



HENRY McMASTER
GOVERNOR

August 31, 2019

The Honorable Donald J. Trump
President of the United States
The White House
1600 Pennsylvania Avenue NW
Washington, DC 20500

Through: Gracia B. Szczech
Regional Administrator, Region IV
Federal Emergency Management Agency
3003 Chamblee Tucker Road
Atlanta, Georgia 30341

Dear Mr. President:

Under the provisions of Section 501 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. §§ 5121–5207 (Stafford Act), and implemented by 44 C.F.R. § 206.35, I respectfully request that you declare an emergency for the State of South Carolina as a result of the anticipated effects of Hurricane Dorian. Hurricane Dorian is forecast to be a large, powerful storm with the potential to cause widespread, catastrophic damages in South Carolina. Our most current models show the potential for significant storm surge, widespread power outages, hundreds of homes inundated by water, sectors of critical infrastructure impacted for long periods of time, and many other effects that will tax and surpass state and local capabilities.

In response to the situation, I have consulted with coastal counties, taken appropriate action under state law, and directed the execution of the State Emergency Operations Plan on August 31, 2019, as well as declared a State of Emergency to exist throughout the State of South Carolina, in accordance with Section 501(a) of the Stafford Act. We are requesting an incident period beginning August 31, 2019. In addition, because of the significant strain of five major disasters over the past five years, ongoing recovery operations in half of South Carolina's counties, and the projected magnitude of Hurricane Dorian and its impacts, I request that you grant 100 percent federal funding for this event.

The potential storm surge, strong winds, and rainfall pose threats beyond the capabilities of the State and the affected local governments to manage and meet response needs, including the need for widespread search and rescue, rescue from swift water, long-term sheltering operations, air operations in support of life-saving and life-sustaining missions, assistance with transportation of vulnerable populations, support for areas without power or drinking water, and other unforeseen consequences of this storm. Therefore, it is necessary for me to request that federal resources be made available to the State of South Carolina as we respond to this historic event. Accordingly, I request Public Assistance Categories A and B (Debris Removal and Emergency Protective Measures), including Direct Federal Assistance, for the Catawba Indian Nation and the counties of Abbeville, Aiken, Allendale, Anderson, Bamberg, Barnwell, Beaufort, Berkeley, Calhoun, Charleston, Cherokee, Chester, Chesterfield, Clarendon, Colleton, Darlington, Dillon, Dorchester, Edgefield, Fairfield, Florence, Georgetown, Greenville, Greenwood, Hampton, Horry, Jasper, Kershaw, Lancaster, Laurens, Lee, Lexington, Marion, Marlboro, McCormick, Newberry, Oconee, Orangeburg, Pickens, Richland, Saluda, Spartanburg, Sumter, Union, Williamsburg, and York.

To ensure that the State is able to protect our most vulnerable populations, areas, and resources, we are asking for federal support in several areas. The State of South Carolina is being proactive in our approach to Hurricane Dorian, and we anticipate that FEMA will mirror our stance. In addition to Public Assistance Categories A and B, we are requesting Direct Federal Assistance in the forms of an Incident Management Assistance Team, ground transportation management assistance, air transportation support, medical evacuation transportation, generators (to provide for the energy needs of critical facilities and associated operations in the impacted area after the storm), water and food operations, mass care technical and logistical support, dam inspection teams, search and rescue (inland areas not under the Coast Guard's jurisdiction), swift water rescue, and debris removal to support response and initial recovery operations in the impacted areas.

While significant rain and winds are forecast, much of the support that will be provided has yet to be requested. It is critical that the State have access to federal resources and support to assist in response operations, so as to rapidly deploy to meet immediate life and property saving missions. The following information is furnished on the nature and amount of state and local resources that have been or will be used to alleviate the conditions of this emergency in accordance with our Hurricane Plan:

1. The South Carolina Emergency Management Division is coordinating daily with the National Weather Service, National Hurricane Center, local jurisdictions, and state agencies with regard to storm weather forecasts and projected impacts in terms of rainfall, high winds, storm surge, and flooding in the coastal areas and along rivers within the State. The South Carolina Emergency Management Division is coordinating with county governments and state agencies regarding the potential need for me to call for the evacuation of portions of the South Carolina coast in advance of the arrival of tropical storm force winds.

2. The State Emergency Operations Center (SEOC) augmented operations and activated Emergency Support Functions as of August 31, 2019. The SEOC will continue to: monitor the storm track and interface with local governments and state agencies projected to be impacted by the storm; disseminate information and guidance to the public regarding the storm and protective measures and respond to media inquiries; mobilize and pre-stage resources to respond effectively to local and regional requests for assistance; and coordinate with partner states aligned with our mutual aid compact for additional resources.

3. South Carolina Department of Transportation (SCDOT) crews have been monitoring increased traffic flows and are preparing resources to support contraflow of major roadways to support evacuation if needed. SCDOT also is gathering and preparing debris-clearing equipment, including heavy equipment, chainsaws, and other items used to remove tree limbs and debris from roadways and bridges.

4. State law enforcement agencies and cities and counties in the affected areas of the State are implementing traffic monitoring/control and protective actions to address and mitigate anticipated life-safety situations precipitated by evacuation traffic and the effects of the storm. Law enforcement agencies have increased officer presence and motorist assistance resources on interstate highways.

5. The South Carolina National Guard is prepared to mobilize personnel and equipment, including pre-staging personnel to support anticipated requests for assistance in evacuation of citizens, rescue missions, traffic control, security, debris clearance, and other response and recovery missions as required.

6. The Department of Social Services, American Red Cross, and other Voluntary Organizations Active in Disasters (VOAD) members have prepared to support the opening of shelters starting as early as September 2, 2019, if needed in support of coastal evacuations and local shelter operations.

7. The South Carolina Department of Health and Environmental Control (DHEC) is preparing for a potential mandatory medical evacuation in areas expected to be impacted by the storm. DHEC has been in communication with its licensed facilities and is working with the facilities to anticipate any unmet needs or any issues that may arise with vulnerable populations.

8. DHEC is prepared to establish special medical needs shelters, if required. It is possible that several hundred individuals could seek the advanced level of care provided in a special medical needs shelter as storm conditions worsen.

9. The Office of Regulatory Staff is coordinating with and monitoring the utilities in support of increased readiness activities. Private non-profit electrical and telephone utility cooperatives, as well as private utilities, are staging resources and placing personnel on standby in preparation for this event.

10. Included are HAZUS (Hazards U.S. Multi-Hazard) hurricane event reports from Hurricane Matthew, which followed a similar track as that predicted for Hurricane Dorian. This model has been used to assess potential impacts to South Carolina.

11. Also attached are FEMA Form 010-0-13 and the most recent five-day forecast cone from the National Hurricane Center.

The Honorable Donald J. Trump
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Hurricane Dorian is likely to have significant impacts not only on our State but also on other areas in the southeastern region of the United States. We are aware of the tasks ahead of us and our neighbors and are assured of our ability to meet these many challenges together. Thank you for your continued leadership and your consideration of this important request.

