WINN

PARISH HAZARD MITIGATION UPDATE – 2016

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WINN PARISH

HAZARD MITIGATION PLAN UPDATE

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Winn Parish

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This 2016 Winn Parish Hazard Mitigation Plan Update was coordinated by the Winn 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:

Winn Parish
Village of Atlanta
Village of Calvin
Village of Dodson
Village of Sikes
City of Winnfield

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1. Introduction

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

In that regard, this plan (a) documents the Winn 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 Winn 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 Winn Parish Hazard Mitigation Plan is a multi-jurisdictional plan that includes the following jurisdictions which participated in the planning process:

- Unincorporated Winn Parish
- Village of Atlanta
- Village of Calvin
- Village of Dodson
- Village of Sikes
- City of Winnfield

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 Winn 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

Winn Parish is located in north-central Louisiana, approximately 45 miles north of Alexandria and approximately 60 miles southeast of Shreveport. The parish is surrounded by Grant Parish to the south, Natchitoches Parish to the east, Bienville Parish and Jackson Parish to the north, Caldwell Parish and LaSalle Parish to the west. Winn Parish extends 30 miles north to south, and approximately 40 miles east to west. The Red River forms the boundary of the parish for a few miles in the far southwest corner. Saline Bayou and Saline River also form a large portion of the western border of the parish. The Dugdemona River flows diagonally through the parish, starting in the northwest corner and slowing down toward the southeast corner

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

Major highways in the parish include U.S. Highways 71, 84, and 167, State Highways 34, 126, 156, 499, 505, and 1232. Out of these highways, U.S. Highway, U.S. 84, U.S. 167, and LA 34 are designated as State Emergency Evacuation Routes. The parish also has access to both Interstates 20 and 49.

The David G. Joyce Airport is also located in Winn Parish. The airport is located along U.S. 167 near Winnfield. The nearest commercial airport is the Alexandria-Esler Regional Airport, which is located approximately 50 miles from the parish.

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

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

Figure 1-2: Louisiana Homeland Security Regions

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

	2010 Census	2014 Census	Current Year (If Available)	Percent Change 2010 - 2014
Total Population	15,313	14,743	____	-3.70%
Population Density (Pop/Sq. Mi.)	16.1	____	____	____
Total Households	7,234	7,232	____	____

Economy

A hard-working labor force, abundant raw materials, location near a corridor of significant industrial activity, and land for commercial and industrial development make Winn Parish an ideal prospect for business investment. Forestry is a leading industry and of extreme importance to the welfare of Winn Parish. Other elements of the Winn Parish economy include mineral production, petroleum refining, chemical and petrochemical manufacturing, and agriculture and food processing. Industry data for business patterns in Winn Parish can be found in the table on the next page.

Table 1-2: Business Patterns in Winn 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	523	47	12,064
Manufacturing	728	15	34,175
Health Care and Social Assistance	500-999	38	28,519
Mining, Quarrying, Oil and Gas Extraction	55	9	2,977
Transportation and Warehousing	87	11	3,025
Construction	250-499	12	___
Administration and Support and Waste Management and Remediation Services	250-499	6	___
Real Estate and Rental and Leasing	20-99	8	___
Wholesale Trade	122	11	4,188
Other Services (except Public Administration)	250-499	33	___
Accommodation and Food Services	233	18	2,464
Financial and Insurance	132	24	3,898
Professional, Scientific, and Technical Services	52	22	1,723
Information	0-19	3	___
Educational Services	0-19	1	___
Arts, Entertainment, and Recreation	0-19	2	___
Management of Companies and Enterprises	20-99	1	___
Agriculture, Forestry, Fishing and Hunting	297	30	14,390
Utilities	0-19	4	71

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

- **Hazard Mitigation**—described by FEMA and the Disaster Mitigation Act of 2000 (DMA 2000) as "any sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event." The goal of mitigation is to save lives and reduce property damage. Besides significantly aiding in the obviously desirous goal of saving human lives, mitigation can reduce the enormous cost of disasters to property owners and all levels of government. In addition, mitigation can protect critical community facilities and minimize community disruption, helping communities return to usual daily living in the aftermath of disaster. Examples of mitigation involve a range of activities and

actions including the following: land-use planning, adoption and enforcement of building codes, and construction projects (e.g., flood proofing homes through elevation, or acquisition or relocation away from floodplains).

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

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

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

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

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

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

General Strategy

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

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

The 2016 Winn 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 Winn Hazard Mitigation Plan were as follows:

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

2016 Plan Update

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

- Identify and pursue preventative measures that will reduce future damages to assets and risk to population from natural hazards
- Enhance public awareness and understanding of disaster preparedness and mitigation
- Promote economic stability through the reduction of natural hazard impacts in the parish and municipalities
- Facilitate sound development in the parish and municipalities through integration of mitigation practices that reduce or eliminate the potential impact of hazards

This plan update makes a number of textual changes throughout, but the most obvious changes are data related and structural edits. First, the Spatial Hazard Events and Losses Database for the United States (SHELDUS) was used as a data source for hazard identification because it incorporates all storm event data from the National Climatic Data Center (NCDC) Storm Events Database used in previous plans, as well as storm event data from other sources including the NOAA Storm Prediction Center, National Hurricane Center, and U.S. Fire Administration. Furthermore, all of the sections were updated to reflect the most current information and the most current vision of the plan update. Second, instead of eleven, separate sections for numerous tables, maps, and appendices, the present plan update has four sections and five appendices. The most significant changes are the newly developed hazard profiles and risk assessments, as well as the removal of repetition between sections from the previous plan updates. The 2016 plan update is organized generally as follows:

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

Table 1-4: Plan Crosswalk

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

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

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

2. Hazard Identification and Parish-Wide Risk Assessment

This section assesses the various hazard risks that Winn 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 Winn Parish Hazard Mitigation Plan published in 2011, as well as the hazards that were identified in the State's 2014 Hazard Mitigation Plan that were considered to be of high or medium risk for the parish by the state. Those hazards identified as high or medium risk by the state or previously identified as a risk by the parish, have been determined to provide a risk to the parish and will be profiled in this section.

Table 2-1: Hazard Profile Summary

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

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, along with sinkholes.

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

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

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

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

The potential destructive power of tropical cyclones and flooding were determined to be the most prevalent hazards to the parish. Nine of the eleven Presidential Declarations Winn Parish has received resulted from either tropical cyclones (4 declarations) or flooding (5 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 Winn Parish is included in the hurricane risk assessment.

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

Table 2-2: Winn Parish Major Disaster Declarations

Disaster Declaration Number	Date	Type of Disaster
675	1/11/1983	Severe Storms and Flooding
804	11/30/1987	Tornadoes and Flooding
829	5/20/1989	Severe Storms and Flooding
835	7/17/1989	Tropical Cyclone - Tropical Storm Allison
904	5/3/1991	Severe Storms, Tornadoes, and Flooding
1264	1/21/1999	Severe Ice Storm
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

Probability of Future Hazard Events

The probability of a hazard event occurring in Winn 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					
	Winn Parish (Unincorporated)	Atlanta	Calvin	Dodson	Sikes	Winnfield
Drought	4%	4%	4%	4%	4%	4%
Flooding	12%	24%	12%	4%	8%	36%
Thunderstorms (Hail)	100%	100%	100%	100%	100%	100%
Thunderstorms (Lightning)	<1%	<1%	<1%	<1%	<1%	<1%
Thunderstorms (Wind)	100%	100%	100%	100%	100%	100%
Tornadoes	52%	52%	52%	52%	52%	52%
Tropical Cyclones	12%	12%	12%	12%	12%	12%
Wildfires	4%	4%	4%	4%	4%	4%
Sinkholes	<1%	<1%	<1%	<1%	<1%	<1%

As shown in *Table 2-3*, thunderstorm winds and hail for the entire planning area have the highest annual chance of occurrence in the parish (100%), followed by tornadoes at 52%, and flooding for the incorporated area of Winnfield at 36%. Flood events in the remaining incorporated areas and unincorporated areas have a slightly lower chance of occurring annually. Tropical cyclones have a 12% annual chance of occurrence, followed by wildfires and drought (4%), and lightning and sinkholes (<1%).

Inventory of Assets for the Entire Parish

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

Within the entire planning area, there is an estimated value of $2,114,064,000 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 Winn Parish

Occupancy	Winn Parish	Unincorporated Winn Parish	Atlanta	Calvin
Agricultural	$7,528,000	$7,050,000	$0	$0
Commercial	$261,518,000	$99,069,000	$736,000	$908,000
Government	$16,147,000	$1,168,000	$338,000	$0
Industrial	$100,809,000	$81,529,000	$1,773,000	$304,000
Religion	$94,598,000	$57,368,000	$608,000	$0
Residential	$1,617,780,000	$1,046,793,000	$18,458,000	$25,544,000
Education	$15,684,000	$4,170,000	$0	$894,000
Total	$2,114,064,000	$1,297,147,000	$21,913,000	$27,650,000

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

Occupancy	Dodson	Sikes	Winnfield
Agricultural	$0	$0	$478,000
Commercial	$3,954,000	$1,016,000	$155,835,000
Government	$844,000	$508,000	$13,289,000
Industrial	$3,160,000	$313,000	$13,730,000
Religion	$2,520,000	$606,000	$33,496,000
Residential	$33,429,000	$13,838,000	$479,718,000
Education	$0	$0	$10,620,000
Total	$43,907,000	$16,281,000	$707,166,000

Essential Facilities of the Parish

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

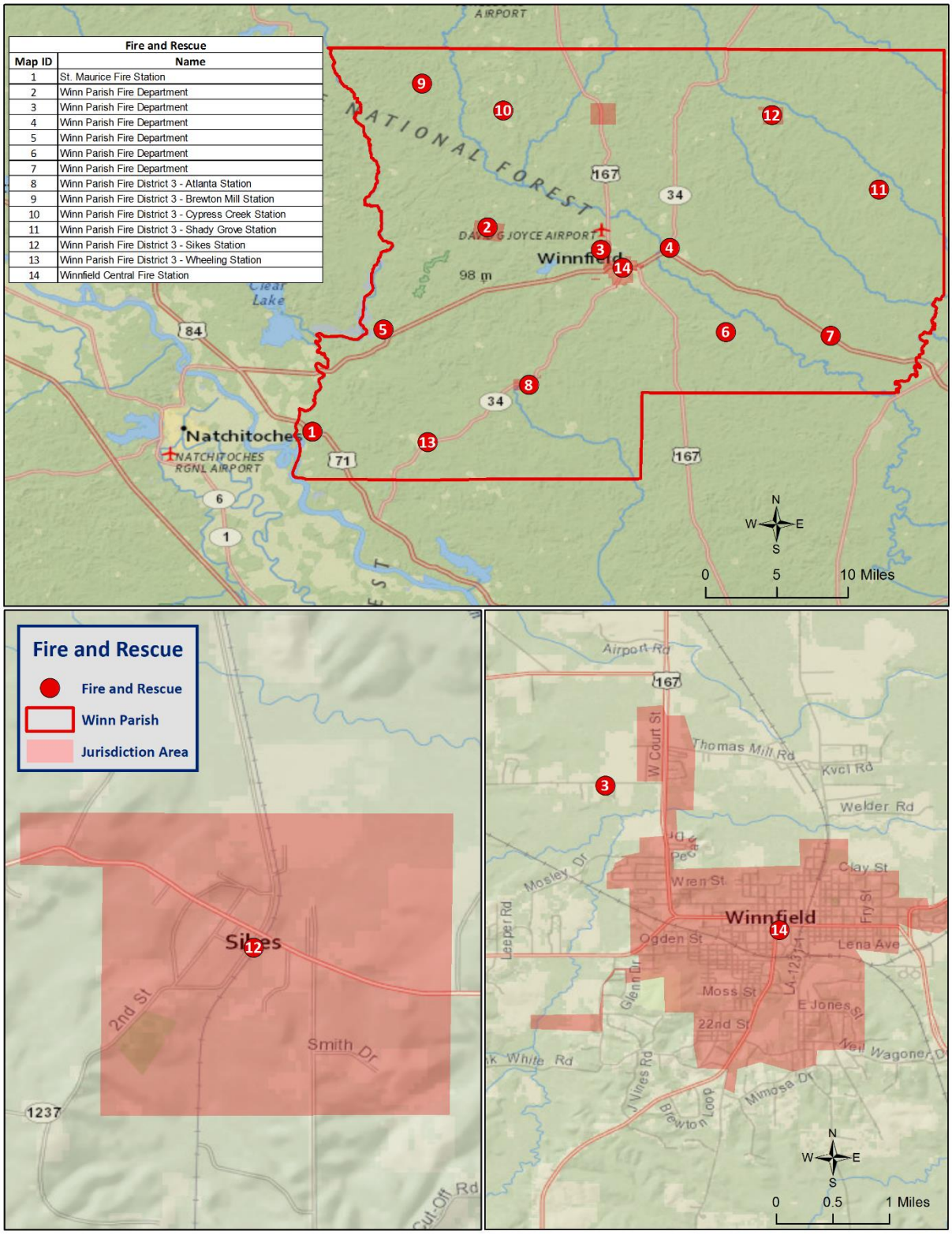

Figure 2-1: Fire and Rescue Buildings in Winn Parish

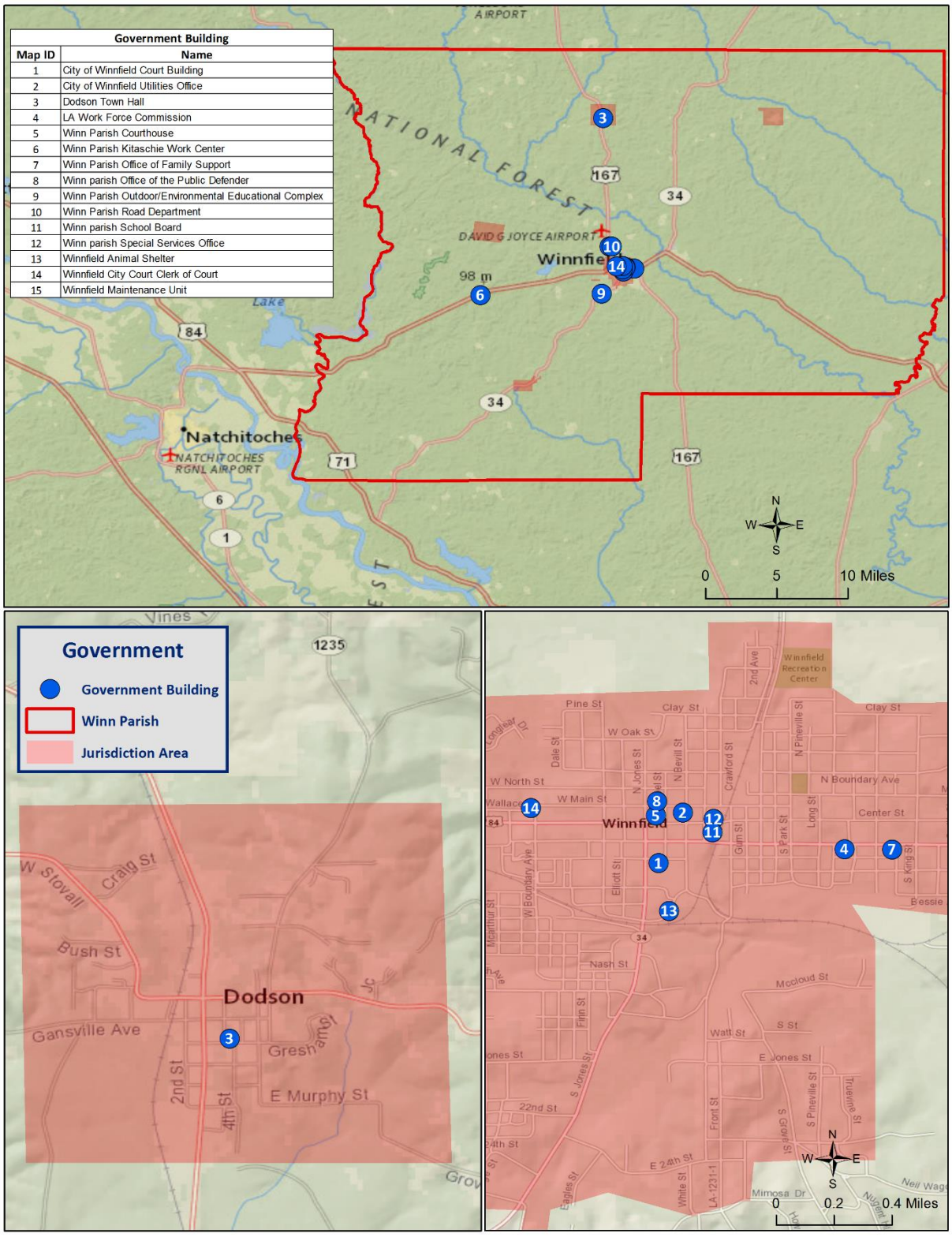

Figure 2-2: Government Buildings in Winn Parish

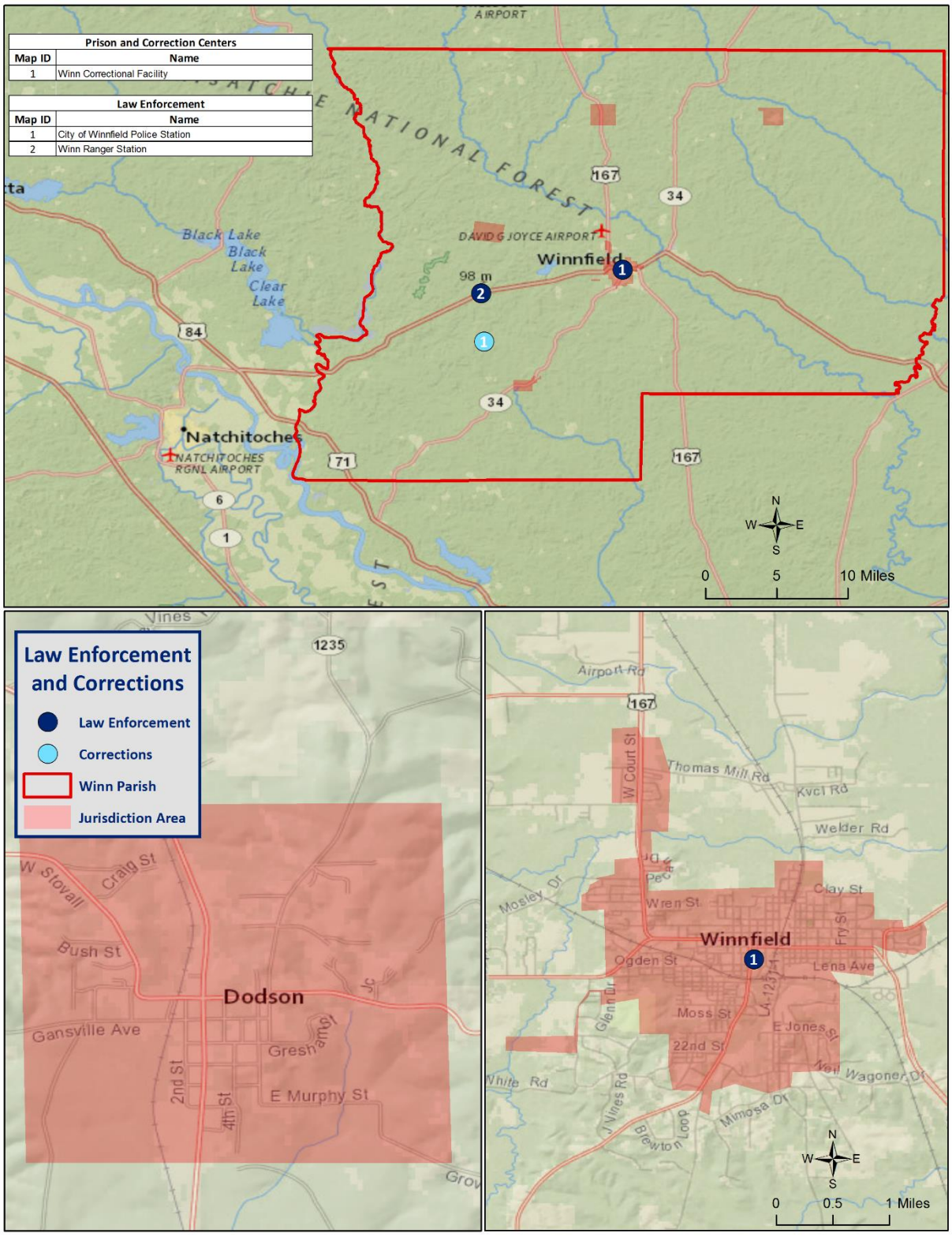

Figure 2-3: Law Enforcement and Corrections in Winn Parish

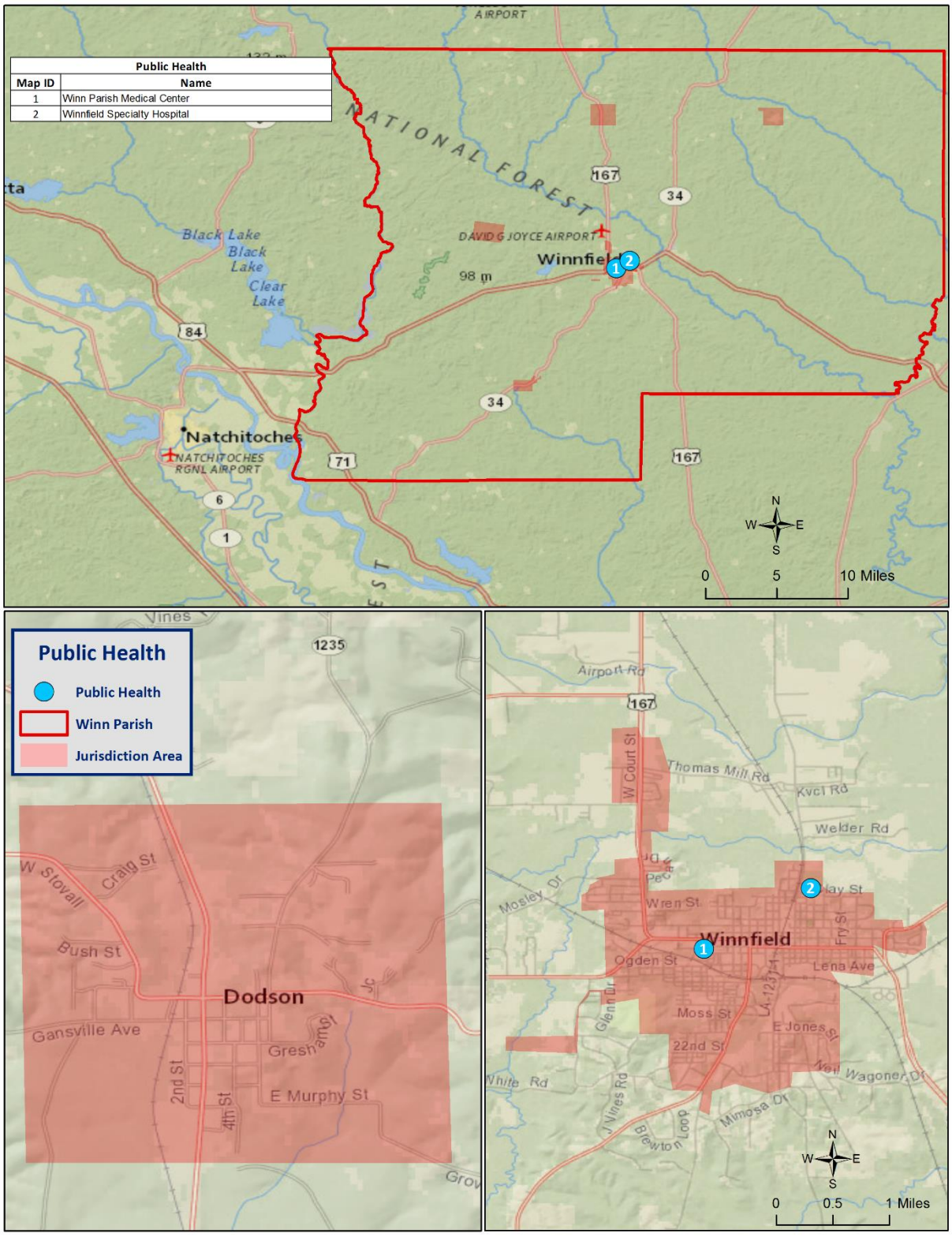

Figure 2-4: Public Health Facilities in Winn Parish

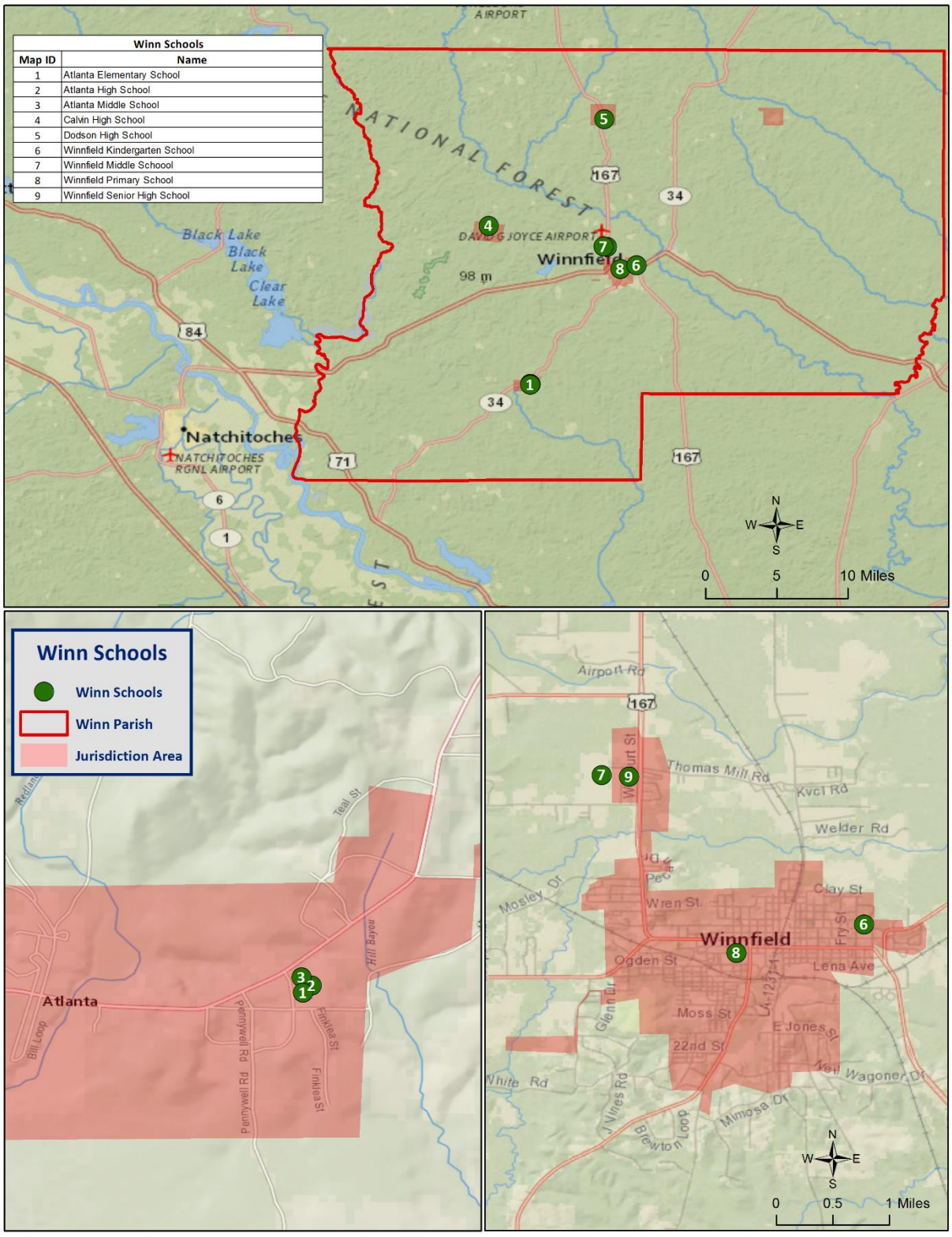

Figure 2-5: School Buildings in Winn Parish

Future Development Trends

Winn Parish experienced a decline in population and housing between the years of 2000 and 2014, falling from a population of 16,816 with 7,502 housing units in 2000 to a population of 14,743 with 7,221 housing units in 2014. This decline was largely in the incorporated areas of Sikes and Atlanta from the years 2000 to 2010, and in the incorporated areas of Atlanta, Sikes, and Winnfield 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 2013:

Table 2-5: Population Growth Rate for Winn Parish

Total Population	Winn Parish	Winn Parish (Unincorporated)	Atlanta	Calvin	Dodson	Sikes	Winnfield
1-Apr-00	16,816	10,230	194	233	357	142	5,660
1-Apr-10	15,287	9,601	163	237	336	119	4,831
1-Jul-14	14,743	9,293	156	228	323	114	4,629
Population Growth between 2000 – 2010	-9.1%	-6.1%	-16.0%	1.7%	-5.9%	-16.2%	-14.6%
Average Annual Growth Rate between 2000 – 2010	-0.9%	-0.6%	-1.6%	0.2%	-0.6%	-1.6%	-1.5%
Population Growth between 2010 – 2014	-3.6%	-3.2%	-4.3%	-3.8%	-3.9%	-4.2%	-4.2%
Average Annual Growth Rate between 2010 – 2014	-0.89%	-0.80%	-1.07%	-0.95%	-0.97%	-1.05%	-1.05%

Table 2-6: Housing Growth Rate for Winn Parish

Total Housing Units	Winn Parish	Winn Parish (Unincorporated)	Atlanta	Calvin	Dodson	Sikes	Winnfield
1-Apr-00	7,502	4,526	80	111	167	64	2,554
1-Apr-10	7,234	4,458	88	119	173	68	2,328
1-Jul-14	7,221	4,368	69	100	153	61	2,470
Housing Growth between 2000 – 2010	-3.6%	-1.5%	10.0%	7.2%	3.6%	6.3%	-8.8%
Average Annual Growth Rate between 2000 – 2010	-0.4%	-0.2%	1.0%	0.7%	0.4%	0.6%	-0.9%
Housing Growth between 2010 – 2014	-0.2%	-2.0%	-21.6%	-16.0%	-11.6%	-10.3%	6.1%
Average Annual Growth Rate between 2010 – 2014	-0.0%	-0.5%	-5.4%	-4.0%	-2.9%	-2.6%	1.5%

As shown in previous tables, Winn Parish has experienced a decline in both population and housing units. Housing growth rates fell at -0.4% annually from 2000 to 2010, and at less than -0.1% annually from 2010 to 2014. Population growth rates for the parish were slightly lower at -0.9% annually from 2000 to 2010, and -0.89% annually from 2010 to 2014. From 2000 to 2010, the incorporated area of Sikes had the largest decrease in population overall at -16.2%, followed by the incorporated area of Atlanta at -16%. The incorporated area of Atlanta had the largest decrease in population at -4.3% from 2010 to 2014, followed by the incorporated areas of Sikes and Winnfield at -4.2%.

