

2020 LOWCOUNTRY Natural Hazard Mitigation Plan

March 2021





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

The 2020 Lowcountry Natural Hazard Mitigation Plan would not be possible without the support of Beaufort, Colleton, Hampton, and Jasper Counties, the contribution of the Steering Committee, and the participation of stakeholders and the public.

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Prepared by



TABLE OF CONTENTS

SECTION 1: INTRODUCTION AND PLANNING PROCESS.....	1
1.1 INTRODUCTION	1
FEMA Requirements.....	1
Composition of the Plan	3
1.2 PLANNING PROCESS	4
Planning Area and Resources	4
Planning Team Organization	6
Stakeholders and Public Participation.....	8
Hazard Identification and Profile.....	12
Mitigation Strategy.....	12
Plan Review	12
Plan Adoption	13
SECTION 2: LOWCOUNTRY PROFILE	14
2.1 LOWCOUNTRY AREA.....	14
Beaufort County	15
Colleton County.....	15
Hampton County	16
Jasper County	16
2.2 LOWCOUNTRY POPULATION.....	20
Population and Density	20
Aging Population	22
Population Diversity	24
2.3 LOWCOUNTRY HOUSING.....	26
Housing Stock	26
2.4 LOWCOUNTRY ECONOMY	29
Employment	29
Income.....	30

TABLE OF CONTENTS

SECTION 3: HAZARDS IDENTIFICATION AND PROFILE	32
3.1 NATURAL HAZARDS IDENTIFICATION	32
Data and Terminology	34
3.2 TORNADO	35
Characteristics and Classification	35
Location and Extent.....	36
Future Probability.....	39
3.3 HURRICANE.....	40
Characteristics and Classification	40
Location and Extent.....	43
Future Probability.....	49
3.4 WINDSTORM	50
Characteristics and Classification	50
Location and Extent.....	50
Future Probability.....	54
3.5 LIGHTNING.....	55
Characteristics and Classification	55
Location and Extent.....	55
Future Probability.....	59
3.6 HAIL.....	60
Characteristics and Classification	60
Location and Extent.....	60
Future Probability.....	64
3.7 DROUGHT	65
Characteristics and Classification	65
Location and Extent.....	65
Future Probability.....	68

TABLE OF CONTENTS

3.8	EARTHQUAKE.....	69
	Characteristics and Classification	69
	Location and Extent.....	70
	Future Probability.....	72
3.9	WILDFIRE	75
	Characteristics and Classification	75
	Location and Extent.....	76
	Future Probability.....	79
3.10	FLOOD.....	80
	Characteristics and Classification	81
	Location and Extent.....	86
	Future Probability.....	90
3.11	WINTER STORM.....	92
	Characteristics and Classification	92
	Location and Extent.....	92
	Future Probability.....	97
3.12	COASTAL EROSION	98
	Characteristics and Classification	98
	Location and Extent.....	98
	Future Probability.....	100
3.13	EXTREME HEAT	101
	Characteristics and Classification	101
	Location and Extent.....	101
	Future Probability.....	102
3.14	OVERALL HAZARD OCCURRENCE AND FUTURE PROBABILITY	103

TABLE OF CONTENTS

SECTION 4: VULNERABILITY ASSESSMENT	106
4.1 SOCIAL VULNERABILITY	106
Lowcountry Social Vulnerability	106
4.2 LOSS INFORMATION	112
Lowcountry	112
Beaufort County	113
Colleton County	116
Hampton County	120
Jasper County	126
4.3 HAZARD POTENTIAL RANKING	127
4.4 OVERALL VULNERABILITY BY HAZARD.....	128
4.5 BUILDING AND VEHICLE INVENTORY	134
4.6 DEVELOPMENT TREND	139
4.7 CRITICAL FACILITIES	143
SECTION 5: COMMUNITY CAPABILITY ASSESSMENT	150
5.1 EXISTING DEPARTMENTS, POLICIES, PLANS, AND ORDINANCES REVIEW	150
Department Capability Review.....	150
Policies, Plans, and Ordinances Review	151
National Flood Insurance Program (NFIP).....	153

TABLE OF CONTENTS

SECTION 6: HAZARD MITIGATION STRATEGY	155
6.1 UPDATE OF 2015 HAZARD MITIGATION ACTIONS	155
2015 Completed Mitigation Actions.....	155
2015 Implementation Impediments	157
6.2 UPDATE OF HAZARD MITIGATION STRATEGY	158
Guiding Principles	158
Goals and Strategies	158
6.3 2020 NEW HAZARD MITIGATION ACTIONS.....	161
Cost-Benefit Analysis.....	161
2020 New and Ongoing Hazard Mitigation Actions	162
SECTION 7: PLAN MAINTENANCE.....	165
7.1 MONITORING AND EVALUATION	165
7.2 CONTINUED PUBLIC INVOLVEMENT	165
APPENDICES	
APPENDIX A: MEMORANDUM OF UNDERSTANDING	166
APPENDIX B: MEETINGS	174
APPENDIX C: STAKEHOLDERS AND PUBLIC PARTICIPATION	180
APPENDIX D: PLAN REVIEW	216
APPENDIX E: PUBLIC ASSISTANCE FUNDED PROJECT SUMMARIES	223
APPENDIX F: DEFINITIONS OF FEMA FLOOD ZONE DESIGNATIONS	232
APPENDIX G: SOCIAL VULNERABILITY CONCEPTS AND METRICS.....	233
APPENDIX H: LIST OF CRITICAL FACILITIES	235
APPENDIX I: TYPES OF MITIGATION ACTIONS.....	246
APPENDIX J: UPDATE OF 2015 HAZARD MITIGATION ACTIONS.....	247
APPENDIX K: 2020 NEW AND ONGOING HAZARD MITIGATION ACTIONS.....	271
APPENDIX L: FEDERAL MITIGATION FUNDING SOURCES.....	317
REFERENCES	321

LIST OF TABLES

Table 1: Jurisdictional Participation	9
Table 2: Population Growth 2000-2018	20
Table 3: Age Cohorts 2000-2018	22
Table 4: Race and Ethnicity 2000-2018	24
Table 5: Housing Stock 2000-2018	26
Table 6: Housing Stock by Year Built 2018	28
Table 7: Employment 2000-2019	29
Table 8: Income Measures 2000-2018	30
Table 9: Disaster Declarations 2015-2019.....	33
Table 10: Enhanced Fujita Scale for Tornado Damage.....	35
Table 11: Tornado Historical and Recent Hazards Events 1986-2019	39
Table 12: Hurricane Category Description	40
Table 13: Storm Tracks Affecting the Lowcountry Region 1850-2019.....	43
Table 14: Hurricane and Tropical Storms Historical and Recent Hazards Events 1988-2019.....	49
Table 15: Severe Thunderstorms and Windstorms Historical and Recent Hazards Events 1996-2019	54
Table 16: Lightning Historical and Recent Hazards Events 1999-2019	59
Table 17: Estimations of Hail Diameters	60
Table 18: Hail Historical and Recent Hazards Events 1989-2019.....	64
Table 19: Highest Drought Level Status 2012-2020	65
Table 20: Drought Historical and Recent Hazards Events by Drought Week 2012-2019	68
Table 21: Earthquake Intensity Description	70
Table 22: Wildfire Events 2005-2019 by Acres Burned.....	76
Table 23: Wildfire Historical and Recent Hazards Events 1988-2019	79
Table 24: Recent Flood Types 2012-2019	86
Table 25: Flooding Historical and Recent Hazards Events 1996-2019.....	90
Table 26: Winter Historical and Recent Hazards Events 1996-2019.....	97
Table 27: Beach Nourishment Projects 1977-2020.....	100

LIST OF TABLES

Table 28: Risk Level Classification	101
Table 29: Extreme Heat Historical and Recent Hazards Events 1996-2019.....	102
Table 30: Lowcountry Summary of Historical and Recent Hazards Events.....	103
Table 31: Beaufort County Summary of Historical and Recent Hazards Events	103
Table 32: Colleton County Summary of Historical and Recent Hazards Events.....	104
Table 33: Hampton County Summary of Historical and Recent Hazards Events	104
Table 34: Jasper County Summary of Historical and Recent Hazards Events	105
Table 35: Municipality Social Vulnerability Level	106
Table 36: Lowcountry Historical and Recent Losses	112
Table 37: Beaufort County Historical and Recent Losses.....	113
Table 38: City of Beaufort Historical and Recent Losses	113
Table 39: Town of Bluffton Historical and Recent Losses	114
Table 40: Town of Hilton Head Island Historical and Recent Losses.....	114
Table 41: Town of Port Royal Historical and Recent Losses.....	115
Table 42: Colleton County Historical and Recent Losses	116
Table 43: Town of Cottageville Historical and Recent Losses	117
Table 44: Town of Edisto Beach Historical and Recent Losses.....	117
Table 45: Town of Lodge Historical and Recent Losses.....	118
Table 46: Town of Smoaks Historical and Recent Losses	118
Table 47: City of Walterboro Historical and Recent Losses	119
Table 48: Town of Williams Historical and Recent Losses	119
Table 49: Hampton County Historical and Recent Losses.....	120
Table 50: Town of Brunson Historical and Recent Losses.....	121
Table 51: Town of Estill Historical and Recent Losses.....	121
Table 52: Town of Furman Historical and Recent Losses.....	122
Table 53: Town of Gifford Historical and Recent Losses.....	122
Table 54: Town of Hampton Historical and Recent Losses	123

LIST OF TABLES

Table 55: Town of Luray Historical and Recent Losses.....	123
Table 56: Town of Scotia Historical and Recent Losses.....	124
Table 57: Town of Varnville Historical and Recent Losses	124
Table 58: Town of Yemassee Historical and Recent Losses	125
Table 59: Jasper County Historical and Recent Losses.....	125
Table 60: City of Hardeeville Historical and Recent Losses.....	126
Table 61: Town of Ridgeland Historical and Recent Losses	126
Table 62: Lowcountry Hazard Potential Ranking	127
Table 63: Lowcountry Building Exposure by General Occupancy	134
Table 64: Lowcountry Vehicle Exposure by Type.....	134
Table 65: County and Municipality Building Exposure by General Occupancy.....	135
Table 66: County and Municipality Vehicle Exposure by Type	137
Table 67: Historic and Projected Population 2000-2040	139
Table 68: Building Permits 2015-2019	141
Table 69: Number of Critical Facilities.....	144
Table 70: County and Municipality Departments Review.....	150
Table 71: Policies, Plans, and Ordinances Addressing Natural Hazards.....	151
Table 72: Communities Participating in the National Flood Insurance Program.....	154
Table 73: Summary of 2015 Completed Hazard Mitigation Actions.....	155
Table 74: 2020 Hazard Mitigation Goals and Strategies	159
Table 75: Prioritization Scoring Criteria.....	161
Table 76: Summary of 2020 New and Ongoing Hazard Mitigation Actions.....	162

LIST OF FIGURES

Figure 1: 2020 Lowcountry Natural Hazard Mitigation Plan Workflow	5
Figure 2: Community Survey Responses	11
Figure 3: Lowcountry Location	14
Figure 4: County and Municipality Location.....	17
Figure 5: Elevation	18
Figure 6: Wetlands.....	19
Figure 7: Population Density by Census Tract 2018	21
Figure 8: Median Age by Census Tract 2018	23
Figure 9: Population with Limited English Proficiency (LEP) by Census Tract 2018.....	25
Figure 10: Median Home Value by Census Tract 2018	27
Figure 11: Median Household Income by Census Tract 2018.....	31
Figure 12: Tornado and Tornado Track 2012-2020.....	37
Figure 13: Tornado Warnings 2012-2019.....	38
Figure 14: Storm Surge Risk.....	42
Figure 15: Hurricane and Tropical Storm Tracks 2012-2019.....	45
Figure 16: Severe Thunderstorm and Strong Wind Warnings 2012-2019.....	51
Figure 17: National Cloud-to-Ground Lightning Incidence	55
Figure 18: Average Lightning Strikes per Year 2012-2019	56
Figure 19: Geographic Distribution of Recent Hail Events 2012-2019.....	61
Figure 20: SC Average Annual Precipitation (inches)	65
Figure 21: Drought Frequency – Weeks of Drought per Year 2012-2019.....	66
Figure 22: Recent Earthquakes near the Lowcountry 2000-2019.....	71
Figure 23: Earthquake Risk – Peak Ground Acceleration of 2% in 50 Years	73
Figure 24: Geologic Hazards of South Carolina – Liquefaction Potential.....	74
Figure 25: Wildfire Locations 2012-2019	77

LIST OF FIGURES

Figure 26: Annual Wildfire Risk 2012-2019	78
Figure 27: Drainage Areas – Watershed.....	81
Figure 28: FEMA-Designated Flood Zones.....	82
Figure 29: FEMA-Designated Coastal Flood Zones.....	83
Figure 30: Flash Flood Warnings 2012-2019	84
Figure 31: Sea Level Rise Impact	85
Figure 32: Colleton County Flood Risk Map 2017	91
Figure 33: Winter Storm Per Year 2012-2019	93
Figure 34: Short-Term Coastal Erosion Rates.....	98
Figure 35: Average Change in Waterline per Beach 2014-2018	99
Figure 36: Social Vulnerability Level by Census Tracts 2018.....	107
Figure 37: Social Vulnerability and Storm Surge Risk.....	108
Figure 38: Social Vulnerability and Severe Thunderstorm and Strong Wind Warnings	109
Figure 39: Social Vulnerability and Sea Level Rise Risk	110
Figure 40: Social Vulnerability and Tornado Incident	111
Figure 41: Historic and Projected Populations 2000-2040.....	140
Figure 42: Evacuation Routes	145
Figure 43: Emergency Services	146
Figure 44: Communication Stations and Schools.....	147
Figure 45: Wastewater Treatment and Potable Water Facilities.....	148
Figure 46: Transportation Facilities	149

SECTION 1: INTRODUCTION AND PLANNING PROCESS

1.1 INTRODUCTION

According to the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended by the Disaster Mitigation Act of 2000, the Natural Hazard Mitigation Plan is required by the Federal Emergency Management Agency (FEMA) for all counties in the State of South Carolina. The plan *“is the representation of the jurisdiction’s commitment to reduce the risks from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards.”* Moreover, it must meet the requirements of Title 44 Code of Federal Regulations (CFR) §201.6 for FEMA approval and eligibility to apply FEMA Hazard Mitigation Assistance grant programs.

The 2020 Lowcountry Natural Hazard Mitigation Plan is an update of the 2015 Beaufort County Hazard Mitigation Plan and the 2015 Lowcountry Natural Hazard Mitigation Plan which includes Colleton, Hampton, and Jasper Counties. The result is the first fully multi-jurisdictional plan for all the counties in the Lowcountry region, including Beaufort, Colleton, Hampton, and Jasper. The plan provides a profile of the most common natural hazards in the region, including historic locations and past occurrence data, probability of future occurrence, and loss information. The plan also includes social vulnerability indicators for identifying populations at greatest risk from the effects of natural hazards. Finally, the plan identifies the mitigation actions to save lives and to prevent major property damage and other losses caused by natural disasters in the Lowcountry region. The plan was prepared by the Lowcountry Council of Governments (LCOG).

FEMA Requirements

The 2020 Lowcountry Natural Hazard Mitigation Plan addresses the FEMA requirements including:

Planning Process

- 44 CFR §201.6(c)(1): The plan shall document the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.
- 44 CFR §201.6(b)(2): The planning process shall include an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process.
- 44 CFR §201.6(b)(1): The planning process shall include an opportunity for the public to comment on the plan during the drafting stage and prior to plan approval.
- 44 CFR §201.6(b)(3): The planning process shall include the review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.
- 44 CFR §201.6(c)(4) (iii): The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.
- 44 CFR §201.6(c)(4)(i) The plan maintenance process shall include a section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

Hazard Identification and Risk Assessment

- 44 CFR §201.6(c)(2)(i): The risk assessment shall include a description of the type, location and extent of all natural hazards that can affect the jurisdiction as well as information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction
- 44 CFR §201.6(c)(2)(ii): The risk assessment shall include an overall summary of each hazard and its impact on the community as well as an overall summary of each hazard and its impact on the community. The plan must address NFIP insured structures that have been repetitively damaged by floods.
- 44 CFR §201.6 (c) (2) (iii): For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

Mitigation Strategy

- 44 CFR§201.6(c)(3): The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing tools.
- 44 CFR §201.6(c)(3)(i): The hazard mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.
- 44 CFR §201.6(c)(3)(ii): The hazard mitigation strategy shall address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate. The hazard mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.
- 44 CFR §201.6(c)(3)(iii): The hazard mitigation strategy shall include an action plan, describing how the actions identified will be prioritized, implemented, and administered by each local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.
- 44 CFR §201.6(c)(3)(iv): For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.
- 44 CFR §201.6(c)(4)(ii): The plan shall include a process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvements, when appropriate.

Plan Review

- 44 CFR §201.6(d)(3): A local jurisdiction must review and revise its plan to reflect change in development and priorities as well as progress in local mitigation efforts.

Plan Adoption

- 44 CFR §201.6(c)(5): The plan shall include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan. For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.

Composition of the Plan

The documentation of the planning process includes seven sections along with appendices and references.

Section 1: Introduction and Planning Process

Introduction to the 2020 Lowcountry Natural Hazard Mitigation Plan and its requirements and the planning process.

Section 2: Lowcountry Profile

Physical and socioeconomic conditions unique to the Lowcountry region including its location, geographical landscape, population, housing, and economy.

Section 3: Hazard Identification and Profile

Hazards relevant to the Lowcountry region with a description of each hazard, its location, extent, occurrences, and its future probability. It is important to understand the natural hazards that affect the Lowcountry region.

Section 4: Vulnerability Assessment

Social vulnerability indicators along with loss information in 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.

Section 5: Community Capability Assessment

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.

Section 6: Hazards Mitigation Strategy

Goals and strategies identified to mitigate natural hazards for the counties and municipalities participating in this plan. The goals and strategies are revised and updated from those appearing in the 2015 Beaufort County Hazard Mitigation Plan and the 2015 Lowcountry Region Natural Hazard Mitigation Plan.

Section 7: Plan Maintenance

This section details how the plan will be monitored and maintained over the next five years.

1.2 PLANNING PROCESS

To meet the requirements of Title 44 Code of Federal Regulations (CFR) §201.6, the planning process of the 2020 Lowcountry Natural Hazard Mitigation Plan follows the guidance of the *Local Mitigation Handbook* (FEMA, 2013). The Handbook's tasks were translated into the planning process workflow as illustrated in Figure 1.

Planning Area and Resources

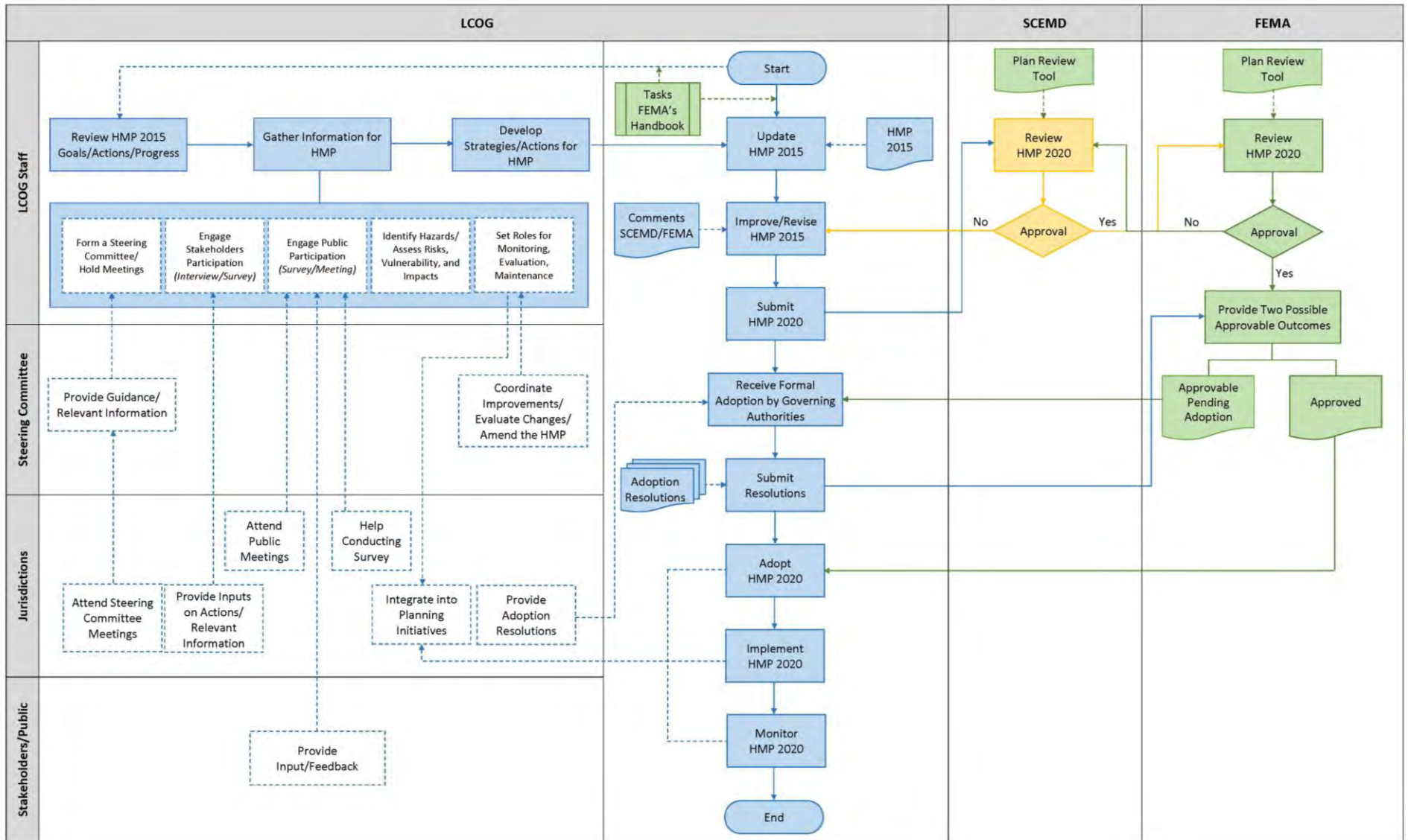
The 2020 Lowcountry Natural Hazard Mitigation Plan was coordinated by the Planning Department of the LCOG, under an individual Memorandum of Understanding (MOUs) between each county and the LCOG (See Appendix A). The planning team comprises representatives from the four counties, the Town of Hilton Head Island, the Town of Edisto beach, and the LCOG staff. The team members participated in and contributed to the plan update by serving as members of the Steering Committee and as liaisons to their respective jurisdictions, reviewing all technical information, helping in gathering information from stakeholders, and providing relevant information.

Technical assistance was provided by the University of South Carolina's Hazards and Vulnerability Research Institute (HVRI). This included the natural hazards profile and vulnerability assessment updated to the most recent available data. The HVRI is an interdisciplinary research and graduate and undergraduate training center focused on the newly emergent field of hazard vulnerability science. In addition to basic research, HVRI facilitates local, state, and federal government efforts to improve emergency preparedness, planning, and response and disaster resilience through its outreach activities including providing technical assistance.

The socioeconomic information unique to the Lowcountry region including population, housing, and economy were obtained from the U.S. Census Bureau and South Carolina Department of Employment and Workforces. Other resources used throughout the planning process included, but were not limited to, Federal Emergency Management Agency (FEMA), National Oceanic and Atmospheric Administration (NOAA), National Lightning Detection Network (NLDN), South Carolina Emergency Management Division (SCEMD), South Carolina Department of Natural Resources (SCDNR), Southeast Regional Climate Center (SERCC), and United States Geological Survey (USGS).

Lastly, the information from the residents of the Lowcountry region were integral to the planning process. The planning effort involved opportunities for public comment through a community survey and a public participation process.

Figure 1: 2020 Lowcountry Natural Hazard Mitigation Plan Workflow



Planning Team Organization

The 2020 Lowcountry Natural Hazard Mitigation Plan is an update of the 2015 Beaufort County Hazard Mitigation Plan and the 2015 Lowcountry Natural Hazard Mitigation Plan which expires June 3, 2021 and March 31, 2021, respectively (LCOG 2015a & LCOG 2015b). Building on the foundation of the 2015 Plans, in October 2018 the LCOG began working with the participating jurisdictions on grant submission for the “Hazard Mitigation Plan Update for Beaufort, Colleton, Hampton, and Jasper Counties.” The grant was submitted to FEMA in December 2018 and awarded in October 2019.

Hazard Mitigation Plan Steering Committee

In 2020, the Steering Committee was formed to help in the creation and development of the Plan. The steering committee members were chosen based on their expertise in natural hazard preparation and planning within their respective jurisdictions. These included the heads of the county emergency service offices, the jurisdictional representatives, and the LCOG staff. The steering committee includes:

- Beaufort County
Pamela Cobb, Disaster Recovery Coordinator
100 Ribaut Road, Beaufort, SC 29902
843-255-2721, pcobb@beaufortgov.net
- Town of Hilton Head Island
Shari Mendrick, Floodplain Administrator, Town of Hilton Head Island
1 Town Center Court, Hilton Head Island, SC 29928
843-341-4687, sharim@hiltonheadislandsc.gov
- Colleton County
David Greene, Deputy Chief/Emergency Manager, Fire Rescue
113 Mable T. Willis Boulevard, Walterboro, SC 29488
843-539-1960, dgreene@colletoncounty.org
- Town of Edisto Beach
Iris Hill, Town Administrator
2414 Murray Street, Edisto Beach, SC 29438
843-869-2505 extension 211, ihill@townofedistobeach.com
- Hampton County
Susanne Peeples, Director, Emergency Management
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- Jasper County
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The roles of the Steering Committee members throughout the planning process included:

- Acting as liaisons for the plan update between their jurisdictions and LCOG staff.
- Providing guidance on how to approach the plan update.
- Providing information regarding hazard preparedness and other activities related to hazard mitigation in their respective jurisdictions.
- Assisting in public information and communication through their respective organizations.
- Assisting in development of internal policies and procedures to implement relevant recommendations.
- Assisting in implementation of recommendations of the Plan including, but not limited to, the applications for funding for the Building Resilient Infrastructure and Communities (BRIC) and Flood Mitigation Assistance (FMA) grants.

In March 2020, the LCOG informed the steering committee, of the planning process and timeframe of the plan update. Two steering committee meetings followed. All meeting minutes are included in Appendix B-1. One-on-one meetings were also scheduled with each steering committee member to discuss any issues as needed.

First Steering Committee Meeting

The first steering committee meeting was held on August 27, 2020. The purposes were to ensure that all members understand their roles and the plan's purpose, to inform the work progress, and to discuss action updates, and the tasks needed in the plan update.

Second Steering Committee Meeting

The second steering committee meeting was held on December 7, 2020. This meeting emphasized updating and refining the goals and strategies and finalizing the plan.

One-On-One Meeting

One-on-one meetings were held between steering committee members and LCOG staff. The purpose of these meetings was to gain further perspectives and information regarding the mitigation actions and strategies, critical facilities, and other relevant information. Summaries of the meetings are shown in the Appendix B-2.

Stakeholders and Public Participation

Building on the 2015 Plans and the current situation with the COVID-19 pandemic, in-person outreach to distribute and gather information regarding the natural hazard mitigation was very limited. LCOG developed an approach that would take advantage of the now widespread use of social media, computers, smartphones, and other devices to obtain meaningful input from stakeholders and public. Traditional press releases were also distributed along with legal notices in the most heavily distributed regional newspapers.

Jurisdictional Participation

The LCOG adopted the previous plan's criteria for counties and municipalities to officially participate in the planning process. These criteria included:

- Beaufort, Colleton, Hampton, and Jasper Counties and LCOG establishing a partnership under the Memorandum of Understanding.
- The jurisdiction's mayor, administrator, or manager providing input or comments on the Natural Hazard Mitigation Plan.
- The jurisdiction's EMS Director or appointed representative serving as a member of the Steering Committee and providing input and comments on the Natural Hazard Mitigation Plan and the planning process.
- The jurisdiction's representative providing input and comments on the Natural Hazard Mitigation Plan and the planning process.
- The LCOG Planning staff personally discussing the Natural Hazard Mitigation Plan with a jurisdiction's mayor, administrator, manager, or appointed representative, and providing with input or comments.

Table 1 shows how each jurisdiction participated in the planning process.

Emergency Manager Survey

The LCOG developed the emergency manager survey for participating jurisdictions as shown in Appendix C-1. The survey was distributed via email to the steering committee members to help gather information and reach out to emergency managers in their respective jurisdictions. The LCOG also worked with steering committee members individually to update actions, critical facilities, and other relevant information needed. This information assisted in the analysis of completed actions and documentation of the need for future actions.

Table 1: Jurisdictional Participation

Participating Jurisdictions			Steering Committee	Stakeholders/ Public Participation	Document Review	Additional Information
Beaufort County	Eric Greenway	Interim County Administrator		✓	✓	
	Ashley Jacobs	County Administrator (former)		✓		
	Pamela Cobb	Disaster Recovery Coordinator	✓	✓	✓	
	Charles Atkinson	Building Codes Director		✓		
City of Beaufort	William Prokop	City Manager		✓	✓	
	Reece Bertholf	Assistant City Manager/Fire Chief		✓		
	David Prichard	Community and Economic Development Director		✓		
	Matthew Street Clair	Public Projects and Facilities Director		✓		
	George Erdel	E.M. Coordinator and Public Information Officer, Police Department		✓		
	Martie McTeer	Development review Coordinator				✓
Town of Bluffton	Marc Orlando	Town Manager (former)		✓	✓	
	Stephanie Price	Chief of Police		✓	✓	
	Donald Chandler	Captain – Support Division Commander, Police Department		✓		
	Morganne Whatley	Customer Service Supervisor				✓
Town of Hilton Head Island	Shari Mendrick	Floodplain Administrator	✓	✓	✓	
	Nancy Stephens	Application/Records Manager				✓
Town of Port Royal	Van Willis	Town Manager		✓	✓	
	Linda Bridges	Planning Administrator		✓		
Colleton County	Kevin Griffin	County Administrator		✓	✓	
	David Greene	Deputy Chief, Fire Rescue	✓	✓	✓	

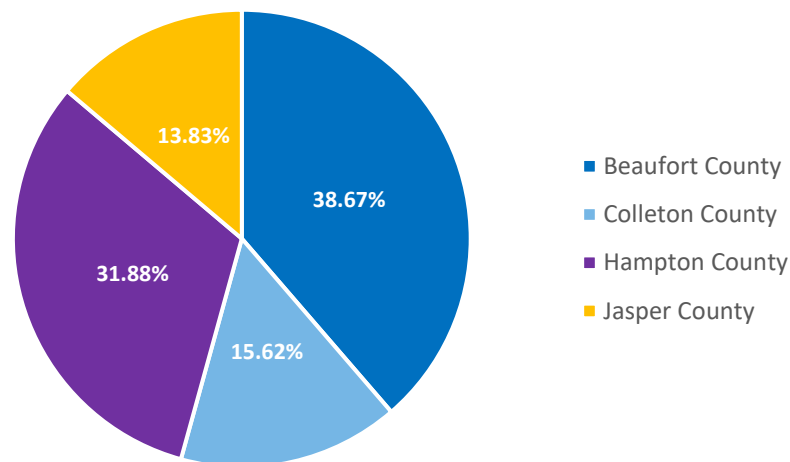
Participating Jurisdictions			Steering Committee	Stakeholders/ Public Participation	Document Review	Additional Information
	Janet Laney	Captain, Fire Rescue		✓		
	Adrienne Stokes	Staff, Fire Rescue		✓		
	Zach Montgomery	Planning and Development Director				✓
Town of Edisto Beach	Iris Hill	Town Administrator	✓	✓	✓	
	Margaret Green	Building Permit Technician				✓
City of Walterboro	Bonnie Ross	Planning Technician				✓
Hampton County						
Hampton County	Rose Dobson-Elliott	County Administrator		✓	✓	
	Susanne Peebles	Emergency Management Director	✓	✓	✓	✓
	Renee Bennett	Office Manager				✓
Town of Hampton	Keith Browning	Building Official				✓
Town of Yemassee	Matthew Garnes	Town Clerk				✓
Jasper County						
Jasper County	Andrew Fulghum	County Administrator		✓	✓	
	Russell Wells	Interim Director, Emergency Services	✓	✓	✓	
City of Hardeeville	Ashley Moody	Permit Technician				✓
Town of Ridgeland	Joshua Rowland	Planning and Community Development Director				✓

Community Survey

The LCOG developed the community survey in both English and Spanish to gather information on the Lowcountry residents' experiences and perceptions of natural hazards, planning and preparation for natural hazards, and support of community hazard mitigation activities. The survey was distributed through Survey Monkey as shown in Appendix C-2. Since not everyone has access to the internet, paper copies were distributed. LCOG issued a press release with a link to the survey and distributed the survey via its website, newsletter, and social media accounts. Also, counties and municipalities assisted in distributing the survey link via their webpages, emails, social media, as well as distributing paper copies. Examples of survey distribution can be seen in Appendix C-3.

The community survey was open continuously for more than three months. Overall, there were 864 responses of which 781 came from residents of the four counties. The other 83 responses came from Charleston, Chatham (GA), Orangeburg, and Richland Counties, or there was no location disclosed. Of the total responses, 38.67% were from Beaufort County, 15.62% were from Colleton County, 31.88% were from Hampton County, and 13.83% were from Jasper County, as shown in Figure 2.

Figure 2: Community Survey Responses



The survey results identified twelve hazards that cause damage to property and loss of life for Lowcountry residents. These are:

- Tornado
- Hurricane
- Windstorm
- Lightning
- Hail
- Drought
- Earthquake
- Wildfire
- Flood
- Winter Storm
- Coastal Erosion
- Extreme Heat

The most frequently cited hazards to cause damage to property are hurricanes, windstorms, and lightning, while the hazards of greatest concern for their life and property are hurricanes, tornadoes, and lightning. This data is supported by the hazards profile and vulnerability assessment in Section 3 and 4. All survey results can be seen in the Appendix C-4.

The community survey was distributed to both the public and specific groups, including senior populations and businesses as shown in Appendix C-5.

Hazard Identification and Profile

The hazard identification and risk assessment compiled for the Lowcountry region covers twelve different hazards that are of most concern in the region. These hazards include tornado, hurricane wind/storm surge, windstorm, lightning, hail, drought, earthquake, wildfire, flood (including King tides and sea level rise), winter storm, coastal erosion, and extreme heat. The profiles include historic location and occurrence data along with loss information and social vulnerability indicators.

Given the prior approved plans from 2015 the current profiles provide only updated (2012-present) data and information on location and occurrences, notable events, future probabilities, loss and damage information, and social vulnerability.

Mitigation Strategy

The goals and strategies towards the hazard mitigation for the Lowcountry region from the 2015 plans were revised to respond to the region's current conditions. This included assessing the updated socioeconomic conditions, community survey results, emergency manager survey results, hazard identification and profiles, and the implementation status of the 2015 mitigation actions. The revised goals and strategies are the guide for formulating the 2020 hazard mitigation actions.

Plan Review

All participating jurisdictions were contacted and notified of the planning process and the progress of the plan. The progress report and the draft final plan were distributed to the steering committee and stakeholders for review and comments. Also, the draft final plan was made available to the public for review. The results are the following.

- Progress Reports
 - Hazard identification and vulnerability assessment: The report was distributed to the steering committee members for review on August 25, 2020. Review comments were received from the steering Committee member from the Town of Edisto Beach on August 27, 2020.
 - Community survey, emergency survey, demographic data collection and mapping: A status update was distributed to the steering committee members on September 15, 2020. No comments were received.
 - Lastly, the report included completed, nearly completed, and remaining tasks to understand the timeframe for the completion of the 2020 Plan. This update was distributed to the steering committee members on November 17, 2020. No comments were received.

-
- Draft Final Plan – The draft final plan was completed and made available to the public for review between December 11, 2020 to January 8, 2021, and to stakeholders and steering committee members for review between December 22, 2020 to January 8, 2021. The plan was made available via LCOG’s website and social media accounts. Counties and municipalities assisted in distributing the plan via their webpages, emails, social media. Advertisements have been run in local newspapers, as well. Examples of distributions can be seen in Appendix D. Comments were received during the comment period, with closing date on January 8, 2021. The plan revision was made accordingly.
 - Final Plan
 - The final plan was submitted to the State Hazard Mitigation Officers (SHMO) for review and comments on January 15, 2021. LCOG received the completed Plan Review Tool on February 18, 2021 and made revisions accordingly.
 - The revised final plan was submitted to the State Hazard Mitigation Officers (SHMO) on March 1, 2021.

Plan Adoption

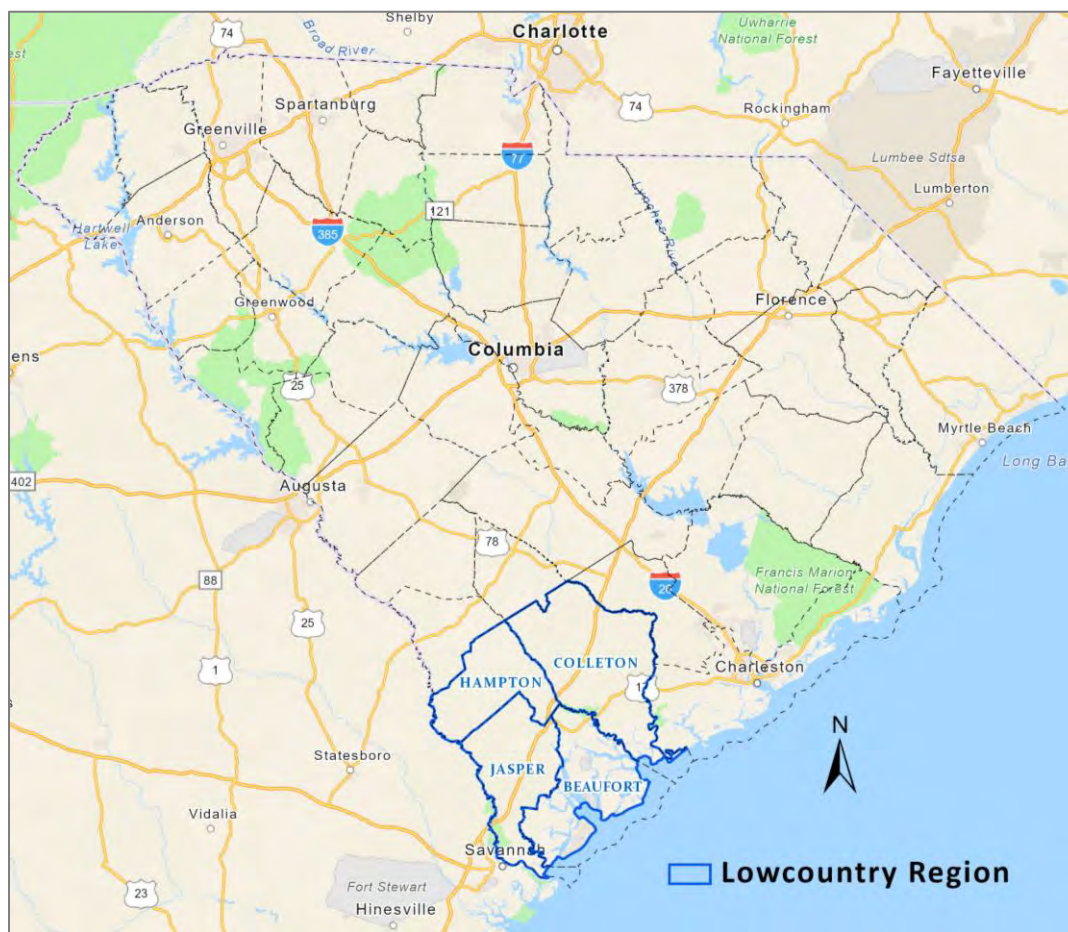
To avoid repeated attempts to adopt the plan prior to FEMA approval, the 2020 Lowcountry Natural Hazard Mitigation will be adopted by participating jurisdictions as soon as FEMA’s approval is received.

SECTION 2: LOWCOUNTRY PROFILE

2.1 LOWCOUNTRY AREA

With land area of 2,848 square miles, the Lowcountry region comprises Beaufort, Colleton, Hampton, and Jasper Counties, twenty-one municipalities, and unincorporated areas such as, Daufuskie Island, Islandton, Early Branch, and Coosawhatchie. The Lowcountry Region is bisected by Interstate-95 and US 278 runs diagonally from the northwest to the southeast. The interstate is not only a major cross-country corridor, but also a critical conduit for the local economy and a gateway to the region's top tourist destinations. The region's economy is also driven, by the Port of Charleston the Port of Savannah in Georgia and multiple military installations in the Beaufort and Savannah areas. US 17 connects the Lowcountry to downtown Savannah and the future Jasper Ocean Terminal to the south and to Charleston in the north. The region is served by CSX rail and Amtrak, with a passenger depot in the Town of Yemassee. There is a general aviation airport in each county, in addition to the nearby Charleston and Savannah-Hilton Head International Airports. All major transportation modes would be impacted by a significant hazard situation. The following maps shows areas that are included in this plan.

Figure 3: Lowcountry Location



Beaufort County

Beaufort County, approximately 576 square miles in land area, is situated along the southern portion of South Carolina's Atlantic coastal plain. It is bordered by Colleton County on the northeast, Hampton County on the northwest, Jasper County on the southwest, and the Atlantic Ocean on the south. Most areas are comprised largely of tidal marshes and swamps. Beaufort County's climate is generally subtropical with hot summers and mild winters. It is wet and partly cloudy year-round. The average annual rainfall is approximately 49 inches with 105 days per year. Over the course of the year, the temperature typically varies from 42°F to 90°F and is rarely below 29°F or above 96°F (FEMA, 2020 & Weatherspark.com).

There are four municipalities within Beaufort County, the City of Beaufort and the Towns of Bluffton, Hilton Head Island, and Port Royal.



Colleton County

Colleton County, approximately 1,056 square miles in land area, is situated in the southwestern region of South Carolina, on the Atlantic Ocean. It is bordered by Bamberg and Orangeburg Counties to the north, Allendale and Hampton Counties to the west, the Atlantic Ocean and Beaufort County to the south, Charleston County to the east, and Dorchester County to the northeast. The county is situated on a low coastal plain, with a significant portion of its area consisting of tidal marshes and swamps. Most of the land situated in the floodplains is undeveloped marshland with some residential, commercial, and industrial development. Colleton County's climate is humid and subtropical. The summers are hot and oppressive while the winters are short and cold. It is wet and partly cloudy year-round. The average annual rainfall is approximately 47 inches with 96 days per year. Over the course of the year, the temperature typically varies from 38°F to 91°F and is rarely below 26°F or above 97°F (FEMA, 2020 & Weatherspark.com).

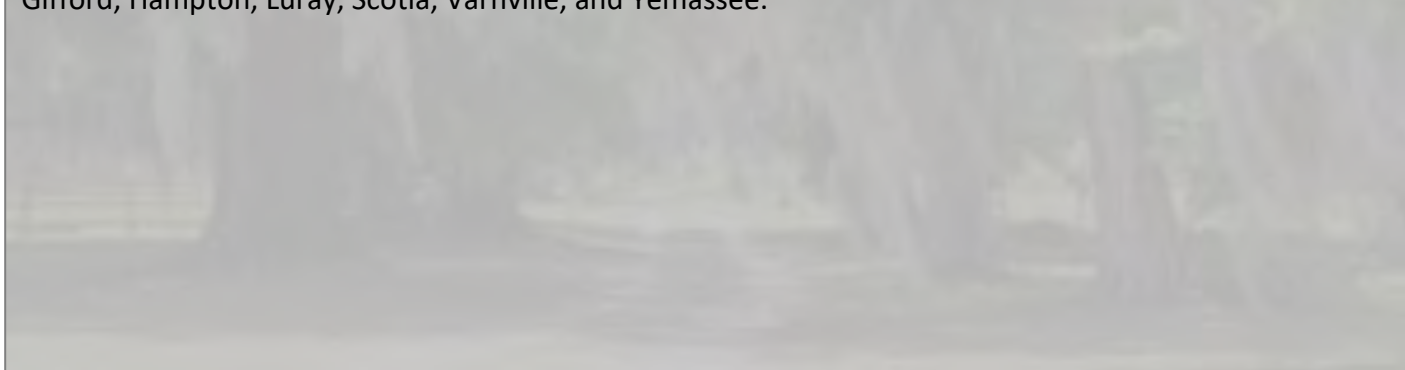
There are six municipalities within Colleton County including the City of Walterboro and the Towns of Cottageville, Edisto Beach, Lodge, Smoaks, and Williams.



Hampton County

Hampton County, approximately 559 square miles in land area, is situated in the southeastern part of South Carolina. It is bordered on the northwest by Allendale County, to the west by Screven County, GA, to the southwest by Effingham County, GA, the north by Bamberg County, to the south by Jasper County, to the southeast by Beaufort County, and to the east by Colleton County, SC. Hampton County's climate is humid and subtropical. The summers are hot and oppressive, and the winters are short and cold. It is wet and partly cloudy year-round. The average annual rainfall is approximately 48 inches with 106 days per year. Over the course of the year, the temperature typically varies from 38°F to 92°F and is rarely below 25°F or above 98°F (FEMA, 2020 & Weatherspark.com).

There are nine municipalities within Hampton County including the Towns of Brunson, Estill, Furman, Gifford, Hampton, Luray, Scotia, Varnville, and Yemassee.



Jasper County

Jasper County, approximately 655 square miles in land area, is situated in the southeastern portion of South Carolina in the Atlantic coastal plain. The county is bordered by Beaufort County on the northeast, Chatham County, GA on the southwest, Effingham County, GA on the west across the Savannah River, Hampton County on the north, and the Atlantic Ocean on the south. Jasper County's climate is humid and subtropical. The summers are long and hot, and the winters are short and cold. It is wet and partly cloudy year-round. The average annual rainfall is approximately 48 inches with 105 days per year. Over the course of the year, the temperature typically varies from 40°F to 92°F and is rarely below 26°F or above 98°F (FEMA, 2020 & Weatherspark.com).

There are two municipalities within Jasper County, the City of Hardeeville and the Town of Ridgeland.

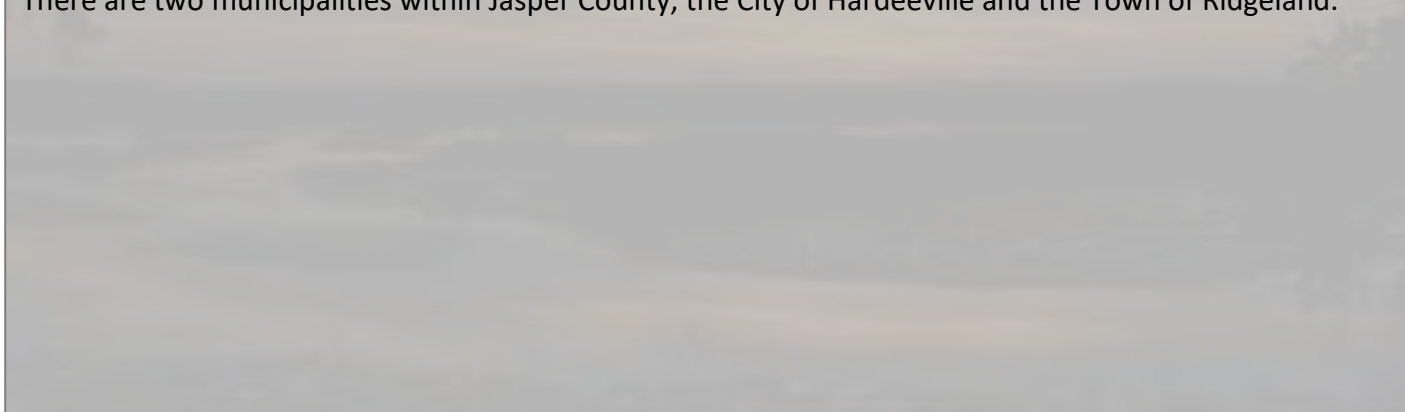
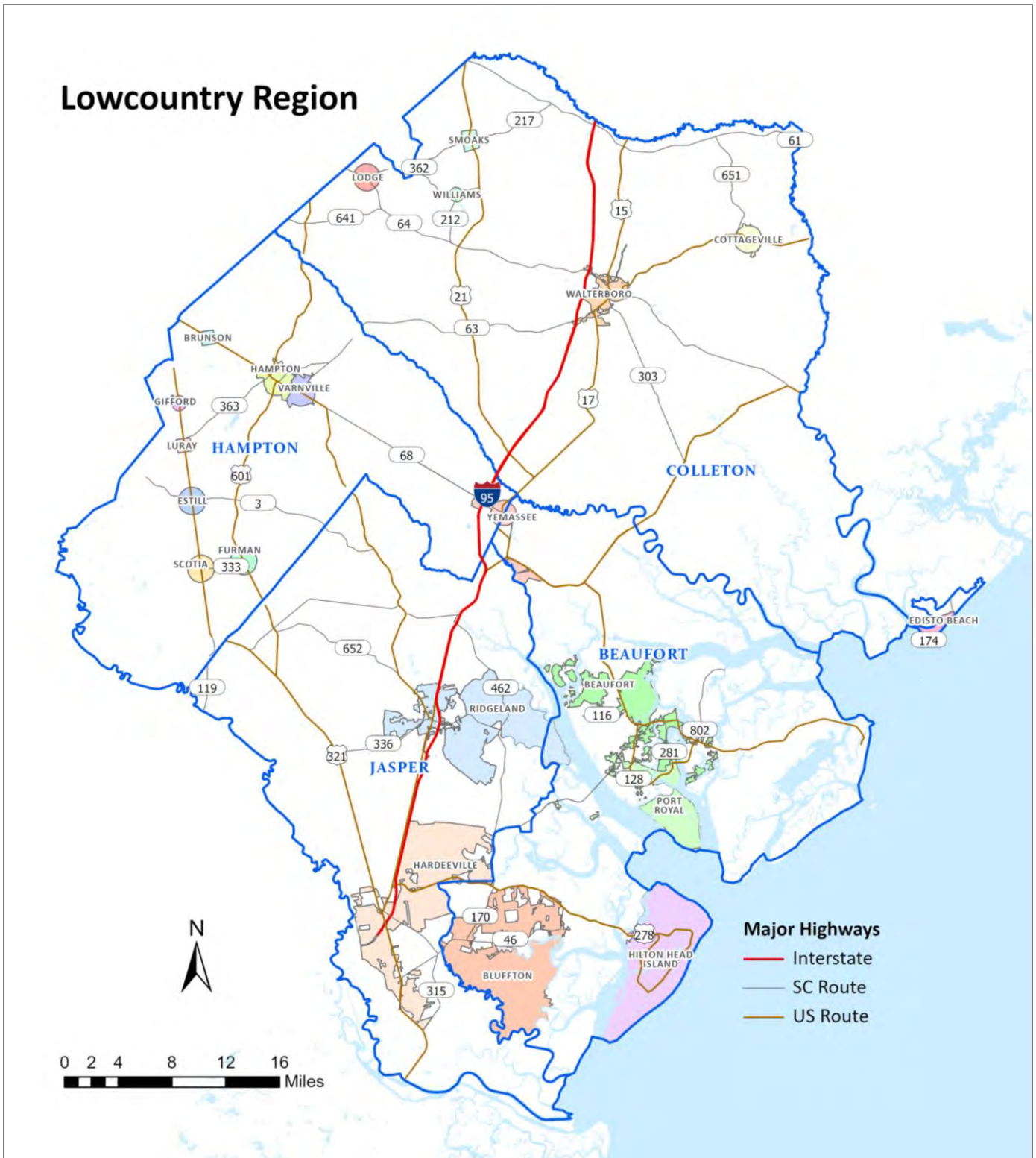


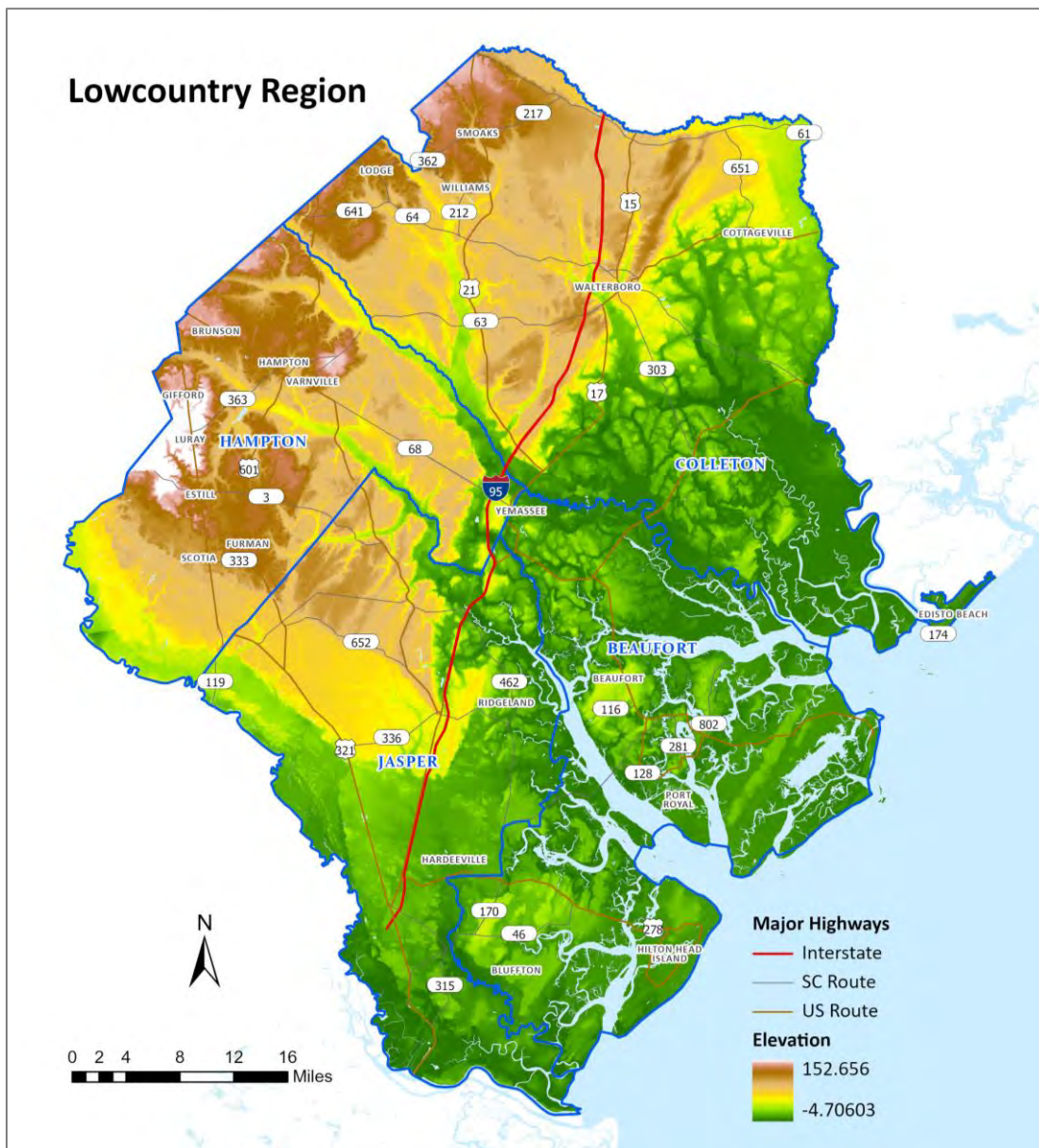
Figure 4: County and Municipality Location



Source: South Carolina Department of Natural Resource (SCDNR)

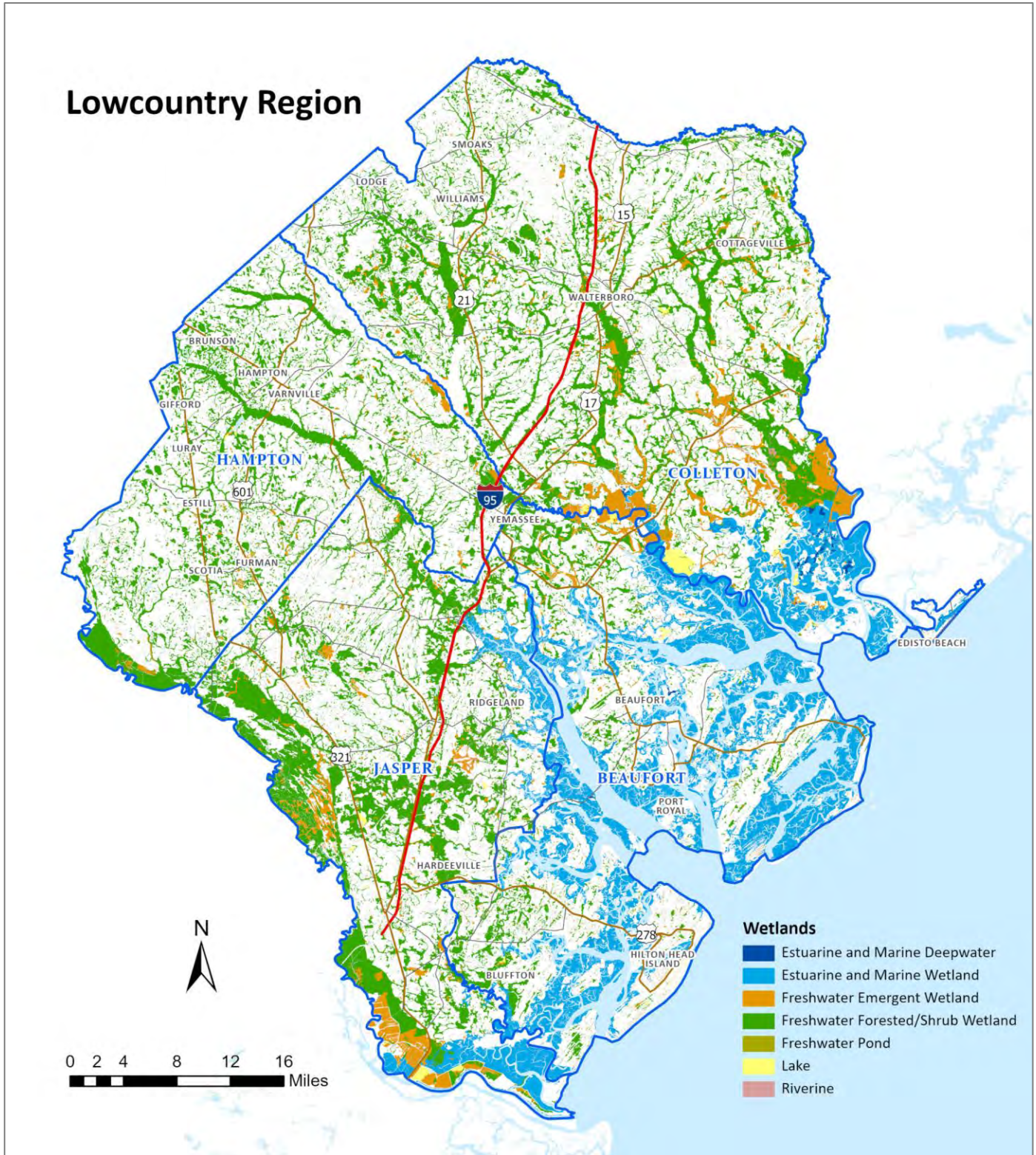
The Lowcountry is characterized by its proximity to the ocean, saltwater marshes, forested wetlands, and large tracts of pine forests. Lowcountry forested areas support diverse wildlife communities, clean water, renewable material, and recreation. They can also provide fuel for wildfires if they are not managed. The Lowcountry elevation slopes up gently inland with tidal creeks reaching into the three major watersheds of the Savannah, Salkehatchie, and Edisto Rivers. The marshes and wetlands offer unique and attractive amenities for residential development; however, they can also make construction problematic because of environmental constraints. The area’s abundant saltwater marshes are filled with sea grass which weaken and/or dissipate waves and retain sediment during storms, a value hard to put a price on. The landscape is a desirable place to call home particularly where a waterfront, marsh view, or other distinctive waterbody exist, however, this landscape can also make housing and other buildings vulnerable to flooding and wind damage.

Figure 5: Elevation



Source: South Carolina Department of Natural Resource (SCDNR) and U.S. Geological Survey (USGS)

Figure 6: Wetlands



Source: South Carolina Department of Natural Resource (SCDNR)

2.2 LOWCOUNTRY POPULATION

Population and Density

Between 2000 and 2010, the four county Lowcountry region was one of the fastest growing regions in the state, with Beaufort County being the fastest growing among the larger counties and Jasper County in the top ranks of the smaller counties. Table 2 shows that between 2010 and 2018, population growth in the Lowcountry slowed when compared with the period 2000 through 2010. The population growth reversed in Colleton and Hampton Counties between 2010 and 2018.

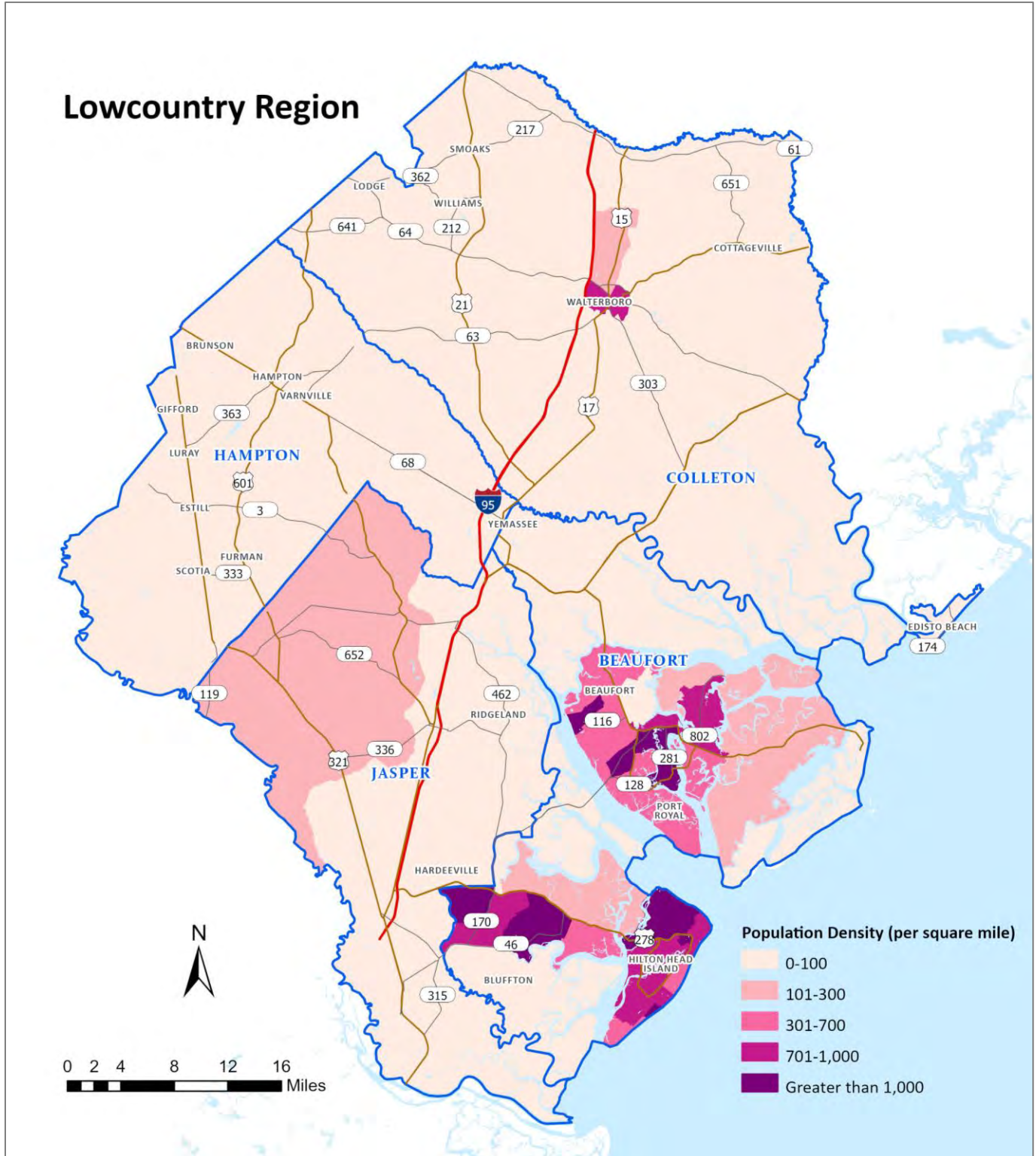
Table 2: Population Growth 2000-2018

Jurisdictions	2000	2010	2015	2018	Percent Change 2000-2010	Percent Change 2010-2018	Percent Change 2015-2018
Beaufort County	120,937	162,233	171,420	188,715	34.1%	16.3%	10.1%
City of Beaufort	12,950	12,361	12,839	13,357	-4.5%	8.1%	4.0%
Town of Bluffton	1,275	12,978	14,607	23,097	917.9%	78.0%	58.1%
Town of Hilton Head Island	33,862	37,099	39,071	39,639	9.6%	6.8%	1.5%
Town of Port Royal	3,950	10,678	11,513	13,037	170.3%	22.1%	13.2%
Colleton County	38,264	38,892	38,004	37,660	1.6%	-3.2%	-0.9%
Town of Cottageville	707	766	853	744	8.3%	-2.9%	-12.8%
Town of Edisto Beach	641	414	600	407	-35.4%	-1.7%	-32.2%
Town of Lodge	114	120	96	113	5.3%	-5.8%	17.7%
Town of Smoaks	140	126	143	119	-10.0%	-5.6%	-16.8%
City of Walterboro	5,153	5,398	5,312	5,468	4.8%	1.3%	2.9%
Town of Williams	116	117	131	112	0.9%	-4.3%	-14.5%
Hampton County	21,386	21,090	20,473	19,351	-1.4%	-8.2%	-5.5%
Town of Brunson	589	554	547	502	-5.9%	-9.4%	-8.2%
Town of Estill	2,425	2,040	2,244	1,874	-15.9%	-8.1%	-16.5%
Town of Furman	286	239	264	217	-16.4%	-9.2%	-17.8%
Town of Gifford	370	288	363	264	-22.2%	-8.3%	-27.3%
Town of Hampton	2,837	2,808	2,726	2,531	-1.0%	-9.9%	-7.2%
Town of Luray	115	127	176	116	10.4%	-8.7%	-34.1%
Town of Scotia	227	215	163	201	-5.3%	-6.5%	23.3%
Town of Varnville	2,074	2,162	2,277	1,991	4.2%	-7.9%	-12.6%
Town of Yemassee	807	1,027	893	962	27.3%	-6.3%	7.7%
Jasper County	20,678	24,777	26,549	28,971	19.8%	16.9%	9.1%
City of Hardeeville	1,793	2,952	4,353	6,515	64.6%	120.7%	49.7%
Town of Ridgeland	2,518	4,036	4,030	3,831	60.3%	-5.1%	-4.9%

Source: U.S. Census Bureau, Population Estimates, Annual Estimates of the Resident Population

With a total population of 274,697, the average population density in the Lowcountry area is 96 people per square mile (see Figure 7). The densest areas are in portions of the City of Beaufort and the Towns of Bluffton, Hilton Head Island and Port Royal.

Figure 7: Population Density by Census Tract 2018



Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, Annual Estimates of the Resident Population 2018

Aging Population

As shown in Table 3, the number of people older than 65 has markedly increased in all four counties since 2010. The increase in older population is in line with much of the rest of the United States and has implications for the regional economy and community services.

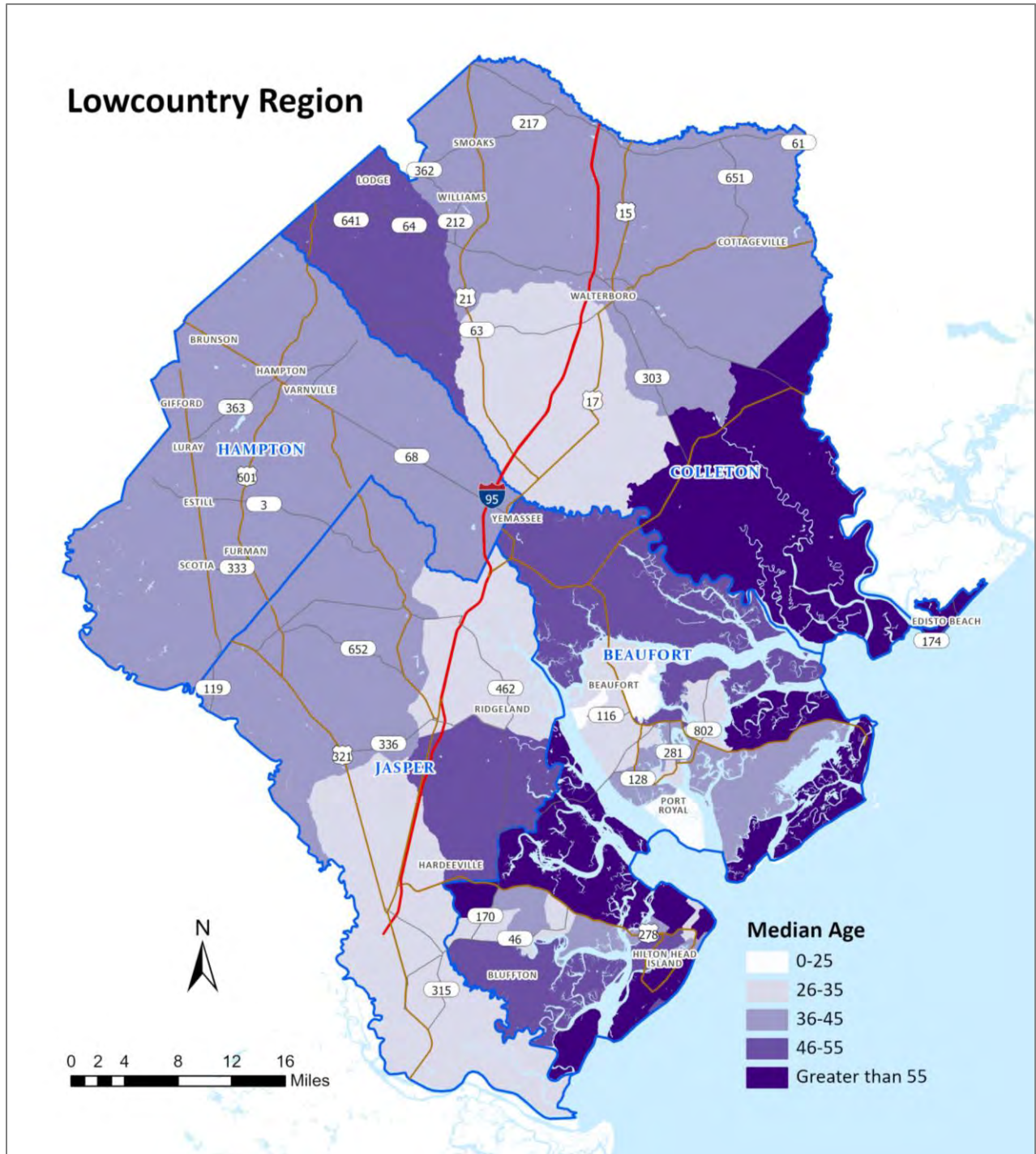
Table 3: Age Cohorts 2000-2018

Beaufort County						Colleton County					
Ages	2000	2010	2018	Percent Change 2000-2010	Percent Change 2010-2018	Ages	2000	2010	2018	Percent Change 2000-2010	Percent Change 2010-2018
Total Population	120,937	162,233	188,715	34.15%	16.32%	Total Population	38,264	38,892	37,660	1.64%	-3.17%
Under 5 years	8,110	10,960	9,662	35.14%	-11.84%	Under 5 years	2,649	2,579	2,252	-2.64%	-12.68%
5 to 9 years	8,033	9,566	9,658	19.08%	0.96%	5 to 9 years	2,957	2,515	2,289	-14.95%	-8.99%
10 to 14 years	7,747	8,553	10,015	10.40%	17.09%	10 to 14 years	3,053	2,706	2,436	-11.37%	-9.98%
15 to 19 years	8,722	9,956	10,776	14.15%	8.24%	15 to 19 years	2,889	2,682	2,226	-7.17%	-17.00%
20 to 24 years	10,002	11,756	11,967	17.54%	1.79%	20 to 24 years	2,045	2,229	2,109	9.00%	-5.38%
25 to 34 years	16,434	20,137	20,814	22.53%	3.36%	25 to 34 years	4,682	4,157	4,455	-11.21%	7.17%
35 to 44 years	16,433	17,534	18,844	6.70%	7.47%	35 to 44 years	5,617	4,709	4,020	-16.17%	-14.63%
45 to 54 years	14,019	18,580	19,735	32.53%	6.22%	45 to 54 years	5,478	5,763	4,782	5.20%	-17.02%
55 to 59 years	6,397	9,886	12,050	54.54%	21.89%	55 to 59 years	2,183	2,869	2,761	31.42%	-3.76%
60 to 64 years	6,286	12,273	13,752	95.24%	12.05%	60 to 64 years	1,783	2,605	2,735	46.10%	4.99%
65 to 74 years	11,329	20,137	30,623	77.75%	52.07%	65 to 74 years	2,794	3,635	4,667	30.10%	28.39%
75 to 84 years	5,913	9,698	15,975	64.01%	64.72%	75 to 84 years	1,641	1,741	2,208	6.09%	26.82%
85 years +	1,512	3,197	4,844	111.44%	51.52%	85 years +	493	702	720	42.39%	2.56%
Hampton County						Jasper County					
Ages	2000	2010	2018	Percent Change 2000-2010	Percent Change 2010-2018	Ages	2000	2010	2018	Percent Change 2000-2010	Percent Change 2010-2018
Total Population	21,386	21,090	19,351	-1.38%	-8.25%	Total Population	20,678	24,777	28,971	19.82%	16.93%
Under 5 years	1,431	1,347	1,029	-5.87%	-23.61%	Under 5 years	1,499	1,859	1,659	24.02%	-10.76%
5 to 9 years	1,659	1,326	1,119	-20.07%	-15.61%	5 to 9 years	1,602	1,711	1,622	6.80%	-5.20%
10 to 14 years	1,774	1,473	1,224	-16.97%	-16.90%	10 to 14 years	1,559	1,546	1,668	-0.83%	7.89%
15 to 19 years	1,599	1,524	1,157	-4.69%	-24.08%	15 to 19 years	1,483	1,751	1,503	18.07%	-14.16%
20 to 24 years	1,256	1,229	1,140	-2.15%	-7.24%	20 to 24 years	1,527	1,969	1,911	28.95%	-2.95%
25 to 34 years	3,052	2,648	2,540	-13.24%	-4.08%	25 to 34 years	3,063	3,685	3,904	20.31%	5.94%
35 to 44 years	3,290	2,915	2,464	-11.40%	-15.47%	35 to 44 years	3,282	3,217	3,198	-1.98%	-0.59%
45 to 54 years	2,923	3,103	2,471	6.16%	-20.37%	45 to 54 years	2,538	3,524	3,593	38.85%	1.96%
55 to 59 years	1,010	1,420	1,319	40.59%	-7.11%	55 to 59 years	1,041	1,428	2,181	37.18%	52.73%
60 to 64 years	797	1,276	1,325	60.10%	3.84%	60 to 64 years	815	1,300	2,122	59.51%	63.23%
65 to 74 years	1,447	1,655	2,123	14.37%	28.28%	65 to 74 years	1,273	1,671	3,703	31.26%	121.60%
75 to 84 years	874	869	1,066	-0.57%	22.67%	75 to 84 years	738	785	1,445	6.37%	84.08%
85 years +	274	305	374	11.31%	22.62%	85 years +	258	313	462	21.32%	47.60%

Source: U.S. Census Bureau, Population Estimates, Annual Estimates of the Resident Population for Selected Age Groups

With an increasingly aging population, it is likely that there will be greater demands for healthcare and other age-appropriate services in the region. Older age groups are often retirees on fixed incomes. The declining numbers of younger people in the region suggests a shrinking current and future labor force. With an aging population, community development and planning may need to be reoriented to create appropriate services and infrastructure to suit different age groups. Figure 8 illustrates the median age of the population in the Lowcountry in 2018.

