Appendix A

GEMA Worksheet #3a Inventory of Assets

Jurisdiction: Berrien County
Hazard: Floods

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	7,025	660	9.395%	$ 384,937,709	$ 29,207,991	7.588%	18,986	1,784	9.395%
Commercial	501	108	21.557%	$ 66,107,736	$ 16,853,049	25.493%	0	0	0%
Industrial	13	1	7.692%	$ 17,253,553	$ 2,202,831		0	0	0%
Agricultural	3,331	682	20.474%	$ 751,706,142	$ 179,964,990	23.941%	0	0	0%
Religious/ Non-profit	177	29	16.384%	$ 9,123,498	$ 2,458,910	26.951%	0	0	0%
Government	171	29	16.959%	$ 36,980,647	$ 5,013,712	13.558%	0	0	0%
Education	11	3	27.273%	$ 819,980	$ 244,000	29.757%	0	0	0%
Utilities	0	0		$ -	$ -		0	0	0%
Total	11,229	1,512		$ 1,266,929,265	$ 235,945,483		18,986	1,784	

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?	Y	
2. Do you know whether your critical facilities will be operational after a hazard event?	Y	
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	N	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?	N	

GEMA Worksheet #3a Inventory of Assets

Jurisdiction: Berrien County
Hazard: Thunderstorms/Wind

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	7,025	7,025	100.000%	$ 384,937,709	$ 384,937,709	100.000%	18,986	18,986	100.000%
Commercial	501	501	100.000%	$ 66,107,736	$ 66,107,736	100.000%	0	0	0%
Industrial	13	13	100.000%	$ 17,253,553	$ 17,253,553		0	0	0%
Agricultural	3,331	3,331	100.000%	$ 751,706,142	$ 751,706,142	100.000%	0	0	0%
Religious/ Non-profit	177	177	100.000%	$ 9,123,498	$ 9,123,498	100.000%	0	0	0%
Government	171	171	100.000%	$ 36,980,647	$ 36,980,647	100.000%	0	0	0%
Education	11	11	100.000%	$ 819,980	$ 819,980	100.000%	0	0	0%
Utilities	0	0		$ -	$ -		0	0	0%
Total	11,229	11,229		$ 1,266,929,265	$ 1,266,929,265		18,986	18,986	

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?	Y	
2. Do you know whether your critical facilities will be operational after a hazard event?	Y	
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	N	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?	N	

GEMA Worksheet #3a Inventory of Assets

Jurisdiction: Berrien County
Hazard: Hurricanes/Tropical Storms

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	7,025	7,025	100.000%	$ 384,937,709	$ 384,937,709	100.000%	18,986	18,986	100.000%
Commercial	501	501	100.000%	$ 66,107,736	$ 66,107,736	100.000%	0	0	0%
Industrial	13	13	100.000%	$ 17,253,553	$ 17,253,553		0	0	0%
Agricultural	3,331	3,331	100.000%	$ 751,706,142	$ 751,706,142	100.000%	0	0	0%
Religious/ Non-profit	177	177	100.000%	$ 9,123,498	$ 9,123,498	100.000%	0	0	0%
Government	171	171	100.000%	$ 36,980,647	$ 36,980,647	100.000%	0	0	0%
Education	11	11	100.000%	$ 819,980	$ 819,980	100.000%	0	0	0%
Utilities	0	0		$ -	$ -		0	0	0%
Total	11,229	11,229		$ 1,266,929,265	$ 1,266,929,265		18,986	18,986	

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?	Y	
2. Do you know whether your critical facilities will be operational after a hazard event?	Y	
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	N	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?	N	

GEMA Worksheet #3a Inventory of Assets

Jurisdiction: Berrien County
Hazard: Drought

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	7,025	7,025	100.000%	$ 384,937,709	$ 384,937,709	100.000%	18,986	18,986	100.000%
Commercial	501	501	100.000%	$ 66,107,736	$ 66,107,736	100.000%	0	0	0%
Industrial	13	13	100.000%	$ 17,253,553	$ 17,253,553		0	0	0%
Agricultural	3,331	3,331	100.000%	$ 751,706,142	$ 751,706,142	100.000%	0	0	0%
Religious/ Non-profit	177	177	100.000%	$ 9,123,498	$ 9,123,498	100.000%	0	0	0%
Government	171	171	100.000%	$ 36,980,647	$ 36,980,647	100.000%	0	0	0%
Education	11	11	100.000%	$ 819,980	$ 819,980	100.000%	0	0	0%
Utilities	0	0		$ -	$ -		0	0	0%
Total	11,229	11,229		$ 1,266,929,265	$ 1,266,929,265		18,986	18,986	

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?	Y	
2. Do you know whether your critical facilities will be operational after a hazard event?	Y	
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	N	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?	N	

GEMA Worksheet #3a Inventory of Assets

Jurisdiction: Berrien County
Hazard: Wildfires

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	7,025	7,025	100.000%	$ 384,937,709	$ 384,937,709	100.000%	18,986	18,986	100.000%
Commercial	501	501	100.000%	$ 66,107,736	$ 66,107,736	100.000%	0	0	0%
Industrial	13	13	100.000%	$ 17,253,553	$ 17,253,553		0	0	0%
Agricultural	3,331	3,331	100.000%	$ 751,706,142	$ 751,706,142	100.000%	0	0	0%
Religious/ Non-profit	177	177	100.000%	$ 9,123,498	$ 9,123,498	100.000%	0	0	0%
Government	171	171	100.000%	$ 36,980,647	$ 36,980,647	100.000%	0	0	0%
Education	11	11	100.000%	$ 819,980	$ 819,980	100.000%	0	0	0%
Utilities	0	0		$ -	$ -		0	0	0%
Total	11,229	11,229		$ 1,266,929,265	$ 1,266,929,265		18,986	18,986	

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?	Y	
2. Do you know whether your critical facilities will be operational after a hazard event?	Y	
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	N	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?	N	

GEMA Worksheet #3a Inventory of Assets

Jurisdiction: Berrien County
Hazard: Hail

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	7,025	7,025	100.000%	$ 384,937,709	$ 384,937,709	100.000%	18,986	18,986	100.000%
Commercial	501	501	100.000%	$ 66,107,736	$ 66,107,736	100.000%	0	0	0%
Industrial	13	13	100.000%	$ 17,253,553	$ 17,253,553		0	0	0%
Agricultural	3,331	3,331	100.000%	$ 751,706,142	$ 751,706,142	100.000%	0	0	0%
Religious/ Non-profit	177	177	100.000%	$ 9,123,498	$ 9,123,498	100.000%	0	0	0%
Government	171	171	100.000%	$ 36,980,647	$ 36,980,647	100.000%	0	0	0%
Education	11	11	100.000%	$ 819,980	$ 819,980	100.000%	0	0	0%
Utilities	0	0		$ -	$ -		0	0	0%
Total	11,229	11,229		$ 1,266,929,265	$ 1,266,929,265		18,986	18,986	

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?	Y	
2. Do you know whether your critical facilities will be operational after a hazard event?	Y	
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	N	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?	N	

GEMA Worksheet #3a Inventory of Assets

Jurisdiction: Berrien County
Hazard: Tornadoes

Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	7,025	7,025	100.000%	$ 384,937,709	$ 384,937,709	100.000%	18,986	18,986	100.000%
Commercial	501	501	100.000%	$ 66,107,736	$ 66,107,736	100.000%	0	0	0%
Industrial	13	13	100.000%	$ 17,253,553	$ 17,253,553		0	0	0%
Agricultural	3,331	3,331	100.000%	$ 751,706,142	$ 751,706,142	100.000%	0	0	0%
Religious/ Non-profit	177	177	100.000%	$ 9,123,498	$ 9,123,498	100.000%	0	0	0%
Government	171	171	100.000%	$ 36,980,647	$ 36,980,647	100.000%	0	0	0%
Education	11	11	100.000%	$ 819,980	$ 819,980	100.000%	0	0	0%
Utilities	0	0		$ -	$ -		0	0	0%
Total	11,229	11,229		$ 1,266,929,265	$ 1,266,929,265		18,986	18,986	

Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?	Y	
2. Do you know whether your critical facilities will be operational after a hazard event?	Y	
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	N	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?	N	

GEMA Worksheet #3a Inventory of Assets

Jurisdiction: Berrien County
Hazard: Severe Winter Storms

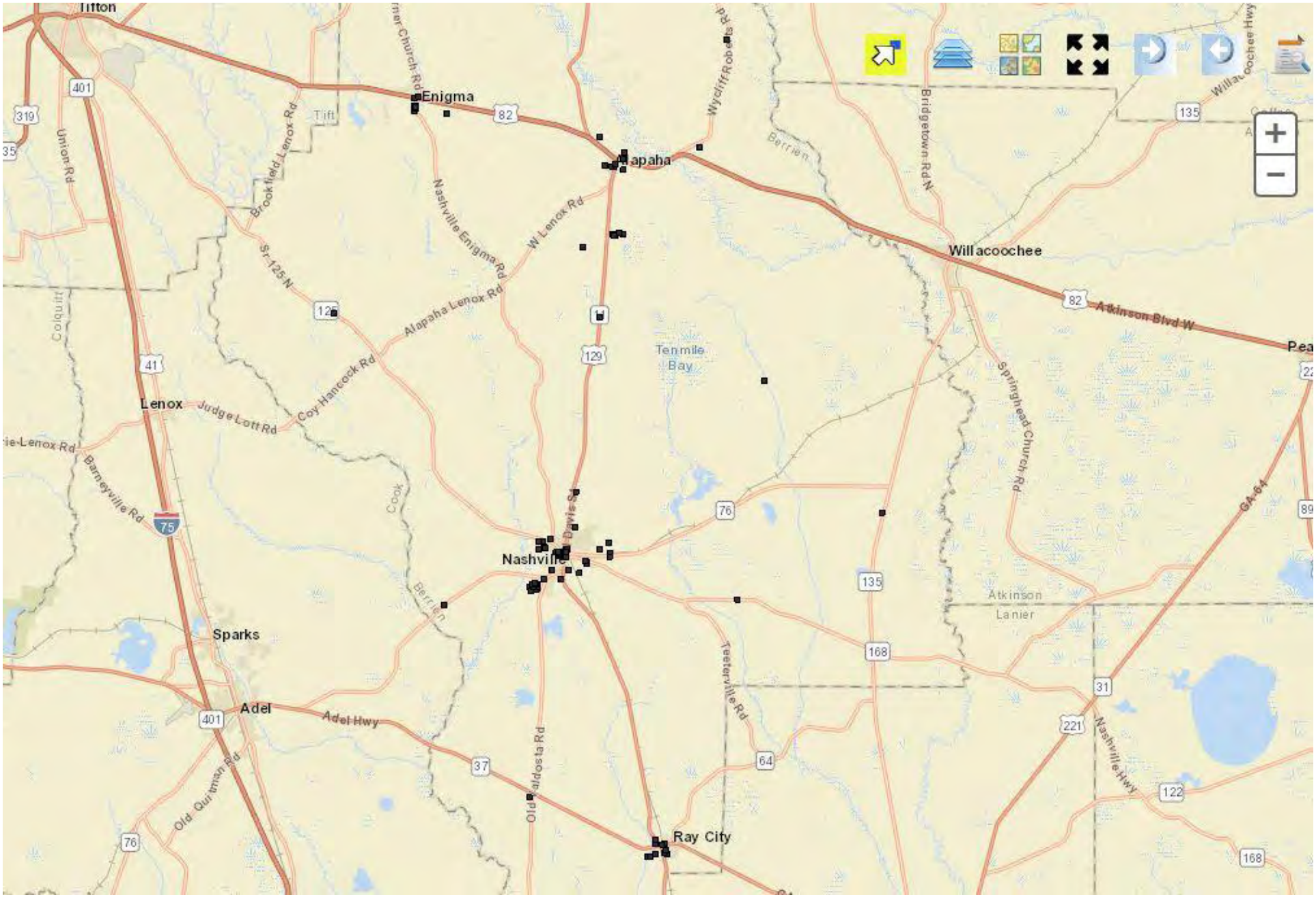
Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.

	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	7,025	7,025	100.000%	$ 384,937,709	$ 384,937,709	100.000%	18,986	18,986	100.000%
Commercial	501	501	100.000%	$ 66,107,736	$ 66,107,736	100.000%	0	0	0%
Industrial	13	13	100.000%	$ 17,253,553	$ 17,253,553		0	0	0%
Agricultural	3,331	3,331	100.000%	$ 751,706,142	$ 751,706,142	100.000%	0	0	0%
Religious/ Non-profit	177	177	100.000%	$ 9,123,498	$ 9,123,498	100.000%	0	0	0%
Government	171	171	100.000%	$ 36,980,647	$ 36,980,647	100.000%	0	0	0%
Education	11	11	100.000%	$ 819,980	$ 819,980	100.000%	0	0	0%
Utilities	0	0		$ -	$ -		0	0	0%
Total	11,229	11,229		$ 1,266,929,265	$ 1,266,929,265		18,986	18,986	

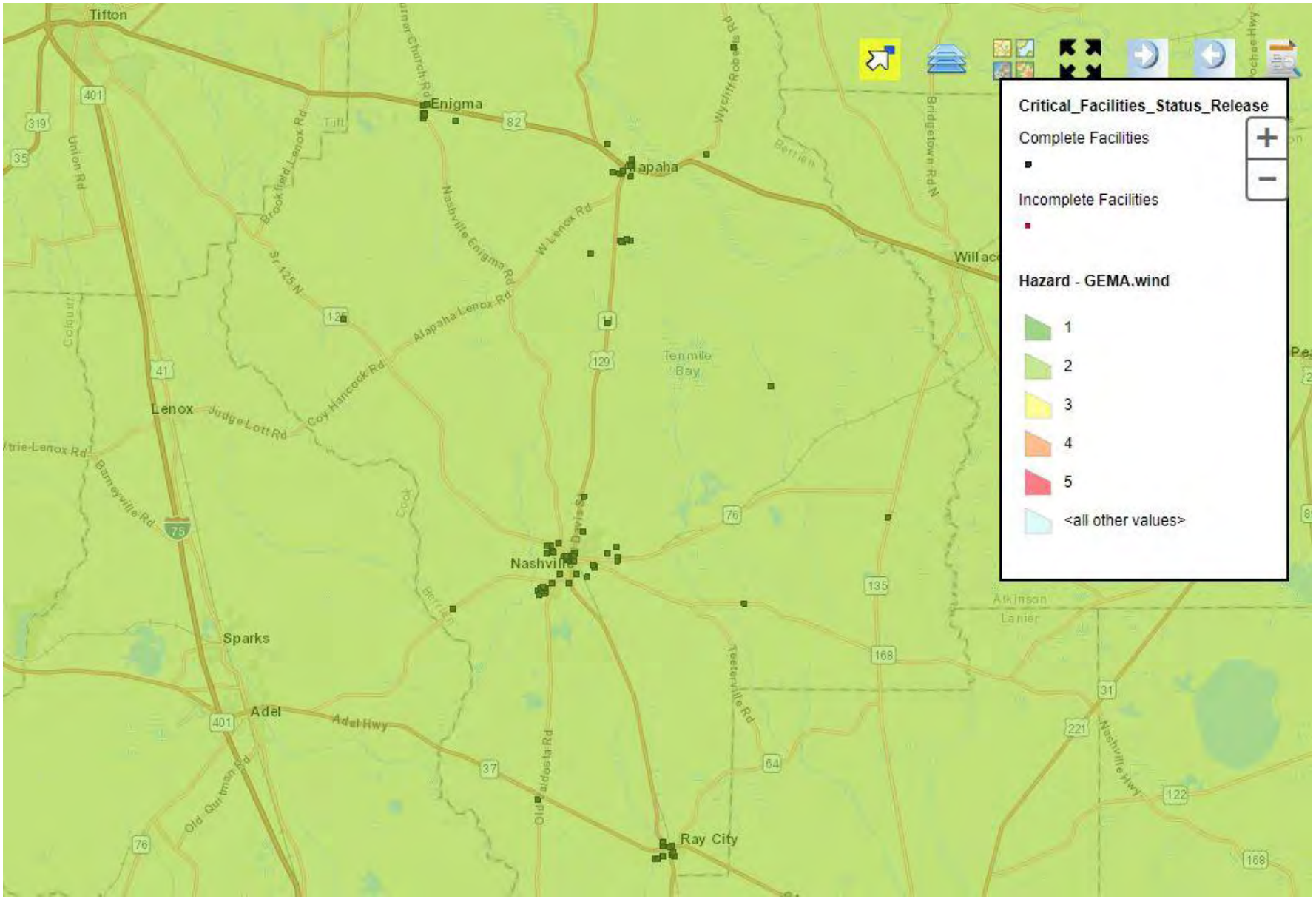
Task B. Determine whether (and where) you want to collect additional inventory data.

	Y	N
1. Do you know where the greatest damages may occur in your area?	Y	
2. Do you know whether your critical facilities will be operational after a hazard event?	Y	
3. Is there enough data to determine which assets are subject to the greatest potential damages?	Y	
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?	Y	
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	Y	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	N	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?	N	

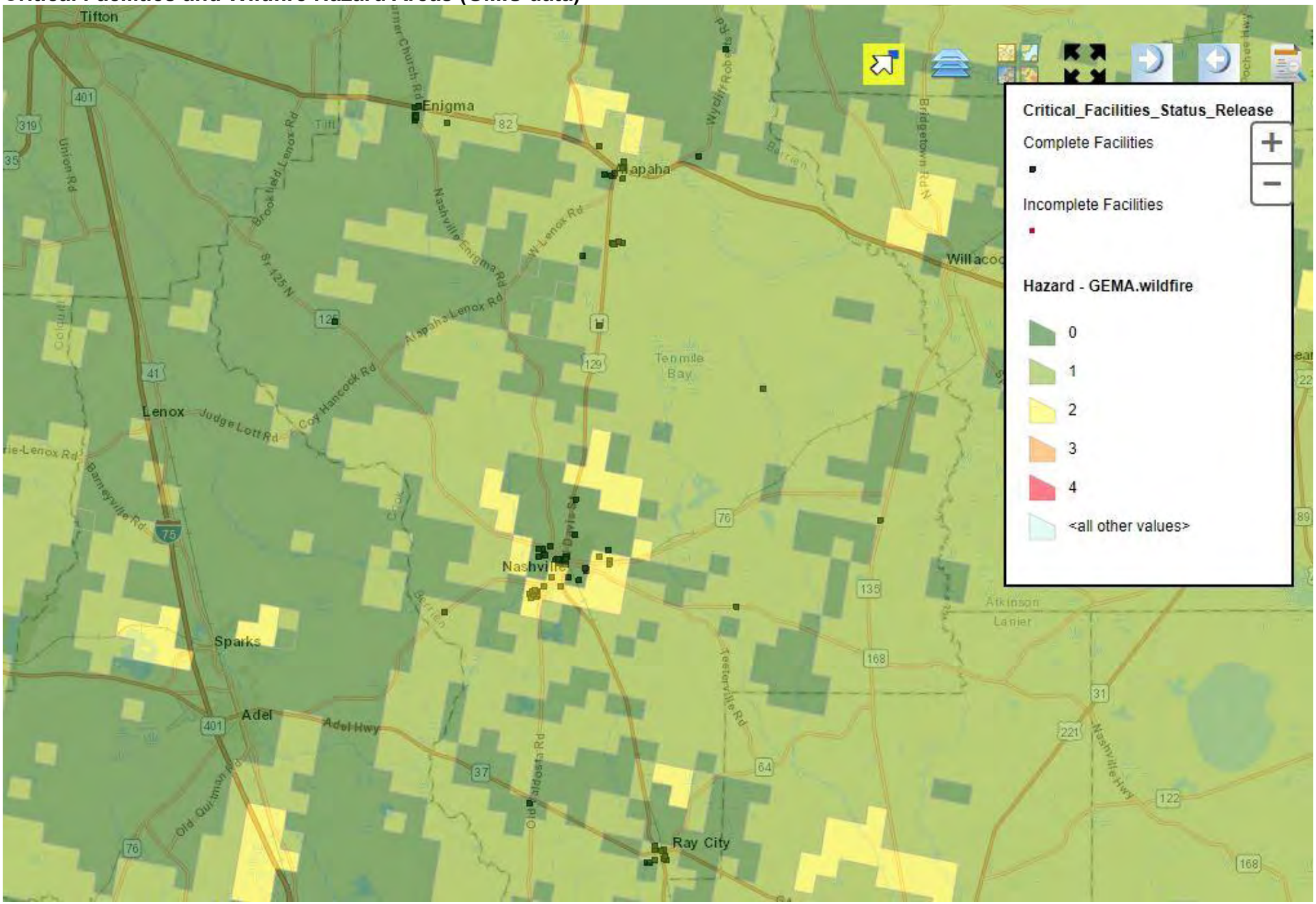
Critical Facilities and Hazard Potential for Hazards Affecting the Entire Community (Hurricanes/Tropical Storms, Tornadoes, Thunderstorms/Wind, Hail, Drought, Severe Winter Storms)



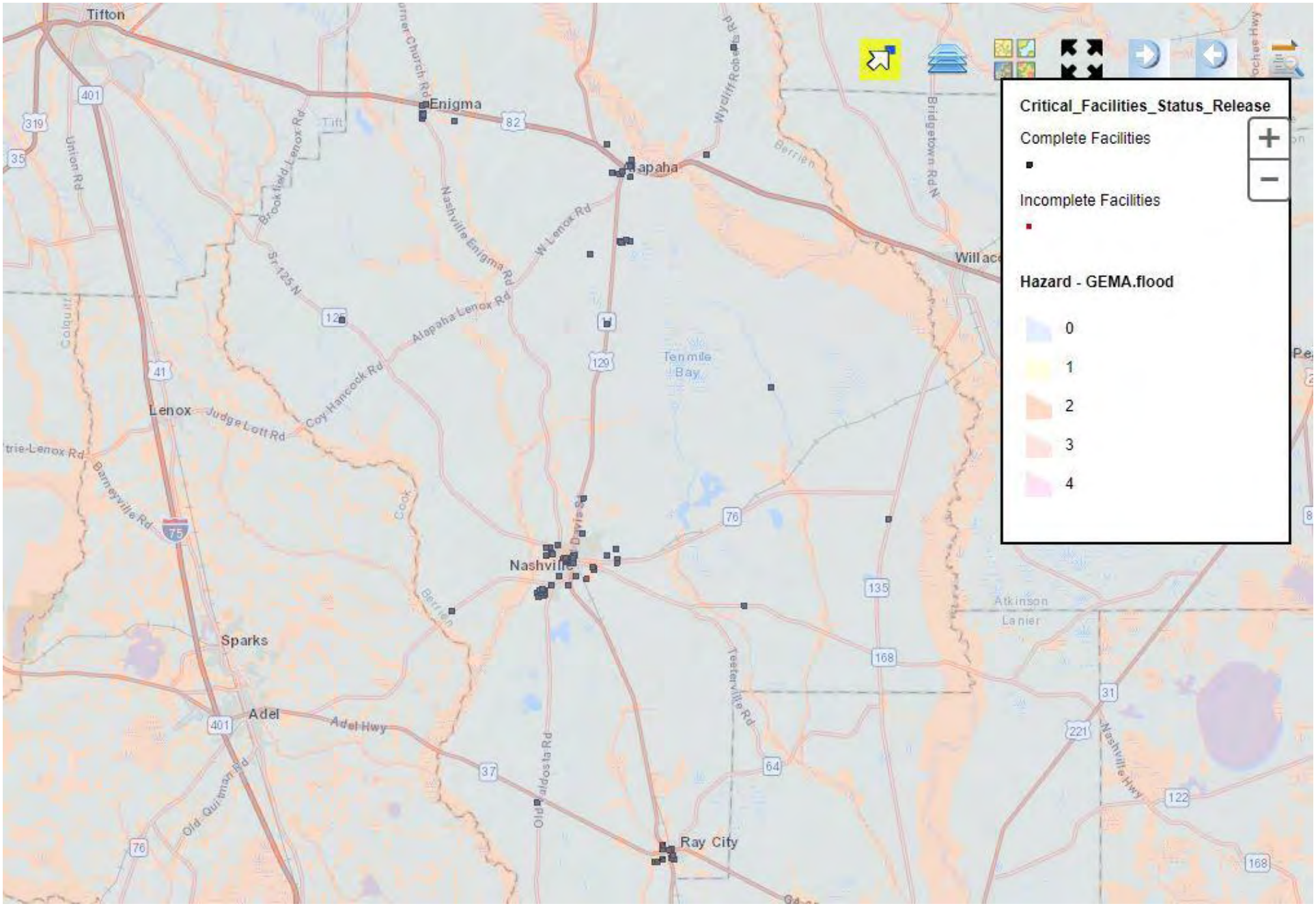
Critical Facilities and Wind Zones



Critical Facilities and Wildfire Hazard Areas (GMIS data)



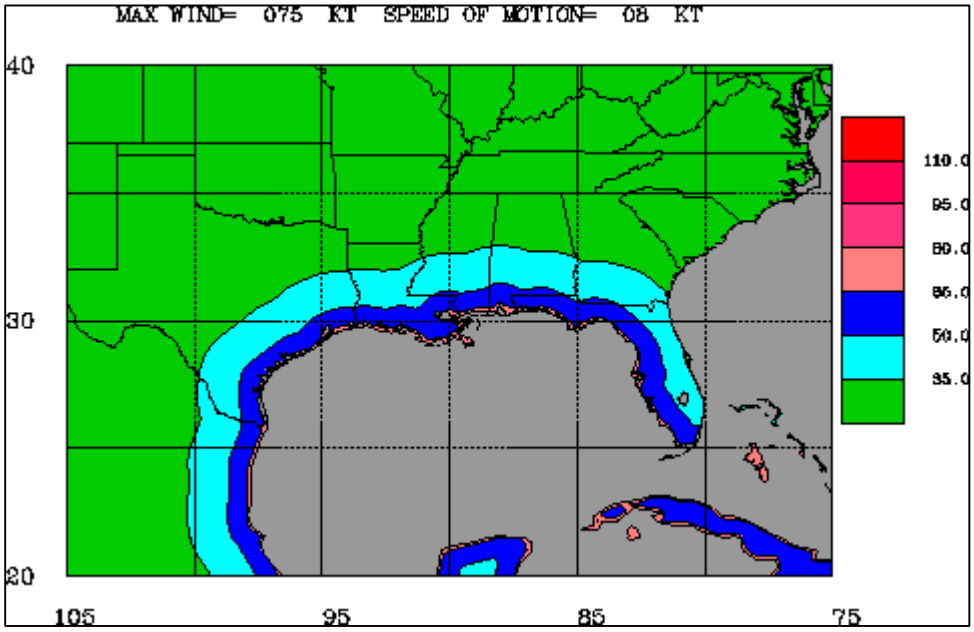
Critical Facilities and Flood Zones



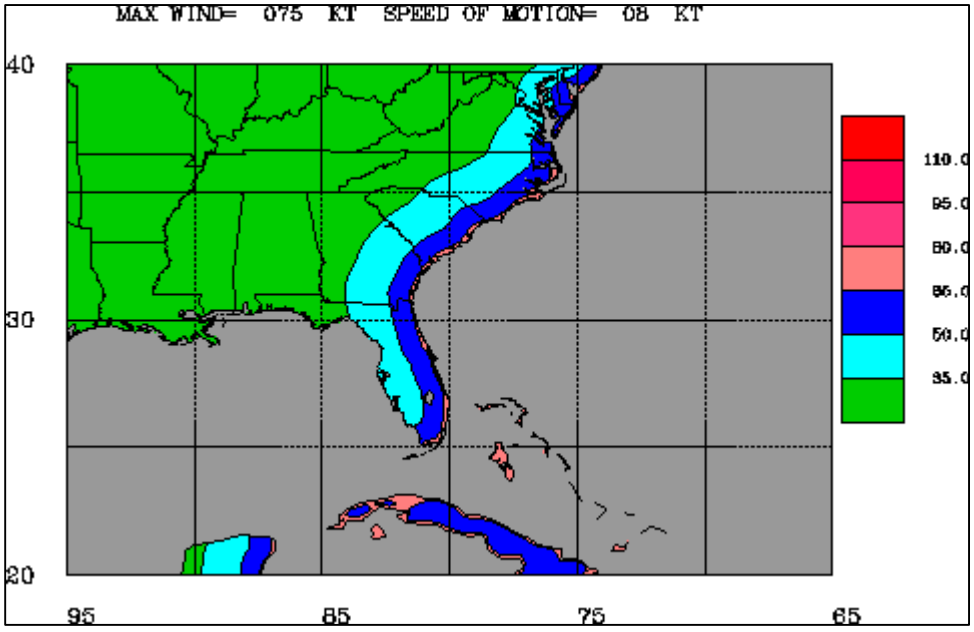
Examples of the Maximum Envelope of Wind
(Source: NOAA. http://www.nhc.noaa.gov/aboutmeow.shtml)

Mild case (Category 1, 8 knots forward motion)

Gulf Coast Region



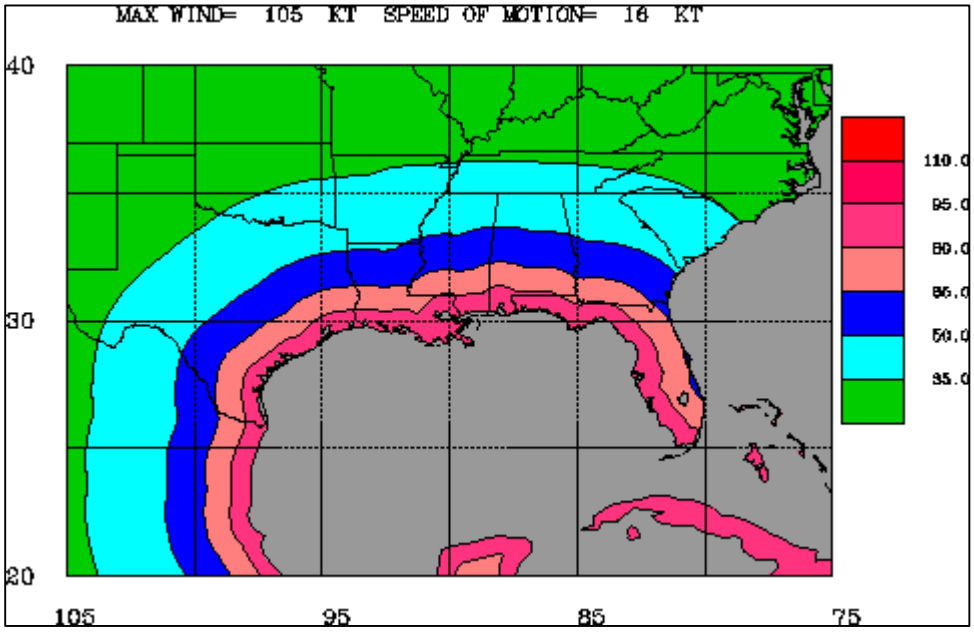
East Coast Region



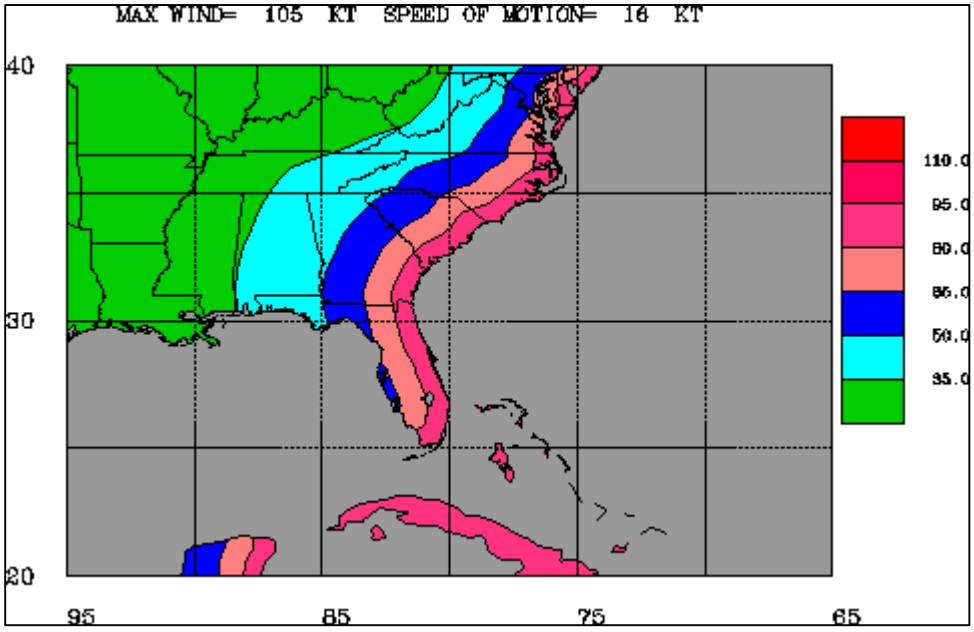
Examples of the Maximum Envelope of Wind
(Source: NOAA. http://www.nhc.noaa.gov/aboutmeow.shtml)

Mid-range case (Category 3, 16 knots forward motion)

Gulf Coast Region



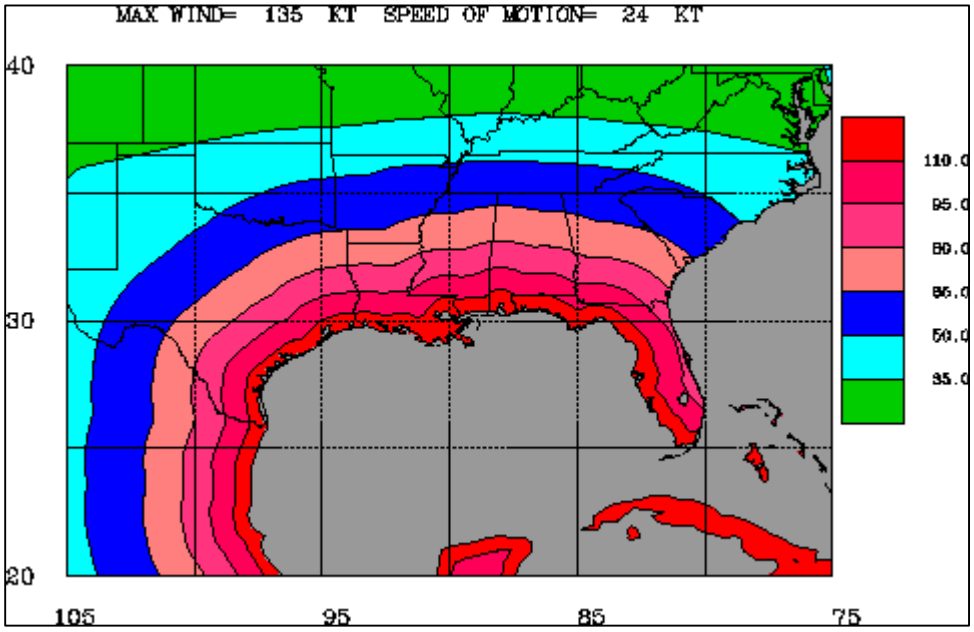
East Coast Region



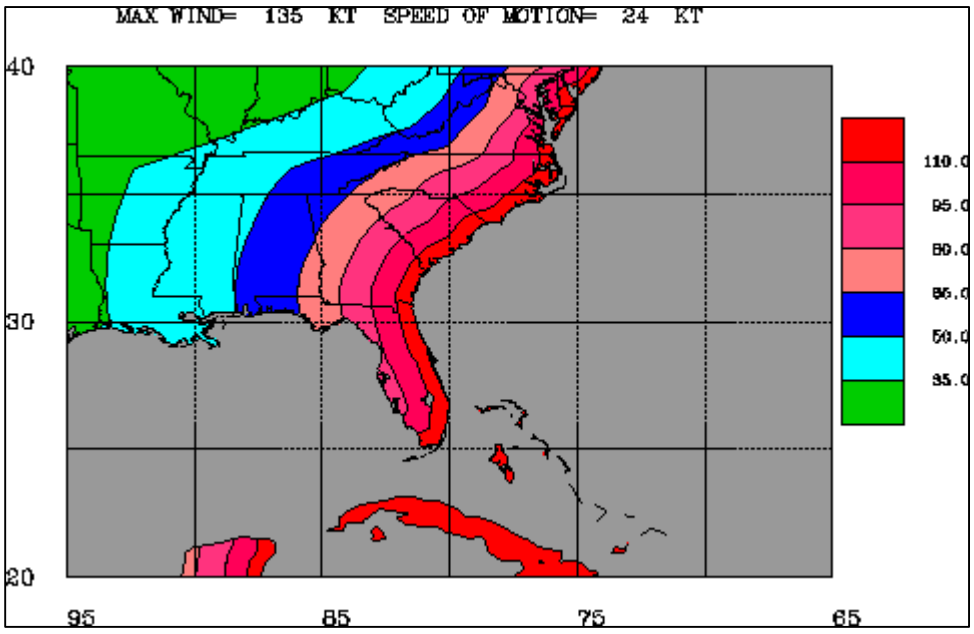
Examples of the Maximum Envelope of Wind
(Source: NOAA. http://www.nhc.noaa.gov/aboutmeow.shtml)

Worst case (Category 5, 24 knots forward motion)