The incorporated area of Winnfield experienced the largest decline in housing units from 2000 to 2010 at -8.8%, followed by the unincorporated areas of Winn Parish at -1.5%. The incorporated area of Atlanta had the largest increase in housing units during this time period at 10%. From 2010 to 2014, the incorporated area of Atlanta had the largest decline in housing units at -21.6%, followed by the incorporated area of Calvin at -16%.

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 Winn 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	83,315	43,243	44,075	45,095
Value of Structures	$18,873,357,192	$9,795,899,771	$10,504,055,187	$11,421,737,877
# of People	193,782	100,579	101,242	102,043
Tropical Cyclone				
Structures	7,222	7,222	7,225	7,228
Value of Structures	$2,135,841,016	$2,135,841,016	$2,248,137,550	$2,342,211,157
# of People	14,744	14,744	14,752	14,758

Land Use

The Winn Parish Land Use table is provided below. Residential, commercial, and industrial areas account for only 4% of the parish's land use. Forested land is the largest category at 399,214 acres, accounting for 65% of parish land. At 195,771 acres, wetlands account for 16% of parish lands, while 88,948 acres of forested areas account for 15% of parish lands. The parish also consists of 5,962 acres of water areas, accounting for 1% of all parish lands.

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

Land Use	Acres	Percentage
Agricultural Land, Cropland, and Pasture	88,948	15%
Wetlands	95,771	16%
Forest Land (not including forested wetlands)	399,214	65%
Urban/Development	22,977	4%
Water	5,962	1%

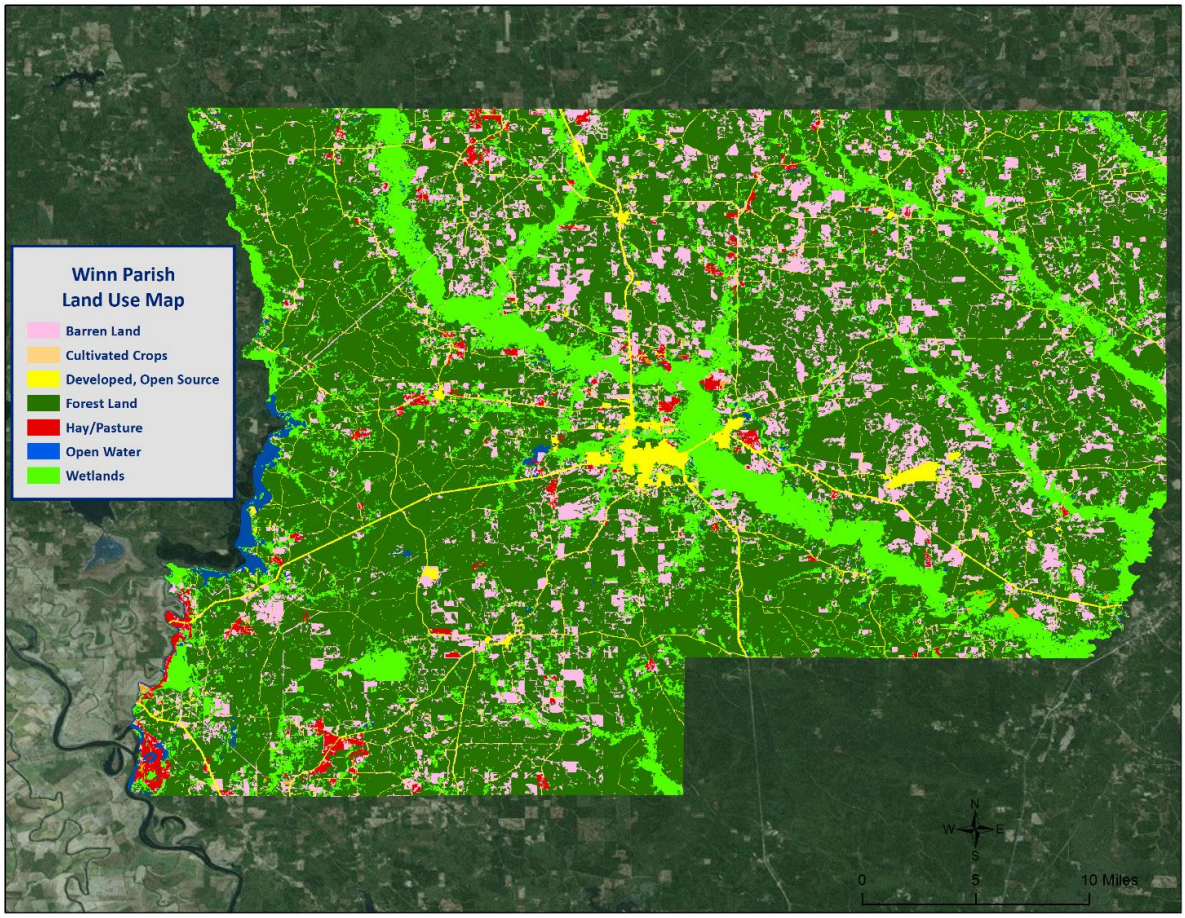

Figure 2-6: Winn Parish Land Use Map
(Source: USGS Land Use Map)

Hazard Identification

Drought

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

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

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

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

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

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

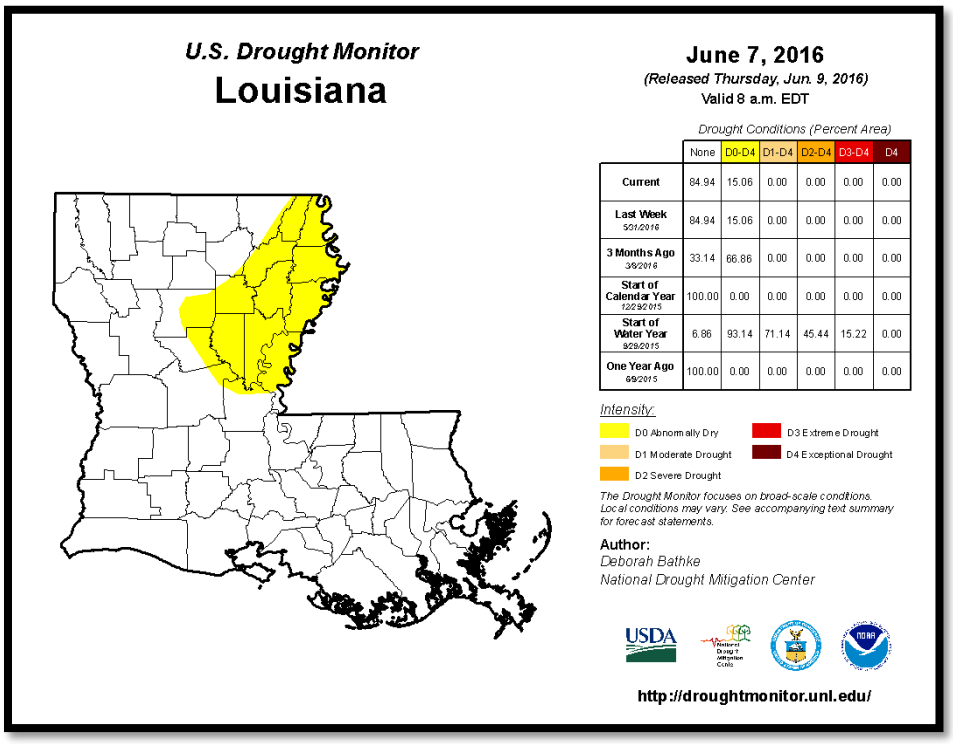

Figure 2-7: United States Drought Monitor for the State of Louisiana and its Parishes (Source: The National Drought Mitigation Center)

Location

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

Previous Occurrences / Extents

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

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

Date	Crop Damage	Palmer Classification
June 1998	$1,281,497	Severe Drought

Frequency / Probability

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

Estimated Potential Losses

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

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

Agricultural Exposure by Type for Drought						
Forestry	Blueberries	Soybeans	Irish Potatoes	Tomatoes	Watermelon	Total
$9,347,963	$3,526,038	$394,588	$143,044	$11,135,000	$85,566	$24,632,199

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

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 2-8*.

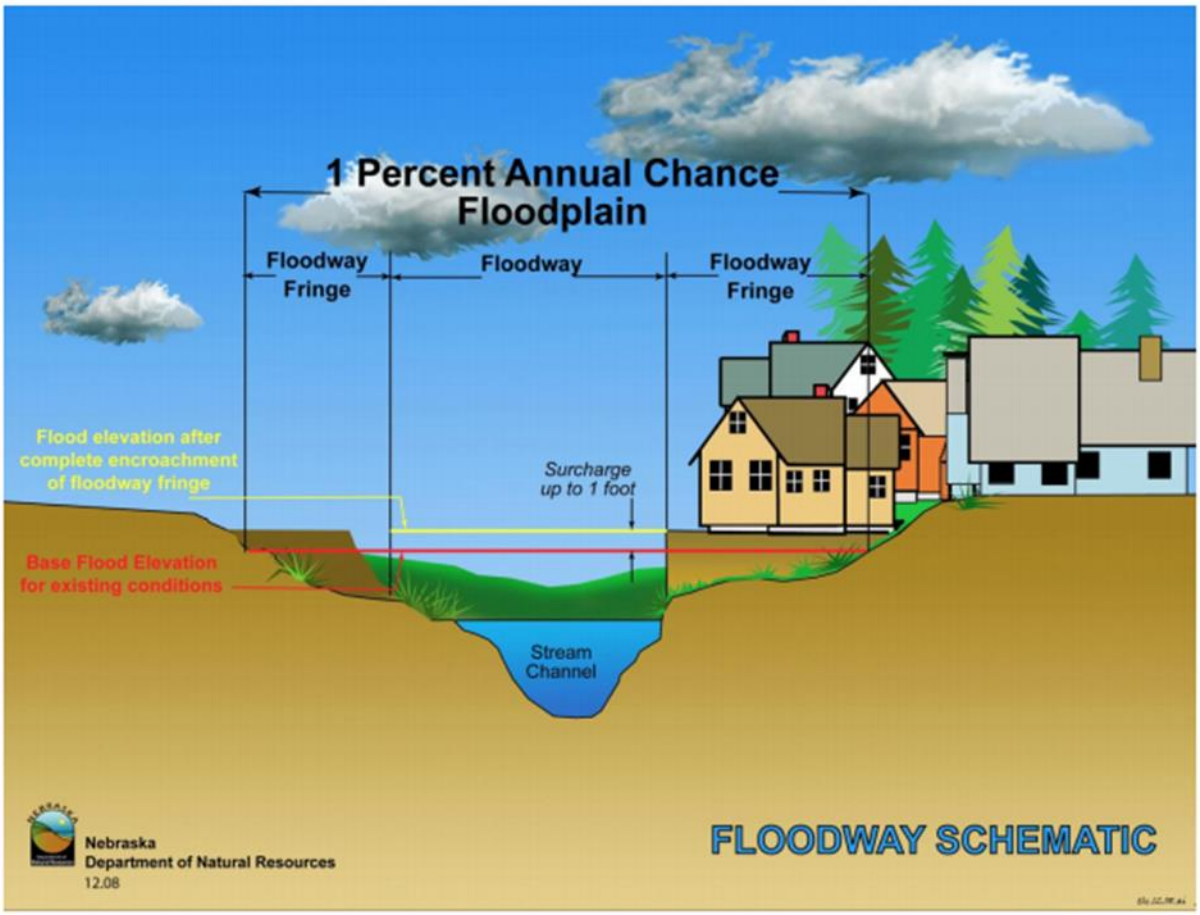

Figure 2-8: Schematic of 100-Year Floodplain. The Special Flood Hazard Area (SFHA) extends to the end of the floodway fringe.
(Source: Nebraska Department of Natural Resources)

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

Property Damage

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

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

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

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

Repetitive Loss Properties

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

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

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

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

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

Table 2-12: Repetitive Loss Structures for Winn Parish

Jurisdiction	Number of Structures	Residential	Commercial	Government	Total Claims	Total Claims Paid	Average Claim Paid
Winn Parish (Unincorporated)	12	12	0	0	32	$521,510	$16,297
Atlanta	0	0	0	0	0	$0	$0
Calvin	0	0	0	0	0	$0	$0
Dodson	0	0	0	0	0	$0	$0
Sikes	0	0	0	0	0	$0	$0
Winnfield	4	4	0	0	10	$103,716	$10,372
Total	16	16	0	0	42	$625,226	$26,669

Of the 16 repetitive loss structures, five were able to be geocoded in order to provide an overview of where the repetitive loss structures were located throughout the parish. *Figure 2-9* shows the approximate location of the 16 structures, while *Figure 2-10* shows where the highest concentration of repetitive loss structures are located. Through the repetitive loss map, it is clear that the primary concentrated area of repetitive loss structures is focused in and around the incorporated area of Winnfield.

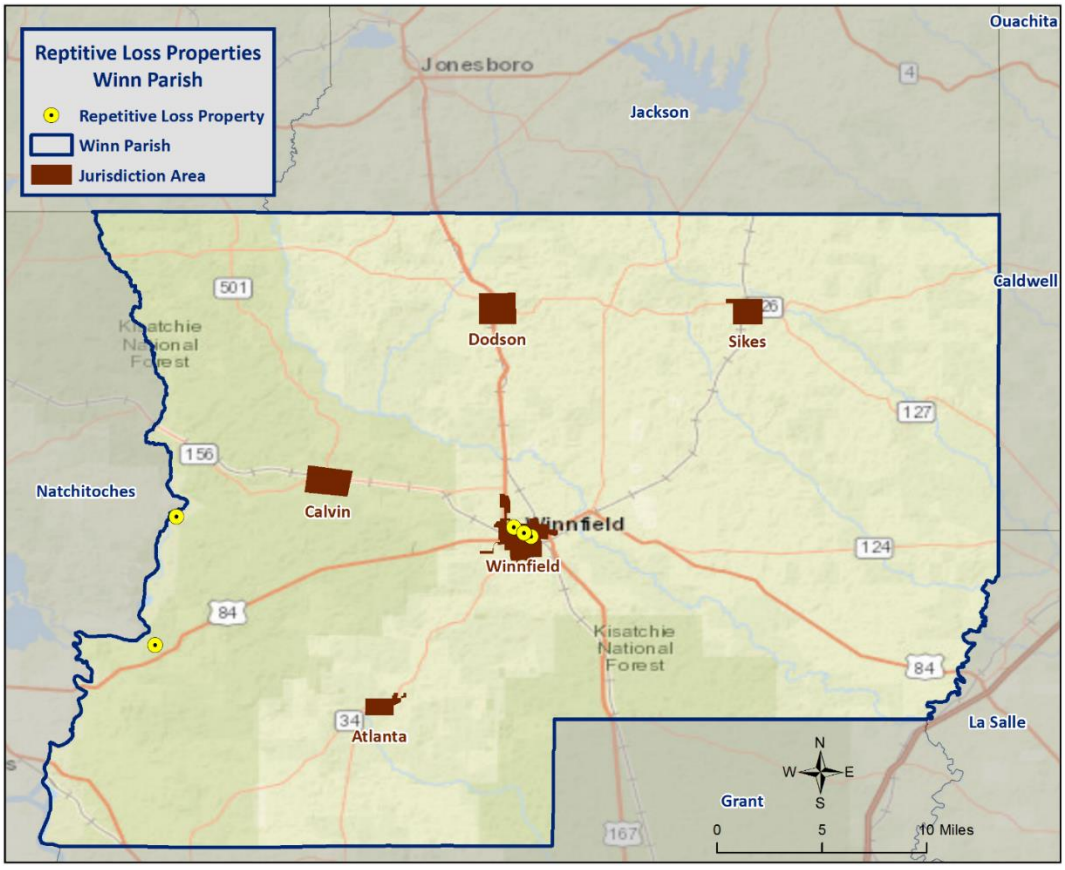

Figure 2-9: Repetitive Loss Properties in Winn Parish

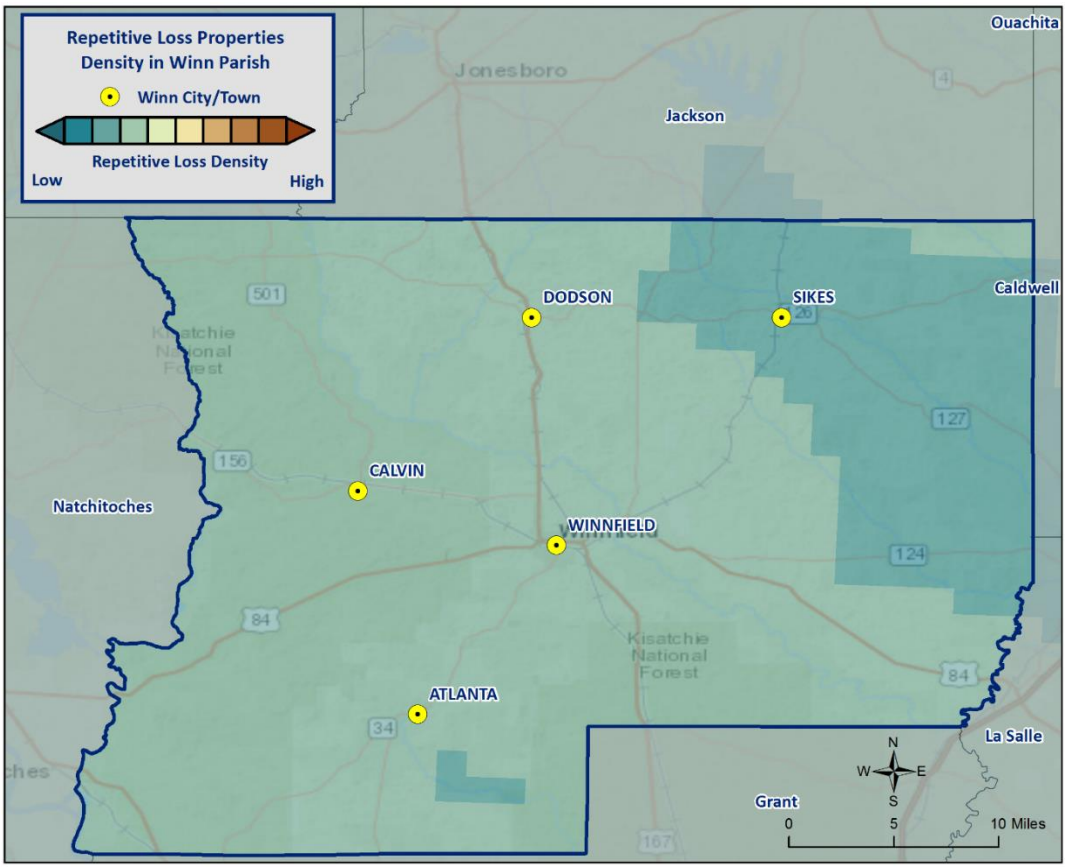

Figure 2-10: Repetitive Loss Property Densities in Winn Parish

National Flood Insurance Program

Flood insurance statistics indicate that Winn Parish has 54 flood insurance policies with the NFIP, with total annual premiums of $33,043. Winn Parish and the incorporated areas of Calvin and Winnfield participate in the NFIP. Atlanta, Dodson, and Sikes are not participants in the NFIP. Winn 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 Winn Parish are provided in the tables to follow.

Winn 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 manager for Winnfield will continue to seek and attend floodplain management and NFIP continuing education.

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

Location	No. of Insured Structures	Total Insurance Coverage Value	Annual Premiums Paid	No. of Insurance Claims Filed Since 1978	Total Loss Payments
Winn Parish (Unincorporated)	40	$4,834,800	$23,533	101	$1,044,058
Atlanta	0	$0	$0	0	$0
Calvin	0	$0	$0	3	$55,874
Dodson	0	$0	$0	0	$0
Sikes	0	$0	$0	0	$0
Winnfield	14	$2,214,100	$9,510	29	$186,428
Total	54	$7,048,900	$33,043	133	$1,286,360

*While the incorporated jurisdictions of Atlanta, Dodson, and Sikes do not participate in the NFIP, and the jurisdiction of Calvin does not have any active NFIP policies, the jurisdictions will continue to promote NFIP participation through education and outreach.

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

CID	Community Name	Initial FHBM Identified	Initial FIRM Identified	Current Effective Map Date	Date Joined the NFIP	Tribal
220369 #	Winn Parish	6/5/1985	7/24/1989	07/24/89(L)	7/24/1989	No
-	Atlanta	-	-	-	Not in NFIP	-
220266	Calvin	8/29/1975	7/1/1987	07/01/87(L)	7/1/1987	No
-	Dodson	-	-	-	Not in NFIP	-
-	Sikes	-	-	-	Not in NFIP	-
220247	Winnfield	11/16/1973	7/1/1987	07/01/87(L)	7/1/1987	No

According to the Community Rating System (CRS) list of eligible communities dated June 1, 2014, Winn Parish and the incorporated areas of Atlanta, Calvin, Dodson, Sikes, and Winnfield do not participate.

Threat to People

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

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

Flooding in Winn 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 Winn Parish experiences.

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

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

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

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

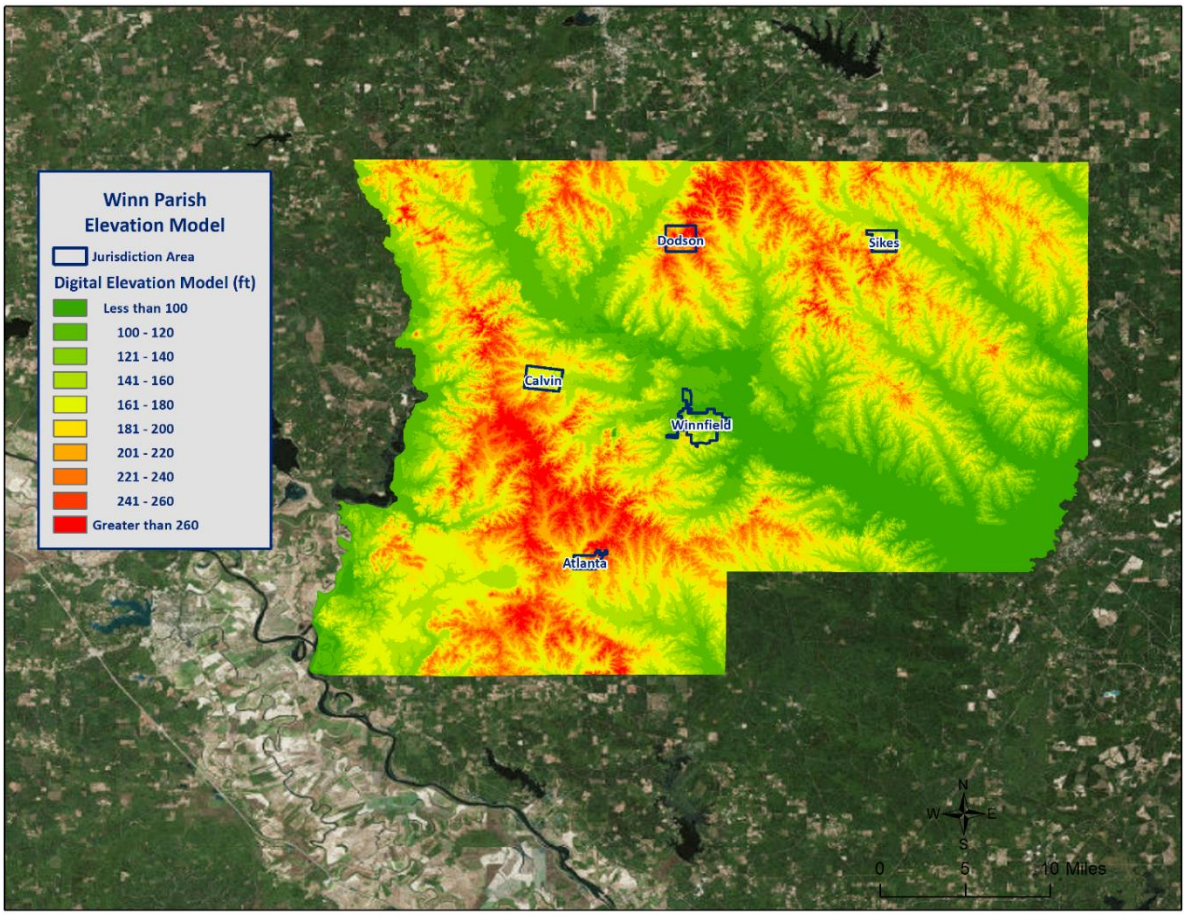

Figure 2-11: Elevation throughout Winn Parish

Looking at the digital elevation model (DEM) in the figure on the previous page for Winn Parish is instructive in visualizing where the low lying and high risk areas are for the parish. Elevations in the parish range from less than 10 feet to over 260 feet. The incorporated areas range in elevation from 128 feet to 259 feet, with Winnfield averaging 128 feet, Calvin and Sikes averaging 171 feet, Atlanta averaging 230 feet, and Dodson averaging 259 feet.

Location

Winn Parish has experienced significant flooding in its history and can expect more in the future. The Red River forms the boundary of the parish for a few miles in the southwest corner. Saline Bayou and Saline Lake forms the remainder of the western border of the parish. The Dudgemona River flows through the parish diagonally from the northwest to the southwest corner, dividing the parish into equal parts and feeding into numerous smaller bayous and drainage canals. Generally, these water and drainage bodies form and follow the 100-year floodplain, and generally drain the parish from north to south. While some jurisdictions within Winn Parish might not have SFHAs within their boundaries, recent events throughout the state have demonstrated that even areas outside of SFHAs can be susceptible to flooding. For example, the jurisdiction of Dodson does not have any flood hazard areas within its boundaries; however, localized street flooding can be expected in the area west of 1st Street and east of Blankenship Street, resulting in area streets becoming impassible by many vehicles.

