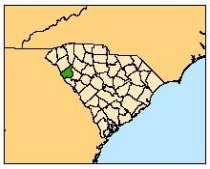
Appendix C: Local Hazard Risk Assessments

- **Part 1: Abbeville – Greenville**
- **Part 2: Greenwood – York**

ABBEVILLE COUNTY, SC



I. Summary

Abbeville County is vulnerable to both natural (hurricanes/tropical storms) and technological (hazardous material incidents) hazards. Winter weather produces the most monetary damage, and generally occurs every two years or so. Wildfires, thunderstorms, drought, and hazardous material incidents are some of the prominent hazards that regularly affect the county, based on past occurrences.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Abbeville County, most of the census tracts exhibit moderately elevated levels of social vulnerability. Figure 1 provides maps of the Abbeville County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

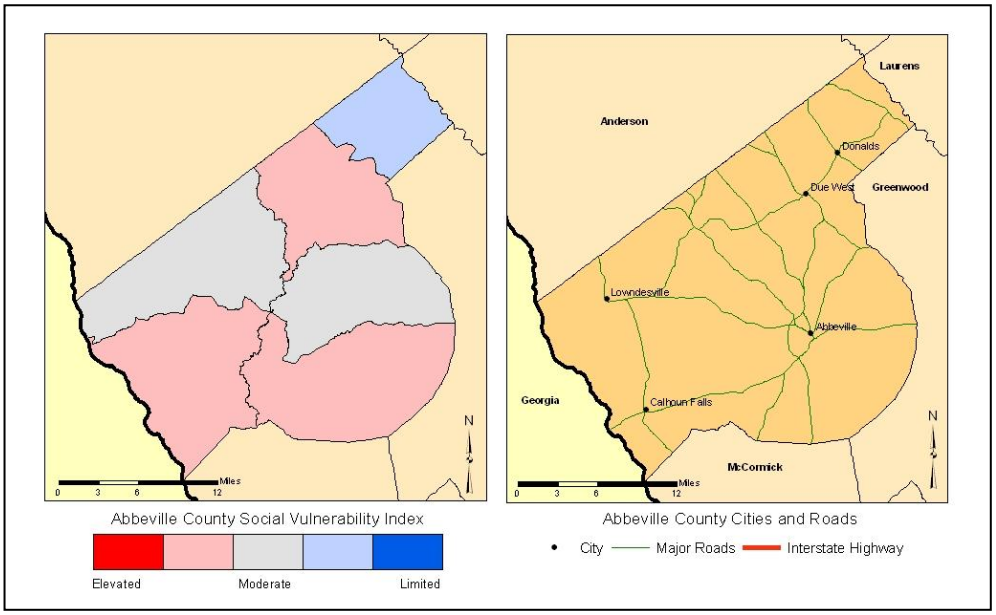


FIGURE 1. The Social Vulnerability for Abbeville County, SC by US Census tracts and a general reference map of Abbeville County.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.

Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.

Hazard – the potential threat to humans as well as the impact of an event on society and the environment.

Recurrence – a calculated number that examines the expected time interval between events based on the historic record.

Risk – the likelihood or probability of occurrence of a hazard or adverse event.

Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Abbeville County are hazardous material accidents, severe thunderstorms and wind, and wildfires. Earthquakes and hurricane/tropical storms have the lowest recurrence intervals. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Abbeville County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	2	158	79.00	1.27
Ocean & Lake Surf[b]	1	16	16.00	6.25
Waterspout	0	16	*	*
Dam Failure	-	-	-	-
Drought	33	59	1.79	55.93
Flood	14	59	4.21	23.73
Fog	3	12	4.00	25.00
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	12	310	25.83	3.87
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	22	22	1.00	100.00
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	2,979	10	<0.50	29,790.00**
Severe Thunderstorm Events				
Funnel Cloud	0	16	*	*
Hail	56	59	1.05	94.92
Heavy Precipitation	0	15	*	*
Lightning	8	16	2.00	50.00
Thunderstorm & Wind	108	59	0.54	183.05**
Tornado	14	59	4.21	23.73
Temperature Extremes	6	16	2.67	37.50
Wildfire	1,136	21	<0.50	5,409.52**
Winter Weather (Snow & Ice)	26	59	2.27	44.07

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Abbeville County has a higher probability of tornadoes and winter weather events, and just above the average for heat and drought. Figure 2 (page 3) shows those hazards occurring in the county that exceeded the state mean in red type. Severe weather (lightning , wind, thunderstorms, hail), and flooding are below the state mean indicating that these hazards historically have had less impact on Abbeville County than elsewhere in South Carolina.

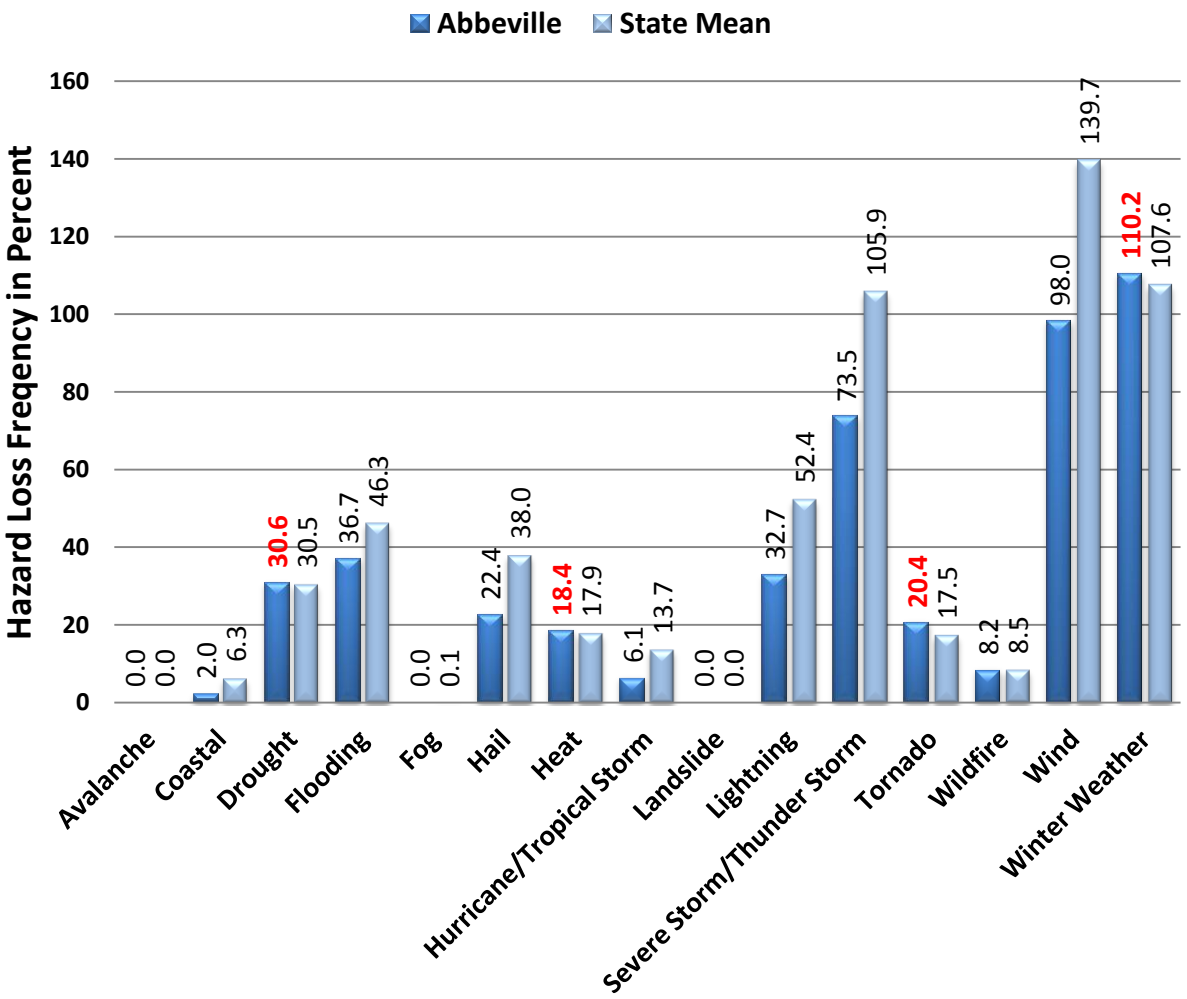


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Abbeville County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the total damage is calculated as the cumulative amount of damage from 1960 to 2008 based on twelve hazard types from the Hazards and Vulnerability Research Institute's SHELDUS database – available at (http://www.sheldus.org). The total losses for the county were $69 million or less than one percent of the state's total for the same time- period. The most significant cause of the losses was winter weather, contributing more than $31 million to the total.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$6,476	0.01%
Drought	$14,058,478	2.26%
Flooding	$3,085,076	2.07%
Hail	$404,288	0.41%
Heat	$11,286,643	2.26%
Hurricane/ Tropical Storm	$329,868	0.01%
Lightning	$754,450	1.49%
Severe Storm/ Thunder Storm	$858,117	0.42%
Tornado	$4,440,494	1.95%
Wildfire	$334,042	2.18%
Wind	$2,597,620	1.85%
Winter Weather	$31,098,004	3.59%
Abbeville - Total	**$69,253,557**	**0.75%**

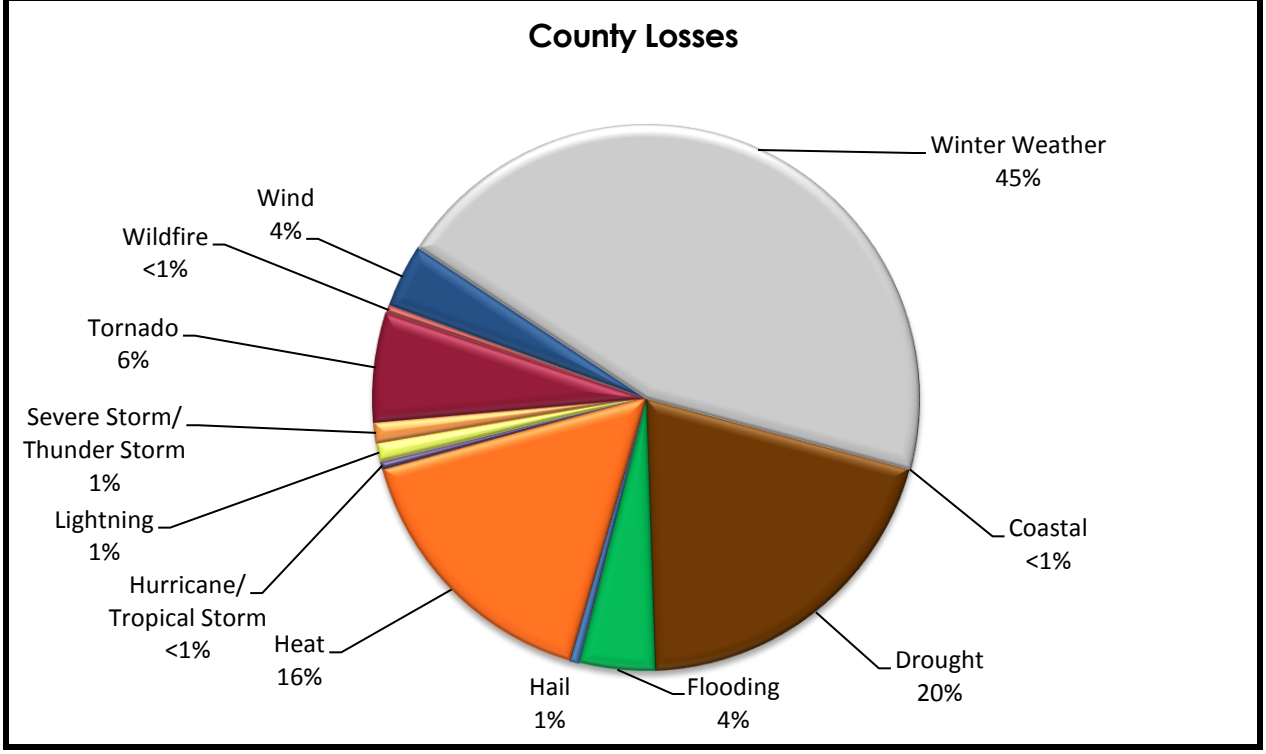
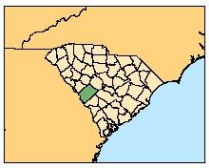


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Abbeville County, SC.

AIKEN COUNTY, SC



I. Summary

Aiken County is vulnerable to both natural (hurricanes/tropical storms) and technological (hazardous material incidents) hazards. Drought and winter weather produce the greatest monetary damages; however, the recurrence interval for them is 59 and 15 years, respectively making them relatively rare events. Wildfires, thunderstorms, and hazardous material incidents are some of the prominent hazards that regularly affect the county, based on past occurrences.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Aiken County, most of the census tracts exhibit moderate to low levels of social vulnerability. Census tracts in the city of Aiken show elevated SoVI scores. Figure 1 provides maps of the Aiken County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

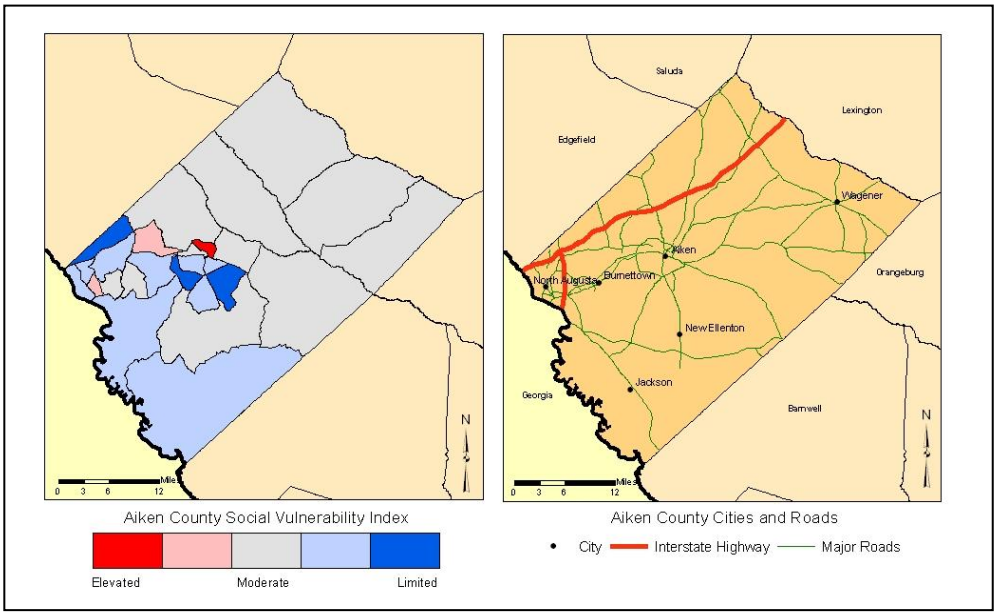


FIGURE 1. The Social Vulnerability for Aiken County, SC by US Census tracts and a general reference map of Aiken County.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.
Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.
Hazard – the potential threat to humans as well as the impact of an event on society and the environment.
Recurrence – a calculated number that examines the expected time interval between events based on the historic record.
Risk – the likelihood or probability of occurrence of a hazard or adverse event.
Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

South Carolina Emergency Management Division -
Mitigation Division
E-mail: mberry@emd.sc.gov
http://www.scemd.org

Hazard & Vulnerability Research Institute
University of South Carolina
E-mail: scutter.sc.edu
http://webra.cas.sc.edu/hvri

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Aiken County are hazardous material accidents, severe thunderstorms and wind, and wildfires. Tropical storms/hurricanes, and earthquakes are hazards with the lowest recurrence intervals and have less than a ten percent chance of occurring in a given year given the historic record (Table 1).

TABLE 1. The Hazard Profile for Aiken County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	5	158	31.60	3.16
Ocean & Lake Surf[b]	1	16	16.00	6.25
Waterspout	0	16	*	*
Dam Failure	-	-	-	-
Drought	1	59	59.00	1.69
Flood	6	59	9.83	10.17
Fog	0	12	*	*
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	6	310	51.67	1.94
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	178	22	<0.50	809.09**
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	29,249	10	<0.50	292,490.00**
Severe Thunderstorm Events				
Funnel Cloud	1	16	16.00	6.25
Hail	123	59	<0.50	208.47**
Heavy Precipitation	0	15	*	*
Lightning	11	16	1.45	68.75
Thunderstorm & Wind	219	59	0.27	371.19**
Tornado	32	59	1.84	54.24
Temperature Extremes	1	16	16.00	6.25
Wildfire	3,426	21	<0.50	16,314.29**
Winter Weather (Snow & Ice)	4	59	14.75	6.78

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Aiken County has a higher probability of loss causing events from heat and lightning hazards. Figure 2 (page 3) shows those hazards occurring in the county that exceeded the state mean in red type. Winter weather and hurricanes are below the state mean indicating that these hazards historically have had less impact on Aiken County than elsewhere in South Carolina.

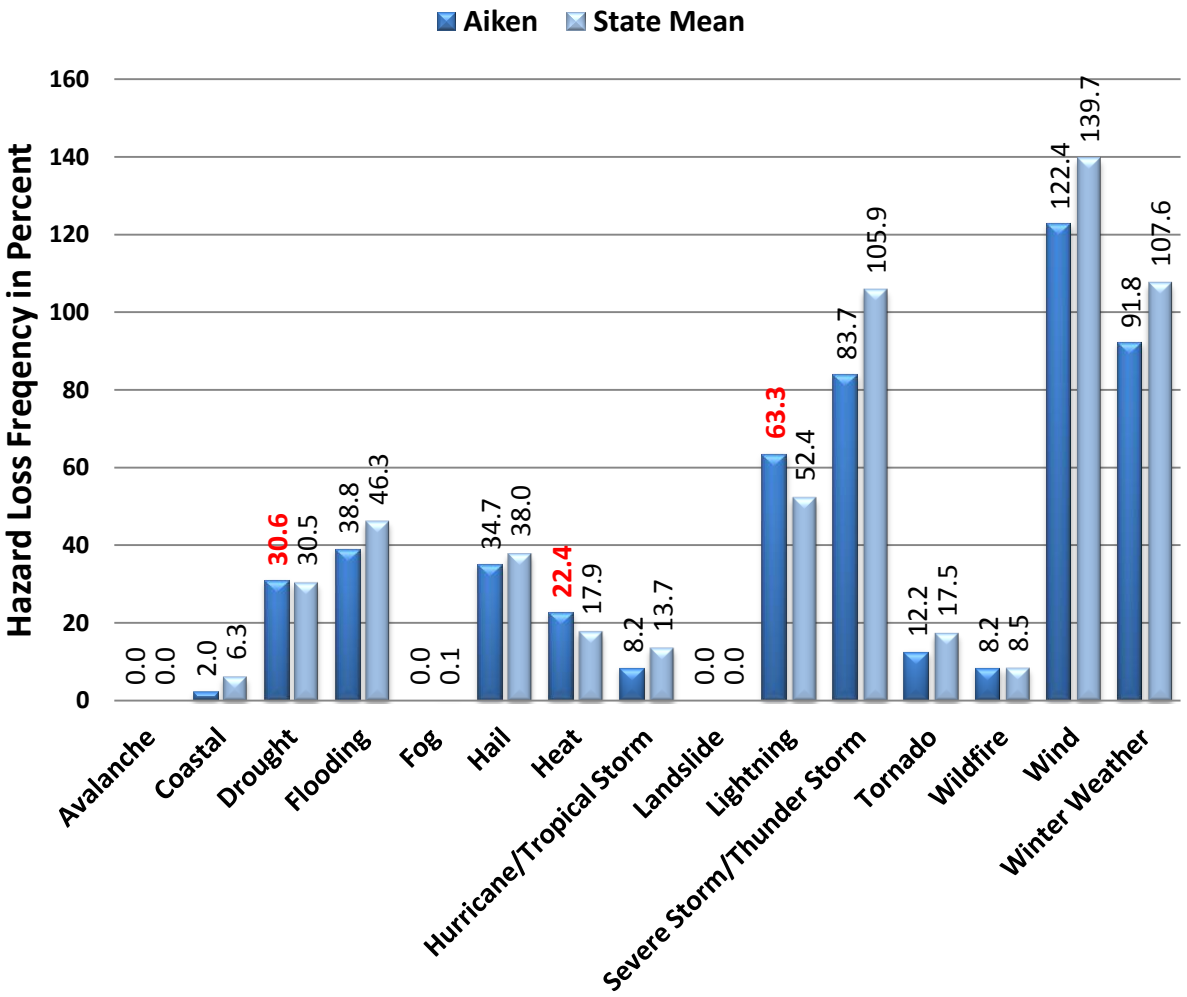


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Aiken County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the total damage is calculated as the cumulative amount of damage from 1960 to 2008 based on twelve hazard types from the Hazards and Vulnerability Research Institute's SHELDUS database – available at (http://www.sheldus.org). Winter weather, drought, and heat caused the largest amount of historic losses in Aiken County, representing more than 84% of the total losses, which were around $47 million. While significant for the county, this loss only accounted for less than one percent of the state's total damages related to natural hazards.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$6,476	0.01%
Drought	$14,058,478	2.17%
Flooding	$572,522	0.37%
Hail	$412,862	0.40%
Heat	$11,286,643	2.17%
Hurricane/ Tropical Storm	$335,570	0.01%
Lightning	$1,764,925	3.36%
Severe Storm/ Thunder Storm	$1,116,262	0.53%
Tornado	$2,065,663	0.87%
Wildfire	$334,042	2.09%
Wind	$1,046,932	0.72%
Winter Weather	$14,143,779	1.57%
Aiken - Total	**$47,144,155**	**0.52%**

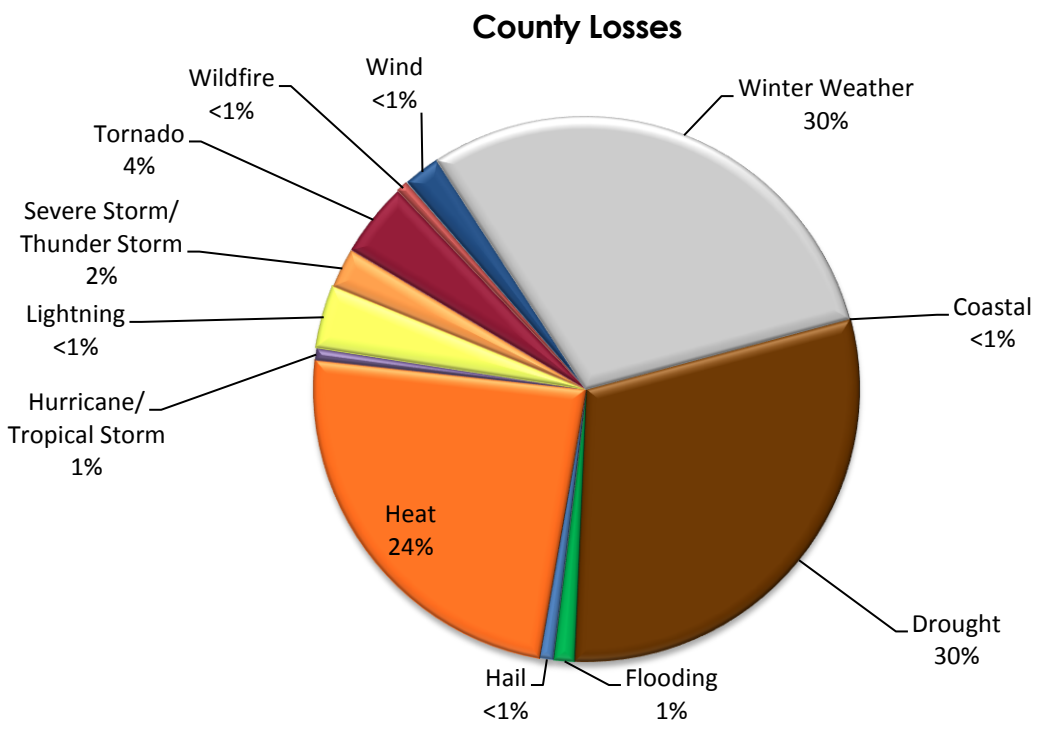
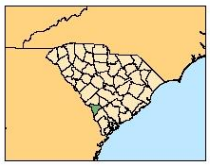


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Aiken County, SC.