Yours very truly,

A handwritten signature in blue ink, appearing to read "Henry McMaster", is centered below the closing. The signature is fluid and cursive.

Henry McMaster

Enclosures: FEMA Form 010-0-13
HAZUS Report
Five-day Forecast Cone Report

OMB Control Number 1660-0009
Expires 09/30/2019

1. Request Date Aug 31, 2019

Burden Disclosure Notice

Public reporting burden for this form is estimated to average 9 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and submitting the form. This collection of information is required to obtain a benefit. You are not required to respond to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing the burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street SW, Washington, DC 20472, Paperwork Reduction Project (1660-0009). **NOTE: Do not send your completed form to this address.**

Completion of this form including applicable attachments satisfies legal requirements for emergency and major disaster declaration requests under 42 U.S.C. §§ 5170 and 5191, respectively, as implemented at 44 C.F.R. §§ 206.35 and 206.36. Failure to use this form may result in a failure to meet these requirements and/or a delay in processing the request.

2a. Name of State (as defined in Stafford Act 102, 42 U.S.C. § 5122) or Indian tribal government requesting declaration.

South Carolina

2b. Population (as reported by 2010 Census) or estimated population of Indian tribal government's damaged area(s). 4,625,401

3. Governor's or Tribal Chief Executive's Name	
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Henry McMaster

4. Designation of State or Tribal Coordinating Officer upon declaration (if available) and phone number

Kim Stenson, Emergency Management Director, (803) 737-8566

5. Designation of Governor's Authorized Representative or Tribal Chief Executive Representative upon declaration (if available) and phone number

Kim Stenson, Emergency Management Director, (803) 737-8566

6. Declaration Request For: ☐ Major Disaster (Stafford Act Sec. 401) ☒ Emergency (Stafford Act Sec. 501(a))

7. Incident Period:	Beginning Date	End Date
	Aug 31, 2019	

or ☒ Continuing

If requesting a "continuing" incident period, enclose an official statement from a qualified Federal Government agency acknowledged as a national authority in a specific incident field (e.g., United States Geological Survey for seismic incidents, the National Weather Service for flooding).

7b. Type of Incident (Check all that apply)

☐ Drought ☐ Earthquake ☐ Explosion ☐ Fire ☒ Flood ☒ Hurricane ☐ Landslide ☐ Mudslide
 Severe Storm
☒ (rain, high water, wind-driven, rain, hail, lightning) ☐ Snowstorm
 (Must include Enclosure D: Historic and Current Snowfall Data) ☐ Straight-Line Winds
☐ Tidal Wave ☒ Tornado ☐ Tropical Depression ☒ Tropical Storm ☐ Tsunami ☐ Volcanic Eruption ☐ Winter Storm
☐ Other (please specify)

8. Description of damages (Short description of impacts of disaster on affected area and population). Include additional details in enclosed Governor's or Tribal Chief Executive's cover letter.

I request that you approve an emergency declaration in the State of South Carolina to support response operations in anticipation of Hurricane Dorian. All of the state is threatened by potential effects of Hurricane Dorian as it is currently forecast.

9. Description of the nature and amount of State and local or Indian tribal government resources which have been or will be committed. Include additional details in enclosed Governor's or Tribal Chief Executive's cover letter.

Under state law, I directed the execution of the State Emergency Operations Plan on August 31, 2019, as well as declared a State of Emergency to exist in the State of South Carolina in accordance with Section 501(a) of the Stafford Act. Dozens of state agencies and voluntary organizations are engaged in preparedness and response activities in anticipation of the impacts of Hurricane Dorian.

10. Joint Preliminary Damage Assessment*

☐ Individual Assistance Dates Performed Requested _____ Start _____ End _____

Individual Assistance Accessibility Problems (Areas that could not be accessed, and why)

☐ Public Assistance Dates Performed Requested _____ Start _____ End _____

Public Assistance Accessibility Problems (Areas that could not be accessed, and why)

11. Programs and Areas Requested

Individual Assistance ☐ N/A ☐ Individuals and Households Program ☐ Crisis Counseling Program ☐ Disaster Unemployment Assistance

☐ All ☐ Disaster Case Management ☐ Disaster Legal Services ☐ Small Business Administration (SBA) Disaster Assistance

For the following jurisdictions, specify programs and areas (counties, parishes, independent cities; for Indian tribal government, list tribe(s) and/or tribal area(s)) If additional space is needed, please enclose additional documentation).

For States, identify Federally-recognized Tribes in the requested counties (if applicable).

Please see **Enclosure A: Supplemental Information for Individual Assistance** for additional information in support of this request*.

**Not Required for Emergency Declaration Request*

11. Programs and Areas Requested (Continued)

Public Assistance ☐ N/A ☒ Debris Removal (Category A) ☒ Emergency Protective Measures (Category B) ☐ Permanent Work (Categories C-G)*
(not available for Emergency Declaration Requests)

For the following jurisdictions, specify programs and areas (counties, parishes, independent cities; for Indian tribal government, list tribe(s) and/or tribal area(s)). If additional space is needed or your request includes different categories of work for different jurisdictions; please enclose additional documentation.

Abbeville, Aiken, Allendale, Anderson, Bamberg, Barnwell, Beaufort, Berkeley, Calhoun, Charleston, Cherokee, Chester, Chesterfield, Clarendon, Colleton, Darlington, Dillon, Dorchester, Edgefield, Fairfield, Florence, Georgetown, Greenville, Greenwood, Hampton, Horry, Jasper, Kershaw, Lancaster, Laurens, Lee, Lexington, Marion, Marlboro, McCormick, Newberry, Oconee, Orangeburg, Pickens, Richland, Saluda, Spartanburg, Sumter, Union, Williamsburg, York, Catawba Indian Nation.

For States, identify Federally-recognized Tribes included in the requested counties (if applicable).

Please see **Enclosure B: Supplemental Information for Public Assistance** for additional information in support of this request*.

Indemnification for Debris Removal Activity

☐ I do not anticipate the need for debris removal.

I anticipate the need for debris removal, which poses an immediate threat to lives, public health and safety. Pursuant to Sections 403 and 407 of the Stafford Act, 42 U.S.C. §§ 5170b & 5173, the State or Indian tribal government agrees to indemnify and hold harmless the United States of America for any claims arising from the removal of debris or wreckage for this disaster. The State or Indian tribal government agrees that debris removal from public and private property will not occur until the landowner signs an unconditional authorization for the removal of debris.

Request for Direct Federal Assistance

☐ I do not request direct Federal assistance at this time.

☒ I request direct Federal assistance for work and services to save lives and protect property, and:

a. I request the following type(s) of assistance:

Direct Federal Assistance in the forms of an Incident Management Assistance Team, dam inspection teams, animal response teams, ground transportation management assistance, air transportation support, medical evacuation transportation, generators, water and food operations, mass care technical and logistical support, search and rescue, swift water rescue, and debris removal to support response and initial recovery operations in the impacted areas.

b. List of reasons why State and local or Indian tribal government cannot perform, or contract for, required work and services.