Figure 8: Median Age by Census Tract 2018



Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, Median Age by Sex

Population Diversity

As shown in Table 4, each county has had significant changes in the population's composition. Historically the area's population was almost entirely composed of Blacks and whites, with relatively small numbers of Asians, Hispanics, and Native Americans. Between 2000 and 2010, there was an influx of Hispanics to the region, with the largest increases in Beaufort and Jasper Counties. The Hispanic population has continued to grow in the region from 2010 to 2018, although at a significantly lower rate. This growth is correlated to areas with populations who have limited English proficiency (see Figure 9).

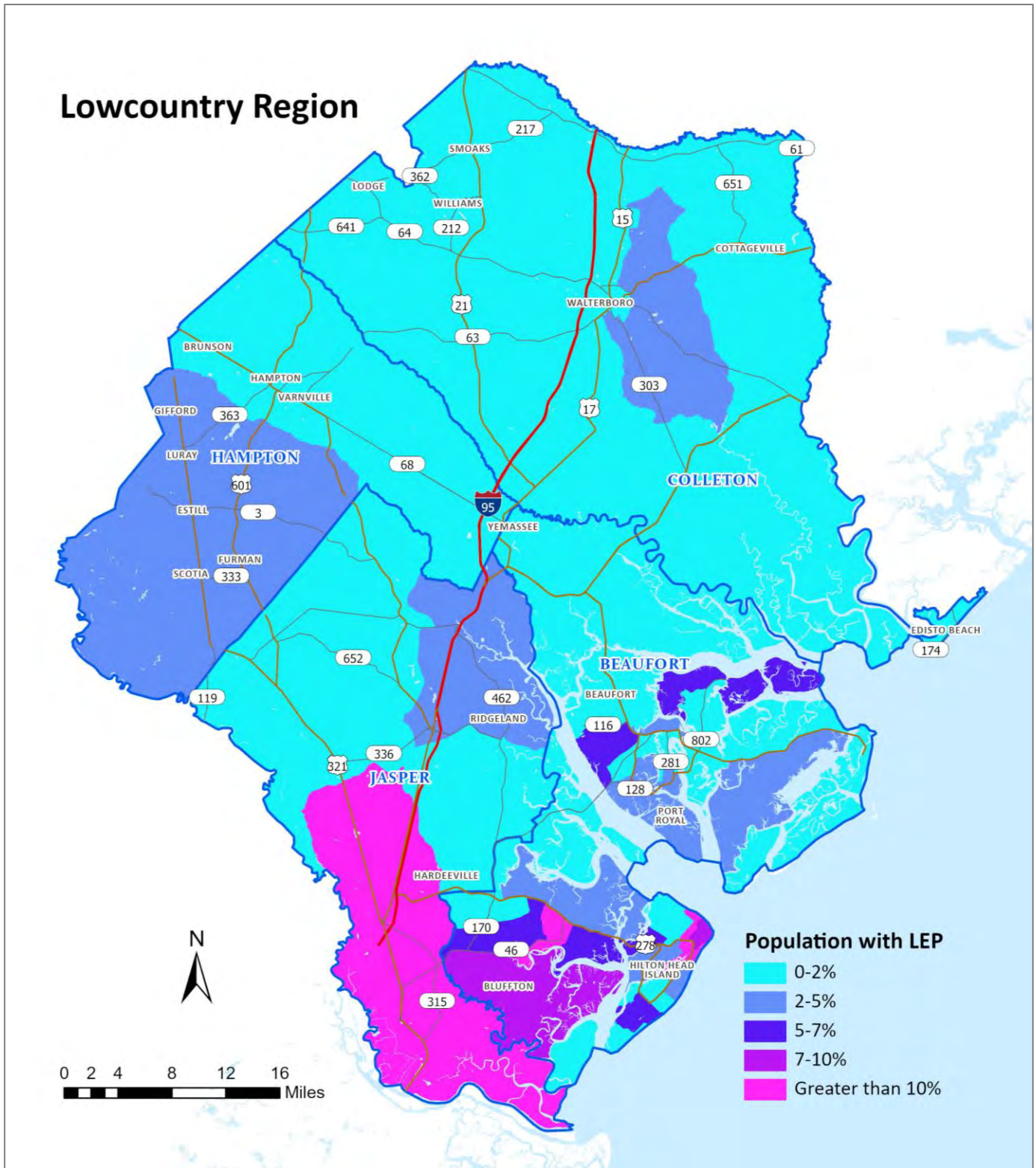
Table 4: Race and Ethnicity 2000-2018

	Year	Total Population	Total White	Total Black	Total Hispanic
Beaufort County	2000	120,937	85,451	29,005	8,208
	2010	162,233	124,690	31,942	19,567
	2018	188,715	147,015	34,379	21,060
Percent Change	2000-2010	34.10%	45.90%	10.10%	138.40%
	2010-2018	16.32%	17.90%	7.63%	7.63%
Colleton County	2000	38,264	21,245	16,140	551
	2010	38,892	22,626	15,242	1,094
	2018	37,660	22,449	14,025	1,274
Percent Change	2000-2010	1.60%	6.50%	-5.60%	98.50%
	2010-2018	-3.17%	-0.78%	-7.98%	16.45%
Hampton County	2000	21,386	9,173	11,906	547
	2010	21,090	9,241	11,435	744
	2018	19,351	8,481	10,388	800
Percent Change	2000-2010	-1.40%	0.70%	-4.00%	36.00%
	2010-2018	-8.25%	-8.22%	-9.16%	7.53%
Jasper County	2000	20,678	8,766	10,895	1,190
	2010	24,777	12,643	11,540	3,752
	2018	28,971	15,826	12,178	3,828
Percent Change	2000-2010	19.80%	44.20%	5.90%	215.30%
	2010-2018	16.93%	25.18%	5.53%	2.03%
Lowcountry	2000	201,265	124,635	67,946	10,496
	2010	246,992	169,200	70,159	25,157
	2018	274,697	193,771	70,970	26,962
Percent Change	2000-2010	22.72%	35.76%	3.26%	139.68%
	2010-2018	11.22%	14.52%	1.16%	7.17%

Note: The whites, Blacks, and Hispanics add up to more than the total county populations because Hispanics have been counted as members of one or more of the other races as well.

Source: U.S. Census Bureau, Population Estimates, Annual Estimates of the Resident Population by Sex, Race, and Hispanic Origin

Figure 9: Population with Limited English Proficiency (LEP) by Census Tract 2018



Note: Population with LEP refers to percent population 5 years and over who speak English less than very well.
 Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, Language Spoken at Home

2.3 LOWCOUNTRY HOUSING

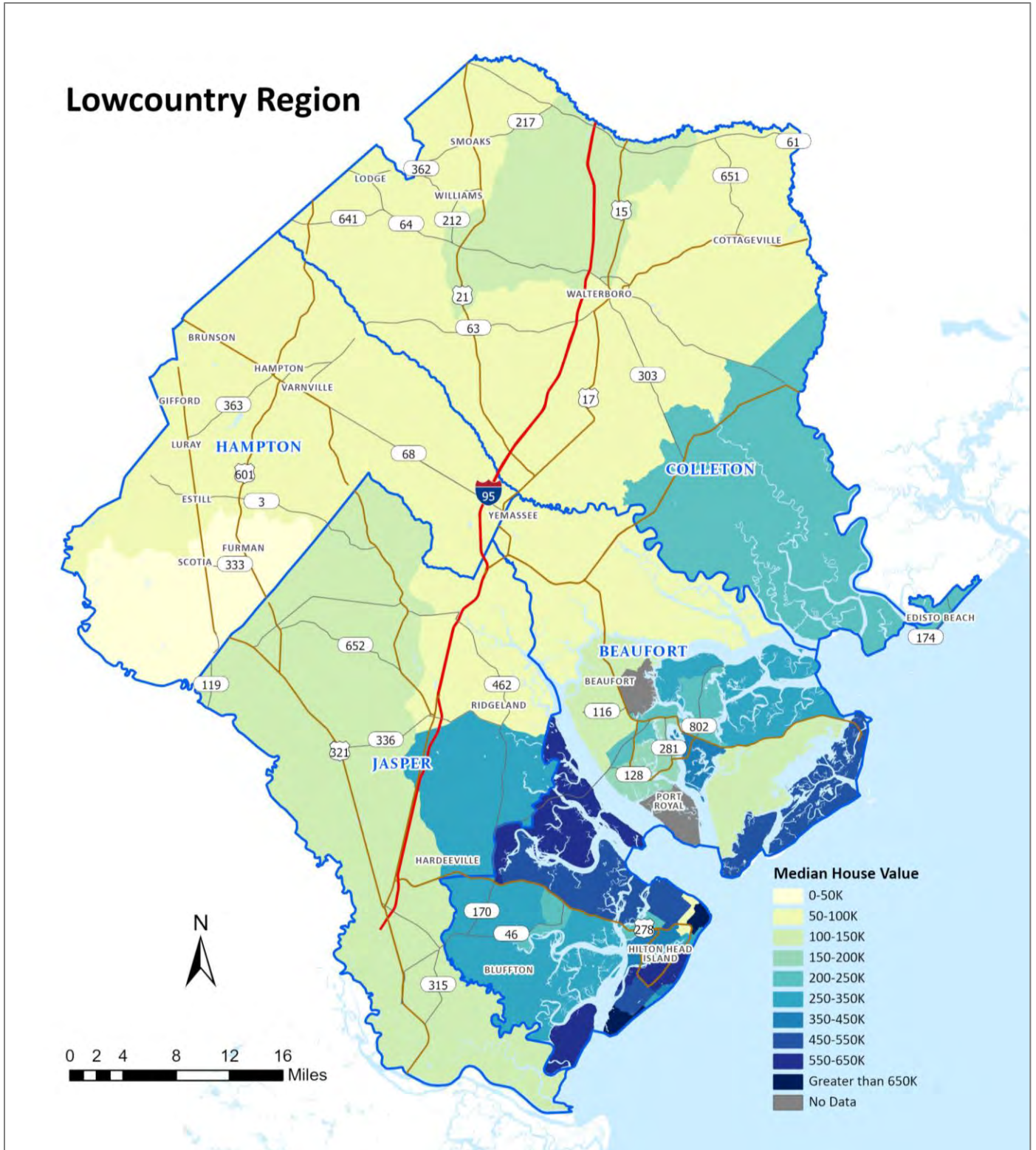
Table 5 provides a historic perspective of housing growth in the Lowcountry. The data shows several trends, including the significant reduction in the growth of total housing units from 2010 to 2018 compared to the percent growth of previous decades. In the same period, the median house price had decreased except for Jasper County. Figure 10 illustrates the median house price in the Lowcountry in 2018. The majority of the Lowcountry's housing units were built between 1970 and 2009. These details are shown in Table 6.

Table 5: Housing Stock 2000-2018

County	Units and Value	2000	2010	2018	Percent Change 2000-2010	Percent Change 2010-2018
Beaufort	Total Housing Units	60,509	93,023	97,831	53.73%	5.17%
	Occupied Units	45,532	64,945	70,607	42.64%	8.72%
	Percent Occupied	73.2%	70.6%	72.2%	-3.55%	2.27%
	Vacant Units	14,977	28,078	27,224	87.47%	-3.04%
	Percent Vacant	24.8%	30.2%	27.8%	21.77%	-7.95%
	Median House Price	\$213,900	\$290,900	\$288,900	36.00%	-0.69%
Colleton	Total Housing Units	18,129	19,901	20,015	9.77%	0.57%
	Occupied Units	14,470	15,131	15,145	4.57%	0.09%
	Percent Occupied	80.3%	75%	75.7%	-6.60%	0.93%
	Vacant Units	3,659	4,770	4,870	30.36%	2.10%
	Percent Vacant	20.2%	24.0%	24.3%	18.81%	1.25%
	Median House Price	\$73,200	\$90,000	\$85,100	22.95%	-5.44%
Hampton	Total Housing Units	8,582	9,140	9,140	6.50%	0.00%
	Occupied Units	7,444	7,598	6,924	2.07%	-8.87%
	Percent Occupied	78.1%	73.7%	75.8%	-5.63%	2.85%
	Vacant Units	1,138	1,542	2,216	35.50%	43.71%
	Percent Vacant	13.3%	16.9%	24.2%	27.07%	43.20%
	Median House Price	\$62,300	\$79,600	\$73,000	27.77%	-8.29%
Jasper	Total Housing Units	7,928	10,299	11,562	29.91%	12.26%
	Occupied Units	7,042	8,517	9,982	20.95%	17.20%
	Percent Occupied	77.7%	68.9%	86.3%	-11.33%	25.25%
	Vacant Units	886	1,782	1,580	101.13%	-11.34%
	Percent Vacant	11.2%	17.3%	13.7%	54.46%	-20.81%
	Median House Price	\$77,600	\$118,700	\$154,400	52.96%	30.08%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, Selected Housing Characteristics

Figure 10: Median House Value by Census Tract 2018



Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, Selected Housing Characteristics

Table 6: Housing Stock by Year Built 2018

County	Year Built	Housing Units	Percent of Total Housing Units
Beaufort	Total Housing Units	97,831	100.0%
	2014 or Later	2,520	2.6%
	2010 to 2013	2,955	3.0%
	2000 to 2009	28,458	29.1%
	1990 to 1999	21,169	21.6%
	1980 to 1989	21,625	22.1%
	1970 to 1979	13,429	13.7%
	1960 to 1969	3,240	3.3%
	1950 to 1959	2,852	2.9%
	1940 to 1949	692	0.7%
1939 or Earlier	891	0.9%	
Colleton	Total Housing Units	20,015	100.0%
	2014 or Later	241	1.2%
	2010 to 2013	207	1.0%
	2000 to 2009	2,561	12.8%
	1990 to 1999	4,981	24.9%
	1980 to 1989	4,367	21.8%
	1970 to 1979	3,566	17.8%
	1960 to 1969	1,656	8.3%
	1950 to 1959	1,310	6.5%
	1940 to 1949	540	2.7%
1939 or Earlier	586	2.9%	
Hampton	Total Housing Units	9,140	100.0%
	2014 or Later	15	0.2%
	2010 to 2013	299	3.3%
	2000 to 2009	899	9.8%
	1990 to 1999	2,078	22.7%
	1980 to 1989	1,677	18.3%
	1970 to 1979	1,676	18.3%
	1960 to 1969	1,081	11.8%
	1950 to 1959	617	6.8%
	1940 to 1949	302	3.3%
1939 or Earlier	496	5.4%	
Jasper	Total Housing Units	11,562	100.0%
	2014 or Later	604	5.2%
	2010 to 2013	1,086	9.4%
	2000 to 2009	2,515	21.8%
	1990 to 1999	2,504	21.7%
	1980 to 1989	1,877	16.2%
	1970 to 1979	1,230	10.6%
	1960 to 1969	739	6.4%
	1950 to 1959	439	3.8%
	1940 to 1949	380	3.3%
1939 or Earlier	188	1.6%	

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, Selected Housing Characteristics

2.4 LOWCOUNTRY ECONOMY

Employment

A useful picture of jobs and employment comes from comparing the labor force and employment numbers with those from the past. Table 7 shows that Beaufort and Jasper Counties have seen an increase in labor force since 2010. The Lowcountry region’s unemployment rate has continued to fall during this period.

According to the South Carolina Department of Employment and Workforce (SCDEW), in 2020, the top five industries that employ Lowcountry residents include ambulatory health care services, food services and drinking places, heavy and civil engineering construction, real estate, and administrative and support services.

Table 7: Employment 2000-2019

County	Income Type	2000	2010	2019	Percent Change 2000-2010	Percent Change 2010-2019
Beaufort	Civilian Labor Force	51,639	65,336	77,858	26.5%	19.2%
	Number of Employed	49,972	59,684	75,797	19.4%	27.0%
	Number of Unemployed	1,667	5,652	2,061	239.1%	-63.5%
	Unemployment Rate	3.2%	8.7%	2.6%	171.9%	-70.1%
Colleton	Civilian Labor Force	16,110	16,827	16,821	4.5%	0.0%
	Number of Employed	15,479	8,784	16,283	-43.3%	85.4%
	Number of Unemployed	631	2,314	538	266.7%	-76.8%
	Unemployment Rate	3.9%	13.8%	3.2%	253.8%	-76.8%
Hampton	Civilian Labor Force	8,412	8,785	8,416	4.4%	-4.2%
	Number of Employed	9,039	7,659	8,187	-15.3%	6.9%
	Number of Unemployed	373	1,126	229	201.9%	-79.7%
	Unemployment Rate	4.4%	12.8%	2.7%	190.9%	-78.9%
Jasper	Civilian Labor Force	9,294	10,896	12,685	17.2%	16.4%
	Number of Employed	8,952	9,823	12,363	9.7%	25.9%
	Number of Unemployed	342	1,073	322	213.7%	-70.0%
	Unemployment Rate	3.7%	9.8%	2.5%	164.9%	-74.5%

Source: SC WORKS, Labor Force Employment and Unemployment (LAUS)

Income

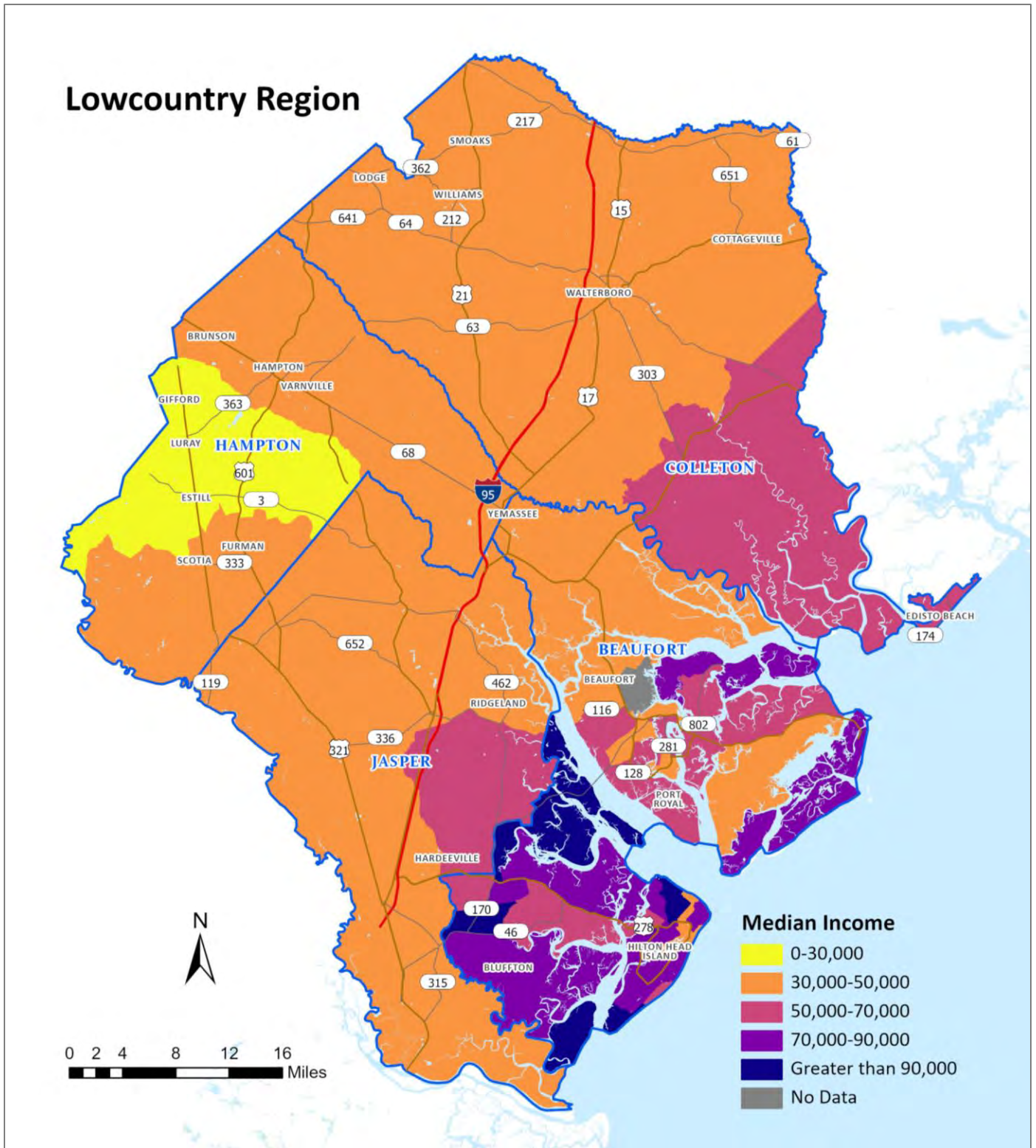
Incomes are distributed unevenly in the Lowcountry with Beaufort County reporting higher median household and per capita incomes than the state since 2000. Table 8 shows substantial increases in all income measures in all four counties from 2000 to 2018, however, with the inflation adjustment, all median incomes have decreased since 2000. Between 2010 and 2018, inflation-adjusted median household incomes had declined in all four counties, while inflation-adjusted per capita incomes had decreased in Beaufort and Hampton Counties. Figure 11 illustrates the median household income in the Lowcountry in 2018.

Table 8: Income Measures 2000-2018

County	Income Type	2000	2010	2018	Percent Change 2000-2010	Percent Change 2010-2018
Beaufort	Median Household Income	\$46,992	\$55,286	\$63,110	17.65%	14.15%
	Adjusted Median Household Income	\$67,604	\$63,925	\$63,110	-5.44%	-1.27%
	Per Capita Income	\$25,377	\$32,731	\$36,306	28.98%	10.92%
	Adjusted Per Capita Income	\$36,882	\$37,845	\$36,306	2.61%	-4.07%
Colleton	Median Household Income	\$29,733	\$33,263	\$36,276	11.87%	9.06%
	Adjusted Median Household Income	\$43,213	\$38,460	\$36,276	-11.00%	-5.68%
	Per Capita Income	\$14,831	\$17,842	\$21,003	20.30%	17.72%
	Adjusted Per Capita Income	\$21,555	\$20,630	\$21,003	-4.29%	1.81%
Hampton	Median Household Income	\$28,771	\$34,846	\$32,453	21.12%	-6.87%
	Adjusted Median Household Income	\$41,815	\$40,291	\$32,453	-3.64%	-19.45%
	Per Capita Income	\$13,129	\$16,262	\$17,523	23.86%	7.75%
	Adjusted Per Capita Income	\$19,081	\$18,803	\$17,523	-1.46%	-6.81%
Jasper	Median Household Income	\$30,727	\$37,393	\$41,930	21.69%	12.13%
	Adjusted Median Household Income	\$44,657	\$43,236	\$41,930	-3.18%	-3.02%
	Per Capita Income	\$14,161	\$17,997	\$22,406	27.09%	24.50%
	Adjusted Per Capita Income	\$20,581	\$20,809	\$22,406	1.11%	7.67%
South Carolina	Median Household Income	\$37,082	\$43,939	\$51,015	18.49%	16.10%
	Adjusted Median Household Income	\$53,894	\$50,805	\$51,015	-5.73%	0.41%
	Per Capita Income	\$18,795	\$23,443	\$27,986	24.73%	19.38%
	Adjusted Per Capita Income	\$27,316	\$27,106	\$27,986	-0.77%	3.25%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, Median Income in the Past 12 Months and Per Capita in the Past 12 Months; U.S. Bureau of Labor Statistics, Consumer Price Index (CPI) Inflation Calculator

Figure 11: Median Household Income by Census Tract 2018



Source: U.S. Census Bureau, American Community Survey 5-Year Estimates, Median Income in the Past 12 Months

SECTION 3: HAZARDS IDENTIFICATION AND PROFILE

It is important to understand natural hazards that affect the Lowcountry region. This section details hazards relevant to the Lowcountry region with description of each hazard and its past and future occurrences.

3.1 NATURAL HAZARDS IDENTIFICATION

The natural hazard identification and profiles compiled for the 2020 Lowcountry Natural Hazard Mitigation Plan cover twelve different hazards. They are of most concern having historically affected the Lowcountry region. These hazards include:

- Tornado
- Hurricane
- Windstorm
- Lightning
- Hail
- Drought
- Earthquake
- Wildfire
- Flood
- Winter Storm
- Coastal Erosion
- Extreme Heat

Since the 2015 Plan, the Lowcountry region has faced many severe natural disaster events. The impacted areas in the four counties have received federal assistance available under emergency and major disaster declarations.

According to FEMA (2020b), all emergency and major disaster declarations are made solely at the discretion of the U.S. President. The Stafford Act §401 states in part that *"All requests for a declaration by the President that a major disaster exists shall be made by the Governor of the affected State."*

Table 9 provides all declarations related to the identified natural hazards in the Lowcountry region since 2015. The detail on public assistance funded projects can be seen in Appendix E.

Emergency Declarations

- Involve any occasion or instance when the President determines federal assistance is needed.
- Supplement State and local or Indian tribal government efforts in providing emergency services, such as the protection of lives, property, public health, and safety, or to lessen or avert the threat of a catastrophe in any part of the United States.
- Provide assistance (not exceed \$5 million) in a single emergency.

Major Disaster Declarations

- Involve any natural event, including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought, or, regardless of cause, fire, flood, or explosion, that the President determines has caused damage of such severity that it is beyond the combined capabilities of state and local governments to respond.
- Provide a wide range of federal assistance programs for individuals and public infrastructure, including funds for both emergency and permanent work.

Emergency Work

- Category A: Debris removal
- Category B: Emergency protective measures

Permanent Work

- Category C: Roads and bridges
- Category D: Water control facilities
- Category E: Public buildings and contents
- Category F: Public utilities
- Category G: Parks, recreational, and other facilities

(Source: FEMA, 2020a & 2020f)

Table 9: Disaster Declarations 2015-2020

Declaration Date	Declaration ID	Declaration Type	Disaster	County	Assistance Type (category)
2020-05-01	DR-4542-SC	Major Disaster Declaration	Severe Storms, Tornadoes, and Straight-line Winds	Colleton and Hampton	Individual Assistance and Public Assistance (A-G)
2020-05-17	DR-4479-SC	Major Disaster Declaration	Severe Storms, Tornadoes, Straight-line Winds, and Flooding	Hampton	Public Assistance (A-G)
2019-09-30	DR-4464-SC	Major Disaster Declaration	Hurricane Dorian	Beaufort, Colleton, and Jasper	Public Assistance (A-G)
2019-09-01	EM-3421-SC	Emergency Declaration	Hurricane Dorian	Beaufort, Colleton, Hampton, and Jasper	Public Assistance (B)
2018-09-16	DR-4394-SC	Major Disaster Declaration	Hurricane Florence	Colleton	Public Assistance
				Jasper	Public Assistance (B)
2018-09-10	EM-3400-SC	Emergency Declaration	Hurricane Florence	Beaufort, Colleton, Hampton, and Jasper	Public Assistance
2017-09-16	DR-4346-SC	Major Disaster Declaration	Hurricane Irma	Beaufort, Colleton, Hampton, and Jasper	Public Assistance
2017-09-17	EM-3386-SC	Emergency Declaration	Hurricane Irma	Beaufort, Colleton, Hampton, and Jasper	Public Assistance (B)
2016-10-11	DR-4286-SC	Major Disaster Declaration	Hurricane Matthew	Beaufort, Colleton, Hampton, and Jasper	Individual Assistance and Public Assistance (A-G)
2016-10-06	EM-3378-SC	Emergency Declaration	Hurricane Matthew	Beaufort, Colleton, Hampton, and Jasper	Public Assistance (B)
2015-10-05	DR-4241-SC	Major Disaster Declaration	Severe Storms and Flooding	Beaufort	Public Assistance
				Colleton	Individual Assistance and Public Assistance
2015-10-03	EM-3373-SC	Emergency Declaration	Severe Storms and Flooding	Beaufort, Colleton, Hampton, and Jasper	Public Assistance (B)

Source: Federal Emergency Management Agency (FEMA)

Data and Terminology

The data used for hazard identification and profiles are from publicly available sources and include geospatial references. All the weather-related hazard data used in this plan have a period of record of 20 years or more, which is sufficient to cover annual and decadal variability under climate change. For the hurricane/tropical storms, data from 1988 were included to capture Hurricane Hugo as the storm of record for the state (in terms of impact). The impact data are derived from the Spatial Hazard Event and Loss Dataset for the U.S. (SHELDUS™) and represent estimates of monetary and human losses.

It is important to understand natural hazards that affect the Lowcountry region. This information will be considered in planning, preparation and developing projects and actions for community mitigation strategies.

This plan provides updated hazard data and information (2012-2019) on:

- **Characteristics and Classification:** A brief description of and Identification of relevant data regarding each hazard.
- **Location and Extent:** The location of past occurrences and notable hazard events and the strength or magnitude of the hazard.
- **Future Probability:** The probability data of each hazard occurring in any given year.

Terminology for Future Probability

- *Total counts:* The overall number of events, instances, or damages in the period of record, or a specified time frame such as 2012-2019.
- *Annualized counts:* The average number of events, instances, or damages per year in the period of record or specified time frame such as 2012-2019.
- *Period of record:* The inclusive years (time frame) for which reported geospatial data are available at county or sub-county geographies.
- *Recurrence frequency:* The expected time (in years) between occurrences of events or instances, based on past events regardless of magnitude or intensity. It is the number of years in the record/ number of events.
- *Future probability (% chance of occurrence):* The likelihood (or percent chance of occurrence) per year. It is the number events or instances/by the number of years in the record or specified time frame, multiplied by 100.
- In some instances, the probability of the event occurring with a given magnitude at a specific location has been predetermined such as the 100-year flood plain. In this example, the 100-year floodplain represents a 2% chance of a flood of that magnitude in a given year. We provide those modeled probabilities where available.

3.2 TORNADO

Characteristics and Classification

According to National Severe Storms Laboratory (NSSL) (2020a), a tornado is a violently rotating column of air that extends from a thunderstorm cloud to the ground. Tornadoes are some of the most violent events present in the atmosphere as winds can reach 300 mph. The National Weather Service issues a *tornado watch* when there are favorable conditions for tornadic formulation well in advance to allow the population affected to stay alert for severe weather. A *tornado warning* is issued if a tornado has been reported in the area either on radar or by individuals and requires immediate protective actions by the warned population.

Since 1950, there have been numerous tornadoes in South Carolina. The State averages approximately eleven tornadoes a year, which ranks twenty-sixth in the nation for tornado strikes causing damage. Tornadoes have claimed forty-seven casualties in South Carolina and have injured 1,057 residents since 1950 (SCEMD, 2020a).

Tornado intensity and severity are measured using the Fujita Scale, which assigns a rating based on damages. The National Weather Service implemented the Enhanced Fujita Scale (EF-Scale) in 2007 to update the older Fujita Scale. The Enhanced Fujita Scale (EF-Scale) takes more variables into account and produces more consistent and accurate tornado ratings, still ranging from EF-0 (weakest) to EF-5 (strongest) (SPC, 2020). These variables cover structures, trees, construction types, and more.

Table 10: Enhanced Fujita Scale for Tornado Damage

Scale	Typical Damage
EF-0 (65-85 mph)	Light damage – Peels surface off some roofs, some damage to gutters or siding, broken off trees, and shallow-rooted trees pushed over.
EF-1 (86-110 mph)	Moderate damage – Roofs severely stripped, mobile homes overturned or badly damaged, loss of exterior doors, and windows and other glass broken.
EF-2 (111-135 mph)	Considerable damage – Roofs torn off well-constructed houses, foundations of frame homes shifted, mobile homes completely destroyed, large trees snapped or uprooted, light-object missiles generated, and cars lifted off ground.
EF-3 (136-165 mph)	Severe damage – Entire stories of well-constructed houses destroyed, severe damage to large buildings such as shopping malls, trains overturned, trees debarked, heavy cars lifted off the ground and thrown, and structures with weak foundations blown away some distance.
EF-4 (166-200 mph)	Devastating damage – Whole frame houses well-constructed houses and whole frame houses completely leveled, and cars thrown and small missiles generated.
EF-5 (>200 mph)	Incredible damage – Strong frame houses leveled off foundations and swept away, automobile-sized missiles fly through the air in excess of 100 m (109 yd), high-rise buildings have significant structural deformation, incredible phenomena will occur.
EF No rating	Inconceivable damage – Should a tornado with the maximum wind speed in excess of EF-5 occur, the extent and types of damage may not be conceived.

Source: Storm Prediction Center (SPC)

Location and Extent

Sixty-nine tornados have touched down in the Lowcountry since 1950. The majority of these were in Beaufort and Colleton Counties. Over half of these resulted in some damage and/or a human injury or death. For the 2012-2019 period there were eight tornado touchdowns (Figure 12) in the following areas:

Beaufort County

Beaufort County has experienced two tornadoes between 2012-2019 with no damage reported. These events include:

- July 13, 2013: An EF-0 tornado touchdown in Frogmore. A waterspout formed offshore and possibly moved onshore on Hunting Island before moving back over the water and dissipating. No damage was reported since it moved over marshland.

City of Beaufort

- June 23, 2014: An EF-0 tornado touchdown in City of Beaufort. A waterspout developed and remained nearly stationary over the river near Waterfront Park.

Towns of Bluffton, Hilton Head Island, and Port Royal

- There was no record of tornado events in these towns.

Colleton County

Between 2012-2019, Colleton County has experienced four tornadoes which caused \$136,713 in financial loss and no injuries or deaths. The notable events include:

- February 24, 2012: An EF-1 tornado touched down south of Islandton and traveled 2 miles east toward SC-63 where it lifted. The event damaged several structures and toppled trees and power lines. Damages totaled \$136,713.
- May 4, 2017: An EF-1 tornado in Colleton County adjacent to I-95 near the Hendersonville rest area caused damage to houses, trees, power lines, and displaced mobile homes from their original positions. There were no figures reported for damage amounts.

City of Walterboro and the Towns of Cottageville, Edisto Beach, Lodge, Smoaks, and Williams.

- There was no record of tornado events in these city and towns.

Hampton County

Below is the only tornado event in Hampton County between 2012-2019 with no financial loss and no injuries or deaths.

Town of Gifford

- April 3, 2017: An EF-0 tornado touched down about 2.7 miles east of Gifford then traveled approximately one third of a mile east-northeast before lifting near Thomas Hamilton Road. The damage was limited to uprooting of small soft and hardwood trees.

Towns of Brunson, Estill, Furman, Hampton, Luray, Scotia, Varnville, and Yemassee

- There was no record of tornado events in these towns.

Jasper County

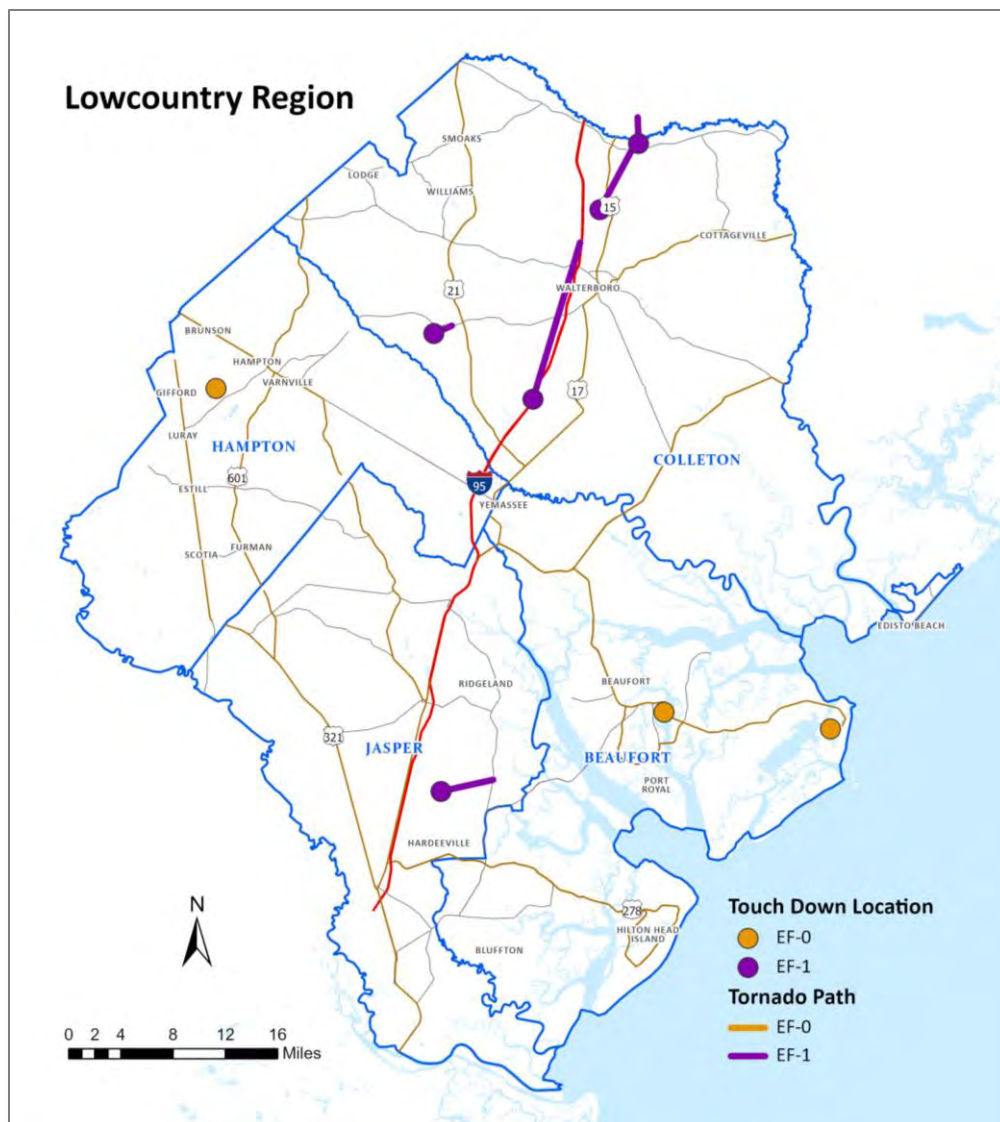
The following is a tornado event in Jasper County inflicting \$437 thousand in damages.

- June 11, 2012: An EF-1 tornado touched down between the communities of Okatie and Switzerland and traveled four miles northeast where it lost ground contact near the intersection of SC-462 and Snake Road. The event took out hundreds of trees.

City of Hardeeville and Town of Ridgeland

- There was no record of tornado events in these jurisdictions. However, considerable damage to trees was found south of Ridgeland with a damage pattern consistent with a tornado.

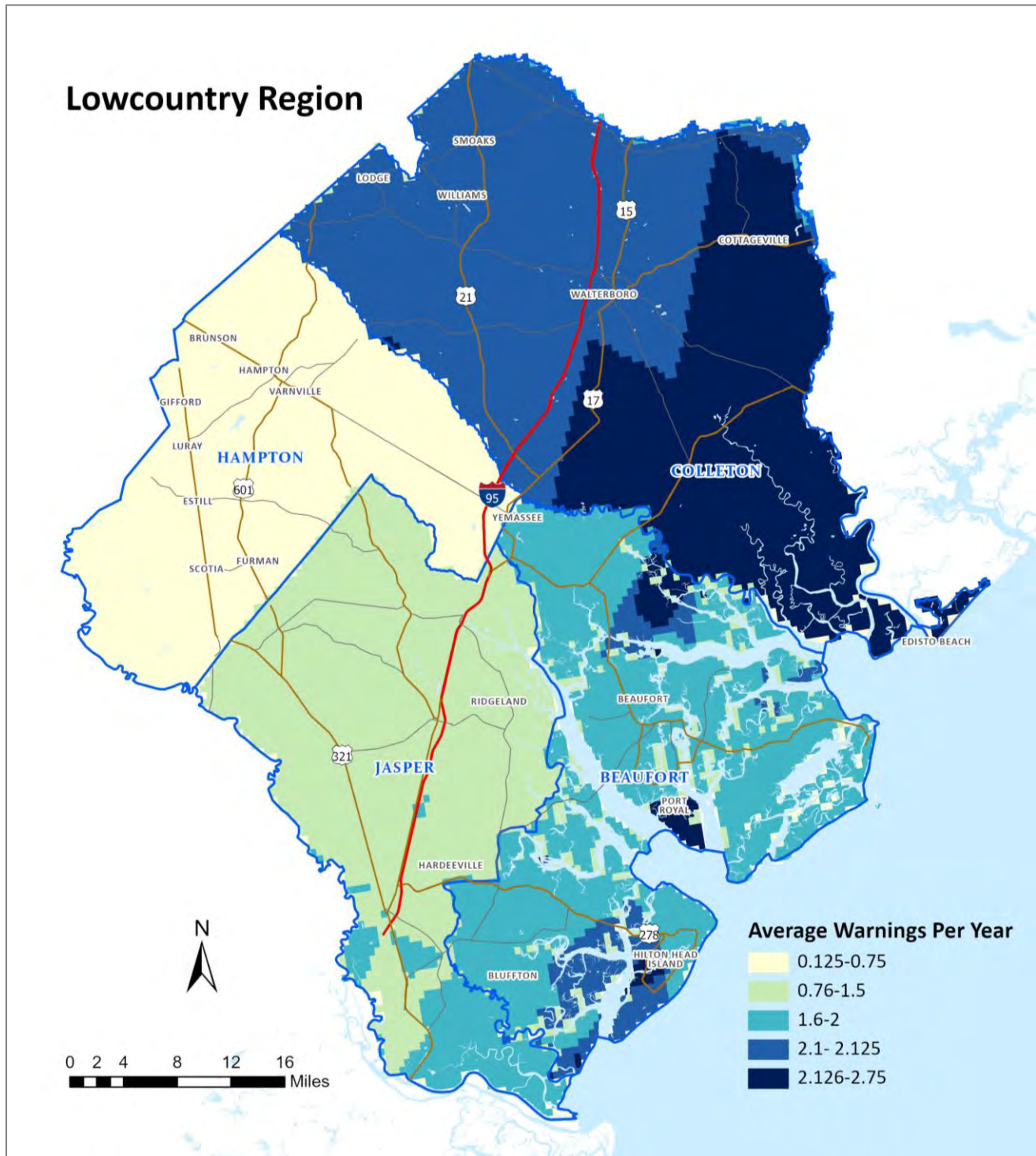
Figure 12: Tornado and Tornado Track 2012-2019



Source: Hazards and Vulnerability Research Institute (HVRI)

Another way to gauge the potential risk of tornadic activity in the region is to examine tornado warnings issued by the U.S. Weather Service. Not all warnings result in a tornado touchdown, but such warnings provide a proxy for the likely location and frequency of tornados (Figure 13). For the Lowcountry region, the highest annual average of warnings occurred in Colleton County, Beaufort County, and the Town of Hilton Head Island.

Figure 13: Tornado Warnings 2012-2019



Source: Hazards and Vulnerability Research Institute (HVRI)

Future Probability

Tornado events are random in their geographic patterns. While they can occur during any time of the year, they are most prevalent in the spring and summer months, and during the Atlantic hurricane season, which occurs from June to November. Tornado events are relatively low frequency and less than 100% chance of occurring in any given year as shown in Table 11.

Table 11: Tornado Historical and Recent Hazards Events 1986-2019

	Total Number	Years in Data Record	Annualized Count	Recurrence Frequency (in years)	Future Probability (% chance/year)	Total Number 2012-2019
Beaufort County	17	33	0.5	1.94	52%	2
City of Beaufort	3	33	0.1	11.00	9%	1
Town of Bluffton	3	33	0.1	11.00	9%	0
Town of Hilton Head Island	2	33	0.1	16.50	6%	0
Town of Port Royal	0	33	0.0	*	*	0
Colleton County	17	33	0.5	1.94	52%	4
Town of Cottageville	0	33	0.0	*	*	0
Town of Edisto Beach	0	33	0.0	*	*	0
Town of Lodge	0	33	0.0	*	*	0
Town of Smoaks	1	33	0.0	33.00	3%	0
City of Walterboro	2	33	0.1	16.50	6%	0
Town of Williams	0	33	0.0	*	*	0
Hampton County	8	33	0.2	4.13	24%	1
Town of Brunson	1	33	0.0	33.00	3%	0
Town of Estill	0	33	0.0	*	*	0
Town of Furman	0	33	0.0	*	*	0
Town of Gifford	1	33	0.0	33.00	3%	1
Town of Hampton	3	33	0.1	11.00	9%	0
Town of Luray	0	33	0.0	*	*	0
Town of Scotia	0	33	0.0	*	*	0
Town of Varnville	1	33	0.0	33.00	3%	0
Town of Yemassee	0	33	0.0	*	*	0
Jasper County	6	33	0.2	5.50	18%	1
City of Hardeeville	3	33	0.1	11.00	9%	0
Town of Ridgeland	1	33	0.0	33.00	3%	0

Note: Symbol (*) refers to “no value” because the hazard events have a value of zero.

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

3.3 HURRICANE

Characteristics and Classification

Tropical cyclones originate over warm tropical waters in the northern hemisphere and have closed, circulating winds that rotate in a counterclockwise direction. Tropical depressions, tropical storms, and hurricanes are examples of tropical cyclones. Tropical depressions have maximum sustained surface wind speeds up to 38 mph. When wind speeds reach a sustained level of 39 mph or more, the system is formally classified as a tropical storm and receives a name. When the winds reach a sustained 74 mph the event is re-classified to a hurricane.

Hurricanes come in varying intensities measured by the Saffir-Simpson Hurricane Wind Scale. The scale ranges from one to five with higher numbers representing higher wind speeds and stronger storms. Once a storm reaches Category 3 (111 mph sustained winds) it is considered a Major Hurricane due to its increased potential to cause significant loss as shown in Table 12 (NHC, 2020a).

Table 12: Hurricane Category Description

Category	Sustained Wind	Types of Damage Due to Hurricane
1	74-95 mph 64-82 kt 119-153 km/h	<i>Very dangerous winds will produce some damage:</i> Well-constructed frame homes could have damage to roof, shingles, and vinyl siding and gutters. Large branches of trees will snap, and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96-110 mph 83-95 kt 154-177 km/h	<i>Extremely dangerous winds will cause extensive damage:</i> Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3 (major)	111-129 96-112 kt 178-208 km/h	<i>Devastating damage will occur:</i> Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4 (major)	130-156 mph 113-136 kt 209-251 km/h	<i>Catastrophic damage will occur:</i> Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted, and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5 (major)	157 mph or higher 137 kt or higher 252 km/h or higher	<i>Catastrophic damage will occur:</i> A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

Source: National Hurricane Center (NHC)

According to the National Hurricane Center (NHC) (2020b) and National Weather Service (2020a), there are four different hazards associated with tropical storms and hurricanes.

Strong Winds

Winds are the defining factor for tropical storms and hurricanes. The onset of tropical storm force winds ends preparedness activities such as evacuations as those wind speeds pose a danger to people and structures. Hurricane-force winds (74 mph and up) can occur at some distances from the eye of the storm. They can destroy structures and can turn regular debris into airborne hazards.

Heavy Rain

Tropical cyclones have enormous potential for precipitation and can carry that potential far inland. Widespread heavy precipitation gives rise to inland and flash flooding. Flooding in low-lying areas can persist for days. Rainfall is usually worse during larger storms and slower storms. In 2016, Hurricane Matthew dropped six to twelve inches of rain across the coast which led to significant freshwater flooding.

Tornadoes

Tropical cyclones are capable of spawning tornadoes. Most commonly these tornadoes occur in rain bands well-removed from the storm's eye, but it is possible for them to appear near the eyewall. Typically, these tornadoes are weak, but tornadoes of any strength can cause destruction and loss of life.

Storm Surge

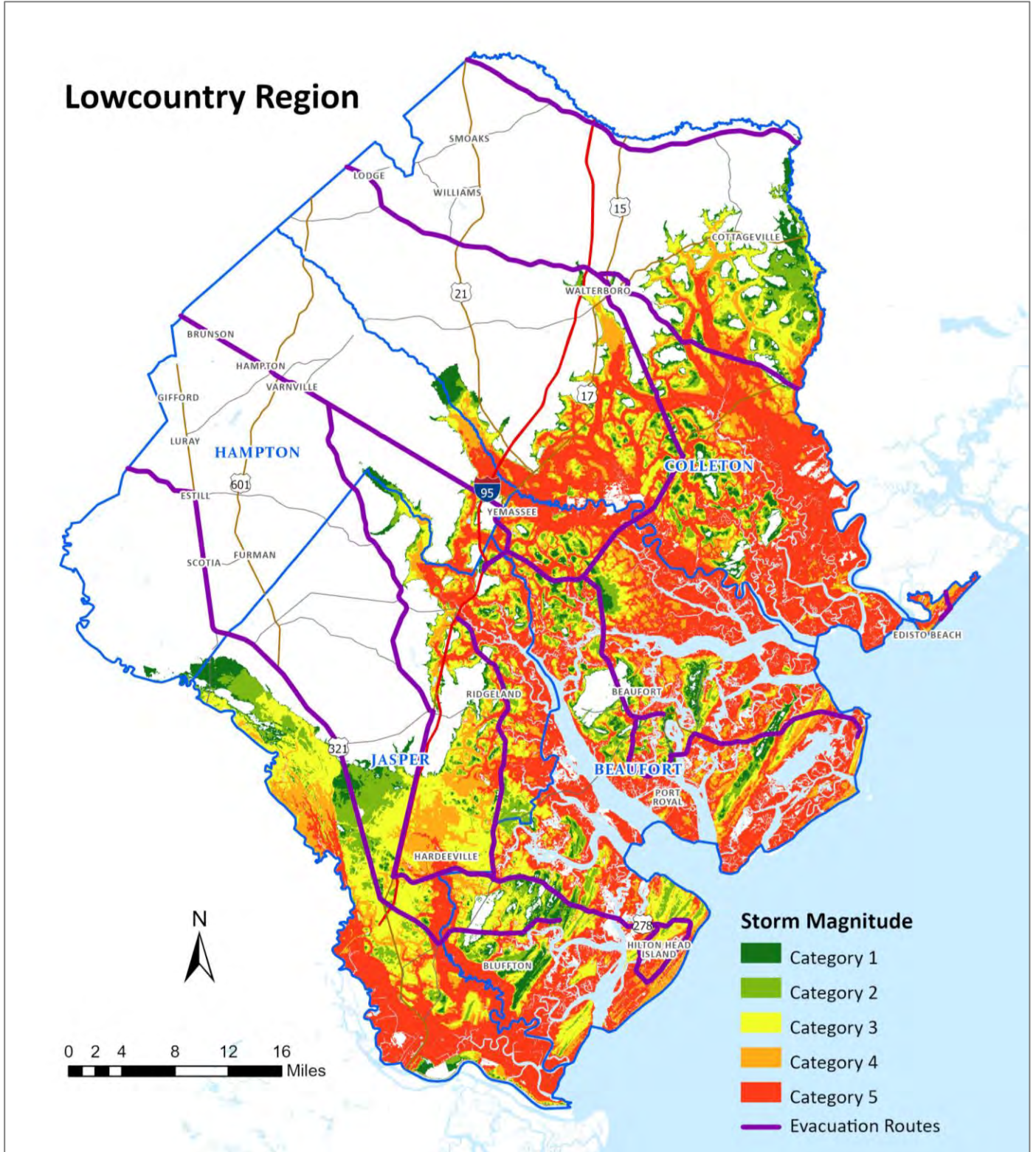
Hurricanes and tropical storms can push sea water up to 20 feet higher than normal tides, due to the strong winds, forward speed, and the low pressure associated with the storms. Storm surge is highest in the upper right quadrant near the north side of the storm's eye. For example, if the storm surge is added to the top of a high tide, the coastal flooding and surge will be exacerbated, whereas a low tide has the potential to mitigate those effects. High seas can erode beaches, destroy buildings, and ruin coastal structures such as docks or revetments. As a hurricane's path and timing are narrowed upon its approach to land, scientists use the Sea, Lake, and Overland Surges from Hurricanes (SLOSH) model to predict the storm surge that may occur (Figure 14).

The SLOSH model uses factors in its calculations such as the underwater terrain, wind speeds, storm direction, and the shape of the coastline (UCAR, 2020). In 2017, the National Hurricane Center (NHC) (2019a) began issuing graphics detailing storm surge warnings and watches as part of its suite of warning products and messaging.

All four counties in the Lowcountry are at significant risk for storm surge with the potential of stretching inland as far as I-95 in places with a category 1 hurricane. Storm surge risk is a major issue for coastal evacuation in Beaufort, Colleton, and Jasper Counties.

Storm surge measurements for the Lowcountry region are obtained from the National Weather Service's Fort Pulaski, GA Tide Gauge.

Figure 14: Storm Surge Risk



Source: Hazards and Vulnerability Research Institute (HVRI), based on NOASLOSH Model Run Outputs

Location and Extent

Throughout the long period of record of hurricanes and their paths, there has been only one major hurricane (Hurricane Gracie, a category 4 storm which made landfall near Edisto Island in 1959) to make landfall or pass through the Lowcountry region (Historical Hurricane Tracks, 2020). Tropical storms are the most prevalent in the Lowcountry. (Table 13 and Figure 15).

Table 13: Storm Tracks Affecting the Lowcountry Region 1850-2019

Type of Storm	Number Passing through the Region	Number Passing within 50 Nautical Miles of Region	Recent (2012-2019) Passing Through or Within 50 Nautical Miles
Hurricane-Category 5	0	0	0
Hurricane-Category 4	1	2	0
Hurricane-Category 3	0	4	0
Hurricane-Category 2	5	10	1
Hurricane-Category 1	8	16	0
Tropical Storm	19	61	7
Tropical Depression	12	33	0
<hr/>			
Subtropical Storm	1	3	0
Subtropical Depression	1	3	0
Extratropical Storms	8	9	0
Total	55	141	8

Source: Historical Hurricane Tracks

When Hurricanes strike the Lowcountry, the extent of the impact often encompasses the entire region. Since 2012, three tropical storms transected the Lowcountry region. Hurricane Hermine (September 2, 2016) moved from the Gulf of Mexico through the Florida panhandle, then northeast through southern Georgia, before transecting the South Carolina coastal counties as a tropical storm. The sustained winds in the Lowcountry reached 34 mph, and damage was mostly constrained to downed trees and power lines.

While no hurricane tracks traversed the region since 2012, a number of hurricanes passed within 50 nautical miles of the coast. These hurricanes produced enough damage in the region to warrant Presidential Disaster Declarations (PDD). According to FEMA (2020a), these include:

Hurricane Joaquin – 2015 (DR-4241-SC) - Public Assistance for Beaufort County and Individual Assistance and Public Assistance for Colleton County

Joaquin, a category 4 hurricane, made landfall on several islands of the Bahamas on October 1-2, 2015, reaching estimated maximum sustained winds of 120 kt (138 mph) on October 2. Moisture from Joaquin contributed to a multi-day rainfall event that caused historic flooding in Charleston and Columbia. Rainfall amounts exceeding 15 inches occurred in the area extending from the South Carolina Lowcountry northwestward through the Midlands. (NHC, 2016).

Hurricane Matthew – 2016 (DR-4286-SC) – Individual Assistance and Public Assistance for Beaufort, Colleton, Hampton, and Jasper Counties

Matthew travelled over the Caribbean as a Category 4 storm but then traveled north-northwest paralleling the Southeast coast and weakening as it moved north. Hurricane Matthew made its last landfall on October 8, 2016 near McClellanville, SC as a weak Category 1 hurricane (75 mph winds). The strongest sustained winds that the Lowcountry measured were 58 kts (66.7 mph). The storm surge at Fort Pulaski in nearby Georgia was 7.7 ft above normal tides, resulting in three to five feet of inundation. Matthew also brought 16.9 inches of rain to a gauge at Edisto Island. Beaufort County received some of the most extensive damage in the state; highways were flooded and damaged, boats washed ashore, and many structures and trees were damaged in winds gusts of up to 95 kts (109.3 mph). The Town of Edisto Beach (Colleton County) was also especially hard-hit, losing power, road access and suffering structural damage. There was severe coastal erosion on Fripp Island and Edisto Island. (NCEI, 2020a and NHC, 2017).

Hurricane Irma – 2017 (DR-4346-SC) – Public Assistance for Beaufort, Colleton, Hampton, and Jasper Counties

Irma skirted up the Florida peninsula in September of 2017. Irma’s sustained winds during its final landfall were 97 kts (111.6 mph), which weakened as it travelled Northwest farther onto shore. Areas throughout Georgia and South Carolina experienced tropical storm force winds as a result, with Charleston measuring gusts of 52 kts (59.8 mph), and sustained winds of 42 kts (48.3 mph). The storm also brought a surge of 4.7 ft to Fort Pulaski. Although the surge was less than that of Matthew, higher tides coinciding with the surge resulted in greater inundation than seen the year before. Irma brought nine inches of rain to Beaufort over the span of three days and caused substantial coastal erosion on Edisto Beach. Irma damaged trees, powerlines, sea walls, homes, and airports (NHC, 2018).

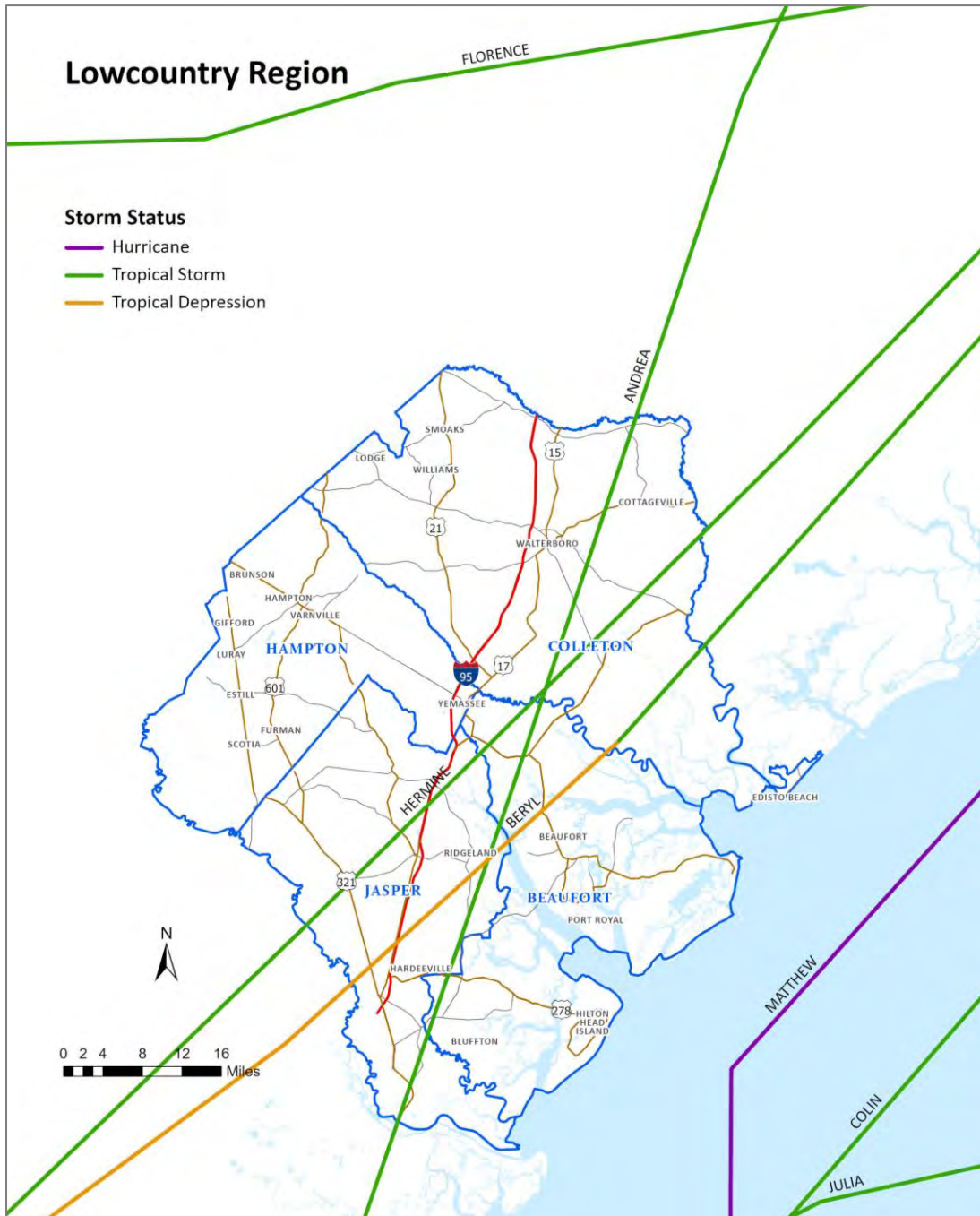
Hurricane Florence – 2018 (DR-4394-SC) – Public Assistance for Colleton County and Public assistance (category B) for Jasper County

Florence made landfall in southern North Carolina in mid-September of 2018. Florence carried windspeeds of 80 kts (90 mph) upon landfall and continued in a Southwest direction through northern South Carolina, dissipating as it trudged through the state. The storm lingered in the region, dropping significant rain across the state, leaving lowland floods in its wake. The northern portions of the state suffered most of the damage (NHC, 2019).

Hurricane Dorian – 2019 (DR-4464-SC) – Public Assistance for Beaufort, Colleton, and Jasper Counties

Dorian skimmed the coast of the Carolinas in September of 2019. Coastal areas in South Carolina experienced 45 to 55 kts (51.7-63.2 mph) sustained winds, two to four feet of storm surge, and heavy rainfall. Pawley’s Island received the most rain in the state with 15.21 inches. There were no casualties in South Carolina. Some areas lost power due to heavy winds knocking over trees and powerlines (NHC, 2020c).

Figure 15: Hurricane and Tropical Storm Tracks 2012-2019



Source: Hazards and Vulnerability Research Institute (HVRI), based on the International Best Track Archive for Climate Stewardship (IBTrACS), Tropical Cyclone Best Track Data

Beaufort County

Between 2012-2019, there were eight hurricanes and tropical storms that have affected the county with \$263,586 in financial loss, and no report deaths or injuries. The following are the notable events.

- October 7, 2016: A Hurricane Matthew scattered tree damage and significant power outages in the county. Tree and structural damage increased with southward progress along U.S. 21. Damage was consistent with wind gusts around 100 mph. Extensive shingle/roof damage occurred to about 50% of homes on Harbor Island, consistent with wind gusts 100-110 mph.
- September 2, 2016: A passage of Tropical Storm Hermine with a peak wind gust of 45 miles per hours blew down numerous trees across the county. Impacted communities include Laurel Bay, Lady's Island, Hilton Head, and Bluffton. Some trees blocked roadways and fell on homes and cars causing various degrees of damage.
- On May 9, 2019: The Automated Weather Observing System (AWOS) at the Beaufort County Airport measured peak sustained winds of 40 mph and a peak wind gust of 52 mph. these strong winds associated with Hurricane Dorian took down numerous trees across the county. Isolated to scattered power outages were also reported. South Carolina Highway Patrol reported a couple of unmoored boats washed ashore along Sea Island Parkway. In an unknown location in the county, three sailboats washed ashore. The event caused over \$260,00 in financial loss, with no death and injuries.

City of Beaufort

- June 6, 2013: A Tropical Storm Andrea passed over the area bringing periods of heavy rain and damaging wind gusts. A tree down along North Street was reported.
- September 11, 2017: Strong winds associated with Hurricane Irma blew down numerous trees and power lines down across the city. The Automated Surface Observing Systems (ASOS) at the Beaufort Marine Corps Air Station measured peak sustained winds of 30 mph and a peak wind gust of 61 mph.

Town of Hilton Head Island

- September 2, 2016: A Tropical Storm Hermine caused significant damage to 13 homes with an estimated total damage of approximately \$250,000. The wind gust was ranging from 48 to 62 miles per hour.
- On May 9, 2019: The AWOS at the Hilton Head Airport (KHXD) measured peak sustained winds of 53 mph and a peak wind gust of 67 mph. The Weather flow site at Pritchards Island near Beaufort measured peak sustained winds of 35 mph and a peak wind gust of 61 mph.

Town of Bluffton

- October 10, 2018: The Town was impacted by Topical Storm Michael included wind damage in the form of isolated to scattered trees and power lines blown down, heavy rainfall and minor levels of storm surge. There were no reports of injuries or fatalities across the area.

Town of Port Royal

- October 7, 2016: A strong wind associated with Hurricane Matthew scattered tree damage and significant power outages in the area. Port Royal Plantation was submerged in water.

Colleton County

Between 2012-2019, there were eight hurricanes and tropical storms that have affected the county with over six million in financial loss, and no report deaths or injuries. The following are the notable events.

- June 7, 2013: A Tropical Storm Andrea passes over the area bringing periods of heavy rain and damaging wind gusts. The South Carolina Department of Highways reported a tree down in many areas - near the intersection of Round O Road and Cottageville Highway, near the intersection of White Hall Road and Abberly Drive, near the intersection of Connley Road and Cross Swamp Road, and at the intersection of Bells Highway and Confederate Highway.
- October 10, 2018: A Tropical Storm Michael caused 8 trees and a few power lines down, most notably around Ritter, Hendersonville, Ruffin, Canadys, Ashepoo, and Islandton. A maximum sustained wind of 36 mph and gust of 51 mph occurred at the Lowcountry Regional Airport in Walterboro during this event.
- September 4, 2019: Colleton County Emergency Management reported several trees down across the entire county due to strong winds associated with Hurricane Dorian. The RAWS site in the ACE Basin near the Colleton County and Charleston County line measured a peak wind gust of 60 mph.

Town of Edisto Beach

- Between 2012-2019, the town has experienced major hurricane including Hurricane Joaquin in 2015, Hurricane Matthew in 2016, Hurricane Irma in 2017, Hurricane Florence in 2018, and Hurricane Dorian in 2019. Total reported damage from these hurricane events were \$4,917,071.

City of Walterboro and Towns of Cottageville, Lodge, Smoaks, and Williams

- Between 2012-2019, the city and towns have experienced hurricanes and tropical storms with little to no damage.

Hampton County

Between 2012-2019, there were eight hurricanes and tropical storms that have affected the county with light damage. The following are the notable events.

- June 7, 2013: A Tropical Storm Andrea passes over the area bringing periods of heavy rain and damaging wind gusts. The South Carolina Department of Highways reported a tree down in many areas - Pond Town Road and Prince William Road.
- September 2, 2016: Hampton County Emergency Management reported scattered trees blown down due to the passage of Tropical Storm Hermine.
- October 8, 2016: There was a report on numerous trees down along Highway 119 near the 321 Junction during Hurricane Matthew.

Towns of Brunson, Estill, Furman, Gifford, Hampton, Luray, Scotia, Varnville, and Yemassee

- Between 2012-2019, all towns have experienced hurricanes and tropical storms with little to no damage.

Jasper County

Between 2012-2019, there were eight hurricanes and tropical storms that have affected the county with light damage. The following are the notable events.

- May 27, 2012: A Tropical Storm Beryl slowly moved to the area producing tropical storm force winds, rip currents, and areas of heavy rainfall. The trees down were reported on Deerfield Road and Old House Road.
- September 11, 2017: Jasper County Emergency Management reported multiple trees down across the county due to strong winds associated with Hurricane Irma.
- October 10, 2018: A strong wind associated with Hurricane Michael blew down a tree down near Ridgeland.
- September 4, 2019: Jasper County Emergency Management reported several trees down across the entire county due to strong winds associated with Hurricane Dorian.

City of Hardeeville and Town of Ridgeland

- June 6, 2013: A Tropical Storm Andrea occurred with showers and thunderstorms causing a tree down along Interstate 95 near mile marker 10, on John Smith Road, and on Highway 17 between Hardeeville and Ridgeland.
- October 8, 2016: The Jasper County 911 Call Center reported Interstate 95 closed between Ridgeland and Hardeeville due to many trees down on the road as well as water covering the road surface near exit 22 during Hurricane Matthew.

Future Probability

Table 14 shows that the future probability of hurricanes and tropical storms is relatively high in the Lowcountry region, with high consequences based on damages (see Loss Information Section).

Table 14: Hurricane and Tropical Storms Historical and Recent Hazards Events 1988-2019

	Total Number	Years in Data Record	Annualized Count	Recurrence Frequency (in years)	Future Probability (% chance/year)	Total Number 2012-2019
Beaufort County	28	32	0.9	1.14	88%	8
City of Beaufort	28	32	0.9	1.14	88%	8
Town of Bluffton	28	32	0.9	1.14	88%	8
Town of Hilton Head Island	28	32	0.9	1.14	88%	8
Town of Port Royal	28	32	0.9	1.14	88%	8
Colleton County	28	32	0.9	1.14	88%	8
Town of Cottageville	28	32	0.9	1.14	88%	8
Town of Edisto Beach	28	32	0.9	1.14	88%	8
Town of Lodge	28	32	0.9	1.14	88%	8
Town of Smoaks	28	32	0.9	1.14	88%	8
City of Walterboro	28	32	0.9	1.14	88%	8
Town of Williams	28	32	0.9	1.14	88%	8
Hampton County	28	32	0.9	1.14	88%	8
Town of Brunson	28	32	0.9	1.14	88%	8
Town of Estill	28	32	0.9	1.14	88%	8
Town of Furman	28	32	0.9	1.14	88%	8
Town of Gifford	28	32	0.9	1.14	88%	8
Town of Hampton	28	32	0.9	1.14	88%	8
Town of Luray	28	32	0.9	1.14	88%	8
Town of Scotia	28	32	0.9	1.14	88%	8
Town of Varnville	28	32	0.9	1.14	88%	8
Town of Yemassee	28	32	0.9	1.14	88%	8
Jasper County	28	32	0.9	1.14	88%	8
City of Hardeeville	28	32	0.9	1.14	88%	8
Town of Ridgeland	28	32	0.9	1.14	88%	8

Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's International Best Track Archive for Climate Stewardship (IBTrACS)

3.4 WINDSTORM

Characteristics and Classification

There are two different types of wind hazards, strong winds and Thunderstorms winds. *Strong winds* are non-convective winds gusting less than 58 mph. *Thunderstorm winds* are winds associated with convective storms that produce lightning within 30 minutes of the wind gusts (NWS, 2016). These gusts can reach 80 mph in the Lowcountry, and can fell trees, damage structures, and topple powerlines. Although lightning is an integral feature of thunderstorm winds, the perils associated with lightning are in a separate section of this report.

According to Storm Prediction Center (SPC) (2018), thunderstorms occur when air rises quickly, creates clouds which then generates precipitation. Straight-line thunderstorm winds typically occur with descending air pushed down by the precipitation of the storm in the downdraft, although winds associated with the updraft can occasionally cause minor damage. There are a few types of thunderstorms, but the straight-line winds associated with them generally are inflow winds, downbursts, the gust front, and the rear flank downdraft.