ALLENDALE COUNTY, SC



I. Summary

Allendale County is vulnerable to both natural (hurricanes/tropical storms) and technological (hazardous material incidents) hazards. Drought, heat, and winter weather produce the most monetary damages. Winter weather is a relatively rare event (occurring every 19 years or so), but it generates the most losses for the county. Some of the more frequent events that affect the county include temperature extremes, tornadoes, thunderstorms, and hazardous materials incidents.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Allendale County, most of the census tracts exhibit moderately high levels of social vulnerability. Figure 1 provides maps of the Allendale County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

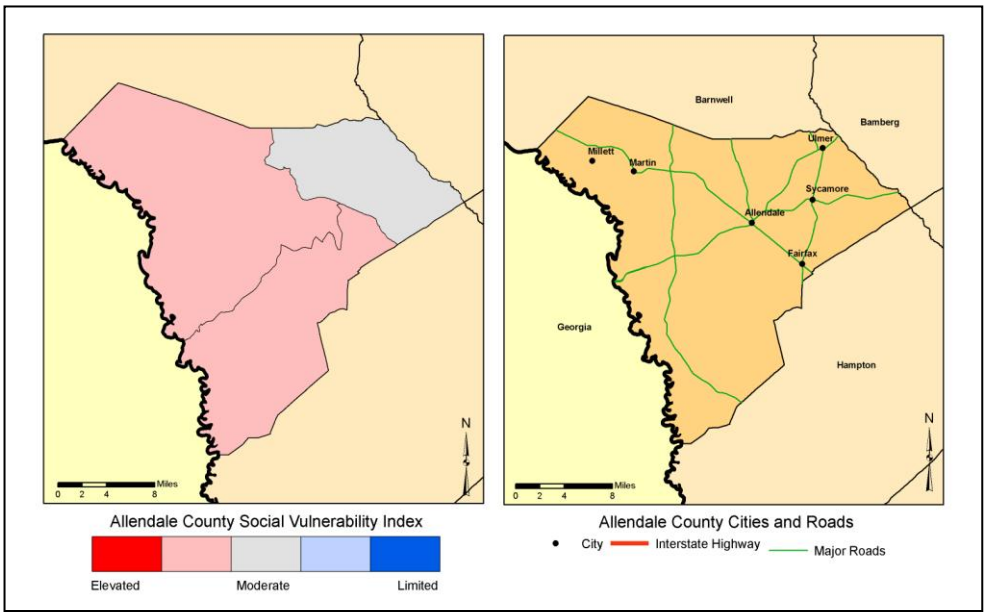


FIGURE 1. The Social Vulnerability for Allendale County, SC by US Census tracts and a general reference map of Allendale County.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.

Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.

Hazard – the potential threat to humans as well as the impact of an event on society and the environment.

Recurrence – a calculated number that examines the expected time interval between events based on the historic record.

Risk – the likelihood or probability of occurrence of a hazard or adverse event.

Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Allendale County are transportation-related accidents, severe thunderstorms and wind, and wildfires. Flooding, hurricanes/tropical storms, winter weather, and lightning have less than a 10 percent chance of occurring in any given year given the historic record (Table 1).

TABLE 1. The Hazard Profile for Allendale County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	15	158	10.53	9.49
Ocean & Lake Surf[b]	1	16	16.00	6.25
Waterspout	0	16	*	*
Dam Failure	-	-	-	-
Drought	21	59	2.81	35.59
Flood	3	59	19.67	5.08
Fog	0	12	*	*
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	2	310	155.00	0.65
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	35	22	0.63	159.09
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	2,519	10	<0.50	25,190.00
Severe Thunderstorm Events				
Funnel Cloud	0	16	*	*
Hail	25	59	2.36	42.37
Heavy Precipitation	0	15	*	*
Lightning	1	16	16.00	6.25
Thunderstorm & Wind	77	59	0.77	130.51
Tornado	12	59	4.92	20.34
Temperature Extremes	6	16	2.67	37.50
Wildfire	642	21	<0.50	3,057.14
Winter Weather (Snow & Ice)	3	59	19.67	5.08

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Allendale County has a slightly higher probability of loss producing thunderstorm and wind hazards. Figure 2 (page 3) shows those hazards occurring in the county that exceeded the state mean in red type. Heat and drought equal the state average. All other hazards are below the state mean indicating that these hazards historically have had less financial impact on Allendale County than elsewhere in South Carolina.

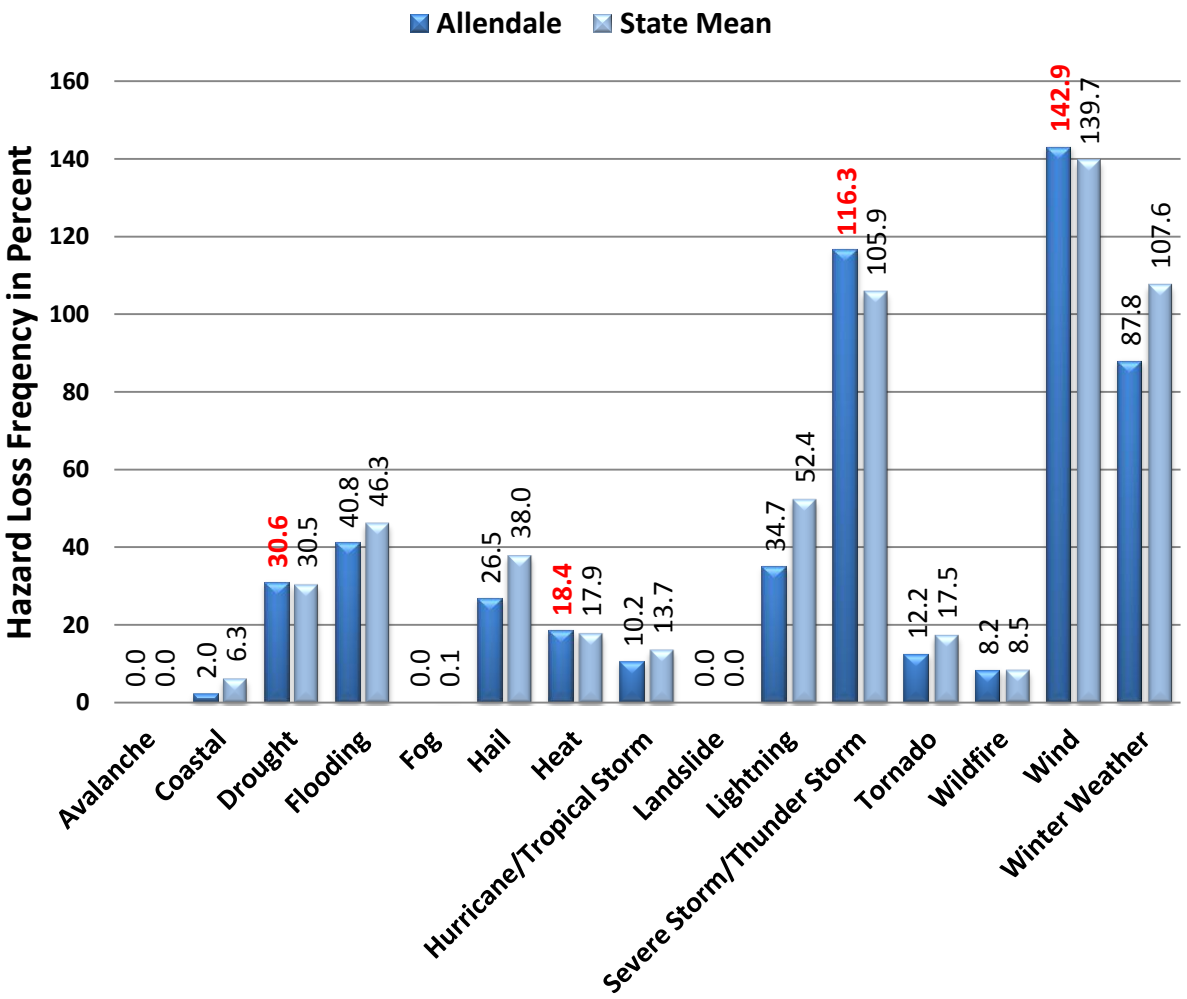


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Allendale County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the total damage is calculated as the cumulative amount of damage from 1960 to 2008 based on twelve hazard types from the Hazards and Vulnerability Research Institute's SHELDUS database – available at (http://www.sheldus.org). Winter weather, drought, and heat caused the largest amount of historic losses in Allendale County, losses that exceed $49 million. While significant for the county, the total losses only accounted for less than one percent of the state's total damages.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$6,476	0.01%
Drought	$14,058,478	2.26%
Flooding	$1,351,778	0.91%
Hail	$252,405	0.25%
Heat	$11,286,643	2.26%
Hurricane/ Tropical Storm	$3,098,070	0.06%
Lightning	$798,003	1.58%
Severe Storm/ Thunder Storm	$942,941	0.46%
Tornado	$3,086,790	1.36%
Wildfire	$334,042	2.18%
Wind	$456,684	0.33%
Winter Weather	$14,145,628	1.63%
Allendale - Total	**$49,817,939**	**0.54%**

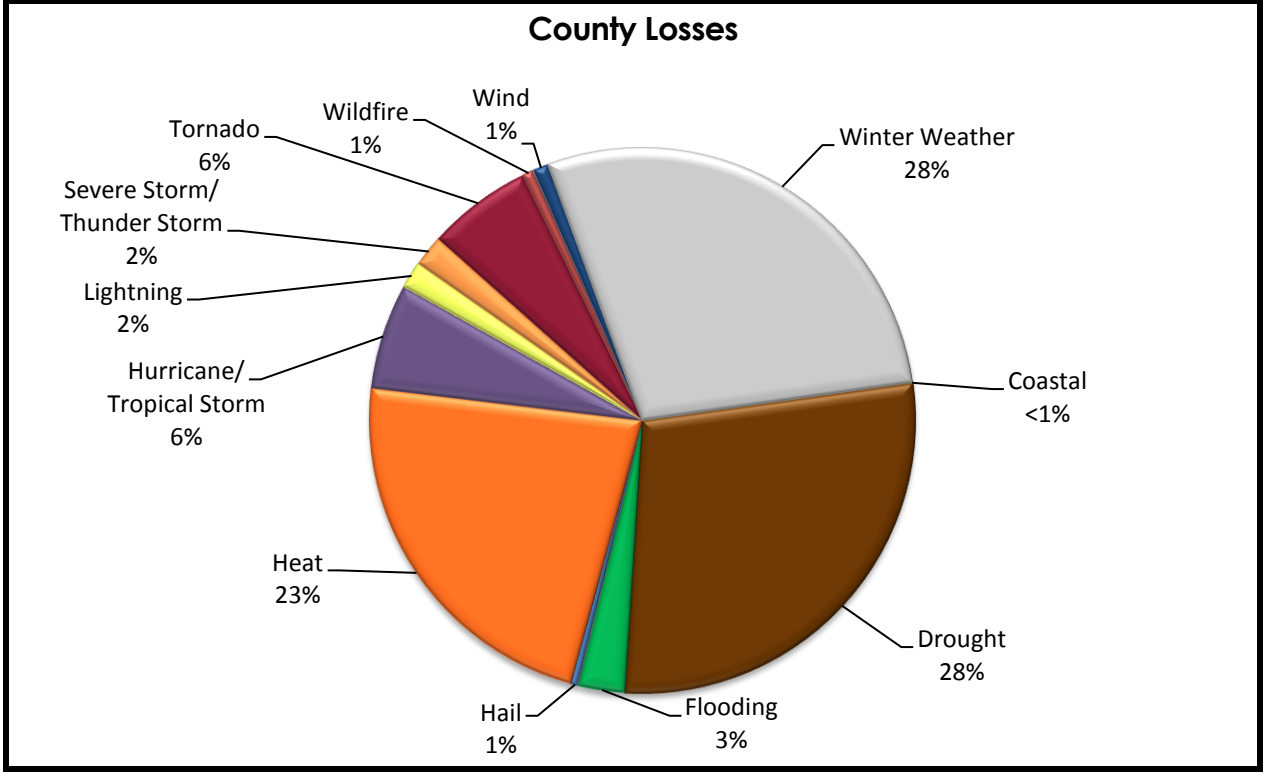
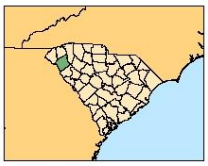


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Allendale County, SC.

ANDERSON COUNTY, SC



I. Summary

Anderson County is vulnerable to both natural (hurricanes/tropical storm) and technological (hazardous material incidents) hazards. Winter weather produces the greatest monetary damage; and with the high recurrence interval (1.5 years), this is a frequent loss-causing event. Wildfires, thunderstorms, lightning, and hazardous material incidents are some of the prominent hazards that regularly affect the county, based on past occurrences.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Anderson County, most of the census tracts exhibit moderate to limited levels of social vulnerability. Census tracts in the central part of the county (Anderson city and suburbs) show elevated SoVI scores. Figure 1 provides maps of the Anderson County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

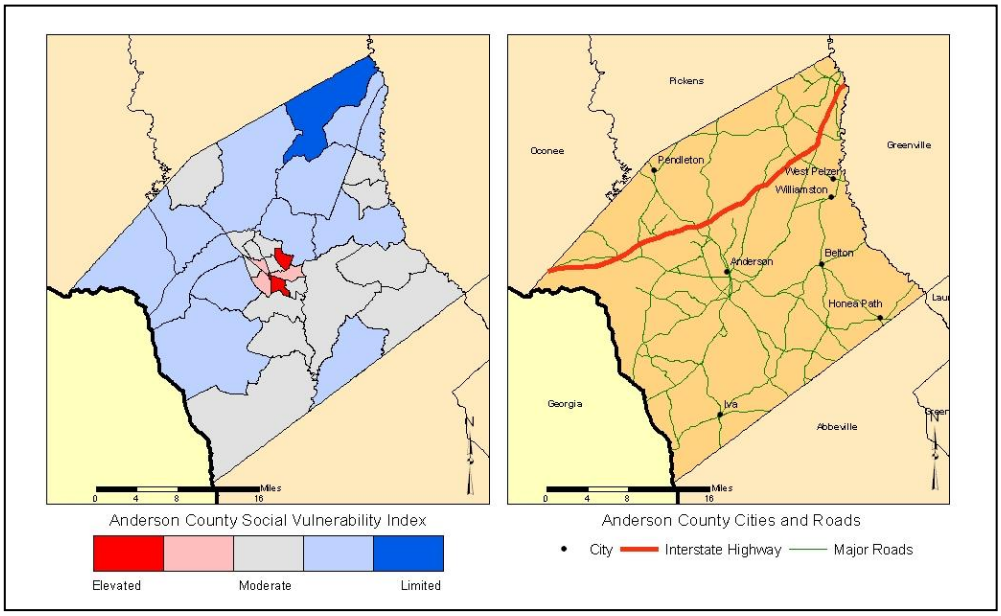


FIGURE 1. The Social Vulnerability for Anderson County, SC by US Census tracts and a general reference map of Anderson County.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.
Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.
Hazard – the potential threat to humans as well as the impact of an event on society and the environment.
Recurrence – a calculated number that examines the expected time interval between events based on the historic record.
Risk – the likelihood or probability of occurrence of a hazard or adverse event.
Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

South Carolina Emergency Management Division -
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E-mail: mberry@emd.sc.gov
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Hazard & Vulnerability Research Institute
University of South Carolina
E-mail: scutter.sc.edu
http://webra.cas.sc.edu/hvri

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Anderson County are hazardous material accidents, severe thunderstorms and wind, hail, and wildfires. Hurricanes/tropical storms are hazards with the lowest recurrence intervals. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Anderson County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	2	158	79.00	1.27
Ocean & Lake Surf[b]	1	16	16.00	6.25
Waterspout	0	16	*	*
Dam Failure	-	-	-	-
Drought	33	59	1.79	55.93
Flood	40	59	1.48	67.80
Fog	4	12	3.00	33.33
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	46	310	6.74	14.84
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	178	22	<0.50	809.09**
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	36,317	10	<0.50	363,170.00**
Severe Thunderstorm Events				
Funnel Cloud	4	16	4.00	25.00
Hail	144	59	<0.50	244.07**
Heavy Precipitation	8	15	1.88	53.33
Lightning	16	16	1.00	100.00
Thunderstorm & Wind	294	59	<0.50	498.31**
Tornado	27	59	2.19	45.76
Temperature Extremes	9	16	1.78	56.25
Wildfire	955	21	<0.50	4,547.62**
Winter Weather (Snow & Ice)	39	59	1.51	66.10

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/
[b] includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)
** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year
\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Anderson County has a higher probability of loss-producing flooding, hail, heat, lightning, thunderstorm, tornado, wind, and winter weather events. It is slightly above the mean for drought. This comparison between the county and state in Figure 2 (page 3) shows hazards that exceeded the state mean in red type. Hurricane/tropical storms are well below the state mean indicating that these hazards have historically produced fewer losses for the county when compared to the state as a whole.

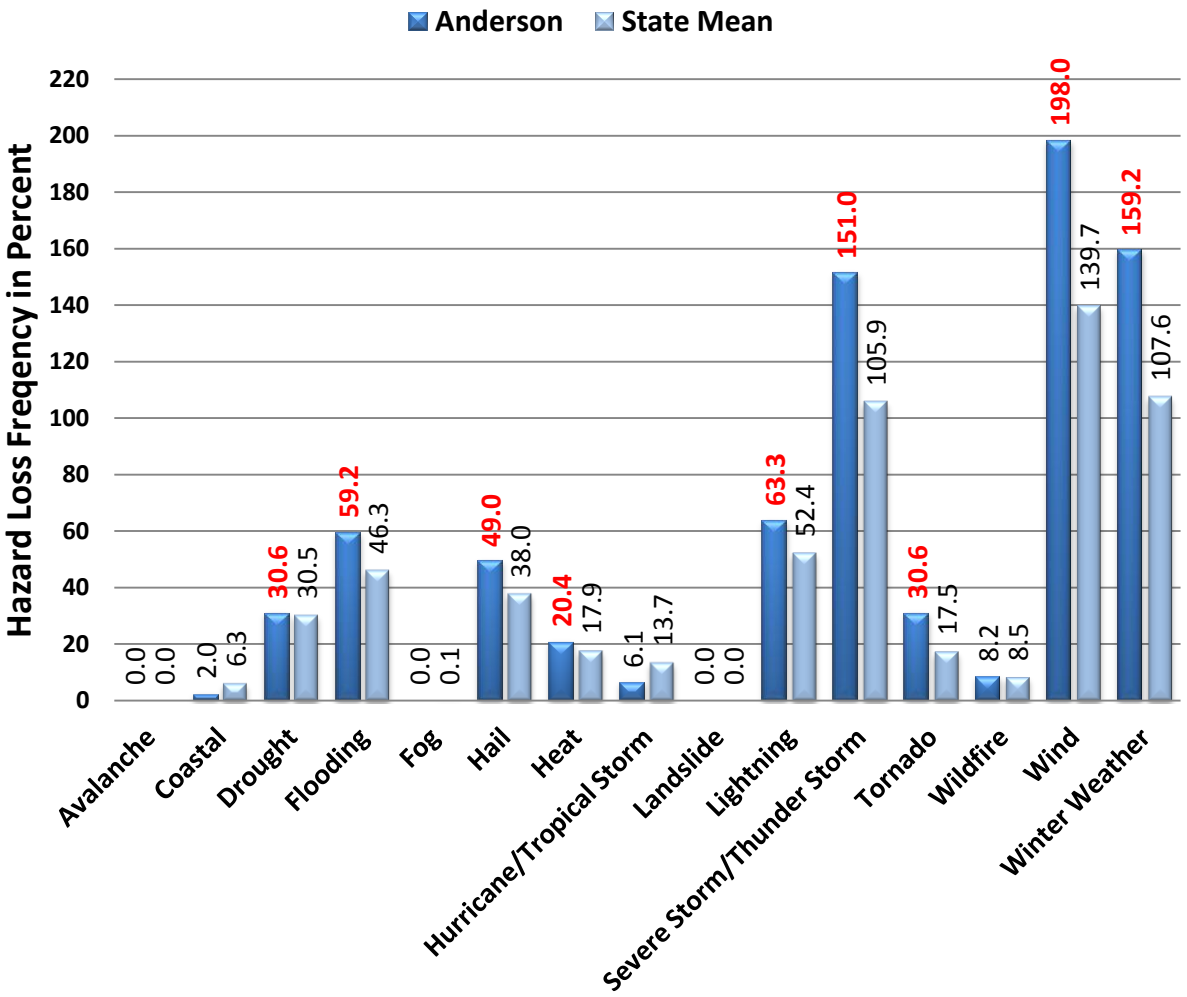


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Anderson County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the cumulative amount of damage from 1960 to 2008 based on twelve hazard types is computed from the Hazards and Vulnerability Research Institute's SHELDUS database (available at http://www.sheldus.org). The historic losses in Anderson County exceed $90 million, and are largely due to winter weather, followed by drought, heat, tornadoes, and lightning. While significant for the county, these cumulative losses represent about one percent of the state's total overall, but 16% of the state's total damages related to lightning.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$6,476	0.01%
Drought	$14,058,478	2.26%
Flooding	$2,719,332	1.83%
Hail	$1,736,459	1.75%
Heat	$11,286,643	2.26%
Hurricane/ Tropical Storm	$329,868	0.01%
Lightning	$8,120,515	16.05%
Severe Storm/ Thunder Storm	$3,301,637	1.63%
Tornado	$10,281,298	4.51%
Wildfire	$334,042	2.18%
Wind	$6,613,437	4.71%
Winter Weather	$31,588,793	3.65%
Anderson - Total	**$90,376,979**	**0.98%**

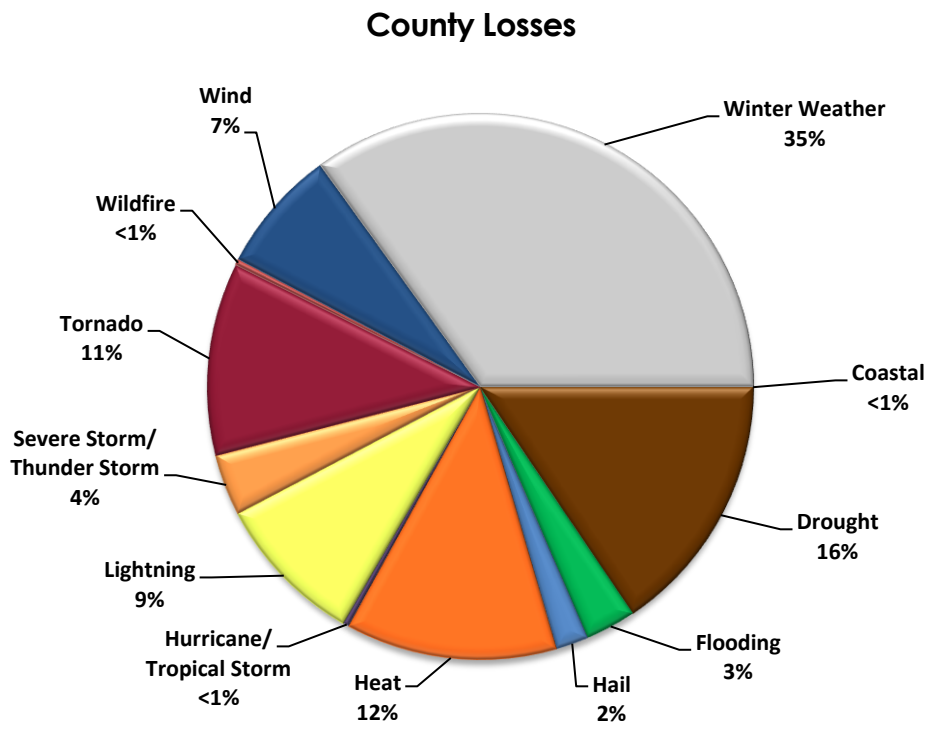
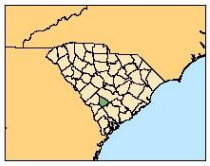


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Anderson County, SC.

