana requires the adoption and enforcement of the State Building Code	Thunderstorms (Lightning, High Winds)	Completed
O14: Purchase Auxiliary Generators	Purchase Auxiliary Generators for Allen Parish Hospital	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
O15: Backup Power and Utilities	Backup power generation and lifeline utilities for critical care facilities	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
O16: Public Alerts	Alerts and public announcements about dangerous conditions (including fires and flash floods during thunderstorms)	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
O17: Air Siren Installation	Install Radio- or Phone-Activated Air Sirens throughout the Parish of Allen	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
O18: Flood Protection Construction	Build dams, reservoirs, levees, floodwalls	Flooding	In Progress
O19: Flood Water Diversion Projects	Create waterways for flood water diversion	Flooding	In Progress
O20: Purchase Generators	Purchase Two 250-KW Generators for Oakdale Fire Department	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress

Town of Oberlin Action Update			
Jurisdiction-Specific Action	**Action Description**	**Hazard**	**Status**
O1: Wildfire Education and Outreach	Education of citizens about causes of wildland fires and proper safety measures	Wildfires	Carried Over
O2: Open Space Ordinances	Codes/ordinances for requiring open space between forests and urban or residential areas	Wildfires	Carried Over
O3: Water Conservation	Water conservation and rationing procedures	Wildfires	Carried Over
O4: Property Acquisition	Acquire and destroy properties in floodplain areas	Flooding	In Progress
O5: Property Relocation	Relocate structures in floodplain areas	Flooding	In Progress
O6: Flood-proofing and/or Elevation	Flood-proof, elevate or consider mitigation reconstruction for properties in floodplain areas	Flooding	In Progress
O7: Flood Forecasting	Develop flood forecasting systems and warning systems	Flooding	Carried Over
O8: Bayou Drainage	Drain Bayou serving Coushatta Tribal Land	Flooding	In Progress
O9: WarnSpot Weather Software Distribution	Distribute WarnSpot Weather Warning Software to Local Government Agencies, Schools, and Healthcare Facilities	Flooding	In Progress
O10: Repetitive Loss Structure List	Maintain lists, at the Parish and municipal level, of structures which suffer from repetitive flood loss	Flooding	In Progress
O11: Hazard Mitigation Awareness and Education Week	Initiation of an annual Hazard Mitigation Awareness and Education week targeting residents on proper safety and response to a severe storm (which may be followed by flash floods)	Thunderstorms (Lightning, High Winds)	Carried Over
O12: Mobile Home Ordinances	Codes/ordinances for mobile home construction and commercial and residential building construction	Thunderstorms (Lightning, High Winds,)	Completed
O13: International Building Code Adoption	Adoption of the International Building Code until such time as the State of Louisiana requires the adoption and enforcement of the State Building Code	Thunderstorms (Lightning, High Winds)	Completed
O14: Purchase Auxiliary Generators	Purchase Auxiliary Generators for Allen Parish Hospital	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
O15: Backup Power and Utilities	Backup power generation and lifeline utilities for critical care facilities	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
O16: Public Alerts	Alerts and public announcements about dangerous conditions (including fires and flash floods during thunderstorms)	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
O17: Air Siren Installation	Install Radio- or Phone-Activated Air Sirens throughout the Parish of Allen	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
O18: Elevated Water Tank Construction	Construct Elevated Water Tank in the Town of Oberlin	Wildfires	In Progress
O19: Flood Protection Construction	Build dams, reservoirs, levees, floodwalls	Flooding	In Progress
O20: Flood Water Diversion Projects	Create waterways for flood water diversion	Flooding	In Progress

Village of Reeves Action Update			
Jurisdiction-Specific Action	**Action Description**	**Hazard**	**Status**
R1: Wildfire Education and Outreach	Education of citizens about causes of wildland fires and proper safety measures	Wildfires	Carried Over
R2: Open Space Ordinances	Codes/ordinances for requiring open space between forests and urban or residential areas	Wildfires	Carried Over
R3: Water Conservation	Water conservation and rationing procedures	Wildfires	Carried Over
R4: Property Acquisition	Acquire and destroy properties in floodplain areas	Flooding	In Progress
R5: Property Relocation	Relocate structures in floodplain areas	Flooding	In Progress
R6: Flood-proofing and/or Elevation	Flood-proof, elevate or consider mitigation reconstruction for properties in floodplain areas	Flooding	In Progress
R7: Flood Forecasting	Develop flood forecasting systems and warning systems	Flooding	Carried Over
R8: Bayou Drainage	Drain Bayou serving Coushatta Tribal Land	Flooding	In Progress
R9: WarnSpot Weather Software Distribution	Distribute WarnSpot Weather Warning Software to Local Government Agencies, Schools, and Healthcare Facilities	Flooding	In Progress
R10: Repetitive Loss Structure List	Maintain lists, at the Parish and municipal level, of structures which suffer from repetitive flood loss	Flooding	In Progress
R11: Hazard Mitigation Awareness and Education Week	Initiation of an annual Hazard Mitigation Awareness and Education week targeting residents on proper safety and response to a severe storm (which may be followed by flash floods)	Thunderstorms (Lightning, High Winds)	Carried Over
R12: Mobile Home Ordinances	Codes/ordinances for mobile home construction and commercial and residential building construction	Thunderstorms (Lightning, High Winds,)	Completed
R13: International Building Code Adoption	Adoption of the International Building Code until such time as the State of Louisiana requires the adoption and enforcement of the State Building Code	Thunderstorms (Lightning, High Winds)	Completed
R14: Purchase Auxiliary Generators	Purchase Auxiliary Generators for Allen Parish Hospital	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
R15: Backup Power and Utilities	Backup power generation and lifeline utilities for critical care facilities	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
R16: Public Alerts	Alerts and public announcements about dangerous conditions (including fires and flash floods during thunderstorms)	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress
R17: Air Siren Installation	Install Radio- or Phone-Activated Air Sirens throughout the Parish of Allen	Flooding, Hurricanes, Winter Storms, Thunderstorms (Lightning, High Winds), Tornadoes, Wildfires	In Progress

Unincorporated Allen New Mitigation Actions

Allen Unincorporated - New Mitigation Actions						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
A1: Building Retrofits	Retrofit public buildings exterior shell to maintain use during and after storm events. Benefits: Reduces damage from high winds, and helps assure that the public buildings can be used, occupied and operable during or after storms.	FEMA HMGP, Local	1-5 years	Allen Parish OHSEP	High Wind, Tropical Cyclones, Tornadoes	New
A2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	FEMA HMGP, Local	1-5 years	Allen Parish OHSEP	Flooding, Tropical Cyclones	New
A3: Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.	FEMA HMGP, Local	1-5 years	Allen Parish OHSEP	Flooding, Tropical Cyclones	New
A4: Safe Room Projects	Construction of a safe room for first responders located in Allen Parish. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Allen Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
A5: Education and Outreach	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for Flooding, Tropical Cyclones, Tornadoes, Wildfires, Thunderstorms (lightning, high wind, hail), 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	Allen Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Thunderstorms (lightning, high wind, hail), Winter Storms	New
A6: Generators for Continuity of Operations and Government	Procurement and Installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Allen Parish OHSEP	Flooding, Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Wildfires	New
A7: Lightning Mitigation	Procurement and Installation of lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Allen Parish OHSEP	Lightning	New