Gulf Coast Region



East Coast Region



Legend

Tornado Tracks

EF5

EF5 Tornado

EF5 Tornado Track

EF4

EF4 Tornado

EF4 Tornado Track

EF3

EF3 Tornado

EF3 Tornado Track

EF2

EF2 Tornado

EF2 Tornado Track

EF1

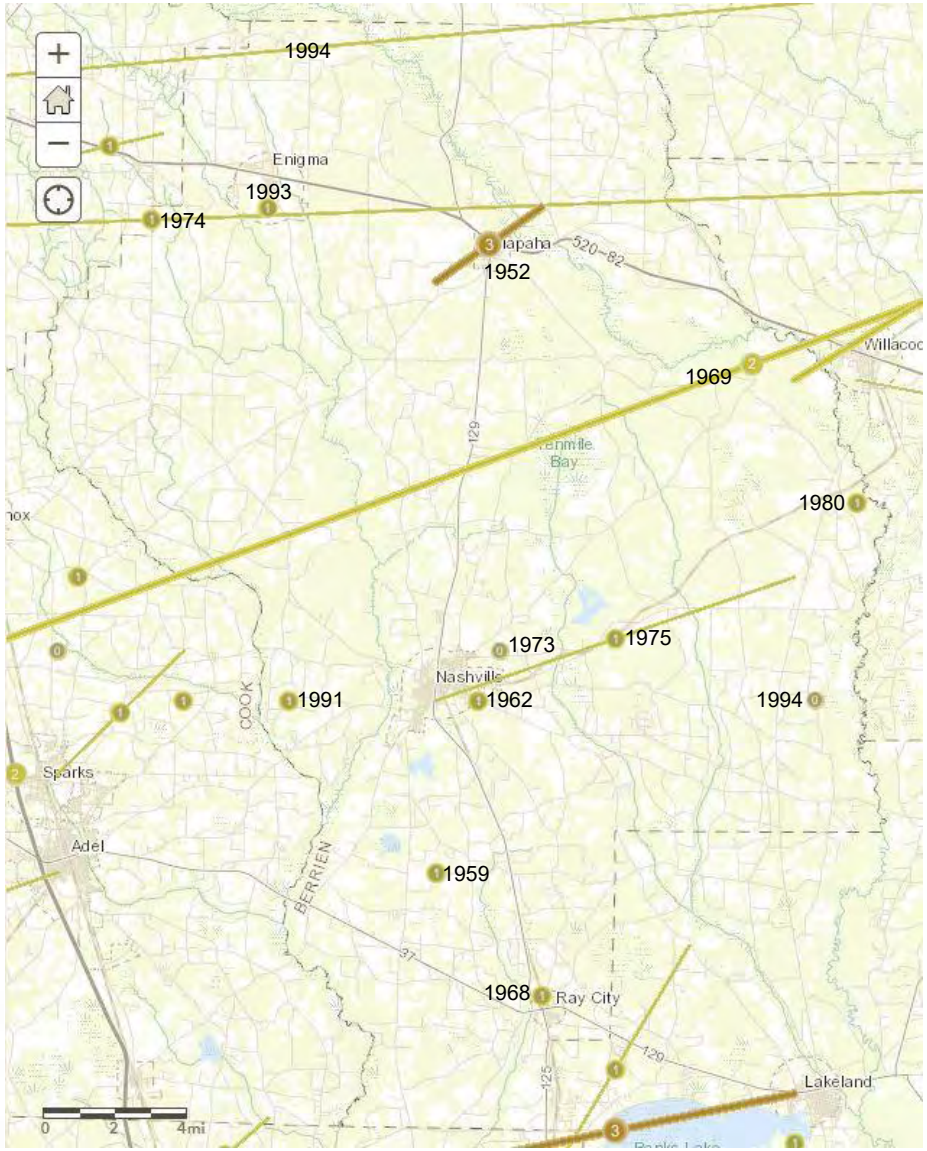
EF1 Tornado

EF1 Tornado Track

EF0

EF0 Tornado

EF0 Tornado Track



Data source:
https://www.arcgis.com/home/webmap/viewer.html?useExisting=1&layers=ae96a522f2824552b20cdcf53a30d3c1

These map layers, derived from National Oceanic and Atmospheric Administration data, portray tornadoes and available tracks from 1950 to 2014

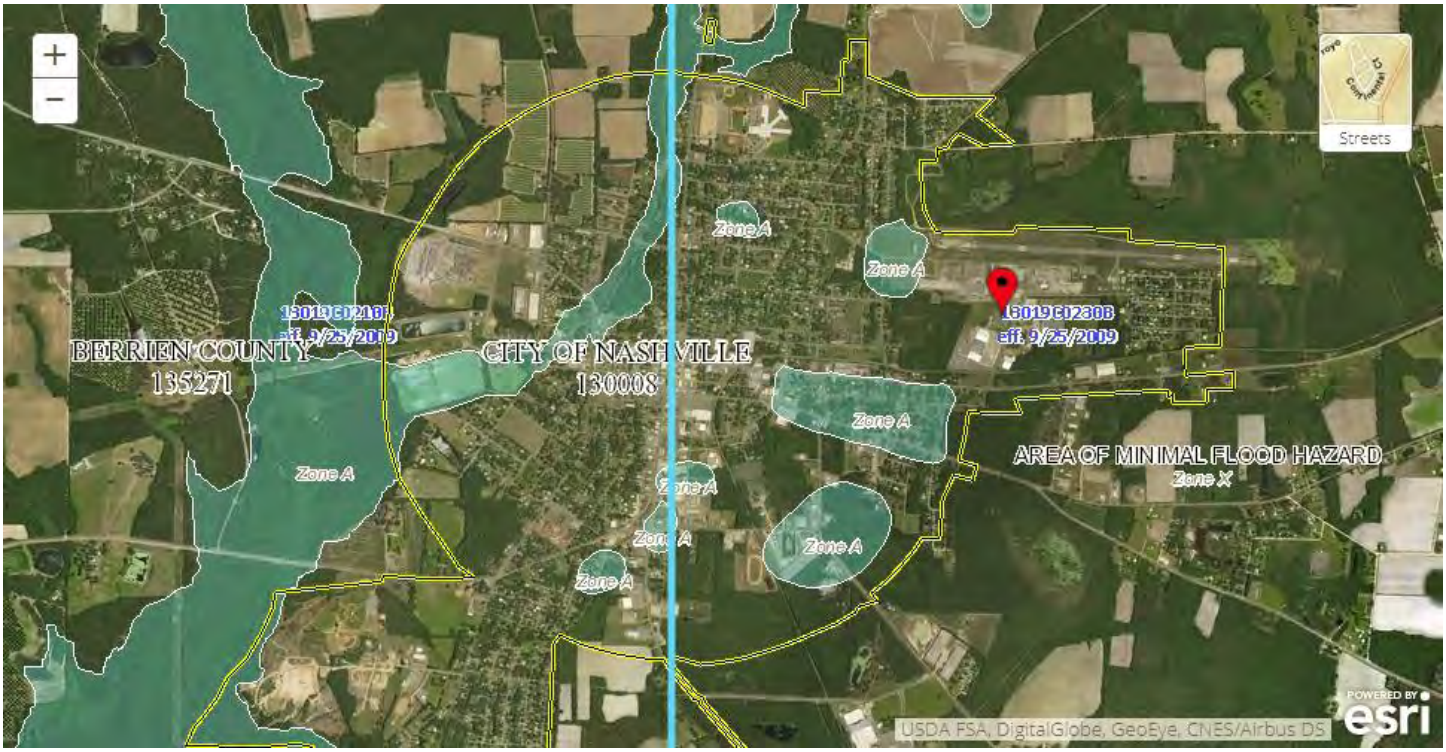
Map Image Layer
by Federal_User_Community

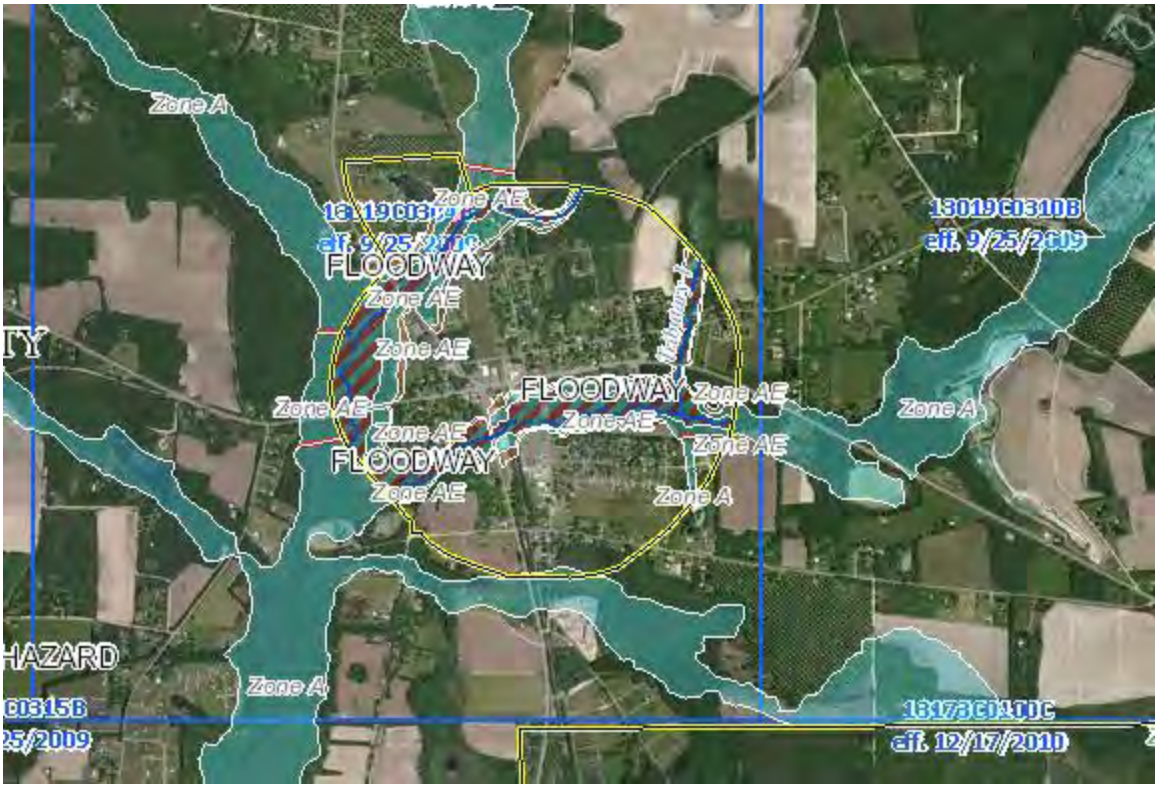
Last Modified: June 12, 2018


13277C0150E
eff. 9/29/2010
13277C0120E
eff. 9/29/2010
13277C0140E
eff. 9/29/2010
13277C0225E
eff. 9/29/2010
13277C0250E
eff. 9/29/2010
13019C0050B
eff. 9/25/2009
13019C0075B
eff. 9/25/2009
13019C0125B
eff. 9/25/2009
13019C0150B
eff. 9/25/2009
13019C0175B
eff. 9/25/2009
13019C0200B
eff. 9/25/2009
13019C0210B
eff. 9/25/2009
13019C0230B
eff. 9/25/2009
13019C0250B
eff. 9/25/2009
13019C0275B
eff. 9/25/2009
13019C0225B
eff. 9/25/2009
13019C0300B
eff. 9/25/2009
13075C0050C
eff. 9/11/2009
13075C0125C
eff. 9/11/2009
13075C0115C
eff. 9/11/2009
13075C0120C
eff. 9/11/2009
13075C0150C
eff. 9/11/2009
13075C0175C
eff. 9/11/2009
13075C0185C
eff. 9/11/2009
13075C0200C
eff. 9/11/2009
13075C0225C
eff. 9/11/2009
13027C0050C
13069C0325D
eff. 9/11/2009
13003C0040A
eff. 8/3/2009
13003C0045A
Not_Printed
13003C0065A
eff. 8/3/2009
13003C0125A
eff. 8/3/2009
13003C0150A
eff. 8/3/2009
13003C0250A
eff. 8/3/2009
13173C0050C
eff. 12/17/2010
13173C0125C
eff. 12/17/2010
13173C0100C
eff. 12/17/2010
Streets


13019C0075B
eff. 9/25/2009
CITY OF ALAPAHA
130068
AREA OF MINIMAL FLOOD HAZARD
Zone X
BERRIEN COUNTY
135271
Zone A
13019C0175B
eff. 9/25/2009
Streets
USDA FSA, DigitalGlobe, GeoEye, CNES/Airbus DS
POWERED BY esri


Zone A
13013C0050B
eff. 9/25/2009
CITY OF ENIGMA
130010
BERRIEN COUNTY
135271
Zone A
AREA OF MINIMAL FLOOD HAZARD
Zone X
AREA OF MINIMAL FLOOD HAZARD
Zone X
Streets
USDA FSA, DigitalGlobe, GeoEye, CNES/Airbus DS
POWERED BY esri


13013C0210F
eff. 9/25/2009
BERRIEN COUNTY
135271
CITY OF NASHVILLE
130008
Zone A
Zone A
13013C0230B
eff. 9/25/2009
Zone A
Zone A
AREA OF MINIMAL FLOOD HAZARD
Zone X
Zone A
Zone A
Zone A
Zone A
Streets
USDA FSA, DigitalGlobe, GeoEye, CNES/Airbus DS
POWERED BY esri

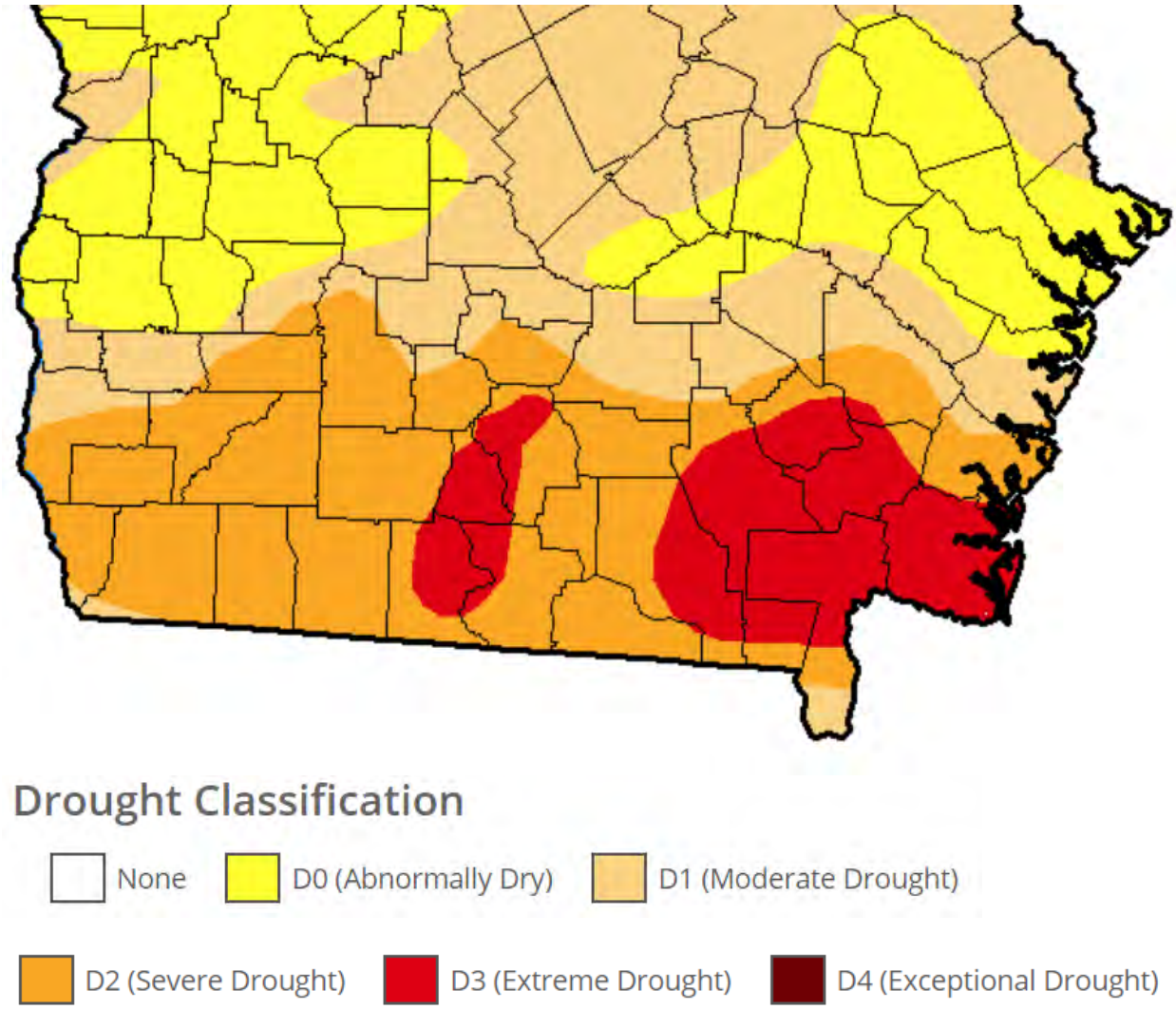


Source:
https://msc.fema.gov/portal/search?AddressQuery=waycross%2C%20ga#searchresultsanchor

Drought

The example map below, from the week of May 16, 2017, shows moderate to extreme drought conditions throughout southern Georgia.

Source: U.S. Drought Monitor
(http://droughtmonitor.unl.edu/Maps/ComparisonSlider.aspx)



Appendix B

QuickFacts

Berrien County, Georgia

QuickFacts provides statistics for all states and counties, and for cities and towns with a ***population of 5,000 or more***.

Table

All Topics	Berrien County, Georgia
Population estimates, July 1, 2017, (V2017)	**19,186**
PEOPLE	
Population	
Population estimates, July 1, 2017, (V2017)	**19,186**
Population estimates, July 1, 2016, (V2016)	18,993
Population estimates base, April 1, 2010, (V2017)	19,286
Population estimates base, April 1, 2010, (V2016)	19,286
Population, percent change - April 1, 2010 (estimates base) to July 1, 2017, (V2017)	-0.5%
Population, percent change - April 1, 2010 (estimates base) to July 1, 2016, (V2016)	-1.5%
Population, Census, April 1, 2010	19,286
Age and Sex	
Persons under 5 years, percent	△ 6.3%
Persons under 18 years, percent	△ 24.5%
Persons 65 years and over, percent	△ 16.8%
Female persons, percent	△ 50.6%
Race and Hispanic Origin	
White alone, percent (a)	△ 86.7%
Black or African American alone, percent (a)	△ 10.6%
American Indian and Alaska Native alone, percent (a)	△ 0.4%
Asian alone, percent (a)	△ 1.1%
Native Hawaiian and Other Pacific Islander alone, percent (a)	△ 0.1%
Two or More Races, percent	△ 1.2%
Hispanic or Latino, percent (b)	△ 5.1%
White alone, not Hispanic or Latino, percent	△ 82.3%
Population Characteristics	
Veterans, 2012-2016	1,267
Foreign born persons, percent, 2012-2016	3.1%
Housing	
Housing units, July 1, 2017, (V2017)	8,774
Owner-occupied housing unit rate, 2012-2016	71.2%
Median value of owner-occupied housing units, 2012-2016	$82,300
Median selected monthly owner costs -with a mortgage, 2012-2016	$912
Median selected monthly owner costs -without a mortgage, 2012-2016	$318
Median gross rent, 2012-2016	$580
Building permits, 2017	46
Families & Living Arrangements	
Households, 2012-2016	7,108
Persons per household, 2012-2016	2.65
Living in same house 1 year ago, percent of persons age 1 year+, 2012-2016	89.1%
Language other than English spoken at home, percent of persons age 5 years+, 2012-2016	5.8%
Education	
High school graduate or higher, percent of persons age 25 years+, 2012-2016	80.3%
Bachelor's degree or higher, percent of persons age 25 years+, 2012-2016	12.3%
Health	
With a disability, under age 65 years, percent, 2012-2016	15.3%
Persons without health insurance, under age 65 years, percent	△ 17.1%
Economy	
In civilian labor force, total, percent of population age 16 years+, 2012-2016	51.1%
In civilian labor force, female, percent of population age 16 years+, 2012-2016	44.6%
Total accommodation and food services sales, 2012 ($1,000) (c)	10,236

Total health care and social assistance receipts/revenue, 2012 ($1,000) (c)	19,281
Total manufacturers shipments, 2012 ($1,000) (c)	453,403
Total merchant wholesaler sales, 2012 ($1,000) (c)	58,456
Total retail sales, 2012 ($1,000) (c)	127,067
Total retail sales per capita, 2012 (c)	$6,673
Transportation	
Mean travel time to work (minutes), workers age 16 years+, 2012-2016	24.1
Income & Poverty	
Median household income (in 2016 dollars), 2012-2016	$35,740
Per capita income in past 12 months (in 2016 dollars), 2012-2016	$17,007
Persons in poverty, percent	⚠ 22.3%

BUSINESSES

Businesses	
Total employer establishments, 2016	248
Total employment, 2016	3,271
Total annual payroll, 2016 ($1,000)	99,607
Total employment, percent change, 2015-2016	-15.8%
Total nonemployer establishments, 2015	1,087
All firms, 2012	1,197
Men-owned firms, 2012	592
Women-owned firms, 2012	510
Minority-owned firms, 2012	127
Nonminority-owned firms, 2012	1,038
Veteran-owned firms, 2012	190
Nonveteran-owned firms, 2012	952

GEOGRAPHY

Geography	
Population per square mile, 2010	42.7
Land area in square miles, 2010	451.90
FIPS Code	13019

Department of Revenue

Return

GEORGIA DEPARTMENT OF REVENUE Local Government Services Division County Digest Section	2017 TAX DIGEST CONSOLIDATED SUMMARY

County:BERRIEN County #:010 Tax District:BERRIEN COUNTY

Dist #: 00 Assessment %: 040 Tot Parcels:9867

RESIDENTIAL

Code	Count	Acres	40% Value
R1	8,938		116,782,327
R3	3,029	2,101.81	7,125,516
R4	3,898	13,728.28	21,000,699
R5	10	178.11	155,526
R6	10,815		6,146,697
R7	0	0	0
R9	0	0	0
RA	5		54,400
RB	27		127,630
RF	0		0
RI	0		0
RZ	0		0

RESIDENTIAL TRANSITIONAL

Code	Count	Acres	40% Value
T1	0		0
T3	0	0	0
T4	0	0	0

HISTORIC

Code	Count	Acres	40% Value
H1	0		0
H3	0	0	0

AGRICULTURAL

Code	Count	Acres	40% Value
A1	1,585		25,390,924
A3	4	15.16	19,445
A4	245	1,530.6	1,657,066
A5	599	19,770.25	10,296,749
A6	4,302		6,063,095
A7	0	0	0
A9	0	0	0
AA	0		0
AB	2		8,200
AF	1		24,134
AI	1		7,812
AZ	0		0

PREFERENTIAL

Code	Count	Acres	40% Value

UTILITY

Code	Count	Acres	40% Value
U1	0		0
U2	29	0	17,142,532
U3	0	0	0
U4	0	0	0
U5	0	0	0
U7	0	0	0
U9	0	0	0
UA	0		0
UB	0		0
UF	0		0
UZ	0		0

EXEMPT PROPERTY

Code	Count	40% Value
E0	8	207,346
E1	347	8,696,452
E2	250	2,806,369
E3	9	136,892
E4	21	80,666
E5	14	669,326
E6	23	342,003
E7	0	0
E8	0	0
E9	4	22,115
TOTAL	676	12,961,169

HOMESTEAD AND PROPERTY EXEMPTIONS

Code	Count	M&O	Bond
S1	2,576	5,148,988	0
SC	75	150,000	0
S2	0	0	0
S3	32	64,000	0
S4	716	2,849,137	0
S5	78	3,082,670	0
SD	1	48,411	0
SS	5	201,162	0
SE	0	0	0
SG	0	0	0

P3	0	0	0
P4	0	0	0
P5	2	587	323,855
P6	1		2,263
P7	0	0	0
P9	0	0	0

CONSERVATION USE

Code	Count	Acres	40% Value
V3	18	1,009.9	573,693
V4	442	8,118.59	6,847,057
V5	1,506	187,689.51	101,809,664
V6	3		10,734

BROWNFIELD PROPERTY

Code	Count	Acres	40% Value
B1	0		0
B3	0	0	0
B4	0	0	0
B5	0	0	0
B6	0		0

FOREST LAND CONSERVATION USE

Code	Count	Acres	40% Value
J3	0	0	0
J4	1	10	7,500
J5	54	39,979.15	16,356,800
J9	0	0	0

FLPA FAIR MARKET ASSMT

Code	Count	Acres	40% Value
F3	0	0	0
F4	1	10	7,500
F5	54	39,979.15	16,883,487
F9	0	0	0
Total	55	39,989.15	16,890,987

ENVIRONMENTALLY SENSITIVE

Code	Count	Acres	40% Value
W3	0	0	0
W4	0	0	0
W5	0	0	0

COMMERCIAL

Code	Count	Acres	40% Value
C1	1,185		20,339,060
C3	380	345.95	2,385,920
C4	102	420.5	781,811
C5	6	284.91	247,047
C7	0	0	0
C9	5	6.02	4,267
CA	2		48,400
CB	0		0
CF	281		12,346,628
CI	142		12,374,747
CP	12		18,775,852
CZ	3		26,572

INDUSTRIAL

Code	Count	Acres	40% Value
I1	72		5,693,834
I3	9	216.1	182,132
I4	3	65.12	65,524
I5	0	0	0
S6	0	0	0
S7	0	0	0
S8	0	0	0
S9	0	0	0
SF	13	18,781,372	0
SA	2	80,964	0
SB	0	0	0
SP	28	45,487	0
SH	0	0	0
ST	0	0	0
SV	1,966	65,124,302	0
SJ	55	9,204,861	0
SW	0	0	0
SX	0	0	0
SN	0	0	0

DO NOT USE CODES L1-L9 ON STATE SHEET

L1	0	0	0
L2	0	0	0
L3	0	0	0
L4	0	0	0
L5	0	0	0
L6	0	0	0
L7	0	0	0
L8	0	0	0
L9	0	0	0
TOTAL	5,547	104,781,354	0

SUMMARY

Code	Count	Acres	40% Value
Residential	26,722	16,008.2	151,392,795
Residential Transitional	0	0	0
Historical	0	0	0
Agricultural	6,739	21,316.01	43,467,425
Preferential	3	587	326,118
Conservation Use	1,969	196,818	109,241,148
Brownfield Property	0	0	0
Forest Land Cons Use	55	39,989.15	16,364,300
Environmentally Sensitive	0	0	0
Commercial	2,118	1,057.38	67,330,304
Industrial	88	281.22	5,996,151
Utility	29	0	17,142,532
Motor Vehicle	11,488		15,752,250
Mobile Home	2,576		6,419,732
Timber 100%	108	15,418.39	8,486,368
Heavy Equipment	0		0
Gross Digest	51,895	291,475.35	441,919,123
Exemptions Bond			0
Net Bond Digest			441,919,123
Gross Digest	51,895	291,475.35	441,919,123
Exemptions-M&O			104,781,354
Net M&O Digest			337,137,769

I7	0	0	0
I9	0	0	0
IA	0		0
IB	0		0
IF	2		13,893
II	1		35,248
IP	1		5,520
IZ	0		0

TAX LEVIED

TYPE	ASSESSED VALUE	MILLAGE	TAX
M & O	337,137,769	.000	0.00
BOND	441,919,123	.000	0.00

Return

Department of Revenue

Return

GEORGIA DEPARTMENT OF REVENUE Local Government Services Division County Digest Section	2017 TAX DIGEST CONSOLIDATED SUMMARY

County:BERRIEN County #:010 Tax District:ALAPAHA

Dist #: 05 Assessment %: 040 Tot Parcels:357

RESIDENTIAL

Code	Count	Acres	40% Value
R1	310		3,350,098
R3	301	215.28	448,602
R4	9	28.62	41,283
R5	0	0	0
R6	290		97,472
R7	0	0	0
R9	0	0	0
RA	0		0
RB	0		0
RF	0		0
RI	0		0
RZ	0		0

RESIDENTIAL TRANSITIONAL

Code	Count	Acres	40% Value
T1	0		0
T3	0	0	0
T4	0	0	0

HISTORIC

Code	Count	Acres	40% Value
H1	0		0
H3	0	0	0

AGRICULTURAL

Code	Count	Acres	40% Value
A1	1		17,400
A3	0	0	0
A4	1	4.66	7,490
A5	0	0	0
A6	0		0
A7	0	0	0
A9	0	0	0
AA	0		0
AB	0		0
AF	0		0

UTILITY

Code	Count	Acres	40% Value
U1	0		0
U2	4	0	463,266
U3	0	0	0
U4	0	0	0
U5	0	0	0
U7	0	0	0
U9	0	0	0
UA	0		0
UB	0		0
UF	0		0
UZ	0		0

EXEMPT PROPERTY

Code	Count	40% Value
E0	0	0
E1	28	385,542
E2	25	133,500
E3	0	0
E4	0	0
E5	0	0
E6	0	0
E7	0	0
E8	0	0
E9	1	7,227
TOTAL	54	526,269

HOMESTEAD AND PROPERTY EXEMPTIONS

Code	Count	M&O	Bond
S1	0	0	0
SC	0	0	0
S2	0	0	0
S3	0	0	0
S4	0	0	0
S5	1	33,096	0
SD	0	0	0
SS	1	36,072	0

AI	0		0
AZ	0		0

PREFERENTIAL

Code	Count	Acres	40% Value
P3	0	0	0
P4	0	0	0
P5	0	0	0
P6	0		0
P7	0	0	0
P9	0	0	0

CONSERVATION USE

Code	Count	Acres	40% Value
V3	0	0	0
V4	0	0	0
V5	2	103.97	60,573
V6	0		0

BROWNFIELD PROPERTY

Code	Count	Acres	40% Value
B1	0		0
B3	0	0	0
B4	0	0	0
B5	0	0	0
B6	0		0

FOREST LAND CONSERVATION USE

Code	Count	Acres	40% Value
J3	0	0	0
J4	0	0	0
J5	0	0	0
J9	0	0	0

FLPA FAIR MARKET ASSMT

Code	Count	Acres	40% Value
F3	0	0	0
F4	0	0	0
F5	0	0	0
F9	0	0	0
Total	0	0	0

ENVIRONMENTALLY SENSITIVE

Code	Count	Acres	40% Value
W3	0	0	0
W4	0	0	0
W5	0	0	0

COMMERCIAL

Code	Count	Acres	40% Value
C1	88		948,630
C3	32	41.5	86,775
C4	7	21.75	48,951
C5	0	0	0
C7	0	0	0
C9	0	0	0
SE	0	0	0
SG	0	0	0
S6	0	0	0
S7	0	0	0
S8	0	0	0
S9	0	0	0
SF	0	0	0
SA	0	0	0
SB	0	0	0
SP	1	538	0
SH	0	0	0
ST	0	0	0
SV	2	40,500	0
SJ	0	0	0
SW	0	0	0
SX	0	0	0
SN	0	0	0

DO NOT USE CODES L1-L9 ON STATE SHEET

L1	0	0	0
L2	0	0	0
L3	0	0	0
L4	0	0	0
L5	0	0	0
L6	0	0	0
L7	0	0	0
L8	0	0	0
L9	0	0	0
TOTAL	5	110,206	0

SUMMARY

Code	Count	Acres	40% Value
Residential	910	243.9	3,937,455
Residential Transitional	0	0	0
Historical	0	0	0
Agricultural	2	4.66	24,890
Preferential	0	0	0
Conservation Use	2	103.97	60,573
Brownfield Property	0	0	0
Forest Land Cons Use	0	0	0
Environmentally Sensitive	0	0	0
Commercial	160	63.25	1,940,884
Industrial	0	0	0
Utility	4	0	463,266
Motor Vehicle	332		393,900
Mobile Home	81		260,466
Timber 100%	0	0	0
Heavy Equipment	0		0
Gross Digest	1,491	415.78	7,081,434
Exemptions Bond			0
Net Bond Digest			7,081,434
Gross Digest	1,491	415.78	7,081,434

CA	0	0
CB	0	0
CF	22	451,350
CI	10	240,260
CP	1	164,918
CZ	0	0

INDUSTRIAL

Code	Count	Acres	40% Value
I1	0		0
I3	0	0	0
I4	0	0	0
I5	0	0	0
I7	0	0	0
I9	0	0	0
IA	0		0
IB	0		0
IF	0		0
II	0		0
IP	0		0
IZ	0		0

Exemptions-M&O	110,206
Net M&O Digest	6,971,228

TAX LEVIED

TYPE	ASSESSED VALUE	MILLAGE	TAX
M & O	6,971,228	9.500	66,226.67
BOND	7,081,434	.000	0.00

Return

Department of Revenue

Return

GEORGIA DEPARTMENT OF REVENUE Local Government Services Division County Digest Section	2017 TAX DIGEST CONSOLIDATED SUMMARY

County:BERRIEN County #:010 Tax District:ENIGMA

Dist #: 10 Assessment %: 040 Tot Parcels:375

RESIDENTIAL

Code	Count	Acres	40% Value
R1	337		3,122,053
R3	234	257.65	411,723
R4	94	272.9	379,133
R5	0	0	0
R6	577		231,322
R7	0	0	0
R9	0	0	0
RA	0		0
RB	0		0
RF	0		0
RI	0		0
RZ	0		0

RESIDENTIAL TRANSITIONAL

Code	Count	Acres	40% Value
T1	0		0
T3	0	0	0
T4	0	0	0

HISTORIC

Code	Count	Acres	40% Value
H1	0		0
H3	0	0	0

AGRICULTURAL

Code	Count	Acres	40% Value
A1	21		181,861
A3	0	0	0
A4	1	6.58	11,264
A5	5	68.09	47,176
A6	43		23,966
A7	0	0	0
A9	0	0	0
AA	0		0
AB	0		0
AF	0		0

UTILITY

Code	Count	Acres	40% Value
U1	0		0
U2	3	0	404,614
U3	0	0	0
U4	0	0	0
U5	0	0	0
U7	0	0	0
U9	0	0	0
UA	0		0
UB	0		0
UF	0		0
UZ	0		0

EXEMPT PROPERTY

Code	Count	40% Value
E0	0	0
E1	12	32,443
E2	14	47,964
E3	0	0
E4	2	10,883
E5	0	0
E6	1	400
E7	0	0
E8	0	0
E9	0	0
TOTAL	29	91,690

HOMESTEAD AND PROPERTY EXEMPTIONS

Code	Count	M&O	Bond
S1			0
SC			0
S2	0	0	0
S3	0	0	0
S4			0
S5	1	34,526	0
SD	0	0	0
SS	0	0	0

AI	0		0
AZ	0		0

PREFERENTIAL

Code	Count	Acres	40% Value
P3	0	0	0
P4	0	0	0
P5	0	0	0
P6	0		0
P7	0	0	0
P9	0	0	0

CONSERVATION USE

Code	Count	Acres	40% Value
V3	2	39.43	35,419
V4	4	75.02	55,560
V5	14	1,110.18	692,608
V6	0		0

BROWNFIELD PROPERTY

Code	Count	Acres	40% Value
B1	0		0
B3	0	0	0
B4	0	0	0
B5	0	0	0
B6	0		0

FOREST LAND CONSERVATION USE

Code	Count	Acres	40% Value
J3	0	0	0
J4	0	0	0
J5	0	0	0
J9	0	0	0

FLPA FAIR MARKET ASSMT

Code	Count	Acres	40% Value
F3	0	0	0
F4	0	0	0
F5	0	0	0
F9	0	0	0
Total	0	0	0

ENVIRONMENTALLY SENSITIVE

Code	Count	Acres	40% Value
W3	0	0	0
W4	0	0	0
W5	0	0	0

COMMERCIAL

Code	Count	Acres	40% Value
C1	42		738,507
C3	18	8.46	34,951
C4	4	34	35,675
C5	0	0	0
C7	0	0	0
C9	1	0.88	400
CA	0		0
SE	0	0	0
SG	0	0	0
S6	0	0	0
S7	0	0	0
S8	0	0	0
S9	0	0	0
SF	0	0	0
SA	0	0	0
SB	0	0	0
SP	1	882	0
SH	0	0	0
ST	0	0	0
SV	20	455,334	0
SJ	0	0	0
SW	0	0	0
SX	0	0	0
SN	0	0	0

DO NOT USE CODES L1-L9 ON STATE SHEET

L1	0	0	0
L2	0	0	0
L3	0	0	0
L4	0	0	0
L5	0	0	0
L6	0	0	0
L7	0	0	0
L8	0	0	0
L9	0	0	0
TOTAL	22	490,742	0

SUMMARY

Code	Count	Acres	40% Value
Residential	1,242	530.55	4,144,231
Residential Transitional	0	0	0
Historical	0	0	0
Agricultural	70	74.67	264,267
Preferential	0	0	0
Conservation Use	20	1,224.63	783,587
Brownfield Property	0	0	0
Forest Land Cons Use	0	0	0
Environmentally Sensitive	0	0	0
Commercial	85	43.34	1,045,543
Industrial	0	0	0
Utility	3	0	404,614
Motor Vehicle	424		505,020
Mobile Home	242		745,436
Timber 100%	0	0	0
Heavy Equipment	0		0
Gross Digest	2,086	1,873.19	7,892,698
Exemptions Bond			0
Net Bond Digest			7,892,698
Gross Digest	2,086	1,873.19	7,892,698

CB	0	0
CF	15	165,471
CI	5	70,539
CP	0	0
CZ	0	0

	INDUSTRIAL		
Code	Count	Acres	40% Value
I1	0		0
I3	0	0	0
I4	0	0	0
I5	0	0	0
I7	0	0	0
I9	0	0	0
IA	0		0
IB	0		0
IF	0		0
II	0		0
IP	0		0
IZ	0		0