BAMBERG COUNTY, SC



I. Summary

Bamberg County is vulnerable to both natural (hurricanes/tropical storms) and technological (hazardous material incidents) hazards. Drought and winter weather produce the most monetary damages; however the recurrence interval is 15 years or more, making these relatively rare events. Wildfires, thunderstorms, and hazardous material incidents are some of the prominent hazards that regularly affect the county, based on past occurrences.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

A majority of the census tracts in Bamberg County exhibit moderately elevated levels of social vulnerability. Figure 1 provides maps of the Bamberg County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

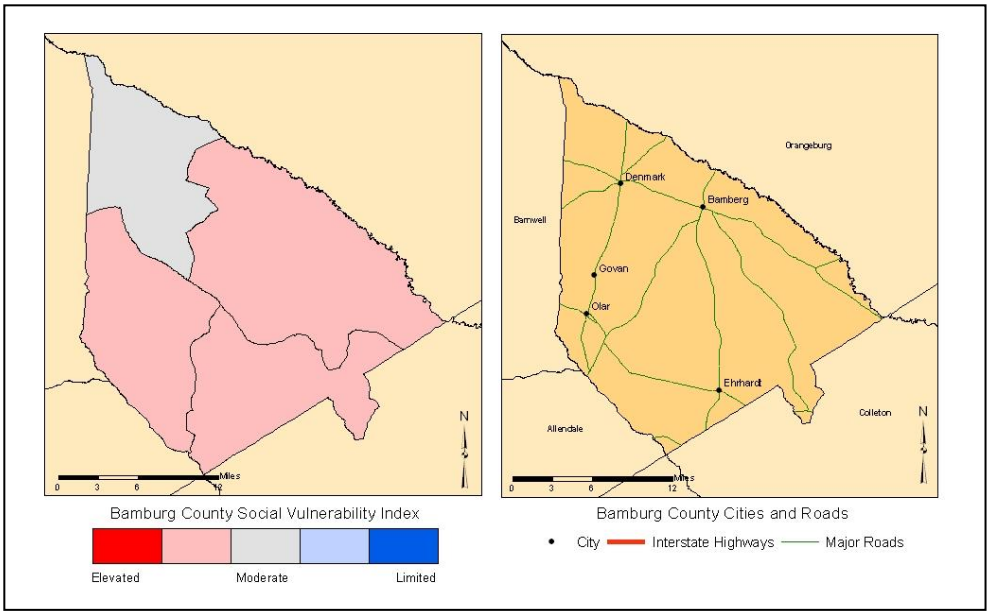


FIGURE 1. The Social Vulnerability for Bamberg County, SC by US Census tracts and a general reference map of Bamberg County.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.

Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.

Hazard – the potential threat to humans as well as the impact of an event on society and the environment.

Recurrence – a calculated number that examines the expected time interval between events based on the historic record.

Risk – the likelihood or probability of occurrence of a hazard or adverse event.

Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

South Carolina Emergency Management Division -
Mitigation Division
E-mail: mberry@emd.sc.gov
http://www.scemd.org

Hazard & Vulnerability Research Institute
University of South Carolina
E-mail: scutter.sc.edu
http://webra.cas.sc.edu/hvri

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Bamberg County are hazardous material accidents, severe thunderstorms and wind, and wildfires. Earthquakes and droughts have the lowest recurrence intervals. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Bamberg County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	15	158	10.53	9.49
Ocean & Lake Surf[b]	1	16	16.00	6.25
Waterspout	0	16	*	*
Dam Failure	-	-	-	-
Drought	1	59	59.00	1.69
Flood	7	59	8.43	11.86
Fog	0	12	*	*
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	3	310	103.33	0.97
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	28	22	0.79	127.27**
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	2,144	10	<0.50	21,440.00**
Severe Thunderstorm Events				
Funnel Cloud	0	16	*	*
Hail	43	59	1.37	72.88
Heavy Precipitation	0	15	*	*
Lightning	2	16	8.00	12.50
Thunderstorm & Wind	97	59	0.61	164.41**
Tornado	17	59	3.47	28.81
Temperature Extremes	0	16	*	*
Wildfire	975	21	<0.50	4,642.86**
Winter Weather (Snow & Ice)	4	59	14.75	6.78

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Bamberg County generally has the same or less than the average number of loss-producing events from all hazards. Figure 2 (page 3) shows those hazards occurring in the county that exceeded the state mean in red type. Winter weather, wind, severe thunderstorms, tornadoes, lightning, and flooding are below the state mean indicating that these hazards historically have had less impact on Bamberg County than elsewhere in South Carolina.

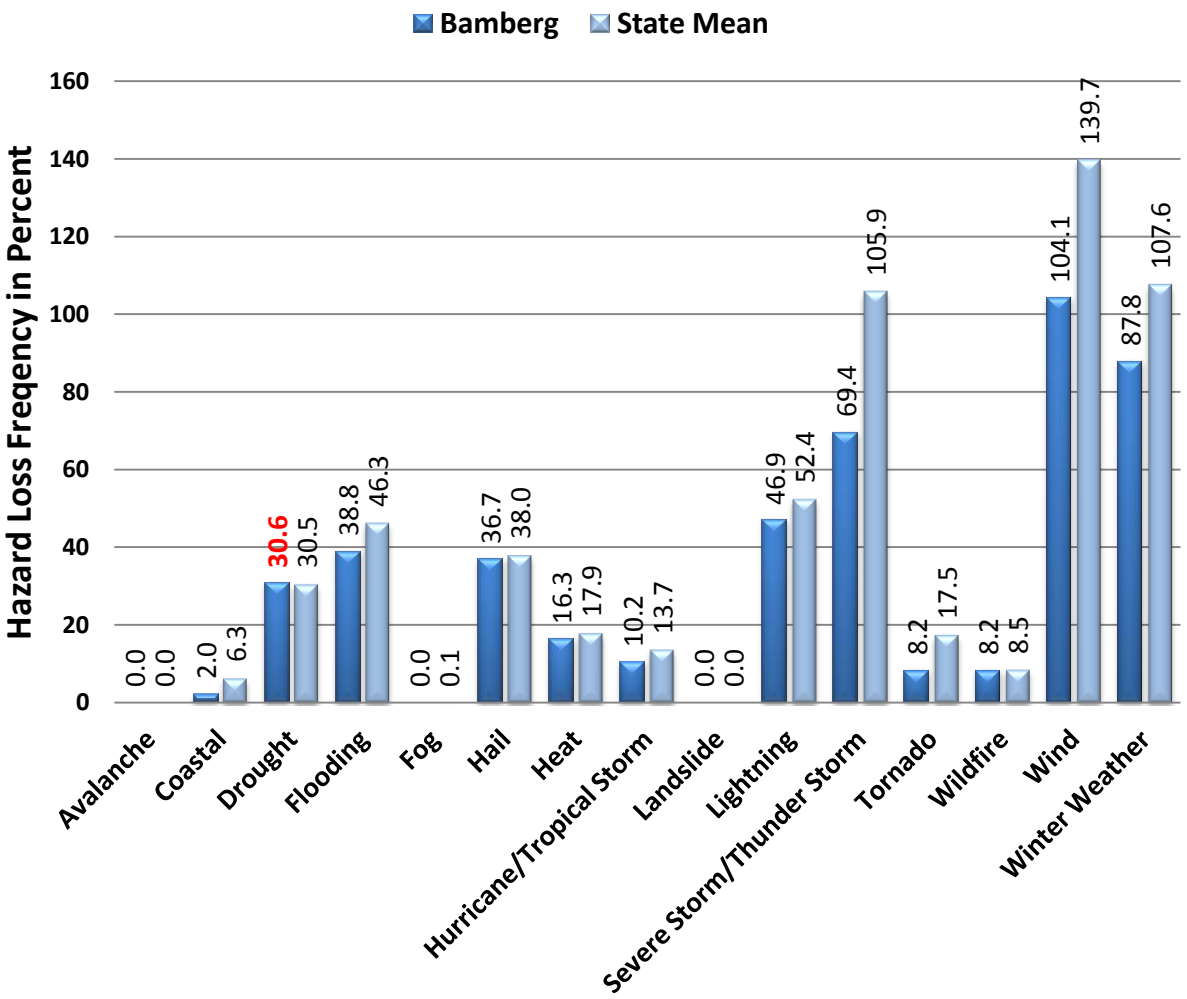


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Bamberg County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the cumulative amount of damage from 1960 to 2008 based on twelve hazard types from the Hazards and Vulnerability Research Institute's SHELDUS database – available at (http://www.sheldus.org). The historic losses in Bamberg County were around $46 million and largely due to winter weather, drought, and heat. While significant for the county, these losses represent less than one percent of the state's total during the same time period.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$6,476	0.01%
Drought	$14,058,478	2.26%
Flooding	$488,478	0.33%
Hail	$487,359	0.49%
Heat	$11,286,643	2.26%
Hurricane/ Tropical Storm	$981,533	0.02%
Lightning	$1,140,805	2.26%
Severe Storm/ Thunder Storm	$1,143,792	0.56%
Tornado	$276,423	0.12%
Wildfire	$334,042	2.18%
Wind	$951,932	0.68%
Winter Weather	$14,542,313	1.68%
Bamberg - Total	**$45,698,275**	**0.50%**

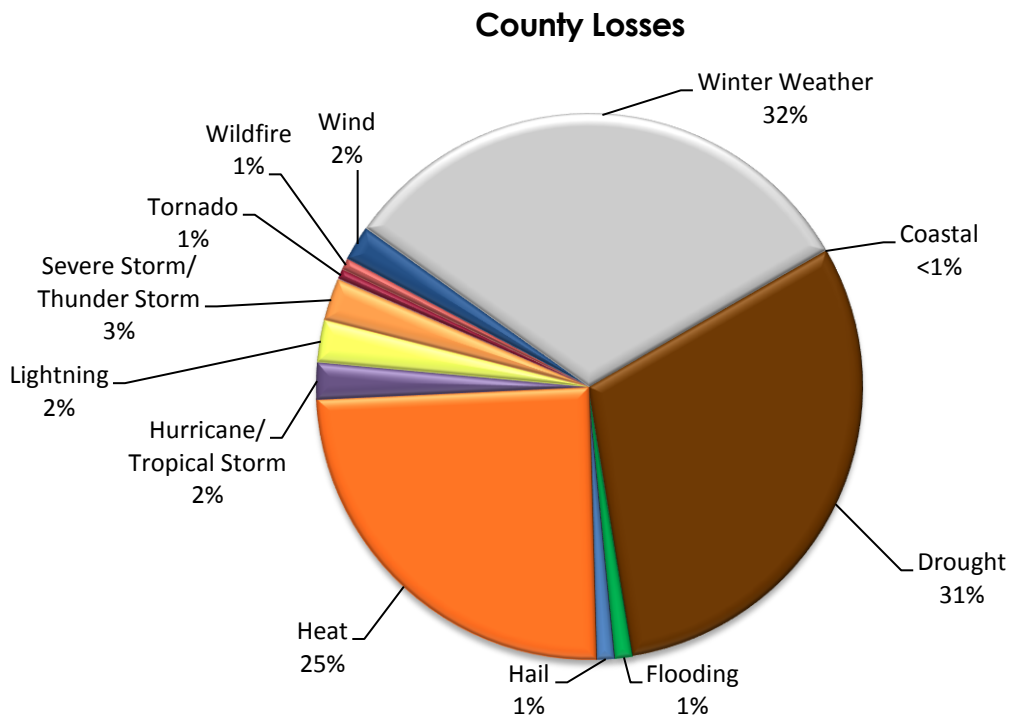
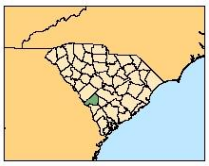


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Bamberg County, SC.

BARNWELL COUNTY, SC



I. Summary

Barnwell County is vulnerable to both natural (hurricanes/tropical storm) and technological (hazardous material incidents). Winter weather and drought produce the most monetary damages; however the recurrence interval is more than 14 years and 59 years respectively, making them relatively rare events. Wildfires, thunderstorms, and hazardous material incidents are more common and regularly affect the county on an annual basis.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Barnwell County, most of the census tracts exhibit a moderate level of social vulnerability, with one tract around Blackville in the moderately elevated category. Figure 1 provides maps of the Barnwell County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

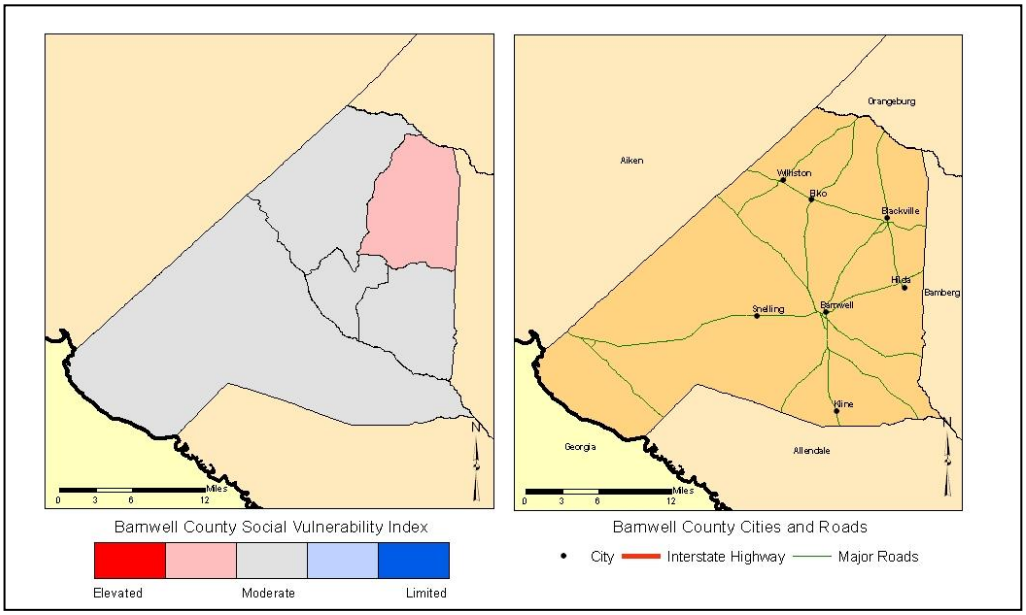


FIGURE 1. The Social Vulnerability for Barnwell County, SC by US Census tracts and a general reference map of Barnwell County.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.

Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.

Hazard – the potential threat to humans as well as the impact of an event on society and the environment.

Recurrence – a calculated number that examines the expected time interval between events based on the historic record.

Risk – the likelihood or probability of occurrence of a hazard or adverse event.

Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Barnwell County are hazardous material accidents, severe thunderstorms and wind, and wildfires. Earthquakes, winter weather, and hurricanes are hazards with the lowest recurrence intervals. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Barnwell County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	12	158	13.17	7.59
Ocean & Lake Surf[b]	1	16	16.00	6.25
Waterspout	0	16	*	*
Dam Failure	-	-	-	-
Drought	1	59	59.00	1.69
Flood	7	59	8.43	11.86
Fog	0	12	*	*
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	6	310	51.67	1.94
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	43	22	0.51	195.45**
Nuclear Power Plant	1	8	8.00	12.50
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	3,069	10	<0.50	30,690.00**
Severe Thunderstorm Events				
Funnel Cloud	0	16	*	*
Hail	44	59	1.34	74.58
Heavy Precipitation	0	15	*	*
Lightning	5	16	3.20	31.25
Thunderstorm & Wind	95	59	0.62	161.02**
Tornado	16	59	3.69	27.12
Temperature Extremes	0	16	*	*
Wildfire	955	21	<0.50	4,547.62**
Winter Weather (Snow & Ice)	4	59	14.70	6.78

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Barnwell County has a slightly higher probability of drought, heat, and tornado hazards occurring than the statewide average. Figure 2 (page 3) shows those hazards occurring in the county that exceeded the state mean in red font, for which there are none. Winter weather, severe thunderstorms, and wind are well below the state mean indicating that these hazards have historically impacted the county less frequently when compared to the state as a whole.

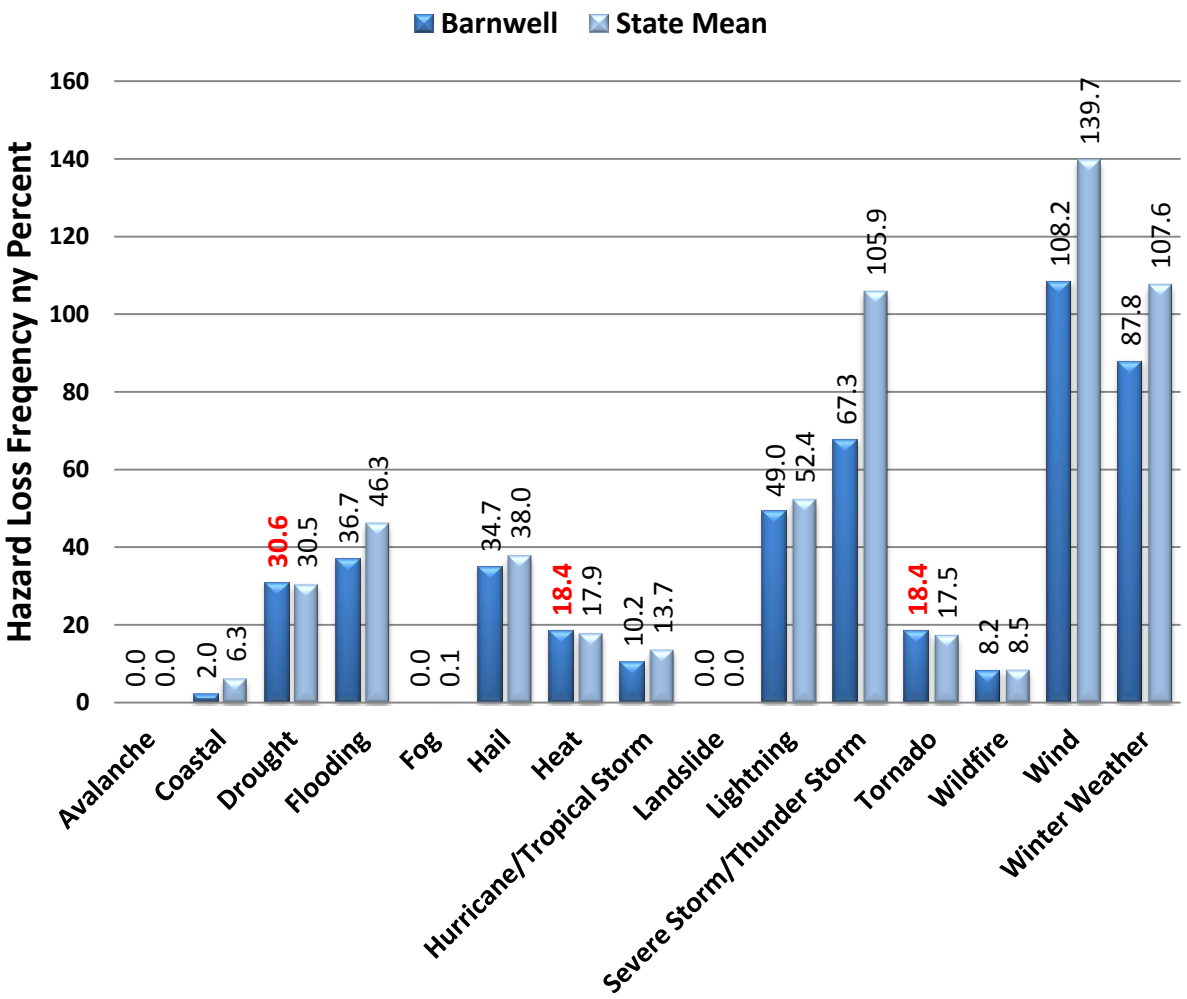


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Barnwell County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the cumulative amount of damage from 1960 to 2008 based on twelve hazard types is computed from the Hazards and Vulnerability Research Institute's SHELDUS database (available at http://www.sheldus.org). The historic losses in Barnwell County exceed $54 million and are largely due to winter weather, drought, and heat. While significant for the county, these cumulative losses represent less than one percent of the state's overall total.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$6,476	0.01%
Drought	$14,058,478	2.26%
Flooding	$556,147	0.37%
Hail	$480,526	0.48%
Heat	$11,286,643	2.26%
Hurricane/ Tropical Storm	$5,338,101	0.10%
Lightning	$362,468	0.72%
Severe Storm/ Thunder Storm	$1,189,780	0.59%
Tornado	$5,302,642	2.33%
Wildfire	$334,042	2.18%
Wind	$1,382,700	0.99%
Winter Weather	$14,050,921	1.62%
Barnwell - Total	**$54,348,927**	**0.59%**

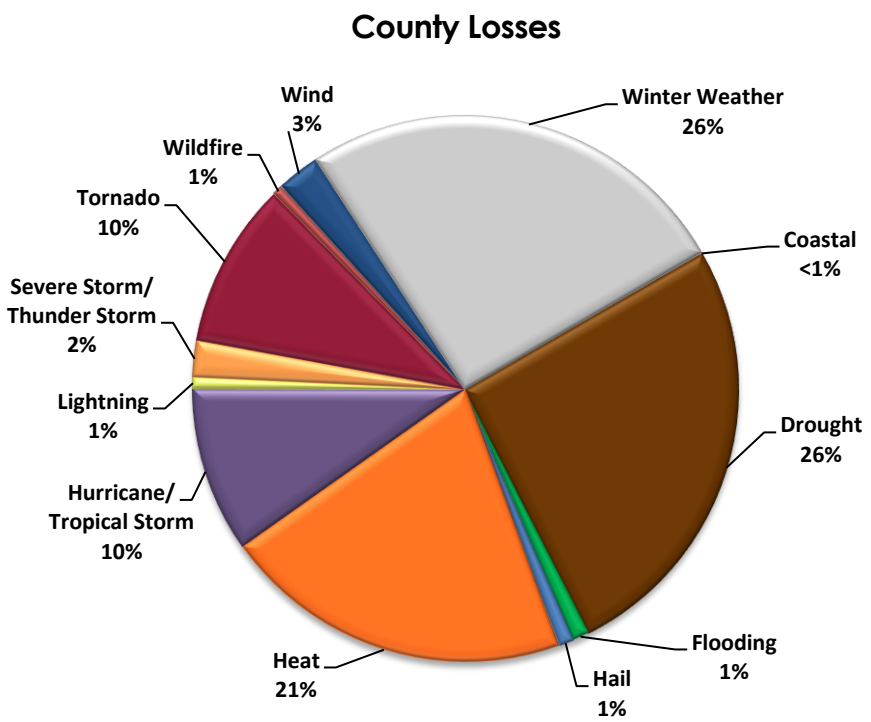
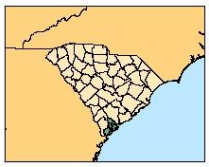


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Barnwell County, SC.