A8: Warning Systems	Update/upgrade public warning system components throughout Allen Parish as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Allen Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
A9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Allen Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes	New
A10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Allen Parish OHSEP	Tropical Cyclones, Flooding	New
A11: Wildfire Ordinances	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Allen Parish OHSEP	Wildfires	New

Town of Elizabeth - New Mitigation Actions

Town of Elizabeth						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
E1: 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 Elizabeth/Allen Parish OHSEP	High Wind, Tropical Cyclones, Tornadoes	New
E2: 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 Elizabeth/Allen Parish OHSEP	Flooding, Tropical Cyclones	New
E3: 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 Elizabeth/Allen Parish OHSEP	Flooding, Tropical Cyclones	New
E4: Safe Room Projects	Construction of a safe room for first responders located in Allen. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Town of Elizabeth/Allen Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
E5: 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), 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 Elizabeth/Allen Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Thunderstorms (lightning, high wind, hail), Winter Storms	New
E6: 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 Elizabeth/Allen Parish OHSEP	Flooding, Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Wildfires	New

E7: 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 Elizabeth/Allen Parish OHSEP	Lightning	New
E8: Warning Systems	Update/upgrade public warning system components throughout Elizabeth as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Town of Elizabeth/Allen Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
E9: 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 Elizabeth/Allen Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes	New
E10: 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 Elizabeth/Allen Parish OHSEP	Tropical Cyclones, Flooding	New
E11: Wildfire Ordinances	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Town of Elizabeth/Allen Parish OHSEP	Wildfires	New

Town of Kinder - New Mitigation Actions

Town of Kinder						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
K1: 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 Kinder/Allen Parish OHSEP	High Wind, Tropical Cyclones, Tornadoes	New
K2: 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 Kinder/Allen Parish OHSEP	Flooding, Tropical Cyclones	New
K3: 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 Kinder/Allen Parish OHSEP	Flooding, Tropical Cyclones	New
K4: Safe Room Projects	Construction of a safe room for first responders located in Kinder. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Town of Kinder/Allen Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
K5: 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), 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 Kinder/Allen Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Thunderstorms (lightning, high wind, hail), Winter Storms	New
K6: 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 Kinder/Allen Parish OHSEP	Flooding, Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Wildfires	New
K7: 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 Kinder/Allen Parish OHSEP	Lightning	New

K8: Warning Systems	Update/upgrade public warning system components throughout Kinder as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Town of Kinder/Allen Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
K9: 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 Kinder/Allen Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes	New
K10: 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 Kinder/Allen Parish OHSEP	Tropical Cyclones, Flooding	New
K11: Wildfire Ordinances	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Town of Kinder/Allen Parish OHSEP	Wildfires	New

City of Oakdale - New Mitigation Actions

City of Oakdale						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
O1: Building Retrofits	Retrofit public buildings exterior shell to maintain use during and after storm events. Benefits: Reduces damage from high winds, and helps assure that the public buildings can be used, occupied and operable during or after storms.	FEMA HMGP, Local	1-5 years	City of Oakdale/Allen Parish OHSEP	High Wind, Tropical Cyclones, Tornadoes	New
O2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual 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	City of Oakdale/Allen Parish OHSEP	Flooding, Tropical Cyclones	New
O3: Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.	FEMA HMGP, Local	1-5 years	City of Oakdale/Allen Parish OHSEP	Flooding, Tropical Cyclones	New
O4: Safe Room Projects	Construction of a safe room for first responders located in Oakdale. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	City of Oakdale/Allen Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
O5: Education and Outreach	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for Flooding, Tropical Cyclones, Tornadoes, Wildfires, Thunderstorms (lightning, high wind, hail), 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	City of Oakdale/Allen Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Thunderstorms (lightning, high wind, hail), Winter Storms	New
O6: 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	City of Oakdale/Allen Parish OHSEP	Flooding, Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Wildfires	New
O7: 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	City of Oakdale/Allen Parish OHSEP	Lightning	New

O8: Warning Systems	Update/upgrade public warning system components throughout Oakdale as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	City of Oakdale/Allen Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
O9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	City of Oakdale/Allen Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes	New
O10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	City of Oakdale/Allen Parish OHSEP	Tropical Cyclones, Flooding	New
O11: Wildfire Ordinances	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	City of Oakdale/Allen Parish OHSEP	Wildfires	New

Town of Oberlin - New Mitigation Actions

Town of Oberlin						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
O1: Building Retrofits	Retrofit public buildings exterior shell to maintain use during and after storm events. Benefits: Reduces damage from high winds, and helps assure that the public buildings can be used, occupied and operable during or after storms.	FEMA HMGP, Local	1-5 years	Town of Oberlin/Allen Parish OHSEP	High Wind, Tropical Cyclones, Tornadoes	New
O2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual 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 Oberlin/Allen Parish OHSEP	Flooding, Tropical Cyclones	New
O3: Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.	FEMA HMGP, Local	1-5 years	Town of Oberlin/Allen Parish OHSEP	Flooding, Tropical Cyclones	New
O4: Safe Room Projects	Construction of a safe room for first responders located in Oberlin. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Town of Oberlin/Allen Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
O5: Education and Outreach	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for Flooding, Tropical Cyclones, Tornadoes, Wildfires, Thunderstorms (lightning, high wind, hail), 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 Oberlin/Allen Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Thunderstorms (lightning, high wind, hail), Winter Storms	New
O6: 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 Oberlin/Allen Parish OHSEP	Flooding, Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Wildfires	New
O7: 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 Oberlin/Allen Parish OHSEP	Lightning	New

O8: Warning Systems	Update/upgrade public warning system components throughout Oberlin as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Town of Oberlin/Allen Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
O9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Town of Oberlin/Allen Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes	New
O10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Town of Oberlin/Allen Parish OHSEP	Tropical Cyclones, Flooding	New
O11: Wildfire Ordinances	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Town of Oberlin/Allen Parish OHSEP	Wildfires	New