Exemptions-M&O	490,742
Net M&O Digest	7,401,956

TAX LEVIED

TYPE	ASSESSED VALUE	MILLAGE	TAX
M & O	7,401,956	5.000	37,009.78
BOND	7,892,698	.000	0.00

Return

Department of Revenue

Return

GEORGIA DEPARTMENT OF REVENUE Local Government Services Division County Digest Section	2017 TAX DIGEST CONSOLIDATED SUMMARY

County:BERRIEN County #:010 Tax District:NASHVILLE

Dist #: 15 Assessment %: 040 Tot Parcels:2337

RESIDENTIAL

Code	Count	Acres	40% Value
R1	2,239		33,392,829
R3	1,902	852	4,523,198
R4	57	143	262,001
R5	1		1,800
R6	1,804		650,240
R7			
R9			
RA	1		11,200
RB	2		7,004
RF			
RI			
RZ			

RESIDENTIAL TRANSITIONAL

Code	Count	Acres	40% Value
T1			
T3			
T4			

HISTORIC

Code	Count	Acres	40% Value
H1			
H3			

AGRICULTURAL

Code	Count	Acres	40% Value
A1	2		145,728
A3			
A4	1	14	13,428
A5	2	106	59,631
A6	12		15,334
A7			
A9			
AA			
AB			
AF			
AI			
AZ			

PREFERENTIAL

Code	Count	Acres	40% Value

UTILITY

Code	Count	Acres	40% Value
U1			
U2	5		2,301,253
U3			
U4			
U5			
U7			
U9			
UA			
UB			
UF			
UZ			

EXEMPT PROPERTY

Code	Count	40% Value
E0		
E1	225	4,884,718
E2	64	456,036
E3	8	128,460
E4	6	33,358
E5	14	669,326
E6	11	222,073
E7		
E8		
E9	3	14,888
TOTAL	331	6,408,859

HOMESTEAD AND PROPERTY EXEMPTIONS

Code	Count	M&O	Bond
S1			
SC			
S2			
S3			
S4			
S5	15	493,915	
SD			
SS			
SE			
SG			

P3			
P4			
P5			
P6			
P7			
P9			

CONSERVATION USE

Code	Count	Acres	40% Value
V3	2	46	39,732
V4	5	66	53,384
V5	2	89	74,950
V6			

BROWNFIELD PROPERTY

Code	Count	Acres	40% Value
B1			
B3			
B4			
B5			
B6			

FOREST LAND CONSERVATION USE

Code	Count	Acres	40% Value
J3			
J4			
J5			
J9			

FLPA FAIR MARKET ASSMT

Code	Count	Acres	40% Value
F3			
F4			
F5			
F9			
Total			

ENVIRONMENTALLY SENSITIVE

Code	Count	Acres	40% Value
W3			
W4			
W5			

COMMERCIAL

Code	Count	Acres	40% Value
C1	742		14,080,385
C3	298	258	2,127,491
C4	43	122	347,536
C5	1	28	56,880
C7			
C9	1		688
CA	1		26,000
CB			
CF	141		4,102,502
CI	89		3,863,139
CP	4		17,798,470
CZ			

INDUSTRIAL

Code	Count	Acres	40% Value
I1	47		4,791,432
I3	8	57	84,536

S6			
S7			
S8			
S9			
SF	5		17,803,990
SA			
SB			
SP	15		25,872
SH			
ST			
SV	9		106,429
SJ			
SW			
SX			
SN			

DO NOT USE CODES L1-L9 ON STATE SHEET

L1			
L2			
L3			
L4			
L5			
L6			
L7			
L8			
L9			
TOTAL	44		18,430,206

SUMMARY

Code	Count	Acres	40% Value
Residential	6,006	995	38,848,272
Residential Transitional			
Historical			
Agricultural	17	120	234,121
Preferential			
Conservation Use	9	201	168,066
Brownfield Property			
Forest Land Cons Use			
Environmentally Sensitive			
Commercial	1,320	408	42,403,091
Industrial	61	122	4,989,694
Utility	5		2,301,253
Motor Vehicle			
Mobile Home			
Timber 100%			
Heavy Equipment			
Gross Digest	7,418	1,846	88,944,497
Exemptions			
Bond			
Net Bond Digest			88,944,497
Gross Digest	7,418	1,846	88,944,497
Exemptions-M&O			18,430,206
Net M&O Digest			70,514,291

I4	3	65	65,524		TAX LEVIED		
I5				TYPE	ASSESSED VALUE	MILLAGE	TAX
I7							
I9				M & O	70,514,291	8.000	564,114.33
IA				BOND	88,944,497	.000	0.00
IB							
IF	1		7,434				
II	1		35,248				
IP	1		5,520				
IZ							

Return

Department of Revenue

Return

GEORGIA DEPARTMENT OF REVENUE Local Government Services Division County Digest Section	2017 TAX DIGEST CONSOLIDATED SUMMARY

County:BERRIEN County #:010 Tax District:RAY CITY

Dist #: 20 Assessment %: 040 Tot Parcels:438

RESIDENTIAL

Code	Count	Acres	40% Value
R1	470		6,813,671
R3	332	171.45	631,656
R4	74	101.25	358,061
R5	0	0	0
R6	403		141,285
R7	0	0	0
R9	0	0	0
RA	0		0
RB	0		0
RF	0		0
RI	0		0
RZ	0		0

RESIDENTIAL TRANSITIONAL

Code	Count	Acres	40% Value
T1	0		0
T3	0	0	0
T4	0	0	0

HISTORIC

Code	Count	Acres	40% Value
H1	0		0
H3	0	0	0

AGRICULTURAL

Code	Count	Acres	40% Value
A1	0		0
A3	1	2.74	3,458
A4	0	0	0
A5	2	74.15	47,805
A6	0		0
A7	0	0	0
A9	0	0	0
AA	0		0
AB	0		0
AF	0		0

UTILITY

Code	Count	Acres	40% Value
U1	0		0
U2	4	0	447,501
U3	0	0	0
U4	0	0	0
U5	0	0	0
U7	0	0	0
U9	0	0	0
UA	0		0
UB	0		0
UF	0		0
UZ	0		0

EXEMPT PROPERTY

Code	Count	40% Value
E0	0	0
E1	20	161,151
E2	25	186,520
E3	0	0
E4	0	0
E5	0	0
E6	0	0
E7	0	0
E8	0	0
E9	0	0
TOTAL	45	347,671

HOMESTEAD AND PROPERTY EXEMPTIONS

Code	Count	M&O	Bond
S1			0
SC			0
S2	0	0	0
S3	0	0	0
S4			0
S5	9	314,023	0
SD	0	0	0
SS	1	46,329	0
SE	0	0	0

AI	0		0
AZ	0		0

PREFERENTIAL

Code	Count	Acres	40% Value
P3	0	0	0
P4	0	0	0
P5	0	0	0
P6	0		0
P7	0	0	0
P9	0	0	0

CONSERVATION USE

Code	Count	Acres	40% Value
V3	1	7.4	9,920
V4	2	53.82	28,534
V5	1	40	23,779
V6	0		0

BROWNFIELD PROPERTY

Code	Count	Acres	40% Value
B1	0		0
B3	0	0	0
B4	0	0	0
B5	0	0	0
B6	0		0

FOREST LAND CONSERVATION USE

Code	Count	Acres	40% Value
J3	0	0	0
J4	0	0	0
J5	0	0	0
J9	0	0	0

FLPA FAIR MARKET ASSMT

Code	Count	Acres	40% Value
F3	0	0	0
F4	0	0	0
F5	0	0	0
F9	0	0	0
Total	0	0	0

ENVIRONMENTALLY SENSITIVE

Code	Count	Acres	40% Value
W3	0	0	0
W4	0	0	0
W5	0	0	0

COMMERCIAL

Code	Count	Acres	40% Value
C1	48		697,452
C3	19	12.07	78,977
C4	2	0.53	2,548
C5	0	0	0
C7	0	0	0
C9	0	0	0
SG	0	0	0
S6	0	0	0
S7	0	0	0
S8	0	0	0
S9	0	0	0
SF	0	0	0
SA	0	0	0
SB	0	0	0
SP	2	1,374	0
SH	0	0	0
ST	0	0	0
SV	4	41,299	0
SJ	0	0	0
SW	0	0	0
SX	0	0	0
SN	0	0	0

DO NOT USE CODES L1-L9 ON STATE SHEET

L1	0	0	0
L2	0	0	0
L3	0	0	0
L4	0	0	0
L5	0	0	0
L6	0	0	0
L7	0	0	0
L8	0	0	0
L9	0	0	0
TOTAL	16	403,025	0

SUMMARY

Code	Count	Acres	40% Value
Residential	1,279	272.7	7,944,673
Residential Transitional	0	0	0
Historical	0	0	0
Agricultural	3	76.89	51,263
Preferential	0	0	0
Conservation Use	4	101.22	62,233
Brownfield Property	0	0	0
Forest Land Cons Use	0	0	0
Environmentally Sensitive	0	0	0
Commercial	92	12.6	1,113,942
Industrial	0	0	0
Utility	4	0	447,501
Motor Vehicle	316		345,280
Mobile Home	78		193,935
Timber 100%	0	0	0
Heavy Equipment	0		0
Gross Digest	1,776	463.41	10,158,827
Exemptions Bond			0
Net Bond Digest			10,158,827
Gross Digest	1,776	463.41	10,158,827
Exemptions-M&O			403,025

CA	0	0
CB	0	0
CF	18	197,326
CI	4	137,610
CP	0	0
CZ	1	29

INDUSTRIAL

Code	Count	Acres	40% Value
I1	0		0
I3	0	0	0
I4	0	0	0
I5	0	0	0
I7	0	0	0
I9	0	0	0
IA	0		0
IB	0		0
IF	0		0
II	0		0
IP	0		0
IZ	0		0

Net M&O Digest 9,755,802

TAX LEVIED

TYPE	ASSESSED VALUE	MILLAGE	TAX
M & O	9,755,802	4.500	43,901.11
BOND	10,158,827	.000	0.00

Return

Appendix C

Community Work Program

BERRIEN COUNTY FIVE-YEAR SHORT-TERM WORK PROGRAM UPDATE (2016 - 2020)

PROJECTS	ESTIMATED COST	RESPONSIBLE PARTY	FUNDING SOURCE	GOAL	FY 16	FY 17	FY 18	FY 19	FY 20
CULTURAL RESOURCES									
Develop a Historic Preservation Best Management Practices (BMP) and guideline pamphlet for public distribution and education	$2,500	Berrien County and Berrien County Historical Foundation	General Funds	1			*	*	
Develop a strategic Plan to promote historical tourism within the County, including historical tours, downtown events, and historical marketing efforts	Staff Time	Berrien County	General Funds	1		*	*		
Develop land use regulations to protect historic structures and sites and prohibit encroachment of surrounding uses.	$1,500	Berrien County	General Funds	1			*	*	*
ECONOMIC DEVELOPMENT									
Restructure the Economic Development Authority and annually revaluate projects/programs to improve efficiency	Staff Time	Berrien County	General Funds	2	*	*	*	*	*
Complete the final phase of construction of the new airport	$10,000,000	Berrien County, Airport	General Funds, SPLOST, Grants	2,6			*		
Complete the infrastructure improvements to the new Industrial Park along 82;	$1,000,000	Berrien County	General Funds, CDBG	2			*		
Coordinate with the boat testing canal to be constructed by Chaparral	$1,000,000	Berrien County	General Funds and available grants	2			*		
Develop a county-wide on-line business registry	$5,000	County and Cities	General Funds	2		*	*		
Develop a marketing plan to attract the Moody AFB population	$2,500	Berrien County	General Funds	2				*	
Create tax incentives for commercial property	Staff Time	Berrien County	General Funds	2			*	*	

PROJECTS	ESTIMATED COST	RESPONSIBLE PARTY	FUNDING SOURCE	GOAL	FY 16	FY 17	FY 18	FY 19	FY 20
owners in an effort to reduce rental rates for commercial buildings.									
Develop a coordinated county-wide business presence and increase broadband coverage to increase inventory	$10,000	County and Cities	General Funds, SPLOST, State grants	2		*	*		
Enhance the communication network for the county and the cities including establishing a Wireless Network Center.	$500,000	County and Cities	General Funds, SPLOST, Grants	2		*	*		
Develop a marketing program to promote the airport runway expansion to attract more business through the Chamber and website	Staff Time	County and Chamber of Commerce	General Funds	2	*				
Establish an ongoing Committee with representation from the County and Moody Air Force Base to identify and foster mutually beneficial growth and development projects and programs within the area.	Staff Time	County and Cities	General Funds	2	*				
HOUSING									
Identify areas where infill housing can be accommodated within the County, and coordinated with the property owners to coordinate public and private funds and efforts	$1,500	Berrien County	General Funds	3			*	*	
Support cities efforts to upgrade housing conditions by providing staff (Code Officer and Engineer).	$4,500	Berrien County, Cities of Alapaha ,Enigma, Nashville, and Ray City, GICH	General Funds	3	*	*	*	*	*
NATURAL RESOURCES									
Develop regulations jointly with the surrounding counties and cities to ensure that the water resources of the area are protected.	Staff Time	County and Cities	General Funds	4		*	*		
Develop a comprehensive inventory of natural resources within the County to ensure their	$3,000	Berrien County	General Funds	4		*	*		

PROJECTS	ESTIMATED COST	RESPONSIBLE PARTY	FUNDING SOURCE	GOAL	FY 16	FY 17	FY 18	FY 19	FY 20
protection and continued preservation.									
Develop promotional materials and programs for local outdoor activities, including public fishing opportunities throughout the county.	$2,000	Berrien County	General Funds	4			*	*	
Coordinate with the Governor's *Go Fish Georgia* Initiative to promote fishing throughout the County, and particularly at the Paradise Public Fishing Area.	$3,500	Berrien County	General Funds	4	*	*	*	*	*
Establish more public access points along the Alapaha River.	Staff Time	Berrien County, DNR, DOT	General Funds, DNR Grants	4		*	*	*	
Conduct storm-water drainage replacement repair and cleaning and maintain canals in Berrien County and the Cities of Alapaha, Enigma, Nashville and Ray City	$500,000 per project	County and Cities	General Funds, HUD, CDBG	4	*	*			
LAND USE									
Identify on a map all natural and cultural resources that are located within the flight paths and noise contours of Moody Air Force Base.	$5,000	Berrien County	General Funds	5	*	*			
Adopt noise attenuating building standards for new residential homes within the flight paths and noise contours of Moody Air Force Base.	Staff Time	Berrien County	General Funds	5	*				
Develop a county-wide zoning ordinance.	$1,500	Berrien County	General Funds	5				*	*
Work with FEMA to update local FIRM maps in the County and Cities	Staff Time	Berrien County EMA	FEMA	5				*	*
COMMUNITY FACILITIES & SERVICES									
Identify and obtain additional properties for recreational and youth sports programs throughout the county.	$500,000	Berrien County and Recreational Department	General Funds and CDBG Recreational Grants	6	*			*	*

PROJECTS	ESTIMATED COST	RESPONSIBLE PARTY	FUNDING SOURCE	GOAL	FY 16	FY 17	FY 18	FY 19	FY 20
Replace (Police) 3 New Patrol Cars with in cabin cameras annually	$105,000 annually	Berrien County, Berrien County Sheriff Department	General Funds and available grants	6		*			
Develop a county-wide Recreation Program.	$1,000	Berrien County and Recreational Department, Cities	General Funds, Fees	6,7				*	
Explore ways to share maintenance responsibility and decrease cost more efficiently for parks and recreation county-wide.	Staff Time	Berrien County and Recreational Department, Cities	General Funds, Fees	6			*	*	*
Develop an airport master plan that provides for runway and terminal expansions that will accommodate larger aircraft and additional flights.	$15,000	Berrien County	General Funds, Grants	2,6			*	*	*
Seek funding to construct a covered arena at the local saddle club	$1,000,000	Berrien County	General Funds, CDBG Recreational grant	6,				*	*
Establish a joint committee with the County and the School Board for the development of an agreement to utilize buses for the transportation of county children to and from recreational sites and from recreational sites and events within the County, and continue regular meetings of the committee to monitor the operation of the program and address any new needs or issues which may arise.	Staff Time	County and Berrien County BOE	General Funds	6,7	*	*			
Establish regular communication between points of contact within each recreation department to coordinate events and facilities so that residents from all parts of the County will have the opportunity to enjoy local events and activities.	Staff Time	County, Cities , and Recreation Board	General Funds	6			*	*	*
Establish broadband coverage for the county (including hot spots) and participate in Regional efforts in cooperation with GTA	$250,000	Berrien County, ISP, RC	Grants and General Funds	6	*	*	*		
Develop a cost and feasibility study for retention of the local hospital	$7,500	Berrien County	General Funds	6	*	*			

PROJECTS	ESTIMATED COST	RESPONSIBLE PARTY	FUNDING SOURCE	GOAL	FY 16	FY 17	FY 18	FY 19	FY 20
Identify sites for an EMS station to be located in the southern portion of the county.	$1,500	Berrien County	General Funds	6	*	*	*		
Build a boat ramp for the Alapaha River	$100,000	Berrien County	General Funds, DNR Grants	4,6					*
Identify a location and discuss hiring a consultant to design a site plan for a county-wide senior activity center.	$5,000	County and Cities	General Funds	6				*	*
Road paving projects will be based on priority and need and amount of annual LMIG funding	$300,000	Berrien County and DOT	County, DOT	6	*	*	*	*	*
Replace antiquated water & sewer lines and equipment prone to failure in County and Cities through CDBG grants	$50,000	County and Cities	CDBG Grants	6	*	*	*	*	*
Provide additional first responder training, air units, air unit chargers, Class A Pumper & Fire Knocker trucks and other equipment to County and Cities Fire Departments for Wildfire use	$7,000,000	Berrien County	General Funds/GEMA/FEMA/Homeland Security	6	*	*	*	*	*
Plan to acquire property for new Volunteer Fire Station and/or new additions to existing stations in the County and Cities	$1,000,000 each	County and Cities	General Funds, grants	6	*	*			
Develop and equip a Haz Mat Team to deal with agricultural chemicals during wildfire events	$100,000	County and Cities	General Funds/GEM/FEMA	6		*	*		
Secure funding for a hazardous weather alert system in the Cities and in the populated portion of the County	$15,000 each jurisdiction	County and Cities	General Funds/GEM/FEMA	6	*				

PROJECTS	ESTIMATED COST	RESPONSIBLE PARTY	FUNDING SOURCE	GOAL	FY 16	FY 17	FY 18	FY 19	FY 20
INTERGOVERNMENTAL COORDINATION									
Develop an intergovernmental agreement between the School Board and Berrien County to create a transportation system for children traveling to recreational events and sites around the County.	$750	Berrien County	General Funds	6,7			*	*	*
Establish an annual meeting between the School Board ,the County, and the cities to identify and address issues confronting each organization, and coordinate the development and implementation of programs, policies and practices to address the issues.	Staff Time	County and Cities	General Funds	7	*				
Develop an intergovernmental agreement to provide county-wide recreational opportunities	Staff Time	County and Cities	General Funds/Fees	6,7	*				
Develop a strategic plan to provide EMS coverage in southern Berrien County including Ray City	$15,000	Berrien County, Ray City	General Funds and grants	6		*			
Develop jointly with cities in a shared code enforcement program, i.e. Building code, subdivision, zoning	Staff Time	County and Cities	General Funds/Fees	7	*				
PLANNING									
Update the "official county roads" map	$1,500	Berrien County	General Funds	5		*	*		

CITY OF ALAPAHA FIVE-YEAR SHORT-TERM WORK PROGRAM UPDATE (2016 - 2020)

PROJECTS	ESTIMATED COST	RESPONSIBLE PARTY	FUNDING SOURCE	GOAL	FY 16	FY 17	FY 18	FY 19	FY 20
CULTURAL RESOURCES									
Participate with the County in developing a Historic Preservation BMP and guideline pamphlet for public distribution and education	$750	County and Cities	General Funds	1		*	*		
Continue with restoration efforts of old Alapaha Gym	$250,000	City of Alapaha	General Funds, public and private partnerships	1		*			
Develop land use regulations to protect historic structures and sites and prohibit encroachment of surrounding uses.	$3,000	City of Alapaha	General Funds	1				*	*
ECONOMIC DEVELOPMENT									
Promote Golf Cart City maps.	$2,000	City of Alapaha	General Funds	2		*	*	*	
Coordinate with the Berrien County School Board to find ways to improve education throughout the county,	Staff Time	City of Alapaha	General Funds	2	*				
Research ways to enhance the communication network for the county and the cities including establishing a Wireless Network Center.	$1,500	City and County	General Funds, SPLOST, Grants	2		*	*		
HOUSING									
Continue to upgrade housing conditions by using county provided staff (Code Officer and Engineer).	$1,500	City of Alapaha and County	General Funds	3		*	*		*
Identify affordable housing properties and create a listing that will be available to the public	$2,500	City of Ala;paha	General Funds	3	*	*	*		
NATURAL RESOURCES									
Prepare plans for additional walking paths for future TEA Grant funding consideration.	Staff Time	City of Ala;paha, DOT	General Funds, GDOT Grants	4				*	*

PROJECTS	ESTIMATED COST	RESPONSIBLE PARTY	FUNDING SOURCE	GOAL	FY 16	FY 17	FY 18	FY 19	FY 20
COMMUNITY FACILITIES & SERVICES									
Participate with the County in developing a county-wide Recreation Program.	$1,000	Berrien County and Recreational Department, Cities	General Funds	6	*	*	*	*	*
Street paving projects: will be based on priority and need and amount of annual LMIG funding	$20,000	City of Alapaha	General Funds, SPLOST, DOT	6	*	*	*	*	*
INTERGOVERNMENTAL COORDINATION									
Establish an annual meeting between the School Board , the County, and the cities to identify and address issues confronting each organization, and coordinate the development and implementation of programs, policies and practices to address the issues.	Staff Time	County, Cities, and BOE	General Funds	7	*				
Develop an intergovernmental agreement to provide county-wide recreational opportunities	Staff Time	City of Alapaha	General Funds and Fees	6,7	*				
Develop interlocal agreements for shared code enforcement services	Staff Time	City of Alapaha	General Funds and Fees	7	*				

ENIGMA FIVE-YEAR SHORT-TERM WORK PROGRAM UPDATE
(2016 - 2020)

PROJECTS	ESTIMATED COST	RESPONSIBLE PARTY	FUNDING SOURCE	GOAL	FY 16	FY 17	FY 18	FY 19	FY 20
HISTORIC RESOURCES									
Prepare National Historic Register documentation for the school gymnasium and cafeteria buildings	$1,000	City of Enigma	General Funds	1	*	*			
ECONOMIC DEVELOPMENT									
Develop 2 new retail stores	$250,000	City of Enigma	General Funds, grants	2	*	*	*	*	*
Enhance the Industrial Park that is near city limits (possibly annex into the city)	$2,500	City of Enigma	General Funds	2,6		*	*		
LAND USE									
Adopt a zoning ordinance to implement the Enigma Future Land Use Map	$5,000	City of Enigma	General Funds	5		*	*		
COMMUNITY FACILITIES & SERVICES									
Need a new water tower (existing tower is at capacity)	$500,000	City of Enigma	CDBG grants, SPLOST	6	*				
Construct a water-supply well, through CDBG grants	$500,000	City of Enigma	CDBG ,General Funds, SPLOST	6		*	*		

CITY OF NASHVILLE FIVE-YEAR SHORT-TERM WORK PROGRAM UPDATE (2016 - 2020)

PROJECTS	ESTIMATED COST	RESPONSIBLE PARTY	FUNDING SOURCE	GOAL	FY 16	FY 17	FY 18	FY 19	FY 20
ECONOMIC DEVELOPMENT									
Support all Chamber of Commerce priorities; add land and infrastructure improvements at the industrial park as needed.	$500,000	City of Nashville	General Funds, SPLOST, CDBG grants	2,5	*	*	*	*	*
HOUSING									
Implement the HOME/CHIP rehab programs	$250,000	City of Nashville	Grants, General Funds	3	*	*	*	*	*
NATURAL RESOURCES									
Investigate the feasibility and appropriateness of a Green Space Plan to protect natural and open areas within the City	Staff Time	City of Nashville	General Funds	4			*	*	
LAND USE									
Develop Land Use and Subdivision Code	$5,000	City of Nashville	General Funds	5	*	*			
Amend or adopt codes and ordinances, where applicable, to address the environmentally sensitive resources identified in Part I. Identify and provide protection measures for wetlands.	$3,500	City of Nashville	General Funds	5	*	*			
Amend the zoning ordinance to implement the Nashville Future Land Use Plan	$5,000	City of Nashville	General Funds	5	*				
Conduct annexation studies to consolidate islands within the city	$7,500	City of Nashville	General Funds	5			*	*	
Implement stormwater best management practices for all new development in the City of Nashville	$2,500	City of Nashville	General Funds	5,4	*	*	*		
Develop a sign ordinance for the City of Nashville	Staff Time	City of Nashville	General Funds	5	*				
COMMUNITY FACILITIES & SERVICES									
Construct a new full time Fire Department	$250,000	City of Nashville	SPLOST, General Funds	6				*	

PROJECTS	ESTIMATED COST	RESPONSIBLE PARTY	FUNDING SOURCE	GOAL	FY 16	FY 17	FY 18	FY 19	FY 20
Water and Sewer station upgrade and replacement of deteriorated lines, pipes etc.	$500,000	City of Nashville	CDBG, General Funds, SPLOST	6				*.	*
Build another fire substation to lower ISO number	$500,000	City of Nashville,	General Funds, SPLOST, USDA Community Facilities grant/loan	5,6				*	*
Submit resurfacing request to LMIG	$350,000	City of Nashville,	SPLOST, General Funds	6					*
Build a new post office	$250,000	City of Nashville,	SPLOST, General Funds	6		*	*		
Rehab the drainage ditch	$500,000	City of Nashville	CDBG, General Funds	6,5	*	*	*		
Upgrade police vehicles and get new cars (digital cameras, light bars, and laptops needed) (Carbon Patrol Cars)	$25,000 each	City of Nashville	SPLOST, General Funds	6	*	*	*	*	*
Improve the existing communication system for fire and police and eventually create one communication system for Fire and Police at 800 MHz	$75,000	City of Nashville	SPLOST, General Funds, grants	6,7	*	*	*	*	*
Buy a new fire truck that has a ladder	$800,000	City of Nashville	SPLOST, General Funds, grants	6	*	*			
Build another Fire Station to the northeast near the industrial areas	$500,000	City of Nashville	SPLOST, General Funds, grants	6				*	*
Fire Dept. needs a large diameter hose (5 inches)	$30,000	City of Nashville	SPLOST, General Funds, grants	6	*	*	*		
Continue to upgrade water system by looping water lines	$250,000	City of Nashville	General Funds, grants	6	*	*	*	*	
Update water, sewer natural gas and storm sewer system maps to include all "as built" lines and add coverage to the City's GIS system	$12,500	City of Nashville	SPLOST, General Funds, grants	6	*	*	*		
Upgrade the storm sewer system city-wide and add retention ponds	$500,000	City of Nashville	CDBG, General Funds	6	*	*	*		
Develop a Capital Improvements Program for the City of Nashville that supports current and future growth patterns	$35,000	City of Nashville	GDOT, General Funds, SPLOST	6,5		*	*		
Develop a Bicycle Route Master Plan to facilitate alternative modes of transportation and healthier lifestyles	$30,000	City of Nashville	General Funds	6	*	*	*		

PROJECTS	ESTIMATED COST	RESPONSIBLE PARTY	FUNDING SOURCE	GOAL	FY 16	FY 17	FY 18	FY 19	FY 20
INTERGOVERNMENTAL COORDINATION									
Improve interoperability with the Fire Department	Staff Time	City of Nashville	General Funds	7	*	*	*	*	*
Coordinate code enforcement services with other units of government through interlocal agreements	Staff Time	City and County	General Funds	7	*	*	*	*	*

CITY OF RAY CITY FIVE-YEAR SHORT-TERM WORK PROGRAM UPDATE (2016 - 2020)

PROJECTS	ESTIMATED COST	RESPONSIBLE PARTY	FUNDING SOURCE	GOAL	FY 16	FY 17	FY 18	FY 19	FY 20
CULTURAL RESOURCES									
In partnership with the Ray City School Preservation Foundation, Inc. complete the renovation of the City Library and Auditorium at the old Ray City school to make it a first class facility for community recreation and cultural events.	$150,000	City of Ray City	General Funds, private and public partnerships	1		*	*		
Participate with the County in developing a Historic Preservation BMP and guideline pamphlet for public distribution and education	$750	City of Ray City, County, City of Enigma, Nashville and Alapaha	General Funds	1		*	*		
ECONOMIC DEVELOPMENT									
Coordinate with the Berrien County School Board to find ways to improve education throughout the county,	Staff Time	City of Ray City, BOE	General Funds	2	*				
Research ways to enhance the communication network for the county and the cities including establishing a Wireless Network Center.	$1,500	Cities and County	General Funds	2,6	*	*	*		
Increase home ownership and business investment in Ray City by annually establishing and keeping property taxes at a competitive 4.5 mils reduced from current 9 mils.	$45,000 annually	City of Ray City	General Funds	2,5	*	*	*		
HOUSING									
Identify affordable housing properties and create a listing that will be available to the public	$2,500	City of Ray City	General Funds	3		*	*	*	
NATURAL RESOURCES									
Prepare plans for additional walking paths for future TEA Grant funding consideration.	Staff Time	City of Ray City, GDOT	General Funds, GDOT Grant	4			*		
LAND USE									
Amend or adopt codes and ordinances where applicable to address the environmentally sensitive resources identified in Part 1.	$2,500	City of Ray City	General Funds	5	*	*			

PROJECTS	ESTIMATED COST	RESPONSIBLE PARTY	FUNDING SOURCE	GOAL	FY 16	FY 17	FY 18	FY 19	FY 20
Identify and provide protection measures for wetlands	$500	City of Ray City	General Funds	5	*	*	*		
Identify all natural and cultural resources that are located within the flight paths and noise contours of Moody Air Force Base.	Staff Time	City of Ray City	General Funds	5	*	*	*		
Adopt noise attenuating building standards for new residential homes within the flight paths and noise contours of Moody Air Force Base.	Staff Time	City of Ray City	General Funds	5		*			
COMMUNITY FACILITIES & SERVICES									
Participate with the County in developing a county-wide Recreation Program.	$1,500	County, Cities, Recreation Board	General Funds	6			*	*	*
Draw up annexation plan for future annexations	$1,000	City of Ray City	General Funds	6		*			
Enhance and improve sewer systems to meet federal EPD standards	$500,000	City of Ray City	CDBG, General Funds	6	*	*	*	*	*
Provide more parades and special events, such as "Plow Day" and the "Fourth of July".	$2,500	City of Ray City	General Funds	6	*	*	*	*	*
INTERGOVERNMENTAL COORDINATION									
Establish an annual meeting between the School Board , the County, and the cities to identify and address issues confronting each organization, and coordinate the development and implementation of programs, policies and practices to address the issues.	Staff Time	County, Cities, BOE	General Funds	7	*				
Develop an intergovernmental agreement to provide county-wide recreational opportunities	Staff Time	City of Ray City	General Funds and fees	6,7		*	*		
Adopt interlocal agreements for shared code enforcement services	Staff Time	City of Ray City	General Funds and fees	7	*				

GEORGIA FORESTRY
COMMISSION

Community Wildfire Protection Plan

An Action Plan for Wildfire Mitigation and Conservation of Natural Resources

Berrien County, Georgia

A Program of the Georgia Forestry Commission
with support from the U.S. Forest Service

JAN 23, 2012

Prepared by;
Blair Joiner, Chief Ranger Berrien County
Will Fell CWPP Specialist
Georgia Forestry Commission
13950 US Hwy 129 N
Nashville, GA 31639

The following report is a collaborative effort among various entities; the representatives listed below comprise the core decision-making team responsible for this report and mutually agree on the plan's contents:

Lamar Ray
Director Berrien Co 911 and EMA
(229) 445-5970
lrayberrien911@gmail.com

Julian Warren
Chief Nashville FD
(229) 686-2290
bucksauto@windstream.net

Steve Adams
Training Ofc Nashville FD
(229) 686-2154
nashvillefire@hotmail.com

Paul Guay
Chief New Lois VFD
(229) 646-9919
paulcguay@msn.com

Steve M Brown
Chief Alapaha VFD

Carlos Vickers
Chief East Berrien VFD
(229) 686-7312

Terry Danforth
Chief West Berrien VFD
(229) 686-4316
tdan4th@earthlink.net

Wayne Chin
Chief Enigma VFD
(229) 392-3849
wayneechin@hotmail.com

John Strickland
Asst Chief Nashville FD
(229) 412-2913

Blair Joiner
Chief Ranger Berrien County Forestry Unit
(229) 686-3766
bjoiner@gfc.state.ga.us

PLAN CONTENTS

Preface

The extreme weather conditions that are conducive to wildfire disasters (usually a combination of extended drought, low relative humidity and high winds) can occur in this area of Georgia as infrequently as every 10-15 years. This is not a regular event, but as the number of homes that have been built in or adjacent to forested or wildland areas increases, it can turn a wildfire under these weather conditions into a major disaster. Wildfires move fast and can quickly overwhelm the resources of even the best equipped fire department. Advance planning can save lives, homes and businesses.

This Community Wildfire Protection Plan (CWPP) includes a locally assessed evaluation of the wildland urban interface areas of the county, looking at the critical issues regarding access to these areas, risk to properties from general issues such as building characteristics and "fire wise" practices and response from local fire fighting resources. It further incorporates a locally devised action plan to mitigate these risks and hazards though planning, education and other avenues that may become available to address the increasing threat of wildland fire. The CWPP does not obligate the county financially in any way, but instead lays a foundation for improved emergency response if and when grant funding is available to the county.

The Plan is provided at no cost to the county and can be very important for county applications for hazard mitigation grant funds through the National Fire Plan, FEMA mitigation grants and Homeland Security. Under the Healthy Forest Restoration Act (HFRA) of 2003, communities (counties) that seek grants form the federal government for hazardous fuels reduction work are required to prepare a Community Wildfire Protection Plan.

This plan will:

- Enhance public safety
- Raise public awareness of wildfire hazards and risks
- Educate homeowners on how to reduce home ignitability
- Build and improve collaboration at multiple levels

The public does not have to fall victim to this type of disaster. Homes (and communities) can be designed, built and maintained to withstand a wildfire even in the absence of fire equipment and firefighters on the scene. It takes planning and commitment at the local level before the wildfire disaster occurs and that is what the Community Wildfire Protection Plan is all about.

I. OBJECTIVES

The mission of the following report is to set clear priorities for the implementation of wildfire mitigation in Berrien County. The plan includes prioritized recommendations for the appropriate types and methods of fuel reduction and structure ignitability reduction that will protect this community and its essential infrastructure. It also includes a plan for wildfire suppression. Specifically, the plan includes community-centered actions that will:

- Educate citizens on wildfire, its risks, and ways to protect lives and properties,
- Support fire rescue and suppression entities,
- Focus on collaborative decision-making and citizen participation,
- Develop and implement effective mitigation strategies, and
- Develop and implement effective community ordinances and codes.

II. COMMUNITY COLLABORATION

The core team convened on September 20th, 2011 to assess risks and develop the Community Wildfire Protection Plan. The group is comprised of representatives from local government, local fire authorities, and the state agency responsible for forest management. Below are the groups included in the task force:

Berrien County EMA
Berrien County Fire Departments
Nashville City Government
Berrien County Government
Georgia Forestry Commission

It was decided to conduct community assessments on the basis of the individual fire districts in the county. The chiefs of the various fire departments in the county assessed the selected areas and reconvened on November 10th, 2011 for the purpose of completing the following:

Risk Assessment	Assessed wildfire hazard risks and prioritized mitigation actions.
Fuels Reduction	Identified strategies for coordinating fuels treatment projects.
Structure Ignitability	Identified strategies for reducing the ignitability of structures within the Wildland interface.
Emergency Management	Forged relationships among local government and fire districts and developed/refined a pre-suppression plan.
Education and Outreach	Developed strategies for increasing citizen awareness and action and to conduct homeowner and community leader workshops.

III. COMMUNITY BACKGROUND AND EXISTING SITUATION

Background

Berrien County, in southwest Georgia, was formed from parts of Coffee, Irwin, and Lowndes counties in February 1856. Berrien is Georgia's 116th county, with an area of 452 square miles. The county was named for John Macpherson Berrien, a Savannah lawyer who served variously as a judge (with a stint on the Supreme Court of Georgia), a state senator, a U.S. senator, and the attorney general under U.S. president Andrew Jackson. In the War of 1812 (1812-15) he was captain of the Georgia Hussars, a volunteer company from Savannah. He was also the first president of the Georgia Historical Society.

The county seat of Berrien is Nashville, incorporated in 1892 and the site of the county courthouse, which was built in 1898. Other incorporated towns in the county are Alapaha, Enigma, and Ray City.

Alapaha was incorporated in 1881 on the site of a Seminole village with the same name. Its city hall is located in the old Alapaha Station, the former depot for the now defunct Brunswick and Albany Railroad. Some believe that Alapaha was the Creek word for "other side"; others believe it was the word Timucuan Indians used for "bear." The Alapaha Station Celebration occurs the second weekend of each November.

Enigma was incorporated in 1906. Histories of the town's name are apocryphal, and so as one source opined, the name remains an enigma. The Georgia writer Harry Crews used Enigma as the setting for his first novel, *The Gospel Singer* (1968).

