Town of Edisto Beach

- January 3, 2018: Following the storm, very cold air persisted across the region allowing snow to stay on the ground and on area roadways. An estimated four to five inches of snow was reported in the area.

Town of Lodge

- January 3, 2018: The event began as rain for many areas before changing over to snow. Reports were received of two inches in the area.

Town of Smoaks

- February 12, 2014: A major ice storm occurred with one to three quarters of an inch of ice accumulation. The heaviest amounts were reported west of Interstate 95.

City of Walterboro

- February 12, 2014: The combination of moisture associated with the passing low and cold temperatures caused light rain to freeze during early morning hours. The media reported light icing on metal surfaces in the area.

Town of Williams

- The town has experienced winter weather between 2012-2019 with no notable events.

Hampton County

Between 2012-2019, there was average of less than one-half day of winter weather per year across the county. Some notable events include:

- January 28, 2014: Temperatures were near or below freezing at many locations through January 31, 2014. One quarter of an inch of ice was reported. There was also a tree reported down on Highway 68 near the Bing Street intersection due to the weight of ice accumulation.
- February 12, 2014: Storm total ice accumulations across the county ranged from one quarter to one half of an inch. Numerous trees and large tree limbs were reported down due to ice. Also, a car crashed into a downed tree in icy conditions resulting in one death and two injuries.
- January 3, 2018: Hampton County Emergency Management reported that storm total snowfall ranged between 2 and 4 inches across the county.

Town of Estill

- January 3, 2018: Storm totaled snowfall of two inches across the town with no damage reported.

Town of Hampton

- January 3, 2018: Storm totaled snowfall of two inches across the town with no damage reported.

Town of Yemassee

- February 12, 2014: A major ice storm occurred with one to three quarters of an inch of ice accumulation. Numerous large tree limbs were down due to ice.

Towns of Brunson, Furman, Gifford, Luray, Scotia, and Varnville

- These towns have experienced winter weather between 2012-2019 with no notable events.

Jasper County

There were three winter storm events across the county between 2012-2019. Some notable events include:

- February 12, 2014: Storm totaled ice accumulation across inland portions of Jasper County ranged from trace amounts up to one quarter of an inch. Ice accumulation was confined to areas west of Interstate 95 and north of Highway 336. The highest ice accumulation amounts were in and around Grays and Robertville.
- January 28, 2014: Temperatures were near or below freezing at many locations. Jasper County law enforcement reported that an ice-covered large tree limb fell onto power lines along Grays Highway near the Mill Pond Road intersection.
- January 3, 2018: Most of the precipitation fell as snow, with amounts ranging from two to four inches of snow in the coastal portion of the county.

City of Hardeeville

- The city has experienced winter weather between 2012-2019 with no notable events.

Town of Ridgeland

- February 12, 2014: Storm totaled ice accumulation across inland portions of Jasper County ranged from trace amounts up to one quarter of an inch. Ice accumulation was confined to areas west of Interstate 95 and north of Highway 336. The highest ice accumulation amounts were in and around Ridgeland.
- January 3, 2018: Three to four inches of snow was measured around Ridgeland. The highest amount in the county was 6 inches which was received via social media just east of Ridgeland. In addition to the snow, the event began as freezing rain.

Future Probability

The future probability of winter storm events is low in the Lowcountry region, with less than 50% chance of occurring in any given year in all counties (Table 30).

Table 30: Winter Historical and Recent Hazards Events 1996-2019

	Total Number	Years in Data Record	Annualized Count	Recurrence Frequency (in years)	Future Probability (% chance/year)	Total Number 2012-2019
Beaufort County	**6**	**24**	**0.3**	**4.00**	**25%**	**4**
City of Beaufort	6	24	0.3	4.00	25%	4
Town of Bluffton	6	24	0.3	4.00	25%	4
Town of Hilton Head Island	6	24	0.3	4.00	25%	4
Town of Port Royal	6	24	0.3	4.00	25%	4
Colleton County	**10**	**24**	**0.4**	**2.40**	**42%**	**4**
Town of Cottageville	10	24	0.4	2.40	42%	3
Town of Edisto Beach	5	24	0.2	4.80	21%	2
Town of Lodge	10	24	0.4	2.40	42%	3
Town of Smoaks	10	24	0.4	2.40	42%	3
City of Walterboro	10	24	0.4	2.40	42%	3
Town of Williams	10	24	0.4	2.40	42%	3
Hampton County	**7**	**24**	**0.3**	**3.43**	**29%**	**3**
Town of Brunson	7	24	0.3	3.43	29%	3
Town of Estill	7	24	0.3	3.43	29%	3
Town of Furman	7	24	0.3	3.43	29%	3
Town of Gifford	7	24	0.3	3.43	29%	3
Town of Hampton	7	24	0.3	3.43	29%	3
Town of Luray	7	24	0.3	3.43	29%	3
Town of Scotia	7	24	0.3	3.43	29%	3
Town of Varnville	7	24	0.3	3.43	29%	3
Town of Yemassee	7	24	0.3	3.43	29%	3
Jasper County	**6**	**24**	**0.3**	**4.00**	**25%**	**3**
City of Hardeeville	6	24	0.3	4.00	25%	3
Town of Ridgeland	6	24	0.3	4.00	25%	3

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

3.12 COASTAL EROSION

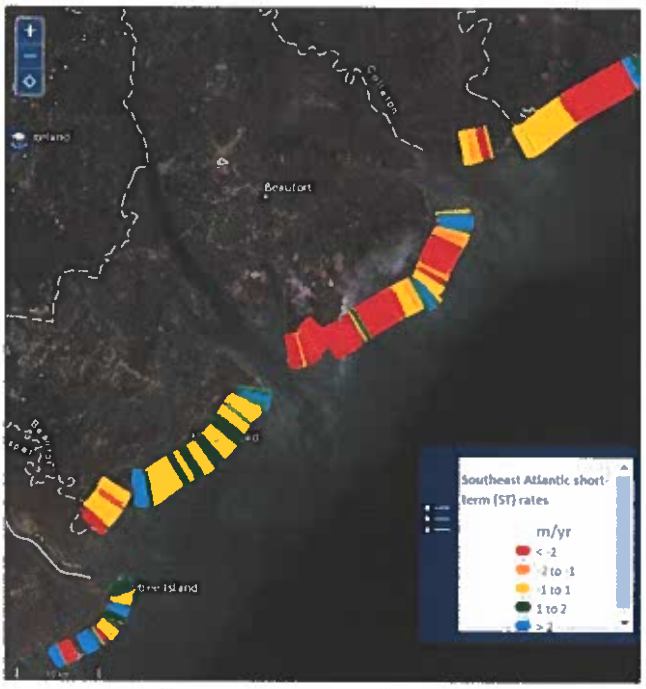
Characteristics and Classification

Changes in the coastline occur in both long-term and short-term time frames due to the characteristics of the shore, ocean currents, tides, winds, extreme weather events, and human practices.

According to the national database of short-term shoreline change (USGS, 2020b), short-term rates (less than 30 years) of change for Lowcountry open-ocean sandy beaches show erosion (negative shoreline change) averaging two meters per year in Beaufort County (Hunting and Fripp Islands), while Hilton Head Island shows a relatively stable profile or positive change (accretion) (see Figure 36).

South Carolina's Department of Health and Environmental Control (SCDHEC) (2010) maintains and reviews jurisdictional lines at beaches, thereby tracking changes in the coast over time. Given the Lowcountry's position on the Atlantic coast it is prone to significant losses via coastal erosion.

Figure 36: Short-Term Coastal Erosion Rates



Source: US Geological Survey (USGS)

Coastal erosion is a natural process with the potential for erosion determined by soil characteristics, vegetative cover, topography, and climate. Major storms can cause coastal erosion due to high winds blowing the sand off beaches, as well as high surf and storm surge which moves the sand landward. Human intervention in the natural system such as development and construction in riparian areas, as well as along the coast, can accelerate erosion. Rising sea levels due to climate change also contribute to increasing erosion rates.

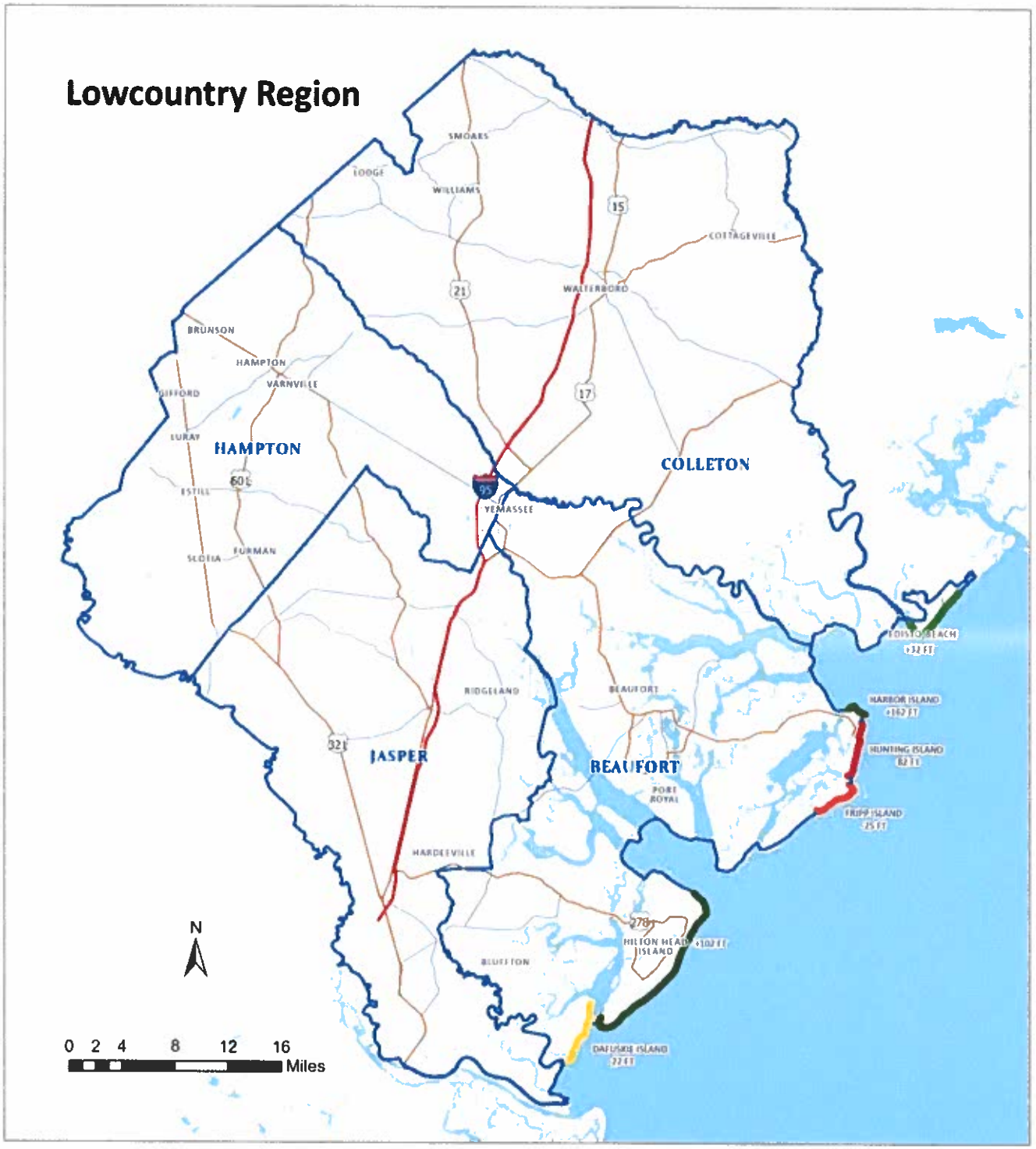
Location and Extent

Beaufort and Colleton Counties

The most recent evaluation of beach erosion rates is the 2010 DHEC-OCRM study (Shoreline Change Advisory Committee, 2010), which shows Edisto Beach (Colleton County), Hunting Island (Beaufort County), Hilton Head Island (Beaufort County), and Daufuskie Island (Beaufort County) as major areas of concern (see Figure 37). According to the recent measurements of beach profiles on the OCRM Beach Erosion Research and Monitoring Profile Viewer (B.E.R.M. Explorer), the lines represent changes from the most seaward jurisdictional lines based on the 2018 Beachfront Management Reform Act (determined by baselines established by 2008-2012 setback lines or newer setback lines proposed by SCDHEC in 2017).

The viewer also provides shoreline rate changes (erosion or accretion) along with baseline and setback lines (SCDHEC, 2020). While Figure 36 (above) shows the short-term natural erosion rates, Figure 37 illustrates changes in the shoreline where erosion (shown in red, orange, and yellow) occurred, and beach shorelines with accretion (shown in light and dark green), mostly through sand replenishment projects.

Figure 37: Average Change in Waterline per Beach 2014-2018



Source: SC Department of Health and Environmental Control (SCDHEC)

Table 31 presents the number and costs of beach re-nourishment projects permitted by SCDHEC-OCRM from 1977-2020.

Table 31: Beach Nourishment Projects 1977-2020

Project Location	Total Number	Number/Cost since 2015 ($m)	Local Cost ($m)	Private Cost ($m)	State Cost ($m)	Federal Cost ($m)	Total Cost ($m)
Daufuskie	1	0	0	6	0	0	6
Edisto Beach	3	1/$18.8	10.5	0	14.7	3	28.2
Hilton Head Island	8	2/$31.9	76.5	0	7.3	0	83.8
Hunting Island	4	0	0	0	7.3	4.2	11.5
Total	16	3/$50.7	87.0	6.0	29.3	7.2	129.5

Source: SC Department of Health and Environmental Control (SCDHEC)

Hilton Head Island and Fripp Island, in Beaufort County, are both experiencing changing coastal conditions due to the dynamic nature of erosion/accretion processes. These dynamic conditions can influence wave motions and currents, creating a potentially hazardous situation for swimmers and beachgoers. For the 2012-2019 period, there were three notable events related to the coastal erosion occurrences including:

- July 14, 2013: Reported by law enforcement, four people were caught in the rip current at Fripp Island and three people died due to drowning.
- August 19, 2017: A Beaufort County Emergency Manager confirmed a rip current along the southern end of Hilton Head Island in the Sea Pines vicinity which led to one death due to drowning. Two people were rescued from the rip current approximately 200 yards from the beach and were transported to a hospital.
- August 20, 2017: A lifeguard observed 15 rip currents and reported one person rescued from the water between Coligny Beach Park and the Sonesta Resort at Hilton Head Island.

Future Probability

Given the dynamic nature of coastal zones in terms of sediment erosion and accretion, it is impossible to compute specific past occurrences of coastal erosion events and their recurrence intervals. The future probability of coastal erosion is high given the dynamic nature of sediment transport, sea level rise, and development/recreational demands of the beach resources in the region.

3.13 EXTREME HEAT

Characteristics and Classification

Extreme heat is classified as heat indices that exceed the average that an area usually experiences in the summertime. This means different areas have different thresholds for what constitutes extreme heat. The heat index (the apparent temperature) accounts for both the measured air temperature as well as the humidity. Extreme heat can affect's a person's ability to keep their body temperature from raising, leading to heat-related illness such as heat stroke, heat exhaustion, and possibly death. Although the old and very young are at the most risk to be affected, anyone who is not careful can experience heat related illness. (CDC, 2020).

According to the National Weather Service (NWS) (2020d), Charleston Office considers heat risks when the heat index reaches 95 degrees and issues advisories and warnings (Table 32). The hazards associated with extreme heat impair human health and include heat cramps, heat exhaustion, and heatstroke. Heat stroke is life threatening and occurs when the body is unable to prevent a substantial rise in its core temperature. It often includes loss of consciousness, mental confusion, convulsions, and a fast heart rate, all of which can become life threatening.

Table 32: Risk Level Classification

Risk Level	Definition
None	Maximum Apparent Temperature < 95
Limited	Maximum Apparent Temperature 95 to 104
Elevated	Maximum Apparent Temperature 105 to 109 or Maximum Apparent Temperature greater than or equal to 100 for 4 consecutive days.
Significant	Maximum Apparent Temperature 110 to 114 or Maximum Apparent Temperature greater than or equal to 105 for 4 consecutive days.
Extreme	Maximum Apparent Temperature greater than or equal to 115 or Maximum Apparent Temperature greater than or equal to 105 for 5 consecutive days.

Source: National Weather Service (NWS)

Location and Extent

In August 1999, heat and humidity combined to produce heat indices ranging from 110-120 degrees in the Lowcountry region, with an all-time record for Beaufort County tied. There was one death associated with this event. Another heat wave in July 2010 produced a heat index value of 116 degrees at the Beaufort Marine Corps Station (NCEI, 2020b).

All Counties and Municipalities

- There were no extreme heat events in the period 2012-2019.

Future Probability

As shown in Table 33, the future probability of extreme heat events in the Lowcountry region is relatively low, with less than 100% chance of occurring in any given year.

Table 33: Extreme Heat Historical and Recent Hazards Events 1996-2019

	Total Number	Years in Data Record	Annualized Count	Recurrence Frequency (in years)	Future Probability (% chance/year)	Total Number 2012-2019
Beaufort County	**14**	**24**	**0.6**	**1.71**	**58%**	**0**
City of Beaufort	14	24	0.6	1.71	58%	0
Town of Bluffton	14	24	0.6	1.71	58%	0
Town of Hilton Head Island	14	24	0.6	1.71	58%	0
Town of Port Royal	14	24	0.6	1.71	58%	0
Colleton County	**9**	**24**	**0.4**	**2.67**	**38%**	**0**
Town of Cottageville	9	24	0.4	2.67	38%	0
Town of Edisto Beach	9	24	0.4	2.67	38%	0
Town of Lodge	9	24	0.4	2.67	38%	0
Town of Smoaks	9	24	0.4	2.67	38%	0
City of Walterboro	9	24	0.4	2.67	38%	0
Town of Williams	9	24	0.4	2.67	38%	0
Hampton County	**5**	**24**	**0.2**	**4.80**	**21%**	**0**
Town of Brunson	5	24	0.2	4.80	21%	0
Town of Estill	5	24	0.2	4.80	21%	0
Town of Furman	5	24	0.2	4.80	21%	0
Town of Gifford	5	24	0.2	4.80	21%	0
Town of Hampton	5	24	0.2	4.80	21%	0
Town of Luray	5	24	0.2	4.80	21%	0
Town of Scotia	5	24	0.2	4.80	21%	0
Town of Varnville	5	24	0.2	4.80	21%	0
Town of Yemassee	5	24	0.2	4.80	21%	0
Jasper County	**7**	**24**	**0.3**	**3.43**	**29%**	**0**
City of Hardeeville	7	24	0.3	3.43	29%	0
Town of Ridgeland	7	24	0.3	3.43	29%	0

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

3.14 OVERALL HAZARD OCCURRENCE AND FUTURE PROBABILITY

Below are the summary tables (Tables 34-38) for the combined Lowcountry region and by each county. These tables illustrate the number of hazard events by type, years in data record, annual event, recurrence interval, future probability (percent change of occurrence), and number of recent events.

Table 34: Lowcountry Summary of Historical and Recent Hazards Events

Hazards	Total Number	Years in Data Record	Annualized Count	Recurrence Frequency (in years)[2]	Future Probability (% chance/year)	Total Number 2012-2019
Tornado	49	33	1.5	0.67	148%	8
Hurricane	28[1]	32	8.8	1.14	88%	8
Windstorm	292[1]	24	121.7	0.82	1,215%	163
Lightning	101,272	21	4,822.5	0.0002	482,248%	129,564
Hail	204	31	6.6	0.15	648%	38
Drought	374[1]	20	187.1	0.05	1,870%	120[1]
Earthquake	n/a	n/a	n/a	n/a	n/a	n/a
Wildfire	12,484	32	390.1	0.003	39,013%	1,399
Flood	73	24	3.0	0.33	304%	33
Winter Storm	29	24	1.2	0.83	121%	14
Coastal Erosion	n/a	n/a	n/a	n/a	n/a	n/a
Extreme Heat	9[1]	24	3.8	2.67	38%	0

Note: [1]Event occurred in multiple counties on the same day. Therefore, the regional summary used the average of all county events to avoid inflating the actual number of discrete events. [2]Recurrence frequency less than one indicate high frequency events on the order of seasonal, monthly, or weekly time frames with multiple occurrences within a one-year time frame.
Source: Hazards and Vulnerability Research Institute (HVRI)

Table 35: Beaufort County Summary of Historical and Recent Hazards Events

Hazards	Total Number	Years in Data Record	Annualized Count	Recurrence Frequency (in years)	Future Probability (% chance/year)	Total Number 2012-2019
Tornado	17	33	0.5	1.94	52%	2
Hurricane	28	32	0.9	1.14	88%	8
Windstorm	268	24	11.2	0.09	1,117%	148
Lightning	20,166	21	960.3	0.00	96,029%	32,481
Hail	67	31	2.2	0.46	216%	13
Drought	342	20	17.1	0.06	1,710%	107
Earthquake	n/a	n/a	n/a	n/a	n/a	n/a
Wildfire	1,728	32	54.0	0.02	5,400%	137
Flood	32	24	1.3	0.75	133%	22
Winter Storm	6	24	0.3	4.0	25%	4
Coastal Erosion	n/a	n/a	n/a	n/a	n/a	n/a
Extreme Heat	14	24	0.6	1.71	58%	0

Note: Recurrence frequency less than one indicate high frequency events on the order of seasonal, monthly, or weekly time frames with multiple occurrences within a one-year time frame.
Source: Hazards and Vulnerability Research Institute (HVRI)

Table 36: Colleton County Summary of Historical and Recent Hazards Events

Hazards	Total Number	Years in Data Record	Annualized Count	Recurrence Frequency (in years)	Future Probability (% chance/year)	Total Number 2012-2019
Tornado	17	33	0.5	1.94	52%	4
Hurricane	28	32	0.9	1.14	88%	8
Windstorm	440	24	18.3	0.05	1,833%	244
Lightning	34,597	21	1,47.5	0.00	164,748%	42,333
Hail	73	31	2.4	0.42	235%	15
Drought	352	20	17.6	0.06	1,760%	108
Earthquake	n/a	n/a	n/a	n/a	n/a	n/a
Wildfire	4,910	32	153.4	0.01	15,343%	607
Flood	23	24	1.0	1.04	96%	19
Winter Storm	10	24	0.4	2.4	42%	4
Coastal Erosion	n/a	n/a	n/a	n/a	n/a	n/a
Extreme Heat	9	24	0.4	2.67	38%	0

Note: Recurrence frequency less than one indicate high frequency events on the order of seasonal, monthly, or weekly time frames with multiple occurrences within a one-year time frame.
Source: Hazards and Vulnerability Research Institute (HVRI)

Table 37: Hampton County Summary of Historical and Recent Hazards Events

Hazards	Total Number	Years in Data Record	Annualized Count	Recurrence Frequency (in years)	Future Probability (% chance/year)	Total Number 2012-2019
Tornado	8	33	0.2	4.13	24%	1
Hurricane	28	32	0.9	1.14	88%	8
Windstorm	196	24	8.2	0.12	817%	103
Lightning	19,914	21	900.7	0.00	90,067%	21,509
Hail	31	31	1.0	1.00	100%	3
Drought	406	20	20.3	0.05	2,030%	133
Earthquake	n/a	n/a	n/a	n/a	n/a	n/a
Wildfire	2,075	32	64.8	0.02	6,484%	268
Flood	8	24	0.3	3.0	33%	13
Winter Storm	7	24	0.3	3.4	29%	3
Coastal Erosion	n/a	n/a	n/a	n/a	n/a	n/a
Extreme Heat	5	24	0.2	4.80	21%	0

Note: Recurrence frequency less than one indicate high frequency events on the order of seasonal, monthly, or weekly time frames with multiple occurrences within a one-year time frame.
Source: Hazards and Vulnerability Research Institute (HVRI)

Table 38: Jasper County Summary of Historical and Recent Hazards Events

Hazards	Total Number	Years in Data Record	Annualized Count	Recurrence Frequency (in years)	Future Probability (% chance/year)	Total Number 2012-2019
Tornado	6	33	0.2	5.5	18%	1
Hurricane	28	32	0.9	1.14	88%	8
Windstorm	262	24	10.9	0.09	1,092%	156
Lightning	27,595	21	1,314.0	0.00	131,405%	33,241
Hail	33	31	1.1	0.94	106%	7
Drought	396	20	19.8	0.05	1,980%	132
Earthquake	n/a	n/a	n/a	n/a	n/a	n/a
Wildfire	3,771	32	117.8	0.01	11,784%	387
Flood	10	24	0.4	2.4	42%	13
Winter Storm	6	24	0.3	4.0	25%	3
Coastal Erosion	n/a	n/a	n/a	n/a	n/a	n/a
Extreme Heat	7	24	0.3	3.43	29%	0

Note: Recurrence frequency less than one indicate high frequency events on the order of seasonal, monthly, or weekly time frames with multiple occurrences within a one-year time frame.
Source: Hazards and Vulnerability Research Institute (HVRI)

SECTION 4: VULNERABILITY ASSESSMENT

This section provides overall social vulnerability indicators along with loss information for the Lowcountry region. Vulnerability is determined by assessing the probability and historical loss from each hazard. Loss information is an estimate of direct monetary losses (property and crop) and human losses (injuries and deaths) for each hazard in each county.

4.1 SOCIAL VULNERABILITY

Social vulnerability provides a general description of susceptibility to harm and reflects the ability of people to prepare for, respond to, and recover from natural hazards. The Social Vulnerability Index (SoVI®) developed by Hazards and Vulnerability Research Institute (HVRI) at the University of South Carolina, is a quantitative measure designed to graphically illustrate census tracts that contain socially vulnerable populations. Determining social vulnerability involves several indicators including socioeconomic status, gender, race and ethnicity, age, employment loss, residential property, renters, occupation, family structure, education, medical services and access, social dependence, and special-needs population. Details on these metrics are displayed in Appendix G.