Village of Reeves - New Mitigation Actions

Village of Reeves						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
R1: Building Retrofits	Retrofit public buildings exterior shell to maintain use during and after storm events. Benefits: Reduces damage from high winds, and helps assure that the public buildings can be used, occupied and operable during or after storms.	FEMA HMGP, Local	1-5 years	Village of Reeves/Allen Parish OHSEP	High Wind, Tropical Cyclones, Tornadoes	New
R2: Drainage Improvement	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual 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 Reeves/Allen Parish OHSEP	Flooding, Tropical Cyclones	New
R3: Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.	FEMA HMGP, Local	1-5 years	Village of Reeves/Allen Parish OHSEP	Flooding, Tropical Cyclones	New
R4: Safe Room Projects	Construction of a safe room for first responders located in Reeves. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Village of Reeves/Allen Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
R5: Education and Outreach	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for Flooding, Tropical Cyclones, Tornadoes, Wildfires, Thunderstorms (lightning, high wind, hail), 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 Reeves/Allen Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Thunderstorms (lightning, high wind, hail), Winter Storms	New
R6: Generators for Continuity of Operations and Government	Procurement and Installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Village of Reeves/Allen Parish OHSEP	Flooding, Tornadoes, Winter Storms, Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Wildfires	New
R7: Lightning Mitigation	Procurement and Installation of lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Village of Reeves/Allen Parish OHSEP	Lightning	New

R8: Warning Systems	Update/upgrade public warning system components throughout Reeves as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Village of Reeves/Allen Parish OHSEP	Winter Storms, Wildfires, Tornadoes, Tropical Cyclones	New
R9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Village of Reeves/Allen Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes	New
R10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Village of Reeves/Allen Parish OHSEP	Tropical Cyclones, Flooding	New
R11: Wildfire Ordinances	Strengthen penalties and improve enforcement capabilities of burn ban ordinances	FEMA HMGP, Local	1-5 years	Village of Reeves/Allen Parish OHSEP	Wildfires	New

Action Prioritization

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

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

The steering committee met internally for mitigation action meetings to review and approve Allen 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.

Allen 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.

This Page Left Intentionally Blank

Appendix A: Planning Process

Purpose

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

The Allen Parish Hazard Mitigation Plan Update

The Allen Parish Hazard Mitigation Plan Update process began in January 2016 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.

Allen Parish includes the unincorporated areas of the parish, as well as the following incorporated municipalities that participated in the plan update process – the Town of Elizabeth, Town of Kinder, City of Oakdale, Town of Oberlin, and the Village of Reeves. Allen 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
1/21/2016	Initial Coordination	Telephone/ Email	No	Discuss with Parish HM coordinator and any Steering Committee members expectations and requirements of the project.
12/14/2016	Kick-Off Meeting		No	Discuss with the plan steering committee expectations and requirements of the project. Assign plan worksheets to jurisdictions.
3/6/2017	Risk Assessment Overview	Oberlin, LA	No	Discuss and review the risk assessment with the steering committee discuss and review expectations for public meeting.
3/6/2017	Public Meeting	Oberlin, 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 Allen 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 Allen 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/AllenParish
2 Week Period	Public Plan Review (Digital)		Yes	Parish Website and Allen 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								
Plan Adoption								
Plan Approval								

Coordination

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

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

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

Neighboring Community, Local and Regional Planning Process Involvement

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

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

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

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

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

- Allen Parish Police Jury
- Allen Office of Homeland Security and Emergency Preparedness
- Town of Elizabeth
- Town of Kinder
- City of Oakdale
- Town of Oberlin
- Village of Reeves

The Parish of Jefferson Davis was invited by the Allen Parish OHSEP via email invitation to participate in all meetings and activities as well in an effort to collaborate with neighboring communities. In addition, the participation of the GOHSEP Region 5 Coordinator during the process also contributed to neighboring community representation.

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

Below is a detailed list of the 2017 Hazard Mitigation Plan Update Steering Committee:

Name	Title	Agency	Address	Phone
Jacob Dillehay	Parish Engineer	Allen Parish Police Jury	602 Court St Oberlin, LA 70655	337-639-4328
Joel Johnson	Allen Parish Airport Manager	Allen Parish Police Jury	602 Court St Oberlin, LA 70655	337-639-4328
Creig Vizena	President	Allen Parish Police Jury	602 Court St Oberlin, LA 70655	337-639-4396
Mandy Green	Mayor	Town of Elizabeth	P.O. Box 457 Elizabeth, LA 70638	318-634-5100
Wayland LaFargue	Mayor	Town of Kinder	333 N. 8th St. Kinder, LA 70648	337-738-2620
Gene Paul	Mayor	City of Oakdale	333 E. 6th Ave. Oakdale, LA 71463	318-335-1111
Joseph Manuel	Mayor	Town of Oberlin	P. O. Box 370 Oberlin, LA 70655	337-639-4333
Scott Walker	Mayor	Village of Reeves	18370 US-190 Reeves, LA 70658	337-749-2000
Doug Zettlemoyer	Region 5 Coordinator	GOHSEP	7667 Independence Blvd. Baton Rouge, LA 70806	225-405-9174

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

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

Further information on other plans and capabilities reviewed 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 Allen Parish.

Meeting #1: Coordination Discussion

Date: January 21, 2016
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: Allen Parish OHSEP, SDMI Staff

Meeting #2: Hazard Mitigation Plan Update Kick-Off

Date: December 14, 2016

Location:

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
Jacob Dillehay	Parish Engineer	Allen Parish Police Jury
Joel Johnson	Allen Parish Airport Manager	Allen Parish Police Jury
Creig Vizena	President	Allen Parish Police Jury
Mandy Green	Mayor	Town of Elizabeth
Wayland LaFargue	Mayor	Town of Kinder
Gene Paul	Mayor	City of Oakdale
Joseph Manuel	Mayor	Town of Oberlin
Scott Walker	Mayor	Village of Reeves
Doug Zettlemoyer	Region 5 Coordinator	GOHSEP

Meeting #3: Risk Assessment Overview

Date: March 6, 2016

Location: Oberlin, 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
Jacob Dillehay	Parish Engineer	Allen Parish Police Jury
Joel Johnson	Allen Parish Airport Manager	Allen Parish Police Jury
Creig Vizena	President	Allen Parish Police Jury
Mandy Green	Mayor	Town of Elizabeth
Wayland LaFargue	Mayor	Town of Kinder
Gene Paul	Mayor	City of Oakdale
Joseph Manuel	Mayor	Town of Oberlin
Scott Walker	Mayor	Village of Reeves
Doug Zettlemoyer	Region 5 Coordinator	GOHSEP

Meeting #4: Public Meeting

Date: March 6, 2016

Location: Oberlin, 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 Allen Parish communities were provided for the meeting attendees to identify specific areas where localized hazards occur.