Thunderstorm wind events are defined as winds occurring within 30 minutes of lightning. Winds and wind gusts of any speed also are recorded if they cause damage or produce injuries or fatalities and whether they are produced by convection or not. Maximum sustained winds over 58 mph are recorded regardless of any associated loss. Non-convective strong wind gusts less than 40 mph resulting in damage, injury, or a fatality are recorded (NWS, 2016).

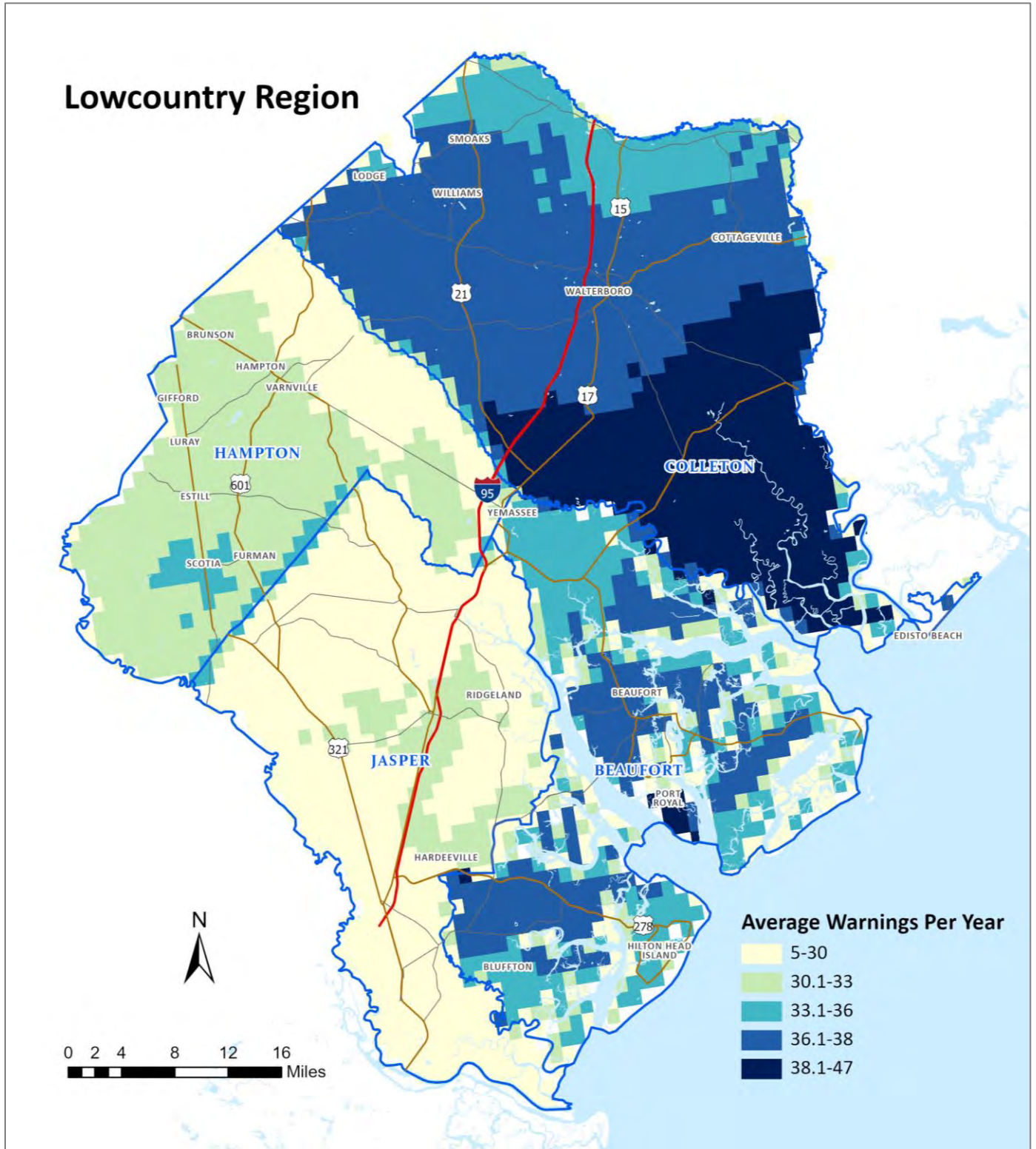
Location and Extent

Thunderstorm winds including strong winds are frequent occurrences in the Lowcountry region. There are over 2,000 wind events in the Lowcountry counties, with over half of these creating some type of damage or a human injury. The majority of the wind events occurred in Colleton County. As depicted in Figure 16, the issuance of severe storm warnings for thunderstorm winds and strong winds shows the higher concentration in Colleton County and is a useful measure of the prevalence of this hazard.

Types of Wind

- *Inflow winds*: coming from the air being pulled up into the storm. These are usually negligible, but they can cause minor damage.
- *A downburst*: occurring when the wind reaching the surface for the first time is strong enough to cause damage.
- *The gust front*: representing winds that are being pushed along the ground ahead of the storm.
- *A rear flank downdraft*: occurring when a storm with a rotating updraft pulls the downdrafts to the side and behind the storm. These can reach speeds of up to 70 mph.
- *The derecho*: a widespread, long lived, and damaging thunderstorm. The storm's wind damage swath must extend more than 240 miles with wind gusts exceeding 57 mph along most of the length of the storm's path.

Figure 16: Severe Thunderstorm and Strong Wind Warnings 2012-2019



Source: Hazards and Vulnerability Research Institute (HVRI), NOAA National Weather Service, Iowa Environmental Mesonet

Beaufort County

Beaufort Colleton has experienced 148 windstorms between 2012-2019 with approximately \$260,000 in damage and two injuries. There have been several recent events worth noting in the county.

- July 1, 2012: Thunderstorm winds gusting up to 75 mph swept across the county, bringing down large amounts of trees and powerlines. Power was not fully restored for a few days.
- June 17, 2016: Thunderstorm winds gusting up to 75 mph brought down trees and powerlines across the county. The \$50,000 property damage was reported in the Town of Hilton Head and also a large tree fell and injured two people.

City of Beaufort and Towns of Bluffton, Hilton Head Island, and Port Royal

- Between 2012-2019, the city and towns have experienced windstorms with little to no damage.

Colleton County

Colleton County has experienced 244 windstorms between 2012-2019. A Colleton County emergency manager reported several trees down throughout the county. These windstorms caused approximately \$170,000 in total property damage, and one death and no injuries. Notable events include:

- December 21, 2012: A strong cold front swept through the county during the evening and overnight hours. There was a report of a tree down along Palmetto Boulevard on Edisto Beach.
- April 9, 2019: Very strong low to mid-level wind fields and ample forcing contributed to the development of a strong squall line of thunderstorms, which produced widespread damaging winds. Numerous trees down were reported in Hendersonville. Also, the Colleton County fire and rescue reported trees and power lines down at the recreation center near the Walterboro Airport. The property damage totaled \$17,500.

City of Walterboro and Towns of Cottageville, Edisto Beach, Smoaks, and Williams

- Between 2012-2019, these jurisdictions have experienced windstorms with little to no damage.

Town of Lodge

- Between 2012-2019, there was no notable windstorm events.

Hampton County

Between 2012-2019, Hampton County has experienced 103 windstorms with \$879,535 in financial loss, and no deaths or injuries. Notable events include:

- July 1, 2012: Thunderstorms fired along an inland surface trough axis, multicell thunderstorms then generated cold pools which drove severe convection through the entire county. Trees and powerlines were down countywide. More than 1,000 people were without power through July 2, 2012.
- June 6, 2018: Thunderstorm winds gusting up to an estimated 81 mph caused the collapse of the roof on a furniture store in the county. Five people were rescued from the building but were otherwise unharmed. Some other buildings sustained light damage.

Towns of Brunson, Estill, Furman, Gifford, Hampton, Luray, Scotia, Varnville, and Yemassee

- Between 2012-2019, the towns have experienced windstorms with little to no damage.

Jasper County

Between 2012-2019, Jasper County has experienced 156 windstorms with \$129,461 in financial loss, and no deaths or injuries. Notable events include:

- June 11, 2012: Beginning in Switzerland, strong winds developed in associated with the strong pressure gradient and the presence of a strong low-level jet. A spotter reported a tree down and on a power line on Jasper Road. Numerous trees were also uprooted or snapped off in the woods on both sides of the road. The total damage was \$30,000.

City of Hardeeville

- June 22, 2019: A strong to severe thunderstorm developed across the county. The Department of Highways reported power lines down at the intersection of Main Street and Epps Avenue in the City of Hardeeville.

Town of Ridgeland

- July 1, 2012: Thunderstorms generating cold pools through the entire county. It was estimated 10 to 15 trees and power lines down in the Town of Ridgeland.

Future Probability

In comparison with other hazards, thunderstorm winds and strong winds are high frequency events (see Table 15). They have more than 100% chance of occurring in any given year and they recur almost monthly, but with lower consequences based on damages (see Loss Information Section). Less than half of the recorded thunderstorm wind/strong wind events caused any crop or property damage, nor did they result in any human casualty (death or injury).

Table 15: Severe Thunderstorms and Windstorms 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	268	24	11.2	0.09	1,117%	148
City of Beaufort	59	24	2.5	0.41	246%	15
Town of Bluffton	40	24	1.7	0.60	167%	9
Town of Hilton Head Island	38	24	1.6	0.63	158%	17
Town of Port Royal	9	24	0.4	2.67	38%	4
Colleton County	440	24	18.3	0.05	1,833%	244
Town of Cottageville	52	24	2.2	0.46	217%	26
Town of Edisto Beach	5	24	0.2	4.80	21%	0
Town of Lodge	5	24	0.2	4.80	21%	0
Town of Smoaks	18	24	0.8	1.33	75%	8
City of Walterboro	91	24	3.8	0.26	379%	35
Town of Williams	11	24	0.5	2.18	46%	4
Hampton County	196	24	8.2	0.12	817%	103
Town of Brunson	11	24	0.5	2.18	46%	3
Town of Estill	24	24	1.0	1.00	100%	12
Town of Furman	14	24	0.6	1.71	58%	9
Town of Gifford	11	24	0.5	2.18	46%	6
Town of Hampton	41	24	1.7	0.59	171%	15
Town of Luray	6	24	0.3	4.00	25%	1
Town of Scotia	4	24	0.2	6.00	17%	4
Town of Varnville	19	24	0.8	1.26	79%	8
Town of Yemassee	9	24	0.4	2.67	38%	3
Jasper County	262	24	10.9	0.09	1,092%	156
City of Hardeeville	35	24	1.5	0.69	146%	21
Town of Ridgeland	35	24	1.5	0.69	146%	9

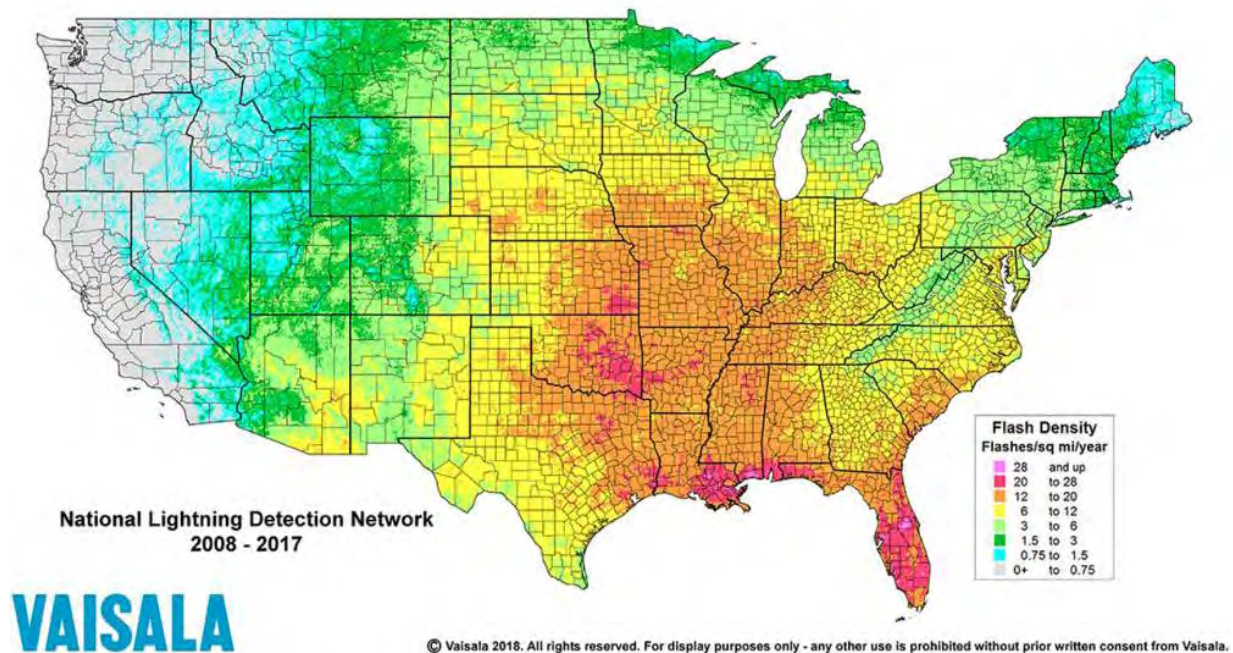
Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA's Storm Events database

3.5 LIGHTNING

Characteristics and Classification

Lightning is an electrical discharge that results in a giant spark between two clouds, or cloud and the ground. Although lightning is associated with severe storms, lightning strikes have been recorded 25 miles away from the storm cloud. It takes five seconds for thunder to travel one mile, so for every five seconds the sound is removed from the flash equals one mile between you and the flash (NWS, 2020b). Figure 17 shows the lightning density across the nation.

Figure 17: National Cloud-to-Ground Lightning Incidence



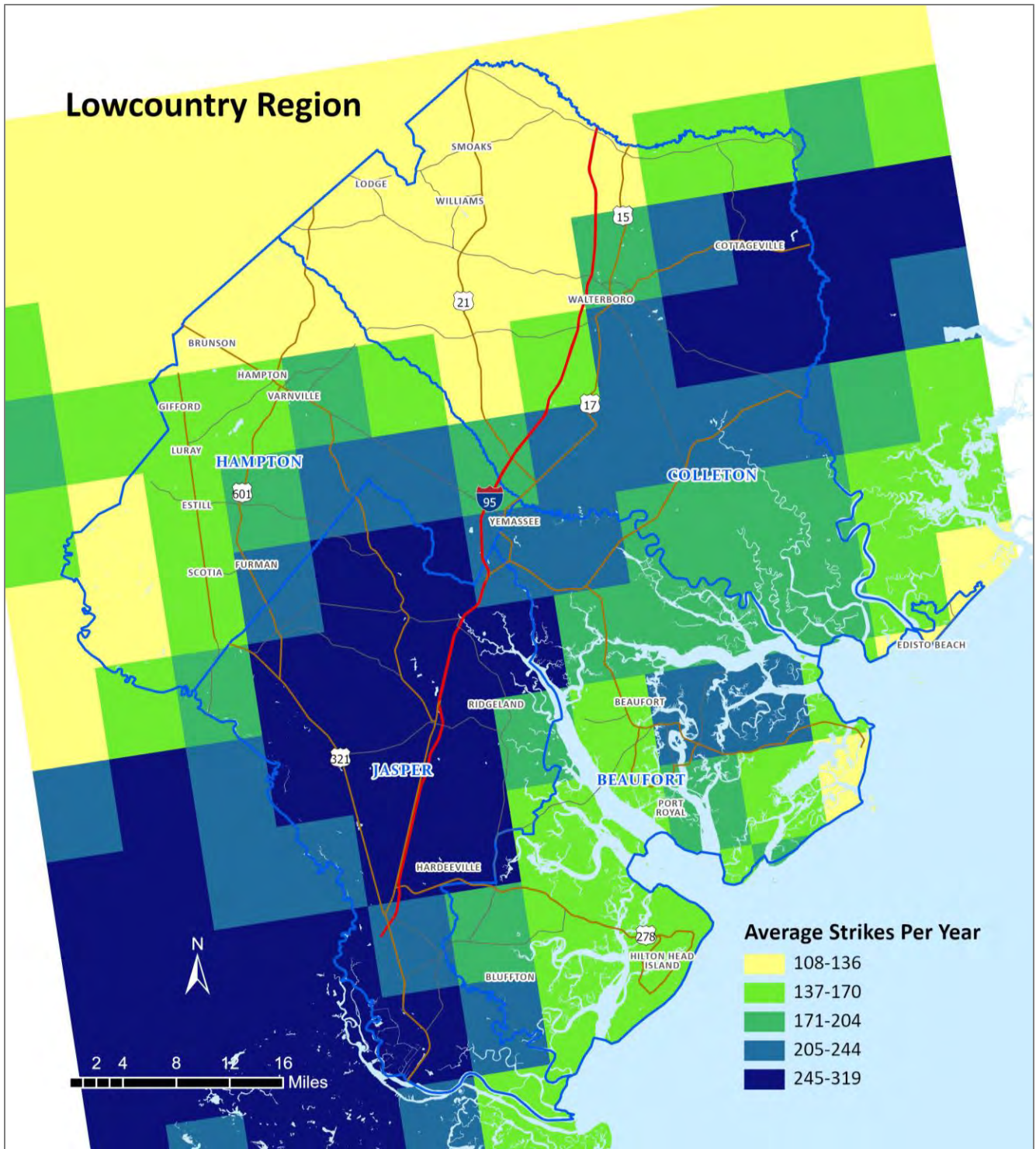
Source: National Lightning Detection Network (NLDN)

The primary hazards associated with lightning are structural damages to buildings and potential fire. There are also electrocution hazards to people from lightning strikes resulting in injuries or deaths especially when outdoors in unsheltered areas such as golf courses or on the water.

Location and Extent

Lightning strikes in the Lowcountry recorded by the National Lightning Detection Network starting in 1999 number over 330,000. The majority of these (36%) were in Colleton County. When looking at yearly averages, there is also a concentration or hotspot of lightning strikes in Jasper County (Figure 18).

Figure 18: Average Lightning Strikes per Year 2012-2019



Source: Hazards and Vulnerability Research Institute (HVRI); National Lightning Detection Network (NLDN)

Beaufort County

While there have been numerous lightning strikes and events within the county between 2012-2019, there has only been one notable strike on August 19, 2018, southeast of Marine Corps Air Station (MCAS), City of Beaufort. The following are some notable events.

- July 25, 2014: Scattered thunderstorms developed in the afternoon hours and produced numerous lightning strikes. Beaufort County emergency manager reported several structure fires on Newpoint Road, Flycatcher Lane, and Dore Drive due to a lightning strike.
- June 25, 2015: Numerous showers and thunderstorms developed after midnight producing damaging wind gusts. There was a report on a house that was struck by lightning. It hit the rear of the home and flames eventually came through the roof. The damage was approximately \$10,000.

City of Beaufort

- August 19, 2018: The lightning even occurred southeast of Marine Corps Air Station (MCAS), City of Beaufort which resulted in \$1.7million worth of property damage. None have resulted in fatalities, injuries, or crop damage. The Island Packet Newspaper reported a house in the Pleasant Point neighborhood was struck by lightning and burned to the ground.

Town of Bluffton

- June 9, 2015: A structure fire caused by lightning in the 20-block area of Ironwood Circle was reported.
- July 8, 2017: A suspected lightning strike resulted in a building fire off of Burnt Church Road resulting in \$5,000 damage.

Town of Port Royal

- July 5, 2019: Scattered to numerous thunderstorms developed and produced damaging wind gusts as well as numerous cloud- to-ground lightning strikes. A building on Richmond Avenue was struck by lightning with little damage of \$1,000.
- August 17, 2019: Moisture convergence along a weak trough of low pressure and building instability during the afternoon led to several thunderstorms across the area. A home was struck by lightning. The extent of damage was minor, but one individual was displaced.

Colleton County

Between 2012-2019, numerous lightning strikes have occurred through the entire county resulting in \$108,268 property damage, and no deaths or injuries. Notable events include:

- April 5, 2017: The event occurred in Hendersonville. Lightning struck a large oak tree which resulted in a fire that destroyed a 30x50 foot workshop, tools, and moderate size utility tractor. The damage totaled \$40,000.
- August 6, 2018: The media relayed a report of a double-wide mobile home catching fire and burning to the ground due to lightning striking the roof causing \$68,000 in damage.

City of Walterboro and Towns of Cottageville, Edisto Beach, Lodge, Smoaks, and Williams

- All municipalities in Colleton County have experienced lightning strikes with little to no damage.

Hampton County

There have been numerous lightning strikes in Hampton County between 2012-2019 with no financial loss, and no deaths or injuries.

Towns of Brunson, Estill, Furman, Gifford, Hampton, Luray, Scotia, Varnville, and Yemassee

- There have been numerous lightning strikes in these towns between 2012-2019 with no financial loss, and no deaths or injuries.

Jasper County

There have been numerous lightning strikes in Jasper County between 2012-2019 with light damage, and two injuries or no deaths.

City of Hardeeville and Town of Ridgeland

- There have been numerous lightning strikes in these jurisdictions between 2012-2019 with no financial loss, and no deaths or injuries.

Future Probability

Lightning is a frequent hazard that occurs multiple times per day or even per hour in strong thunderstorms as shown in Table 16. The recurrence frequency for lightning is less than 0.01 per year, but if converted to a daily frequency of occurrence, it would be roughly every 0.38 days.

Table 16: Lightning Historical and Recent Hazards Events 1999-2019

	Total Number	Years in Data Record	Annualized Count	Recurrence Frequency (in years)	Future Probability (% chance/year)	Total Number 2012-2019
Beaufort County	20,166	21	960.3	<0.01	96,029%	32,481
City of Beaufort	20,166	21	960.3	<0.01	96,029%	32,481
Town of Bluffton	20,166	21	960.3	<0.01	96,029%	32,481
Town of Hilton Head Island	20,166	21	960.3	<0.01	96,029%	32,481
Town of Port Royal	20,166	21	960.3	<0.01	96,029%	32,481
Colleton County	34,597	21	1647.5	<0.01	164,748%	42,333
Town of Cottageville	34,597	21	1647.5	<0.01	164,748%	42,333
Town of Edisto Beach	34,597	21	1647.5	<0.01	164,748%	42,333
Town of Town	34,597	21	1647.5	<0.01	164,748%	42,333
Town of Smoaks	34,597	21	1647.5	<0.01	164,748%	42,333
City of Walterboro	34,597	21	1647.5	<0.01	164,748%	42,333
Town of Williams	34,597	21	1647.5	<0.01	164,748%	42,333
Hampton County	19,914	21	948.3	<0.01	94,829%	21,509
Town of Brunson	19,914	21	948.3	<0.01	94,829%	21,509
Town of Estill	19,914	21	948.3	<0.01	94,829%	21,509
Town of Furman	19,914	21	948.3	<0.01	94,829%	21,509
Town of Gifford	19,914	21	948.3	<0.01	94,829%	21,509
Town of Hampton	19,914	21	948.3	<0.01	94,829%	21,509
Town of Luray	19,914	21	948.3	<0.01	94,829%	21,509
Town of Scotia	19,914	21	948.3	<0.01	94,829%	21,509
Town of Varnville	19,914	21	948.3	<0.01	94,829%	21,509
Town of Yemassee	19,914	21	948.3	<0.01	94,829%	21,509
Jasper County	27,595	21	1314.0	<0.01	131,405%	33,241
City of Hardeeville	27,595	21	1314.0	<0.01	131,405%	33,241
Town of Ridgeland	27,595	21	1314.0	<0.01	131,405%	33,241

Source: Hazards and Vulnerability Research Institute (HVRI) and National Centers for Environmental Information

3.6 HAIL

Characteristics and Classification

Hail is the frozen precipitation from convective thunderstorms. Any thunderstorm with the right conditions can spawn hail, meaning hail can occur anywhere. Hail in the Lowcountry has ranged from the size of a pea (a quarter of an inch), to the size of a large apple (three inches). Hail can damage cars, buildings, ruin crops, and cause bodily harm to people and livestock caught outside without any protection. Hail is the result of the water droplets moving through the atmosphere where temperatures can reach lower than -40°F, quickly freezing the droplets. As the frozen droplets continue the updraft and downdraft motion within the storm and any additional liquid water that it collides with can freeze and grow the size of the hail. When the hail has grown too big for the winds to keep in the air, it will fall to the ground. Larger hailstone will fall faster, with teacup-sized hail falling between 44 and 72 mph, and thus doing more damage (NSSL, 2020b).

Location and Extent

Hail is described using known objects to estimate the size of the hail (Table 17). The larger the hail size the more damage produced (NWS, 2020c). Hail ranging from the size of golf balls to baseballs damaged 62 planes and numerous cars on Hilton Head Island on March 15, 2008. Roughly ten percent of the planes were total losses and an additional 25% were no longer air worthy. The associated damages totaled \$1.17 million. More recently, on August 2, 2012 hail ranging from the size of golf balls to baseballs (~2.75 in) fell in Colleton County near the intersection of SC-17 and SC-303 (NCEI, 2020b).

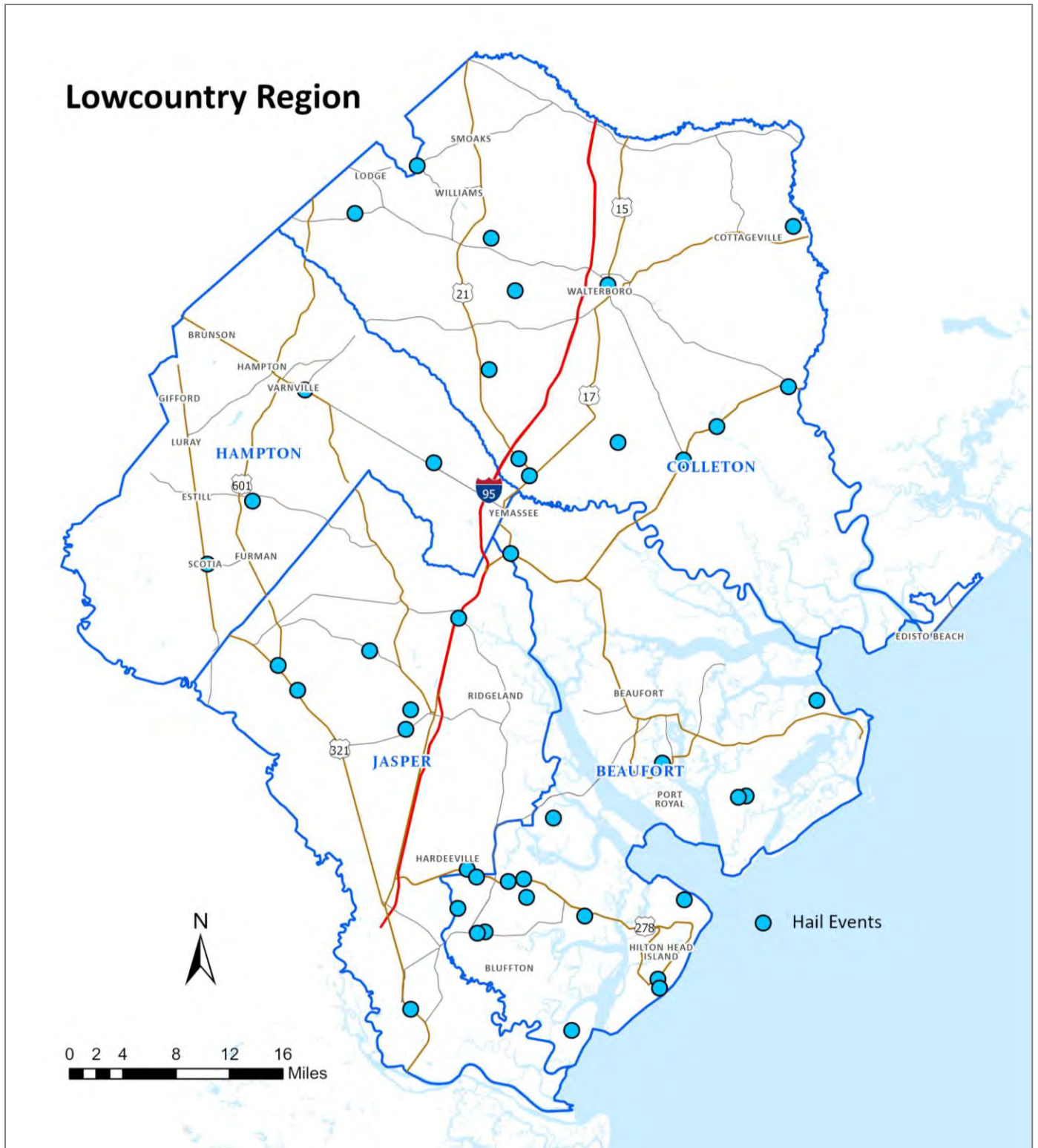
A total of 45 hail events have been recorded from 2012-2019. There were no deaths or damages associated with these events. The location of hail events shows a random pattern throughout the region (Figure 19). A small hot spot of hail events appears in eastern section of Beaufort County near the Jasper county line.

Table 17: Estimations of Hail Diameters

Known Object	Estimated Diameter (inches)
Pea	1/4
Marble	1/2
Dime/Penny	3/4
Nickel	7/8
Quarter	1
Ping-Pong Ball	1 1/2
Golf Ball	1 3/4
Lime	2
Tennis Ball	2 1/2
Baseball	2 3/4
Large Apple	3
Softball	4
Grapefruit	4 1/2

Source: National Weather Service (NWS)

Figure 19: Geographic Distribution of Recent Hail Events 2012-2019



Source: Hazards and Vulnerability Research Institute (HVRI)

Beaufort County

Between 2012-2019, the county has experienced 20 significant storms that have produced hail. There have been no reported damage, injuries, or fatalities. Example of events are the following:

- August 16, 2012: Thunderstorms developed in the afternoon hours with numerous reports of nickel to quarter sized hail in the Town of Bluffton and Pritchardville. The hail fell for five minutes.

Town of Hilton Head Island

- April 25, 2015: Strong instability and a strongly sheared environment set up favorable conditions for hail in the town of Hilton Head Island. The public reported penny size hail on the northern end of the Island.

City of Beaufort and Towns of Bluffton and Port Royal

- There was no record of hail events in the city and town.

Colleton County

Fifteen hail events have occurred in Colleton County. There have been no reported damage, injuries, or deaths. Example of events are the following.

- August 2, 2012: Thunderstorms produced scattered wind damage and multiple instances of large hail. The public reported golf ball to baseball sized hail near the intersection of Highway 17 and Highway 303 in Green Pond.
- July 21, 2016: Isolated to scattered thunderstorms developed in the afternoon hours across portions of southeast South Carolina. A couple of these storms became strong enough to produce damaging wind gusts and large hail. A trained spotter reported hail that ranged from quarter sized to golf ball sized, covering a porch.

City of Walterboro

- September 3, 2013: Several thunderstorms along with low temperature produced hail in the county. The media reported quarter size hail near the Hampton Street Theatre in the City of Walterboro.

Town of Cottageville

- September 30, 2019: Thunderstorms developed ahead of a weak backdoor cold front and became strong enough to produce large hail and damaging wind gusts. A trained spotter reported pea to quarter sized hail in the Town of Cottageville.

Towns of Edisto Beach, Lodge, Smoaks, and Williams

- There was no record of hail events in these towns.

Hampton County

Between 2012-2019, there have been three hail events in Hampton County with no reported damage, injuries, or deaths. Some events include:

- August 14, 2013: Scattered to numerous showers and thunderstorms developed in the afternoon, with a few producing large hail and damaging wind gusts. The Hampton County Emergency Manager relayed a report of one-inch hail in Early Branch.

Town of Scotia

- March 18, 2013: A Severe Thunderstorm was monitored around 7:30 pm for the area. It maintained its strength and intensified at times as it entered the county. Quarter-sized hail was reported in the Town of Scotia.

Town of Varnville

- April 29, 2013: Numerous thunderstorms formed in the afternoon due to a sea breeze and a mid-level disturbance that moved in the area. Three-quarter-inch hail in Varnville were reported.

Town of Yemassee

- April 29, 2013: Numerous thunderstorms formed in the afternoon due to a sea breeze and a mid-level disturbance that moved in the area. One-inch hail in Pocotaligo was reported.

Towns of Brunson, Estill, Furman, Gifford, Hampton, and Luray

- There was no record of hail events in these towns.

Jasper County

Seven hail events have occurred in Jasper County between 2012-2019. There have been no reported damage, injuries, or deaths. Example of events are the following.

- March 16, 2012: Thunderstorms developed along inland surface boundaries and pushed toward the coast. Public reported penny sized hail at the Jasper County Recycling Center.
- June 25, 2018: Numerous strong to severe thunderstorms across the region produced dime to penny size hail. Hail caused small tree limbs to come down across the county.

City of Hardeeville

- April 29, 2013: Numerous thunderstorms formed in the afternoon due to a sea breeze and a mid-level disturbance that moved in the area. One-inch hail was reported on New River Parkway in Hardeeville.

Town of Ridgeland

- May 15, 2012: There were development of numerous showers and thunderstorms across the area during the mid-late afternoon. An observer reported penny-sized hail near the Town of Ridgeland.

Future Probability

In comparison with other hazards, hail is a high frequency event (see Table 18). It has more than 100% chance of occurring in any given year, but with lower consequences based on damages (see Loss Information Section).

Table 18: Hail Historical and Recent Hazards Events 1989-2019

	Total Number	Years in Data Record	Annualized Count	Recurrence Frequency (in years)	Future Probability (% chance/year)	Total Number 2012-2019
Beaufort County	67	31	2.2	0.46	216%	20
City of Beaufort	19	31	0.6	1.63	61%	0
Town of Bluffton	25	31	0.8	1.24	81%	3
Town of Hilton Head Island	20	31	0.6	1.55	65%	1
Town of Port Royal	5	31	0.2	6.20	16%	0
Colleton County	73	31	2.4	0.42	235%	15
Town of Cottageville	16	31	0.5	1.94	52%	3
Town of Edisto Beach	3	31	0.1	10.33	10%	0
Town of Lodge	2	31	0.1	15.50	6%	0
Town of Smoaks	5	31	0.2	6.20	16%	0
City of Walterboro	34	31	1.1	0.91	110%	1
Town of Williams	3	31	0.1	10.33	10%	0
Hampton County	31	31	1.0	1.00	100%	3
Town of Brunson	5	31	0.2	6.20	16%	0
Town of Estill	2	31	0.1	15.50	6%	0
Town of Furman	1	31	0.0	31.00	3%	0
Town of Gifford	0	31	0.0	*	*	0
Town of Hampton	12	31	0.4	2.58	39%	0
Town of Luray	0	31	0.0	*	*	0
Town of Scotia	1	31	0.0	31.00	3%	1
Town of Varnville	4	31	0.1	7.75	13%	1
Town of Yemassee	4	31	0.1	7.75	13%	1
Jasper County	33	31	1.1	0.94	106%	7
City of Hardeeville	10	31	0.3	3.10	32%	1
Town of Ridgeland	10	31	0.3	3.10	32%	2

Note: Symbol (*) refers to “no value” because the hazard events have a value of zero.

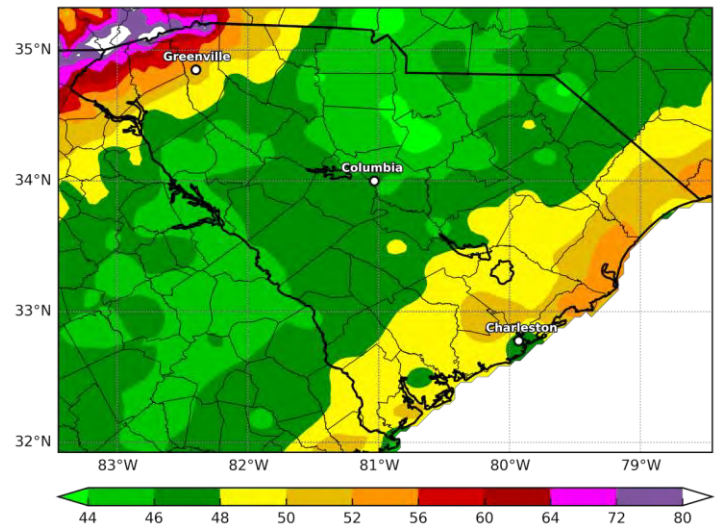
Source: Hazards and Vulnerability Research Institute (HVRI) and NOAA’s Storm Events database

3.7 DROUGHT

Characteristics and Classification

Drought occurs when a region receives lower-than-normal precipitation for a prolonged period. This deficit can affect agriculture, the economy, water levels, the environment, increase health problems, and increase wildfire risk. Droughts vary in severity based on the lack of precipitation, length of the event, and the area where it occurs. Droughts can occur at any time during the year, but historically the Fall is the driest season in South Carolina. The annual precipitation in the Lowcountry ranges between 46 and 56 inches as shown in Figure 20, with the lower end of the range falling further inland. Droughts can last from months to years and are often tied to long-term pressure systems in the Atlantic or the El Niño–Southern Oscillation (ENSO). This multi-year cycle originates in the Pacific Ocean but has widespread consequences reaching South Carolina.

Figure 20: SC Average Annual Precipitation (inches)



Source: Southeast Regional Climate Center (Map Credit: Jordan McLeod)

The state is wetter during the El Niño phase, and drier during La Niña (SC State Climate Office, 2020a). There are many factors that come together to classify a drought, including spatial extent, duration, and severity. The U.S. Drought Monitor uses these factors in their classifications and updates their drought designations on a weekly basis. Their drought classifications have five distinct categories and range from D0 (Abnormally Dry) to D4 (Exceptional Drought). South Carolina uses seven different indicators to measure drought status. These include the US Drought Monitor for South Carolina, crop moisture index, Palmer Drought severity index, streamflow levels, lake/reservoir levels, groundwater levels, and the Keetch-Byram drought index (SC State Climate Office, 2020b).

Location and Extent

Drought is a large-scale event that generally covers entire counties or regions rather than smaller geographic units. South Carolina’s drought status at any given period is determined by the state’s Drought Response Committee. Table 19 illustrates the drought status of Lowcountry counties from 2012-2020 as determined by the last SC Drought Response Committee meeting on January 30, 2020.

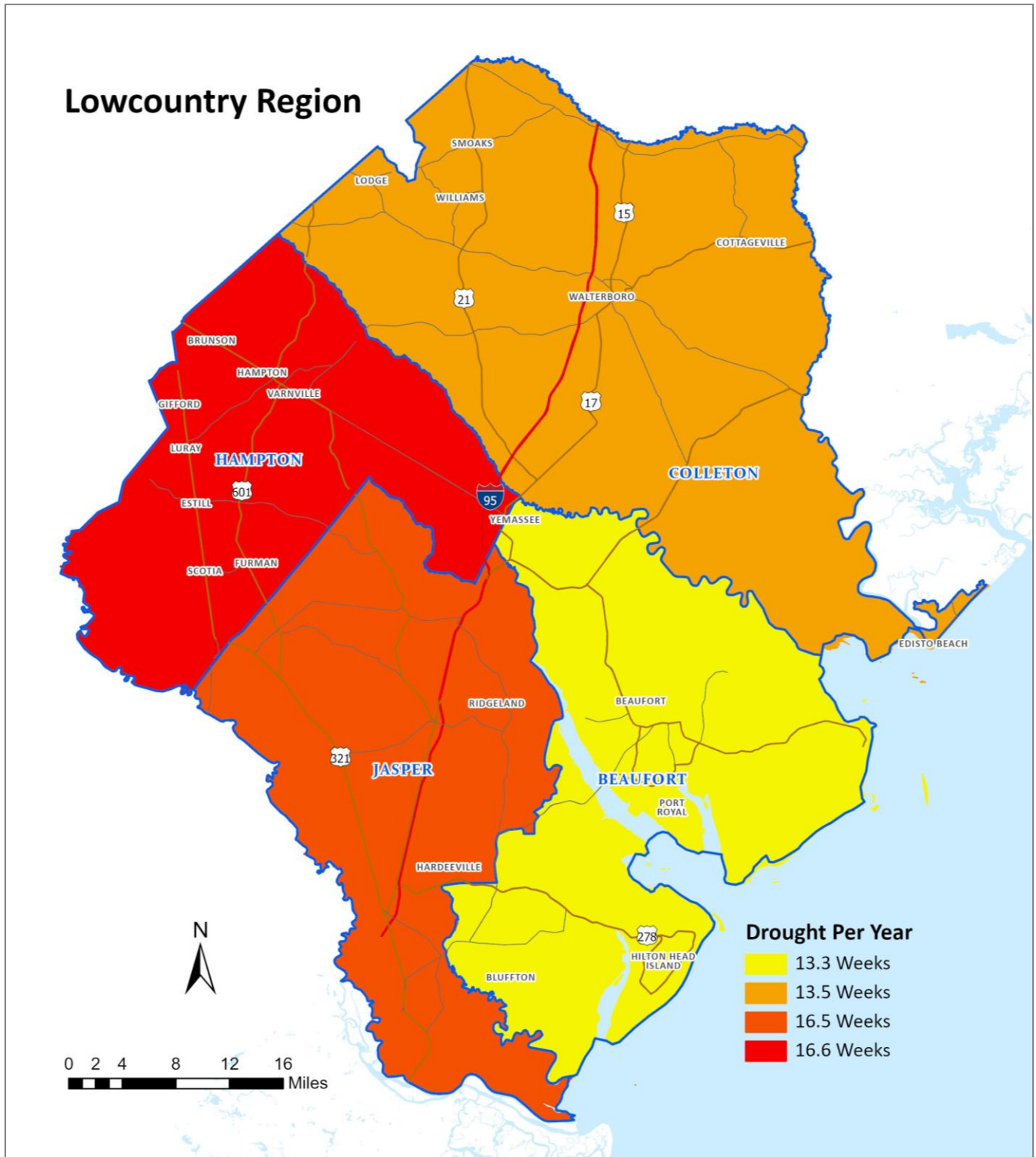
Table 19: Highest Drought Level Status 2012-2020

County	2012	2013	2014	2015	2016	2017	2018	2019	2020
Beaufort	Moderate	Moderate	Incipient	Incipient	Incipient	Normal	Normal	Moderate	Normal
Colleton	Moderate	Moderate	Incipient	Moderate	Incipient	Incipient	Incipient	Moderate	Normal
Hampton	Moderate	Moderate	Incipient	Moderate	Incipient	Incipient	Incipient	Moderate	Normal
Jasper	Moderate	Moderate	Incipient	Incipient	Incipient	Normal	Normal	Moderate	Normal

Source: SC State Climate Office

Another mechanism used to compare counties is the number of drought days the county experienced (Figure 21). Using the U.S. Drought Monitor for South Carolina, the Lowcountry experienced an average of 60 drought days during the past twenty years, but none of these conditions were severe.

Figure 21: Drought Frequency – Weeks of Drought per Year 2012-2019



Source: Hazards and Vulnerability Research Institute (HVRI)

Beaufort County

Between 2012-2019, Beaufort County experienced an average of 13.3 drought weeks per year with no reported damage, and no deaths or injuries.

City of Beaufort and Towns of Bluffton, Hilton head Island, and Port Royal

- All municipalities in the county experienced the same drought weeks per year with no reported damage, and no deaths or injuries as well.

Colleton County

The county experienced an average of 13.5 drought weeks per year between 2012-2019. There has been no reported damage, and no deaths or injuries.

City of Walterboro and Towns of Cottageville, Edisto Beach, Lodge, Smoaks, and Williams

- All municipalities in the county experienced the same drought weeks per year with no reported damage, and no deaths or injuries as well.

Hampton County

Hampton County experienced an average of 16.6 drought weeks per year between 2012-2019. There has been no reported damage, and no deaths or injuries. However, there were significant impacts from the drought on farms in the county. Many dryland corn fields were reported to be beyond recovery. Concerns were also raised about poor pollination occurring due to the high heat in irrigated fields. Crops that were not in the reproductive phase were struggling and growing very slowly.

Towns of Brunson, Estill, Furman, Gifford, Hampton, Luray, Scotia, Varnville, and Yemassee

- All municipalities in the county experienced the same drought weeks per year with no reported damage, and no deaths or injuries as well.

Jasper County

Between 2012-2019, Jasper County experienced an average of 16.5 drought weeks per year with no reported damage, and no deaths or injuries.

City of Hardeeville and Town of Ridgeland

- All municipalities in the county experienced the same drought weeks per year with no reported damage, and no deaths or injuries as well.

Future Probability

Table 20 shows that future drought events are very high with more than 1,000% chance of occurring in any given year. However, the consequences based on damages are low (see Loss Information Section).

Table 20: Drought Historical and Recent Hazards Events by Drought Week 2000-2019

	Total Number	Years in Data Record	Annualized Count	Recurrence Frequency (in years)	Future Probability (% chance/year)	Total Number 2012-2019
Beaufort County	342	20	17.1	0.06	1,710%	107
City of Beaufort	342	20	17.1	0.06	1,710%	107
Town of Bluffton	342	20	17.1	0.06	1,710%	107
Town of Hilton Head Island	342	20	17.1	0.06	1,710%	107
Town of Port Royal	342	20	17.1	0.06	1,710%	107
Colleton County	352	20	17.6	0.06	1,760%	108
Town of Cottageville	352	20	17.6	0.06	1,760%	108
Town of Edisto Beach	352	20	17.6	0.06	1,760%	108
Town of Lodge	352	20	17.6	0.06	1,760%	108
Town of Smoaks	352	20	17.6	0.06	1,760%	108
City of Walterboro	352	20	17.6	0.06	1,760%	108
Town of Williams	352	20	17.6	0.06	1,760%	108
Hampton County	406	20	20.3	0.05	2,030%	133
Town of Brunson	406	20	20.3	0.05	2,030%	133
Town of Estill	406	20	20.3	0.05	2,030%	133
Town of Furman	406	20	20.3	0.05	2,030%	133
Town of Gifford	406	20	20.3	0.05	2,030%	133
Town of Hampton	406	20	20.3	0.05	2,030%	133
Town of Luray	406	20	20.3	0.05	2,030%	133
Town of Scotia	406	20	20.3	0.05	2,030%	133
Town of Varnville	406	20	20.3	0.05	2,030%	133
Town of Yemassee	406	20	20.3	0.05	2,030%	133
Jasper County	396	20	19.8	0.05	1,980%	132
City of Hardeeville	396	20	19.8	0.05	1,980%	132
Town of Ridgeland	396	20	19.8	0.05	1,980%	132

Source: Hazards and Vulnerability Research Institute (HVRI)

3.8 EARTHQUAKE

Characteristics and Classification

Earthquakes typically occur near tectonic plate boundaries but can occur in the middle of plates. South Carolina is located in the interior of the North American plate and does not have an active plate boundary nearby. However, the energy released from the sudden displacement of rock in the Earth's crust can occur in weak spots along known faults and fault systems or inferred faults.

Earthquakes vary in magnitude and intensity. Two different scales are used to describe the physical force of the earthquake or the amount of energy released by measuring the amplitude of the shock waves.

- The Moment Magnitude scale is an instrument-based measurement of the physical force of the earthquake measured by the amplitude of the shock waves.
- The Modified Mercalli Intensity scale measuring the impacts that do not have a mathematical basis; instead, it is a ranking based on observed effects. According to U.S. Geological Survey (USGS) (2020a), the lower numbers of the intensity scale generally deal with the way the earthquake is felt by people. The higher numbers of the scale are based on observed structural damage as shown in Table 21.

There are multiple effects associated with the release of energy waves from earthquakes, first *shaking the ground side to side and then up and down*. These waves can cause destruction on the surface from the shaking. After these primary effects, secondary effects are possible, and can be just as destructive in certain case. These secondary effects include:

- *Aftershocks*: Aftershocks are tremors that follow the original event and are often smaller. They can happen for weeks to years after the event. The larger the original event, the stronger the aftershocks can be and the longer they can persist.
- *Soil Liquefaction*: Liquefaction occurs when the movement of earth forces water into the soil around structures, making the very ground behave more like a liquid than a solid. This can cause the foundation of structures to sink or shift. The occurrence of liquefaction depends on several factors like soil type, soil saturation, and shaking characteristics.
- *Fires*: The movement of earth can cause gas line ruptures and can snap powerlines creating fire-prone environments. At the same time, waterlines might break making it more difficult to put out any fires occur (SCEMD, 2020b).
- *Landslides*: One of the triggers for landslide occurrence is earthquake. Landslides are mass movement of soil and might include rock falls that can cause significant damage.

Table 21: Earthquake Intensity Description

Intensity	Shaking	Description/Damage
I	Not felt	Not felt except by a very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Very strong	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Severe	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX	Violent	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

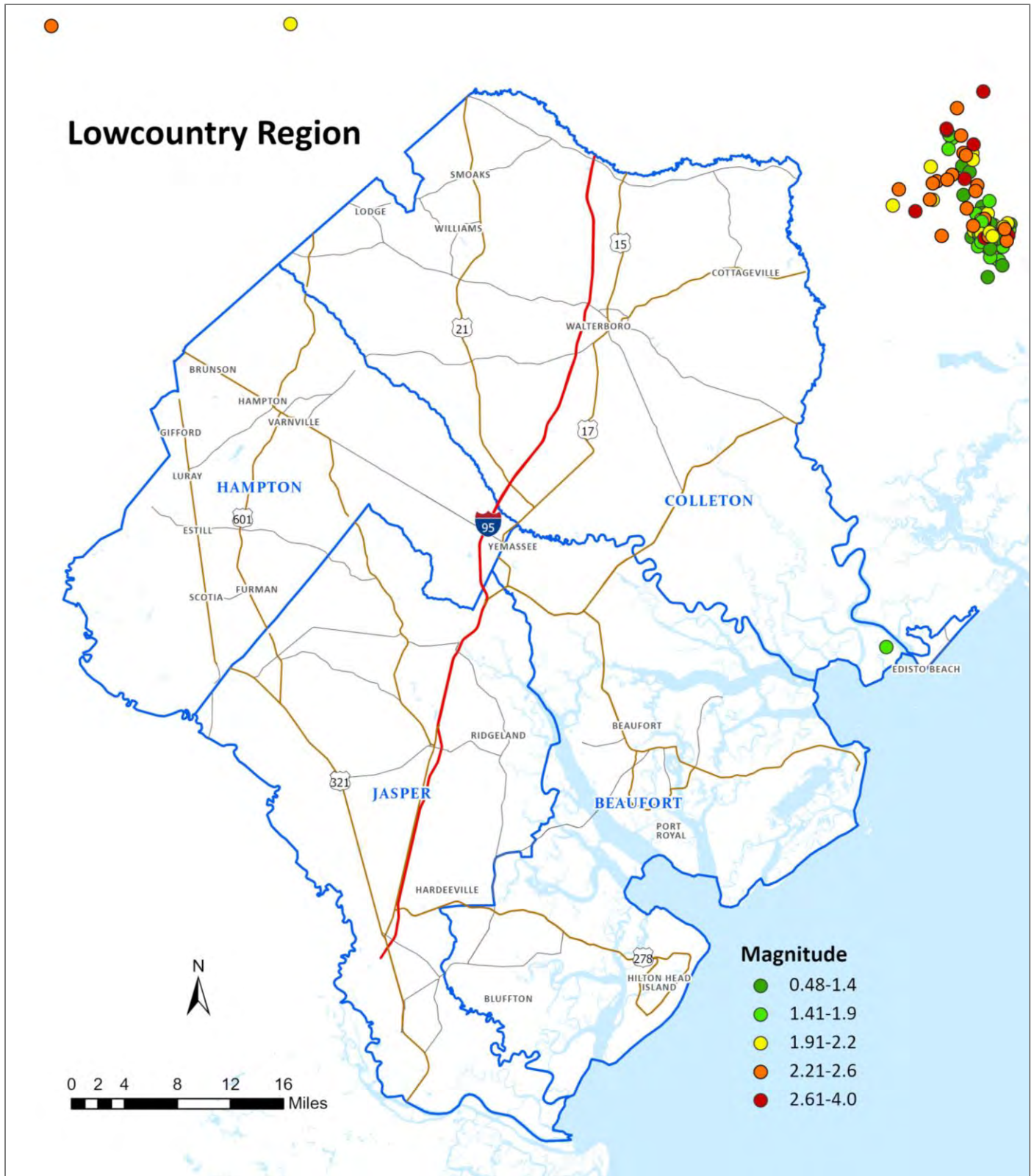
Note: Abbreviated description of the levels of modified Mercalli intensity.

Source: US Geological Survey (USGS)

Location and Extent

Earthquakes are low probability events in South Carolina and rarely felt. However, the August 31, 1886 Charleston Earthquake is notable because of its intensity (intensity X on the Modified Mercalli Scale). According to the State Hazard Mitigation Plan, earthquakes such as the 1886 Charleston event have a frequency of occurrence on the order of 400-500 years. Other evidence suggests that places near Bluffton may have occurrences in the range of every 2000 years (SCEMD 2018). Given evidence of prior large events in the Lowcountry, it appears that any given year has about a 1/400 chance of a large earthquake event. Figure 22 illustrates the earthquake events in the Lowcountry region and nearby area.

Figure 22: Recent Earthquakes near the Lowcountry Region 2000-2019



Source: Hazards and Vulnerability Research Institute (HVRI)

Beaufort County

There was no record of earthquake events in the recent period (2000-2019).

City of Beaufort and Towns of Bluffton, Hilton head Island, and Port Royal

- There was no record of earthquake events in the recent period (2000-2019).

Colleton County

There was no record of earthquake events in the recent period (2000-2019).

Town of Edisto Beach

- Between 2000-2019, the earthquake event occurred in the Town of Edisto Beach with 1.88 magnitude. No damage was reported.

City of Walterboro and Towns of Cottageville, Lodge, Smoaks, and Williams

- There was no record of earthquake events in the recent period (2000-2019).

Hampton County

There was no record of earthquake events in the recent period (2000-2019).

Towns of Brunson, Estill, Furman, Gifford, Hampton, Luray, Scotia, Varnville, and Yemassee

- There was no record of earthquake events in the recent period (2000-2019).

Jasper County

There was no record of earthquake events in the recent period (2000-2019).

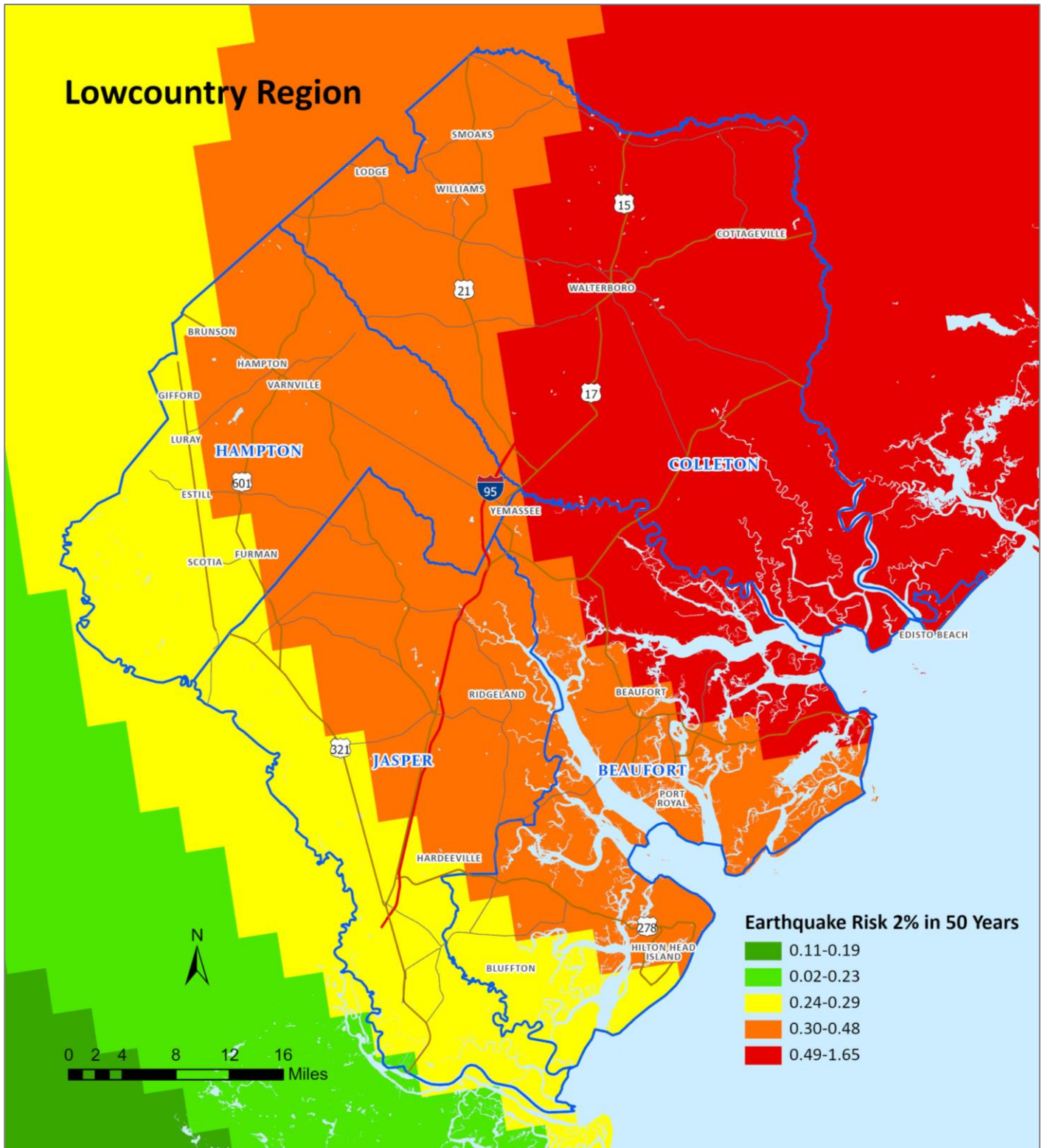
City of Hardeeville and Town of Ridgeland

- There was no record of earthquake events in the recent period (2000-2019).

Future Probability

For the Lowcountry region, there is a potential for liquefaction and tsunami activity from localized earthquakes. The U.S. Geological Survey provides probability maps of potential earthquake risk. Potential earthquake risk using peak ground acceleration (PGA) shows the amount of ground motion expected with a 2% probability of being exceeded in 50 years. The highest hazard areas are color coded red, with the lowest hazard areas in blue. The Lowcountry counties range from red to yellow showing a moderate to high hazard potential (Figure 23). In addition, according to SCEMD (n.d.), most of the Lowcountry area east of Interstate 95 has a high potential for liquefaction (Figure 24).

Figure 23: Earthquake Risk – Peak Ground Acceleration of 2% in 50 Years



Source: Hazards and Vulnerability Research Institute (HVRI)

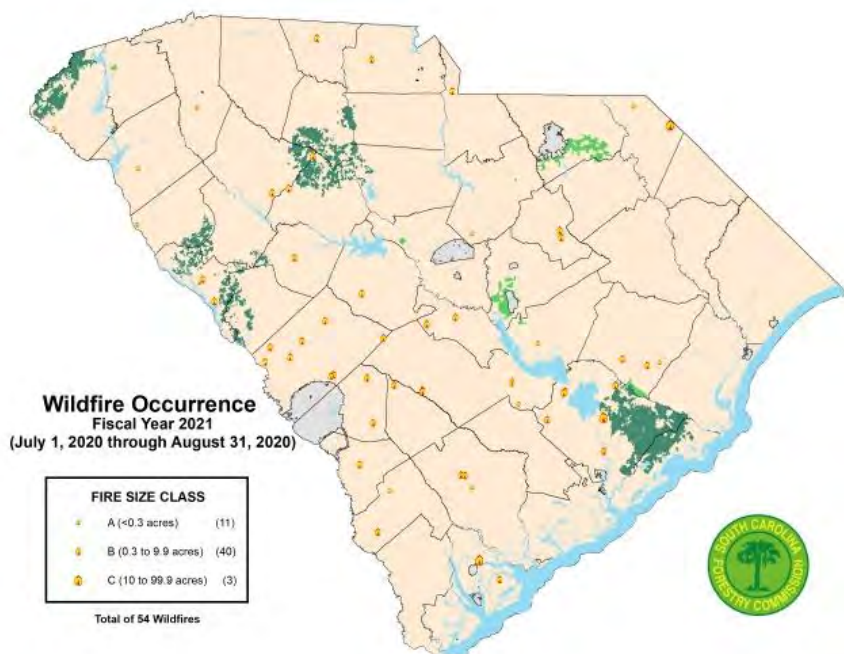
Figure 24: Geologic Hazards of South Carolina – Liquefaction Potential



Source: SC Emergency Management Division (SCEMD)

3.9 WILDFIRE

Characteristics and Classification



According to the South Carolina Forestry Commission (SCFC) (2020), a wildfire includes any outdoor fire that is not controlled and supervised. Wildfires damage forests, natural habitats, water quality, and air quality. The state's fire season extends from winter to early spring when the vegetation is dormant and dry.

Wildfires have several origins, some natural and some human. They spread faster with dry and windy conditions, burning fuels that include trees, brush, pine straw, and grasses. The causes identified by the SCFC are below (SCFC, 2020).

- **Debris Burning:** Any fire that escapes a planned setting falls into this category. This includes burning trash and prescribed burns. These account for 35% to 45% of South Carolina wildfires.
- **Woods Arson:** Fires that are set to one's property without their permission, regardless of intent. Arson accounts for 25% to 30% of South Carolina wildfires.
- **Equipment Use:** Fires started inadvertently with farm equipment or automobiles account for 5% of South Carolina wildfires.
- **Children:** Children's actions, including playing with fireworks, matches, and lighters cause 3% to 5% of South Carolina wildfires.
- **Smoking:** Although difficult to verify, careless smoking practices cause an estimated 3% to 4% of South Carolina wildfires, mostly along roadways.
- **Campfires:** Campfires make up 1% to 3% of wildfires. Most campfires are in the summer, when lush vegetation makes growth fire-resistant, which explains the low number.
- **Lightning:** Usually joined by rain and already humid summer conditions, lightning rarely spark wildfires. Lightning causes only 2% of South Carolina wildfires.
- **Railroad:** Given changes in engine technology, these types of wildfires are less common. Fires originate from sparks via braking or carbon build-up in the engines. These account for 1% to 2% of South Carolina's wildfires.
- **Miscellaneous:** This category catches all other wildfires, including accidental fires via fireworks, structural fires that light brush afire, and unattended warming fires. This category accounts for 4% to 6% of wildfires.

Location and Extent

Since 2005, over 3,300 wildfires occurred in the Lowcountry region. Nearly 40% of these were in Colleton County (Table 22). One of the most notable recent fires was on January 15, 2011. Persistent dry conditions across southern South Carolina gave rise to wildfires near Beaufort County, with damages totaling \$1.12 million.

Table 22: Wildfire Events 2005-2019 by Acres Burned

	Number Small Wildfires (burn < 15.5 acres)	Number Medium Wildfires (burn 15.5-32.8 acres)	Number Large Wildfires (burn > 32.8 acres)
Beaufort County	372	18	8
Colleton County	1,204	76	59
Hampton County	564	26	29
Jasper County	864	41	56
Total	3,004	161	152

Source: SC Forestry Commission (SCFC)

Beaufort County

With a moderate risk of wildfire events, Beaufort County had 398 wildfires between 2005-2019. The majority of events (93.5%) are small-sized fires (less than 15.5 acres), 4.5% are medium (15.5-32.8 acres), and 2% are large (more than 32.8 acres). Between 2012-2019, the large annual wildfires concentrated in the northern part of the county.

Colleton County

The county has the highest risk of wildfire events. Between 2005-2019, there has been 1,339 wildfires in the county where 90% are small-sized fires (less than 15.5 acres), 5.6% are medium (15.5-32.8 acres), and 4.4% are large wildfires (more than 32.8 acres). Recently, large annual wildfires concentrated in the northern Colleton County, especially in the City of Walterboro and the Town of Smoaks.

Hampton County

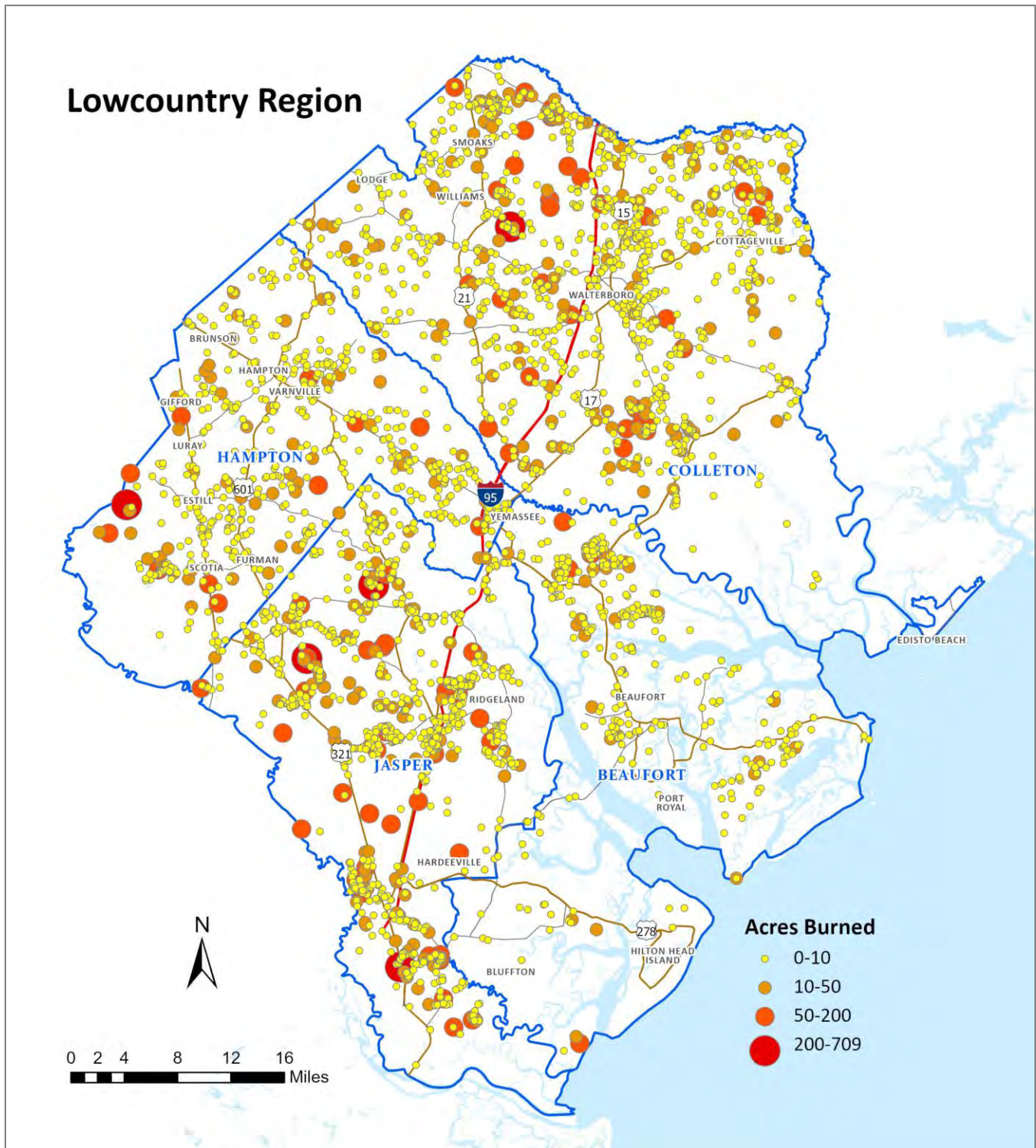
Hampton County has a high risk of wildfire events. Between 2005-2019, there has been 619 wildfires in the county where 91.1% are small-sized fires (less than 15.5 acres), 4.2% are medium (15.5-32.8 acres), and 4.7% are large wildfires (more than 32.8 acres). Recently, large annual wildfires concentrated are in the area of the Towns of Estill, Scotia, and Varnville.

Jasper County

The county has a high risk of wildfire events. Between 2005-2019, there have been 961 wildfires in the county where 89.9% are small-sized fires (less than 15.5 acres), 4.3% are medium (15.5-32.8 acres), and 5.8% are large wildfires (more than 32.8 acres). Recently, both the City of Hardeeville and the Town of Ridgeland have had the concentration of annual wildfires.

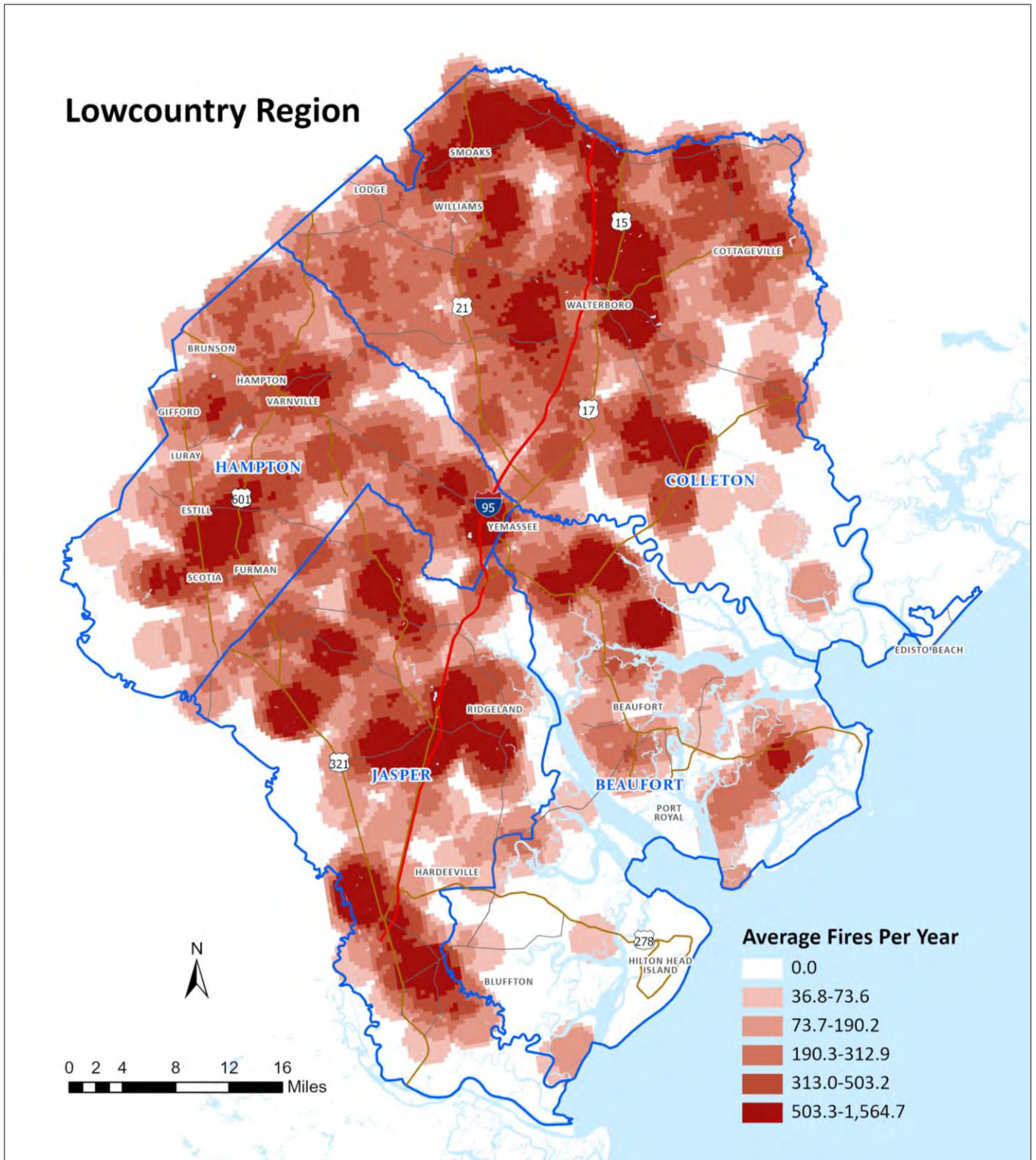
The location of the fires by size shows the inland area at higher risk from the immediate coastline (Figure 25). This pattern is highlighted even more in the recent period (2012-2019) showing a large annual concentrated occurrence of wildfires in northern Colleton County, with smaller concentrations in the other three counties (Figure 26).

Figure 25: Wildfire Locations 2012-2019



Source: Hazards and Vulnerability Research Institute (HVRI); South Carolina Forestry Commission (SCFC)

Figure 26: Annual Wildfire Risk 2012-2019



Source: Hazards and Vulnerability Research Institute (HVRI); South Carolina Forestry Commission (SCFC)

Future Probability

Table 20 shows that the future probability of wildfire events is very high particularly in Colleton and Jasper Counties, with more than 10,000% chance of occurring in any given year.