The immediate need for life saving and life sustaining resources exceeds the capacity that exists within local and state resources. Such valuable assets as transportation support and swift water rescue teams are likely to be needed on a scale not available within the state.

c. In accordance with 44 C.F.R. § 206.208, the State or Indian tribal government agrees that it will, with respect to direct Federal assistance: (1) Provide without cost to the United States all lands, easements, and rights-of-ways necessary to accomplish the approved work; (2) Hold and save the United States free from damages due to the requested work, and shall indemnify the Federal Government against any claims arising from such work; (3) Provide reimbursement to FEMA for the non-Federal share of the cost of such work in accordance with the provisions of the FEMA-State or FEMA-Tribe Agreement ; and (4) Assist the performing Federal agency in all support and local jurisdictional matters.

Request for Snow Assistance

☒ N/A ☐ I request snow assistance.

Snow assistance for the following jurisdictions (Specify counties, independent cities or tribes and/or tribal areas).

Please see **Enclosure D: Historic and Current Snowfall Data** for additional information in support of this request*.

*Not Required for Emergency Declaration Request

11. Programs and Areas Requested (Continued)

Hazard Mitigation* ☐ Statewide **OR**

For the following specific counties, parishes, independent cities or tribes and/or tribal areas.

12. Mitigation Plan Information*

a. Mitigation Plan Expiration Date October 1, 2023 b. Type of Plan ☐ Enhanced ☒ Standard

13. Other Federal Agency Programs

☐ I do not anticipate requirements from Other Federal Agencies ☒ I do anticipate requirements from Other Federal Agencies

Please see **Enclosure C: Requirements for Other Federal Agency Programs** for additional information in support of this request*.

14. Findings and Certifications

☒ I certify the following:

- a. I have determined that this incident is of such severity and magnitude that effective response is beyond the capabilities of the State and the affected local government or Indian tribal government and that supplementary federal assistance is necessary.
- b. In response to this incident, I have taken appropriate action under State or tribal law and have directed the execution of the State or Tribal Emergency Plan on Aug 31, 2019 in accordance with the Stafford Act.
- c. The State and local governments, or Indian tribal government will assume all applicable non-Federal share of costs required by the Stafford Act.

15. List of Enclosures and Supporting Documentation

☒ Cover Letter ☐ Enclosure A (Individual Assistance)* ☐ Enclosure B (Public Assistance)*
☐ Enclosure C (Requirements for Other Federal Agency Programs) ☐ Enclosure D (Historic and Current Snowfall Data)
☒ Additional Supporting Documentation National Weather Service Hurricane Center Forecast; HAZUS documentation



Governor's or Tribal Chief Executive's Signature

Aug 31, 2019

Date

If anyone except the Governor or Tribal Chief Executive signs this document, please provide the documentation that establishes that this individual has the legal authority to act on behalf of the Governor or Tribal Chief Executive.

*Not Required for Emergency Declaration Request



FEMA

RiskMAP
Increasing Resilience Together

Hazus: Hurricane Global Risk Report

Region Name: SouthCarolina

Hurricane Scenario: MATTHEW_2016_stm_1412PM

Print Date: Saturday, August 31, 2019

Disclaimer:

This version of Hazus utilizes 2010 Census Data.

Totals only reflect data for those census tracts/blocks included in the user's study region.

The estimates of social and economic impacts contained in this report were produced using Hazus loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique.

Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific Hurricane. These results can be improved by using enhanced inventory data.



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General Description of the Region

Hazus is a regional multi-hazard loss estimation model that was developed by the Federal Emergency Management Agency and the National Institute of Building Sciences. The primary purpose of Hazus is to provide a methodology and software application to develop multi-hazard losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from multi-hazards and to prepare for emergency response and recovery.

The hurricane loss estimates provided in this report are based on a region that includes 46 county(ies) from the following state(s):

- South Carolina

Note:

Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is 30,844.67 square miles and contains 1,098 census tracts. There are over 1,801 thousand households in the region and a total population of 4,625,364 people (2010 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 1,976 thousand buildings in the region with a total building replacement value (excluding contents) of 515,767 million dollars (2014 dollars). Approximately 93% of the buildings (and 78% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

Hazus estimates that there are 1,976,698 buildings in the region which have an aggregate total replacement value of 515,767 million (2014 dollars). Table 1 presents the relative distribution of the value with respect to the general occupancies. Appendix B provides a general distribution of the building value by State and County.

Building Exposure by Occupancy Type

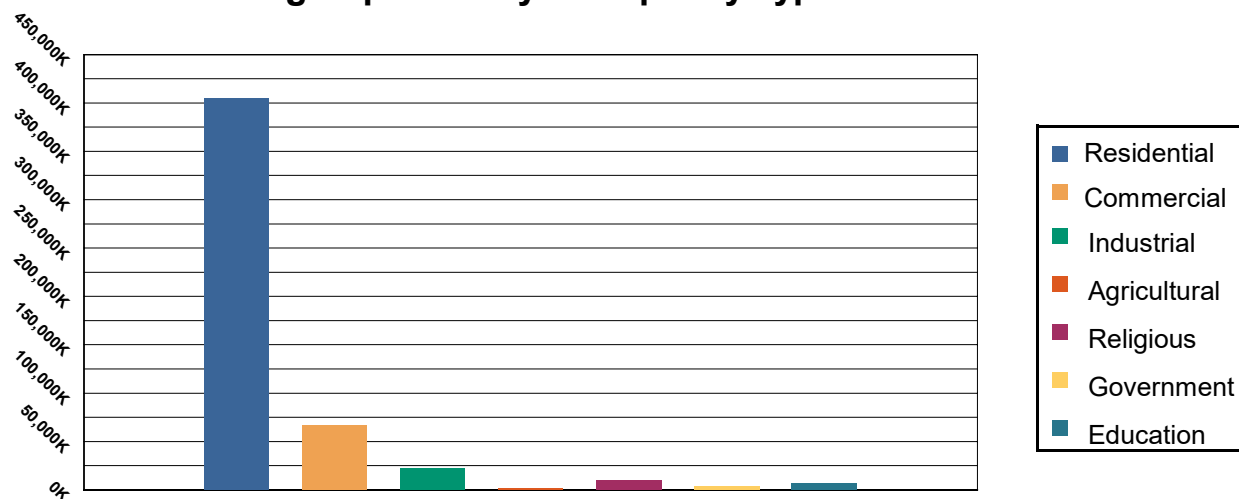


Table 1: Building Exposure by Occupancy Type

Occupancy	Exposure (\$1000)	Percent of Tot
Residential	404,549,899	78.44 %
Commercial	67,172,874	13.02%
Industrial	22,356,269	4.33%
Agricultural	1,704,922	0.33%
Religious	9,856,759	1.91%
Government	3,285,647	0.64%
Education	6,840,880	1.33%
Total	515,767,250	100.00%

Essential Facility Inventory

For essential facilities, there are 119 hospitals in the region with a total bed capacity of 14,830 beds. There are 1,809 schools, 1,113 fire stations, 297 police stations and 52 emergency operation facilities.