Ray City was incorporated in 1909 as Ray's Mill. The white settlement dates to 1863, when locals knew it as Rays Pond. The current name was adopted in 1915, after the town was moved to the railroad junction.

Informally, Berrien calls itself the "Bell Pepper Capital of the World," and the economy of the county is primarily agricultural, concentrating on tobacco, corn, soybeans, peanuts, cotton, vegetables, hogs, beef, and forest products. One of Georgia's first post roads opened in Berrien County in 1823 to enable residents to send their crops to Florida. A fifty-acre industrial park is located just east of Nashville.

Four buildings in Berrien County are on the National Register of Historic Places: the courthouse, the Alapaha Colored School, the Old Berrien County Jail, and the William G. Harrison/Eulalie Taylor House. The Alapaha Colored School was the only school for African American children in the northern part of the county from 1924 through 1953. Unusual in rural Georgia at the time for its size (it held four classrooms, rather than the usual one), the two-story, wood-frame building is one of a few still standing in the state. The classrooms accommodated eleven coeducational grades. The school closed in 1954 when all of Berrien County's African American schools were consolidated into Nashville schools. Thereafter, the building served as classroom space for World War II (1941-45) veterans taking General Education Development, or GED, classes and as a Masonic lodge; since 2002 it has housed the Alapaha Library and Museum.

The Old Berrien County Jail, located in Nashville, is also known as the Berrien Historical Building and Agricultural Museum. The William G. Harrison/Eulalie Taylor House on Bartow

Street in Nashville was built in the early twentieth century by the architect William G. Harrison and now holds law offices.

A state-supported park, the Paradise Public Fishing Area, is also located in the county. Its 1,060 acres include numerous lakes and ponds, making it attractive for outdoor recreation of all kinds, including fishing and picnicking.

The population, according to the 2010 U.S. census, is 19,286, an increase from the 2000 population of 16,235.

Elizabeth B. Cooksey, Savannah, Courtesy New Georgia Encyclopedia

Existing Situation

Berrien County located in south central Georgia, with a large agricultural presence, is still almost 60% forested. Perhaps with the exception of the large blocks of woodlands in the flatwoods northeast of Nashville, there are homes and communities scattered throughout the county. The risks and hazards from the wildland urban interface are fairly general and substantial throughout the county even on the edges of the incorporated cities.

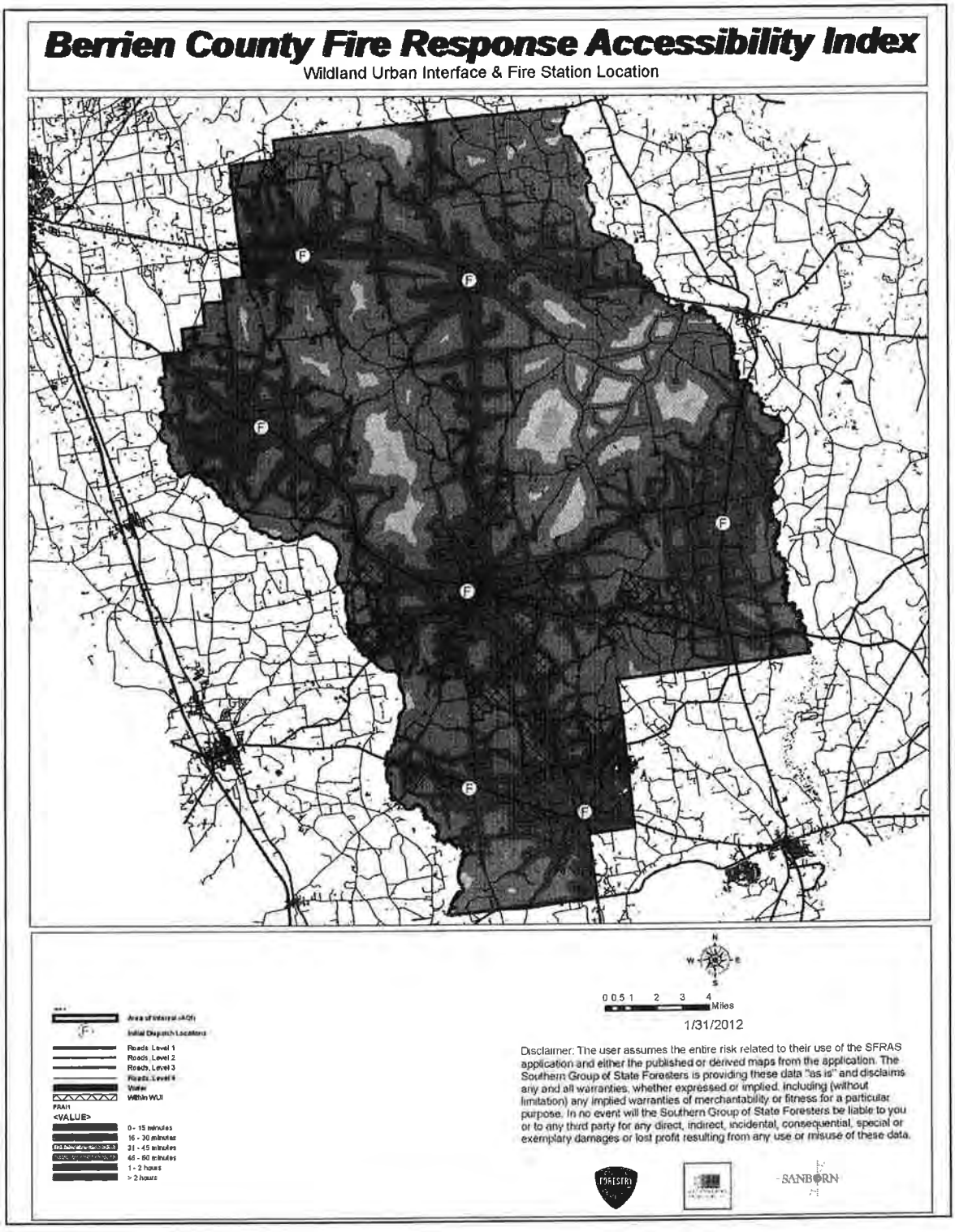
Berrien County is protected by organized Volunteer fire departments in the cities of Nashville, Enigma, Alapaha and Ray City along with three departments in the unincorporated area, New Lois and East and West Berrien. The Georgia Forestry Commission maintains a county protection unit located on Us Hwy 129 six miles north of Nashville near the center of the county to respond to wildfires throughout the county. The incorporated towns are serviced by pressurized water systems with hydrants available.

Over the past 54 years, Berrien County has averaged 81 reported wildland fires per year, burning an average of 391 acres per year. Using more recent figures over the past 20 years, this number has decreased only slightly to an average of 79 fires per year burning on average 359 acres annually. The occurrence of these fires during this later period shows a slight increase during the months of February, and March in the number of the annual fires and a marked increase in the average acreage burned. The numbers of fires over the remainder of the year are fairly well distributed.

Over the past 20 years, the leading cause of these fires was debris burning causing 70% of the fires and 62% of the acres burned. Over the past six years records show that just over 20% of the debris fires originated from residential burning.

Georgia Forestry Commission Wildfire Records show that in the past seven years, three homes and nine outbuildings have been damaged by wildfire in Berrien County resulting in losses of over $104,000. Additionally seven automobiles and 19 other pieces of mechanized equipment valued at $1,135,500 were lost to wildfire. This is a significant loss and threat to non timber property attributed to wildfires in Berrien County.

IV. COMMUNITY BASE MAP



V. COMMUNITY WILDFIRE RISK ASSESSMENT

The Wildland-Urban Interface

There are many definitions of the Wildland-Urban Interface (WUI), however from a fire management perspective it is commonly defined as an area where structures and other human development meet or intermingles with undeveloped wildland or vegetative fuels. As fire is dependent on a certain set of conditions, the National Wildfire Coordinating Group has defined the wildland-urban interface as a set of conditions that exists in or near areas of wildland fuels, regardless of ownership. This set of conditions includes type of vegetation, building construction, accessibility, lot size, topography and other factors such as weather and humidity. When these conditions are present in certain combinations, they make some communities more vulnerable to wildfire damage than others. This "set of conditions" method is perhaps the best way to define wildland-urban interface areas when planning for wildfire prevention, mitigation, and protection activities.

There are three major categories of wildland-urban interface. Depending on the set of conditions present, any of these areas may be at risk from wildfire. A wildfire risk assessment can determine the level of risk.

1. "Boundary" wildland-urban interface is characterized by areas of development where homes, especially new subdivisions, press against public and private wildlands, such as private or commercial forest land or public forests or parks. This is the classic type of wildland-urban interface, with a clearly defined boundary between the suburban fringe and the rural countryside.

2. "Intermix" wildland-urban interface areas are places where improved property and/or structures are scattered and interspersed in wildland areas. These may be isolated rural homes or an area that is just beginning to go through the transition from rural to urban land use.

3. "Island" wildland-urban interface, also called occluded interface, are areas of wildland within predominately urban or suburban areas. As cities or subdivisions grow, islands of undeveloped land may remain, creating remnant forests. Sometimes these remnants exist as parks, or as land that cannot be developed due to site limitations, such as wetlands.
(courtesy *Fire Ecology and Wildfire Mitigation in Florida* 2004)

Wildland Urban Interface Hazards

Firefighters in the wildland urban interface may encounter hazards other than the fire itself, such as hazardous materials, utility lines and poor access.

Hazardous Materials

- Common chemicals used around the home may be a direct hazard to firefighters from a flammability, explosion potential and/or vapors or off gassing. Such chemicals include paint, varnish and other flammable liquids, fertilizer, pesticides, cleansers, aerosol cans, fireworks, batteries and ammunition. In addition, some common household products such as plastics may give off very toxic fumes when they burn. Stay out of smoke form burning structures and any unknown sources such as trash piles.

Illicit Activities

- Marijuana plantations or drug production labs may be found in the wildland urban interface areas. Extremely hazardous materials such as propane tanks and flammable/toxic chemicals may be encountered.

Propane Tanks

- Both large (household size) and small (gas grill size) liquefied propane gas (LPG) tanks can present hazards to firefighters, including explosion. See the "LPG Tank Hazards" discussion for details

Utility Lines

- Utility Lines may be located above and below ground and may be cut or damaged by tools or equipment. Don't spray water on utility lines or boxes.

Septic Tanks and Fields

- Below ground structures may not be readily apparent and may not support the weight of engines or other equipment.

New Construction Materials

- Many new construction materials have comparatively low melting points and may "off-gas" extremely hazardous vapors. Plastic decking materials that resemble wood are becoming more common and may begin softening and losing structural strength at 180 degrees F, though they normally do not sustain combustion once direct flame is removed. However if the continue to burn they exhibit the characteristics of flammable liquids.

Pets and Livestock

- Pets and livestock may be left when residents evacuate and will likely be highly stressed making them more inclined to bite and kick. Firefighters should not put themselves at risk to rescue pets or livestock.

Evacuation Occurring

- Firefighters may be taking structural protect actions while evacuations of residents are occurring. Be very cautious of people driving erratically. Distraught residents may refuse to leave their property and firefighters may need to disengage from fighting fire to contact law enforcement officers for assistance. In most jurisdictions firefighters do not have the authority to force evacuations. Firefighters should not put themselves at risk trying to protect someone who will not evacuate!

Limited Access

- Narrow one-lane roads with no turn around room, inadequate or poorly maintained bridges and culverts are frequently found in wildland urban interface areas. Access should be sized up and an evacuation plan for all emergency personnel should be developed.

The wildland fire risk assessment conducted in 2011 by the Berrien County Fire Departments identified a number of hazards and risks to communities in the wildland urban interface. The risk assessment instrument used to evaluate wildfire hazards to Berrien County's WUI was the Hazard and Wildfire Risk Assessment Checklist. The instrument takes into consideration accessibility, vegetation (based on fuel models), roofing assembly, building construction, and availability of fire protection resources, placement of gas and electric utilities, and additional rating factors. The following factors contributed to the wildfire hazard's identified for Berrien County:

- Unpaved roads and private driveways
- Narrow roads without drivable shoulders and with overhanging trees
- Short or inadequate culverts leading to private drives
- Dead end roads lacking turnarounds
- Minimal defensible space around structures
- Homes with wooden siding
- Unmarked septic tanks in yards
- Lack of pressurized or non-pressurized water systems available
- Large, adjacent areas of forest or wildlands
- Heavy fuel buildup in adjacent wildlands
- Lack of enforcement of addressing ordinance
- High occurrence of wildfires in the several locations
- High Density Mobile Home Parks
- Lack of fire proof skirting on mobile homes and raised housing.

Southern Fire Risk Assessment System Maps.

The attached maps were generated from a computerized Geographical Information System (GIS) program developed by the Sanborn Company under contract from the Southern Group of State Foresters to model the various risks to life and property within the southeastern US. The program is known as the Southern Fire Risk Assessment System (SFRAS). It utilizes multiple layers of data developed cooperatively from the various states and the US Forest Service under the Southern Wildfire Risk Assessment (SWRA)

Wildland Urban Interface maps are developed using data from the SILVIS Lab at the University of Wisconsin at Madison. WUI is composed of both interface and intermix communities. In both interface and intermix communities, housing must meet or exceed a minimum density of one structure per 40 acres. Intermix communities are places where housing and vegetation intermingle. In intermix, wildland vegetation is continuous, more than 50 percent vegetation, in areas with more than one house per 40 acres. Interface communities are areas with housing in the vicinity of continuous vegetation. Interface areas have more than one house per 40 acres, have less than 50 percent vegetation, and are within 1.5 miles of an area (made up of one or more contiguous Census blocks) over 1,325 acres that is more than 75 percent vegetated. The minimum size limit ensures that areas surrounding small urban parks are not classified as interface WUI.

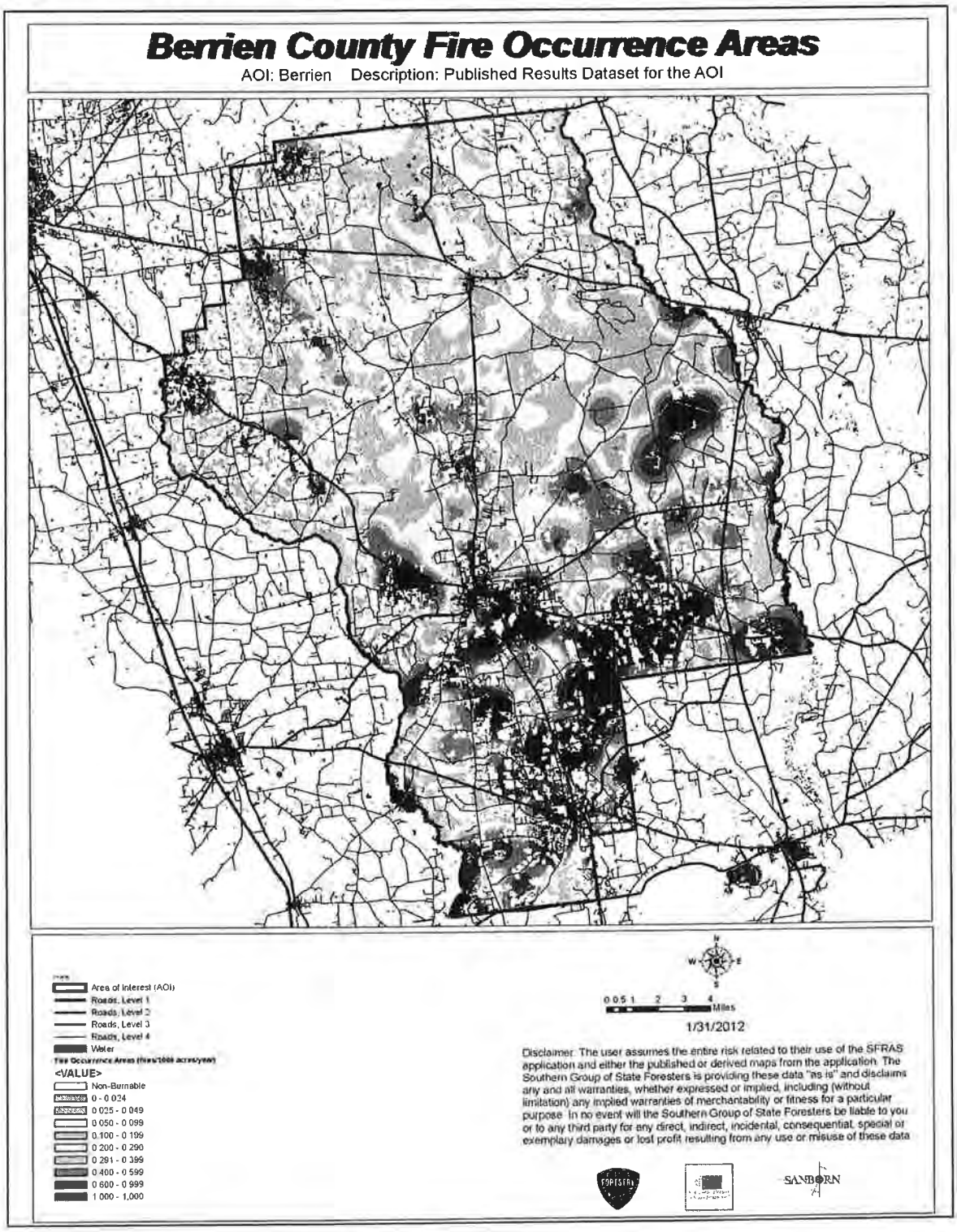
Fire Response Accessibility Index is a relative measure of how long it would take initial attack resources to drive from their station to various areas of the county. This index is derived from assigning average speeds to the various road classes in the county. For the purpose of this analysis the following speeds were assigned: 55 mph for level 1 roads, primarily interstates and four lane open highways, 50 mph for level 2 roads, primarily state and federal highways, 40 mph for level 3 roads, primarily paved two lanes collector roads and 25 mph for level 4 roads, mainly city streets and rural roads, paved and unpaved. For areas away from roads a travel speed of 3 mph is assigned as it is assumed travel will be by foot or extremely slow moving equipment.

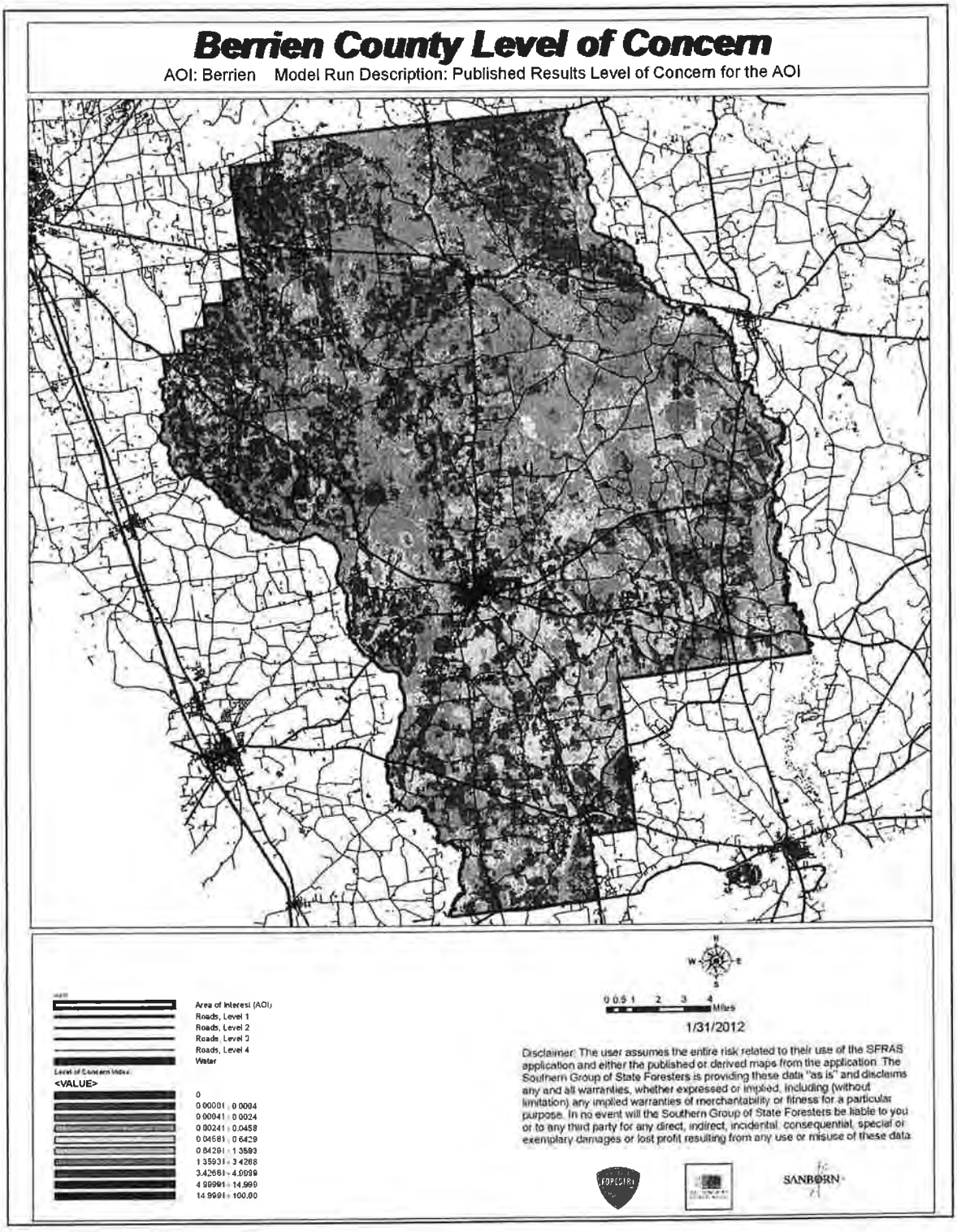
Fire Occurrence Areas maps use data from wildfire reports over the period from 1997-2002. The fire occurrence rates mapped are the probability of the number of fires occurring per 1000 acres per year base on this historic information.

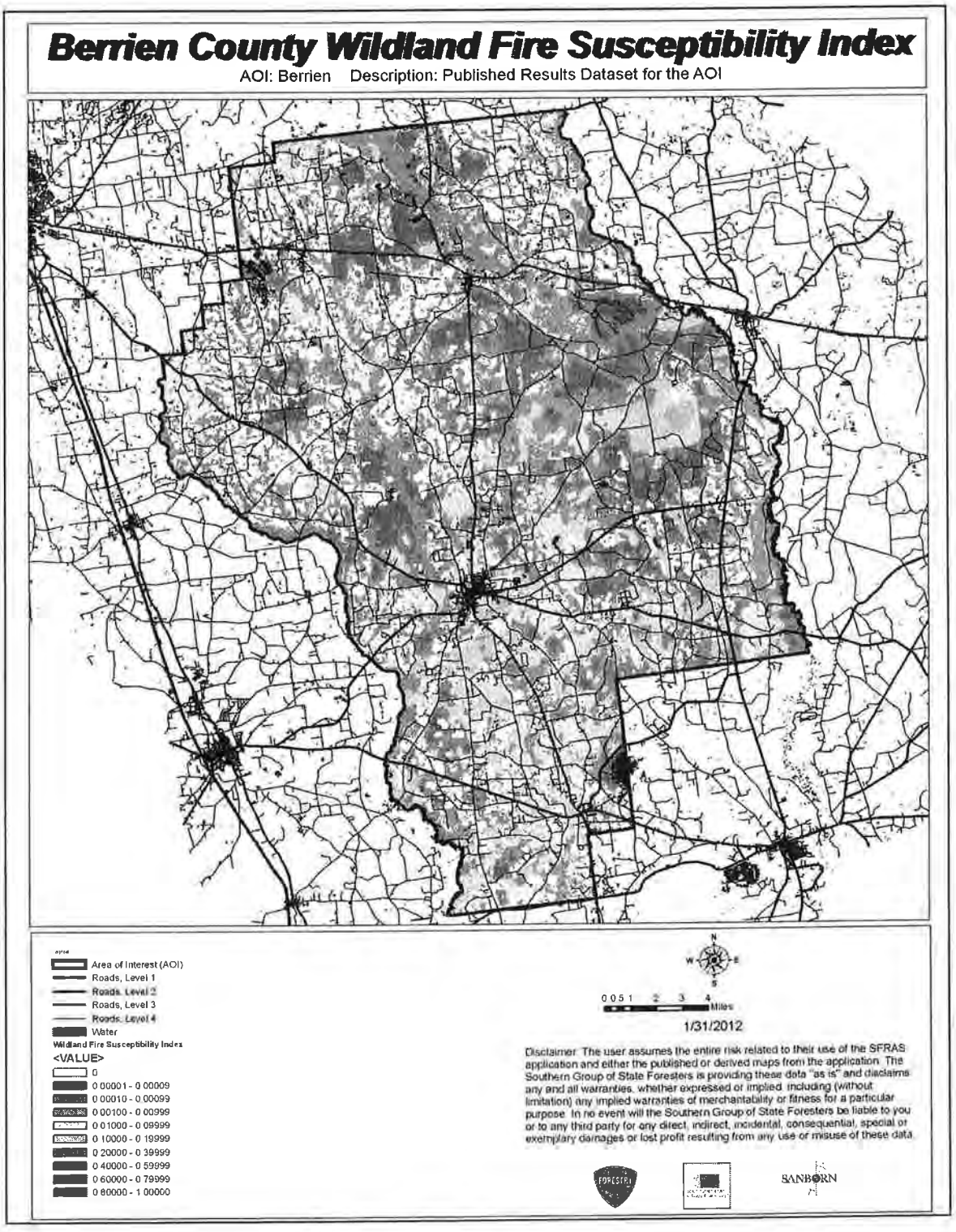
Wildland Fire Susceptibility maps show an index value between 0 and 1 and are developed by a mathematical calculation process for determining the probability of an acre burning and the expected final fire size. Many layers of data are used in developing this calculation including historic fire data, wildland fuels and rate of spread, canopy attributes (closure, height and density), weather influences, topography, soils and fire suppression effectiveness.

Level of Concern maps are a complex calculation using the Wildland Fire Susceptibility Index (previously described) and the Fire Effects Index which is calculated using data layers of transportation and infrastructure, urban interface and timber values along with suppression difficulty ratings. This provides an output categorizing the expected levels of concern from low to high.

VI. COMMUNITY HAZARDS MAPS




Berrien County Level of Concern
AOI: Berrien Model Run Description: Published Results Level of Concern for the AOI
Area of Interest (AOI)
Roads, Level 1
Roads, Level 2
Roads, Level 3
Roads, Level 4
Water
<VALUE>
0
0.00001 - 0.0004
0.00041 - 0.0024
0.00241 - 0.0458
0.04581 - 0.6429
0.64291 - 1.3593
1.35931 - 3.4268
3.42681 - 4.9999
4.99991 - 14.999
14.9991 - 100.00
0 0.5 1 2 3 4
Miles
1/31/2012
Disclaimer: The user assumes the entire risk related to their use of the SFRAS application and either the published or derived maps from the application. The Southern Group of State Foresters is providing these data "as is" and disclaims any and all warranties, whether expressed or implied, including (without limitation) any implied warranties of merchantability or fitness for a particular purpose. In no event will the Southern Group of State Foresters be liable to you or to any third party for any direct, indirect, incidental, consequential, special or exemplary damages or lost profit resulting from any use or misuse of these data.
SANBORN


Berrien County Wildland Fire Susceptibility Index
AOI: Berrien Description: Published Results Dataset for the AOI
Area of Interest (AOI)
Roads, Level 1
Roads, Level 2
Roads, Level 3
Roads, Level 4
Water
Wildland Fire Susceptibility Index
<VALUE>
0
0 00001 - 0 00009
0 00010 - 0 00099
0 00100 - 0 00999
0 01000 - 0 09999
0 10000 - 0 19999
0 20000 - 0 39999
0 40000 - 0 59999
0 60000 - 0 79999
0 80000 - 1 00000
N
W
E
S
0 0.5 1 2 3 4
Miles
1/31/2012
Disclaimer: The user assumes the entire risk related to their use of the SFRAS application and either the published or derived maps from the application. The Southern Group of State Foresters is providing these data "as is" and disclaims any and all warranties, whether expressed or implied, including (without limitation) any implied warranties of merchantability or fitness for a particular purpose. In no event will the Southern Group of State Foresters be liable to you or to any third party for any direct, indirect, incidental, consequential, special or exemplary damages or lost profit resulting from any use or misuse of these data.
SANBORN

VII. PRIORITIZED MITIGATION RECOMMENDATIONS

Executive Summary

As South Georgia continues to see increased growth from other areas seeking less crowded and warmer climes, new development will occur more frequently on forest and wildland areas. Berrien County will have an opportunity to significantly influence the wildland fire safety of new developments. It is important that new development be planned and constructed to provide for public safety in the event of a wildland fire emergency.

Over the past 20 years, much has been learned about how and why homes burn during wildland fire emergencies. Perhaps most importantly, case histories and research have shown that even in the most severe circumstances, wildland fire disasters can be avoided. Homes can be designed, built and maintained to withstand a wildfire even in the absence of fire services on the scene. The national Firewise Communities program is a national awareness initiative to help people understand that they don't have to be victims in a wildfire emergency. The National Fire Protection Association has produced two standards for reference: NFPA 1144 Standard for Reducing Structure Ignition Hazards from Wildland Fire. 2008 Edition and NFPA 1141 Standard for Fire Protection Infrastructure for Land Development in Suburban and Rural Areas.

When new developments are built in the Wildland/Urban Interface, a number of public safety challenges may be created for the local fire services: (1) the water supply in the immediate areas may be inadequate for fire suppression; (2) if the Development is in an outlying area, there may be a longer response time for emergency services; (3) in a wildfire emergency, the access road(s) may need to simultaneously support evacuation of residents and the arrival of emergency vehicles; and (4) when wildland fire disasters strike, many structures may be involved simultaneously, quickly exceeding the capability of even the best equipped fire departments.

The following recommendations were developed by the Berrien County CWPP Core team as a result of surveying and assessing fuels and structures and by conducting meetings and interviews with county and city officials. A priority order was determined based on which mitigation projects would best reduce the hazard of wildfire in the assessment area.

Proposed Community Hazard and Structural Ignitability Reduction Priorities

Primary Protection for Community and Its Essential Infrastructure		
Treatment Area	Treatment Types	Treatment Method(s)
1. All Structures	Create minimum of 30-feet of defensible space**	Trim shrubs and vines to 30 feet from structures, trim overhanging limbs, replace flammable plants near homes with less flammable varieties, remove vegetation around chimneys.
2. Applicable Structures	Reduce structural ignitability**	Clean flammable vegetative material from roofs and gutters, store firewood appropriately, install skirting around raised structures, store water hoses for ready access, and replace pine straw and mulch around plantings with less flammable landscaping materials.
3. Community Clean-up Day	Cutting, mowing, pruning**	Cut, prune, and mow vegetation in shared community spaces.
4. Driveway Access	Right of Way Clearance	Maintain vertical and horizontal clearance for emergency equipment. See that adequate lengths of culverts are installed to allow emergency vehicle access.
5. Road Access	Identify needed road improvements	As roads are upgraded, widen to minimum standards with at least 50 foot diameter cul de sacs or turn arounds. Work with road department to improve standards for new culvert installation and replacement sufficient to allow access by fire fighting equipment.
6. Codes and Ordinances	Examine existing codes and ordinances.	Amend and enforce existing building codes as they relate to skirting, propane tank locations, public nuisances (trash/debris on property), Property address marking standards and other relevant concerns Review Subdivision and development ordinances for public safety concerns. Also review density standards for mobile home parks and require fireproof skirting. Enforce uniform addressing ordinance.

Proposed Community Wildland Fuel Reduction Priorities		
Treatment Area	Treatment Types	Treatment Method(s)
1. Adjacent WUI Lands	Reduce hazardous fuels	Encourage prescribed burning for private landowners and industrial timberlands particularly adjacent to residential areas. Seek grant for mowing or prescribed burning in WUI areas.
2. Railroad Corridors	Reduce hazardous fuels	Encourage railroads to better maintain their ROW eliminating brush and grass through herbicide and mowing. Maintain firebreaks along ROW adjacent to residential areas.
3. Existing Fire Lines	Reduce hazardous fuels	Clean and re-harrow existing lines.
Proposed Improved Community Wildland Fire Response Priorities		
1. Water Sources	Dry Hydrants	Inspect, maintain and improve access to existing dry hydrants. Add signage along road to mark the hydrants. Locate additional dry hydrants or drafting locations needed. Locate and pre-clear helicopter dip sites. Map location of dry hydrants.
2. Fire Stations	Equipment	Seek grants or other funding for Wildland hand tools, Indian Pumps and lightweight Wildland PPE Gear.
3. Water Handling	Equipment	Investigate need for additional tanker trucks and skid unit drafting equipment
4. Response	Equipment	Investigate funding for Brush trucks.
5. Road Names	Road Signage	Timely replacement of missing road signs. "Dead End" or "No Outlet" Tags on Road Signs
6. Personnel	Training	Obtain Wildland Fire Suppression training for Fire Personnel.
**Actions to be taken by homeowners and community stakeholders		

Proposed Education and Outreach Priorities

1. Conduct "How to Have a Firewise Home" Workshop for Berrien County Residents
Set up and conduct a workshop for homeowners that teach the principles of making homes and properties safe from wildfire. Topics for discussion include defensible space, landscaping, building construction, etc. Workshop will be scheduled for evenings or weekends when most homeowners are available and advertised through local media outlets. Target local schools, community groups and local senior centers. Distribute materials promoting firewise practices and planning through local community and governmental meetings.
2. Conduct "Firewise" Workshop for Community Leaders
Arrange for GFC Firewise program to work with local community leaders and governmental officials on the importance of "Firewise Planning" in developing ordinances and codes as the county as the need arises. Identify "Communities at Risk" within the county for possible firewise community recognition.
3. Spring Clean-up Event
Conduct clean-up event every spring involving the Georgia Forestry Commission, Berrien County Fire Departments and community residents. Set up information table with educational materials and refreshments. Initiate the event with a morning briefing by GFC Firewise coordinator and local fire officials detailing plans for the day and safety precautions. Activities to include the following: • Clean flammable vegetative material from roofs and gutters • Trim shrubs and vines to 30 feet away from structures • Trim overhanging limbs • Clean hazardous or flammable debris from adjacent properties Celebrate the work with a community cookout, with Community officials, GFC and Berrien County Fire Departments discussing and commending the work accomplished.
4. Informational Packets
Develop and distribute informational packets to be distributed by Building inspections, realtors and insurance agents. Included in the packets are the following: • Be Firewise Around Your Home • Firewise Guide to Landscape and Construction • Firewise Communities USA Bookmarks

5. Wildfire Protection Display
Create and exhibit a display for the Fourth of July, Alapaha Station Festival, Career Day at schools and other local events. Display can be independent or combined with the Georgia Forestry Commission display. Hold Fire Safety Festival at individual Fire Stations to promote Community Firewise Safety and develop community support and understanding of local fire departments and current issues.
6. Press
Invite the local news media to community "Firewise" functions for news coverage and regularly submit press releases documenting wildfire risk improvements in Berrien County.

VIII. ACTION PLAN

Roles and Responsibilities

The following roles and responsibilities have been developed to implement the action plan:

Role	Responsibility
Hazardous Fuels and Structural Ignitability Reduction	
Berrien County WUI Fire Council	Create this informal team or council comprised of concerned residents, officials from Berrien County Fire Departments and Georgia Forestry Commission along with the County EMA Director. Meet periodically to review progress towards mitigation goals, appoint and delegate special activities, work with federal, state, and local officials to assess progress and develop future goals and action plans. Work with residents to implement projects and firewise activities.
Key Messages to focus on	1 Defensible Space and Firewise Landscaping 2 Debris Burning Safety 3 Firewise information for homeowners 4 Prescribed burning benefits
Communications objectives	1 Create public awareness for fire danger and defensible space issues 2 Identify most significant human cause fire issues 3 Enlist public support to help prevent these causes 4 Encourage people to employ fire prevention and defensible spaces in their communities.
Target Audiences	1 Homeowners 2 Forest Landowners and users 3 Civic Groups 4 School Groups
Methods	1 News Releases 2 Radio and TV PSA's for area stations and cable access channels 3 Personal Contacts 4 Key messages and prevention tips 5 Visuals such as signs, brochures and posters

Spring Clean-up Day	
Event Coordinator	Coordinate day's events and schedule, catering for cookout, guest attendance, and moderate activities the day of the day of the event.
Event Treasurer	Collect funds from residents to cover food, equipment rentals, and supplies.
Publicity Coordinator	Advertise event through neighborhood newsletter, letters to officials, and public service announcements (PSAs) for local media outlets. Publicize post-event through local paper and radio PSAs.
Work Supervisor	Develop volunteer labor force of community residents; develop labor/advisory force from Georgia Forestry Commission, Berrien County Fire Departments and Emergency Management Agency. Procure needed equipment and supplies. In cooperation with local city and county officials, develop safety protocol. Supervise work and monitor activities for safety the day of the event.