Table 23: Wildfire Historical and Recent Hazards Events 1988-2019

	Total Number	Years in Data Record	Annualized Count	Recurrence Frequency (in years)	Future Probability (% chance/year)	Total Number 2012-2019
Beaufort County	1,728	32	54	0.02	5,400%	137
City of Beaufort	n/a	32	n/a	n/a	n/a	n/a
Town of Bluffton	n/a	32	n/a	n/a	n/a	n/a
Town of Hilton Head Island	n/a	32	n/a	n/a	n/a	n/a
Town of Port Royal	n/a	32	n/a	n/a	n/a	n/a
Colleton County	4,910	32	153.4	0.01	15,344%	607
Town of Cottageville	n/a	32	n/a	n/a	n/a	n/a
Town of Edisto Beach	n/a	32	n/a	n/a	n/a	n/a
Town of Lodge	n/a	32	n/a	n/a	n/a	n/a
Town of Smoaks	n/a	32	n/a	n/a	n/a	n/a
City of Walterboro	n/a	32	n/a	n/a	n/a	n/a
Town of Williams	n/a	32	n/a	n/a	n/a	n/a
Hampton County	2,075	32	64.8	0.02	6,484%	268
Town of Brunson	n/a	32	n/a	n/a	n/a	n/a
Town of Estill	n/a	32	n/a	n/a	n/a	n/a
Town of Furman	n/a	32	n/a	n/a	n/a	n/a
Town of Gifford	n/a	32	n/a	n/a	n/a	n/a
Town of Hampton	n/a	32	n/a	n/a	n/a	n/a
Town of Luray	n/a	32	n/a	n/a	n/a	n/a
Town of Scotia	n/a	32	n/a	n/a	n/a	n/a
Town of Varnville	n/a	32	n/a	n/a	n/a	n/a
Town of Yemassee	n/a	32	n/a	n/a	n/a	n/a
Jasper County	3,771	32	117.8	0.01	11,784%	387
City of Hardeeville	n/a	32	n/a	n/a	n/a	n/a
Town of Ridgeland	n/a	32	n/a	n/a	n/a	n/a

Note: Data are not available in municipality level.

Source: Hazards Vulnerability and Research Institute (HVRI) and South Carolina Forestry Commission

3.10 FLOOD

Characteristics and Classification

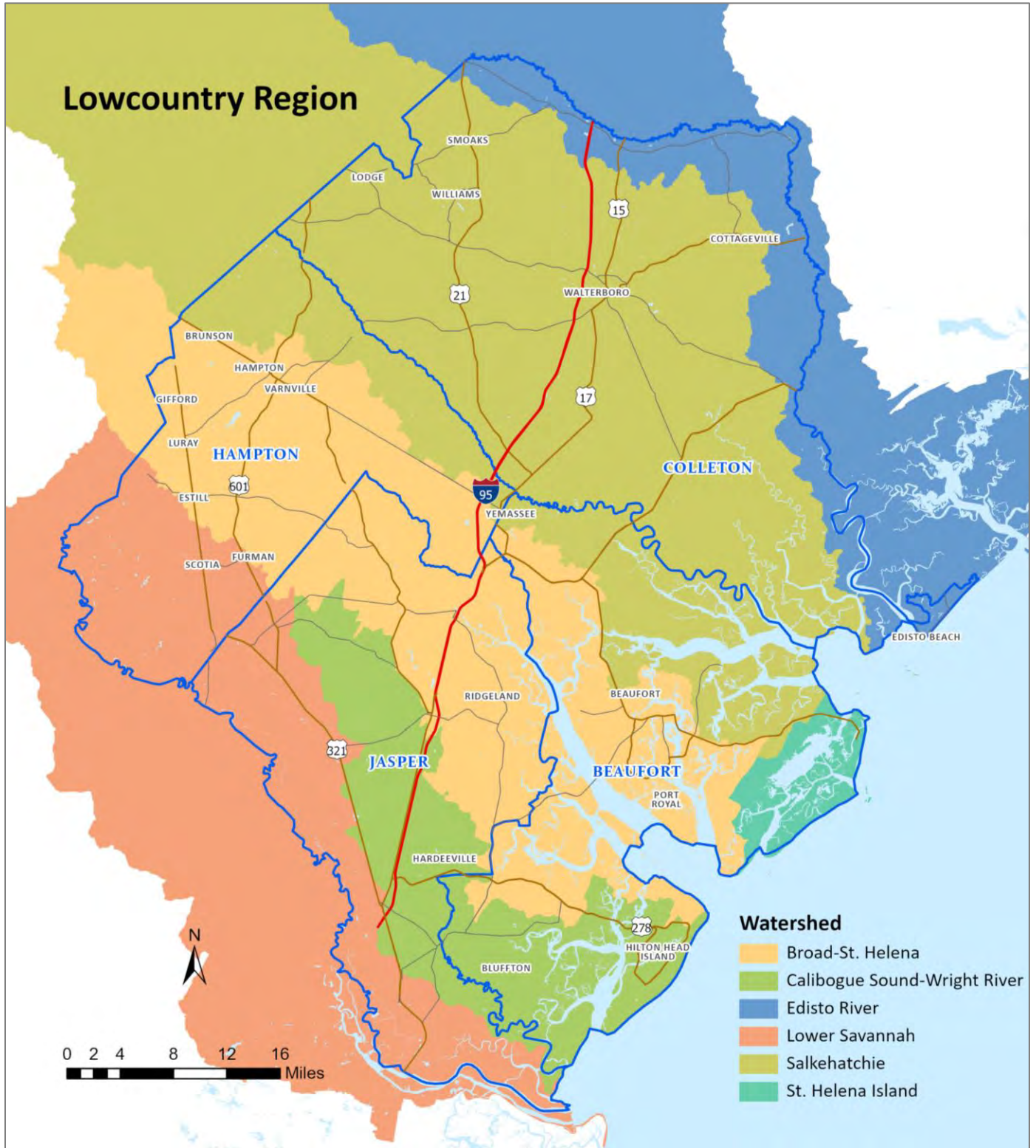
Flooding occurs when water flows or collects in areas that are usually dry. This can happen because of heavy rain, snow melt, high tides, dam breaks, etc. Floods can be for short duration or last weeks, and they can be a few inches or the height of houses. Floods claim more lives in the U.S. than tornadoes, hurricanes, or lightning. Moreover, flooding is the most expensive natural disaster, costing \$5 billion on average every year (NSSL, 2020c). Given the Lowcountry's position in the low-lying coastal plains of South Carolina, not only is there a risk from riverine flooding from the lower Savannah River and ACE Basin (Ashepoo, Combahee, and Edisto) as rivers and their tributaries make their way to the Atlantic (Figure 27), but the region is also at increased risk for coastal flooding, storm surges, and tidal (King Tides) flooding.

There are two general types flooding—general flooding where flooding occurs over several days, and flash flooding where floodwaters rise quickly within minutes to hours and then quickly dissipate. According to the 2018 South Carolina Hazards Mitigation Plan (SCEMD, 2018), examples of flash flood types include urban, dam/levee failures, and debris/ice jams. General floods include riverine, coastal, and local drainage. The following flood types predominate in the Lowcountry.

- *River (or riverine) Flood:* Also called overbank flooding, this type of flooding occurs when water levels in a river exceed the rivers defined banks and spill over into the surrounding floodplain.
- *Coastal Flood:* This type of flooding is the product of a several factors. When coastal waters are higher-than-high tide, those waters can swell onto low-lying areas, and it can get worse by rainfall or winds pushing water onshore. King tides are abnormally high tides that occur when the moon, earth, and sun align, and the moon is at its closest position to earth. These events occasionally generate coastal flooding and can be exacerbated by wind and rain. Sea level rise means these events will happen more frequently (City of Charleston, 2020).
- *Local Drainage Flooding:* Local drainage problems frequently occur in low-lying flat areas where normal drainage patterns become disrupted by lack of maintenance of channels or culverts, lower capacity storm sewer systems, or other types of blockages.
- *Flash Flood:* Flash flood events are rapid onset events usually the result of intense rainfall occurring in a short time span, typically less than 6 hours. Urbanized areas contribute to flash flooding due to the number of impervious surfaces (roads, parking lots, streets) that prevent the rainfall from being absorbed by the soil. The runoff moves quickly over the paved surfaces increasing the likelihood of flash flooding especially in lower-lying areas such as road or rail underpasses.

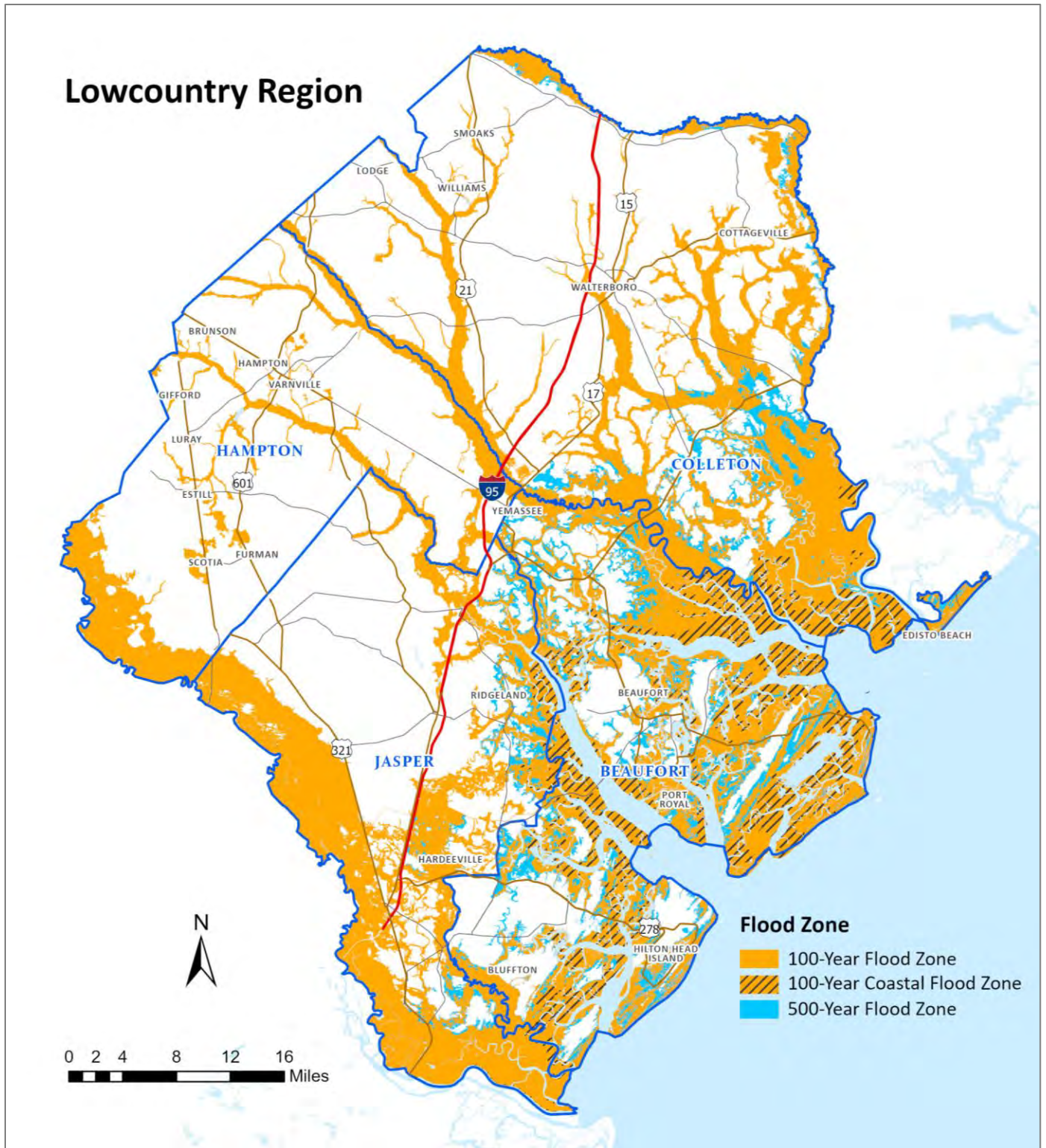
Flooding is a major hazard threat in the Lowcountry region as it combines both coastal flood hazards and riverine flood hazards. Approximately 41% of the land area in the four-county region lies within FEMA's regulated flood zone (Special Flood Hazard Area of SFHA, commonly known as the 100-year flood zone). Within the SFHA, 9% of the land area is in the VE zone and subject to wave action greater than 3 feet. The VE zone represents the highest flood risk potential. The SFHA has a one percent probability of occurring in any given year, while the 500-year flood hazard has a 0.2% probability (Figure 28). Approximately 4.6% of the Lowcountry land area lies within the 500-year flood zone. Coastal flood hazard areas (shown in the crosshatch pattern in Figure 28) include VE zones, coastal AE zones with wave heights from 1.5-3 feet, and AE zones designated as Limit of Moderate Wave Action (LiMWA) with wave heights less than 1.5 feet (FEMA, 2020c). Figure 29 illustrates the coastal flood hazard layers. More details on definition of flood zone can be seen in Appendix F.

Figure 27: Drainage Areas – Watershed



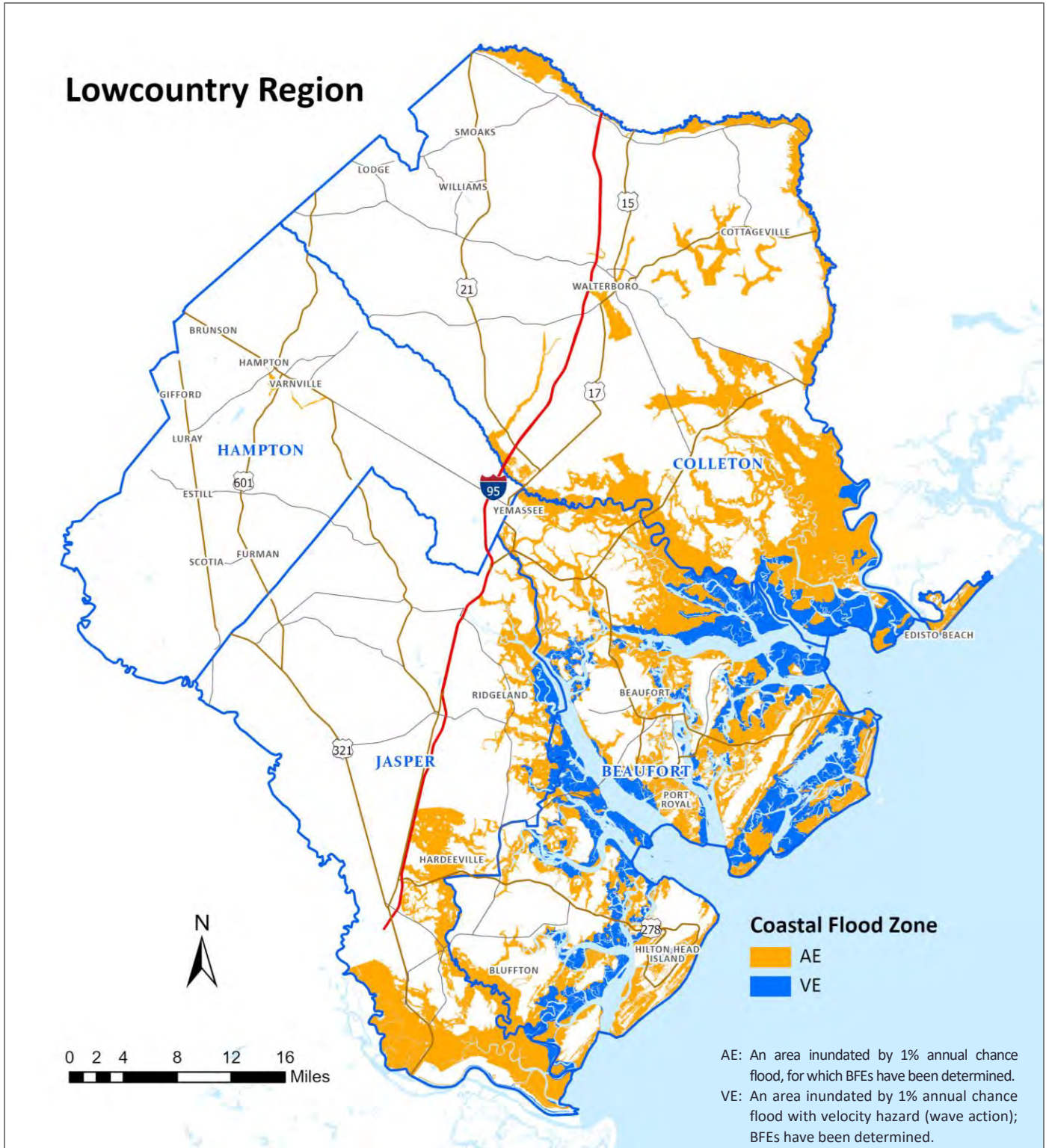
Source: US Geological Survey (USGS), Watershed Basin Dataset

Figure 28: FEMA-Designated Flood Zones



Source: Hazards and Vulnerability Research Institute (HVRI); National Flood Insurance Program

Figure 29: FEMA-Designated Coastal Flood Zones

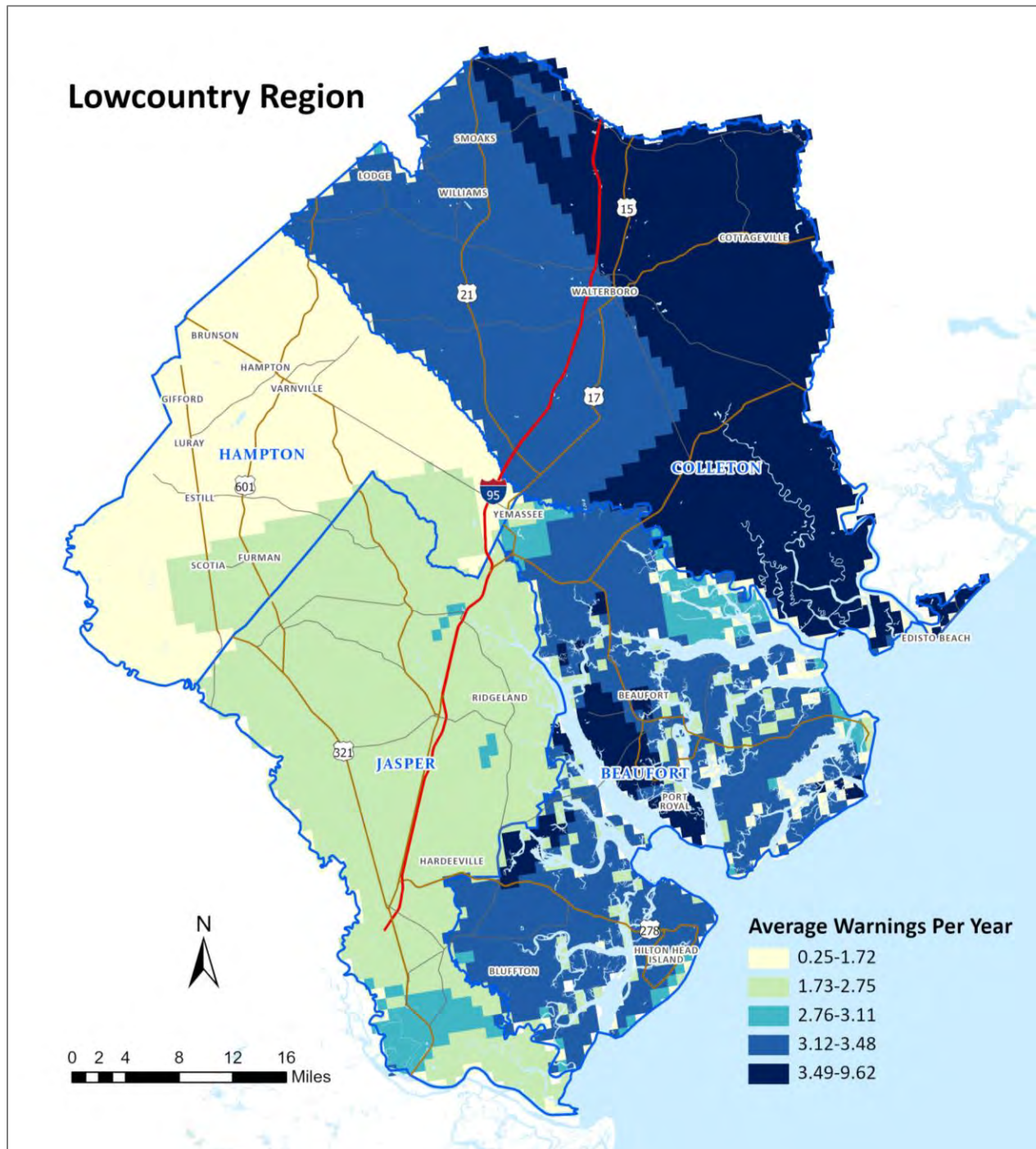


Source: Hazards and Vulnerability Research Institute (HVRI); National Flood Insurance Program

Flash Flooding

Because of the rapidity of occurrence and the localized conditions that are quite variable, one way of determining flash flooding is to use National Weather Service flash flood guidance which shows the geographic distribution of the potential risk. As shown in Figure 30, most of the Lowcountry averages around 3 flash flood warnings per year, but major sections of Beaufort County and eastern Colleton show higher than average warnings per year suggesting a slightly higher risk level for flash flooding.

Figure 30: Flash Flood Warnings 2012-2019

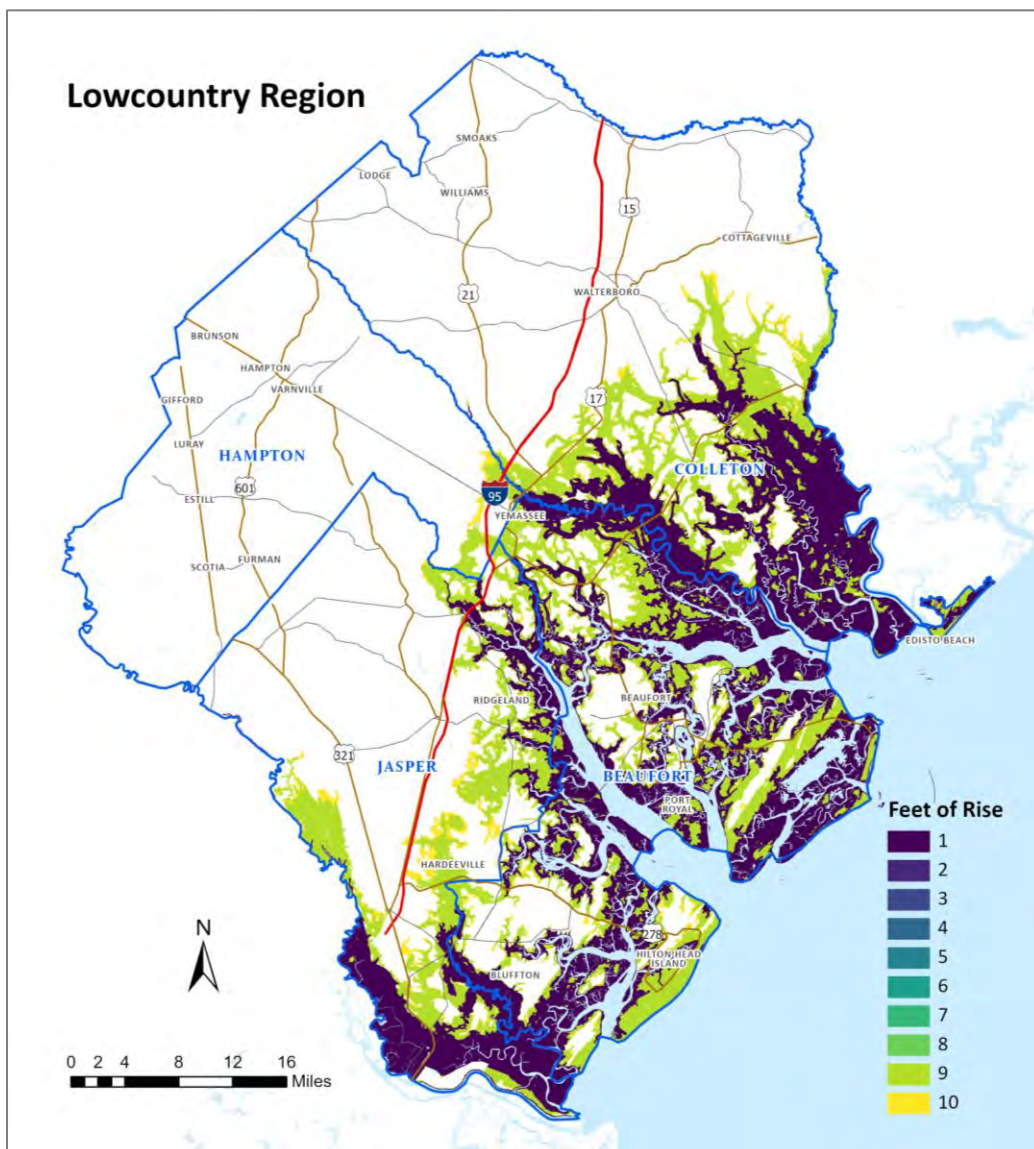


Source: Hazards and Vulnerability Research Institute (HVRI); National Weather Service, Iowa Environmental Mesonet

Sea Level Rise

Given the Lowcountry's position on the Atlantic Coast, the Lowcountry is at special risk for sea level rise. The rate of sea level rise is very likely to be higher in the remainder of the 21st century than it was in the last 50 years. The Fort Pulaski (Georgia) station, NOAA's water level station, has recorded sea level since 1935, and in this period, the mean sea level has increased at a rate of about 1.09 feet per 100 years (NOAA, 2020). Sea level rise threatens infrastructure like buildings, power plants, roads, and railways. The encroaching saltwater can poison freshwater habitats and agricultural water supplies. It also means that storm surge and coastal flooding will be more severe and more frequent. Approximately 22% of the Lowcountry's land area is subject to one to two feet of inundation from sea level rise. Using 2018 population estimates from the American Community Survey, roughly 68,000 people live in the potential inundation areas (Census block groups where more than 50.1% of the land area would be covered) by a one-to-two-foot rise in sea levels, or 25% of the region's population (Figure 31).

Figure 31: Sea Level Rise Impact



Source: Hazards and Vulnerability Research Institute (HVRI); NOAA Sea Level Rise Viewer

Location and Extent

Since 2012, there have been 67 flood events recorded from 2012-2019 (NCEI 2020a). The majority of these were listed as flash flood events. Beaufort County experienced the most flooding (primarily coastal), followed by Colleton County, with an even distribution of flood types (Table 24).

Table 24: Recent Flood Types 2012-2019

County	Flood	Flash Flood	Coastal Flood
Beaufort	-	5	17
Colleton	6	7	6
Hampton	-	13	-
Jasper	-	13	-
Total	6	38	23

Source: NCEI, 2020a

During the time leading up to Hurricane Joaquin (October 3-5, 2015) the state received up to 20 inches of rain in 4 days, spurring both flash and coastal floods. Damaged infrastructure, businesses and homes took months to repair.

Beaufort County

There have been 22 flood events recorded from 2012-2019 in the county. These events consisted primarily of coastal floods. Total damage of \$10,607 was reported. Below are some notable events.

- July 21, 2014: Areas of numerous to widespread showers and thunderstorms developed in the afternoon hours and anchored along the southeast South Carolina coast and produced flash flooding in Beaufort County.
- October 27 and 28 2015: Major coastal flood stage levels were recorded at the Charleston Harbor (CHTS1) tide gauge. This impacted the county coastal area. Law enforcement and park services indicated road closures on Dockside Road, Yacht Club Road, Scott Creek Road, Jungle Shores Drive and Palmetto Boulevard near the entrance of Edisto Beach State Park. A flood berm along Palmetto Boulevard was also reported destroyed and water was under beach homes. Twenty structures sustained flood damage, including two businesses and 18 homes. Also, several roads flooded, and water was around some homes.
- August 29, 2019: There were a few days of moderate to major coastal flooding during high tide cycles near the Southeast South Carolina coast. There was a report that a boat ramp on Bay Street and a boat ramp near Pigeon Park flooded.

Town of Hilton Head Island

- July 21, 2014: A flash flood causing a vehicle stalled in three feet of water on North Calibogue Cay Road. An estimated six inches of water in a foyer and a completely flooded elevator shaft in a building along Lighthouse Road was reported.
- October 8, 2016: A local newspaper showed video at the Tabby Walk Villas on Hilton Head Island flooded with an unknown depth of water entering first floor units. A portion of Fort Walker Drive was also undermined and completely collapsed during heavy rain associated with Hurricane Matthew.

City of Beaufort and Towns of Bluffton and Port Royal

- There was no record of flood events in the city and towns between 2012-2019.

Colleton County

There have been 19 flood events recorded from 2012-2019 in the county. The damage totaled over \$2.15 million. The flood risk map of Colleton County and all jurisdictions are shown in Figure 32. The notable events include:

- July 11, 2013: Thunderstorms popped up in the afternoon, producing heavy rain over a short period of time. A roadway collapse on Carters Ford Road due to flash flooding was reported. The damage of \$20,000 was also reported.
- October 3, 2015: Flash flooding was prevalent for several days. The most significant flooding occurred in areas along and near smaller creeks. An emergency manager reported a few roads near Walterboro closed due to flooding. Roads closed due to flooding included but are not limited to Cane Branch Road and Ruffin Road at a railroad crossing. Dodge Lane was also washed out due to flooding. The damage totaled \$1.5 million.

Town of Cottageville

- July 12, 2013: Ongoing thunderstorms with near two inches of rain continued throughout the night causing area flooding. Happiness Lane was impassable due to the Edisto River flood.
- October 5, 2015: An emergency manager reported several roads closed due to rising river levels on the Edisto River. Roads closed included Long Creek Landing Road, Good Hope Landing Lane, Ladolce Lane, Pierce Road and the end of Lakeview Lane.

Town of Edisto Beach

- October 14, 2016: Strong wind and long fetch over coastal waters produced a series of elevated tides and shallow coastal flooding along coastal areas. Law enforcement reported saltwater up to and beginning to flow under damaged homes on Palmetto Boulevard. Water did not reach the road.
- August 29, 2019: A few days of moderate to major coastal flooding during high tide cycles flooded Dockside Road. Water was several inches deep inside the building.

City of Walterboro

- October 3, 2015: Flash flooding was prevalent for several days. Law enforcement reported Ivanhoe Road closed between Forest Hill Road and West Washington Street due to flooding. The damage totaled \$507,720 thousand.

Towns of Lodge and Smoaks

- There was no record of flood events in the recent year (2012-2019).

Hampton County

Between 2012-2019, there have been 13 flood events in the county causing a light damage of \$7,545 reported. The notable events include:

- June 4, 2013: Severe thunderstorm produced heavy rain over a short period of time across the county. The estimated five inches of rain had already fallen since midafternoon. Many farm fields in Valentine completely flooded.
- July 11, 2013: Numerous thunderstorms popped up in the afternoon producing heavy rain over a short period of time. Several roads in Nixville were closed due to flash flooding.
- October 8, 2018: Heavy rains from passing Hurricane Matthew resulted in two sections of Pocatoligo Road being washed out where water was overflowing from Buckfield Pont into the Tulifiny River. A section of Pocaligo Road was also washed out near the Vizsla Loop.

Town of Brunson

- July 11, 2013: Numerous thunderstorms popped up in the afternoon producing heavy rain over a short period of time. Several road closures were reported closed due to flash flooding. Light damage was reported.

Town of Estill

- June 4, 2013: Severe thunderstorm produced heavy rain over a short period of time. Significant standing water along Jackson Street and surrounding yards were reported. No damage was reported.

Town of Furman

- June 6, 2016: Heavy rain associated with the Tropical Storm Colin caused a roadway washout near the intersection of Town Hall Road and Highway 601. No damage was reported.

Town of Hampton

- August 19, 2013: Numerous showers and thunderstorms developed across the region. Law enforcement reports that portions of Highway 278 were closed due to flash flooding. Several side streets off of Highway 278 were closed including Willard, 3rd, 5th, and Holly. Also, Highway 363 and Wade Hampton were closed as well as Highway 601 and Magnolia. No damage was reported.

Town of Luray

- July 11, 2013: Numerous thunderstorms popped up in the afternoon producing heavy rain over a short period of time. Several road closures were reported closed due to flash flooding. Light damage was reported.

Town of Varnville

- July 11, 2013: Numerous thunderstorms popped up in the afternoon producing heavy rain over a short period of time. Dennis Boulevard, Maple Street, Main Street and several others were flooded and closed. Light damage was reported.

Towns of Gifford, Scotia, and Yemassee

- There was no record of flood events in recent years (2012-2019).

Jasper County

There have been 13 flood events in the county between 2012-2019. These resulted in \$35,443 in financial loss. The notable events include:

- May 29, 2016: A Tropical Storm Bonnie impacted across portions of southeast South Carolina and southeast Georgia. The storm totaled rainfall amounts of six to ten inches in many areas and resulted in flash flooding in Jasper County. There was significant flooding ongoing on Interstate 95 near mile marker 22. Both the northbound and southbound lanes are closed and completely impassable. Highway 17 was also flooded near Interstate 95 and a gas station had an unknown amount of water in the building. A few cars were submerged in the flood waters on both Interstate 95 and Highway 17. Interstate 95 was closed between exit 18 and exit 24 for almost 24 hours. The damage totaled \$10,000.
- September 11, 2017: The widespread heavy rain associated with Hurricane Irma resulted in several reports of flash flooding with water entering homes and businesses. Jasper County Emergency Management reported homes flooded and inaccessible on Cherry Hill Road near the intersection with Highway 462. At least one person was stranded and in need of rescue. The damage totaled \$25,000.

City of Hardeeville

- There was no record of flood event in the city between 2012-2019.

Town of Ridgeland

- May 29, 2016: Tropical Storm Bonnie impacted many areas and resulted in flash flooding. Main Road in Ridgeland was flooded and closed. Also, numerous secondary roads flooded or closed including portions of Calf Pen Bay Road, Captain Bill Road, Frontage Road, and Great Swamp Road. There was about six inches of water in a residence on Captain Bill Road. Also, water was entering a home on Brandon Cove.

Future Probability

The future probability of flood events is high particularly in Beaufort County, with more than 100% chance of occurring in any given year (Table 25). The recent impact from flooding can be seen in the Loss Section.

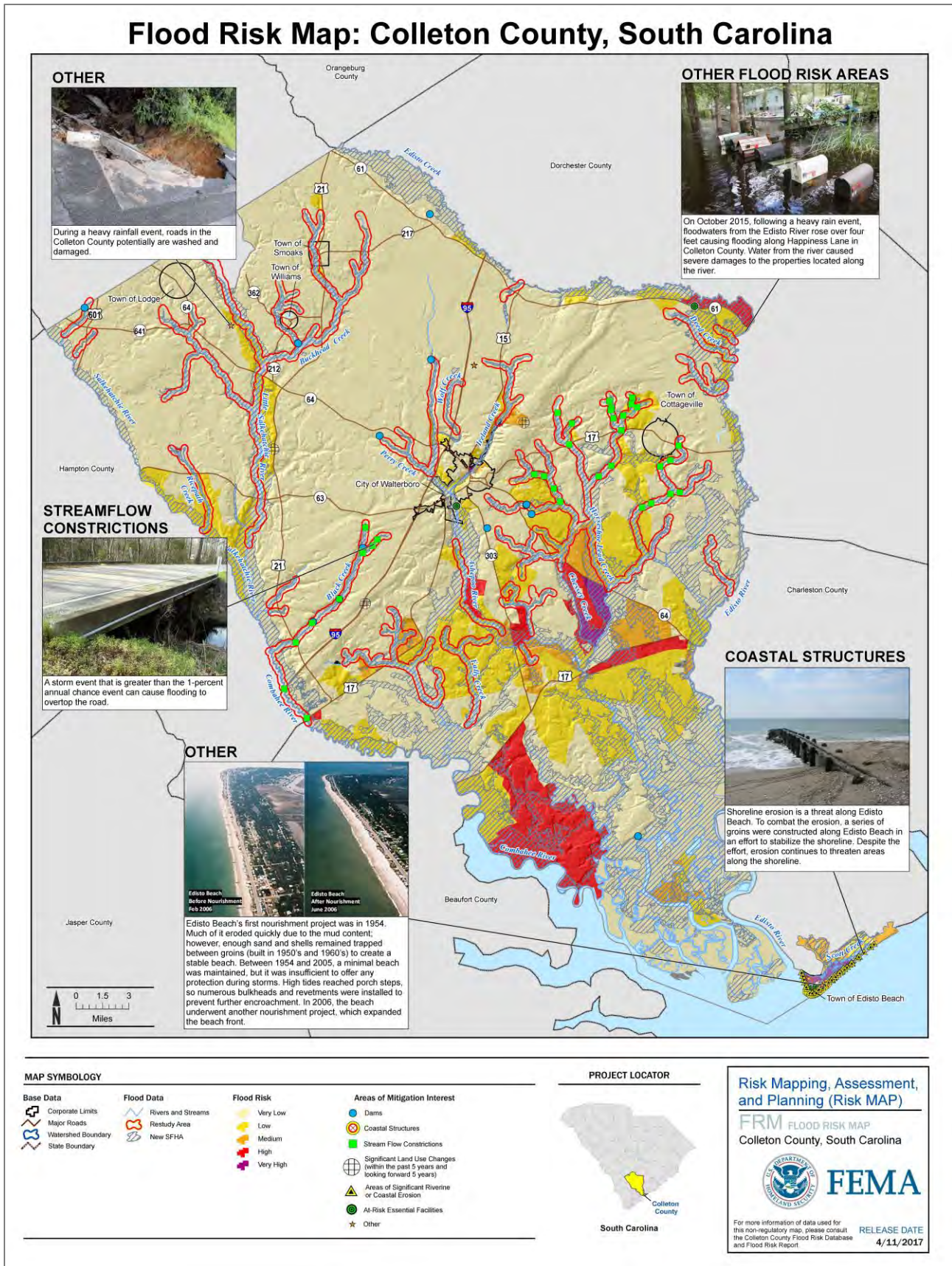
Table 25: Flooding Historical and Recent Hazards Events 1996-2019

	Total Number	Years in Data Record	Annualized Count	Recurrence Frequency (in years)	Future Probability (% chance/year)	Total Number 2012-2019
Beaufort County	32	24	1.3	0.75	133%	22
City of Beaufort	4	24	0.2	6.00	17%	0
Town of Bluffton	5	24	0.2	4.80	21%	0
Town of Hilton Head Island	5	24	0.2	4.80	21%	1
Town of Port Royal	1	24	0.0	24.00	4%	0
Colleton County	23	24	1.0	1.04	96%	19
Town of Cottageville	1	24	0.0	24.00	4%	2
Town of Edisto Beach	0	24	0.0	*	*	5
Town of Lodge	0	24	0.0	*	*	0
Town of Smoaks	0	24	0.0	*	*	0
City of Walterboro	2	24	0.1	12.00	8%	1
Town of Williams	0	24	0.0	*	*	0
Hampton County	8	24	0.3	3.00	33%	13
Town of Brunson	1	24	0.0	24.00	4%	1
Town of Estill	2	24	0.1	12.00	8%	2
Town of Furman	1	24	0.0	24.00	4%	1
Town of Gifford	0	24	0.0	*	*	0
Town of Hampton	2	24	0.1	12.00	8%	2
Town of Luray	1	24	0.0	24.00	4%	1
Town of Scotia	0	24	0.0	*	*	0
Town of Varnville	2	24	0.1	12.00	8%	2
Town of Yemassee	0	24	0.0	*	*	0
Jasper County	10	24	0.4	2.40	42%	13
City of Hardeeville	1	24	0.0	24.00	4%	0
Town of Ridgeland	7	24	0.3	3.43	29%	6

Note: Symbol (*) refers to “no value” because the hazard events have a value of zero.

Source: Hazards and Vulnerability Research Institute (HVRI)

Figure 32: Colleton County Flood Risk Map 2017



Source: Federal Emergency Management Agency (FEMA)

3.11 WINTER STORM

Characteristics and Classification

A winter storm includes events where the main types of precipitation are snow, sleet, or freezing rain. Most deaths related to winter storms, such as those involving automobiles, snow shoveling, and exposure to the cold are labeled as indirect deaths. All winter storms have some form of frozen precipitation which interact differently when on the ground. Sometimes storms can have multiple types of precipitation hazards.

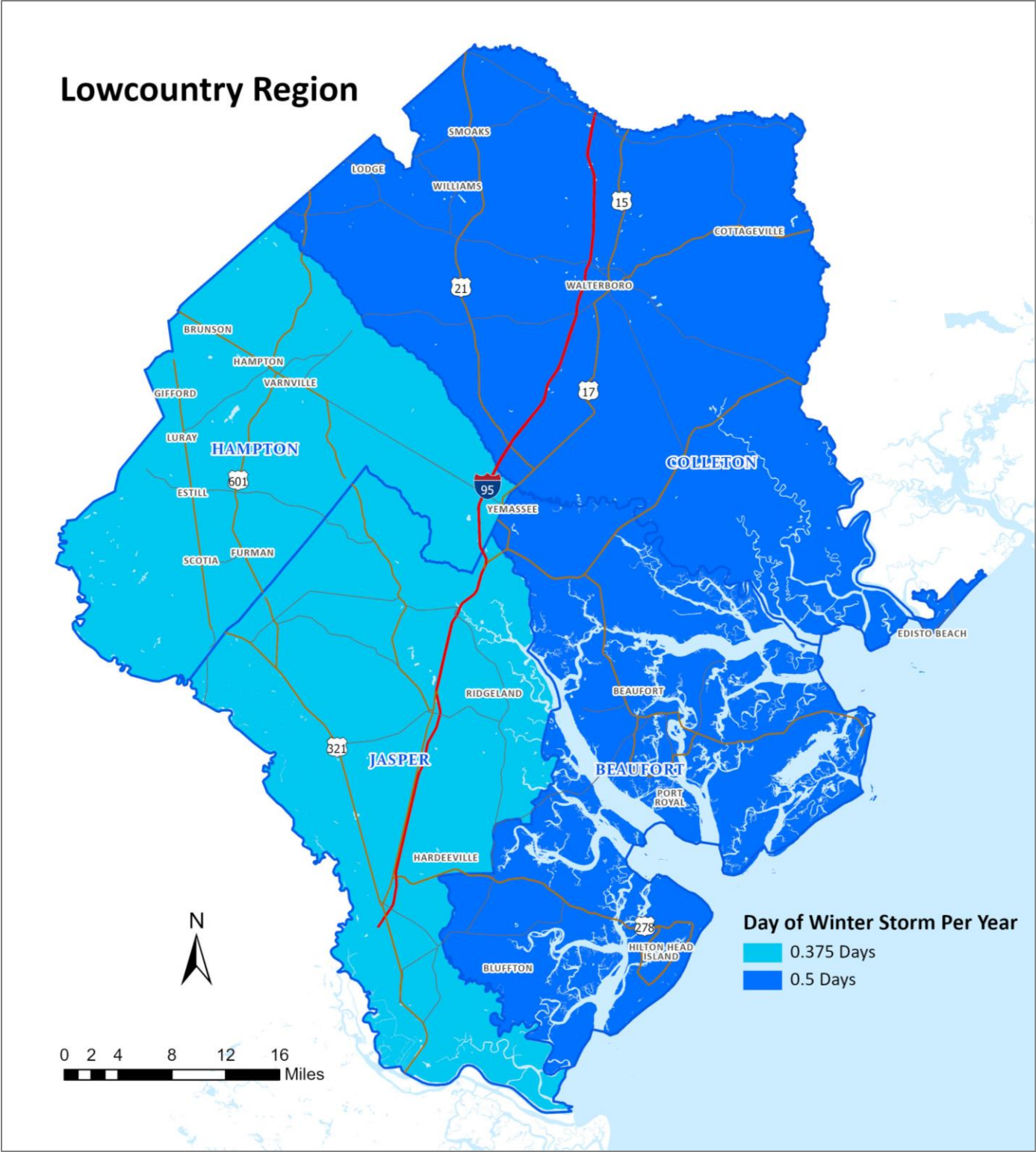
Winter storms are a generic classification of cold-weather hazards. These include blizzards, ice storms, and nor'easters. There are many different types of hazard events associated with the generic category of winter storms (NSSL, 2020d). These are described below.

- *Blizzard:* Blizzards combine strong winds that either blow snow that has already fallen, or snow that comes with the storm. The wind paired with the snow inhibits visibility, making for very dangerous driving conditions and lasts for at least three hours.
- *Ice Storm:* An ice storm results with the accretion of at least 0.25 inches of ice on surfaces. The weight of ice can snap trees and power lines and makes for hazardous walking and driving conditions. Freezing rain starts as snow before its descent to the ground and melts completely in a thick layer of warm air. The now-water droplet goes through a thin layer of cold air just before it reaches the ground, making the water close to freezing temperatures as it strikes the ground. If the water lands on something cold enough, the water will freeze on contact. The ice will form a glaze on objects, trees, cars, roads, and power lines. If enough ice forms, then the event will be labeled an ice storm.
- *Snow:* Flakes form as water droplets freeze and stick together. Snow will reach the ground if it remains in air below 32F on its journey from the cloud to the ground and accumulates if ground temperatures are below freezing.
- *Nor'easter:* These are very strong coastal winter storms that form in the Atlantic Ocean. Heavy precipitation (rain and snow) and strong winds producing large waves are part of these systems and produce considerable beach erosion.

Location and Extent

Winter storms generally affect large geographic areas. Given the southern and coastal location of the Lowcountry counties, winter storms are infrequent events, although nor'easters occasionally affect the region's beaches. According to the State Hazard Mitigation Plan 2018 (SCEMD, 2018), from 1986-2015, the four Lowcountry counties averaged two or less days of winter weather per year. For the 2012-2019 period, there were fewer occurrences—averages of less than one-half day for Beaufort and Colleton, and less than that for Hampton and Jasper (Figure 33). Below are some notable events across the Lowcountry region.

Figure 33: Winter Storm Per Year 2012-2019



Source: Hazards and Vulnerability Research Institute (HVRI)

Beaufort County

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

- January 28, 2014: A strong cold air pushed temperatures to around freezing across the county. Ice was accumulated up to one quarter of an inch at various locations. Bridges to Hilton Head Island were impassable due to ice on the morning of January 29, 2014.
- 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 around Sheldon.

City of Beaufort

- December 29, 2017: A peak storm totaled ice accumulation of less than one inch on elevated surfaces such as trees and roadway signs.

Town of Bluffton

- January 3, 2018: Following the storm, very cold air persisted across the region allowing snow to stay on the ground and on area roadways. There was a report of 4 inches of snow near the Town.

Town of Hilton Head Island

- January 28, 2014: A strong cold air pushed temperatures to around freezing across the town. Ice was accumulated up to one quarter of an inch.
- January 3, 2018: Following the storm, very cold air persisted across the region allowing snow to stay on the ground and on area roadways. The highest amount measured was four and one-half inches.

Town of Port Royal

- January 28, 2014: A strong cold air pushed temperatures to around freezing across the town. Ice was accumulated up to one quarter of an inch.

Colleton County

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

- January 28, 2014: Storm totaled ice accumulations ranged up to one inch in isolated locations with one quarter to three quarters of an inch more prevalent. The ice accumulations resulted in numerous trees down across many portions of the county as well as associated power outages.
- 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 across coastal portions of Colleton County, including five inches measured in Bennetts Point.

Town of Cottageville

- January 3, 2018: Storm totaled snowfall ranged from four to five inches around Cottageville.

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 26).

Table 26: 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 34).

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 34: 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.

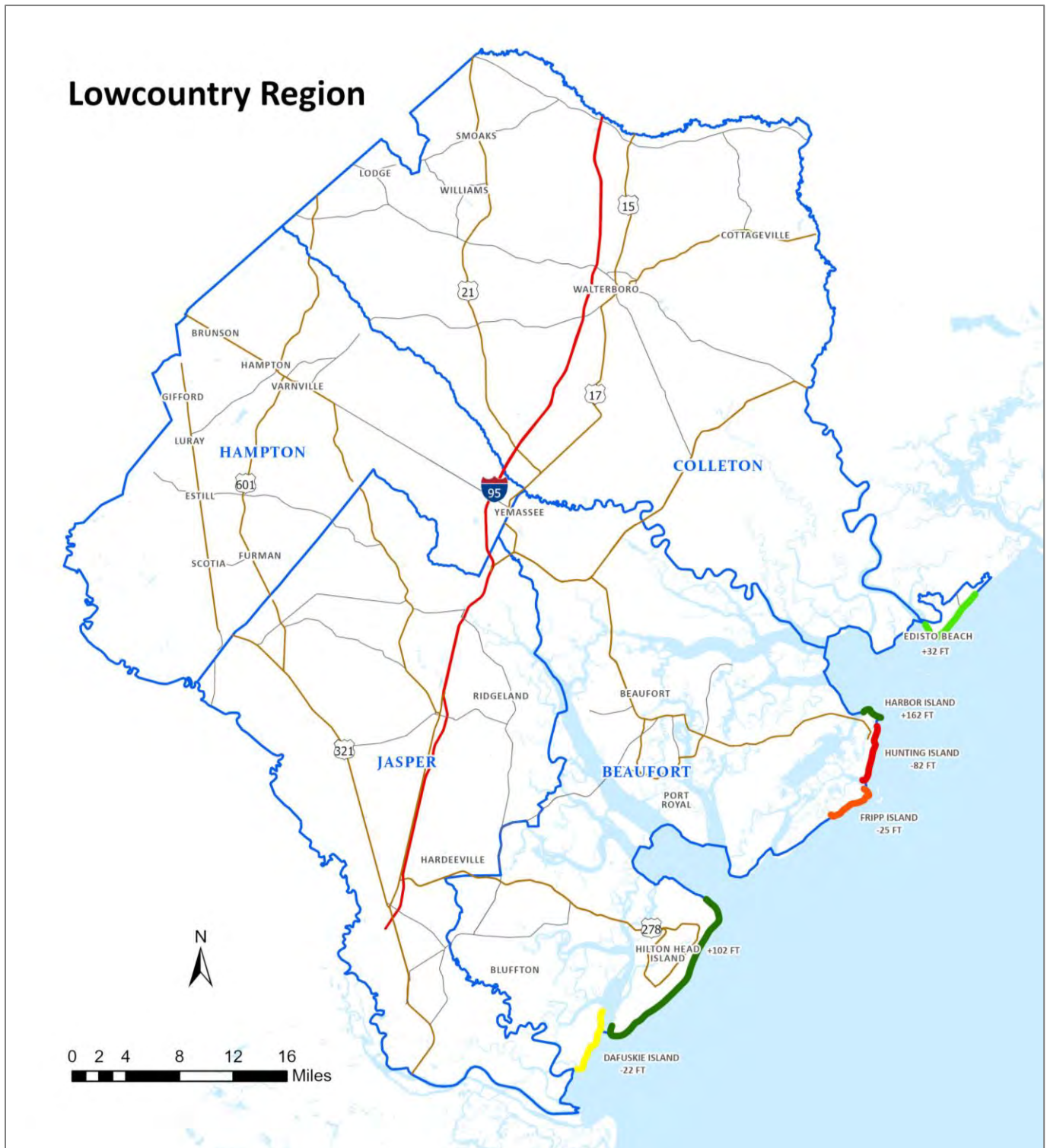
Location and Extent

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 35). 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 34 (above) shows the short-term natural erosion rates, Figure 35 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 35: Average Change in Waterline per Beach 2014-2018



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

Table 27 presents the number and costs of beach re-nourishment projects permitted by SCDHEC-OCRM from 1977-2020.

Table 27: 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)

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 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 28). 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 28: 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 29, 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 29: 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 30-34) 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 30: 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: ¹Event 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. ²Recurrence 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 31: 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 32: 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 33: 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 34: 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.

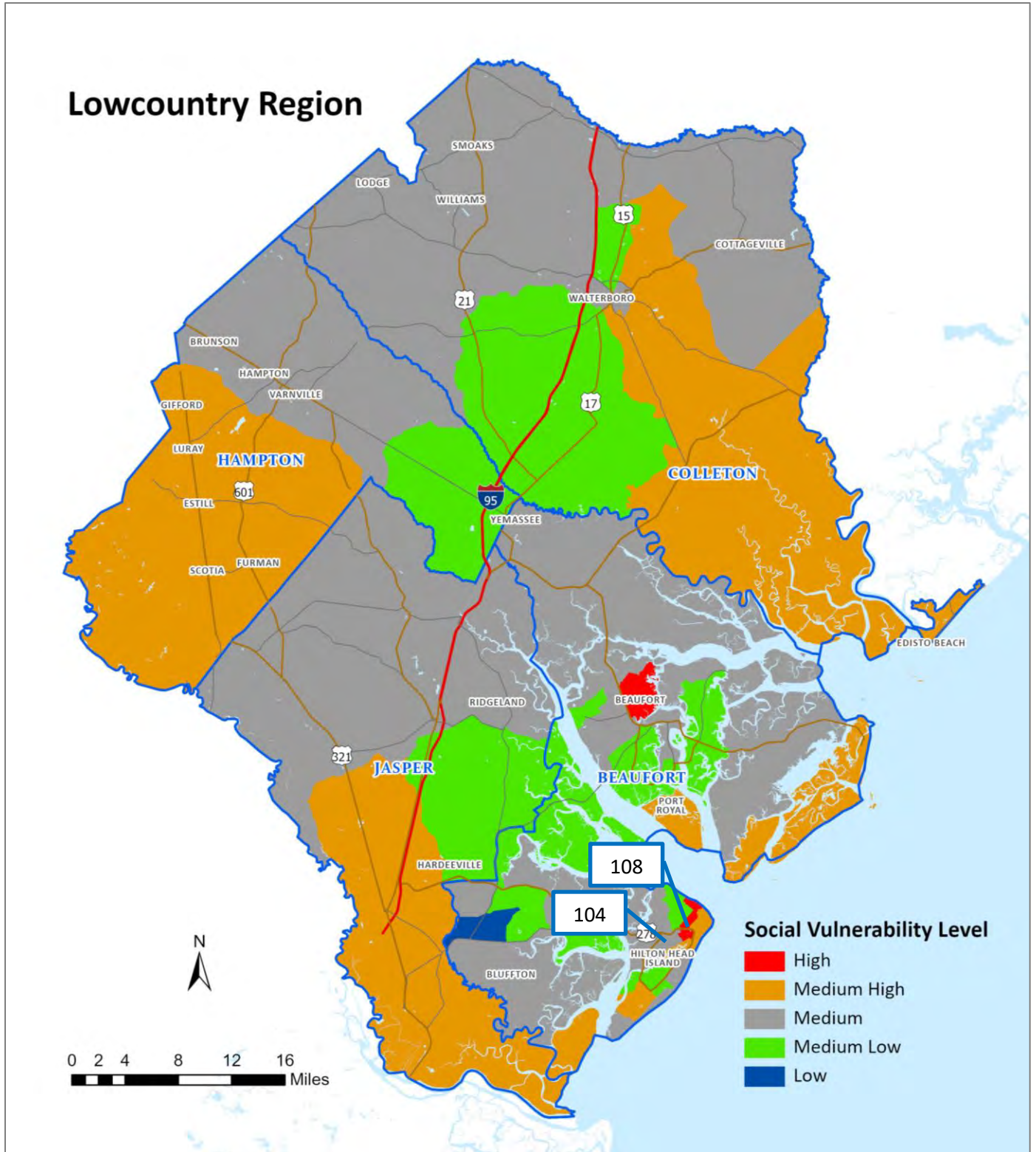
Lowcountry Social Vulnerability

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 36) 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 35 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 37-40).

Table 35: Municipality Social Vulnerability Level

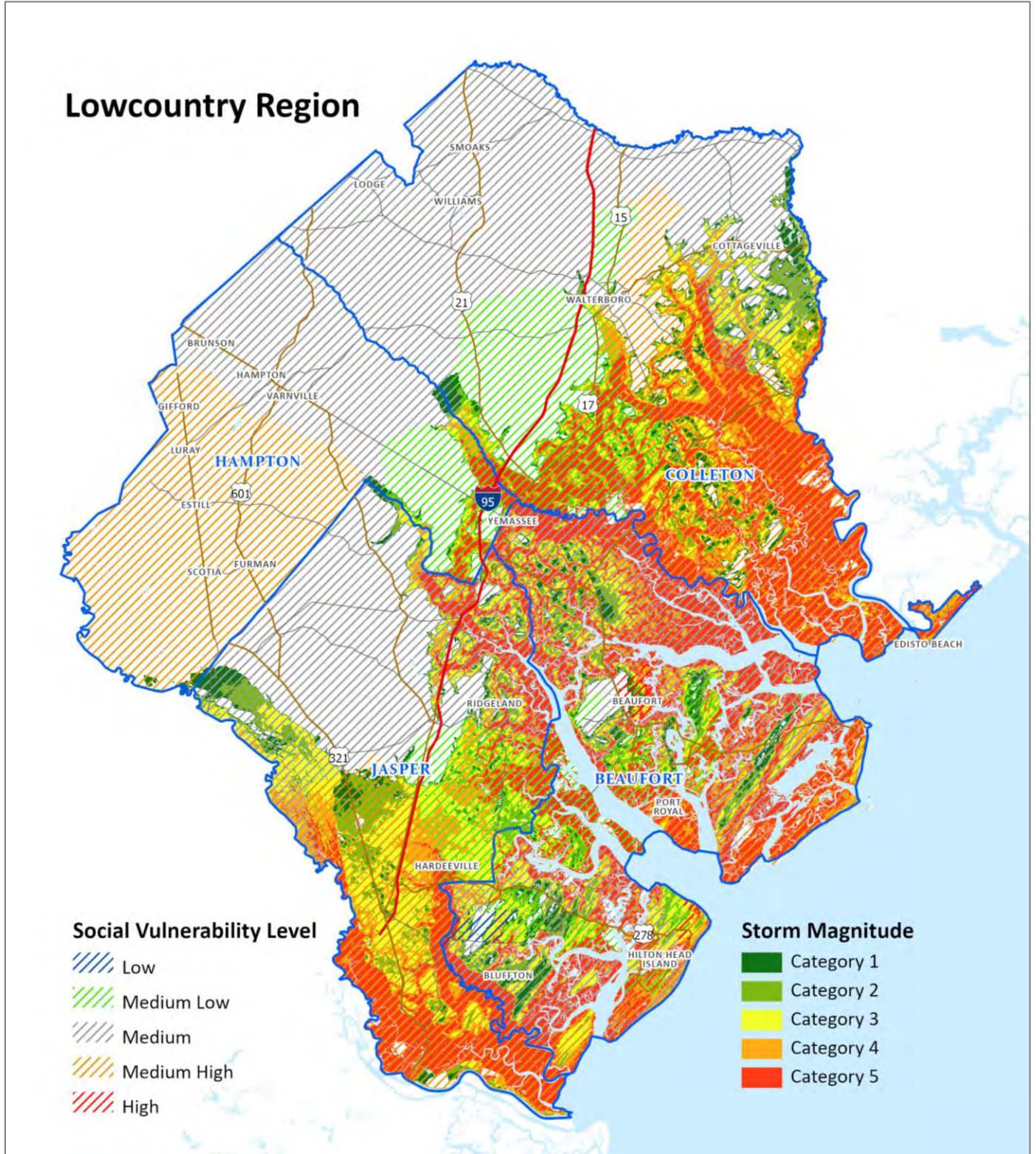
Jurisdictions	Social Vulnerability Level	Jurisdictions	Social Vulnerability Level
Beaufort County		Hampton County	
City of Beaufort	High	Town of Brunson	Medium
Town of Bluffton	Medium	Town of Estill	Medium High
Town of Hilton Head Island	Medium Low-High	Town of Furman	Medium High
Town of Port Royal	Medium 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 36: Social Vulnerability Level by Census Tracts 2018



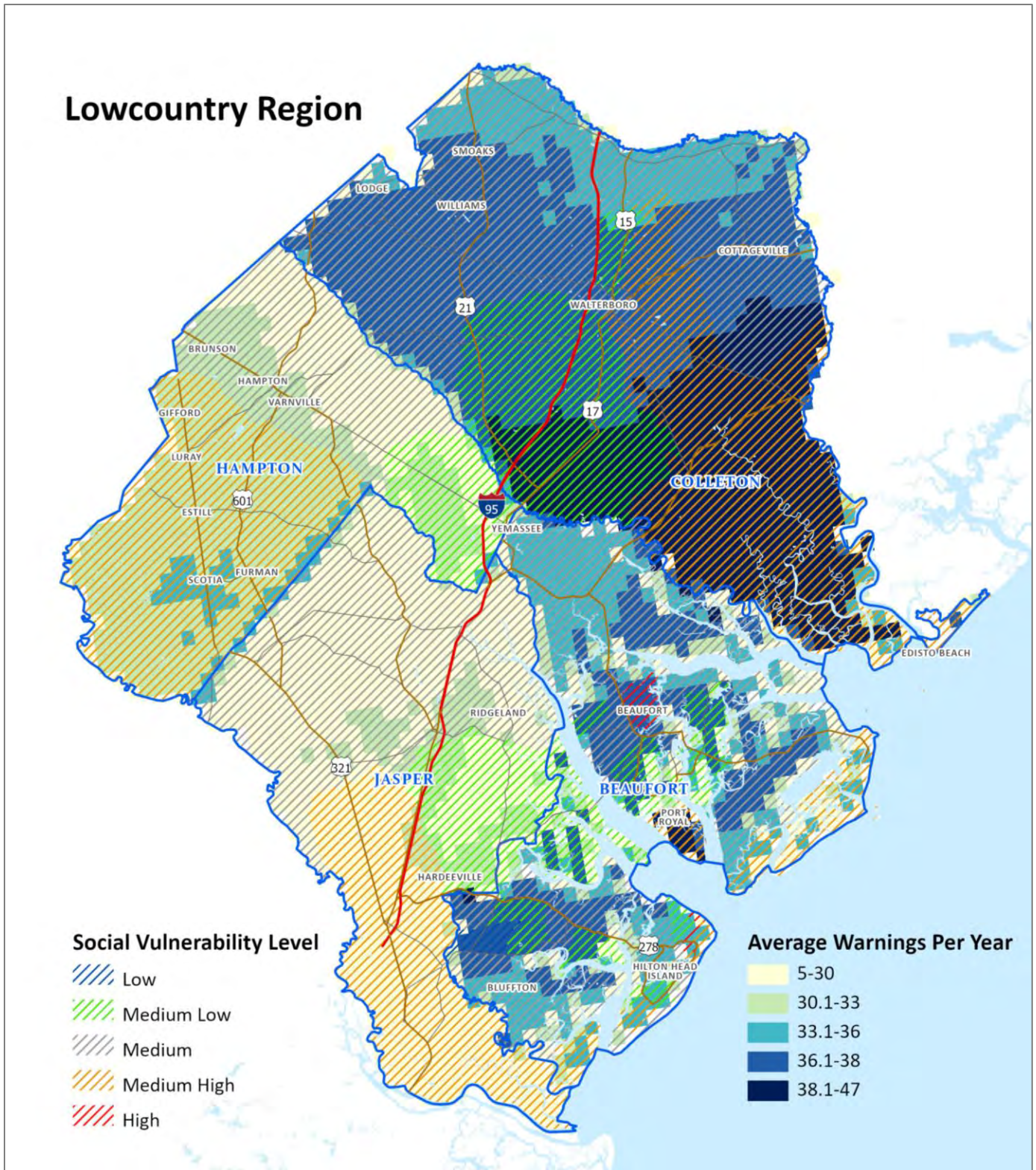
Source: Hazards and Vulnerability Research Institute (HVRI)

Figure 37: Social Vulnerability and Storm Surge Risk



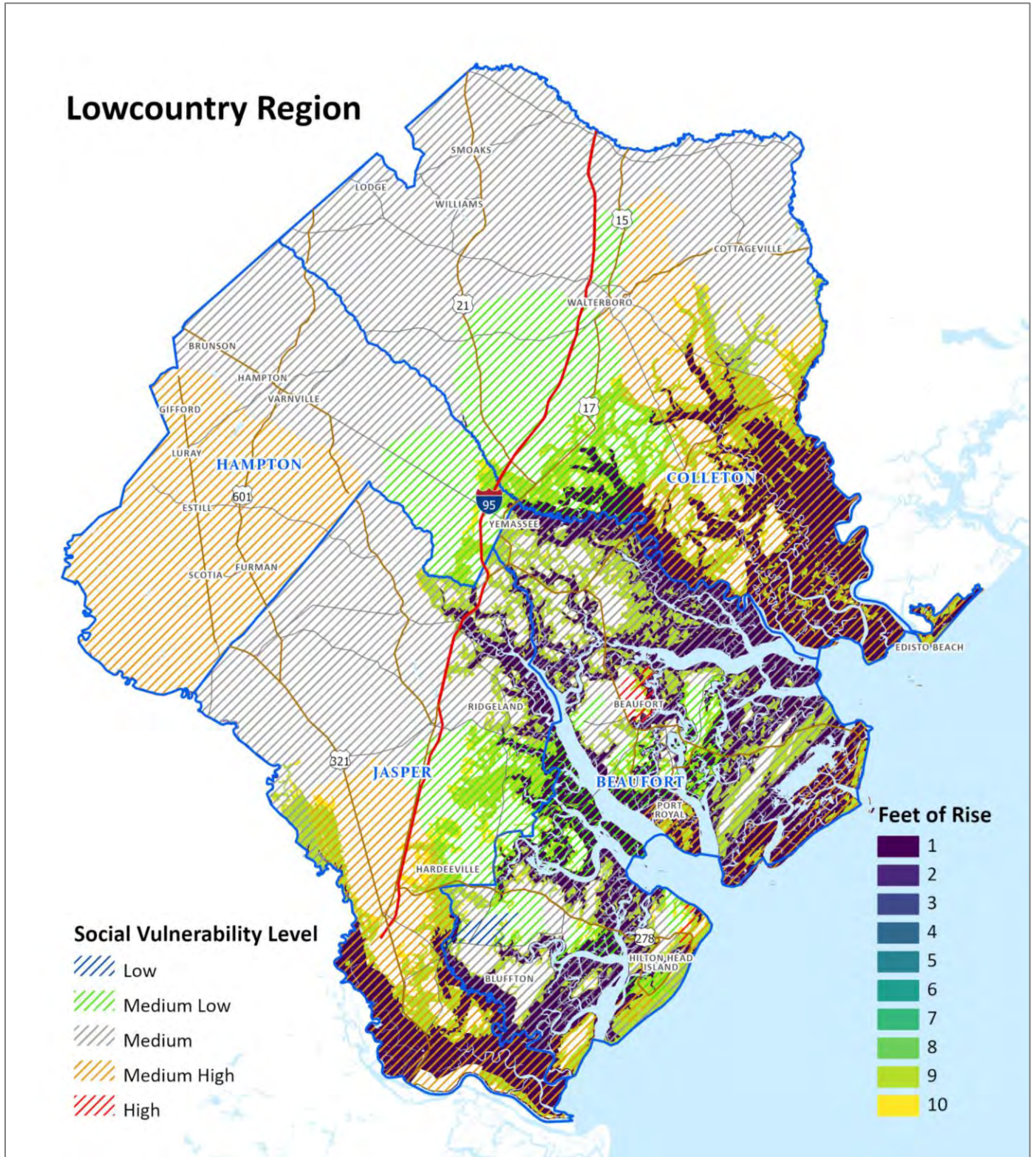
Source: Hazards and Vulnerability Research Institute (HVRI)

Figure 38: Social Vulnerability and Severe Thunderstorm and Strong Wind Warnings



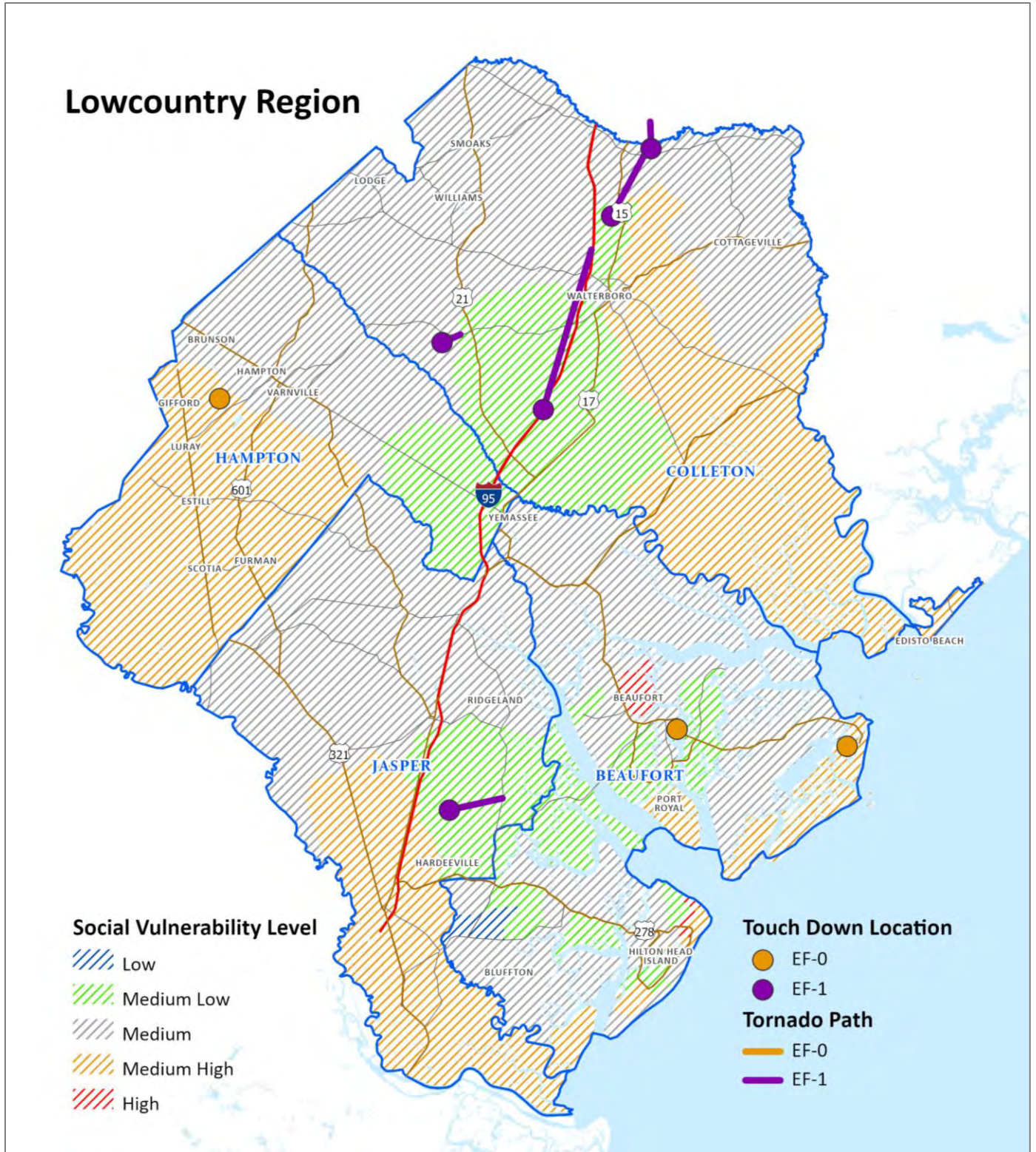
Source: Hazards and Vulnerability Research Institute (HVRI)

Figure 39: Social Vulnerability and Sea Level Rise Risk



Source: Hazards and Vulnerability Research Institute (HVRI)

Figure 40: 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 36, 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 36: 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 37, 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 38-41 shows natural hazard losses for municipalities in Beaufort County.

Table 37: 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 38: 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 39: 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 40: 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	0	0	\$0	0	0
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 41: 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 42, 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 43-48 shows natural hazard losses for municipalities in Colleton County.

Table 42: 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 43: 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 44: 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 45: 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 46: 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 47: City of Waltherboro 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 48: 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 49, 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 50-58 show natural hazard losses for municipalities in Hampton County.

Table 49: 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 50: 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 51: 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 52: 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 53: 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 54: 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 55: 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 56: 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 57: 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 58: 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 59). Most of the residential losses were from flooding. More recently, the losses were from tornadoes. Tables 60-61 show natural hazard losses for municipalities in Jasper County.

Table 59: 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 60: 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 61: 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 62 displays the ranking.

Table 62: 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: ¹Recent impact between 2012 and 2019; ²Ranked 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 63-64. 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 Tables 65 and 66.