Public Initiation: Yes

Invitees Included:

Name	Title	Agency
Jacob Dillehay	Parish Engineer	Allen Parish Police Jury
Joel Johnson	Allen Parish Airport Manager	Allen Parish Police Jury
Creig Vizena	President	Allen Parish Police Jury
Mandy Green	Mayor	Town of Elizabeth
Wayland LaFargue	Mayor	Town of Kinder
Gene Paul	Mayor	City of Oakdale
Joseph Manuel	Mayor	Town of Oberlin
Scott Walker	Mayor	Village of Reeves
Doug Zettlemoyer	Region 5 Coordinator	GOHSEP

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

Meeting Public Notice

ALLEN PARISH
OFFICE OF HOMELAND SECURITY & EMERGENCY PREPAREDNESS

MEETING NOTICE –March 6, 2017

Allen Parish to hold Public Meetings for Hazard Mitigation Plan Update

Oberlin, LA – Allen Parish Office of Homeland Security & Emergency Preparedness is in the process of updating the Allen Parish Hazard Mitigation Plan and are required to hold public meetings on the plan update. The Public meeting will be held on March 6, 2017 in the Allen Parish Police Jury Office located at 602 Court St., Oberlin, LA from 11:00AM to 12:00PM.

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.

Allen Parish is in the beginning stages of updating its hazard mitigation plan. Public meeting will be held on March 6, 2017 for all citizens interested in learning about and participating in discussions concerning the Allen Parish Hazard Mitigation Plan.

Residents of Allen 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/AllenParish.

For more information, please contact: Allen Parish OEP Office

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
No comments were collected through this activity.

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. However, because no members of the public attended, no comments were collected.

Public Plan Review Documentation

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

This Page Left Intentionally Blank

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 Allen 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

Allen 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

Allen 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 Allen 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 Allen Parish's dedication to involving the public directly in review and updates of the Hazard Mitigation Plan. Meetings will be scheduled as needed by the plan administrator to provide a forum for which the public can express their concerns, opinions, and/or ideas about the plan. The plan administrator will be responsible for using parish resources to publicize the annual public meetings and maintain public involvement through the newspapers, radio, and public access television channels. Copies of the plan will be catalogued and kept at all appropriate agencies in the city government, as well as at the Public Library.

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

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

2017 Plan Version Plan Method and Schedule Evaluation

For the current plan update, the previously approved plan's method and schedule were evaluated to determine if the elements and processes involved in the required 2017 update. Based on this analysis, the method and schedule were deemed to be acceptable, and nothing was changed for this update.

Incorporation into Existing Planning Programs

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

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

Opportunities to integrate the requirements of this plan into other local planning mechanisms will continue to be identified through future meetings of the Allen 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 Allen 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 Elizabeth, Kinder, Oakdale, Oberlin, and Reeves, Allen 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:

Allen Unincorporated
Comprehensive Master Plan/Updated as needed/Allen Parish Police Jury
Capital Improvements Plan/Updated as needed/Allen Parish Police Jury
Local Emergency Operations Plan/Updated as needed/Allen Parish OHSEP
Continuity of Operations Plan/Updated as needed/Allen Parish OHSEP

Town of Elizabeth
Capital Improvements Plan/Updated as needed/Allen Parish Police Jury and Mayor of Elizabeth

Town of Kinder
Comprehensive Master Plan/Updated as needed/Allen Parish Police Jury and Mayor of Kinder
Capital Improvements Plan/Updated as needed/Allen Parish Police Jury and Mayor of Kinder
Local Emergency Operations Plan/Updated as needed/Allen Parish OHSEP and Mayor of Kinder

City of Oakdale
Economic Development Plan/Update as needed/Allen Parish Police Jury and Mayor of Oakdale
Local Emergency Operations Plan/Updated as needed/Allen Parish OHSEP and Mayor of Oakdale
Continuity of Operations Plan/Updated as needed/Allen Parish OHSEP and Mayor of Oakdale
Transportation Plan/ Updated as needed/ Allen Parish Police Jury and Mayor of Oakdale

Town of Oberlin
Local Emergency Operations Plan/Updated as needed/Allen Parish OHSEP and Mayor of Oberlin
Continuity of Operations Plan/Updated as needed/Allen Parish OHSEP and Mayor of Oberlin

Village of Reeves
Local Emergency Operations Plan/Updated as needed/Allen Parish OHSEP and Mayor of Reeves
Continuity of Operations Plan/Updated as needed/Allen Parish OHSEP and Mayor of Reeves

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

This Page Left Intentionally Blank

Appendix C: Essential Facilities

Allen Parish Essential Facilities – All Jurisdictions

Allen Unincorporated Essential Facilities									
Type	**Name**	**Flooding**	**Hail**	**Lightning**	**Wind**	**Tornado**	**Tropical Cyclone**	**Wildfire**	**Winter Storms***
Fire and Rescue	Allen Parish Fire District 5		X	X	X	X	X		
	Allen Parish Fire District 5 - Guy Substation		X	X	X	X	X	X	
	Allen parish Fire District 6		X	X	X	X	X	X	
	Allen parish Fire District 6 - Station 3		X	X	X	X	X	X	
	Bel Fire Tower		X	X	X	X	X		
	Fire Department		X	X	X	X	X		
	Fire Department		X	X	X	X	X		
	Grant Fire Station		X	X	X	X	X	X	
	Indian Village Fire Department	X	X	X	X	X	X	X	
	Lauderdale Fire Station - Fire District 4		X	X	X	X	X		
	LeBlanc Fire Station		X	X	X	X	X	X	
	Topsy Bel Fire Station		X	X	X	X	X	X	
Government	Allen Parish Welcome Center	X	X	X	X	X	X		
	Maintenance	X	X	X	X	X	X		
	Oberlin Maintenance Unit	X	X	X	X	X	X		
	Solid Waste Dump Site	X	X	X	X	X	X		
Law Enforcement	Allen Parish Sheriff's Office Substation		X	X	X	X	X		
Corrections	Allen Correctional Center - Prison Enterprises		X	X	X	X	X		
Schools	Fairview High School		X	X	X	X	X	X	

Elizabeth Essential Facilities									
Type	Name	Flooding	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Wildfire	Winter Storms*
Fire and Rescue	Elizabeth Volunteer Fire Department		X	X	X	X	X		
Government	Elizabeth Town Hall		X	X	X	X	X	X	
Law Enforcement	Allen Parish Sheriff's Office - Elizabeth Substation	X	X	X	X	X	X	X	
Schools	Elizabeth High School		X	X	X	X	X	X	

Kinder Essential Facilities									
Type	Name	Flooding	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Wildfire	Winter Storms*
Fire and Rescue	Allen Parish Fire District 4		X	X	X	X	X		
Government	LA Department of Public Safety		X	X	X	X	X	X	
	Southwest Allen Parish Water District		X	X	X	X	X	X	
	Town of Kinder Municipal Building		X	X	X	X	X	X	
Public Health	Allen Parish Hospital		X	X	X	X	X		
Schools	Kinder Elementary School		X	X	X	X	X	X	
	Kinder High School		X	X	X	X	X		
	Kinder Middle School		X	X	X	X	X	X	