Funding Needs

The following funding is needed to implement the action plan:

Project	Estimated Cost	Potential Funding Source(s)
1. Create a minimum of 30 feet of defensible space around structures	Varies	Residents will supply labor and fund required work on their own properties.
2. Reduce structural ignitability by cleaning flammable vegetation from roofs and gutters; appropriately storing firewood, installing skirting around raised structures, storing water hoses for ready access, replacing pine needles and mulch around plantings with less flammable material.	Varies	Residents will supply labor and fund required work on their own properties.
3. Amend codes and ordinances to provide better driveway access, increased visibility of house numbers, properly stored firewood, minimum defensible space brush clearance, required Class A roofing materials and skirting around raised structures, planned maintenance of community lots.	No Cost	To be adopted by city and county governments.
4. Spring Cleanup Day	Varies	Community Business Donations.
5. Fuel Reduction Activities	$35/acre	FEMA & USFS Grants

POTENTIAL FUNDING SOURCES:

As funding is questionable in these times of tight government budgets and economic uncertainty, unconventional means should be identified whereby the need for funding can be reduced or eliminated.

Publications / Brochures –

- FIREWISE materials are available for cost of shipping only at www.firewise.org.
- Another source of mitigation information can be found at www.nfpa.org.
- Access to reduced cost or free of charge copy services should be sought whereby publications can be reproduced.
- Free of charge public meeting areas should be identified where communities could gather to be educated regarding prevention and firewise principles.

Mitigation –

- Community Protection Grant:
    - USFS sponsored prescribed burn program. Communities with at risk properties that lie within 3 miles of the USFS border may apply with the GFC to have their forest land prescribed burned free of charge.
- FEMA Mitigation Policy MRR-2-08-01: through GEMA - Hazard Mitigation Grant Program (HMGP) and Pre Disaster Mitigation (PDM)
    - To provide technical and financial assistance to local governments to assist in the implementation of long term cost effective hazard mitigation measures.
    - This policy addresses wildfire mitigation for the purpose of reducing the threat to all-risk structures through creating defensible space, structural protection through the application of ignition resistant construction, and limited hazardous fuels reduction to protect life and property.
    - With a complete and registered plan (addendum to the State plan) counties can apply for pre-mitigation funding. They will also be eligible for HMGP if the county is declared under a wildfire disaster.
- GFC - Plowing and burning assistance can be provided through the Georgia Forestry Commission as a low cost option for mitigation efforts.
- Individual Homeowners –
    - In most cases of structural protection ultimately falls on the responsibility of the community and the homeowner. They will bear the cost; yet they will reap the benefit from properly implemented mitigation efforts.
    - GEMA Grant - PDM (See above)

Ultimately it is our goal to help the communities by identifying the communities threatened with a high risk to wildfire and educate those communities on methods to implement on reducing those risks.

Assessment Strategy

To accurately assess progress and effectiveness for the action plan, the Berrien County WUI Fire Council will implement the following:

- Annual wildfire risk assessment will be conducted to re-assess wildfire hazards and prioritize needed actions.
- Mitigation efforts that are recurring (such as mowing, burning, and clearing of defensible space) will be incorporated into an annual renewal of the original action plan.
- Mitigation efforts that could not be funded in the requested year will be incorporated into the annual renewal of the original action plan.
- Continuing educational and outreach programs will be conducted and assessed for effectiveness. Workshops will be evaluated based on attendance and post surveys that are distributed by mail 1 month and 6 months following workshop date.
- The Berrien County WUI Council will publish an annual report detailing mitigation projects initiated and completed, progress for ongoing actions, funds received, funds spent, and in-kind services utilized. The report will include a "state of the community" section that critically evaluates mitigation progress and identifies areas for improvement. Recommendations will be incorporated into the annual renewal of the action plan.
- An annual survey will be distributed to residents soliciting information on individual mitigation efforts on their own property (e.g., defensible space). Responses will be tallied and reviewed at the next Berrien County WUI Council meeting. Needed actions will be discussed and delegated.

This plan should become a working document that is shared by local, state, and federal agencies that will use it to accomplish common goals. An agreed-upon schedule for meeting to review accomplishments, solve problems, and plan for the future should extend beyond the scope of this plan. Without this follow up this plan will have limited value

GEORGIA FORESTRY
COMMISSION

P. O. Box 819, Macon, GA 31202
1-800-GA-TREES
GaTrees.org

The Georgia Forestry Commission provides leadership, service, and education in the protection and conservation of Georgia's forest resources. An Equal Opportunity Employer and Service Provider

Appendix D

BERRIEN COUNTY
HAZARD FREQUENCY TABLE

Hazard	Number of Events in Historic Record	Number of Years in Historic Record	Number of Events in Past 10 Years	Number of Events in Past 20 Years	Number of Events in Past 50 Years	Historic Recurrence Interval (years)	Historic Frequency % chance/ year	Past 10 Year Record Frequency Per Year	Past 20 Year Record Frequency Per Year	Past 50 Year Record Frequency Per Year
Floods	4	68	2	4	4	17.00	5.88	0.2	0.2	0.08
Thunderstorms/Wind	95	69	66	77	94	0.73	137.68	6.6	3.85	1.88
Hurricanes/Tropical Storms	9	69	3	8	9	7.67	13.04	0.3	0.4	0.18
Drought	27	68	22	23	23	2.52	39.71	2.2	1.15	0.46
Wildfires	4030	50	469	1419	4030	0.01	8060.00	46.9	70.95	80.6
Hail	18	68	6	9	18	3.78	26.47	0.6	0.45	0.36
Tornadoes	11	68	1	1	11	6.18	16.18	0.1	0.05	0.22
Severe Winter Storms	3	68	1	3	3	22.67	4.41	0.1	0.15	0.06
Hazardout Materials Release	4	30	1	2	4	7.50	13.33	0.1	0.1	0.08

NOTE: The historic frequency of a hazard event over a given period of time determines the historic recurrence interval. For example: If there have been 20 HazMat Releases in the County in the past 5 years, statistically you could expect that there will be 4 releases a year.

Realize that from a statistical standpoint, there are several variables to consider. 1) Accurate hazard history data and collection are crucial to an accurate recurrence interval and frequency. 2) Data collection and accuarcy has been much better in the past 10-20 years (NCDC weather records). 3) It is important to include all significant recorded hazard events which will include periodic updates to this table.

By updating and reviewing this table over time, it may be possible to see if certain types of hazard events are increasing in the past 10-20 years.

GEMA Worksheet #1 Identify the Hazard Step 1

Date: What kinds of natural hazards can affect you?

Task A. List the hazards that may occur.

1. *Research newspapers and other historical records*
2. *Review existing plans and reports.*
3. *Talk to the experts in your community, state, or region.*
4. *Gather information on Internet Websites.*
5. *Next to the hazard list below, put a check mark in the Task A boxes beside all hazards that may occur in your community or state.*

Task B. Focus on the most prevalent hazard in your community or state.

1. *Go to hazard Websites.*
2. *Locate your community or state on the Website map.*
3. *Determine whether you are in a high-risk area. Get more localized information if necessary.*
4. *Next to the hazard list below, put a check mark in the Task B boxes beside all hazards that post a significant threat.*

	Task A	**Task B**
Avalanche	___	___
Coastal Erosion	**___**	**___**
Coastal Storm	___	___
Dam Failure	**___**	**___**
Drought	_X	_X_
Earthquake	**___**	**___**
Expansive Soils	___	___
Extreme Heat	___	___
Flood	**_X_**	**_X_**
Hailstorm	_X_	_X_
Hurricane	**_X_**	**_X_**
Land Slide	___	___
Severe Winter Storm	_X_	_X_
Tornado	**_X_**	**_X_**
Tsunami	**___**	**___**
Volcano	___	___
Wildfire	**_X_**	**_X_**
Windstorm	___	___
Hazard Material	___	___
Radiological	___	___
Other: Thunderstorm/Wind	X	X
Other_____	___	___
Other_____	___	___

*Note: **Bolded** hazards are addressed in this How-to Guide.*

Use this space to record information you find for each of the hazards you will be researching. Attach additional pages as necessary.

Hazard or Event Description (Type of hazard, date of event, number of injuries, cost and types of damage, etc.)	**Source of Information**	**Map Available for this Hazard?**	**Scale of Map**

GEMA Worksheet #2 Profile Hazard Events Step 2

County: Date:

How Bad Can It Get?

Task A. Obtain or create a base map.

GEMA will be providing you with a base map, USGS topos and DOQQ as part of our deliverables to local government for the planning process. Additionally, we will be providing you with detailed hazard layer coverages. These data layers originate from state or nationwide coverage or datasets. Therefore, it is important for local government to assess what you already have at the local level. It is important for you at the local level to have an idea of what existing maps you have available for the planning process. Some important things to think about:

1) What maps do we already have in the county that would be relevant to the planning process?
2) Have other local plans used maps or mapping technology where there is specific data that is also needed in my local plan?
3) What digital maps do we have?
4) Do we have any Geographic Information System (GIS) data, map themes or layers or databases here at the local level (or regional) that we can use?
5) If we do have any GIS data, where is it located at, and who is our local expert?
6) Are there any ongoing GIS or mapping initiatives at the local level in other planning or mapping efforts? If so, what are they, and what are the timetables for completion?
7) Are there mapping needs that have been identified at the local level in the past? If so, what are they and when were they identified?
8) Of the existing maps, GIS data and other digital mapping information, what confidence do we have at the local level that it is accurate data?

Please answer the above questions on a separate sheet of paper and attach to this worksheet.
It is important to realize that those counties that already have GIS and digital mapping, (ie: parcel level data, GPS fire hydrants, etc) higher levels of spatial accuracy and detail will exist for some data layers at the local level. However, for this planning process, that level of detail will not be needed on all layers in the overall mapping and analysis.

You can use existing maps from:

- Road Maps
- USGS topographic maps or Digital Orthophoto Quarter Quads (DOQQ)
- Topographic and/or planimetric maps from other agencies
- Aerial topographic and/or planimetric maps
- Field Surveys
- GIS software
- CADD software
- Digitized paper map

Title of Map	Scale	Date

Task B. Obtain a hazard event profile.	Task C. Record your hazard event profile information.
Avalanche	
Coastal Storm / Coastal Erosion 1. Get a copy of your FIRM. _____ 2. Verify that the FIRM is up-to-date and complete. _____ 3. Determine the annual rate of coastal erosion. _____ 4. Find your design wind speed. _____	1. Transfer the boundaries of your coastal storm hazard areas onto your base map. 2. Transfer the BFEs onto your base map. 3. Record the erosion rates on your base map: _____ 4. Record the design wind speed here and on your base map: _____
Dam Failure	
Drought	
Earthquake 1. Go to the http://geohazards.cr.usgs.gov Website. 2. Locate your planning area on the map. 3. Determine your PGA.	1. Record your PGA: _____ 2. If you have more than one PGA print, download or order your PGA map.
Expansive Soils	
Extreme Heat	
Flood 1. Get a copy of your FIRM. _____ 2. Verify the FIRM is up-to-date and complete. _____	1. Transfer the boundaries from your firm onto your base map (floodway, 100-yr flood, 500-yr flood). 2. Transfer the BFEs onto your base map.
Hailstorm	
Hurricane	
Land Subsidence	
Landslide 1. Map location of previous landslides. _____ 2. Map the topography. _____ 3. Map the geology. _____ 4. Identify thee high-hazard areas on your map. _____	1. Mark the areas susceptible to landslides onto your base map.
Severe Winter Storm	
Tornado 1. Find your design wind speed. _____	1. Record your design wind speed: _____ 2. If you have more than one design wind speed, print, download or copy your design wind speed zones, copy the boundary of your design wind speed zones on your base map, then record the design wind speed zones on your base map.
Tsunami	
Wildfire 1. Map the fuel models located within the urban-wildland interface areas. _____ 2. Map the topography. _____ 3. Determine your critical fire weather frequency. _____ 4. Determine your fire hazard severity. _____	1. Draw the boundaries of your wildfire hazard areas onto your base map.
Other 1. Map the hazard. _____	1. Record hazard event info on your base map.

Worksheet #4 Evaluate Alternative Mitigation Actions

1. Fill in the goal and its corresponding objective. Use a separate worksheet for each objective. The considerations under each criterion are suggested ones to use; you can revise these to reflect your own considerations (see Table 2-1).

2. Fill in the alternative actions that address the specific objectives the planning team identified in Worksheet #1.

*3. **Scoring:** For each consideration, indicate a plus (+) for favorable, and a negative (-) for less favorable.*

When you complete the scoring; negatives will indicate gaps or shortcomings in the particular action, which can be noted in the Comments section. For considerations that do not apply, fill in N/A for not applicable. Only leave a blank if you do not know an answer. In this case, make a note in the Comments section of the "expert" or source to consult to help you evaluate the criterion.

Goal 1: Prevent or reduce damage (especially to Critical Facilities and Infrastructure) caused by Floods in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City.

Objective 1.1: Minimize losses to existing and future structures, especially critical facilities and infrastructure, due to floods.

Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Conduct studies & implement projects of ways to protect the Critical Facilities located in flood prone areas from Flood damages in the City of Nashville.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A
Conduct storm-water drainage replacement, repair & cleaning and maintain canals in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Plan flood and drainage projects in Berrien County in high risk areas and in areas lacking curb & gutter.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

STAPLEE Criteria	S		T			A			P			L			E				E				
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)				(Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Plan flood and drainage projects in the Town of Alapaha in high risk areas and in areas lacking curb & gutter.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Plan flood and drainage projects in the Town of Enigma in high risk areas and in areas lacking curb & gutter.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Plan flood and drainage projects in the City of Nashville on West Washington Ave., and in other high risk areas and areas lacking curb & gutter.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Plan flood and drainage projects in the City of Ray City on South Pauline Street, Johnson Street, North Street, North Street Ext., Miller Street, South Park Street, South Camon Drive, Beaver Dam Road, Hwy. #125 South, and in other high risk areas and areas lacking curb & gutter.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

STAPLEE Criteria	S		T			A			P			L			E				E				
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)				(Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
The Town of Enigma will join the National Flood Insurance Program as soon as possible.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	+	N/A
Attempt to take precautions at water facilities in unincorporated Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City to ensure flood protection, as funds become available to do so.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	+	N/A
Work to alleviate evacuation & emergency access problems in various subdivisions and in other areas in Berrien County and the Town of Alapaha and the Cities of Enigma, Nashville and Ray City	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A
Attempt to take precautions at the oxidation pond (subject to flooding by Beaver Dam Creek and Cat Creek) in Ray City and at the oxidation pond in Alapaha as funds become available to do so.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A

STAPLEE Criteria	S		T			A			P			L			E				E				
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)				(Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
After flood events, or other hazard events in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City, attempt to perform analysis on properties affected to determine if events have occurred in the past and attempt to mitigate or purchase, if necessary.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	+	N/A

Worksheet #4 Evaluate Alternative Mitigation Actions

1. Fill in the goal and its corresponding objective. Use a separate worksheet for each objective. The considerations under each criterion are suggested ones to use; you can revise these to reflect your own considerations (see Table 2-1).

2. Fill in the alternative actions that address the specific objectives the planning team identified in Worksheet #1.

3. ***Scoring:*** *For each consideration, indicate a plus (+) for favorable, and a negative (-) for less favorable.*

When you complete the scoring; negatives will indicate gaps or shortcomings in the particular action, which can be noted in the Comments section. For considerations that do not apply, fill in N/A for not applicable. Only leave a blank if you do not know an answer. In this case, make a note in the Comments section of the "expert" or source to consult to help you evaluate the criterion.

Goal #2: Prevent or reduce damage caused by Thunderstorms and Winds in Berrien County and in the Cities of Alapaha, Enigma, Nashville, and Ray City.

Objective #2.1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, due to Thunderstorms and Winds.

STAPLEE Criteria	S		T			A			P			L			E				E				
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)				(Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Educate the public concerning wind ratings and encourage new construction to be built to those minimum wind standards, including the wind retrofitting of Critical Facilities and existing buildings in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A
Study Critical Facilities in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City to determine if they require wind retrofitting.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A

Worksheet #4 Evaluate Alternative Mitigation Actions

1. Fill in the goal and its corresponding objective. Use a separate worksheet for each objective. The considerations under each criterion are suggested ones to use; you can revise these to reflect your own considerations (see Table 2-1).

2. Fill in the alternative actions that address the specific objectives the planning team identified in Worksheet #1.

3. ***Scoring:*** *For each consideration, indicate a plus (+) for favorable, and a negative (-) for less favorable.*

When you complete the scoring; negatives will indicate gaps or shortcomings in the particular action, which can be noted in the Comments section. For considerations that do not apply, fill in N/A for not applicable. Only leave a blank if you do not know an answer. In this case, make a note in the Comments section of the "expert" or source to consult to help you evaluate the criterion.

Goal 3: Prevent or reduce damage caused by Hurricanes/Tropical Storms in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City.

Objective 3.1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, and the public, due to Hurricanes/Tropical Storms.

STAPLEE Criteria	S		T			A			P			L			E				E				
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)				(Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Work with GDOT to improve unsafe roads in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City that already are, or could be, evacuation routes.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A

Worksheet #4 Evaluate Alternative Mitigation Actions

1. Fill in the goal and its corresponding objective. Use a separate worksheet for each objective. The considerations under each criterion are suggested ones to use; you can revise these to reflect your own considerations (see Table 2-1).

2. Fill in the alternative actions that address the specific objectives the planning team identified in Worksheet #1.

3. ***Scoring:*** *For each consideration, indicate a plus (+) for favorable, and a negative (-) for less favorable.*

When you complete the scoring; negatives will indicate gaps or shortcomings in the particular action, which can be noted in the Comments section. For considerations that do not apply, fill in N/A for not applicable. Only leave a blank if you do not know an answer. In this case, make a note in the Comments section of the "expert" or source to consult to help you evaluate the criterion.

Goal 3: Prevent or reduce damage caused by Hurricanes/Tropical Storms in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City.

Objective #3.2: Advise the public of health & safety precautions and procedures necessary during Hurricanes/Tropical Storms and other events and on pre-disaster mitigation, in general, in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City.

STAPLEE Criteria	S		T			A			P			L			E				E				
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)				(Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Acquire and distribute information concerning pre-disaster mitigation to area news markets, on social media, and in other appropriate outlets in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A

Worksheet #4 Evaluate Alternative Mitigation Actions

1. Fill in the goal and its corresponding objective. Use a separate worksheet for each objective. The considerations under each criterion are suggested ones to use; you can revise these to reflect your own considerations (see Table 2-1).

2. Fill in the alternative actions that address the specific objectives the planning team identified in Worksheet #1.

3. ***Scoring:*** *For each consideration, indicate a plus (+) for favorable, and a negative (-) for less favorable.*

When you complete the scoring; negatives will indicate gaps or shortcomings in the particular action, which can be noted in the Comments section. For considerations that do not apply, fill in N/A for not applicable. Only leave a blank if you do not know an answer. In this case, make a note in the Comments section of the "expert" or source to consult to help you evaluate the criterion.

Goal 3: Prevent or reduce damage caused by Hurricanes/Tropical Storms in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City.

Objective #3.3: Ensure reliable electrical power and communications efficiency at Critical Facilities and among agencies during Hurricanes/Tropical Storms and other events in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City.

STAPLEE Criteria	S		T			A			P			L			E				E				
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)				(Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Purchase and install portable and fixed generators (including transfer switches and pre-wiring) and trailers for use at Critical Facilities, gas pumps, and other locations where they are needed in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A
Create a list of generators, trailers, and gas pumps for use in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A

Worksheet #4 Evaluate Alternative Mitigation Actions

1. Fill in the goal and its corresponding objective. Use a separate worksheet for each objective. The considerations under each criterion are suggested ones to use; you can revise these to reflect your own considerations (see Table 2-1).

2. Fill in the alternative actions that address the specific objectives the planning team identified in Worksheet #1.

3. ***Scoring:*** *For each consideration, indicate a plus (+) for favorable, and a negative (-) for less favorable.*

When you complete the scoring; negatives will indicate gaps or shortcomings in the particular action, which can be noted in the Comments section. For considerations that do not apply, fill in N/A for not applicable. Only leave a blank if you do not know an answer. In this case, make a note in the Comments section of the "expert" or source to consult to help you evaluate the criterion.

Goal #4: Prevent or reduce damage caused by Drought in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City.

Objective #4.1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, due to Drought.

STAPLEE Criteria	S		T			A			P			L			E				E				
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)				(Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Work with DCA, Seven Rivers RC&D, and other appropriate organizations to provide wells to low-moderate income individuals affected by Drought in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A
Replace antiquated water & sewer lines and equipment prone to failure in unincorporated Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City through CDBG grant funds and other funds when available.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A
Promote increased usage of surface water and surface artesian flow for irrigation instead of well systems in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A

Worksheet #4 Evaluate Alternative Mitigation Actions

1. Fill in the goal and its corresponding objective. Use a separate worksheet for each objective. The considerations under each criterion are suggested ones to use; you can revise these to reflect your own considerations (see Table 2-1).

2. Fill in the alternative actions that address the specific objectives the planning team identified in Worksheet #1.

3. ***Scoring:*** *For each consideration, indicate a plus (+) for favorable, and a negative (-) for less favorable.*

When you complete the scoring; negatives will indicate gaps or shortcomings in the particular action, which can be noted in the Comments section. For considerations that do not apply, fill in N/A for not applicable. Only leave a blank if you do not know an answer. In this case, make a note in the Comments section of the "expert" or source to consult to help you evaluate the criterion.

Goal #5: Prevent or reduce damage caused by Wildfire in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City.

Objective #5.1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, and woodlands due to wildfire.

STAPLEE Criteria	S		T			A			P			L			E				E				
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)				(Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Provide additional first responder training, air units, air unit chargers, Class A Pumper & Fire Knocker trucks and other equipment to all Berrien County Volunteer, the Town of Alapaha and the Cities of Enigma, Nashville and Ray City Fire Departments for Wildfire use	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A

STAPLEE Criteria	S		T			A			P			L			E				E				
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)				(Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Partner with the Georgia Forestry Commission and other relevant personnel to train all Berrien County, Town of Alapaha and Town of Enigma, Nashville and Ray City Fire Departments on Wildfire strategy and tactics	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A
Support & enforce GA Forestry Commission burn ordinances and bans and promote hazardous fuel reduction by prescribed burning, mechanical or chemical treatment carried out and promoted by the GA Forestry in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A
Develop and equip a Hazardous Materials Team to deal with agricultural chemicals during wildfire events.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A

STAPLEE Criteria	S		T			A			P			L			E				E				
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)				(Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
In the Town of Alapaha and the Town of Enigma, replace the four inch (4") (and smaller) water lines with six inch (6") water lines and hydrants.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A
Encourage agencies and private property owners to trim tree lines and create fire buffers/breaks around Critical Facilities, new and existing homes, businesses and utilities in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A
Create new ordinances and enforce existing ordinances for new and existing construction that will help in the pre-disaster mitigation of wildfire	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A
Work with developers and homeowners to pre-plan each building site and/or subdivision to help in pre-disaster mitigation of wildfire	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A

STAPLEE Criteria	S		T			A			P			L			E				E				
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)				(Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Working with the Georgia Forestry Commission and others, conduct a survey and assessment of areas and communities in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City that are at risk of Wildfire, assess the level of threats, evaluate resources and tactics and recommend improvements.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A

Worksheet #4 Evaluate Alternative Mitigation Actions

1. Fill in the goal and its corresponding objective. Use a separate worksheet for each objective. The considerations under each criterion are suggested ones to use; you can revise these to reflect your own considerations (see Table 2-1).

2. Fill in the alternative actions that address the specific objectives the planning team identified in Worksheet #1.

3. ***Scoring:*** *For each consideration, indicate a plus (+) for favorable, and a negative (-) for less favorable.*

When you complete the scoring; negatives will indicate gaps or shortcomings in the particular action, which can be noted in the Comments section. For considerations that do not apply, fill in N/A for not applicable. Only leave a blank if you do not know an answer. In this case, make a note in the Comments section of the "expert" or source to consult to help you evaluate the criterion.

Goal #5: Prevent or reduce damage caused by Wildfire in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City.

Objective #5.2: Obtain a FireWise Community Status by educating the Berrien County, Town of Alapaha and Town of Enigma, Nashville and Ray City Fire Department personnel and the public on the hazards of Wildfire and the pre-disaster mitigation thereof.

STAPLEE Criteria	S		T			A			P			L			E				E				
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)				(Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Maintain good public relations between the citizens of Berrien County, the Town of Alapaha, the Cities of Enigma, Nashville and Ray City and the County/City Fire Departments and plan to increase levels of awareness and resources during peak hazard conditions through the use of education sessions, community meetings, etc.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A
Partner with the Georgia Forestry Commission to provide education to Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City communities and citizens on the pre-disaster mitigation of wildfire and use & develop grade school based programs to educate children.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A
Plan RFD meetings in Berrien County, the Town of Alapaha and the Cities of Enigma, Nashville and Ray and hold joint mock fire drills for all fire departments.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A

Worksheet #4 Evaluate Alternative Mitigation Actions

1. Fill in the goal and its corresponding objective. Use a separate worksheet for each objective. The considerations under each criterion are suggested ones to use; you can revise these to reflect your own considerations (see Table 2-1).

2. Fill in the alternative actions that address the specific objectives the planning team identified in Worksheet #1.

3. ***Scoring:*** *For each consideration, indicate a plus (+) for favorable, and a negative (-) for less favorable.*

When you complete the scoring; negatives will indicate gaps or shortcomings in the particular action, which can be noted in the Comments section. For considerations that do not apply, fill in N/A for not applicable. Only leave a blank if you do not know an answer. In this case, make a note in the Comments section of the "expert" or source to consult to help you evaluate the criterion.

Goal #6: Prevent or reduce damage caused by Hail in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City.

Objective #6.1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, due to Hail in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City.

STAPLEE Criteria	S		T			A			P			L			E				E				
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)				(Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Encourage the installation of storm windows on new and existing Critical Facilities and promote their installation on new and existing private buildings in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A
Continue to encourage public to include hail damage under insurance coverage and store equipment & vehicles under shelters in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A

Worksheet #4 Evaluate Alternative Mitigation Actions

1. Fill in the goal and its corresponding objective. Use a separate worksheet for each objective. The considerations under each criterion are suggested ones to use; you can revise these to reflect your own considerations (see Table 2-1).

2. Fill in the alternative actions that address the specific objectives the planning team identified in Worksheet #1.

3. ***Scoring:*** *For each consideration, indicate a plus (+) for favorable, and a negative (-) for less favorable.*

When you complete the scoring; negatives will indicate gaps or shortcomings in the particular action, which can be noted in the Comments section. For considerations that do not apply, fill in N/A for not applicable. Only leave a blank if you do not know an answer. In this case, make a note in the Comments section of the "expert" or source to consult to help you evaluate the criterion.

Goal #7: Prevent or reduce damage caused by Tornadoes in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City.

Objective #7.1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, due to Tornadoes.

STAPLEE Criteria	S		T			A			P			L			E				E				
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)				(Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Use building inspection program to inspect for adequate tie-downs on manufactured housing in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A
Plan for pre-disaster mitigation in Tornado & other hazard seasons by preparing public service announcements, brochures and solicit business participation in distributing information.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A
Secure funding for a hazardous weather alert system (horn) in the Town of Alapaha, the Cities of Enigma, Nashville and Ray City and in populated areas of Berrien County	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A
Develop a public list of an updated address based system to physically notify and check on high risk residents both before and after natural disaster events in the Town of Alapaha, the Cities of Enigma, Nashville and Ray City and in populated areas of Berrien County	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A

Worksheet #4 Evaluate Alternative Mitigation Actions

1. Fill in the goal and its corresponding objective. Use a separate worksheet for each objective. The considerations under each criterion are suggested ones to use; you can revise these to reflect your own considerations (see Table 2-1).

2. Fill in the alternative actions that address the specific objectives the planning team identified in Worksheet #1.

3. ***Scoring:*** *For each consideration, indicate a plus (+) for favorable, and a negative (-) for less favorable.*

When you complete the scoring; negatives will indicate gaps or shortcomings in the particular action, which can be noted in the Comments section. For considerations that do not apply, fill in N/A for not applicable. Only leave a blank if you do not know an answer. In this case, make a note in the Comments section of the "expert" or source to consult to help you evaluate the criterion.

Goal #8: Prevent or reduce damage caused by Severe Winter Storms in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City.

Objective #8.1: Minimize losses to existing and future structures, especially Critical Facilities and Infrastructure, due to Severe Winter Storms.

STAPLEE Criteria	S		T			A			P			L			E				E				
	(Social)		(Technical)			(Administrative)			(Political)			(Legal)			(Economic)				(Environmental)				
Considerations → for Alternative Actions ↓	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance / Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenge	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent With Federal Laws
Continue the policy of wrapping exposed piping with insulation and installing new insulation layers at critical facilities in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A
Maintain temperatures above 32 degrees to prevent freezing in government owned occupied and unoccupied structures in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A
Disseminate information to the public concerning Severe Winter Storms, champion new construction being built to appropriate low temperature ratings and existing buildings being retrofitted in Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N/A	N/A	N/A	N/A	N/A

Appendix E

Southern Georgia Regional Commission
Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City
Hazard Mitigation Plan Update – Kick-off meeting
Date: March 6, 2018

Name	Organization	Title	Email
Ariel Godwin	SGRC	Planner	agodwin@sgrc.us
Angie Rutland	Berrien Co. EMA	Director	berrien911director@gmail.com
Shelby Meyers	GEMA/HS		
Robert Mikell	Berrien EMA	Dep. Director	supervisore911@gmail.com
[illegible]	~~[illegible]~~ Ray City	[illegible]	bexum@raycityga.gov
Ronald Knowles	N.P.D.	Cpt.	RKnowles91@yahoo.com
Steve P. Miller	Ray City P.D	Police Chief.	smiller@raycityga.gov.

Southern Georgia Regional Commission
Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City
Hazard Mitigation Plan Update – First Workshop
Date: April 10, 2018

Name	Organization	Title	Email
Ardel Godwin	SGRC	Planner	agodwin@sgrc.us
Brenda Exum	City of Ray City	Mayor	bexum@raycityga.gov
Denise Ray	Ray City	City Clerk	dray@raycityga.gov
Dennis Adams	Berrien Cnty	~~Bldg~~/BID Inspector	Dennis_Adams@windstream
Jack Looney	American Red Cross	Disaster Program Manager	jack.looney@redcross.org
Steve P. Miller	Ray City Police	Chief	smiller@raycityga.gov
Robert Mikell	Berrien EMA	Dep. Director	supervisore911@gmail.com
Angie Rutland	Berrien CO. EMA	EMA/911 Director	berrien911director@gmail.com

Southern Georgia Regional Commission
Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City
Hazard Mitigation Plan Update – [redacted] meeting #2
Date: May 15, 2018

Name	Organization	Title	Email
Robert Mikell	Berrien Co. EMA	EM Director	supervisore911@gmail.com
Chuck Edwards	Nashville PD	Chief	cedwards.npdga@gmail.com
Angie Rutland	Berrien EMA/911	Director	[redacted] berrienfilldirector@gmail.com
Brenda Epps	City of Ray City	Mayor	bepps@raycityga.gov
Denise Ray	City of Ray City	City Clerk	dray@raycityga.gov
Ariel Godwin	SGRC	Planner	agodwin@[redacted]sgrc.us
Cheryl Edwards	ARC	Disaster manager	cheryl.edwards@redcross.org
Steve P. Miller	Ray City Police Dept	Chief of Police	SMiller@raycityga.gov

Southern Georgia Regional Commission
Berrien County and the Cities of Alapaha, Enigma, Nashville, and Ray City
Hazard Mitigation Plan Update meeting #3
Date: June 19, 2018

Name	Organization	Title	Email
Robert Mikell	Berrien EMA	Dep Director	Supervisore911@gmail.com
Charles Edwards	Nashville PD	Chief of Police	cedwards.npdga@gmail.com
JACK LOONEY	American Red Cross	Disaster Program Manager	jack.looney@redcross.org
Angie Rutland	Berrien EMA.	Director	berrien911director@gmail.com
Ariel Godwin	SGRC	planner	agodwin@sgrc.us
Brenda Exum	City of Ray City	Mayor	bexum@raycity31-50

Appendix F

Storm Events Database

Search Results for Berrien County, Georgia

Event Types: Flash Flood, Flood

Berrien county contains the following zones:
'Berrien'

4 events were reported between 01/01/1950 and 05/28/2018 (24985 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	4
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	1
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

Column Definitions:
'Mag': Magnitude, 'Dth': Deaths, 'Inj': Injuries, 'PrD': Property Damage, 'CrD': Crop Damage

Click on Location below to display details.
Available Event Types have changed over time. Please refer to the Database Details for more information.

Sort By: Date/Time (Oldest)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	75.00K	0.00K
COUNTYWIDE	BERRIEN CO.	GA	09/06/2000	07:45	EST	Flash Flood		0	0	75.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	09/05/2003	22:15	EST	Flash Flood		0	0	0.00K	0.00K
ENIGMA	BERRIEN CO.	GA	08/08/2012	05:19	EST-5	Flash Flood		0	0	0.00K	0.00K
GLADYS	BERRIEN CO.	GA	12/24/2014	10:30	EST-5	Flash Flood		0	0	0.00K	0.00K
Totals:								0	0	75.00K	0.00K

Storm Events Database

Search Results for Berrien County, Georgia

Event Types: Thunderstorm Wind

95 events were reported between 01/01/1950 and 12/31/2018 (25202 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	74
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	48
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

Column Definitions:
'Mag': Magnitude, 'Dth': Deaths, 'Inj': Injuries, 'PrD': Property Damage, 'CrD': Crop Damage

Wind Magnitude Definitions:
Measured Gust:'MG', Estimated Gust:'EG', Measured Sustained:'MS', Estimated Sustained:'ES'

*Click on **Location** below to display details.*
Available Event Types have changed over time. Please refer to the Database Details for more information.