BEAUFORT COUNTY, SC



I. Summary

Beaufort County is vulnerable to both natural (hurricanes/tropical storm) and technological (hazardous material incidents). Winter weather produces the greatest monetary damage, but it occurs infrequently (on average once every 59 years. Hurricane/tropical storms and drought are more frequent than that, also producing significant monetary damages. Wildfires, thunderstorms, and hazardous material incidents are some of the prominent hazards that regularly affect the county, based on past occurrences.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Beaufort County has a wide range of social vulnerability, with most tracts exhibiting moderate levels. However, Hilton Head Island shows the two extremes—with two tracts in the elevated category, many in the moderate category, and one tract in the limited category. Figure 1 provides maps of the Beaufort County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

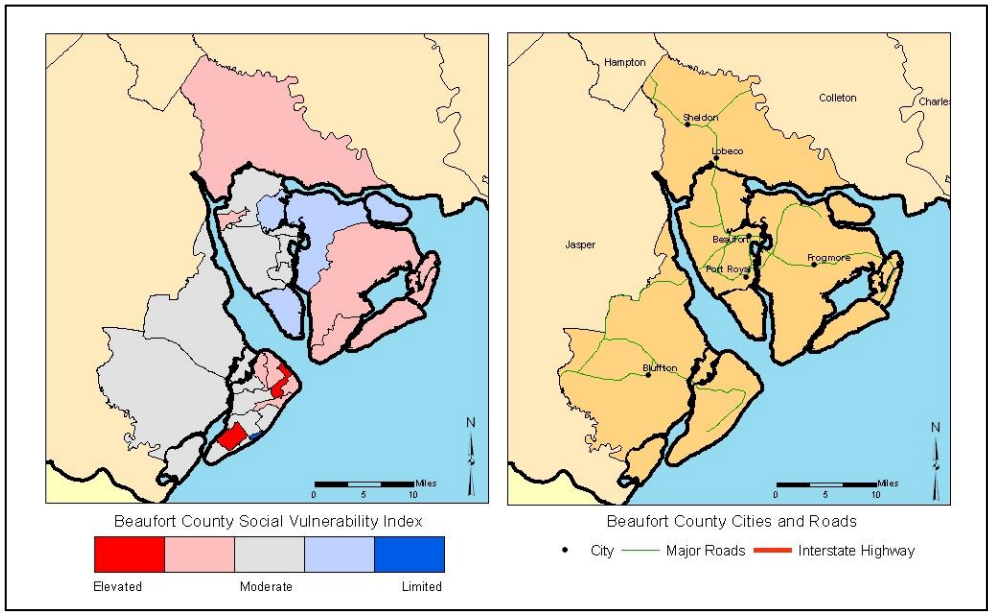


FIGURE 1. The Social Vulnerability for Beaufort County, SC by US Census tracts and a general reference map of Beaufort County.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.

Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.

Hazard – the potential threat to humans as well as the impact of an event on society and the environment.

Recurrence – a calculated number that examines the expected time interval between events based on the historic record.

Risk – the likelihood or probability of occurrence of a hazard or adverse event.

Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

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Hazard & Vulnerability Research Institute
University of South Carolina
E-mail: scutter.sc.edu
http://webra.cas.sc.edu/hvri

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Beaufort County are hazardous material accidents, severe thunderstorms and wind, lightning, and wildfires. Earthquakes and winter weather are hazards with the lowest recurrence intervals. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Beaufort County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	20	158	7.90	12.66
Ocean & Lake Surf[b]	10	16	1.60	62.50
Waterspout	2	16	8.00	12.50
Dam Failure	-	-	-	-
Drought	21	59	2.81	35.59
Flood	25	59	2.36	42.37
Fog	0	12	*	*
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	1	310	310.00	0.32
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	435	22	<0.50	1,977.27**
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	27,599	10	<0.50	275,990.00**
Severe Thunderstorm Events				
Funnel Cloud	3	16	5.33	18.75
Hail	67	59	0.88	113.56**
Heavy Precipitation	2	15	7.50	13.33
Lightning	34	16	<0.50	212.50**
Thunderstorm & Wind	167	59	<0.50	283.05**
Tornado	21	59	2.81	35.59
Temperature Extremes	8	16	2.00	50.00
Wildfire	1,508	21	<0.50	7,180.95**
Winter Weather (Snow & Ice)	1	59	59.00	1.69

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

VI. Hazard Loss Information

When compared to South Carolina as a whole, Beaufort County has a higher probability of coastal hazards, drought, flooding, heat, hurricanes, lightning, thunderstorms, tornado, and wind hazards. Figure 2 (page 3) shows those hazards occurring in the county that exceeded the state mean in red font. Winter weather is below the state mean indicating that this hazard historically produced fewer losses for the county than elsewhere in South Carolina.

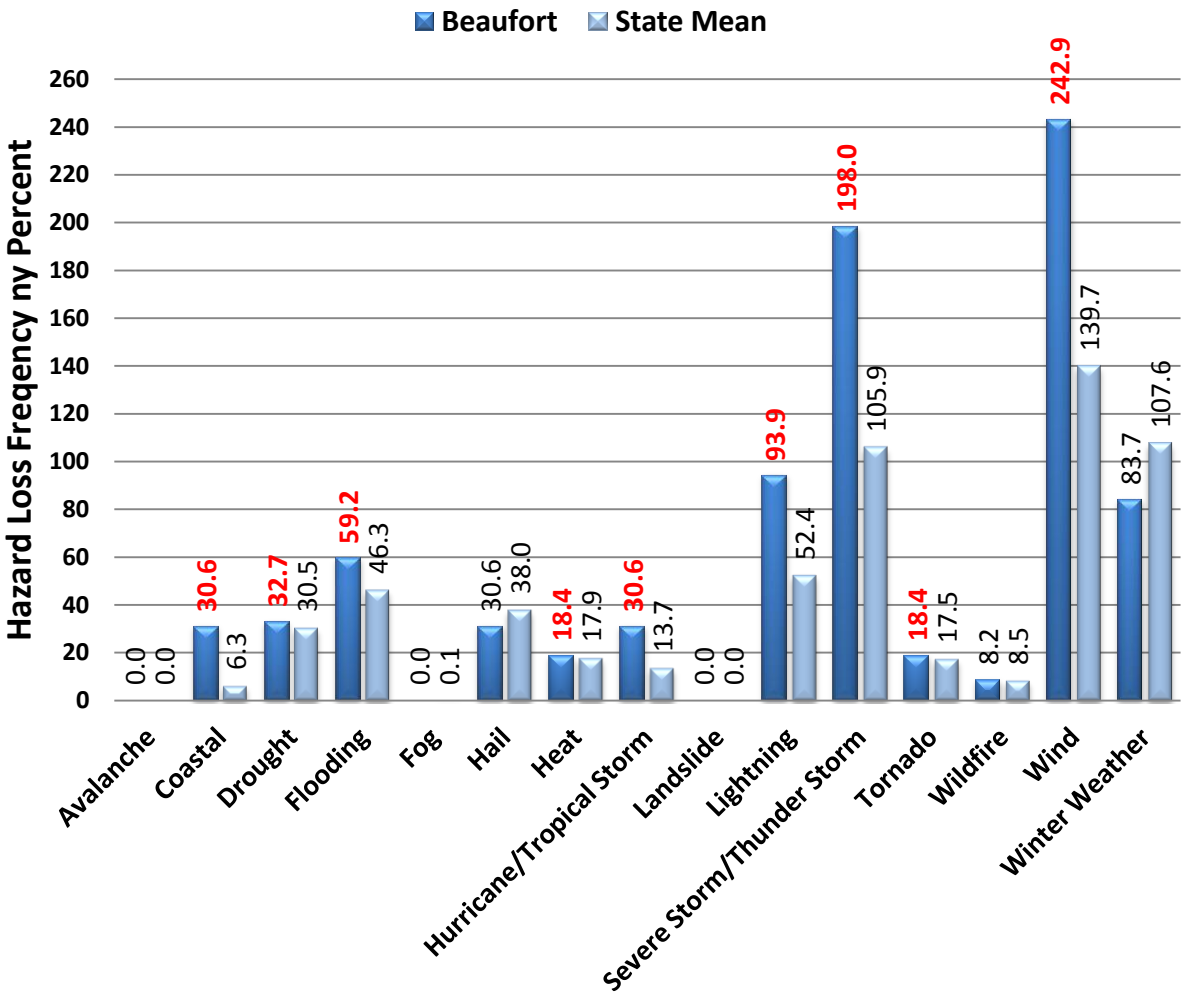


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Beaufort County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the cumulative amount of damage from 1960 to 2008 based on twelve hazard types is computed from the Hazards and Vulnerability Research Institute's SHELDUS database – available at (http://www.sheldus.org). The historic losses in Beaufort County are around $86 million, due to a combination of winter weather, drought, hurricane/tropical storms, and flooding. Flooding losses represent 7% of the state's total. While significant for the county, these cumulative losses represent less than one percent of the state's total overall.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$10,417,191	1.01%
Drought	$14,201,478	2.28%
Flooding	$10,849,940	7.29%
Hail	$1,112,483	1.12%
Heat	$11,286,643	2.26%
Hurricane/ Tropical Storm	$13,114,269	0.25%
Lightning	$2,864,863	5.66%
Severe Storm/ Thunder Storm	$1,467,873	0.72%
Tornado	$2,168,661	0.95%
Wildfire	$334,042	2.18%
Wind	$3,111,284	2.22%
Winter Weather	$14,226,954	1.64%
Beaufort - Total	**$85,155,682**	**0.93%**

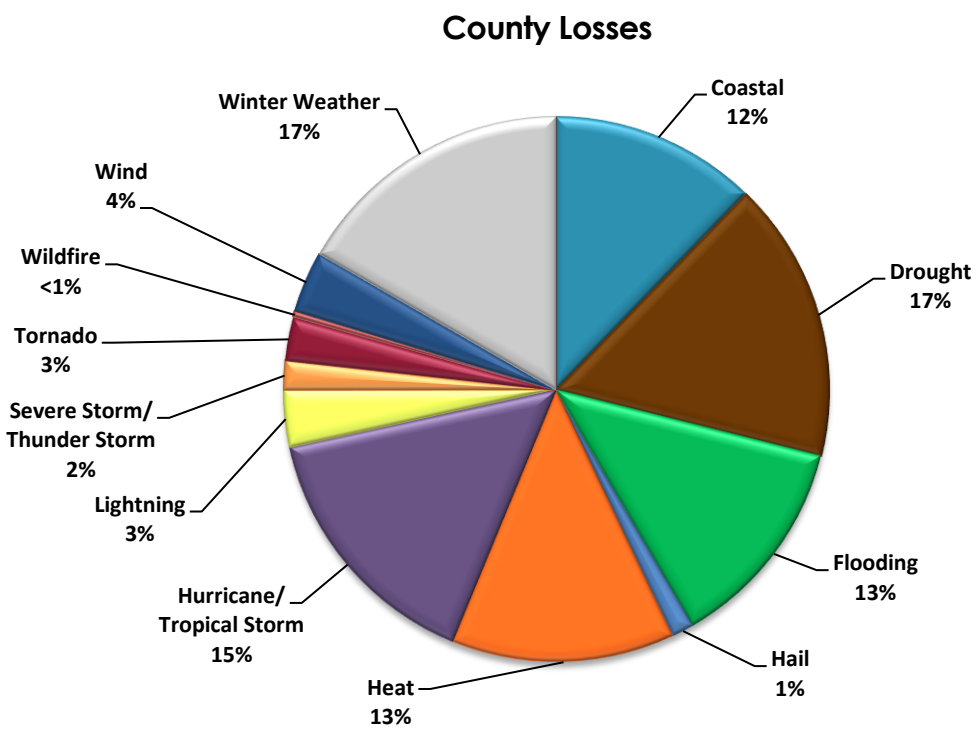
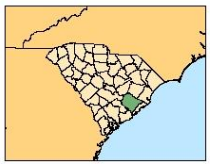


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Beaufort County, SC.

BERKELEY COUNTY, SC



I. Summary

Berkeley County is vulnerable to both natural (hurricanes/tropical storms) and technological (hazardous material incidents) hazards. Hurricanes/tropical storms produce the highest monetary damages. The recurrence interval is 6.9 years, making them a somewhat regular event. Chronic hazards such as drought that have a shorter recurrence interval (3 years) should be carefully monitored. Wildfires, thunderstorms, hail and hazardous material incidents are some of the prominent hazards that annually affect the county, based on past occurrences.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Berkeley County, most of the census tracts exhibit moderate to limited levels of social vulnerability. Census tracts in the north eastern parts of the county have the highest SoVI scores. Figure 1 provides maps of the Berkeley County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

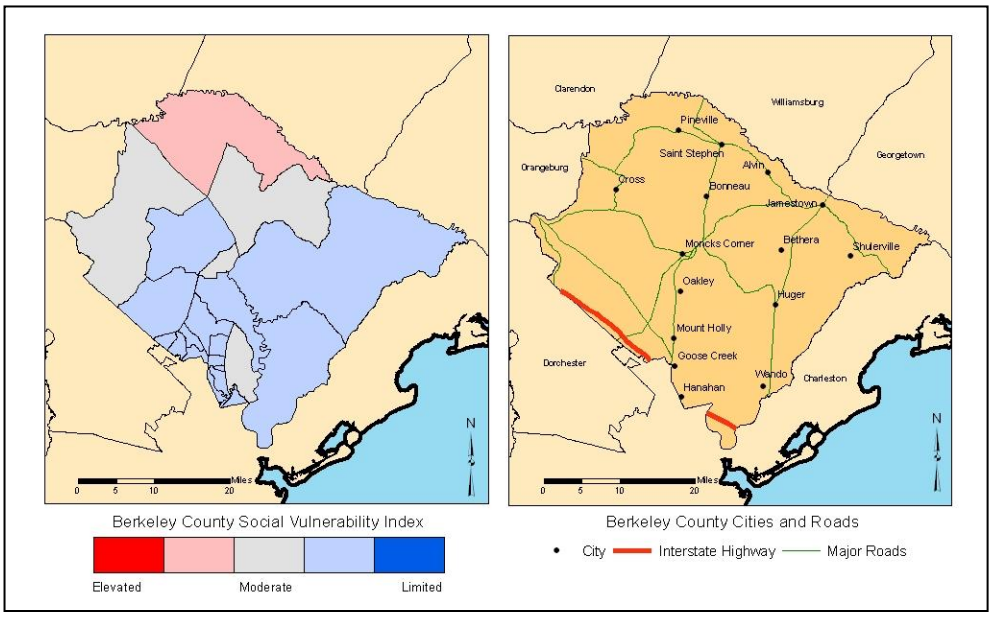


FIGURE 1. The Social Vulnerability for Berkeley County, SC by US Census tracts and a general reference map of Berkeley County.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.

Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.

Hazard – the potential threat to humans as well as the impact of an event on society and the environment.

Recurrence – a calculated number that examines the expected time interval between events based on the historic record.

Risk – the likelihood or probability of occurrence of a hazard or adverse event.

Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

South Carolina Emergency Management Division -
Mitigation Division
E-mail: mberry@emd.sc.gov
http://www.scemd.org

Hazard & Vulnerability Research Institute
University of South Carolina
E-mail: scutter.sc.edu
http://webra.cas.sc.edu/hvri

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Berkeley County are hazardous material accidents, severe thunderstorms, wildfires, and earthquakes. Winter weather and ocean surf are hazards with the lowest recurrence intervals. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Berkeley County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	23	158	6.87	14.56
Ocean & Lake Surf[b]	1	16	16.00	6.25
Waterspout	0	16	*	*
Dam Failure	-	-	-	-
Drought	21	59	2.81	35.59
Flood	41	59	1.45	69.49
Fog	0	12	*	*
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	540	310	0.57	174.19**
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	440	22	<0.50	2000.00**
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	27,051	10	<0.50	270,510.00**
Severe Thunderstorm Events				
Funnel Cloud	4	16	4.00	25.00
Hail	189	59	<0.50	320.34**
Heavy Precipitation	1	15	15.00	6.67
Lightning	9	16	1.78	56.25
Thunderstorm & Wind	196	59	<0.50	332.20**
Tornado	29	59	2.03	49.15
Temperature Extremes	8	16	2.00	50.00
Wildfire	6,014	21	<0.50	28,638.10**
Winter Weather (Snow & Ice)	4	59	14.75	6.78

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Berkeley County has a higher probability of loss-producing coastal, drought, flood, heat, hurricanes/tropical storms, tornadoes, thunderstormws, and wind events. This comparison between the county and state seen in Figure 2 (page 3) shows hazards that exceeded the state mean in red type. Winter weather and lightning are both below the state mean indicating that these hazards have historically affected the county less frequently when compared to the state as a whole.

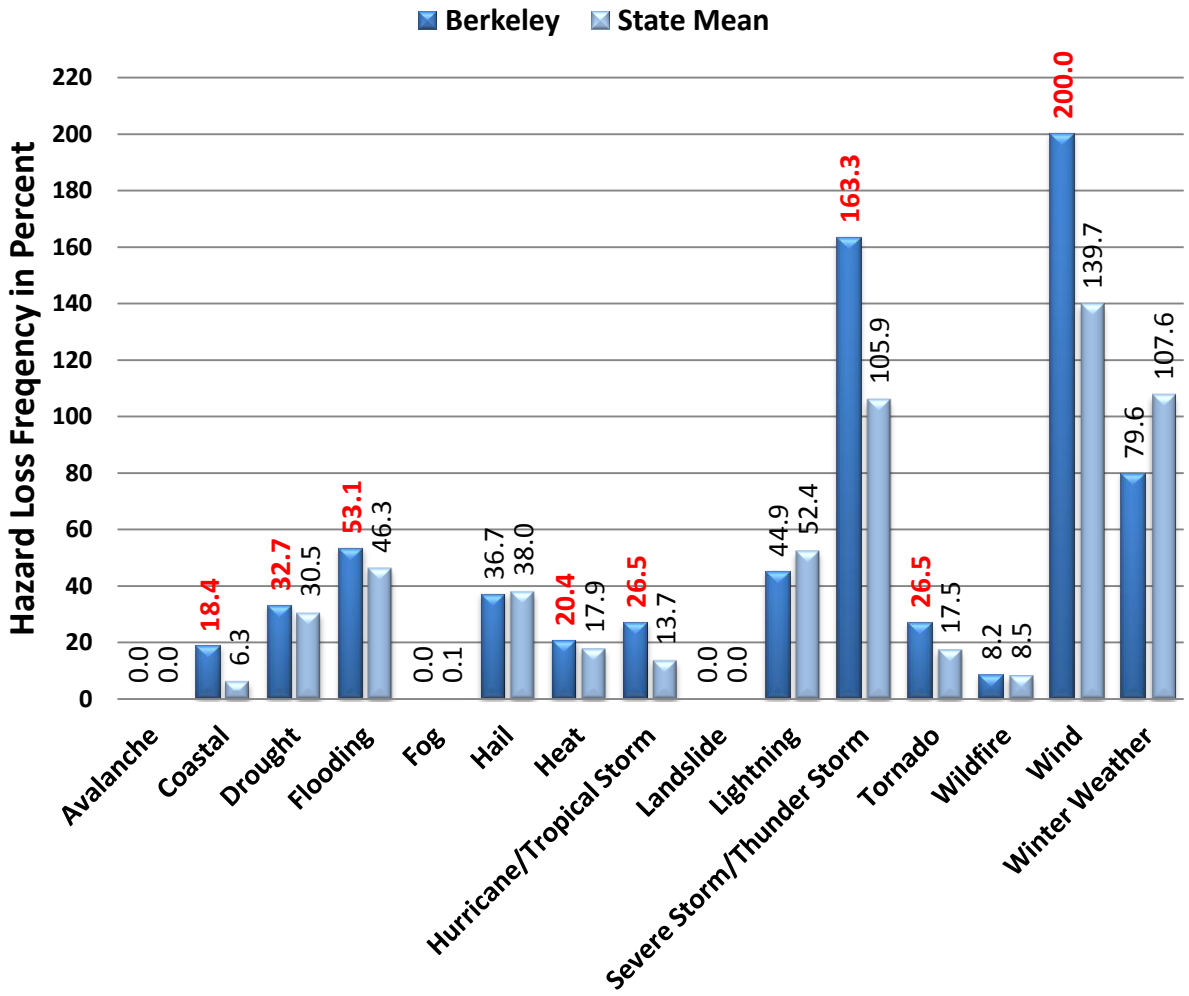


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Berkeley County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the total damage is calculated as the cumulative amount of damage from 1960 to 2008 based on twelve hazard types from the Hazards and Vulnerability Research Institute's SHELDUS database – available at (http://www.sheldus.org). Hurricane/tropical storms have caused the largest amount of historic losses in Berkeley County (94%), resulting in losses exceeding nearing $1billion. While significant for the county, hurricane loss represents 18% of the state's total losses from hurricanes (a significant portion of overall losses) indicating that hurricanes pose a major threat to lives and livelihoods for the state.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$693,847	0.07%
Drought	$14,201,478	2.28%
Flooding	$1,313,624	0.88%
Hail	$341,775	0.34%
Heat	$11,286,643	2.26%
Hurricane/ Tropical Storm	$963,920,782	18.20%
Lightning	$609,401	1.20%
Severe Storm/ Thunder Storm	$1,395,304	0.69%
Tornado	$10,761,133	4.72%
Wildfire	$334,042	2.18%
Wind	$1,209,549	0.86%
Winter Weather	$15,342,112	1.77%
Berkeley - Total	**$1,021,409,692**	**11.10%**

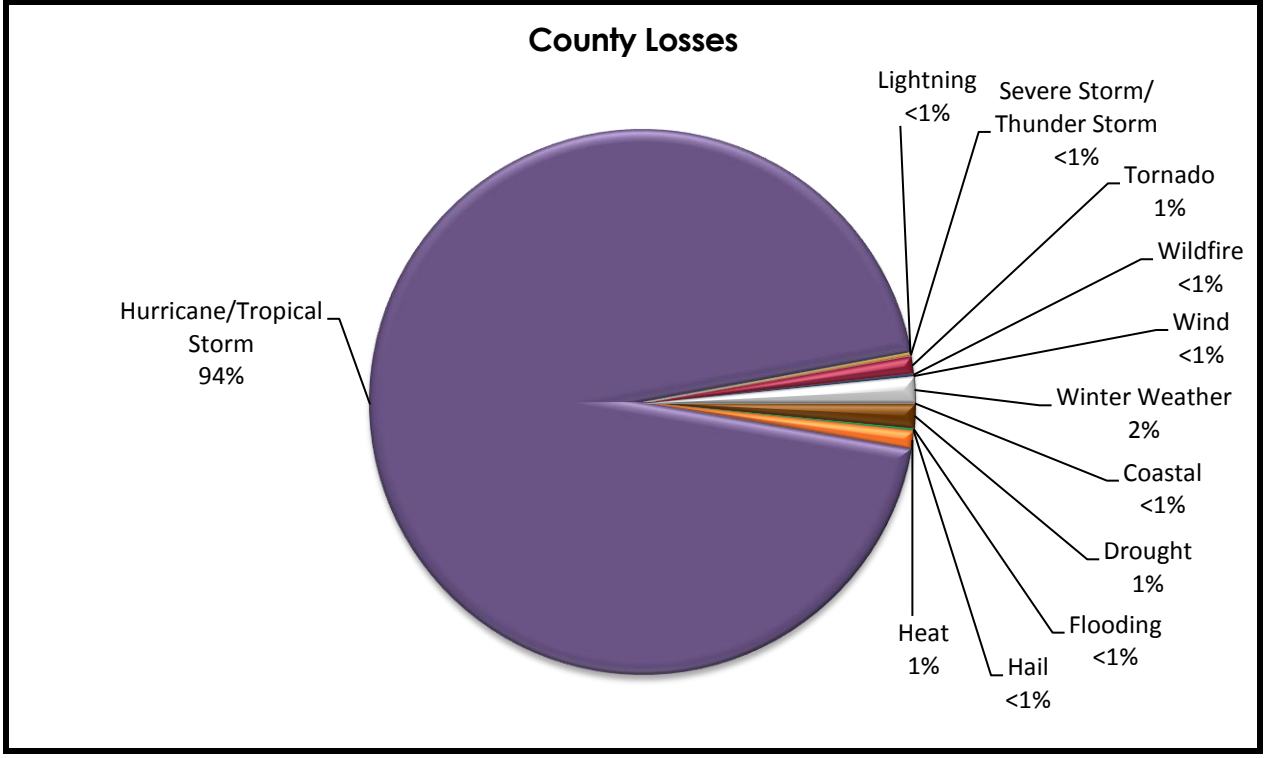
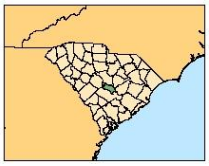


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Berkeley County, SC.