Table 63: 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 64: Lowcountry Vehicle Exposure by Type

Type	Daytime		Nighttime	
	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 65: 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									
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 of 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 66: 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 of 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 67 and Figure 41 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

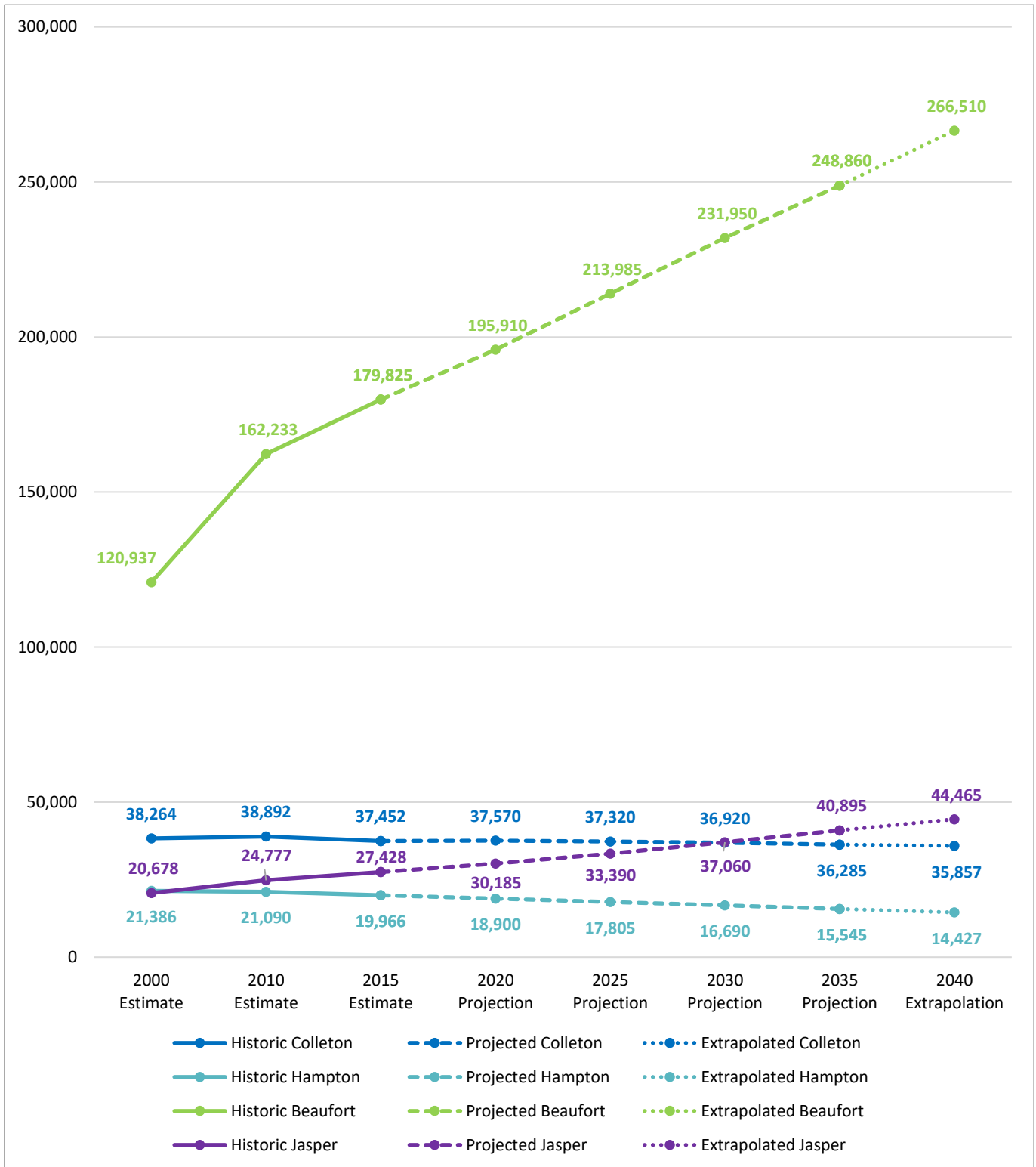
- Data for population projections are from U.S. Census Bureau, Annual Estimates of the Resident Population – Vintage 2018 and S.C. Department of Health and Environmental Control – Vital Records Department.
- Population projections 2020-2035 are calculated by S.C. Department of Revenue and Fiscal Affairs – 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 67: 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 41: 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 68 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 68: 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 69). 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 42- 46 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.

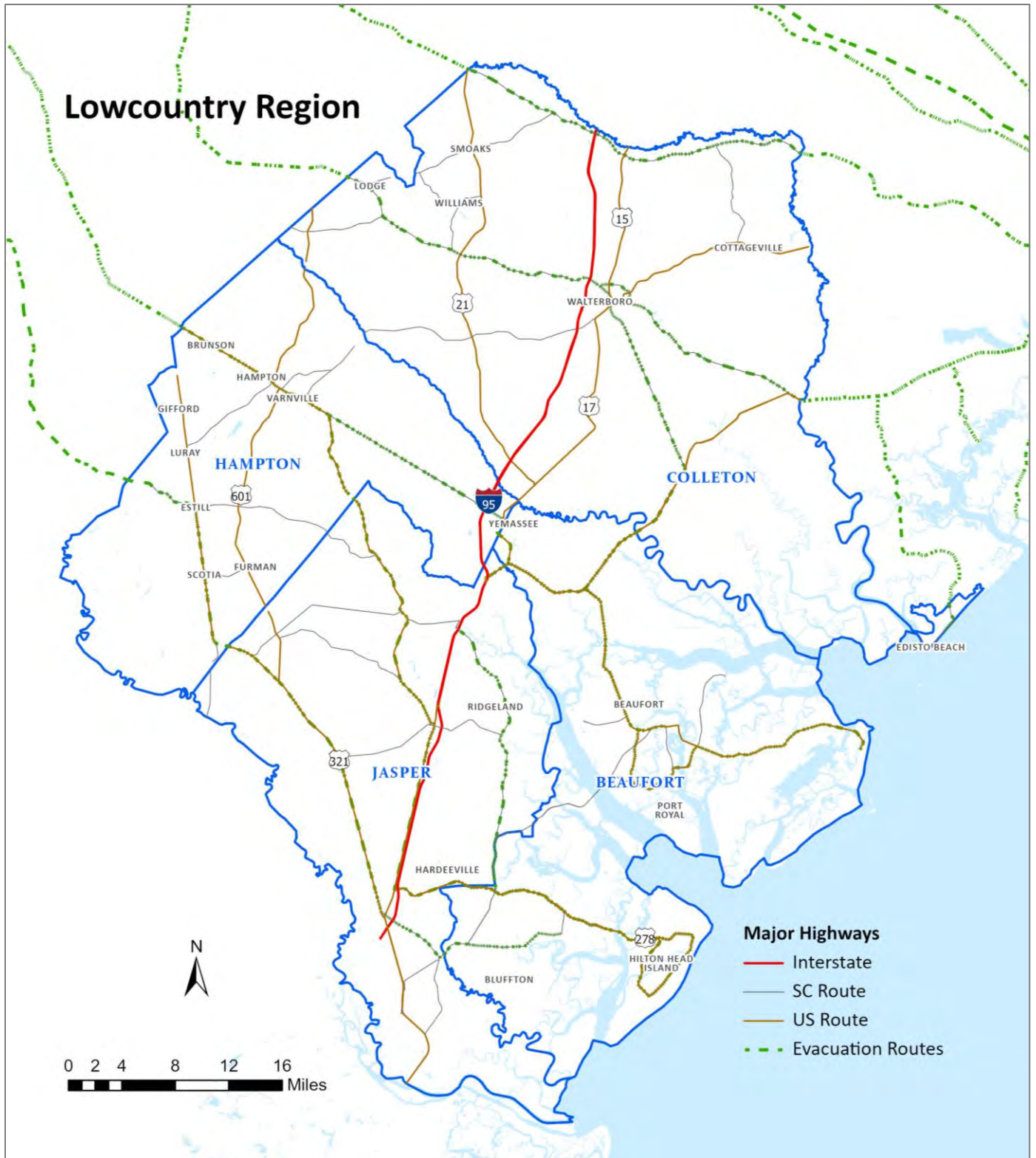
Source: FEMA (n.d.)

Table 69: 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 of 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

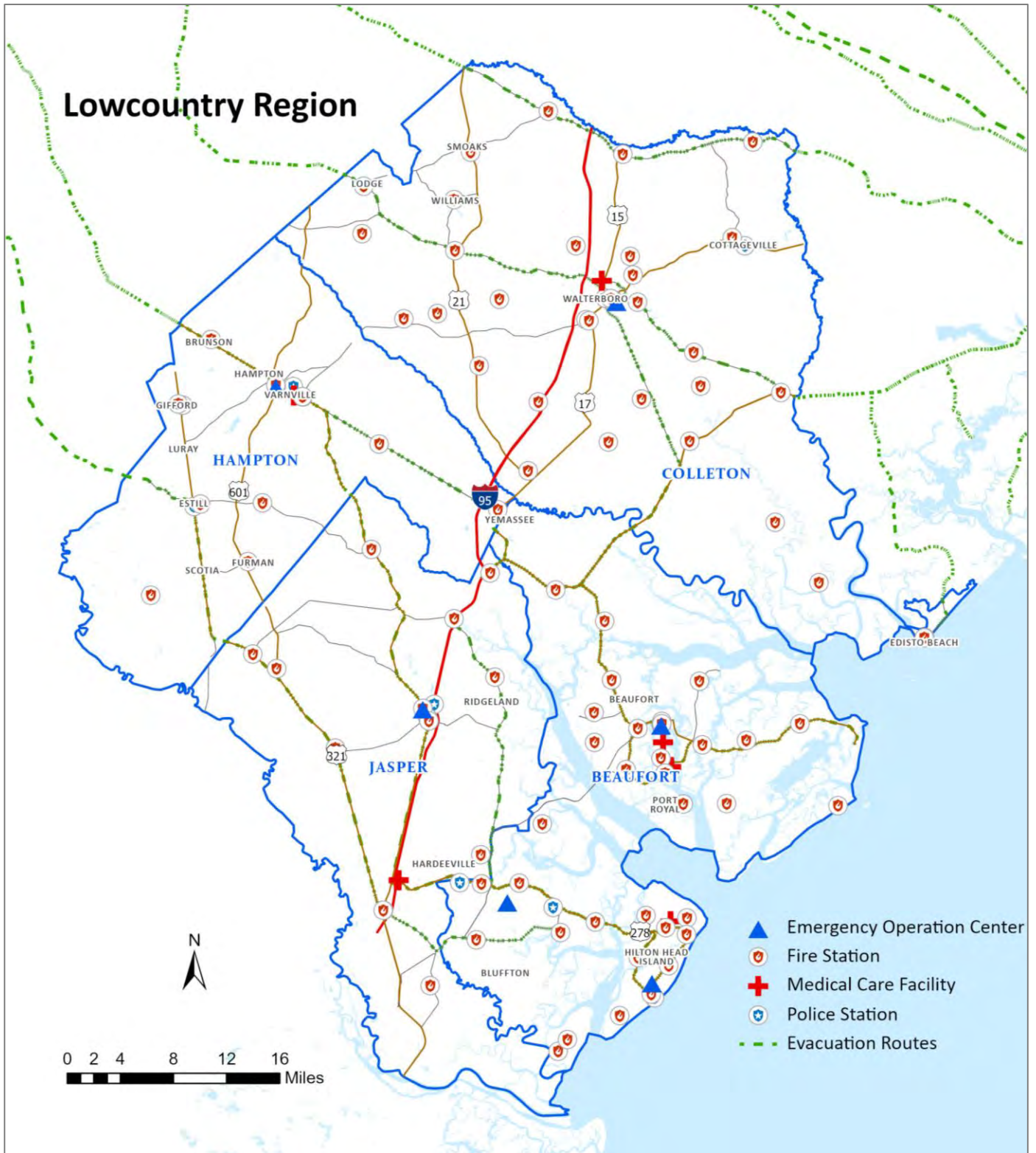
Source: HAZUS-MH and Counties' Database

Figure 42: Evacuation Routes



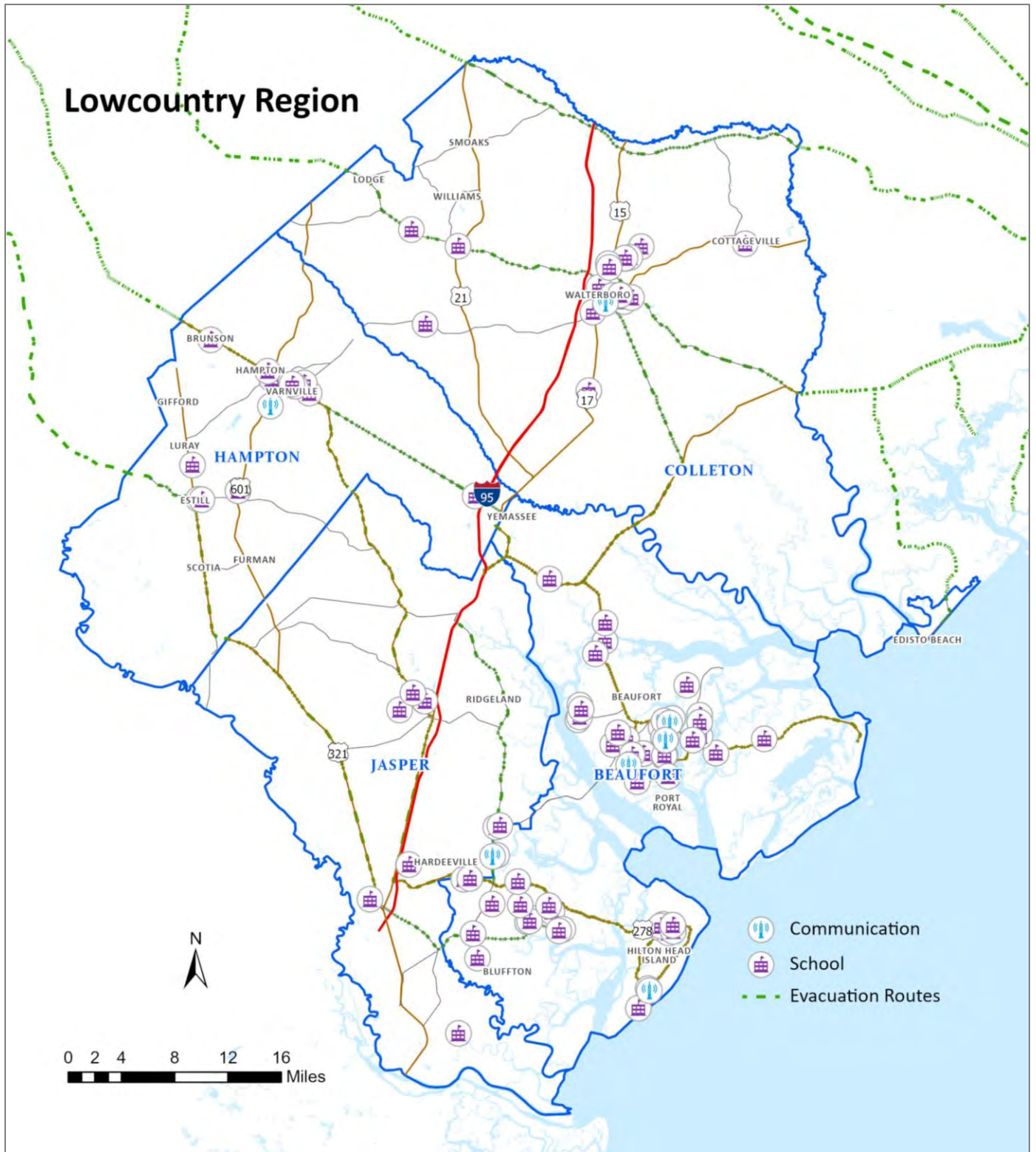
Source: HAZUS-MH and Counties' Database

Figure 43: Emergency Services



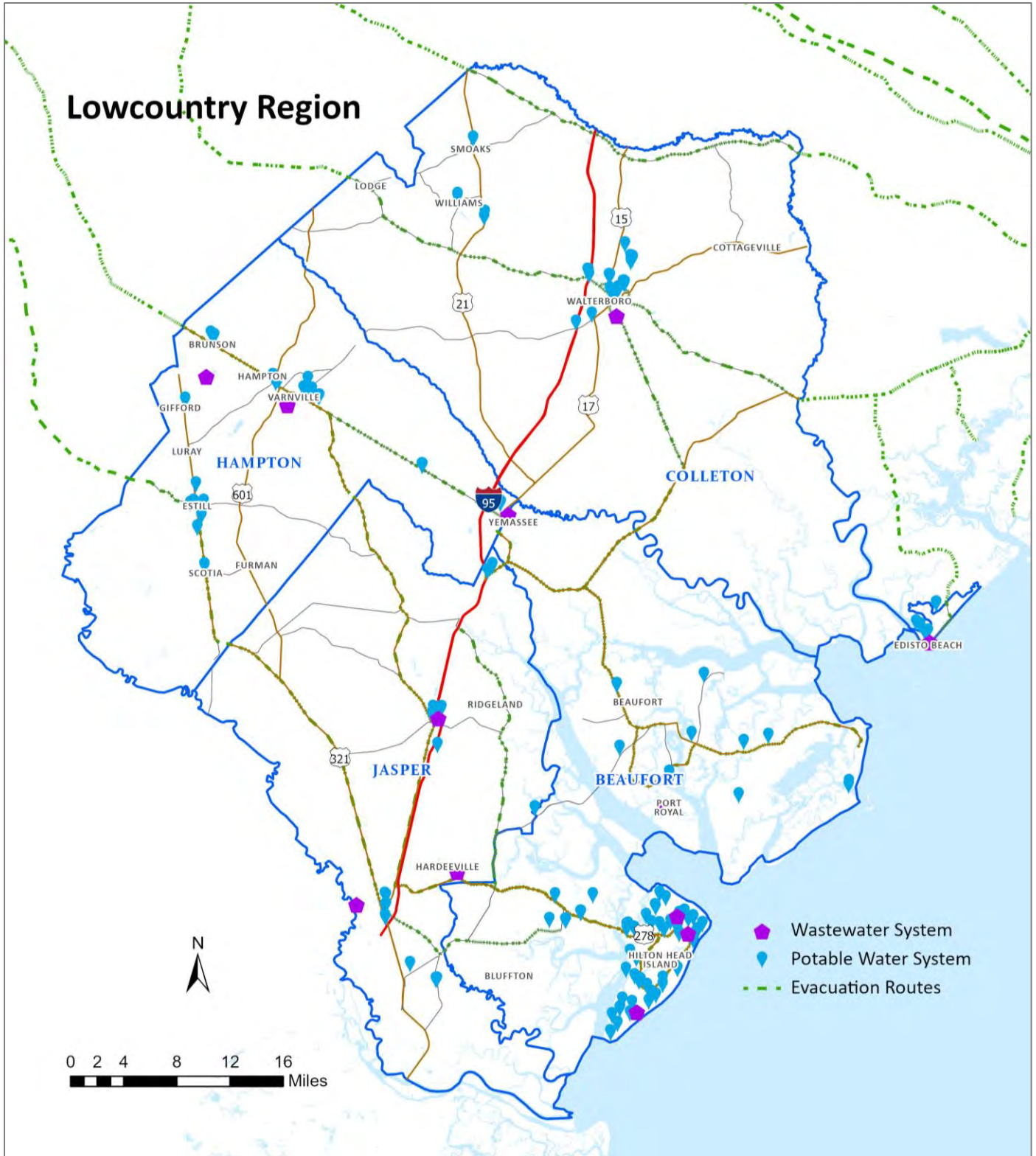
Source: HAZUS-MH and Counties' Database

Figure 44: Communication Stations and Schools



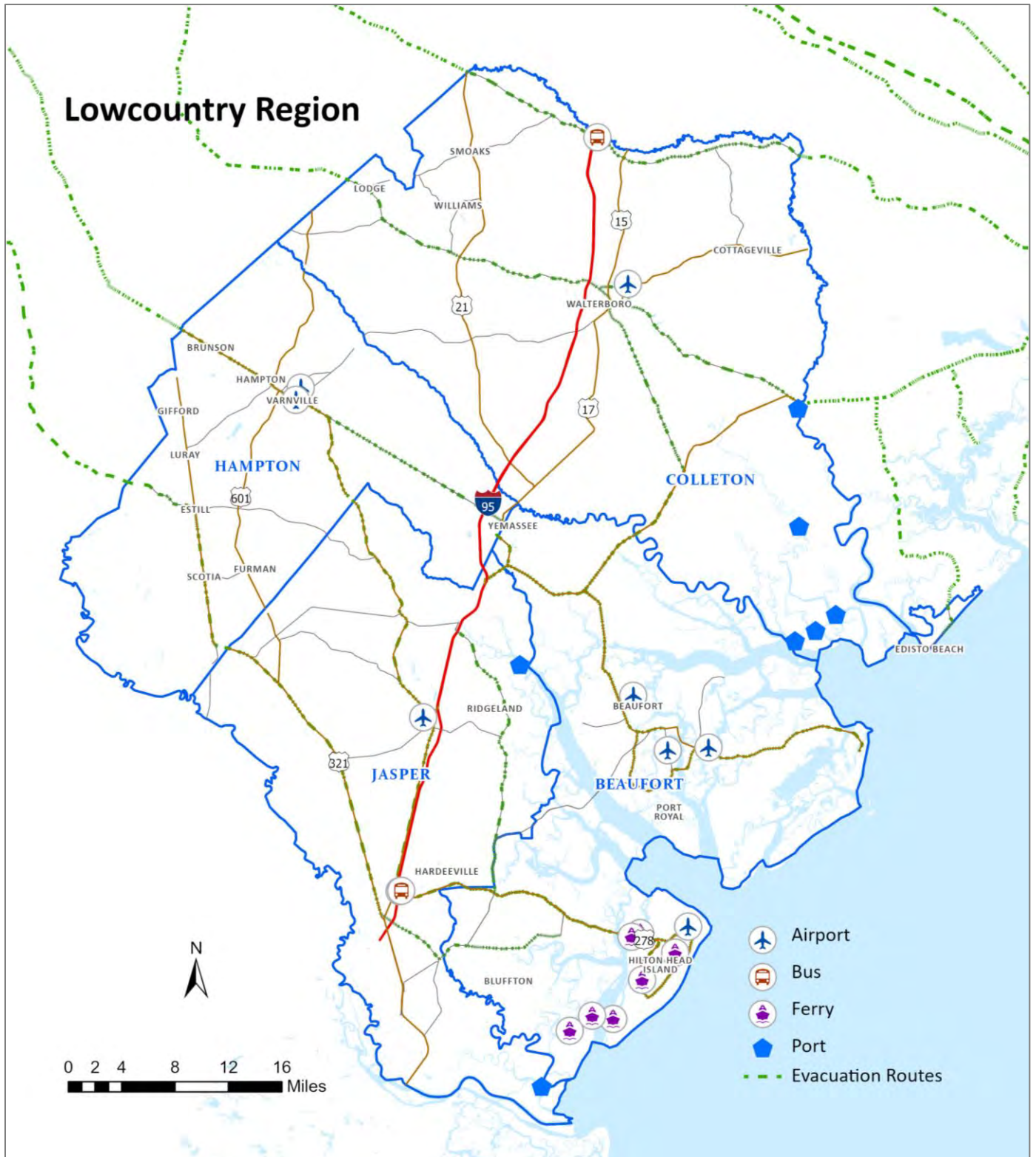
Source: HAZUS-MH and Counties' Database

Figure 45: Wastewater Treatment and Potable Water Facilities



Source: HAZUS-MH and Counties' Database

Figure 46: 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 70 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 70: 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 71 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 71: 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, 2020b
	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, 2020b
	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, 2020b
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, 2020b
	Community Rating System (CRS)	FEMA, 2019b
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, 2020b
	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, 2020b
	Community Rating System (CRS)	FEMA, 2019b
Town of Cottageville	Comprehensive Plan 2003	Town of Cottageville, 2003
	National Flood Insurance Program (NFIP)	FEMA, 2020b
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, 2020b
	Community Rating System (CRS)	FEMA, 2019b
Town of Lodge	National Flood Insurance Program (NFIP)	FEMA, 2020b
Town of Smoaks	National Flood Insurance Program (NFIP)	FEMA, 2020b
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, 2020b
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, 2020b
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, 2020b
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, 2020b
Town of Furman	National Flood Insurance Program (NFIP)	FEMA, 2020b

Jurisdictions	Policies, Plans, and Ordinances Addressing Natural Hazards	Sources
Town of Gifford	National Flood Insurance Program (NFIP)	FEMA, 2020b
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, 2020b
Town of Luray	National Flood Insurance Program (NFIP)	FEMA, 2020b
Town of Scotia	National Flood Insurance Program (NFIP)	FEMA, 2020b
Town of Varnville	Comprehensive Plan 2012	Town of Varnville, 2012
	National Flood Insurance Program (NFIP)	FEMA, 2020b
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, 2020b
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, 2020b
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, 2020b

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 72). If communities participate in the Community Rating System, they receive discounts on the NFIP premiums. In addition to selected municipalities, Beaufort and Colleton Counties participate which includes all the unincorporated areas under their jurisdiction.

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.

Table 72: 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	11/04/1992	5 (25)	229	224	-	5
City of Beaufort	09/29/1986	7 (15)	3	3	-	-
Town of Bluffton	12/18/1986	-	-	-	-	-
Town of Hilton Head Island	09/29/1986	5 (25)	106	106	-	-
Town of Port Royal	09/29/1986	9 (5)	-	-	-	-
Colleton County						
Town of Cottageville	12/21/2017	7 (15)	11	11	-	-
Town of Edisto Beach	12/21/2017	-	-	-	-	-
Town of Edisto Beach	12/21/2017	6 (20)	41	n/a	n/a	n/a
City of Walterboro	12/21/2017	-	1	1	-	-
Town of Williams	12/21/2017	-	-	-	-	-
Hampton County						
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	n/a	n/a	n/a
Town of Luray	09/29/2010	-	-	-	-	-
Town of Scotia	09/29/2010	-	-	-	-	-
Town of Varnville	09/29/2010	-	-	-	-	-
Town of Yemassee	09/01/1986	-	-	-	-	-
Jasper County						
Town of Ridgeland	10/18/2019	-	11	6	-	5
City of Hardeeville	09/29/2010	-	-	-	-	-
Town of Ridgeland	10/18/2019	-	-	-	-	-

Note: Data as of 9/24/2019, Counties include unincorporated areas

Source: ¹FEMA (2020e), ²FEMA (2019b), ³SCEMD (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 72 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 73: Summary of 2015 Completed Hazard Mitigation Actions

Mitigation Types	2015 Completed Actions
Local Plans and Regulations	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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
	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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).

- **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.

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

Table 74: 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
	<p>able to accommodate all members of the area’s population, including those with special medical or other needs.</p> <p>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.</p> <p>4.7 Coordinate with the county and regional offices of the various state human services departments.</p> <p>4.8 Maintain and enhance working relationships among local governments.</p>
<p>5 Protection of Properties and Resources</p>	<p>5.1 Encourage use of innovative hazard-resistant construction techniques/materials (reinforced, impact-resistant doors, storm-resistant windows, hurricane shutters, and others).</p> <p>5.2 Advise/assist property owners in retrofitting homes, businesses, and institutional facilities.</p> <p>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.</p> <p>5.4 Utilize currently available information and mapping to help determine the areas and magnitude of impacts from flooding and sea level rise.</p> <p>5.5 Seek grants for protective measures – include elevation and property acquisition for flooding mitigation.</p> <p>5.6 Enhance floodplain protection, habitat preservation, wetland restoration and forest management.</p>
<p>6. Assistance of Targeted Vulnerable Population</p>	<p>6.1 Undertake outreach campaign to low-income, elderly, and Limited English Proficient (LEP)populations.</p> <p>6.2 Promote volunteer involvement in emergency preparedness and response through education training program.</p> <p>6.3 Continue to provide emergency preparedness and response through Area Agency on Aging (AAA), local councils, and relevant agencies.</p>

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 75 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 75: 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, floodplain 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.

Below is 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 76: Summary of 2020 New and Ongoing Hazard Mitigation Actions

Mitigation Types	2020 New and Ongoing Actions
Local Plans and Regulations	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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
	<ul style="list-style-type: none"> ▪ 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.
<p>Natural Systems Protection</p>	<ul style="list-style-type: none"> ▪ 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
	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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 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



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.

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YEMASSEE, SOUTH CAROLINA 29945
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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:

Ashley M. Jones
Beaufort County
10.6.20
Date

Richard P. E. Victor
Lowcountry Council of Governments
10/5/2020
Date

Lowcountry Council of Governments
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**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

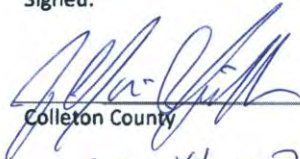
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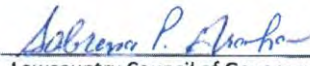
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5. The local share for Colleton County will be \$2,946.57 payable by the completion date.
6. The completion date will be on or before March 31, 2021.
7. This agreement shall become effective on the date of signing.

Signed:



Colleton County
Date 10-14-2020



Lowcountry Council of Governments
Date 10/5/2020

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**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

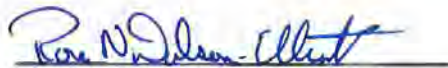
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5. The local share for Hampton County will be \$2,946.57 payable by the completion date.
6. The completion date will be on or before March 31, 2021.
7. This agreement shall become effective on the date of signing.

Signed:



Hampton County

10-5-2020
Date



Lowcountry Council of Governments

10/5/2020
Date

Lowcountry Council of Governments

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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
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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

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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
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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
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LCOG Staff Present:

Stephanie Rossi	Planning Director
Maleena Parkey	Senior Planner

Others Present:

Janet Laney	Captain, Fire-Rescue	Colleton County
Adrienne 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	<ul style="list-style-type: none"> ▪ David Greene, Deputy Chief, Fire Rescue, Colleton County ▪ Janet Laney, Captain, Fire-Rescue, Colleton County ▪ Adrienne 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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	<ul style="list-style-type: none"> ▪ 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



**2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey**

1.
Please select a language to proceed.

English **Español**



**2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey**

**2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey**

The Lowcountry Council of Governments is updating the Natural Hazard Mitigation Plan for Beaufort, Colleton, Hampton, and Jasper counties.

We would like to hear from you about your personal experiences and perceptions of natural hazards (i.e. hurricanes, tornados, floods), your planning and preparation for natural hazards, and your support of community hazard mitigation activities.

Giving us just 5 minutes of your time can really help us in planning to save lives and to prevent major property damage and other losses caused by natural disasters in our region.

We would appreciate you taking the time to complete this survey below.

Your responses will be kept anonymous. If you have any questions or concerns, please contact Maleena Parkey, PhD, Senior Planner for the Planning Department at Lowcountry Country Council of Governments at 843-473-3987 or mparkey@lowcountrycog.org.



**2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey**

2. In what county is your household located?

- Beaufort
- Colleton
- Hampton
- Jasper

Other (please specify)



**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)

- | | | |
|---|---|--|
| <input type="checkbox"/> Tornado | <input type="checkbox"/> Drought | <input type="checkbox"/> Coastal Erosion |
| <input type="checkbox"/> Hurricane Wind and Storm Surge | <input type="checkbox"/> Earthquakes | <input type="checkbox"/> Extreme Heat (Heat index of at least 105 °F for more than 3 hours per day for 2 consecutive days) |
| <input type="checkbox"/> Windstorms | <input type="checkbox"/> Wildfires | |
| <input type="checkbox"/> Lightning | <input type="checkbox"/> Flood | |
| <input type="checkbox"/> Hail | <input type="checkbox"/> Winter Storms (Snow/Ice) | <input type="checkbox"/> Not Applicable |

Other (please specify)



**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.

- | | | |
|---|--------------------------------------|--|
| <input type="checkbox"/> Tornado | <input type="checkbox"/> Hail | <input type="checkbox"/> Flood |
| <input type="checkbox"/> Hurricane Wind and Storm Surge | <input type="checkbox"/> Drought | <input type="checkbox"/> Winter Storms (Snow/Ice) |
| <input type="checkbox"/> Windstorms | <input type="checkbox"/> Earthquakes | <input type="checkbox"/> Coastal Erosion |
| <input type="checkbox"/> Lightning | <input type="checkbox"/> Wildfires | <input type="checkbox"/> Extreme Heat (Heat index of at least 105 °F for more than 3 hours per day for 2 consecutive days) |

Other (please specify)



**2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey**

5. Have you made any improvements to your property to protect against natural hazards?

- Yes
- No



**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)



**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)



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



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.

No. at all Important No. 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
<p>Natural Resource Protection</p> <p><i>Examples include floodplain protection, habitat preservation, wetland restoration and forest management.</i></p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p>Structural Projects</p> <p><i>Examples include dams, levees, seawalls detention/retention basins, channel modification, retaining walls, and storm sewers.</i></p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p>Emergency Services</p> <p><i>Example include warning systems, evacuation planning, emergency response training, and protection of critical facilities or systems.</i></p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p>Public Education and Awareness</p> <p><i>Examples include outreach projects, school education programs, library materials, and demonstration events.</i></p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



**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)



**2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey**

11. Please provide your Zip Code.



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Community Survey**

12. If you have any other comments, questions, or concerns, please specify below.



**2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey**

13. Please leave your email here for additional information
pertaining to natural hazard mitigation (Optional).



**2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey**

Thank you for participating in our survey. Your feedback is very
important.



2020 Lowcountry Natural Hazard Mitigation Plan Community Survey

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 o preocupacion, 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.



2020 Lowcountry Natural Hazard Mitigation Plan Community Survey

14. En qué condado se encuentra su hogar?

- Beaufort
- Colleton
- Hampton
- Jasper
- Otro (please specify)



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)



2020 Lowcountry Natural Hazard Mitigation Plan Community Survey

16. Por favor, elija los 3 peligros que son su mayor causa de preocupación para su vida y propiedad.

- 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)
- Otros (especificar)



2020 Lowcountry Natural Hazard Mitigation Plan Community Survey

17. Ha realizado alguna mejora en su propiedad para protegerse de los peligros naturales?

- Sí
- No



2020 Lowcountry Natural Hazard Mitigation Plan Community Survey

18. Por favor indique qué tipo de mejoras ha realizado.

- Aislamiento
- Refuerzos/Reemplazos de Ventanas y Puertas
- Elevación de la estructura
- Mantenimiento/Eliminación de árboles
- Reemplazo/reparación de techos
- Eliminación del cepillo
- Otros (especificar)



2020 Lowcountry Natural Hazard Mitigation Plan Community Survey

19. Por favor indique cuál de las siguientes mejoras en el hogar se beneficiaría más.

- Aislamiento
- Refuerzos/Reemplazos de Ventanas y Puertas
- Elevación de la estructura
- Mantenimiento/Eliminación de árboles
- Reemplazo/repación de techos
- Eliminación del cepillo
- Otros (especificar)



2020 Lowcountry Natural Hazard Mitigation Plan Community Survey

20. Por favor indique su nivel de acuerdo con la siguiente declaración: Mi hogar está preparado en caso de un desastre natural.

- Fuertemente en desacuerdo
- Discrepar
- Algo en desacuerdo
- Neutral
- Algo de acuerdo
- Acuerdo
- Fuertemente de acuerdo



2020 Lowcountry Natural Hazard Mitigation Plan Community Survey

21. Una serie de actividades en toda la comunidad pueden reducir nuestro riesgo de peligros. En general, estas actividades se dividen en una de las siguientes seis categorías generales. Por favor, díganos lo importante que cree que es para su comunidad considerar la búsqueda.

No es importante del todo No es importante Neutral Importante Extremadamente importante

Prevención

Ejemplo de inclusión
estándares más elevados Para construcción resistente al peligro, aumento de la regulación de construcción en zonas propensas a riesgos como mejora de la observancia de normativa vigente.



Protección de la propiedad

Ejemplo de inclusión
reubicación, elevación, reparaciones estructurales, y persianas de tormenta.



Protección de los recursos naturales

Ejemplo de inclusión
protección de llanuras de inundación, preservación del hábitat, restauración de humedales y la gestión forestal.



Proyectos estructurales

Ejemplo de inclusión dresas, diques, muros marinos, cuencas de detención/retención, modificación del canal, muros de contención, and alcantarillas pluviales.



Servicios de Emergencia

Ejemplo de inclusión sistemas de alerta, planificación de evacuación, capacitación en respuesta de emergencia, y la protección de instalaciones o sistemas críticos



Educación y Sensibilización Pública

Ejemplo de inclusión proyectos de divulgación, programas de educación escolar, materiales de la biblioteca, y eventos de demostración.





2020 Lowcountry Natural Hazard Mitigation Plan Community Survey

22. Cuál es la mejor manera de recibir información sobre cómo hacer que su hogar y comunidad sean más resistentes a los peligros naturales? Por favor, elija 3.

- Televisión
- Radio
- Correo electrónico
- Redes sociales (Facebook, Twitter)
- Otros (especificar)
- Correo convencional
- Reuniones/Talleres Públicos
- Sitio web
- Periódico



2020 Lowcountry Natural Hazard Mitigation Plan Community Survey

23. Por favor proporcione su código postal.



**2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey**

24. Si tiene otros comentarios, preguntas o inquietudes, especifique.



**2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey**

25. Por favor dejas su email acá para información adicional pretendiente al de mitigación de riesgos naturales (Opcional).



**2020 Lowcountry Natural Hazard Mitigation Plan
Community Survey**

Gracias por tomarse el tiempo para completar la encuesta.

APPENDIX C-3: SURVEY DISTRIBUTION

Press Release



Serving Beaufort • Colleton • Hampton • Jasper Counties

For Immediate Release
September 4, 2020

The Lowcountry Council of Governments announces:

THE LOWCOUNTRY COUNCIL OF GOVERNMENTS IS CONDUCTING A FOUR COUNTY COMMUNITY SURVEY FOR BEAUFORT COLLETON, HAMPTON AND JASPER COUNTIES ON NATURAL HAZARDS

If you live in Beaufort, Colleton, Hampton or Jasper County we want to hear from you! The Lowcountry Council of Governments is updating the Natural Hazard Mitigation Plan for Beaufort, Colleton, Hampton, and Jasper counties.

We would like to hear from you about your personal experiences and perceptions of natural hazards (i.e. hurricanes, tornados, floods), your planning and preparation for natural hazards, and your support of community hazard mitigation activities.

Your thoughts and experiences can really help us in planning to save lives and to prevent major property damage and other losses caused by natural disasters in our region.

We have developed a short 5-minute anonymous survey to get to know your thoughts on issues that will affect the development of the plan.

The will be active until September 30th, 2020 and can be found here:

<https://www.surveymonkey.com/r/LowcountryNaturalHazardMitigation2020>

Contact Maleena Parkey, PhD, Senior Planner for the Planning Department at Lowcountry Country Council of Governments at 843-473-3987 or mparkey@lowcountrycog.org.

Lowcountry Council of Governments

PO Box 98 | 634 Campground Road
Yemassee, South Carolina 29945
Main: 843.473.3990 Planning: 843.473.3958 Fax: 843.726.5165
www.lowcountrycog.org

Flyer



The Lowcountry Council of Governments is updating the Natural Hazard Mitigation Plan for Beaufort, Colleton, Hampton, and Jasper counties.

We would like to hear from you!

Just 5 minutes of your time can really help us in planning to save lives and to prevent major property damage and other losses caused by natural disasters in our region.

TAKE THE SURVEY HERE

The survey will be open until September 30th, 2020.

For more information on hazard mitigation planning efforts visit

www.lowcountrycog.org



QR Code



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For more information on hazard mitigation planning efforts visit
www.lowcountrycog.org



Link



COMMUNITY 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.

We would like to hear from you about your personal experiences and perceptions of natural hazards (i.e. hurricanes, tornados, floods), your planning and preparation for natural hazards, and your support of community hazard mitigation activities.

Giving us just 5 minutes of your time can really help us in planning to save lives and to prevent major property damage and other losses caused by natural disasters in our region.

We would appreciate you taking the time to complete this survey below.

<https://www.surveymonkey.com/r/LowcountryNaturalHazardMitigation2020>

Your responses will be kept anonymous. If you have any questions or concerns, please contact Maleena Parkey, PhD, Senior Planner for the Planning Department at Lowcountry Country Council of Governments at 843-473-3987 or mparkey@lowcountrycog.org.



ENCUESTA DE LA COMUNIDAD 2020 LOWCOUNTRY PLAN DE MITIGACIÓN DE RIESGOS NATURALES

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.

<https://www.surveymonkey.com/r/LowcountryNaturalHazardMitigation2020>


Sus respuestas se mantendrán en el anonimato. Si tiene alguna pregunta o preocupación, 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.

Local Newspaper, Website, and Social Media

The screenshot shows the website for the Lowcountry Council of Governments. The main heading is "Natural Hazard Mitigation Planning". Below the heading, there is a navigation menu with links for "HOME", "PLANNING & TRANSPORTATION", and "NATURAL HAZARD MITIGATION PLANNING". The main content area includes a paragraph stating that the council is responsible for developing the FEMA approved Natural Hazard Mitigation Plan for Beaufort, Jasper, Hampton, and Colleton Counties. It also mentions that the plans are currently being updated and that the council is conducting a community survey to gather residents' opinions on personal experiences and perceptions of natural hazards (e.g., hurricanes, tornadoes, floods) and support of community hazard mitigation activities. A prominent call to action is "Take the Survey Here" with a link to the survey. On the right side, there is a sidebar with a "Natural Hazard Mitigation Planning" section containing links to "Transportation", "P&T Staff Directory", "Some Recent Projects", "The People and the Economy of the Lowcountry", "Joint Land Use Study (JLUS)", "Natural Hazard Mitigation Planning", "Water Quality Planning", "Traffic Maps", "Links", and "Map Gallery". At the bottom right, there is a "GET NOTIFIED OF UPDATES TO THIS PAGE" section with an email input field and a "GO" button.

The screenshot shows a Facebook post from the Lowcountry Council of Governments. The post is dated September 21 at 12:11 PM. The text of the post reads: "LCOG is updating the 4-County Hazard Mitigation Plan and we want to hear from you. Help us in planning to save lives and to prevent major property damage and other losses caused by natural disasters in our region. Please take our short 5min survey! https://t.co/oLMqLl4gdF?amp=1". Below the text is a large image of a storm with a lightning bolt striking a field. Underneath the image, it says "SURVEYMONKEY.COM" and "2020 Lowcountry Natural Hazard Mitigation Plan Community Survey". The post has 1 Like and 1 Share. On the right side of the post, there is a "Learn More" button and a "Send Message" button. Below the post, there is a section titled "Pages Liked by This Page" which lists several organizations: Palmetto Breeze Transit, SouthernCarolina Alliance, Town of Bluffton Government, Formation PR + Brand, and Beaufort County Governmen... (partially visible). At the bottom of the page, there are links for "Privacy", "Terms", "Advertising", and "Ad Choices", along with "Cookies" and "More" options. The footer of the page says "Facebook © 2020".

[BILL PAYMENTS](#) | [CONTACT US](#) | [REPORT A PROBLEM](#)



[Recreation Survey](#) | [Departments](#) | [Government](#) | [Projects](#) | [Residents](#) | [Services](#) | [Visitors](#)

Home > News

RECREATION SURVEY

DEPARTMENTS

GOVERNMENT

PROJECTS

RESIDENTS

SERVICES

VISITORS

Lowcountry Natural Hazard Mitigation 2020 Plan Survey

The Lowcountry Council of Governments is updating the Natural Hazard Mitigation Plan for Beaufort, Jasper, Colleton, and Hampton counties. We want to hear from all citizens about their personal experiences and perceptions of natural hazards (i.e. hurricanes, tornadoes, floods). Each person's thoughts and experiences can really help us in planning to save lives and to prevent major property damage and other losses caused by natural disasters in our region.

The survey will be open until September 30, 2020. Responses will be kept anonymous. If you have any questions or concerns, please contact [Maleena Parkey](#), PhD, Senior Planner at the Lowcountry Council of Governments.

Please complete this survey and share it with as many people as you can!

Survey Link: <https://www.surveymonkey.com/r/LowcountryNaturalHazardMitigation2020>

The Lowcountry Council of Governments is updating the Natural Hazard Mitigation Plan for Beaufort, Colleton, Hampton, and Jasper counties.

We would like to hear from you!

Just 5 minutes of your time can really help us in planning to save lives and to prevent major property damage and other losses

[Share](#)

MONEY | B1-5

GET GOOD ADVICE AND HELPFUL TIPS FROM OUR EXPERTS



HEY Y'ALL! LET ME TELL YA

SOUTHERN HUMOR | A4

SOUTHERN VOICES, SOUTHERN STORIES

The Hampton County Guardian

Thursday, September 10, 2020 Hampton County Proud Since 1879 | hamptoncountygardian.com | facebook.com/hamptoncountygardian | \$1

LCOG conducting hazard survey

The Lowcountry Council of Governments (LCOG) is conducting a four-county community survey on natural hazards for Beaufort, Colleton, Hampton and Jasper counties.

If you live in one of these counties, LCOG wants to hear from you! The Lowcountry Council of Governments is updating the Natural Hazard Mitigation Plan for Beaufort, Colleton, Hampton, and Jasper counties and this is an important part of the process.

LCOG would like to hear from you about your personal experiences and perceptions of natural hazards (i.e. hurricanes, tornadoes, floods), your planning and preparation for natural hazards, and your support of community hazard mitigation activities.

Your thoughts and experiences can really help in planning to save lives and to prevent major property damage and other losses caused by natural disasters in our region.

LCOG has developed a short, five-minute anonymous survey to get to know your thoughts on issues that will affect the development of the plan.

The online survey will be active until Sept. 30th and can be found at this web address:

<https://www.surveymonkey.com/r/LowcountryNaturalHazardMitigation2020>

For more information, contact Maleena Parkey, PhD, Senior Planner for the Planning Department at Lowcountry Country Council of Governments at 843-473-3087 or mparkey@lowcountrycog.org.

****ORIGIN MIXED ADG 294
#10086136 12/23/2021
LOW COUNTRY COUNCIL OF GOVERNMENT
PO BOX 98
YEMASSEE, SC 29945

COLLETON COUNTY — On Sept. 7, the South Carolina Department of Health and Environmental Control (DHEC) announced 590 new confirmed cases and 19 new probable cases of the novel coronavirus COVID-19, 10 additional confirmed deaths and one new probable death.

This brings the total number of confirmed cases to 123,552, probable cases to 2,055, confirmed deaths to 2,767, and 140 probable deaths.

490 Testing Opportunities Available Statewide

Testing for COVID-19 is essential because it helps identify people who are infected with the virus, whether or not they have symptoms, so they can isolate themselves and keep those around them




TAKE THE SURVEY HERE

The survey will be open until September 30th, 2020.


For more information on hazard mitigation planning efforts visit www.lowcountrycog.org






[Employment Opportunities](#) | [Topic Index](#) | [Contact Us](#)



 E-Subscription Service

[Home](#) | [Government](#) | [Online Services](#) | [Departments](#) | [Our Island](#) | [Public Safety](#) | [Publications](#)

Hilton Head Island COVID-19 Hub

Individuals Required to Wear Face Coverings in Commercial Business Establishments

Coronavirus Disease 2019 (COVID-19)

Updates & News

- Hilton Head Island COVID-19 Updates
- Actualización del COVID-19 en Hilton Head Island
- Video Updates & Newsletters
- News Releases
- Announcements & Reminders
- COVID-19 Cases on Hilton Head Island

Restrictions & Actions

- Community Resources
- Questions & Answers
- Public Health
- Business Resources
- Community Heroes
- Reliable Sources & Links

Coronavirus Info Portal

Coronavirus (COVID-19) Portal

The Town and Fire Rescue along with Emergency Services Agencies across the country are monitoring the Coronavirus (COVID-19) situation to protect the public's health.

▲ Latest Updates - September 9, 2020

An Update from Deputy Town Manager Josh Gruber



AN UPDATE FROM
DEPUTY TOWN MANAGER
JOSH GRUBER

9/9/2020

Here's an update on what's happening around Town:

Disasters Don't Wait. Make Your Plan Today.
That's the theme of this year's National Preparedness Month (NPM), which is recognized each September to promote family and community disaster planning now and throughout the year. As we continue to respond to COVID-19, there is no better time to prepare for all potential disasters. With three months, including September, remaining in the 2020 hurricane season, we always remind our businesses, residents and guests to be prepared and visit our website at hiltonheadislandsc.gov for useful tips on disaster planning.

Input Sought for Natural Hazard Mitigation Plan
The Lowcountry Council of Governments is updating the Natural Hazard Mitigation Plan for Beaufort, Jasper, Colleton, and Hampton counties, and need your input on a survey regarding this topic. They want to hear from all citizens about their personal experiences and perceptions of natural hazards (i.e. hurricanes, tornadoes, floods). Each person's thoughts and experiences can really help with planning to save lives and to prevent major property damage and other losses caused by natural disasters in our region.

Please complete this survey and share it with as many people as you can!
Survey Link:
www.surveymonkey.com/r/LowcountryNaturalHazardMitigation2020


The survey will be open until September 30, 2020. Responses will be kept anonymous. If you have any questions or concerns, please contact Maleena Parkey, PhD, Senior Planner at the Lowcountry Council of Governments at meparkey@lowcountrycog.org.

COVID-19 Cases in Our Community
Hilton Head Regional Healthcare CEO Jeremy Clark gave an update on






COVID-19 Cases on Hilton Head Island




Current Hilton Head Island Restrictions



Frequently Asked Questions



What if you are Showing Symptoms?



Mask Up! Resources

Community Resources

[Community Resources](#)

[Medical Resources](#)

[Business Resources](#)

[Community Business Resource Directory](#)

[accelerateSC](#)

Information Sources

Monitor reliable information sources for the latest updates.

[Centers for Disease Control \(CDC\)](#)

[SC Department of Health & Environmental Control \(DHEC\)](#)

[accelerateSC](#)

[SC COVID-19 Monitoring & Testing Updates](#)

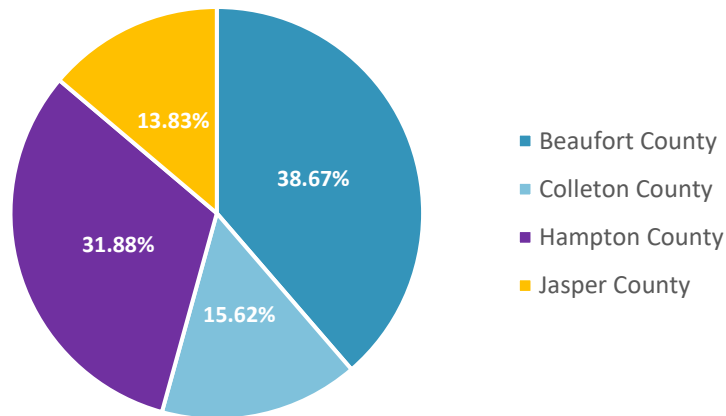
[World Health Organization \(WHO\)](#)

APPENDIX C-4: SURVEY RESULTS

Question 1

In what county is your household located?

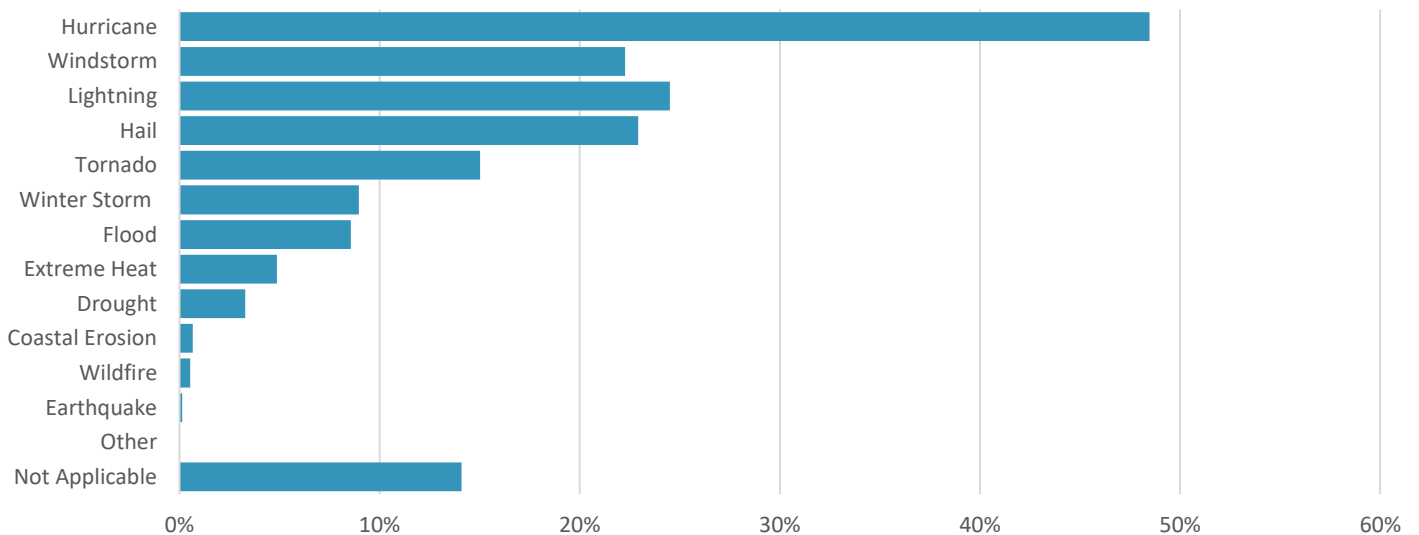
Overall, there were 864 responses of which 781 came from residents of the four counties. The other 83 responses came from Charleston, Chatham (GA), Orangeburg, and Richland Counties, or there was no location disclosed. Of the total responses, 38.67% were from Beaufort County, 15.62% were from Colleton County, 31.88% were from Hampton County, and 13.83% were from Jasper County.



Question 2

Which of the following hazards have caused life or property damage at your place of residence?

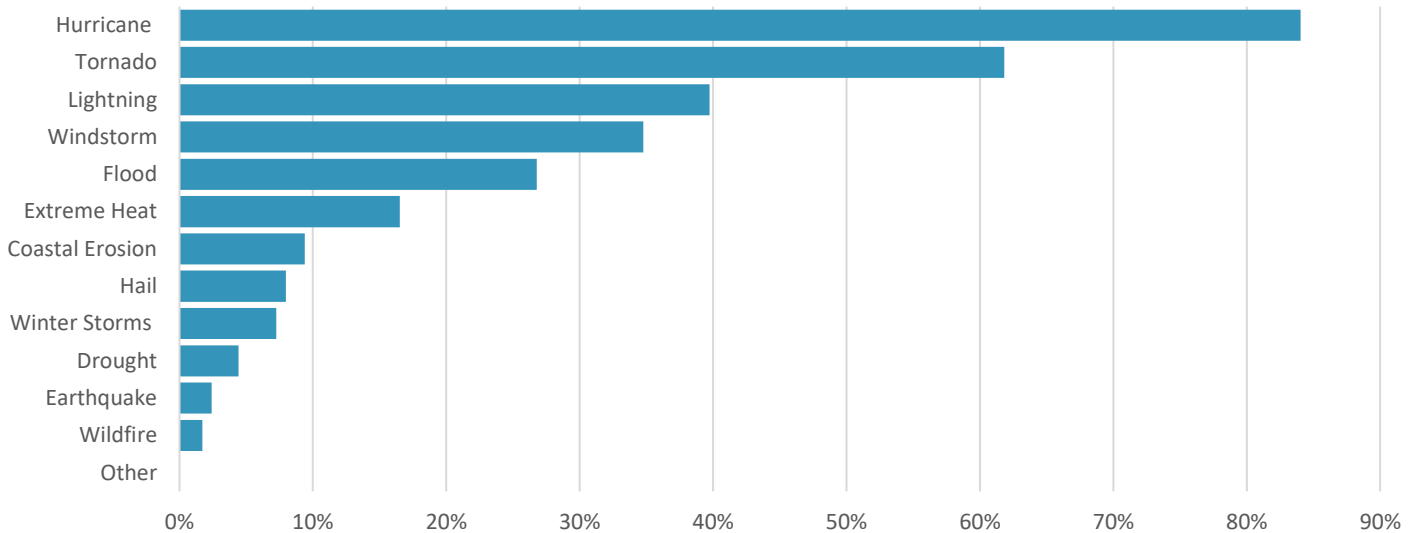
The results show that the most frequently cited hazards to cause damage to property for Lowcountry residents are hurricanes, Windstorms, and lightning. These data support with the vulnerability analysis presented in the hazard mitigation plan and the focus of hazard mitigation actions.



Question 3

Please choose the 3 hazards that are your greatest cause of concern for your life and property.

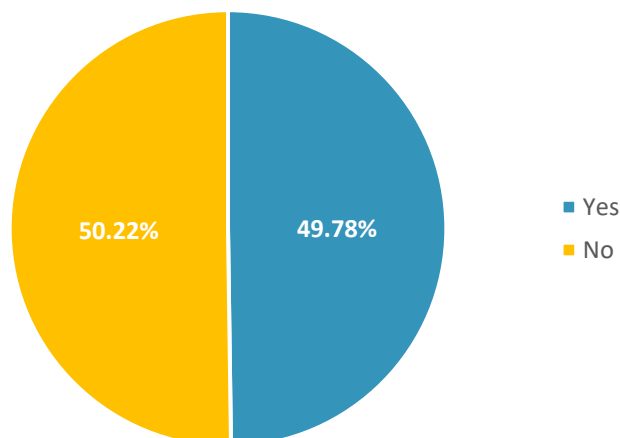
This question allows respondents to identify the hazards that are the greatest cause of concern for their life and property. The top three hazards of greatest concern are hurricanes, tornadoes, and lightning. These hazards correlated with the most frequently cited hazards to cause damage to property for Lowcountry residents.



Question 4

Have you made any improvements to your property to protect against natural hazards?

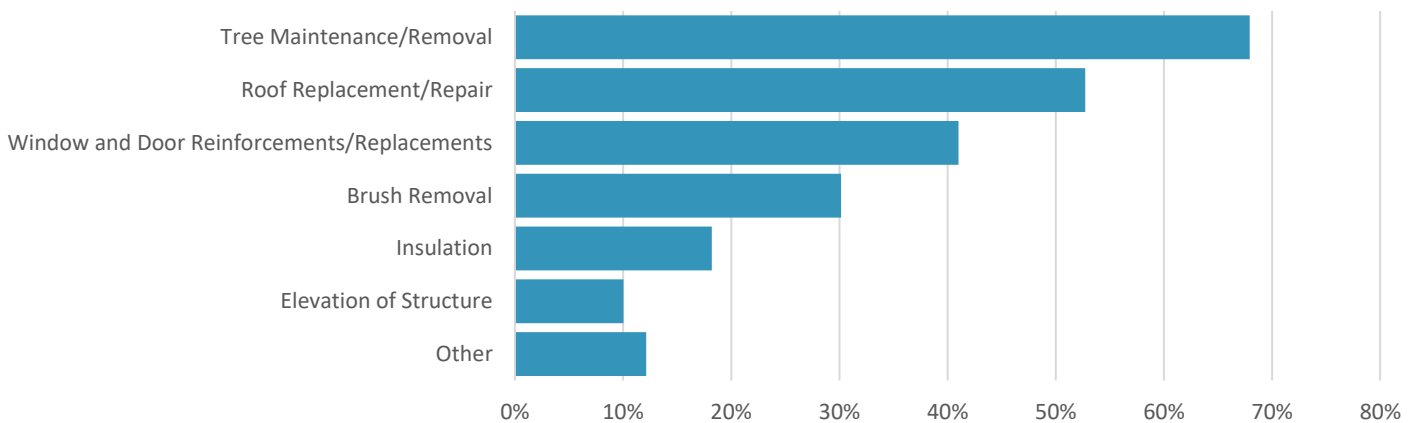
The results show that the respondents who have and have not made any improvements to their homes to reduce their vulnerability are about the same.



Question 5

If you answered yes to question 4, please indicate what type of improvements you have made.

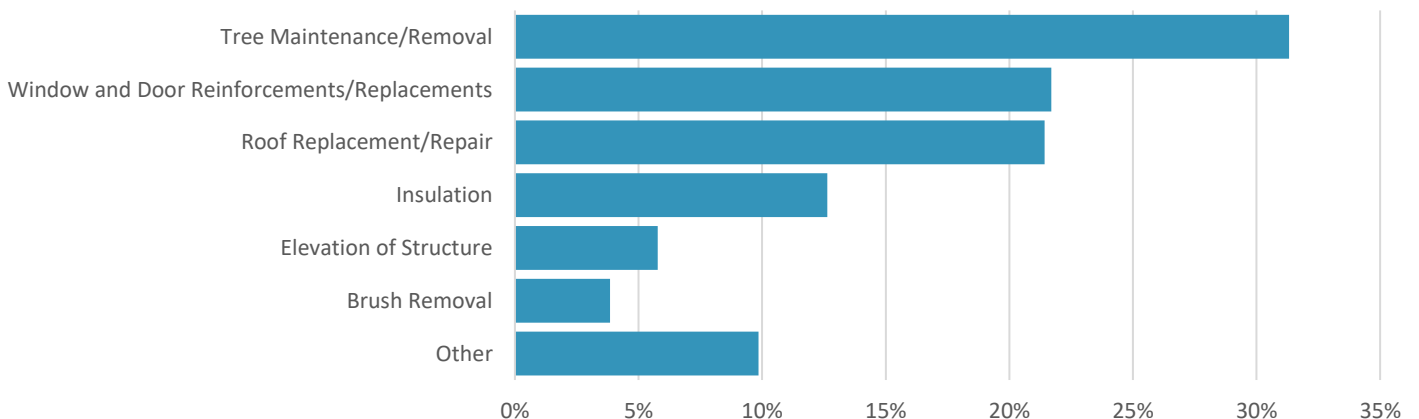
The results show that the most common improvements made by homeowners to increase resilience to natural hazards include the maintenance and removal of trees in the vicinity of homes, the replacement/enhancement of roofs, windows, and doors. Tree maintenance is largely an issue for individual property owners as private lands greatly outnumber public properties. Respondents also indicate other improvements including, for example, adding backup generators and power surge protectors, fence replacement, and safe room built in the center of home.



Question 6

If you answered no to question 4, please indicate which of the following home improvements you benefit from the most?

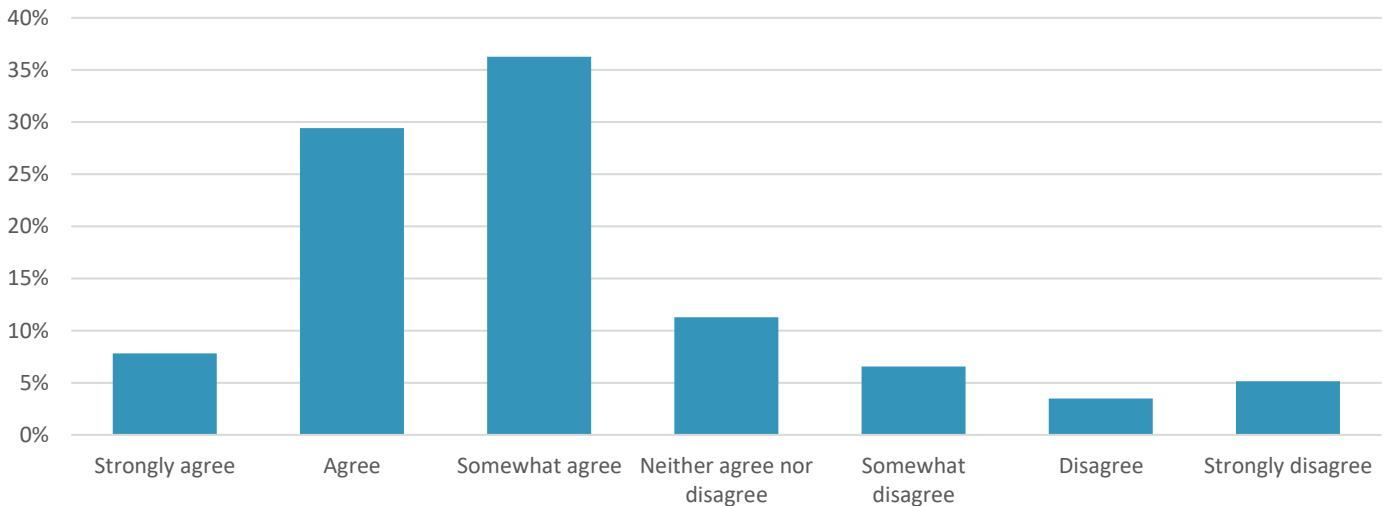
This question allows respondents to identify their needs for improvements to their property for protection from the natural hazards. The three highest priority investments are tree maintenance/removal, window and door reinforcements/replacements, and roof replacement/repair, respectively. Respondents also indicate that they benefit from the electrical system, water drainage system, and flooring materials.



Question 7

Please indicate your level of agreement with the following statement: My household is prepared in the event of a natural disaster.

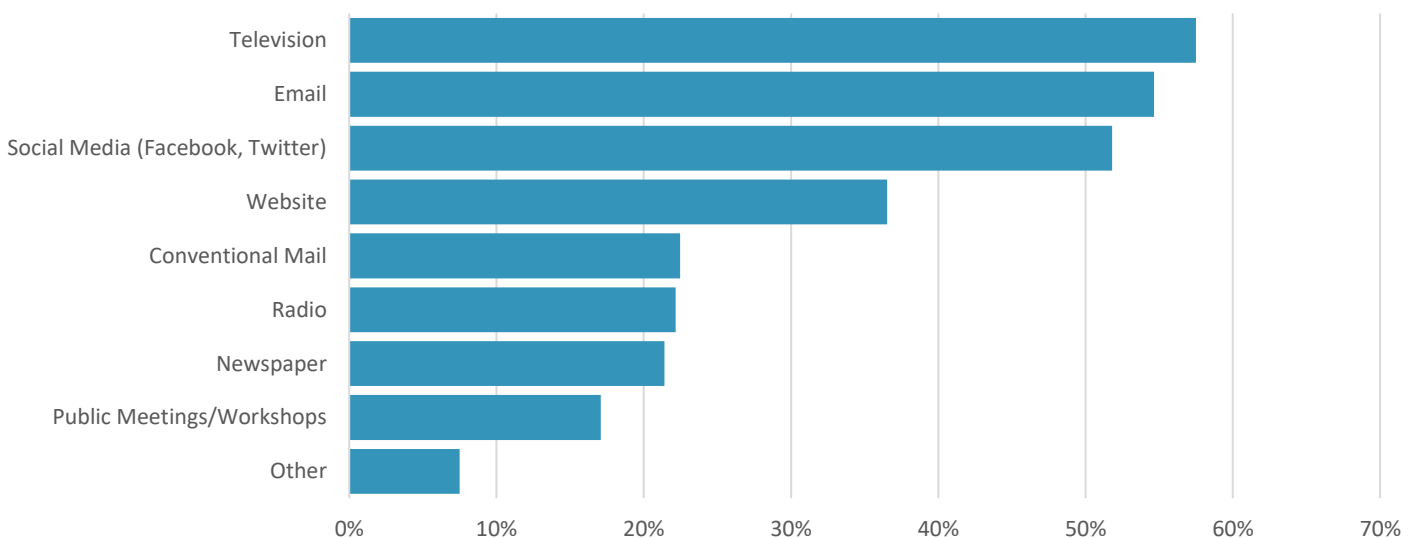
This question indicates the importance of preparation for the natural hazards. Over 70% of respondents agree to this statement.



Question 8

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.

This question identifies the respondents' preferred communication channel on hazard preparation and planning. Television, email, and social media are the top three respondents' favorites. Among others, respondents also would like to receive weather alert via phones from their corresponding jurisdictions.



Question 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.

This question allows respondents to indicate the level of importance of community-wide hazard mitigation efforts. The results show that the most important strategy concerns emergency services and critical facilities. The next important strategy is the prevention such as hazard resistant construction standards and, enforcement of building and zoning codes, and regulation of construction in hazard-prone areas. While these two categories achieve the greatest support, all strategies are endorsed to a large degree in the survey.

Activities	Not at all Important	Not Important	Neutral	Important	Extremely Important
<u>Prevention</u> Examples include heightened standards for hazard-resistant construction, increased regulation of construction in hazard-prone areas as well as enhanced enforcement of existing regulations.	1.34%	2.23%	16.64%	46.51%	33.28%
<u>Property Protection</u> Examples include relocation, elevation, structural repairs, and storm shutters.	1.63%	2.38%	18.42%	46.06%	31.50%
<u>Natural Resource Protection</u> Examples include floodplain protection, habitat preservation, wetland restoration and forest management.	2.23%	3.57%	17.38%	43.83%	32.99%
<u>Structural Projects</u> Examples include dams, levees, seawalls detention/retention basins, channel modification, retaining walls, and storm sewers.	2.67%	5.79%	18.57%	41.01%	31.95%
<u>Emergency Services</u> Examples include warning systems, evacuation planning, emergency response training, and protection of critical facilities or systems.	0.00%	1.34%	6.39%	26.89%	65.38%
<u>Public Education and Awareness</u> Examples include outreach projects, school education programs, library materials, and demonstration events.	1.49%	1.93%	13.97%	41.01%	41.60%

Question 10

Please provide your zip code.

This question helped to identify the specific location of respondents. Therefore, it helped to determine the planning area.

Question 11

If you have any other comments, questions, or concerns, please specify.

This question allows respondents to provide additional comments related to the hazard mitigation, including issues that were not addressed in the survey. These are shown below.

- I've worked to make other communities resilient during my career and it all starts with good codes and good enforcement.
- All storm sewers are overgrown/clogged with debris...Town of HHI does nothing to clear all these storm drains, hence the additional damage from water unable to drain away. Total neglect
- I do not think the minimum elevation requirements in flood zones should be lowered, as is being proposed by builders in this area. They need to use the old flood plain maps, especially with global warming.
- New commercial and residential building should be limited and have restrictions to preserve the low country.
- Managed retreat is the best way to mitigate coastal flooding issues.
- Stop building so many houses! Use Raised slabs at least 18 inches, no more vinyl homes, must be hardy board or brick.
- Removal of dangerous pine trees should be encouraged, rather than charge exorbitant permit fees
- Availability for more affordable property damage options i.e. Insurance, debris removal, roofing updates etc.
- Nothing is really going to protect us or our property from a truly strong hurricane (Hugo class). That's what insurance is for.
- The allowance of more and more surface area to be covered by non-permeable materials (concrete, asphalt, etc.) will increase the level of regular flooding from run-off and result in continued property damage.
- We have been discouraged from removing dangerous overly tall pine trees near our home even though we are willing to replace them with other trees. We wish to do this because we had pine trees through our roof and a window during Hurricane Matthew. We also were flooded then because lagoon gates were not operating properly.
- Does the Lowcountry Regional Water and Sewer department have emergency plans, such as pumping their tanks full in case of power outages that will affect the pumps? Installing emergency connects for generators at their pump sites. I think it is ridiculous that when power is lost for several days, we don't have water.
- The county needs to do a better job making owners of vacant land maintain and remove dead trees.
- Dead trees along roadways and power lines should be removed. Non-working power lines along roadways should be removed (may be miss-identified as downed powerlines resulting in recovery crews wasting resources).
- Signs that was knocked down Alpine drive in Early Branch. Ever since that our street was closed in Early Branch.
- Beach Renourishments are a must have.
- Ongoing beach renourishment is great.
- My concern is for the overbuilding on HHI. Putting in a golf cart park on the waterfront is an outrageous offense to the environment. Building homes in new communities is overtaxing our natural resources. and bending rules to accommodate tourism is an outrage.
- More attention should be paid to global warming.

- I can take care of my property. I am more concerned with the differences in communities for plans. Also, the road to Edisto beach from Edisto island could easily be washed away. Needs to be a bridge. We need to relax certain environmental hindrances on fortifying our own properties (i.e. seawalls). Edisto Beach needs to dredge canals to allow for better drainage from storm surge and heavy rains. Installation of storm sewers would be a plus as well.
- Roads are in need of repair. Important for evacuation and daily use.
- Roads for evacuation are horrible and need to be fixed.
- Maintain and lengthen groins. Build protective dune. Build community tornado shelter.
- we are MUSC ordered quarantined since March. how do we maintain quarantine when evacuating?
- Not as much evacuation. Small amount of emergency personnel remaining on island.
- Most of my friends and me too have pets. Please include solutions for pet owners
- I think town emails, community and gated community emails, social media, phone recordings update dated.
- Home security during an island evacuation.
- All information we can get in advance is important!
- organized and timely re-entry in the case of mandatory evacuation.
- send text messages with regard to work shops, info added to town or county website, strategy or policy changes etc.
- What are we prepared as a community to global warming? How will the application of Arbour Nature improve our community in the event of another hurricane or tornado?
- Don't restrict HHI homeowners from having contractors they hire from taking storm debris to designated sites.
- Hampton county need grants to help those who lost jobs to be able to get help with renovation or getting a better home for protection.
- Would like to see counties have a list of volunteers showing type of equipment they could provide to help with clean up so that EMS could call these folks for help after a storm knowing they will get kind of help they need.
- Would like to have someone to inspect her house (senior citizen) to see how much weatherization she would need to have done and will LCOG help with paying for it?
- Are you going to help the citizens?
- Are you going to assist seniors in weatherizing their homes?
- Many of our community is elderly and living alone. Please make sure any of the vulnerable is safe and has the ability to do what is needed to help themselves.
- County does not maintain ditch at corner intersection. High weeds and water at intersection.
- Low income families and senior citizens would benefit from information regarding home repairs/improvement. JCNU provided services/improvements for roof replacement/repair. Need a large dying tree removed.
- Clear ditch.
- Drainage systems/ditches need to be upgraded and maintained. Many yards remain flooded after heavy rains.
- Keeping ditches clean, clear grass and weeds from water drain off better. Also scrapping the dirt roads, they have potholes and clear brush on to see better. Also remove non inhabited mobile homes and homes to deter illegal activities.
- Lots of limbs hanging over roads and old trees leaning near roadway.
- Keep government out of my business.
- Timely and effective evacuation for the elderly.
- The reason for those things not repaired is because I don't have money.

-
- Stay prepared and readily give information. Be timely and accurate.
 - Meals on wheels is a blessing and all the volunteers are so nice.
 - Would I be able to have 3 oak trees removed because they are hanging over the house?
 - The weeds by the road grow 15 feet high by the road we turn in on. A lot of elderly do not have email, text etc.

Question 12

Please leave your email here for additional information pertaining to natural hazard mitigation (Optional).

This question allowed respondents to provide their email address for future information related natural hazards.