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

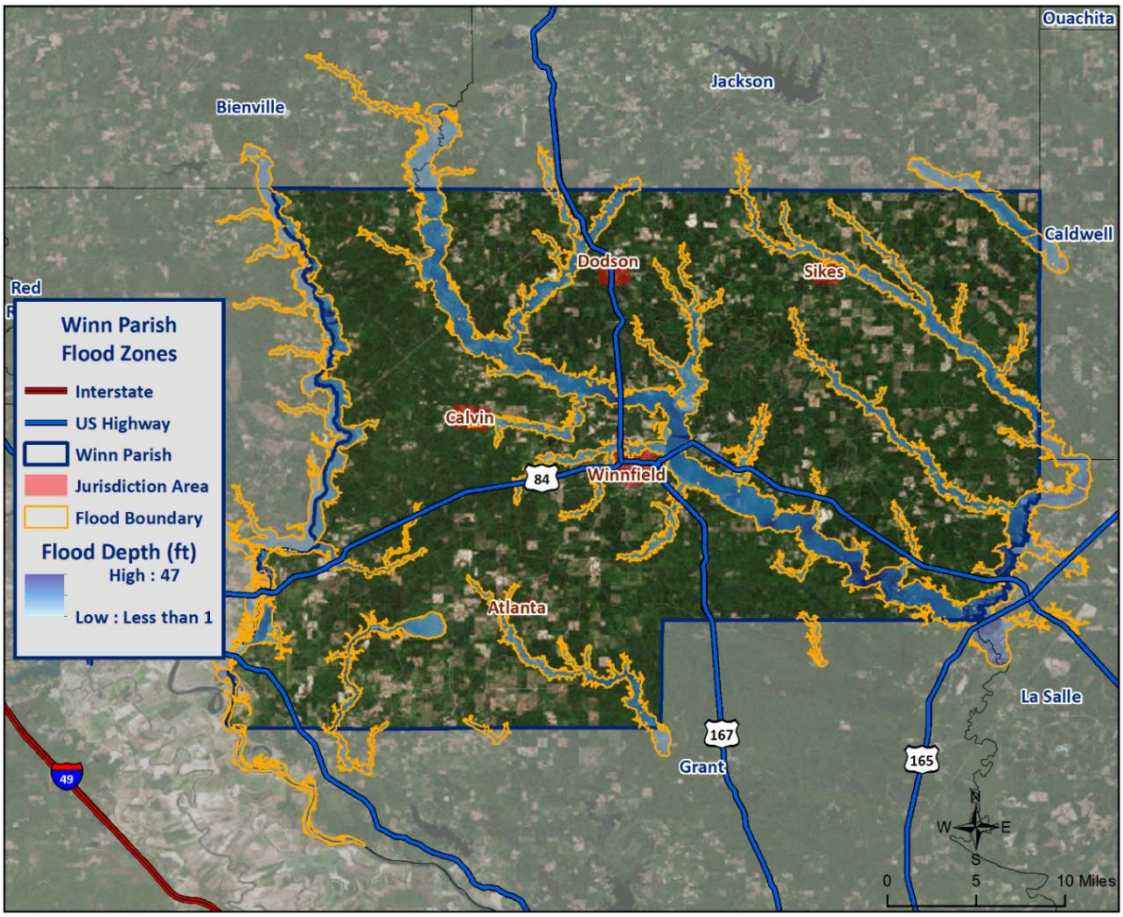

Figure 2-12: Winn Parish Areas within the Flood Zones

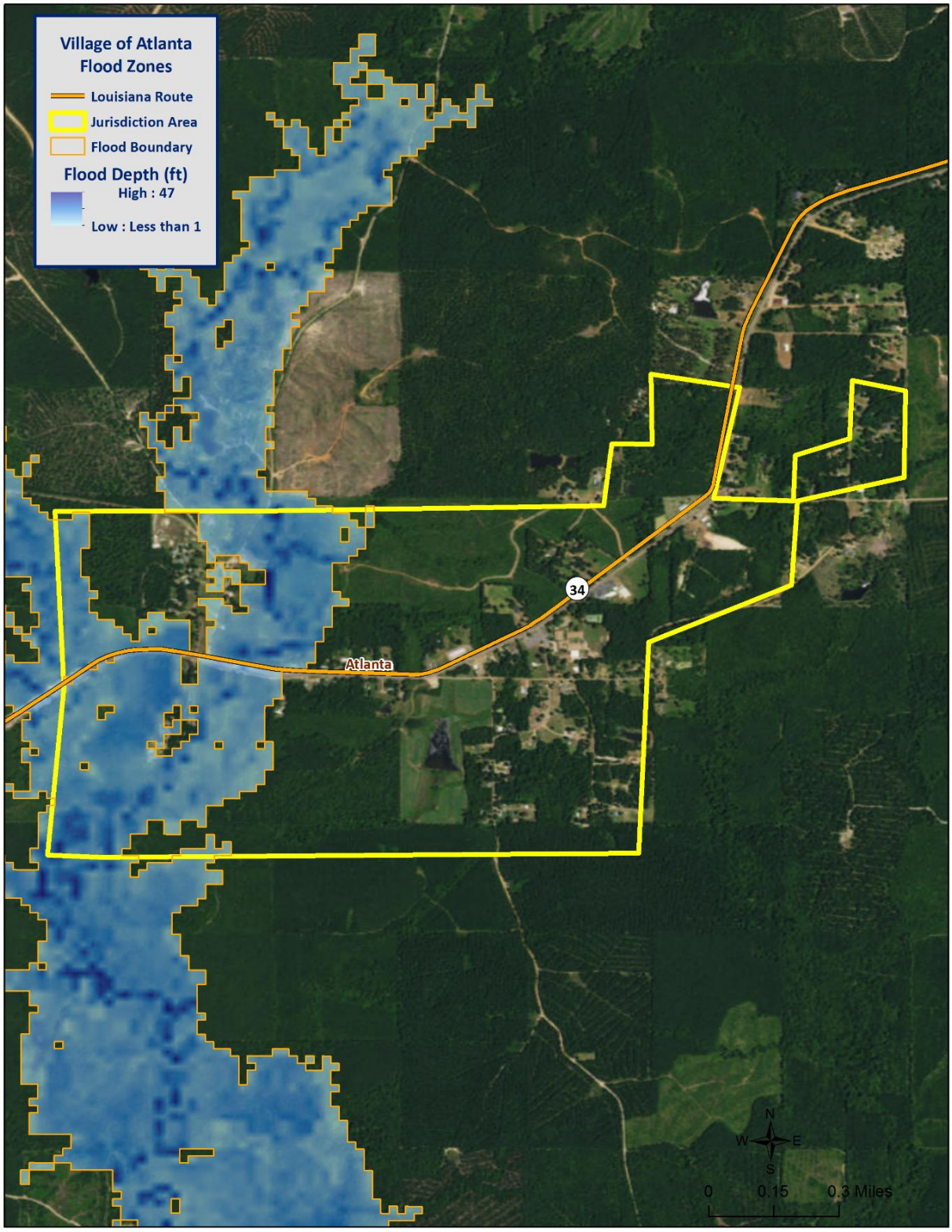

Figure 2-13: Village of Atlanta Areas within the Flood Zones

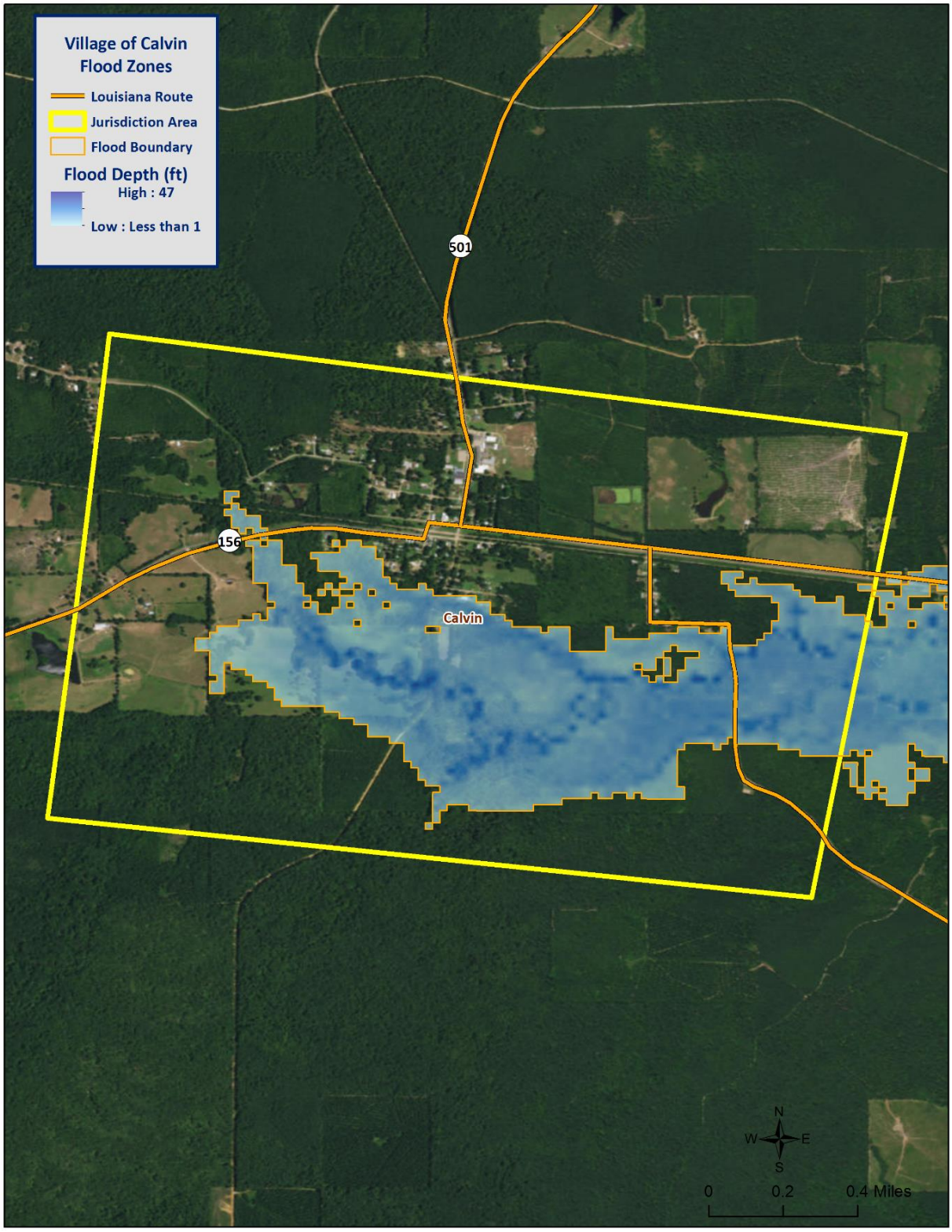

Figure 2-14: Village of Calvin Areas within the Flood Zones

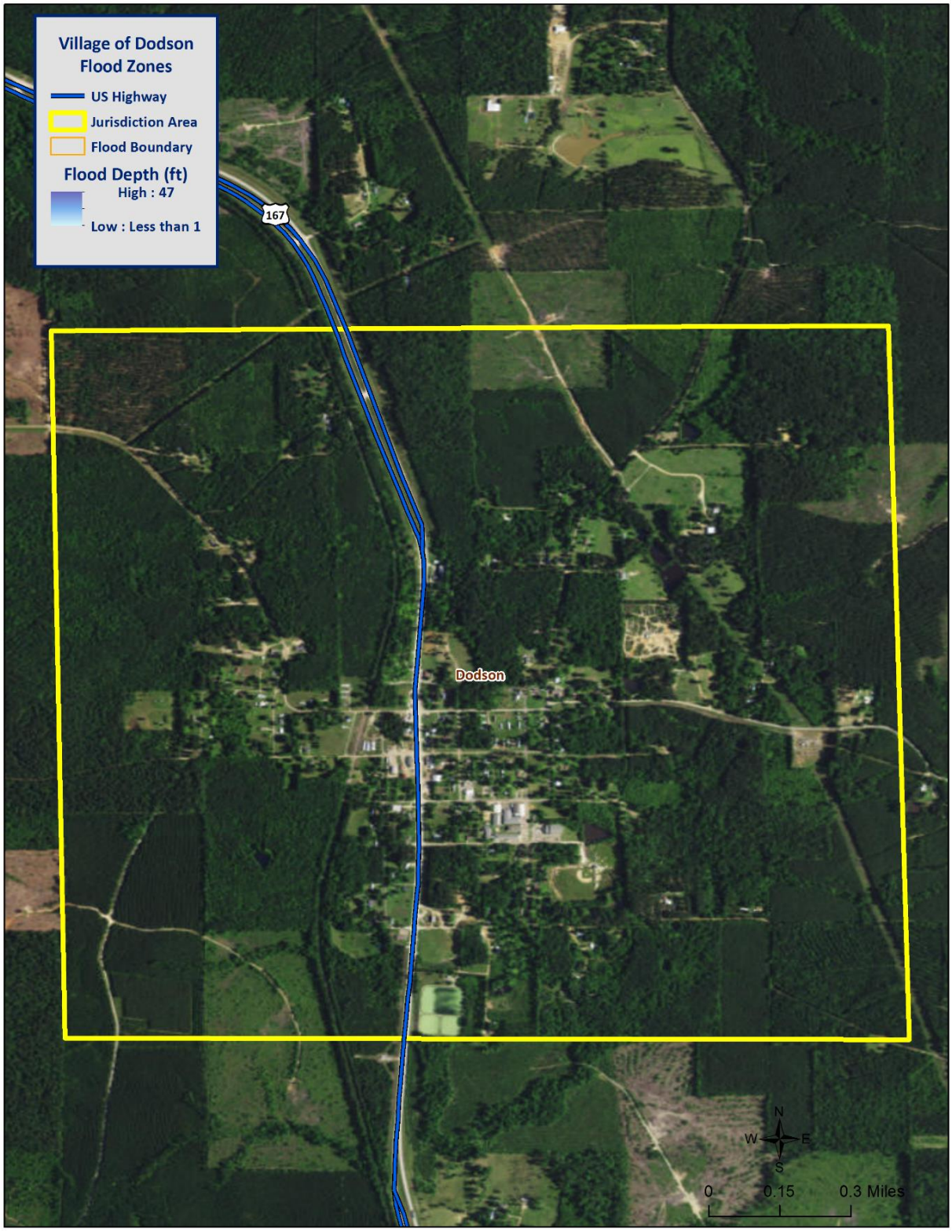

Figure 2-15: Village of Dodson Areas within the Flood Zones

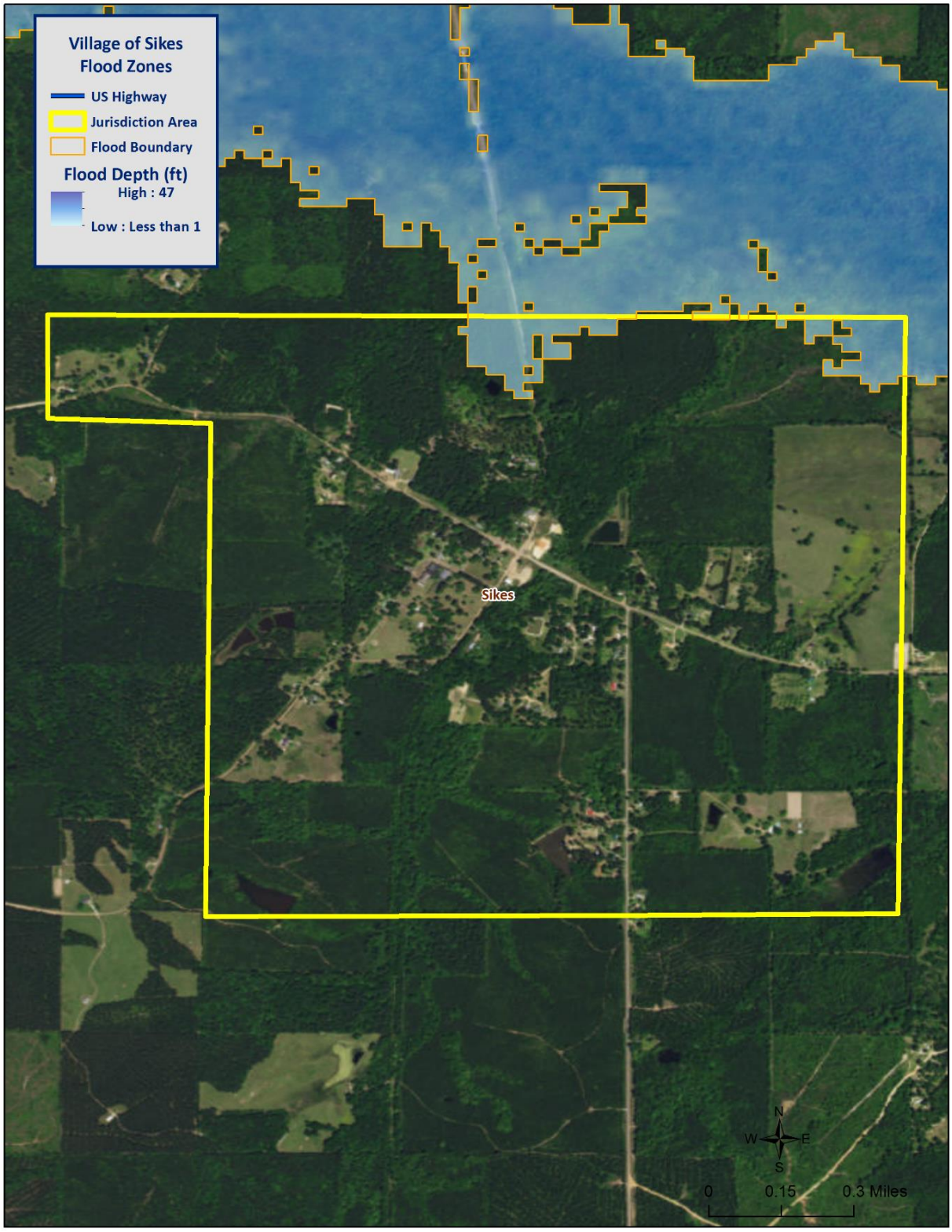

Figure 2-16: Village of Sikes Areas within the Flood Zones

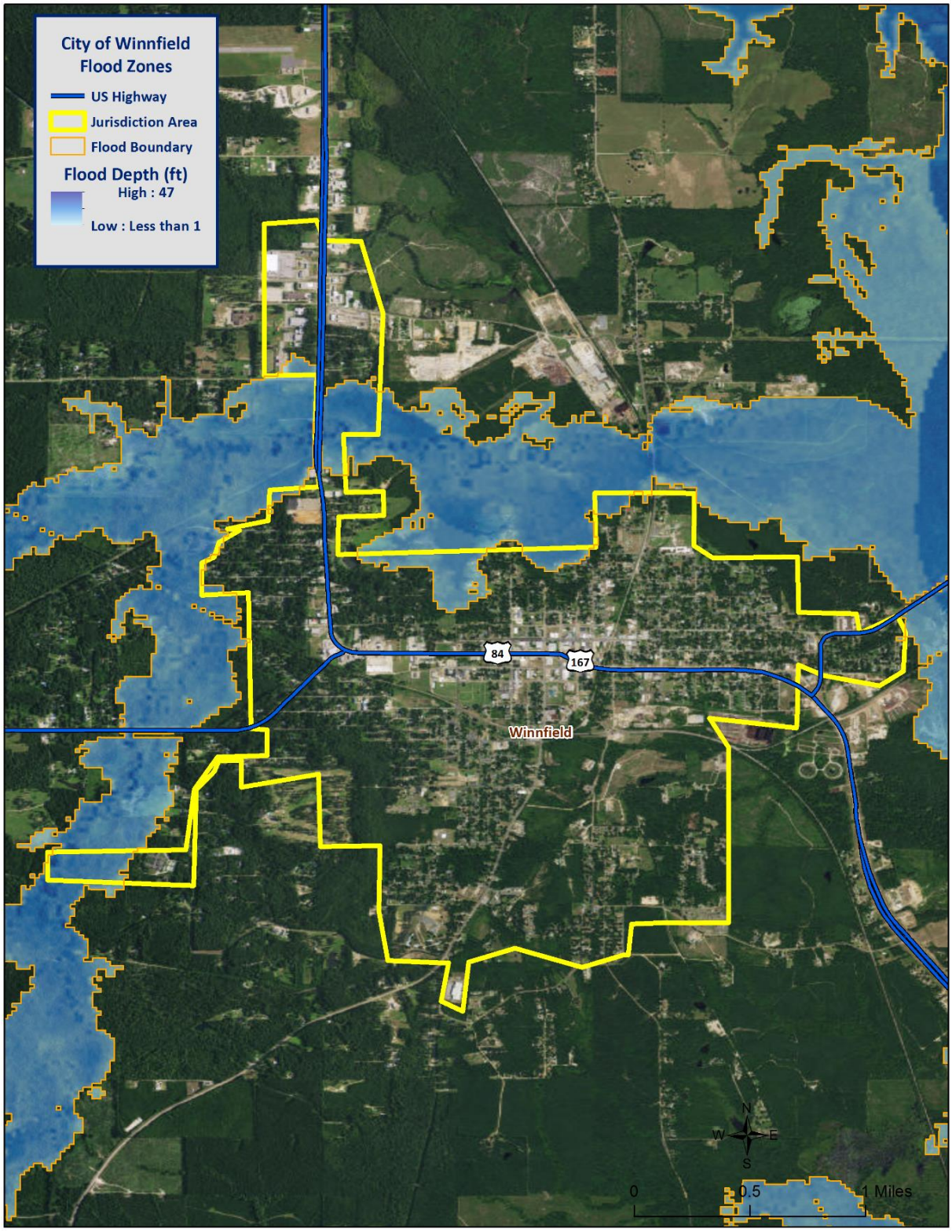

Figure 2-17: City of Winnfield Areas within the Flood Zones

Previous Occurrences / Extents

Historically, there have been 23 flooding events that have created significant flooding in Winn Parish between 1990 and 2015. Below is a brief synopsis of the 12 flooding events that have occurred since 2010, including flooding events that have occurred since the parish's last planning update.

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

Date	Extents	Type of Flooding	Estimated Damages	Location
March 20, 2012	High water covered Harrington Road off of Highway 1228. Numerous other roads were flooded as well.	Flash Flood	$0	ATLANTA
March 21, 2012	Two roads had to be barricaded and closed due to flash flooding.	Flash Flood	$0	WINNFIELD JOYCE ARPT
January 10, 2013	A stalled car was removed from high water on Garner Road near US Highway 84 west of Winnfield, LA.	Flash Flood	$3,000	CALVIN
January 10, 2013	A car was stalled out in high water on Thomas Mill Road just north of Winnfield, LA.	Flash Flood	$5,000	WINNFIELD JOYCE ARPT
June 6, 2013	Flood waters covered the roadway at the intersection of Highway 471 and Little Horseshoe Road.	Flash Flood	$0	ATLANTA
October 31, 2013	Several roads were closed throughout Winn Parish due to flash flooding including Highway 505 in the Gansville community, Highway 505 near Dodson, and also Highway 34 northeast of Winnfield, Louisiana.	Flash Flood	$0	TANNEHILL
April 7, 2014	Widespread flooding took place during the afternoon and evening hours. The flooding receded overnight.	Flood	$0	CALVIN
May 18, 2015	Excessive rainfall during the month of May resulted in very high river levels on the Red River.	Flood	$0	ST MAURICE
May 18, 2015	High water was reported on Highway 167 near Winnfield, Highway 126 near the Winn and Natchitoches Parish, and on many secondary roads across the parish.	Flash Flood	$0	ATLANTA

Date	Extents	Type of Flooding	Estimated Damages	Location
May 18, 2015	Water covered several secondary roadways in the norther portion of the parish.	Flash Flood	$0	SIKES
May 28, 2015	Heavy rainfall caused flash flooding in the Atlanta area. Water covered many of the areas roadways.	Flash Flood	$0	ATLANTA
June 1, 2015	Excessive, heavy rainfall during the month of May resulted in very high river levels on the Red River.	Flood	$0	ST MAURICE

Since 2010, the incorporated area of Dodson has not experienced a significant flooding event.

The worst-case scenarios are based on several different types of flooding events. Storm water excesses and riverine flooding primarily affect the low-lying areas of the parish, and flood depths of up to eight feet can be expected in the unincorporated areas of the parish. The incorporated areas of Atlanta, Winnfield, and Calvin can expect flood depths of four to six feet, while the incorporated areas of Sikes and Dodson can expect flood levels of approximately two to four 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 Winn Parish having multiple jurisdictions, it was necessary to assess the historical data found in the National Climatic Data Center for Winn 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 2-16: Annual Flood Probabilities for Winn Parish

Jurisdiction	Annual Probability	Return Frequency
Winn Parish (Unincorporated)	12%	8 – 9 years
Atlanta	24%	4 – 5 years
Calvin	12%	8 – 9 years
Dodson	4%	25 years
Sikes	8%	12 – 13 years
Winnfield	36%	2 – 3 years

Based on historical record, the overall flooding probability for the entire Winn Parish planning area is 92%, with 23 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 2-22* shows the total economic losses that would result from this occurrence. Modeled results for the jurisdiction of Dodson indicate no buildings will incur flood damage from a 100-year flood event, although localized street flooding can be expected in the area west of 1st Street and east of Blankenship Street, resulting in area streets becoming impassible by many vehicles.

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

Jurisdiction	Estimated Total Losses from 100-Year Flood Event
Winn Parish (Unincorporated)	$21,267,000
Atlanta	$1,245,000
Calvin	$706,000
Dodson	$0
Sikes	$3,000
Winnfield	$1,335,000
Total	$24,556,000

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

Winn Parish (Unincorporated)	Estimated Total Losses from 100-Year Flood Event
Agricultural	$908,000
Commercial	$1,741,000
Government	$42,000
Industrial	$640,000
Religious / Non-Profit	$932,000
Residential	$17,000,000
Schools	$4,000
Total	$21,267,000

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

Atlanta	Estimated Total Losses from 100-Year Flood Event
Agricultural	$0
Commercial	$0
Government	$5,000
Industrial	$0
Religious / Non-Profit	$113,000
Residential	$1,127,000
Schools	$0
Total	$1,245,000

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

Calvin	Estimated Total Losses from 100-Year Flood Event
Agricultural	$0
Commercial	$0
Government	$0
Industrial	$0
Religious / Non-Profit	$0
Residential	$706,000
Schools	$0
Total	$706,000

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

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

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

Winnfield	Estimated Total Losses from 100-Year Flood Event
Agricultural	$0
Commercial	$105,000
Government	$0
Industrial	$12,000
Religious / Non-Profit	$232,000
Residential	$986,000
Schools	$0
Total	$1,335,000

Threat to People

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

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

Number of People Exposed to Flood Hazards			
Location	**# in Community**	**# in Hazard Area**	**% in Hazard Area**
Winn Parish (Unincorporated)	**9,616**	**3,623**	**37.7%**
Atlanta	**163**	**88**	**54%**
Calvin	**238**	**90**	**37.8%**
Dodson	**337**	**0**	**0%**
Sikes	**119**	**12**	**10.1%**
Winnfield	**4,840**	**373**	**7.7%**
Total	**15,313**	**4,186**	**27.3%**

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

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

Winn Parish (Unincorporated)		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	3,623	37.7%
Persons Under 5 Years	229	6.3%
Persons Under 18 Years	585	16.1%
Persons 65 Years and Over	521	14.4%
White	2,419	66.8%
Minority	1,204	33.2%

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

Atlanta		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	88	54.0%
Persons Under 5 Years	3	3.1%
Persons Under 18 Years	19	22.1%
Persons 65 Years and Over	6	6.8%
White	59	67.5%
Minority	29	32.5%

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

Calvin		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	90	37.8%
Persons Under 5 Years	10	10.9%
Persons Under 18 Years	12	13.5%
Persons 65 Years and Over	16	18.1%
White	79	87.4%
Minority	11	12.6%

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

Sikes		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	12	10.1%
Persons Under 5 Years	0	3.4%
Persons Under 18 Years	2	17.7%
Persons 65 Years and Over	2	12.6%
White	12	100%
Minority	0	0%

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

Winnfield		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	373	7.7%
Persons Under 5 Years	31	8.4%
Persons Under 18 Years	74	19.8%
Persons 65 Years and Over	53	14.2%
White	171	45.9%
Minority	202	54.2%

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 2-29: TORRO Hailstorm Intensity Scale

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

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

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

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

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

High Winds

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

Table 2-31: High winds categorized by source, frequency, and duration
(Source: Making Critical Facilities Safe from High Wind, FEMA)

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

The only high winds of present concern are thunderstorm winds and downbursts. Straight-line winds are common but are a relatively insignificant hazard (on land) compared to other high winds. Downslope winds are common but relatively insignificant in the 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 2-32: Beaufort Wind Scale
(Source: NOAA's SPC)

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

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

Lightning

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

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

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

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

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

Hazard Profile

Hailstorms

Location

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

Previous Occurrences / Extents

The SHELDUS database reports 60 significant hailstorm events occurring within the boundaries of Winn Parish between the years of 1990 - 2015. According to the National Climatic Data Center, hailstorm diameters experienced in Winn Parish have ranged from 0.75 inches to 4.25 inches since 1990. The most frequently recorded hail size has been 1 inch diameters. *Figure 2-18* displays the density of hailstorms in Winn Parish and adjacent parishes. Based on the National Climatic Data Center dataset, *Table 2-34* provides an overview of hailstorms that have impacted the Winn Parish planning area since 2010. Winn Parish can expect to experience hail up to 4.25 inches in diameter for future events.