Hurricane Scenario

Hazus used the following set of information to define the hurricane parameters for the hurricane loss estimate provided in this report.

Scenario Name: MATTHEW_2016_stm_1412
Type: Forecast/Advisory
Maximum Peak Gust in Study Region: 123 mph
Storm Information: HURREVAC Storm Advisory Download; FILE PATH:
ftp://ftp.hurrevac2.com/m_2016.stm

User Defined Storm Track Input Data

Point	Latitude	Longitude	Time Step (hour)	Translation Speed (mph)	Radius To Max Winds (miles)	Max. Sustained Wind Speed (mph @ 10m)	Cental Pressure (mBar)	Profile Parameter	Radius to Hurricane Force Winds (miles)
1	13.40	-60.70	0.00	--	--	111.00	1,008.00	--	0.00
2	13.60	-61.30	3.00	--	--	111.00	1,008.00	--	0.00
3	13.80	-62.00	6.00	--	--	111.00	1,008.00	--	0.00
4	13.90	-62.40	9.00	--	--	111.00	1,004.00	--	0.00
5	13.90	-63.10	12.00	--	--	111.00	1,004.00	--	0.00
6	13.90	-64.00	15.00	--	--	111.00	1,002.00	--	0.00
7	14.00	-64.70	18.00	--	--	111.00	1,002.00	--	0.00
8	14.10	-65.50	21.00	--	--	111.00	995.00	--	0.00
9	14.20	-66.30	24.00	--	--	111.00	996.00	--	0.00
10	14.20	-67.00	27.00	--	--	111.00	993.00	--	0.00
11	14.10	-67.80	30.00	--	--	111.00	993.00	--	0.00
12	14.20	-68.10	33.00	--	--	111.00	987.00	--	0.00
13	14.10	-68.80	36.00	--	--	111.00	983.00	--	0.00
14	14.10	-69.30	39.00	--	--	111.00	979.00	--	35.42
15	14.00	-69.90	42.00	--	--	111.00	979.00	--	35.42
16	13.80	-70.30	45.00	--	--	111.00	971.00	--	35.42
17	13.70	-70.80	48.00	--	--	111.00	968.00	--	26.18
18	13.60	-71.30	51.00	--	--	111.00	960.00	--	26.18
19	13.50	-71.60	54.00	--	--	111.00	949.00	--	26.18



FEMA

20	13.50	-72.00	57.00	--	--	111.00	945.00	--	26.18
21	13.30	-72.30	60.00	--	--	111.00	941.00	--	35.42
22	13.30	-72.50	63.00	--	--	111.00	941.00	--	35.42
23	13.30	-72.80	66.00	--	--	111.00	942.00	--	35.42
24	13.40	-73.10	69.00	--	--	111.00	947.00	--	35.42
25	13.40	-73.40	72.00	--	--	111.00	947.00	--	21.56
26	13.20	-73.40	75.00	--	--	111.00	943.00	--	21.56
27	13.50	-73.40	78.00	--	--	111.00	940.00	--	17.71
28	13.50	-73.40	81.00	--	--	111.00	940.00	--	17.71
29	13.80	-73.60	84.00	--	--	111.00	940.00	--	17.71
30	13.80	-73.90	87.00	--	--	111.00	940.00	--	17.71
31	13.90	-74.10	90.00	--	--	111.00	940.00	--	17.71
32	14.10	-74.30	93.00	--	--	111.00	947.00	--	17.71
33	14.00	-74.60	96.00	--	--	111.00	947.00	--	26.18
34	14.30	-74.60	99.00	--	--	111.00	945.00	--	26.18
35	14.60	-74.80	102.00	--	--	111.00	945.00	--	26.18
36	14.50	-75.00	105.00	--	--	111.00	945.00	--	26.18
37	14.70	-75.00	108.00	--	--	111.00	943.00	--	17.71
38	14.90	-75.00	111.00	--	--	111.00	943.00	--	17.71
39	15.20	-74.90	114.00	--	--	111.00	943.00	--	21.56
40	15.40	-74.90	117.00	--	--	111.00	943.00	--	21.56
41	15.60	-75.00	120.00	--	--	111.00	941.00	--	26.18
42	15.90	-74.80	123.00	--	--	111.00	940.00	--	26.18
43	16.30	-74.70	126.00	--	--	111.00	940.00	--	30.80
44	16.60	-74.60	129.00	--	--	111.00	934.00	--	30.80
45	16.90	-74.60	132.00	--	--	111.00	934.00	--	30.80
46	17.40	-74.50	135.00	--	--	111.00	934.00	--	30.80
47	17.80	-74.40	138.00	--	--	111.00	934.00	--	30.80
48	18.40	-74.20	141.00	--	--	111.00	934.00	--	30.80
49	18.90	-74.30	144.00	--	--	111.00	950.00	--	43.89
50	19.40	-74.30	147.00	--	--	111.00	949.00	--	43.89
51	19.80	-74.30	150.00	--	--	111.00	949.00	--	35.42
52	20.10	-74.30	153.00	--	--	111.00	949.00	--	35.42
53	20.40	-74.40	156.00	--	--	111.00	950.00	--	35.42
54	20.70	-74.40	159.00	--	--	111.00	962.00	--	35.42
55	21.10	-74.60	162.00	--	--	111.00	962.00	--	30.80
56	21.50	-74.90	165.00	--	--	111.00	964.00	--	30.80
57	21.80	-75.20	168.00	--	--	111.00	962.00	--	35.42
58	22.10	-75.30	171.00	--	--	111.00	963.00	--	35.42
59	22.50	-75.70	174.00	--	--	111.00	963.00	--	35.42
60	23.00	-76.00	177.00	--	--	111.00	962.00	--	35.42
61	23.40	-76.40	180.00	--	--	111.00	961.00	--	35.42
62	23.70	-76.70	183.00	--	--	111.00	954.00	--	35.42
63	24.20	-77.10	186.00	--	--	111.00	944.00	--	30.80
64	24.60	-77.50	189.00	--	--	111.00	940.00	--	30.80