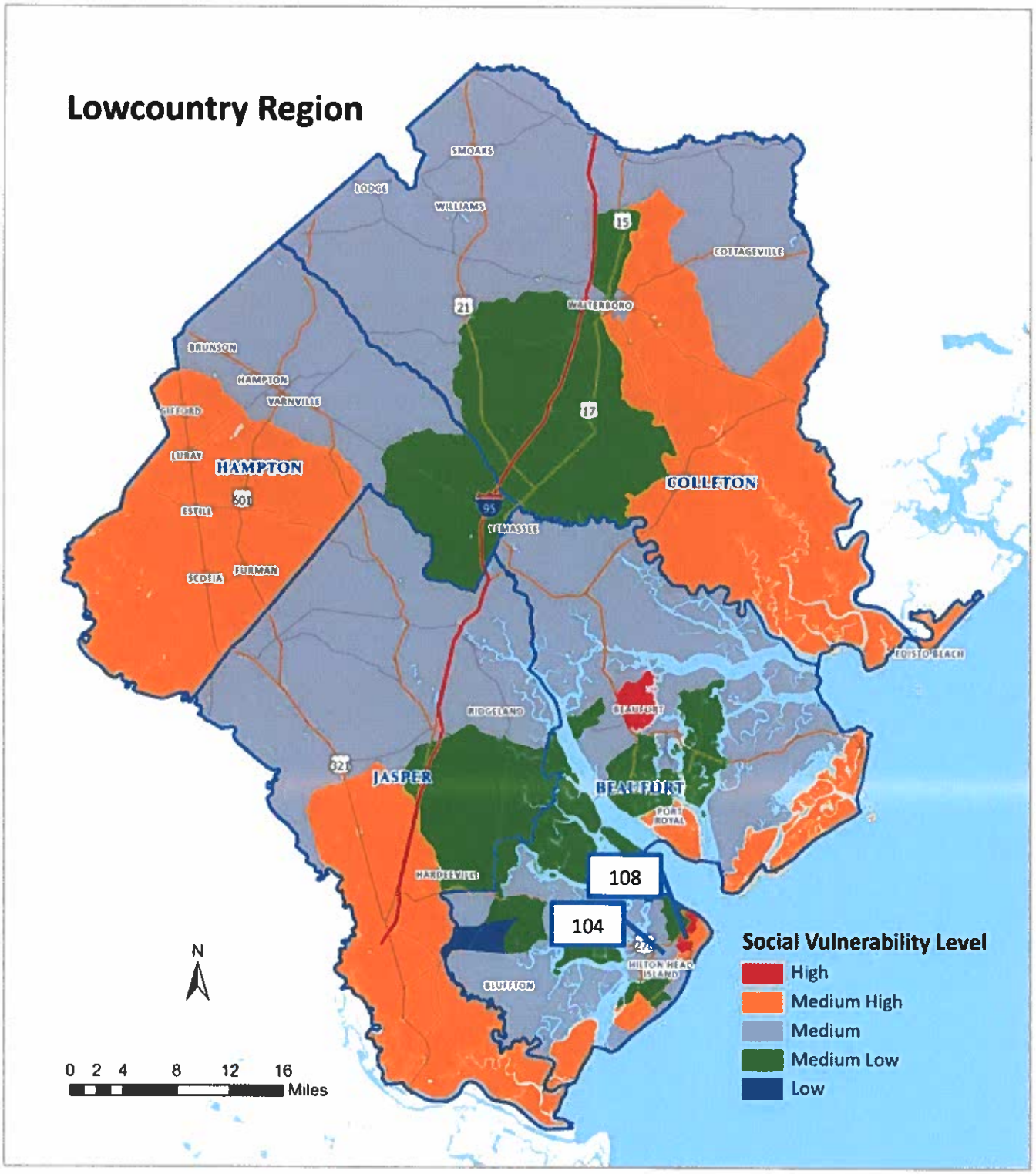
Lowcountry Social Vulnerability

Due to relatively few numbers of census tracts in the Lowcountry region, the study area (or comparison standard) for SoVI® is the entire state. For example, the social vulnerability in Census Tract 108 on Hilton Head Island (Figure 38) is a function of social status (poverty, renters, service sector employees) and ethnicity (Hispanic, English as a second language). This contrasts with the drivers of social vulnerability in the other high category, also in Beaufort County (Census Tract 104, Marine Corps Air Station) where social vulnerability reflects congregate living, race, and poverty. Table 39 shows the social vulnerability level of each jurisdiction. Examples of the relationship between social vulnerability and hazard exposure are displayed in the following maps (Figure 39-42).

Table 39: Municipality Social Vulnerability Level

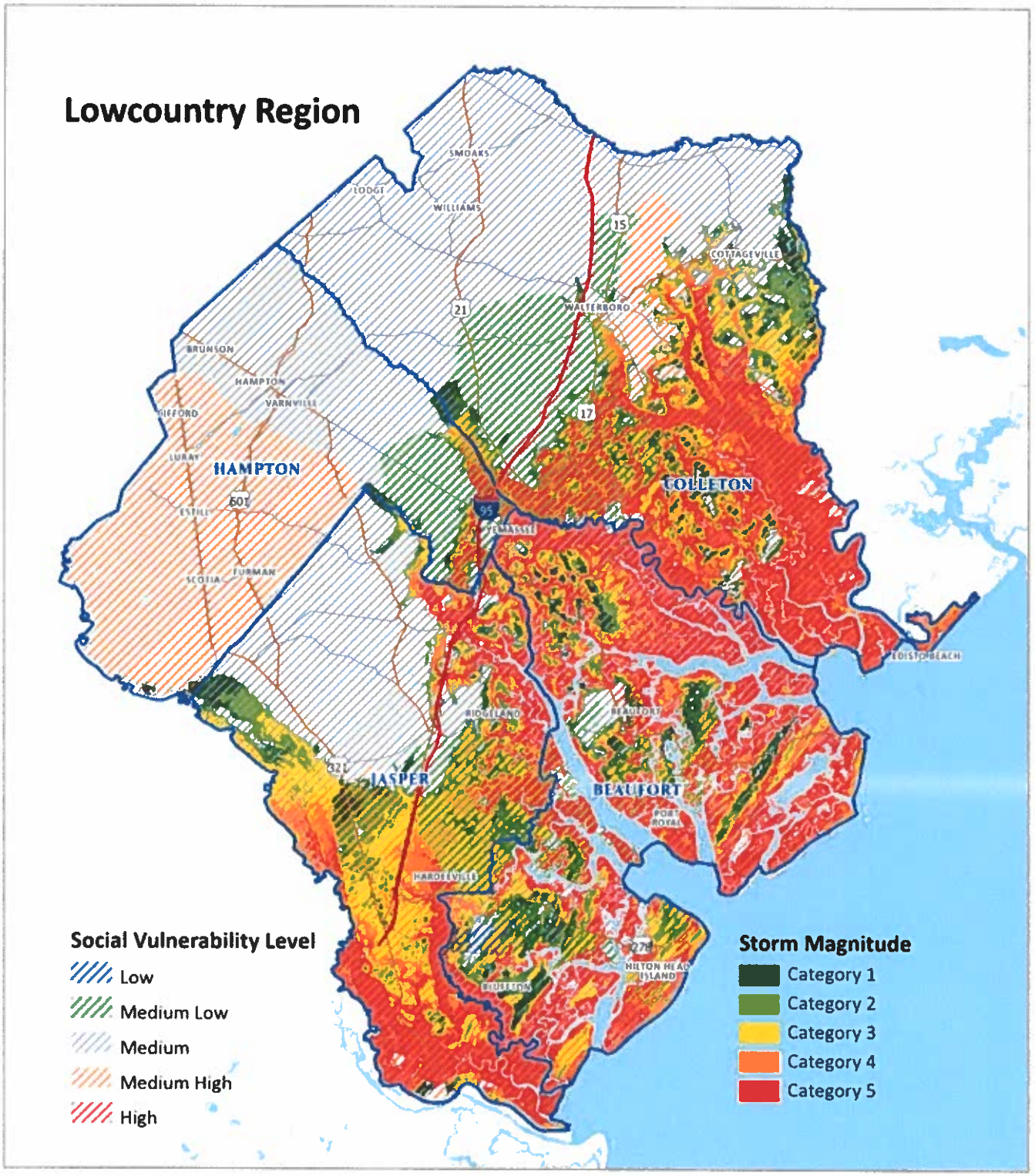
Jurisdictions	Social Vulnerability Level		Jurisdictions	Social Vulnerability Level
Beaufort County			**Hampton County**	
City of Beaufort	High		Town of Brunson	Medium
Town of Bluffton	Medium		Town of Estill	Medium High
Town of Hilton Head Island	Medium Low-High		Town of Furman	Medium High
Town of Port Royal	Medium High		Town of Gifford	Medium High
Colleton County			Town of Hampton	Medium
Town of Cottageville	Medium		Town of Luray	Medium High
Town of Edisto Beach	Medium High		Town of Scotia	Medium High
Town of Lodge	Medium		Town of Varnville	Medium
Town of Smoaks	Medium		Town of Yemassee	Medium-Medium Low
City of Walterboro	Medium		**Jasper County**	
Town of Williams	Medium		City of Hardeeville	Medium High
			Town of Ridgeland	Medium

Figure 38: Social Vulnerability Level by Census Tracts 2018



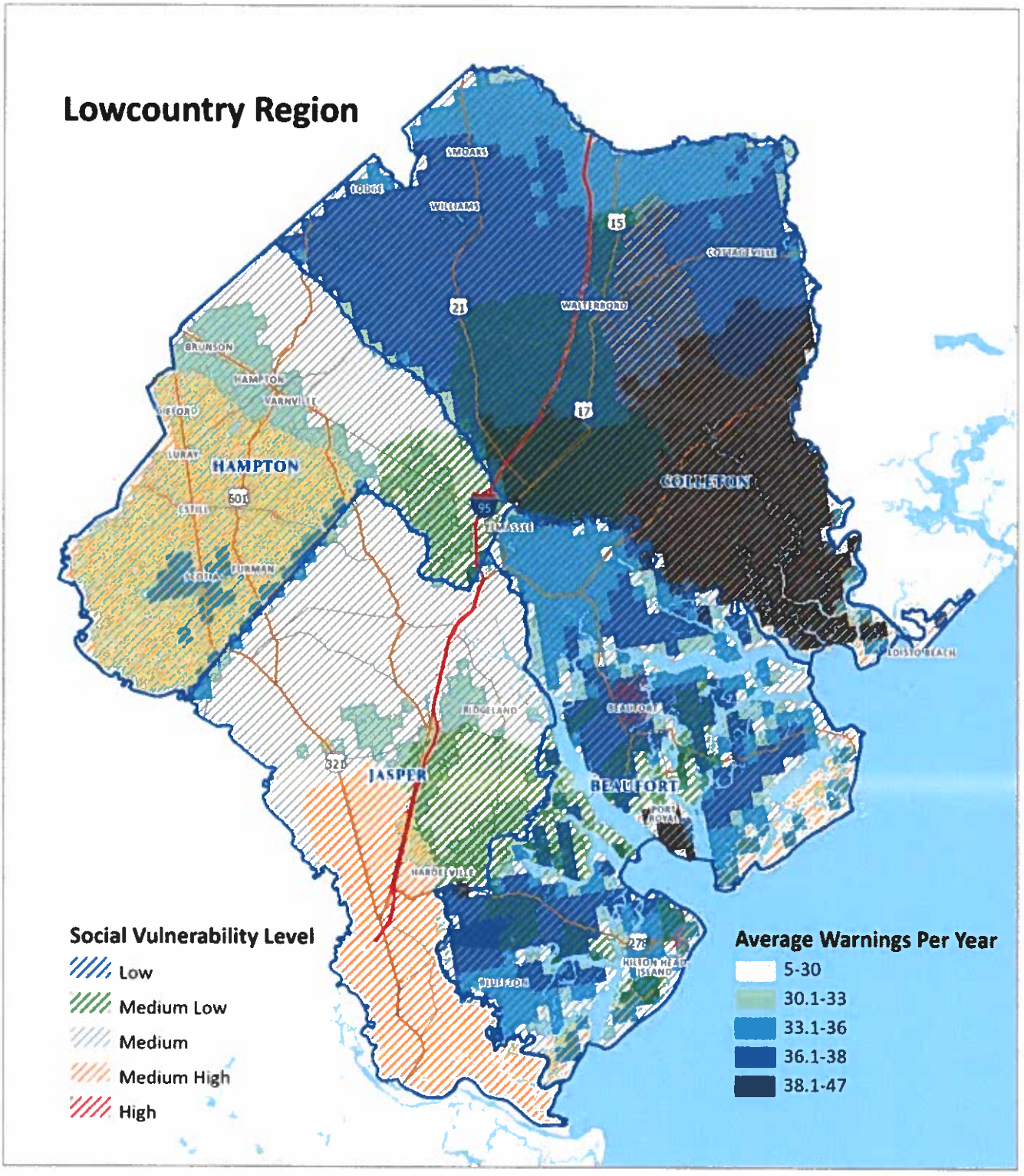
Source: Hazards and Vulnerability Research Institute (HVRI)

Figure 39: Social Vulnerability and Storm Surge Risk



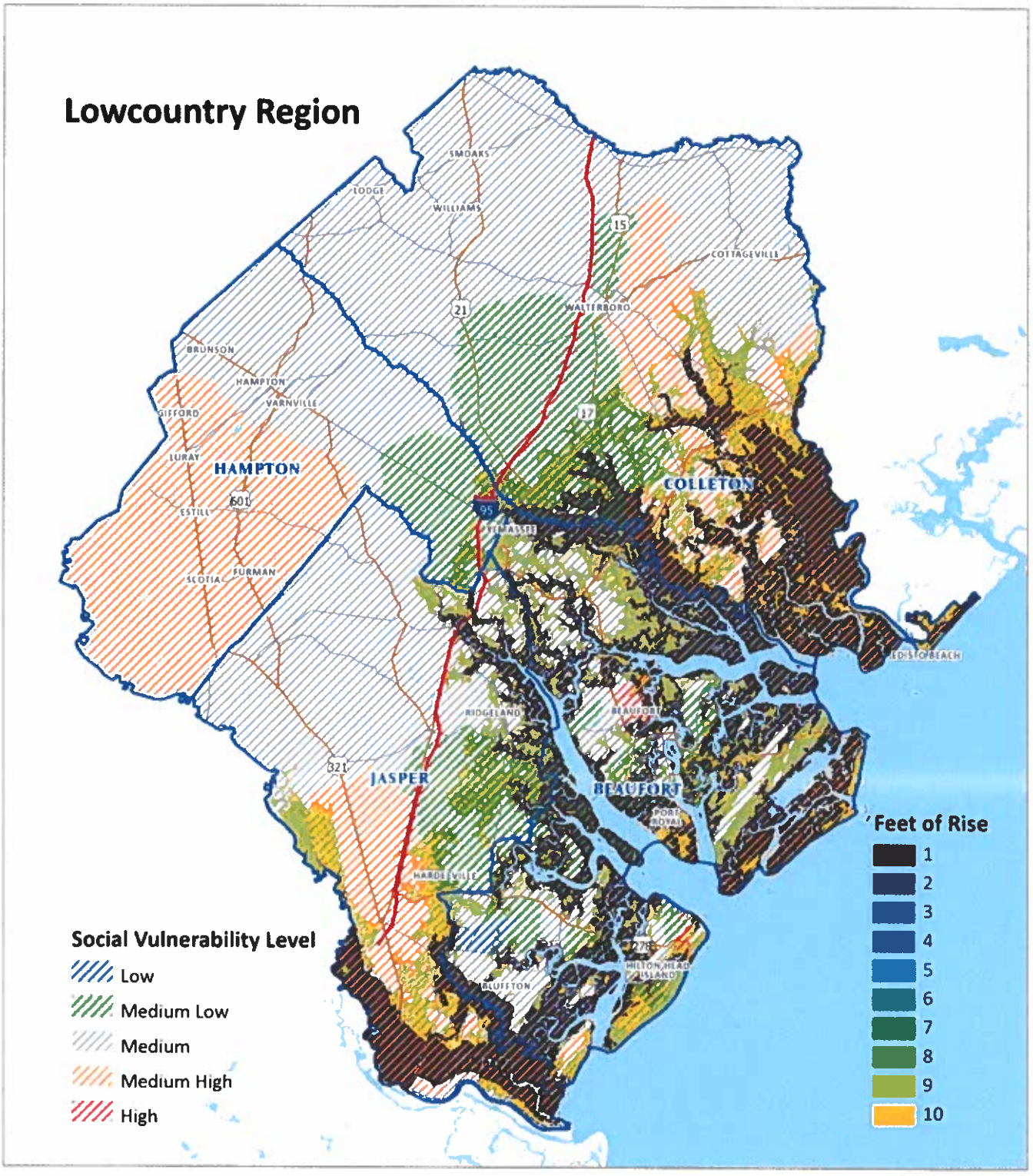
Source: Hazards and Vulnerability Research Institute (HVRI)

Figure 40: Social Vulnerability and Severe Thunderstorm and Strong Wind Warnings



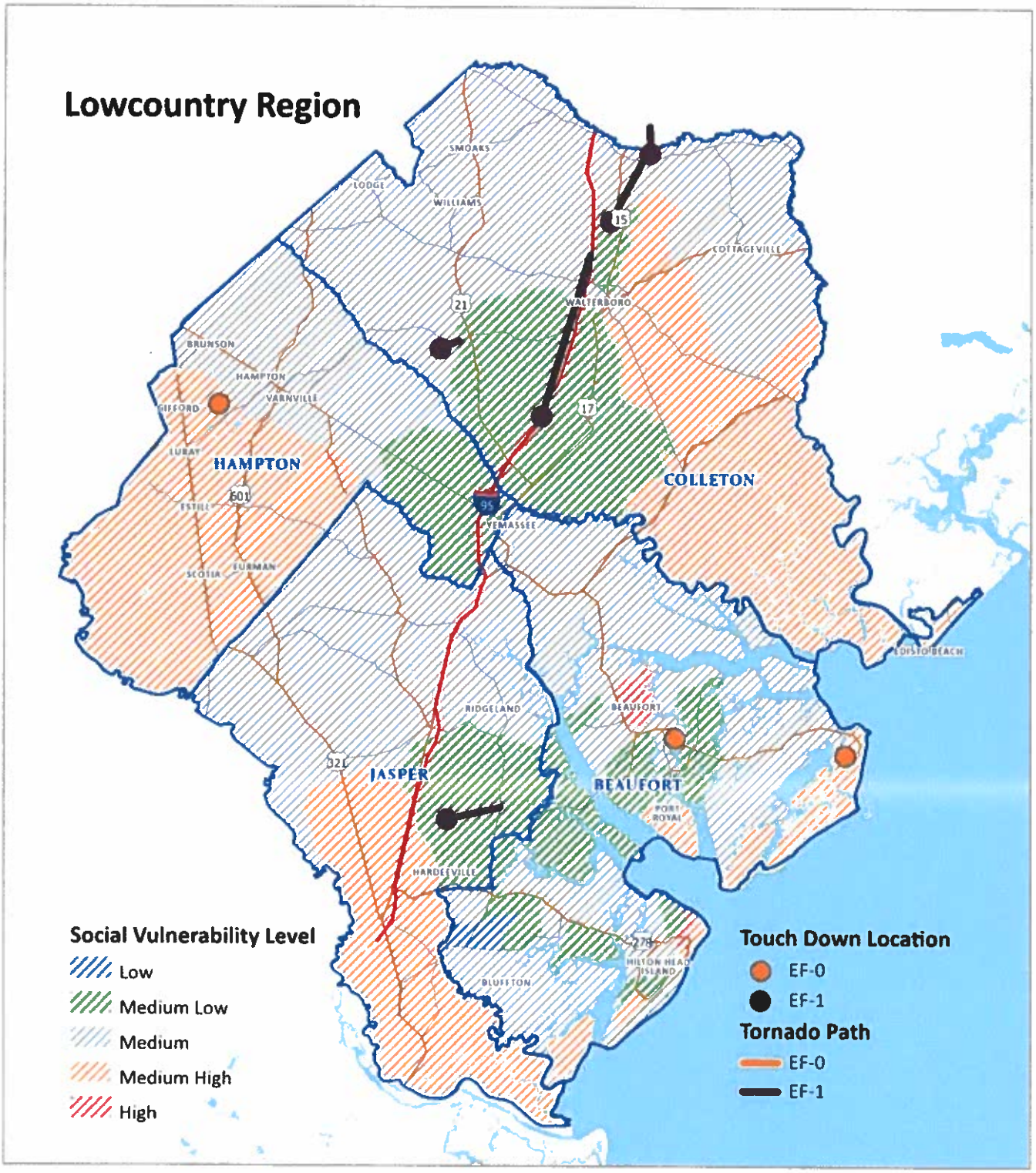
Source: Hazards and Vulnerability Research Institute (HVRI)

Figure 41: Social Vulnerability and Sea Level Rise Risk



Source: Hazards and Vulnerability Research Institute (HVRI)

Figure 42: Social Vulnerability and Tornado Incident



Source: Hazards and Vulnerability Research Institute (HVRI)

4.2 LOSS INFORMATION

Hazard loss information was compiled using the Spatial Hazard Event and Loss Dataset for the U.S. (SHELDUS™). The most recent version of SHELDUS™ (v. 18.1) was released in December 2019. SHELDUS™ provides estimates for each county of direct monetary losses (property and crop) and human losses (injuries and deaths) for 18 different hazard types for the period 1960-2018 (v. 18.1). In many instances, such as hurricanes and tropical storms, the loss information may be lower than expected because of the recording of direct losses in that county. It may also reflect the recording methods of a variety of publicly available sources such as NOAA's National Centers for Environmental Information, the U.S. Geological Survey, FEMA, and others, which provide the source data for SHELDUS™. Despite these caveats, SHELDUS™ represents the most comprehensive source for natural hazard event and loss data for the nation.

Lowcountry

As shown in Table 40, the Lowcountry's historic loss patterns are the result of winter storms, drought, and floods. Crop losses which were caused by winter weather (ice storms), drought, and heat accounted for 46% of the total losses. Property losses resulted from flooding and hurricanes/tropical storms. Severe thunderstorms and wind coupled with lightning are the deadliest and caused the most injuries to the population. More recently (2012-2018), flooding and lightning contribute the most to the loss picture.

Table 40: Lowcountry Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$4,436,792	1	30	$574,193	0	0
Hurricane	$44,710,716	2	0	$6,391,875	0	0
Windstorm	$20,814,566	13	27	$1,282,557	0	3
Lightning	$7,586,528	12	37	$1,865,237	0	2
Hail	$2,095,203	0	2	$0	0	0
Drought	$62,783,136	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	$2,727,718	0	0	$0	0	0
Flood	$59,249,953	2	0	$2,229,997	0	0
Winter Storm	$62,642,363	8	3	$0	0	0
Coastal Erosion	$4,142,513	7	4	$0	4	3
Extreme Heat	$49,403,312	8	2	$0	0	0
Total	**$320,592,799**	**53**	**105**	**$12,343,859**	**4**	**8**

Source: Hazards and Vulnerability Research Institute (HVRI)

Beaufort County

As seen in Table 41, Beaufort County historically, accounts for 32% of the total natural hazard losses for the Lowcountry region and roughly 40% of the total property losses. The main drivers of the losses are flooding, followed by hurricanes/tropical storms, winter weather, and drought. Fatalities and injuries typically have been from severe windstorms/thunderstorms and lightning. In the recent time frame between 2012-2018, losses were primarily due to lightning. Table 42-45 shows natural hazard losses for municipalities in Beaufort County.

Table 41: Beaufort County Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$2,852,800	1	13	$0	0	0
Hurricane	$15,663,080	0	0	$263,586	0	0
Windstorm	$6,477,837	9	15	$104,148	0	2
Lightning	$5,431,162	8	30	$1,755,891	0	0
Hail	$1,398,750	0	0	$0	0	0
Drought	$15,737,585	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	$1,505,226	0	0	$0	0	0
Flood	$24,837,894	0	0	$10,607	0	0
Winter Storm	$15,403,762	2	0	$0	0	0
Coastal Erosion	$1,564,070	4	3	$0	4	3
Extreme Heat	$12,350,828	1	1	$0	0	0
Total	**$103,222,993**	**25**	**62**	**$2,134,232**	**4**	**5**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 42: City of Beaufort Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$0	0	0	$0	0	0
Hurricane	n/a	0	0	n/a	0	0
Windstorm	$195,300	0	0	$7,000	0	0
Lightning	$1,752,000	0	1	$1,701,000	0	0
Hail	$500	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$0	0	0	$0	0	0
Winter Storm	$0	0	0	$0	0	0
Coastal Erosion	$0	0	0	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$1,947,800**	**0**	**1**	**$1,708,000**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 43: Town of Bluffton Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$40,000	0	0	$0	0	0
Hurricane	n/a	0	0	n/a	0	0
Windstorm	$34,500	0	0	$2,000	0	0
Lightning	$61,000	0	0	$15,000	0	0
Hail	$0	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$4,000	0	0	$0	0	0
Winter Storm	$0	0	0	$0	0	0
Coastal Erosion	$0	0	0	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$139,500**	**0**	**0**	**$17,000**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 44: Town of Hilton Head Island Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$500,000	0	0	$0	0	0
Hurricane	n/a	0	0	n/a	0	0
Windstorm	$149,000	0	0	$51,000	0	0
Lightning	$1,475,000	1	2	$1,250,000	1	1
Hail	$1,000,500	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$0	0	0	$0	0	0
Winter Storm	$0	0	0	$0	0	0
Coastal Erosion	n/a	1	3	$0	1	3
Extreme Heat	$0	0	0	$0	0	0
Total	**$3,124,500**	**1**	**2**	**$1,301,000**	**1**	**1**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 45: Town of Port Royal Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$0	0	0	$0	0	0
Hurricane	n/a	0	0	n/a	0	0
Windstorm	$34,000	0	0	$0	0	0
Lightning	$3,000	0	0	$3,000	0	0
Hail	$0	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$0	0	0	$0	0	0
Winter Storm	$0	0	0	$0	0	0
Coastal Erosion	$0	0	0	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$37,000**	**0**	**0**	**$3,000**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Colleton County

According to Table 46, Hurricanes/tropical storms and flooding constitute about 40% of the historic losses in Colleton County. Winter storms and drought make up another 33% of the total. Crop and property losses were equal in their proportion to the total. Hurricanes, coastal erosion, lightning, winter storms and extreme heat resulted in fatalities. Most of the injuries occurred from tornadoes. In the recent time frame between 2012-2018, damages from flooding were the highest, and there is a significant reduction in deaths and injuries. Table 47-52 shows natural hazard losses for municipalities in Colleton County.

Table 46: Colleton County Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$594,625	0	10	$136,713	0	0
Hurricane	$19,752,699	2	0	$6,123,597	0	0
Windstorm	$6,971,284	0	6	$169,413	1	0
Lightning	$1,423,589	2	4	$108,268	0	0
Hail	$320,485	0	1	$0	0	0
Drought	$15,737,470	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	$388,892	0	0	$0	0	0
Flood	$19,546,549	0	0	$2,176,402	0	0
Winter Storm	$16,177,568	3	1	$0	0	0
Coastal Erosion	$1,454,804	2	1	$0	0	0
Extreme Heat	$12,350,828	1	0	$0	0	0
Total	**$94,718,794**	**10**	**23**	**$8,714,393**	**1**	**0**

Note: Hurricane losses include $4,917,071 of the Town of Edisto Beach and 1,206,525.85 of the Colleton County.
Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 47: Town of Cottageville Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$0	0	0	$0	0	0
Hurricane	n/a	0	0	n/a	0	0
Windstorm	$34,000	0	0	$0	0	0
Lightning	$3,000	0	0	$3,000	0	0
Hail	$0	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$0	0	0	$0	0	0
Winter Storm	$0	0	0	$0	0	0
Coastal Erosion	$0	0	0	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$37,000**	**0**	**0**	**$3,000**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 48: Town of Edisto Beach Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$0	0	0	$0	0	0
Hurricane	n/a	n/a	0	$4,917,071	0	0
Windstorm	$12,500	0	0	$0	0	0
Lightning	$0	0	0	$0	0	0
Hail	$0	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$0	0	0	$0	0	0
Winter Storm	n/a	n/a	n/a	$0	0	0
Coastal Erosion	n/a	n/a	n/a	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$12,500**	**0**	**0**	**$4,917,071**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 49: Town of Lodge Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$0	0	0	$0	0	0
Hurricane	n/a	n/a	n/a	n/a	0	0
Windstorm	$0	0	0	$0	0	0
Lightning	$0	0	0	$0	0	0
Hail	$0	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$0	0	0	$0	0	0
Winter Storm	n/a	n/a	n/a	$0	0	0
Coastal Erosion	$0	0	0	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$0**	**0**	**0**	**$0**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 50: Town of Smoaks Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$0	0	0	$0	0	0
Hurricane	n/a	n/a	n/a	n/a	0	0
Windstorm	$9,500	0	0	$3,500	0	0
Lightning	$0	0	0	$0	0	0
Hail	$0	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$0	0	0	$0	0	0
Winter Storm	n/a	n/a	n/a	$0	0	0
Coastal Erosion	$0	0	0	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$9,500**	**0**	**0**	**$3,500**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 51: City of Walterboro Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$0	0	0	$0	0	0
Hurricane	n/a	n/a	n/a	n/a	0	0
Windstorm	$0	0	0	$50,250	0	0
Lightning	$10,000	0	0	$0	0	0
Hail	$2,000	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$507,720	0	0	$507,720	0	0
Winter Storm	n/a	n/a	n/a	$0	0	0
Coastal Erosion	$0	0	0	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$519,720**	**0**	**0**	**$557,970**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 52: Town of Williams Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$0	0	0	$0	0	0
Hurricane	n/a	n/a	n/a	n/a	0	0
Windstorm	$12,000	0	0	$3,000	0	0
Lightning	$0	0	0	$0	0	0
Hail	$0	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$0	0	0	$0	0	0
Winter Storm	n/a	n/a	n/a	$0	0	0
Coastal Erosion	$0	0	0	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$12,000**	**0**	**0**	**$3,000**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Hampton County

As depicted in Table 53, historical impact of natural hazards on Hampton County is largely due to winter storms, drought, and heat. Sixty percent of the impact is from crop losses. Fatalities resulted from windstorms, lightning, flooding, winter storms, and extreme heat, while injuries came from tornadoes. Windstorms/thunderstorms produced the most damage in the recent time frame between 2012-2018. Tables 54-62 show natural hazard losses for municipalities in Hampton County.