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

Date	Recorded Hail Size (inches)	Location
January 20, 2010	4.25	DODSON
April 24, 2010	0.75	WINNFIELD
August 24, 2011	1	WINNFIELD
March 2, 2012	0.88	COULEY
July 28, 2012	0.75	ATLANTA
December 23, 2015	0.75	CALVIN
December 25, 2015	0.88	DODSON

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

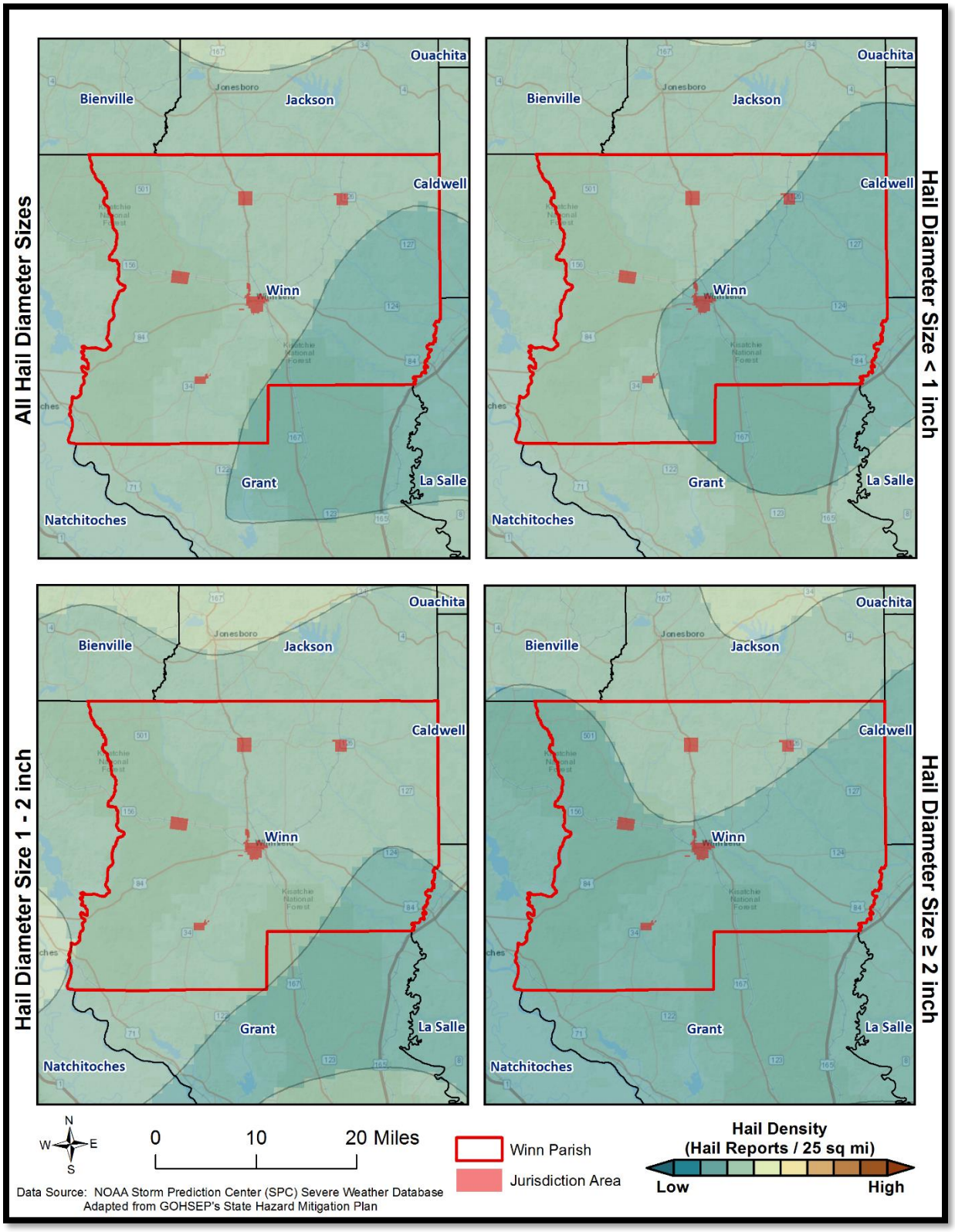

Figure 2-18: Density of Hailstorms by Diameter from 1950-2012
(Source: State of Louisiana Hazard Mitigation Plan 2014)

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 100%. The probability was determined based on a review of significant hail data that has caused damages in the last 25 years, in which Winn Parish has had 60 recorded events.

Estimated Potential Losses

According to the SHELDUS database, property damage due to hailstorms in Winn Parish have totaled approximately $29 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 approximately $1. *Table 2-35* provides an estimate of potential property losses for Winn Parish.

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

Estimated Annual Potential Losses from Hailstorms for Winn Parish					
Winn Parish Unincorporated (62.8% of Population)	Atlanta (1.1% of Population)	Calvin (1.6% of Population)	Dodson (2.2% of Population)	Sikes (0.8% of Population)	Winnfield (31.6% of Population)
$1	Less than $1	Less than $1	Less than $1	Less than $1	Less than $1

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

Previous Occurrences / Extents

The SHELDUS database reports a total of 138 thunderstorm wind events occurring within the boundaries of Winn Parish between the years of 1990 to 2015. The significant thunderstorm wind events experienced in Winn Parish have ranged in wind speed from 58 mph to 104 mph. Winn Parish can expect to receive thunderstorm winds up to 104 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 2-36: Previous Occurrences for Thunderstorm High Wind Events

Location	Date	Recorded Wind Speeds (mph)	Property Damage	Crop Damage
JORDON HILL	June 1, 2010	58	$0	$0
CALVIN	August 22, 2011	60	$0	$0
WINNFIELD	February 4, 2012	62	$0	$0
CALVIN	March 2, 2012	62	$0	$0
WINNFIELD JOYCE ARPT	March 20, 2012	62	$0	$0
WINNFIELD	March 20, 2012	63	$0	$0
ATLANTA	July 28, 2012	60	$0	$0
SIKES	July 28, 2012	60	$0	$0
DODSON	July 28, 2012	61	$0	$0
ST MAURICE	July 28, 2012	61	$0	$0
WINNFIELD	December 20, 2012	62	$0	$0
MILL	December 25, 2012	61	$0	$0
DODSON	December 25, 2012	63	$0	$0
WINNFIELD	March 31, 2013	65	$0	$0
DODSON	May 21, 2013	63	$20,000	$0
WINNFIELD	May 21, 2013	62	$0	$0
MARS HILL	June 6, 2013	65	$0	$0
ATLANTA	June 6, 2013	63	$0	$0
WINNFIELD	December 21, 2013	62	$0	$0
WINNFIELD	March 28, 2014	66	$0	$0
ATLANTA	April 4, 2014	63	$0	$0
DODSON	August 11, 2014	60	$0	$0
DODSON	October 13, 2014	63	$0	$0
ATLANTA	January 3, 2015	60	$0	$0
SIKES	January 3, 2015	61	$5,000	$0
CALVIN	April 1, 2015	61	$0	$0
CALVIN	April 1, 2015	61	$0	$0
TANNEHILL	April 19, 2015	60	$0	$0
WHEELING	May 24, 2015	61	$0	$0
CALVIN	May 28, 2015	62	$0	$0
DODSON	June 9, 2015	61	$0	$0
FLAT CREEK	July 4, 2015	61	$0	$0

Frequency

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

Estimated Potential Losses

Since 1990, there have been 138 significant wind events that have resulted in property damages according to the SHELDUS database. The total property damages associated with those storms have totaled $171,862. To estimate the potential losses of a wind event on an annual basis, the total damages recorded for wind events were divided by the total number of years of available wind data in SHELDUS (1990 – 2015). This provides an annual estimated potential loss of $6,874. The following table provides an estimate of potential property losses for Winn Parish:

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

Estimated Annual Potential Losses from Thunderstorm Winds for Winn Parish					
Winn Parish Unincorporated (62.8% of Population)	Atlanta (1.1% of Population)	Calvin (1.6% of Population)	Dodson (2.2% of Population)	Sikes (0.8% of Population)	Winnfield (31.6% of Population)
$4,317	$73	$107	$151	$53	$2,173

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 Winn Parish.

Previous Occurrences / Extents

There have been no lightning events occurring within the boundaries of Winn 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 Winn 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 lightning events that have caused property damage or loss of life in the Winn Parish Planning area.

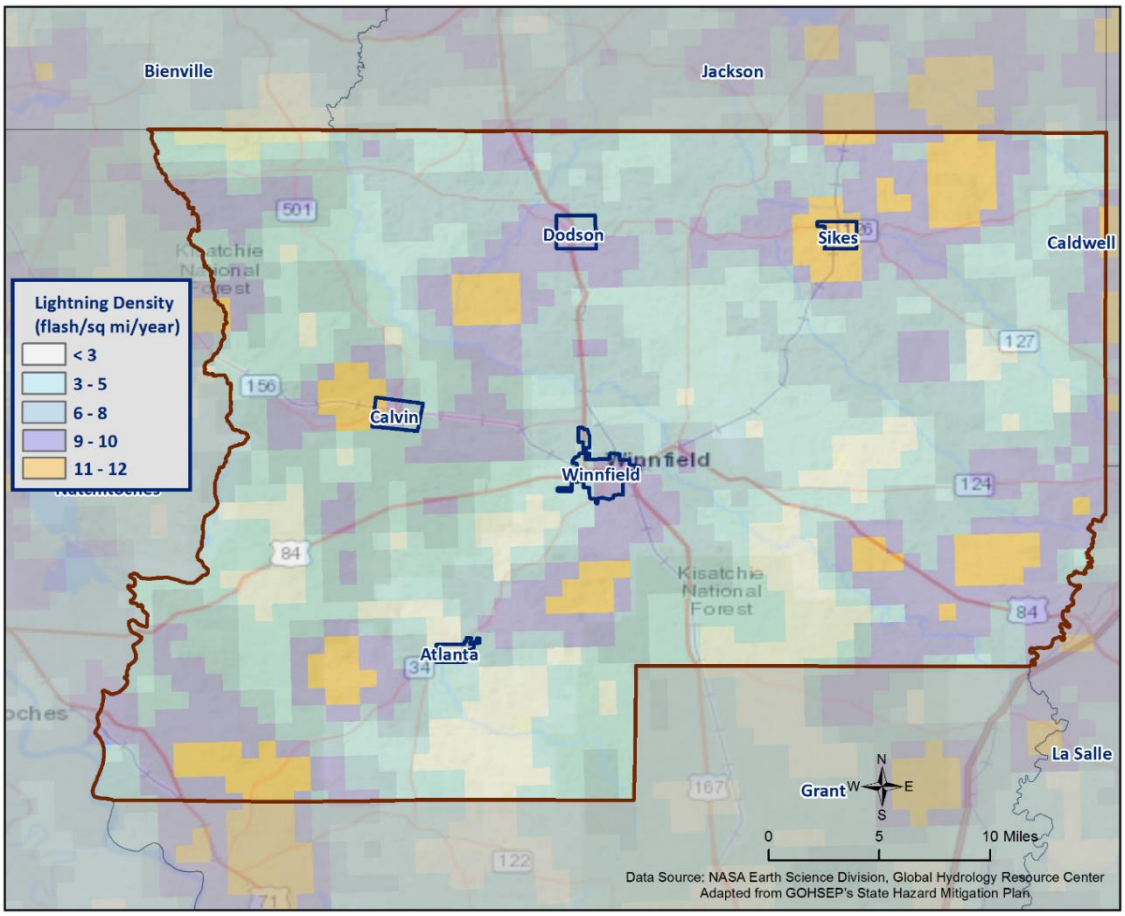

Figure 2-19: Lightning Density Reports for Winn Parish

Frequency

Lightning can strike anywhere and is produced by every thunderstorm, so the chance of lightning occurring in Winn Parish is high. However, lightning that meets the definition that is used by SHELDUS and the NCDC that actually results in damage to property and injury or death is a less likely event. There have been no lightning events that have caused property damages or injuries over the last 25 years, establishing an annual probability of less than 1%.

Estimated Potential Losses

Since 1990, there have been no significant lightning events that have resulted in property damages, injuries, or fatalities. To estimate potential losses, average building value for the unincorporated area of Winn Parish and each of its jurisdictions were calculated to determine the potential damage from a lightning strike.

Table 2-38: Potential Damage from a Lightning Strike Based on the Average Building Cost in Each Jurisdiction
(Source: Hazus 2.2)

Jurisdiction	Estimated Total Losses from 100-Year Hurricane Event
Winn Parish (Unincorporated)	$1,236,154.30
Atlanta	$1,340,543.75
Calvin	$1,016,410
Dodson	$2,369,048.25
Sikes	$225,000
Winnfield	$1,141,010.90

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 2-39* 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 2-39: 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 2-40: 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 Winn Parish with actual locations, tornadoes in general are a climatological based hazard and have the same approximate probability of occurring in Winn Parish as all of its jurisdictions. Because a tornado has a similar probability of striking anywhere within the planning area for Winn Parish, all jurisdictions are equally at risk for tornadoes.

Previous Occurrences / Extents

SHELDUS reports a total of 13 tornadoes or waterspouts occurring within the boundaries of Winn Parish between the years of 1990 - 2015. The tornadoes experienced in Winn Parish have from ranged EF0 to EF4 on the EF scale, and ranged from F0 to F3 on the F scale. The worst case scenario Winn Parish can expect in the future is an EF4 tornado.

The tornado that caused the most damage to property occurred on May 3, 2009. The EF2 tornado was responsible for over $3 million in damage. The tornado touched damaged numerous homes in the town of Dodson including 27 mobile homes and 11 built in structures. The tornado responsible for the most injuries and fatalities occurred on March 22, 1953. The tornado was responsible for 22 injuries and 2 fatalities.

Table 2-41: Historical Tornadoes in Winn Parish with Locations from 2010 - 2015

Date	Impacts	Property Damage	Location	Magnitude
November 29, 2010	13.96-mile path with a width of 400 yards. Numerous trees were snapped and a two story brick home was completely destroyed.	$814,249	ATLANTA	EF4
April 27, 2011	12.29-mile path with a width of 880 yards. Several homes were severely damaged and all trees and power lines in the tornadoes path were snapped.	$263,111	ST MAURICE	EF2
March 20, 2012	1.51-mile path with a width of 75 yards. Several trees were snapped and power lines downed.	$0	COLDWATER	EF0
March 21, 2012	0.38-mile path with a width of 50 yards. No structures or power lines were damaged. A few trees were snapped.	$0	SIKES	EF0

The incorporated areas of Calvin, Dodson, and Winnfield 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, Winn Parish has had two tornadoes touchdown in the unincorporated area of the parish and the incorporated area of Sikes. The following is a brief synopsis of these events:

March 20, 2012 – EF0 Tornado in Coldwater

An EF0 tornado touched down southeast of Goldonna along State Route 156. Several trees were snapped on both sides of the road and several power lines were downed. More trees were downed on railroad tracks east of Highway 156.

March 21, 2012 – EF0 Tornado in Sikes

An EF0 tornado briefly touched down south of Sikes along Highway 499. A few trees were snapped on the west side of the highway near the Parish Road 1134 and Highway 499 intersection. No structures or power lines were damaged. The tornado was moving north-northeast and lifted in a clear area before reaching the populated area of Sikes.

Frequency / Probability

Tornadoes are a sporadic occurrence within Winn Parish, with an annual chance of occurrence calculated at 52% 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 Winn Parish and neighboring parishes.

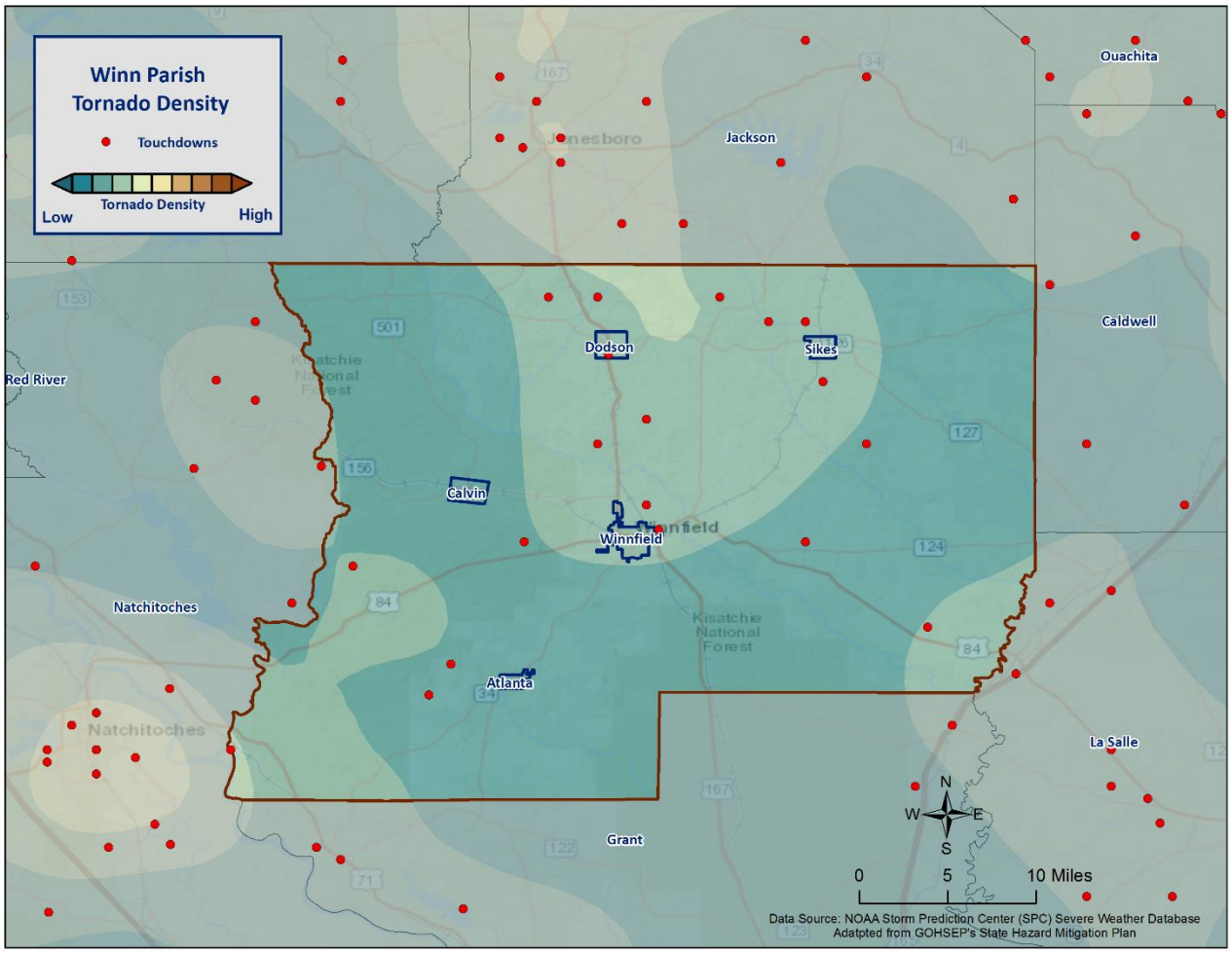

Figure 2-20: Location and Density of Tornadoes to Touch Down in Winn Parish (Source: NOAA/SPC Severe Weather Database)

Estimated Potential Losses

According to the SHELDUS database, there have been 13 tornadoes that have caused some level of property damage. The total damage from the actual claims for property is $4,577,003, with an average cost of $352,077 per tornado strike. When annualizing the total cost over the 25-year record, total annual loses based on tornadoes are estimated to be $183,080. 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 Winn Parish.

Table 2-42: Estimated Annual Losses from Tornadoes in Winn Parish

Estimated Annual Potential Losses from Tornadoes for Winn Parish					
Winn Parish Unincorporated (62.8% of Population)	Atlanta (1.1% of Population)	Calvin (1.6% of Population)	Dodson (2.2% of Population)	Sikes (0.8% of Population)	Winnfield (31.6% of Population)
$114,968	$1,949	$2,845	$4,029	$1,423	$57,866

Table 2-43 presents an analysis of building exposure that is susceptible to tornadoes by general occupancy type for Winn Parish, along with the percentage of building stock that are mobile homes.

Table 2-43: Building Exposure by General Occupancy Type for Tornadoes in Winn Parish (Source: FEMA's Hazus 2.2)

Building Exposure by General Occupancy Type for Tornadoes Exposure Types ($1,000)							
Residential	Commercial	Industrial	Agricultural	Religion	Government	Education	Mobile Homes (%)
1,617,780	261,518	100,809	7,528	94,598	16,147	15,684	24.3%

The parish has suffered through a total of two days in which tornadoes or waterspouts have accounted for three injuries and no fatalities during this 25-year period (*Table 2-44*). The average number of injuries per event for Winn Parish is 0.23 per tornado, with an average of 0.12 per year for the 25-year period.

Table 2-44: Tornadoes in Winn Parish by Magnitude that Caused Injuries or Deaths

Date	Magnitude	Deaths	Injuries
April 4, 2008	EF1	0	1
May 3, 2009	EF2	0	2

In assessing the overall risk to population, the most vulnerable population throughout the parish are those residing in manufacturing housing. Approximately 24.3% of all housing in Winn Parish consists of manufactured housing. Based on location data collected in a previous hazard mitigation project, there are six known locations where manufactured housing is concentrated. Each of those six locations have an overall number of manufactured houses ranging from one to 50. The location and density of manufactured houses can be seen in *Figure 2-21*.

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

Table 2-45: Manufactured Home Distribution throughout Winn Parish

Location	Number of Manufactured Home Parks	% of Manufactured Home Parks
Unincorporated Area	4	66.7%
Atlanta	0	0%
Calvin	0	0%
Dodson	2	33.3%
Sikes	0	0%
Winnfield	0	0%

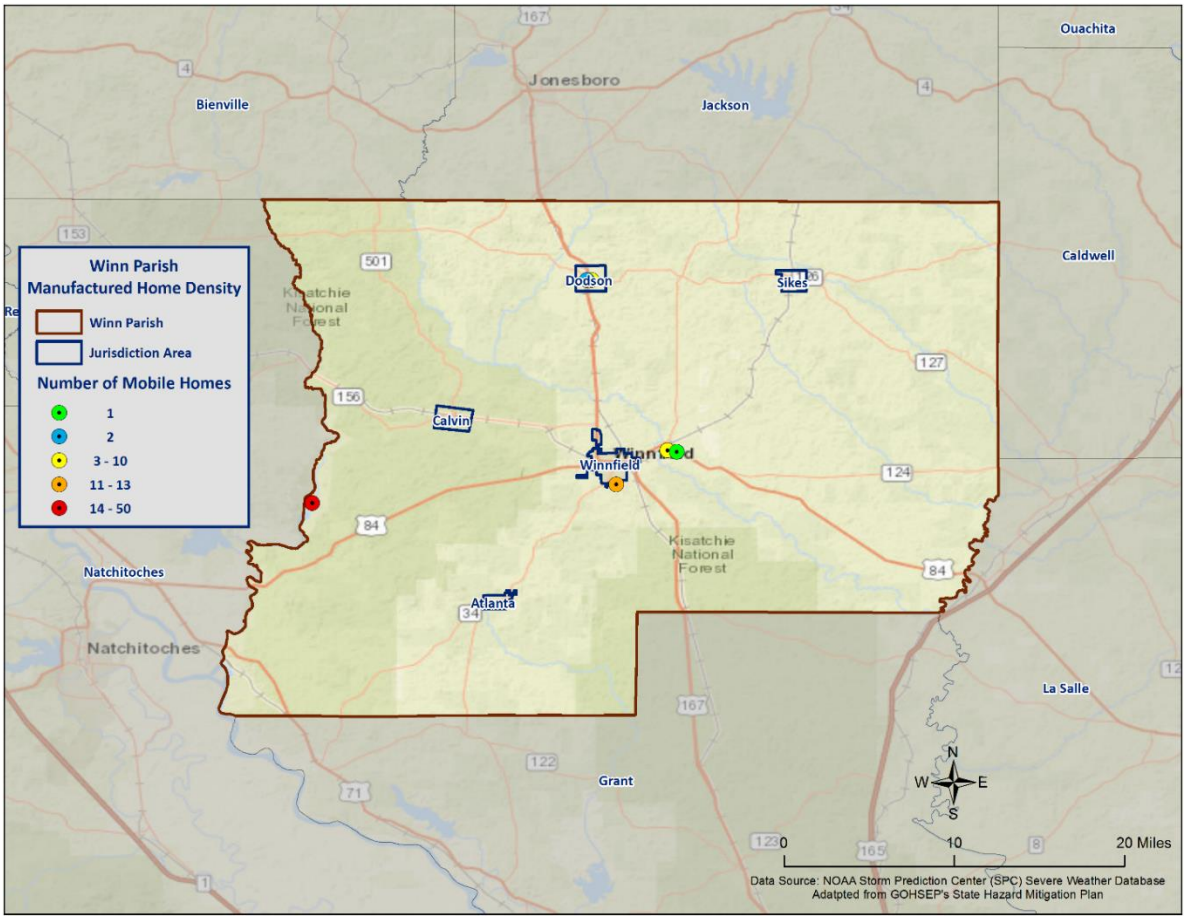

Figure 2-21: Location and Approximate Number of Units in Manufactured Housing Locations throughout Winn Parish

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 presents the Saffir-Simpson Hurricane Wind Scale, which categorizes tropical cyclones based on sustained winds.

Table 2-46: Saffir-Simpson Hurricane Wind Scale

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

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

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

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

Location

Hurricanes are the single biggest threat to all 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 Winn 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 three tropical cyclone events occurring within the boundaries of Winn Parish between the years 2002 and 2014 (*Table 2-47*). The tropical cyclone events experienced in Winn Parish include depressions, storms, and hurricanes. As a worst case scenario, Winn Parish can expect to experience hurricanes at the Category 1 level in the future.

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

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

Hurricane Rita (2005)

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

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

In Winn Parish, damage was sporadic throughout the parish with damage consisting of downed trees and power lines. Many residents of Winn Parish lost power during the height of the storm. Localized flooding occurred throughout the parish.