APPENDIX C-5: ADDITIONAL STAKEHOLDERS

Council on Aging

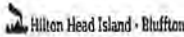
- Colleton County Council on Aging
- Hampton County Council on Aging
- Jasper County Council on Aging

Businesses

- B&D Trucking Enterprise
- Be-Green Industries
- Beaufort County Adult Education
- Beaufort County School District
- Beaufort Economic Development
- Colleton County Adult Education
- Colleton County Economic Development
- Department of Social Services
- Dominion Energy
- Harris Pillow Supply
- Hilton Head Regional
- Jasper/Hampton Adult Education
- Josie Creations
- Pak Net Inc
- Palmetto Training Inc
- Ready SC
- Ross Innovative Employment Service
- South Carolina Department of Employment and Workforce
- South Carolina Department of Vocation Rehabilitation
- South Carolina Manufacturing Partnership
- Spencer Industries
- Technical College of The Lowcountry
- Tico Industries
- Town of Estill
- United States Postal Service

APPENDIX D: PLAN REVIEW

Advertisement



THE ISLAND PACKET

AFFIDAVIT OF PUBLICATION

Account #	Ad Number	Identification	PO	Cols	Lines
446663	0004827039	Public Notice 2020 Lowcountry Hazard Mitigation	10 Lowcountry Hazard Mitigation P	2	22

Attention:

LC COUNCIL OF GOVERNMENT
 P.O. BOX 98
 YEMASSEE, SC 299450098

STATE OF)
 SOUTH CAROLINA) AFFIDAVIT
 COUNTY OF BEAUFORT)

I, Michelle Long, makes oath that the advertisement, was published in The Island Packet and The Beaufort Gazette, a newspaper published in Beaufort County, State and County aforesaid, in the issue(s) of

_____ 1 _____ Insertions


Published On:
 December 13, 2020

Public Notice
2020 Lowcountry Hazard Mitigation Plan

The Lowcountry Council of Governments is requesting the public to review and provide comments on the final draft Hazard Mitigation Plan for Beaufort, Jasper, Hampton and Colleton Counties.

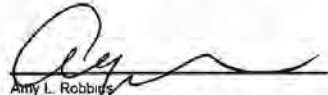
The 2020 Lowcountry Natural Hazard Mitigation Plan is an update of the 2015 plan. The plan profiles the natural hazards including historic location and past occurrence data along with identifying the mitigation actions to save lives and to prevent major property damage and other losses caused by natural disasters in the Lowcountry region. The report can be viewed on the Lowcountry COG website at <http://www.lowcountrycog.org>. Copies are also available upon request.

Written comments on the draft will be accepted until close of business on January 6th, 2021. Please send your comments to Malena Parkey, Lowcountry COG, P.O. Box 98, Yemassee, SC 29945 or via email at mparkey@lowcountrycog.org. For additional information regarding the draft Hazard Mitigation Plan, please call (843) 473-3987.



Michelle Long
 Inside Classified Accounts
 Representative

Subscribed and sworn to before me
 this 15th day of December, 2020



Amy L. Robbins
 Notary Public for South Carolina
 My Commission Expires
 November 27, 2022

The Island Packet | The Beaufort Gazette - 10 Buck Island Road | Bluffton, SC 29910 - P.O. Box 5727 | Hilton Head Island, SC 29928
 Phone: (843) 706-8100 | (877) 706-8100 | Advertising Fax: (843) 708-5050 | News Fax: (843) 706-3070
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The Hampton County Guardian

P.O. Box 625, 306 Lee Avenue, Hampton, SC 29924
Voice (803) 943-4645 • Fax (803) 943-9365
Michael DeWitt, Jr., Managing Editor

AFFIDAVIT OF PUBLICATION STATE OF SOUTH CAROLINA COUNTY OF HAMPTON

Personally appeared before me, MICHAEL DEWITT, who being duly sworn according to law, deposes and says he/she is employed with The Hampton County Guardian newspaper, published weekly on Thursday, and who further deposes that the Notice, a true copy, is hereto affixed, was published in The Hampton County Guardian on said issue(s) of:

December 17, 2020

Advertising Dates

Michael DeWitt

For the Publisher, Managing Editor

Sworn to before me this 17th day of December, 2020

PUBLIC NOTICE
2020 Lowcountry Hazard Mitigation Plan

The Lowcountry Council of Governments is requesting the public to review and provide comments on the final draft Hazard Mitigation Plan for Beaufort, Jasper, Hampton and Colleton Counties. The plan profiles the natural hazards including historic location and past occurrence data along with identifying the mitigation actions to save lives and to prevent major property damage and other losses caused by natural disasters in the Lowcountry Region. The report can be viewed on the Lowcountry COG website at <https://www.lowcountrycog.org>. Copies are also available upon request.

Written comments on the draft will be accepted until close of business on January 8th, 2021. Please send your comments to Maleena Parkey, Lowcountry COG, P.O. Box 98, Yemassee, SC 29945 or via email at: mparkey@lowcountrycog.org. For additional information regarding the draft Hazard Mitigation Plan, please call (843) 473-3987. #10743(1tcHH)12/17/20



Notary Seal

Notary Public for South Carolina

September 4, 2024
My Commission Expires

LEGAL ADS



Legals

ANNOUNCEMENT:

Hampton School District One is looking to fill Teacher & Paraprofessional vacancies. Please visit our website at www.hampton1.org Under employment opportunities for a complete listing of vacancies.

NOTICE OF PUBLIC SALE
Property of the following tenants will be sold to satisfy rental liens ONLINE in accordance with Title 38 Chapter 20, Section 10 through 50 of the South Carolina Statutes. The undersigned will sell at public sale by competitive bidding from December 20, 2020 to December 18th, 2020 on or after 1:00 pm EST on WWW.LOCKERFOX.COM with pictures attached. The Auction will end on December 18th, 2020 at 1 PM. Said property is stored at Storage Rentals of America 443 at 601 Elm St W. Hampton, SC 29924.

Unit/Tenant Name/Items
0218 Dan Williams Household Goods
0229 Rachel Segars Household Goods
0424 Jennifer Glover Household Goods
0532 Wilshire Smart Household Goods

Purchases must be paid for at the time of purchase by cash only. All purchased items are sold as is, where is, and must be removed at the time of sale. Sale is subject to cancellation in the event of settlement between owner and obligated party. #107402chh12/17/20

STATE OF SOUTH CAROLINA, COUNTY OF HAMPTON IN THE COURT OF COMMON PLEAS C/A 2020-CP-25-00026

SUMMONS AND NOTICE OF FILING OF COMPLAINT

JPMorgan Chase Bank, National Association, PLAINTIFF,
VS.
Seth Owens; Darlene Denise Hall a/k/a Darlene D. Hall; Daphne Wallace a/k/a Daphne H. Owens a/k/a Daphne Clarissa Hayes a/k/a Daphne Hayes Owens a/k/a Daphne Hayes Wallace; and SRP Federal Credit Union, DEPENDANT(S). (190)268.00272

TO THE DEFENDANT(S)

DARLENE DENISE HALL A/K/A DARLENE D. HALL ABOVE NAMED:
YOU ARE HEREBY SUMMONED and required to answer the Complaint in the above entitled action, copy of which is herewith served upon you, and to serve copy of your answer upon the undersigned at their offices, 2712 Middleburg Drive, Suite 200, P.O. Box 2065, Columbia, South Carolina 29202, within thirty (30) days after service hereof upon you, exclusive of the day of such service, and if you fail to answer the Complaint within the time aforesaid, the Plaintiff in this action will apply to the Court for the relief demanded in the Complaint, and judgment by Default will be rendered against you for the relief demanded in the Complaint.

YOU WILL ALSO TAKE NOTICE that should you fail to Answer the foregoing Summons, the Plaintiff will move for a general Order of Reference of this cause to the Special Referee for Hampton County, which Order shall, pursuant to Rule 53(e) of the South Carolina Rules of Civil Procedure, specifically provide that the said Special Referee is authorized and empowered to enter a final judgment in this cause.

TO MINOR(S) OVER FOURTEEN YEARS OF AGE AND/OR MINOR(S) UNDER FOURTEEN YEARS OF AGE AND THE PERSON WITH WHOM THE MINOR(S) RESIDES AND/OR TO PERSONS UNDER SOME LEGAL DISABILITY:
YOU ARE FURTHER SUMMONED AND NOTIFIED to apply for the appointment of a Guardian Ad Litem to represent said minor(s) within sixty (60) days after the date of the first publication of this Notice to Creditors, or within one (1) year from date of death, whichever is earlier (SCPC 62-3-801, et seq.), or such persons shall be forever barred as to their claims. All claims are required to be presented in written statements on the prescribed form (FORM #371ES) indicating the name and the address of the claimant, the basis of the claim, the amount claimed, the date when the claim will become due, the nature of any uncertainty as to the claim, and a description of any security as to the claim.

ESTATE:
Katie Cooper Garvin
DATE OF DEATH: October 8, 2020
PERSONAL REPRESENTATIVE: Conchita G. Bostick
P.O. Box 1232
Esth, SC 29918
#107443chh12/31/20

LEGALS
appointment will be made by the Plaintiff(s) herein.
NOTICE IS HEREBY GIVEN that the original Complaint in the above entitled action was filed in the office of the Clerk of Court for Hampton County on January 13, 2020.
SCOTT AND CORLEY, P.A.
By: Ronald C. Scott (rons@scottandcorley.com), SC Bar #4996.
Reginald P. Corley (reggiec@scottandcorley.com), SC Bar #69453.
Angela J. Grant (angj@scottandcorley.com), SC Bar #78334.
Allison E. Heffernan (allis@scottandcorley.com), SC Bar #68530.
Matthew E. Rupert (matt@scottandcorley.com), SC Bar #100740.
Louise M. Johnson (louisej@scottandcorley.com), SC Bar #16588.
H. Guyton Murrell (guytonm@scottandcorley.com), SC Bar #64134.
Craig T. Smith (craig@scottandcorley.com), SC Bar #102831.
Jordan D. Beumer (jordanb@scottandcorley.com), SC Bar #104074.
ATTORNEYS FOR THE PLAINTIFF:
2712 Middleburg Drive, Suite 200
Columbia, SC 29204
(803-252-3340)
#107413chh12/31/20

LEGALS
PLAINTIFF,
Larry Pryor a/k/a Larry D. Pryor a/k/a Larry Donnie Pryor, et al., DEPENDANT(S). (201070.00120)

LEGALS
PLAINTIFF,
JIMMY PRYOR, INDIVIDUALLY, AS HEIR OR DEVISEE OF THE ESTATE OF WILLIE LESSIE PRYOR A/K/A WILLIE LESSIE PRYOR, DECEASED; CALVIN PRYOR A/K/A CALVIN LEROY PRYOR A/K/A CALVIN L. PRYOR, INDIVIDUALLY, AS HEIR OR DEVISEE OF THE ESTATE OF WILLIE LESSIE PRYOR, DECEASED; AND GERALD PRYOR, INDIVIDUALLY, AS HEIR OR DEVISEE OF THE ESTATE OF WILLIE LESSIE PRYOR A/K/A WILLIE LESSIE PRYOR, DECEASED ABOVE NAMED:
YOU ARE HEREBY SUMMONED and required to answer the Complaint in the above entitled action, copy of which is herewith served upon you, and to serve copy of your answer upon the undersigned at their offices, 2712 Middleburg Drive, Suite 200, P.O. Box 2065, Columbia, South Carolina 29202, within thirty (30) days after service hereof upon you, exclusive of the day of such service, and if you fail to answer the Complaint within the time aforesaid, the Plaintiff in this action will apply to the Court for the relief demanded in the Complaint, and judgment by default will

PUBLIC NOTICE

2020 Lowcountry Hazard Mitigation Plan
The Lowcountry Council of Governments is requesting the public to review and provide comments on the final draft Hazard Mitigation Plan for Beaufort, Jasper, Hampton and Colleton Counties. The plan profiles the natural hazards including historic location and past occurrence data along with identifying the mitigation actions to save lives and to prevent major property damage and other losses caused by natural disasters in the Lowcountry Region. The report can be viewed on the Lowcountry COG website at <https://www.lowcountrycog.org>. Copies are also available upon request.

Written comments on the draft will be accepted until close of business on January 8th, 2021. Please send your comments to Maleena Parkey, Lowcountry COG, P.O. Box 98, Yemassee, SC 29945 or via email at: meparkey@lowcountrycog.org. For additional information regarding the draft Hazard Mitigation Plan, please call (843) 473-3987. #107431chh12/17/20

STATE OF SOUTH CAROLINA COUNTY OF HAMPTON IN THE COURT OF COMMON PLEAS C/A 2020-CP-25-00417 SUMMONS AND NOTICE OF FILING COMPLAINT
Nelson mortgage LLC d/b/a Mr. Cooper,

be rendered against you for the relief demanded in the Complaint.
YOU WILL ALSO TAKE NOTICE that should you fail to Answer the foregoing Summons, the Plaintiff will move for a general Order of Reference of this cause to the Special Referee for

LEGALS
PLAINTIFF,
Hampton County, which Order shall, pursuant to Rule 53(e) of the South Carolina Rules of Civil Procedure, specifically provide that the said Special Referee is authorized and empowered to enter a final judgment in this cause.

LEGALS
PLAINTIFF,
Hampton County, which Order shall, pursuant to Rule 53(e) of the South Carolina Rules of Civil Procedure, specifically provide that the said Special Referee is authorized and empowered to enter a final judgment in this cause.

LEGALS
PLAINTIFF,
Hampton County, which Order shall, pursuant to Rule 53(e) of the South Carolina Rules of Civil Procedure, specifically provide that the said Special Referee is authorized and empowered to enter a final judgment in this cause.

Notice to Creditors

NOTICE TO CREDITORS OF ESTATES
IN THE MATTER OF DANNY HUGH JARRELL C/A 2020ES2500189
All persons having claims against the following estates MUST file their claims on FORM #371ES with the Probate Court of Hampton County, the address of which is P.O. Box 601, Hampton, SC 29024, within (8) eight months after the date of the first publication of this Notice to Creditors, or within one (1) year from date of death, whichever is earlier (SCPC 62-3-801, et seq.), or such persons shall be forever barred as to their claims. All claims are required to be presented in written statements on the prescribed form (FORM #371ES) indicating the name and the address of the claimant, the basis of the claim, the amount claimed, the date when the claim will become due, the nature of any uncertainty as to the claim, and a description of any security as to the claim.

LEGALS
PLAINTIFF,
Hampton County, which Order shall, pursuant to Rule 53(e) of the South Carolina Rules of Civil Procedure, specifically provide that the said Special Referee is authorized and empowered to enter a final judgment in this cause.

LEGALS
PLAINTIFF,
Hampton County, which Order shall, pursuant to Rule 53(e) of the South Carolina Rules of Civil Procedure, specifically provide that the said Special Referee is authorized and empowered to enter a final judgment in this cause.

LEGALS
PLAINTIFF,
Hampton County, which Order shall, pursuant to Rule 53(e) of the South Carolina Rules of Civil Procedure, specifically provide that the said Special Referee is authorized and empowered to enter a final judgment in this cause.

Notice to Creditors

NOTICE TO CREDITORS OF ESTATES
IN THE MATTER OF MERRY C. McALHANEY C/A 2020ES2500189
All persons having claims against the following estates MUST file their claims on FORM #371ES with the Probate Court of Hampton County, the address of which is P.O. Box 601, Hampton, SC 29024, within (8) eight months after the date of the first publication of this Notice to Creditors, or within one (1) year from date of death, whichever is earlier (SCPC 62-3-801, et seq.), or such persons shall be forever barred as to their claims. All claims are required to be presented in written statements on the prescribed form (FORM #371ES) indicating the name and the address of the claimant, the basis of the claim, the amount claimed, the date when the claim will become due, the nature of any uncertainty as to the claim, and a description of any security as to the claim.

NOTICE TO CREDITORS OF ESTATES
IN THE MATTER OF KATIE COOPER GARVIN C/A 2020ES2500189
All persons having claims against the following estates MUST file their claims on FORM #371ES with the Probate Court of Hampton County, the address of which is P.O. Box 601, Hampton, SC 29024, within (8) eight months after the date of the first publication of this Notice to Creditors, or within one (1) year from date of death, whichever is earlier (SCPC 62-3-801, et seq.), or such persons shall be forever barred as to their claims. All claims are required to be presented in written statements on the prescribed form (FORM #371ES) indicating the name and the address of the claimant, the basis of the claim, the amount claimed, the date when the claim will become due, the nature of any uncertainty as to the claim, and a description of any security as to the claim.

NOTICE TO CREDITORS OF ESTATES
IN THE MATTER OF MERRY C. McALHANEY C/A 2020ES2500189
All persons having claims against the following estates MUST file their claims on FORM #371ES with the Probate Court of Hampton County, the address of which is P.O. Box 601, Hampton, SC 29024, within (8) eight months after the date of the first publication of this Notice to Creditors, or within one (1) year from date of death, whichever is earlier (SCPC 62-3-801, et seq.), or such persons shall be forever barred as to their claims. All claims are required to be presented in written statements on the prescribed form (FORM #371ES) indicating the name and the address of the claimant, the basis of the claim, the amount claimed, the date when the claim will become due, the nature of any uncertainty as to the claim, and a description of any security as to the claim.

Notice to Creditors

NOTICE TO CREDITORS OF ESTATES
IN THE MATTER OF MERRY C. McALHANEY C/A 2020ES2500189
All persons having claims against the following estates MUST file their claims on FORM #371ES with the Probate Court of Hampton County, the address of which is P.O. Box 601, Hampton, SC 29024, within (8) eight months after the date of the first publication of this Notice to Creditors, or within one (1) year from date of death, whichever is earlier (SCPC 62-3-801, et seq.), or such persons shall be forever barred as to their claims. All claims are required to be presented in written statements on the prescribed form (FORM #371ES) indicating the name and the address of the claimant, the basis of the claim, the amount claimed, the date when the claim will become due, the nature of any uncertainty as to the claim, and a description of any security as to the claim.

MOVIE REVIEW

HBO's Bee Gees doc tracks their highs, lows

By Ed Symkus
More Content Now

Do you have a favorite Bee Gees song? How about a favorite Bee Gees? For the younger members of this readership, do you know who the Bee Gees were? They were the British trio of the Gibb brothers: Barry (and three years younger) twins Robin and Maurice. They knew early on that they could sing, that they had the special gift of sibling harmony (think of the Everly Brothers, the Beach Boys). They did it on stages, then they moved into recording studios. They made the Top 20 chart two dozen times, with nine songs hitting No. 1. Constantly reinventing themselves, they moved from long-jangle ballads ("To Love Somebody," "I Started a

Joke") to exciting dance numbers ("You Should Be Dancing," "Stayin' Alive"). Frank Marshall's documentary stretches from home movies of the kids to segments last year of sole remaining Bee Gees Barry — Maurice died in 2003, Robin in 2012 — thinking out loud about the fact that his immediate family is gone, but he has fantastic memories. The film is a collection of those memories, some from Barry, others in separate interview sessions with the three brothers in 1999. Still more are told through photos and archival footage, in the studio, at play, in old TV clips, a great deal of it onstage. It opens with a clip of their gorgeous harmonies at a 1979 concert in Oakland, while they

were still riding the huge wave of popularity that sprang from their songs on the soundtrack of "Saturday Night Fever." But it wasn't all disco sailing. The Bee Gees story is a rocky ride of ups and downs, successes and failures, and them, at one point, moving from being pop stars to pariahs. In the 1999 interviews, each Gibb brother chats about how the band started, how their sound developed, memories of certain gigs and each other. Added to that are interviews with their label mate Eric Clapton, Maurice's former wife and British pop star Julie, and Noel Gallagher, who knows a bit about sibling harmonies from working with his brother Liam in Oasis. We find out that all three Gibbs decided early

on that they were going to become famous. There's background on the creation of their first hit "New York Mining Disaster 1941." We discover that, at least in their case, success leads to fame, fame leads to inflated egos, and all of that led to inner turmoil and, in 1969, a breakup. Barry, in 2019, recalls, "Our three lives were now different lives," and in 1999 says, "It was really me and Robin who were in conflict; Maurice was in the middle." But change was routine, almost always due to the people they worked with, among them producer-promoter-label owner Robert Stigwood, label owner Ahmet Ertegun (who suggested that Barry add falsetto singing to the mix) and producer Arif

Mardin (who moved them toward an R&B sound). They were mainstream stars in the late '60s, had gotten back together but were worried about their musical future by the mid-'70s — when they again turned things around with a new sound on the single "Jive Talkin'" — and hit astonishing heights with their contributions to the disco-brenched "Saturday Night Fever," which became, at the time, the biggest selling album in the history of music. They were on top again. What could go wrong? Everything, in the form of the anti-disco movement, which soon toppled them from their perch, leaving them confused and frustrated.

Ed Symkus can be reached at esymkus@rcn.com.

Press Release



Serving Beaufort • Colleton • Hampton • Jasper Counties

For Immediate Release
December 11th, 2020

THE LOWCOUNTRY COUNCIL OF GOVERNMENT IS SEEKING PUBLIC COMMENT ON THE 2020 HAZARD MITIGATION PLAN UPDATE FOR BEAUFORT, COLLETON, HAMPTON AND JASPER COUNTIES

The Lowcountry Council of Governments is requesting the public to review and provide comments on the final draft Hazard Mitigation Plan for Beaufort, Colleton, Hampton and Jasper Counties.

The 2020 Lowcountry Natural Hazard Mitigation Plan is an update of the 2015 plan and combines the four counties into one streamlined document. The plan profiles the natural hazards including historic location and past occurrence data along with identifying the mitigation actions to save lives and to prevent major property damage and other losses caused by natural disasters in the Lowcountry region. The plan represents the jurisdictions commitment to reduce the risks from natural hazards as well as serve as a guide for decision makers as they commit resources to reducing the effects of natural hazards.

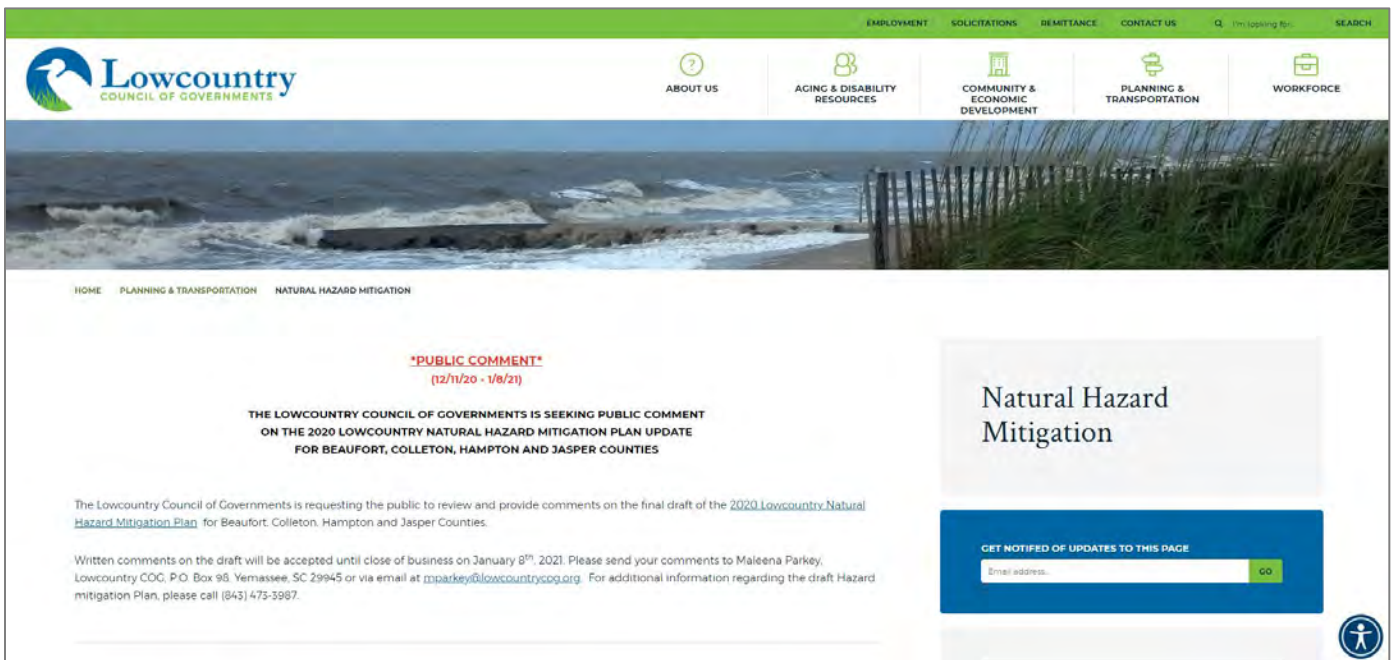
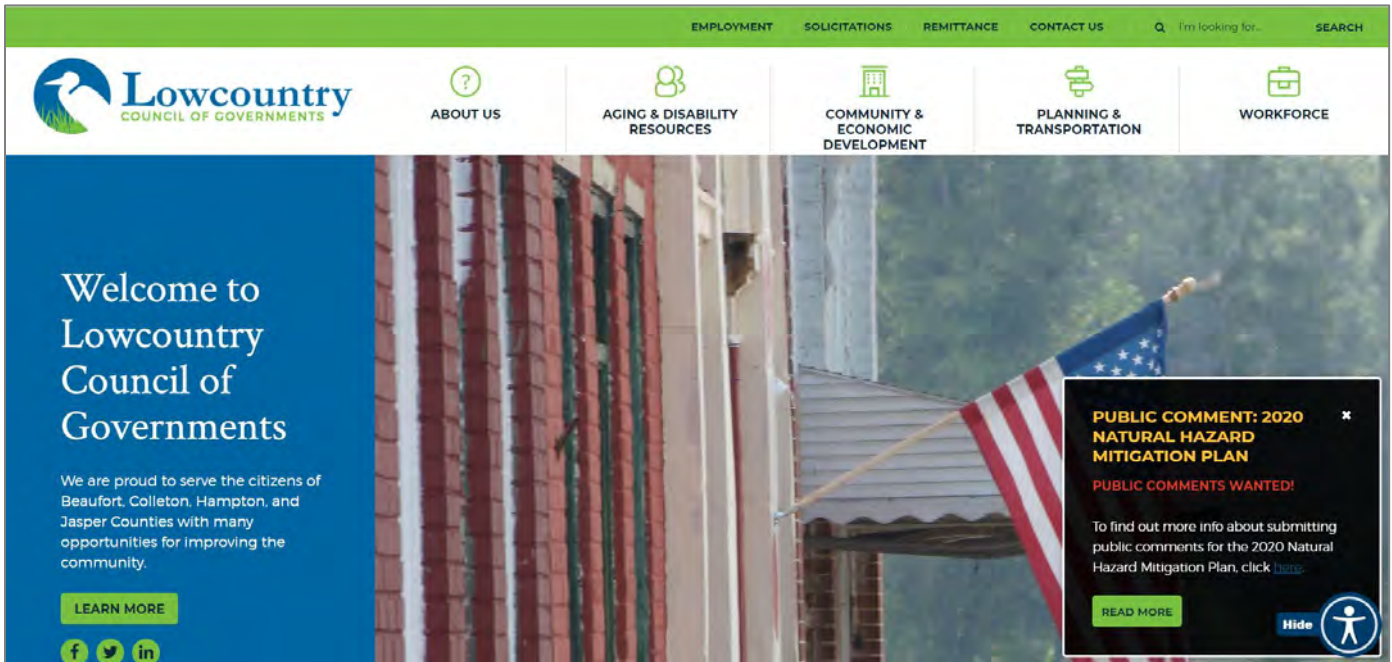
The report can be viewed on the Lowcountry COG website at <https://www.lowcountrycog.org>. Copies are also available upon request.

Written comments on the draft will be accepted until close of business on January 8th, 2021. Please send your comments to Maleena Parkey, Lowcountry COG, P.O. Box 98, Yemassee, SC 29945 or via email at mparkey@lowcountrycog.org. For additional information regarding the draft Hazard mitigation Plan, please call (843) 473-3987.

Lowcountry Council of Governments

PO Box 98 | 634 Campground Road
Yemassee, South Carolina 29945
Main: 843.473.3990 Planning: 843.473.3958 Fax: 843.726.5165
www.lowcountrycog.org

Website and Social Media



facebook Sign Up Email or Phone Password Log In [Forgot account?](#)

Lowcountry Council of Governments
December 14, 2020 at 12:19 PM · 🌐

📢 **Public Comments Wanted** 📢

The Lowcountry Council of Governments is requesting the public to review and provide comments on the final draft of the Natural Hazard Mitigation Plan for Beaufort, Colleton, Hampton and Jasper Counties. The plan profiles the natural hazards including historic location and past occurrence data along with identifying the mitigation actions to save lives and to prevent major property damage and other losses caused by natural disasters in the Lowcountry region. The report can be viewed on the Lowcountry COG website at https://www.lowcountrycog.org/.../Natural_Hazard_Mi.../index.php. Copies are also available upon request.

Written comments on the draft will be accepted until close of business on January 8th, 2021. Please send your comments to Maleena Parkey, Lowcountry COG, P.O. Box 98, Yemassee, SC 29945 or via email at mparkey@lowcountrycog.org. For additional info, please call (843) 473-3987.

Related Pages

- Beaufort County Governmen...**
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Government Organization
- Blue Heron Nature Center/Keep ...**
Nonprofit Organization
- City Beaufort SC**
Government Organization
- Beaufort MEC**
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Nonprofit Organization
- SC Department of Consumer Aff...**
Government Organization

LOWCOUNTRYCOG.ORG
PUBLIC COMMENT 12 11 20 1 8 21 THE LOWCOUNTRY COUNCIL OF GOVERNMENTS IS SEEKING PUBLIC COMMENT ON THE 2020 LOWCOUNTRY NATURAL HAZARD MITIGATION PLAN...

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📢 **Public Comments Wanted** 📢

The Lowcountry Council of Governments is requesting the public to review and provide comments on the final draft of the Natural Hazard Mitigation Plan for Beaufort, Colleton, Hampton and Jasper Counties. The plan profiles the natural hazards including historic location and past occurrence data along with identifying the mitigation actions to save lives and to prevent major property damage and other losses caused by natural disasters in the Lowcountry region. The report can be viewed on the Lowcountry COG website at <https://lnkd.in/dRCYJkH>. Copies are also available upon request.

Written comments on the draft will be accepted until close of business on January 8th, 2021. Please send your comments to Maleena Parkey, Lowcountry COG, P.O. Box 98, Yemassee, SC 29945 or via email at mparkey@lowcountrycog.org. For additional info, please call (843) 473-3987.

Natural Hazard Mitigation
lowcountrycog.org · 2 min read
PUBLIC COMMENT 12 11 20 1 8 21 THE LOWCOUNTRY COUNCIL OF GOVERNMENTS IS SEEKIN...

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Hilton Head Island COVID-19 Hub

Individuals Required to Wear Face Coverings in Commercial Business Establishments

Coronavirus Disease 2019 (COVID-19)

Updates & News

- Newsletters & Alerts
- Community Resources
- Questions & Answers
- Public Health
- Business Resources
- Community Events
- Website Sources & Links
- Coronavirus Info Portal

Subscribe to Updates

To sign up for Public Safety updates via email, enter your email address below:

*Email Address:

Coronavirus (COVID-19) Portal

The Town and Fire Rescue along with Emergency Services Agencies across the country are monitoring the Coronavirus (COVID-19) situation to protect the public's health.

Latest Updates - December 14, 2020

An update from Deputy Town Manager Josh Gruber

An update from Deputy Town Manager

AN UPDATE FROM DEPUTY TOWN MANAGER JOSH GRUBER

12/14/2020

Here's an update on what's happening around Town:

Last Town Council Meeting for 2020
 Tomorrow, December 15th, will be our last Town Council meeting for the year. The meeting is posted to our website at www.hiltonheadisland.gov. Citizens who wish to address Town Council during the meeting by phone must contact the Town Clerk at [843.341.4761](tel:843.341.4761) or info@hiltonheadisland.gov, no later than 12:00 p.m. the day of the meeting. Additionally, you can view the meeting on the Town's Facebook Page at [facebook.com/TheTownsOfHiltonHeadIslandSC](https://www.facebook.com/TheTownsOfHiltonHeadIslandSC) or website at www.hiltonheadisland.gov. The meeting may also be viewed on iHeartgy channels 9 & 133 and Spectrum channel 1304.

Fire Rescue Thanks You for the Donations
 Our Fire Rescue Division would like to thank everyone who donated gifts and food for its Holiday Drive to support Santa's Workshop at the Deep Well Project. Your donation will help brighten the holidays for families and children in the Hilton Head Island community.

Applications for Hilton Head Island Beach Parking Passes
 Effective today, we are requesting that applications for 2021-2022 beach parking passes be mailed to or dropped off at a collection box at our Facility Management office at 12A Gateway Circle. With the concerns around the rise of COVID-19 cases, we are limiting person-to-person interaction for processing these applications. The collection box is located in front of the building. You may obtain an application for a beach parking pass, instructions on submitting it and other pertinent information from the Town's website at www.hiltonheadisland.gov. Also, applications for beach parking passes will not be accepted at Town Hall and beach parking passes are not available at Town Hall.

Please allow Town staff time to review and process applications. Upon approval, the beach pass will be mailed to the applicant. For more information on beach parking passes, call 843-342-4230 or visit the Town's website at www.hiltonheadisland.gov. In the "How Do I?" section of the home page, click on "Obtain" and choose "beach parking pass."

Free Course on Business Continuity Planning
 The Town's Emergency Management Division is partnering with the Hilton Head Island Edition Chapter of Commerce to present a free one-day course on Business Continuity Planning on January 30, 2021. The course will provide the foundation for building a business continuity plan to help your business manage difficult situations or events that impact your business' ability to operate. The course will be held from 9 a.m. to 5 p.m. at the Pelham Inn & Suites, 12 Park Lane. Lunch will be provided. Registration for the course is required through the Rural Domestic Preparedness Consortium website at www.ruralprepinc.org. The course number and title is "MGT 381: Business Continuity Planning." A FEMA Student Identification is required and can be obtained at <https://cdo.sni.gov/femaid>. For more information regarding the course, contact Tom Gunn, Emergency Manager for the Town, at 843-247-2744 or thomg@hiltonheadisland.gov.

2020 Lowcountry Hazard Mitigation Plan Draft Available for Public Review
 The Lowcountry Council of Governments is requesting the public to review and provide comments on the final draft of the Hazard Mitigation Plan for Beaufort, Jasper, Hampton and Colleton counties. The 2020 Lowcountry Natural Hazard Mitigation Plan is an update of the 2015 plan. The plan profiles the natural hazards including historic location and past occurrence data along with identifying the mitigation actions to save lives and prevent major property damage and other losses caused by natural disasters in the Lowcountry region. The report can be viewed on the Lowcountry COG website at www.lowcountrycog.org. Copies are also available upon request. Written comments on the draft will be accepted until close of business on January 8th, 2021. Please send your comments to Malena Parker, Lowcountry COG, P. O. Box 98, Varnersville, S.C. 29945 or via email at mparker@lowcountrycog.org. For additional information regarding the draft Hazard Mitigation Plan, please call 843-473-2987.

COVID-19 Cases on Hilton Head Island

Current Hilton Head Island Restrictions

Frequently Asked Questions

What if you are Showing Symptoms?

Mask Up Resources

Community Resources

Community Resources

Medical Resources

Business Resources

Community Services Resource Directory

[acolesteSC](#)

Information Sources

Monitor reliable information sources for the latest updates.

[Centers for Disease Control \(CDC\)](#)

[SC Department of Health & Environmental Control \(DHEC\)](#)

[acolesteSC](#)

[SC COVID-19 Monitoring & Testing Update](#)

[World Health Organization \(WHO\)](#)

APPENDIX E: PUBLIC ASSISTANCE FUNDED PROJECT SUMMARIES

Below is unedited data from FEMA's National Emergency Management Information System (NEMIS), OpenFEMA Dataset: Public Assistance Funded Project Summaries - v1, and subject to a small percentage of human error (FEMA, 2020f). This dataset is not intended to be used for any official federal financial reporting.

BEAUFORT COUNTY						
Declaration Number	Declaration Date	Hazard Types	Damage Category	Damage Category Description	Project Amount (\$)	Federal Share Amount (\$)
TOTAL 2015-2019					102,462,589.14	77,704,813.88
Total 2015					1,103,698.72	827,774.04
DR-4241-SC	2015-10-05	Flood	G	Recreational or Other	3,500.00	2,625.00
DR-4241-SC	2015-10-05	Flood	G	Recreational or Other	1,100,198.72	825,149.04
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	151,410.57	113,557.93
Total 2016					95,027,676.34	72,079,007.05
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	-	-
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	134,985.69	101,239.27
DR-4286-SC	2016-10-11	Hurricane	E	Public Buildings	8,696.17	6,522.13
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	79,774.85	59,831.14
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	16,975.51	12,731.63
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	15,204.30	11,403.23
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	5,853,736.17	4,507,376.85
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	24,522.68	18,392.01
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	368,956.47	276,717.35
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	34,460.43	25,845.32
DR-4286-SC	2016-10-11	Hurricane	C	Roads and Bridges	15,983.66	11,987.75
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	15,743.66	11,807.75
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	73,623.75	55,217.81
DR-4286-SC	2016-10-11	Hurricane	F	Public Utilities	69,720.19	52,290.14
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	37,390.57	28,042.93
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	254,525.00	190,893.75
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	37,937.00	28,452.75
DR-4286-SC	2016-10-11	Hurricane	E	Public Buildings	6,003.99	4,502.99
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	224,896.91	168,672.68
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	28,347.89	21,260.92
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	202,689.16	152,016.87
DR-4286-SC	2016-10-11	Hurricane	E	Public Buildings	22,331.69	16,748.77
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	6,900.00	5,175.00
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	236,317.00	177,237.75
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	8,098,765.70	6,236,049.59
DR-4286-SC	2016-10-11	Hurricane	F	Public Utilities	61,815.34	46,361.51
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	12,921.72	10,983.46
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	5,671.72	4,537.38
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	5,953.16	4,464.87

BEAUFORT COUNTY						
Declaration Number	Declaration Date	Hazard Types	Damage Category	Damage Category Description	Project Amount (\$)	Federal Share Amount (\$)
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	5,969.67	5,074.22
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	4,819.50	3,924.04
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	56,034.65	47,629.45
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	16,396.76	13,117.41
DR-4286-SC	2016-10-11	Hurricane	E	Public Buildings	55,690.15	41,767.61
DR-4286-SC	2016-10-11	Hurricane	F	Public Utilities	41,802.69	31,352.02
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	9,457,950.00	7,093,462.50
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	11,995.47	8,996.60
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	97,488.96	73,116.72
DR-4286-SC	2016-10-11	Hurricane	F	Public Utilities	32,443.16	24,332.37
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	118,884.17	89,163.13
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	28,861.76	21,646.32
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	945,795.75	709,346.81
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	5,660,544.36	4,245,408.27
DR-4286-SC	2016-10-11	Hurricane	E	Public Buildings	9,288.73	6,966.55
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	7,677,981.80	5,912,045.99
DR-4286-SC	2016-10-11	Hurricane	F	Public Utilities	-	-
DR-4286-SC	2016-10-11	Hurricane	C	Roads and Bridges	43,564.91	32,673.68
DR-4286-SC	2016-10-11	Hurricane	C	Roads and Bridges	1,326,800.00	995,100.00
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	568,715.72	426,536.79
DR-4286-SC	2016-10-11	Hurricane	E	Public Buildings	4,099.28	3,074.46
DR-4286-SC	2016-10-11	Hurricane	F	Public Utilities	66,694.27	50,020.70
DR-4286-SC	2016-10-11	Hurricane	C	Roads and Bridges	207,621.33	155,716.00
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	276,062.88	207,047.16
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	570,691.09	428,018.32
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	4,506.55	3,379.91
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	11,446.18	8,584.64
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	47,709.00	35,781.75
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	8,500.00	6,375.00
DR-4286-SC	2016-10-11	Hurricane	F	Public Utilities	-	-
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	10,000.00	7,500.00
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	31,989.48	25,591.58
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	7,051.46	5,288.60
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	14,230.49	10,672.87
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	158,509.90	118,882.43
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	53,827.25	40,370.44
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	85,710.09	64,282.57
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	25,530.72	19,148.04
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	241,685.21	181,263.91
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	48,123.85	36,092.89
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	43,212.49	32,409.37

BEAUFORT COUNTY						
Declaration Number	Declaration Date	Hazard Types	Damage Category	Damage Category Description	Project Amount (\$)	Federal Share Amount (\$)
DR-4286-SC	2016-10-11	Hurricane	E	Public Buildings	31,716.33	23,787.25
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	18,256,756.76	4,057,702.71
DR-4286-SC	2016-10-11	Hurricane	E	Public Buildings	273,461.94	205,096.46
DR-4286-SC	2016-10-11	Hurricane	E	Public Buildings	206,770.90	155,078.17
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	67,659.90	50,744.93
DR-4286-SC	2016-10-11	Hurricane	E	Public Buildings	3,818.43	2,863.82
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	9,262,233.47	6,946,675.10
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	7,064,599.55	5,298,449.67
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	398,302.12	298,726.59
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	22,633.89	16,975.42
DR-4286-SC	2016-10-11	Hurricane	E	Public Buildings	23,699.58	17,774.69
DR-4286-SC	2016-10-11	Hurricane	F	Public Utilities	66,705.53	50,029.15
DR-4286-SC	2016-10-11	Hurricane	F	Public Utilities	12,693.67	9,520.25
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	3,139,013.92	2,354,260.44
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	4,293,149.34	3,219,862.01
DR-4286-SC	2016-10-11	Hurricane	F	Public Utilities	32,444.14	24,333.11
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	23,824.35	17,868.26
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	6,848,414.99	5,136,311.24
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	804,796.91	603,597.68
DR-4286-SC	2016-10-11	Hurricane	F	Public Utilities	10,489.94	7,867.45
Total 2017					5,240,242.13	3,973,489.07
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	15,857.11	11,892.83
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	11,154.72	8,366.04
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	6,883.69	5,162.77
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	23,202.81	17,402.11
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	74,441.34	55,831.01
DR-4346-SC	2017-10-16	Hurricane	C	Roads and Bridges	5,940.00	4,455.00
DR-4346-SC	2017-10-16	Hurricane	A	Debris Removal	18,412.00	13,809.00
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	71,218.77	53,414.08
DR-4346-SC	2017-10-16	Hurricane	F	Public Utilities	51,921.47	38,941.10
DR-4346-SC	2017-10-16	Hurricane	F	Public Utilities	6,616.05	4,962.04
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	37,294.85	27,971.14
DR-4346-SC	2017-10-16	Hurricane	E	Public Buildings	5,155.98	3,866.99
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	99,486.46	74,614.85
DR-4346-SC	2017-10-16	Hurricane	E	Public Buildings	65,521.84	49,141.38
DR-4346-SC	2017-10-16	Hurricane	C	Roads and Bridges	76,774.51	57,580.88
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	5,689.40	4,267.05
DR-4346-SC	2017-10-16	Hurricane	E	Public Buildings	8,413.88	6,310.41
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	20,505.00	15,378.75
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	19,196.94	14,397.71
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	66,408.16	49,806.12

BEAUFORT COUNTY						
Declaration Number	Declaration Date	Hazard Types	Damage Category	Damage Category Description	Project Amount (\$)	Federal Share Amount (\$)
DR-4346-SC	2017-10-16	Hurricane	A	Debris Removal	5,013.91	3,760.43
DR-4346-SC	2017-10-16	Hurricane	D	Water Control Facilities	7,784.52	5,838.39
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	6,290.10	4,717.58
DR-4346-SC	2017-10-16	Hurricane	F	Public Utilities	35,121.90	26,341.43
DR-4346-SC	2017-10-16	Hurricane	A	Debris Removal	21,213.66	15,910.25
DR-4346-SC	2017-10-16	Hurricane	A	Debris Removal	16,595.94	12,446.96
DR-4346-SC	2017-10-16	Hurricane	G	Recreational or Other	16,005.00	12,003.75
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	469,553.94	352,165.46
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	34,874.49	26,155.87
DR-4346-SC	2017-10-16	Hurricane	A	Debris Removal	23,045.39	17,284.04
DR-4346-SC	2017-10-16	Hurricane	E	Public Buildings	3,288.89	2,466.67
DR-4346-SC	2017-10-16	Hurricane	G	Recreational or Other	2,947,966.00	2,210,974.50
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	71,648.44	53,736.33
DR-4346-SC	2017-10-16	Hurricane	A	Debris Removal	4,745.95	3,559.46
DR-4346-SC	2017-10-16	Hurricane	A	Debris Removal	37,004.00	27,753.00
DR-4346-SC	2017-10-16	Hurricane	E	Public Buildings	56,735.32	42,551.49
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	334,639.46	250,979.60
DR-4346-SC	2017-10-16	Hurricane	A	Debris Removal	285,390.56	214,042.92
DR-4346-SC	2017-10-16	Hurricane	Z	State Management	173,229.68	173,229.68
Total 2019					1,090,971.95	824,543.72
DR-4464-SC	2019-09-30	Hurricane	B	Protective Measures	8,206.50	6,154.88
DR-4464-SC	2019-09-30	Hurricane	B	Protective Measures	27,158.90	20,369.18
DR-4464-SC	2019-09-30	Hurricane	B	Protective Measures	73,296.01	54,972.01
DR-4464-SC	2019-09-30	Hurricane	B	Protective Measures	31,416.59	23,562.44
DR-4464-SC	2019-09-30	Hurricane	B	Protective Measures	51,045.38	38,284.04
DR-4464-SC	2019-09-30	Hurricane	Z	State Management	410.33	410.33
DR-4464-SC	2019-09-30	Hurricane	Z	State Management	1,570.83	1,570.83
DR-4464-SC	2019-09-30	Hurricane	Z	State Management	2,552.27	2,552.27
DR-4464-SC	2019-09-30	Hurricane	B	Protective Measures	88,525.67	66,394.25
DR-4464-SC	2019-09-30	Hurricane	E	Public Buildings	10,418.56	7,813.92
DR-4464-SC	2019-09-30	Hurricane	B	Protective Measures	21,840.02	16,380.02
DR-4464-SC	2019-09-30	Hurricane	Z	State Management	1,878.88	1,878.88
DR-4464-SC	2019-09-30	Hurricane	A	Debris Removal	64,655.94	48,491.96
DR-4464-SC	2019-09-30	Hurricane	B	Protective Measures	312,276.32	234,207.24
DR-4464-SC	2019-09-30	Hurricane	Z	State Management	18,846.62	18,846.62
DR-4464-SC	2019-09-30	Hurricane	A	Debris Removal	24,259.50	18,194.63
DR-4464-SC	2019-09-30	Hurricane	B	Protective Measures	352,613.63	264,460.22

COLLETON COUNTY						
Declaration Number	Declaration Date	Hazard Types	Damage Category	Damage Category Description	Project Amount (\$)	Federal Share Amount (\$)
TOTAL 2015-2020					10,156,088.81	7,687,349.19
Total 2015					1,597,646.34	1,198,234.77
DR-4241-SC	2015-10-05	Flood	B	Protective Measures	60,412.28	45,309.21
DR-4241-SC	2015-10-05	Flood	B	Protective Measures	14,874.23	11,155.67
DR-4241-SC	2015-10-05	Flood	G	Recreational or Other	21,482.28	16,111.71
DR-4241-SC	2015-10-05	Flood	E	Public Buildings	1,134.13	850.60
DR-4241-SC	2015-10-05	Flood	E	Public Buildings	1,000.00	750.00
DR-4241-SC	2015-10-05	Flood	E	Public Buildings	1,000.00	750.00
DR-4241-SC	2015-10-05	Flood	G	Recreational or Other	25,704.54	19,278.41
DR-4241-SC	2015-10-05	Flood	C	Roads and Bridges	9,751.75	7,313.81
DR-4241-SC	2015-10-05	Flood	C	Roads and Bridges	13,310.79	9,983.09
DR-4241-SC	2015-10-05	Flood	C	Roads and Bridges	9,285.64	6,964.23
DR-4241-SC	2015-10-05	Flood	C	Roads and Bridges	8,070.50	6,052.88
DR-4241-SC	2015-10-05	Flood	C	Roads and Bridges	9,147.05	6,860.29
DR-4241-SC	2015-10-05	Flood	C	Roads and Bridges	11,458.57	8,593.93
DR-4241-SC	2015-10-05	Flood	B	Protective Measures	4,145.58	3,109.19
DR-4241-SC	2015-10-05	Flood	G	Recreational or Other	1,406,869.00	1,055,151.75
Total 2016					6,314,683.28	4,799,053.16
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	12,783.42	9,587.57
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	112,275.42	95,434.11
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	31,328.27	25,062.62
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	20,065.75	15,049.31
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	1,944,419.41	1,458,314.56
DR-4286-SC	2016-10-11	Hurricane	F	Public Utilities	23,069.12	17,301.84
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	269,689.07	202,266.80
DR-4286-SC	2016-10-11	Hurricane	F	Public Utilities	7,125.00	5,343.75
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	714,271.28	535,703.46
DR-4286-SC	2016-10-11	Hurricane	F	Public Utilities	1,387,635.54	1,040,726.65
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	72,794.60	54,595.95
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	29,896.13	22,583.54
DR-4286-SC	2016-10-11	Hurricane	F	Public Utilities	6,049.92	4,537.44
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	105,163.90	84,131.12
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	192,364.31	144,273.24
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	157,291.71	117,968.78
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	6,644.20	4,983.15
DR-4286-SC	2016-10-11	Hurricane	C	Roads and Bridges	117,661.54	88,246.16
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	6,334.00	4,750.50
DR-4286-SC	2016-10-11	Hurricane	C	Roads and Bridges	21,968.22	16,476.17
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	32,250.25	24,187.69
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	16,360.91	13,906.77

COLLETON COUNTY						
Declaration Number	Declaration Date	Hazard Types	Damage Category	Damage Category Description	Project Amount (\$)	Federal Share Amount (\$)
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	17,359.38	13,019.54
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	47,511.25	35,633.44
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	6,105.00	4,578.75
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	197,465.17	148,098.88
DR-4286-SC	2016-10-11	Hurricane	F	Public Utilities	42,329.18	31,746.89
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	239,033.50	203,178.48
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	385,752.50	308,602.00
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	91,685.33	68,764.00
Total 2017					1,184,592.68	888,444.53
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	109,420.01	82,065.01
DR-4346-SC	2017-10-16	Hurricane	A	Debris Removal	12,447.44	9,335.58
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	50,058.41	37,543.80
DR-4346-SC	2017-10-16	Hurricane	F	Public Utilities	101,708.63	76,281.47
DR-4346-SC	2017-10-16	Hurricane	F	Public Utilities	67,546.34	50,659.76
DR-4346-SC	2017-10-16	Hurricane	E	Public Buildings	15,416.57	11,562.43
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	76,043.46	57,032.60
DR-4346-SC	2017-10-16	Hurricane	G	Recreational or Other	612,694.01	459,520.51
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	7,794.84	5,846.13
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	2,715.34	2,036.51
DR-4346-SC	2017-10-16	Hurricane	G	Recreational or Other	48,625.62	36,469.22
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	80,122.01	60,091.51
Total 2018					249,064.19	189,007.93
DR-4394-SC	2018-09-16	Hurricane	B	Protective Measures	5,294.52	3,970.89
DR-4394-SC	2018-09-16	Hurricane	B	Protective Measures	13,491.75	10,118.81
DR-4394-SC	2018-09-16	Hurricane	B	Protective Measures	84,688.10	63,516.08
DR-4394-SC	2018-09-16	Hurricane	Z	State Management	1,748.85	1,748.85
DR-4394-SC	2018-09-16	Hurricane	A	Debris Removal	31,535.59	23,651.69
DR-4394-SC	2018-09-16	Hurricane	B	Protective Measures	105,215.10	78,911.33
DR-4394-SC	2018-09-16	Hurricane	Z	State Management	1,829.52	1,829.52
DR-4394-SC	2018-09-16	Hurricane	Z	State Management	5,260.76	5,260.76
Total 2019					1,168,000.34	878,755.33
DR-4464-SC	2019-09-30	Hurricane	B	Protective Measures	40,211.60	30,158.70
DR-4464-SC	2019-09-30	Hurricane	B	Protective Measures	20,023.37	15,017.53
DR-4464-SC	2019-09-30	Hurricane	B	Protective Measures	111,596.52	83,697.39
DR-4464-SC	2019-09-30	Hurricane	B	Protective Measures	22,312.40	16,734.30
DR-4464-SC	2019-09-30	Hurricane	Z	State Management	1,001.17	1,001.17
DR-4464-SC	2019-09-30	Hurricane	A	Debris Removal	70,562.16	52,921.62
DR-4464-SC	2019-09-30	Hurricane	F	Public Utilities	178,069.44	133,552.08
DR-4464-SC	2019-09-30	Hurricane	Z	State Management	10,019.10	10,019.10
DR-4464-SC	2019-09-30	Hurricane	G	Recreational or Other	678,280.00	508,710.00

COLLETON COUNTY						
Declaration Number	Declaration Date	Hazard Types	Damage Category	Damage Category Description	Project Amount (\$)	Federal Share Amount (\$)
DR-4464-SC	2019-09-30	Hurricane	Z	State Management	35,924.58	26,943.44
Total 2020					356,306.56	269,506.91
DR-4542-SC	2020-05-01	Severe Storm(s)	B	Protective Measures	14,190.54	10,642.91
DR-4542-SC	2020-05-01	Severe Storm(s)	A	Debris Removal	116,439.64	87,329.73
DR-4542-SC	2020-05-01	Severe Storm(s)	B	Protective Measures	17,789.63	13,342.22
DR-4542-SC	2020-05-01	Severe Storm(s)	B	Protective Measures	32,148.94	24,111.71
DR-4542-SC	2019-09-30	Hurricane	Z	State Management	9,107.94	9,107.94
DR-4542-SC	2020-05-01	Severe Storm(s)	E	Public Buildings	18,227.20	13,670.40
DR-4542-SC	2020-05-01	Severe Storm(s)	F	Public Utilities	148,402.67	111,302.00

HAMPTON COUNTY						
Declaration Number	Declaration Date	Hazard Types	Damage Category	Damage Category Description	Project Amount (\$)	Federal Share Amount (\$)
TOTAL 2016-2020					2,103,794.29	1,636,033.38
Total 2016					1,923,054.72	1,500,349.76
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	5,707.88	4,280.91
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	397,642.25	337,995.91
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	19,159.76	16,285.80
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	19,806.46	14,854.85
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	27,465.22	23,345.44
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	11,523.61	9,218.89
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	7,632.39	6,105.91
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	48,881.06	36,660.80
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	121,142.44	90,856.83
DR-4286-SC	2016-10-11	Hurricane	G	Recreational or Other	19,869.38	14,902.04
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	4,411.22	3,535.15
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	6,830.89	5,123.17
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	55,540.90	41,655.68
DR-4286-SC	2016-10-11	Hurricane	E	Public Buildings	15,000.00	11,250.00
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	248,948.56	199,158.85
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	26,651.66	19,988.75
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	118,247.41	88,685.56
DR-4286-SC	2016-10-11	Hurricane	E	Public Buildings	56,400.00	42,300.00
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	250,235.51	187,676.63
DR-4286-SC	2016-10-11	Hurricane	E	Public Buildings	19,200.00	14,400.00
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	5,000.00	3,750.00
DR-4286-SC	2016-10-11	Hurricane	C	Roads and Bridges	57,798.52	43,348.89
DR-4286-SC	2016-10-11	Hurricane	E	Public Buildings	27,775.87	20,831.90
DR-4286-SC	2016-10-11	Hurricane	F	Public Utilities	352,183.73	264,137.80
Total 2017					152,609.88	114,457.42
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	8,424.63	6,318.47
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	12,290.41	9,217.81
DR-4346-SC	2017-10-16	Hurricane	A	Debris Removal	8,190.62	6,142.97
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	41,092.41	30,819.31
DR-4346-SC	2017-10-16	Hurricane	C	Roads and Bridges	82,611.81	61,958.86
Total 2020					28,129.69	21,226.20
DR-4492-SC	2020-03-27	Biological	B	Protective Measures	8,720.34	6,540.26
DR-4542-SC	2020-05-01	Severe Storm(s)	F	Public Utilities	10,313.34	7,735.01
DR-4542-SC	2020-05-01	Severe Storm(s)	Z	State Management	515.67	515.67
DR-4542-SC	2020-05-01	Severe Storm(s)	C	Roads and Bridges	8,580.34	6,435.26

JASPER COUNTY						
Declaration	Declaration	Hazard	Damage	Damage Category	Project	Federal Share
TOTAL 2016-2020					5,030,738.19	3,789,751.02
Total 2016					3,198,137.06	2,408,195.80
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	122,289.05	91,716.79
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	9,654.03	7,240.52
DR-4286-SC	2016-10-11	Hurricane	F	Public Utilities	2,435,255.34	26,441.51
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	38,185.38	28,639.04
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	10,792.08	8,094.06
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	98,906.13	74,179.60
DR-4286-SC	2016-10-11	Hurricane	C	Roads and Bridges	5,886.43	4,414.82
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	50,523.52	37,892.64
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	3,402.06	2,551.55
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	172,676.51	129,507.38
DR-4286-SC	2016-10-11	Hurricane	B	Protective Measures	98,682.07	74,011.55
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	62,578.46	50,062.77
DR-4286-SC	2016-10-11	Hurricane	A	Debris Removal	64,640.71	54,944.60
DR-4286-SC	2016-10-11	Hurricane	E	Public Buildings	24,665.29	18,498.97
Total 2017					1,129,968.38	847,476.30
DR-4346-SC	2017-10-16	Hurricane	F	Public Utilities	607,152.00	455,364.00
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	36,699.18	27,524.39
DR-4346-SC	2017-10-16	Hurricane	A	Debris Removal	4,350.00	3,262.50
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	23,244.18	17,433.14
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	30,641.04	22,980.78
DR-4346-SC	2017-10-16	Hurricane	B	Protective Measures	169,410.49	127,057.87
DR-4346-SC	2017-10-16	Hurricane	F	Public Utilities	258,471.49	193,853.62
Total 2018					265,207.59	200,889.65
DR-4394-SC	2018-09-16	Hurricane	B	Protective Measures	27,821.75	20,866.31
DR-4394-SC	2018-09-16	Hurricane	Z	State Management	1,391.09	1,391.09
DR-4394-SC	2018-09-16	Hurricane	B	Protective Measures	222,669.17	167,001.88
DR-4394-SC	2018-09-16	Hurricane	B	Protective Measures	6,780.86	5,085.65
DR-4394-SC	2018-09-16	Hurricane	Z	State Management	6,544.72	6,544.72
Total 2019					430,112.78	327,704.98
DR-4464-SC	2019-09-30	Hurricane	B	Protective Measures	22,656.97	16,992.73
DR-4464-SC	2019-09-30	Hurricane	B	Protective Measures	46,278.68	34,709.01
DR-4464-SC	2019-09-30	Hurricane	Z	State Management	1,132.85	1,132.85
DR-4464-SC	2019-09-30	Hurricane	F	Public Utilities	51,762.09	38,821.57
DR-4464-SC	2019-09-30	Hurricane	B	Protective Measures	288,933.47	216,700.10
DR-4464-SC	2019-09-30	Hurricane	Z	State Management	4,902.04	4,902.04
DR-4464-SC	2019-09-30	Hurricane	Z	State Management	14,446.68	14,446.68
Total 2020					7,312.38	5,484.29
DR-4542-SC	2020-05-01	Severe Storm	B	Protective Measures	7,312.38	5,484.29

APPENDIX F: DEFINITIONS OF FEMA FLOOD ZONE DESIGNATIONS

Flood Zone	Description
Moderate to Low Risk Areas	
B and X	Area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods. B Zones are also used to designate base floodplains of lesser hazards, such as areas protected by levees from 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile.
C and X	Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level. Zone C may have ponding and local drainage problems that don't warrant a detailed study or designation as base floodplain. Zone X is the area determined to be outside the 500-year flood and protected by levee from 100-year flood.
High Risk Areas	
A	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.
AE	The base floodplain where base flood elevations are provided. AE Zones are now used on new format FIRMs instead of A1-A30 Zones.
AH	Areas with a 1% annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
AO	River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones.
AR	Areas with a temporarily increased flood risk due to the building or restoration of a flood control system (such as a levee or a dam). Mandatory flood insurance purchase requirements will apply, but rates will not exceed the rates for unnumbered A zones if the structure is built or restored in compliance with Zone AR floodplain management regulations.
A99	Areas with a 1% annual chance of flooding that will be protected by a Federal flood control system where construction has reached specified legal requirements. No depths or base flood elevations are shown within these zones.
High Risk -Coastal Areas	
V	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. No base flood elevations are shown within these zones.
VE, V1 - 30	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
Undetermined Risk Areas	
D	Areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted. Flood insurance rates are commensurate with the uncertainty of the flood risk.

Source: FEMA Glossary

APPENDIX G: SOCIAL VULNERABILITY CONCEPTS AND METRICS

Social Vulnerability Concept	Description	Increase (+) Or Decrease (-) Social Vulnerability
Socioeconomic Status (Income, Political Power, Prestige)	Socioeconomic status affects the ability of a community to absorb losses and cope with hazard impacts. Wealth enables communities to better prepare for disasters through mitigation and absorb and recover from losses more quickly using insurance, social safety nets, and entitlement programs. Low status communities have little ability to absorb losses due to poverty and disadvantaged populations.	High Status (-) Low Income or Status (+)
Gender	Women often have a more difficult time during recovery than men because of sector-specific employment (e.g., personal services), lower wages, and family care responsibilities.	Gender (+)
Race and ethnicity	These factors impose language and cultural barriers and affect access to post-disaster funding and occupation of high-hazard areas.	Non-White (+) Non-Anglo (+)
Age	Extremes of age affect movement out of harm's way and require outside supervision and care. Parents lose time and money caring for children when day care facilities are affected; the elderly may have mobility constraints or medical and cognitive concerns increasing the burden of care before, during, and after the emergency.	Elderly (+) Children (+)
Employment loss	The potential loss of employment following a disaster increases the existing number of unemployed workers in a community. Such losses compound the impact of the hazard and leads to a slower recovery from the disaster. At an individual level, employment loss equates to a lower ability to pay for necessary goods and services, effectively lowering the ability to prepare and recovery from disasters.	Unemployment (+)
Residential property	Home value is an indicator of financial capacity. The value and quality of residential construction affect potential losses and recovery. Expensive homes are costly to replace, mobile homes are easily destroyed by water and winds. The viability of neighborhoods based on the number of unoccupied housing units also contributes to slower long-term recovery.	Mobile Homes (+)
Renters	People rent because they are transients, do not have the financial resources for home ownership, or do not want the responsibility of home ownership. They often lack access to information about financial aid during recovery and are not covered by current federal disaster recovery programs. In extreme cases, renters lack sufficient shelter options when lodging becomes uninhabitable or too costly to afford.	Renters (+)

Social Vulnerability Concept	Description	Increase (+) Or Decrease (-) Social Vulnerability
Occupation	Some occupations, especially those characterized as primary extractive industries, may be severely affected by a hazard event. Primary sector jobs are impacted first during major disasters. For example, self-employed fishermen suffer when their means of production is lost (boats), and they may not have the requisite capital to resume work in a timely fashion; therefore, they may seek alternative employment. The same is true of migrant workers engaged in agriculture. Low-skilled service jobs (housekeeping, childcare, and gardening) may suffer similarly as disposable income fades and the need for services declines.	Professional or Managerial (-) Clerical or Laborer (+) Service Sector (+)
Family structure	Families with large numbers of dependents and/or single-parent households often have limited resources to outsource care for dependents and thus must juggle work responsibilities with care for family members. All these factors affect coping with and recovering from hazards.	Large Families (+) Single-Parent Households (+)
Education	Education is linked to socioeconomic status in that higher educational attainment affects lifetime earnings, and limited education constrains the ability to understand warning information and access recovery information.	Little Education (+) Highly Educated (-)
Medical Services and Access	Health care providers, including physicians and hospitals, are important post-event sources of relief. The lack of proximate medical services lengthens the time needed to obtain short-term relief and achieve longer-term recovery from disasters. Nursing homes represent an increase in socially vulnerable people as the resident populations are less able to independently cope with disasters. The availability of health insurance is another factor influencing social vulnerability.	Higher Density of Medical (-) Nursing Homes (+) Hospitals (+)
Social dependence	People who are totally dependent on social services (social security, food assistance) for survival are already economically and socially marginalized and require additional support in the post-disaster period.	High Dependence (+) Low Dependence (-)
Special-needs population	Special-needs populations (infirm, institutionalized, transient, homeless) are difficult to identify, let alone measure and monitor. Yet it is this segment of society that invariably is left out of recovery efforts, largely because of this invisibility in communities.	Large Number of Special Needs (+) Small Number of Special Needs (-)

Source: Hazards and Vulnerability Research Institute (HVRI); Cutter, Boruff, and Shirley (2003)

APPENDIX H: LIST OF CRITICAL FACILITIES

POLICE STATION				
Name	Address	City/Town	Zip Code	Phone
Beaufort County				
Beaufort County Sheriff's Office - Main	2001 Duke Street	Beaufort	29902	(843) 470-3200
Beaufort Police Department	1901 Boundary Street, Suite 102	Beaufort	29902	(843) 322-7900
Bluffton Police Department	39 Persimmon Street, Suite 601	Bluffton	29910	(843) 706-4550
Beaufort County Sheriff's Office	7 Lagoon Road	Hilton Head Island	29928	(843) 842-4111
Port Royal Police Department	1748 Paris Avenue	Port Royal	29935	(843) 986-2220
Colleton County				
Colleton County Sheriff's Office	112 South Miller Street	Walterboro	29488	(843) 549-2211
Cottageville Police Department	10913 Cottageville Highway	Cottageville	29435	(843) 835-8655
Edisto Beach Police Department	2414 Murray Street	Edisto Beach	29438	(843) 869-2505
Walterboro Police Department	242 Hampton Street	Walterboro	29488	(843) 549-1811
Colleton County Detention Center	22 Klein Street	Walterboro	29488	(843) 549-5742
South Carolina Highway Patrol Troop	100 Mable T Willis Boulevard	Walterboro	29488	(843) 538-3129
Hampton County				
Hampton County Sheriff's Office	411 Cemetery Road	Varnville	29944	(803) 914-2200
Brunson Police Department	240 N Manker St, Po Box 300	Brunson	29911	Not Available
Estill Police Department	205 East Railroad Avenue	Estill	29918	(803) 625-3699
Gifford Police Department	236 Walker St, Po Drawer 189	Gifford	29932	Not Available
Hampton Police Department	608 1st Street West	Hampton	29924	(803) 943-2421
Varnville Police Department	95 East Palmetto Avenue	Varnville	29944	(803) 943-2979
Yemassee Police Department	101 Town Circle	Yemassee	29945	(803) 589-6315
Jasper County				
Jasper County Sheriff's Office	12008 North Jacob Smart Boulevard	Ridgeland	29936	(843) 726-7777
Hardeeville Police Department	36 Main Street	Hardeeville	29927	(843) 784-2233
Ridgeland Police Department	One Town Square	Ridgeland	29936	(843) 726-7530

FIRE STATION				
Name	Address	City	Zip Code	Phone
Beaufort County				
Burton Fire District - Headquarters	36 Burton Hill Road	Beaufort	29906	843-521-5550
Burton Fire District Station 892	14 Bruce K Smalls Drive	Beaufort	29906	843-525-4006
Burton Fire District Station 893	602 Parris Island Gateway	Beaufort	29906	843-521-5550
Burton Fire District Station 894	158 Bay Pines Road	Beaufort	29906	843-521-5550
Burton Fire District Station 895	2 Market	Beaufort	29906	843-521-5550
Hilton Head Island Fire and Rescue Headquarters	40 Summit Drive	Hilton Head Island	29926	843-682-5100
Hilton Head Island Fire and Rescue Station 1	70 Cordillo Parkway	Hilton Head Island	29928	843-341-4741
Hilton Head Island Fire and Rescue Station 2	65 Lighthouse Road	Hilton Head Island	29928	843-341-4741
Hilton Head Island Fire and Rescue Station 3	534 William Hilton Parkway	Hilton Head Island	29928	843-341-4741
Hilton Head Island Fire and Rescue Station 4	400 Squire Pope Road	Hilton Head Island	29926	843-341-4741
Hilton Head Island Fire and Rescue Station 5	20 Whooping Crane Way	Hilton Head Island	29926	843-341-4741
Hilton Head Island Fire and Rescue Station 6	12 Dalmation Lane	Hilton Head Island	29926	843-682-5110
Hilton Head Island Fire and Rescue Station 7	1001 Marshland Road	Hilton Head Island	29926	845-341-4741
Daufuskie Island Fire District Station 1	400 Haig Point Road	Daufuskie Island	29915	843-785-2116
Daufuskie Island Fire District Station 2	2 White School Lane	Daufuskie Island	29915	843-785-2116
Bluffton Township Fire District	25 William Pope Drive	Okatie	29909	843-757-2800
Bluffton Township Fire District	178 May River Road	Bluffton	29910	843-757-3736
Bluffton Township Fire District	357 Fording Island Road	Bluffton	29910	843-757-2800
Bluffton Township Fire District	12 Buckingham Plantation Drive	Bluffton	29910	843-837-2888
Bluffton Township Fire District	155 Callawassie Drive	Okatie	29909	843-757-2800
Bluffton Township Fire District	2 Bridge Street	Bluffton	29910	843-757-4041
Lady's Island Saint Helena Fire District	100 Polowana Road	Saint Helena Island	29920	843-525-7692
Lady's Island Saint Helena Fire District	237 Sea Island Parkway	Beaufort	29907	843-525-7692
Lady's Island Saint Helena Fire District Station 21	725 Sams Point Road	Beaufort	29907	843-525-7692
Lady's Island Saint Helena Fire District Station 22	1617 Sea Island Parkway	Saint Helena Island	29920	843-525-7692
Lady's Island Saint Helena Fire District Station 23	632 Lands End Road	Saint Helena Island	29920	843-525-7692
City of Beaufort Fire Department Headquarters	135 Ribaut Road	Beaufort	29902	843-525-7055
City of Beaufort Fire Department Station 2	1120 Ribaut Road	Beaufort	29902	843-525-7055
Sheldon Township Fire Department Station 40	5 Fire Station Lane	Seabrook	29940	843-846-9221
Sheldon Township Fire Department Station 41	66 Kean Neck Road	Seabrook	29940	843-846-3988
Fripp Island Fire Department	291 Tarpon Boulevard	Fripp Island	29920	843-838-4085
Parris Island Fire Rescue-DoD	175 Wake Boulevard	Parris Island	29902	843-228-3637

FIRE STATION				
Name	Address	City	Zip Code	Phone
Town of Port Royal Fire Department	1750 Paris Avenue	Port Royal	29935	843-986-2248
Colleton County				
Colleton County Fire Rescue - Headquarters	113 Mable T. Willis Boulevard	Walterboro	29488	843-539-1960
Station 1 - South Walterboro	229 Mable T. Willis Boulevard	Walterboro	29488	843-539-1960
Station 2 - Jacksonboro	150 Clinic Drive	Jacksonboro	29474	Not Available
Station 3 - Lodge	8667 Lodge Highway	Lodge	29082	Not Available
Station 4 - Ruffin	2425 Azalea Patch Road	Ruffin	29475	Not Available
Station 5 - Canadys	13871 Augusta Highway	Round O.	29474	843-538-2813
Station 6 - Green Pond	503 Fire Station Road	Green Pond	29946	843-539-1960
Station 7 - Town of Smoaks	27250 Lowcountry Highway	Smoaks	29481	Not Available
Station 8 - Hendersonville	3551 Black Creek Road	Yemassee	29945	Not Available
Station 9 - Cottageville	199 Rehoboth Road	Cottageville	29435	Not Available
Station 10 - Islandton	1985 Adnah Church Road	Islandton	29929	Not Available
Station 12 - Neyles	8348 Charleston Highway	Walterboro	29488	Not Available
Station 13 - Intercommunity	1477 Lowcountry Highway	Yemassee	29488	843-844-7101
Station 14 - Edisto	2414 Murray Street	Edisto Island	29438	843-869-2505
Station 15 - Islandton	547 Ashton Road	Islandton	29929	Not Available
Station 16 - Williams	245 Joel Padgett Street	Williams	29493	Not Available
Station 17 - Canadys	6800 Sunrise Road	Smoaks	29481	Not Available
Station 18 - Bells	12232 Bells Highway	Ruffin	29945	Not Available
Station 19 - North Walterboro	1118 Thunderbolt Drive	Walterboro	29488	843-538-6959
Station 21 - Bennetts Point	15583 Bennetts Point Road	Green Pond	29446	Not Available
Station 22 - Ritter	3547 Possum Corner Road	Walterboro	29488	843-539-1960
Station 23 - Ashton	8454 Ashton Road	Islandton	29082	Not Available
Station 24 - Foxfield	111 Foxfield Road	Walterboro	29488	Not Available
Station 25 - White Hall	1558 White Hall Road	Yemassee	29945	843-844-8873
Station 26 - Mount Carmel	2970 Mount Carmel Road	Walterboro	29488	Not Available
Station 27 - Hampton Street	421 Hampton Street	Walterboro	29488	843-539-1960
Station 28 - Bennetts Point	9012 Bennetts Point Road	Green Pond	29946	Not Available
Station 29 - Cane Branch	8737 Cane Branch Road	Walterboro	29488	Not Available
Station 30 - Bonnie Doone	217 Crumley Road	Walterboro	29488	843-539-1960
Station 31 - Breland	15505 Lowcountry Highway	Ruffin	29475	Not Available
Station 32 - Sidneys	15238 Round O Road	Round O	29474	Not Available