Table 53: Hampton County Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$432,417	0	6	$0	0	0
Hurricane	$4,368,308	0	0	$1,078	0	0
Windstorm	$2,511,503	2	2	$879,535	0	0
Lightning	$663,992	2	0	$0	0	0
Hail	$221,762	0	0	$0	0	0
Drought	$15,570,610	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	$388,892	0	0	$0	0	0
Flood	$2,325,209	2	0	$7,545	0	0
Winter Storm	$15,663,203	2	1	$0	1	2
Coastal Erosion	$17,661	0	0	$0	0	0
Extreme Heat	$12,350,828	3	1	$0	0	0
Total	**$54,514,386**	**11**	**10**	**$888,158**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 54: Town of Brunson Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$0	0	0	$0	0	0
Hurricane	n/a	0	0	n/a	0	0
Windstorm	$9,250	0	0	$1,000	0	0
Lightning	$0	0	0	$0	0	0
Hail	$0	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$2,000	0	0	$2,000	0	0
Winter Storm	n/a	n/a	n/a	$0	0	0
Coastal Erosion	$0	0	0	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$11,250**	**0**	**0**	**$3,000**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 55: Town of Estill Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$0	0	0	$0	0	0
Hurricane	n/a	0	0	n/a	0	0
Windstorm	$35,500	0	0	$16,000	0	0
Lightning	$0	0	0	$0	0	0
Hail	$0	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$0	0	0	$0	0	0
Winter Storm	n/a	n/a	n/a	$0	0	0
Coastal Erosion	$0	0	0	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$35,500**	**0**	**0**	**$16,000**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 56: Town of Furman Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$0	0	0	$0	0	0
Hurricane	n/a	0	0	n/a	0	0
Windstorm	$3,000	0	0	$500	0	0
Lightning	$0	0	0	$0	0	0
Hail	$0	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$0	0	0	$0	0	0
Winter Storm	n/a	n/a	n/a	$0	0	0
Coastal Erosion	$0	0	0	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$3,000**	**0**	**0**	**$500**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 57: Town of Gifford Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$0	0	0	$0	0	0
Hurricane	n/a	0	0	n/a	0	0
Windstorm	$7,000	0	0	$3,000	0	0
Lightning	$0	0	0	$0	0	0
Hail	$0	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$0	0	0	$0	0	0
Winter Storm	n/a	n/a	n/a	$0	0	0
Coastal Erosion	$0	0	0	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$7,000**	**0**	**0**	**$3,000**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 58: Town of Hampton Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$0	0	0	$0	0	0
Hurricane	n/a	0	0	n/a	0	0
Windstorm	$99,000	0	0	$34,000	0	0
Lightning	$0	0	0	$0	0	0
Hail	$0	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$0	0	0	$0	0	0
Winter Storm	n/a	n/a	n/a	$0	0	0
Coastal Erosion	$0	0	0	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$99,000**	**0**	**0**	**$34,000**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 59: Town of Luray Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$0	0	0	$0	0	0
Hurricane	n/a	0	0	n/a	0	0
Windstorm	$2,000	0	0	$0	0	0
Lightning	$0	0	0	$0	0	0
Hail	$0	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$2,000	0	0	$2,000	0	0
Winter Storm	n/a	n/a	n/a	$0	0	0
Coastal Erosion	$0	0	0	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$4,000**	**0**	**0**	**$2,000**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 60: Town of Scotia Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$0	0	0	$0	0	0
Hurricane	n/a	0	0	n/a	0	0
Windstorm	$2,000	0	0	$2,000	0	0
Lightning	$0	0	0	$0	0	0
Hail	$0	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$0	0	0	$0	0	0
Winter Storm	n/a	n/a	n/a	$0	0	0
Coastal Erosion	$0	0	0	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$2,000**	**0**	**0**	**$2,000**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 61: Town of Varnville Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$0	0	0	$0	0	0
Hurricane	n/a	0	0	n/a	0	0
Windstorm	$13,000	0	0	$1,000	0	0
Lightning	$0	0	0	$0	0	0
Hail	$0	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$1,000	0	0	$1,000	0	0
Winter Storm	n/a	n/a	n/a	$0	0	0
Coastal Erosion	$0	0	0	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$14,000**	**0**	**0**	**$2,000**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 62: Town of Yemassee Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$0	0	0	$0	0	0
Hurricane	n/a	0	0	n/a	0	0
Windstorm	$13,500	0	0	$3,000	0	0
Lightning	$0	0	0	$0	0	0
Hail	$0	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$0	0	0	$0	0	0
Winter Storm	n/a	n/a	n/a	$0	0	0
Coastal Erosion	$0	0	0	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$13,500**	**0**	**0**	**$3,000**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Jasper County

More than 64% of Jasper County's historic losses were crop losses caused by drought and winter storm events (Table 63). Most of the residential losses were from flooding. More recently, the losses were from tornadoes. Tables 64-65 show natural hazard losses for municipalities in Jasper County.

Table 63: Jasper County Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$556,950	0	1	$437,480	0	0
Hurricane	$4,926,629	0	0	$3,614	0	0
Windstorm	$4,853,941	3	5	$129,461	0	0
Lightning	$67,786	0	2	$1,078	0	2
Hail	$154,206	0	0	$0	0	0
Drought	$15,737,470	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	$444,709	0	0	$0	0	0
Flood	$12,540,300	0	0	$35,443	0	0
Winter Storm	$15,397,828	1	1	$0	0	0
Coastal Erosion	$1,105,978	0	0	$0	0	0
Extreme Heat	$12,350,828	2	0	$0	0	0
Total	**$68,136,626**	**6**	**9**	**$607,076**	**0**	**2**

Source: Hazards and Vulnerability Research Institute (HVRI)

Table 64: City of Hardeeville Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$50,000	0	1	$0	0	0
Hurricane	n/a	0	0	n/a	0	0
Windstorm	$59,750	0	0	$10,250	0	0
Lightning	$0	0	0	$0	0	0
Hail	$0	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$0	0	0	$0	0	0
Winter Storm	n/a	n/a	n/a	$0	0	0
Coastal Erosion	n/a	0	0	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$109,750**	**0**	**1**	**$10,250**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

Table 65: Town of Ridgeland Historical and Recent Losses

Hazards	Historical Impact 1960-2018			Recent Impact 2012-2018		
	Total Losses ($2018)	Deaths	Injuries	Total Losses ($2018)	Deaths	Injuries
Tornado	$0	0	0	$0	0	0
Hurricane	n/a	0	0	n/a	0	0
Windstorm	$12,500	0	0	$3,000	0	0
Lightning	$0	0	0	$0	0	0
Hail	$0	0	0	$0	0	0
Drought	n/a	0	0	$0	0	0
Earthquake	$0	0	0	$0	0	0
Wildfire	n/a	0	0	$0	0	0
Flood	$0	0	0	$0	0	0
Winter Storm	n/a	n/a	n/a	$0	0	0
Coastal Erosion	n/a	0	0	$0	0	0
Extreme Heat	$0	0	0	$0	0	0
Total	**$12,500**	**0**	**0**	**$3,000**	**0**	**0**

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events Database

4.3 HAZARD POTENTIAL RANKING

According to the historical data and current assessment, the twelve natural hazards are ranked based on different factors including loss information, hazard profiles, and community survey results. Table 66 displays the ranking.

Table 66: Lowcountry Hazard Potential Ranking 2012-2018

Hazards	Property Damage[1]	Frequency (in years)	Future Probability (% chance per year)	Residents' Opinion[2]
Hurricane	1	9	9	1
Flood	2	5	6	5
Lightning	3	1	1	3
Tornado	4	6	7	2
Windstorm	5	7	4	4
Drought	6	3	3	10
Winter Storm	7	8	8	9
Extreme Heat	8	10	10	6
Coastal Erosion	9	n/a	n/a	7
Wildfire	10	2	2	12
Hail	11	4	5	8
Earthquake	12	n/a	n/a	11

Note: [1]Recent impact between 2012 and 2019; [2]Ranked by the residents' greatest cause of concern for their life and property

4.4 OVERALL VULNERABILITY BY HAZARD

This section organizes vulnerability in terms of locations and then hazard type. Since each jurisdiction has relatively the same amount of probability within each county, unless noted, their vulnerability is similar.

Beaufort County

Tornado

The county has relatively moderate likelihood for experiencing tornadoes, with a 52% chance of occurrence. Between 2012 and 2018, there were 2 tornado events in the county between the communities of Okatie and Switzerland, which caused no financial losses, and no injuries or deaths.

Hurricane

The county has a relatively high likelihood for experiencing hurricanes, with an 88% chance of occurrence. Between 2012 and 2018, there were 8 hurricane events in the county, which caused $263,586 in financial losses, and no injuries or deaths.

Windstorm

There is a relatively high likelihood for experiencing windstorms, with an 1,117% chance of occurrence. Between 2012 and 2018, there were 148 windstorm events in the county, which caused $104,148 financial losses, and 2 injuries and no deaths.

Lightning

Beaufort County has a relatively high likelihood for experiencing lightning, with a 96,029% chance of occurrence. Between 2012 and 2018, there were 32,481 lightning events in the county, which caused $1,755,891 financial losses, and no injuries or deaths.

Hail

The county has a relatively high likelihood for experiencing hailstorms, with a 216% chance of occurrence. Between 2012 and 2018, there were 13 hailstorm events in the county, which caused no financial losses, and no injuries or deaths.

Earthquake

The county has a low probability events and rarely felt.

Wildfire

The county has a relatively high likelihood for experiencing wildfires, with a 5,400% chance of occurrence. Between 2012 and 2018, there were 137 wildfire events in the county, which caused no financial losses, and no injuries or deaths.

Flood

The county has a relatively high likelihood for experiencing flooding, with a 133% chance of occurrence. Between 2012 and 2018, there were 22 flooding events in the county, which caused $10,607 financial losses, and no injuries or deaths.

Winter Storm

The county has a relatively low likelihood for experiencing winter storms, with a 25% chance of occurrence. Between 2012 and 2018, there were 4 winter storm events in the county, which caused no financial losses, and no injuries or deaths.

Extreme Heat

The county has a relatively moderate likelihood for experiencing extreme heat, with a 58% chance of occurrence. Between 2012 and 2018, there were no extreme heat events in the county.

Drought

Beaufort County has a relatively high likelihood for experiencing drought, with a 1,710% chance of occurrence. Between 2012 and 2018, there were 107 drought events in the county, which caused no financial losses, and no injuries or deaths.

Colleton County

Tornado

The county has a relatively moderate likelihood for experiencing tornadoes, with a 52% chance of occurrence. Between 2012 and 2018, there were 4 tornado events in the county, which caused $136,713 in financial losses, and no injuries or deaths.

Hurricane

Colleton County has a relatively high likelihood for experiencing tornadoes, with an 88% chance of occurrence. Between 2012 and 2019, there were eight hurricane events in the county, which caused $6,123,597 in financial losses, and no injuries or deaths.

Windstorm

There is a relatively high likelihood for windstorms, with an 1,833% chance of occurrence. Between 2012 and 2019, there were 244 windstorm events in the county, which caused $169,413 in financial losses, and no injuries and one death.

Lightning

The county has a relatively high likelihood for experiencing lightning, with a 164,748% of chance occurrence. Between 2012 and 2019, there were 42,333 lightning events in the county, which caused $108,268 in financial losses, and no injuries or deaths.

Hail

Colleton County has a relatively high likelihood for experiencing lightning, with a 235% of chance occurrence. Between 2012 and 2019, there were 15 hailstorm events in the county, which caused no financial losses, and no injuries or deaths.

Earthquake

The county has a low probability for earthquakes, and they are rarely felt.

Wildfire

The county has a relatively high likelihood for experiencing wildfires, with a 31,093% of chance occurrence. Between 2012 and 2019, there were 1399 wildfire events in the county, which caused no financial losses, and no injuries or deaths.

Flood

Colleton County has a relatively high likelihood for experiencing flooding, with a 96% of chance occurrence. Between 2012 and 2019, there were 19 flooding events in the county, which caused $2,176,402 in financial losses, and no injuries or deaths.

Winter Storm

The county has a relatively low likelihood for experiencing winter storms, with a 42% of chance occurrence. Between 2012 and 2019, there were 4 winter storm events in the county, which caused no financial losses, and no injuries or deaths.

Extreme Heat

The county has a relatively low likelihood for experiencing extreme heat, with a 38% of chance occurrence. Between 2012 and 2019, there were no extreme heat events in the county.

Drought

There is a relatively high likelihood for experiencing drought in the county, with a 1760% of chance occurrence. Between 2012 and 2019, there were 108 drought events in the county, which caused no financial losses, and no injuries or deaths.

Hampton County

Tornado

The county has a relatively low likelihood for experiencing tornadoes, with a 24% chance of occurrence. Between 2012 and 2018, there was 1 tornado event in the county, which caused no financial losses, and no injuries or deaths.

Hurricane

Hampton County has a relatively high likelihood for experiencing hurricanes, with an 88% chance of occurrence. Between 2012 and 2018, there were 8 hurricane events in the county, which caused $1,078 in financial losses, and no injuries or deaths.

Windstorm

The county has a relatively high likelihood for experiencing windstorms, with an 817% chance of occurrence. Between 2012 and 2018, there were 103 windstorm events in the county, which caused $879,535 in financial losses, and no injuries or deaths.

Lightning

The county has a relatively high likelihood for experiencing lightning, with a 90,067% chance of occurrence. Between 2012 and 2018, there were 21,509 lightning events in the county, which caused no financial losses, and no injuries or deaths.

Hail

Hampton County has a relatively high likelihood for experiencing hailstorms, with a 100% chance of occurrence. Between 2012 and 2018, there were 3 hailstorm events in the county, which caused no financial losses, and no injuries or deaths.

Earthquake

The county has a low probability events and rarely felt.

Wildfire

The county has a relatively high likelihood for experiencing wildfires, with a 6,484% chance of occurrence. Between 2012 and 2018, there were 268 wildfire events in the county, which caused no financial losses, and no injuries or deaths.

Flood

There is a relatively low likelihood for experiencing flooding, with a 33% chance of occurrence. Between 2012 and 2018, there were 13 flooding events in the county, which caused $7,545 financial losses, and no injuries or deaths.

Winter Storm

The county has a relatively low likelihood for experiencing winter storms, with a 29% chance of occurrence. Between 2012 and 2018, there were 3 winter storm events in the county, which caused no financial losses, and no injuries or deaths.

Extreme Heat

The county has a relatively low likelihood for experiencing extreme heat, with a 21% chance of occurrence. Between 2012 and 2018, there were no extreme heat events in the county.

Drought

Hampton County has a relatively high likelihood for experiencing drought, with a 2,030% chance of occurrence. Between 2012 and 2018, there were 133 drought events in the county, which caused no financial losses, and no injuries or deaths.

Jasper County

Tornado

The county has a relatively low likelihood for experiencing tornadoes, with a 18% chance of occurrence. Between 2012 and 2018, there was 1 tornado event in the county, which caused $437,480 financial losses, and no injuries or deaths.

Hurricane

Jasper County has a relatively high likelihood for experiencing hurricanes, with an 88% chance of occurrence. Between 2012 and 2018, there were 8 hurricane events in the county, which caused $3,614 financial losses, and no injuries or deaths.

Windstorm

The county has a relatively high likelihood for experiencing windstorms, with a 1,092% chance of occurrence. Between 2012 and 2018, there were 156 windstorm events in the county, which caused $129,461 in financial losses, and no injuries or deaths.

Lightning

There is a relatively high likelihood for experiencing lightning, with a 131,405% chance of occurrence. Between 2012 and 2018, there were 33,241 lightning events in the county, which caused $1,078 in financial losses, and 2 injuries and no deaths.

Hail

The county has a high likelihood for experiencing hailstorms, with a 106% chance of occurrence. Between 2012 and 2018, there were 7 hailstorm events in the county, which caused no financial losses, and no injuries or deaths.

Earthquake

The county has a low probability events and rarely felt.

Wildfire

Jasper County has a high relatively likelihood for experiencing wildfires, with a 11,784% chance of occurrence. Between 2012 and 2018, there were 387 wildfire events in the county, which caused no financial losses, and no injuries or deaths.

Flood

The county has a low likelihood for experiencing flooding, with a 42% chance of occurrence. Between 2012 and 2018, there were 13 flooding events in the county, which caused $35,443 financial losses, and no injuries or deaths.

Winter Storm

The county has a relatively low likelihood for experiencing winter storms, with a 25% chance of occurrence. Between 2012 and 2018, there were 3 winter storm events in the county, which caused no financial losses, and no injuries or deaths.

Extreme Heat

Jasper County has a relatively low likelihood for experiencing extreme heat, with a 29% chance of occurrence. Between 2012 and 2018, there were no extreme heat events in the county.

Drought

The county has a relatively high likelihood for experiencing drought, with a 1,980% chance of occurrence. Between 2012 and 2018, there were 132 drought events in the county, which caused no financial losses, and no injuries or deaths.

4.5 BUILDING AND VEHICLE INVENTORY

In addition to the loss information provided using the Spatial Hazard Event and Loss Dataset for the U.S. (SHELDUS™), FEMA's Hazards United States – Multi Hazard (HAZUS-MH) is another tool to help in estimate the dollar replacement values for the Lowcountry's assets. The Lowcountry's assets including specifically buildings and vehicles that are vulnerable to damage are shown in Tables 67-68. The total value of the Lowcountry's buildings that were exposed to the hazards is over $30 billion. Meanwhile, the total value of vehicles in the region exposed to hazards is over $3 billion. Details for each county are displayed in Table 69-70.

Table 67: Lowcountry Building Exposure by General Occupancy

General Occupancy	Number	Value
Residential	111,038	$24,937,663,000
Commercial	4,834	$3,527,270,000
Industrial	1,311	$620,012,000
Agriculture	335	$94,571,000
Religion	572	$419,288,000
Government	203	$172,700,000
Education	176	$239,353,000
Total Exposure	**118,469**	**$30,010,857,000**

Source: HAZUS-MH

Table 68: Lowcountry Vehicle Exposure by Type

	Daytime		Nighttime	
Type	**Number**	**Value**	**Number**	**Value**
Car	114,071	$1,657,184,207	126,500	$1,840,406,363
Light Truck	83,690	$1,147,703,982	92,856	$1,275,420,547
Heavy Truck	5,812	$279,898,543	6,137	$295,694,481
Total Exposure	**203,573**	**$3,084,786,732**	**225,493**	**$3,411,521,391**

Source: HAZUS-MH

The time of the day a vehicle is exposed can help in additional loss estimation, in particular with flood events. According to FEMA (2020d), "because vehicles are used by their owners throughout the day, the Flood Model has identified two "snapshots" of time, the nighttime, when passenger vehicles are more likely to be concentrated near residential structures and commercial industrial vehicles are more likely to remain in commercial areas, and the daytime where the commercial and industrial areas will see an influx of all varieties of vehicles."

Table 69: County and Municipality Building Exposure by General Occupancy

County and Municipality	Exposure	Residential	Commercial	Industrial	Agriculture	Religion	Government	Education	Total Exposure
Beaufort County	**Number**	**73,568**	**3,203**	**867**	**180**	**291**	**116**	**98**	**78,323**
	Value	**$19,460,525,000**	**$2,490,084,000**	**$353,192,000**	**$48,855,000**	**$214,231,000**	**$108,148,000**	**$129,515,000**	**$22,804,550,000**
City of Beaufort	Number	4,512	520	110	21	55	54	19	**5,291**
	Value	$1,134,478,000	$369,987,000	$32,373,000	$5,614,000	$57,511,000	$58,101,000	$25,597,000	**$1,683,661,000**
Town of Bluffton	Number	5,122	216	62	12	19	1	9	**5,441**
	Value	$1,149,328,000	$254,658,000	$28,126,000	$3,590,000	$14,263,000	$1,090,000	$5,139,000	**$1,456,194,000**
Town of Hilton Head Island	Number	20,077	1,076	257	53	73	13	22	**21,571**
	Value	$7,204,737,000	$1,004,200,000	$121,759,000	$15,134,000	$59,737,000	$6,634,000	$33,390,000	**$8,445,591,000**
Town of Port Royal	Number	2,701	193	37	5	15	15	7	**2,973**
	Value	$1,053,824,000	$117,453,000	$17,773,000	$1,462,000	$12,232,000	$18,266,000	$5,264,000	**$1,226,274,000**
Unincorporated Areas	Number	41,156	1,198	401	89	129	33	41	**43,047**
	Value	$8,918,158,000	$743,786,000	$153,161,000	$23,055,000	$70,488,000	$24,057,000	$60,125,000	**$9,992,830,000**
Colleton County	**Number**	**18,834**	**904**	**263**	**89**	**177**	**40**	**42**	**20,349**
	Value	**$2,889,222,000**	**$528,853,000**	**$137,590,000**	**$26,822,000**	**$115,853,000**	**$33,441,000**	**$46,448,000**	**$3,778,229,000**
Town of Cottageville	Number	365	23	6	1	3	2	0	**400**
	Value	$33,409,000	7,767,000	$942,000	$197,000	$1,349,000	$454,000	$0	**$44,118**
Town of Edisto Beach	Number	1,811	43	9	4	3	1	2	**1,873**
	Value	$617,156,000	$20,974,000	$1,926,000	$639,000	$1,631,000	$1,249,000	$1,064,000	**$644,639,000**
Town of Lodge	Number	75	6	1	2	0	2	0	**86**
	Value	$11,784,000	$2,168,000	$85,000	$204,000	$0	$1,703,000	$0	**$15,944,000**
Town of Smoaks	Number	65	0	2	0	0	0	0	**67**
	Value	$7,590,000	$0	$2,693,000	$0	$0	$0	$0	**$10,283,000**
City if Walterboro	Number	2,261	277	38	9	36	18	17	**2,656**
	Value	$383,511,000	$197,282,000	$14,011,000	$1,565,000	$36,401,000	$21,310,000	$17,829,000	**$671,909,000**
Town of Williams	Number	52	3	0	1	0	0	0	**56**
	Value	$7,044,000	$1,402,000	$0	$265,000	$0	$41,000	$0	**$8,752,000**
Unincorporated Areas	Number	14,205	552	207	72	135	17	23	**15,211**
	Value	$1,828,728,000	$299,260,000	$117,933,000	$23,952,000	$76,472,000	$8,684,000	$27,555,000	**$2,426,657,882**

County and Municipality	Exposure	Residential	Commercial	Industrial	Agriculture	Religion	Government	Education	Total Exposure
Hampton County	**Number**	**8,735**	**445**	**99**	**42**	**68**	**26**	**22**	**9,437**
	Value	**$1,183,698,000**	**$207,479,000**	**$58,639,000**	**$10,873,000**	**$55,584,000**	**$17,579,000**	**$40,183,000**	**$1,574,035,000**
Town of Brunson	Number	275	8	2	1	2	0	1	**289**
	Value	$27,843,000	$3,634,000	$596,000	$77,000	$1,060,000	$0	$1,864,000	**$35,074,000**
Town of Estill	Number	799	64	10	2	10	3	6	**894**
	Value	$128,328,000	$32,372,000	$4,910,000	$423,000	$8,958,000	$2,357,000	$17,536,000	**$194,884,000**
Town of Furman	Number	135	5	0	3	0	0	0	**143**
	Value	$14,754,000	$1,223,000	$0	$1,169,000	$0	$0	$0	**$17,146,000**
Town of Gifford	Number	149	2	1	1	0	0	0	**153**
	Value	$17,259,000	$592,000	$251,000	$77,000	$0	$156,000	$0	**$18,335,000**
Town of Hampton	Number	1,290	151	19	6	19	7	6	**1,498**
	Value	$187,349,000	$73,714,000	$19,147,000	$956,000	$18,675,000	$4,079,000	$6,087,000	**$310,007,000**
Town of Luray	Number	58	0	0	0	0	0	0	**58**
	Value	$7,112,000	$0	$0	$0	$0	$0	$0	**$7,112,000**
Town of Scotia	Number	90	1	0	0	0	0	0	**91**
	Value	$10,405,000	$283,000	$0	$0	$0	$0	$0	**$10,688,000**
Town of Varnville	Number	815	60	9	3	10	5	2	**904**
	Value	$109,662,000	$36,115,000	$5,896,000	$595,000	$6,934,000	$2,208,000	$5,488,000	**$166,898,000**
Town of Yemassee	Number	53	3	1	1	0	0	0	**58**
	Value	$4,438,000	$2,326,000	$192,000	$134,000	$0	$0	$0	**$7,090,000**
Unincorporated Areas	Number	5,071	151	57	25	27	11	7	**5,349**
	Value	$676,548,000	$57,220,000	$27,647,000	$7,442,000	$19,957,000	$8,778,922	$9,208,000	**$806,723,000**
Jasper County	**Number**	**9,901**	**282**	**82**	**24**	**36**	**21**	**14**	**10,360**
	Value	**$1,404,218,000**	**$300,854,000**	**$70,591,000**	**$8,021,000**	**$33,620,000**	**$13,532,000**	**$23,207,000**	**$1,854,043,000**
City of Hardeeville	Number	1,165	65	20	3	6	3	2	**1,264**
	Value	$202,354,000	$67,393,000	$26,502,000	$741,000	$9,334,000	$1,971,000	$9,470,000	**$317,765,000**
Town of Ridgeland	Number	1,079	126	28	9	18	12	7	**1,279**
	Value	$210,723,000	$172,713,000	$30,156,000	$4,902,000	$17,007,000	$9,843,000	$9,372,000	**$454,716,000**
Unincorporated Areas	Number	7,657	91	34	12	12	6	5	**7,817**
	Value	$991,141,000	$60,748,000	$13,933,000	$2,378,000	$7,279,000	$1,718,000	$4,365,000	**$1,081,562,000**