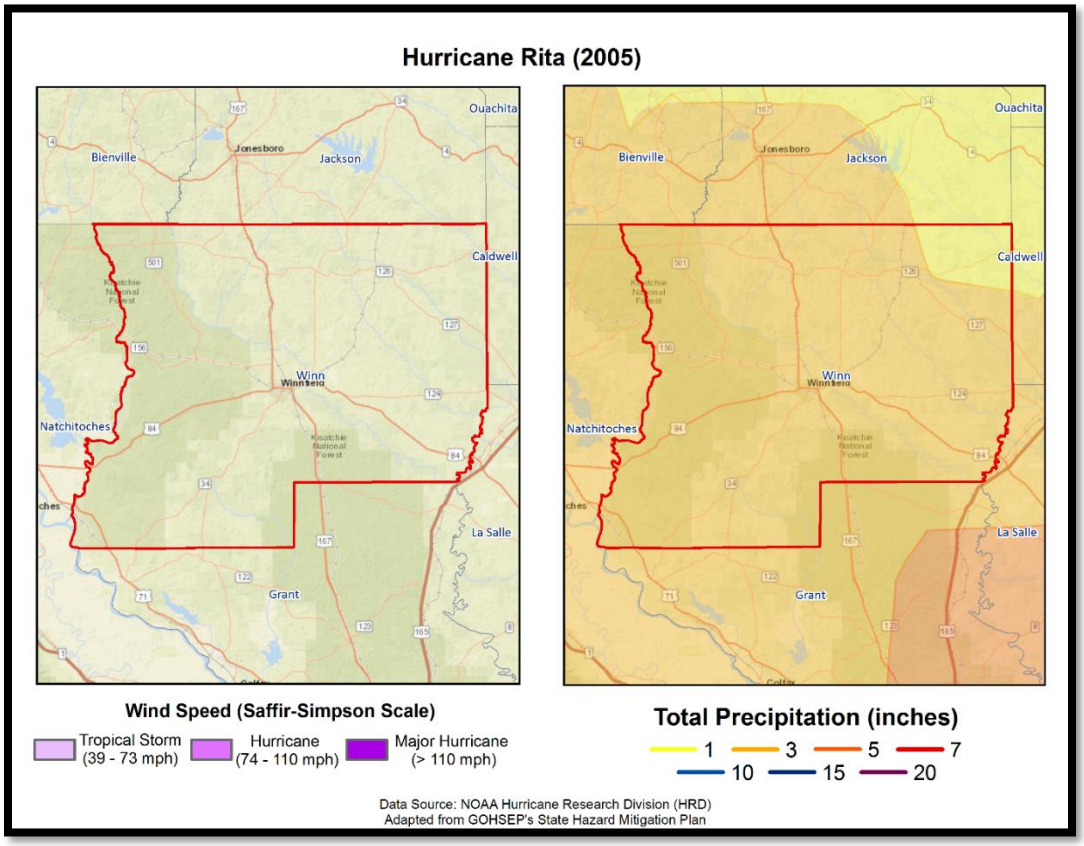

Figure 2-22: Wind Speed and Precipitation Totals in Winn Parish for Hurricane Rita

Hurricane Gustav (2008)

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

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

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

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

In Winn Parish, numerous trees and power lines were downed across the parish. Many parish roads were blocked during the height of the storm. Tropical storm force winds also led to numerous power outages. A tree was reported down across a trailer and another fell across a home near the town of Winnfield. A tree also fell across a sheriff's vehicle while he was dispatched. There were no reports of injuries or fatalities in the parish due to the storm.

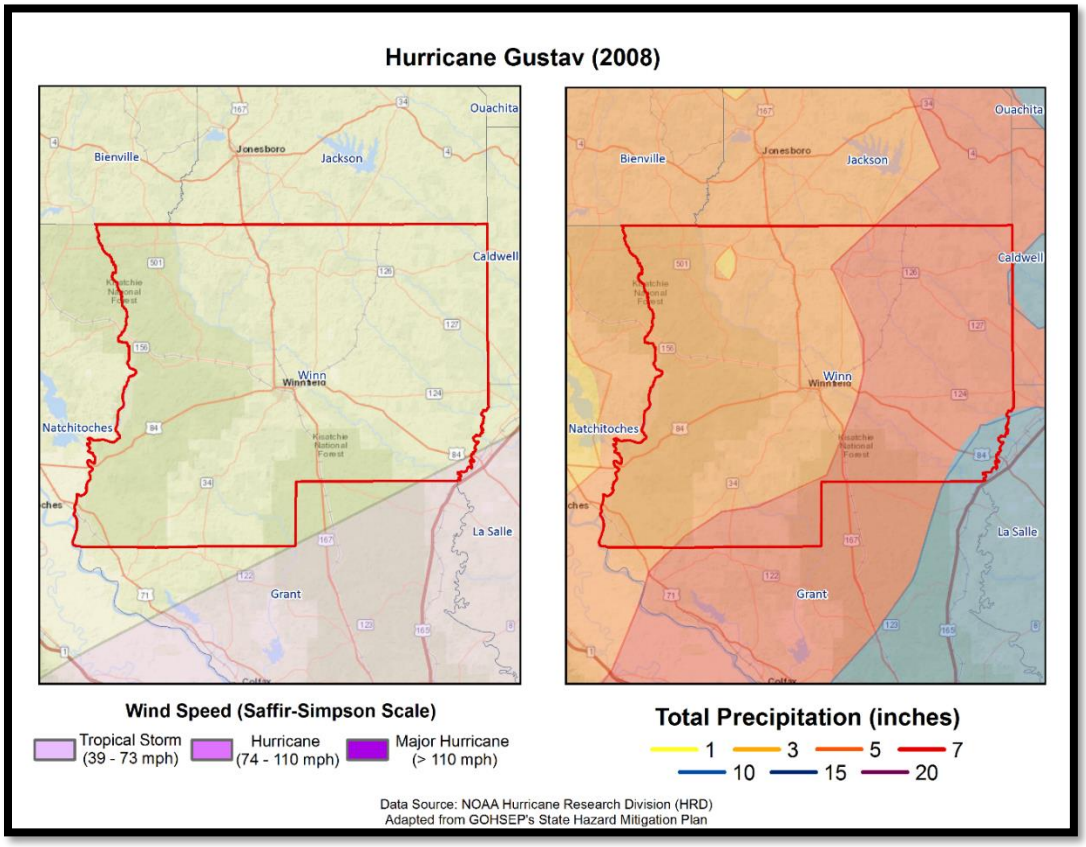

Figure 2-23: Wind Speed and Precipitation Totals in Winn Parish for Hurricane Gustav

Hurricane Ike (2008)

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

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

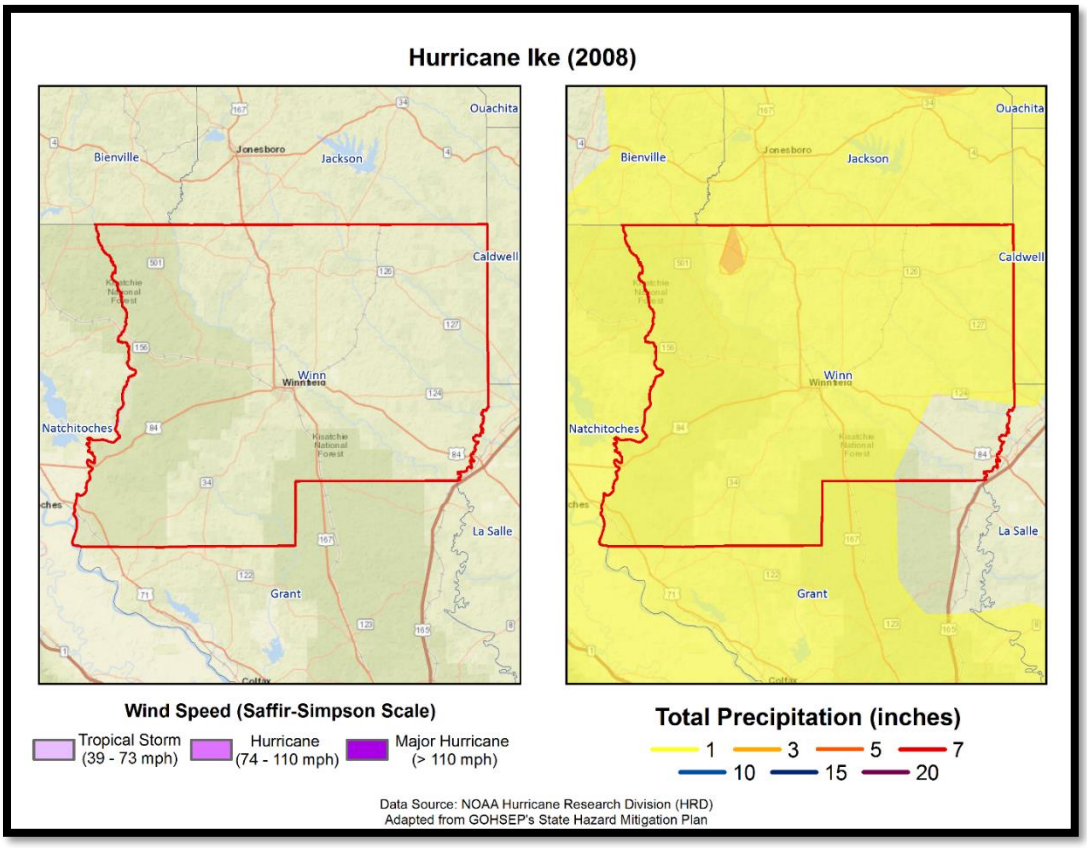

Figure 2-24: Wind Speed and Precipitation Totals in Winn Parish for Hurricane Ike

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

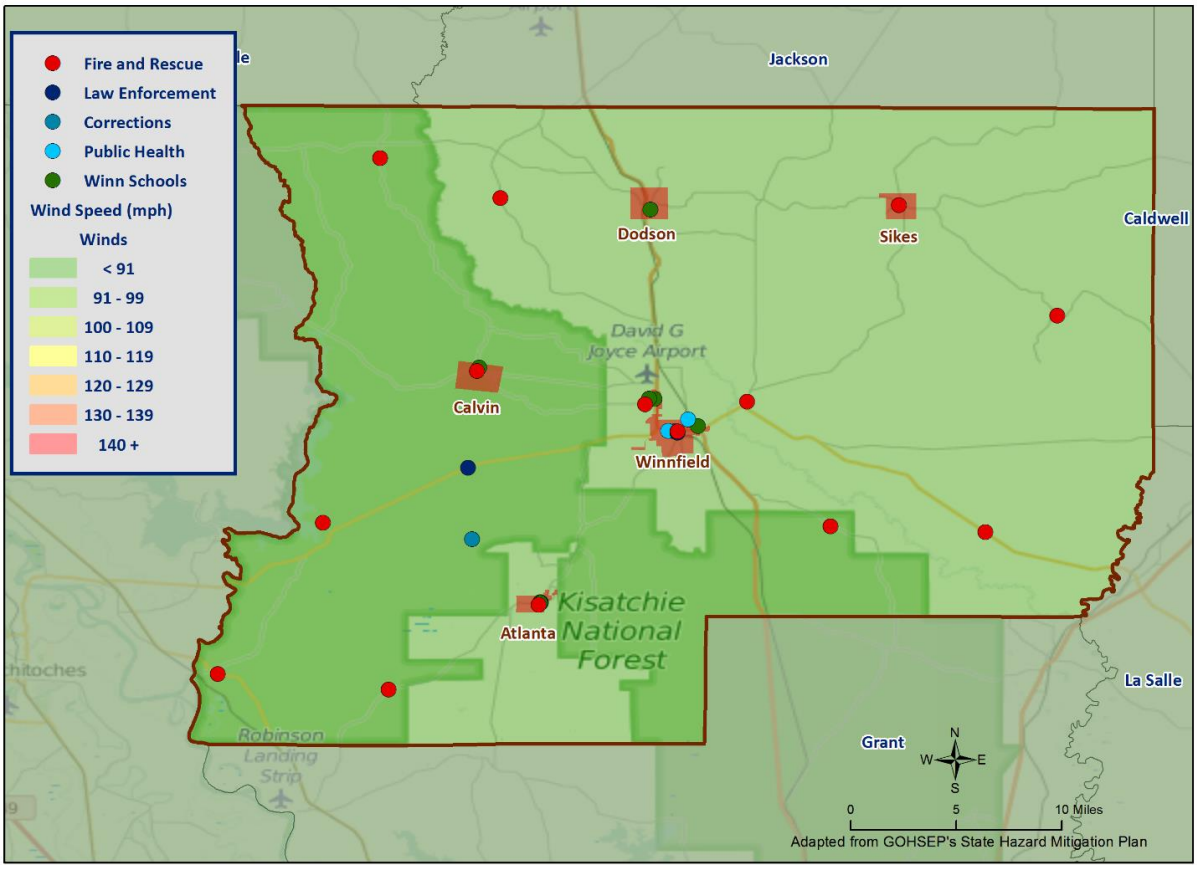

Figure 2-25: Winds Zones for Winn Parish in Relation to Critical Facilities

Frequency / Probability

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

Estimated Potential Losses

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

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

Jurisdiction	Estimated Total Losses from 100-Year Hurricane Event
Winn Parish (Unincorporated)	$737,520
Atlanta	$12,502
Calvin	$18,254
Dodson	$25,847
Sikes	$9,127
Winnfield	$371,214
Total	$1,174,463

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

Table 2-49: Ratio of Total Losses to Total Estimated Value of Assets for each Jurisdiction in Winn 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	$737,520	$1,297,147,000	0.1%
Atlanta	$12,502	$21,913,000	0.1%
Calvin	$18,254	$27,650,000	0.1%
Dodson	$25,847	$43,907,000	0.1%
Sikes	$9,127	$16,281,000	0.1%
Winnfield	$371,214	$707,166,000	0.1%

Based on the Hazus 2.2 Hurricane Model, estimated total losses were 0.1% of the total estimated value of all assets for the unincorporated area of Winn Parish, and the incorporated areas of Atlanta, Calvin, Dodson, Sikes, and Winnfield.

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

Winn Parish (Unincorporated)	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$238
Commercial	$7,968
Government	$459
Industrial	$2,606
Religious / Non-Profit	$2,981
Residential	$722,775
Schools	$492
Total	$737,520

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

Atlanta	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$4
Commercial	$135
Government	$8
Industrial	$44
Religious / Non-Profit	$51
Residential	$12,252
Schools	$8
Total	$12,502

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

Calvin	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$6
Commercial	$197
Government	$11
Industrial	$65
Religious / Non-Profit	$74
Residential	$17,889
Schools	$12
Total	$18,254

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

Dodson	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$8
Commercial	$279
Government	$16
Industrial	$91
Religious / Non-Profit	$104
Residential	$25,330
Schools	$17
Total	$25,847

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

Sikes	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$3
Commercial	$99
Government	$6
Industrial	$32
Religious / Non-Profit	$37
Residential	$8,944
Schools	$6
Total	$9,127

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

Winnfield	Estimated Total Losses from 100-Year Hurricane Event
Agricultural	$120
Commercial	$4,010
Government	$231
Industrial	$1,312
Religious / Non-Profit	$1,501
Residential	$363,793
Schools	$248
Total	$371,214

Threat to People

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

Table 2-56: Number of People Susceptible to a 100-Year Hurricane Event in Winn Parish (Source: Hazus 2.2)

Number of People Exposed to Hurricane Hazards			
Location	**# in Community**	**# in Hazard Area**	**% in Hazard Area**
Winn Parish (Unincorporated)	**9,616**	**9,616**	**100%**
Atlanta	**163**	**163**	**100%**
Calvin	**238**	**238**	**100%**
Dodson	**337**	**337**	**100%**
Sikes	**119**	**119**	**100%**
Winnfield	**4,840**	**4,840**	**100%**
Total	**15,313**	**15,313**	**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 following tables:

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

Winn Parish (Unincorporated)		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	9,616	100.0%
Persons Under 5 Years	609	6.3%
Persons Under 18 Years	1,552	16.1%
Persons 65 Years and Over	1,382	14.4%
White	6,420	66.8%
Minority	3,196	33.2%

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

Atlanta		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	163	100.0%
Persons Under 5 Years	5	3.1%
Persons Under 18 Years	36	22.1%
Persons 65 Years and Over	11	6.8%
White	110	67.5%
Minority	53	32.5%

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

Calvin		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	238	100.0%
Persons Under 5 Years	26	10.9%
Persons Under 18 Years	32	13.5%
Persons 65 Years and Over	43	18.1%
White	208	87.4%
Minority	30	12.6%

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

Dodson		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	337	100.0%
Persons Under 5 Years	28	8.3%
Persons Under 18 Years	53	15.7%
Persons 65 Years and Over	51	15.1%
White	262	77.7%
Minority	75	22.3%

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

Sikes		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	119	100.0%
Persons Under 5 Years	4	3.4%
Persons Under 18 Years	21	17.7%
Persons 65 Years and Over	15	12.6%
White	117	98.3%
Minority	2	1.7%

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

Winnfield		
Category	**Total Numbers**	**Percentage of People in Hazard Area**
Number in Hazard Area	4,840	100.0%
Persons Under 5 Years	404	8.4%
Persons Under 18 Years	957	19.8%
Persons 65 Years and Over	688	14.2%
White	2,219	45.9%
Minority	2,621	54.2%

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 2-26* displays the areas of wildland-urban interaction in Winn 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 2-63: 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 Winn Parish and its jurisdictions.