Select: All Wind Speeds ▾ Sort By: Date/Time (Oldest) ▾

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	727.25K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	03/18/1961	10:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	08/04/1977	14:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	04/13/1979	18:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	07/06/1980	18:15	CST	Thunderstorm Wind	55 kts.	0	0	0.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	12/05/1983	21:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	12/28/1983	02:00	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	03/05/1984	17:25	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	06/08/1989	19:40	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	02/10/1990	07:25	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	03/03/1991	13:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	03/29/1991	17:45	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	04/30/1991	16:40	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	07/10/1991	16:30	CST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Enigma	BERRIEN CO.	GA	06/11/1994	14:40	EST	Thunderstorm Wind	0 kts.	0	0	5.00K	0.00K
Nashville	BERRIEN CO.	GA	06/24/1994	18:10	EST	Thunderstorm Wind	0 kts.	0	0	5.00K	0.00K
Alapaha	BERRIEN CO.	GA	07/08/1994	19:01	EST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Nashville	BERRIEN CO.	GA	11/07/1995	18:00	EST	Thunderstorm Wind	0 kts.	0	0	1.00K	0.00K
COUNTYWIDE	BERRIEN CO.	GA	06/05/1998	19:25	EST	Thunderstorm Wind		0	0	5.00K	0.00K
COUNTYWIDE	BERRIEN CO.	GA	07/14/2000	16:45	EST	Thunderstorm Wind		0	0	0.50K	0.00K
NASHVILLE	BERRIEN CO.	GA	08/09/2000	18:15	EST	Thunderstorm Wind		0	0	0.50K	0.00K
COUNTYWIDE	BERRIEN CO.	GA	06/22/2001	14:45	EST	Thunderstorm Wind		0	0	10.00K	0.00K
COUNTYWIDE	BERRIEN CO.	GA	12/24/2002	10:15	EST	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	03/17/2003	16:50	EST	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
COUNTYWIDE	BERRIEN CO.	GA	05/02/2003	23:10	EST	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
COUNTYWIDE	BERRIEN CO.	GA	04/08/2006	14:55	EST	Thunderstorm Wind	55 kts. EG	0	0	2.00K	0.00K
COUNTYWIDE	BERRIEN CO.	GA	05/10/2006	19:25	EST	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	08/08/2006	15:45	EST	Thunderstorm Wind	55 kts. EG	0	0	0.25K	0.00K

ALAPAHA	BERRIEN CO.	GA	06/05/2007	20:15	EST-5	Thunderstorm Wind	55 kts. EG	0	0	50.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	07/01/2007	16:35	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.25K	0.00K
ALAPAHA	BERRIEN CO.	GA	01/07/2009	05:45	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALAPAHA	BERRIEN CO.	GA	02/28/2009	15:23	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
NEW LOIS	BERRIEN CO.	GA	05/27/2009	19:05	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
ALAPAHA	BERRIEN CO.	GA	06/18/2009	21:10	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
WEBER	BERRIEN CO.	GA	06/28/2009	14:05	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALAPAHA	BERRIEN CO.	GA	07/02/2009	15:45	EST-5	Thunderstorm Wind	55 kts. EG	0	0	50.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	07/02/2009	15:50	EST-5	Thunderstorm Wind	60 kts. EG	0	0	300.00K	0.00K
RAY CITY	BERRIEN CO.	GA	07/02/2009	15:55	EST-5	Thunderstorm Wind	50 kts. EG	0	0	50.00K	0.00K
ALLENVILLE	BERRIEN CO.	GA	07/29/2009	15:54	EST-5	Thunderstorm Wind	55 kts. EG	0	0	5.00K	0.00K
ENIGMA	BERRIEN CO.	GA	06/16/2010	18:52	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
ENIGMA	BERRIEN CO.	GA	06/20/2010	18:50	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.50K	0.00K
ALAPAHA	BERRIEN CO.	GA	06/27/2010	17:40	EST-5	Thunderstorm Wind	50 kts. EG	0	0	6.25K	0.00K
RAY CITY	BERRIEN CO.	GA	07/28/2010	15:30	EST-5	Thunderstorm Wind	55 kts. EG	0	0	30.00K	0.00K
ENIGMA	BERRIEN CO.	GA	06/17/2011	18:10	EST-5	Thunderstorm Wind	50 kts. EG	0	0	8.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	06/17/2011	18:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	8.00K	0.00K
ALAPAHA	BERRIEN CO.	GA	06/17/2011	18:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	8.00K	0.00K
RAY CITY	BERRIEN CO.	GA	06/23/2011	16:19	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
RAY CITY	BERRIEN CO.	GA	06/23/2011	16:19	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	06/28/2011	17:05	EST-5	Thunderstorm Wind	50 kts. EG	0	0	6.00K	0.00K
RAY CITY	BERRIEN CO.	GA	07/14/2011	17:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	02/18/2012	22:33	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
ALAPAHA	BERRIEN CO.	GA	05/22/2012	18:10	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	07/10/2012	18:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	60.00K	0.00K
WEBER	BERRIEN CO.	GA	07/17/2012	12:18	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
ENIGMA	BERRIEN CO.	GA	07/17/2012	12:42	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
ENIGMA	BERRIEN CO.	GA	12/17/2012	14:02	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
ALAPAHA	BERRIEN CO.	GA	01/30/2013	19:45	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
NASHVILLE	BERRIEN CO.	GA	03/23/2013	10:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	7.00K	0.00K
NASHVLLE-BERRIEN ARPT	BERRIEN CO.	GA	03/23/2013	10:17	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
ALAPAHA	BERRIEN CO.	GA	05/21/2013	19:06	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
ALAPAHA	BERRIEN CO.	GA	07/05/2013	15:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
RAY CITY	BERRIEN CO.	GA	08/21/2013	13:57	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
ALLENVILLE	BERRIEN CO.	GA	08/21/2013	14:10	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	03/16/2014	13:18	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
RAY CITY	BERRIEN CO.	GA	06/21/2014	18:05	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	08/19/2014	15:45	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
ALAPAHA	BERRIEN CO.	GA	04/25/2015	19:23	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	04/25/2015	19:27	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	05/19/2015	14:50	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
NASHVILLE	BERRIEN CO.	GA	06/03/2015	18:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
NASHVLLE-BERRIEN ARPT	BERRIEN CO.	GA	06/03/2015	18:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
NASHVLLE-BERRIEN ARPT	BERRIEN CO.	GA	06/03/2015	18:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
WEBER	BERRIEN CO.	GA	06/03/2015	18:35	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALLENVILLE	BERRIEN CO.	GA	06/03/2015	18:39	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
RAY CITY	BERRIEN CO.	GA	06/12/2015	18:40	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
WEBER	BERRIEN CO.	GA	06/12/2015	19:25	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BANNOCKBURN	BERRIEN CO.	GA	06/12/2015	19:35	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ENIGMA	BERRIEN CO.	GA	07/02/2015	15:30	EST-5	Thunderstorm Wind	55 kts. EG	0	0	5.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	07/05/2015	12:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALLENVILLE	BERRIEN CO.	GA	07/05/2015	12:24	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	07/23/2015	17:20	EST-5	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	03/03/2016	22:00	EST-5	Thunderstorm Wind	55 kts. EG	0	0	25.00K	0.00K
WEBER	BERRIEN CO.	GA	04/01/2016	15:57	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
RAY CITY	BERRIEN CO.	GA	04/01/2016	16:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
ENIGMA	BERRIEN CO.	GA	06/16/2016	17:05	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	06/17/2016	21:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K

WEBER	BERRIEN CO.	GA	06/17/2016	21:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	07/19/2016	16:50	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
RAY CITY	BERRIEN CO.	GA	07/19/2016	17:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
WEBER	BERRIEN CO.	GA	08/14/2016	19:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
ALLENVILLE	BERRIEN CO.	GA	08/14/2016	19:00	EST-5	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	05/24/2017	16:02	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	05/24/2017	16:02	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ENIGMA	BERRIEN CO.	GA	07/15/2017	15:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
COTTLE	BERRIEN CO.	GA	04/15/2018	09:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
ALAPAHA	BERRIEN CO.	GA	06/03/2018	23:10	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
Totals:								0	0	727.25K	0.00K

Storm Events Database

Search Results for Berrien County, Georgia

Event Types: Hurricane (Typhoon), Tropical Storm

Berrien county contains the following zones:
'Berrien'

9 events were reported between 01/01/1950 and 12/31/2018 (25202 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	9
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	7
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	2

Column Definitions:
'Mag': Magnitude, 'Dth': Deaths, 'Inj': Injuries, 'PrD': Property Damage, 'CrD': Crop Damage

*Click on **Location** below to display details.*
Available Event Types have changed over time. Please refer to the Database Details for more information.

Sort By: Date/Time (Oldest)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	1.370M	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	09/03/1998	00:00	EST	Tropical Storm		0	0	10.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	09/05/2004	16:00	EST	Tropical Storm		0	0	10.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	09/26/2004	18:00	EST	Tropical Storm		0	0	75.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	07/09/2005	18:00	EST	Hurricane (typhoon)		0	0	100.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	06/12/2006	12:00	EST	Tropical Storm		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	08/22/2008	12:00	EST-5	Tropical Storm		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	09/02/2016	00:00	EST-5	Tropical Storm		0	0	75.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	09/10/2017	22:00	EST-5	Tropical Storm		0	0	1.000M	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	10/10/2018	07:00	EST-5	Tropical Storm		0	0	100.00K	0.00K
Totals:								0	0	1.370M	0.00K

Storm Events Database

Search Results for Berrien County, Georgia

Event Types: Drought

Berrien county contains the following zones:
'Berrien'

27 events were reported between 01/01/1950 and 05/28/2018 (24985 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	27
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	0
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

Column Definitions:
'Mag': Magnitude, 'Dth': Deaths, 'Inj': Injuries, 'PrD': Property Damage, 'CrD': Crop Damage

Click on Location below to display details.
Available Event Types have changed over time. Please refer to the Database Details for more information.

Sort By: Date/Time (Oldest)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	09/01/1997	00:00	EST	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	11/01/2010	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	12/01/2010	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	01/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	02/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	03/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	04/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	05/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	06/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	07/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	08/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	09/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	10/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	11/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	12/01/2011	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	01/01/2012	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	02/01/2012	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	03/01/2012	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	04/01/2012	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	05/01/2012	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	06/01/2012	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	01/01/2013	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	02/01/2013	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	08/26/2014	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	09/01/2014	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	11/22/2016	00:00	EST-5	Drought		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	12/01/2016	00:00	EST-5	Drought		0	0	0.00K	0.00K
Totals:								0	0	0.00K	0.00K

Acreage Burned /Number of Fires For Berrien County For FY 1968-2018		
Year	Acreage Burned	Number of Fires
1968	927.75	127
1969	508.07	100
1970	215.24	64
1971	559.42	89
1972	209.07	76
1973	288.38	98
1974	321.64	118
1975	211.36	49
1976	325.58	78
1977	367.75	82
1978	347.85	94
1979	532.57	117
1980	104.32	44
1981	1,634.89	194
1982	484.84	68
1983	87.13	44
1984	193.25	72
1985	826.76	167
1986	285.42	73
1987	333.08	61
1988	528.63	122
1989	1,005.35	110
1990	149.48	51
1991	731.82	81
1992	230.74	76
1993	202.22	67
1994	368.91	110
1995	45.8	23
1996	465.39	98
1997	208.55	58
1998	194.07	72
1999	421.07	118
2000	622.54	172

Data Source: Georgia Forestry Commission

Year	Acreage Burned	Number of Fires
2001	270.21	85
2002	837.76	137
2003	103.6	44
2004	175.92	59
2005	72.64	38
2006	294.79	82
2007	1,495.62	143
2008	167.98	56
2009	633.35	70
2010	79.82	26
2011	420.46	81
2012	678.2	65
2013	96.76	36
2014	41.46	24
2015	79.97	38
2016	146.35	21
2017	257.14	52

Storm Events Database

Search Results for Berrien County, Georgia

Event Types: Hail

18 events were reported between 01/01/1950 and 05/28/2018 (24985 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	14
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	1
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

Column Definitions:
'Mag': Magnitude, 'Dth': Deaths, 'Inj': Injuries, 'PrD': Property Damage, 'CrD': Crop Damage

Click on Location below to display details.
Available Event Types have changed over time. Please refer to the Database Details for more information.

Select: All Hail ▼ Sort By: Date/Time (Oldest) ▼

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	20.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	05/08/1975	18:00	CST	Hail	0.75 in.	0	0	0.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	03/18/1981	15:00	CST	Hail	1.75 in.	0	0	0.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	03/25/1992	13:35	CST	Hail	0.75 in.	0	0	0.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	03/30/1992	15:00	CST	Hail	2.00 in.	0	0	0.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	03/30/1992	15:10	CST	Hail	1.00 in.	0	0	0.00K	0.00K
Nashville	BERRIEN CO.	GA	01/28/1995	13:00	EST	Hail	0.90 in.	0	0	0.00K	0.00K
ALAPAHA	BERRIEN CO.	GA	03/06/1996	16:00	EST	Hail	1.75 in.	0	0	0.00K	0.00K
ENIGMA	BERRIEN CO.	GA	04/21/1997	17:10	EST	Hail	0.75 in.	0	0	0.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	06/01/1997	15:55	EST	Hail	1.75 in.	0	0	20.00K	0.00K
RAY CITY	BERRIEN CO.	GA	05/03/1998	14:15	EST	Hail	1.75 in.	0	0	0.00K	0.00K
ENIGMA	BERRIEN CO.	GA	04/08/2004	13:10	EST	Hail	0.75 in.	0	0	0.00K	0.00K
ALAPAHA	BERRIEN CO.	GA	04/08/2004	13:30	EST	Hail	0.75 in.	0	0	0.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	06/18/2009	19:25	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K
COTTLE	BERRIEN CO.	GA	02/18/2012	22:25	EST-5	Hail	1.75 in.	0	0	0.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	05/22/2012	18:11	EST-5	Hail	0.88 in.	0	0	0.00K	0.00K
COTTLE	BERRIEN CO.	GA	03/23/2013	10:12	EST-5	Hail	1.75 in.	0	0	0.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	03/23/2013	10:15	EST-5	Hail	1.75 in.	0	0	0.00K	0.00K
NASHVILLE	BERRIEN CO.	GA	03/23/2013	10:19	EST-5	Hail	1.50 in.	0	0	0.00K	0.00K
Totals:								0	0	20.00K	0.00K

Storm Events Database

Search Results for Berrien County, Georgia

Event Types: Tornado

11 events were reported between 01/01/1950 and 05/28/2018 (24985 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	11
Number of Days with Event and Death:	1
Number of Days with Event and Death or Injury:	3
Number of Days with Event and Property Damage:	11
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

Column Definitions:
'Mag': Magnitude, 'Dth': Deaths, 'Inj': Injuries, 'PrD': Property Damage, 'CrD': Crop Damage

Click on Location below to display details.
Available Event Types have changed over time. Please refer to the Database Details for more information.

Select: All Tornadoes ▼ Sort By: Date/Time (Oldest) ▼

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								2	14	3.812M	0.00K
BERRIEN CO.	BERRIEN CO.	GA	05/11/1952	06:20	CST	Tornado	F3	0	10	2.500M	0.00K
BERRIEN CO.	BERRIEN CO.	GA	06/30/1959	17:00	CST	Tornado	F1	0	0	2.50K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	06/08/1962	14:52	CST	Tornado	F1	0	0	250.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	03/12/1968	10:30	CST	Tornado	F1	0	0	2.50K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	12/30/1973	11:20	CST	Tornado	F0	0	0	250.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	04/08/1974	18:15	CST	Tornado	F1	0	4	250.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	01/25/1975	10:00	CST	Tornado	F1	0	0	25.00K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	04/04/1980	10:00	CST	Tornado	F1	0	0	2.50K	0.00K
BERRIEN CO.	BERRIEN CO.	GA	07/25/1991	12:00	EST	Tornado	F1	0	0	25.00K	0.00K
Nashville	BERRIEN CO.	GA	06/25/1994	10:30	EST	Tornado	F0	0	0	5.00K	0.00K
NEW LOIS	BERRIEN CO.	GA	01/22/2017	03:49	EST-5	Tornado	EF3	2	0	500.00K	0.00K
Totals:								2	14	3.812M	0.00K

Storm Events Database

Search Results for Berrien County, Georgia

Event Types: Blizzard, Cold/Wind Chill, Extreme Cold/Wind Chill, Freezing Fog, Frost/Freeze, Heavy Snow, Ice Storm, Sleet, Winter Storm, Winter Weather

Berrien county contains the following zones:
'Berrien'

3 events were reported between 01/01/1950 and 05/28/2018 (24985 days)

Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	3
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	0
Number of Days with Event and Crop Damage:	1
Number of Event Types reported:	3

Column Definitions:
'Mag': Magnitude, 'Dth': Deaths, 'Inj': Injuries, 'PrD': Property Damage, 'CrD': Crop Damage

Click on Location below to display details.
Available Event Types have changed over time. Please refer to the Database Details for more information.

Sort By: Date/Time (Oldest)

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	0	0.00K	7.850M
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	01/28/2014	15:00	EST-5	Winter Weather		0	0	0.00K	0.00K
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	03/16/2017	03:00	EST-5	Frost/freeze		0	0	0.00K	7.850M
BERRIEN (ZONE)	BERRIEN (ZONE)	GA	01/03/2018	03:00	EST-5	Winter Storm		0	0	0.00K	0.00K
Totals:								0	0	0.00K	7.850M

BERRIEN COUNTY CRITICAL FACILITIES
2018 UPDATE

Name	Jurisdiction	Address	Zip	Facility Types	Risk	Building Value
Alapaha Fire Department Station 31	Alapaha town	22229 Main St	31622	Emergency Services, Emergency Services, Fire Fighters, Fire Fighters	Essential, Lifeline	840000.00
Alapaha Town Hall & Police Dept.	Alapaha town	112 N Railroad St	31622	Government, Government, Government Offices, Government Offices, Police, Police	Essential, Lifeline	420000.00
Alapaha Wastewater Pond	Alapaha town	US Hwy 82	31622	Government, Government, Water/Sewer, Water/Sewer	Important	5000.00
Town of Alapaha Water System	Alapaha town	E Brunswick St	31622	Government, Government, Water/Sewer, Water/Sewer	Essential, Lifeline	10000000.00
Open Door Christian Academy	Alapaha town	123 Open Door School Rd	31622	Education, Education, Private, Private	Important, Vulnerable Population	540000.00
4825 SUPTS CTG ALAPAHA	Berrien County	RANGE GRAZING STA.	31622	Education, Government Offices	Important	668700.00
4826 IMPL SHED & SHOP	Berrien County	RANGE GRAZING STA.	31622	Education, Government Offices	Important	168750.00
4827 HORSE BARN FEED	Berrien County	RANGE GRAZING STA.	31622	Education, Government Offices	Important	30000.00
4828 LABORERS CTG ALAPA	Berrien County	RANGE GRAZING STA.	31622	Education, Government Offices	Important	156250.00
4829 BARN ALAPAHA	Berrien County	RANGE GRAZING STA.	31622	Education, Government Offices	Important	1944000.00
4830 BLUEBERRY WORKSHED	Berrien County	RANGE GRAZING STA.	31622	Education, Government Offices	Important	139500.00
4831 HAY SHED	Berrien County	RANGE GRAZING STA.	31622	Education, Government Offices	Important	62500.00

BERRIEN COUNTY CRITICAL FACILITIES
2018 UPDATE

Name	Jurisdiction	Address	Zip	Facility Types	Risk	Building Value
4832 TOOL STORAGE BLDG	Berrien County	RANGE GRAZING STA	31622	Education, Government Offices	Important	3750.00
4833 PUMP HOUSE	Berrien County	RANGE GRAZING STATIO	31622	Education, Government Offices	Important	1250.00
Alapaha Town Barn	Alapaha town	SW Railroad St and Sawmill Rd	31622	Government, Government, Government Offices, Government Offices	Important, Transportation	630000.00
Alapaha Baptist Church	Alapaha town	22308 Main St	31622	NGO, NGO, Private, Private	Essential, Vulnerable Population	660000.00
Coastal Plain Head Start Alapaha	Alapaha town	9499 US Highway 82	31622	Education, Education, Pre K, Pre K	Important, Vulnerable Population	300000.00
Alapaha Community Center/Berrien County EMS	Alapaha town	9499 US-82	31622	Emergency Services, Emergency Services, EMS, EMS	Lifeline	58263.00
Alapaha Fire Dept. Station 32	Berrien County	4353 Wycliff Roberts Rd	31622	Emergency Services, Emergency Services, Fire Fighters, Fire Fighters	Lifeline	100000.00
Nashville Fire Dept. Station 12	Berrien County	16428 Hwy 129	31622	Emergency Services, Fire Fighters	Lifeline	100000.00
Dixon Farm Supply	Berrien County	8435 US-82	31622	NGO, Private	Economic Assets	303864.00
West Berrien Fire Department	Berrien County	11062 N Hwy 125	31637	Emergency Services, Emergency Services, Fire Fighters, Fire Fighters	Lifeline	600000.00
Berrien County Middle School	Nashville city	800 Tifton Road	31639	Education, Education, K - 12, K - 12	Essential, Vulnerable Population	5000000.00
Berrien County Primary School	Berrien County	1427 N Davis St	31639	Education, Education, K - 12, K - 12	Essential, Vulnerable Population	5000000.00

BERRIEN COUNTY CRITICAL FACILITIES
2018 UPDATE

Name	Jurisdiction	Address	Zip	Facility Types	Risk	Building Value
Berrien County Elementary School	Nashville city	802 Middle School Circle	31639	Education, Education, K - 12, K - 12	Essential, Vulnerable Population	5000000.00
Carrie Dorsey Perry Memorial Library	Nashville city	315 West Marion Avenue	31639	Government, Government, Library, Library	High Potential Loss, Historic Consideration	3664500.00
Nashville Police Department	Nashville city	1406 Saddle Club Lane	31639	Law Enforcement, Law Enforcement, Police, Police	Lifeline	196124.00
Nashville Fire Department Station 11 (bldg 1)	Nashville city	404 W Marion Ave	31639	Emergency Services, Emergency Services, Fire Fighters, Fire Fighters	Lifeline	960000.00
East Berrien Fire Dept. Station 52	Berrien County	5586 Hwy 168	31639	Emergency Services, Emergency Services, Fire Fighters, Fire Fighters	Lifeline	36662.00
Berrien County Jail & Sheriff's Office	Nashville city	500 County Farm Rd	31639	Law Enforcement, Law Enforcement, Jails, Jails, Sheriff, Sheriff	Essential, Special Consideration, Vulnerable Population	8160000.00
Berrien County Courthouse	Nashville city	101 E Marion Ave	31639	Government, Government, Court House, Court House	Essential, Historic Consideration	1280400.00
Nashville City Hall	Nashville city	405 W Washington	31639	Government, Government, Government Offices, Government Offices	Essential	402000.00
Nashville Water Tower	Nashville city	Middle School Circle	31639	Government, Government, Water/Sewer, Water/Sewer	Essential, Lifeline	10000000.00
SGMC Berrien Campus	Nashville city	1221 E. McPherson Street	31639	Medical, Medical, Hospital, Hospital	Lifeline, Vulnerable Population	13047600.00
Berrien County Airport	Nashville city	1765 Langdale Drive	31639	Government, Government, Transportation, Transportation	Essential, Transportation	725400.00
Berrien County High School	Nashville city	500 Smith Ave	31639	Education, Education, K - 12, K - 12	Vulnerable Population	5000000.00

BERRIEN COUNTY CRITICAL FACILITIES
2018 UPDATE

Name	Jurisdiction	Address	Zip	Facility Types	Risk	Building Value
Nashville Wastewater Treatment Facility	Nashville city	Middle School Circle	31639	Government, Government, Water/Sewer, Water/Sewer	Lifeline	140230.00
Berrien County Behavioral Health	Berrien County	County Farm Road	31639	Government, Water/Sewer	Important, Vulnerable Population	1731600.00
Berrien County Board of Educaiton	Nashville city	810 S Dogwood Dr	31639	Government, Government, Government Offices, Government Offices	Important, Vulnerable Population	1620000.00
Berrien County BOE- Bus Shop	Nashville city	606 County Farm Road	31639	Education, Education, Transportation, Transportation	Economic Assets, Transportation	2340000.00
Berrien County Extension Office	Nashville city	516 County Farm Road	31639	Government, Government, Government Offices, Government Offices	Important	1800000.00
Coastal Plains Head Start	Berrien County	204 Hazel Avenue	31639	Education, Education, Pre K, Pre K	Important, Vulnerable Population	300000.00
Berrien County Commission	Berrien County	201 N. Davis St	31639	Government, Government, Government Offices, Government Offices	Essential	1500000.00
Berrien County EMS	Nashville city	519 County Farm Road	31639	Emergency Services, Emergency Services, EMS, EMS	Lifeline	465000.00
Berrien County Humane Society	Nashville city	1111 Exum St	31639	Government, Government, Government Offices, Government Offices	Essential, Vulnerable Population	1926000.00
Berrien County Road Shop/Public Works	Nashville city	520 County Farm Road	31639	Government, Government, Government Offices, Government Offices	Important	3654000.00
Berrien County Senior Center	Nashville city	204 Hazel Ave	31639	Government, Government, Government Offices, Government Offices	Vulnerable Population	1446000.00
Berrien County EMA & 911	Nashville city	205 N Jefferson St	31639	Emergency Services, Emergency Services, EMA, EMA	Lifeline	127509.00

BERRIEN COUNTY CRITICAL FACILITIES
2018 UPDATE

Name	Jurisdiction	Address	Zip	Facility Types	Risk	Building Value
Berrien Academy Performance Learning Center	Nashville city	1015 Exum Rd	31639	Education, Education, K - 12, K - 12	Important, Vulnerable Population	2250000.00
Berrien Nursing Center	Nashville city	405 Laurel St	31639	Medical, Medical, ALF, ALF	Important, Vulnerable Population	8083800.00
Berrien County DFCS	Nashville city	301 South Jefferson Street	31639	Government, Government, Government Offices, Government Offices	Essential	240000.00
Hope Baptist Church	Nashville city	1011 South Dogwood	31639	NGO, NGO, Private, Private	Essential, Vulnerable Population	2400000.00
Nashville Community Center	Nashville city	North Jefferson Street	31639	Government, Government, Government Offices, Government Offices	Important	492000.00
Nashville First Baptist Church	Nashville city	301 West Washington	31639	NGO, NGO, Private, Private	Essential, Vulnerable Population	3600000.00
Nashville Public Works	Nashville city	106 South Dogwood	31639	Government, Government, Government Offices, Government Offices	Essential	372000.00
Nashville United Methodist Church	Nashville city	304 South Berrien Street	31639	NGO, NGO, Private, Private	Essential, Vulnerable Population	4200000.00
The Retreat Inc.	Nashville city	1207 E. McPherson Avenue	31639	NGO, NGO, ALF, ALF	Important, Vulnerable Population	699972.00
Victory Retirement Inc.	Nashville city	310 W. Washington Avenue	31639	NGO, NGO, ALF, ALF	Important, Vulnerable Population	480000.00
Victory Villa	Nashville city	308 W. Washington Avenue	31639	NGO, NGO, ALF, ALF	Important, Vulnerable Population	540000.00
Nashville Sewer Line System	Nashville city	Citywide	31639	Government, Government, Water/Sewer, Water/Sewer	Lifeline	10000000.00

BERRIEN COUNTY CRITICAL FACILITIES
2018 UPDATE

Name	Jurisdiction	Address	Zip	Facility Types	Risk	Building Value
East Berrien Fire Dept. Station 51	Berrien County	5533 Hwy 135	31639	Emergency Services, Emergency Services, Fire Fighters, Fire Fighters	Lifeline	600000.00
Nashville Waterline System	Nashville city	Citywide	31639	Government, Government, Water/Sewer, Water/Sewer	Lifeline	10000000.00
Nashville Fire Department Station 11 (bldg 2)	Nashville city	406 W marion Ave	31639	Emergency Services, Emergency Services, Fire Fighters, Fire Fighters	Lifeline	100000.00
East Berrien Fire Dept. Station 53	Berrien County	7729 June Hendley Rd	31639	Emergency Services, Emergency Services, Fire Fighters, Fire Fighters	Lifeline	100000.00
New Lois Fire Department	Berrien County	4941 Old Valdosta Rd	31639	Emergency Services, Fire Fighters	Lifeline	100000.00
911 Communications Tower	Nashville city	523 County Farm Rd	31639	Government, Communications	Lifeline	100000.00
Longbridge Peanut Company	Berrien County	760 Hwy 76 West	31639	NGO, Private	Economic Assets	727000.00
Troutdale Corp Tobacco Warehouse	Nashville city	598 Enigma Rd	31639	NGO, Private	Economic Assets	305069.00
Perkins Warehouse	Nashville city	1800 E Marion Ave	31639	NGO, Private	Economic Assets	726882.00
Chaparral Boats	Nashville city	300 Industrial Park Blvd	31639	NGO, Private	Economic Assets	2382542.00
BH Electronics Inc	Nashville city	100 Spells St	31639	NGO, Private	Economic Assets, Important	826886.00
The Bridge Church	Nashville city	727 S Davis St	31639	NGO, Private	Important	610229.00

BERRIEN COUNTY CRITICAL FACILITIES
2018 UPDATE

Name	Jurisdiction	Address	Zip	Facility Types	Risk	Building Value
Coyote Mfg Co	Nashville city	541 Hazel Ave	31639	NGO, Private	Economic Assets	1112901.00
Ray City Fire Department	Ray City city	8090 and 8110 Main St	31645	Emergency Services, Emergency Services, Fire Fighters, Fire Fighters	Lifeline	720000.00
Ray City Municipal Bldg./City Hall/Police Dept	Ray City city	8151 Main Street	31645	Government, Government, Government Offices, Government Offices, Police, Police	Essential, Lifeline	335400.00
Ray City Wastewater Pond	Ray City city	Park St	31645	Government, Government, Water/Sewer, Water/Sewer	Lifeline	1000000.00
Ray City Water Tower	Ray City city	1101 Patten Ave	31645	Government, Government, Water/Sewer, Water/Sewer	Essential, Lifeline	500000.00
Jesus Loves Me Daycare & New Covenant Church	Ray City city	342 Pauline Ave	31645	NGO, NGO, Day Care, Day Care	Important, Vulnerable Population	456000.00
Ray City Waterline System	Ray City city	Citywide	31645	Government, Government, Water/Sewer, Water/Sewer	Essential, Lifeline	10000000.00
Ray City Sewerline System	Ray City city	Citywide	31645	Government, Government, Water/Sewer, Water/Sewer	Lifeline	10000000.00
Ray City Senior Center	Ray City city	1101 Patten Ave	31645	Government, Government, Government Offices, Government Offices	Essential, Vulnerable Population	1440000.00
Ray City Road and Street Department	Ray City city	8100 Main Street	31645	Government, Government, Transportation, Transportation	Important, Transportation	50000.00
Ray City Pre-K Program	Ray City city	423 Pauline Ave	31645	Education, Education, Pre K, Pre K	Important, Vulnerable Population	342000.00
Ray City First Baptist Church	Ray City city	457 Pauline Ave	31645	NGO, NGO, Private, Private	Essential, Vulnerable Population	3360000.00

BERRIEN COUNTY CRITICAL FACILITIES
2018 UPDATE

Name	Jurisdiction	Address	Zip	Facility Types	Risk	Building Value
Enigma Police Department	Enigma town	404 Main St	31749	Law Enforcement, Police	Essential	720000.00
Enigma Fire Department	Enigma town	517 Main St	31749	Emergency Services, Emergency Services, Fire Fighters, Fire Fighters	Lifeline	720000.00
Enigma City Hall & Police Department	Enigma town	564 N Main St	31749	Government, Government, Government Offices, Government Offices, Police, Police	Essential, Lifeline	330000.00
Enigma Baptist Church	Enigma town	391 S Main Street	31749	NGO, NGO, Private, Private	Essential, Vulnerable Population	840000.00
Enigma Road and Street Department	Enigma town	Main St & Savannah Ave	31749	Government, Government, Transportation, Transportation	Important, Transportation	420000.00
Enigma Water Tower	Enigma town	Main St & N Railroad St	31749	Government, Government, Water/Sewer, Water/Sewer	Lifeline	500000.00
Enigma Water Tower #2	Enigma town	Ell St	31749	Government, Government, Water/Sewer, Water/Sewer	Lifeline	500000.00
Saint Stephen's Church	Enigma town	Turner Church Rd	31749	NGO, NGO, Private, Private	Essential, Vulnerable Population	300000.00
Enigma Waterline System	Enigma town	Citywide	31749	Government, Government, Water/Sewer, Water/Sewer	Essential, Lifeline	10000000.00
Dixon Cotton Gin	Berrien County	2579 US-82	31749	NGO, Private	Economic Assets	804783.00

Appendix G

Hazard Risk Analyses
Supplement to the Berrien County Joint Hazard Mitigation Plan

Southern Georgia Regional Commission

TABLE OF CONTENTS

List of Tables

List of Figures

Introduction

The Federal Disaster Mitigation Act of 2000 (DMA2K) requires state, local, and tribal governments to develop and maintain a mitigation plan to be eligible for certain federal disaster assistance and hazard mitigation funding programs.

Mitigation seeks to reduce a hazard's impacts, which may include loss of life, property damage, disruption to local and regional economies, and the expenditure of public and private funds for recovery. Sound mitigation must be based on a sound risk assessment that quantifies the potential losses of a disaster by assessing the vulnerability of buildings, infrastructure, and people.

In recognition of the importance of planning in mitigation activities, FEMA Hazus-MH, a powerful disaster risk assessment tool based on geographic information systems (GIS). This tool enables communities of all sizes to predict estimated losses from floods, hurricanes, earthquakes, and other related phenomena and to measure the impact of various mitigation practices that might help reduce those losses.

In 2018, the Georgia Department of Emergency Management partnered with The SOUTHERN GEORGIA REGIONAL COMMISSION (SGRC) to develop a detailed risk assessment focused on defining hurricane, riverine flood and tornado impacts for Georgia. This assessment identifies the characteristics and potential consequences of the disaster, how much of the community could be affected by the disaster, and the impact on community assets. In the following years, the Georgia Association of Regional Commissions (GARC) are utilizing this workflow to define impacts in other counties in Georgia. This document provides the results for Berrien County.

Risk Assessment Process Overview

Hazus-MH Version 2.2 SP1 was used to perform the analyses for Berrien County. The Hazus-MH application includes default data for every county in the US. This Hazus-MH data was derived from a variety of national sources and in some cases the data are also several years old. Whenever possible, using local provided data is preferred. Berrien County provided building inventory information from the county's property tax assessment system. This section describes the changes made to the default Hazus-MH inventory and the modeling parameters used for each scenario.

County Inventory Changes

The default Hazus-MH site-specific point inventory was updated using data compiled from the Georgia Emergency Management Agency (GEMA). The default Hazus-MH aggregate inventory (General Building Stock) was also updated prior to running the scenarios. Reported losses reflect the updated data sets.

General Building Stock Updates

General Building Stock (GBS) is an inventory category that consists of aggregated data (grouped by census geography — tract or block). Hazus-MH generates a combination of site-specific and aggregated loss estimates based on the given analysis and user input.

The GBS records for Berrien County were replaced with data derived from parcel and property assessment data obtained from Berrien County. The county provided property assessment data was current as of November 2018 and the parcel data current as of November 2018. Records without improvements were deleted. The parcel boundaries were converted to parcel points located in the centroids of each parcel boundary; then, each parcel point was linked to an assessor record based upon matching parcel numbers. The parcel assessor match-rate for Berrien County is 99.6%. The generated building inventory represents the approximate locations (within a parcel) of structures. The building inventory was aggregated by census block. Both the tract and block tables were updated. Table 1 shows the results of the changes to the GBS tables by occupancy class.

Table 1: GBS Building Exposure Updates by Occupancy Class*

Occupancy Classification	Default Count	Updated Count	Default Exposure	Updated Exposure
Agricultural	26	0	$ 8,226,000	$ -
Commercial	303	394	$ 241,901,000	$ 201,701,000
Education	6	2	$ 11,307,000	$ 7,006,000
Government	13	33	$ 5,783,000	$ 17,999,000
Industrial	94	206	$ 141,897,000	$ 446,182,000
Religious	37	53	$ 19,852,000	$ 34,098,000
Residential	8491	7990	$ 1,148,615,000	$ 852,731,000
Total	**8970**	**8678**	**$ 1,577,581,000**	**$ 1,559,717,000**

*The exposure values represent the total number and replacement cost for all Berrien County Buildings

For Berrien County, the updated GBS was used to calculate hurricane wind losses. The flood losses and tornado losses were calculated from building inventory modeled in Hazus-MH as User-Defined Facility (UDF)[1], or site-specific points. Figure 1 shows the distribution of buildings as points based on the county provided data.

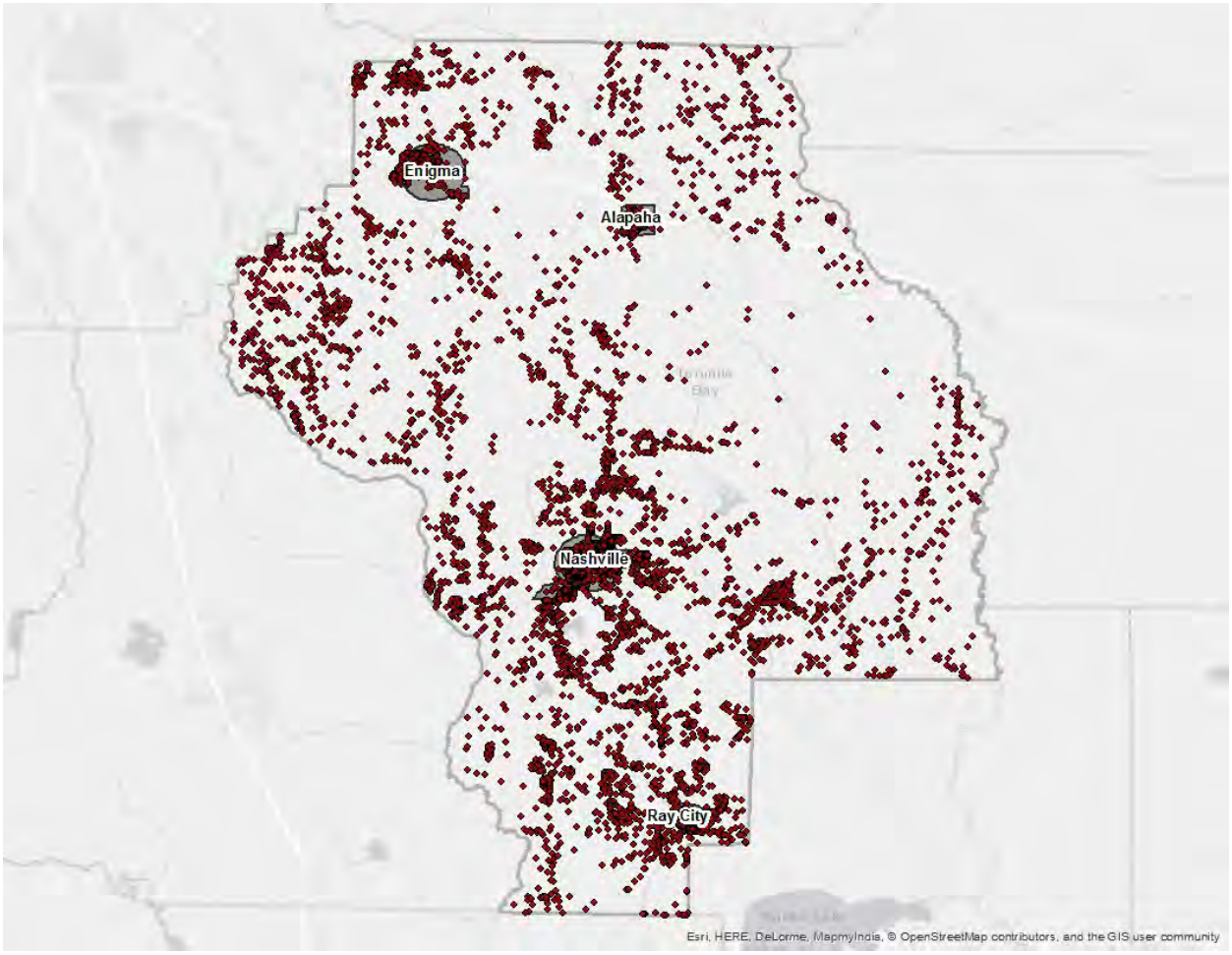


Figure 1: Berrien County Overview

[1] The UDF inventory category in Hazus-MH allows the user to enter site-specific data in place of GBS data.

Essential Facility Updates

The default Hazus-MH essential facility data was updated to reflect improved information available in the Georgia Mitigation Information System (GMIS). For these risk analyses, only GMIS data for buildings that Hazus-MH classified as Essential Facilities was integrated into Hazus-MH because the application provides specialized reports for these five types of facilities. Essential Facility inventory was updated for the analysis conducted for this report. The following table summarizes the counts and exposures, where available, by Essential Facility classification of the updated data for the county.