CALHOUN COUNTY, SC



I. Summary

Calhoun County is vulnerable to both natural (hurricanes/tropical storms) and technological (hazardous material incidents) hazards. Hurricanes/tropical storms, winter weather, and drought produce the highest monetary damages; however, the recurrence interval is 10 years or more, making them relatively rare events. Wildfires, thunderstorms, and hazardous material incidents are some of the prominent hazards that regularly affect the county, based on past occurrences.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Calhoun County, the tracts exhibit moderate to moderately elevated levels of social vulnerability in comparison to the remainder of the state. Figure 1 provides maps of Calhoun County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

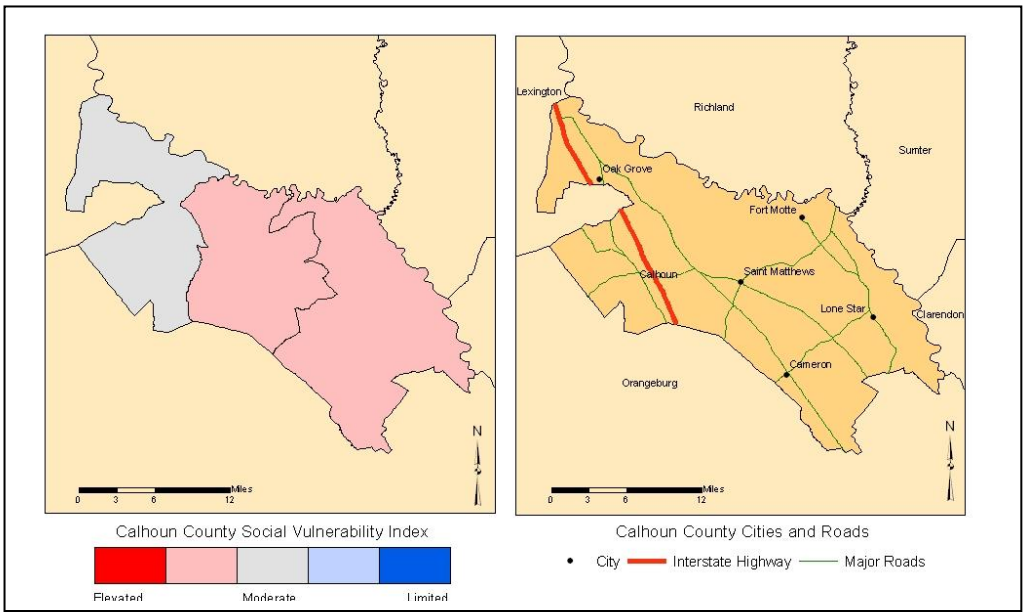


FIGURE 1. The Social Vulnerability for Calhoun County, SC by US Census tracts.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.

Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.

Hazard – the potential threat to humans as well as the impact of an event on society and the environment.

Recurrence – a calculated number that examines the expected time interval between events based on the historic record.

Risk – the likelihood or probability of occurrence of a hazard or adverse event.

Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Calhoun County are hazardous material accidents, severe thunderstorms and wind, and wildfires. Drought and earthquakes are hazards with the lowest recurrence intervals. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Calhoun County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	14	158	11.29	8.86
Ocean & Lake Surf[b]	1	16	16.00	6.25
Waterspout	0	16	*	*
Dam Failure	-	-	-	-
Drought	1	59	59.00	1.69
Flood	6	59	9.83	10.17
Fog	0	12	*	*
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	2	310	155.00	0.65
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	81	22	<0.50	368.18**
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	3,402	10	<0.50	34020**
Severe Thunderstorm Events				
Funnel Cloud	0	16	*	*
Hail	55	59	1.07	93.22
Heavy Precipitation	0	15	*	*
Lightning	1	16	16.00	6.25
Thunderstorm & Wind	91	59	0.66	154.24**
Tornado	12	59	4.92	20.34
Temperature Extremes	0	16	*	*
Wildfire	932	21	<0.50	4, 438.10**
Winter Weather (Snow & Ice)	5	59	11.80	8.47

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Calhoun County has the state average or less than the state's average of loss-causing events. This comparison between the county and state can be seen in Figure 2 (page 3) with hazards that exceeded the state mean in red type. Winter weather, wind, and severe thunderstorms are well below the state mean indicating these hazards had less effect on the county when compared to the state as a whole.

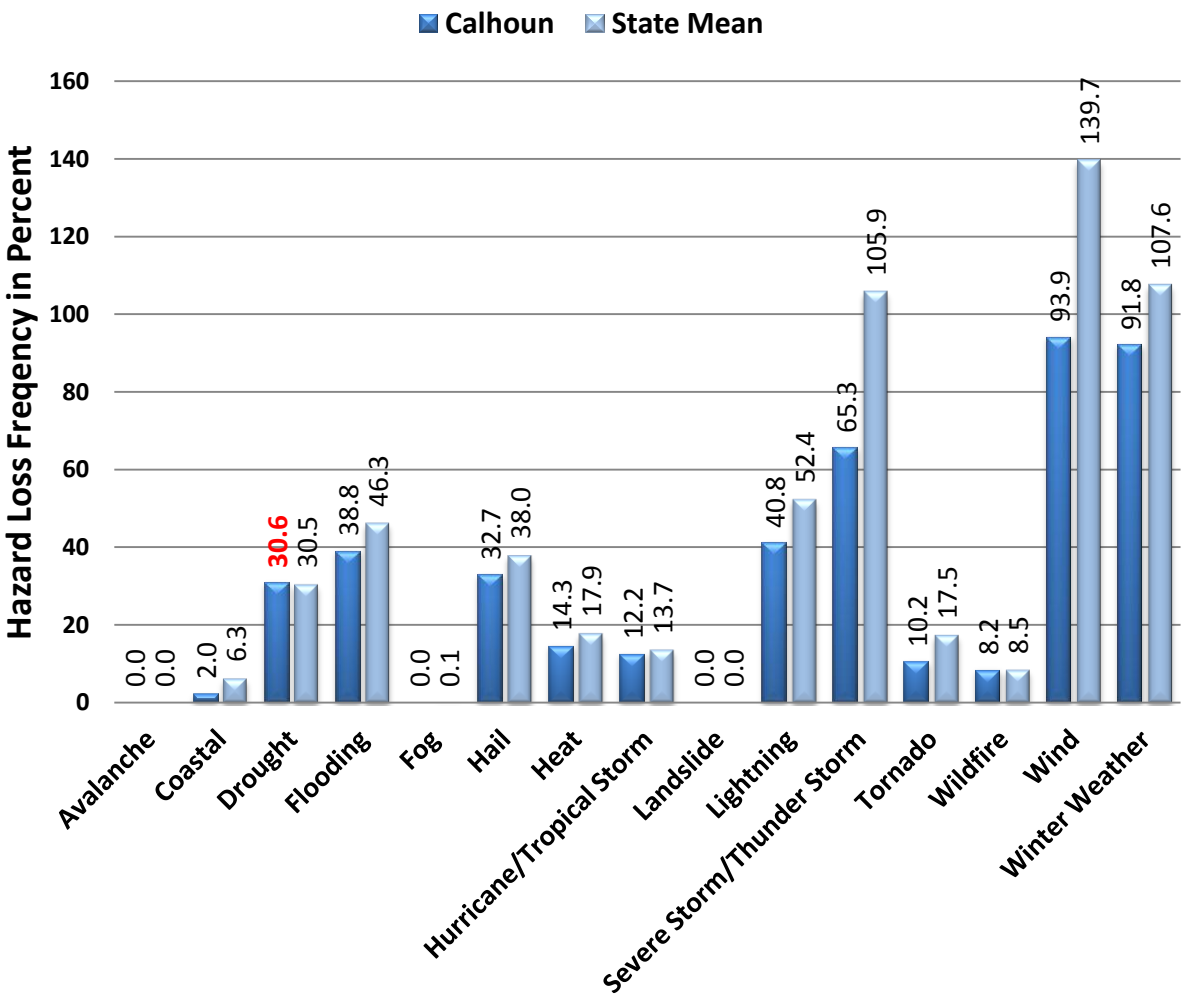


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Calhoun County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the total damage is calculated as the cumulative amount of damage from 1960 to 2008 based on twelve hazard types from the Hazards and Vulnerability Research Institute's SHELDUS database – available at (http://www.sheldus.org). The historic losses in Calhoun County exceed $63 million and are due to hurricanes, winter weather, and drought. Hurricanes/tropical storms represent 29% of the losses in Calhoun County historically. While significant for the county, these cumulative losses represent less than one percent of the state's overall total.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$6,476	0.01%
Drought	$14,058,478	2.26%
Flooding	$461,017	0.31%
Hail	$423,160	0.43%
Heat	$11,286,643	2.26%
Hurricane/ Tropical Storm	$18,314,866	0.35%
Lightning	$257,071	0.51%
Severe Storm/ Thunder Storm	$1,623,665	0.80%
Tornado	$1,598,035	0.70%
Wildfire	$334,042	2.18%
Wind	$722,533	0.52%
Winter Weather	$14,594,454	1.68%
Calhoun - Total	**$63,680,442**	**0.69%**

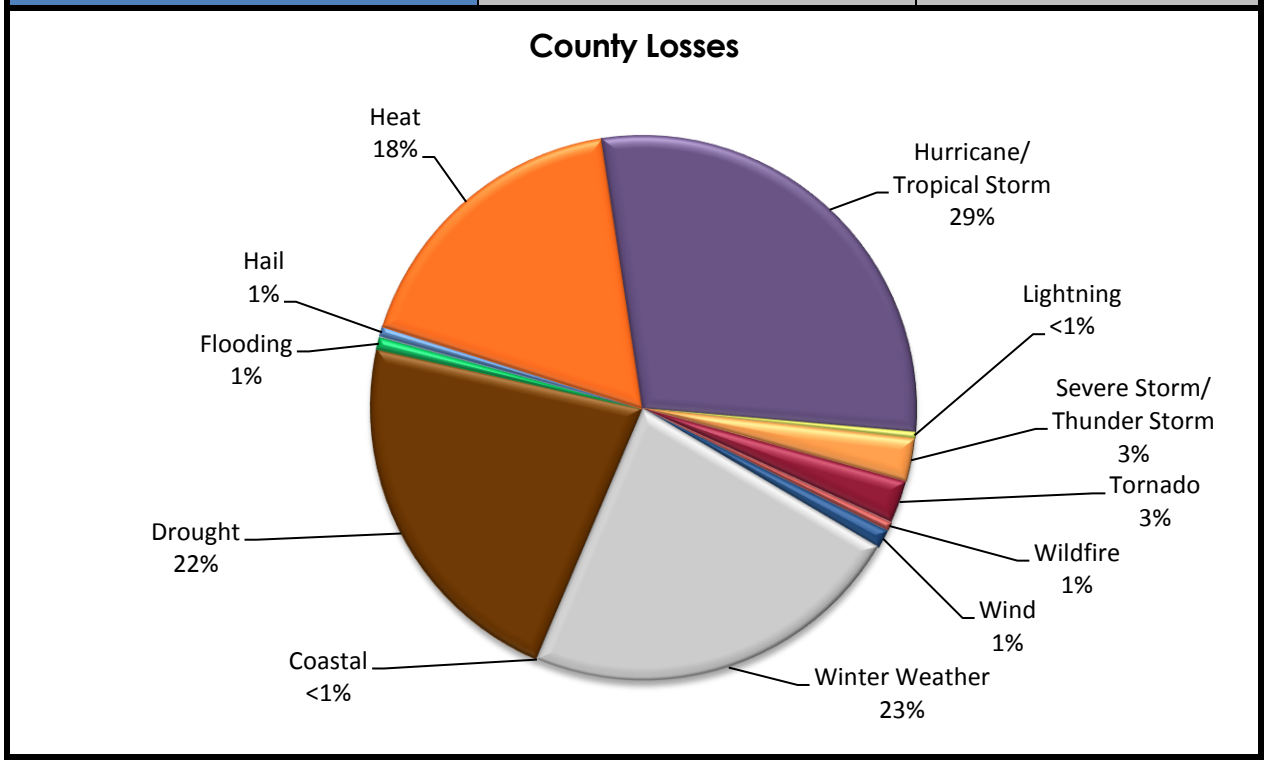
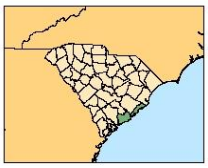


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Calhoun County, SC.

CHARLESTON COUNTY, SC



I. Summary

Charleston County is vulnerable to both natural (hurricanes/tropical storm) and technological (hazardous material incidents) hazards. Hurricane/tropical storms produce the greatest monetary damage; however, the recurrence interval is 7.9 years, making it a relatively infrequent event. Coastal hazards (ocean surf and erosion) are more frequent and contributed 46% of the losses for the county. Wildfires, thunderstorms, lightning, hail, and hazardous material incidents are some of the prominent hazards that regularly affect the county, based on past occurrences.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Charleston County, most of the census tracts exhibit moderate levels of social vulnerability. Census tracts in North Charleston and in Edisto Island have the highest SoVI scores, or elevated levels of social vulnerability. Figure 1 provides maps of the Charleston County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

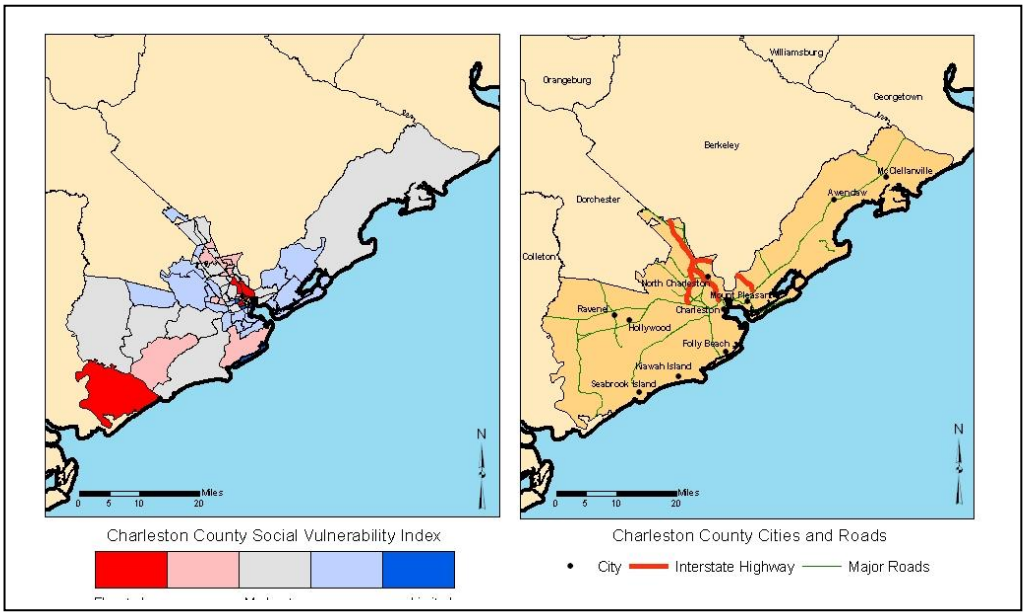


FIGURE 1. The Social Vulnerability for Charleston County, SC by US Census tracts.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.
Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.
Hazard – the potential threat to humans as well as the impact of an event on society and the environment.
Recurrence – a calculated number that examines the expected time interval between events based on the historic record.
Risk – the likelihood or probability of occurrence of a hazard or adverse event.
Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

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http://webra.cas.sc.edu/hvri

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Charleston County are hazardous material accidents, severe thunderstorms and wind, hail, lightning, and wildfires. Winter weather has the lowest recurrence intervals. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Charleston County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	20	158	7.9	12.66
Ocean & Lake Surf[b]	13	16	1.23	81.25
Waterspout	17	16	0.94	106.25**
Dam Failure	-	-	-	-
Drought	20	59	2.95	33.90
Flood	77	59	0.77	130.51**
Fog	0	12	*	*
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	34	310	9.12	10.97
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	2685	22	<0.50	12,204.55**
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	108,881	10	<0.50	108,8810.00**
Severe Thunderstorm Events				
Funnel Cloud	6	16	2.67	37.50
Hail	175	59	<0.50	296.61**
Heavy Precipitation	1	15	15.00	6.67
Lightning	17	16	0.94	106.25**
Thunderstorm & Wind	255	59	<0.50	432.20**
Tornado	38	59	1.55	64.41
Temperature Extremes	10	16	1.60	62.50
Wildfire	2,043	21	<0.50	9,728.57**
Winter Weather (Snow & Ice)	4	59	14.75	6.78

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Charleston County has a higher probability of loss-producing coastal, hurricane/tropical storm, drought, flooding, heat, lightning, thunderstorm, wind, and tornado events. This comparison between the county and state in Figure 2 (page 3) shows hazards that exceeded the state mean in red type. Winter weather is well below the state mean indicating that this hazard has historically produced fewer losses for the county when compared to the state as a whole.

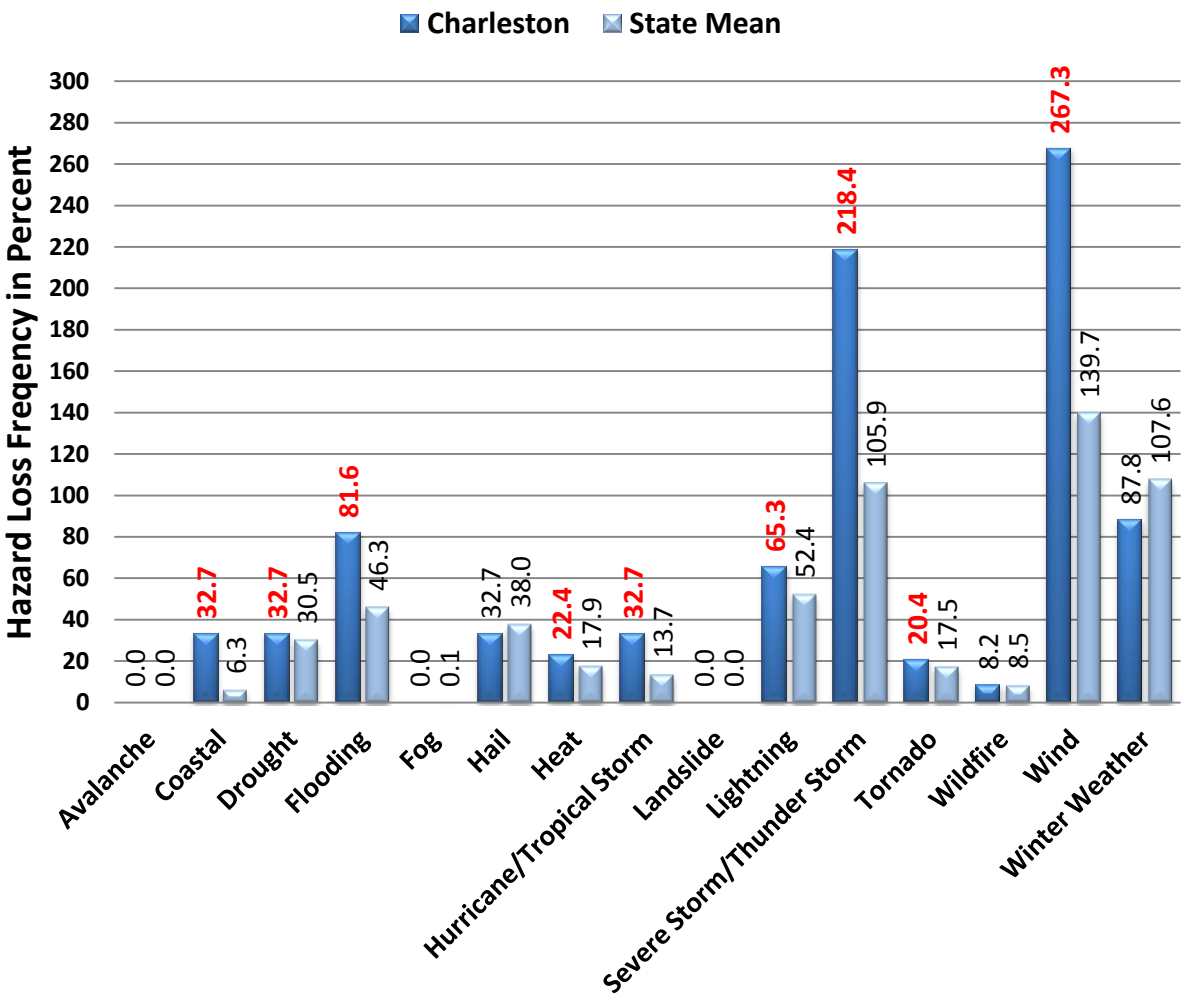


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Charleston County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the cumulative amount of damage from 1960 to 2008 based on twelve hazard types is computed from the Hazards and Vulnerability Research Institute's SHELDUS database (available at http://www.sheldus.org). The historic losses in Charleston County exceed $1.9 billion, and are largely due to hurricanes and tropical storms, followed by coastal. Hurricane/tropical storm represented 50% of the damage in Charleston County, while coastal represents another 46%. While significant for the county, these cumulative losses represent 21% of the state's total overall, but 18% of the state's total damages related to hurricane/tropical storms, and 84% of the state's losses due to coastal hazards.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$872,926,747	84.62%
Drought	$14,201,478	2.28%
Flooding	$8,914,096	5.99%
Hail	$1,820,459	1.83%
Heat	$11,286,643	2.26%
Hurricane/ Tropical Storm	$964,098,174	18.20%
Lightning	$2,353,700	4.65%
Severe Storm/ Thunder Storm	$3,071,684	1.51%
Tornado	$5,720,430	2.51%
Wildfire	$334,042	2.18%
Wind	$14,844,294	10.58%
Winter Weather	$14,120,915	1.63%
Charleston - Total	**$1,913,692,663**	**20.80%**

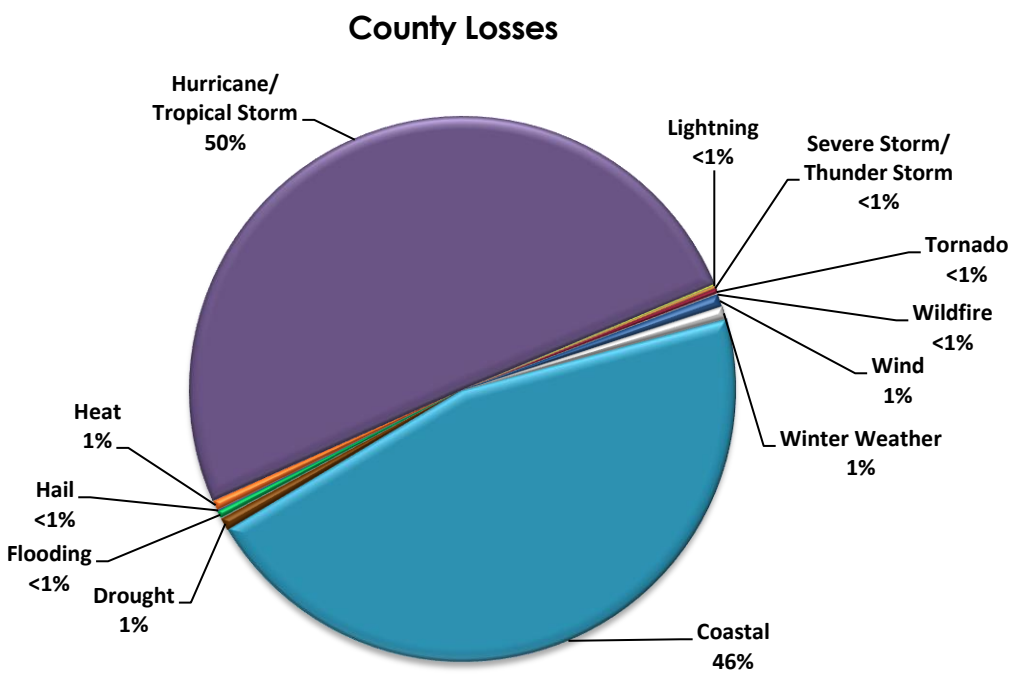
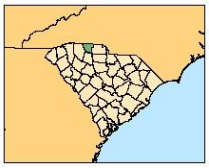


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Charleston County, SC.