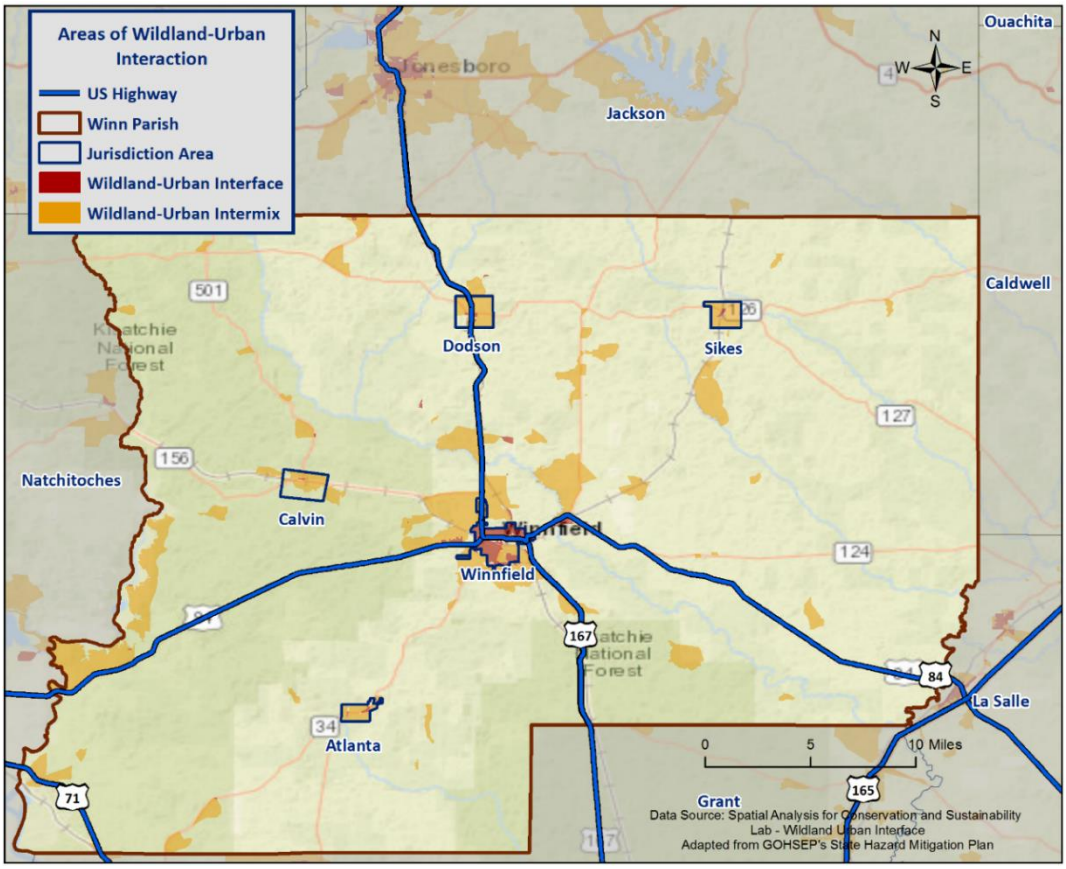

Figure 2-26: Wildland-Urban Interaction in Winn Parish

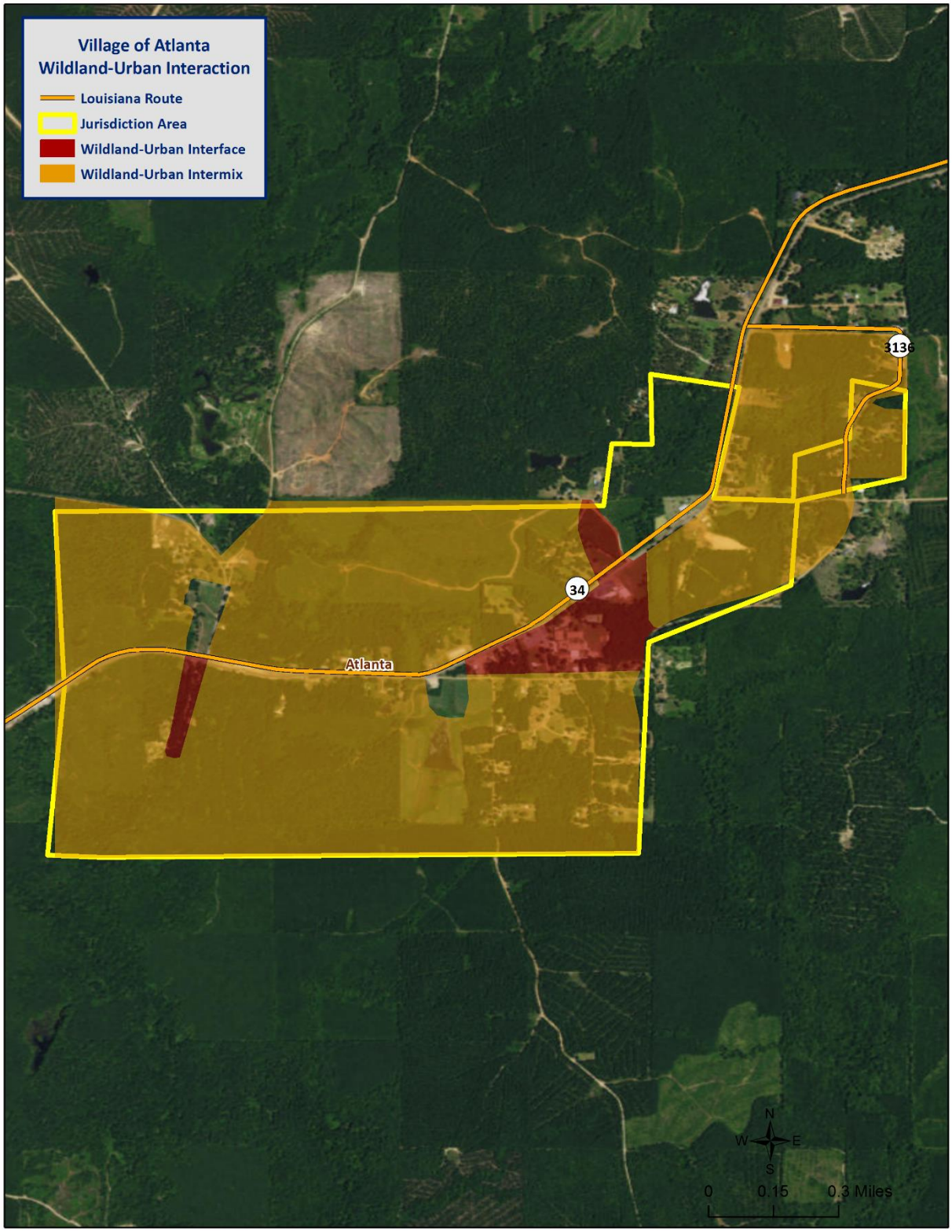

Figure 2-27: Village of Atlanta Areas of Wildland-Urban Interaction

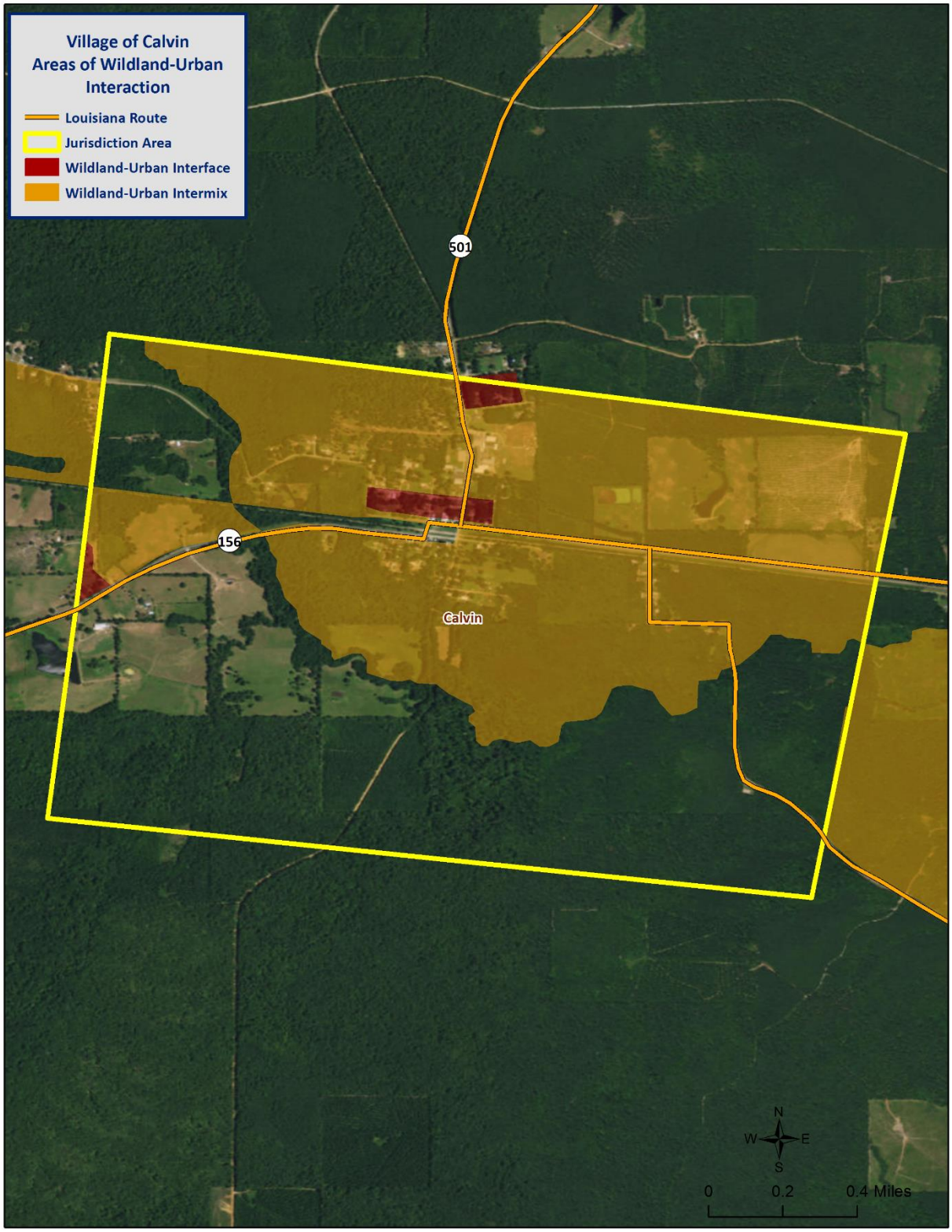

Figure 2-28: Village of Calvin Areas of Wildland-Urban Interaction

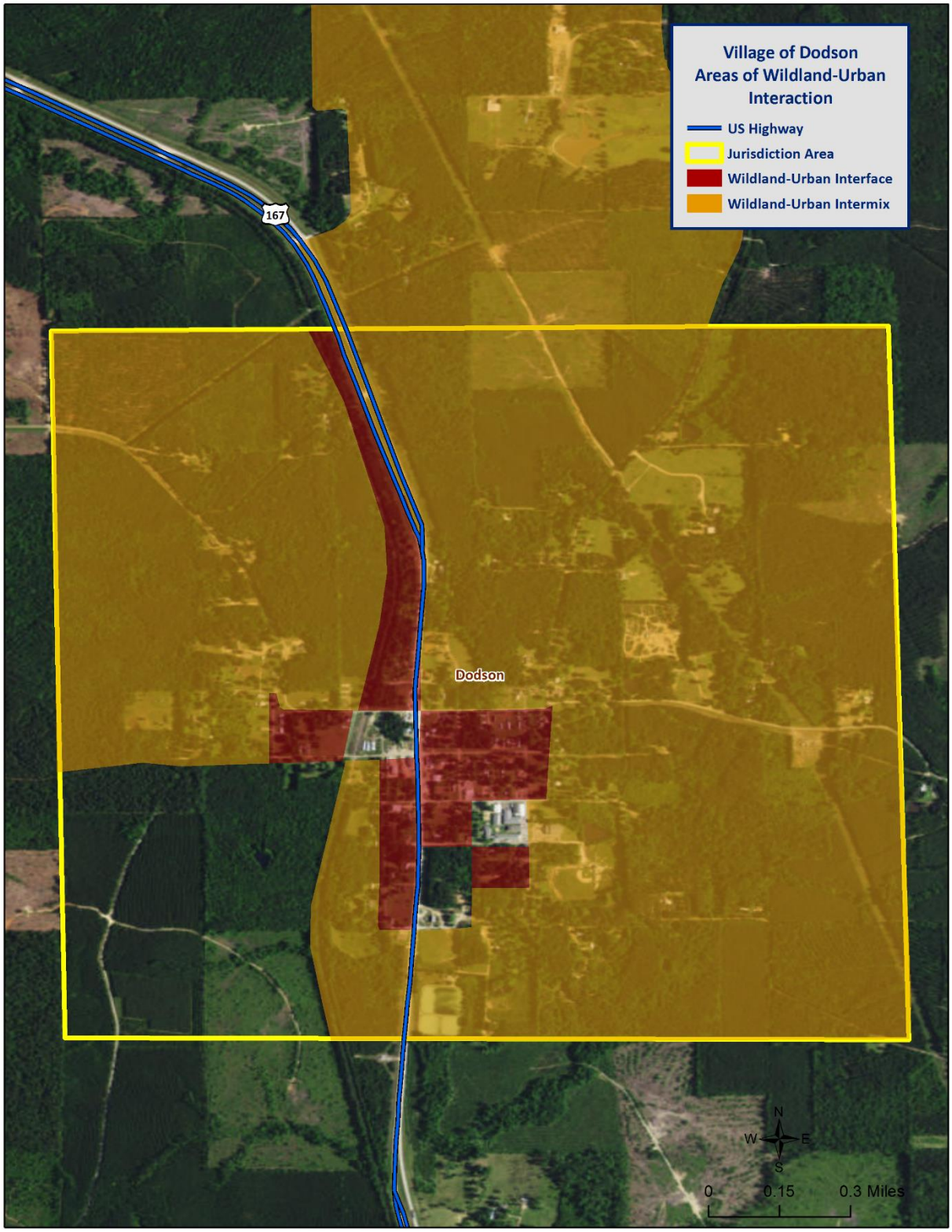

Figure 2-29: Village of Dodson Areas of Wildland-Urban Interaction

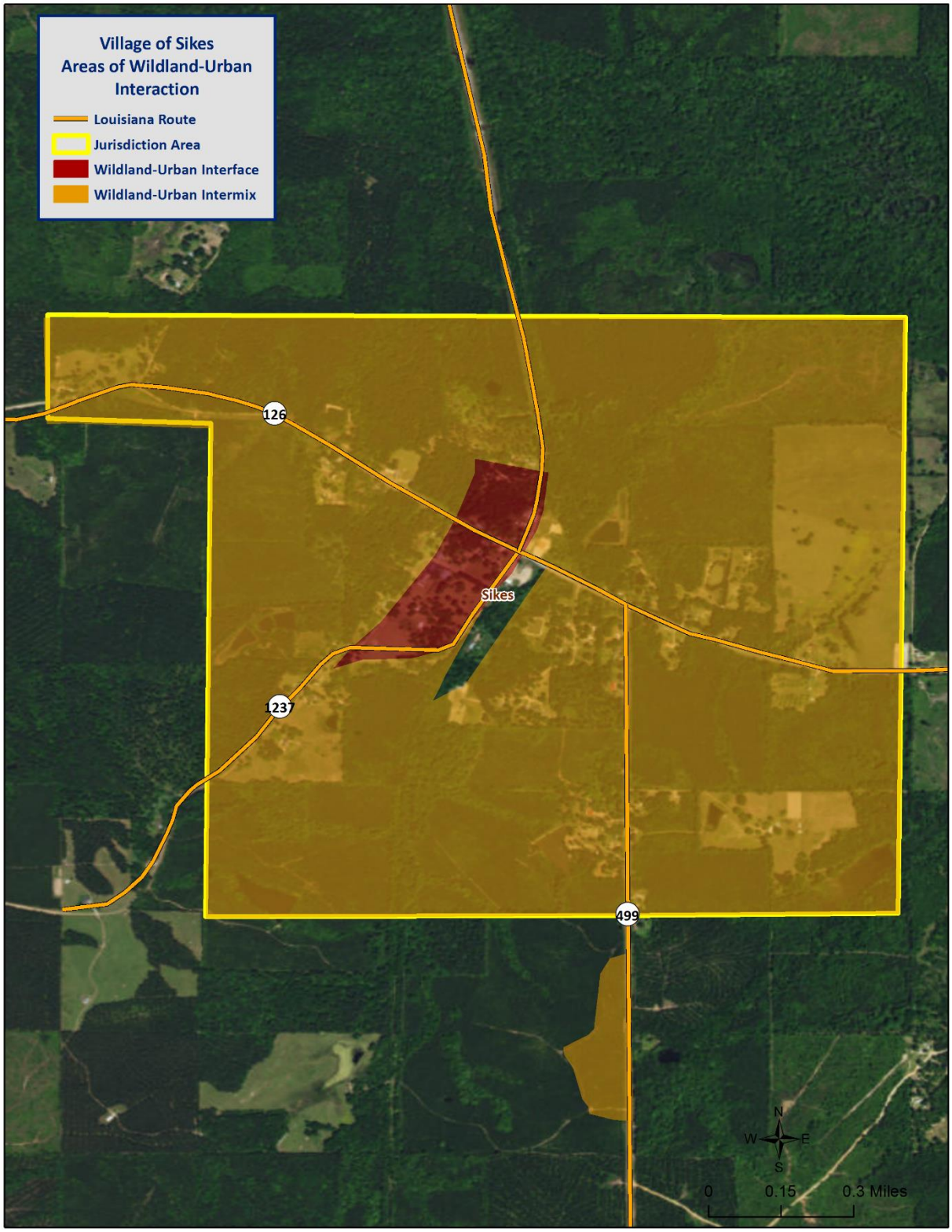

Figure 2-30: Village of Sikes Areas of Wildland-Urban Interaction

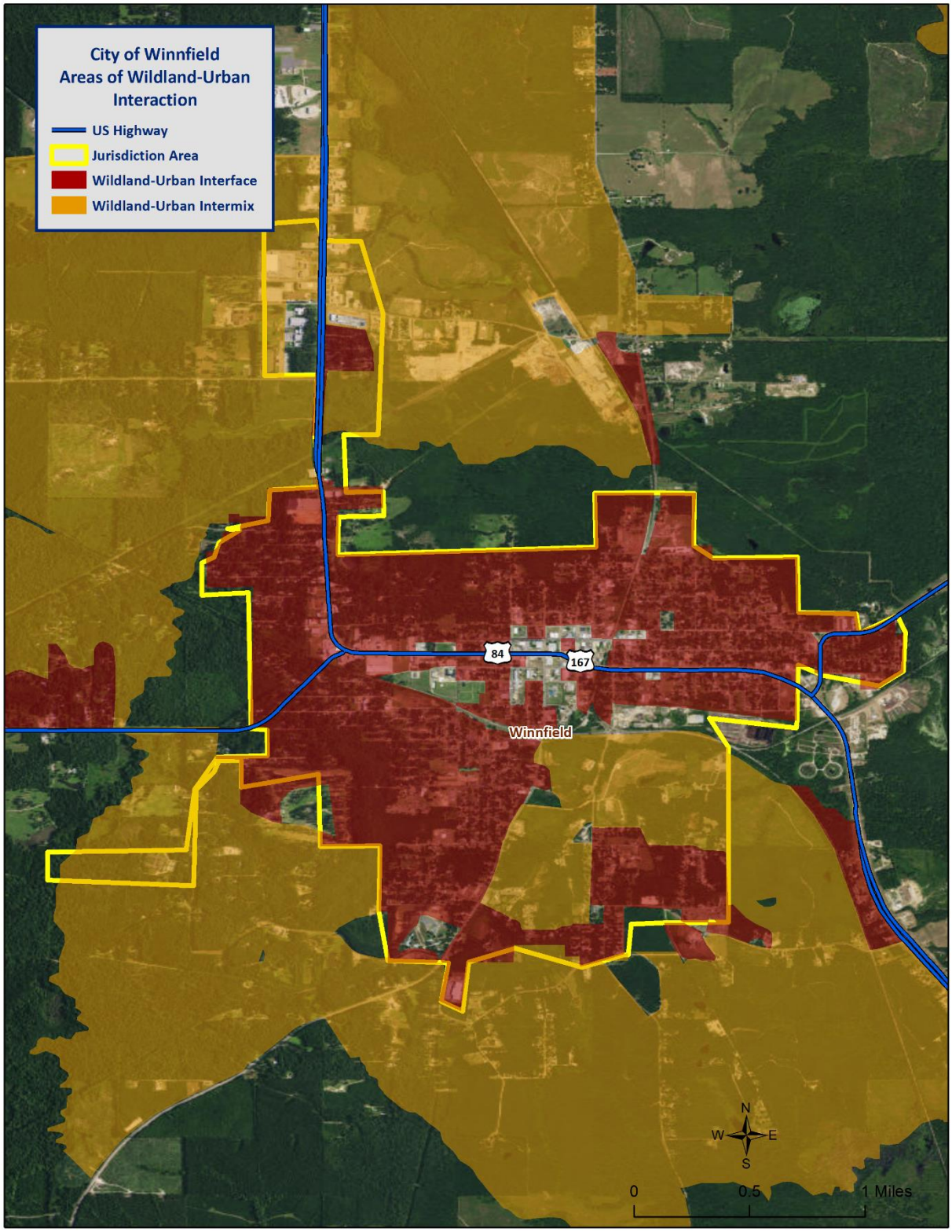

Figure 2-31: City of Winnfield Areas of Wildland-Urban Interaction

Previous Occurrences / Extents

According to SHELDUS, there has been one reported wildfire event that has occurred within the boundaries of Winn Parish between the years of 1990 and 2015. The following table provides a brief synopsis of the event.

Table 2-64: Previous Occurrences for Wildfire Events

Date	Synopsis	Property Damage	Crop Damage
October 28, 2010	A wildfire quickly spread out of control just south of Winnfield. Bull dozers were used to push the fire lines that were continually jumped by the fire. The blaze moved from the ground to the crown of some 30-foot tall trees and quickly spread. Tanker drops were also used to try and contain the fire and protect homes. Over 250 acres were burned and some out buildings were lost. The fire was located near Cedar Drive and Old Alexandria Road. One fireman suffered a minor injury.	$108,567	$0

Since 2010, there have been no reported wildfire events in the incorporated areas of Atlanta, Calvin, Dodson, Sikes, and Winnfield.

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

Table 2-65: Potential Wildfire Intensity Levels for Winn Parish (Source: Southern Wildfire Assessment Portal)

Potential Wildfire Intensity	
Winn Parish (Unincorporated)	Highest Intensity Level 5
Atlanta	Low Intensity Level 2
Calvin	Moderate Intensity Level 3
Dodson	Moderate to High Intensity Level 3.5
Sikes	High Intensity Level 4
Winnfield	Moderate Intensity Level 3

Frequency / Probability

With one recorded event in 25 years, wildfire events within the boundaries of Winn Parish have an annual chance of occurrence calculated at 4% based on the SHELDUS dataset.

Estimated Potential Losses

According to the SHELDUS database, there has been one wildfire event that has caused property damage, crop damage, injuries, or fatalities in Winn 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 2-26* displays the areas of wildland-urban interaction in Winn 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 2-66: Total Building Exposure by Wildland-Urban Interaction Areas (Source: Hazus 2.2)

Jurisdiction	Estimated Total Building Exposure
Winn Parish (Unincorporated)	$892,916,000
Atlanta	$21,053,000
Calvin	$34,966,000
Dodson	$43,763,000
Sikes	$16,281,000
Winnfield	$696,017,000
Total	$1,704,996,000

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 2-67: Estimated Exposure for Unincorporated Winn Parish by Sector (Source: Hazus 2.2)

Winn Parish (Unincorporated)	Estimated Total Building Exposure by Sector
Agricultural	$4,936,000
Commercial	$65,273,000
Government	$838,000
Industrial	$62,333,000
Religious / Non-Profit	$35,230,000
Residential	$723,826,000
Schools	$480,000
Total	$892,916,000

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

Atlanta	Estimated Total Building Exposure by Sector
Agricultural	$0
Commercial	$736,000
Government	$338,000
Industrial	$913,000
Religious / Non-Profit	$608,000
Residential	$18,458,000
Schools	$0
Total	$21,053,000

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

Calvin	Estimated Total Building Exposure by Sector
Agricultural	$340,000
Commercial	$908,000
Government	$0
Industrial	$1,092,000
Religious / Non-Profit	$478,000
Residential	$31,254,000
Schools	$894,000
Total	$34,966,000

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

Dodson	Estimated Total Building Exposure by Sector
Agricultural	$0
Commercial	$3,954,000
Government	$844,000
Industrial	$3,016,000
Religious / Non-Profit	$2,520,000
Residential	$33,429,000
Schools	$0
Total	$43,763,000

Table 2-71: Estimated Exposure for Sikes by Sector
(Source: Hazus 2.2)

Sikes	Estimated Total Building Exposure by Sector
Agricultural	$0
Commercial	$1,016,000
Government	$508,000
Industrial	$313,000
Religious / Non-Profit	$606,000
Residential	$13,838,000
Schools	$0
Total	$16,281,000

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

Winnfield	Estimated Total Building Exposure by Sector
Agricultural	$478,000
Commercial	$148,515,000
Government	$13,289,000
Industrial	$10,715,000
Religious / Non-Profit	$33,496,000
Residential	$480,304,000
Schools	$9,220,000
Total	$696,017,000

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 2-73: 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**
Winn Parish (Unincorporated)	**9,616**	**6,099**	**63.4%**
Atlanta	**163**	**163**	**100%**
Calvin	**238**	**232**	**97.5%**
Dodson	**337**	**337**	**100%**
Sikes	**119**	**119**	**100%**
Winnfield	**4,840**	**4,683**	**96.8%**
Total	**15,313**	**11,633**	**76%**

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

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

Winn Parish (Unincorporated)		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	6,099	63.4%
Persons Under 5 Years	386	6.3%
Persons Under 18 Years	984	16.1%
Persons 65 Years and Over	876	14.4%
White	4,072	66.8%
Minority	2,027	33.2%

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

Atlanta		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	163	100.0%
Persons Under 5 Years	5	3.1%
Persons Under 18 Years	36	22.1%
Persons 65 Years and Over	11	6.8%
White	110	67.5%
Minority	53	32.5%

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

Calvin		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	232	97.5%
Persons Under 5 Years	25	10.9%
Persons Under 18 Years	31	13.5%
Persons 65 Years and Over	42	18.1%
White	203	87.4%
Minority	29	12.6%

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

Dodson		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	337	100.0%
Persons Under 5 Years	28	8.3%
Persons Under 18 Years	53	15.7%
Persons 65 Years and Over	51	15.1%
White	262	77.7%
Minority	75	22.3%

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

Sikes		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	119	100.0%
Persons Under 5 Years	4	3.4%
Persons Under 18 Years	21	17.7%
Persons 65 Years and Over	15	12.6%
White	117	98.3%
Minority	2	1.7%

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

Winnfield		
Category	**Total Numbers**	**Percentage of People in Wildland-Urban Interaction Area**
Number in Hazard Area	4,683	96.8%
Persons Under 5 Years	391	8.4%
Persons Under 18 Years	926	19.8%
Persons 65 Years and Over	665	14.2%
White	2,147	45.9%
Minority	2,536	54.2%

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.

Sinkholes

Sinkholes are areas of ground with no natural external surface drainage. They can vary in size from a few square feet to hundreds of acres, and can reach depths of more than 100 feet. Sinkholes are usually found in karst terrain—that is, areas where limestone, carbonate rock, salt beds, and other water-soluble rocks lie below the Earth's surface. Karst terrain is marked by the presence of other uncommon geologic features, such as springs, caves, and dry streambeds that lose water into the ground. In general, sinkholes form gradually (in the case of cover-subsidence sinkholes), but they can also occur suddenly (in the case of cover-collapse sinkholes).

Sinkhole formation is a very simple process. Whenever water is absorbed through soil, it encounters water-soluble bedrock. The water then begins to dissolve the bedrock, forming sinkholes. The karst rock dissolves along cracks; as the fissures grow, soil and other particles fill the gaps, loosening the soil above the bedrock. *Figure 2-32* illustrates the development of a cover subsidence sinkhole. As the soil sinks from the surface a depression forms, which draws in more water, funneling it down to the water-soluble rock. The increase of water and soil in the rock pushes open the cracks, again drawing more soil and water into it. This positive feedback loop continues, unless clay plugs into the cracks in the bedrock, at which time a pond may form. A sudden cover-collapse sinkhole occurs when the top soil above dissolving bedrock does not sink, but forms a bridge over the soil that is sinking beneath it. As *Figure 2-33* demonstrates, underground soil continues to fill the bedrock fissures, until finally the soil bridge collapses and fills the void beneath it.

Both kinds of sinkholes can occur naturally or through human influence. While sinkholes tend to form naturally in karst areas, sinkholes can form in other geological areas that have been altered by humans, by processes such as mining, sewers, hydraulic fracture drilling, groundwater pumping, irrigation, or storage ponds. In all of these cases, and others, the cause for the sinkhole is that support for surface soil has been weakened or substantially removed.

In the United States, 20% of the land is susceptible to sinkholes. Most of this area lies in Florida, Texas, Alabama, Missouri, Kentucky, Tennessee, and Pennsylvania. In Louisiana, most of the sinkholes are precipitated by the human-influenced collapse of salt dome caverns. The collapse of a salt dome is usually a slow process; however, it may occur suddenly and without any advance warning.

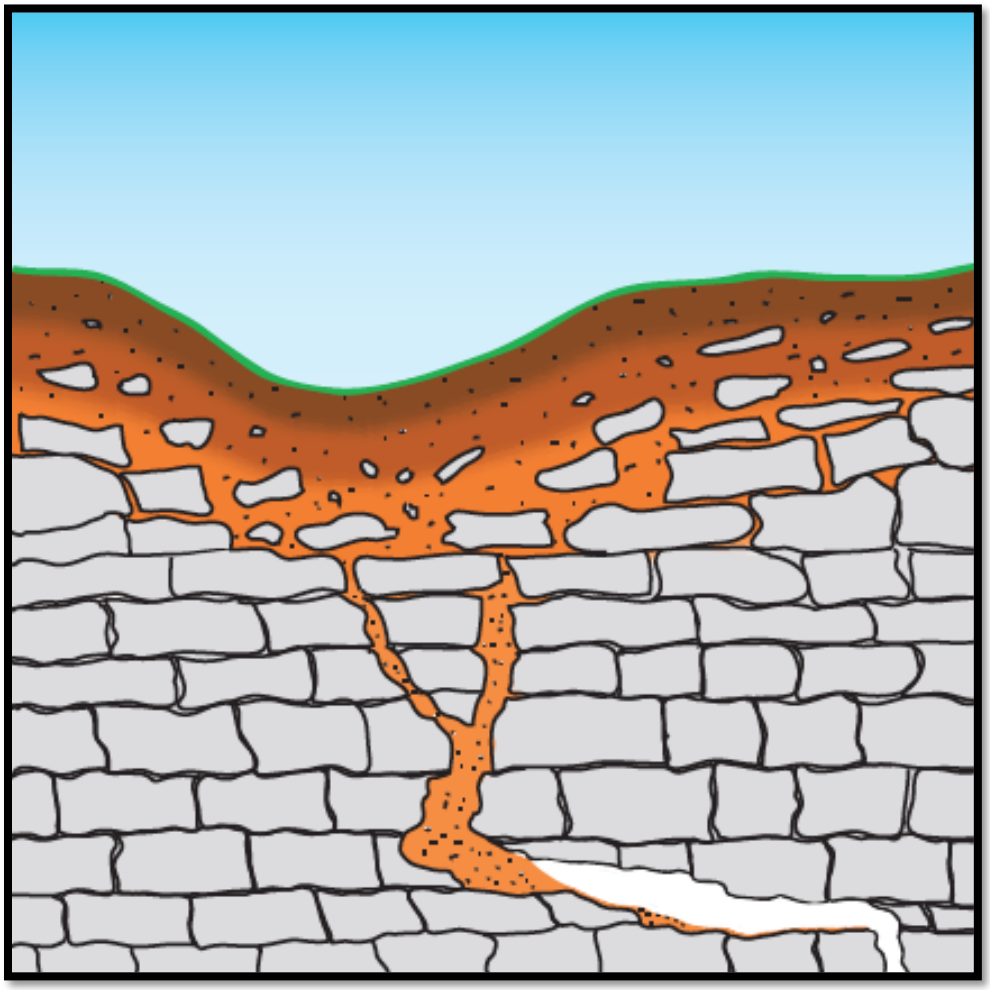

Figure 2-32: Cover-subsidencence Sinkole Formation from the Breaking Apart of Karst Bedrock by Soil Deposit
(Courtesy of USGS Sinkholes Fact Sheet)

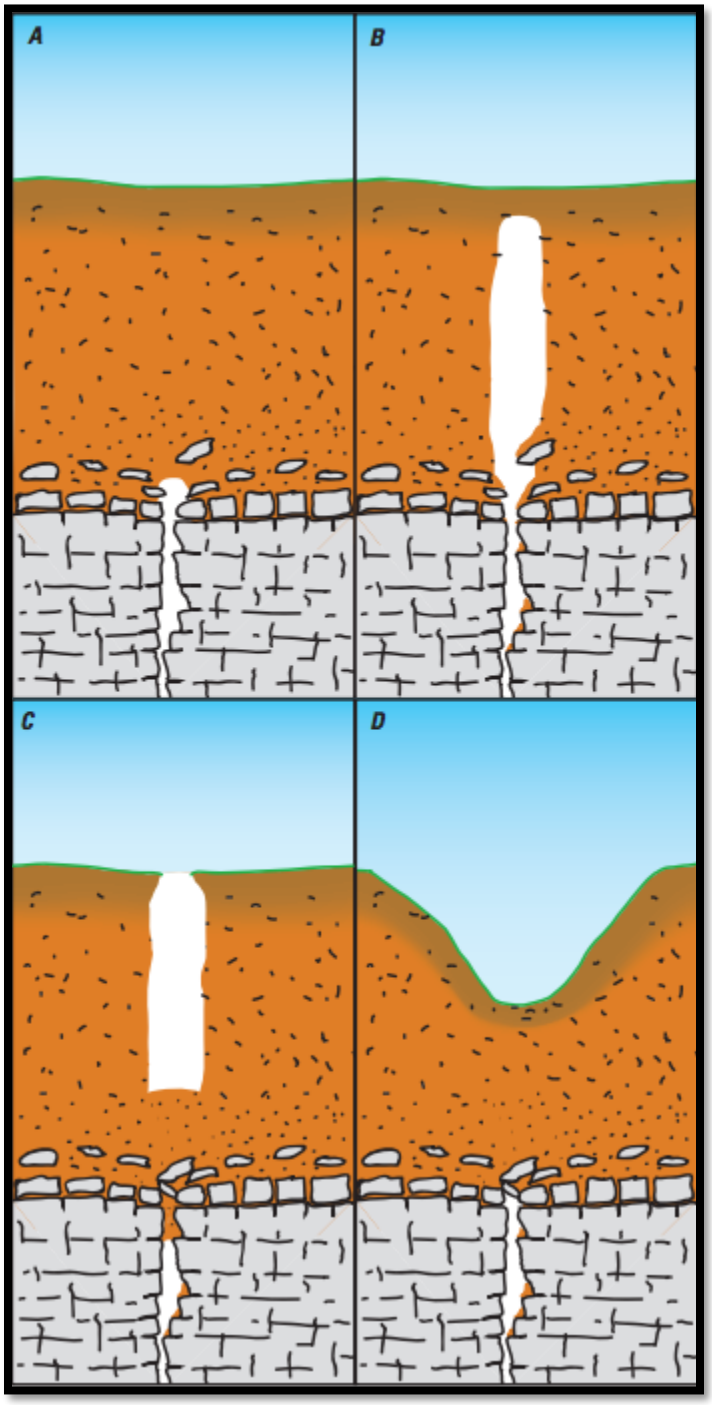

Figure 2-33: Formation of Cover-collapse Sinkhole after a Soil Bridge forms above Dissolving Bedrock (Courtesy of USGS Sinkhole Fact Sheet)

Location

Currently, there are nine identifiable salt dome locations in Winn Parish. *Figure 2-34* displays the locations of these salt domes with their relative location to the nearest jurisdiction. As depicted in *Figure 2-34*, the sinkholes are dispersed throughout Winn Parish. While the majority of sinkholes are located in unincorporated areas of the parish, a two mile buffer around each of the Winnfield and Cedar Creek salt domes encompass parts of Winnfield. Based on previous occurrences of sinkholes in the state of Louisiana, the worst case scenario for a sinkhole is one approximately 40 acres in size and 400 feet in depth.

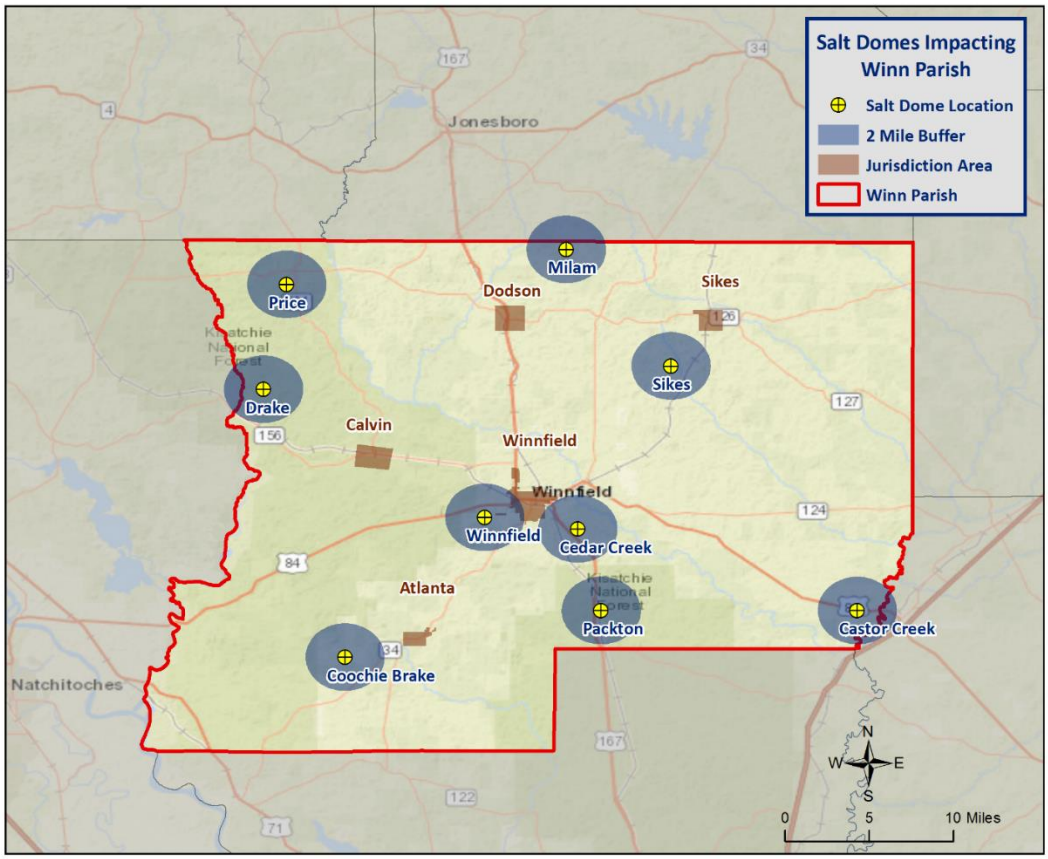

Figure 2-34: Salt Dome Locations in Winn Parish Relative to Jurisdictions

Previous Occurrences / Extents

There have been no recorded incidents of sinkholes or salt dome collapses in Winn Parish to date.

Frequency / Probability

Since there has been no recorded incidents of sinkhole or salt dome collapse in Winn Parish, the annual chance of occurrence is calculated at less than 1%.

Estimated Potential Losses

Nine salt domes were analyzed to determine the number of people and houses that are potentially susceptible to losses from a sinkhole materializing from one of the salt domes. The following tables are based on conducting a two-mile buffer around the center of the salt dome. The values were determined by querying the 2010 U.S. Census block data to determine the number of houses and people located within two miles of each salt dome. Critical facilities were also analyzed to determine if they fell within the two-mile

buffer of a salt dome. Total value for all occupancy groups from Hazus 2.2 was used to estimate a total loss of all facilities that were within two miles of a salt dome.

The salt dome that poses the greatest risk to Winn Parish is the Winnfield Salt Dome. The Winnfield Salt Dome contains a total of 410 homes and 817 people within its two-mile buffer.

Table 2-80: Estimated Potential Losses from a Sinkhole Formation
(Source: U.S. 2010 Census Data and Hazus 2.2)

Salt Dome Name	Total Building Exposure	Critical Infrastructure Exposure	Number of People Exposed	Number of Houses Exposed
Castor Creek	$3,066,000	0	6	3
Cedar Creek	$39,487,000	0	316	138
Coochie Brake	$596,000	0	0	0
Drake	$5,532,000	0	32	16
Milam	$13,947,000	0	101	47
Packton	$8,571,000	0	3	1
Price	$36,486,000	1	47	18
Sikes	$19,238,000	0	144	97
Winnfield	$227,093,000	1	817	410

Vulnerability

See Appendix C for parish and municipality building exposure to a sinkhole hazard.