Table 70: County and Municipality Vehicle Exposure by Type

County and Municipality	Exposure	Daytime				Nighttime			
		Car	Light Truck	Heavy Truck	Total Exposure	Car	Light Truck	Heavy Truck	Total Exposure
Beaufort County	**Number**	**77,863**	**57,146**	**3,824**	**138,833**	**82,019**	**60,137**	**4,036**	**146,192**
	Value	**$1,133,778,787**	**$785,681,347**	**$184,803,344**	**$2,104,263,478**	**$1,194,976,773**	**$827,290,561**	**$195,212,228**	$2,217,479,562
City of Beaufort	Number	10,177	7,488	438	18,103	7,551	5,538	469	13,558
	Value	$148,027,149	$102,884,605	$21,000,380	$271,912,134	$109,947,956	$76,123,651	$22,598,235	$208,669,842
Town of Bluffton	Number	4,378	3,220	243	7,841	2,581	1,896	250	4,727
	Value	$63,746,642	$44,234,343	$11,778,474	$119,759,459	$37,505,080	$26,003,166	$12,098,045	$75,606,291
Town of Hilton Head Island	Number	31,174	22,893	1,460	55,527	33,675	24,668	1,538	59,881
	Value	$454,477,256	$315,124,662	$71,446,945	$841,048,863	$454,477,256	$315,124,662	$71,446,945	$841,048,863
Town of Port Royal	Number	5,161	3,787	225	9,173	4,064	2,981	242	7,287
	Value	$75,197,195	$52,067,087	$10,819,761	$138,084,043	$59,206,341	$41,023,753	$11,641,515	$111,871,609
Unincorporated Areas	Number	26,973	19,758	1,458	48,189	34,148	25,054	1,537	60,739
	Value	$392,330,545	$271,370,650	$69,757,784	$733,458,979	$533,840,140	$369,015,329	$77,427,488	$980,282,957
Colleton County	**Number**	**18,715**	**13,734**	**1,026**	**33,475**	**23,332**	**17,127**	**1,090**	**41,549**
	Value	**$270,939,253**	**$187,595,906**	**$48,803,057**	**$507,338,216**	**$339,018,565**	**$235,073,819**	**$51,816,155**	**$625,908,539**
Town of Cottageville	Number	316	228	17	561	454	333	17	**804**
	Value	$4,607,738	$3,133,400	$776,101	$8,517,239	$6,625,228	$4,573,802	$776,101	**$11,975,131**
Town of Edisto Beach	Number	1,318	972	50	2,340	2,110	1,543	52	**3,705**
	Value	$19,127,915	$13,317,706	$2,419,609	$34,865,230	$30,835,108	$21,312,697	$2,556,568	**$54,704,373**
Town of Lodge	Number	72	50	3	125	74	54	4	**132**
	Value	$1,022,937	$669,959	$136,959	$1,829,855	$1,063,616	$732,982	$182,612	**$1,979,210**
Town of Smoaks	Number	44	31	7	82	77	58	8	**143**
	Value	$627,358	$417,111	$365,224	$1,409,693	$1,117,945	$796,005	$410,877	**$2,324,827**
City if Walterboro	Number	4,338	3,195	235	7,768	3,293	2,402	245	**5,940**
	Value	$63,013,336	$43,818,744	$11,276,291	$118,108,371	$47,892,830	$33,101,164	$11,732,821	**$92,726,815**
Town of Williams	Number	44	34	3	81	71	52	3	**126**
	Value	$613,979	$442,673	$136,959	$1,193,611	$995,908	$682,866	$136,959	**$1,815,733**
Unincorporated Areas	Number	12,583	9,224	711	22,518	17,253	12,685	761	**30,699**
	Value	$181,925,990	$125,796,313	$33,691,914	$341,414,217	$250,487,930	$173,874,303	$36,020,217	**$460,382,450**

County and Municipality	Exposure	Daytime				Nighttime			
		Car	Light Truck	Heavy Truck	Total Exposure	Car	Light Truck	Heavy Truck	Total Exposure
Hampton County	**Number**	**8,528**	**6,251**	**451**	**15,230**	**10,728**	**7,929**	**475**	**19,132**
	Value	**$122,681,951**	**$84,799,382**	**$21,365,604**	**$228,846,937**	**$155,053,276**	**$108,018,952**	**$22,552,582**	**$285,624,810**
Town of Brunson	Number	193	146	8	347	327	243	8	578
	Value	$2,741,482	$1,946,854	$365,224	$5,053,560	$4,744,509	$3,323,225	$365,224	$8,432,958
Town of Estill	Number	1,083	791	63	1,937	1,189	884	67	2,140
	Value	$15,558,932	$10,692,270	$2,967,445	$29,218,647	$17,139,622	$11,993,215	$3,150,057	$32,282,894
Town of Furman	Number	88	68	5	161	146	108	5	259
	Value	$1,268,095	$934,958	$228,265	$2,431,318	$2,140,069	$1,478,367	$228,265	$3,846,701
Town of Gifford	Number	91	61	1	153	169	124	1	294
	Value	1,295,666	821,567	45,653	2,162,886	2,413,882	1,656,041	45,653	4,115,576
Town of Hampton	Number	2,090	1,541	144	3,775	1,857	1,362	150	3,369
	Value	$30,174,117	$21,002,118	$6,893,603	$58,069,838	$26,806,361	$18,538,425	$7,167,521	$52,512,307
Town of Luray	Number	27	17	0	44	57	43	0	100
	Value	$368,550	$215,135	$0	$583,685	$844,945	$606,180	$0	$1,451,125
Town of Scotia	Number	54	39	1	94	113	82	2	197
	Value	$627,358	$417,111	$365,224	$1,409,693	$1,622,724	$1,112,128	$91,306	$2,826,158
Town of Varnville	Number	994	729	37	1,760	1,066	791	40	1,897
	Value	$14,317,324	$9,895,257	$1,734,814	$25,947,395	$15,433,914	$10,816,300	$1,871,773	$28,121,987
Town of Yemassee	Number	58	42	2	102	70	52	2	124
	Value	$831,837	$568,719	$91,306	$1,491,862	$1,022,395	$720,075	$91,306	$1,833,776
Unincorporated Areas	Number	3,850	2,817	190	6,857	5,734	4,240	200	10,174
	Value	$55,498,590	$38,305,393	$8,674,070	$102,478,053	$82,884,855	$57,774,996	$9,541,477	$150,201,328
Jasper County	**Number**	**8,965**	**6,559**	**511**	**16,035**	**10,421**	**7,663**	**536**	**18,620**
	Value	**$129,784,216**	**$89,627,347**	**$24,926,538**	**$244,338,101**	**$151,357,749**	**$105,037,215**	**$26,113,516**	**$282,508,480**
City of Hardeeville	Number	1,927	1,414	119	3,460	1,625	1,192	126	2,943
	Value	$28,016,062	$19,370,127	$5,843,584	$53,229,773	$23,706,456	$16,436,687	$6,163,155	$46,306,298
Town of Ridgeland	Number	3,139	2,301	242	5,682	2,012	1,485	251	3,748
	Value	$45,590,045	$31,550,143	$12,006,739	$89,146,927	$29,162,933	$20,256,229	$12,417,616	$61,836,778
Unincorporated Areas	Number	3,899	2,844	150	6,893	6,784	4,986	159	11,929
	Value	$56,178,109	$38,707,077	$7,076,215	$101,961,401	$98,488,360	$68,344,299	$7,532,745	$174,365,404

4.6 DEVELOPMENT TREND

To understand the vulnerability of the built environment within each community, an assessment of the development trends was necessary. This allows us to focus on where and what type of future development will occur and thus determine how to fortify it to be hazard resistant.

Table 71 and Figure 43 depicts the population projections for the Lowcountry region used to determine how the Lowcountry may change over the next 20 years. Based on the 2010 population, the Lowcountry region is projected to increase in population by 1.2% annually to over 360,000 people in 2040. Beaufort and Jasper Counties are anticipating an increase in population by 1.7% and 1.9% annually through 2040. On the other hand, Colleton and Jasper Counties are projected to experience negative population growth by -0.3% and -1.3% per year in the same period. This suggests a need for significant development of residential structures as well as commercial structures and infrastructure to keep up with the resulting demand.

Notes

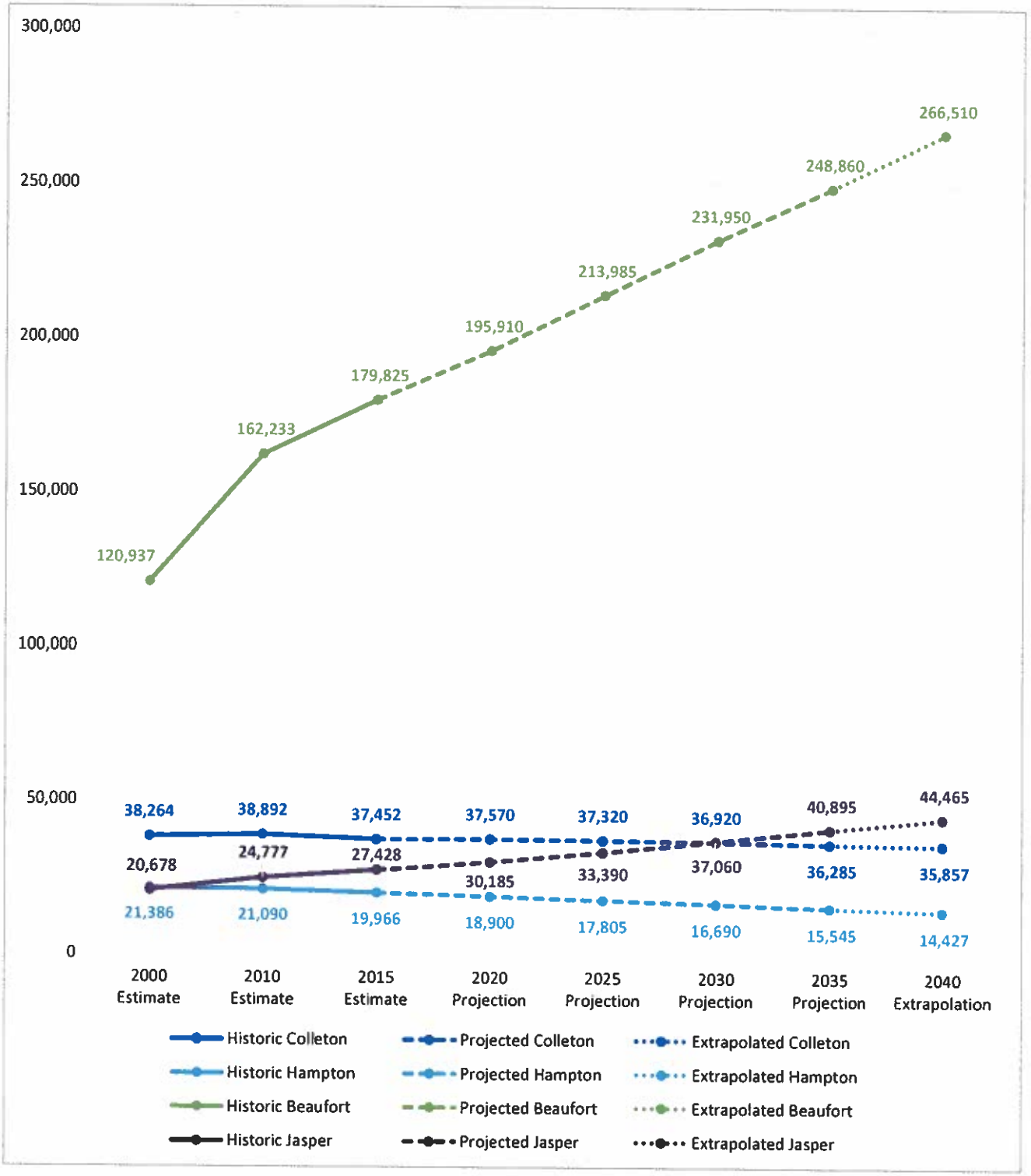
- Data for population projections are from U.S. Census Bureau, Annual Estimates of the Resident Population – Vintage 2018 and S.C. Department of Health and Environmental Control – Vital Records Department.
- Population projections 2020-2035 are calculated by S.C. Department of Revenue and Fiscal Affairs – Health and Demographics Section, using 2000 and 2010 estimates for the purpose of trend analysis.
- Population projections for 2040 were extrapolated from the 2020-2035 projections.

Table 71: Historic and Projected Population 2000-2040

County	Estimate			Projection					Annual Change 2010-2040
	2000	2010	2015	2020	2025	2030	2035	2040	
Colleton	38,304	38,896	37,452	37,570	37,320	36,920	36,285	35,857	-0.3%
Hampton	21,344	21,072	19,966	18,900	17,805	16,690	15,545	14,427	-1.3%
Beaufort	122,306	162,846	179,825	195,910	213,985	231,950	248,860	266,510	1.7%
Jasper	20,721	24,931	27,428	30,185	33,390	37,060	40,895	44,465	1.9%
Lowcountry	**204,675**	**249,755**	**266,686**	**284,585**	**304,525**	**324,650**	**343,620**	**363,299**	**1.2%**

Source: S.C. Department of Revenue and Fiscal Affairs Office, S.C. Community Profiles, S.C. Population Estimates from 2000-2015 and Population Projections from 2020-2035 (revised November 2019)

Figure 43: Historic and Projected Populations 2000-2040



Source: S.C. Revenue and Fiscal Affairs Office, S.C. Community Profiles, S.C. Population Estimates from 2000-2015 and Population Projections from 2020-2035 (revised November 2019)

Building permit data can also be used to track development trends. Building permits are a vital economic indicator tied to construction employment, future tax revenues, local purchases of building supplies, furniture, appliances, and other home furnishings. Table 72 shows the number of building permits issued each year for the construction of new dwelling units between 2011 and 2018. This data suggests continued recovery from the recent recession, which caused a sharp decline in construction throughout the region. In Jasper county, housing construction has continued to increase since 2011. In 2018, Jasper county had the most home construction in the region.

Table 72: Building Permits 2015-2019

County and Municipality	Permits	2015	2016	2017	2018	2019
Beaufort County						
Single Family Home	Number	1,471	1,375	3,453	1,523	1,350
	Value	$559,188,548	$526,088,095	$698,022,637	$580,118,656	$494,621,296
Single Family Home (w/o Land)	Average	$380,142	$382,610	$202,150	$380,905	$366,386
Manufactured Home	Number	N/A	N/A	218	16	157
	Value	N/A	N/A	N/A	815289	$1,596,925.43
Multifamily Home	Number	N/A	20	60	45	639
	Value	$39,030,060	$69,889,390	$39,178,636	$69,659,142	$140,021,970
Commercial Building	Number	109	70	261	113	82
	Value	$124,591,911	$136,682,140	$121,981,704	$207,113,347	$155,224,681
Town of Hilton Head Island						
Single Family Home	Number	1,471	1,375	3,453	1,523	1,350
	Value	$559,188,548	$526,088,095	$698,022,637	$580,118,656	$494,621,296
Single Family Home (w/o Land)	Average	$380,142	$382,610	$202,150	$380,905	$366,386
Manufactured Home	Number	N/A	N/A	218	16	157
	Value	N/A	N/A	N/A	815289	$1,596,925.43
Multifamily Home	Number	N/A	20	60	45	639
	Value	$39,030,060	$69,889,390	$39,178,636	$69,659,142	$140,021,970
Commercial Building	Number	109	70	261	113	82
	Value	$124,591,911	$136,682,140	$121,981,704	$207,113,347	$155,224,681
Colleton County						
Single Family Home	Number	39	56	51	57	50
	Value	$7,520,147	$16,752,782	$15,588,905	$13,147,929	$13,218,345
Single Family Home (w/o Land)	Average	$192,824	$299,157	$305,665	$230,665	$264,367
Manufactured Home	Number	72	103	207	137	102
	Value	N/A	N/A	N/A	34200	455,488
Multifamily Home	Number	0	0	0	0	0
	Value	$0	$0	$0	$0	$0
Commercial Building	Number	12	13	13	20	7
	Value	$10,596,542	$10,831,101	$10,559,313	$5,748,953	$2,711,842
Town of Edisto Beach						
Single Family Home	Number	1,471	1,375	3,453	1,523	1,350
	Value	$559,188,548	$526,088,095	$698,022,637	$580,118,656	$494,621,296

County and Municipality	Permits	2015	2016	2017	2018	2019
Single Family Home (w/o Land)	Average	$380,142	$382,610	$202,150	$380,905	$366,386
Manufactured Home	Number	N/A	N/A	218	16	157
	Value	N/A	N/A	N/A	815289	$1,596,925.43
Multifamily Home	Number	N/A	20	60	45	639
	Value	$39,030,060	$69,889,390	$39,178,636	$69,659,142	$140,021,970
Commercial Building	Number	109	70	261	113	82
	Value	$124,591,911	$136,682,140	$121,981,704	$207,113,347	$155,224,681
Hampton County						
Single Family Home	Number	7	8	9	6	10
	Value	$1,204,236	$1,610,646	$2,033,119	$1,627,238	$2,159,829
Single Family Home (w/o Land)	Average	$172,034	$201,331	$225,902	$271,206	$215,983
Manufactured Home	Number	13	21	32	44	39
	Value	$886,004	$1,498,846	$2,277,056	$3,785,120	$3,344,630
Multifamily Home	Number	0	1	0	0	0
	Value	$0	$2,948,677	$0	$0	$0
Commercial Building	Number	8	12	12	7	10
	Value	$5,311,884	$18,431,757	$50,478,794	$8,042,493	$7,222,664
Jasper County						
Single Family Home	Number	242	235	256	442	609
	Value	$58,212,931	$57,146,563	$61,512,090	N/A	$138,622,469
Single Family Home (w/o Land)	Average	$240,549	$243,177	$240,282	N/A	$227,623
Manufactured Home	Number	68	85	94	110	180
	Value	N/A	N/A	$9,400	N/A	$4,200,146
Multifamily Home	Number	4	27	0	0	0
	Value	$8,570,871	$34,681,057	$0	$0	$0
Commercial Building	Number	9	24	18	29	30
	Value	$12,232,181	$13,869,604	$25,819,472	$44,394,702	$43,820,232

Source: Counties and Municipalities' Database

4.7 CRITICAL FACILITIES

According to FEMA (2007), critical facilities refer to all manmade structures or other improvements providing services and functions essential to a community, especially during and after a disaster. If they are destroyed, damaged, or if their functionality is impaired there is potential to cause serious bodily harm, extensive property damage, or disruption of vital socioeconomic activities.

It is important that critical facilities are protected from natural hazards and that their structural integrity is maintained by means of necessary improvements.

Critical facilities in the Lowcountry's jurisdictions comprise both public and private facilities and vary from one jurisdiction to another (Table 73). These include:

- Police Stations
- Fire Stations
- Emergency Operation Centers
- Medical Care Facilities
- Schools
- Communication
- Wastewater Treatment and Potable Water Facilities
- Transportation Facilities including airports (including air medical services), bus, ferry, and port

Figures 44-48 below depict the critical facilities in Beaufort, Colleton, Hampton, and Jasper Counties along with evacuation routes. Details of these critical facilities are shown in Appendix H.

Example of Critical Facility

- Police stations, fire stations, critical vehicle and equipment storage facilities, and emergency operation centers
- Medical facilities, including hospitals, nursing homes, blood banks, and health care facilities (including those storing vital medical records)
- Schools and day care centers, especially if designated as shelters or evacuation centers
- Power generating stations and other public and private utility facilities
- Drinking water and wastewater treatment plants
- Structures or facilities that produce, use, or store highly volatile, flammable, explosive, toxic, and/or water-reactive materials.

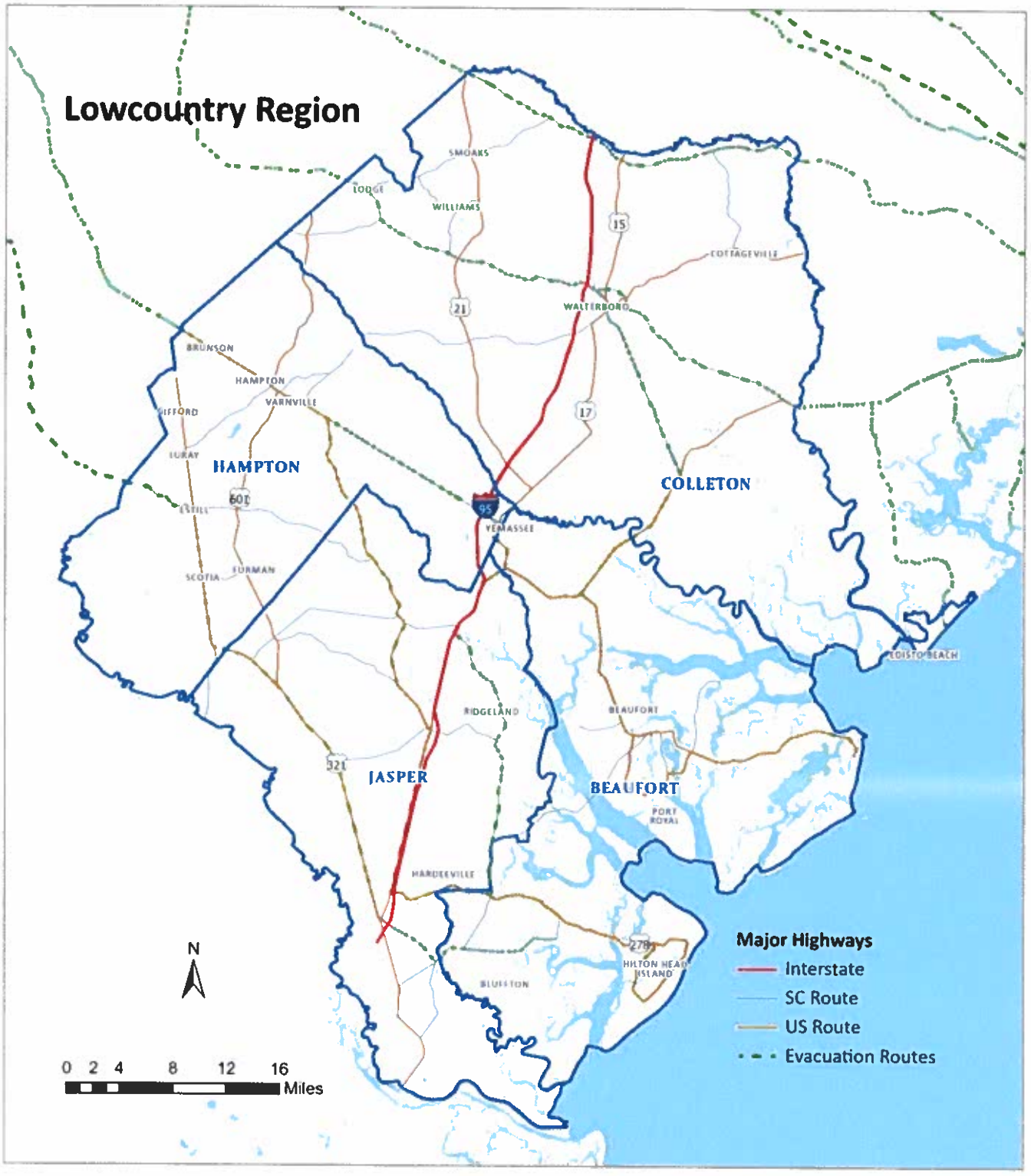
Source: FEMA (n.d.)

Table 73: Number of Critical Facilities

County and Municipality	Police Station	Fire Station	Emergency Operation Center	Medical Care Facility	School	Communication	Potable Water Facility	Wastewater Facility	Transportation Facility
Beaufort County	**6**	**33**	**1**	**4**	**55**	**6**	**70**	**10**	**12**
City of Beaufort	2	9	1	3	23	3	4	0	3
Town of Bluffton	2	4	1	0	14	0	7	0	1
Town of Hilton Head Island	1	8	1	1	9	1	51	6	5
Town of Port Royal	1	1	0	0	1	0	2	0	0
Unincorporated Areas	0	11	0	0	8	1	6	4	3
Colleton County	**6**	**30**	**0**	**0**	**17**	**0**	**38**	**0**	**8**
Town of Cottageville	1	2	0	0	1	0	0	0	0
Town of Edisto Beach	1	1	0	0	0	0	6	1	0
Town of Lodge	0	2	0	0	1	0	0	0	0
Town of Smoaks	0	2	0	0	0	0	6	0	0
City if Walterboro	4	10	1	1	13	1	21	2	1
Town of Williams	0	1	0	0	0	0	0	0	0
Unincorporated Areas	0	11	0	0	2	0	11	0	7
Hampton County	**7**	**10**	**1**	**1**	**9**	**2**	**35**	**4**	**2**
Town of Brunson	1	1	0	0	1	0	3	1	0
Town of Estill	1	3	0	0	2	0	9	1	0
Town of Furman	0	0	0	0	0	0	0	0	0
Town of Gifford	1	1	0	0	0	0	2	0	0
Town of Hampton	1	1	1	0	2	2	9	1	2
Town of Luray	0	0	0	0	0	0	0	0	0
Town of Scotia	0	0	0	0	0	0	0	0	0
Town of Varnville	2	2	0	1	3	0	4	0	0
Town of Yemassee	1	1	0	0	1	0	7	1	0
Unincorporated Areas	0	1	0	0	0	0	1	0	0
Jasper County	**3**	**12**	**1**	**1**	**12**	**0**	**22**	**6**	**4**
City of Hardeeville	2	2	0	1	4	0	9	2	2
Town of Ridgeland	1	6	1	0	8	0	13	2	2
Unincorporated Areas	0	4	0	0	0	0	0	2	0