FIRE STATION				
Name	Address	City	Zip Code	Phone
Station 33 - Risher Mountain	153 Risher Mountain Road	Walterboro	29488	Not Available
Station 34 - Pierce Rd	3142 Pierce Road	Cottageville	29435	Not Available
Station 35 - Ions	5278 Round O Road	Cottageville	29435	Not Available
Station 36 - Grubers	19576 Augusta Highway	Cottageville	29435	Not Available
Hampton County				
Station 10	240 North Manker Street	Brunson	29911	803-914-2153
Station 12	1850 Shirley Road	Garnett	29922	803-625-0965
Station 20	500 Second Street	Estill	29918	803-625-4977
Station 30	30 Mckenzie Trail	Estill	29918	803-625-0961
Station 40	190 Sumpter Street	Gifford	29923	803-625-9566
Station 50	500 Second Street West	Hampton	29924	803-943-2899
Station 60	54 Palm Street	Varnville	29944	803-943-2979
Station 70	101 Town Circle	Yemassee	29945	843-589-2565
Station 80	5207 Browning Gate Road	Estill	29918	803-625-0962
Station 90	6936 Yemassee Highway	Varnville	29944	803-914-0644
Jasper County				
Town of Ridgeland Fire Department	49 Railroad Avenue South	Ridgeland	29936	843-726-7523
Station 30	1509 Grays Highway	Ridgeland	29936	843-726-7612
Station 31	6691 West Frontage Road	Ridgeland	29936	843-726-4124
Station 32	4340 Coosaw Scenic Drive	Ridgeland	29936	843-726-5623
Station 33	630 Campground Road	Ridgeland	29936	843-726-4021
Station 34	196 Mead Road	Hardeeville	29927	Not Available
Station 35	Stiney Road	Hardeeville	29927	Not Available
Station 36	4820 Lowcountry Drive	Ridgeland	29936	Not Available
Station 43	3648 Cypress Branch Road	Pineland	29934	843-726-7607
Station 44	9705 Cotton Hill Road	Pineland	29934	843-726-3098
Station 45	15307 Grays Highway	Early Branch	29916	843-726-4018
Station 46	900 Fire Tower Road	Ridgeland	29936	843-717-2182
Station 47	30 Daniel O Morris Boulevard	Tillman	29943	843-717-4005
Station 81	1462 Red Dam Road	Hardeeville	29927	843-784-6336

EMERGENCY OPERATION CENTER				
Name	Address	City/Town	Zip Code	Phone
Beaufort County Emergency Operations Center	2001 Duke Street	Beaufort	29902	843-470-3100
Bluffton Emergency Operations Center	101 Progressive Street	Bluffton	29910	843-706-4550
Hilton Head Emergency Operations Center	1 Town Center Court	Hilton Head Island	29926	843-682-5100
Colleton County Emergency Operations Center	108 Simmons Street	Walterboro	29488	843-549-5632
Hampton County Emergency Operations Center	703 2nd Street West	Hampton	29924	803-914-2150
Jasper County Emergency Operations Center	1509 Grays Highway	Ridgeland	29936	843-726-7607

MEDICAL CARE FACILITY				
Name	Address	City/Town	Zip Code	Phone
Naval Hospital Beaufort	1 Pinckney Boulevard	Beaufort	29902	Not Available
Beaufort Memorial Hospital	955 Ribaut Road	Beaufort	29902	(843) 522-5200
Beaufort Community-Based Outpatient Clinic	1 Pinckney Boulevard	Beaufort	29902	(843) 770-0444
Hilton Head Hospital	25 Hospital Center Boulevard	Hilton Head Island	29926	(843) 689-8206
Colleton Medical Center	501 Robertson Boulevard	Walterboro	29488	(843) 782-2000
Hampton Regional Medical Center	595 W Carolina Avenue	Varnville	29944	(803) 943-2771
Coastal Carolina Hospital	1000 Medical Center Drive	Hardeeville	29927	(843) 784-8181

SCHOOL				
Name	Address	City/Town	Zip Code	Phone
Beaufort County				
Robert Smalls International Academy	43 W. K. Alston Drive	Beaufort	29906	(843) 322-2535
Bridges Preparatory School	1100 Boundary Street	Beaufort	29901	(843) 982-7737
Right Choice School	2900 Mink Point Boulevard	Beaufort	29902	(843) 322-0733
Lady's Island Elementary School	73 Chowan Creek Bluff	Beaufort	29907	(843) 322-2292
Beaufort Elementary School	1800 Prince Street	Beaufort	29906	(843) 322-2679
Joseph S. Shanklin Elementary School	121 Morrall Drive	Beaufort	29906	(843) 466-3461
Mossy Oaks Elementary School	2510 Mossy Oaks Boulevard	Beaufort	29902	(843) 322-2951
Beaufort Middle School	2501 Mossy Oaks Boulevard	Beaufort	29902	(843) 322-5665
Coosa Elementary School	45 Middle Road	Beaufort	29907	(843) 322-6146
Beaufort High School	84 Sea Island Parkway	Beaufort	29907	(843) 322-2110
Riverview Charter School	81 Savannah Highway	Beaufort	29906	(843) 379-0133
Broad River Elementary School	474 Broad River Road	Beaufort	29906	(843) 322-8410
Battery Creek High School	1 Blue Dolphin Drive	Beaufort	29906	(843) 322-5545
Lady's Island Middle School	30 Cougar Drive	Beaufort	29907	(843) 322-3167
Robert E. Galer Elementary School	221 E. Cardinal Lane	Beaufort	29906	(912) 369-6691
Middleton S. Elliott Elementary School	345 Elliott Drive	Beaufort	29906	(912) 408-3380
Charles F Bolden Elementary/Middle School	2 Albacore Street	Beaufort	29906	(843) 846-9283
Lowcountry Montessori School	749 Broad River Drive	Beaufort	29906	(843) 322-0577
Beaufort Christian School	378 Parris Island Gateway	Beaufort	29906	Not Available
Beaufort Academy	240 Sams Point Road	Beaufort	29907	Not Available
EC Montessori and Grade School	15 Celadon Drive	Beaufort	29907	Not Available
St Peters Catholic School	70 Ladys Island Drive	Beaufort	29907	Not Available
Technical College of the Lowcountry	921 Ribaut Road	Beaufort	29901	(800) 768-8252
May River High School	601 New Riverside Road	Bluffton	29910	(843) 836-4900
Pritchardville Elementary School	9447 Evan Way	Bluffton	29910	(843) 707-0501
River Ridge Academy	3050 River Ridge Drive	Bluffton	29910	(843) 836-4600
Bluffton Middle School	30 New Mustang Road	Bluffton	29910	(843) 707-0776
Bluffton High School	12 H. E. McCracken Circle	Bluffton	29910	(843) 706-8809
Red Cedar Elementary School	11 Box Elder Lane	Bluffton	29910	(843) 707-0604
Michael C. Riley Elementary School	200 Burnt Church Road	Bluffton	29910	(843) 706-8369
H. E. McCracken Middle School	250 H. E. McCracken Circle	Bluffton	29910	(843) 706-8770

SCHOOL				
Name	Address	City/Town	Zip Code	Phone
Bluffton Elementary School	160 H. E. McCracken Circle	Bluffton	29910	(843) 706-8540
Cross Schools	495 Buckwalter Parkway	Bluffton	29910	Not Available
May River Montessori School	60 Calhoun Street	Bluffton	29910	Not Available
St Gregory the Great School	323 Fording Island Road	Bluffton	29909	Not Available
University of South Carolina-Beaufort	1 University Boulevard	Bluffton	29909	(843) 208-8000
Professional Golfers Career College	4454 Bluffton Park Crescent Building 200	Bluffton	29910	(866) 797-7422
Hilton Head Island Middle School	55 Wilborn Road	Hilton Head Island	29926	(843) 689-4595
Hilton Head Island High School	70 Wilborn Road	Hilton Head Island	29926	(843) 689-4805
Hilton Head Island Elementary School	10 Wilborn Drive	Hilton Head Island	29926	(843) 342-4101
Hilton Head Island Early Childhood Center	165 Pembroke Drive	Hilton Head Island	29926	(843) 689-0422
Hilton Head Island Elementary School	30 School Road	Hilton Head Island	29926	(843) 342-4206
Heritage Academy	11 New Orleans Road	Hilton Head Island	29928	Not Available
Hilton Head Christian Academy	55 Gardner Drive	Hilton Head Island	29926	Not Available
Hilton Head Preparatory School	8 Foxgrape Road	Hilton Head Island	29928	Not Available
St Francis Catholic School	45 Beach City Road	Hilton Head Island	29926	Not Available
Agape Christian Academy	42 Keans Neck Road	Lobeco	29931	Not Available
Okatie Elementary School	53 Cherry Point Road	Okatie	29909	(843) 322-7701
Technical College of the Lowcountry	100 Community College Drive	Okatie	29909	Not Available
Port Royal Elementary School	1214 Paris Avenue	Port Royal	29935	(843) 322-0834
Whale Branch Elementary	15 Stuart Point Road	Seabrook	29940	(843) 466-1064
Whale Branch Middle School	2009 Trask Parkway	Seabrook	29941	(843) 466-3084
Whale Branch Early College High School	169 Detour Road	Seabrook	29940	(843) 466-2701
Yoruba Royal Academy	56 Bryant Lane	Sheldon	29941	Not Available
St. Helena Elementary School	1025 Sea Island Parkway	St. Helena	29920	(843) 838-0367
Colleton County				
Cottageville Elementary School	648 Peirce Road	Cottageville	29435	(843) 782-4528
New Hope Christian School - Islandton	5144 Forks Road	Islandton	29929	Not Available
Community Christian Academy	15893 Bells Highway	Lodge	29082	Not Available
Bells Elementary School	12088 Bells Highway	Ruffin	29475	(843) 782-0012
Colleton County Middle School	1379 Tuskegee Airmen Drive	Walterboro	29488	(843) 782-0040
Northside Elementary School	1929 Industrial Road	Walterboro	29488	(843) 782-0015
Thunderbolt Career and Technology Center	1069 Thunderbolt Road	Walterboro	29488	(843) 782-4514

SCHOOL				
Name	Address	City/Town	Zip Code	Phone
Hendersonville Elementary School	6089 Hendersonville Highway	Walterboro	29488	(843) 782-0027
Forest Hills Elementary School	633 Hiers Corner Road	Walterboro	29488	(843) 782-4512
Black Street Early Childhood Center	256 Smith Street	Walterboro	29488	(843) 782-4516
Colleton County High School	150 Cougar Nation Drive	Walterboro	29488	(843) 782-0031
Colleton Preparatory Academy	165 Academy Road	Walterboro	29488	Not Available
North Walterboro Christian Academy	2177 Jefferies Highway	Walterboro	29488	Not Available
First Baptist Kindergarten	125 S Memorial Avenue	Walterboro	29488	Not Available
Faith Baptist Academy	64 Hendersonville Highway	Walterboro	29488	Not Available
Cosmetic Arts Institute	1789 Hampton Street	Walterboro	29488	(843) 549-8587
University of South Carolina Salkehatchie	807 Hampton Street	Walterboro	29488	(843) 549-6314
Hampton County				
Brunson Elementary School	34 College Street	Brunson	29911	(803) 398-5584
Estill Elementary School	318 4th Street	Estill	29918	(803) 625-5030
Estill Middle School	1450 Columbia Highway Suite B	Estill	29918	(803) 625-5200
Estill High School	1450 Columbia Highway	Estill	29918	(803) 625-5100
Patrick Henry Academy	8766 Savannah Highway	Estill	29918	Not Available
Hampton Elementary School	505 Hoover Street	Hampton	29924	(803) 943-3251
Ben Hazel Primary School	628 Railroad Avenue West	Hampton	29924	(803) 943-3659
Community Christian Academy	436 Wade Hampton Road	Hampton	29924	Not Available
Varnville Elementary School	395 Pine Street East	Varnville	29944	(803) 943-2376
North District Middle School	611 Tillman Avenue	Varnville	29944	(803) 943-3507
Wade Hampton High School	115 Airport Road	Varnville	29944	(803) 943-3568
Fennell Elementary School	131 Yemassee Highway	Yemassee	29945	(803) 398-5591
Jasper County				
Ridgeland-Hardeeville High School	250 Jaguar Trail	Ridgeland	29936	(843) 489-8844
Beaufort-Jasper Academy for Career Excellence	80 Lowcountry Drive	Ridgeland	29936	(843) 987-8107
Ridgeland Elementary School	250 Jaguar Trail	Ridgeland	29936	(843) 489-8845
Ridgeland High School	5 Correctional Road	Ridgeland	29936	(803) 896-3252
John Paul II Catholic School	4211 N Okatie Highway	Ridgeland	29936	Not Available
Step of Faith Christian Academy	9009 Tarboro Road	Ridgeland	29936	Not Available
Thomas Heyward Academy	1727 Malphrus Road	Ridgeland	29936	Not Available

COMMUNICATION				
Name	Address	City/Town	Zip Code	Phone
WAGP The Light 88.7 FM	PO Box 119 Highway 280	Beaufort	29901	Not Available
Oldies 92.1	2617 Boundary Street	Beaufort	29902	Not Available
WVGB Radio 1490 AM	806 Monson Street	Beaufort	29902	Not Available
WJWJ-TV	Not Available	Beaufort	29901	Not Available
Adventure Radio Group	1 St. Augustine Place	Hilton Head Island	29928	Not Available
The River 98.7 FM	1623 Okatie Highway	Okatie	31408	Not Available
WALI 93.7 FM	724 S. Jefferies Boulevard	Walterboro	29488	Not Available
WBHC AM-FM	P.O. Box 666 Highway 601	Hampton	29924	Not Available

WASTEWATER FACILITY				
Name	Address	City/Town	Zip Code	Phone
Beaufort County				
Port Royal WWTP	285 Castle Rock Road	Beaufort	29906	Not Available
Hilton Head Reverse Osmosis	21 Oak Park Drive	Hilton Head Island	29925	Not Available
Hilton Head No 1 PSD WWTP	21 Oak Park Drive	Hilton Head Island	29926	843-6815525
South Island PSD WWTP (Sewage)	2 Lawton Road	Hilton Head Island	29938	843-785-6224
South Island PSD WWTP (Water)	2 Lawton Road	Hilton Head Island	29938	843-785-6224
US Marines/Parris Island Depot	Parris Island	Parris Island	29905	Not Available
US Marines/Parris Island Depot	Parris Island	Parris Island	29905	Not Available
Colleton County				
Edisto Beach WWTP	2517 Holmes Street	Edisto Beach	29438	843-869-2505
Walterboro WWTP	777 Gervais Street	Walterboro	29488	843-549-2545
Hampton County				
Brunson Wastewater WWTP	(Off Of) South Main Street	Brunson	29911	803-632-3633
Estill Wastewater WWTP	Morrison Street	Estill	29918	803-625-3816
Hampton Wastewater WWTP	100 Saluda Street	Hampton	29924	803-943-2951
Yemassee Wastewater WWTP	Railroad Avenue	Yemassee	29945	843-589-2565
Jasper County				
Hardeeville WWTP	2529 Church Road	Hardeeville	29927	843-784-3256
Cherry Point WWTP	Jasper Station Road	Ridgeland	29936	843-987-9200

TRANSPORTATION				
Name	Address	City/Town	Zip Code	Phone
Beaufort County				
Airport				
Beaufort County	Po Drawer 1228	Beaufort	29901	843-525-7151
Beaufort County Memorial Hospital	955 Ribaut Road	Beaufort	29902	843-522-5200
Beaufort MCAS /Merritt Field	Geiger Boulevard	Beaufort	20373	843-228-7512
Hilton Head Island	120 Beach City Road	Hilton Head Island	29926	843-255-2942
Ferry				
Harbor Town	Not Available	Hilton Head Island	29928	Not Available
Opossum Point Landing	Not Available	Hilton Head Island	29928	Not Available
Salty Fare Village	40 Palmetto Parkway	Hilton Head Island	29926	Not Available
Jenkins Island, Hilton Head Island	Not Available	Hilton Head Island	29926	Not Available
Hilton Head Island, Broad Creek Marina	18 Simmons Road	Hilton Head Island	29926	Not Available
Haig Point	Not Available	Daufuskie Island	29915	Not Available
Cooper River Landing	Cooper River Landing Road	Daufuskie Island	29915	Not Available
Colleton County				
Airport				
Lowcountry Regional	537 Aviation Way	Walterboro	29488	843-549-2549
Bus				
Circle C Travel Plaza	11109 Augusta Hwy	Walterboro	29488	Not Available
Port				
Junction Coosaw River	Atlantic Intracoastal Waterway	Green Pond	29446	Not Available
Junction Combahee & Coosaw RV	Atlantic Intracoastal Waterway	Green Pond	29446	Not Available
Junction Ashepoo Coosaw Cut-Off	Atlantic Intracoastal Waterway	Green Pond	29446	Not Available
Bennetts Point	Atlantic Intracoastal Waterway	Green Pond	29446	Not Available
Green Pond	Ashepoo River	Green Pond	29446	Not Available
Willtown Bluff	South Edisto River	Jacksonboro	29452	Not Available
Johossee Island	South Edisto River	Jacksonboro	29452	Not Available
Hampton County				
Airport				
Hampton County	201 Jackson Avenue		29924	803-943-7500
Hampton Regional Medical Center	595 W Carolina Avenue	Varnville	29944	803-943-2771

TRANSPORTATION				
Name	Address	City/Town	Zip Code	Phone
Jasper County				
Airport				
Ridgeland-Claude Dean	358 Third Avenue	Ridgeland	29936	843-726-7759
Bus				
Hilton Head Island-Bluffton	448 Independence Blvd	Hardeeville	29927	Not Available
Hilton Head Island-Bluffton	574 Independence Blvd	Hardeeville	29927	Not Available
Port				
Turtle Island	Atlantic Intracoastal Waterway	Bluffton	29910	Not Available
Mayo Wharf Coosawhatchie River	Broad River, SC	Ridgeland	29936	Not Available

APPENDIX I: TYPES OF MITIGATION ACTIONS

Mitigation Type	Description	Examples
Local Plans and Regulations	These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.	<ul style="list-style-type: none"> ▪ Comprehensive plans ▪ Land use ordinances ▪ Subdivision regulations ▪ Development review ▪ Building codes and enforcement ▪ NFIP Community Rating System ▪ Capital improvement programs ▪ Open space preservation ▪ Stormwater management regulations and master plans
Structure and Infrastructure Projects	These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards. Many of these types of actions are projects eligible for funding through the FEMA Hazard Mitigation Assistance program.	<ul style="list-style-type: none"> ▪ Acquisitions and elevations of structures in flood prone areas ▪ Utility undergrounding ▪ Structural retrofits. ▪ Floodwalls and retaining walls ▪ Detention and retention structures ▪ Culverts ▪ Safe rooms
Natural Systems Protection	These are actions that minimize damage and losses and preserve or restore the functions of natural systems.	<ul style="list-style-type: none"> ▪ Sediment and erosion control ▪ Stream corridor restoration ▪ Forest management ▪ Conservation easements ▪ Wetland restoration and preservation
Education and Awareness Programs	These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady ¹ or Firewise ² Communities. Although this type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. A greater understanding and awareness of hazards and risk among local officials, stakeholders, and the public is more likely to lead to direct actions.	<ul style="list-style-type: none"> ▪ Radio or television spots ▪ Websites with maps and information ▪ Real estate disclosure ▪ Presentations to school groups or neighborhood organizations ▪ Mailings to residents in hazard-prone areas. ▪ StormReady ▪ Firewise Communities

Source: FEMA, 2013

APPENDIX J: UPDATE OF 2015 HAZARD MITIGATION ACTIONS

Table below displays the list of the hazard mitigation actions from the 2015 plans categorized by status. These include:

- *Complete* refers to actions that were fully implemented and successfully concluded.
- *Ongoing* refers to actions with implementation still underway or actions that are continuous.
- *Incomplete/Deferred* refers to actions were not implemented or deferred due to impediments.

BEAUFORT COUNTY			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/ Deferred
PROPOSED ACTIONS FROM 2015			
1. Protect the Chelsea Water Treatment Plant from Flood damage.		✓	
2. Formalize mutual aid agreements with Counties, DOT, SCEMD for debris removal.	✓		
3. Create survey to ID most vulnerable County facilities, particularly in terms of Wind ratings for roofs, and create a CIP list of these structures.		✓	
4. Update all Flood maps with new municipal and county boundaries	✓		
5. Explore and implement protective measures for the Beaufort County Library and the District Special Collection.			✓
6. Determine the vulnerability of backup power for critical facilities. Create a strategy for additional investment in generators and electrical upfits.		✓	
7. Staff dedicated to seeking funding for hazard mitigation projects, provide routine update of hazard plans, exercise other staff on plans, provide training to staff on disaster response and recovery.		✓	
8. Work to enhance County GIS data with more detailed information on individual structures.		✓	
9. Explore the creation of Recovery Operations Center addition to Public Works Building with expanded facilities for key recovery personnel (kitchen, bunks, showers).			✓
ONGOING ACTIONS FROM 2015			
10. Place protective measures on all administrative buildings to ensure administrative functions can continue.		✓	
11. Conduct engineering inspections of the County fire stations to determine mitigation retrofitting measures necessary.		✓	
12. Conduct a study of vulnerable bridges to determine which ones should be hardened.		✓	
13. Provide maintenance and replacement of critical bridges.		✓	
14. Work toward the TsunamiReady community designation.	✓		
15. Continue replacement of lift station control panels with waterproof NEMA devices.		✓	
16. Distribute "Citizen's Guide to Flood Awareness" brochure regularly.		✓	
17. Work with Regional media to promote public awareness of disaster preparedness.		✓	

BEAUFORT COUNTY			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
18. Enhance programs dealing with drought, educating the public about proper water usage and appropriate behavior during drought conditions (to include distribution of drought education materials).		✓	
19. Ensure all fire marshals burn bans are strictly enforced, especially during drought conditions.		✓	
20. Continue to support education programs to inform the community about the danger of land fires and resources on how to prevent them.		✓	
21. Work to enhance education programs for historic properties.		✓	
22. Beaufort to create a centralized information technology system to access pertinent information during a disaster.		✓	
23. Append this to all comprehensive plans as they are updated, or at earliest date available.		✓	
24. Work to expedite re-build of historic structures post disaster.		✓	
25. Continue enforcing seismic program & regulations in building codes.		✓	
26. All communities to continue to support Beaufort County's SWM Utility/Plan for future SWM projects.		✓	
27. Undertake a program to study poorly drained areas and remedy them through best practices.		✓	
28. Continue education program for the agricultural sector that promote sustainable practices (BMPS) and hazard resilience (particularly during drought).		✓	
29. Make updated GPS systems available for emergency personnel.		✓	
30. Conduct periodic surveys of the equipment used by emergency personnel and write the appropriations into their budget.		✓	
31. Enhance radio technology for all building officials for hazard preparation.		✓	
32. Continue to work with SCDNR to update maps based on newer/more accurate topography data.		✓	
33. Continue to enforce Floodplain regulations to ensure proper development in compliance with all building codes, FEMA regulations and any other pertinent ordinances.		✓	
34. Train Building Officials on most up to date code requirements for hazard resistant construction.		✓	
35. Building Codes Department will conduct SCDNR approved classes for Floodplain management.		✓	
36. Sponsor and conduct workshops for local engineers, architects and contractors on IBC and hazard resistant construction.		✓	
37. Actively advocate to public officials the adoption of the latest version of universally accepted building codes without amendments.		✓	
38. Support ongoing efforts for a regional warehouse for emergency supply storage.			✓
39. Explore the service of special needs and other vulnerable populations for evacuation and sheltering.		✓	
40. Support ongoing efforts educate the public on the threat of Sea Level Rise and associated hazards, exploring best practices for adaptation.		✓	
41. Continue to develop the use of social media/smart phone technology to inform citizens of hazard threats.		✓	
42. Maintain or improve the County's CRS rating.		✓	

CITY OF BEAUFORT			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
PROPOSED ACTIONS FROM 2015			
1. Create a joint permitting center for post-hazard recovery.			✓
2. Explore the potential for solar installations on public facilities for backup emergency power	✓		
3. Assist private home and business owners to obtain funding for retrofitting hazard prone buildings.		✓	
4. Consider the amendment of the City ordinance to allow for the temporary use of RV's and trailers for accommodation post-disaster.		✓	
5. Explore existing procedures for the suspension of electrical services following a mandatory evacuation.	✓		
6. Provide updated GPS systems available for emergency personnel		✓	
7. Explore the development of a manual for stormwater BMP's.			✓
8. Consider the adoption of the 1 ft. freeboard standard for new construction in Floodplains.	✓		
ONGOING ACTIONS FROM 2015			
9. Create survey to ID most vulnerable structures in City and create a CIP list of these structures.	✓		
10. Conduct engineering inspections of county fire stations to determine mitigation retrofitting measures necessary.	✓		
11. Study of vulnerable bridges to determine which ones should be hardened.	Mainly Beaufort County		
12. Maintenance and replacement of critical bridges.	Mainly Beaufort County		
13. Distribute "Citizen's Guide to Flood Awareness" brochure regularly.		✓	
14. Work with Regional media to promote public awareness of disaster preparedness.		✓	
15. Support and enhance programs dealing with drought, educating the public about proper water usage and appropriate behavior during drought conditions (to include distribution of drought education materials).	✓		
16. Work to enhance public education programs for historic property, including a pamphlet for distribution to the public.		✓	
17. Ensure all fire marshals burn bans are strictly enforced, especially during drought conditions.	✓		
18. Continue to support education programs to inform the community about the danger of land fires and resources on how to prevent them.		✓	
19. Append this to all comprehensive plans as they are updated, or at earliest date available.	✓		
20. Continue tree surveys and enhance efforts to ensure the health of Beaufort's urban forest.		✓	
21. Continue enforcing seismic program & regulations in building codes.		✓	
22. All communities to continue to support Beaufort County's SWM Utility/plan for future SWM project.		✓	
23. Undertake a program to study poorly drained areas and remedy them through best practices.	✓		
24. Conduct periodic surveys of the equipment used by emergency personnel and write the appropriations into their budget.		✓	
25. Continue to work with SCDNR to update maps based on newer/more accurate topography data.		✓	

CITY OF BEAUFORT			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
26. Work with the USACE and FEMA to develop new maps.		✓	
27. Continue to enforce Floodplain regulations to ensure proper development in compliance with all building codes, FEMA regulations and any other pertinent ordinances.		✓	
28. Train Building Officials on most up to date code requirements for hazard resistant construction.		✓	
29. Sponsor and conduct workshops for local engineers, architects and contractors on IBC and hazard resistant construction.		✓	
30. Actively advocate to public officials the adoption of the latest version of universally accepted building codes without amendments.		✓	
31. Enforce property maintenance code to correct deteriorating conditions.		✓	
32. Maintain or improve the City's CRS rating.		✓	
33. Continue to develop the use of social media/smart phone technology to inform citizens of Hazard threats.		✓	
34. Continue to develop to the National Standard for hazard planning and preparedness according to the THIRA framework.		✓	
35. Continue and enhance outreach efforts to local businesses, particularly hotels and assisted living facilities, to strengthen disaster preparedness.		✓	
36. Formalize and streamline disaster response procedures across City departments. Coordinate planning and communication related to disaster preparedness.		✓	
37. Support ongoing efforts educate the public on the threat of Sea Level Rise and associated hazards, exploring best practices for adaptation to this threat.		✓	

TOWN OF BLUFFTON			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
PROPOSED ACTIONS FROM 2015			
1. Update all Flood maps with new municipal and county boundaries.		✓	
2. Enforce property maintenance code to correct deteriorating conditions.	✓		
3. Educate Bluffton staff and public on HM grant programs and funding opportunities.	✓		
ONGOING ACTIONS FROM 2015			
4. Place protective measures on all administrative buildings to ensure administrative functions can continue.		✓	
5. Conduct engineering inspections of county fire stations to determine mitigation retrofitting measures necessary.		✓	
6. Conduct a study of vulnerable bridges to determine which ones should be hardened.		✓	
7. Provide maintenance and replacement of critical bridges.		✓	
8. Distribute "Citizen's Guide to Flood Awareness" brochure regularly.		✓	
9. Work with Regional media to promote public awareness of disaster preparedness.		✓	
10. Continue to support education programs to inform the community about the danger of land fires and resources on how to prevent them.		✓	
11. Continue tree survey for vulnerable trees to re-enforce them against hazards (Wind, Flood).		✓	
12. Work to expedite re-build of historic structures post disaster.		✓	
13. Continue enforcing seismic program & regulations in building codes.		✓	
14. All communities to continue to support Beaufort County's SWM Utility/Plan for future SWM project.		✓	
15. Continue a program to study poorly drained areas and remedy them through best practices.		✓	
16. Make updated GPS systems available for emergency personnel.		✓	
17. Conduct periodic surveys of the equipment used by emergency personnel and write the appropriations into their budget.		✓	
18. Enhance radio technology for all building officials for hazard preparation.		✓	
19. Continue to work with SCDNR to update maps based on newer/more accurate topography data.		✓	
20. Continue to enforce Floodplain regulations to ensure proper development in compliance with all building codes, FEMA regulations and any other pertinent ordinances.		✓	
21. Train Building Officials on most up to date code requirements for hazard resistant construction.		✓	
22. Advocate to public officials the adoption of the latest version of universally accepted building codes without amendments.		✓	
23. Explore the service of special needs and other vulnerable populations for evacuation and sheltering.		✓	
24. Support ongoing efforts educate the public on the threat of Sea Level Rise and associated hazards, exploring best practices for adaptation to this threat.		✓	
25. Continue to develop the use of social media/smart phone technology to inform citizens of Hazard threats.		✓	
26. Append this to all comprehensive plans as they are updated, or at earliest date available.		✓	
27. Maintain or improve the City's CRS rating.		✓	

TOWN OF HILTON HEAD ISLAND			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
PROPOSED ACTIONS FROM 2015			
1. 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.		✓	
2. Educate HH staff and public on HM grant programs and funding opportunities.		✓	
ONGOING ACTIONS FROM 2015			
3. Continue to conduct engineering inspections of fire stations as necessary to determine mitigation retrofitting measures necessary.	✓		
4. Conduct a study of vulnerable bridges to determine which ones should be hardened and conduct maintenance of these bridges and HHI Causeways.	✓		
5. Work with regional media to promote public awareness of disaster preparedness.		✓	
6. Distribute "Flood Hazards" brochure regularly.		✓	
7. Continue to implement structural drainage projects.		✓	
8. All communities to continue to support Beaufort County's SWM Utility/Plan for future SWM project.		✓	
9. Continue to maintain open space related to storm water management.		✓	
10. Continue to perform periodic nourishment of its beaches.		✓	
11. Conduct periodic surveys of the equipment used by emergency personnel and write the appropriations into their budget.		✓	
12. Continue to work with SCDNR to update maps based on newer/more accurate topography data.		✓	
13. Scan and store elevation certificates for convenience and ease of access on Town of Hilton Head Island website (although all written documents will be maintained).		✓	
14. Continue to enforce Floodplain regulations to ensure proper development in compliance with all building codes, FEMA regulations and any other pertinent ordinances.		✓	
15. Continue to Train Building Officials on most up to date code requirements for hazard resistant construction.		✓	
16. Assist private home and business owners to obtain funding for retrofitting hazard prone buildings.		✓	
17. Continue to develop the use of social media/smart phone technology to inform citizens of Hazard threats.		✓	
18. Append this to all comprehensive plans as they are updated, or at earliest date available.		✓	
19. Maintain or improve the Town's CRS rating.		✓	
20. Support ongoing efforts educate the public on the threat of Sea Level Rise and associated hazards, exploring best practices for adaptation to this threat.		✓	

TOWN OF PORT ROYAL			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
PROPOSED ACTIONS FROM 2015			
1. Place protective measures on all administrative buildings to ensure administrative functions can continue.			✓
2. Work with Regional media to promote public awareness of disaster preparedness.		✓	
3. Append this to all comprehensive plans as they are updated, or at earliest date available.	✓		
4. Consider the use of priority development zones in non-hazard prone areas.			✓
5. Create survey to ID most vulnerable public structures in Town and create a CIP list of these structures.			✓
6. Assist private home and business owners to obtain funding for retrofitting hazard prone buildings.			✓
7. Incentivize sharing of docks in zoning ordinances.			✓
8. Make updated GPS systems available for emergency personnel.			✓
9. Continue to work with SCDNR to update maps based on newer/more accurate topography data.		✓	
10. Update all Flood maps with new municipal and county boundaries.	✓		
11. Create a joint permitting center for post- hazard recovery.			✓
ONGOING ACTIONS FROM 2015			
12. Conduct a study of bridges to determine which ones should be hardened.		✓	
13. Provide maintenance and replacement of critical bridges.		✓	
14. Distribute "Citizen's Guide to Flood Awareness" brochure regularly.	✓		
15. Enhance programs dealing with drought, educating the public about proper water usage and appropriate behavior during drought conditions (to include distribution of drought education materials).		✓	
16. Work to enhance public education program for historic property, including a pamphlet for distribution to the public.		✓	
17. Create tree survey for vulnerable trees to re-enforce them against hazards.			✓
18. Continue enforcing seismic programs & regulations in building codes.		✓	
19. All communities to continue to support Beaufort County's SWM Utility/Plan for future SWM projects.		✓	
20. Undertake a program to study poorly drained areas and remedy them through best practices.		✓	
21. Conduct periodic surveys of the equipment used by emergency personnel and write the appropriations into their budget.		✓	
22. Continue to enforce Floodplain regulations to ensure proper development in compliance with all building codes, FEMA regulations and any other pertinent ordinances.		✓	
23. Train Building Officials on most up to date code requirements for hazard resistant construction.		✓	
24. Sponsor and conduct workshops for local engineers, architects and contractors on IBC and hazard resistant construction.		✓	
25. Actively advocate to public officials the adoption of the latest version of universally accepted building codes without amendments.		✓	

TOWN OF PORT ROYAL			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/ Deferred
26. Enforce property maintenance code to correct deteriorating conditions.		✓	
27. Support ongoing efforts educate the public on the threat of Sea Level Rise and associated hazards, exploring best practices for adaptation to this threat.		✓	
28. Continue to develop the use of social media/smart phone technology to inform citizens of Hazard threats.		✓	
29. Maintain or improve the City's CRS rating.		✓	

COLLETON COUNTY			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
PROPOSED ACTIONS FROM 2015			
1. Add generators to radio stations to ensure emergency public information.	No radio station		
2. Increase reserve fuel storage at the Emergency Operations Center.	On a natural gas line, No fuel storage		
3. Plan for and maintain adequate road and debris clearing capabilities Continue to establish mutual aid agreements, including with SCDOT.	✓		
4. 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.	✓		
5. Utilize social media and post information listing what one should have if a hazard strike Post same information in public spaces, including home improvement stores.	✓		
6. Identify and protect wetlands that serve as Flood storage areas.	✓		
7. Coordinate with Churches and other faith-based intuitions to understand services they provide in the aftermath of an event Evaluate needs.	✓		
8. Identify specific at-risk populations that may be exceptionally vulnerable in the event of long-term power outages.	✓		
9. Acquire software enabling social media calls to be integrated into the 911 Dispatch systems.	✓		
10. Update aerial imaging and mapping of county.	✓		
11. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.	✓		
12. Identify and analyze renewable energy options: costs, benefits, environmental effects, technological potential, and political acceptability.	✓		
13. Conduct an inventory and map current community facilities, including tele- communications; assess the condition of facilities for determining if repair or replacement is required Identify current community facilities deficiencies and future needs.	✓		
14. Increase tree plantings (Safely) around buildings to shade parking lots and along public rights-of-way.	✓		
15. Conduct an assessment and cost benefit-analysis for making improvement to the County Airport. Make improvements where needed.	✓		
16. Provide provisions for transportation to get those in need to emergency shelters.	✓		
17. 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.	✓		
18. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.	✓		
19. Conduct detailed Floodplain management planning and mapping in accordance with the CRS.	✓		
ONGOING ACTIONS FROM 2015			
20. Continue review critical facilities – evaluation, inspections, reinforcements, and remodeling – so structures physically capable to withstand hazards.		✓	

COLLETON COUNTY			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
21. Backup power adequate so can be up and running shortly after disaster Generators essential Need them in Critical Facilities.	✓		
22. Backup power for EM Shelters Continue project encumber generator connections and generator purchases.	✓		
23. Provide training to Personnel who will in the future deal with hazard mitigation and the grant writing thereof.		✓	
24. Pave highways to allow 4 lanes of traffic to evacuate during hazard.		✓	
25. Provide information to residents on how to prepare homes, family, and property for disasters.	✓	✓	
26. Oversee strict adherence to newest building standards by monitoring new renovations and construction.		✓	
27. Inspect and manage vegetation that could damage critical facilities.		✓	
28. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.		✓	
29. Identify ham radio operators.			
30. Improve existing critical facilities by replacing doors and Windows at older facilities.		✓	
31. Ensure critical facilities have adequate emergency power resources, including fuel storage.		✓	
32. Provide hazard training in schools.		✓	
33. Install Cameras on hurricane evacuation routes.		✓	
34. Retrofit selected fire stations so they can serve as a shelter for emergency workers during events Pre-wired for generators, supplied with generators.		✓	
35. Conduct in-dept Evacuation Route Study to analyze current efficiency, adequacy, and safety of evacuation routes within Colleton County.		✓	
36. Continue Special Needs Evacuation Study – Nursing home and hospital evacuation plans assessed to ensure safety and efficiency.		✓	
37. Backup Power Evaluation to ensure shelters having adequate emergency power resources.		✓	
38. Evacuation measures for those in need – Provisions for transportation to get those in need to emergency shelters.			
39. Special Need Population Inventory Identify vulnerable and special needs members of the population.		✓	
40. Develop rescue and evacuation procedures for special populations.		✓	
41. Public Education and Awareness: Teaching residents how to prepare homes, family, and property for disasters.		✓	
42. Public Education and Awareness: Packets circulated during season of hazard.		✓	
43. Tourist Education: continue coordination of work with the visitor's bureau to alert tourists to possible hazards in areas of vulnerability Materials can be left in visitor centers, hotels, attractions, etc.		✓	
44. Continue to oversee strict adherence to new building standards by closely monitoring all new renovations and construction.		✓	
45. Conduct Inventory/survey for county's emergency response services to identify existing needs or shortfalls in Personnel, equipment, or required resources.		✓	
46. Zoning and building codes and policies constantly updated and enforced to ensure no new structures built within Floodplains.		✓	

COLLETON COUNTY			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
47. Wetland Protection: Stringent rules against removal of wetlands.		✓	
48. Wetland Protection Preservation through education of public about buffer zones and regulating these through development ordinances.		✓	
49. Inspection of Lines: Ensure lines clear of limbs or other obstructions that may damage them during Windstorms or other natural hazards.		✓	
50. Establish satellite telephone system for use in case of emergencies.			
51. Instigate Earthquake training in schools.		✓	
52. Handout SC's Earthquake Preparedness of Schools brochure and implement training.		✓	
53. Purchase support vehicles to reach rural locations during hazard.		✓	
54. Remove potential tree problems.		✓	
55. Assess trees in public areas to see if they are dead, dying, or could cause potential problems if struck by lightning or are fire conducive.		✓	
INCOMPLETED/DEFERRED ACTIONS FROM 2015			
56. Posted boards near grocery stores and hardware stores listing what one should have if a hazard struck.		✓	
57. Sell portable radios for everyone, so that they can tune in when a hazard is near, occurring, or the aftermath.		✓	
58. Publicize events at Local hardware stores that show how to save your property during a hazard.		✓	
59. Provide free water and set up water stations when the temperature will be about 102.		✓	
60. Train those in rural areas for how to protect their homes, and what to do during an event.		✓	
61. Train people with equipment and supplies for a winter storm.		✓	
62. Offer a list of city foresters, county extension offices, Local nurseries and landscape firms that can provide advice on tree selection for your area and soil conditions.		✓	
63. Create Incentive, publicize, or provide, fans or other types of cooling elements for popular outdoor areas during times of high heat.		✓	
64. Pave highways to allow 4 lanes of traffic to evacuate during hazard.		✓	
65. Provide materials for stranded motorists during a hazard.		✓	
66. Provide materials for stranded motorists during a hazard.		✓	
67. Purchase equipment and supplies in case of a winter storm.		✓	
68. Set up community compost pile that people can purchase soil from to help enrich soil properties and protect against drought.		✓	
69. Incentivize against bagging leaves and grass, this also enriches the soil.		✓	
70. Provide a place for blankets, and coverings, that people can pick up and use for property protection during hail.		✓	
71. Provide shelter spaces during hail and other storms.		✓	
72. Enforce rules against removal of wetlands.		✓	

COLLETON COUNTY			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
73. Replacement of utilities.		✓	
74. Fire Station Upgrades Retrofit certain fire stations to meet International Building codes Wind design requirements so it can serve as a shelter for emergency workers during events Pre-wired for generators, supplied with generators.		✓	
75. Replace old or leaky roofs on specific critical facilities to preserve the structures.		✓	
76. EM Service Workers shelter Several County buildings identified as future hurricane shelters for emergency works. These need strengthening.		✓	
77. Shelter Development Strengthen county and municipality buildings in order to designate as hurricane shelters.		✓	
78. Warning systems education: educate residents of meaning warning systems and schedule testing.		✓	
79. Structure Sealing Provide waterproof doors and seals for wall openings and/or seal components for critical facilities within Flood zones.		✓	
80. Install back-flow prevention valves in sewers and drains at critical facilities.		✓	
81. Water Seals Improve seals on all wall penetrations below Flood water levels at critical facilities.		✓	
82. Storm water drainage study and plan to identify drainage ditches and promote cleanup.		✓	
83. Acquire and preserve parcels of land subject to repetitive Flooding or areas known to have been affected by Flooding at a great extent.		✓	
84. Consider areas subject to repetitive Flooding for acquisition for parks and other permanent open space.		✓	
85. Provide county and constituent Municipalities with laptops for backing up important data prior to disaster striking in order to set up temporary offices elsewhere.		✓	
86. Scanning of important data and information.		✓	
87. Construction of a safe storage area to house important information and documents.		✓	
88. Inspection of communication lines to ensure reliability.		✓	
89. Improvement of old or worn communication lines.		✓	
90. Creation of mobile dispatch unit to ensure communications not eliminated due to natural hazard.		✓	
91. In need of Portable Repeaters to upgrade Colleton County's emergency communication systems in case of power outage Current system inadequate.		✓	
92. Creation of camera system to oversee traffic and threats to traffic from hazards.		✓	
93. Inspection of utility lines.		✓	
94. Improvement of utilities.		✓	
95. Strengthen utility poles/conductor fixtures within Colleton County.		✓	

TOWN OF COTTAGEVILLE			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
ONGOING ACTIONS FROM 2015			
1. Survey trees cover to ensure decreased vulnerability. Make improvements.		✓	
2. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.	✓		
3. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.		✓	

TOWN OF EDISTO BEACH			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
PROPOSED ACTIONS FROM 2015			
1. Make needed improvements to the causeway and bridge as it is the primary evacuation route.	Move Schedule 5-10 Years		
2. Ensure generator capacity at lift and pump stations.		✓	
3. Ensure generator capacity at the Civic Center to enable the facility to be designated a heating and cooling center for senior population and off beach emergency operations center.		✓	
4. Install Windows with impact glazing at the municipal complex.	Remove		
5. Build new fire station.	Remove		
6. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.	Proposed		
7. Install lightning protection devices and methods, such as lightning rods and grounding, on communications infrastructure and other critical facilities.	Proposed		
8. Perform maintenance including fuel management techniques such as pruning and clearing dead vegetation, selective logging, cutting high grass, planting fire-resistant vegetation, and creating fuel/fire breaks.	Remove		
9. Develop new or upgrading existing water delivery systems to eliminate breaks and leaks.	Proposed		
10. Developing 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.	Remove		
11. Include measures such as structural bracing, shutters, laminated glass in windowpanes, and hail-resistant roof coverings or flashing in building design to minimize damage.	Proposed		
ONGOING ACTIONS FROM 2015			
12. Purchase and Maintain the needed equipment to clear debris.		✓	
13. Ensure strict building regulation for elevated buildings and retreat.		✓	
14. Construct primary dunes and lengthen groin system per Army Corps of Engineers Alternatives.		✓	

TOWN OF LODGE			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
ONGOING ACTIONS FROM 2015			
1. Survey trees cover to ensure decreased vulnerability. Make improvements.		✓	
2. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.	✓		
3. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.		✓	

TOWN OF SMOAKS			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
ONGOING ACTIONS FROM 2015			
1. Survey trees cover to ensure decreased vulnerability. Make improvements.		✓	
2. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.	✓		
3. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.		✓	

CITY OF WALTERBORO			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
PROPOSED ACTIONS FROM 2015			
1. Clear the sediment in the Ireland Creek.		✓	
ONGOING ACTIONS FROM 2015			
2. Survey trees cover to ensure decreased vulnerability. Make improvements.		✓	
3. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.	✓		
4. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.		✓	
5. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.		✓	
6. Ensure that the Fire Dept has the needed apparatus.		✓	

HAMPTON COUNTY			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
PROPOSED ACTIONS FROM 2015			
1. Add generators to radio stations to ensure emergency public information.			✓
2. Add traffic cameras at Savannah Highway and Elm Street			✓
3. Increase reserve fuel storage at the Emergency Operations Center.	✓		
4. Plan for and maintaining adequate road and debris clearing capabilities.	✓		
5. 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.			✓
6. A new generator for the City's Wastewater Treatment Plant – the current generator that we have is at the end of its useful life.	✓		
7. Utilize social media and post information listing what one should have if a hazard strikes Post same information in public spaces, including home improvement stores.		✓	
8. Identify and protect wetlands that serve as Flood storage areas.		✓	
9. Coordinate with Churches and other faith-based intuitions to understand services they provide in the aftermath of an event Evaluate needs.	✓		
10. Identify specific at-risk populations that may be exceptionally vulnerable in the event of long-term power outages.	✓		
11. Acquire software enabling social media calls to be integrated into the 911 Dispatch systems.	✓		
12. Update aerial imaging and mapping of county.		✓	
13. Install generator at Hampton County Senior Center - cooling center – Yemassee.			✓
14. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.		✓	
15. Identify and analyze renewable energy options: costs, benefits, environmental effects, technological potential, and political acceptability.			✓
16. Conduct an inventory and map current community facilities, including tele- communications; assess the condition of facilities for determining if repair or replacement is required Identify current community facilities deficiencies and future needs.		✓	
17. Increase tree plantings (Safely) around buildings to shade parking lots and along public rights-of-way.		✓	
18. Do an assessment and cost benefit-analysis for making improvement to the County Airport. Make improvements where needed.		✓	
19. Provide provisions for transportation to get those in need to emergency shelters.		✓	
20. 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.		✓	
21. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.			✓

HAMPTON COUNTY			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
ONGOING ACTIONS FROM 2015			
22. Warning System Education: Educate residents of warning systems meaning and schedule testing.		✓	
23. Building Code: Oversee strict adherence to newest building standards by monitoring new renovations and construction.		✓	
24. Inspection of Lines: Ensure lines are clear of limbs or other obstructions that may cause damage during Windstorms or other natural hazards.		✓	
25. Install/Keep up to date with Warning Systems.		✓	
26. Instigate Earthquake training in schools.		✓	
27. Handout SC's Earthquake Preparedness of Schools brochure and implement training.		✓	
28. Remove potential tree problems.		✓	
29. Continue to Scan important and historic documents to backup information and to compile with State Archive requirements.		✓	
30. Provide information to residents on how to prepare homes, family, and property for disasters.		✓	
31. Oversee strict adherence to newest building standards by monitoring new renovations and construction.		✓	
32. Identify ham radio operators.		✓	
33. Inspect and manage vegetation that could damage critical facilities.		✓	
34. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.		✓	
35. Improve existing critical facilities by replacing doors and Windows at older facilities.		✓	
36. Ensure critical facilities have adequate emergency power resources, including fuel storage.		✓	
37. Provide hazard training in schools.		✓	
38. Facility Evaluated: Critical Facilities evaluated Inspections, Reinforcements, and remodeling so structures physically capable to withstand hazards.	✓		
39. Conduct Special Need Population Inventory.		✓	
40. Rescue and Evacuation for Special Populations.		✓	
41. Workshops and Classes: Teach residents how to prepare homes, family, and property for disasters.		✓	
42. Public Education and Awareness- Informational Packets: Packets circulated during season of hazard.		✓	
43. Purchase specific piece of equipment that would help emergency response and preparedness.	✓		
44. Vegetation Management: Inspect and manage vegetation that could damage critical facilities if felled by Wind.		✓	
45. Building Code Wind Standards: Adhere to new building standards (ISO 9000 Building Standards as of 2004).		✓	
46. Flood map update.		✓	
47. Creation of mobile dispatch unit to ensure communications not eliminated due to natural hazard.		✓	
48. Camera system to oversee traffic and threats to traffic from hazards.			✓

HAMPTON COUNTY			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
49. Strengthen utility poles/ conductor fixtures within Colleton County.		✓	
50. Wetland Protection: Preservation through education of public about buffer zones and regulating these through development ordinances.		✓	
INCOMPLETE/DEFERRED ACTIONS FROM 2015			
51. SPEC building hardened.			✓
52. Post boards near grocery stores and hardware stores listing what one should have if a hazard struck.		✓	
53. Publicize events at Local hardware stores that show how to save your property during a hazard.		✓	
54. Provide free water and set up water stations when the temperature will be about 102.			✓
55. Train those in rural areas for how to protect their homes, and what to do during an event.		✓	
56. Train people with equipment and supplies for a winter storm.		✓	
57. Offer a list of city foresters, county extension offices, Local nurseries and landscape firms that can provide advice on tree selection for your area and soil conditions.		✓	
58. Incentivize, publicize, or provide fans or other types of cooling elements for popular outdoor areas during times of high heat.		✓	
59. Pave highways to allow 4 lanes of traffic to evacuate during hazard.			✓
60. Purchase support vehicles to reach rural locations during hazard.		✓	
61. Provide materials for stranded motorists during a hazard.		✓	
62. Assess trees in public areas to see if they are dead, dying, or could cause potential problems if struck by lightning or are fire conducive.		✓	
63. Purchase equipment and supplies in case of a winter storm.			✓
64. Set up community compost pile that people can purchase soil from to help enrich soil properties and protect against drought.			✓
65. Incentivize against bagging leaves and grass, this also enriches the soil.			✓
66. Provide a place for blankets, and coverings, that people can pick up and use for property protection during hail.			✓
67. Provide shelter spaces during hail and other storms.			✓
68. Enforce rules against removal of wetlands.			✓
69. Roof Repair: Replace older or leaky roofs on specific critical facilities to preserve structures.		✓	
70. Add hurricane shutters for emergency shelters.		✓	
71. Provide shelter development.		✓	
72. Tourist Education: Coordinate with Visitor's bureau to alert tourists to potential hazards.			✓
73. Conduct Roof Conditions Survey: Roof study for new roofs on homes to ensure can sustain high wind speeds.			✓
74. Structure Sealing: Provide waterproof doors and seals for wall openings and/or seal components for critical facilities w/in Flood zones.			✓

HAMPTON COUNTY			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
75. Water Seals: Improve seals on all wall penetrations below Flood water levels at critical facilities.			✓
76. Conduct storm water drainage study and plan to identify drainage ditches and promote cleanup.			✓
77. Land Acquisition: Acquire and preserve parcels of land subject to repetitive Flood.			✓
78. Land Acquisition: Purchase areas subject to repetitive Flooding for acquisition for parks and other permanent open space.			✓
79. Conduct Special Needs Evacuation Study.		✓	
80. Conduct Backup Power Evaluation.		✓	
81. Provide evacuation measures for those in need.		✓	
82. Power Generators for Critical Facilities: Hampton County needs twelve 40-60 kw generators. The cost is \$800 each These will provide limited power to fire departments and EMS bases.	✓		
COMPLETE ACTIONS FROM 2015			
83. Conduct a survey for schools and other buildings as possible shelter locations.	✓		
84. Bring designated buildings up to code for shelter space to withstand Wind, such as replacing roofs and putting graphite walls.	✓		
85. Sell portable radios for everyone, so that they can tune in when a hazard is near, occurring, or the aftermath.	✓		
86. Provide training to Personnel who will in the future deal with hazard mitigation and the grant writing thereof.	✓		
87. Keep up to date with technological advancements, including but not limited to, setting up a remote database for important files for backup.	✓		
88. Ensure backup power adequate so can be up and running shortly after disaster. Generators essential.	✓		
89. Electronic Manual Transfer Switches for EM Shelters: Hampton County shelters need three electric manual transfer switches per shelter, 27 totals. The cost is \$4,200 each, fully installed.	✓		
90. Conduct Evacuation Route Study.	✓		
91. Distribute Shelter List Publication.	✓		
92. Set up Web Site to include instruction and information of what to do in hazard emergency, including evacuation routes and shelters.	✓		
93. EM Resp Prep Eval: Conduct Inventory/survey for county's emergency response services to identify existing needs or shortfalls in personnel, equipment, or required resources.	✓		
94. EM Response Training: Train employees and emergency workers for specific natural hazard events.	✓		
95. Flood Zone Building Policies: Zoning and building codes should ensure no new structures built within Floodplains.		✓	
96. Wetland Protection: Stringent rules against removal of wetlands.	✓		
97. Improve old or worn communication lines.	✓		
98. School Weather Radios: Provide updated weather radios to schools for early warning.	✓		
99. Install back-flow prevention valves in sewers and drains at critical facilities.	✓		

HAMPTON COUNTY			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
100. Provide county and constituent Municipalities with laptops for backing up important data prior to disaster striking in order to set up temporary offices elsewhere.	✓		
101. Scan important data and information.	✓		
102. Construction of a safe storage area to house important information and documents.	✓		
103. Inspection communication lines to ensure reliability.		✓	
104. Inspection of utility lines.		✓	
105. Improvement of utilities.		✓	
106. Replacement of utilities.	✓		
107. Reinforcements, and remodeling on structures so can physically be capable to withstand hazards.	✓		

TOWN OF ESTILL			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
ONGOING ACTIONS FROM 2015			
1. Survey trees cover to ensure decreased vulnerability. Make improvements.			✓
2. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.		✓	
3. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.		✓	
4. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.		✓	

TOWN OF FURMAN			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
ONGOING ACTIONS FROM 2015			
1. Survey trees cover to ensure decreased vulnerability. Make improvements.			✓
2. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.		✓	
3. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.		✓	
4. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.		✓	

TOWN OF GIFFORD			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
ONGOING ACTIONS FROM 2015			
1. Survey trees cover to ensure decreased vulnerability. Make improvements.			✓
2. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.		✓	
3. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.		✓	
4. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.		✓	

TOWN OF HAMPTON			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
ONGOING ACTIONS FROM 2015			
1. Survey trees cover to ensure decreased vulnerability. Make improvements.			✓
2. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.		✓	
3. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.		✓	
4. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.		✓	

TOWN OF LURAY			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
ONGOING ACTIONS FROM 2015			
1. Survey trees cover to ensure decreased vulnerability. Make improvements.			✓
2. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.		✓	
3. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.		✓	
4. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.		✓	

TOWN OF SCOTIA			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
ONGOING ACTIONS FROM 2015			
1. Survey trees cover to ensure decreased vulnerability. Make improvements.			✓
2. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.		✓	
3. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.		✓	
4. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.		✓	

TOWN OF VARNVILLE			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
ONGOING ACTIONS FROM 2015			
1. Survey trees cover to ensure decreased vulnerability. Make improvements.			✓
2. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.		✓	
3. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.		✓	
4. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.		✓	

TOWN OF YEMASSEE			
2015 Town of Yemassee Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
ONGOING ACTIONS FROM 2015			
1. Survey trees cover to ensure decreased vulnerability. Make improvements.			✓
2. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.		✓	
3. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.		✓	
4. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.		✓	

JASPER COUNTY			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
PROPOSED ACTIONS FROM 2015			
1. Ensure critical facilities have adequate emergency power resources, including fuel storage.		✓	
2. Conduct a study on the possible usage of transportable generators on a regional basis for critical facilities.		Proposed	
3. Provide provisions for transportation to get those in need to emergency shelters.		Proposed	
4. Identify specific at-risk populations that may be exceptionally vulnerable in the event of long-term power outages.		Proposed	
5. 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.		Proposed	
6. Plan for and maintaining adequate road and debris clearing capabilities.		Proposed	
7. 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.		Proposed	
8. Acquire software enabling social media calls to be integrated into the 911 Dispatch systems.		✓	
9. Identify and analyze renewable energy options: costs, benefits, environmental effects, technological potential, and political acceptability.		Proposed	
10. Conduct an inventory and map current community facilities, including tele- communications; assess the condition of facilities for determining if repair or replacement is required Identify current community facilities deficiencies and future needs.		Proposed	
11. Utilize social media and post information listing what one should have if a hazard strikes Post same information in public spaces, including home improvement stores.		Proposed	
12. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.		Proposed	
13. Identify and protect wetlands that serve as Flood storage areas.		Proposed	

JASPER COUNTY			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/ Deferred
14. Create small area plans for stormwater drainage and housing in neighborhoods or watersheds with high vulnerabilities. Make improvements.		Proposed	
15. Install generator at Jasper County Senior Center – cooling center–Ridgeland.		Proposed	
16. Do an assessment and cost benefit-analysis for making improvement to the County Airport. Make improvements where needed.		Proposed	
17. Update aerial imaging and mapping of county.		Proposed	
ONGOING ACTIONS FROM 2015			
18. Vegetation Management: inspect and manage vegetation that could damage critical facilities if felled by Wind.		✓	
19. Education and public outreach regarding any or all potential natural hazards.		✓	
20. Facility Eval: Critical Facilities evaluated Inspections, Reinforcements, and remodeling so structures physically capable to withstand hazards.		✓	
21. Public Education and Awareness- Informational Packets: Packets continued to be circulated during season of hazard.		✓	
22. EM Response Training of employees and emergency workers for specific natural hazard events.		✓	
23. Provide hazard training in schools.			✓
24. Backup Power Eval Ensure all shelters have adequate emergency power resources.	✓		
25. Public Education and Awareness- Workshops and Classes: Continue teaching residents how to prepare homes, family, and property for disasters.		✓	
26. Building Code: Oversee strict adherence to new building standards by closely monitoring all new renovations and construction.		✓	
27. Building Code Wind Standards: Adhere to new building standards (ISO 9000 Building Standards as of this plan).		✓	
28. Map Update: Update Floodplain maps.		✓	
29. Inspection of communication lines to ensure reliability.		✓	
30. Improvement of old or worn communication lines.		✓	
31. Inspection of lines: Ensure lines clear of limbs or other obstructions that may damage them during Windstorms or other natural hazards.		✓	
32. Inspection of utility lines.		✓	
33. Improvement of utilities.		✓	
34. Replacement of utilities.		✓	
35. Strengthen utility poles/conductor fixtures.		✓	

CITY OF HARDEEVILLE			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
ONGOING ACTIONS FROM 2015			
1. Survey trees cover to ensure decreased vulnerability. Make improvements.		✓	
2. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.		✓	
3. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.	Proposed		
4. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.	Proposed		

TOWN OF RIDGELAND			
2015 Hazard Mitigation Actions	Status in 2020		
	Complete	Ongoing	Incomplete/Deferred
ONGOING ACTIONS FROM 2015			
1. Survey trees cover to ensure decreased vulnerability. Make improvements.		✓	
2. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.		✓	
3. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.	Proposed		
4. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.	Proposed		

APPENDIX K: 2020 NEW AND ONGOING HAZARD MITIGATION ACTIONS

The table below represents the general format in which each mitigation action is recorded. Each action should be designed to achieve the goals identified in the Hazard Mitigation Strategy. By identifying specific projects and policies, the local mitigation action plans help participating counties and municipalities to engage in distinct actions that will reduce their exposure to future hazard events and disasters.

- *Mitigation 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.
- *Associated Hazard:* Indicate the hazard(s) the action attempts to mitigate.
- *Priority:* Using scoring table to indicate whether the action is a
 - High priority: score greater than 20
 - Medium priority: score 10-19
 - Low priority: score less than 10
- *Goal:* Indicate the goal(s) relevant to the action(s).
- *Estimated Cost:* If applicable, estimate a dollar amount required to accomplish the mitigation action(s).
- *Potential Funding:* If applicable, indicate sources of funding (i.e. previous established fund or existing operating budgets (internal sources), federal or state grant (external sources)).
- *Schedule:* Indicate when the action will begin the implementation process and be completed.
- *Notes:* Additional information regarding the project, milestones, impediments, etc.

The hazard mitigation actions are categorized by status. Blue means "proposed action(s)," and yellow means "ongoing action(s)."

BEAUFORT COUNTY								
2020 New and Ongoing Mitigation Actions	Hazard	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Support ongoing efforts for a regional warehouse for emergency supply storage.	All Hazards	Med	1	20k	Counties, PDM	Public Works, EMD	2021	A site was identified in Colleton County, training is pending for future operations.
2. Protect the Chelsea Water Treatment Plant from Flood damage.	Windstorm, Hurricane	Low	1	30k	BJWSA, PDM, HMGP	BJWSA	Ongoing	
3. Create survey to ID most vulnerable County facilities, particularly in terms of Wind ratings for roofs, and create a CIP list of these structures.	Windstorm, Flood,	Med	5	6k	County	Planning, Administration	Ongoing	Master Plan 2018.
4. Determine the vulnerability of backup power for critical facilities. Create a strategy for additional investment in generators and electrical upfits.	All Hazards	Med	1	50k	Counties, PDM, HMPG	Public Works, EMD	Ongoing	Grant projects awarded – pending.
5. Seek funding for Hazard Mitigation projects, provide routine update of hazard plans, exercise other staff on plans, provide training to staff on disaster response and recovery.	All Hazards	High	3, 4	50k	All jurisdictions, HGMP, PDM	Engineering and Infrastructure	Ongoing	Beaufort County's Disaster Recovery continues to seek grant funding opportunities and implement grant projects.
6. Work to enhance County GIS data with more detailed information on individual structures	All Hazards	High	4	5k	GIS Department	GIS Department	Ongoing	Parcels change and update quarterly.
7. Assist private home and business owners to obtain funding for retrofitting hazard prone buildings.	All Hazards	Med	3	N/A	City, SCEMD, PDM	Planning	Ongoing	Beaufort County currently has a project it is pursuing to assist a homeowner in elevating their home.
8. Should place protective measures on all administrative buildings to ensure administrative functions can continue.	Thunderstorm, Hurricane, Tornado	High	1	5k	PDM, HMGP, County and All Municipalities	Public Works, Engineering	Ongoing	
9. Conduct engineering inspections of all fire stations to determine mitigation retrofitting measures necessary.	All Hazards	Med	1	20k	County, PDM, HMGP	Engineering, Fire	Ongoing	

BEAUFORT COUNTY								
2020 New and Ongoing Mitigation Actions	Hazard	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
10. Study vulnerable bridges to determine which ones should be hardened.	Hurricane, Windstorm	Med	1	5k	SCDOT, PDM, HMGP, County, Municipalities, Federal Highways	SCDOT, Public Works	Ongoing	
11. Provide maintenance and replacement of critical bridges.	Hurricane, Windstorm, Earthquake	Med	1	5 mil.	SCDOT, PDM, HMGP, County, Municipalities, Federal Highways	SCDOT	Ongoing	
12. Continue replacement of lift station control panels with waterproof NEMA devices.	Flood	High	1	5k	PDM, HMGP	BJWSA	Ongoing	
13. Distribute "Citizen's Guide to Flood Awareness" brochure regularly.	Hurricane	High	2	5k	All Jurisdiction, PDM, HMGP	Building Codes	Ongoing	
14. Work with regional media to promote public awareness of disaster preparedness.	All Hazards	High	2	2k	County, All Municipalities	Building Codes/Emergency Preparedness	Ongoing	
15. Enhance programs dealing with drought, educating the public about proper water usage and appropriate behavior during drought conditions (to include distribution of drought education materials).	Drought	Med	2	3k	All Jurisdiction, PDM, HMGP	Planning, BJWSA, Soil and Water District	Ongoing	
16. Ensure all fire marshals burn bans are strictly enforced, especially during drought conditions.	Drought	High	3	10k	All jurisdictions	Fire	Ongoing	
17. Continue to support education programs to inform the community about the danger of land fires and resources on how to prevent them.	Wildfire (Land Fire)	Med	2	5k	All Jurisdictions, PDM, HMGP, SCDNR	EMD	Ongoing	
18. Work to enhance education programs for historic properties.	Flood, Earthquake	Med	2, 5	2k	SHPO, All Jurisdictions	Planning	Ongoing	
19. Create a centralized information technology system to access pertinent information during a disaster.	All Hazards	Med	4	10k	PDM, HMGP	Emergency Management, Building	Ongoing	

BEAUFORT COUNTY								
2020 New and Ongoing Mitigation Actions	Hazard	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
20. Append this to all comprehensive plans as they are updated, or at earliest date available.	All Hazards	High	2, 3	N/A	All Jurisdictions	Planning	Ongoing	
21. Work to expedite re-build of historic structures post disaster.	All Hazards	Low	3	5k	All Jurisdictions, HMGP, SHPO	Building Codes	Ongoing	
22. Continue enforcing seismic program & regulations in building codes.	Earthquake	High	3	N/A	All Jurisdictions	Building Codes	Ongoing	
23. Continue to support Beaufort County's SWM Utility/Plan for future SWM projects.	Flood	High	3, 5	N/A	BJWSA, All Jurisdictions	Public Works, Planning, Building	Ongoing	
24. Undertake a program to study poorly drained areas and remedy them through best practices.	Flood	Med	3, 5	20k	All Jurisdictions (except HHI), HGMP, PDM, CDBG	Public Works, Engineering	Ongoing	
25. Continue education program for the agricultural sector that promote sustainable practices (BMPS) and hazard resilience (particularly during drought).	Drought	Med	2, 3	3k	All Jurisdictions	Planning, Soil and Water District	Ongoing	
26. Make updated GPS systems available for emergency personnel.	All Hazards	Med	4	50k	PDM, HGMP, All Jurisdictions	Emergency Management, GIS, Building	Ongoing	
27. Conduct periodic surveys of the equipment used by emergency personnel and write the appropriations into their budget.	All Hazards	Med	4	N/A	All Jurisdictions	Building, Engineering, Public Works	Ongoing	
28. Enhance radio technology for all building officials for hazard preparation.	All Hazards	Med	4	10k	All Jurisdictions, PDM, HGMP	Emergency Management, Police, Fire, Building Codes	Ongoing	
29. Continue to work with SCDNR to update maps based on newer/more accurate topography data.	Flood	High	4	Unknown	County, SCDNR, PDM, HGMP	SCDNR, Planning, Building	Ongoing	
30. Continue to enforce Floodplain regulations to ensure proper development in compliance with all building codes, FEMA regulations and any other pertinent ordinances.	Flood	High	3	N/A	All Jurisdictions	Building	2021 Ongoing	

BEAUFORT COUNTY								
2020 New and Ongoing Mitigation Actions	Hazard	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
31. Train Building Officials on most up to date code requirements for hazard resistant construction.	All Hazards	High	3, 4	5k	All Jurisdictions, PDM, HGMP	Building	Ongoing	
32. Conduct SCDNR approved classes for Floodplain management by Building Codes Department.	Flood	Med	2, 3, 4	No Cost	Beaufort County with All Jurisdictions Participating	Building	Ongoing	
33. Sponsor and conduct workshops for local engineers, architects and contractors on IBC and hazard resistant construction.	All Hazards	High	2	10k	All Jurisdictions, PDM, HGMP	Building	Ongoing	
34. Actively advocate to public officials the adoption of the latest version of universally accepted building codes without amendments.	All Hazards	High	3	20k	All Jurisdictions	Planning, Building	Ongoing	
35. Explore the service of special needs and other vulnerable populations for evacuation and sheltering.	All Hazards	Med	4, 6	5k	County, PDM, HMGP	EMD, EMS, Community	Ongoing	
36. Support ongoing efforts educate the public on the threat of Sea Level Rise and associated hazards, exploring best practices for adaptation.	Flood	High	2, 3	N/A	County	Planning, Engineering, SC Sea Grant, LCOG	Ongoing	
37. Continue to develop the use of social media/smart phone technology to inform citizens of hazard threats.	All Hazards	High	2, 3	5k	County	EMD, IT, EMS	Ongoing	
38. Maintain or improve the County's CRS rating.	Flood	Med	3, 5	N/A	All Jurisdictions	Planning, Building	Ongoing	
39. Work to enhance public education programs for historic property, including a pamphlet for distribution to the public.	Flood, Earthquake	Med	2, 5	2k	SHPO, City	Planning	Ongoing	
40. Continue tree surveys and enhance efforts to ensure the health of Beaufort's urban forest.	Flood, Windstorm	Med	3, 5	20k	All jurisdictions, PDM, HMGP, SC Forestry Commission	Planning	Ongoing	

BEAUFORT COUNTY								
2020 New and Ongoing Mitigation Actions	Hazard	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
41. Continue to work with SCDNR to update maps based on newer/more accurate topography data.	Flood	High	4	Unknown	All jurisdictions, SCDNR, PDM, HGMP	SCDNR, FEMA, Planning Building	Ongoing	
42. Work with the USACE and FEMA to develop new maps.	Flood	High	4	Unknown	County, SCDNR, PDM, HGMP	FEMA, Planning, Building	Ongoing	
43. Continue to develop to the National Standard for hazard planning and preparedness according to the THIRA framework.	All Hazards	High	3	N/A	City, PDM	EMD	Ongoing	
44. Continue and enhance outreach efforts to local businesses, particularly hotels and assisted living facilities, to strengthen disaster preparedness.	All Hazards	High	2	N/A	All jurisdictions, COC	EMD, EMS	Ongoing	Beaufort County's Disaster Recovery Department is in regular communication with business partners and the chambers to make sure lines of communication are open for response and recovery efforts.
45. Formalize and streamline disaster response procedures. Coordinate planning and communication related to disaster preparedness.	All Hazards	High	3	N/A	All jurisdictions	All Departments	Ongoing	

CITY OF BEAUFORT								
2020 New and Ongoing Mitigation Actions	Hazard	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Explore a partnership with the Army Corps of Engineers for a mitigation study grant, or a CAP feasibly in response to resiliency towards sea level rise.	Flood	High	3, 5	Unknown	WRDA Bills	Planning, EMD	5 yrs.	Funding is essential.
2. Assist private home and business owners to obtain funding for retrofitting hazard prone buildings.	All Hazards	Med	3, 5	N/A	City, SCEMD, PDM	Planning	Ongoing	
3. Consider the amendment of the City ordinance to allow for the temporary use of RV's and trailers for accommodation post-disaster.	All Hazards	High	3	N/A	City	Planning	Ongoing	
4. Update GPS systems available for emergency personnel.	All Hazards	Med	4	50k	PDM, HGMP, All Jurisdictions	Fire, Building	Ongoing	
5. Distribute "Citizen's Guide to Flood Awareness" brochure regularly.	Hurricane, Flood	High	2	10k	City	Planning	Ongoing	
6. Work with regional media to promote public awareness of disaster preparedness.	All Hazards	High	2	2k	County, All Municipalities	Planning, EMD	Ongoing	
7. Work to enhance public education programs for historic property, including a pamphlet for distribution to the public	Flood, Earthquake	Med	2	2k	SHPO, City	Planning	Ongoing	
8. Continue to support education programs to inform the community about the danger of land fires and resources on how to prevent them.	Wildfire (Land Fire)	Med	2	5k	All Jurisdiction, PDM, HMGP, SCDNR	Soil and Water District, Planning	Ongoing	
9. Continue tree surveys and enhance efforts to ensure the health of Beaufort's urban forest.	Flood, Windstorm	Med	3, 5	20k	City, PDM, HMGP, SC Forestry Commission	Planning	Ongoing	
10. Continue enforcing seismic program & regulations in building codes.	Earthquake	High	3	N/A	All Jurisdictions	Building	Ongoing	

CITY OF BEAUFORT								
2020 New and Ongoing Mitigation Actions	Hazard	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
11. All communities to continue to support Beaufort County's SWM Utility/Plan for future SWM project.	Flood	High	3, 5	N/A	BJWSA, All Jurisdictions	Public Works, BJWSA, Planning	Ongoing	
12. Conduct periodic surveys of the equipment used by emergency personnel and write the appropriations into their budget.	All Hazards	Med	4	N/A	All Jurisdictions	Building	Ongoing	
13. Continue to work with SCDNR to update maps based on newer/more accurate topography data.	Flood	High	4	Unknown	County, SCDNR, PDM, HGMP	SCDNR, FEMA, Planning Building	Ongoing	
14. Work with the USACE and FEMA to develop new maps.	Flood	High	4	Unknown	County, SCDNR, PDM, HGMP	FEMA, Planning, Building	Ongoing	
15. Continue to enforce Floodplain regulations to ensure proper development in compliance with all building codes, FEMA regulations and any other pertinent ordinances.	Flood	High	3	N/A	City	Building	Ongoing	
16. Train Building Officials on most up to date code requirements for hazard resistant construction.	All Hazards	High	3, 4	5k	All Jurisdictions, PDM, HGMP	Building	Ongoing	
17. Sponsor and conduct workshops for local engineers, architects and contractors on IBC and hazard resistant construction.	All Hazards	High	3, 5	10k	City	Building	Ongoing	
18. Actively advocate to public officials the adoption of the latest version of universally accepted building codes without amendments.	All Hazards	High	4	20k	All Jurisdictions	Building, Planning	Ongoing	
19. Enforce property maintenance code to correct deteriorating conditions.	All Hazards	Med	4	N/A	City	Building	Ongoing	
20. Maintain or improve the City's CRS rating.	Flood	Med	3, 5	N/A	All Jurisdictions	Planning, Building	Ongoing	