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3. Capability Assessment

This section summarizes the results of the Winn 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, Winn 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

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

Table 3-1: Winn Parish Planning and Regulatory Capabilities

Worksheet 4.1: Capability Assessment Worksheet							
Local mitigation capabilities are existing authorities, polices and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible.							
Planning and Regulatory							
Please indicate which of the following plans and regulatory capabilities your jurisdiction has in place.							
	Winn Parish	Atlanta	Calvin	Dodson	Sikes	Winnfield	Comments
Plans				Yes / No			
Comprehensive / Master Plan	Yes	No	No	No	No	No	
Capital Improvements Plan	Yes	No	No	No	No	No	
Economic Development Plan	Yes	No	No	No	No	No	
Local Emergency Operations Plan	Yes	No	No	No	No	No	
Continuity of Operations Plan	Yes	No	No	No	No	No	
Transportation Plan	No	No	No	No	No	No	No public transportation
Stormwater Management Plan	No	No	No	No	No	No	
Community Wildfire Protection Plan	No	No	No	No	No	No	
Other plans (redevelopment, recovery, coastal zone management)	No	No	No	No	No	No	
Building Code, Permitting and Inspections				Yes / No			
Building Code	Yes	No	No	No	No	Yes	
Building Code Effectiveness Grading Schedule (BCEGS) Score	No	No	No	No	No	No	
Fire Department ISO/PIAL rating	Yes	No	Yes	Yes	Yes	No	
Site plan review requirements	Yes	No	Yes	Yes	Yes	Yes	
Land Use Planning and Ordinances				Yes / No			
Zoning Ordinance	No	No	No	No	No	No	
Subdivision Ordinance	No	No	No	No	No	No	
Floodplain Ordinance	Yes	No	Yes	No	No	Yes	
Natural Hazard Specific Ordinance (stormwater, steep slope, wildfire)	No	No	No	No	No	No	
Flood Insurance Rate Maps	Yes	No	Yes	No	No	Yes	
Acquisition of land for open space and public recreation uses	No	No	No	No	No	Yes	
Other	No	No	No	No	No	No	

Building Codes, Permitting, Land Use Planning and Ordinances

The Winn Parish Police Jury provides oversight for building permits and codes, and all parish ordinances where applicable.

As of the 2016 update, Winn 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 Winn Parish Police Jury is also responsible for enforcing the Parish Ordinances relating to health and safety, property maintenance standards, and condemnation of unsafe structures.

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

Table 3-2: Winn Parish Administrative and Technical Capabilities

Administration and Technical	Winn Parish	Atlanta	Calvin	Dodson	Sikes	Winnfield	Comments
Administration	Yes / No						
Planning Commission	Yes	No	No	No	No	No	
Mitigation Planning Committee	Yes	No	No	No	No	No	
Maintenance programs to reduce risk (tree trimming, clearing drainage systems)	Yes	No	No	No	No	No	
Staff	Yes / No; FT/PT; % Hazard Mitigation						
Chief Building Official	Yes	No	No	No	No	Yes	
Floodplain Administrator	Yes	No	No	No	No	Yes	Calvin - Relies on Parish
Emergency Manager	Yes	No	No	No	No	No	
Community Planner	No	No	No	No	No	Yes	
Civil Engineer	Yes	No	No	No	No	Yes	
GIS Coordinator	Yes	No	No	No	No	No	
Grant Writer	No	No	No	No	No	No	
Other	No	No	No	No	No	No	
Technical	Yes / No						
Warning Systems / Service (Reverse 911, outdoor warning signals)	Yes	No	No	No	No	No	
Hazard Data & Information	Yes	No	No	No	No	No	
Grant Writing	No	No	No	No	No	No	
Hazus Analysis	No	No	No	No	No	No	
Other	No	No	No	No	No	No	

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

Table 3-3: Winn Parish Financial Capabilities

Financial							
Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.							
	Winn Parish	Atlanta	Calvin	Dodson	Sikes	Winnfield	Comments
Funding Resource	Yes / No						
Capital Improvements project funding	Yes	No	No	No	No	No	
Authority to levy taxes for specific purposes	Yes	Yes	Yes	Yes	Yes	No	
Fees for water, sewer, gas, or electric services	Yes	Yes	Yes	Yes	Yes	Yes	
Impact fees for new development	No	No	No	No	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	Yes	Yes	Yes	Yes	Yes	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.

Winn 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: Winn Parish Education and Outreach Capabilities

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

In some cases, the jurisdictions rely on Winn Parish OHSEP and/or Winn 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, Winn 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 Winn 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:

- Village of Atlanta
- Village of Calvin
- Village of Dodson
- Village of Sikes
- City of Winnfield

Flood Insurance and Community Rating System

Winn 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.

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)

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 2016 update, Jefferson and Terrebonne Parishes all lead the state with best classifications, class 6.

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

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

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

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

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

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

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

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

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

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

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.

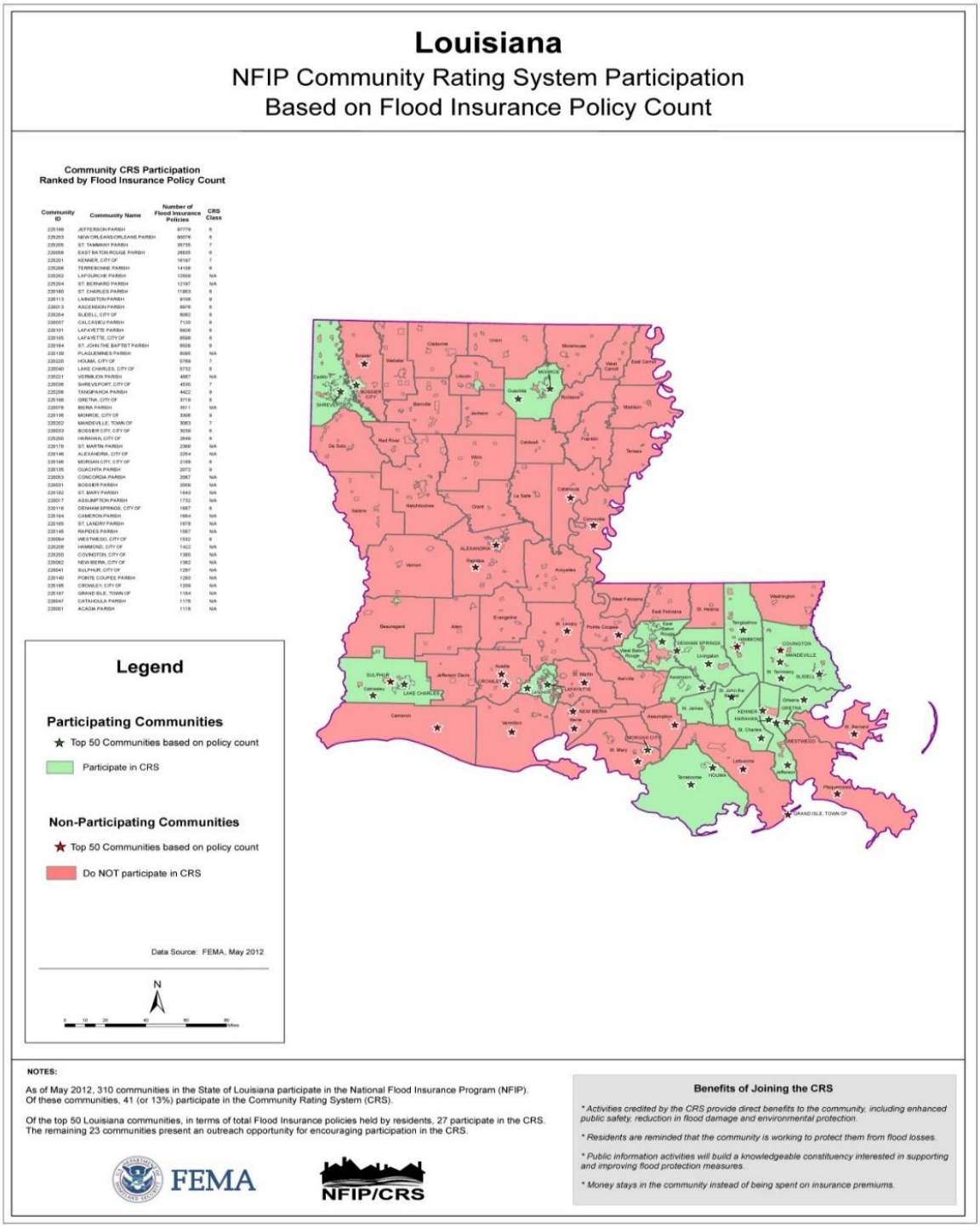

Figure 3-2: Louisiana CRS NFIP Participation
(Source: FEMA[2])

[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

Winn 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.

Winn Parish confirmed the goals, objectives, actions, and projects over the period of the Hazard Mitigation Plan Update process. The mitigation actions and projects in this 2016 update are a product of analysis and review of the Winn Parish Hazard Mitigation Plan Steering Committee, under the coordination of the Winn Parish Office of Homeland Security and Emergency Preparedness. The committee was presented a list of projects and actions, new and from the 2011 plan, for review from February 2016 – October 2016.

An online public opinion survey was conducted of Winn Parish residents between February and October 2016. The survey was designed to capture public perceptions and opinions regarding natural hazards in Winn 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 Winn 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 Winn Parish survey can be found at the following link:

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

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

Goals

The goals represent the guidelines that the parish and its communities want to achieve with this plan update. To help implement the strategy and adhere to the mission of the Hazard Mitigation Plan, the preceding section of the plan update was focused on identifying and quantifying the risks faced by the residents and property owners in Winn 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, Winn 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 Winn Parish Hazard Mitigation Plan Update Steering Committee represent long-term commitments by the parish and its jurisdictions. After assessing these goals, the committee decided that the current four goals remain valid.

The goals are as follows:

- Identify and pursue preventative measures that will reduce future damages to assets and risk to population from natural hazards
- Enhance public awareness and understanding of disaster preparedness and mitigation
- Promote economic stability through the reduction of natural hazard impacts in the parish and municipalities
- Facilitate sound development in the parish and municipalities through integration of mitigation practices that reduce or eliminate the potential impact of hazards

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

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

2016 Mitigation Actions and Update on Previous Plan Actions

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

Winn 2011 Hazard Mitigation Action Update

Actions for Winn Parish and All Incorporated Jurisdictions						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Responsible Party, Agency, or Department**	**Hazard**	**Goal**	**Status**
W1: Elevation and Acquisition of (NFIP) Repetitive Loss Structures	Objectives include, but are not limited to, Elevate and acquire the four (4) Repetitive Loss structures located in SFHA areas in the unincorporated parish, and/or other flood-prone structures with documented repetitive flood damage, and/or that become NFIP RL structures in the future.	homeowner participation, HMGP funding	Winn Parish and Jurisdiction Mayor (where applicable)	Flooding	Identify and pursue preventive measures that will reduce future damages to assets and risk to populations from natural hazards	Ongoing
W2: Flood-Proofing	Objectives include, but are not limited to, Dry flood proofing critical facilities located in SFHA's, such as the Winn Parish Medical Center or Winn Parish Airport.	HMGP funding	Winn Parish and Jurisdiction Mayor (where applicable)	Flooding	Identify and pursue preventive measures that will reduce future damages to assets and risk to populations from natural hazards	Carried over

W3: Retrofitting Critical Facilities	Objectives include, but are not limited to, Wind hardening the Winn Parish Courthouse and Sheriff's Station, as well as the Town Halls in the Villages of Atlanta, Calvin, Dodson and Sikes.	HMGP funding	Winn Parish and Jurisdiction Mayor (where applicable)	Hurricanes, tornados, windstorms	Identify and pursue preventive measures that will reduce future damages to assets and risk to populations from natural hazards	Carried over
W4: Safe Rooms	Objectives include, but are not limited to, Constructing safe rooms at the Winn Parish Courthouse, Winnfield Police Station and Dodson Town Hall	HMGP funding	Winn Parish and Jurisdiction Mayor (where applicable)	Tornados	Identify and pursue preventive measures that will reduce future damages to assets and risk to populations from natural hazards	Carried over
W5: Drainage Improvements	Improving the drainage capacity around roads and low-lying areas is a time-tested technique to mitigate flood damage. Improving drainage capacity in Winn parish can mitigate damage to buildings, critical facilities, and infrastructure (roads, bridges, culverts, pump station equipment, etc.), as well as damage to agricultural crops and pasture land. Improved drainage also protects life by ensuring through-passage on evacuation routes.	HMGP funding	Winn Parish and Jurisdiction Mayor (where applicable)	Flooding	Identify and pursue preventive measures that will reduce future damages to assets and risk to populations from natural hazards	Ongoing

W6: Public Awareness and Education	Objectives include, but are not limited to: • Parish and municipal programs to educate the citizenry on flood and high wind (thunderstorm, tornado) hazard risks, potential impacts and mitigation opportunities; • Municipal volunteer fire-fighter training in wildfire prevention and fire-fighting provided by the Kisatchie National Forest (US Forest Service). Winn Parish Hazard Mitigation Plan Update92 • Parish and municipal participation in Louisiana Department of Environmental Quality (LDEQ)'s Wellhead Protection Program to increase the public awareness of ground water protection to reduce drought impact potential; • Parish and municipal partnerships with Kisatchie National Forest staff, to conduct public information campaigns on wildfire risks and mitigation techniques, and volunteer programs for reducing wildfire risks in the Urban Wildland Interface; • Parish and municipal participation in Louisiana Department of Agriculture and Forestry (LDAF)'s Fire Wise program which teaches homeowners landscaping and proper storage of flammable materials to prevent fires in the Urban-Wildland Interface.	HMGP funding	Winn Parish and Jurisdiction Mayor (where applicable)	All Hazards	Enhance public awareness and understanding of disaster preparedness and mitigation	Ongoing
W7: Ordinances and Building Codes	As a Mitigation Measure, ordinances and building Codes are targeted for ongoing improvements by incorporating the improved assessment of flood and wildfire risks produced during this plan's update. Objectives include, but are not limited to, improving the floodplain management ordinance in Calvin, and/or the fire permitting process in the unincorporated parish.	Parish and HMGP funding	Winn Parish and Jurisdiction Mayor (where applicable)	Flooding, wildfire, drought, and high wind hazards	Promote economic stability through the reduction of natural hazard impacts in the parish and municipalities	Ongoing

W8: Zoning and Subdivision Regulations	Objectives include, but are not limited to, requiring new construction in subdivisions located in the Urban Wildland Interface to utilize fire resistant building materials and landscape designs, and water conservation technologies; and, requiring new construction to exceed the wind load requirements of the 2006 IBC.	Parish and HMGP funding	Winn Parish and Jurisdiction Mayor (where applicable)	Flooding, wildfire, drought, and high wind hazards	Promote economic stability through the reduction of natural hazard impacts in the parish and municipalities	Ongoing
W9: Early Warning Systems	Objectives include, but are not limited to, the implementation of a parish-wide siren system, where sirens are strategically placed in order to be heard by all parish citizens in all locations; and, the implementation of a ring-down "reverse 911" system which utilizes existing phone lines to simultaneously call all phone numbers within a specified geographic area with an automated warning disseminated.	Parish and HMGP funding	Winn Parish and Jurisdiction Mayor (where applicable)	flood, tornado, wildfire, or thunderstorm	Facilitate sound development in the parish and municipalities through the integration of mitigation practices that reduce or eliminate the potential impact of hazards	Carried over

Unincorporated Winn New Mitigation Actions

Winn Unincorporated - New Mitigation Actions						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
W1: 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	Winn Parish OHSEP	High Wind, Hail, Tropical Cyclones, Tornadoes	New
W2: 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	Winn Parish OHSEP	Flooding, Tropical Cyclones	New
W3: 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	Winn Parish OHSEP	Flooding, Tropical Cyclones, Sinkholes	New
W4: Safe Room Projects	Construction of a safe room for first responders located in Winn Parish. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Winn Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
W5: Education and Outreach	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for Flooding, Tropical Cyclones, Tornadoes, Wildfires, Thunderstorms (lightning, high wind, hail), Drought, and Sinkhole 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	Winn Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Thunderstorms (lightning, high wind, hail), Drought, Sinkholes	New

W6: 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	Winn Parish OHSEP	Tornadoes, Tropical Cyclones, Thunderstorms (lightning, high wind, hail)	New
W7: 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	Winn Parish OHSEP	Lightning	New
W8: Warning Systems	Update/upgrade public warning system components throughout Winn Parish as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Winn Parish OHSEP	Wildfires, Tornadoes, Tropical Cyclones, Sinkholes	New
W9: 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	Winn Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes	New
W10: 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	Winn Parish OHSEP	Tropical Cyclones, Flooding	New
W11: Drought Ordinances	Adopt ordinances requiring water-saving measures in time of drought	FEMA HMGP, Local	1-5 years	Winn Parish OHSEP	Drought	New

Village of Atlanta - New Mitigation Actions

Village of Atlanta						
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	Village of Atlanta/Winn Parish OHSEP	High Winds, Hail, Tropical Cyclones, Tornadoes	New
A2: Drainage Improvements	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	FEMA HMGP, Local	1-5 years	Village of Atlanta/Winn 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	Village of Atlanta/Winn Parish OHSEP	Flooding, Tropical Cyclones	New
A4: Safe Room Projects	Construction of a safe room for first responders located in Atlanta. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Village of Atlanta/Winn 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 Drought 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 Atlanta/Winn Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Thunderstorms (lightning, high wind, hail), Drought	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	Village of Atlanta/Winn Parish OHSEP	Tornadoes, Tropical Cyclones, Thunderstorms (lightning, high wind, hail)	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	Village of Atlanta/Winn Parish OHSEP	Lightning	New
A8: Warning Systems	Update/upgrade public warning system components throughout Atlanta as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Village of Atlanta/Winn Parish OHSEP	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	Village of Atlanta/Winn 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	Village of Atlanta/Winn Parish OHSEP	Tropical Cyclones, Flooding	New
A11: Drought Ordinances	Adopt ordinances requiring water-saving measures in time of drought	FEMA HMGP, Local	1-5 years	Village of Atlanta/Winn Parish OHSEP	Drought	New

Village of Calvin - New Mitigation Actions

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

C6: Generators for continuity of operations and government	Procurement and Installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Village of Calvin/Winn Parish OHSEP	Tornadoes, Tropical Cyclones, Thunderstorms (lightning, high wind, hail)	New
C7: Lightning Mitigation	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Village of Calvin/Winn Parish OHSEP	Lightning	New
C8: Warning Systems	Update/upgrade public warning system components throughout Calvin as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Village of Calvin/Winn Parish OHSEP	Wildfires, Tornadoes, Tropical Cyclones	New
C9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Village of Calvin/Winn Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes	New
C10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Village of Calvin/Winn Parish OHSEP	Tropical Cyclones, Flooding	New
C11: Drought Ordinances	Adopt ordinances requiring water-saving measures in time of drought	FEMA HMGP, Local	1-5 years	Village of Calvin/Winn Parish OHSEP	Drought	New

Village of Dodson - New Mitigation Actions

Village of Dodson						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
D1: Building Retrofits	Retrofit public buildings exterior shell to maintain use during and after storm events. Benefits: Reduces damage from high winds, and helps assure that the public buildings can be used, occupied and operable during or after storms.	FEMA HMGP, Local	1-5 years	Village of Dodson/Winn Parish OHSEP	High Winds, Hail, Tropical Cyclones, Tornadoes	New
D2: Drainage Improvements	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	FEMA HMGP, Local	1-5 years	Village of Dodson/Winn Parish OHSEP	Flooding, Tropical Cyclones	New
D3: Mitigation of repetitive loss and severe repetitive loss properties and other hazard prone structures	Elevation, acquisition-demolition, acquisition-relocations, and reconstruction of repetitive loss or flooding or other hazard prone properties.	FEMA HMGP, Local	1-5 years	Village of Dodson/Winn Parish OHSEP	Flooding, Tropical Cyclones	New
D4: Safe Room Projects	Construction of a safe room for first responders located in Dodson. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	Village of Dodson/Winn Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
D5: Education and Outreach	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for Flooding, Tropical Cyclones, Tornadoes, Wildfires, Thunderstorms (lightning, high wind, hail), and Drought 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 Dodson/Winn Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Thunderstorms (lightning, high wind, hail), Drought	New

D6: Generators for continuity of operations and government	Procurement and Installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Village of Dodson/Winn Parish OHSEP	Tornadoes, Tropical Cyclones, Thunderstorms (lightning, high wind, hail)	New
D7: Lightning Mitigation	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Village of Dodson/Winn Parish OHSEP	Lightning	New
D8: Warning Systems	Update/upgrade public warning system components throughout Dodson as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Village of Dodson/Winn Parish OHSEP	Wildfires, Tornadoes, Tropical Cyclones	New
D9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Village of Dodson/Winn Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes	New
D10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Village of Dodson/Winn Parish OHSEP	Tropical Cyclones, Flooding	New
D11: Drought Ordinances	Adopt ordinances requiring water-saving measures in time of drought	FEMA HMGP, Local	1-5 years	Village of Dodson/Winn Parish OHSEP	Drought	New

Village of Sikes - New Mitigation Actions

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

S6: Generators for continuity of operations and government	Procurement and Installation of generators at public facilities to ensure continued operations during and after events.	FEMA HMGP, Local	1-5 years	Village of Sikes/Winn Parish OHSEP	Tornadoes, Tropical Cyclones, Thunderstorms (lightning, high wind, hail)	New
S7: Lightning Mitigation	Procurement and Installation of Lightning rods and surge protectors for public buildings to preserve life and property	FEMA HMGP, Local	1-5 years	Village of Sikes/Winn Parish OHSEP	Lightning	New
S8: Warning Systems	Update/upgrade public warning system components throughout Sikes as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	Village of Sikes/Winn Parish OHSEP	Wildfires, Tornadoes, Tropical Cyclones	New
S9: Potable Water	Create redundancy of potable water supply to critical facilities, especially hospitals in Parish, and provide protection of potable water supply by acquisition/installation of backflow preventers at appropriate critical locations.	FEMA HMGP, Local	1-5 years	Village of Sikes/Winn Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes	New
S10: Promote Flood Insurance	Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).	FEMA HMGP, Local	1-5 years	Village of Sikes/Winn Parish OHSEP	Tropical Cyclones, Flooding	New
S11: Drought Ordinances	Adopt ordinances requiring water-saving measures in time of drought	FEMA HMGP, Local	1-5 years	Village of Sikes/Winn Parish OHSEP	Drought	New

City of Winnfield - New Mitigation Actions

City of Winnfield						
Jurisdiction-Specific Action	**Action Description**	**Funding Source**	**Target Completion Date**	**Responsible Party, Agency, or Department**	**Hazard**	**Status**
W1: 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 Winnfield/Winn Parish OHSEP	High Winds, Hail, Tropical Cyclones, Tornadoes	New
W2: Drainage Improvements	Will relieve flooding problems, reduce flood damage and costs of damage, overtopping of roads with drain water, while also keeping open roadways during periods of high precipitation. Benefits: Relieves Parish or local government and property owners of the continual flooding problems, with closed roadways (loss of function). Saves public funds for road repairs, drainage ditch repairs, sandbagging and blocking of roadways during storm periods.	FEMA HMGP, Local	1-5 years	City of Winnfield/Winn Parish OHSEP	Flooding, Tropical Cyclones	New
W3: 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 Winnfield/Winn Parish OHSEP	Flooding, Tropical Cyclones, Sinkholes	New
W4 Safe Room Projects	Construction of a safe room for first responders located in Winnfield. Other locations will be identified based on funding availability.	FEMA HMGP, Local	1-5 years	City of Winnfield/Winn Parish OHSEP	Tornadoes, High Wind, Tropical Cyclones, Wildfires	New
W5: Education and Outreach	Enhance the public outreach programs for the parish and all communities by increasing awareness of risks and safety for Flooding, Tropical Cyclones, Tornadoes, Wildfires, Thunderstorms (lightning, high wind, hail), Drought, and Sinkhole 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 Winnfield/Winn Parish OHSEP	Flooding, Tropical Cyclones, Tornadoes, Wildfires, Thunderstorms (lightning, high wind, hail), Drought, Sinkholes	New

W6: 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 Winnfield/Winn Parish OHSEP	Tornadoes, Tropical Cyclones, Thunderstorms (lightning, high wind, hail)	New
W7: 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 Winnfield/Winn Parish OHSEP	Lightning	New
W8: Warning Systems	Update/upgrade public warning system components throughout Winnfield as necessary. Install audible and/or reverse 911 warning system(s)	FEMA HMGP, Local	1-5 years	City of Winnfield/Winn Parish OHSEP	Wildfires, Tornadoes, Tropical Cyclones, Sinkholes	New
W9: 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 Winnfield/Winn Parish OHSEP	Tropical Cyclones, Thunderstorms (lightning, high wind, hail), Tornadoes	New
W10: 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 Winnfield/Winn Parish OHSEP	Tropical Cyclones, Flooding	New
W11: Drought Ordinances	Adopt ordinances requiring water-saving measures in time of drought	FEMA HMGP, Local	1-5 years	City of Winnfield/Winn Parish OHSEP	Drought	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 Winn 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.

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

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Appendix A: Planning Process

Purpose

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

The Winn 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.

Winn Parish includes the unincorporated areas of the parish, as well as five incorporated municipalities that participated in the plan update process – the Village of Atlanta, Village of Calvin, Village of Dodson, Village of Sikes, and the City of Winnfield. Winn 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
1/15/2016	Initial Coordination	Telephone/ Email	No	Discuss with Parish HM coordinator and any Steering Committee members expectations and requirements of the project.
2/4/2016	Kick-Off Meeting	Winnfield, LA	No	Discuss with the plan steering committee expectations and requirements of the project. Assign plan worksheets to jurisdictions.
9/14/2016	Risk Assessment Overview	Winnfield, LA	No	Discuss and review the risk assessment with the steering committee discuss and review expectations for public meeting.
9/14/2016	Public Meeting	Winnfield, 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 Winn 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 Winn 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/WinnParish
2 Week Period	Public Plan Review (Digital)		Yes	Parish Website and Winn 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	Month 10	Month 11	Month 12
Plan Revision											
Data Collection											
Risk Assessment											
Public Input											
Mitigation Strategy and Actions											
Plan Review by GOHSEP and FEMA											
Plan Adoption											
Plan Approval											

Coordination

The Winn Parish OHSEP oversaw the coordination of the 2016 Hazard Mitigation Plan Update Steering Committee during the update process. The Winn 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 2016 Hazard Mitigation Plan Update Steering Committee consisted of representatives from the following parish, municipal, or community stakeholders:

- Winn Parish Police Jury
- Winn Office of Homeland Security and Emergency Preparedness
- Village of Atlanta
- Village of Calvin
- Village of Dodson
- Village of Sikes
- City of Winnfield

The OEP Director for Caldwell Parish was invited by the Winn 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 6 Coordinator during the process also contributed to neighboring community representation.

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

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

Name	Title	Agency	Address	Email	Phone
Cranford Jordan	Sheriff/ Director	Winn OHSEP	119 W. Main St. Winnfield, LA 71483	wp1jordan@winnparish.org	(318) 628-4611
Cindy Tilton	Administrative Assistant	Winn OHSEP	119 W. Main St. Winnfield, LA 71483	winnohsep@winnparish.org	(318) 628-1160
Allen Michael McCartney	Parish President	Winn Parish Police Jury	119 W. Main St. Winnfield, LA 71483	mccartam@bellsouth.net	(318) 332-7883
Karen Tyler	Secretary/ Treasurer	Winn Parish Police Jury	119 W. Main St. Winnfield, LA 71483	pj1admin@wppj.net	(318) 628-5824
Janet Finklea	Mayor	Village of Atlanta	176 Collier St. Atlanta, LA 71404	N/A	(318) 628-6789
Jeff Canerday	Mayor	Village of Calvin	455 Elliot Ave. Calvin, LA 71410	N/A	(318) 727-9276
Verna Hollingsworth	Mayor	Village of Dodson	205 Gresham Rd. Dodson, LA 71422	N/A	(318) 628-3775
Kenneth Womack	Mayor	Village of Sikes	212 2nd St. Sikes, LA 71473	N/A	(318) 628-2634
Kiah Beville	Mayor	City of Winnfield	120 E. Main St. Winnfield, LA 71483	N/A	(318) 628-3939
Dale Powell	Director	Caldwell OHSEP	P.O Box 1737 Columbia, LA	caldwellohsep@bellsouth.net	(318) 649-3764
Teresa Basco	Regional Coordinator	GOHSEP	7667 Independence Blvd. Baton Rouge, LA 70806	Teresa.Basco@LA.GOV	(225) 925-7500

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 Winn 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 Winn 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 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 Winn Parish.