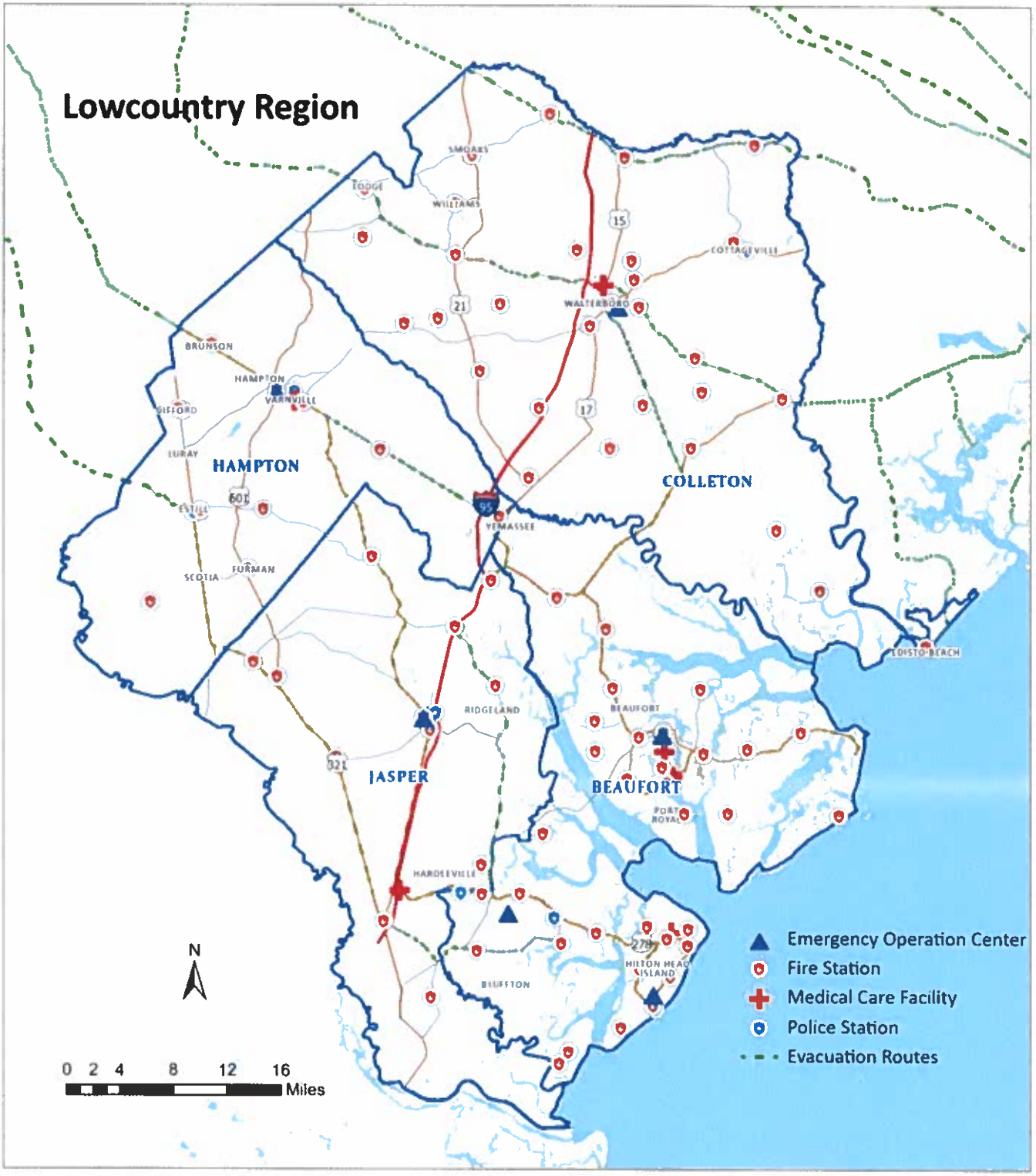
Source: HAZUS-MH and Counties' Database

Figure 44: Evacuation Routes



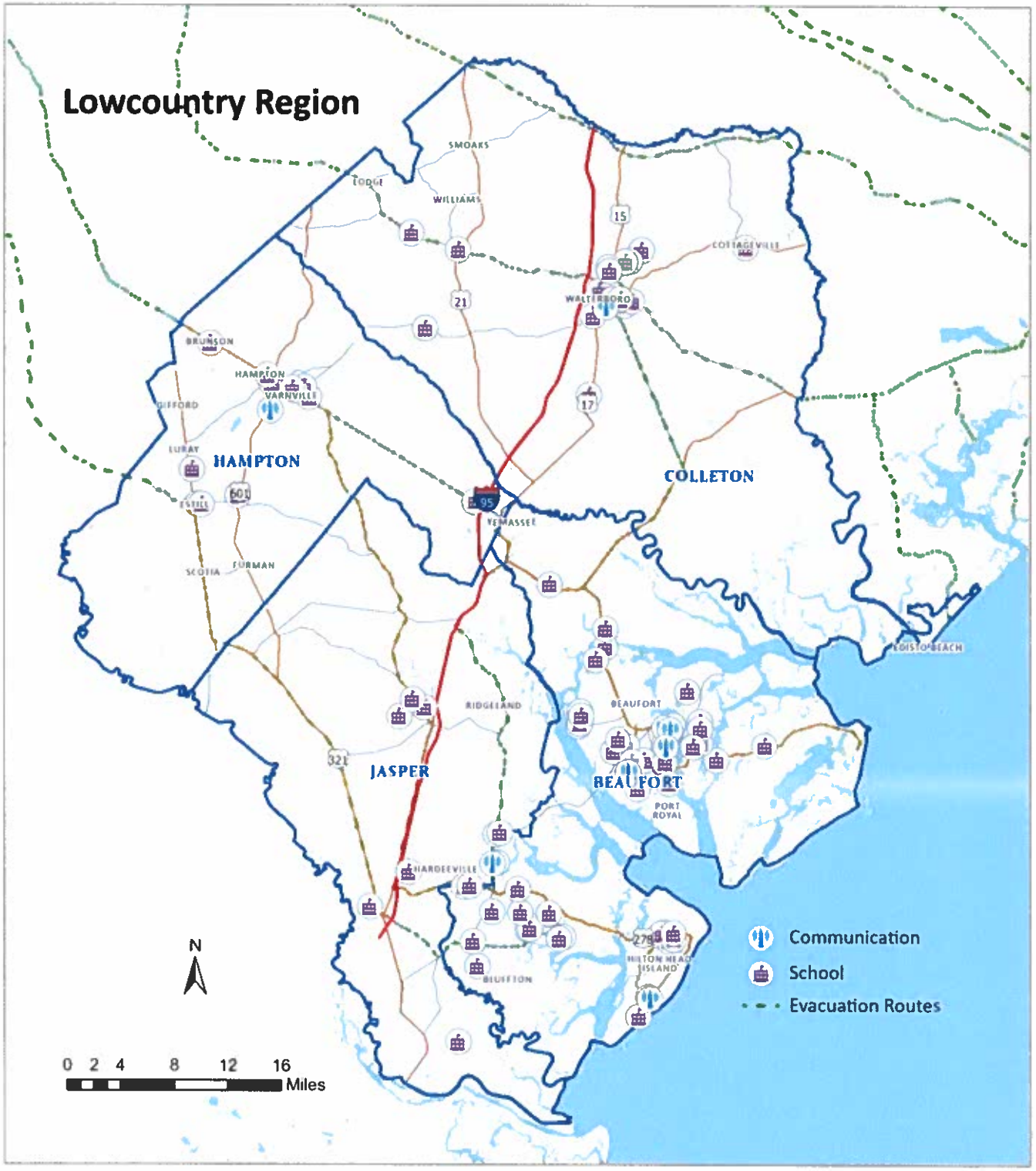
Source: HAZUS-MH and Counties' Database

Figure 45: Emergency Services



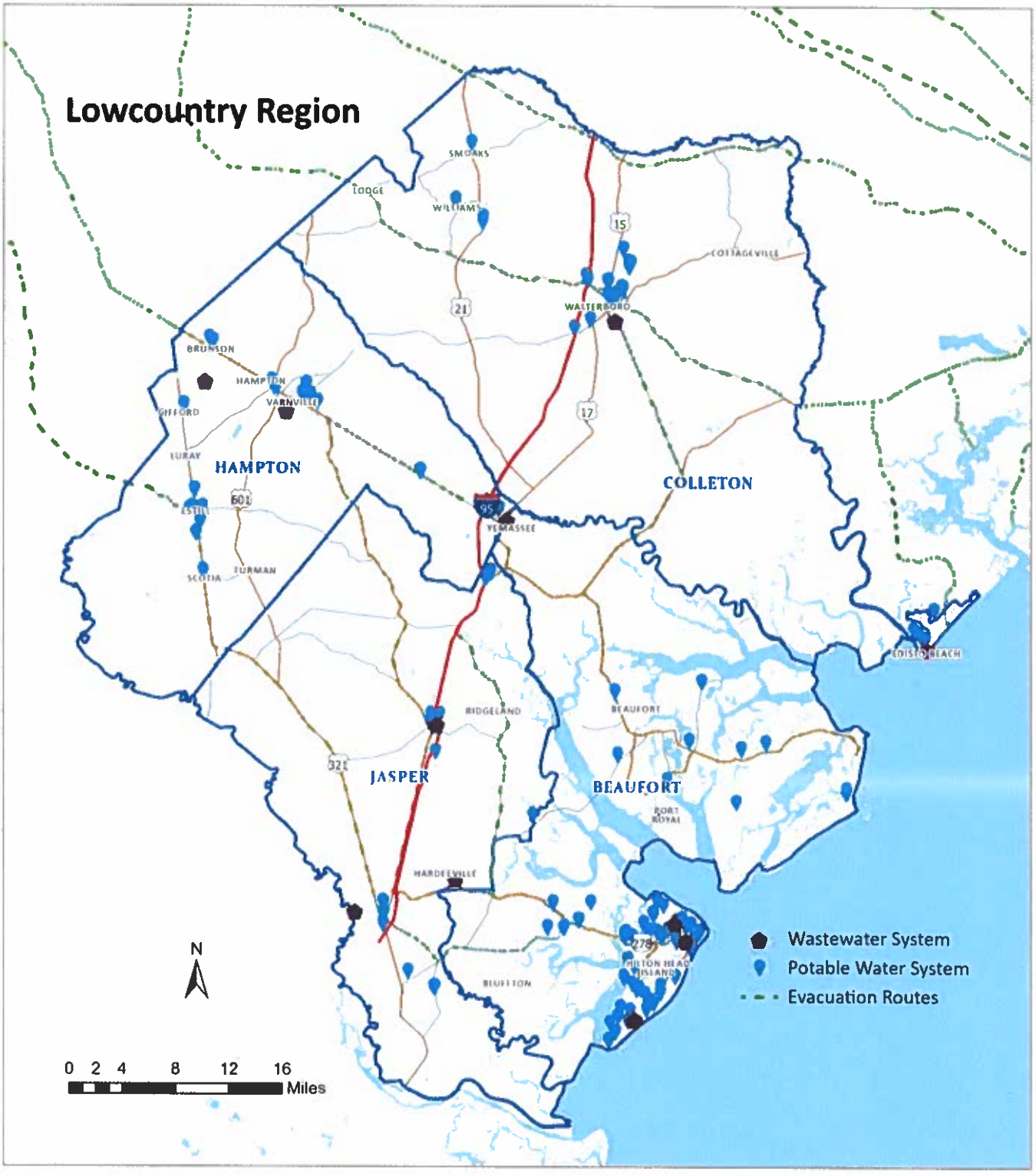
Source: HAZUS-MH and Counties' Database

Figure 46: Communication Stations and Schools



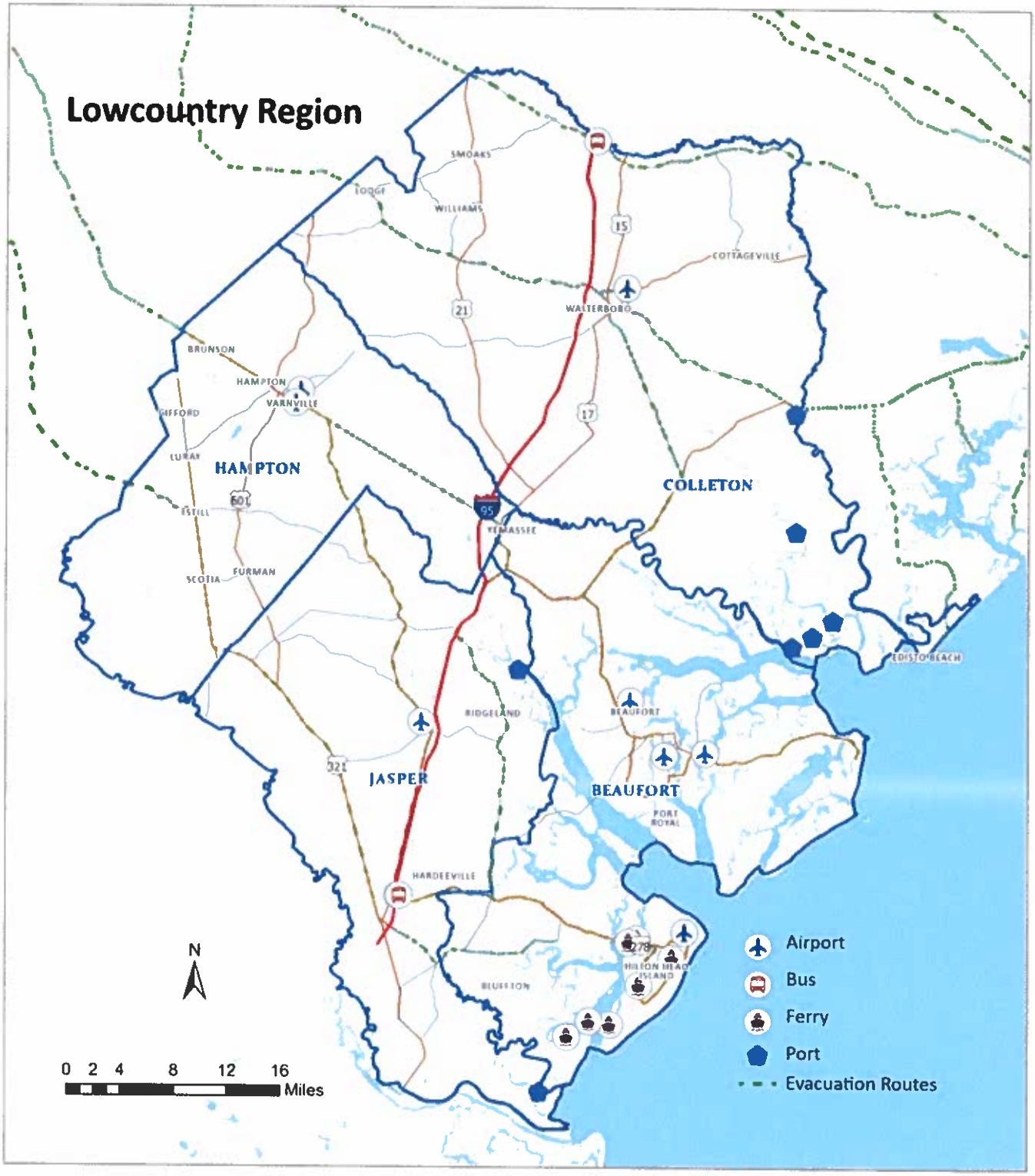
Source: HAZUS-MH and Counties' Database

Figure 47: Wastewater Treatment and Potable Water Facilities



Source: HAZUS-MH and Counties' Database

Figure 48: Transportation Facilities



Source: HAZUS-MH and Counties' Database

SECTION 5: COMMUNITY CAPABILITY ASSESSMENT

This section provides an overview of counties and corresponding jurisdictions' efforts in incorporating the current hazard mitigation plans into other various policies, plans, and ordinances. These include, but are not limited to Comprehensive Plans, Zoning Ordinances, Land Use Plans, and Flood Mitigation Plans.

5.1 EXISTING DEPARTMENTS, POLICIES, PLANS, AND ORDINANCES REVIEW

Department Capability Review

Table 74 lists all county and municipal departments directly involved in hazard mitigation. These include fire or emergency medical service, police, planning, community and economic development, and public works departments. All four counties have all departments with relative functions to hazard mitigation, while not all municipalities have all departments in place. However, municipalities, especially with small populations, receive services through their corresponding counties or other agencies.

Table 74: County and Municipality Departments Review

Jurisdictions	Fire/EMS	Police	Planning/ C&ED	Public Works/ Projects/ Facilities
Beaufort County	✓	✓	✓	✓
City of Beaufort	✓	✓	✓	✓
Town of Bluffton	✓	✓	✓	✓
Town of Hilton Head Island	✓		✓	✓
Town of Port Royal	✓	✓	✓	✓
Colleton County	✓	✓	✓	✓
Town of Cottageville	✓	✓		
Town of Edisto Beach	✓	✓	✓	✓
Town of Lodge	✓			
Town of Smoaks	✓			
City of Walterboro	✓	✓	✓	✓
Town of Williams	✓			
Hampton County	✓	✓	✓	✓
Town of Brunson	✓	✓		
Town of Estill	✓	✓		✓
Town of Furman		✓		
Town of Gifford	✓	✓		
Town of Hampton	✓	✓		✓
Town of Luray				
Town of Scotia				
Town of Varnville	✓	✓		
Town of Yemassee	✓	✓	✓	✓
Jasper County	✓	✓	✓	✓
City of Hardeeville	✓	✓	✓	✓
Town of Ridgeland	✓	✓	✓	✓

Source: Counties and Municipalities – Website and Personal Communication

Policies, Plans, and Ordinances Review

Counties and municipalities are encouraged to incorporate the hazard mitigation plan into their policies, plans, and ordinances. Table 75 identifies each jurisdiction's policies, plans, and ordinances concerning natural hazards, mitigation, and emergency preparedness. Note that not all policies, plans, and ordinances are mentioned and identified. Further incorporation is encouraged as this hazard mitigation plan continues to be amended and updated.

Table 75: Policies, Plans, and Ordinances Addressing Natural Hazards

Jurisdictions	Policies, Plans, and Ordinances Addressing Natural Hazards	Sources
Beaufort County	Comprehensive Plan 2010 (Comprehensive Plan 2020 in Process)	Beaufort County, 2010a
	Northern Beaufort County Plan	Beaufort County, n.d.-a
	Southern Beaufort County Regional Plan	Beaufort County, n.d.-b
	Okatie River Watershed Management Plan 2002	Beaufort County, 2002
	Stormwater Management Plan 2006	Beaufort County, 2006
	Daufuskie Island Plan 2010	Beaufort County, 2010b
	Battery Creek Watershed Management Plan 2013	Beaufort County, 2013
	Disaster Recovery Plan 2016	Beaufort County, 2016
	Flood Damage Prevention Ordinance 2020	Municode, n.d.-a
	Disaster Recovery Ordinance 2019	Municode, n.d.-a
	Community Development Code 2020	Municode, n.d.-b
	All ICC Building Codes without amendments	LCOG, 2015a
	National Flood Insurance Program (NFIP)	FEMA, 2020e
	Community Rating System (CRS)	FEMA, 2019b
City of Beaufort	Comprehensive Plan 2009 (Comprehensive 2020 in Process)	City of Beaufort, 2009
	Historic Preservation Plan 2008	City of Beaufort, 2008
	Battery Creek Watershed Management Plan 2013	Beaufort County, 2013
	Unified Development Ordinance 2006	Municode, n.d.-c
	Flood Damage Prevention Ordinance 2020	Municode, n.d.-c
	Zoning Ordinance 2020	Municode, n.d.-c
	All ICC Building Codes without amendments	LCOG, 2015a
	National Flood Insurance Program (NFIP)	FEMA, 2020e
	Community Rating System (CRS)	FEMA, 2019b
Town of Bluffton	Comprehensive Plan 2007 (Comprehensive Plan 5-Year audit 2014)	Town of Bluffton, 2014
	May River Watershed Action Plan 2011	Town of Bluffton, 2011
	Flood Damage Prevention Ordinance 2020	Municode, n.d.-d
	Emergency Permitting Procedures Ordinance 2020	Municode, n.d.-d
	Unified Development Ordinance 2020	Municode, n.d.-d
	All ICC Building Codes without amendments	LCOG, 2015a
	National Flood Insurance Program (NFIP)	FEMA, 2020e
Town of Hilton Head Island	Comprehensive Plan 2020-2040	Town of Hilton Head, 2020
	Broad Creek Management Plan 2002	Town of Hilton Head, 2020
	Beach Management Plan 2017	Town of Hilton Head, 2017
	Fire Rescue Strategic Plan 2018-2023	Town of Hilton Head, 2019

Jurisdictions	Policies, Plans, and Ordinances Addressing Natural Hazards	Sources
	Land Management Ordinance 2014	Municode, n.d.-e
	All ICC Building Codes without amendments	LCOG, 2015a
	National Flood Insurance Program (NFIP)	FEMA, 2020e
	Community Rating System (CRS)	FEMA, 2020e
Town of Port Royal	Comprehensive Plan 2009 (Update of 2014, Comprehensive Plan 2020 in Process)	Town of Port Royal, 2009
	Flood Damage Prevention Ordinance 2010	Municode, n.d.-f
	All ICC Building Codes without amendments	LCOG, 2015a
	National Flood Insurance Program (NFIP)	FEMA, 2020e
	Community Rating System (CRS)	FEMA, 2019b
Colleton County	Comprehensive Plan 2030	Colleton County, 2020
	Emergency Operations Plan 2018	Colleton County, 2018
	Floodplain Ordinance 2008	Municode, n.d.-g
	Flood Damage Prevention Ordinance 2018	Municode, n.d.-g
	Zoning Ordinance 2018	Municode, n.d.-g
	National Flood Insurance Program (NFIP)	FEMA, 2020e
	Community Rating System (CRS)	FEMA, 2019b
Town of Cottageville	Comprehensive Plan 2003	Town of Cottageville, 2003
	National Flood Insurance Program (NFIP)	FEMA, 2020e
Town of Edisto Beach	Comprehensive Plan 2010	Town of Edisto Beach, 2010
	Local Comprehensive Beach Management Plan 2017	Town of Edisto Beach, 2017
	Flood Damage Prevention Ordinance 2020	Municode, n.d.-h
	Zoning Ordinance 2020	Municode, n.d.-h
	Land Development and Subdivision Regulations	Municode, n.d.-h
	National Flood Insurance Program (NFIP)	FEMA, 2020e
	Community Rating System (CRS)	FEMA, 2020e
Town of Lodge	National Flood Insurance Program (NFIP)	FEMA, 2020e
Town of Smoaks	National Flood Insurance Program (NFIP)	FEMA, 2020e
City of Walterboro	Comprehensive Plan 2010	City of Walterboro, 2010
	Unified Development Ordinances 2019	Municode, n.d.-i
Town of Williams	National Flood Insurance Program (NFIP)	FEMA, 2020e
Hampton County	Comprehensive Plan 2009	Hampton County, 2009
	Unified Land Development Ordinance 1994	Hampton County, 1994
	Stormwater Management and Erosion and Sediment Control Ordinance 2003	Hampton County, 2003
	Flood Damage Prevention Ordinance 2012	Hampton County, 2012
	National Flood Insurance Program (NFIP)	FEMA, 2020e
Town of Brunson	Comprehensive Plan 2000	Town of Brunson, n.d.-b
	Emergency Response Plan	Town of Brunson, n.d.-b
	National Flood Insurance Program (NFIP)	FEMA, 2020e
Town of Estill	Comprehensive Plan 2010	Town of Estill, 2010
	Zoning and Land Development Regulations Ordinance 2012.	Town of Estill, 2012
	National Flood Insurance Program (NFIP)	FEMA, 2020e
Town of Furman	National Flood Insurance Program (NFIP)	FEMA, 2020e

Jurisdictions	Policies, Plans, and Ordinances Addressing Natural Hazards	Sources
Town of Gifford	National Flood Insurance Program (NFIP)	FEMA, 2020e
Town of Hampton	Comprehensive Plan 2008	Town of Hampton, 2008
	Flood Prevention Ordinance 2013	Municode, n.d.-j
	Zoning Ordinance 2013	Municode, n.d.-j
	National Flood Insurance Program (NFIP)	FEMA, 2020e
Town of Luray	National Flood Insurance Program (NFIP)	FEMA, 2020e
Town of Scotia	National Flood Insurance Program (NFIP)	FEMA, 2020e
Town of Varnville	Comprehensive Plan 2012	Town of Varnville, 2012
	National Flood Insurance Program (NFIP)	FEMA, 2020e
Town of Yemassee	Comprehensive Plan 2005	LCOG, 2015a
	National Flood Insurance Program (NFIP)	FEMA, 2020e
Jasper County	Comprehensive Master Plan 2018	Jasper County, 2018
	Flood Damage Prevention Ordinance 2015-2016	Municode, n.d.-k
	Zoning Ordinance 2017	Municode, n.d.-k
	Land Development Regulation 2020	Municode, n.d.-k
	National Flood Insurance Program (NFIP)	FEMA, 2020e
City of Hardeeville	Comprehensive Plan 2019	City of Hardeeville, 2019
	Flood Damage Prevention Ordinance 2020	Municode, n.d.-l
	Zoning and Development Ordinances	Municode, n.d.-l
	National Flood Insurance Program (NFIP)	FEMA, 2020e
Town of Ridgeland	Comprehensive Plan 2017	Town of Ridgeland, 2017
	Flood Damage Prevention Ordinance 2019	Municode, n.d.-m
	Zoning Ordinance 2019	Municode, n.d.-m
	National Flood Insurance Program (NFIP)	FEMA, 2020e

Source: Counties and Municipalities – Website and Personal Communication

National Flood Insurance Program (NFIP)

All four counties participate in the National Flood Insurance Program (NFIP), as do several municipalities (Table 76). If communities participate in the Community Rating System (CRS), they receive discounts on the NFIP premiums. In addition to selected municipalities, Beaufort and Colleton Counties including all unincorporated areas participate in the CRS.

CRS Premium Discounts by Class and Flood Zone			
Class	Discount	Class	Discount
1	45%	6	20%
2	40%	7	15%
3	35%	8	10%
4	30%	9	5%
5	25%	10	-

Another way to monitor the flood hazard is to identify the number of properties that filed multiple flood insurance claims for repeated flooding. Properties experiencing repetitive loss have filed flood insurance claims of more than $1,000 that were then paid by the NFIP within a rolling window of 10 years. Reducing the number of properties with repetitive loss is part of the overall flood mitigation strategy for the state.

Maintaining compliance under the NFIP is essential. All participating jurisdictions have identified actions to remain compliant in the NFIP. These include but are not limited to:

- Adoption and enforcement of floodplain management requirements for new construction and substantial/non-substantial improvements. Permits are required for all types of development in the floodplain.
- Standard operating procedures for how communities receive, maintain, store, and provide copies of elevation certificates. Elevation certificates are maintained on file and are required to be submitted for all structures built in Special Flood Hazard Areas.
- Adoption of higher regulatory standards, to include higher freeboard requirements, local drainage protection, enforcing strict limits on development of beachfront properties, and elevated administrative tracking of all activities within special flood hazard areas.
- Adoption of a new floodplain map, adoption of letter of map revisions, and flood maps available to the public both online and in-person.
- Designation of a local floodplain administrator, or comparable position, including duties and responsibilities.
- Resources for community assistance distributed through a mailing list, or on the Floodplain Management Department or Emergency Management Department websites. These include, but are not limited to annual flood prevention information, participation in the NFIP and CRS, map determinations, FIRM, elevation certificates, and beneficial function of the floodplain.
- Monitoring the effects of the changing environment to evaluate and improve protection for local infrastructure and citizens.

Table 76: Communities Participating in the National Flood Insurance Program

	Current Effective Map Date[1]	Community Rating System Class (% Discount)[2]	Number of Repetitive Loss Properties[3]			
			Total	Residential	Non-Residential	Commercial
Beaufort County	03/23/2021	5 (25)	229	224	-	5
City of Beaufort	03/23/2021	7 (15)	3	3	-	-
Town of Bluffton	03/23/2021	-	-	-	-	-
Town of Hilton Head Island	03/23/2021	5 (25)	106	106	-	-
Town of Port Royal	03/23/2021	9 (5)	-	-	-	-
Colleton County	12/21/2017	7 (15)	11	11	-	-
Town of Cottageville	12/21/2017	-	-	-	-	-
Town of Edisto Beach	12/21/2017	6 (20)	41	39	-	3
City of Walterboro	12/21/2017	-	1	1	-	-
Town of Williams	12/21/2017	-	-	-	-	-
Hampton County	09/29/2010	-	-	-	-	-
Town of Brunson	09/29/2010	-	-	-	-	-
Town of Estill	09/29/2010	-	-	-	-	-
Town of Furman	09/29/2010	-	-	-	-	-
Town of Gifford	09/29/2010	-	-	-	-	-
Town of Hampton	09/29/2010	-	2	2	-	-
Town of Luray	09/29/2010	-	-	-	-	-
Town of Scotia	09/29/2010	-	-	-	-	-
Town of Varnville	09/29/2010	-	-	-	-	-
Town of Yemassee	03/23/2021	-	-	-	-	-
Jasper County	10/18/2019	-	11	6	-	5
City of Hardeeville	10/18/2019	-	-	-	-	-
Town of Ridgeland	10/18/2019	-	-	-	-	-

Note: Data as of 9/24/2019, Counties include unincorporated areas
Source: [1]FEMA (2020e), [2]FEMA (2019b), [3]SCEMD (2018, p. 102-104) and Counties and Municipalities

SECTION 6: HAZARD MITIGATION STRATEGY

This section presents the hazard mitigation goals and strategies for the counties and municipalities participating in this plan. The goals and strategies from the 2015 plans, Beaufort County Hazard Mitigation Plan and Lowcountry Region Natural Hazard Mitigation Plan, were revised based on the information from the above Sections. The update of the 2015 hazard mitigation actions is taken into account in the revision of these goals and strategies. Lastly, the new actions are presented here for the 2020 Lowcountry Natural Hazard Mitigation Plan.