FEMA

65	25.10	-77.80	192.00	--	--	111.00	940.00	--	43.89
66	25.70	-78.40	195.00	--	--	111.00	939.00	--	43.89
67	26.20	-78.60	198.00	--	--	111.00	938.00	--	43.89
68	26.60	-78.90	201.00	--	--	111.00	939.00	--	43.89
69	27.10	-79.20	204.00	--	--	111.00	939.00	--	43.89
70	27.60	-79.70	207.00	--	--	111.00	938.00	--	43.89
71	28.20	-80.00	210.00	--	--	111.00	938.00	--	43.89
72	28.90	-80.30	213.00	--	--	111.00	944.00	--	43.89
73	29.40	-80.50	216.00	--	--	111.00	947.00	--	43.89
74	29.70	-80.70	219.00	--	--	111.00	947.00	--	43.89
75	30.20	-80.70	222.00	--	--	111.00	948.00	--	43.89
76	30.70	-80.60	225.00	--	--	111.00	948.00	--	43.89
77	31.20	-80.50	228.00	--	--	111.00	948.00	--	43.89
78	31.60	-80.60	231.00	--	--	111.00	955.00	--	43.89
79	32.00	-80.50	234.00	--	--	111.00	955.00	--	35.42
80	32.50	-79.80	237.00	--	--	111.00	962.00	--	35.42
81	33.00	-79.40	240.00	--	--	111.00	967.00	--	0.00
82	33.70	-79.00	243.00	--	--	111.00	972.00	--	0.00
83	33.80	-78.20	246.00	--	--	111.00	977.00	--	0.00
84	33.80	-77.30	249.00	--	--	111.00	981.00	--	0.00
85	34.10	-76.50	252.00	--	--	111.00	982.00	--	0.00
86	34.80	-75.80	255.00	--	--	111.00	983.00	--	0.00
87	34.90	-75.10	258.00	--	--	111.00	983.00	--	0.00
88	35.00	-74.50	261.00	--	--	111.00	984.00	--	0.00
89	35.20	-73.70	264.00	--	--	111.00	984.00	--	0.00
90	35.20	-72.90	267.00	--	--	111.00	988.00	--	0.00
91	35.40	-72.00	270.00	--	--	111.00	988.00	--	0.00
92	36.40	-69.20	279.00	--	--	111.00	995.00	--	0.00
93	36.40	-69.20	291.00	--	--	111.00	1,013.00	--	0.00
94	36.40	-69.20	303.00	--	--	111.00	1,013.00	--	0.00
95	36.40	-69.20	315.00	--	--	111.00	1,013.00	--	0.00
96	36.40	-69.20	339.00	--	--	111.00	1,013.00	--	0.00
97	36.40	-69.20	363.00	--	--	111.00	1,013.00	--	0.00
98	36.40	-69.20	387.00	--	--	111.00	1,013.00	--	0.00

Building Damage

General Building Stock Damage

Hazus estimates that about 38,028 buildings will be at least moderately damaged. This is over 2% of the total number of buildings in the region. There are an estimated 2,209 buildings that will be completely destroyed. The definition of the 'damage states' is provided in the Hazus Hurricane technical manual. Table 2 below summarizes the expected damage by general occupancy for the buildings in the region. Table 3 summarizes the expected damage by general building type.

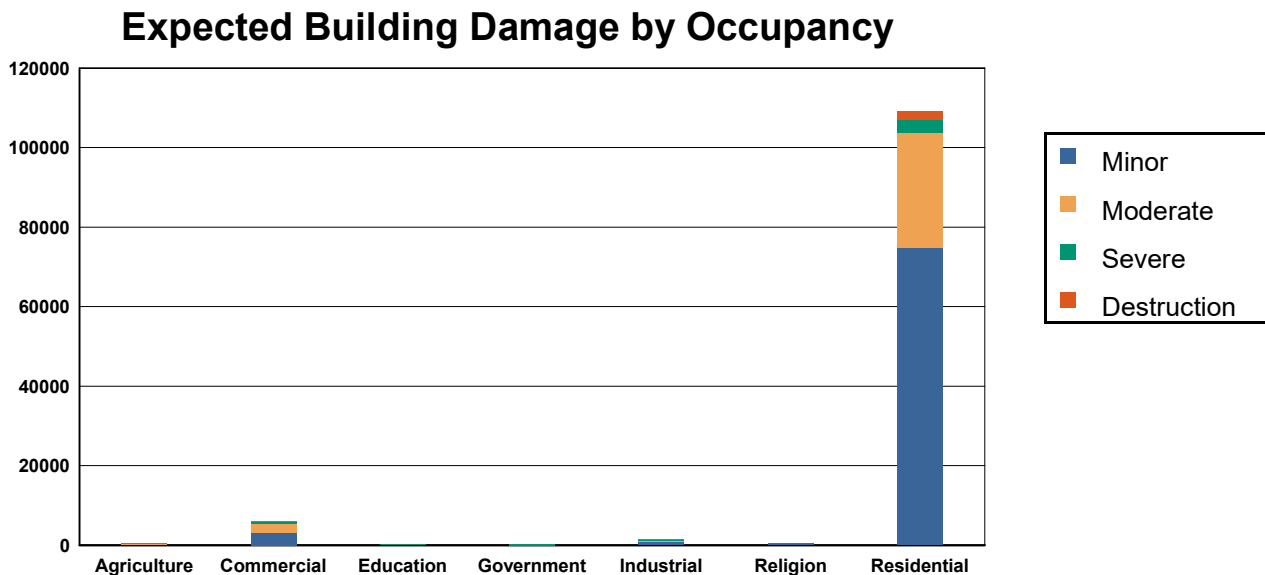


Table 2: Expected Building Damage by Occupancy

Occupancy	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	5,382.25	94.11	198.59	3.47	85.68	1.50	44.80	0.78	7.68	0.13
Commercial	86,009.97	93.57	3,103.19	3.38	2,186.81	2.38	606.91	0.66	14.11	0.02
Education	3,462.33	95.80	89.96	2.49	48.81	1.35	12.91	0.36	0.00	0.00
Government	3,236.63	96.67	64.14	1.92	36.69	1.10	10.54	0.31	0.00	0.00
Industrial	25,214.75	94.91	726.59	2.73	457.27	1.72	162.20	0.61	7.19	0.03
Religion	11,572.71	95.58	342.91	2.83	153.21	1.27	39.17	0.32	0.00	0.00
Residential	1,724,345.97	94.05	74,919.94	4.09	28,689.20	1.56	3,284.89	0.18	2,180.00	0.12
Total	1,859,224.60		79,445.32		31,657.68		4,161.42		2,208.98	

Table 3: Expected Building Damage by Building Type

Building Type	None		Minor		Moderate		Severe		Destruction	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	14,979	92.57	574	3.55	536	3.31	92	0.57	0	0.00
Masonry	158,877	92.51	6,533	3.80	5,692	3.31	577	0.34	53	0.03
MH	371,198	97.50	4,107	1.08	3,511	0.92	319	0.08	1,572	0.41
Steel	61,233	93.76	1,859	2.85	1,692	2.59	512	0.78	13	0.02
Wood	1,257,270	93.67	64,179	4.78	17,170	1.28	2,522	0.19	1,039	0.08

Essential Facility Damage

Before the hurricane, the region had no hospital beds available for use. On the day of the hurricane, the model estimates that 14348 hospital beds (0%) are available for use by patients already in the hospital and those injured by the hurricane. After one week, none of the beds will be in service. By 30 days, none will be operational.