Meeting #1: Coordination Discussion

Date: January 15, 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: Winn Parish OHSEP, SDMI Staff

Meeting #2: Hazard Mitigation Plan Update Kick-Off

Date: February 4, 2016

Location: Winnfield, LA

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

Public Initiation: No

Invitees Included:

Name	Title	Agency
Cranford Jordan	Sheriff/Director	Winn OHSEP
Cindy Tilton	Administrative Assistant	Winn OHSEP
Allen Michael McCartney	Parish President	Winn Parish Police Jury
Karen Tyler	Secretary/ Treasurer	Winn Parish Police Jury
Janet Finklea	Mayor	Village of Atlanta
Jeff Canerday	Mayor	Village of Calvin
Verna Hollingsworth	Mayor	Village of Dodson
Kenneth Womack	Mayor	Village of Sikes
Kiah Beville	Mayor	City of Winnfield
Dale Powell	Director	Caldwell OHSEP
Teresa Basco	Regional Coordinator	GOHSEP

Meeting #3: Risk Assessment Overview

Date: September 14, 2016

Location: Winnfield, 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
Cranford Jordan	Sheriff/Director	Winn OHSEP
Cindy Tilton	Administrative Assistant	Winn OHSEP
Allen Michael McCartney	Parish President	Winn Parish Police Jury
Karen Tyler	Secretary/ Treasurer	Winn Parish Police Jury
Janet Finklea	Mayor	Village of Atlanta
Jeff Canerday	Mayor	Village of Calvin
Verna Hollingsworth	Mayor	Village of Dodson
Kenneth Womack	Mayor	Village of Sikes
Kiah Beville	Mayor	City of Winnfield
Dale Powell	Director	Caldwell OHSEP
Teresa Basco	Regional Coordinator	GOHSEP

Meeting #4: Public Meeting

Date: September 14, 2016

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

Public Initiation: Yes

Invitees Included:

Name	Title	Agency
Cranford Jordan	Sheriff/Director	Winn OHSEP
Cindy Tilton	Administrative Assistant	Winn OHSEP
Allen Michael McCartney	Parish President	Winn Parish Police Jury
Karen Tyler	Secretary/ Treasurer	Winn Parish Police Jury
Janet Finklea	Mayor	Village of Atlanta
Jeff Canerday	Mayor	Village of Calvin
Verna Hollingsworth	Mayor	Village of Dodson
Kenneth Womack	Mayor	Village of Sikes
Kiah Beville	Mayor	City of Winnfield
Dale Powell	Director	Caldwell OHSEP
Teresa Basco	Regional Coordinator	GOHSEP

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

Meeting Public Notice

WINN PARISH
OFFICE OF HOMELAND SECURITY & EMERGENCY PREPAREDNESS

MEETING NOTICE – September 14, 2016

Winn Parish to hold Public Meetings for Hazard Mitigation Plan Update

Winnfield, LA – Winn Parish Office of Homeland Security & Emergency Preparedness is in the process of updating the Winn Parish Hazard Mitigation Plan and are required to hold public meetings on the plan update. The Public meeting will be held on September 14, 2016 in the Winn Parish Courthouse Meeting Room located at 119 W. Main Street from 2:30PM to 3:30PM.

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

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

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

Winn Parish is in the beginning stages of updating its hazard mitigation plan. Public meeting will be held on Septmeber 14 for all citizens interested in learning about and participating in discussions concerning the Winn Parish Hazard Mitigation Plan.

Residents of Winn 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/WinnParish

For more information, please contact: Winn Parish OHSEP

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

Outreach Activity #1: Public Opinion Survey

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

Outreach Activity #2: Incident Questionnaire

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

Outreach Activity #3: Mapping Activities

Public meeting attendees were asked to identify areas on jurisdictional maps provided that were "problem areas". They were also asked to indicate any areas of new development. This activity gave the public an opportunity to interact with SDMI's GIS Mapping section, as well as provide valuable input on areas that may flood repeatedly during rain events that may not get reported to local emergency managers as significant events. No feedback was collected at this time.

Public Plan Review Documentation

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

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Appendix B: Plan Maintenance

Purpose

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

Monitoring, Evaluating, and Updating the Plan

The Winn 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

Winn 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

Winn 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 Winn 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 indicates a substantial change in hazard profile and risk assessment in the parish.

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

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

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

2016 Plan Version Plan Method and Schedule Evaluation

For the current plan update, the previously approved plan's method and schedule were evaluated to determine if the elements and processes involved in the required 2016 update. Based on this analysis, the method and schedule were deemed to be acceptable, and nothing was changed for this update.

Incorporation into Existing Planning Programs

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

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

Opportunities to integrate the requirements of this plan into other local planning mechanisms will continue to be identified through future meetings of the Winn 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

Winn Parish Hazard Mitigation Plan, and will not contribute to increased hazard vulnerability within the parish.

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

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

On behalf of the unincorporated areas of the parish and jurisdictions of the Village of Atlanta, Village of Calvin, Village of Dodson, Village of Sikes, and City of Winnfield, Winn 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:

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

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

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

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

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

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

Continued Public Participation

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

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

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Appendix C: Essential Facilities

Winn Parish Essential Facilities – All Jurisdictions

Winn Unincorporated Essential Facilities										
Type	**Name**	**Drought***	**Flooding**	**Hail**	**Lightning**	**Wind**	**Tornadoes**	**Tropical Cyclones**	**Sinkholes**	**Wildfire**
Fire and Rescue	St. Maurice Fire Station			X	X	X	X	X		X
	Winn Parish Fire Dept.			X	X	X	X	X		X
	Winn Parish Fire Dep.			X	X	X	X	X		X
	Winn Parish Fire Dept.		X	X	X	X	X	X		
	Winn Parish Fire Dept.			X	X	X	X	X		X
	Winn Parish Fire Dept.		X	X	X	X	X	X		
	Winn Parish Fire District 3 - Brewton Mill Station			X	X	X	X	X	X	
	Winn Parish Fire District 3 - Cypress Creek Station			X	X	X	X	X		
	Winn Parish Fire District 3 - Shady Grove Station			X	X	X	X	X		
	Winn Parish Fire District 3 - Wheeling Station			X	X	X	X	X		
Government	Winn Parish Kisatchie Work Center		X	X	X	X	X	X		X
	Winn Parish Outdoor/Environmental Educational Complex		X	X	X	X	X	X	X	X
Law Enforcement	Winn Ranger Station			X	X	X	X	X		
Corrections	Winn Correctional Facility			X	X	X	X	X		
Schools	Winnfield Middle School			X	X	X	X	X		X

Atlanta Essential Facilities										
Type	Name	Drought*	Flooding	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Sinkholes	Wildfire
Fire and Rescue	Winn Parish Fire District 3 - Atlanta Station			X	X	X	X	X		X
Government	Atlanta Village Hall		X	X	X	X	X	X		X
Schools	Atlanta Elementary School			X	X	X	X	X		X
	Atlanta High School			X	X	X	X	X		X
	Atlanta Middle School			X	X	X	X	X		X

Calvin Essential Facilities										
Type	Name	Drought*	Flooding	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Sinkholes	Wildfire
Fire and Rescue	Winn Parish Fire Department			X	X	X	X	X		X
Government	Village Office of Calvin			X	X	X	X	X		
Schools	Calvin High School			X	X	X	X	X		X

Dodson Essential Facilities										
Type	Name	Drought*	Flooding	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Sinkholes	Wildfire
Government	Dodson Town Hall			X	X	X	X	X		X
Schools	Dodson High School			X	X	X	X	X		

Sikes Essential Facilities										
Type	Name	Drought*	Flooding	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Sinkholes	Wildfire
Fire and Rescue	Winn Parish Fire District 3 - Sikes Station			X	X	X	X	X		
Government	Sikes Village Hall			X	X	X	X	X		X

Winnfield Essential Facilities										
Type	Name	Drought*	Flooding	Hail	Lightning	Wind	Tornado	Tropical Cyclone	Sinkholes	Wildfire
Fire and Rescue	Winnfield Central Fire Station			X	X	X	X	X		
Government	City of Winnfield Court Building			X	X	X	X	X		
	City of Winnfield Utilities Office			X	X	X	X	X		X
	LA Work Force Commission			X	X	X	X	X		X
	Winn Parish Courthouse			X	X	X	X	X		
	Winn Parish Office of Family Support			X	X	X	X	X		X
	Winn Parish Office of the Public Defender			X	X	X	X	X		
	Winn Parish Road Department			X	X	X	X	X		X
	Winn Parish School Board			X	X	X	X	X		
	Winn Parish Special Services Office			X	X	X	X	X		
	Winnfield Animal Shelter			X	X	X	X	X		
	Winnfield City Court Clerk of Court			X	X	X	X	X		X
	Winnfield Maintenance Unit			X	X	X	X	X		

Law Enforcement	City of Winnfield Police Station			X	X	X	X	X		
Public Health	Winn Parish Medical Center			X	X	X	X	X		
	Winnfield Specialty Hospital			X	X	X	X	X		X
Schools	Winnfield Kindergarten School			X	X	X	X	X		X
	Winnfield Primary School			X	X	X	X	X		
	Winnfield Senior High School			X	X	X	X	X		

* There are no critical facilities vulnerable to the hazard.

Appendix D: Plan Adoption

State of Louisiana

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

On motion by Mrs. Deionne Carpenter and second by Mr. Phillip Evans, the Winn Parish Police Jury adopted the following Resolution

Resolution #018 of 2017
RESOLUTION

WHEREAS, the PARISH OF WINN recognizes the threat that natural hazards pose to people and property within WINN PARISH; and;

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

WHEREAS, WINN PARISH HAZARD MITIGATION PLAN-UPDATE 2016 identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in WINN PARISH from the impacts of future hazards and disasters; and

WHEREAS, adoption by the PARISH OF WINN demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the WINN PARISH HAZARD MITIGATION PLAN-UPDATE 2016.

NOW THEREFORE BE IT RESOLVED by the PARISH OF WINN, LOUISIANA that, the Winn Parish Office of Homeland Security and Emergency Preparedness adopts the WINN PARISH HAZARD MITIGATION PLAN-UPDATE 2016.

This Resolution having been submitted to a vote, the vote thereon was as follows:
Yeas: Phillip Evans, Don Leach, Author Robinson, Deionne Carpenter
Nays: 0
Absent: Mike Carpenter, Allen Michael McCartney
Abstained: McAllister (Vice-President)

The foregoing proposed Resolution is approved.

JOSHUA MCALLISTER, VICE-PRESIDENT

ATTEST:

KAREN TYLER-SECRETARY/TREASURER

I, Karen Tyler, Secretary/Treasurer of the Winn Parish Police Jury, do hereby certify that the above and foregoing is true and correct copy of a resolution adopted by the Winn Parish Police Jury, meeting in regular session on Monday, November 20, 2017 at which meeting a quorum was present and voting.
GIVEN UNDER MY OFFICIAL SIGNATURE AND SEAL of office, on this 18 day of Dec 2017.

SEAL

KAREN TYLER-SECRETARY/TREASURER

WINN PARISH

LOUISIANA

RESOLUTION NO. HM-2016

A RESOLUTION OF THE PARISH OF WINN

WINN PARISH HAZARD MITIGATION PLAN- UPDATE 2016

WHEREAS the PARISH OF WINN recognizes the threat that natural hazards pose to people and property within WINN PARISH; and

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WHEREAS adoption by the PARISH OF WINN demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the WINN PARISH HAZARD MITIGATION PLAN- UPDATE 2016.

NOW THEREFORE, BE IT RESOLVED BY THE PARISH OF WINN, LOUISIANA, THAT:

THE WINN PARISH OFFICE OF HOMELAND SECURITY AND EMERGENCY PREPAREDNESS adopts the WINN PARISH HAZARD MITIGATION PLAN- UPDATE 2016.

ADOPTED this 28 day of August, 2017.

By: Janet L Jimblea

For the Village of Atlanta, Winn Parish

APPROVED AS TO FORM:

By: _____

Cranford Jordan, Director
Winn Parish OEP

WINN PARISH

LOUISIANA

RESOLUTION NO. HM-2016

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NOW THEREFORE, BE IT RESOLVED BY THE PARISH OF WINN, LOUISIANA, THAT:

THE WINN PARISH OFFICE OF HOMELAND SECURITY AND EMERGENCY PREPAREDNESS adopts the WINN PARISH HAZARD MITIGATION PLAN- UPDATE 2016.

ADOPTED this 18 day of July, 2017.

By: Marlan Hodges

For the Village of Calvin, Winn Parish

APPROVED AS TO FORM:

By: [signature]

Cranford Jordan, Director
Winn Parish OEP

[signature]

WINN PARISH

LOUISIANA

RESOLUTION NO. HM-2016

A RESOLUTION OF THE PARISH OF WINN

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WHEREAS adoption by the PARISH OF WINN demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the WINN PARISH HAZARD MITIGATION PLAN- UPDATE 2016.

NOW THEREFORE, BE IT RESOLVED BY THE PARISH OF WINN, LOUISIANA, THAT:

THE WINN PARISH OFFICE OF HOMELAND SECURITY AND EMERGENCY PREPAREDNESS adopts the WINN PARISH HAZARD MITIGATION PLAN- UPDATE 2016.

ADOPTED this 13 day of October, 20 17.

By: _____

For the Village of Dodson, Winn Parish

APPROVED AS TO FORM:

By: _____

Cranford Jordan, Director
Winn Parish OEP

WINN PARISH

LOUISIANA

RESOLUTION NO. HM-2016

A RESOLUTION OF THE PARISH OF WINN

WINN PARISH HAZARD MITIGATION PLAN- UPDATE 2016

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

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WHEREAS adoption by the PARISH OF WINN demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the WINN PARISH HAZARD MITIGATION PLAN- UPDATE 2016.

NOW THEREFORE, BE IT RESOLVED BY THE PARISH OF WINN, LOUISIANA, THAT:

THE WINN PARISH OFFICE OF HOMELAND SECURITY AND EMERGENCY PREPAREDNESS adopts the WINN PARISH HAZARD MITIGATION PLAN- UPDATE 2016.

ADOPTED this 13th day of October 20 17.

By: Kenneth Wamack

For the Village of Sikes, Winn Parish

APPROVED AS TO FORM:

By: _____

Cranford Jordan, Director
Winn Parish OEP

WINN PARISH

LOUISIANA

RESOLUTION NO. HM-2016

A RESOLUTION OF THE PARISH OF WINN

WINN PARISH HAZARD MITIGATION PLAN- UPDATE 2016

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WHEREAS adoption by the PARISH OF WINN demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the WINN PARISH HAZARD MITIGATION PLAN- UPDATE 2016.

NOW THEREFORE, BE IT RESOLVED BY THE PARISH OF WINN, LOUISIANA, THAT:

THE WINN PARISH OFFICE OF HOMELAND SECURITY AND EMERGENCY PREPAREDNESS adopts the WINN PARISH HAZARD MITIGATION PLAN- UPDATE 2016.

ADOPTED this 8th day of August, 2017.

By: _____

For the City of Winnfield, Winn Parish

APPROVED AS TO FORM:

By: _____

Cranford Jordan, Director
Winn Parish OEP

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	Email	Phone
Cranford Jordan	Sheriff/ Director	Winn OHSEP	119 W. Main St. Winnfield, LA 71483	wp1jordan@winnparish.org	(318) 628-4611
Cindy Tilton	Administrative Assistant	Winn OHSEP	119 W. Main St. Winnfield, LA 71483	winnohsep@winnparish.org	(318) 628-1160
Allen Michael McCartney	Parish President	Winn Parish Police Jury	119 W. Main St. Winnfield, LA 71483	mccartam@bellsouth.net	(318) 332-7883
Karen Tyler	Secretary/ Treasurer	Winn Parish Police Jury	119 W. Main St. Winnfield, LA 71483	pj1admin@wppj.net	(318) 628-5824
Janet Finklea	Mayor	Village of Atlanta	176 Collier St. Atlanta, LA 71404	N/A	(318) 628-6789
Jeff Canerday	Mayor	Village of Calvin	455 Elliot Ave. Calvin, LA 71410	N/A	(318) 727-9276
Verna Hollingsworth	Mayor	Village of Dodson	205 Gresham Rd. Dodson, LA 71422	N/A	(318) 628-3775
Kenneth Womack	Mayor	Village of Sikes	212 2nd St. Sikes, LA 71473	N/A	(318) 628-2634
Kiah Beville	Mayor	City of Winnfield	120 E. Main St. Winnfield, LA 71483	N/A	(318) 628-3939
Dale Powell	Director	Caldwell OHSEP	P.O Box 1737 Columbia, LA	caldwellohsep@bellsouth.net	(318) 649-3764
Teresa Basco	Regional Coordinator	GOHSEP	7667 Independence Blvd. Baton Rouge, LA 70806	Teresa.Basco@LA.GOV	(225) 925-7500

Capability Assessment

See Section 3, Capability Assessment

Building Inventory

Critical Facility (If Yes, Mark X)	Name of Building	Purpose of Building	Address	City	Latitude	Longitude	Assessed Value	Date Built	Construction Type
Winn Unincorporated									
	St. Maurice Fire Station	Fire Search and Rescue	578 2nd Street	St. Maurice	31.75762444	-92.95478431			
	Winn Parish Fire Department	Fire Search and Rescue	10187 South Main Street	Tullos	31.85500806	-92.42760469			
	Winn Parish Fire District 3 - Brewton Mill Station	Fire Search and Rescue	Hwy 501	Brewton Mill	32.11190536	-92.8430802			
	Winn Parish Fire District 3 - Wheeling Station	Fire Search and Rescue	Hwy 34	Wheeling	31.74696505	-92.837589			
	Winn Parish Courthouse	Government	119 W. Main Street	Winnfield			7,000,000	1962	Reinforced Masonry
	Winn Parish Courthouse Annex	Government	201 W. Main Street	Winnfield			750,000	renovated 2014	Reinforced Masonry
	Winn Parish Health Unit	Health/ Government	301 W. Main Street	Winnfield			1,875,000	1949 renovated 2009	Reinforced Masonry
Atlanta									
	Atlanta High School	Education	118 School Road	Atlanta	31.80664193	-92.73285555	5,167,175	1940	Concrete
	Atlanta Middle School	Education	118 School Road	Atlanta	31.80700847	-92.73331891	5,167,175	1940	Concrete
	Atlanta Elementary School	Education	None	Atlanta	31.80631343	-92.73323592	5167175	1940	Concrete
	Winn Parish Fire District 3 - Atlanta Station	Fire Search and Rescue	176 Collier St.	Atlanta	31.80514011	-92.73444402	$45,000	2001	Metal
	Atlanta Parish Library	Education	110 School Road	Atlanta			$150,000	1980s	Concrete
Calvin									
	Calvin High School	Education	223 2nd Street	Calvin			4,902,050	1950	Concrete
	Calvin Middle School	Education	223 2nd Street	Calvin			4,902,050	1950	Concrete
	Calvin Elementary School	Education	223 2nd Street	Calvin			4902050	1950	Concrete
	Winn Parish Fire District 3- Calvin Station	Fire Search and Rescue	455 Elliot Street	Calvin			$140,000	2001	Metal

	Village Office of Calvin (Town Hall)	Civil Government	455 Elliott Avenue	Calvin			$40,000	2015	Metal
	Calvin-Parish Library	Education	255 2nd Street	Calvin			$150,000	1980	Concrete
Dodson									
	Vacant School	Education	Nearby: 501-505 McDade Street	Dodson	32.0816257	-92.66493286	88,560	1965	Concrete
	Winn Parish Fire District 3 - Cypress Creek Station	Fire Search and Rescue	Nearby: 1882-2594 Louisiana 505	Dodson	32.08435107	-92.76069128	10,950	1980	Metal
	Dodson Town Hall	Civil Government	205 Gresham	Dodson	32.07750333	-92.65901513	20175	1970	Metal
	Dodson High School	Education	305 South 6th Street	Dodson			9456018	1963	Concrete
	Dodson Middle School	Education	305 South 6th Street	Dodson			9456018	1963	Concrete
	Dodson Elementary School	Education	305 South 6th Street	Dodson			9456018	1963	Concrete
	Dodson Parish Library	Education	206 E. Gresham St.	Dodson			$150,000	1980	Concrete
Sikes									
	Winn Parish Fire District 3 - Shady Grove Station	Fire Search and Rescue	3115 Hwy 127	Sikes	32.00386241	-92.37829991	$150,000	2001	Metal
	Winn Parish Fire District 3 - Sikes Station	Fire Search and Rescue	Nearby: Front Street	Sikes	32.0797003	-92.48713661	$150,000	2001	Metal
	Sikes Parish Library	Education	125 Fifth Ave.	Sikes			$150,000	1980	Concrete
Winnfield									
	Winnfield Senior High School	Education	Hwy 167	Winnfield	31.94663372	-92.65508783	13285582	1964	Concrete
	Winnfield Primary School	Education	401 South Saint John Street	Winnfield	31.92414779	-92.64134405	5614255	1988	Concrete
	Dodson High School	Education	304 East Court Street	Winnfield	32.07645008	-92.65776924	9456018	1963	Concrete
	Winnfield Kindergarten School	Education	1010 West Boundary Avenue	Winnfield	31.92778799	-92.62504545	2779370	1968	Concrete
	Winnfield Middle School	Education	685 Thomas Mill Road	Winnfield	31.9468713	-92.65856747	7899300	1978	Concrete
	Calvin High School	Education	None	Winnfield	31.968009	-92.77531813	4902050	1950	Concrete
	Winn Parish Fire Department	Fire Search and Rescue	8920 Louisiana 501	Winnfield	31.96564564	-92.77670578	32550	1970	Metal
	Winn Parish Fire Department	Fire Search and Rescue	306 South Abel Street	Winnfield	31.94467537	-92.59119779	15450	1965	Metal

	Winn Parish Fire Department	Fire Search and Rescue	Nearby: Kisatchie National Forest	Winnfield	31.86151601	-92.8825309	21600	1965	Metal
	Winnfield Central Fire Station	Fire Search and Rescue	Abel St.	Winnfield	31.92427068	-92.63904832	86940	1957	Concrete
	City of Winnfield Police Station	Law Enforcement	Nearby: 401-499 South Jones Street	Winnfield	31.92330552	-92.63909555	63300	2002	Metal
	Winn Correctional Facility	Prisons and Correctional Facilities	Nearby: Kisatchie National Forest	Winnfield	31.85012419	-92.78005317	4817340	1950	Concrete
	Winn Parish Office of Family Support	Civil Government	E. Lafayette St.	Winnfield	31.92452905	-92.62728159	68715	1960	Concrete
	Winn Parish Courthouse	Civil Government	119 West Main Street #103	Winnfield	31.92622355	-92.63909687	330345	1950	Concrete
	Winnfield Animal Shelter	Civil Government	508 S Beville St	Winnfield	31.92146086	-92.63843459	20175	1960	Metal
	City of Winnfield Utilities Office	Civil Government	102 South Bevill Street	Winnfield	31.92637705	-92.63774318	51840	1950	Concrete
	Winn Parish Special Services Office	Civil Government	Nearby: 305 East Court Street	Winnfield	31.92606113	-92.63622128	40500	1960	Concrete
	Winn Parish School Board	Civil Government	Winn Parish School Board	Winnfield	31.92539308	-92.63626683	1266740	1980	Concrete
	Winn Parish Kisatchie Work Center	Civil Government	5930 U.S. 167	Winnfield	31.89752133	-92.78371261	123120	1965	Concrete
	Winnfield Maintenance Unit	Civil Government	5963 Hwy 167	Winnfield	31.94694989	-92.65245843	112575	1970	Metal
	City of Winnfield Court Building	Civil Government	424 West Court Street	Winnfield	31.92384841	-92.63896069	16950	2002	Metal
	Winnfield City Court Clerk of Court	Civil Government	119 West Main Street #103	Winnfield	31.92659999	-92.64536045	37530	1980	Concrete
	Winn Parish Road Department	Civil Government	5963 U.S. 167	Winnfield	31.94674477	-92.65007042	34875	1980	Metal
	Winn Parish Medical Center	Primary Care Facilities	301 Par Road 245	Winnfield	31.92464337	-92.64549574	425075	1990	Concrete
	Winn Community Health Center	Primary Care Facilities	431 West Lafayette Street	Winnfield	31.9245814	-92.64458772	248500	1990	Concrete
	Winnfield Specialty Hospital	Primary Care Facilities	915 1st Street	Winnfield	31.93242589	-92.63183414	711375	1990	Concrete

Vulnerable Populations

Vulnerable Populations Worksheet

Winn Parish

Name	Street	City	Zip Code	Latitude	Longitude
All Hospitals (Private or Public)					
Winn Parish Medical Center	301 Par Road 245	Winnfield	71483	31.92464337	-92.64549574
Winn Community Health Center	431 West Lafayette Street	Winnfield	71483	31.9245814	-92.64458772
Winnfield Specialty Hospital	915 1st Street	Winnfield	71483	31.93242589	-92.63183414
Nursing Homes (Private or Public)					
Autumn Leaves Nursing & Rehabilitation Center	Nearby: 118 Buck Carter Road	Winnfield	71483	31.91270622	-92.66375895
Winnfield Nursing and Rehabilitation Center	Nearby: 901-1099 1st Street	Winnfield	71483	31.93236245	-92.63105693
Mobile Home Parks					
Midway Marina RV Park	318 Hwy 477	St. Maurice		31.75474959	-92.96807228
River Bend RV Campground	113 River Bend Road	Winnfield	71483		
Unknown	Hwy 34	Atlanta		31.80598227	-92.73763279
Dodson Country RV Park	Nearby: 106 6th Street	Dodson	71422	32.0795204	-92.65780076
Hillbilly Holler RV Park	Nearby: 2nd Street	Dodson	71422	32.07957593	-92.66179589
Unknown	Nearby: 299 Mimosa Drive	Winnfield	71483	31.90586269	-92.63689219
Boars Nest RV Park	Nearby: 101-125 Oklahoma Street	Winnfield	71483	31.94050072	-92.59735971
Saline Lake RV Park	Stumps Camp Road	Winnfield	71483	31.89003846	-92.89533546
Back of the Moon	Nearby: 212 Virginia Street	Winnfield	71483	31.93451567	-92.59332329
Boars Nest RV Park	Nearby: 145-199 Stacy Smith Road	Winnfield	71483	31.93336947	-92.58546807

National Flood Insurance Program (NFIP)

Winn Parish

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

Winn Parish

	Winn Parish	Atlanta	Calvin	Dodson	Sikes	Winnfield
Insurance Summary						
How many NFIP polices are in the community? What is the total premium and coverage?	40 policies, $23,533 in premiums	None	None	None	None	14; $9,510
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?	101 claims, $1,044,058 paid	None	$55,874 ;loss payments	None	None	29 claims; $186,428
How many structures are exposed to flood risk with in the community?	no data to confirm	None	None	None	None	unknown
Describe any areas of flood risk with limited NFIP policy coverage.	none	None	None	None	None	none
Staff Resources						
Is the Community FPA or NFIP Coordinator certified?	No	No	No	No	No	No
Is flood plain management an auxiliary function?	Yes	N/A	No	N/A	Yes	Yes
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability)	Flood permits/inspections	N/A	permits and inspections	N/A	N/A	permits and inspections
What are the barriers to running an effective NFIP program in the community, if any?	Resources & Funding	N/A	Funding, staffing	N/A	N/A	Funding, staffing
Compliance History						
Is the community in good standing with the NFIP?	Yes	N/A	N/A	N/A	N/A	Yes

Are there any outstanding compliance issues(i.e., current violations)?	No	N/A	N/A	N/A	N/A	Yes
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact(CAC)?	CAV-2-21-03, CAC-11-19-13	N/A	N/A	N/A	N/A	None
Is a CAV or CAC scheduled or needed? If so when?	N/A	N/A	N/A	N/A	N/A	Yes
Regulation						
When did the community enter the NFIP?	7/24/1989	N/A	7/1/1987	N/A	N/A	7/1/1987
Are the FIRMs digital or paper?	Paper	N/A	Paper	N/A	N/A	Paper
Do floodplain development regulations meet or exceed FEMA or State minimum requirements? If so, in what ways?	Yes meet NFIP requirements	N/A	meets requirements	N/A	N/A	Meets
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