Oakdale Essential Facilities									
Type	**Name**	**Flooding**	**Hail**	**Lightning**	**Wind**	**Tornado**	**Tropical Cyclone**	**Wildfire**	**Winter Storms***
Fire and Rescue	Oakdale Fire Station		X	X	X	X	X	X	
Government	Allen Parish Council on Aging		X	X	X	X	X	X	
	Allen Parish Police Jury		X	X	X	X	X	X	
	City of Oakdale Public Works		X	X	X	X	X	X	
	LA Department of Public Safety		X	X	X	X	X	X	
	Oakdale Area Chamber of Commerce		X	X	X	X	X	X	
	Oakdale City Hall		X	X	X	X	X	X	
	Office of Homeland Security		X	X	X	X	X		
Law Enforcement	Allen Parish Sheriff's Department - Bowman Hicks Substation		X	X	X	X	X	X	
	Oakdale Police Department		X	X	X	X	X	X	
Corrections	Federal Correctional Complex		X	X	X	X	X		
Public Health	Oakdale Community Hospital		X	X	X	X	X	X	
Schools	Oakdale Elementary School		X	X	X	X	X	X	
	Oakdale High School		X	X	X	X	X	X	

Oberlin Essential Facilities									
Type	Name	Flooding	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Wildfire	Winter Storms*
Fire and Rescue	Allen Parish Fire District 5 - Main Station		X	X	X	X	X		
	Oberlin Lookout Tower		X	X	X	X	X	X	
Government	33rd Judicial District Courthouse	X	X	X	X	X	X		
	Allen Parish Police Jury	X	X	X	X	X	X	X	
	Allen Parish Registrar of Voters	X	X	X	X	X	X		
	Allen Parish School Board	X	X	X	X	X	X		
	Allen Parish School Board	X	X	X	X	X	X	X	
	Allen Parish School Board Parent Command Center	X	X	X	X	X	X		
	Oberlin City Hall	X	X	X	X	X	X		
	Town of Oberlin Maintenance Department	X	X	X	X	X	X		
	US Department of Agriculture	X	X	X	X	X	X	X	
	US Department of Ag Service Center	X	X	X	X	X	X	X	
Law Enforcement	Allen Parish Sheriff's Department - Admin Building		X	X	X	X	X		
Schools	Oberlin Elementary School		X	X	X	X	X		
	Oberlin High School		X	X	X	X	X		

Reeves Essential Facilities									
Type	Name	Flooding	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Wildfire	Winter Storms*
Fire and Rescue	Ward Three Fire District 2 - Reeves Station		X	X	X	X	X	X	
Government	Allen Parish Police Jury District 3 Maintenance Barn		X	X	X	X	X		
	Reeves City Hall		X	X	X	X	X	X	
Law Enforcement	Reeves Police Department		X	X	X	X	X	X	
Schools	Reeves High School		X	X	X	X	X	X	

* There are no critical facilities vulnerable to the hazard.

Appendix D: Plan Adoption

ALLEN PARISH POLICE JURY

LOUISIANA

RESOLUTION NO. 6425

A RESOLUTION OF THE ALLEN PARISH POLICE JURY

2017 PARISH-WIDE HAZARD MITIGATION PLAN

WHEREAS the ALLEN PARISH POLICE JURY recognizes the threat that natural hazards pose to people and property within ALLEN PARISH; and

WHEREAS the ALLEN PARISH POLICE JURY has prepared a multi-hazard mitigation plan, hereby known as 2017 PARISH-WIDE HAZARD MITIGATION PLAN in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS 2017 PARISH-WIDE HAZARD MITIGATION PLAN identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in ALLEN PARISH from the impacts of future hazards and disasters; and

WHEREAS adoption by the ALLEN PARISH POLICE JURY demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 PARISH-WIDE HAZARD MITIGATION PLAN

NOW THEREFORE, BE IT RESOLVED BY THE ALLEN PARISH POLICE JURY, LOUISIANA, THAT:

Section 1. In accordance with the Code of Ordinance, Parish of Allen, Louisiana, THE ALLEN PARISH POLICE JURY adopts the 2017 PARISH-WIDE HAZARD MITIGATION PLAN

ADOPTED by a vote of 7 in favor and 0 against, and 0 abstaining, this 4TH day of December, 2017.

ATTEST:

By: Colleen Sonnier

Colleen Sonnier

VILLAGE OF ELIZABETH
LOUISIANA

Refer to Minutes: 12/5/17

RESOLUTION NO. 14-2017

A RESOLUTION OF THE VILLAGE OF ELIZABETH

2017 UPDATE PARISH-WIDE HAZARD MITIGATION PLAN

WHEREAS the VILLAGE OF ELIZABETH recognizes the threat that natural hazards pose to people and property within VILLAGE OF ELIZABETH ; and

WHEREAS the VILLAGE OF ELIZABETH has prepared a multi-hazard mitigation plan, hereby known as 2017 Updated Parish-Wide Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

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

WHEREAS adoption by the VILLAGE OF ELIZABETH demonstrates their commitment to the hazard mitigation and achieving the goals outlined in **The 2017 Updated Parish-Wide Hazard Mitigation Plan.**

NOW THEREFORE, BE IT RESOLVED BY THE VILLAGE OF ELIZABETH, LOUISIANA, THAT:

Section 1. In accordance with PRESENTATION OF THE RESOLUTION No.14-2017 in regular meeting on December 5, 2017 and, THE VILLAGE OF ELIZABETH adopts the **The 2017 Updated Parish-Wide Hazard Mitigation Plan** .

ADOPTED by a vote of __3____ in favor, ___0___ against, ___0___ abstaining, and __0___absent, this 5TH day of December, 2017.

MOTION BY: Garold Steele SECONDED BY: Shirley Smith

ATTEST:
By: _____
Denise Lee, Clerk

APPROVED AS TO FORM:
By: _____
Mandy L. Green, Mayor

Publish in Oakdale Journal 12-14-17

TOWN OF KINDER
P.O. BOX 947
KINDER, LA 70648

RESOLUTION No. 2018-01

WHEREAS, the Town of Kinder recognizes the threat that natural hazards pose to people and property within Kinder; and

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

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

WHEREAS, adoption by the Town of Kinder demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 Updated Parish-Wide Hazard Mitigation Plan.

NOW THEREFORE BE IT RESOLVED, by the Town of Kinder, Louisiana, that:

Section 1. In accordance with Lawrason Act, the Town of Kinder adopts the 2017 Updated Parish-Wide Hazard Mitigation Plan.

Passed, approved and adopted this 4th day of January, 2018.

Wayland LaFargue, Mayor

Traci Fontenot, Town Clerk

CERTIFICATE

I, Traci Fontenot, Clerk of the Town of Kinder, certify that the above and foregoing constitutes a true and correct copy of a Resolution passed and adopted by the Town of Kinder on January 4, 2018.