Thematic Map of Essential Facilities with greater than 50% moderate

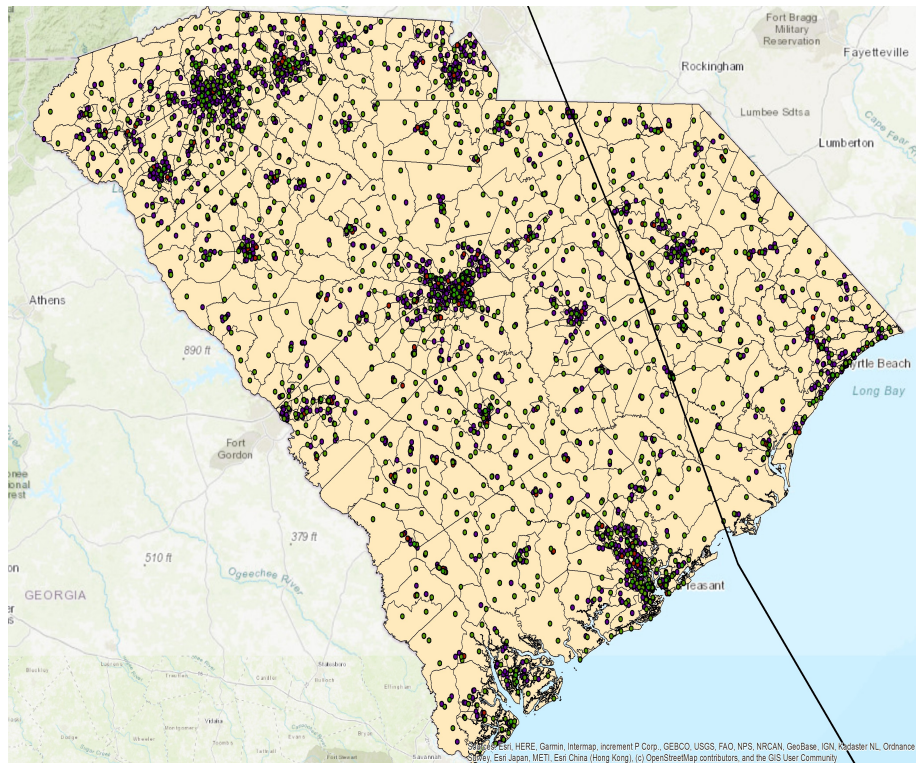
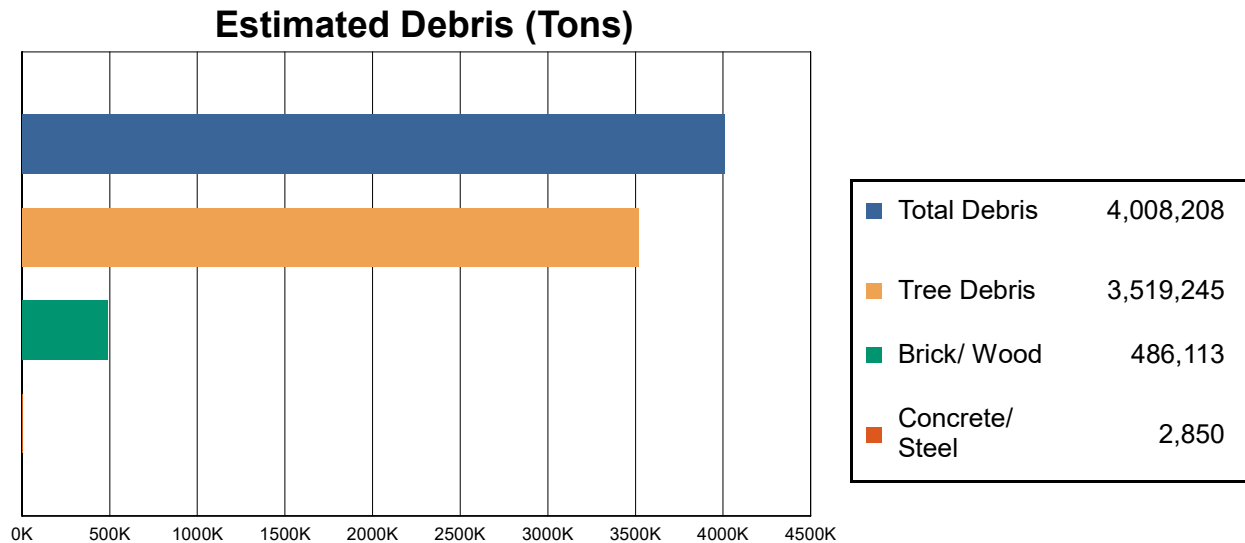


Table 4: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		Probability of at Least Moderate Damage > 50%	Probability of Complete Damage > 50%	Expected Loss of Use < 1 day
EOCs	52	0	0	52
Fire Stations	1,113	0	0	1,113
Hospitals	119	2	0	115
Police Stations	297	0	0	297
Schools	1,809	24	0	1,644

Induced Hurricane Damage

Debris Generation

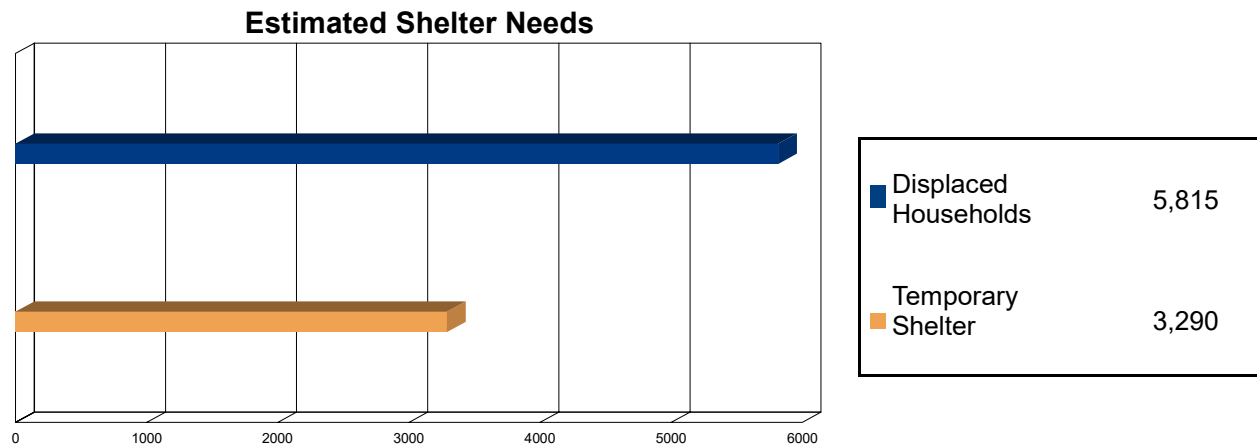


Hazus estimates the amount of debris that will be generated by the hurricane. The model breaks the debris into four general categories: a) Brick/Wood, b) Reinforced Concrete/Steel, c) Eligible Tree Debris, and d) Other Tree Debris. This distinction is made because of the different types of material handling equipment required to handle the debris.