CHEROKEE COUNTY, SC



I. Summary

Cherokee County is vulnerable to both natural (hurricanes/tropical storm) and technological (hazardous material incidents) hazards. Winter weather produces the greatest monetary damage; and the recurrence interval is 1.2 years, making it a frequent loss-producing hazard. Wildfires, thunderstorms, hail, and hazardous material incidents are some of the prominent hazards that regularly affect the county, based on past occurrences.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Cherokee County, most of the census tracts exhibit moderate levels of social vulnerability. The exception is the census tract near Gaffney, which shows an elevated level of social vulnerability based on the high SoVI score. Figure 1 provides maps of the Cherokee County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

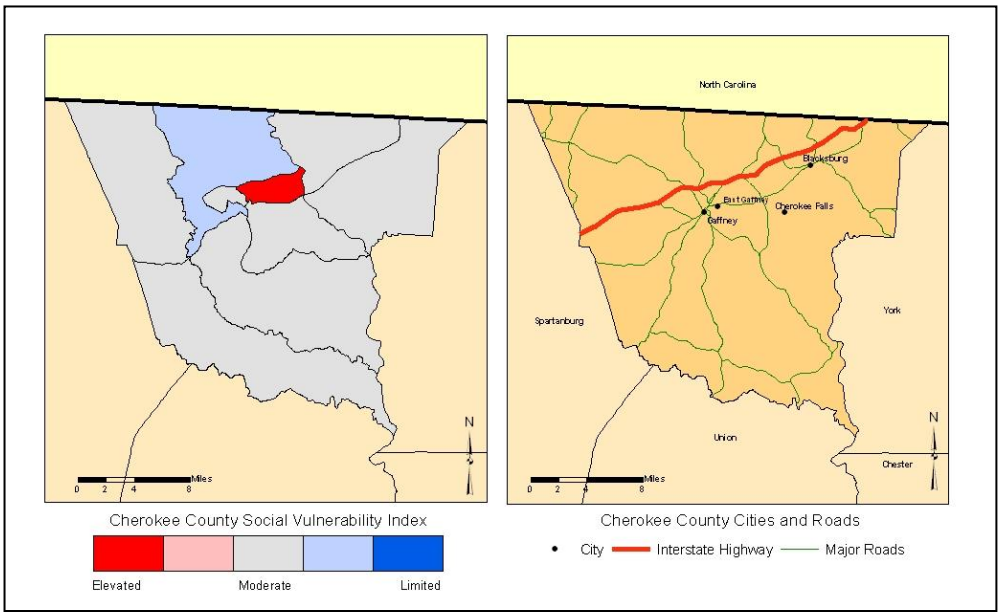


FIGURE 1. The Social Vulnerability for Cherokee County, SC by US Census tracts and a general reference map of Cherokee County.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.
Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.
Hazard – the potential threat to humans as well as the impact of an event on society and the environment.
Recurrence – a calculated number that examines the expected time interval between events based on the historic record.
Risk – the likelihood or probability of occurrence of a hazard or adverse event.
Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Cherokee County are hazardous material accidents, severe thunderstorms and wind, hail, and wildfires. Hurricane/tropical storms are hazards with the lowest recurrence intervals. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Cherokee County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	4	158	39.50	2.53
Ocean & Lake Surf[b]	1	16	16.00	6.25
Waterspout	0	16	*	*
Dam Failure		-	-	-
Drought	33	59	1.79	55.93
Flood	17	59	3.47	28.81
Fog	4	12	3.00	33.33
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	0	310	*	*
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance		-	-	*
Hazardous Materials (Hazmat)	155	22	<0.50	704.55**
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	13,038	10	<0.50	130,380.00**
Severe Thunderstorm Events				
Funnel Cloud	2	16	8.00	12.50
Hail	80	59	0.74	135.59**
Heavy Precipitation	4	15	3.75	26.67
Lightning	13	16	1.23	81.25
Thunderstorm & Wind	156	59	<0.50	264.41**
Tornado	15	59	3.93	25.42
Temperature Extremes	3	16	5.33	18.75
Wildfire	1,139	21	<0.50	5,423.81**
Winter Weather (Snow & Ice)	50	59	1.18	84.75

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Cherokee County has a higher probability of loss-producing hail, lightning, thunderstorm, and winter weather events. It is slightly above the mean for drought and flooding. This comparison between the county and state in Figure 2 (page 3) shows hazards that exceeded the state mean in red type. Hurricanes/tropical storms, and wind, are below the state mean indicating that these hazards have historically produced fewer losses for the county when compared to the state as a whole.

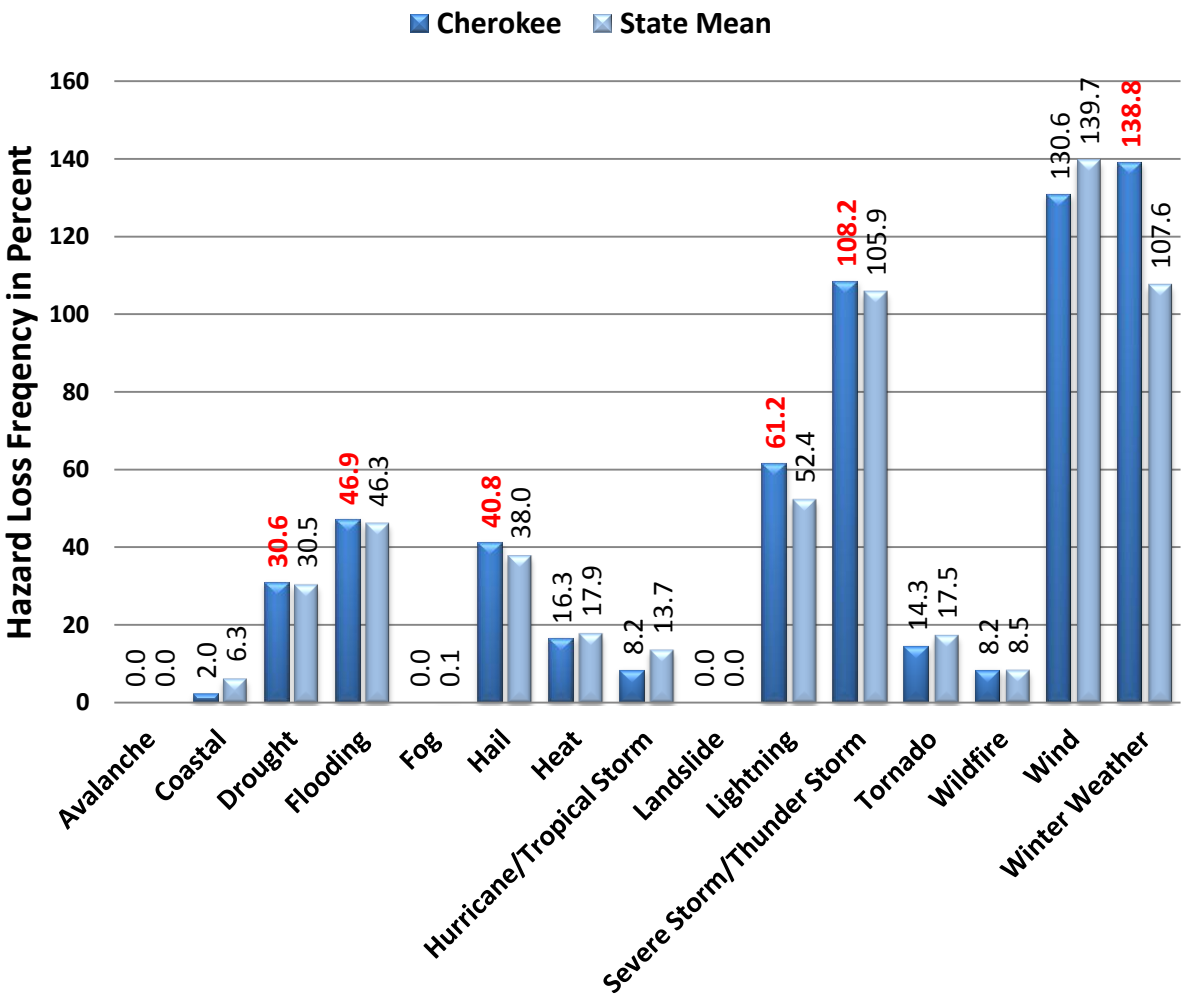


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Cherokee County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the cumulative amount of damage from 1960 to 2008 based on twelve hazard types is computed from the Hazards and Vulnerability Research Institute's SHELDUS database (available at http://www.sheldus.org). The historic losses in Cherokee County exceed $77 million, and are largely due to winter weather (49%), drought, and heat. While significant for the county, these cumulative losses represent less than one percent of the state's total overall. However, 4% of the state's total damages related to winter weather occurred in Cherokee County.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$6,476	0.01%
Drought	$14,058,478	2.26%
Flooding	$3,540,673	2.38%
Hail	$1,406,542	1.42%
Heat	$11,286,643	2.26%
Hurricane/ Tropical Storm	$1,205,201	0.02%
Lightning	$1,789,217	3.54%
Severe Storm/ Thunder Storm	$2,287,894	1.13%
Tornado	$2,049,880	0.90%
Wildfire	$334,042	2.18%
Wind	$1,283,072	0.91%
Winter Weather	$38,390,648	4.43%
Cherokee - Total	**$77,638,767**	**0.84%**

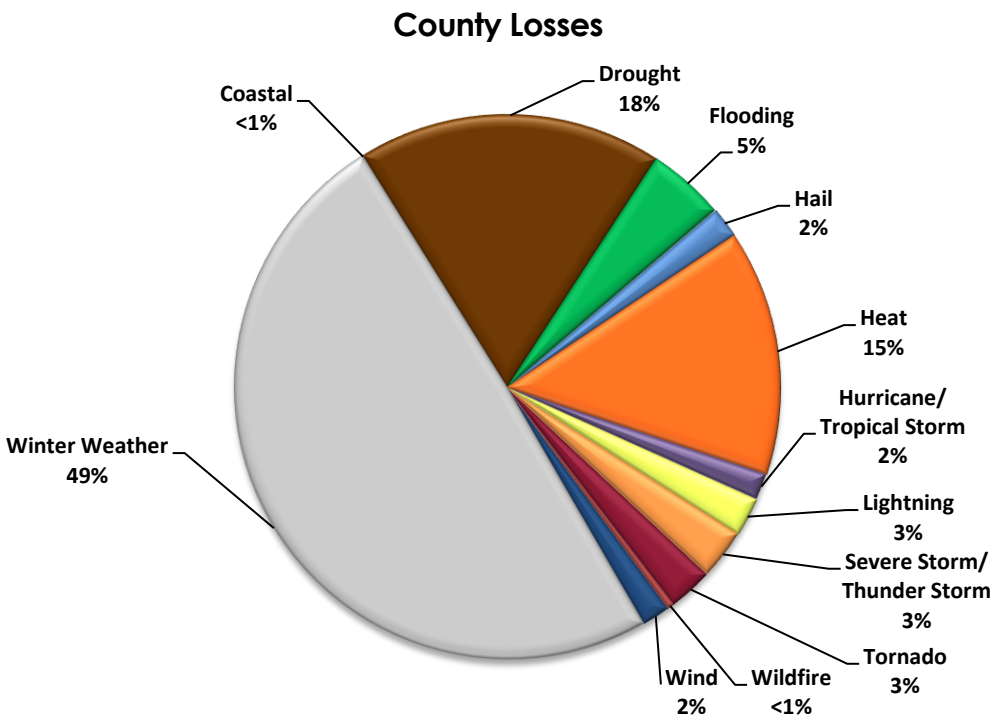
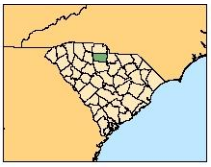


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Cherokee County, SC.

CHESTER COUNTY, SC



I. Summary

Chester County is vulnerable to both natural (hurricanes/tropical storm) and technological (hazardous material incidents) hazards. Winter weather produces the greatest monetary damage; however, the recurrence interval is 1.5 years, making it a frequent loss-causing hazard. Wildfires, thunderstorms, hail, and hazardous material incidents are some of the prominent hazards within the county.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Chester County, most of the census tracts exhibit moderate levels of social vulnerability. Moderately limited levels of social vulnerability are found in the northeastern corner of the county. Figure 1 provides a map of the Chester County US Census Tracts and their associated social vulnerability.

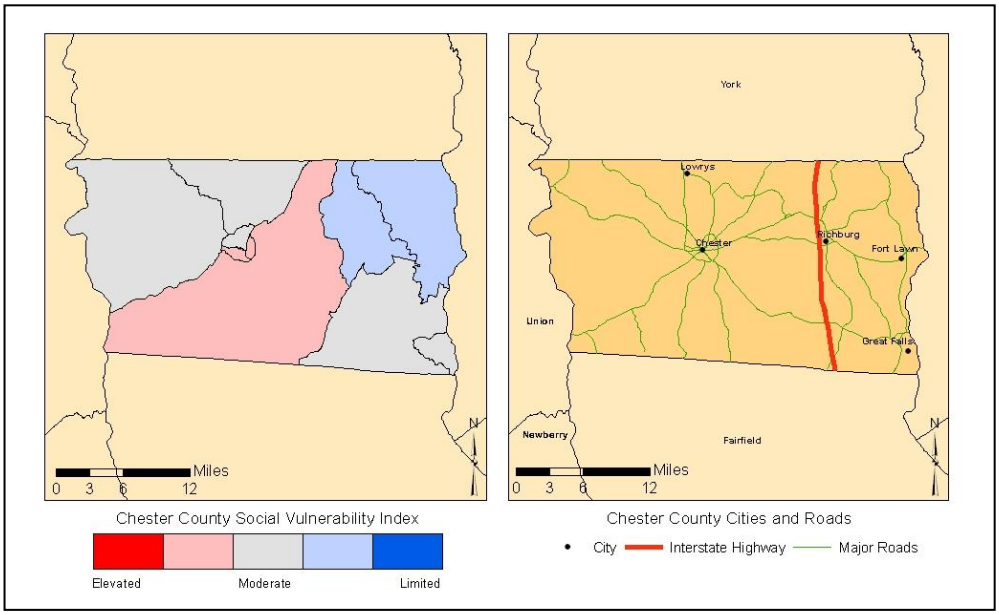


FIGURE 1. The Social Vulnerability for Chester County, SC by US Census tracts.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.

Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.

Hazard – the potential threat to humans as well as the impact of an event on society and the environment.

Recurrence – a calculated number that examines the expected time interval between events based on the historic record.

Risk – the likelihood or probability of occurrence of a hazard or adverse event.

Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Chester County are hazardous material accidents, severe thunderstorms and wind, hail, and wildfires. Flooding, ocean & lake surf, and winter weather are hazards with the lowest recurrence intervals. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Chester County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	6	158	26.33	3.80
Ocean & Lake Surf[b]	1	16	16.00	6.25
Waterspout	0	16	*	*
Dam Failure	-	-	-	-
Drought	51	59	1.16	86.44
Flood	18	59	3.28	30.51
Fog	3	12	4.00	25.00
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	7	310	44.29	2.26
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	102	22	0.22	463.64**
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	6,426	10	<0.50	64,260.00**
Severe Thunderstorm Events				
Funnel Cloud	1	16	16.00	6.25
Hail	60	59	0.98	101.69**
Heavy Precipitation	1	15	15.00	6.67
Lightning	0	16	*	*
Thunderstorm & Wind	112	59	0.53	189.83**
Tornado	12	59	4.92	20.34
Temperature Extremes	10	16	1.60	62.50
Wildfire	891	21	<0.50	4,242.86**
Winter Weather (Snow & Ice)	40	59	1.48	67.80

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Chester County has a higher probability of loss-producing wildfire and winter weather events and near the state average for drought. This comparison between the county and state in Figure 2 (page 3) shows hazards that exceeded the state mean in red type. Thunderstorms, wind, hail, and flooding are well below the state mean indicating that these hazards have historically produced fewer losses for the county when compared to the state as a whole.

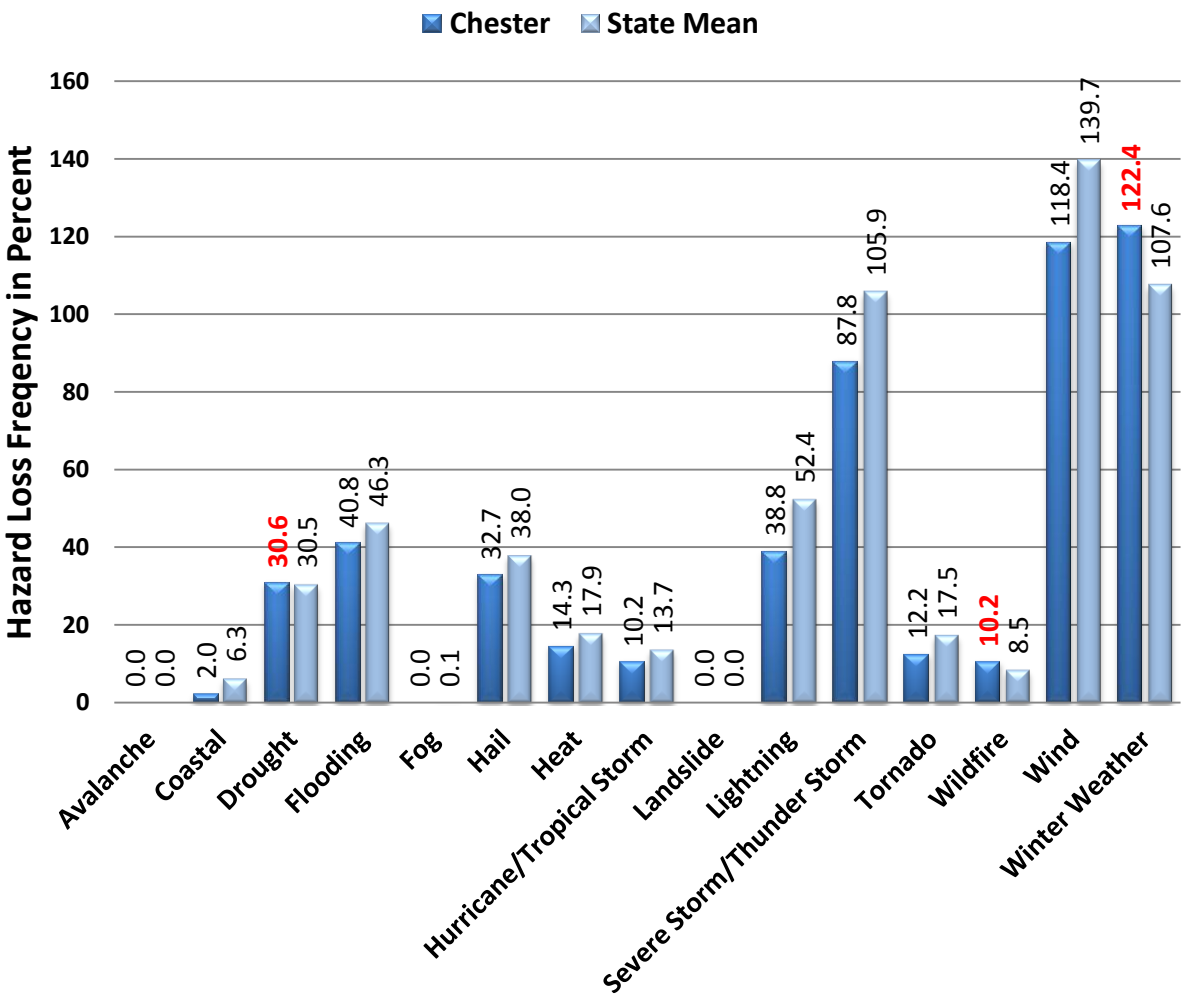


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Chester County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the cumulative amount of damage from 1960 to 2008 based on twelve hazard types is computed from the Hazards and Vulnerability Research Institute's SHELDUS database (available at http://www.sheldus.org). The historic losses in Chester County exceed $76 million, and are largely due to winter weather, followed by hurricanes and tropical storms. While significant for the county, these cumulative losses represent less than one percent of the state's total overall.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$6,476	0.01%
Drought	$14,058,478	2.26%
Flooding	$546,214	0.37%
Hail	$302,202	0.30%
Heat	$11,286,643	2.26%
Hurricane/ Tropical Storm	$17,668,903	0.33%
Lightning	$241,934	0.48%
Severe Storm/ Thunder Storm	$953,836	0.47%
Tornado	$2,072,722	0.91%
Wildfire	$347,075	2.26%
Wind	$762,046	0.54%
Winter Weather	$28,595,769	3.30%
Chester - Total	**$76,842,300**	**0.84%**

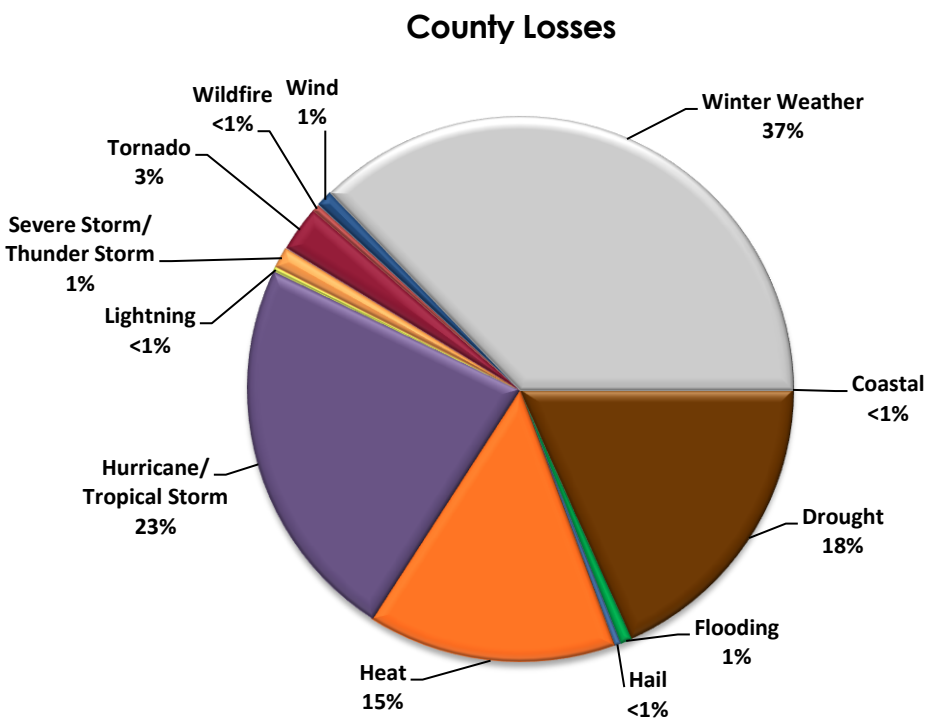
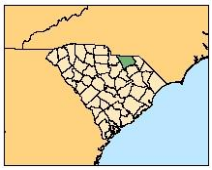


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Chester County, SC.