6.1 UPDATE OF 2015 HAZARD MITIGATION ACTIONS

The 2015 Plan was evaluated to identify what actions had and had not been implemented by the respective counties and municipalities. This process provides information on what impediments caused unsuccessful implementation. This process was completed by the Steering Committee and emergency managers for all counties and municipalities. Table 77 below is the summary of completed mitigation actions categorized into four mitigation types, including (1) local plans and regulations, (2) structure and infrastructure projects, (3) natural systems protection, and (4) education and awareness programs (FEMA, 2013). An explanation of each type of mitigation can be found in Appendix I. The full list of hazard mitigation actions from the 2015 plans and their status can be seen in Appendix J.

2015 Completed Hazard Mitigation Actions

Table 77: Summary of 2015 Completed Hazard Mitigation Actions

Mitigation Types	2015 Completed Actions
Local Plans and Regulations	▪ Beaufort, Colleton, Hampton, and Jasper Counties and Town of Edisto Beach formalized mutual-aid agreements with SCDOT and SCEMD for debris removal. ▪ Beaufort County, Colleton County, and Town of Hilton Head Island are now recognized as TsunamiReady communities. ▪ City of Beaufort adopted a resolution to become a member of the American Flood Coalition. ▪ Colleton County identified primary zoning districts to define as resource conservation to protect fragile wetlands, marshes, beaches and sand dunes, rivers, creeks, islands, and other natural resources critical to the ecosystems within the ACE Basin. ▪ Colleton County created plans for maintaining adequate road and debris clearing capabilities, stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities, and detailed floodplain management planning and mapping in accordance with the CRS. ▪ Hampton County enforced newest building codes by monitoring new renovations and construction.
Structure and Infrastructure Projects	▪ Beaufort County created a joint permitting center for post-hazard recovery by Building Codes creating a one-stop shop that is located on the 2nd floor of the Administration Building. ▪ Beaufort County hardened the Fire Station for Daufuskie Fire Department to also be utilized as an emergency shelter.

Mitigation Types	2015 Completed Actions
	▪ City of Beaufort undertook inventory of emergency response survey and purchased support vehicles (2 LMTVs), 60 kw-generator, field A/C units, and mobile kitchen. ▪ Hilton Head Island completed a study of vulnerable bridges to determine which ones should be hardened and conduct maintenance of these bridges and HHI Causeways, the study of Urban Tree Cover Vulnerability and Risks, and Power Line Survey. ▪ Hilton Head Island purchased a support trailer and new ambulances for Fire-Rescue, replaced tow vehicles for Fire Rescue, and purchased a new generator for the Island Recreation Center. Additionally, $50K has been allocated to install a new generator at the Fire Rescue communications tower. ▪ Colleton County Identified specific at-risk populations that may be exceptionally vulnerable in the event of long-term power outages. ▪ Several studies were conducted by Colleton County including Areas with Repetitive Flooding Study, Shelter Suitability Survey, Inventory of Emergency Response Survey, and a cost-benefit analysis for making improvements to the County Airport. ▪ Colleton County improved emergency services and critical facilities including adding backup power for EM shelters, generators connection, installing software enabling social media calls integrated into the 911 dispatch systems, and providing transportation to get residents in need to emergency shelters. ▪ Colleton County identified and elevated roads and bridges above the base flood elevation to maintain dry access including construction, reconstruction, or repair of drainage, and stabilization or armoring of vulnerable shoulders or embankments. ▪ A new Fire Chief was hired at Colleton County. ▪ Town of Edisto Beach conducted areas with repetitive flooding study, completed the Myrtle Street Drainage project and is working on drainage in the Arc/Billow streets area, constructed a reverse osmosis water plant and three new wells and storage facility, implemented design of a new Town Hall Complex to include an emergency operations center, renovated the fire station barracks and implemented a sea turtle protection project installing turtle safe lighting along Palmetto Boulevard. ▪ Hampton County undertook an Evacuation Needs Study, Special Needs Population Study, and Shelter Suitability Survey. ▪ Hampton County has made improvements to utilities (water, sewer, and electric), generators, Information Technology System, data storage, and back-up power. ▪ Jasper County evaluated its backup power system to ensure all shelters have adequate emergency power resources. ▪ Jasper County added a new Fire Rescue Station 34 ($1.5 mil) and remodeled existing Fire Rescue Station 35 ($270K). ▪ Jasper County repaired the roof at the County Emergency Services/911 communications Center ($125K) and is adding a transfer switch to the Criminal Investigation Division of Sheriff's Office for backup generator support ($7K). ▪ Ridgeland-Hardeeville High School campus completed a 2 MW generator installation, added wind shutters on all openings, and installed a generator on the wastewater lift-station for campus (all cost $1.7 mil). ▪ Jasper County Emergency Services received LEMPG funds and received the SAFER Grant for the recruiting and retention of volunteer firefighters.

Mitigation Types	2015 Completed Actions
Natural Systems Protection	▪ Hilton Head Island completed Mitchelville/Palmetto Hall Watershed Study in July 2019. ▪ Colleton County encouraged farmers to implement soil and water conservation practices that foster soil health and improve soil quality to help increase resiliency and mitigate the impacts of droughts. ▪ Colleton County identified and protected wetlands that serve as flood storage areas. ▪ Colleton County completed an analysis for renewable energy options: costs, benefits, environmental effects, technological potential, and political acceptability. ▪ Hampton County safely increased tree plantings around buildings to shade parking lots and along public rights-of-way.
Education and Awareness Programs	▪ City of Beaufort developed an effective local outreach program that raises public awareness about flood related issues. These include, but are not limited to, flood protection brochure, annual hurricane fair, flood education and preparedness program at a middle and high school, and city's substantial damage rules. ▪ Hilton Head Island made outreach efforts to rural populations and local businesses and distributed Hazard Publications to tourist and hotels. ▪ Several awareness events made by counties including coordinating with churches and other faith-based institutions to ensure they understand services provided in the aftermath of a hazard event, utilizing social media posting information regarding a hazard strike, conducting Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability, and posting information in public spaces and home improvement stores regarding how to prepare homes, family, and property for disasters. ▪ City of Walterboro and Towns of Cottageville, Lodge, and Smoaks promoted use of National Oceanic and Atmospheric Administration (NOAA) weather radios. ▪ Jasper County engaged in the distribution of hurricane preparedness guides in English and Spanish for the communities and utilized social media platforms to share information with public and keep them informed.

2015 Implementation Impediments

There are similar impediments across jurisdictions in implementing hazard mitigation actions. Some actions were not completed, deferred, or discarded mainly due to lack of funding, shortage of personnel, ineffective communication, and political will. Lack of funding leads to the competing actions' prioritization. The available funding can be diverted to the actions of higher or lower priorities. Jurisdictions also had difficulties in staff recruitment and retention. Less staff coupled with less expertise can diminish jurisdictions' capabilities to accomplish the mitigation actions. Engaging and communicating with the public relating to hazard risk and preparedness can be challenging. Finally, lack of political may lead to unclear policy establishments and implementation of hazard mitigation action.

6.2 UPDATE OF HAZARD MITIGATION STRATEGY

The mitigation strategies below serve as the most recent update and present the forward motion of the counties and participating jurisdictions. This process was completed by the Steering Committee, with the assistance of the LCOG. These goals and strategies are consistent with the previous plans' guiding principles.

Guiding Principles

- Bridging the unique needs and common goals of the four counties and their communities.
- Saving lives and protecting property.
- Taking a regional approach.
- Complementing the State Plan.
- Accessing funding to implement recommendations (projects and policies).

Goals and Strategies

Building from the 2015 plans, these goals and strategies were reviewed and determined to reflect regional and local needs in response to the natural hazards both before and after their occurrences. They are based on the information gathered throughout the planning process including the socioeconomic condition's analysis, hazards profile and vulnerability assessment, stakeholders and public input, and progress on the actions of the previous plans. The goals and strategies are influenced by:

- *Changes in Community Needs:* Population growth and projections indicate development patterns that could influence the effects of hazards, increasing the demand for services in case of emergency. The trend indicates an increase of vulnerable populations including elderly, low-income, and Hispanics (language proficiency). New technology leads to the need for innovative emergency services and critical facilities. These conditions have continued since the 2015 plans.
- *Changes in Hazard Conditions:* There have been more frequent hurricanes in the past five years including Hurricane Joaquin, Hurricane Matthew, Hurricane Irma, Hurricane Florence, and Hurricane Dorian. These hurricanes produced damages to warrant Presidential Disaster Declarations (PDD).

Below are the new six goals and thirty strategies for the 2020 Lowcountry Natural Hazard Mitigation Plan.

- Goal: A broad based statement of intent that establishes the direction for the Lowcountry Natural Hazard Mitigation Plan. Goals state desired outcomes for the overall implementation process.
- Strategy: An overall approach or method for attaining goals.
- Action: A specific approach, or project/program that aims to reduce vulnerability and risk in the impact area involving a specific entity, interest, and funding mechanism. Actions should match hazard mitigation goals.

Table 78: 2020 Hazard Mitigation Goals and Strategies

Goals	Strategies
1. Protection of Structural Projects, Utilities, and other Critical Facilities and Systems from Natural Hazards	1.1 Continue to protect critical facilities both public and private (roads, bridges, water, sewer, electricity, and others) and critical services (fire, rescue, medical, and others) from natural hazard threats. 1.2 Continue to identify and schedule repairs and other improvements needed to ensure buildings are in adequate condition and with adequate equipment to function in the event of a disaster. 1.3 Inspect and assess utilities' capability and vulnerability to ensure they can handle natural disasters. 1.4 Ensure integrity of dams, levees, seawalls detention/retention basins, channel modification, retaining walls, and storm sewers. 1.5 Determine adequacy of current regional communications infrastructure and address needed improvements.
2. Enhancement of Public Education and Awareness of Natural Hazards	2.1 Develop an ongoing public communications and education program including a website, pamphlets, informational packets, and articles in the local media. 2.2 Include information on how to respond to natural hazard threats including mitigation techniques, protective measures, and evacuation preparedness that businesses and homeowners can take. 2.3 Incorporate the use of local television channels, email, and social media, including Facebook ™ and Twitter™ to ensure that as many segments of the population as possible are reached.
3. Improvement of Policies and Standards to Reduce the Impacts of Natural Hazards	3.1 Continue efforts to revise, update, and improve plans, codes, zoning, and other mechanisms to address natural hazard mitigation, and expand on present policies to further protect the counties and incorporated municipalities (floodplains, repetitive loss areas, and others). 3.2 Continue to enforce policies and ordinances for zoning, floodplains, flood damage prevention, stormwater management, building codes, beach renourishment, and others. 3.3 Encourage participation in the National Flood Insurance Program (NFIP) and work toward the lowering of the CRS rating. 3.4 Continue to seek grant funding for hazard mitigation related projects and programs. 3.5 Consider more rigorous standards for hazard-resistant construction, increased regulation of construction in hazard-prone areas as well as enhanced enforcement of existing regulations.
4. Enhancement of Emergency Services through Sustained System and Technology Improvements	4.1 Continue to update the Emergency Operation/Response Plan on an annual basis including information on responsible parties and contact information. 4.2 Maintain sufficient and up to date equipment and training for EMS, police, fire, and other departments to ensure the prompt responses and the safety of residents. 4.3 Maintain warning systems, evacuation planning, and emergency response training. 4.4 Maintain safe and efficient evacuation routes – continue to cooperate with each other and SCDOT on highways connecting the counties. 4.5 Maintain sufficient and safe shelters for potential needs - should be

Goals	Strategies
	able to accommodate all members of the area's population, including those with special medical or other needs. 4.6 Maintain the IT capabilities of local governments to ensure continuity of operations in the event of disaster, including supporting the use of centralized technology, located as far inland as possible, and developing a hosted (for instance, the "cloud") storage system. 4.7 Coordinate with the county and regional offices of the various state human services departments. 4.8 Maintain and enhance working relationships among local governments.
5 Protection of Properties and Resources	5.1 Encourage use of innovative hazard-resistant construction techniques/materials (reinforced, impact-resistant doors, storm-resistant windows, hurricane shutters, and others). 5.2 Advise/assist property owners in retrofitting homes, businesses, and institutional facilities. 5.3 Monitor and maintain trees and branches, in public areas, at risk of breaking or falling during hazards incidents (heavy rain, wind, storm etc.) and damaging property. 5.4 Utilize currently available information and mapping to help determine the areas and magnitude of impacts from flooding and sea level rise. 5.5 Seek grants for protective measures – include elevation and property acquisition for flooding mitigation. 5.6 Enhance floodplain protection, habitat preservation, wetland restoration and forest management.
6. Assistance of Targeted Vulnerable Population	6.1 Undertake outreach campaign to low-income, elderly, and Limited English Proficient (LEP)populations. 6.2 Promote volunteer involvement in emergency preparedness and response through education training program. 6.3 Continue to provide emergency preparedness and response through Area Agency on Aging (AAA), local councils, and relevant agencies.

6.3 2020 NEW HAZARD MITIGATION ACTIONS

New hazard mitigation actions are based on changing conditions and the reassessment of goals and strategies of the 2020 Plan. These actions involve a specific approach or project/program aimed at hazard mitigation, involving a specific entity, interest, and funding mechanism. By identifying specific actions, the plan helps participating jurisdictions to engage in distinct actions that will reduce their exposure to future hazard events and disasters. In the event of a large-scale incident, all jurisdictions will need to work together.

Cost-Benefit Analysis

New hazard mitigation actions have been prioritized using a similar approach as the 2015 Plans. Table 79 explains scoring criteria used as a cost-benefit tool to further prioritize the actions. These criteria consider legal, economic, political, and environmental conditions. Each condition was ranked as either a cost or a benefit, and then scores corresponded to a high, medium, or low priority. With the highest score at 27 and the lowest at zero (0), the actions were prioritized as follow:

- High Priority: Scores greater than 20
- Medium Priority: Score between 10-19
- Low Priority: Scores less than 10

Table 79: Prioritization Scoring Criteria

Criteria	Numeric Score			
	0	1	2	3
Strategy Effectiveness, in Terms of Affected Structures	No effect on risk or hazard	Affects several structures within the community	Affects many structures within the community	Affects most structures within the community
Percentage of Population Benefitted	Less than 10% benefitted	10% to 15% benefitted	50% to 75% benefitted	Greater than 75% benefitted
Time to Implement	Cannot be implemented	Long term	Within one year	Immediate
Time to Impact	Cannot be implemented	Long term	Within one year	Immediate
Cost to Community	Completely unaffordable	Expensive	Inexpensive	Little to no Cost
Funding Source	No known Funding source is available	Requires outside Funding	Requires budget consideration	Within existing county budget
Cost to Others	Cost to others is unacceptable	Expensive, but manageable	Cost is easily managed by others	No cost to others
Community Support	Opposed by the entire community	Some community opposition	Acceptable only to those affected by the project	Acceptable community wide
Project Feasibility	Not possible	Accomplished with extensive design and planning	Accomplished with some design and planning	Easily accomplished

The cost-benefit review was done in which actions that have maximum benefits from their associated costs are ranked higher in priority than those that have lower benefits from their costs. Action prioritization does not indicate the level of importance. It helps to identify actions that can immediately aid in the mitigation of the most likely and dangerous natural hazards. Action prioritization was assessed based on retaining NFIP compliance. NFIP compliance is based on three basic aspects: flood plain identification and mapping, flood-plain management, and flood insurance. Currently, the only Lowcountry community sanctioned under the NFIP is Smoaks.

2020 New and Ongoing Hazard Mitigation Actions

Considering current socioeconomic conditions, record of natural hazard incidents, and public input, each jurisdiction identified and proposed specific action(s) that, if accomplished, will reduce vulnerability and risk in the area.

Table 80 provides a summary of new actions as well as actions that have continued (ongoing) from the 2015 plans. These actions are categorized into four mitigation types recommended by FEMA (2013). These include (1) local plans and regulations, (2) structure and infrastructure projects, (3) natural systems protection, and (4) education and awareness programs. The explanation of each mitigation type can be seen in Appendix I. The full list of the 2020 new and ongoing hazard mitigation actions are displayed in Appendix K.

Table 80: Summary of 2020 New and Ongoing Hazard Mitigation Actions

Mitigation Types	2020 New and Ongoing Actions
Local Plans and Regulations	▪ Provide routine update of Hazard Mitigation Plan and append the new hazard mitigation plan to all comprehensive plans as they are updated, or at earliest date available. ▪ All communities to continue to support storm water management plan for future projects and develop watershed master plans through detailed inventory and modeling projects to identify and mitigate flood hazards. ▪ Continue to enforce floodplain regulations to ensure proper development in compliance with all building codes, FEMA regulations, and any other pertinent ordinances. ▪ Continue to train building officials on most up to date code requirements for hazard resistant construction. ▪ Maintain or improve the CRS rating. ▪ Conduct storm water drainage study and plan to identify drainage ditches and promote cleanup. ▪ Enforce rules against removal of wetlands. ▪ Update and enforce zoning and building codes and policies to ensure no new structures built within floodplains. ▪ Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities and make improvements. ▪ Enforce Building Code – overseeing strict adherence to new building standards by closely monitoring all new renovations and construction.
Structure and Infrastructure Projects	▪ Support ongoing efforts for a regional warehouse for emergency supply storage - a site was identified in Colleton County; training is pending for future operations.

Mitigation Types	2020 New and Ongoing Actions
	▪ Determine the vulnerability of backup power for critical facilities; create a strategy for additional investment in generators and electrical upfits – pending grant projects awarded; conduct periodic surveys of the equipment used by emergency personnel and write the appropriations into their budget. ▪ Seek funding for hazard mitigation projects, educate staff and public on grant programs and funding opportunities, and provide training to staff on disaster response and recovery. ▪ Make needed improvements to the causeway and bridge as it is the primary evacuation route – paving highways to allow 4 lanes of traffic to evacuate during hazard events and providing materials for stranded motorists during a hazard. ▪ Identify and elevate roads and bridges above the base flood elevation to maintain dry access in situations where flood waters tend to wash roads out, construction, reconstruction, or repair can include not only attention to drainage, but also stabilization or armoring of vulnerable shoulders or embankments. ▪ Assist private home and business owners to obtain funding for retrofitting hazard prone buildings – currently having a project pursuing to assist a homeowner in elevating their home. ▪ Continue to evaluate need to harden critical facilities (Town Hall, Fire and Rescue Headquarters and other critical facilities as listed in this plan) to reduce vulnerability to hazards. ▪ Continue to implement structural drainage projects. ▪ Inspect and improve utility and communication lines and develop new or upgrading existing water delivery systems to eliminate breaks and leaks. ▪ Improve information technology system – providing laptops for backing up important data, scanning and storing important documents. ▪ Provide shelter development to strengthen county and municipality buildings designated as hurricane shelters. ▪ Identify vulnerable and special need population and develop rescue and evacuation procedures suitable for them. ▪ Develop an inventory of public and commercial buildings that may be particularly vulnerable to earthquake damage, including pre-1940s homes and homes with cripple wall foundations. ▪ Conduct an assessment and cost benefit-analysis for making improvement to the County Airport (Jasper County) and make improvements where needed.
Natural Systems Protection	▪ Continue to maintain open space related to storm water management and areas subject to repetitive flooding - maintain natural waterways to ensure adequate conveyance and acquisition for parks and other permanent open space. ▪ Continue to perform periodic nourishment of its beaches. ▪ Identify and protect wetlands that serve as flood storage areas and promote Wetland Protection Preservation through education of public about buffer zones and regulating these through development ordinances. ▪ Offer a list of city foresters, county extension offices, local nurseries and landscape firms that can provide advice on tree selection and soil conditions.

Mitigation Types	2020 New and Ongoing Actions
	▪ Construct primary dunes and lengthen groin system per Army Corps of Engineers Alternatives (Dune option is $13,000,0000). ▪ Collect and archive hydrologic data to understand system behavior and biological and chemical processes. ▪ Identify and analyze renewable energy options – costs, benefits, environmental effects, technological potential, and political acceptability. ▪ Encourage farmers to implement soil and water conservation practices that foster soil health and improve soil quality to help increase resiliency and mitigate the impacts of droughts.
Education and Awareness Programs	▪ Continue and enhance outreach efforts to local businesses, particularly hotels and assisted living facilities, to strengthen disaster preparedness; regularly distribute information, for example "Flood Hazards" brochure. ▪ Develop the use of social media/smart phone technology to inform citizens of hazard threats. ▪ Continue to work with regional media to promote public awareness of disaster preparedness. ▪ Educate the public on the threat of sea level rise and associated hazards, exploring best practices for adaptation to this threat. ▪ Provide warning systems education to make residents understand the meaning of warning systems and to schedule system testing. ▪ Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios. ▪ Conduct targeted hazard mitigation educational programs in areas with known social vulnerability. ▪ Provide hazard training in schools.

SECTION 7: PLAN MAINTENANCE

7.1 MONITORING AND EVALUATION

The 2020 Lowcountry Natural Hazard Mitigation Plan will be monitored, evaluated, and maintained by staff at LCOG, in cooperation with the Steering Committee. LCOG will evaluate the Plan annually, or more frequently as conditions change and modifications are needed. The Steering Committee will continue to meet once annually, or as necessary to coordinate improvements, evaluate changes, and amend the plan as needed, over the next five years. While the mitigation actions will be completed by each individual jurisdiction, LCOG staff will assist with providing data and grant writing, when requested. Appendix L provides details on relevant federal mitigation funding sources.

In coordination with the Steering Committee, LCOG's role is to:

- Facilitate Steering Committee meetings
- Notify the jurisdictions of grant opportunities
- Assist with grant writing
- Update the database of Community Mitigation Actions
- Evaluate changes to Community Mitigation Actions
- Update database of storm/hazard events
- Update general mapping
- Update socio-economic data
- Draft notices to the media and public regarding changes to the Plan or related activities

It will be the responsibility of the jurisdictions to integrate hazard mitigation planning principles included in this Plan in other local planning initiatives, such as comprehensive planning and capital improvement programs (CIP). If requested, LCOG will provide technical assistance to local jurisdictions to ensure new initiatives complement this Hazard Mitigation Plan.

7.2 UPDATING

As required by the Disaster Mitigation Act of 2000, the 2020 Lowcountry Natural Hazard Mitigation Plan will be updated every five years. The Plan will be thoroughly reviewed by the planning team. Unless otherwise specified, the planning team includes:

- Pamela Cobb, Disaster Recovery Coordinator, Beaufort County
- Shari Mendrick, Floodplain Administrator, Town of Hilton Head Island
- David Greene, Deputy Chief/Emergency Manager, Fire Rescue, Colleton County
- Iris Hill, Town Administrator, Town of Edisto Beach
- Susanne Peeples, Director, Emergency Management, Hampton County
- Russell Wells, Interim Director, Emergency Services, Jasper County
- Stephanie Rossi, Planning Director, LCOG
- Maleena Parkey, Principal Planner, LCOG

Table 81 provides timeframes, activities, and responsible parties for the plan update over the next five years.

Table 81: 5-Year Plan Update Strategy

Timeframe	Activity	Responsible Party
2021-2026	Continue plan implementation	Participating Jurisdictions
2023 – 4th Quarter	Review planning grant options and prepare for the plan update's grant application.	Planning Team
2024 – 1st Quarter	Review the plan and determine whether or not the components of the plan need to be updated. Different aspects will be discussed. These include but are not limited to: ▪ Stakeholders and public participation – other jurisdictions and/or agencies adding to the planning team members, other stakeholders participating to the plan update, public involvement ▪ Demographic conditions – changes in the community's demographics, changes in the region's development trend ▪ Hazard Identification and Profile – new hazards affecting community, changes in hazards' location and extent, new tool or data to enhance the risk and vulnerability assessment ▪ Mitigation Strategy – modification of goals and strategies ▪ Plan implementation - obstacles or problems in the plan implementation; new local, regional, state, or federal policies influencing hazard mitigation; prioritization of the mitigation actions	Planning Team
2024 – 2025	Update the plan according to the plan review, new data, and FEMA's comments for the current plan	Planning Team, Participating Jurisdictions, Stakeholders, and the Public
2025 – 4th Quarter	Complete the draft final plan and make available to participating jurisdictions and the public for review	LCOG
2026 – 1st Quarter	Submit the final plan to SCEMD for review	LCOG
2026 – 1st Quarter	Submit the final plan to FEMA for final approval	LCOG and SCEMD
2026 – 2nd Quarter	Adopt the plan	Participating Jurisdictions

7.3 CONTINUED PUBLIC INVOLVEMENT

As part of this plan, individual jurisdictions are responsible for year-round activities associated with public information and preparation for hazards. LCOG will facilitate an ongoing discussion for the general public utilizing social media such as Facebook and LinkedIn, that provides tips, information on potential events from the perspective of past regional storms, and other information as it becomes available. The strategy will provide an outlet for engagement from the community about natural hazard mitigation between plan updates. A web page is also set up on the Lowcountry Council of Governments' website to highlight community aspects of this plan and will be updated as needed. A PDF version of this Plan is also available via the LCOG's website.

APPENDICES

APPENDIX A: MEMORANDUM OF UNDERSTANDING

Lowcountry
COUNCIL OF GOVERNMENTS

Serving Beaufort • Colleton • Hampton • Jasper Counties

MEMORANDUM of UNDERSTANDING
BETWEEN
Beaufort County
AND
Lowcountry Council of Governments (LCOG)

SUBJECT: 2020 Lowcountry Natural Hazard Mitigation Plan

1. The purpose of this MOU is to engage the services of the Planning Department of the Lowcountry Council of Governments (LCOG) to prepare a FEMA approved Hazard Mitigation Plan Update for Beaufort, Colleton, Hampton, and Jasper Counties in compliance with 44 CFR Part 201.

2. Work will consist of, but not be limited to the following tasks:
   a. Review existing plans
   b. Data collection, risk identification, and vulnerability assessment
   c. Establish and manage a project steering committee
   d. Develop land use scenarios
   e. Develop hazard mitigation strategies
   f. Develop and implement a public engagement strategy
   g. Develop recommendations
   h. Complete a draft and final document for review
   i. Complete all SCEMD and FEMA revisions

3. The LCOG planning department has been awarded a grant by FEMA for the plan update. The local counties will supply the 25% local match. The total cost of the project is $47,145.07. Federal share is $35,358.79 and local share is $11,786.28.

4. As agreed, upon at the October 2nd, 2018 Lowcountry Natural Hazard Mitigation Plan Steering Committee meeting, the local share is to be split between the four participating counties.

Lowcountry Council of Governments
PO Box 98|634 Campground Road
Yemassee, South Carolina 29945
P: 843.726.5536 F: 843.726.5165
WWW.LOWCOUNTRYCOG.ORG

Lowcountry
COUNCIL OF GOVERNMENTS

Serving Beaufort • Colleton • Hampton • Jasper Counties

5. The local share for Beaufort County will be $2,946.57 payable by the completion date.

6. The completion date will be on or before March 31, 2021.

7. This agreement shall become effective on the date of signing.

Signed:

Beaufort County

10.6.20
Date

Lowcountry Council of Governments

10/5/2020
Date

Lowcountry Council of Governments
PO Box 98|634 Campground Road
Yemassee, South Carolina 29945
P: 843.726.5536 F: 843.726.5165
WWW.LOWCOUNTRYCOG.ORG

Lowcountry
COUNCIL OF GOVERNMENTS

Serving Beaufort • Colleton • Hampton • Jasper Counties

MEMORANDUM of UNDERSTANDING
BETWEEN
Colleton County
AND
Lowcountry Council of Governments (LCOG)

SUBJECT: 2020 Lowcountry Natural Hazard Mitigation Plan

1. The purpose of this MOU is to engage the services of the Planning Department of the Lowcountry Council of Governments (LCOG) to prepare a FEMA approved Hazard Mitigation Plan Update for Beaufort, Colleton, Hampton, and Jasper Counties in compliance with 44 CFR Part 201.