The model estimates that a total of 4,008,208 tons of debris will be generated. Of the total amount, 3,118,913 tons (78%) is Other Tree Debris. Of the remaining 889,295 tons, Brick/Wood comprises 55% of the total, Reinforced Concrete/Steel comprises of 0% of the total, with the remainder being Eligible Tree Debris. If the building debris tonnage is converted to an estimated number of truckloads, it will require 19559 truckloads (@25 tons/truck) to remove the building debris generated by the hurricane. The number of Eligible Tree Debris truckloads will depend on how the 400,332 tons of Eligible Tree Debris are collected and processed. The volume of tree debris generally ranges from about 4 cubic yards per ton for chipped or compacted tree debris to about 10 cubic yards per ton for bulkier, uncompacted debris.

Social Impact

Shelter Requirement



Hazus estimates the number of households that are expected to be displaced from their homes due to the hurricane and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 5,815 households to be displaced due to the hurricane. Of these, 3,290 people (out of a total population of 4,625,364) will seek temporary shelter in public shelters.



Economic Loss

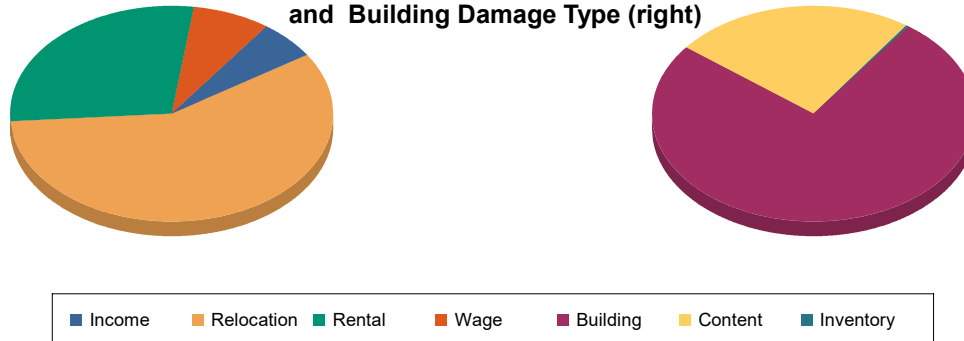
The total economic loss estimated for the hurricane is 6026.5 million dollars, which represents 1.17 % of the total replacement value of the region's buildings.

Building-Related Losses

The building related losses are broken into two categories: direct property damage losses and business interruption losses. The direct property damage losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the hurricane. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the hurricane.

The total property damage losses were 6,027 million dollars. 13% of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 87% of the total loss. Table 5 below provides a summary of the losses associated with the building damage.

Loss by Business Interruption Type (left)
and Building Damage Type (right)



Loss Type by General Occupancy

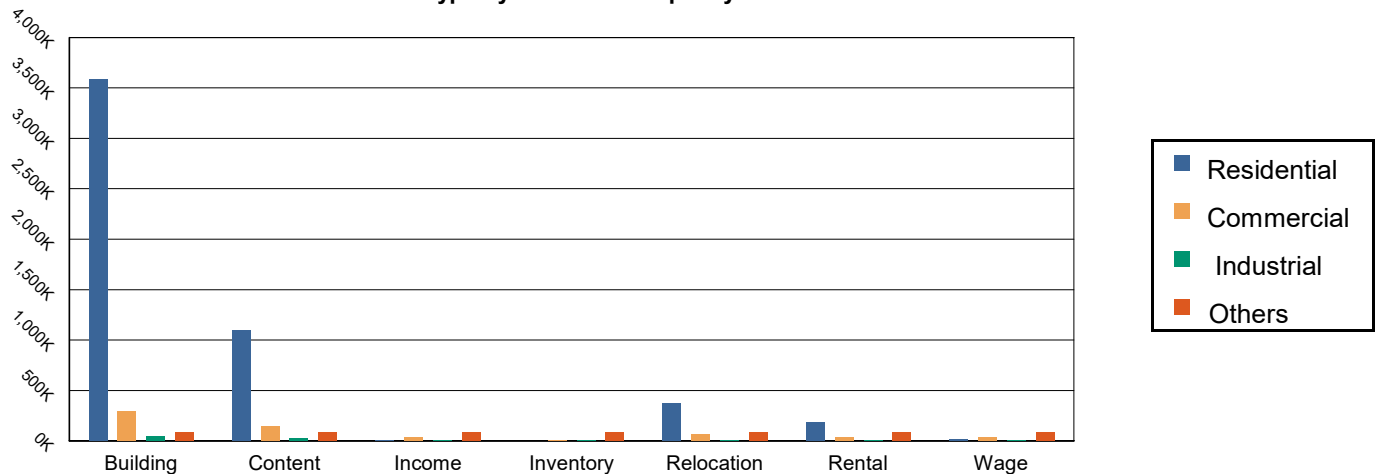


Table 5: Building-Related Economic Loss Estimates
(Thousands of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Property Damage						
	Building	3,588,298.52	291,429.53	41,280.86	44,600.65	3,965,609.57
	Content	1,092,060.52	144,980.65	26,926.58	19,620.59	1,283,588.34
	Inventory	0.00	4,151.32	4,277.35	444.44	8,873.11
	Subtotal	4,680,359.03	440,561.51	72,484.79	64,665.69	5,258,071.02
Business Interruption Loss						
	Income	5,529.59	37,143.54	492.95	2,331.58	45,497.66
	Relocation	369,694.08	61,214.55	4,341.62	10,046.29	445,296.54
	Rental	183,156.35	33,911.48	536.19	915.06	218,519.08
	Wage	12,948.68	34,673.42	816.25	10,709.14	59,147.48
	Subtotal	571,328.69	166,943.00	6,187.01	24,002.06	768,460.77



Total

Total	5,251,687.72	607,504.51	78,671.80	88,667.75	6,026,531.78
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Appendix A: County Listing for the Region

South Carolina

- Abbeville
- Aiken
- Allendale
- Anderson
- Bamberg
- Barnwell
- Beaufort
- Berkeley
- Calhoun
- Charleston
- Cherokee
- Chester
- Chesterfield
- Clarendon
- Colleton
- Darlington
- Dillon
- Dorchester
- Edgefield
- Fairfield
- Florence
- Georgetown
- Greenville
- Greenwood
- Hampton
- Horry
- Jasper
- Kershaw
- Lancaster
- Laurens
- Lee
- Lexington
- McCormick
- Marion
- Marlboro
- Newberry
- Oconee
- Orangeburg
- Pickens
- Richland
- Saluda
- Spartanburg
- Sumter
- Union
- Williamsburg
- York