CHESTERFIELD COUNTY, SC



I. Summary

Chesterfield County is vulnerable to both natural (hurricanes/tropical storm) and technological (hazardous material incidents) hazards. Hurricane/tropical storms produce the greatest monetary damage to date; however, the recurrence interval is 13.2 years, making it a relatively rare loss-causing hazard. Damages are more likely to occur from the more frequent hazards—winter weather and tornadoes. Wildfires, thunderstorms, and hazardous material incidents are some of the prominent hazards that regularly affect the county, based on past occurrences.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Chesterfield County, most of the census tracts exhibit moderately elevated levels of social vulnerability. Figure 1 provides maps of the Chesterfield County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

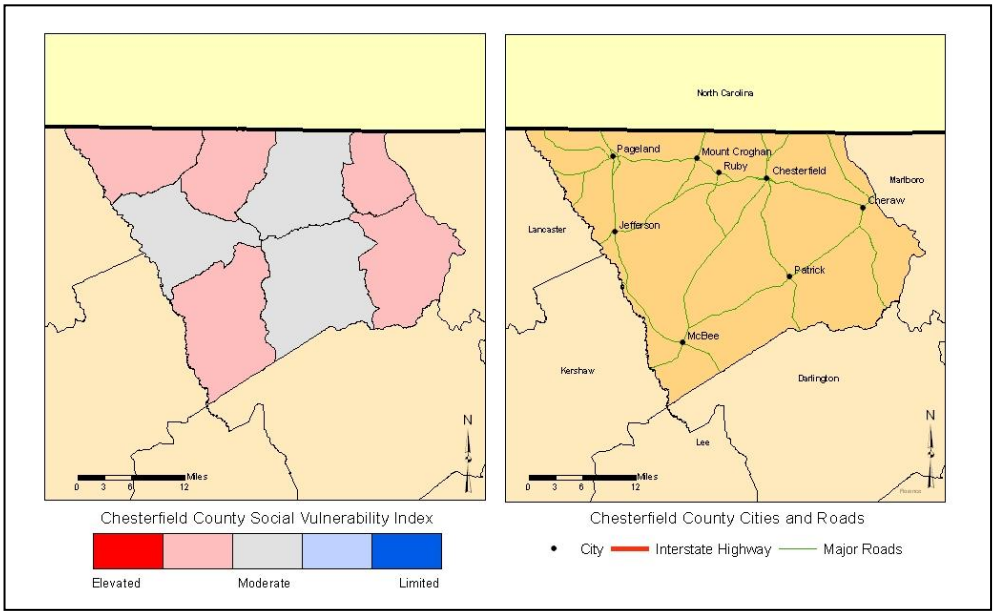


FIGURE 1. The Social Vulnerability for Chesterfield County, SC by US Census tracts and a general reference map of Chesterfield County.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.

Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.

Hazard – the potential threat to humans as well as the impact of an event on society and the environment.

Recurrence – a calculated number that examines the expected time interval between events based on the historic record.

Risk – the likelihood or probability of occurrence of a hazard or adverse event.

Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Chesterfield County are hazardous material accidents, severe thunderstorms and wind, and wildfires. Earthquakes and droughts are hazards with the lowest recurrence intervals. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Chesterfield County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	12	158	13.17	7.59
Ocean & Lake Surf[b]	1	16	16.00	6.25
Waterspout	0	16	*	*
Dam Failure	-	-	-	-
Drought	1	59	59.00	1.69
Flood	11	59	5.36	18.64
Fog	0	12	*	*
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	2	310	15.00	0.65
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	47	22	<0.50	213.64**
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	6,528	10	<0.50	65,280.00**
Severe Thunderstorm Events				
Funnel Cloud	0	16	*	*
Hail	54	59	1.09	91.53
Heavy Precipitation	0	15	*	*
Lightning	3	16	5.33	18.75
Thunderstorm & Wind	98	59	0.60	166.10**
Tornado	22	59	2.68	37.29
Temperature Extremes	0	16	*	*
Wildfire	2,668	21	<0.50	12,704.76**
Winter Weather (Snow & Ice)	14	59	4.21	23.73

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Chesterfield County has a higher probability of loss-producing winter weather, and wildfire events. The county is around the state average for heat and hurricanes/tropical storms. This comparison between the county and state in Figure 2 (page 3) shows hazards that exceeded the state mean in red type. Thunderstorms, wind, lightning, and flooding are well below the state mean indicating that these hazards have historically produced fewer losses for the county when compared to the state as a whole.

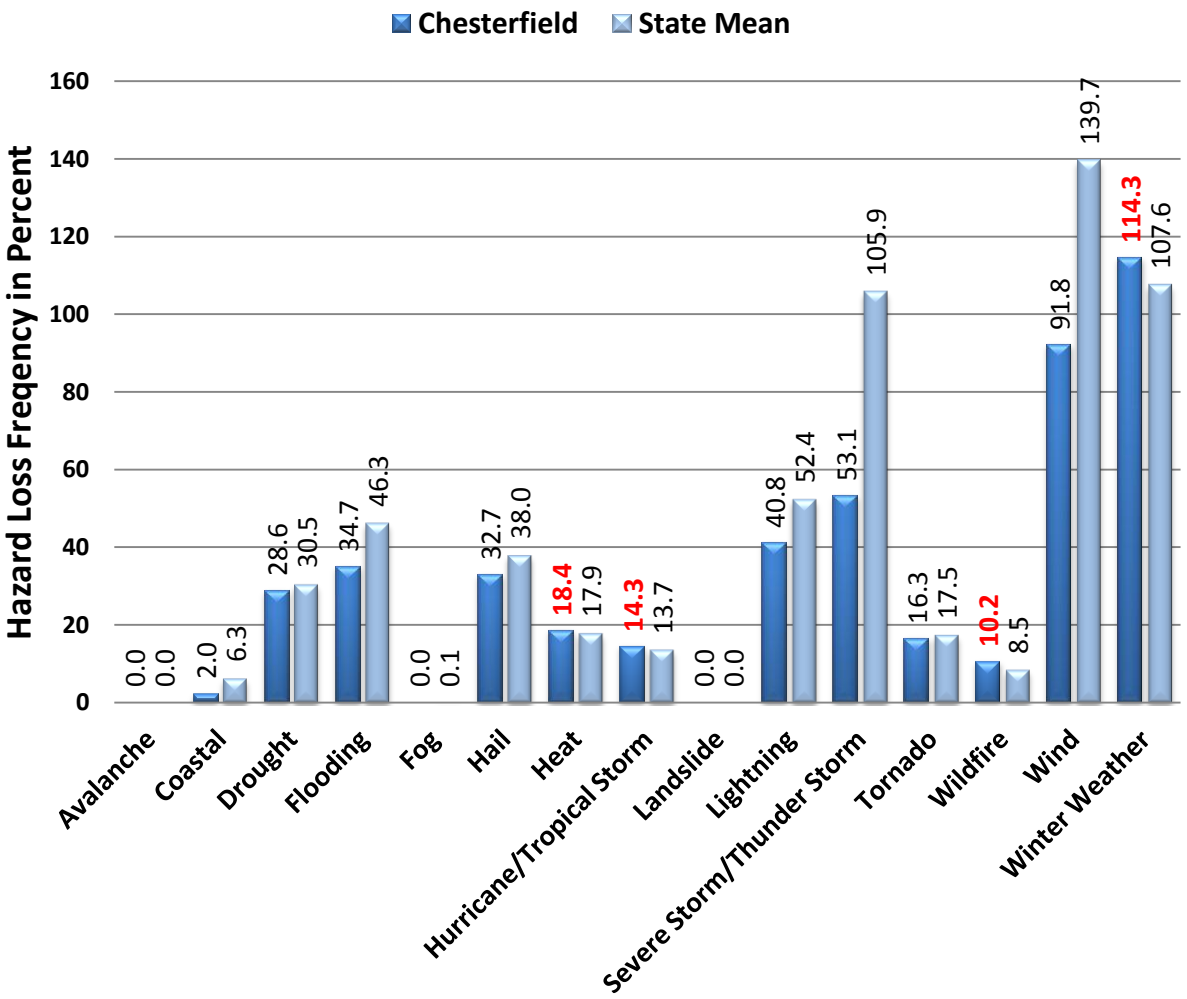


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Chesterfield County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the cumulative amount of damage from 1960 to 2008 based on twelve hazard types is computed from the Hazards and Vulnerability Research Institute's SHELDUS database (available at http://www.sheldus.org). The historic losses in Chesterfield County exceed $85 million, and are largely due to multiple hazards: drought, tornadoes, winter weather, and hurricanes/tropical storms, each contributing roughly 20% to the total. While significant for the county, these cumulative losses represent less than one percent of the state's total overall. However. Chesterfield County contains 7.8% of the state's losses from tornadoes.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$6,476	0.01%
Drought	$14,055,942	2.26%
Flooding	$382,597	0.26%
Hail	$364,066	0.37%
Heat	$11,286,643	2.26%
Hurricane/ Tropical Storm	$18,049,298	0.34%
Lightning	$258,767	0.51%
Severe Storm/ Thunder Storm	$1,583,648	0.78%
Tornado	$17,846,333	7.84%
Wildfire	$347,075	2.26%
Wind	$6,783,780	4.84%
Winter Weather	$14,524,136	1.68%
Chesterfield - Total	**$85,488,762**	**0.93%**

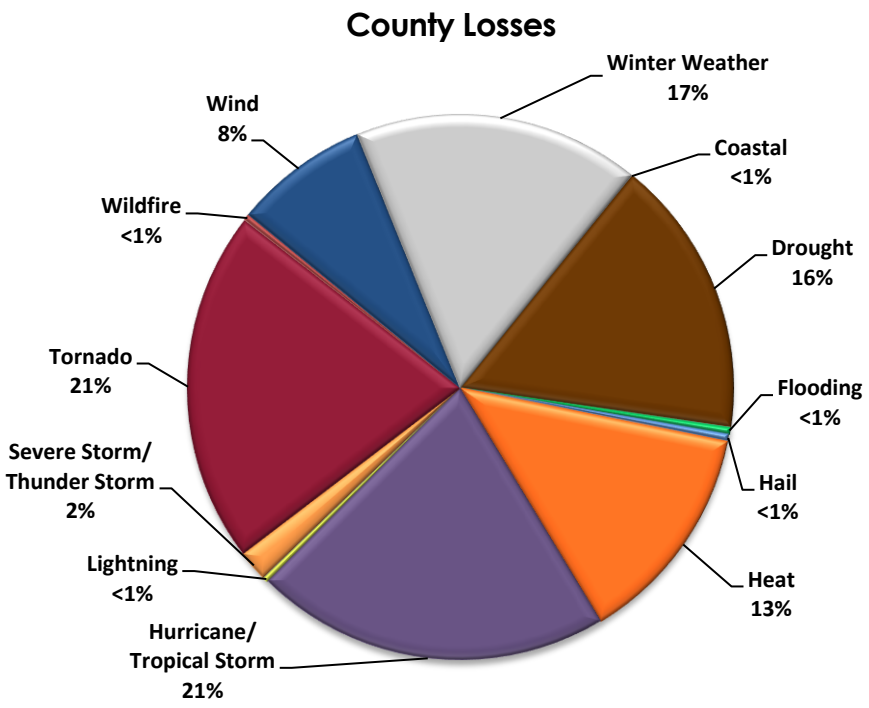
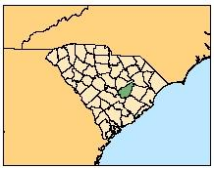


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Chesterfield County, SC.

CLARENDON COUNTY, SC



I. Summary

Clarendon County is vulnerable to both natural (hurricanes/tropical storms) and technological (hazardous material incidents) hazards. Hurricanes/tropical storms produce the highest monetary damage; however, the recurrence interval is 10.5 years, making it a relatively rare event. Wildfires, thunderstorms, hail, and hazardous material incidents are some of the prominent hazards that regularly affect the county, based on past occurrences.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Clarendon County, most of the census tracts exhibit moderately elevated levels of social vulnerability. Census tracts in the north central and eastern parts of the county have lower SoVI scores when compared to the remainder of the state. Figure 1 provides maps of the Clarendon County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

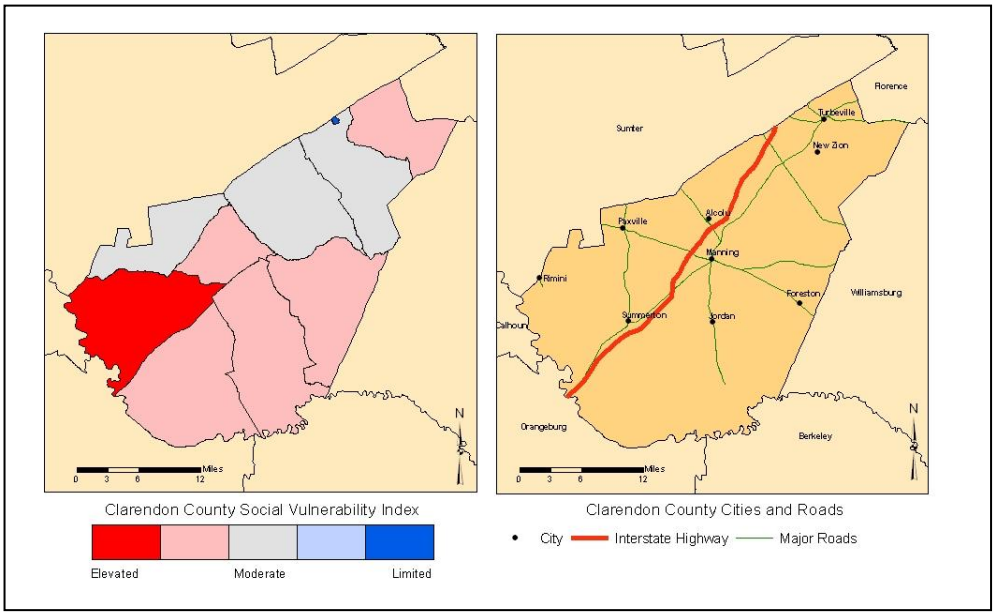


FIGURE 1. The Social Vulnerability for Clarendon County, SC by US Census tracts and a general reference map of Clarendon County.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.

Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.

Hazard – the potential threat to humans as well as the impact of an event on society and the environment.

Recurrence – a calculated number that examines the expected time interval between events based on the historic record.

Risk – the likelihood or probability of occurrence of a hazard or adverse event.

Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

South Carolina Emergency Management Division -
Mitigation Division
E-mail: mberry@emd.sc.gov
http://www.scemd.org

Hazard & Vulnerability Research Institute
University of South Carolina
E-mail: scutter.sc.edu
http://webra.cas.sc.edu/hvri

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Clarendon County are hazardous material accidents, severe thunderstorms and wind, and wildfires. Earthquake and drought hazards have the lowest recurrence intervals. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Clarendon County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	15	158	10.53	9.49
Ocean & Lake Surf[b]	1	16	16.00	6.25
Waterspout	0	16	*	*
Dam Failure	-	-	-	-
Drought	1	59	59.00	1.69
Flood	8	59	7.37	13.56
Fog	0	12	*	*
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	1	310	310.00	0.32
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	34	22	0.65	154.55*
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	6,153	10	<0.50	61,530.00*
Severe Thunderstorm Events				
Funnel Cloud	0	16	*	*
Hail	90	59	0.66	152.54*
Heavy Precipitation	0	15	*	*
Lightning	6	16	2.67	37.50
Thunderstorm & Wind	116	59	0.51	196.61*
Tornado	25	59	2.36	42.37
Temperature Extremes	1	16	16.00	6.25
Wildfire	3,519	21	<0.50	16,757.14*
Winter Weather (Snow & Ice)	5	59	11.80	8.47

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Clarendon County has a higher probability of loss-producing heat, lightning, and tornado events. This comparison between the county and state in Figure 2 (page 3) shows hazards that exceeded the state mean in red type. Thunderstorms, wind, and winter weather are well below the state mean indicating that these hazards have historically produced fewer losses for the county when compared to the state as a whole.

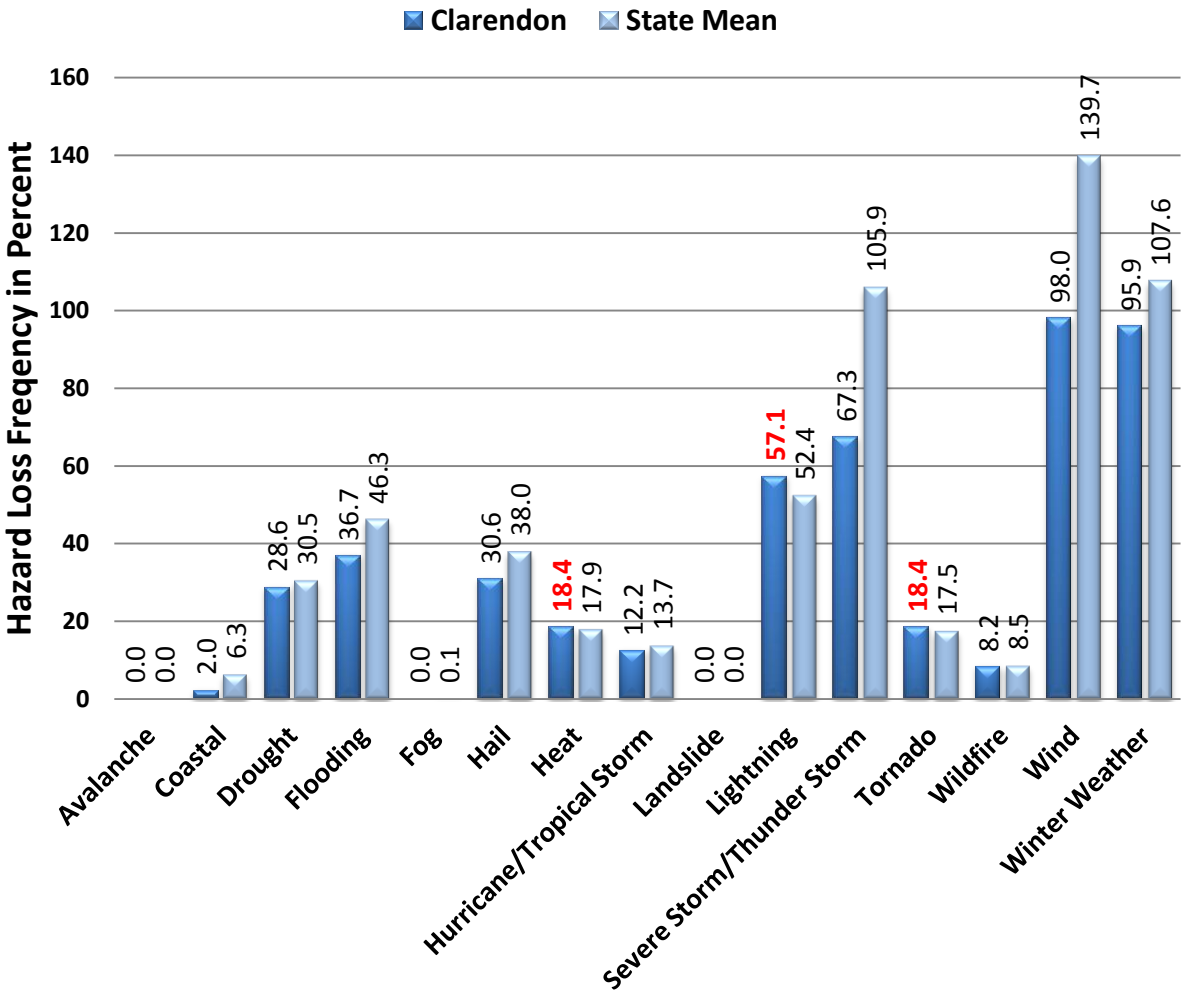


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Clarendon County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the total damage is calculated as the cumulative amount of damage from 1960 to 2008 based on twelve hazard types from the Hazards and Vulnerability Research Institute's SHELDUS database – available at (http://www.sheldus.org). The historic losses in Clarendon County exceed $219 million, and are largely due to hurricanes and tropical storms, followed by winter weather, heat, and drought. Hurricanes/tropical storms represent 80% of the total losses in Clarendon. While significant for the county, these cumulative losses represent 2.4% of the state's overall total, and 3.3% of the state's total damages related to hurricanes/tropical storms.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$6,476	0.01%
Drought	$14,055,942	2.26%
Flooding	$447,343	0.30%
Hail	$284,731	0.29%
Heat	$11,286,643	2.26%
Hurricane/ Tropical Storm	$174,314,866	3.29%
Lightning	$523,314	1.03%
Severe Storm/ Thunder Storm	$793,356	0.39%
Tornado	$1,575,208	0.69%
Wildfire	$334,042	2.18%
Wind	$769,500	0.55%
Winter Weather	$14,646,945	1.69%
Clarendon - Total	**$219,038,366**	**2.38%**

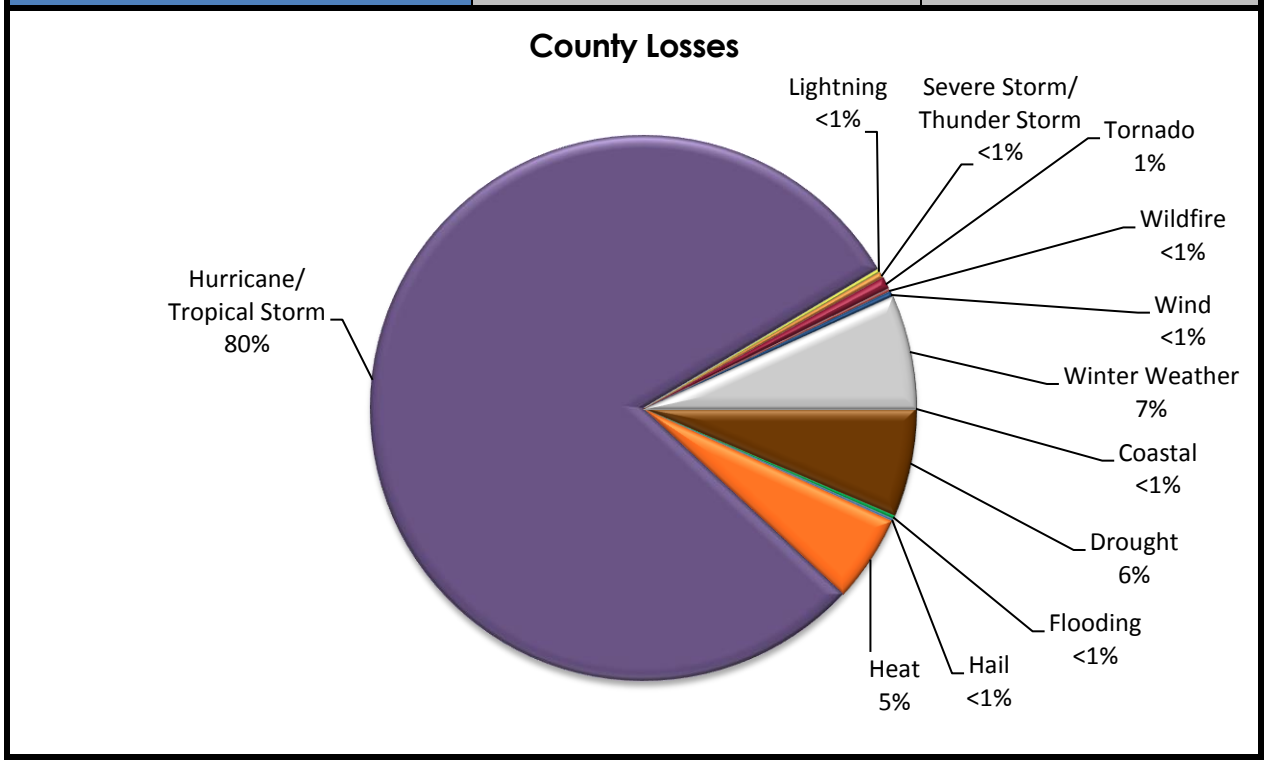
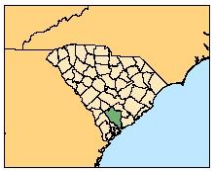


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Clarendon County, SC.