Traci Fontenot, Town Clerk

CITY OF OAKDALE

LOUISIANA

RESOLUTION NO. _____

A RESOLUTION OF THE CITY OF OAKDALE

2017 UPDATED PARISH-WIDE HAZARD MITIGATION PLAN

WHEREAS the CITY OF OAKDALE recognizes the threat that natural hazards pose to people and property within CITY OF OAKDALE and

WHEREAS the CITY OF OAKDALE has prepared a multi-hazard mitigation plan, hereby known as 2017 UPDATED PARISH-WIDE HAZARD MITIGATION PLAN in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS 2017 UPDATED PARISH-WIDE HAZARD MITIGATION PLAN identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in THE CITY OF OAKDALE from the impacts of future hazards and disasters; and

WHEREAS adoption by the CITY OF OAKDALE demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2017 UPDATED PARISH-WIDE HAZARD MITIGATION PLAN.

NOW THEREFORE, BE IT RESOLVED BY THE CITY OF OAKDALE, LOUISIANA, THAT:

Section 1. In accordance with THE CITY OF OAKDALE LOCAL RULE FOR ADOPTING RESOLUTIONS, THE CITY OF OAKDALE adopts the 2017 UPDATED PARISH-WIDE MITIGATION PLAN.

ADOPTED by a vote of 5 in favor and 0 against, and 0 abstaining, this 7th day of December, 2017.

By: _____

MAYOR GENE PAUL

ATTEST:

By: Melissa Schaefer

CITY CLERK MELISSA SCHAEFER

APPROVED AS TO FORM:

By: _____

(print name)

TOWN OF OBERLIN

LOUISIANA

RESOLUTION NO. 12-11-2017

A RESOLUTION OF THE TOWN OF OBERLIN

TOWN OF OBERLIN MITIGATION PLAN, DECEMBER 11, 2017

WHEREAS the TOWN COUNCIL, recognizes the threat that natural hazards pose to people and property within TOWN OFOBERLIN; and

WHEREAS the TOWN OF OBERLIN has prepared a multi-hazard mitigation plan, hereby known as TOWN OF OBERLIN, DECEMBER 11, 2017] in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS TOWN OF OBERLIN MITIGATION PLAN, DECEMBER 11, 2017 identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in TOWN OF OBERLIN from the impacts of future hazards and disasters; and

WHEREAS adoption by the TOWN COUNCIL, demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the TOWN OF OBERLIN.

NOW THEREFORE, BE IT RESOLVED BY THE TOWN OF OBERLIN, LOUISIANA, THAT:

Section 1. In accordance with THE TOWN OF OBERLIN, CODE OF ORDINANCES, adopts the TOWN OF OBERLIN MITIGATION PLAN, DECEMBER 11, 2017.

ADOPTED by a vote of 4 in favor and 0 against, and 0 abstaining, this 11th day of December 2017.

By: Joseph Manuel

Joseph Manuel , Mayor

ATTEST:

By: Charlotte C Artis

Charlotte Artis, Clerk

APPROVED AS TO FORM:

By: _____

Village of Reeves

LOUISIANA

RESOLUTION NO. 2-2017

A RESOLUTION OF THE Village of Reeves

2018 Village of Reeves MITIGATION PLAN

WHEREAS the Reeves, Louisiana recognizes the threat that natural hazards pose to people and property within Village of Reeves; and

WHEREAS the Village of Reeves has prepared a multi-hazard mitigation plan, hereby known as 2018 Village of Reeves Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS 2018 Village of Reeves Mitigation identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Reeves, LA from the impacts of future hazards and disasters; and

WHEREAS adoption by the Village of Reeves Board demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2018 Village of Reeves Mitigation Plan.

NOW THEREFORE, BE IT RESOLVED BY THE Reeves, LOUISIANA, THAT:

Section 1. In accordance with authorization from the Village of Reeves Board, THE Village of Reeves adopts the 2018 Village of Reeves Mitigation Plan.

ADOPTED by a vote of 3 in favor and 0 against, and 0 abstaining, this 4 day of Dec, 2017.

By:

Scott Walker

ATTEST:

By: _____

Kamela Kingrey

APPROVED AS TO FORM:

By: _____

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
Jacob Dillehay	Parish Engineer	Allen Parish Police Jury	602 Court St, Oberlin, LA 70655	337-639-4328
Joel Johnson	Allen Parish Airport Manager	Allen Parish Police Jury	602 Court St, Oberlin, LA 70655	337-639-4328
Creig Vizena	President	Allen Parish Police Jury	602 Court St, Oberlin, LA 70655	337-639-4396
Mandy Green	Mayor	Town of Elizabeth	P.O. Box 457 Elizabeth, LA 70638	318-634-5100
Wayland LaFargue	Mayor	Town of Kinder	333 N. 8th St., Kinder, LA 70648	337-738-2620
Gene Paul	Mayor	City of Oakdale	333 E. 6th Ave., Oakdale, LA 71463	318-335-1111
Joseph Manuel	Mayor	Town of Oberlin	P. O. Box 370 Oberlin, LA 70655	337-639-4333
Scott Walker	Mayor	Village of Reeves	18370 US-190, Reeves, LA 70658	337-749-2000
Doug Zettlemoyer	Region 5 Coordinator	GOHSEP	7667 Independence Blvd., Baton Rouge, LA 70806	225-405-9174

Capability Assessment

Allen Unincorporated

Planning and Regulatory		

Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.

Allen Unincorporated		
Plans	Yes/No	Comments
Comprehensive / Master Plan	Yes	
Capital Improvements Plan	Yes	
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	Yes	
Building Code Effectiveness Grading Schedule (BCEGS) Score	Unknown	
Fire Department ISO/PIAL rating	Yes	
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)	No	
Flood Insurance Rate Maps	Yes	
Acquisition of land for open space and public recreation uses	No	
Other	No	

Administration and Technical		

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

Administration	Yes/No	Comments
Planning Commission	No	
Mitigation Planning Committee	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	No	
Civil Engineer	Yes	
GIS Coordinator	No	
Grant Writer	Yes	
Other	No	
Technical		
Warning Systems / Service (Reverse 911, outdoor warning signals)	No	
Hazard Data & Information	Yes	
Grant Writing	Yes	
Hazus Analysis	Yes	
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	No	
Impact fees for new development	Yes	
Stormwater Utility Fee	No	
Community Development Block Grant (CDBG)	Yes	
Other Funding Programs	No	

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	Unknown	
Firewise Communities certification	Unknown	
Public/Private partnership initiatives addressing disaster-related issues	No	
Other	No	

Town of Elizabeth

Planning and Regulatory		
Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.		
Elizabeth		
Plans	Yes/No	Comments
Comprehensive / Master Plan	No	
Capital Improvements Plan	Yes	
Economic Development Plan	No	
Local Emergency Operations Plan	No	
Continuity of Operations Plan	No	
Transportation Plan	No	
Stormwater Management Plan	No	
Community Wildfire Protection Plan	No	
Other plans (redevelopment, recovery, coastal zone management)	No	
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	Yes	
Floodplain Ordinance	Yes	
Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)	No	
Flood Insurance Rate Maps	Yes	
Acquisition of land for open space and public recreation uses	Yes	
Other	No	

Administration and Technical		

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

Administration	Yes/No	Comments
Planning Commission	No	
Mitigation Planning Committee	No	
Maintenance programs to reduce risk (tree trimming, clearing drainage systems)	No	
Staff		
Chief Building Official	No	
Floodplain Administrator	Yes	Relies on Parish
Emergency Manager	No	
Community Planner	No	
Civil Engineer	Yes	
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	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)	Yes	
Other Funding Programs	No	

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

Town of Kinder

Planning and Regulatory		

Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.