2. Work will consist of, but not be limited to the following tasks:
   a. Review existing plans
   b. Data collection, risk identification, and vulnerability assessment
   c. Establish and manage a project steering committee
   d. Develop land use scenarios
   e. Develop hazard mitigation strategies
   f. Develop and implement a public engagement strategy
   g. Develop recommendations
   h. Complete a draft and final document for review
   i. Complete all SCEMD and FEMA revisions

3. The LCOG planning department has been awarded a grant by FEMA for the plan update. The local counties will supply the 25% local match. The total cost of the project is $47,145.07. Federal share is $35,358.79 and local share is $11,786.28.

4. As agreed, upon at the October 2nd, 2018 Lowcountry Natural Hazard Mitigation Plan Steering Committee meeting, the local share is to be split between the four participating counties.

Lowcountry Council of Governments
PO Box 98|634 Campground Road
Yemassee, South Carolina 29945
P: 843.726.5536 F: 843.726.5165
WWW.LOWCOUNTRYCOG.ORG

Lowcountry
COUNCIL OF GOVERNMENTS

Serving Beaufort • Colleton • Hampton • Jasper Counties

5. The local share for Colleton County will be $2,946.57 payable by the completion date.

6. The completion date will be on or before March 31, 2021.

7. This agreement shall become effective on the date of signing.

Signed:

Colleton County

12·14·2020
Date

Lowcountry Council of Governments

10/5/2020
Date

Lowcountry Council of Governments
PO Box 98|634 Campground Road
Yemassee, South Carolina 29945
P: 843.726.5536 F: 843.726.5165
WWW.LOWCOUNTRYCOG.ORG

Lowcountry
COUNCIL OF GOVERNMENTS

Serving **Beaufort • Colleton • Hampton • Jasper** *Counties*

MEMORANDUM of UNDERSTANDING
BETWEEN
Hampton County
AND
Lowcountry Council of Governments (LCOG)

SUBJECT: 2020 Lowcountry Natural Hazard Mitigation Plan

1. The purpose of this MOU is to engage the services of the Planning Department of the Lowcountry Council of Governments (LCOG) to prepare a FEMA approved Hazard Mitigation Plan Update for Beaufort, Colleton, Hampton, and Jasper Counties in compliance with 44 CFR Part 201.

2. Work will consist of, but not be limited to the following tasks:
   a. Review existing plans
   b. Data collection, risk identification, and vulnerability assessment
   c. Establish and manage a project steering committee
   d. Develop land use scenarios
   e. Develop hazard mitigation strategies
   f. Develop and implement a public engagement strategy
   g. Develop recommendations
   h. Complete a draft and final document for review
   i. Complete all SCEMD and FEMA revisions

3. The LCOG planning department has been awarded a grant by FEMA for the plan update. The local counties will supply the 25% local match. The total cost of the project is $47,145.07. Federal share is $35,358.79 and local share is $11,786.28.

4. As agreed, upon at the October 2nd, 2018 Lowcountry Natural Hazard Mitigation Plan Steering Committee meeting, the local share is to be split between the four participating counties.

Lowcountry Council of Governments
PO Box 98|634 Campground Road
Yemassee, South Carolina 29945
P: 843.726.5536 F: 843.726.8165
WWW.LOWCOUNTRYCOG.ORG

Lowcountry
COUNCIL OF GOVERNMENTS

Serving Beaufort • Colleton • Hampton • Jasper Counties

5. The local share for Hampton County will be $2,946.57 payable by the completion date.
6. The completion date will be on or before March 31, 2021.
7. This agreement shall become effective on the date of signing.

Signed:

Hampton County

10-5-2020
Date

Lowcountry Council of Governments

10/5/2020
Date

Lowcountry Council of Governments
PO Box 98|634 Campground Road
Yemassee, South Carolina 29945
P: 843.726.5536 F: 843.726.5165
WWW.LOWCOUNTRYCOG.ORG

Lowcountry
COUNCIL OF GOVERNMENTS

Serving **Beaufort • Colleton • Hampton • Jasper** *Counties*

MEMORANDUM of UNDERSTANDING
BETWEEN
Jasper County
AND
Lowcountry Council of Governments (LCOG)

SUBJECT: 2020 Lowcountry Natural Hazard Mitigation Plan

1. The purpose of this MOU is to engage the services of the Planning Department of the Lowcountry Council of Governments (LCOG) to prepare a FEMA approved Hazard Mitigation Plan Update for Beaufort, Colleton, Hampton, and Jasper Counties in compliance with 44 CFR Part 201.

2. Work will consist of, but not be limited to the following tasks:
   a. Review existing plans
   b. Data collection, risk identification, and vulnerability assessment
   c. Establish and manage a project steering committee
   d. Develop land use scenarios
   e. Develop hazard mitigation strategies
   f. Develop and implement a public engagement strategy
   g. Develop recommendations
   h. Complete a draft and final document for review
   i. Complete all SCEMD and FEMA revisions

3. The LCOG planning department has been awarded a grant by FEMA for the plan update. The local counties will supply the 25% local match. The total cost of the project is $47,145.07. Federal share is $35,358.79 and local share is $11,786.28.

4. As agreed, upon at the October 2nd, 2018 Lowcountry Natural Hazard Mitigation Plan Steering Committee meeting, the local share is to be split between the four participating counties.

Lowcountry Council of Governments
PO Box 98|634 Campground Road
Yemassee, South Carolina 29945
P: 843.726.5536 F: 843.726.8165
WWW.LOWCOUNTRYCOG.ORG

Lowcountry
COUNCIL OF GOVERNMENTS

Serving Beaufort • Colleton • Hampton • Jasper Counties

5. The local share for Jasper County will be $2,946.57 payable by the completion date.

6. The completion date will be on or before March 31, 2021.

7. This agreement shall become effective on the date of signing.

Signed:

Jasper County

10-5-20
Date

Lowcountry Council of Governments

10/5/2020
Date

Lowcountry Council of Governments
PO Box 98|634 Campground Road
Yemassee, South Carolina 29945
P: 843.726.5536 F: 843.726.8165
WWW.LOWCOUNTRYCOG.ORG

APPENDIX B: MEETINGS

APPENDIX B-1: STEERING COMMITTEE MEETINGS

First Meeting

MEETING MINUTES
Lowcountry Hazard Mitigation Plan Update
Steering Committee Meeting 1
Thursday, August 27, 2020 at 10:00 a.m. EST
Zoom Meeting: https://us02web.zoom.us/j/84444225528?pwd=SFBsTkJiV1A2YUZMQStESUhDb0tuUT09
Meeting ID: 844-4422-5528 Passcode: 776627 Phone: 877-853-5247

Steering Committee Members Present:

Pamela Cobb	Disaster Recovery Coordinator	Beaufort County
Shari Mendrick	Floodplain Administrator	Town of Hilton Head Island
Iris Hill	Town Administrator	Town of Edisto Beach
Susanne Peeples	Emergency Management Director	Colleton County
Frank Edwards	Director/Fire Chief, Emergency Services	Jasper County
Russell Wells	Deputy Director, Emergency Services	Jasper County

Steering Committee Members Absent:

David Green	Chief, Fire-Rescue	Colleton County

LCOG Staff Present:

Stephanie Rossi	Planning Director
Maleena Parkey	Senior Planner
Christian Dammel	Planner

Others Present:

Janet Laney	Captain, Fire-Rescue	Colleton County (representing David Greene)

1. **Introduction of Members**
   a. Introduction of steering committee members and LCOG staff.
   b. Frank Edwards requested his name to be removed from the steering committee members due to his departure from Jasper County.
2. **The Purpose of Steering Committee – Maleena Parkey**
   a. Provide guidance for update of Plan
      i. Steering committee will provide guidance on how to approach the plan update.
   b. Provide information and data
      i. The emergency manger survey will be sent to the steering committee to provide information regarding hazard preparedness and other activities related to hazard mitigation in each county and municipality.

c. Assist in public information and communication through own organizations
    i. Steering committee will help in distributing a community survey to take public opinion into account in the plan update.
d. Assist in implementation of recommendations of Plan
    i. LCOG has shared information with the steering committee regarding the applications for funding for the Building Resilient Infrastructure and Communities (BRIC) and Flood Mitigation Assistance (FEMA) grants. The deadline to submit BRIC Applications is December 18, 2020.
    ii. Steering committee will help develop internal policies and procedures to implement relevant recommendations.

3. **Progress Report on the Plan Update – Maleena Parkey**
    a. The Lowcountry currently has two active hazard mitigation plans, one in Beaufort County which is active until June 3, 2020 and another for Colleton, Hampton, and Jasper Counties until March 3, 2020. This plan update, for the first time, develops a hazard mitigation plan for all four counties.
    b. The planning process will include a review of whether and how well the goals and objectives developed in 2015 have been met. These goal and objectives are based on the overall guiding principles including bridging the unique needs and common goals of the four counties and their communities, saving lives and protecting property, taking a regional approach, complementing the State Plan, and accessing funding to implement recommendations.
    c. The proposed plan update aims to develop policies, actions, and projects to implement locally the specific goals of the South Carolina Plan 2018.
    d. The existing plan review, data collection and update, steering committee setup and meeting are completed. Dr. Susan Cutter will present the finding of hazard identification and vulnerability assessment which is part of the data collection and update. There are two tasks in process, including developing future land use scenarios and developing updated policies, actions, and projects.

4. **Presentation of Lowcountry Hazard Identification and Assessment 2020 – Dr. Susan Cutter**
    a. Dr. Cutter, Director of Hazards and Vulnerability Research Institute at University of South Carolina, presented an overview of the Lowcountry hazard identification and vulnerability assessment.
    b. Iris Hill will provide comments on the Lowcountry Hazard Identification and Vulnerability Assessment report after finishing the review.

5. **Follow-Up Activities – Maleena Parkey**
    a. Action items update – LCOG will follow up with the update of action items provided to steering committee for review.
    b. Emergency manager survey – the steering committee will be expecting the emergency manager survey. LCOG will be contacting each member to get all answers and set up an individual meeting as needed.
    c. Critical facilities i.e. hurricane shelters, utilities, EMS, hospitals – critical facilities as part of the emergency manager survey also need to be updated.
    d. Capability assessment – LCOG is reviewing the existing policies, regulations, and plans i.e. comprehensive plan, zoning ordinances, land use ordinances, building codes in each jurisdiction to determine if they address hazard mitigation. LCOG will need assistance from the steering committee to identify if there are any missing items.

e. Community survey - the community survey will be distributed through Survey Monkey. Since not everyone has access to internet, paper copies will be distributed to residents as well. LCOG will need assistance from counties and municipalities for distributing the survey link via their webpages, emails, or social media as well as paper copies distribution.
    i. Russell Wells suggested the community survey translated to Spanish to reflect the region's cultural diversity.
    ii. Maleena Parkey responded that LCOG will have the community survey translated to Spanish in both electronic and paper versions.

6. Next Meetings

a. Next meeting will be arranged after receiving information from emergency manager and community surveys. Also, this information is needed in updating strategies, goals, and objective of the plan.

7. Adjourn

Second Meeting

MEETING MINUTES
Lowcountry Hazard Mitigation Plan Update
Steering Committee Meeting 2
Monday, December 7, 2020 at 1:00 p.m. EST
Zoom Meeting: https://us02web.zoom.us/j/89502732763?pwd=RmY2V243OHVFbFVsYlNmbTVuRktYZz09
Meeting ID: 844-4422-5528 Passcode: 776627 Phone: 877-853-5247

Steering Committee Members Present:

Pamela Cobb	Disaster Recovery Coordinator	Beaufort County
Shari Mendrick	Floodplain Administrator	Town of Hilton Head Island
David Greene	Chief, Fire-Rescue	Colleton County
Iris Hill	Town Administrator	Town of Edisto Beach
Russell Wells	Deputy Director, Emergency Services	Jasper County

Steering Committee Members Absent:

Susanne Peeples	Emergency Management Director	Hampton County

LCOG Staff Present:

Stephanie Rossi	Planning Director
Maleena Parkey	Senior Planner

Others Present:

Janet Laney	Captain, Fire-Rescue	Colleton County
Adrianne Stokes	Fire-Rescue	Colleton County

1. **Welcome and Introduction of Members – Maleena Parkey**
   a. Introduction of steering committee members, guests, and staff
   b. Ms. Parkey extended a welcome and thanked everyone for their assistance in the plan update.
2. **Update on the 2020 Lowcountry Natural Hazard Mitigation Plan – Maleena Parkey**
   a. Hazard Events, Social Vulnerability, and Loss Information
      ii. Overall, the probability of each hazard is higher than when it was studied in the 2015 plan. The total losses in the Lowcountry region between 2012-2019 is $11,533,967. In the same period, the hazard incidents have caused 4 deaths, and 8 injuries. The social vulnerability data has shown the area in the Lowcountry with different social vulnerability level. This level is based on the social vulnerability concepts including socioeconomic status, gender, race and ethnicity, age, employment loss, residential property, renters, occupation, family structure, education, medical services and access, social dependence, and special-needs population.
   b. Community Survey Results
      ii. As of November 30, 2020, there are 864 responses from the community survey; 38.67% from Beaufort County, 15.62% from Colleton County, 31.88% from Hampton County, and 13.83% from Jasper County. The overall 2020 survey results are similar to the 2015 results, except for the question regarding the importance of preparation for the natural hazards. The 2020 results show

that 73.5% of respondents agree to the importance of preparation for the natural hazards compared to 57.5% in the 2015 results. Note to the respondents' preference to receive information regarding natural hazards, television, email, and social media are the top three.

iii. David Greene pointed out that the results of the respondents' preference to receive information regarding natural hazards were influenced by the age gap.

iv. Ms. Parkey responded that LCOG targeted public in general as well as specific groups including senior citizen, LEP, and businesses. Therefore, LCOG would reanalyze that question to see if it showed the difference.

c. Actions Update and Emergency Manager Survey – Maleena Parkey

i. LCOG has received the update of hazard mitigation actions and emergency survey results. These will be consolidated and presented in four categories: local plans and regulations, structure and infrastructure projects, natural systems protection, and education and awareness programs.

d. Initial Draft Plan

i. LCOG has prepared the Initial Draft Plan based on information gathered so far. It comprises seven sections including: Introduction and planning process, Lowcountry profile, hazard identification and profile, vulnerability assessment, community capability assessment, hazards mitigation strategy, and plan maintenance.

3. Goals and Strategies Revision – Maleena Parkey

a. LCOG have proposed "Goals and Strategies" for the 2020 Plan building from the 2015 plans. These then were developed based on the information gathered throughout the planning process including socioeconomic conditions analysis, hazards profile and vulnerability assessment, stakeholders and public inputs, and progress on the actions of the previous plans.

b. Shari Mendrick asked if these goals and strategies consolidated the goals and strategies from the 2015.

c. Ms. Parkey responded that the proposed 2020 goals and strategies have consolidated and simplified the 2015 goals and strategies.

d. Mr. Greene and Ms. Mendrick said the proposed goals and strategies were well written.

e. Steering committee members adopted the proposed goals and strategies.

4. Schedule for the Plan Completion and Submission to SCEMD and FEMA – Maleena Parkey

a. The 2015 plans are active until 2021. For Beaufort County, the plan will be active until June 3, 2021. For Colleton, Hampton, and Jasper Counties, the plan will be active until March 31, 2021.

b. LCOG provided the timeframe of the SCEMD and FEMA review and approval which will affect the timeframe of 2020 plan completion. Between SCEMD and FEMA, it would take them approximately 8 weeks. Moreover, the final draft needs to make available to public for review and comments. This process takes at least 4 weeks and is required by FEMA. These two tasks totaled 12 weeks. Therefore, the final draft Plan need to be completed by mid-December.

5. Next Steps

a. LCOG provided tentative dates for the next steps from the plan completion to the distribution of the final draft plan to steering committee, stakeholders, and public for review, submission to SCEMD, the final revision of the plan, and the plan adoption.

6. Adjourn

APPENDIX B-2: ONE-ON-ONE MEETINGS SUMMARY

Date	Attendees	Summary
August 14, 2020	▪ David Greene, Deputy Chief, Fire Rescue, Colleton County ▪ Janet Laney, Captain, Fire-Rescue, Colleton County ▪ Adrianne Stokes, Fire-Rescue, Colleton County	LCOG staff virtually met with David Greene and his team to discuss the hazard mitigation actions update and define next steps
October 6, 2020	▪ Shari Mendrick, Floodplain Administrator, Town of Hilton Head Island	LCOG staff virtually met with Shari Mendrick to discuss the hazard mitigation actions update and the results of the emergency manager survey
October 26, 2020	▪ Susan Peeples, Director, Emergency Management Division, Hampton County	LCOG staff virtually met with Susan Peeples to discuss the hazard mitigation actions update, the results of the emergency manager survey, and the critical facilities update.
October 28, 2020	▪ David Greene, Deputy Chief, Fire Rescue, Colleton County	LCOG staff had a phone meeting with David Greene to discuss the results of the emergency manager survey and the critical facilities update.

APPENDIX C: STAKEHOLDERS AND PUBLIC PARTICIPATION

APPENDIX C-1: EMERGENCY MANAGER SURVEY

EMERGENCY MANAGER SURVEY
2020 LOWCOUNTRY NATURAL HAZARD MITIGATION PLAN

The Lowcountry Council of Governments is updating the Natural Hazard Mitigation Plan for Beaufort, Colleton, Hampton, and Jasper Counties. The responses to the questionnaire will assist LCOG in determining the status of proposed actions in the 2015 Hazard Mitigation Plans. The survey's questions refer to activities from 2015-2020, as well as proposed actions in the 2015 Plans. Please feel free to mark or comment on any areas that is no longer needed.

1. What improvements have been made to the critical facilities infrastructure? Please be specific as possible, naming the place, cost and what work was completed, if known.
   - ☐ New or Repaired Fire Stations (including roofing and weatherization projects)
   - ☐ Headquarters, Dispatch Centers, Mobile Dispatch Vehicle
   - ☐ Major Health Facilities, Nursing Homes
   - ☐ Schools, Shelters, Evacuation Routes
   - ☐ Utilities (water, sewer, and electric), Generators, Potable Water Improvements (Water Stations)
   - ☐ Road Paving and Widening, Traffic Cameras, Utilities – Tree Trimming and Removal
   - ☐ New Construction, Replacement, Maintenance
   - ☐ Information Technology System, Data Storage, Back-up
   - ☐ Land Acquisitions
   - ☐ Others (please specify) .....
2. Which known facilities need improvements to strengthen their durability during and after an event? What are the needs?
3. Has there been a loss, major damage, or closing of critical facilities, if so which facilities and why?
4. What studies or surveys have been undertaken to better understand the weaknesses and needs regarding hazard mitigation?
   - ☐ Evacuation Needs Study, Special Needs Population Study
   - ☐ Urban Tree Cover Vulnerability and Risks Study, Power Line Survey
   - ☐ Stormwater Drainage Study
   - ☐ Areas with Repetitive Flooding Study
   - ☐ Nursing Home Safety and Evacuation Survey
   - ☐ Shelter Suitability Survey
   - ☐ Inventory of Emergency Response Survey
   - ☐ Others (please specify) .....

5. What educational or marketing efforts have been made in terms of hazard preparedness?
   - ☐ Training for Grant Writing
   - ☐ Outreach Efforts (rural population, local businesses)
   - ☐ Educational Series (schools, public)
   - ☐ Composting Program
   - ☐ Hazard Publication to Tourist and Hotels
   - ☐ Others (please specify) .....

6. Have there been changes in leadership for emergency services personnel? if so, what positions and who?

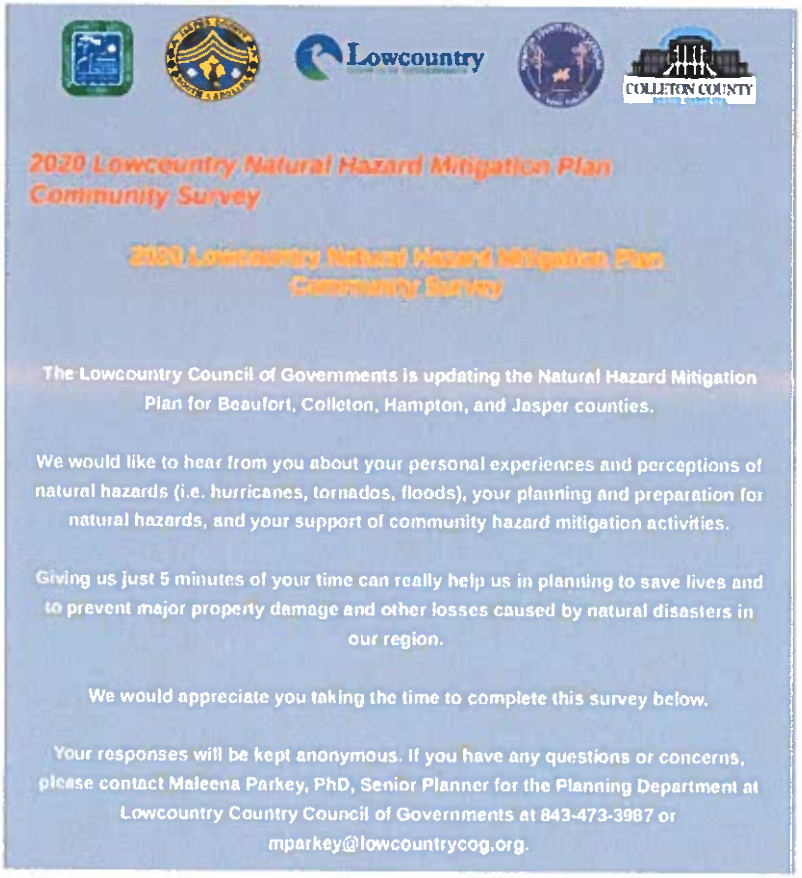
7. Have grant funds been allocated for improvements to emergency services? If so, for what purpose, which source, and how much?

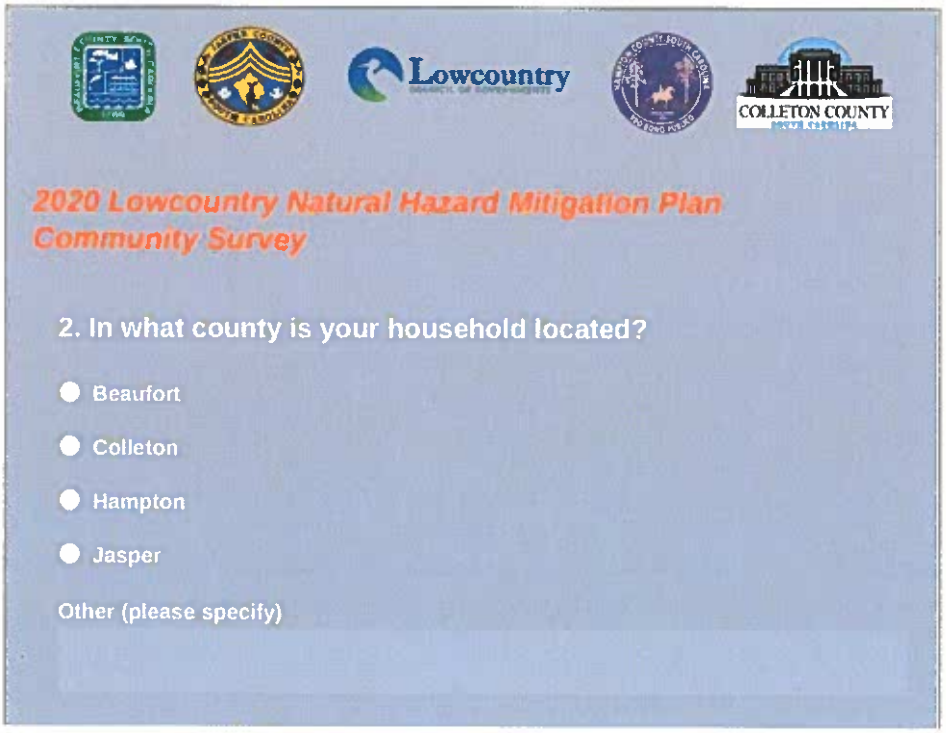
8. Has there been any purchase and/or distribution of emergency supplies? If so, what, for who, and the estimated cost?
   - ☐ Weather Radios
   - ☐ Fans
   - ☐ Support Vehicles
   - ☐ Major Equipment, **please describe** .....
   - ☐ Generators
   - ☐ Satellite Phones
   - ☐ Others (please specify) .....

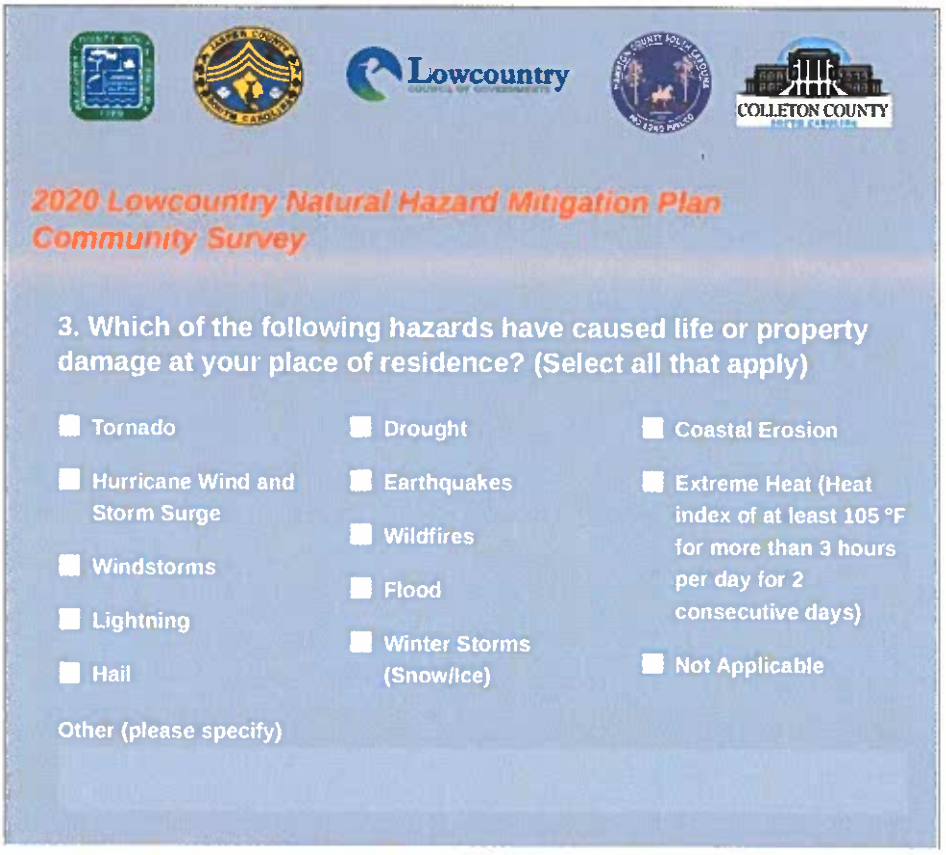
9. What natural disasters or major events have triggered the utilization or deployment of emergency management services? What costs were associated with the event?