CITY OF BEAUFORT								
2020 New and Ongoing Mitigation Actions	Hazard	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
21. Continue to develop the use of social media/smart phone technology to inform citizens of Hazard threats.	All Hazards	High	2, 4	5k	All Jurisdictions	EMD, EMS	Ongoing	
22. Continue to develop to the National Standard for hazard planning and preparedness according to the THIRA framework.	All Hazards	High	3	N/A	City, PDM	EMD	Ongoing	
23. Continue and enhance outreach efforts to local businesses, particularly hotels and assisted living facilities, to strengthen disaster preparedness.	All Hazards	High	2	N/A	City, COC	EMD	Ongoing	
24. Formalize and streamline disaster response procedures across City departments. Coordinate planning and communication related to disaster preparedness.	All Hazards	High	3	N/A	City	All Departments	Ongoing	
25. Support ongoing efforts educate the public on the threat of Sea Level Rise and associated hazards, exploring best practices for adaptation to this threat.	Flood	High	2, 3	N/A	All Jurisdictions	Planning, Building, LCOG	Ongoing	

TOWN OF BLUFFTON								
2020 New and Ongoing Mitigation Actions	Hazard	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Update all Flood maps with new municipal and county boundaries.	Flood	Med	4	N/A	All Jurisdictions	SCDNR, FEMA, Planning, Building	Ongoing	
2. Protective measures should be placed on all administrative buildings to ensure administrative functions can continue.	Windstorm, Hurricane, Tornado	High	1	50k	PDM, HMGP, County and All Municipalities	Public Works, Engineering	Ongoing	New Town Hall in 2019.
3. Conduct engineering inspections of county fire stations to determine mitigation retrofitting measures necessary.	All Hazards	Med	1	20k	County, PDM, HMGP	Engineering, Fire District	Ongoing	
4. Study vulnerable bridges to determine which ones should be hardened.	Hurricane, Windstorm	Med	1	Unknown	SCDOT, PDM, HMGP, County, Municipalities, Federal Highways	SCDOT, Public Works, Planning, Engineering	Ongoing	As funds are available.
5. Provide maintenance and replacement of critical bridges.	Hurricane, Windstorm, Earthquake	Med	1	5 mil.	SCDOT, PDM, HMGP, County, Municipalities, Federal Highways	SCDOT, Public Works, Planning, Engineering	Ongoing	As funds are available.
6. Distribute "Citizen's Guide to Flood Awareness" brochure regularly.	Hurricane	High	2	5k	All Jurisdiction, PDM, HMGP	Planning, Emergency Preparedness, Building	Ongoing	
7. Work with Regional media to promote public awareness of disaster preparedness.	All Hazards	High	2	2k	County, All Municipalities	Planning, Building	Ongoing	
8. Continue to support education programs to inform the community about the danger of land fires and resources on how to prevent them.	Wildfire (Land Fire)	Med	2	5k	All Jurisdiction, PDM, HMGP, SCDNR	Soil and Water District, Fire District, Planning	Ongoing	
9. Continue tree survey for vulnerable trees to reinforce them against hazards (Wind, Flood).	Flood, Windstorm	Med	3, 5	20k	All Jurisdictions, PDM, HMGP, SC Forestry Commission	Planning	Ongoing	
10. Work to expedite re-build of historic structures post disaster.	All Hazards	Low	3	5k	All Jurisdictions, HMGP	Building	Ongoing	
11. Continue enforcing seismic program & regulations in building codes.	Earthquake	High	3	N/A	All Jurisdictions	Building	Ongoing	

TOWN OF BLUFFTON								
2020 New and Ongoing Mitigation Actions	Hazard	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
12. All communities to continue to support Beaufort County's SWM Utility/Plan for future SWM project.	Flood	High	3, 5	N/A	BJWSA, All Jurisdictions	Public Works, BJWSA, Planning	Ongoing	
13. Continue a program to study poorly drained areas and remedy them through best practices.	Flood	Med	3, 5	20k	All Jurisdictions (except HHI), HGMP, PDM, CDBG	Public Works, Planning	Ongoing	
14. Make updated GPS systems available for emergency personnel.	All Hazards	Med	4	50k	PDM, HGMP, All Jurisdictions	Emergency, Building	Ongoing	
15. Conduct periodic surveys of the equipment used by emergency personnel and write the appropriations into their budget.	All Hazards	Med	4	N/A	All Jurisdictions	Building	Ongoing	
16. Enhance radio technology for all building officials for hazard preparation.	All Hazards	Med	4	10k	All Jurisdictions, PDM, HGMP	Building	Ongoing	
17. Town will continue to work with SCDNR to update maps based on newer/more accurate topography data.	Flood	High	4	Unknown	County, SCDNR, PDM, HGMP	SCDNR, FEMA, Planning, Building	Ongoing	
18. Continue to enforce Floodplain regulations to ensure proper development in compliance with all building codes, FEMA regulations and any other pertinent ordinances.	Flood	High	3	N/A	All Jurisdictions	Building	Ongoing	
19. Train Building Officials on most up to date code requirements for hazard resistant construction.	All Hazards	High	3, 4	5k	All Jurisdictions, PDM, HGMP	Building	Ongoing	
20. Actively advocate to public officials the adoption of the latest version of universally accepted building codes without amendments.	All Hazards	High	3	20k	All Jurisdictions	Building, Planning	Ongoing	
21. Explore the service of special needs and other vulnerable populations for evacuation and sheltering.	All Hazards	Med	4, 6	N/A	All Jurisdictions, PDM	Planning, EMD, EMS	Ongoing	

TOWN OF BLUFFTON								
2020 New and Ongoing Mitigation Actions	Hazard	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
22. Support ongoing efforts educate the public on the threat of Sea Level Rise and associated hazards, exploring best practices for adaptation to this threat.	Flood	High	2, 3	N/A	All Jurisdictions	Planning, Building, LCOG	Ongoing	
23. Continue to develop the use of social media/smart phone technology to inform citizens of Hazard threats.	All Hazards	High	2, 3	5k	All Jurisdictions	EMD, EMS	Ongoing	
24. Append this to all comprehensive plans as they are updated, or at earliest date available.	All Hazards	High	2, 3	N/A	All Jurisdictions	Planning	Ongoing	
25. Maintain or improve the City's CRS rating.	Flood	Med	3, 5	N/A	All Jurisdictions	Planning, Building	Ongoing	

TOWN OF HILTON HEAD ISLAND								
2020 New and Ongoing Mitigation Actions	Hazard	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. 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.	All Hazards	High	1	5k	Public Projects & Facilities	Public Projects & Facilities	Ongoing	<p>In 2019 Town staff submitted a Hazard Mitigation Grant Program grant application to SC-EMD/FEMA for a generator to be located at the soon to be constructed Fire Station 2 in Sea Pines.</p> <p>In March 2020 Town staff was notified the Hazard Mitigation Grant Program (HMGP) application for the generator at Fire Station 2 in Sea Pines was not selected by SC-EMD/FEMA for funding. The next HMGP funding cycle closes on November 30, 2020 and the Fire Station 2 generator application will be re-submitted to SC-EMD/FEMA for consideration.</p> <p>In January 2020 Town staff submitted a Pre-Disaster Mitigation (PDM) grant application to SC-EMD/FEMA for a generator to be located at the Town's 911 Tower.</p>
2. Educate HH staff and public on HM grant programs and funding opportunities.	All Hazards	High	3, 5	5k	Community Development, County, LCOG	Community Development, County, LCOG	Ongoing	Staff continues to advise Hilton Head Island residents on the SC-DNR/FEMA Flood Mitigation Program grant application process when available.
3. Work with regional media to promote public awareness of disaster preparedness.	All Hazards	High	4	2k	Community Development, Emergency Management	Community Development, Emergency Management	Ongoing	Staff continues to advise Hilton Head Island residents on the SC-DNR/FEMA Flood Mitigation Program grant application process when available.
4. Distribute "Flood Hazards" brochure regularly.	Hurricane, Flood	High	2, 4	10k	Community Development	Community Development	Ongoing	The "Be Prepared! A Guide to Flood Hazards and How to Stay Safe" is mailed to each household within Town limits on an annual basis. Also, the

TOWN OF HILTON HEAD ISLAND								
2020 New and Ongoing Mitigation Actions	Hazard	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
								postcard is distributed at flood hazard public presentations throughout the year. Approximately 1800 were distributed at presentations in 2019.
5. Continue to implement structural drainage projects.	Flood	High	1, 5	100k	Community Development, Engineering	Community Development, Engineering	Ongoing	<p>The following projects are completed or underway:</p> <ul style="list-style-type: none"> • Jarvis Creek Pump Station – Major rehabilitation project has been completed - including electrical system upgrades, monitoring system upgrades, rehabbing the emergency generator, and elevating the emergency cutoff switches above flood stage. • Main Street Weir - Major overhaul including both operational and safety improvements; completed in 2019 • Wexford Channel Levee at Long Cove – 300 linear feet of levee raised and reinforced just upstream of the Wexford Pump Station to protect facility from extreme storm surge breach and re-circulation of flow; completed in June, 2019 • Ashmore Channel Mathews Drive Outfall - Replaced the failed neoprene tide valves with stainless steel flap gates; completed in July 2018 • Lawton Creek Pump Station – undergoing major electrical and monitoring system upgrades, new emergency generator system, new pump building, elevating electrical controls, refurbishing pumps – to be completed by June 2021

TOWN OF HILTON HEAD ISLAND								
2020 New and Ongoing Mitigation Actions	Hazard	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
								<ul style="list-style-type: none"> • Various location: Storm Pipes lined, replaced, upsized at numerous locations; July 2019-June 2020.
6. Continue to support Beaufort County's SWM Utility/Plan for future SWM project.	Flood	High	1, 5	N/A	All Departments	All Departments	Ongoing	<p>Beaufort County completed a county-wide Storm Water Master Plan 2018, but with only limited, macro-scale analysis on Hilton Head Island systems. The Town continues to develop watershed master plans through detailed inventory and modeling projects to identify and mitigate flood hazards. Island-wide inventory and modeling program is currently 30% complete; at current funding level, programmed for completion in 2026. As each watershed is modelled, mitigation projects are identified, evaluated, budgeted, and programmed for implementation as CIP projects. Mitchelville/Palmetto Hall Watershed Study was completed in July 2019. Lower Jarvis Creek, Gum Tree and Jonesville Watershed studies are in process, to be completed by the end of 2020.</p>
7. Continue to perform periodic nourishment of its beaches.	Flood, Coastal Erosion	Med	5	17 mil.	Community Development, Public Projects & Facilities	Community Development, Public Projects & Facilities	Ongoing	<p>The 2016 beach renourishment project was completed in December 2016. This project placed approximately 2.0 million cubic yards of sand along the Atlantic Ocean-front and Port Royal Sound-front shorelines. Monitoring and preliminary design/permitting work for the next project is ongoing.</p>

TOWN OF HILTON HEAD ISLAND								
2020 New and Ongoing Mitigation Actions	Hazard	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
8. Conduct periodic surveys of the equipment used by emergency personnel and write the appropriations into their budget.	All Hazards	Med	4	N/A	Emergency Management	Emergency Management	Ongoing	<p>The Emergency Management Coordinator annually reviews, and checks equipment assigned to emergency management, which includes the EOC equipment and base camp deployment package. Air conditioning and other upgrades were added to Western Shelter to provide sleeping or workspace for staff if a facility is not available.</p> <p>The Town executed a contract to upgrade the EOC to replace carpeting, painting, and adding additional workspace to allow for more personnel to effectively operate.</p>
9. Continue to work with SCDNR to update maps based on newer/more accurate topography data.	Flood	High	5	N/A	SCDNR, Community Development	SCDNR, Community Development	Ongoing	<p>Beaufort County is currently under a map revision by FEMA. Preliminary draft maps were released in June 2017.</p> <p>According to FEMA's proposed schedule, the new Digital Flood Insurance Rate Maps (DFIRMs) are expected to become effective for flood insurance rating and building permit purposes in Spring – Summer 2021.</p>
10. Scan and store elevation certificates for convenience and ease of access on Town of Hilton Head Island website (although all written documents will be maintained).	Flood	Med	5	10k	Community Development, Records Dept., MIS Dept.	Community Development, Records Dept., MIS Dept.	Ongoing	<p>Finished construction elevation certificates for all new construction, substantial improvements, residential renovations, accessory structures, etc. are received daily. These are reviewed, signed, and scanned into the appropriate building permit in the Energy system.</p>

TOWN OF HILTON HEAD ISLAND								
2020 New and Ongoing Mitigation Actions	Hazard	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
11. Continue to enforce Floodplain regulations to ensure proper development in compliance with all building codes, FEMA regulations and any other pertinent ordinances.	Flood	High	3, 5	N/A	Community Development	Community Development	Ongoing	<p>Town staff revised and Town Council adopted the Flood Damage Controls Ordinance on February 19, 2019. The Town is currently under a Flood Insurance Rate Map Revision by FEMA, for which, we anticipate adopting higher regulatory standards to accommodate significant decreases to the effective base flood elevations.</p> <p>The 2018 International Building Code and International Residential Code with State Modifications were adopted and went into effect January 1, 2020.</p>
12. Continue to Train Building Officials on most up to date code requirements for hazard resistant construction.	All Hazards	High	3, 5	5k	Community Development	Community Development	Ongoing	<p>The Town of Hilton Head Island building official attended the 2020 South Carolina Association of Hazard Mitigation Annual Conference and received a total of 12 hours of continuing education since 2019.</p>
13. Study vulnerable bridges to determine which ones should be hardened and conduct maintenance of these bridges and HHI Causeways.	Hurricane, Windstorm, Earthquake	Med	1	Unknown	SCDOT, Engineering	SCDOT, Engineering	Ongoing	<p>This mitigation action was carried over from the previous hazard mitigation plan and completed as a partnership with Beaufort County in 2012.</p> <p>The causeway leading from the mainland to the Mackay Creek bridge was hardened (rip rap) after Mathew (2017) by the SCDOT.</p>

TOWN OF PORT ROYAL								
2020 New and Ongoing Mitigation Actions	Hazard	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Should place protective measures on all administrative buildings to ensure administrative functions can continue.	Windstorm, Hurricane, Tornado	High	1	50k	PDM, HMGP, All Municipalities	Building, Engineering	2021	
2. Consider the use of priority development zones in non-hazard prone areas.	Flood	Med	3	N/A	Town	Planning, Administration	2021	
3. Create survey to ID most vulnerable public structures in Town and create a CIP list of these structures.	Windstorm, Flood	Med	1	6k	Town	Planning	2021	
4. Assist private home and business owners to obtain funding for retrofitting hazard prone buildings.	All Hazards	Med	3	200k	SHPO, All Jurisdictions, PDM, HMGP	USCB	2021	
5. Incentivize sharing of docks in zoning ordinances.	Coastal Erosion	Med	3, 5	Unknown	All Jurisdictions	Planning	2021	
6. Make updates GPS systems available for emergency personnel.	All Hazards	Med	4	50k	PDM, HGMP, All Jurisdictions	Fire, Building	2021	
7. Create a joint permitting center for post-hazard recovery.	All Hazards	Med	3	N/A	All Jurisdictions	Building	2021	
8. Create tree survey for vulnerable trees to re-enforce them against hazards	Flood, Windstorm	Med	3	20k	Town, PDM, HMGP, SC Forestry Commission	Planning, Building	2021	
9. Work with regional media to promote public awareness of disaster preparedness.	All Hazards	High	2	2k	County, All Municipalities	Planning, Administration	2021	
10. Study vulnerable bridges to determine which ones should be hardened.	Hurricane, Windstorm	Med	1	Unknown	SCDOT, PDM, HMGP, County, Municipalities, Federal Highways	SCDOT, County Engineering, Planning	Ongoing	
11. Provide maintenance and replacement of critical bridges.	Hurricane, Windstorm, Earthquake	Med	1	5 mil.	SCDOT, PDM, HMGP, County, Municipalities, Federal Highways	SCDOT, County Engineering, Planning	Ongoing	

TOWN OF PORT ROYAL								
2020 New and Ongoing Mitigation Actions	Hazard	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
12. Enhance programs dealing with drought, educating the public about proper water usage and appropriate behavior during drought conditions (to include distribution of drought education materials).	Drought	Med	2	3k	All Jurisdictions, PDM, HMGP	Planning, Soil and Water District	Ongoing	
13. Work to enhance public education program for historic property, including a pamphlet for distribution to the public.	Flood, Earthquake	Med	2	2k	SHPO, All Jurisdictions	Planning	Ongoing	
14. Continue enforcing seismic programs & regulations in building codes.	Earthquake	High	3	N/A	All Jurisdictions	Building	Ongoing	
15. Continue to support Beaufort County's SWM Utility/Plan for future SWM projects.	Flood	High	3, 5	N/A	BJWSA, All Jurisdictions	Public Works, BJWSA, Planning	Ongoing	
16. Undertake a program to study poorly drained areas and remedy them through best practices.	Flood	Med	3, 5	20k	All Jurisdictions (except HHI), HGMP, PDM, CDBG	Planning	Ongoing	
17. Conduct periodic surveys of the equipment used by emergency personnel and write the appropriations into their budget.	All Hazards	Med	4	N/A	All Jurisdictions	Fire, Police, Building	Ongoing	
18. Continue to enforce Floodplain regulations to ensure proper development in compliance with all building codes, FEMA regulations and any other pertinent ordinances.	Flood	High	3	N/A	All Jurisdictions	Building	Ongoing	
19. Train Building Officials on most up to date code requirements for hazard resistant construction.	All Hazards	High	3	5k	All Jurisdictions, PDM, HGMP	Building	Ongoing	
20. Sponsor and conduct workshops for local engineers, architects and contractors on IBC and hazard resistant construction.	All Hazards	High	2	10k	All Jurisdictions, PDM, HGMP	Building	Ongoing	

TOWN OF PORT ROYAL								
2020 New and Ongoing Mitigation Actions	Hazard	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
21. Actively advocate to public officials the adoption of the latest version of universally accepted building codes without amendments.	All Hazards	High	2, 3	20k	All Jurisdictions	Planning, Building	Ongoing	
22. Enforce property maintenance code to correct deteriorating conditions.	All Hazards	Med	3	N/A	All Jurisdictions	Building, Codes, Planning	Ongoing	
23. Support ongoing efforts educate the public on the threat of Sea Level Rise and associated hazards, exploring best practices for adaptation to this threat.	Flood	High	2, 3	N/A	All Jurisdictions	Planning, Building Codes	Ongoing	
24. Continue to develop the use of social media/smart phone technology to inform citizens of Hazard threats.	All Hazards	High	2, 3	N/A	All Jurisdictions	EMS	Ongoing	
25. Maintain or improve the Town's CRS rating.	Flood	Med	3, 5	N/A	All Jurisdictions	Planning, Building	Ongoing	
26. Continue to work with SCDNR to update maps based on newer/more accurate topography data.	Flood	High	4	Unknown	All jurisdictions, SCDNR, PDM, HGMP	SCDNR, FEMA, Planning, Building	Ongoing	
27. Append this to all comprehensive plans as they are updated, or at earliest date available.	All Hazards	High	2, 3	N/A	All Jurisdictions	Planning	Ongoing	
28. Update all Flood maps with new municipal and county boundaries.	Flood	Med	4	N/A	All Jurisdictions	SCDNR, FEMA, Planning, Building	Ongoing	
29. Distribute "Citizen's Guide to Flood Awareness" brochure regularly.	Hurricane	High	2	5k	All Jurisdiction, PDM, HMGP	Planning, Building	Ongoing	

COLLETON COUNTY								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Backup Power Evaluation: Ensure shelters have adequate emergency power resources.	Hurricane, Flood	Med	4	500k	Local Funds, PDM	County Official	3-5 yrs.	All shelters wired for generator connectivity. No Funding to support generator purchases.
2. Remove potential tree problems.	Lightning, Wildfire	Med	3	250k	Local Funds, PDM, HMGP	County Official	3-5 yrs.	Tree cleared after ice storm Some tree were cleared at the Pruitt Health and Behavioral Health.
3. Assess trees in public areas to see if they are dead, dying, or could cause potential problems if struck by lightning or are fire conducive.	Lightning, Wildfire	Med	3	30k	Local Funds, PDM	County Official	3-5 yrs.	Tree cleared after ice storm. Some trees were cleared at the Pruitt Health and Behavioral Health.
4. Post boards near grocery stores and hardware stores listing what one should have if a hazard struck.	Earthquake, Tornado, Hurricane, Flood	High	2	30k	Local Funds, PDM	County Official	3-5 yrs.	
5. Train those in rural areas for how to protect their homes, and what to do during an event.	All Hazards	High	2	250k	Local Funds, PDM	County Official	3-5 yrs.	
6. Train people with equipment and supplies for a winter storm.	Winter Storm	High	2	50k	Local Funds, PDM	County Official	3-5 yrs.	
7. Create Incentive, publicize, or provide, fans or other types of cooling elements for popular outdoor areas during times of high heat.	Extreme Heat	Low	3	100k	Local Funds, PDM	County Official	3-5 yrs.	
8. Pave highways to allow 4 lanes of traffic to evacuate during hazard.	Hurricane	Low	3	7 mil.	Local Funds, PDM, HMGP	County Official	5 or more yrs.	
9. Provide materials for stranded motorists during a hazard.	All Hazards	Med	3	2 mil.	Local Funds, PDM	County Official	3-5 yrs.	
10. Purchase equipment and supplies in case of a winter storm.	Winter Storm	Med	3	500k	PDM, HMGP	County Official	3-5 yrs.	
11. Set up community compost pile that people can purchase soil from to help enrich soil properties and protect against drought.	Drought	Med	3	75k	Local Funds, PDM	County Official	5 or more yrs.	
12. Incentivize against bagging leaves and grass, this also enriches the soil.	Drought	High	3	50k	Local Funds, PDM	County Official	3-5 yrs.	

COLLETON COUNTY								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
13. Provide a place for blankets, and coverings, that people can pick up and use for property protection during hail.	Hail	High	3	50k	Local Funds, PDM	County Official	3-5 yrs.	
14. Provide shelter spaces during hail and other storms.	Hail, Winter Storm, Lightning	High	3	500k	Local Funds, PDM, CDBG	County Official	3-5 yrs.	
15. Fire Station Upgrades: Retrofit certain fire stations to meet International Building codes Wind design requirements so it can serve as a shelter for emergency workers during events Pre-wired for generators, supplied with generators.	All Hazards	High	1	2 mil.	PDM, CDBG, HMGP	County Official	3-5 yrs.	No funding to support.
16. Replace old or leaky roofs on specific critical facilities to preserve the structures.	All Hazards	High	1	1 mil.	PDM, CDBG	County Official	3-5 yrs.	No funding to support.
17. Identify several County buildings as future hurricane shelters for emergency works.	Hurricane, Flood	High	4	750k	PDM, CDBG, HMGP	County Official	3-5 yrs.	No funding to support.
18. Shelter Development: Strengthen county and municipality buildings in order to designate as hurricane shelters.	Hurricane, Flood	High	4	15 mil.	PDM, CDBG, HMGP	County Official	3-5 yrs.	No funding to support.
19. Acquire and preserve parcels of land subject to repetitive Flooding or areas known to have been affected by Flooding at a great extent.	Flood	High	5	300k	Local Funds, PDM, FMA	County Official	3-5 yrs.	No funding to support.
20. Consider areas subject to repetitive Flooding for acquisition for parks and other permanent open space.	Flood	High	5	100k	Local Funds, PDM, FMA	County Official	3-5 yrs.	No funding to support.
21. Provide county and constituent Municipalities with laptops for backing up important data prior to disaster striking in order to set up temporary offices elsewhere.	All Hazards	Med	4	100k	Local Funds, PDM	County Official	3-5 yrs.	No funding to support.

COLLETON COUNTY								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
22. Construct a safe storage area to house important information and documents.	All Hazards	High	4	150k	Local Funds, PDM	County Official	3-5 yrs.	No funding to support.
23. Inspect communication lines to ensure reliability.	All Hazards	Med	4	40k	Local Funds, PDM	County Official, Provider	3-5 yrs.	No funding to support.
24. Improve old or worn communication lines.	All Hazards	Med	4	200k	Local Funds, PDM	County Official, Provider	3-5 yrs.	No funding to support.
25. Create a mobile dispatch unit to ensure communications not eliminated due to natural hazard.	All Hazards	High	4	350k	Local Funds, PDM	County Official	3-5 yrs.	No funding to support.
26. Create camera system to oversee traffic and threats to traffic from hazards.	All Hazards	High	4	350k	Local Funds, PDM, HMGP	County Official	3-5 yrs.	No funding to support.
27. Improve utilities.	All Hazards	Med	1	100k	Local Funds, PDM	County Official, Provider	3-5 yrs.	No funding to support.
28. Strengthen utility poles/conductor fixtures within Colleton County.	All Hazards	High	1	250k	Local Funds, PDM	County Official, Provider	5 or more yrs.	No funding to support.
29. Oversee strict adherence to newest building standards by monitoring new renovations and construction.	All Hazards	High	5	Low	Local	Building Inspector	1 yr.	
30. Inspect and manage vegetation that could damage critical facilities.	Hurricane	High	5	Low	Local/PDM	Public Works	1 yr.	
31. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.	All Hazards	High	2, 4	Low	Local/PDM	Emergency Management	1 yr.	
32. Improve existing critical facilities by replacing doors and Windows at older facilities.	Hurricanes, Winter Storm	High	1, 4	Med	PDM	County	5 yrs.	
33. Ensure critical facilities have adequate emergency power resources, including fuel storage.	All Hazards	High	1, 3, 4	Med	PDM, Local	County	5 yrs.	
34. Provide hazard training in schools.	Earthquake	High	2	Low	PDM, Local	Emergency Management	1 yr.	
35. Install Cameras on hurricane evacuation routes.	Hurricane, Earthquake, Winter Storm	High	4	Med	PDM, SCDOT	County, SCDOT	5 yrs.	

COLLETON COUNTY								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
36. Retrofit selected fire stations so they can serve as a shelter for emergency workers during events Pre-wired for generators, supplied with generators.	All Hazards	Med	1	Med-High	PDM	County	5 yrs.	
37. Conduct Evacuation Route Study - in-depth study to analyze current efficiency, adequacy, and safety of evacuation routes within Colleton County.	Hurricane, Flood	Med	4	100k	Local Funds, PDM	County Official	3-5 yrs.	State Mandated.
38. Special Needs Evacuation Study: Continue nursing home and hospital evacuation plans assessed to ensure safety and efficiency.	Hurricane, Flood	Med	4	10k	Local Funds, PDM	County Official	Ongoing	Evacuation plans reviewed annually Limited Funding needed to support.
39. Provide evacuation measures for those in need - transportation to get those in need to emergency shelters.	Hurricane, Flood	High	4	50k	Local Funds, PDM	County Official	1-2 yrs.	Ongoing review based on need.
40. Special Need Population Inventory: Identify vulnerable and special needs members of the population.	All Hazards	High	4, 6	20k	Local Funds, PDM	County Official	Ongoing	Continuous update of plans.
41. Develop rescue and evacuation procedures for special populations.	All Hazards	High	4, 6	20k	Local Funds, PDM	County Official	Ongoing	Continuous update of plans.
42. Public Education and Awareness: Educate residents how to prepare homes, family, and property for disasters.	All Hazards	Low	2	15k	Local Funds, PDM	County Official	Ongoing	
43. Circulate Public Education and Awareness Packets during season of hazard.	All Hazards	Low	2	20k	Local Funds, PDM	County Official	Ongoing	
44. Tourist Education: Continue coordination of work with the visitor's bureau to alert tourists to possible hazards in areas of vulnerability Materials can be left in visitor centers, hotels, attractions, etc.	All Hazards	Med	2	25k	Local Funds, PDM	County Official	Ongoing	

COLLETON COUNTY								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
45. Continue to oversee strict adherence to new building standards by closely monitoring all new renovations and construction	All Hazards	Low	3	50k	Local Funds, PDM, CDBG	County Official	Ongoing	State Mandated.
46. Conduct inventory/survey for county's emergency response services to identify existing needs or shortfalls in Personnel, equipment, or required resources.	All Hazards	High	4	10k	Local Funds, PDM	County Official	Ongoing	Continuous review.
47. Constantly Update and Enforce Zoning and Building Codes and policies to ensure no new structures built within Floodplains.	Flood	Med	5	50k	Local Funds, PDM, FMA	County Official	Ongoing	Tighter regulations adopted.
48. Stringent rules against removal of wetlands.	Flood	Med	5	15k	Local Funds, PDM, FMA	County Official	Ongoing	Regulations enacted.
49. Protect and preserve wetlands through education of public about buffer zones and regulating these through development ordinances.	Flood	High	5	35k	Local Funds, PDM, FMA	County Official	Ongoing	Ongoing review based on need.
50. Ensure lines clear of limbs or other obstructions that may damage them during Windstorms or other natural hazards.	All Hazards	High	4	200k	Local Funds, PDM	County Official, Provider	Ongoing	
51. Instigate Earthquake training in schools.	Earthquake	Med	2	10k	Local Funds, PDM	County Official	1-2 yrs.	
52. Handout SC's Earthquake Preparedness of Schools brochure and implement training.	Earthquake	Med	2	30k	Local Funds, PDM	County Official	1-2 yrs.	
53. Purchase support vehicles to reach rural locations during hazard.	Hurricane	Low	3	1 mil.	PDM	County Official	1-3 yrs.	Support vehicles were purchased, but not for rural areas.
54. Sell portable radios for everyone, so that they can tune in when a hazard is near, occurring, or the aftermath.	Earthquake, Tornado, Hurricane, Flood	High	2	30k	Local Funds, PDM	County Official	1-2 yrs.	

COLLETON COUNTY								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
55. Publicize events at Local hardware stores that show how to save your property during a hazard.	Hail, Earthquake, Hurricane, Windstorm	High	2	50k	Local Funds, PDM	County Official	3-5 yrs.	
56. Provide free water and set up water stations when the temperature will be about 102.	Extreme Heat	High	2	50k	Local Funds, PDM	County Official	1-2 yrs.	
57. Offer a list of city foresters, county extension offices, Local nurseries and landscape firms that can provide advice on tree selection for your area and soil conditions.	Lightning, Wildfire	High	2	2k	Local Funds	County Official	1-2 yrs.	
58. Enforce rules against removal of wetlands.	Flood	Med	5	50k	Local Funds, PDM, FMA	County Official	Ongoing	
59. Replace utilities.	All Hazards	Med	1	250k	Local Funds, PDM	County Official, Provider	5 or more yrs.	Ongoing project. No generators yet.
60. Warning systems education: Educate residents of meaning warning systems and schedule testing.	Tornado, Hurricane	Low	2	50k	PDM, HMGP	County Official	1-3 yrs.	No funding to support.
61. Structure Sealing: Provide waterproof doors and seals for wall openings and/or seal components for critical facilities within Flood zones.	Flood	High	5	100k	Local Funds, PDM, FMA, SRL	County Official	1-2 yrs.	No funding to support.
62. Install back-flow prevention valves in sewers and drains at critical facilities.	Flood	High	5	100k	Local Funds, PDM, FMA, SRL	County Official	1-2 yrs.	No funding to support.
63. Improve seals on all wall penetrations below Flood water levels at critical facilities.	Flood	High	5	75k	Local Funds, PDM, FMA, SRL	County Official	3-5 yrs.	No funding to support.
64. Conduct storm water drainage study and plan to identify drainage ditches and promote cleanup.	Flood	High	5	50k	Local Funds, PDM, FMA	County Official	1-2 yrs.	No funding to support.
65. Scan important data and information.	All Hazards	High	4	30k	Local Funds, PDM	County Official	1-2 yrs.	No funding to support.

COLLETON COUNTY								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
66. In need of Portable Repeaters: Upgrade Colleton County's emergency communication systems in case of power outage. Current system inadequate.	All Hazards	High	4	250k	Local Funds, PDM	County Official	1-2 yrs.	No funding to support.
67. Inspect utility lines.	All Hazards	Med	1	40k	Local Funds, PDM	County Official, Provider	1-2 yrs.	No funding to support.

TOWN OF COTTAGEVILLE								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Survey trees cover to ensure decreased vulnerability. Make improvements.	Wind	Med	1, 5	Med	PDM	EM	Ongoing	
2. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.	All Hazards	Med	2, 6	Low	PDMD	EM	Ongoing	

TOWN OF EDISTO BEACH								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Make needed improvements to the causeway and bridge as it is the primary evacuation route.	All Hazards	High	1	Very High	Local Funds, PDM	SCDOT, FHWA	5-10 yrs.	
2. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities.	Flood, Windstorm	Med	3, 5	Med	Local Funds, PDM	Public Works	5 yrs.	
3. Install lightning protection devices and methods, such as lightning rods and grounding, on communications infrastructure and other critical facilities.	Lightning	Med	1, 4	Med	Local Funds, PDM	Public Works	5 yrs.	
4. Perform maintenance including fuel management techniques such as pruning and clearing dead vegetation, selective logging, cutting high grass, planting fire-resistant vegetation, and creating fuel/fire breaks.	Wildfire	Med	1, 4	Low	Local Funds, PDM	Public Works	5 yrs.	
5. Develop new or upgrading existing water delivery systems to eliminate breaks and leaks.	Drought	Med	1, 4	High	Local Funds, PDM	Public Works	5 yrs.	
6. 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.	Earthquake	Med	1, 4	Low	Local Funds, PDM	Building Dept	5 yrs.	
7. Include measures such as structural bracing, shutters, laminated glass in windowpanes, and hail-resistant roof coverings or flashing in building design to minimize damage.	Hail	Med	5	Low	Local Funds, PDM	Public Works, Building Depts.	5 yrs.	
8. Collect Hydrologic Data.	Flood	High	5	Med	Local Funds, Grant	Public Works	1-3 yrs.	

TOWN OF EDISTO BEACH								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
9. Ensure generator capacity at the Civic Center to enable the facility to be designated a heating and cooling center for senior population and off beach emergency operations center.	Extreme Heat, Winter Storm	High	1, 6	Med	Local Funds, PDM	Public Works		Installing a hookup for the building.
10. Construct new Town Hall to include an emergency operations center to latest building codes and flood elevations.	All Hazards	High	1, 3, 4, 5	5 mil.	Local Funds	Administration	3-5 yrs.	
11. Plan for and maintain adequate road debris clearing capabilities and maintain mutual aid agreements with Colleton County and SCDOT.	Tornado, Hurricane, Windstorm, Winter Storm, Flood	Med	4	TBD	Local Funds, PDM	Public Works, County, SCDOT	1-3 yrs.	
12. Continue to support applications to inform citizens of hazards and threats.	All Hazards	Med	2, 4	TBD	Local Funds	Fire	Annual	
13. Implement a system to address other disaster related waste streams including white goods and building materials.	Tornado, Hurricane, Windstorm, Winter Storm, Flood	Med	4	TBD	Local Funds, PDM	Public Works	1-3 yrs.	
14. Reestablish Yacht Club Road drainage system.	Hurricane, Flood	High	1, 5	TBD	Local Funds	Public Works	1-3 yrs.	
15. Continue to develop the Sea Level Rise plan and implement improvements.	Flood	High	3	TBD	Local Funds, Grant	Public Works	1-3 yrs.	
16. Perform a drainage study on the interior lagoon system and implement improvements.	Hurricane, Flood	High	1, 5	TBD	Local Funds, Grant	Public Works	1-3 yrs.	
17. Connect homes on the ocean side of Palmetto Boulevard to the sewer system and upgrade wastewater treatment plant to accommodate additional volume.	Hurricane, Flood, Drought	Med	1, 5	TBD	Local Funds, Grant	Public Works	3-5 yrs.	
18. Update GIS infrastructure mapping.	All Hazards	Med	5	TBD	Local, PDM	Public Works, Fire	3-5 yrs	

TOWN OF EDISTO BEACH								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
19. Purchase and maintain the needed equipment to clear debris.	Windstorm, Hurricane, Flood	High	1, 4, 5,	Med	Local, PDM	Public Works, Fire	Ongoing	
20. Ensure strict building regulation for elevated buildings and retreat.	Coastal Erosion, Flood (Sea Level Rise)	High	3, 5	Low	Local	Town Building	Ongoing	New Zoning.
21. Create camera system to oversee traffic and threats to traffic from hazards.	All Hazards	High	4	Med	Local Funds, PDM, HMGP	SCDOT	3-5 yrs.	Complete/Add Additional.
22. Construct primary dunes and lengthen groin system per Army Corps of Engineers Alternatives.	Coastal Erosion	Med	1, 5	Very High	Local Funds, State, Federal	Army Corps of Engineers	5 yrs.	Environmental Complete. Dune option is \$13,000,0000.
23. Create GIS Mapping.	All Hazards	High	4, 5	Med	Local Funds	Town Building	1-3 yrs.	
24. Conduct Sea Level Rise Study.	Flood	High	5	Low	Local Funds, Grant	Public Works	6 months	
25. Dune Protection.	Hurricane, Flood Sea Level Rise)	High	4, 5	High	Local Funds, State, Federal	Town Building	5-10 years	
26. Beach Renourishment.	Coastal Erosion	High	5	High	Local, State, Federal	Town Building	5-10 years	
27. Public Safety-Community Involvement (house numbering, safety events).	All Hazards	Med	2	Low	Local	Fire	Ongoing	
28. Continuity of Operations (ensure proper levels of staffing and replacement employees are trained).	All Hazards	Med	4	Med	Local	Town Building	Ongoing	

TOWN OF LODGE								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Survey trees cover to ensure decreased vulnerability. Make improvements.	Windstorm	Med	1, 5	Med	PDM	Emergency Management	Ongoing	
2. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.	All Hazards	Med	2, 6	Low	PDM	Emergency Management	Ongoing	

TOWN OF SMOAKS								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Survey trees cover to ensure decreased vulnerability. Make improvements.	Windstorm	Med	1, 5	Med	PDM	Emergency Management	Ongoing	
2. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.	All Hazards	Med	2, 6	Low	PDM	Emergency Management	Ongoing	

CITY OF WALTERBORO								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Clear the sediment in the Ireland Creek.	Flood	Med	7	High	NRCS, PDM, Local	ACE	Ongoing	
2. Survey trees cover to ensure decreased vulnerability Make improvements.	Windstorm	Med	1, 5	Med	PDM	Emergency Management	Ongoing	
3. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.	All Hazards	Med	2, 6	Low	PDM	Emergency Management	Ongoing	
4. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make Improvements.	All Hazards	Med	3, 5	Med	PDM	Emergency Management	Ongoing	
5. Ensure that the Fire Dept. has the needed apparatus.	All Hazards	Med	1, 4	High	PDM	Emergency Management	Ongoing	

HAMPTON COUNTY								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Install 600-amp transfer switch to Emergency Operations Center.	All Hazards	High	1	11k	Federal Grant	Hampton County	June 2021- July 2021	Local match is needed.
2. Portable Communication System Plum Case.	All Hazards	High	1	10k	Federal Grant	Hampton County	July 2021- July 2022	Local match is needed.
3. Purchase adjacent property for Airport in order to properly meet storm water demands, also for Airport protection zone.	All Hazards	High	1	350k	Federal Grant, SC Aeronautics	Hampton County	July 2021- July 2025	Local match is needed.
4. Arts Tourism Projects.	All Hazards	Med	2	200k	Federal Grant	Hampton County	July 2021- July 2025	Local match is needed.
5. Economic needs for roads, rails above ground tank, Industrial Park.	All Hazards	High	1	17 mil.	Federal, State, CDBG, Utility Co.	Hampton County	July 2021- July 2025	Local match is needed.
6. Vegetation for Exit 38 to help with soil erosion, lighting, and drainage.	All Hazards	Med	2	375k	Federal, State, CDBG, Utility Co.	Hampton County	July 2021- July 2025	Local match is needed.
7. Construction of new EMS/Fire Station in Industrial Park in Early Branch.	All Hazards	Med	2	Unsure	Federal, State, CDBG, Utility Co.	Hampton County	Long-term	Local match is needed.
8. Utilize social media and post information listing what one should have if a hazard strikes Post same information in public spaces, including home improvement stores.	All Hazards	High	2, 4	Low	Local	Emergency Management/ Retailers	1 yr.	Participation by the Local Emergency Planning Committee (LEPC).
9. Identify and protect wetlands that serve as Flood storage areas.	Flood	Med	5	High	Forestry Commission	County	5 yrs.	
10. Update aerial imaging and mapping of county.	All Hazards	Low	5	High	Local	Assessors/ Building	5 yrs.	In process.
11. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.	All Hazards	High	2, 6	Low	Local	County	2 yrs.	Done with LEPC Meetings.

HAMPTON COUNTY								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
12. Conduct an inventory and map current community facilities, including tele-communications; assess the condition of facilities for determining if repair or replacement is required Identify current community facilities deficiencies and future needs.	All Hazards	High	1, 4	Med	PDM	County	5 yrs.	Building official uses latest codes that buildings are up to date.
13. Increase tree plantings (Safely) around buildings to shade parking lots and along public rights-of-way.	Extreme Heat	Med	5	Med-High	Forestry Commission/ Private Sector	Municipalities	5 yrs.	Any new buildings have added trees around the building.
14. Do an assessment and cost benefit-analysis for making improvement to the County Airport Make Improvements where needed.	All Hazards	Low	1, 4	Med-High	PDM, Local	County	5 yrs.	The Hampton County Airport is under construction.
15. Provide provisions for transportation to get those in need to emergency shelters.	Hurricane, Winter Storm	Med	4	Med	PDM	County, COA, Social Services, LRTA	5 yrs.	We will rely on County on Aging (COA), Non-Emergency Transport Services.
16. 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.	Hurricane, Flooding	Low	1, 3, 5	Very High	FHWA, Special Legislation	County, LCOG, FHwy	25 yrs.	Roads that have been damaged by storms are currently being reconstructed.
17. Warning System Education: Educate residents of warning systems meaning and schedule testing.	Hurricane, Tornado	Low	2	20k	PDM, Local Funds	County Official	3-5yrs.	Hampton county needs a warning system for both sides of the county.
18. Building Code: Oversee strict adherence to newest building standards by monitoring new renovations and construction.	All Hazards	Low	3	50k	PDM, CDBG, Local Funds	County Official	3-5yrs.	Building official uses latest codes.

HAMPTON COUNTY								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
19. Inspection of Lines: Ensure lines are clear of limbs or other obstructions that may cause damage during Windstorms or other natural hazards.	All Hazards	Low	4	100k	PDM	County Official	Ongoing	Ongoing as needed. Probably needs a second look, and higher priority.
20. Install/Keep up to date with Warning Systems.	Hurricane, Tornado	Low	2	5 mil.	PDM	County Official	3-5yrs.	
21. Instigate Earthquake training in schools.	Earthquake	Med	2	10k	Local Funds	County Official	1-2 yrs.	
22. Handout SC's Earthquake Preparedness of Schools brochure and implement training.	Earthquake	Med	2	30k	Local Funds	County Official	1-2 yrs.	
23. Remove potential tree problems.	Lightning, Wildfire	Med	4	250k	PDM	County Official	3-5 yrs.	
24. Continue to Scan important and historic documents to backup information and to compile with State Archive requirements.	All Hazards	High	4	20k	PDM, Local Funds	County Official	1-3 yrs.	
25. Provide information to residents on how to prepare homes, family, and property for disasters.	All Hazards	High	2	Low	Local	Emergency Management	1 yr.	
26. Oversee strict adherence to newest building standards by monitoring new renovations and construction.	All Hazards	High	3, 5	Low	Local	Building Inspector	1 yr.	
27. Identify ham radio operators.	All Hazards	Med	4	Low	Local	Emergency Management	1 yr.	
28. Inspect and manage vegetation that could damage critical facilities.	Hurricane	High	1, 5	Low	Local/PDM	Public Works	1 yr.	
29. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.	All Hazards	High	2, 4	Low	Local/PDM	Emergency Management	1 yr.	
30. Improve existing critical facilities by replacing doors and Windows at older facilities.	Hurricane, Winter Storm	High	1, 4	Med	PDM	County	5 yrs.	

HAMPTON COUNTY								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
31. Ensure critical facilities have adequate emergency power resources, including fuel storage.	All Hazards	High	1, 4	Med	PDM, Local	County	5 yrs.	
32. Provide hazard training in schools.	Earthquake	High	2	Low	PDM, Local	Emergency Management	1 yr.	
33. Special Need Population Inventory.	All Hazards	High	4, 6	20k	PDM Local Funds	County Official	1-2 yrs.	
34. Rescue and Evacuation for Special Populations.	All Hazards	Med	4, 6	35k	PDM, Local Funds	County Official	1-5 yrs.	Slow process due to limited personal.
35. Workshops and Classes: Teach residents how to prepare homes, family, and property for disasters.	All Hazards	Med	2	10k	PDM, Local Funds	County Official	1-2yrs.	Education to the community is taught at several events at least 8 times during the year through education, media, and press.
36. Public Education and Awareness- Informational Packets: Packets circulated during season of hazard	All Hazards	Med	2	20k	PDM, Local Funds	County Official	1-2 yrs.	Media communications.
37. Vegetation Management: Inspect and manage vegetation that could damage critical facilities if felled by Wind.	Windstorm	Med	1	100k	PDM	County Official	1-5 yrs.	Need funding/personnel to support.
38. Building Code Wind Standards: Adhere to new building standards (ISO 9000 Building Standards as of 2004).	Windstorm, Hurricane	Med	3, 5	150K	PDM, CDBG, Local Funds	County Official	1-5 yrs.	Need funding/personnel to support.
39. Flood map update.	Flood	Low	4	50k	FMA, PDM	County Official	Ongoing	
40. Creation of mobile dispatch unit to ensure communications not eliminated due to natural hazard.	All Hazards	Low	4	1 mil.	PDM	County Official	Ongoing	This is an ongoing project. Never complete.
41. Wetland Protection: Preservation through education of public about buffer zones and regulating these through development ordinances.	Flood	Med	5	50k	PDM, Local Funds	County Official	1-2 yrs.	Comprehensive Plan Update.

HAMPTON COUNTY								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
42. Posted boards near grocery stores and hardware stores listing what one should have if a hazard struck.	Earthquake, Tornado, Hurricane, Flood	Med	2	30k	PDM, Local Funds	County Official	3-5 yrs.	
43. Publicize events at Local hardware stores that show how to save your property during a hazard.	Hail, Earthquake, Hurricane, Windstorm	High	2	50k	PDM, Local Funds	County Official	3-5 yrs.	
44. Train those in rural areas for how to protect their homes, and what to do during an event.	All Hazards	High	2	250k	PDM, Local Funds	County Official	3-5 yrs.	
45. Train people with equipment and supplies for a winter storm.	Winter Storm	High	2	50k	PDM, Local Funds	County Official	3-5 yrs.	
46. Offer a list of city foresters, county extension offices, Local nurseries and landscape firms that can provide advice on tree selection for your area and soil conditions.	Lightning, Wildfire	High	3	2k	PDM, Local Funds	County Official	1-2 yrs.	
47. Incentive, publicize, or provide fans or other types of cooling elements for popular outdoor areas during times of high heat.	Extreme Heat	Low	5	100k	PDM, Local Funds	County Official	3-5 yrs.	
48. Purchase support vehicles to reach rural locations during hazard.	Hurricane	Low	4	1 mil.	PDM	County Official	1-3 yrs.	
49. Provide materials for stranded motorists during a hazard.	All Hazards	Low	4	2 mil.	PDM, Local Funds	County Official	3-5 yrs.	
50. Assess trees in public areas to see if they are dead, dying, or could cause potential problems if struck by lightning or are fire conducive.	Lightning, Wildfire	Med	4	30k	PDM	County Official	3-5 yrs.	Not Complete.
51. Roof Repair: Replacement of older or leaky roofs on specific critical facilities to preserve structures.	All Hazards	Med	4	150k	PDM, RFC	County Official	3-5 yrs.	The secondary EOC located at the B.T. DeLoach Building has not been replaced.

HAMPTON COUNTY								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
52. Hurricane Shutters for Emergency Shelters.	Windstorm, Tornado	High	4	50k	PDM Local Funds	County Official		Still needed at Wade Hampton High School.
53. Shelter Development.	All Hazards	High	4	2 mil.	PDM, HMGP, FMA, RFC	County Official	5 or more yrs.	After a recent study, County lost shelter space.
54. Special Needs Evacuation Study.	All Hazards	Med	4, 6	10k	PDM, Local Funds	County Official	1-2 yrs.	Hampton County only has room for 10 persons
55. Backup Power Evaluation.	All Hazards	High	4	10k	PDM, Local Funds	County Official	1-2 yrs.	The only back up powers would be generators for Hampton County.
56. Evacuation measures for those in need.	All Hazards	High	4	45k	PDM Local Funds	County Official	3-5 yrs.	One case at a time due to limited personnel in the community.
57. Flood Zone Building Policies: Zoning and building codes should ensure no new structures built within Floodplains.	Flood		3, 5					Building & Zoning Code do prevent new structures from being built in the Floodplain.
58. Inspection of communication lines to ensure reliability.	All Hazards	High	1, 4	200k	Local Funds, PDM	County Official, Provider	Ongoing	
59. Inspection of utility lines.	All Hazards	Med	1, 4	40k	Local Funds, PDM	County Official, Provider	1-2 yrs.	SCE&G and Palmetto Coop.
60. Improvement of utilities.	All Hazards	Med	1, 4	100k	Local Funds, PDM	County Official, Provider	3-5 yrs.	

TOWN OF ESTILL								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.	All Hazards	Med	4	Low	PDM	EM	Ongoing	
2. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.	All Hazards	Med	2, 6	Low	PDM	EM	Ongoing	
3. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.	All Hazards	Med	1, 3, 5	Med	PDM	EM	5 yrs.	

TOWN OF FURMAN								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.	All Hazards	Med	4	Low	PDM	EM	Ongoing	
2. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.	All Hazards	Med	2, 6	Low	PDM	EM	Ongoing	
3. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.	All Hazards	Med	1, 3, 5	Med	PDM	EM	5 yrs.	

TOWN OF GIFFORD								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.	All Hazards	Med	4	Low	PDM	EM	Ongoing	
2. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.	All Hazards	Med	2, 6	Low	PDM	EM	Ongoing	
3. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.	All Hazards	Med	1, 3, 5	Med	PDM	EM	5 yrs.	

TOWN OF HAMPTON								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.	All Hazards	Med	4	Low	PDM	EM	Ongoing	
2. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.	All Hazards	Med	2, 6	Low	PDM	EM	Ongoing	
3. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.	All Hazards	Med	1, 3, 5	Med	PDM	EM	5 yrs.	

TOWN OF LURAY								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.	All Hazards	Med	4	Low	PDM	EM	Ongoing	
2. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.	All Hazards	Med	2, 6	Low	PDM	EM	Ongoing	
3. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.	All Hazards	Med	1, 3, 5	Med	PDM	EM	5 yrs.	

TOWN OF SCOTIA								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.	All Hazards	Med	4	Low	PDM	EM	Ongoing	
2. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.	All Hazards	Med	2, 6	Low	PDM	EM	Ongoing	
3. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.	All Hazards	Med	1, 3, 5	Med	PDM	EM	5 yrs.	

TOWN OF VARVILLE								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.	All Hazards	Med	4	Low	PDM	EM	Ongoing	
2. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.	All Hazards	Med	2, 6	Low	PDM	EM	Ongoing	
3. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.	All Hazards	Med	1, 3, 5	Med	PDM	EM	5 yrs.	

TOWN OF YEMASSEE								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.	All Hazards	Med	4	Low	PDM	EM	Ongoing	
2. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.	All Hazards	Med	2, 6	Low	PDM	EM	Ongoing	
3. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.	All Hazards	Med	1, 3, 5	Med	PDM	EM	5 yrs.	

JASPER COUNTY								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Ensure critical facilities have adequate emergency power resources, including fuel storage.	All Hazards	Med	1	Low	PMD	Emergency Management	5 yrs.	
2. Conduct a study on the possible usage of transportable generators on a regional basis for critical facilities.	All Hazards	Med	1	Med	Local	Emergency Management, LRTA	5 yrs.	
3. Provide provisions for transportation to get those in need to emergency shelters.	All Hazards	High	4	Low	Local	Social Services	2 yrs.	
4. Identify specific at-risk populations that may be exceptionally vulnerable in the event of long-term power outages.	Hurricane, Flood	Low	4, 6	Very High	FHWA	MPO, SCDOT, County	2-5 yrs.	
5. 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.	Hurricane, Flood, Winter Storm	High	5	Low	Local	Public Works	2 yrs.	
6. Plan for and maintaining adequate road and debris clearing capabilities.	Hurricane, Flood, Winter Storm	Med	4	Low	NRCS	County, Soil Conservation District, Extension	5 yrs.	

JASPER COUNTY								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
7. 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.	Drought	High	5	Low	PMD	Emergency Management	1 yr.	We currently are working through a computer aided dispatch software upgrade. Part of our mission in the next 3-5 years will be transcending the E911 platform to the NG-911 platform that will accommodate SMS, VOIP, and video calling. The industry holistically will need to establish protocols for the recording of video and image-based calls.
8. Acquire software enabling social media calls to be integrated into the 911 Dispatch systems.	All Hazards	Low	1, 2, 4	Med	Local	County	5 yrs.	
9. Identify and analyze renewable energy options: costs, benefits, environmental effects, technological potential, and political acceptability.	All Hazards	High	1, 5	Low	PMD, Local	County	3 yrs.	Funding will need to identify an engineering firm to assess the conditions of community buildings and determine the need for replacement status. Identify a plan for renovation or replacement and then capital outlay to accomplish recommendations of engineering study.
10. Conduct an inventory and map current community facilities, including telecommunications; assess the condition of facilities for determining if repair or replacement is required Identify current community facilities deficiencies and future needs.	All Hazards	High	1	Low	Local	County	1 yr.	
11. Utilize social media and post information listing what one should have if hazards strike. Post same information in public spaces, including home improvement stores.	All Hazards	High	2	Low	Local	County	2 yrs.	

JASPER COUNTY								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
12. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.	Flood, Hurricanes	Med	2, 6	Med	Local	County	5 yrs.	
13. Identify and protect wetlands that serve as Flood storage areas.	Flood, Hurricanes	Med	5	Low	Local, EPA	County	2 yrs.	
14. Create small area plans for stormwater drainage and housing in neighborhoods or watersheds with high vulnerabilities. Make improvements.	Flood, Hurricanes	Med	3, 5	Med	Local, COA	COA	2 yrs.	
15. Install generator at Jasper County Senior Center – cooling center –Ridgeland.	All Hazards	Low	1, 4, 6	Med-High	PMD, Local	County	5 yrs.	
16. Do an assessment and cost benefit-analysis for making improvement to the County Airport. Make improvements where needed.	All Hazards	Low	1	High	Local	County	5 yrs.	
17. Update aerial imaging and mapping of county.	All Hazards	High	1	Med	PMD	Emergency Management	Ongoing	As funds are available.
18. Vegetation Management: Inspect and manage vegetation that could damage critical facilities if felled by Wind	Windstorm, Hurricane	High	1	50k	Local Funds, PDM	County Official	Ongoing	Working with Public Works.
19. Provide Education and public outreach regarding any or all potential natural hazards.	All Hazards	High	2	25k	Local Funds, PDM	County Official		
20. Evaluate critical facilities - Inspections, reinforcements, and remodeling so structures physically capable to withstand hazards.	All Hazards	High	1	25k	Local Funds, PDM, CDBG	County Official	Ongoing	Emergency Services' building has hurricane shutters on all windows.
21. Continue to circulate Informational Packets during season of hazard.	All Hazards	High	2	15k	Local Funds, PDM	County Official	Ongoing	Giving out pamphlets during hazard seasons.

JASPER COUNTY								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
22. Provide EM Response Training of employees and emergency workers for specific natural hazard events.	All Hazards	High	4	50k	Local Funds, PDM	County Official	Ongoing	Complete and continue to do so.
23. Provide hazard training in schools.	All Hazards	High	2	20k	Local Funds, PDM	County Official	Ongoing	The 2021 IBC/IFC is released and waiting on state adoption.
24. Evaluate Backup Power to ensure all shelters having adequate emergency power resources.	All Hazards	High	4	30k	Local Funds, PDM, CDBG	County Official	Ongoing	The Building Department follows the 2006 International Building Code and the 2006 International Residential Code. Then County will automatically adopt the 2009 version following the State's adoption The 2021 IBC and IFC will soon be released, and is waiting on state adoption, probably in 2022.
25. Continue educating residents how to prepare homes, family, and property for disasters – Workshops and Classes.	All Hazards	Med	2	120k	Local Funds, PDM, CDBG	County Official	Ongoing	The County will automatically adopt the latest version following the State's adoption.
26. Building Code: Oversee strict adherence to new building standards by closely monitoring all new renovations and construction.	Flood	High	3	15k	Local Funds, PDM, CDBG, FMA,	County Official	Ongoing	
27. Building Code Wind Standards: Adhere to new building standards (ISO 9000 Building Standards as of this plan).	All Hazards	High	3	50k	Local Funds, PDM	County Official, Provider, Public Works	Ongoing	
28. Update Floodplain maps.	All Hazards	High	4	50k	Local Funds, PDM	County Official, Provider, Public Works	Ongoing	
29. Inspect communication lines to ensure reliability.	All Hazards	High	1	50k	Local Funds, PDM	County Official, Provider, Public Works	Ongoing	
30. Improve old or worn communication lines.	All Hazards	High	1	50k	Local Funds, PDM	County Official, Provider, Public Works	Ongoing	

JASPER COUNTY								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
31. Inspect lines to ensure lines clear of limbs or other obstructions that may damage them during Windstorms or other natural hazards.	All Hazards	High	1	50k	Local Funds, PDM	County Official, Provider, Public Works	Ongoing	
32. Inspect utility lines.	All Hazards	High	1	75k	Local Funds, PDM	County Official, Provider, Public Works	Ongoing	
33. Improve utilities.	All Hazards	High	1	75k	Local Funds, PDM	County Official, Provider, Public Works	Ongoing	

CITY OF HARDEEVILLE								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.	All Hazards	Med	2, 6	Low	PDM	Emergency Management	2021	
2. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.	All Hazards	Med	3, 5	Med	PDM	Emergency Management	2021	
3. Survey trees cover to ensure decreased vulnerability. Make improvements.	Windstorm	Med	1, 5	Med	PDM	Emergency Management	Ongoing	
4. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.	All Hazards	Med	4	Low	PDM	Emergency Management	Ongoing	

TOWN OF RIDGELAND								
2020 New and Ongoing Mitigation Actions	Associated Hazards	Priority	Goal	Estimated Cost	Potential Funding	Responsible Department	Schedule	Notes
1. Conduct Targeted Hazard Mitigation Educational Programs in areas with known social vulnerability.	All Hazards	Med	2, 6	Low	PDM	Emergency Management	2021	
2. Create small area plans for stormwater drainage and housing in neighborhoods and watersheds with high vulnerabilities. Make improvements.	All Hazards	Med	3, 5	Med	PDM	Emergency Management	2021	
3. Survey trees cover to ensure decreased vulnerability. Make improvements.	Windstorm	Med	1, 5	Med	PDM	Emergency Management	Ongoing	
4. Promote use of National Oceanic and Atmospheric Administration (NOAA) weather radios.	All Hazards	Med	4	Low	PDM	Emergency Management	Ongoing	

APPENDIX L: FEDERAL MITIGATION FUNDING SOURCES

Agency	Program	Purpose of Fund	Assistance	Link
Federal Emergency Management Agency (FEMA)	FEMA's Building Resilient Infrastructure and Communities (BRIC)	Support states, local communities, tribes, and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards. Aims to shift federal focus away from reactive disaster spending and toward research-supported proactive investment in community resilience by providing funding for greater investments in resiliency and mitigation efforts in preparation for natural hazard events, including mitigation planning and project grants. Funding is also available for management costs. There is a requirement to have a FEMA-approved mitigation plan to receive FEMA assistance.	Mitigation Planning and Project Grants, Technical Assistance Available, Disaster Occurrence Required, Disaster Designation Required	State, Local, Tribal (Federally Recognized) and Territorial Governments https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities
Federal Emergency Management Agency (FEMA)	FEMA's Hazard Mitigation Grant Program (HMGP)	Funds long-term hazard mitigation planning and activities that will reduce or eliminate the losses of life and property in future disasters. Individuals, businesses can also apply through, or be sponsored by their local, state, or tribal government agency. Must provide a project that demonstrates cost-effectiveness and feasibility that benefits the disaster area and its inhabitants. Application project must conform with the approved state, tribal, and/or local mitigation plan. Funding is available for mitigation planning and planning-related activities as well as management costs.	Mitigation Planning and Project Grants, Technical Assistance Available, Disaster Occurrence & Designation Required	State, Local, Tribal (Federally Recognized) and Territorial Governments. Note: Individuals can apply for a grant through a local community. https://www.fema.gov/grants/mitigation/hazard-mitigation
Federal Emergency Management Agency (FEMA)	FEMA's Flood Mitigation Assistance (FMA) Grant Program	Provides funding for projects and planning that reduces or eliminates long-term risk of flood damage to structures insured under the National Flood Insurance Program (NFIP). Funding is also available for management costs. Note competitive grant program and rating criteria. FEMA will select eligible individual flood mitigation project sub applications on a competitive basis, prioritizing projects with the potential to mitigate the most "severe repetitive loss."	FEMA's Flood Mitigation Assistance (FMA) Grant Program	State, Tribal Government (Federally Recognized) and Territorial Governments. Note: Local governments must apply through their state. https://www.fema.gov/grants/mitigation/floods
Federal Emergency Management Agency (FEMA)	FEMA's Fire Management Assistance Grant (FMAG)	Assists state and local governments and certain private nonprofit entities after damage from a declared disaster. Assistance can support emergency work, permanent work or "special considerations" such as hazard mitigation. There is a requirement to have a FEMA-approved mitigation plan to receive FEMA assistance.	Grant, Technical Assistance Available, Disaster Occurrence Required, Disaster Designation Required	State, Tribal Government (Federally Recognized), Territorial Governments, and Private Nonprofit Organizations https://www.fema.gov/assistance/public/fire-management-assistance
Federal Emergency Management Agency (FEMA)	FEMA's Public Assistance (PA) Grant Program	Assists state and local governments and certain private nonprofit entities after damage from a declared disaster. Assistance can support emergency work, permanent work or "special considerations" such as hazard mitigation. There is a requirement to have a FEMA-approved mitigation plan to receive FEMA assistance.	Grant, Technical Assistance Available, Disaster Occurrence Required, Disaster Designation Required	State, Tribal Government (Federally Recognized), Territorial Governments, and Private Nonprofit Organizations https://www.fema.gov/assistance/public/program-overview

Agency	Program	Purpose of Fund	Assistance	Link
Federal Emergency Management Agency (FEMA)	FEMA's Increased Cost of Compliance	Helps National Flood Insurance Program policyholders with the costs incurred if they are required by the community building department to meet rebuilding standards after a flood. Provides up to \$30,000 to help pay for relocating, elevating, demolishing, and flood proofing (non-residential buildings), or any combination of these mitigation activities.	Grant, Disaster Occurrence Required	Individual https://www.fema.gov/floodplain-management/financial-help/increased-cost-compliance
Federal Emergency Management Agency (FEMA)	FEMA's Community Disaster Loan Program	Provides operational funding for local governments to continue to operate after a substantial revenue loss caused by a disaster.	Loan, Disaster Occurrence Required	Local Governments https://www.fema.gov/assistance/public/policy-guidance-fact-sheets/community-disaster-loan-program
U.S. Economic Development Administration (EDA)	EDA's Economic Adjustment Assistance (EAA) Program	Funding supports distressed communities experiencing adverse economic changes that may result from industrial or corporate restructuring, new Federal laws or requirements, reduction in defense expenditures, depletion of natural resources, or natural disaster. Economic Adjustment Assistance grants are intended to enhance a distressed community's ability to compete economically by stimulating private investment in targeted areas.	Grant, Technical Assistance Available	District Organizations Indian Tribes or Consortia of Tribes, State, County, City, or Other Political Subdivisions of a State, Institutions of Higher Education, Public or Private Nonprofit Organizations or Associations Acting in Cooperation with Officials of a Political Subdivision of a State. https://www.eda.gov/programs/eda-programs/
U.S. Economic Development Administration (EDA)	EDA's Economic Development Disaster Supplemental Funding	Helps regions recover from the economic harm and distress resulting from natural disasters to rebuild stronger, more resilient economies.	Grant, Disaster Designation Required	District Organizations Indian Tribes or Consortia of Tribes, State, County, City, or Other Political Subdivisions of a State, Institutions of Higher Education, Public or Private Nonprofit Organizations or Associations Acting in Cooperation with Officials of a Political Subdivision of a State. https://www.eda.gov/disaster-recovery/supplemental
U.S. Department of Housing and Urban Development (HUD)	HUD's CDBG-Disaster Recovery Program (CDBG-DR)	Congress may appropriate funds to HUD when there are significant unmet needs for long-term recovery from a major disaster. CDGB-DR efforts must address disaster-related recovery activities, meet a national objective of CDBG, or be CDBG eligible. Funds can be used for disaster relief, long-term recover, restoration of infrastructure, housing, or economic revitalization.	Grant, Disaster Occurrence Required, Disaster Designation Required	Eligible States and Local Governments https://www.hudexchange.info/programs/cdbg-dr/
U.S. Department of Housing and Urban Development (HUD)	HUD's CDBG-Mitigation (CDBG- MIT)	Enables grantees to mitigate against disaster risks, while at the same time allowing grantees the opportunity to transform state and local planning. Grantees are required to reference applicable FEMA Hazard Mitigation Plans (HMP) in their action plan and describe how the HMP has informed the CDBG- MIT action plan. Grantees may also use these funds for planning activities, including but not limited to regional mitigation planning, the integration of mitigation plans with other planning initiatives, activities related to FEMA's Pre- Disaster Mitigation.	Grant, Disaster Occurrence Required, Disaster Designation Required	Eligible States and Local Governments https://www.hudexchange.info/programs/cdbg-mit/

Agency	Program	Purpose of Fund	Assistance	Link
National Oceanic and Atmospheric Administration (NOAA)	NOAA's National Coastal Resilience Fund (NCRF)	The NCRF aims to benefit coastal communities by reducing the impact of coastal flooding and associated threats to property and key assets, such as hospitals and emergency routes; improving water quality and recreational opportunities; and enhancing the ecological integrity and functionality of coastal and inland ecosystems	Grant	State, Local, and Indian Tribal Governments, Institutions of Higher Education, Other Nonprofits, Commercial Organizations, and International Organizations. https://www.nfwf.org/programs/national-coastal-resilience-fund
U.S. Army Corps of Engineers (USACE)	USACE's Flood Risk Management Program (FRMP)	Works across the agency to focus the policies, programs, and expertise of USACE toward reducing overall flood risk. This includes the appropriate use and resiliency of structures such as levees and floodwalls, as well as promoting alternatives when other approaches (e.g., land acquisition, flood proofing, etc.) reduce the risk of loss of life, reduce long-term economic damages to the public and private sector, and improve the natural environment	Technical Assistance	Government Entity https://www.iwr.usace.army.mil/Missions/Flood-Risk-Management/Flood- Risk-Management-Program/
U.S. Army Corps of Engineers (USACE)	USACE's National Flood Risk Management Silver Jackets Program	Provides funding to Corps staff to facilitate state-level coordination of Federal agencies and other expertise. The program also encourages the development of state-focused prioritized goals and objectives intent upon leveraging resources and improving efficiency across all levels of government with a focus on recovery and mitigation activities.	Technical Assistance	Government Entity https://www.iwr.usace.army.mil/Missions/Flood-Risk-Management/Flood- Risk-Management-Program/
U.S. Army Corps of Engineers (USACE)	USACE's Emergency Operations: Flood Control and Coastal Emergencies	Authorized to undertake activities including disaster preparedness, Advance Measures, emergency operations (Flood Response and Post Flood Response), rehabilitation of flood control works threatened or destroyed by flood, protection or repair of federally authorized shore protective works threatened or damaged by coastal storm, and provisions of emergency water due to drought or contaminated source	Other Assistance	State and Local Government https://www.usace.army.mil/Missions/Emergency-Operations/National- Response-Framework/Flood-Control/
U.S. Army Corps of Engineers (USACE)	USACE's Rehabilitation Program	Under (PL84-99) USACE has the ability to provide rehabilitation assistance for flood risk management projects damaged during flood events. Through the voluntary Rehabilitation Program, USACE will assist in repairing levee systems and other flood risk management projects after a flood event if the projects meet the required eligibility criteria.	Contractual Cost Sharing Technical Assistance	Government Entity https://www.iwr.usace.army.mil/Missions/Flood-Risk-Management/Flood- Risk-Management-Program/Partners- in-Shared-Responsibility/USACE- Staff/PL-84-99-Rehabilitation- Program/
U.S. Army Corps of Engineers (USACE)	USACE's Watershed Management	Watershed management planning studies focus on the development, use, monitoring, regulation, and preservation of land and water resources within a specific watershed. A watershed study will develop a framework of implementation strategies and recommended actions that could be implemented throughout the watershed. Unlike other Corps of Engineers' studies, these studies can often identify actions for watershed improvement that are beyond the scope and authority of the Corps of Engineers	Contractual Cost Sharing Technical Assistance	State, Local Governments, or Eligible Native American Indian Tribes https://www.nws.usace.army.mil/Missions/Civil-Works/Programs-and-Projects/Authorities/Specifically- Authorized-Projects/Watershed- Management/

Agency	Program	Purpose of Fund	Assistance	Link
U.S. Army Corps of Engineers (USACE)	USACE's Floodplain Management Services Program	Corps of Engineers can provide the full range of technical services and planning guidance that is needed to support effective flood plain management. Upon request, general technical assistance efforts under this program includes determining site-specific data on obstructions to flood flows, flood formation, and timing; flood depths, stages or floodwater velocities; the extent, duration, and frequency of flooding; information on natural and cultural flood plain resources; and flood loss potentials before and after the use of flood plain management measures.	FPMS assistance is 100 percent federally funded. Other Federal agencies and private parties must pay 100 percent of the costs of all FPMS efforts.	State, Local Governments, or Eligible Native American Indian Tribes https://www.nae.usace.army.mil/Missions/Public-Services/Flood-Plain-Management-Services/Management-Services/
U.S. Army Corps of Engineers (USACE)	USACE's Interagency and International Support (IIS)	The Corps provides engineering and construction services, environmental restoration and management services, research and development assistance, management of water and land related natural resources, relief and recovery work, and other management and technical services.	Contractual Technical Assistance Note: Most IIS work is funded on a reimbursable basis.	Department of Defense Federal Agencies, State and Local Governments, Tribal Nations, Private U.S. Firms, International Organizations, & Foreign Governments http://www.usace.army.mil/Missions/Military-Missions/Interagency-International-Support/
U.S. Department of Agriculture (USDA)	USDA's Environmental Quality Incentive Program (EQIP)	Assists producers in recovering from natural disasters like floods, hurricanes, wildfires, and drought. Provides financial assistance to repair and prevent excessive soil erosion caused or impacted by natural disasters to promote conservation practices to protect land from erosion, support disaster recovery and repair, and mitigate loss from future natural disasters.	Contractual Direct Payment	Individual, Legal Entity, Indian Tribe, or Joint Operation Which Is an Agricultural Producer. https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/programs/?cid=nrcseprd1361073
U.S. Department of Agriculture (USDA)	USDA's Emergency Conservation Program (ECP)	Assistance to repair damage to farmlands caused by natural disasters and to help put in place methods for water conservation during severe drought. The ECP does this by giving ranchers and farmers funding and assistance to repair the damaged farmland or to install methods for water conservation.	Contractual Direct Payment	Farmers and Ranchers https://www.fsa.usda.gov/programs-and-services/conservation-programs/emergency-conservation/index
U.S. Department of Agriculture (USDA)	USDA's Forest Service (FS) Volunteer Fire Assistance	The program's main goal is to provide Federal financial, technical, and other assistance in the organization, training and equipping of fire departments in rural areas, defined as having a population of 10,000 or less.	50/50 Cost-Sharing Grant	Fire Agency or Volunteer Fire Departments in Rural Communities https://www.fs.usda.gov/naspf/topics/fire/volunteer-fire-assistance
U.S. Department of Agriculture (USDA)	USDA's Forrest Service (FS) Emergency Forest Restoration	Provides payments to eligible owners of nonindustrial private forest (NIPF) land in order to carry out emergency measures to restore land damaged by a natural disaster.	Grant	Individuals https://www.fsa.usda.gov/programs-and-services/disaster-assistance-program/emergency-forest-restoration/
U.S. Department of Agriculture (USDA)	USDA's Natural Resources Conservation Service Conservation (NRCS) Programs	NRCS's natural resources conservation programs help people reduce soil erosion, enhance water supplies, improve water quality, increase wildlife habitat, and reduce damages caused by floods and other natural disasters.	Financial Assistance	Agriculture Producers and Landowners https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/

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