Kinder		
Plans	Yes/No	Comments
Comprehensive / Master Plan	Yes	
Capital Improvements Plan	Yes	
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	Yes	
Fire Department ISO/PIAL rating	Yes	
Site plan review requirements	Yes	
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	
Mitigation Planning Committee	No	
Maintenance programs to reduce risk (tree trimming, clearing drainage systems)	Yes	
Staff		
Chief Building Official	Yes	
Floodplain Administrator	Yes	
Emergency Manager	Yes	
Community Planner	No	
Civil Engineer	Yes	
GIS Coordinator	Yes	
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	No	
Stormwater Utility Fee	No	
Community Development Block Grant (CDBG)	Yes	
Other Funding Programs	No	

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

City of Oakdale

Planning and Regulatory		

Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.

Oakdale		
Plans	Yes/No	Comments
Comprehensive / Master Plan	No	
Capital Improvements Plan	No	
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)	Yes	
Building Code, Permitting and Inspections		
Building Code	Yes	
Building Code Effectiveness Grading Schedule (BCEGS) Score	Yes	
Fire Department ISO/PIAL rating	Yes	
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	Yes	
Other	No	

Administration and Technical		

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

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

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	Yes	
Public/Private partnership initiatives addressing disaster-related issues	Oakdale Fire Department	
Other	No	

Town of Oberlin

Planning and Regulatory		
Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.		
Oberlin		
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	Yes	
Building Code Effectiveness Grading Schedule (BCEGS) Score	Yes	
Fire Department ISO/PIAL rating	Yes	
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)	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	
Mitigation Planning Committee	No	
Maintenance programs to reduce risk (tree trimming, clearing drainage systems)	Yes	
Staff		
Chief Building Official	Yes	
Floodplain Administrator	Yes	
Emergency Manager	Yes	
Community Planner	No	
Civil Engineer	Yes	
GIS Coordinator	Yes	
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	No	
Stormwater Utility Fee	No	
Community Development Block Grant (CDBG)	Yes	
Other Funding Programs	No	

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	No	

Village of Reeves

Planning and Regulatory		

Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.

Reeves		
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	Yes	
Building Code Effectiveness Grading Schedule (BCEGS) Score	Yes	
Fire Department ISO/PIAL rating	Yes	
Site plan review requirements	Yes	
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	No	
Mitigation Planning Committee	No	
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	
GIS Coordinator	Yes	
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	No	
Stormwater Utility Fee	No	
Community Development Block Grant (CDBG)	Yes	
Other Funding Programs	No	

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	No	

Building Inventory

Critical Facility (If Yes, Mark X)	Name of Building	Purpose of Building	Address	City	Latitude	Longitude	Assessed Value	Date Built	Contst. Type
Allen Unincorporated									
	LSU Ag Center	Education	616 Court Street	Oberlin	30°37'14.75"N	92°46'22.70"W	$470,669.00	2000	Wood
	Allen Parish Court House	Civil Government	400 West 6th Street	Oberlin	30°37'13.43"N	92°46'5.24"W	$4,706,688.00	1903	Wood
	DA'S Office	Civil Government	400 West 6th Street	Oberlin	30°37'12.28"N	92°46'5.09"W	$400,668.00	1973	Wood
	Registrar of Voters	Civil Government	105 North 5th Street	Oberlin	30°37'14.44"N	92°46'6.27"W	$88,250.00	1950	Wood
x	Allen Parish Civic Center	Parks and Recreation	609 Tiger Lane	Oberlin	30°37'5.84"N	92°46'17.59"W	$823,670.00	2003	Wood
	Jail Behind Courthouse	Law Enforcement	417 Court Street	Oberlin	30°37'13.46"N	92°46'6.14"W	$294,168.00	1950	Concrete
	Allen Parish Action Agency	Civil Government	505 West 7th Ave	Oberlin	30°37'19.12"N	92°46'9.84"W	$117,667.00	1980	Wood
	Allen Parish Fair Exhibit Bldg. 1	Parks and Recreation	209 South 4th Street	Oberlin	30°37'4.99"N	92°46'11.75"W	$76484.00	1950	Wood
	Allen Parish Fair Exhibit Bldg. 2	Parks and Recreation	209 South 4th Street	Oberlin	30°37'4.99"N	92°46'11.75"W	$35,300.00	1950	Wood
	Allen Parish Fair Livestock Bldg. 1	Parks and Recreation	209 South 4th Street	Oberlin	30°37'4.99"N	92°46'11.75"W	$58,834.00	1950	Wood
	Allen Parish Fair Livestock Bldg. 2	Parks and Recreation	209 South 4th Street	Oberlin	30°37'4.99"N	92°46'11.75"W	$23,533.00	1950	Wood
	Allen Parish Fair Restrooms	Parks and Recreation	209 South 4th Street	Oberlin	30°37'4.99"N	92°46'11.75"W	$11,767.00	1950	Wood
x	Homeland Security Bldg.	Civil Government	106 South 4th Street	Oberlin	30°37'15.14"N	92°46'8.66"W	$47,067.00	1985	Wood
	Airport Pilot Lounge	Airport	278 Airport Rd.	Oakdale	30°45'4.15"N	92°41'28.57"W	$117,667.00	1980	Wood
	Airport House	Airport	234 Airport Rd.	Oakdale	30°45'4.15"N	92°41'28.57"W	$115,380.00	2002	Wood
x	Health Unit Oakdale	Public Health	145 Hospital Dr.	Oakdale	30°49'1.65"N	92°38'41.64"W	$929,802.00	2001	Wood