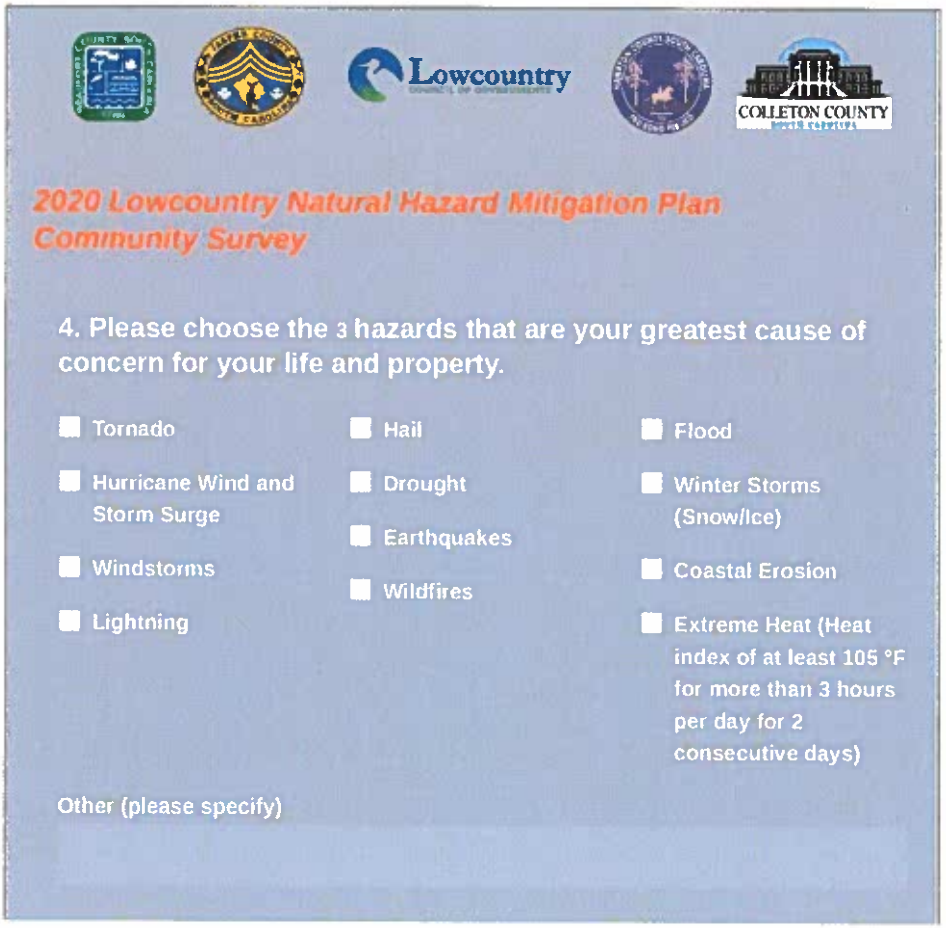
10. If debris removal was required, what resources, including cost, were needed and what was the estimated volume, if known?
    - ☐ Labor
    - ☐ Trucks
    - ☐ Public Works
    - ☐ Others (please specify) .....

APPENDIX C-2: COMMUNITY SURVEY




Lowcountry
COLLETON COUNTY
2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey
2. In what county is your household located?
Beaufort
Colleton
Hampton
Jasper
Other (please specify)

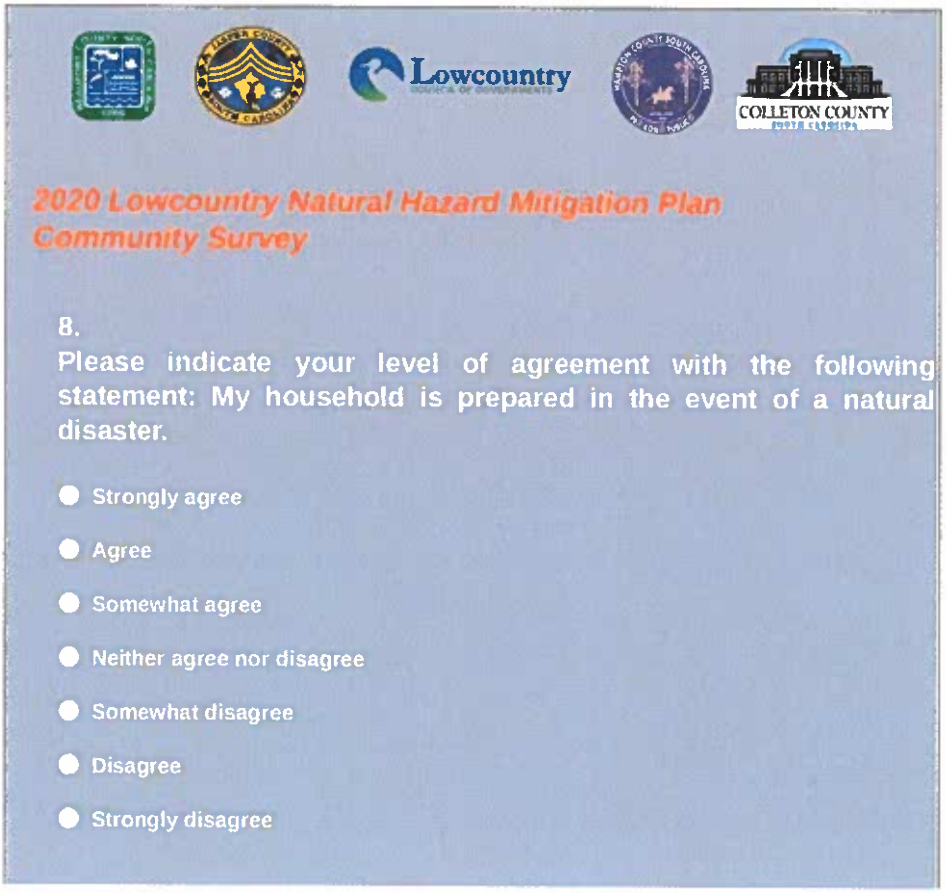

Lowcountry
COLLETON COUNTY
2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey
3. Which of the following hazards have caused life or property damage at your place of residence? (Select all that apply)
Tornado
Hurricane Wind and Storm Surge
Windstorms
Lightning
Hail
Drought
Earthquakes
Wildfires
Flood
Winter Storms (Snow/Ice)
Coastal Erosion
Extreme Heat (Heat index of at least 105 °F for more than 3 hours per day for 2 consecutive days)
Not Applicable
Other (please specify)


Lowcountry
COLLETON COUNTY
2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey
4. Please choose the 3 hazards that are your greatest cause of concern for your life and property.
Tornado
Hurricane Wind and Storm Surge
Windstorms
Lightning
Hail
Drought
Earthquakes
Wildfires
Flood
Winter Storms (Snow/Ice)
Coastal Erosion
Extreme Heat (Heat index of at least 105 °F for more than 3 hours per day for 2 consecutive days)
Other (please specify)


Lowcountry
COLLETON COUNTY
2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey
5. Have you made any improvements to your property to protect against natural hazards?
Yes
No

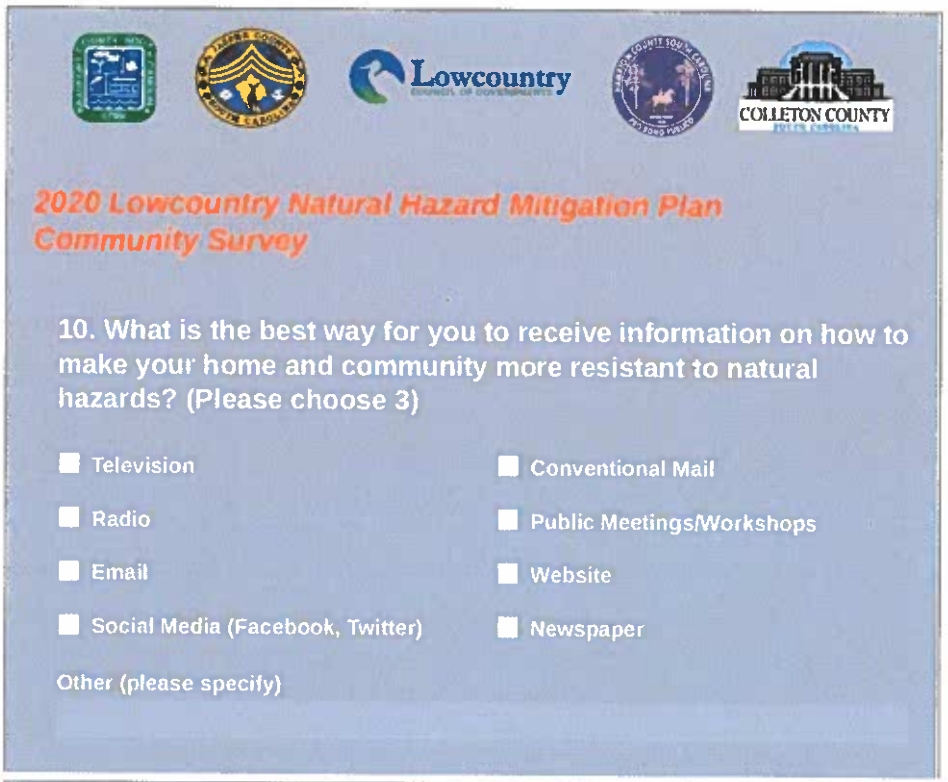

Lowcountry
COLLETON COUNTY
2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey
6. Please indicate what type of improvements you have made by selecting from the options provided below.
Insulation
Window and Door Reinforcements/Replacements
Elevation of Structure
Tree Maintenance/Removal
Roof Replacement/Repair
Brush Removal
Other (please specify)

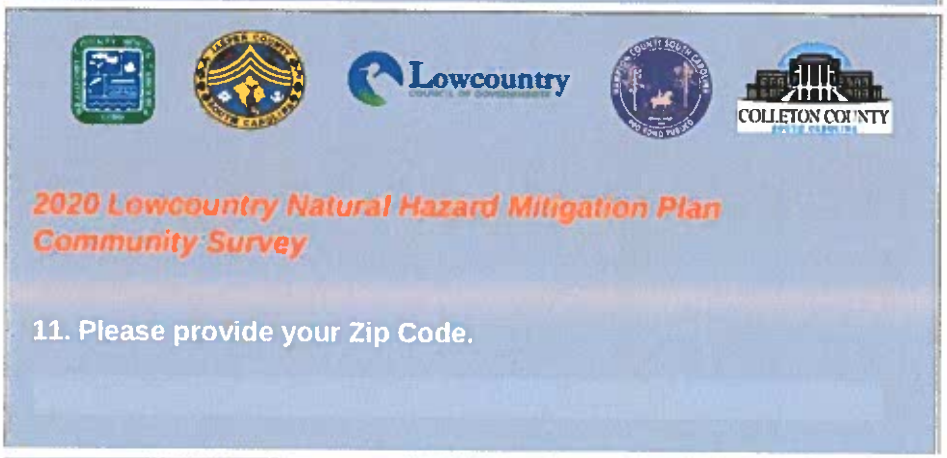

Lowcountry
COLLETON COUNTY
2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey
7. Please indicate which of the following home improvements you benefit from the most
Insulation
Window and Door Reinforcements/Replacements
Elevation of Structure
Tree Maintenance/Removal
Roof Replacement/Repair
Brush Removal
Other (please specify)

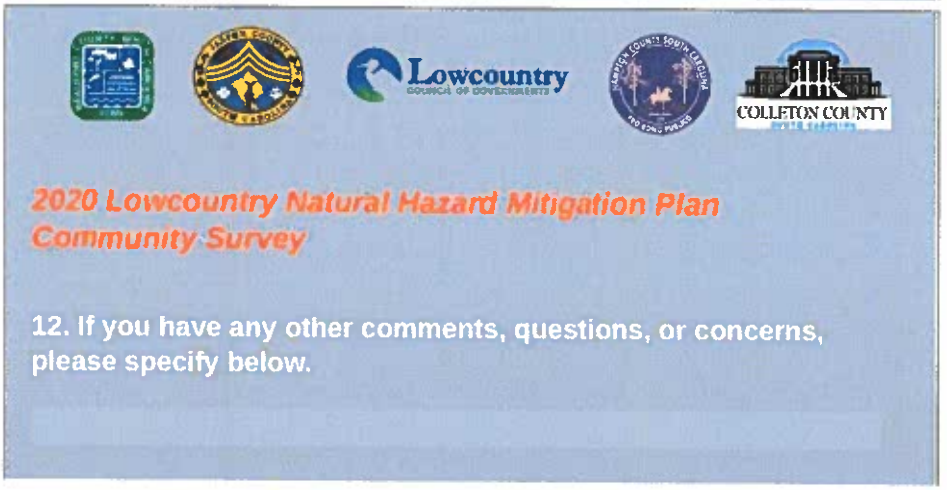

Lowcountry
COLLETON COUNTY
2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey
8.
Please indicate your level of agreement with the following statement: My household is prepared in the event of a natural disaster.
Strongly agree
Agree
Somewhat agree
Neither agree nor disagree
Somewhat disagree
Disagree
Strongly disagree

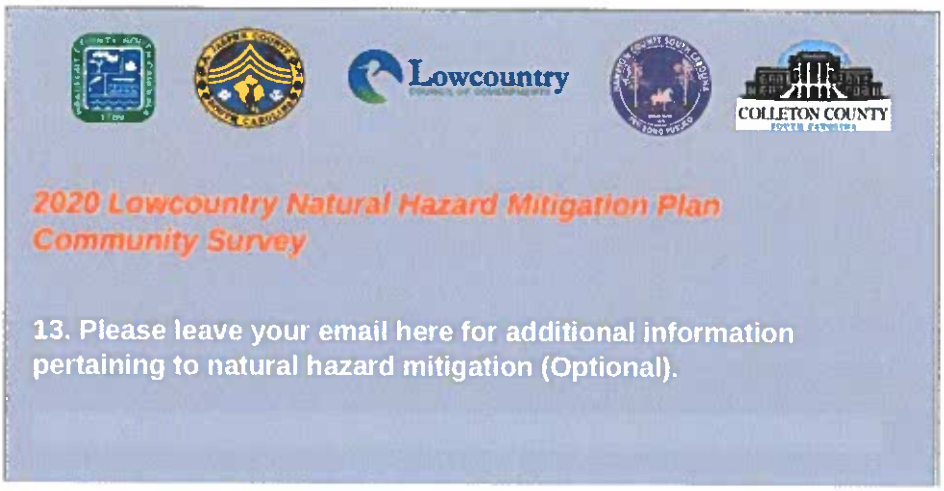

Lowcountry
COLLETON COUNTY
2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey
9. A number of community-wide activities can reduce our risk from hazards. In general, these activities fall into one of the following six broad categories. Please tell us how important you think each one is for your community to consider pursuing.
Not at all Important
Not Important
Neutral
Important
Extremely Important
Prevention
Examples include heightened standards for hazard-resistant construction, increased regulation of construction in hazard-prone areas as well as enhanced enforcement of existing regulations.
Property Protection
Examples include relocation, elevation, structural repairs, and storm shutters.

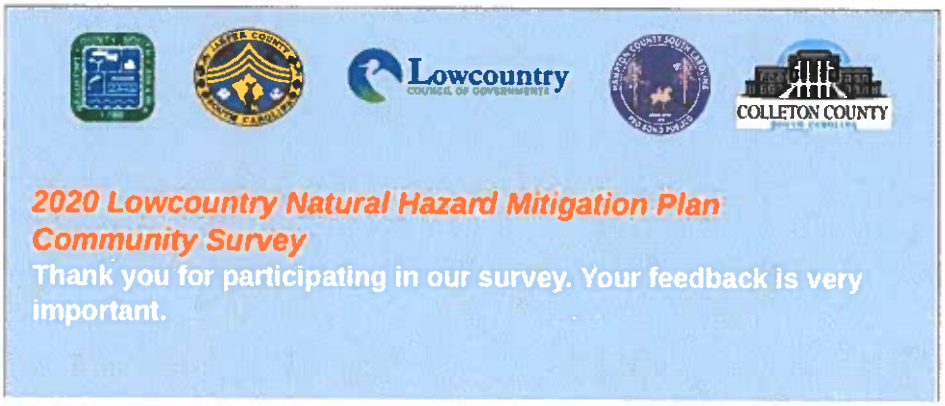

Not at all Important
Not Important
Neutral
Important
Extremely Important
Natural Resource Protection
Examples include floodplain protection, habitat preservation, wetland restoration and forest management.
Structural Projects
Examples include dams, levees, seawalls detention/retention basins, channel modification, retaining walls, and storm sewers.
Emergency Services
Example include warning systems, evacuation planning, emergency response training, and protection of critical facilities or systems.
Public Education and Awareness
Examples include outreach projects, school education programs, library materials, and demonstration events.

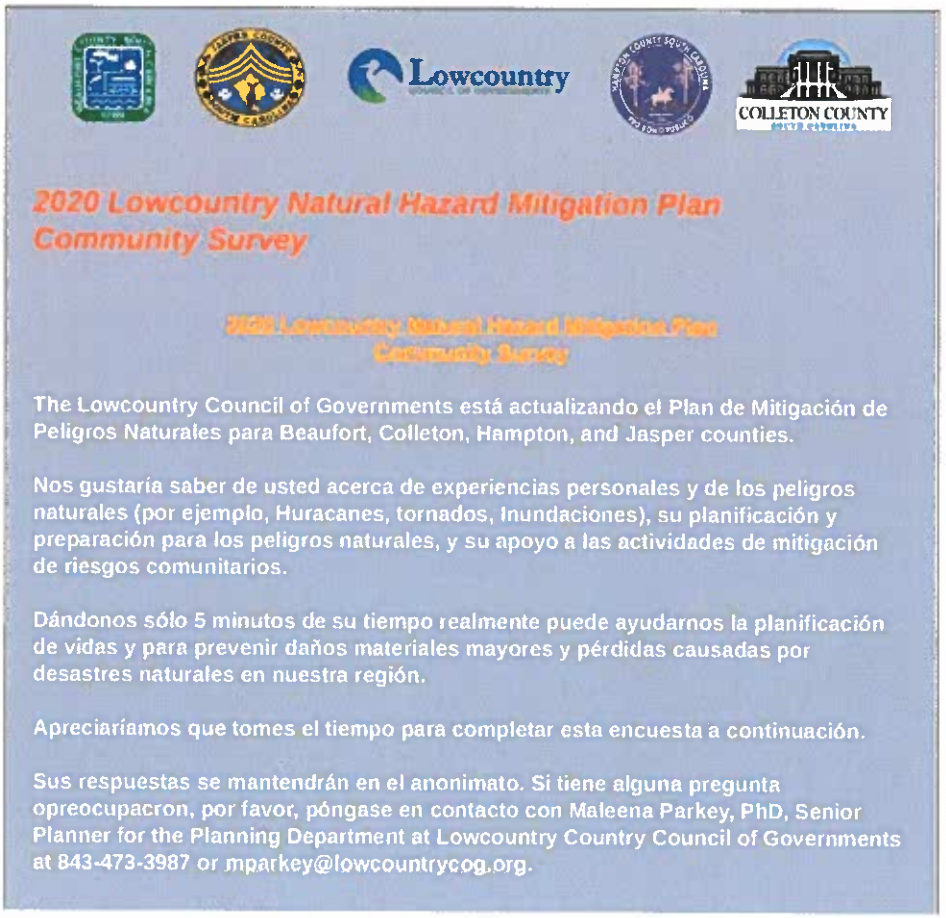

Lowcountry
COLLETON COUNTY
2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey
10. What is the best way for you to receive information on how to make your home and community more resistant to natural hazards? (Please choose 3)
Television
Radio
Email
Social Media (Facebook, Twitter)
Conventional Mail
Public Meetings/Workshops
Website
Newspaper
Other (please specify)

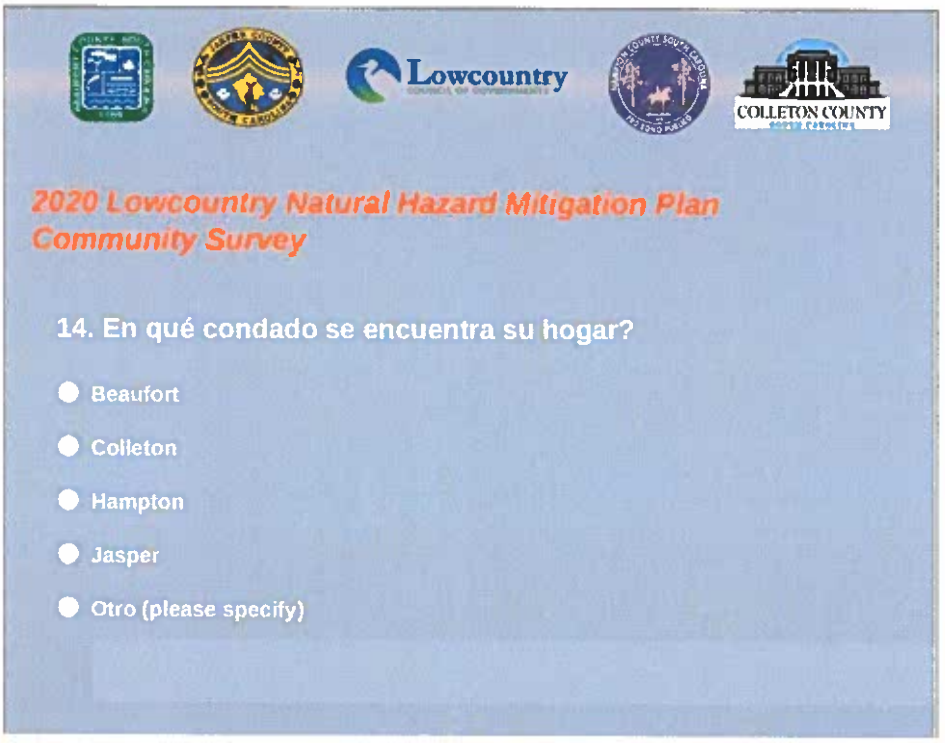

Lowcountry
COLLETON COUNTY
2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey
11. Please provide your Zip Code.

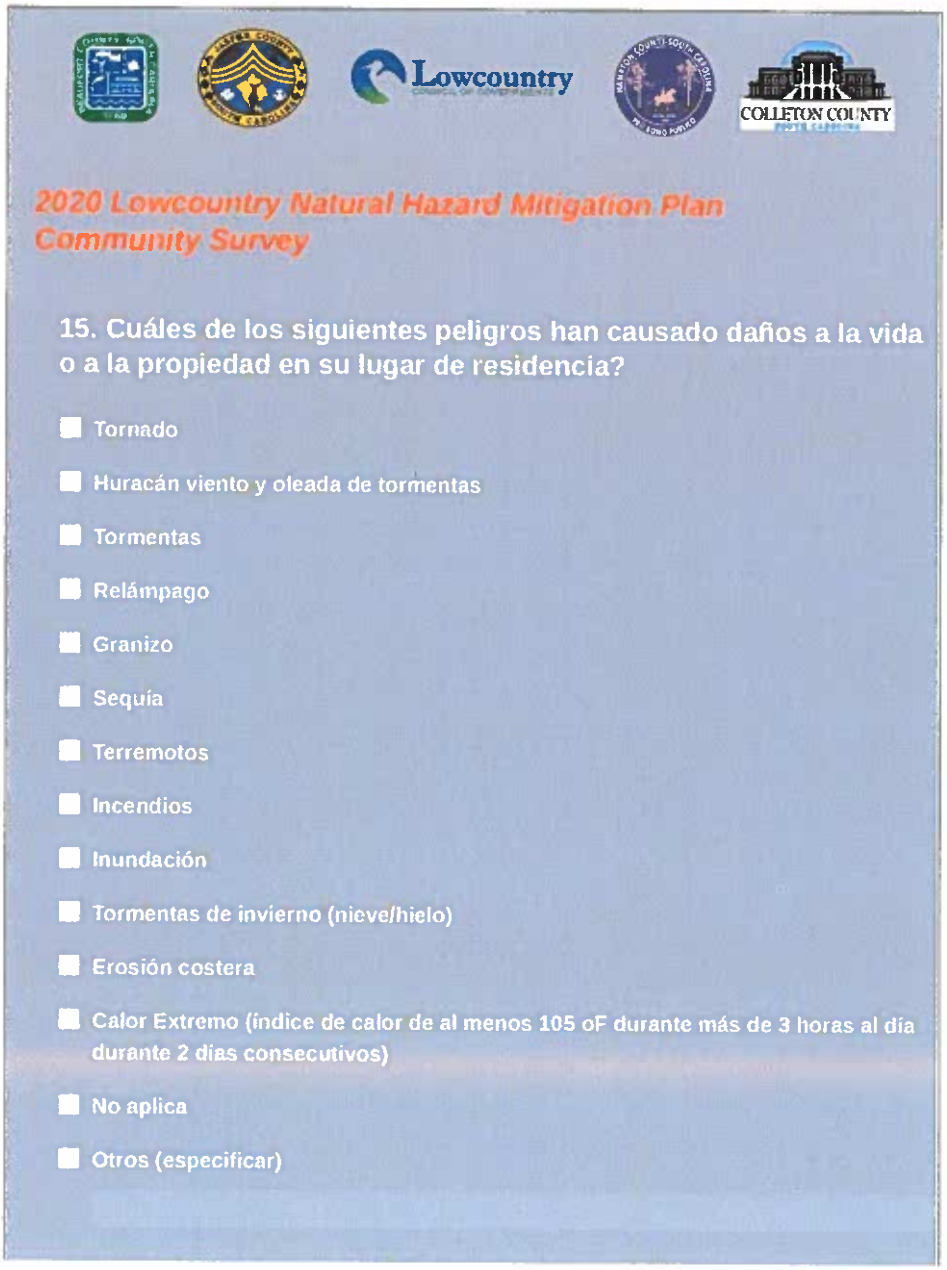

Lowcountry
COLLETON COUNTY
2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey
12. If you have any other comments, questions, or concerns, please specify below.


Lowcountry
COLLETON COUNTY
2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey
13. Please leave your email here for additional information pertaining to natural hazard mitigation (Optional).


Lowcountry
COLLETON COUNTY
2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey
Thank you for participating in our survey. Your feedback is very important.


Lowcountry
COLLETON COUNTY
2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey
The Lowcountry Council of Governments está actualizando el Plan de Mitigación de Peligros Naturales para Beaufort, Colleton, Hampton, and Jasper counties.
Nos gustaría saber de usted acerca de experiencias personales y de los peligros naturales (por ejemplo, Huracanes, tornados, Inundaciones), su planificación y preparación para los peligros naturales, y su apoyo a las actividades de mitigación de riesgos comunitarios.
Dándonos sólo 5 minutos de su tiempo realmente puede ayudarnos la planificación de vidas y para prevenir daños materiales mayores y pérdidas causadas por desastres naturales en nuestra región.
Apreciaríamos que tomes el tiempo para completar esta encuesta a continuación.
Sus respuestas se mantendrán en el anonimato. Si tiene alguna pregunta opreocupacron, por favor, póngase en contacto con Maleena Parkey, PhD, Senior Planner for the Planning Department at Lowcountry Country Council of Governments at 843-473-3987 or mparkey@lowcountrycog.org.


Lowcountry
COLLETON COUNTY
2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey
14. En qué condado se encuentra su hogar?
Beaufort
Colleton
Hampton
Jasper
Otro (please specify)


Lowcountry
COLLETON COUNTY
2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey
15. Cuáles de los siguientes peligros han causado daños a la vida o a la propiedad en su lugar de residencia?
Tornado
Huracán viento y oleada de tormentas
Tormentas
Relámpago
Granizo
Sequía
Terremotos
Incendios
Inundación
Tormentas de invierno (nieve/hielo)
Erosión costera
Calor Extremo (índice de calor de al menos 105 oF durante más de 3 horas al día durante 2 días consecutivos)
No aplica
Otros (especificar)