Essential facilities include:

- Care facilities
- EOCs
- Fire stations
- Police stations
- Schools

Table 2: Updated Essential Facilities

Classification	Updated Count	Updated Exposure
Berrien County		
EOC	1	$ 880,000
Care	2	$ 138,559,000
Fire	10	$ 6,738,000
Police	7	$ 21,685,000
School	7	$ 20,942,000
Total	**27**	**$ 188,804,000**

Classification	Updated Count	Updated Exposure
Alapaha		
EOC	0	$ -
Care	0	$ -
Fire	1	$ 840,000
Police	1	$ 2,561,000
School	1	$ 300,000
Total	**3**	**$ 3,701,000**

Classification	Updated Count	Updated Exposure
Enigma		
EOC	0	$ -
Care	0	$ -
Fire	1	$ 720,000
Police	1	$ 720,000
School	0	$ -
Total	**2**	**$ 1,440,000**

Classification	Updated Count	Updated Exposure
Nashville		
EOC	1	$ 880,000
Care	2	$ 138,559,000
Fire	1	$ 960,000
Police	4	$ 15,843,000
School	4	$ 15,300,000
Total	**12**	**$ 171,542,000**

Classification	Updated Count	Updated Exposure
Ray City		
EOC	0	$ -
Care	0	$ -
Fire	1	$ 720,000
Police	1	$ 2,561,000
School	1	$ 342,000
Total	**3**	**$ 3,623,000**

Assumptions and Exceptions

Hazus-MH loss estimates may be impacted by certain assumptions and process variances made in this risk assessment.

- The Berrien County analysis used Hazus-MH Version 2.2 SP1, which was released by FEMA in May 2015.
- County provided parcel and property assessment data may not fully reflect all buildings in the county. For example, some counties do not report not-for-profit buildings such as government buildings, schools and churches in their property assessment data. This data was used to update the General Building Stock as well as the User Defined Facilities applied in this risk assessment.
- GBS updates from assessor data will skew loss calculations. The following attributes were defaulted or calculated:
    - Foundation Type was set from Occupancy Class
    - First Floor Height was set from Foundation Type
    - Content Cost was calculated from Replacement Cost
- It is assumed that the buildings are located at the centroid of the parcel unless building footprints are used. For this analysis of Berrien County, parcel centroids were used.
- The essential facilities extracted from the GMIS were only used in the portion of the analysis designated as essential facility damage. They were not used in the update of the General Building Stock or the User Defined Facility inventory.

The hazard models included in this risk assessment included:

- Hurricane assessment which was comprised of a wind only damage assessment
- Flood assessment based on the 1% annual chance event that includes riverine assessments
- Tornado assessment based on GIS modeling

Hurricane Risk Assessment

Hazard Definition

The National Hurricane Center describes a hurricane as a tropical cyclone in which the maximum sustained wind is, at minimum, 74 miles per hour (mph)[2]. The term hurricane is used for Northern Hemisphere tropical cyclones east of the International Dateline to the Greenwich Meridian. The term typhoon is used for Pacific tropical cyclones north of the Equator west of the International Dateline. Hurricanes in the Atlantic Ocean, Gulf of Mexico, and Caribbean form between June and November with the peak of hurricane season occurring in the middle of September. Figure 2 shows that many hurricanes have impacted the Atlantic and Gulf coasts of the United States.

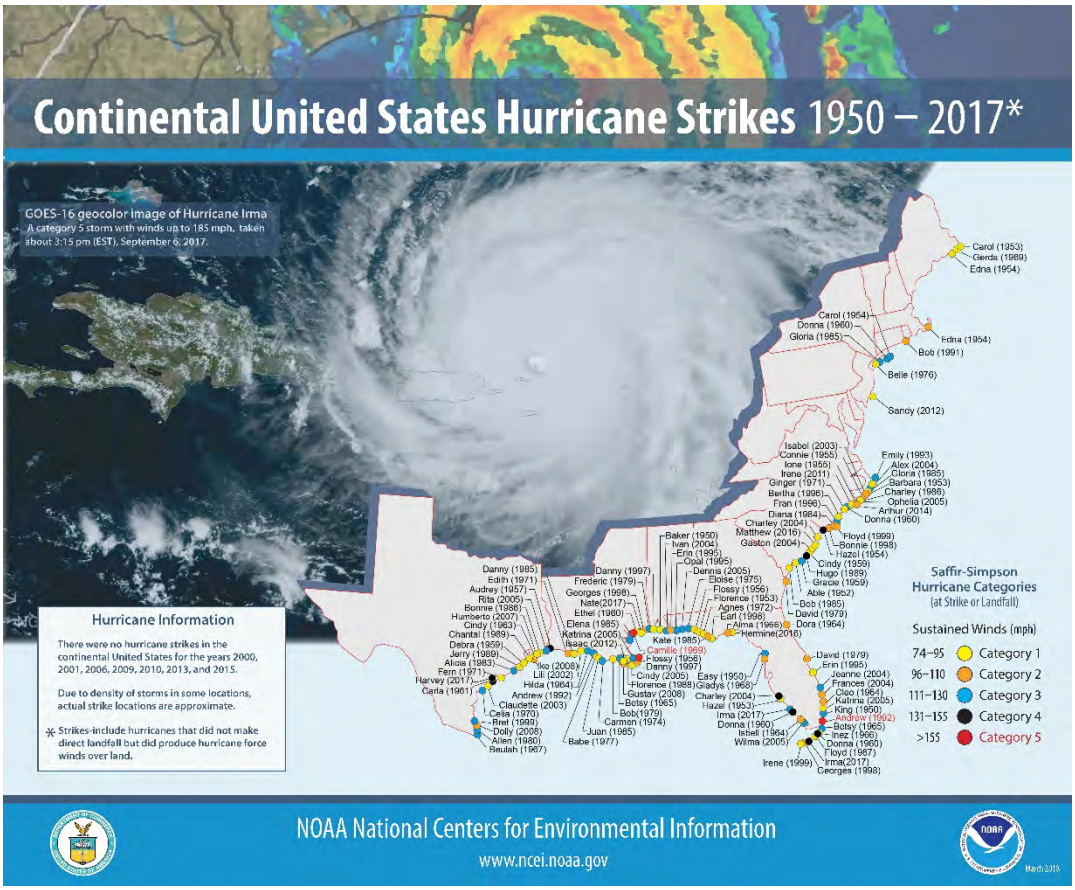


Figure 2: Continental United States Hurricane Strikes: 1950 to 2014[3]

Hurricane intensities are measured using the Saffir-Simpson Hurricane Wind Scale (Table 3). This scale is a 1 to 5 categorization based on the hurricane's intensity at the indicated time.

[2] National Hurricane Center (2011). "Glossary of NHC Terms." National Oceanic and Atmospheric Administration. http://www.nhc.noaa.gov/aboutgloss.shtml#h. Retrieved 2-23-2012.

[3] Source: NOAA National Climatic Data Center

Table 3: Saffir-Simpson Hurricane Wind Scale

Category	Wind Speed (mph)	Damage
1	74 – 95	Very dangerous winds will produce some damage
2	96 – 110	Extremely dangerous winds will cause extensive damage
3	111 - 130	Devastating damage will occur
4	131 -155	Catastrophic damage will occur
5	> 155	Catastrophic damage will occur

Hurricanes bring a complex set of impacts. The winds from a hurricane produce a rise in the water level at landfall called storm surge. Storm surges produce coastal flooding effects that can be as damaging as the hurricane's winds. Hurricanes bring very intense inland riverine flooding. Hurricanes can also produce tornadoes that can add to the wind damages inland. In this risk assessment, only hurricane winds, and coastal storm surge are considered.

The National Oceanic and Atmospheric Administration's National Hurricane Center created the HURDAT database, which contains all of the tracks of tropical systems since the mid-1800s. This database was used to document the number of tropical systems that have affected Berrien County by creating a 20-mile buffer around the county to include storms that didn't make direct landfall in Berrien County but impacted the county. Since 1851, Berrien County has had 74 tropical systems within 20 miles of its county borders (Table 4).

Table 4: Tropical Systems affecting Berrien County

Year	Month	Day	Name	Wind (Knots)	Category
1852	October	10	NOTNAMED	80	H1
1860	August	13	NOTNAMED	40	TS
1871	August	23	NOTNAMED	50	TS
1871	August	23	NOTNAMED	40	TS
1871	October	5	NOTNAMED	50	TS
1871	October	6	NOTNAMED	40	TS
1873	June	2	NOTNAMED	40	TS
1873	September	19	NOTNAMED	60	TS
1877	September	20	NOTNAMED	40	TS
1877	October	3	NOTNAMED	70	H1
1877	October	3	NOTNAMED	50	TS
1878	October	11	NOTNAMED	40	TS
1885	August	31	NOTNAMED	50	TS
1885	August	31	NOTNAMED	40	TS
1886	June	21	NOTNAMED	65	H1
1886	July	1	NOTNAMED	70	H1
1894	October	9	NOTNAMED	85	H2
1894	October	9	NOTNAMED	70	H1
1902	June	15	NOTNAMED	45	TS
1902	June	15	NOTNAMED	40	TS
1907	June	29	NOTNAMED	45	TS
1907	September	29	NOTNAMED	40	TS
1911	August	4	NOTNAMED	20	TD
1911	August	5	NOTNAMED	20	TD
1912	July	15	NOTNAMED	40	TS
1912	July	16	NOTNAMED	40	TS
1912	September	6	NOTNAMED	25	TD
1914	September	17	NOTNAMED	40	TS
1916	October	4	NOTNAMED	50	TS
1919	October	1	NOTNAMED	35	TS
1919	October	1	NOTNAMED	30	TD
1924	September	16	NOTNAMED	45	TS
1924	September	16	NOTNAMED	40	TS
1924	September	29	NOTNAMED	55	TS
1924	September	30	NOTNAMED	55	E
1926	July	29	NOTNAMED	50	TS
1926	July	29	NOTNAMED	40	TS
1933	September	5	NOTNAMED	40	TS
1933	September	6	NOTNAMED	40	TS
1933	September	6	NOTNAMED	35	TS
1935	September	5	NOTNAMED	60	TS
1947	October	7	NOTNAMED	35	TS
1947	October	7	NOTNAMED	30	TD
1947	October	15	NOTNAMED	65	H1
1947	October	16	NOTNAMED	50	TS
1949	August	28	NOTNAMED	50	TS
1949	August	28	NOTNAMED	45	TS
1950	September	7	EASY	40	TS
1950	September	7	EASY	35	TS
1950	October	19	KING	35	TS
1950	October	19	KING	25	TD
1953	September	27	FLORENCE	50	E
1956	September	25	FLOSSY	40	TS
1957	June	9	NOTNAMED	35	TS
1964	October	5	HILDA	35	E
1966	June	10	ALMA	60	TS
1966	June	10	ALMA	55	TS
1985	November	22	KATE	80	H1
1985	November	22	KATE	65	H1
1986	August	13	CHARLEY	10	SD
1986	August	14	CHARLEY	10	SD
1987	August	16	NOTNAMED	15	TD
1987	August	16	NOTNAMED	10	TD
1987	August	17	NOTNAMED	10	TD
1990	October	12	MARCO	20	TD
1995	June	5	ALLISON	45	TS
1995	August	26	JERRY	25	TD
1995	August	26	JERRY	20	TD
1998	September	3	EARL	45	TS
2004	August	12	BONNIE	30	TD
2005	October	6	TAMMY	45	TS
2005	October	6	TAMMY	35	TS
2006	June	13	ALBERTO	35	TS
2006	June	14	ALBERTO	35	TS

Category Definitions:
TS – Tropical storm
TD – Tropical depression
CAT_1 – Category 1 (same format for 2, 3, 4 and 5)
E – Extra-tropical cyclone

Probabilistic Hurricane Scenario

The following probabilistic wind damage risk assessment modeled a Category 1 storm with maximum winds of 79 mph.

Wind Damage Assessment

Wind losses were determined from probabilistic models run for the Category 1 storm which equates to the 1% chance storm event. Figure 3 shows wind speeds for the modeled hurricane.

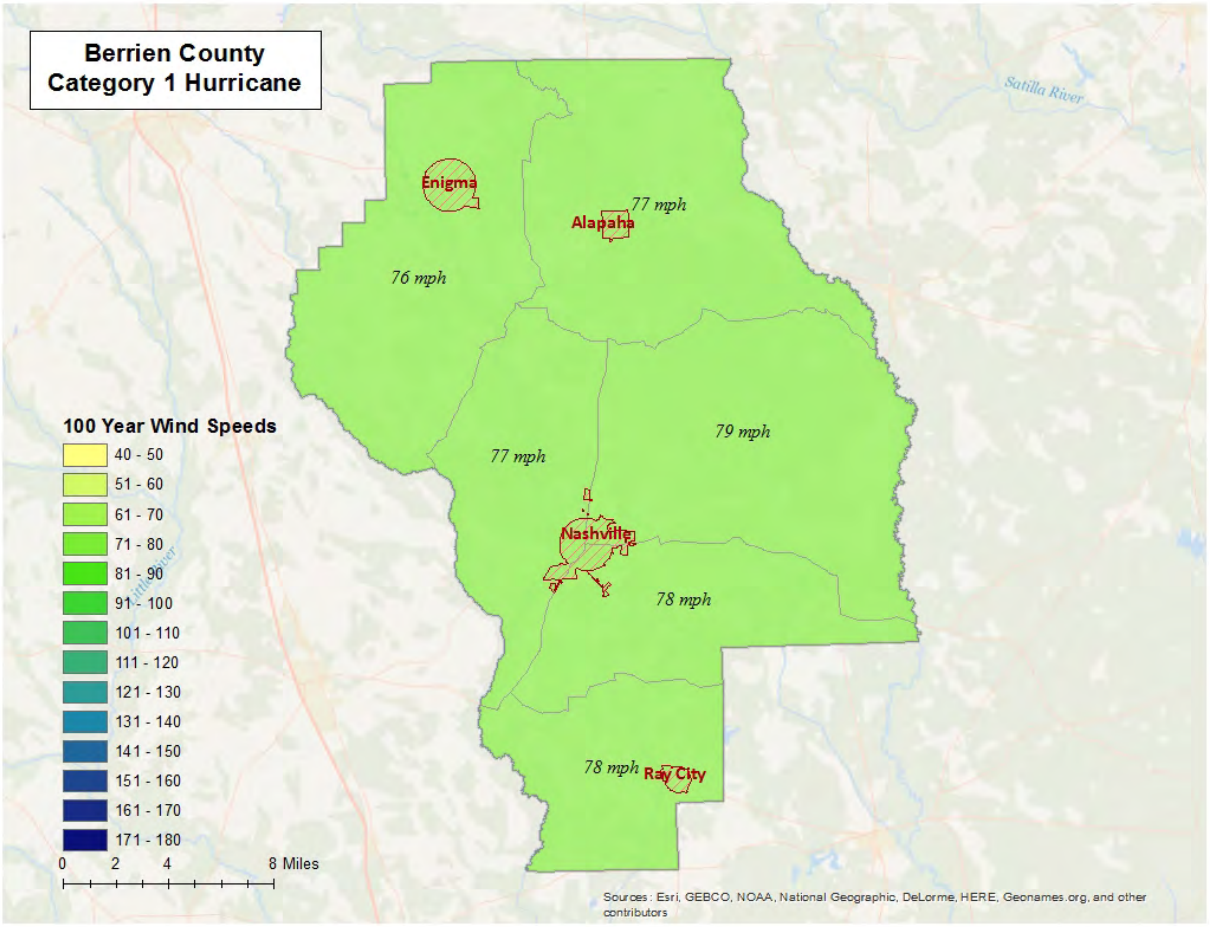


Figure 3: Wind Speeds by Storm Category

Wind-Related Building Damages

Buildings in Berrien County are vulnerable to storm events, and the cost to rebuild may have significant consequences to the community. The following table shows a summary of the results of wind-related building damage in Berrien County for the Category 1 (100 Year Event) storm. The loss ratio expresses building losses as a percentage of total building replacement cost in the county. Figure 4 illustrates the building loss ratios of the modeled Category 1 storm.

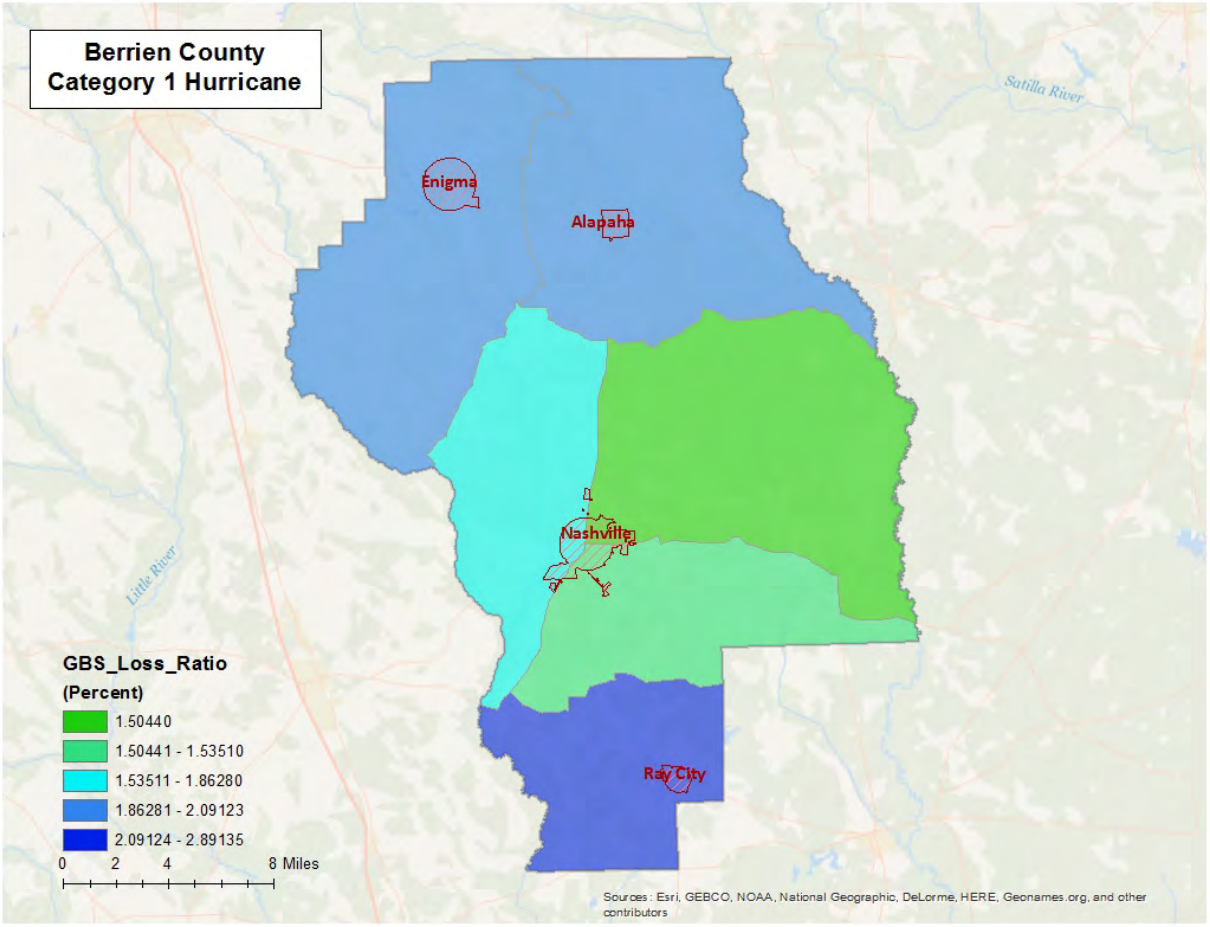


Figure 4: Hurricane Wind GBS Loss Ratios

Table 5 shows the Hurricane Wind Building Damage results including the number of buildings damaged, total building damage, and economic loss.

Table 5: Hurricane Wind Building Damage

Storm Classification	Number of Damaged Buildings	Building Damages	Total Economic Loss	Loss Ratio
Category 1	72	$ 2,854,510	$ 4,084,030	0.18

Essential Facility Losses

Essential facilities are also vulnerable to storm events, and the potential loss of functionality may have significant consequences to the community. Hazus-MH identified the essential facilities that may be moderately or severely damaged by winds. The results are compiled in Table 6.

There are 27 essential facilities in Berrien County.

Classification	Number
EOC	1
Care	2
Fire	10
Police	7
School	7
Total	**27**

Table 6: Wind-Damaged Essential Facility Losses

Storm Classification	Facilities Moderately Damaged (>50%)	Facilities Completely Damaged (>50%)	Facilities with expected loss (<1day)
Category 1	0	0	27

Shelter Requirements

Hazus-MH estimates the number of households evacuated from buildings with severe damage from high velocity winds as well as the number of people who will require short-term sheltering. The results are listed in Table 7 and mapped in Figure 5.

Table 7: Displaced Households and People

Storm Classification	# of Displaced Households	# of People Needing Short-Term Shelter
Category 1	0	0

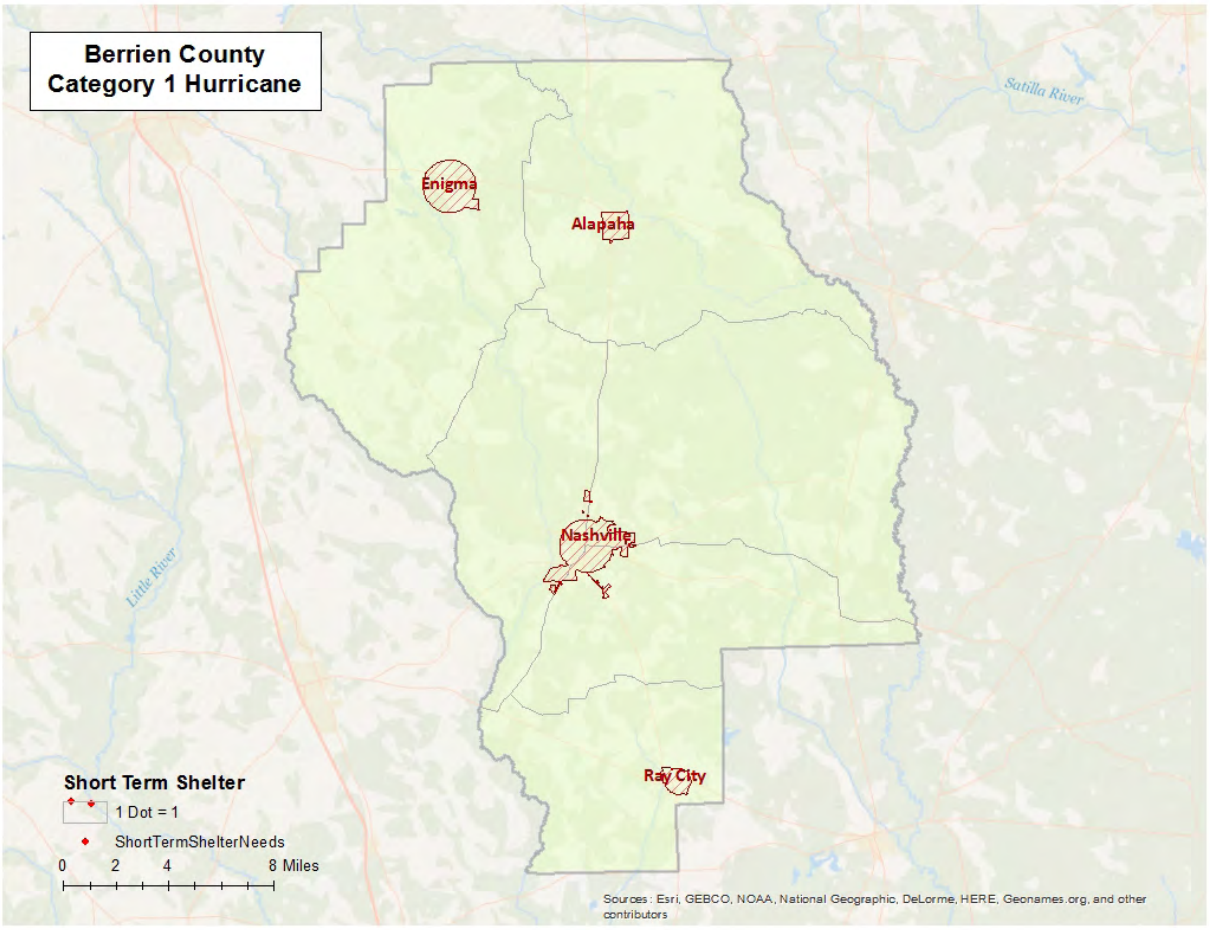


Figure 5: Hurricane Wind Shelter Requirements

Debris Generated from Hurricane Wind

Hazus-MH estimates the amount of debris that will be generated by high velocity hurricane winds and quantifies it into three broad categories to determine the material handling equipment needed:

- Reinforced Concrete and Steel Debris
- Brick and Wood and Other Building Debris
- Tree Debris

Different material handling equipment is required for each category of debris. The estimates of debris for this scenario are listed in Table 8. The amount of hurricane wind related tree debris that is estimated to require pick up at the public's expense is listed in the eligible tree debris column.

Table 8: Wind-Related Debris Weight (Tons)

Storm Classification	Brick, Wood, and Other	Reinforced Concrete/Steel	Tree Debris	Other Tree Debris	Total
Category 1	256	-	2,402	58,209	60,867

Figure 6 shows the distribution of all wind related debris resulting from a Category 1 hurricane. Each dot represents 20 tons of debris within the census tract in which it is located. The dots are randomly distributed within each census tract and therefore do not represent the specific location of debris sites.

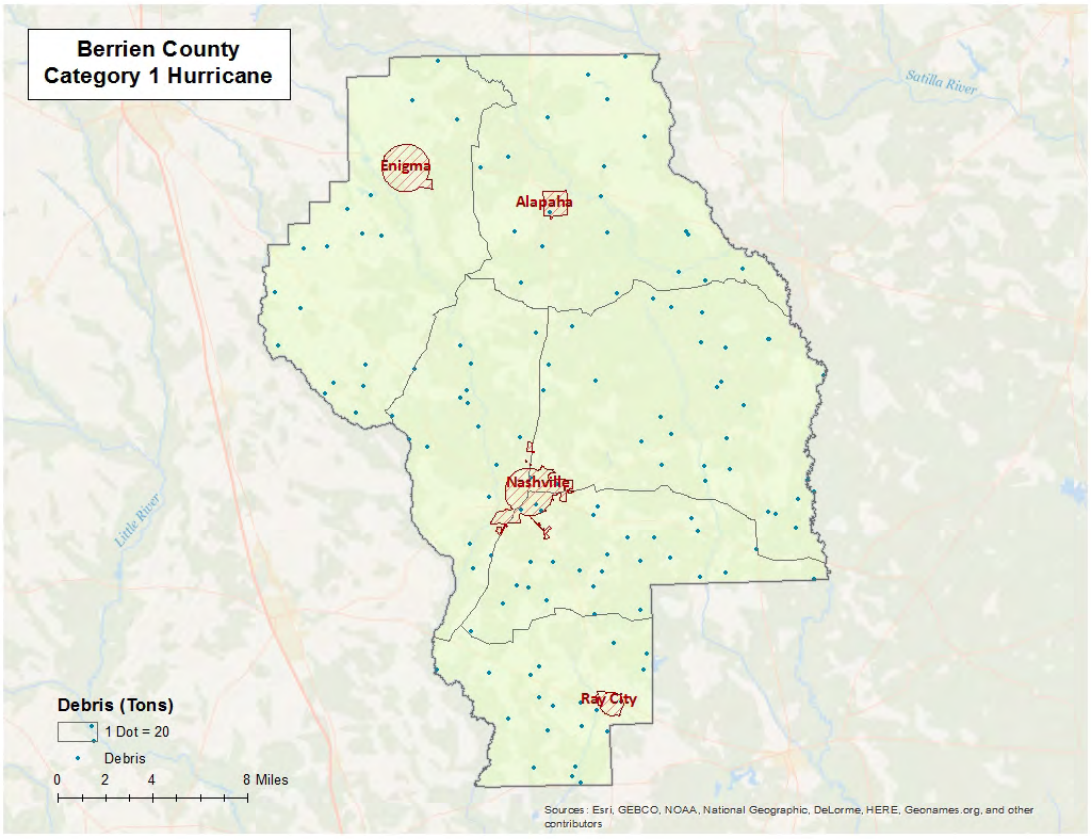


Figure 6: Wind-Related Debris Weight (Tons)

Flood Risk Assessment

Hazard Definition

Flooding is a significant natural hazard throughout the United States. The type, magnitude, and severity of flooding are functions of the amount and distribution of precipitation over a given area, the rate at which precipitation infiltrates the ground, the geometry and hydrology of the catchment, and flow dynamics and conditions in and along the river channel. Floods can be classified as one of three types: upstream floods, downstream floods, or coastal floods.

Upstream floods, also called flash floods, occur in the upper parts of drainage basins and are generally characterized by periods of intense rainfall over a short duration. These floods arise with very little warning and often result in locally intense damage, and sometimes loss of life, due to the high energy of the flowing water. Flood waters can snap trees, topple buildings, and easily move large boulders or other structures. Six inches of rushing water can upend a person; another 18 inches might carry off a car. Generally, upstream floods cause damage over relatively localized areas, but they can be quite severe in the local areas in which they occur. Urban flooding is a type of upstream flood. Urban flooding involves the overflow of storm drain systems and can be the result of inadequate drainage combined with heavy rainfall or rapid snowmelt. Upstream or flash floods can occur at any time of the year in Georgia, but they are most common in the spring and summer months.

Downstream floods, also called riverine floods, refer to floods on large rivers at locations with large upstream catchments. Downstream floods are typically associated with precipitation events that are of relatively long duration and occur over large areas. Flooding on small tributary streams may be limited, but the contribution of increased runoff may result in a large flood downstream. The lag time between precipitation and time of the flood peak is much longer for downstream floods than for upstream floods, generally providing ample warning for people to move to safe locations and, to some extent, secure some property against damage.

Coastal floods occurring on the Atlantic and Gulf coasts may be related to hurricanes or other combined offshore, nearshore, and shoreline processes. The effects of these complex interrelationships vary significantly across coastal settings, leading to challenges in the determination of the base (1-percent-annual-chance) flood for hazard mapping purposes. Land area covered by floodwaters of the base flood is identified as a Special Flood Hazard Area (SFHA). The Berrien County flood risk assessment analyzed at risk structures in the SFHA.

The SFHA is the area where the National Flood Insurance Program's (NFIP) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. The owner of a structure in a high-risk area must carry flood insurance, if the owner carries a mortgage from a federally regulated or insured lender or servicer.

The following probabilistic risk assessment involves an analysis of a 1% annual chance riverine flood event.

Riverine 1% Flood Scenario

Riverine losses were determined from the 1% flood boundaries downloaded from the FEMA Flood Map Service Center in November 2018. The flood boundaries were overlaid with the USGS 10 meter DEM using the Hazus-MH Enhanced Quick Look tool to generate riverine depth grids. The riverine flood depth grid was then imported into Hazus-MH to calculate the riverine flood loss estimates. Figure 7 illustrates the riverine inundation boundary associated with the 1% annual chance. Please note that the riverine flooding may not take into account elevated housing or raised Base Flood Elevation.

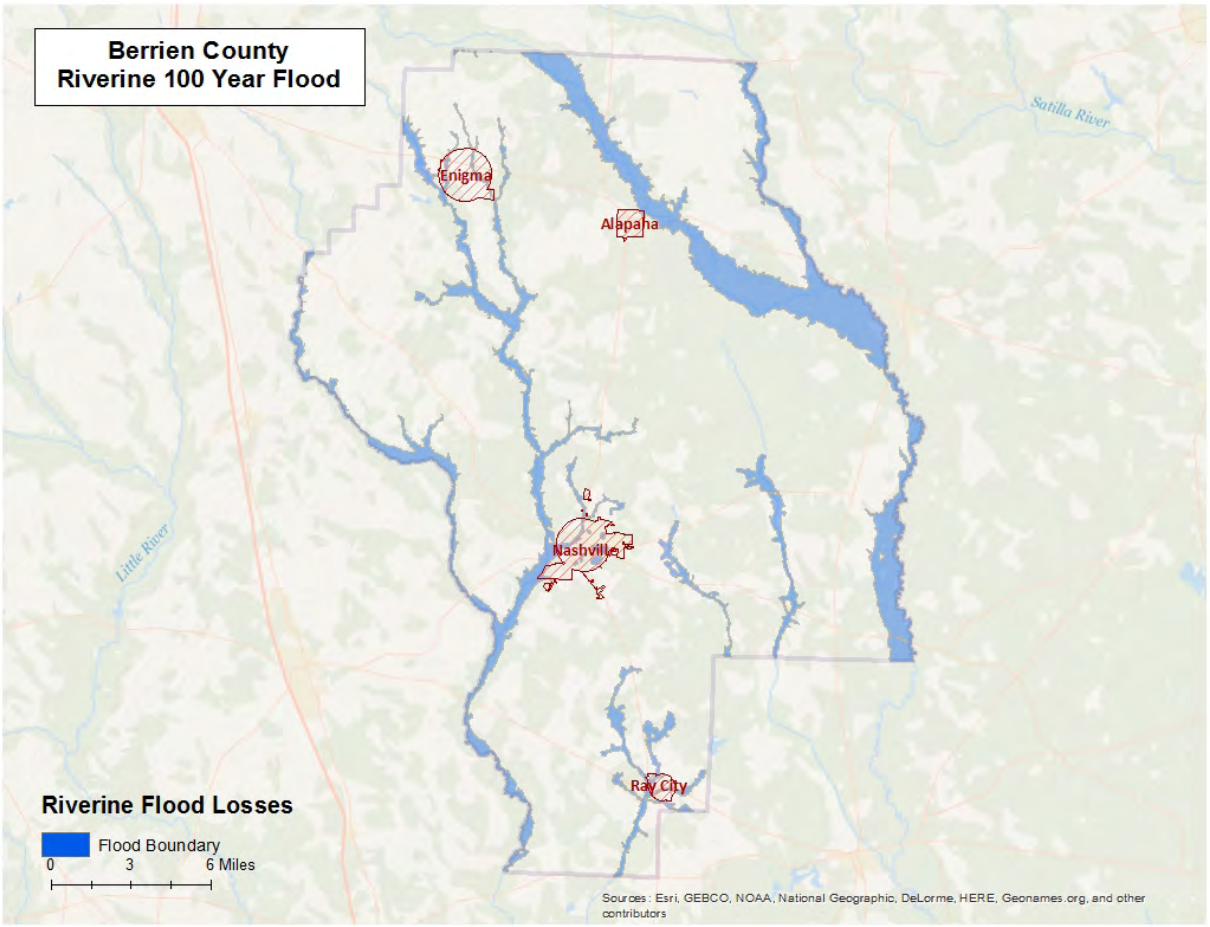


Figure 7: Riverine 1% Flood Inundation

Riverine 1% Flood Building Damages

Buildings in Berrien County are vulnerable to flooding from events equivalent to the 1% riverine flood. The economic and social impacts from a flood of this magnitude can be significant. Table 9 provides a summary of the potential flood-related building damage in Berrien County by jurisdiction that might be experienced from the 1% flood. Figure 8 maps the potential loss ratios of total building exposure to losses sustained to buildings from the 1% flood by 2010 census block and Figure 9 illustrates the relationship of building locations to the 1% flood inundation boundary.