x	Allen Parish Police Jury Office	Civil Government	602 Court Street	Oakdale	30°37'15.18"N	92°46'20.10"W	$1,153,600.00	2003	Wood
	Voting Precinct	Civil Government	205 West MLK Dr.	Oberlin	30°36'33.30"N	92°45'50.47"W	$58,834.00	1950	Wood
	Voting Precinct	Civil Government	1215 North Blacktop	Oakdale	30°49'56.46"N	92°39'30.44"W	$14,120.00	1950	Wood
	Voting Precinct	Civil Government	102 West Erwin Street	Oakdale	30°49'10.80"N	92°39'46.12"W	$5,883.00	1950	Wood
x	Ward 1 Barn	Civil Government	1217 Cottongin Rd.	Oberlin	30°37'30.81"N	92°44'38.65"W	$21,180.00	1985	Wood
x	Ward 2 Barn	Civil Government	203 South 10th Street	Kinder	30°28'50.50"N	92°50'49.43"W	$21,180.00	1975	Wood
x	Ward 3 Barn	Civil Government	108 South Lyles St.	Reeves	30°31'6.93"N	93° 2'44.00"W	$29,417.00	1985	Wood
x	Ward 4 Barn	Civil Government	110 Carol Hill Rd	Elizabeth	30°47'18.37"N	92°52'15.12"W	$29,417.00	2000	Wood
x	Ward 5 Barn	Civil Government	518 Hwy 1152	Oakdale	30°48'3.05"N	92°40'40.07"W	$35,300.00	1950	Wood
Elizabeth									
X	Town Hall	Town Hall	230 Poplar St	Elizabeth	30°51'53.73"N	92°47'43.75"W	$250,000.00	1905	Wood
X	Community Center	Elizabeth Community Center	210 Main St	Elizabeth	30°52'5.82"N	92°47'32.62"W	$150,000.00	1990	Metal
X	Fire Department	Elizabeth Fire Department	206 Main St	Elizabeth	30°52'5.82"N	92°47'32.62"W	$150,000.00	1990	Metal
Kinder									
X	Town Hall	Town Hall	807 3rd Ave	Kinder	30°29'12.34"N	92°51'1.68"W	$1,500,000.00	1990	Wood
X	Kinder Police Station	Kinder Police Station	807 3rd Ave	Kinder	30°29'7.60"N	92°50'59.65"W	$1,000,000.00	1990	Wood
X	Kinder fire station	Kinder fire station	808 2nd Ave	Kinder	30°29'2.90"N	92°50'56.79"W	$750,000.00	1995	Metal
X	kinder community center	kinder community center	333 8th St.	Kinder	30°29'10.35"N	92°50'59.32"W	$1,000,000.00	1985	Unreinforced Masonry

Oakdale									
Yes	Oakdale City Hall	Municipality Building	333 East 6th Ave	Oakdale					
Yes	Oakdale Police Department	Police Dept. / Emergency Services	152 South 10th St	Oakdale					
Yes	Oakdale Fire Department	Fire Dept./ Emergency Services	115 South 10th St	Oakdale					
Yes	Public Works Department	Building for Maintenance	428 River Road	Oakdale					
Yes	Sewage Treatment Plant	Sanitation Wastewater Sewage Facility	1724 La-10	Oakdale					
Yes	7th Ave Community Center	City Facility for Events/ Meetings	709 East 7th Ave	Oakdale					
Yes	Ballard Road Community Center	City Facility for Events/ Meetings	821 Hwy 372	Oakdale					
Yes	Mowad Civic Center	City Facility for Events/ Meetings	213 South 10th St	Oakdale					
Oberlin									
X	Oberlin Town Hall	Oberlin Town Hall	103 6th Ave	Oberlin	30°37'12.75"N	92°45'47.32"W	$750,000.00	1960	Unreinforced Masonry
X	Oberlin Police Station	Oberlin Police Station	103 6th Ave	Oberlin	30°37'12.75"N	92°45'47.32"W	$250,000.00	1960	Unreinforced Masonry
X	Oberlin City Barn	Oberlin City Barn	5ht Ave	Oberlin	30°37'5.45"N	92°45'55.32"W	$250,000.00	1960	Metal
Reeves									
X	Reeves Town Hall	Town Hall	18370 US-190	Reeves	30°31'11.04"N	93° 2'57.24"W	$200,000.00	1995	Metal
X	Reeves Police Station	Reeves Police Station	Hwy 190	Reeves	30°31'11.00"N	93° 2'46.22"W			

Vulnerable Populations

Vulnerable Populations Worksheet

Allen Parish

Name	Street	City	Zip Code	Latitude	Longitude
All Hospitals (Private or Public)					
Oakdale Community Hospital (Private)	130 North Hospital Drive	Oakdale	71463		
Allen Parish Hospital	108 6th Ave	Kinder	70648		
Nursing Homes (Private or Public)					
Kinder Retirement and Rehab Center	13938 US 165	Kinder	70648	30°29'52.96"N	92°50'29.16"W
Allen Oaks Nursing Home	909 East 6th Avenue	Oakdale	71463		
St. Frances Nursing Home	417 Industrial Dr.	Oberlin	70655	30°37'37.44"N	92°46'29.01"W
Mobile Home Parks					
Oaklin Springs Mobile Home Park	8308 Hwy 26	Oberlin	70655		
Grandview Mobile Home Park	115 Highland Dr.	Kinder	70648		
LeBlanc Mobile Home Park	15375 Hwy 190	LeBlanc	70651		

National Flood Insurance Program (NFIP)

Allen Parish

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

Jurisdiction: Allen Parish

	Allen Parish	Elizabeth	Kinder	Oakdale	Oberlin	Reeves
Insurance Summary						
How many NFIP polices are in the community? What is the total premium and coverage?	205; $116,160; $28,475,900	7; $3,079; $298,500	44; $25,534; $7,817,200	79; $46,561; $13,532,300	16; $6,580; $3,169,700	0; $0; $0
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?	126; $1,270,667	0; 0	41; $517,715	217; $2,283,485	20; $149,284	0; $0
How many structures are exposed to flood risk with in the community?	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Describe any areas of flood risk with limited NFIP policy coverage.	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Staff Resources						
Is the Community FPA or NFIP Coordinator certified?	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Is flood plain management an auxiliary function?	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability)	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
What are the barriers to running an effective NFIP program in the community, if any?	Staffing; Funding	Staffing; Funding	Staffing; Funding	Staffing; Funding	Staffing; Funding	Staffing; Funding
Compliance History						
Is the community in good standing with the NFIP?	Yes	Yes	Yes	Yes	Yes	Yes

Are there any outstanding compliance issues(i.e., current violations)?	No	No	No	No	No	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact(CAC)?	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Is a CAV or CAC scheduled or needed? If so when?	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Regulation						
When did the community enter the NFIP?	1/3/1990	2/1/1987	11/1/1985	8/5/1985	10/12/1982	3/17/2011
Are the FIRMs digital or paper?	Both	Both	Both	Both	Both	Both
Do floodplain development regulations meet or exceed FEMA or State minimum requirements? If so, in what ways?	Yes	Yes	Yes	Yes	Yes	Yes
Community Rating System (CRS)						
Does the community participate in CRS?	No	No	No	No	No	No
What is the community's CRS Class Ranking?	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