Appendix B: Regional Population and Building Value Data



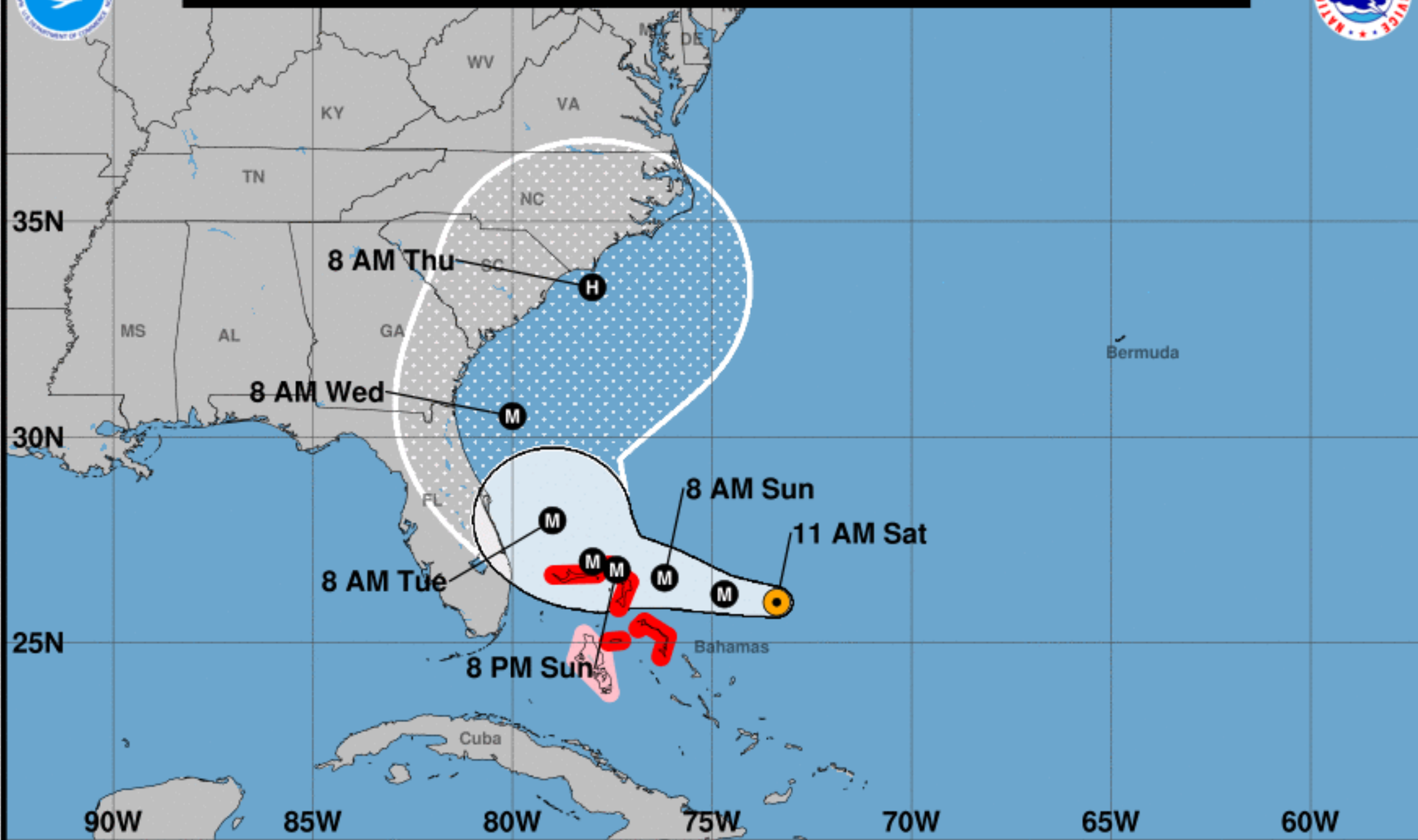
	Building Value (thousands of dollars)			
	Population	Residential	Non-Residential	Total
South Carolina				
Abbeville	25,417	1,739,104	570,023	2,309,127
Aiken	160,099	13,569,288	3,084,762	16,654,050
Allendale	10,419	633,522	249,467	882,989
Anderson	187,126	15,499,946	4,815,155	20,315,101
Bamberg	15,987	1,291,887	319,399	1,611,286
Barnwell	22,621	1,487,287	523,459	2,010,746
Beaufort	162,233	19,460,525	3,344,025	22,804,550
Berkeley	177,843	14,648,982	2,561,709	17,210,691
Calhoun	15,175	1,075,463	221,809	1,297,272
Charleston	350,209	37,719,156	11,002,920	48,722,076
Cherokee	55,342	3,469,829	1,271,969	4,741,798
Chester	33,140	2,174,950	768,029	2,942,979
Chesterfield	46,734	2,909,452	973,387	3,882,839
Clarendon	34,971	2,346,113	461,798	2,807,911
Colleton	38,892	2,889,222	889,007	3,778,229
Darlington	68,681	4,594,706	1,601,196	6,195,902
Dillon	32,062	1,696,772	622,790	2,319,562
Dorchester	136,555	12,315,752	2,003,903	14,319,655
Edgefield	26,985	2,043,144	558,138	2,601,282
Fairfield	23,956	1,844,028	403,258	2,247,286
Florence	136,885	10,038,876	4,100,443	14,139,319
Georgetown	60,158	6,258,481	1,695,725	7,954,206
Greenville	451,225	40,658,436	13,075,298	53,733,734
Greenwood	69,661	5,577,549	2,015,634	7,593,183



Hampton	21,090	1,183,698	390,337	1,574,035
Horry	269,291	30,556,378	6,034,428	36,590,806
Jasper	24,777	1,404,218	449,825	1,854,043
Kershaw	61,697	4,788,104	1,159,330	5,947,434
Lancaster	76,652	5,902,922	1,439,189	7,342,111
Laurens	66,537	4,677,284	1,440,015	6,117,299
Lee	19,220	998,071	328,635	1,326,706
Lexington	262,391	23,838,187	5,680,782	29,518,969
Marion	33,062	2,043,518	814,570	2,858,088
Marlboro	28,933	1,651,980	544,342	2,196,322
McCormick	10,233	889,306	157,944	1,047,250
Newberry	37,508	3,139,244	823,347	3,962,591
Oconee	74,273	6,753,025	1,689,226	8,442,251
Orangeburg	92,501	6,143,737	2,296,503	8,440,240
Pickens	119,224	9,454,641	2,618,106	12,072,747
Richland	384,504	37,567,372	10,651,460	48,218,832
Saluda	19,875	1,522,437	297,625	1,820,062
Spartanburg	284,307	23,592,235	8,785,381	32,377,616
Sumter	107,456	7,873,888	2,524,122	10,398,010
Union	28,961	2,090,878	652,011	2,742,889
Williamsburg	34,423	1,967,805	559,201	2,527,006
York	226,073	20,568,501	4,747,669	25,316,170
Total	4,625,364	404,549,899	111,217,351	515,767,250
Study Region Total	4,625,364	404,549,899	111,217,351	515,767,250



Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.



Hurricane Dorian

Saturday August 31, 2019

11 AM EDT Advisory 29

NWS National Hurricane Center

Current information: ●

Center location 26.0 N 73.4 W

Maximum sustained wind 150 mph

Movement W at 8 mph

Forecast positions:

● Tropical Cyclone ○ Post/Potential TC

Sustained winds: D < 39 mph

S 39-73 mph H 74-110 mph M > 110 mph

Potential track area:



Day 1-3

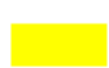


Day 4-5

Watches:



Hurricane



Trop Storm

Warnings:



Hurricane



Trop Storm