Table 9: Berrien County Riverine 1% Building Losses

Occupancy Classification	Total Buildings	Total Buildings Damaged	Total Building Exposure	Total Losses to Buildings	Loss Ratio of Exposed to Damaged
			Enigma		
Residential	451	3	$ 29,960,862	$ 61,536	0.21%
			Nashville		
Commercial	280	30	$ 162,565,438	$ 457,531	0.28%
Religious	11	1	$ 4,805,878	$ 11,839	0.25%
Residential	1,837	64	$ 248,867,575	$ 1,724,926	0.69%
Industrial	113	19	$ 264,294,773	$ 257,201	0.10%
			Ray City		
Commercial	19	3	$ 4,882,351	$ 61,631	1.26%
Industrial	4	4	$ 1,192,144	$ 410,786	34.46%
Residential	400	14	$ 40,039,829	$ 332,518	0.83%
			Unincorporated		
Commercial	52	2	$ 19,833,835	$ 89,187	0.45%
Residential	5,011	92	$ 506,594,685	$ 2,912,501	0.57%
			County Total		
Total	8,178	232	$ 1,283,037,370	$ 6,319,656	

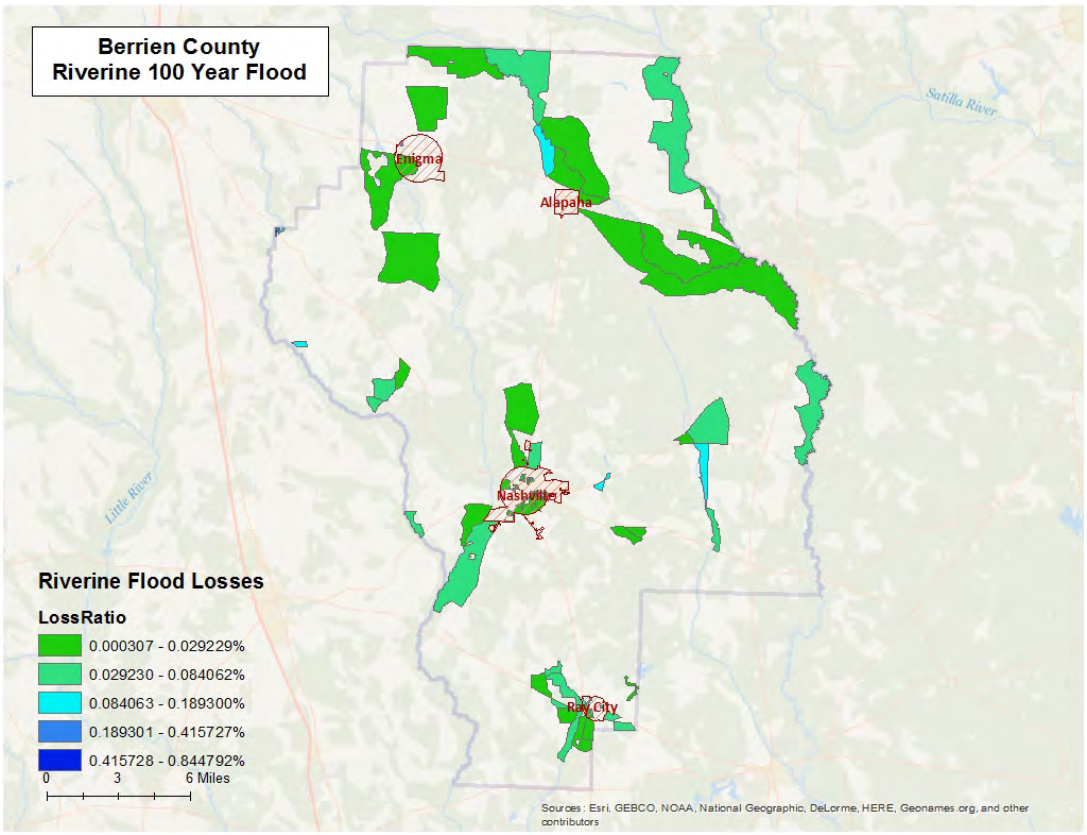


Figure 8: Potential UDF Loss Ratios from the 1% Riverine Flood

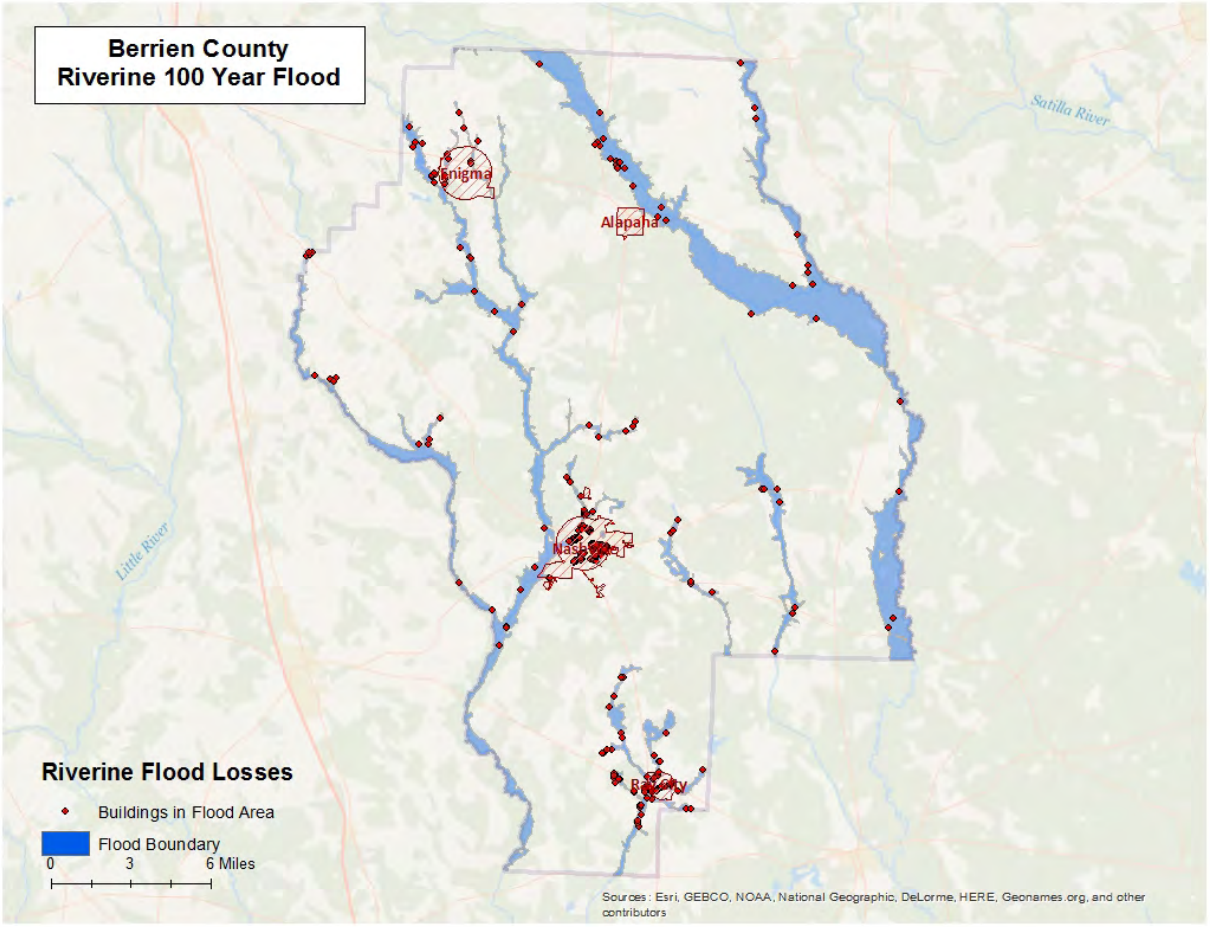


Figure 9: Damaged Buildings in 1% Riverine Flood

Riverine 1% Flood Essential Facility Losses

An essential facility may encounter many of the same impacts as other buildings within the flood boundary. These impacts can include structural failure, extensive water damage to the facility and loss of facility functionality (e.g. a damaged police station will no longer be able to serve the community). The analysis has identified that were 0 Essential Facilities subject to damage in the Berrien County riverine 1% probability floodplain.

Table 10: Expected Damage to Essential Facilities in 1% Riverine Flood

Classification	Total	Moderate	Substantial	Loss of Use
Fire Station	10	0	0	0
Hospitals	2	0	0	0
Police Stations	7	0	0	0
Schools	7	0	0	0
EOCs	0	0	0	0

Riverine 1% Flood Shelter Requirements

Hazus-MH estimates that the number of households that are expected to be displaced from their homes due to riverine flooding and the associated potential evacuation. The model estimates 540 households might be displaced due to the flood. Displacement includes households evacuated within or very near to the inundated area. Displaced households represent 1,620 individuals, of which 648 may require short term publicly provided shelter. The results are mapped in Figure 10. These numbers may be overestimated for two reasons: elevated housing not taken into account and parcel centroids (not aligned exactly with actual structures).

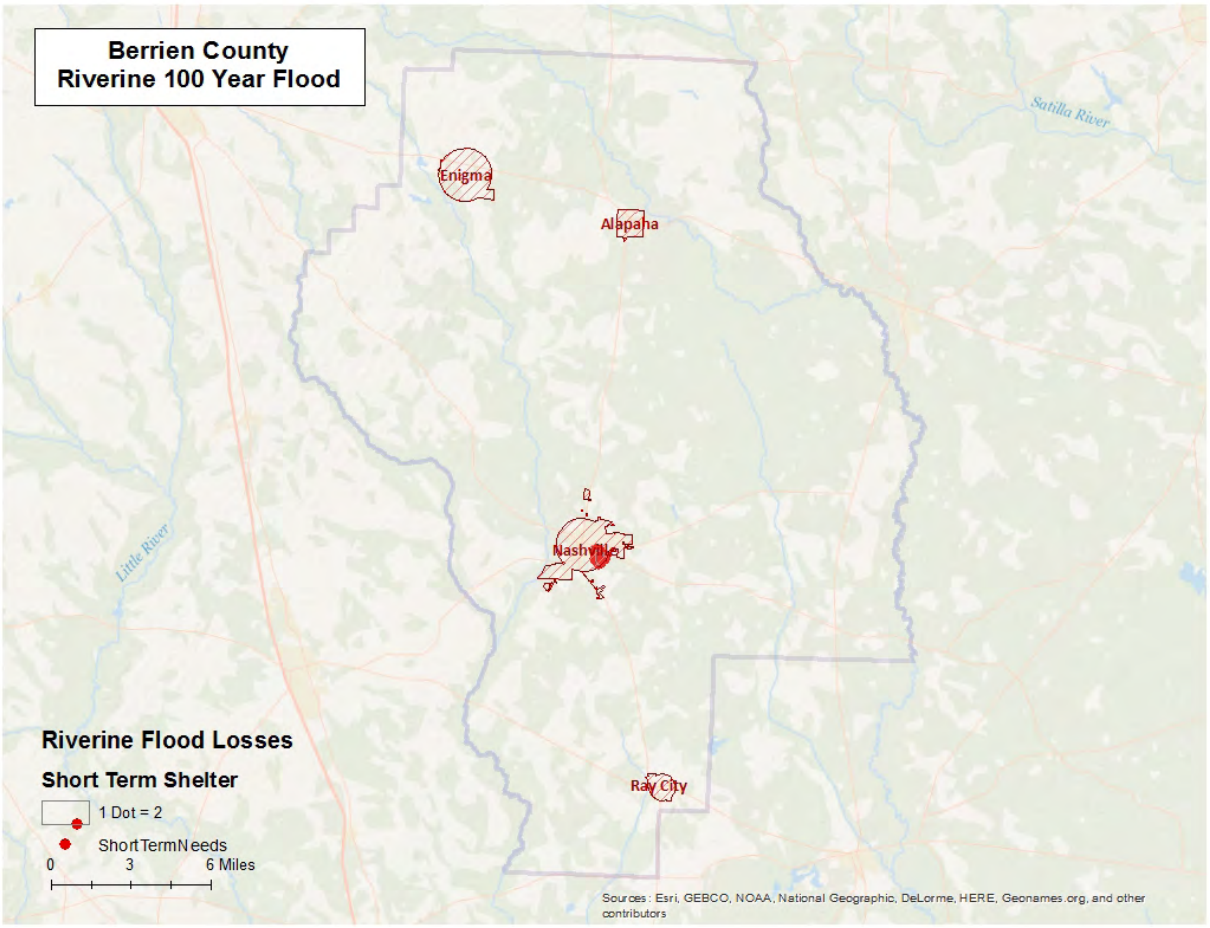


Figure 10: Estimated Flood Shelter Requirements in 1% Riverine Flood

Riverine 1% Flood Debris

Hazus-MH estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories:

- Finishes (dry wall, insulation, etc.)
- Structural (wood, brick, etc.)
- Foundations (concrete slab, concrete block, rebar, etc.)

Different types of material handling equipment will be required for each category. Debris definitions applied in Hazus-MH are unique to the Hazus-MH model and so do not necessarily conform to other definitions that may be employed in other models or guidelines.

The analysis estimates that an approximate total of 4,444 tons of debris might be generated: 1) Finishes – 1,852 tons; 2) Structural - 854 tons; and 3) Foundations- 1,737 tons. The results are mapped in Figure 11.

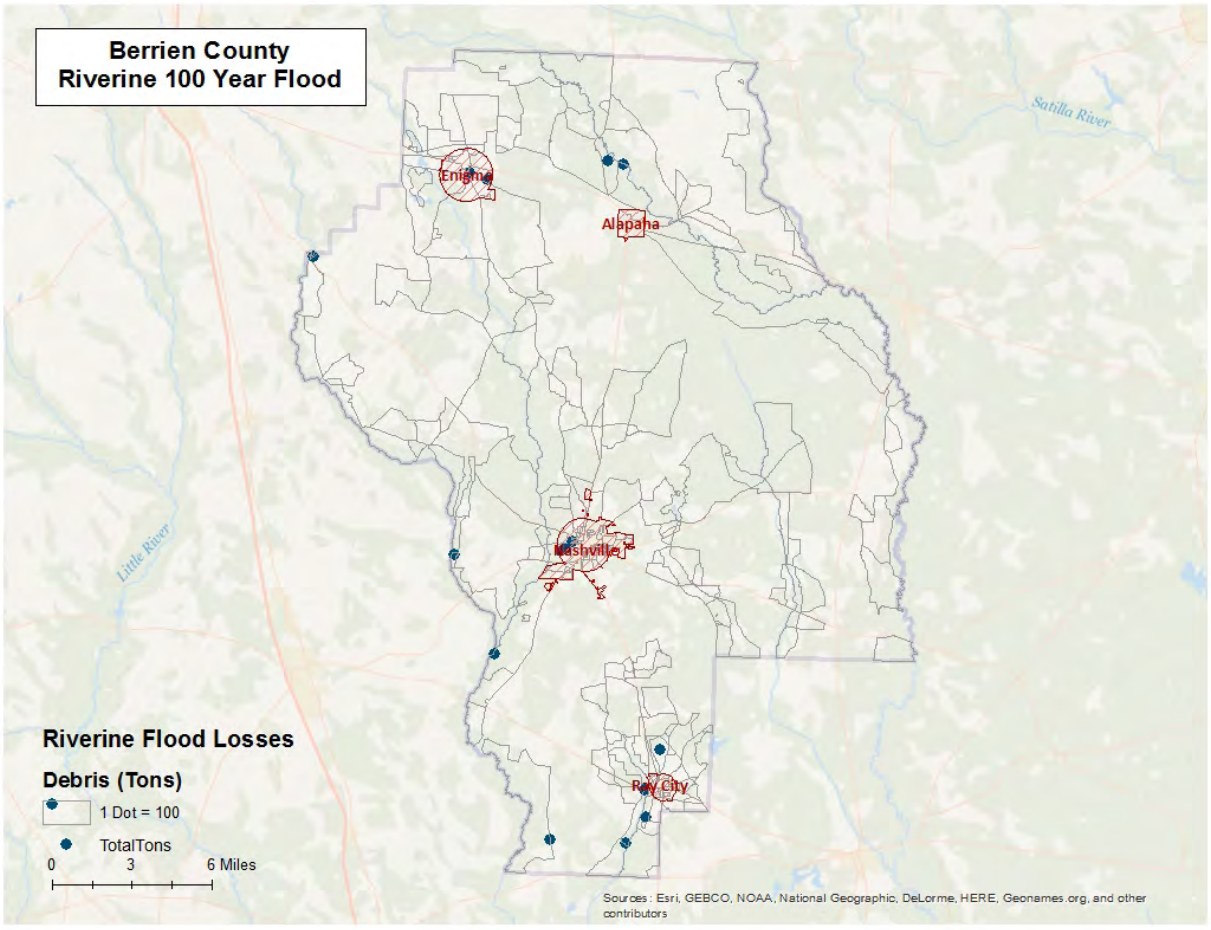


Figure 11: Flood Debris Weight (Tons) in 1% Riverine Flood

Tornado Risk Assessment

Hazard Definition

Tornadoes pose a great risk to the state of Georgia and its citizens. Tornadoes can occur at any time during the day or night. They can also happen during any month of the year. The unpredictability of tornadoes makes them one of Georgia's most dangerous hazards. Their extreme winds are violently destructive when they touch down in the region's developed and populated areas. Current estimates place the maximum velocity at about 300 miles per hour, but higher and lower values can occur. A wind velocity of 200 miles per hour will result in a wind pressure of 102.4 pounds per square foot of surface area—a load that exceeds the tolerance limits of most buildings. Considering these factors, it is easy to understand why tornadoes can be so devastating for the communities they hit.

Tornadoes are defined as violently-rotating columns of air extending from thunderstorms and cyclonic events. Funnel clouds are rotating columns of air not in contact with the ground; however, the violently-rotating column of air can reach the ground very quickly and become a tornado. If the funnel cloud picks up and blows debris, it has reached the ground and is a tornado.

Tornadoes are classified according to the Fujita tornado intensity scale. Originally introduced in 1971, the scale was modified in 2006 to better define the damage and estimated wind scale. The Enhanced Fujita Scale ranges from low intensity EF0 with effective wind speeds of 65 to 85 miles per hour, to EF5 tornadoes with effective wind speeds of over 200 miles per hour. The Enhanced Fujita intensity scale is included in Table 11.

Table 11: Enhanced Fujita Tornado Rating

Fujita Number	Estimated Wind Speed	Path Width	Path Length	Description of Destruction
EF0 *Gale*	65-85 mph	6-17 yards	0.3-0.9 miles	Light damage, some damage to chimneys, branches broken, sign boards damaged, shallow-rooted trees blown over.
EF1 *Moderate*	86-110 mph	18-55 yards	1.0-3.1 miles	Moderate damage, roof surfaces peeled off, mobile homes pushed off foundations, attached garages damaged.
EF2 *Significant*	111-135 mph	56-175 yards	3.2-9.9 miles	Considerable damage, entire roofs torn from frame houses, mobile homes demolished, boxcars pushed over, large trees snapped or uprooted.
EF3 *Severe*	136-165 mph	176-566 yards	10-31 miles	Severe damage, walls torn from well-constructed houses, trains overturned, most trees in forests uprooted, heavy cars thrown about.
EF4 *Devastating*	166-200 mph	0.3-0.9 miles	32-99 miles	Complete damage, well-constructed houses leveled, structures with weak foundations blown off for some distance, large missiles generated.
EF5 *ncredible*	Over 200 mph	1.0-3.1 miles	100-315 miles	Foundations swept clean, automobiles become missiles and thrown for 100 yards or more, steel-reinforced concrete structures badly damaged.

Source: http://www.srh.noaa.gov

Hypothetical Tornado Scenario

For this report, an EF3 tornado was modeled to illustrate the potential impacts of tornadoes of this magnitude in the county. The analysis used a hypothetical path based upon an EF3 tornado event running along the predominant direction of historical tornados (southeast to northwest). The tornado path was placed to travel through Nashville. The selected widths were modeled after a re-creation of the Fujita-Scale guidelines based on conceptual wind speeds, path widths, and path lengths. There is no guarantee that every tornado will fit exactly into one of these categories. Table 12 depicts tornado path widths and expected damage.

Table 12: Tornado Path Widths and Damage Curves

Enhanced Fujita Scale	Path Width (feet)	Maximum Expected Damage
EF5	2,400	100%
EF4	1,800	100%
EF3	1,200	80%
EF2	600	50%
EF1	300	10%

Within any given tornado path there are degrees of damage. The most intense damage occurs within the center of the damage path, with decreasing amounts of damage away from the center. After the hypothetical path is digitized on a map, the process is modeled in GIS by adding buffers (damage zones) around the tornado path. Figure 12 describes the zone analysis.

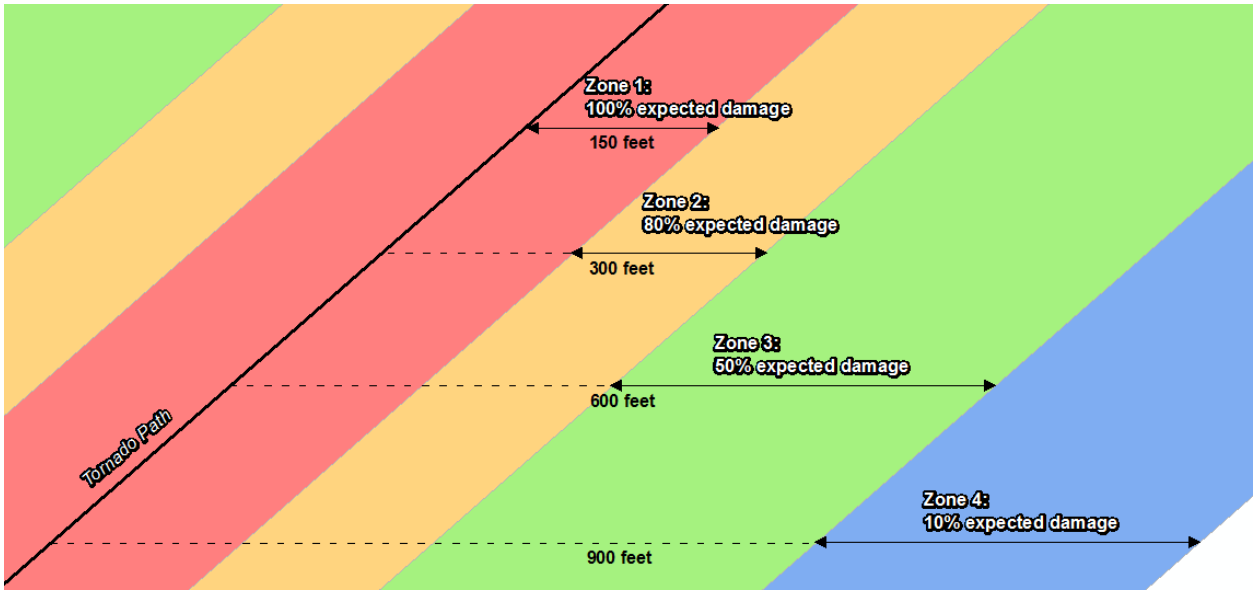


Figure 12: EF Scale Tornado Zones

An EF3 tornado has four damage zones, depicted in Table 13. Major damage is estimated within 150 feet of the tornado path. The outer buffer is 900 feet from the tornado path, within which buildings will not experience any damage. The selected hypothetical tornado path is depicted in Figure 13 and the damage curve buffer zones are shown in Figure 14.

Table 13: EF3 Tornado Zones and Damage Curves

Zone	Buffer (feet)	Damage Curve
1	0-150	80%
2	150-300	50%
3	300-600	10%
4	600-900	0%

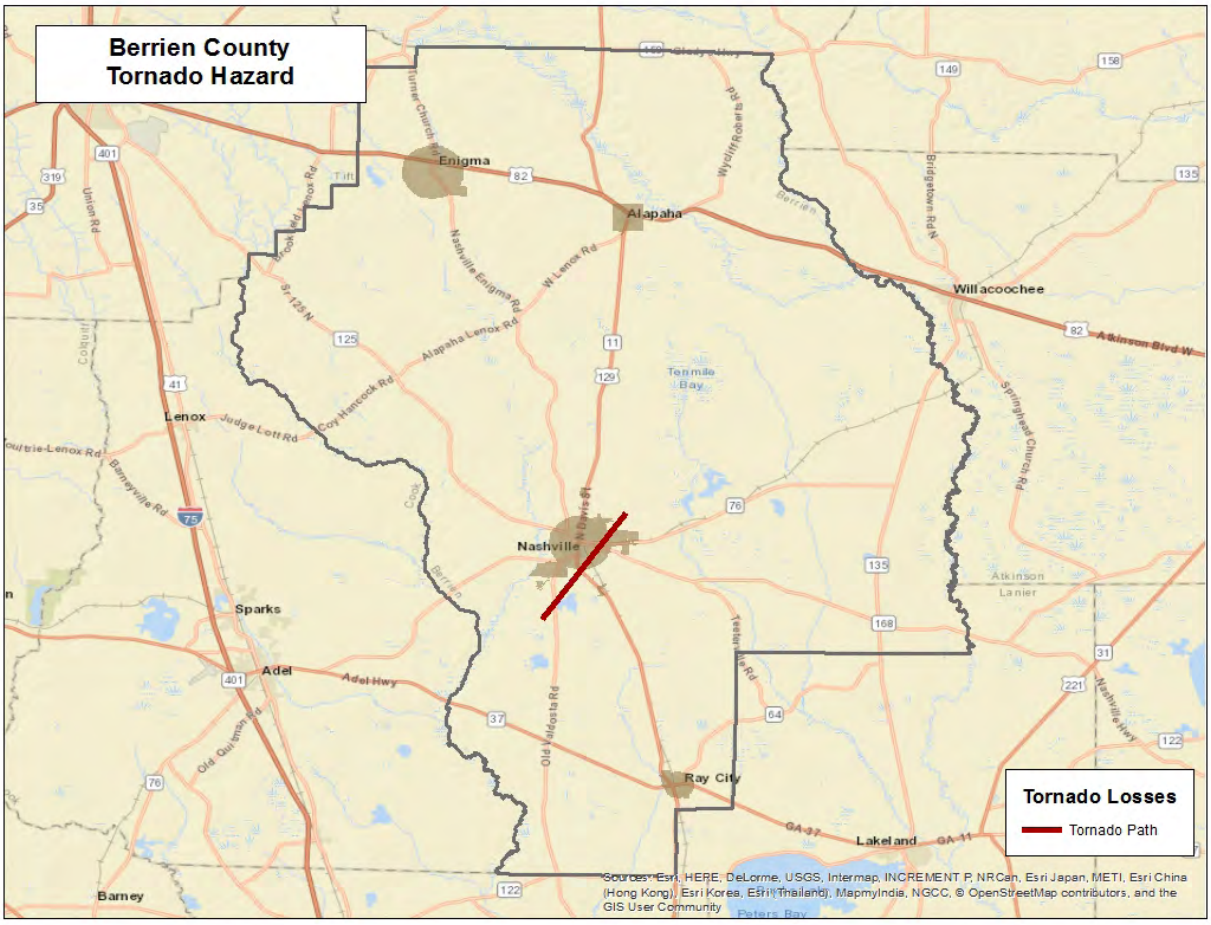


Figure 13: Hypothetical EF3 Tornado Path

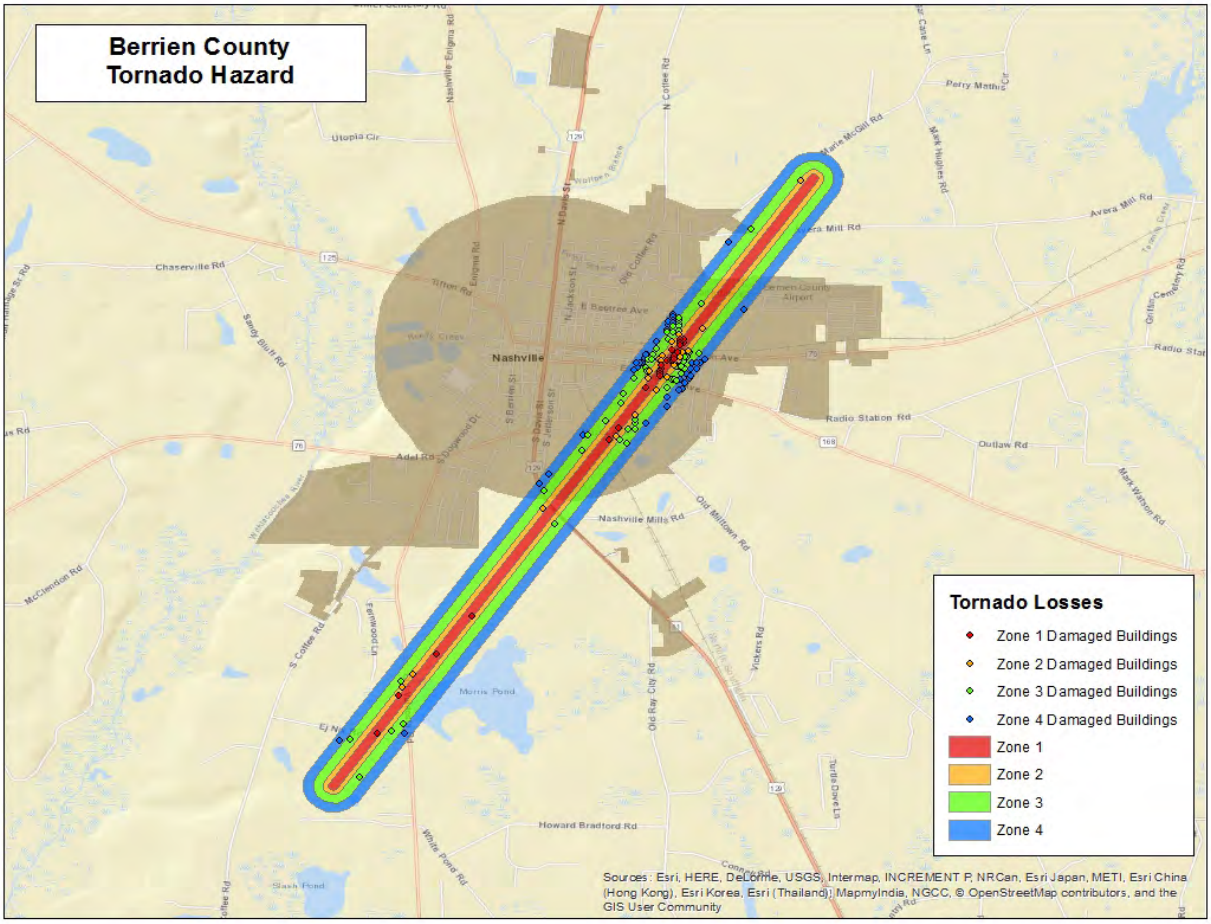


Figure 14: Modeled EF3 Tornado Damage Buffers

EF3 Tornado Building Damages

The analysis estimated that approximately 175 buildings could be damaged, with estimated building losses of approximately $12.4 million. The building losses are an estimate of building replacement costs multiplied by the percentages of damage. The overlay was performed against parcels provided by Berrien County that were joined with Assessor records showing estimated property replacement costs. The Assessor records often do not distinguish parcels by occupancy class if the parcels are not taxable and thus the number of buildings and replacement costs may be underestimated. The results of the analysis are depicted in Table 14.

Table 14: Estimated Building Losses by Occupancy Type

Occupancy Classification	Buildings Damaged	Building Losses	
Commerical	26	$	2,183,451
Industrial	26	$	5,674,682
Religious	2	$	82,019
Residential	121	$	4,487,106
Total	**175**	**$**	**12,427,258**

EF3 Tornado Essential Facility Damage

There were 2 essential facilities located in the tornado path according to the modeling, these 2 facilities would suffer moderate to major damage should such a tornado strike occur.

The location of the damaged Essential Facilities is mapped in Figure 15.

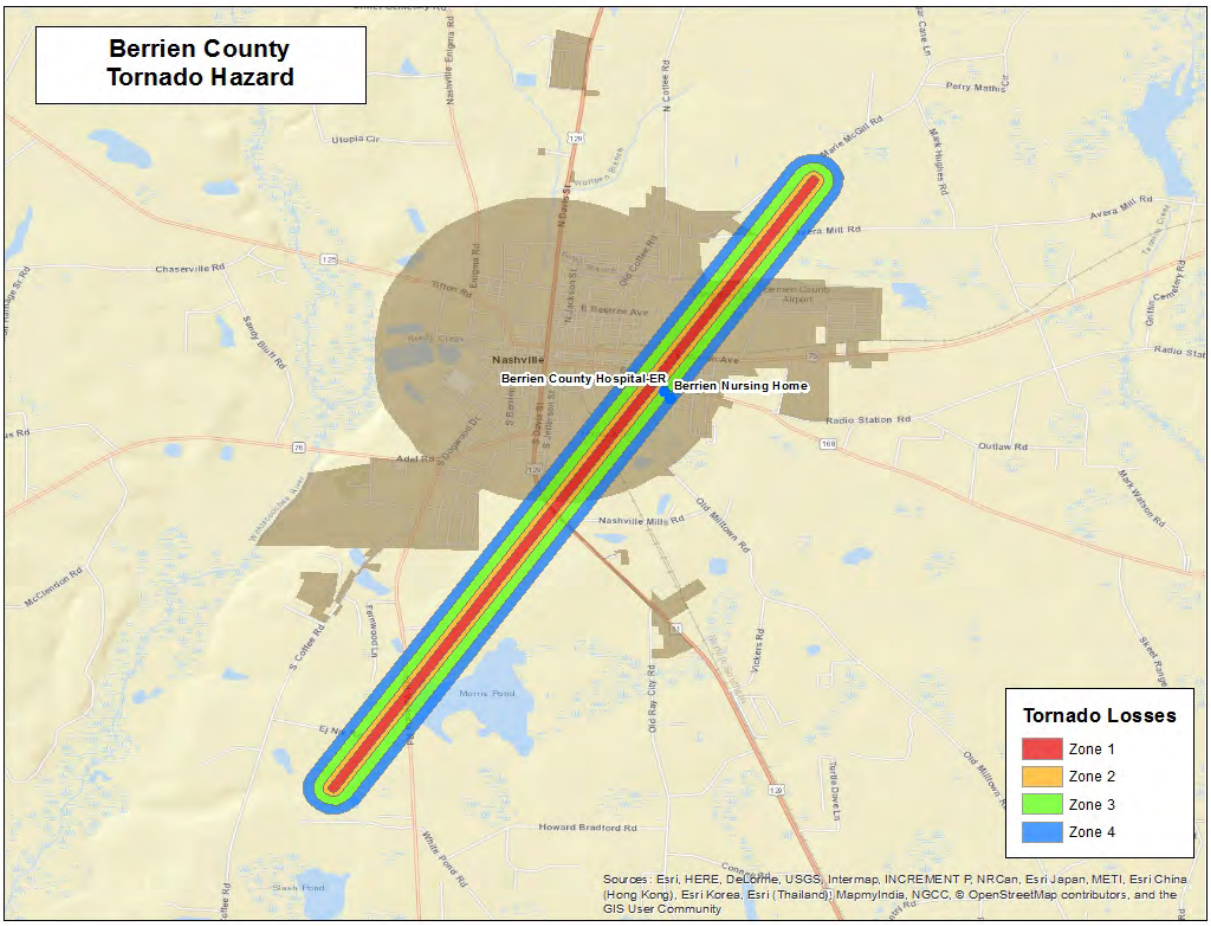


Figure 15: Modeled Essential Facility Damage in Berrien County

Exceptions Report

Hazus Version 2.2 SP1 was used to perform the loss estimates for Berrien County, Georgia. Changes made to the default Hazus-MH inventory and the modeling parameters used to setup the hazard scenarios are described within this document.

Reported losses reflect the updated data sets. Steps, algorithms and assumptions used during the data update process are documented in the project workflow developed by the Polis Center.

Statewide Inventory Changes

The default Hazus-MH Essential Facility inventory was updated for the entire state prior to running the hazard scenarios for Berrien County.

Statewide facility data were supplied by GEMA through the GMIS in November 2018. The Regional Commission updated the essential facilities in 2018. The updated data was used for this analysis. Table 15 summarizes the difference between the original Hazus-MH default data and the updated data for Berrien County.

Table 15: Essential Facility Updates

Occupancy Classification	Default Replacement Cost	Default Count	Updated Replacement Cost	Updated Count
Care	$ 27,657,000	8	$ 138,559,000	2
EOC	$ 880,000	1	$ 880,000	1
Fire	$ 11,248,000	9	$ 6,738,000	10
Police	$ 24,930,000	10	$ 21,685,000	7
School	$ 11,163,000	17	$ 20,942,000	7

County Inventory Changes

The GBS records for Berrien County were replaced with data derived from parcel and property assessment data obtained from Berrien County. The county provided property assessment data was current as of and the parcel November 2018 data current as of November 2018.

General Building Stock Updates

The parcel boundaries and assessor records were obtained from Berrien County. Records without improvements were deleted. The parcel boundaries were converted to parcel points located in the centroids of each parcel boundary unless there were building footprints. Each parcel point was linked to an assessor record based upon matching parcel numbers. The generated Building Inventory represents the approximate locations (within a parcel) of building exposure. The Building Inventory was aggregated by Census Block and imported into Hazus-MH using the Hazus-MH Comprehensive Data Management System (CDMS). Both the 2010 Census Tract and Census Block tables were updated.

The match between parcel records and assessor records was based upon a common Parcel ID. For this type of project, unless the hit rate is better than 85%, the records are not used to update the default aggregate inventory in Hazus-MH. The Parcel-Assessor hit rate for Berrien County was 99.6%.

Adjustments were made to records when primary fields did not have a value. In these cases, default values were applied to the fields. Table 16 outlines the adjustments made to Berrien County records.

Table 16: Building Inventory Default Adjustment Rates

Type of Adjustment	Building Count	Percentage
Area Unknown	292	8%
Construction Unknown	317	8%
Condition Unknown	269	7%
Foundation Unknown	332	9%
Year Built Unknown	216	6%

Portions of the CAMA values were either missing (<Null> or '0'), did not match CAMA domains or were unusable ('Unknown', 'Other', 'Pending'). These were replaced with 'best available' values. Missing YearBuilt values were populated from average values per Census Block. Missing Condition, Construction and Foundation values were populated with the highest-frequency CAMA values per Occupancy Class. Missing Area values were populated with the average CAMA values per Occupancy Class.

The resulting Building Inventory was used to populate the Hazus-MH General Building Stock and User Defined Facility tables. The updated General Building Stock was used to calculate flood and tornado losses. Changes to the building counts and exposure that were modeled in Berrien County are sorted by General Occupancy in Table 1 at the beginning of this report. If replacements cost or building value were not present for a given record in the Assessor data, replacement costs were calculated from the Building Area (sqft) multiplied by the Hazus-MH RS Means ($/sqft) values for each Occupancy Class.

Differences between the default and updated data are due to various factors. The Assessor records often do not distinguish parcels by occupancy class when the parcels are not taxable; therefore, the total number of buildings and the building replacement costs for government, religious/non-profit, and education may be underestimated.

User Defined Facilities

Local parcel and CAMA data were used to develop points representing the locations of buildings in the county, referred to as User Defined Facilities (UDF) in the Hazus model. For the flood model, this includes only buildings located in the 1% Annual Chance Riverine Flood Area. Table 17 identifies the total building count & exposure for the county and the total building count & exposure for buildings located in the 1% Annual Chance Riverine Flood Area.

Table 17: Building Count and Exposure for County and Riverine Flood Area

Feature	Counts	Exposure
Total buildings in the County	8,678	$1,559,754,507
Total buildings inside the 1% Annual Chance Riverine Flood Area	473	$89,940,823

It should be noted that UDFs are only used in the flood modeling process, due to the fact that it is important to identify if individual buildings are located within the flood area to obtain the depth of flood.

Assumptions

- Flood analysis was performed on UDF. The point locations are parcel centroid accuracy.
- The analysis is restricted to the county boundary within the flood area. Events that occur near the county boundary do not contain loss estimates from adjacent counties.
- The following attributes were defaulted or calculated:
  First Floor Height was set from Foundation Type
  Content Cost was calculated from Building Cost