COLLETON COUNTY, SC



I. Summary

Colleton County is vulnerable to both natural (hurricanes/tropical storms) and technological (hazardous material incidents) hazards. Droughts, heat, hurricane/tropical storms, and winter weather produce the greatest monetary damages. Winter weather has a recurrence interval of 14.8 years, making it a relatively rare, but costly hazard. Wildfires, thunderstorms, and hazardous material incidents are some of the prominent hazards that regularly affect the county, based on past occurrences.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Colleton County, most of the census tracts exhibit moderate levels of social vulnerability. Census tracts in the northern part of the county and in Walterboro have the highest SoVI scores. Figure 1 provides maps of the Colleton County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

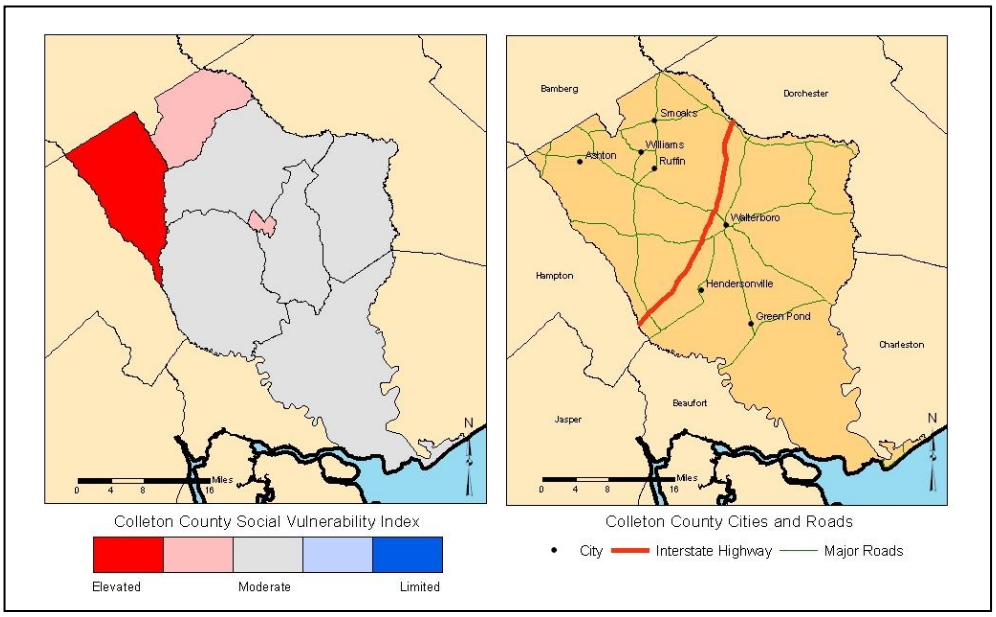


FIGURE 1. The Social Vulnerability for Colleton County, SC by US Census tracts and a general reference map of Colleton County.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.

Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.

Hazard – the potential threat to humans as well as the impact of an event on society and the environment.

Recurrence – a calculated number that examines the expected time interval between events based on the historic record.

Risk – the likelihood or probability of occurrence of a hazard or adverse event.

Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

South Carolina Emergency Management Division -
Mitigation Division
E-mail: mberry@emd.sc.gov
http://www.scemd.org

Hazard & Vulnerability Research Institute
University of South Carolina
E-mail: scutter.sc.edu
http://webra.cas.sc.edu/hvri

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Colleton County are hazardous material accidents, severe thunderstorms and wind, and wildfires. Earthquakes and winter weather are hazards with the lowest recurrence intervals. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Colleton County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	23	158	6.87	14.56
Ocean & Lake Surf[b]	10	16	1.60	62.50
Waterspout	1	16	16.00	6.25
Dam Failure	-	-	-	-
Drought	21	59	2.81	35.59
Flood	14	59	4.21	23.73
Fog	0	12	*	*
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	2	310	15.00	0.65
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	95	22	<0.50	431.82**
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	9,331	10	<0.50	93,310.00**
Severe Thunderstorm Events				
Funnel Cloud	2	16	8.00	12.50
Hail	89	59	0.66	150.85**
Heavy Precipitation	0	15	*	*
Lightning	2	16	8.00	12.50
Thunderstorm & Wind	246	59	<0.50	416.95*
Tornado	19	59	3.11	32.00
Temperature Extremes	8	16	2.00	50.00
Wildfire	4,390	21	<0.50	20,904.76**
Winter Weather (Snow & Ice)	4	59	14.75	6.78

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Colleton County has a higher probability of loss-producing coastal, flooding, thunderstorm, wind, drought, and heat events as well as hurricane/tropical storms. This comparison between the county and state can be seen in Figure 2 (page 3) with hazards that exceeded the state mean in red type. Winter weather is well below the state mean indicating that this hazard has historically produced fewer losses for the county when compared to the state as a whole.

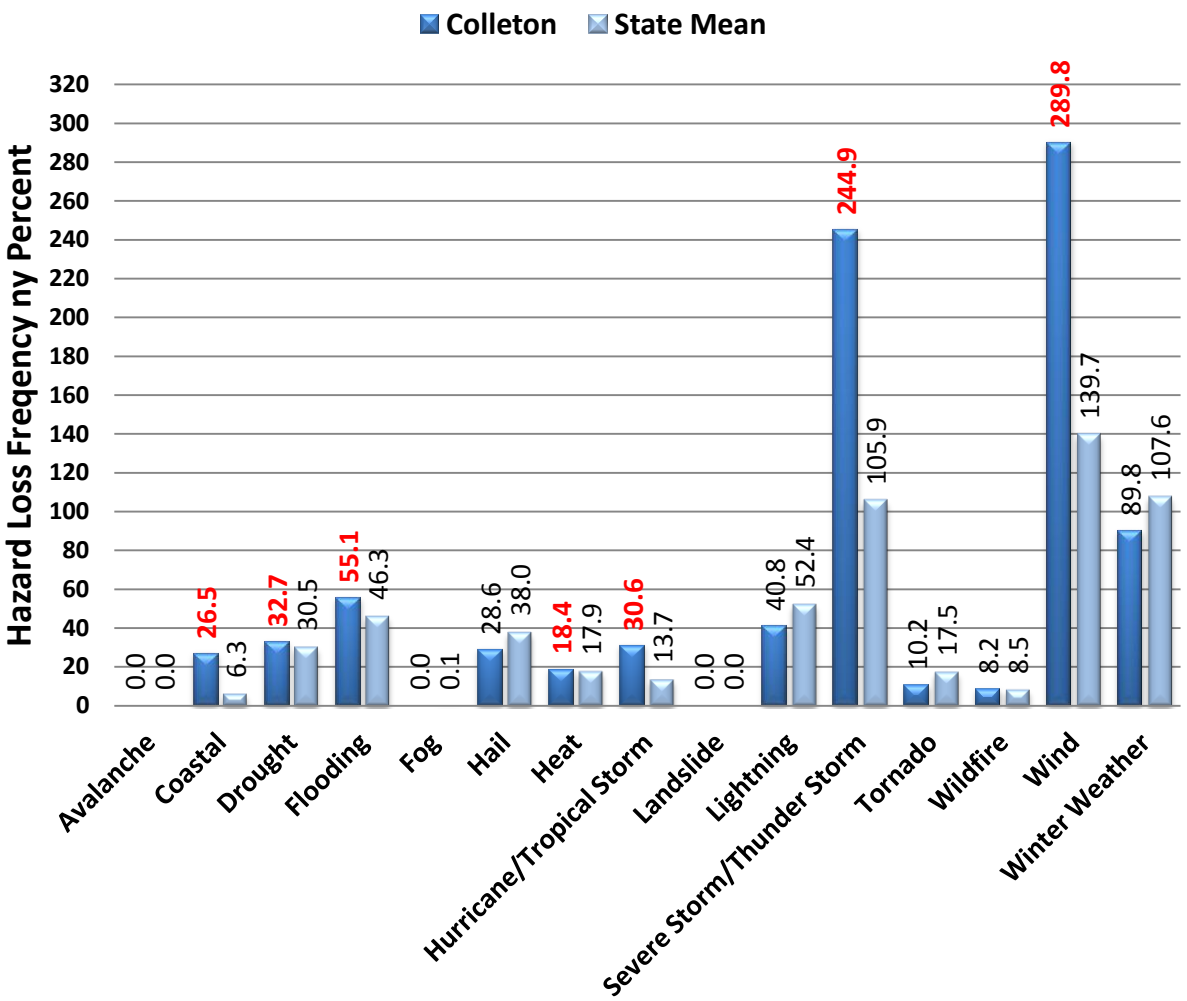


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Colleton County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the cumulative amount of damage from 1960 to 2008 based on twelve hazard types is computed from the Hazards and Vulnerability Research Institute's SHELDUS database (available at http://www.sheldus.org). The historic losses in Colleton County are near $70 million, and are largely due to hurricanes/tropical storms, heat, drought, flooding, and winter weather. While significant for the county, these cumulative losses represent less than one percent of the state's total overall, but 4.8 % of the state's total damages related to flooding.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$5,981,411	0.58%
Drought	$14,201,478	2.28%
Flooding	$7,095,462	4.77%
Hail	$278,191	0.28%
Heat	$11,286,643	2.26%
Hurricane/ Tropical Storm	$13,195,236	0.25%
Lightning	$1,120,681	2.22%
Severe Storm/ Thunder Storm	$1,740,220	0.86%
Tornado	$342,427	0.15%
Wildfire	$334,042	2.18%
Wind	$1,451,782	1.03%
Winter Weather	$12,824,274	1.48%
Colleton - Total	**$69,851,747**	**0.76%**

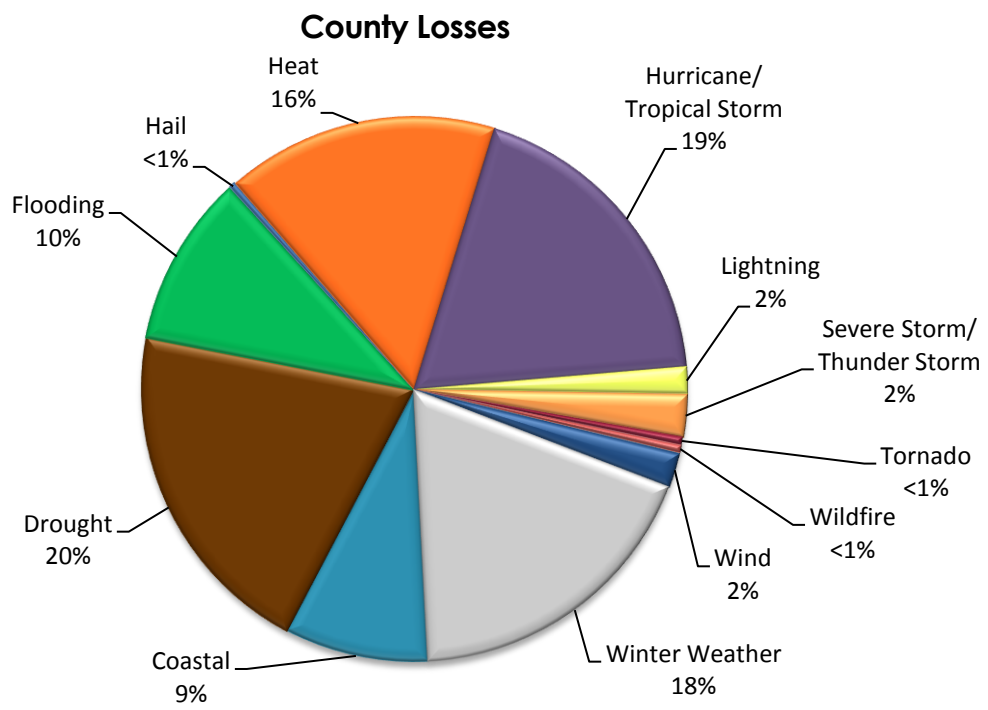
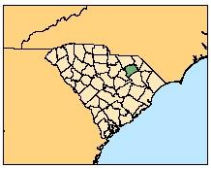


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Colleton County, SC.

DARLINGTON COUNTY, SC



I. Summary

Darlington County is vulnerable to both natural (hurricanes/tropical storm) and technological (hazardous material incidents) hazards. Hurricane/tropical storms produce the greatest monetary damage; however, the recurrence interval is 19.8 years, making it a relatively rare event. Wildfires, thunderstorms, hail, and hazardous material incidents are some of the prominent hazards that regularly affect the county, based on past occurrences.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Darlington County, most of the census tracts exhibit moderate levels of social vulnerability. The exceptions are Census tracts in Darlington (city) and in Hartsville, which have high SoVI scores and elevated levels of social vulnerability. Figure 1 provides maps of the Darlington County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

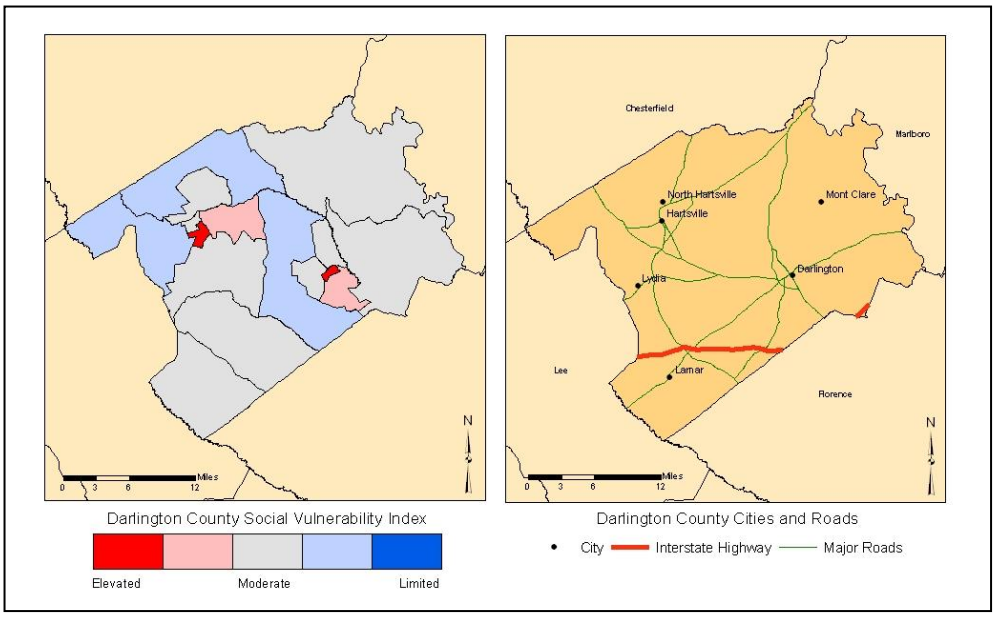


FIGURE 1. The Social Vulnerability for Darlington County, SC by US Census tracts and a general reference map of Darlington County.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.

Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.

Hazard – the potential threat to humans as well as the impact of an event on society and the environment.

Recurrence – a calculated number that examines the expected time interval between events based on the historic record.

Risk – the likelihood or probability of occurrence of a hazard or adverse event.

Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Darlington County are hazardous material accidents, severe thunderstorms and wind, hail, and wildfires. Hurricanes/tropical storms and ocean/lake surf are hazards with the lowest recurrence intervals. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Darlington County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	8	158	19.75	5.06
Ocean & Lake Surf[b]	1	16	16.00	6.25
Waterspout	0	16	*	*
Dam Failure	-	-	-	-
Drought	9	59	6.56	15.25
Flood	6	59	9.83	10.17
Fog	0	12	*	*
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	0	310	*	*
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	99	22	<0.50	450.00**
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	13,205	10	<0.50	132,050.00**
Severe Thunderstorm Events				
Funnel Cloud	1	16	16.00	6.25
Hail	78	59	0.76	132.20**
Heavy Precipitation	7	15	2.14	46.67
Lightning	5	16	3.20	31.25
Thunderstorm & Wind	135	59	<0.50	228.81**
Tornado	20	59	2.95	33.90
Temperature Extremes	0	16	*	*
Wildfire	2,400	21	<0.50	11,428.57**
Winter Weather (Snow & Ice)	12	59	4.92	20.34

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Darlington County has a higher probability of loss-producing hail, hurricane/tropical storm, tornado, and winter weather events, and is slightly above the state average for heat. This comparison between the county and state in Figure 2 (page 3) shows hazards that exceeded the state mean in red type. Thunderstorms, wind, and flooding are below the state mean indicating that these hazards have historically produced fewer losses for the county when compared to the state as a whole.

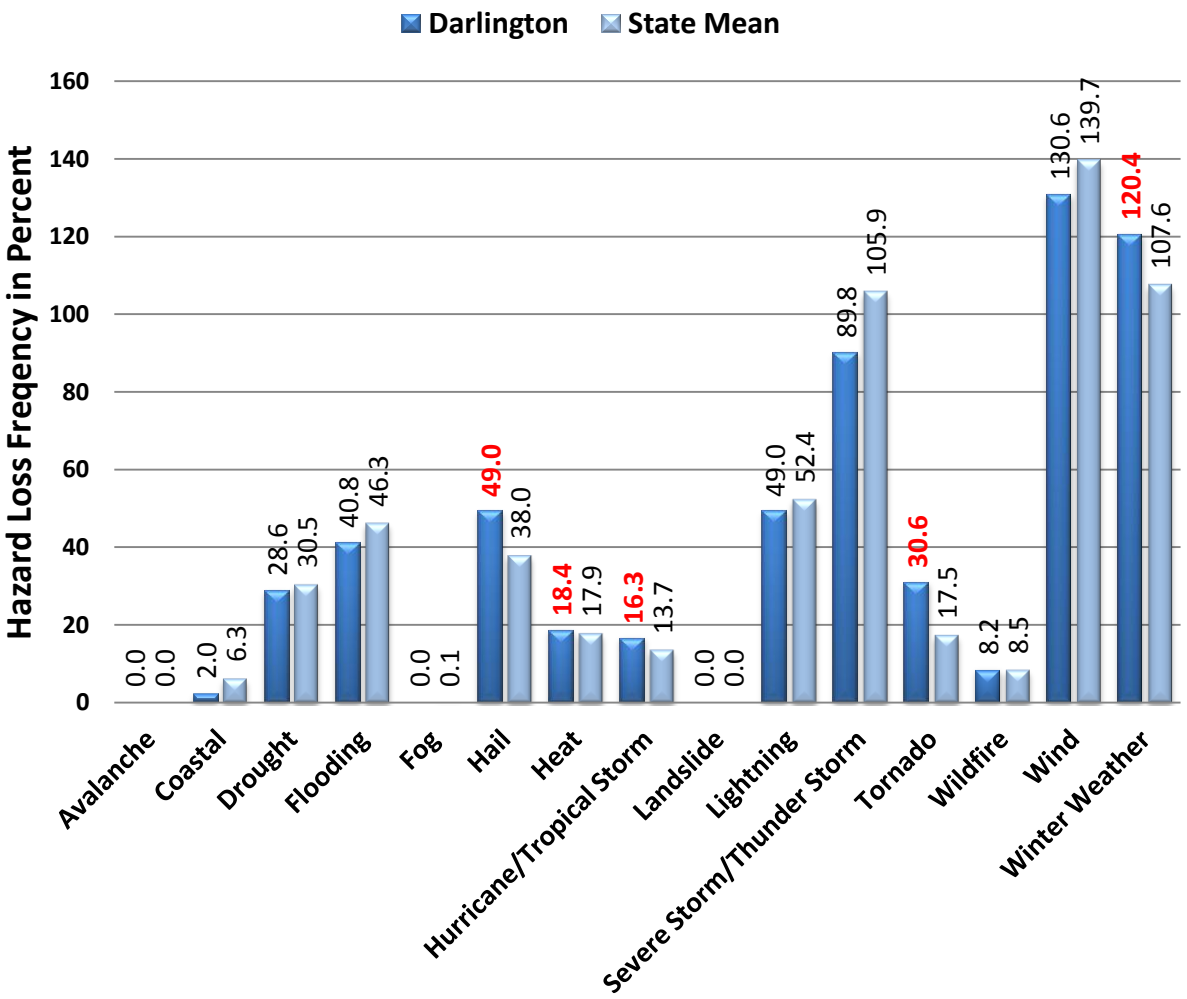


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Darlington County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the cumulative amount of damage from 1960 to 2008 based on twelve hazard types is computed from the Hazards and Vulnerability Research Institute's SHELDUS database (available at http://www.sheldus.org). The historic losses in Georgetown County exceed $150 million, and are largely due to hurricanes and tropical storms, followed by winter weather, and drought. Hurricane/tropical storm represented 64% of the damage in Darlington County. While significant for the county, these cumulative losses represent 1.6% of the state's total overall.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$6,476	0.01%
Drought	$14,055,942	2.26%
Flooding	$933,730	0.63%
Hail	$1,252,488	1.26%
Heat	$11,286,643	2.26%
Hurricane/ Tropical Storm	$96,101,543	1.81%
Lightning	$335,756	0.66%
Severe Storm/ Thunder Storm	$1,745,696	0.86%
Tornado	$3,102,877	1.36%
Wildfire	$334,042	2.18%
Wind	$1,881,684	1.34%
Winter Weather	$19,928,926	2.30%
Darlington - Total	**$150,965,804**	**1.64%**

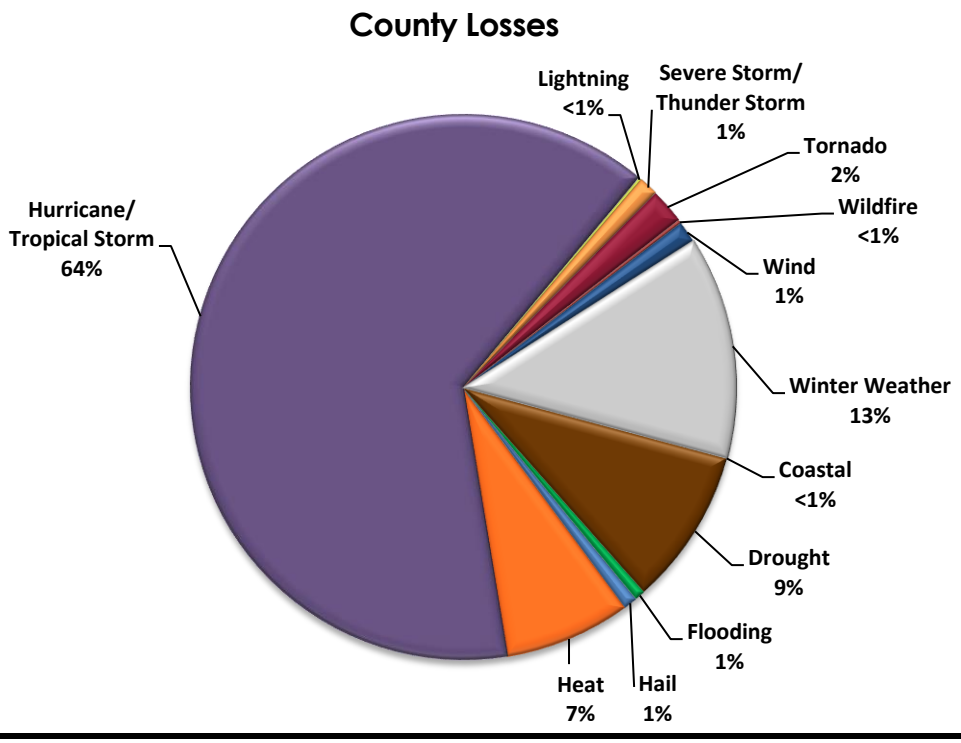
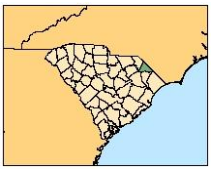


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Darlington County, SC.

DILLON COUNTY, SC



I. Summary

Dillon County is vulnerable to both natural (hurricanes/tropical storm) and technological (hazardous material incidents) hazards. Winter weather and hurricane/tropical storms produce the greatest monetary damage. However, the recurrence interval for hurricanes is 26.3, while for winter weather it is 5.4 years. Wildfires, thunderstorms, and hazardous material incidents are some of the prominent hazards that regularly affect the county, based on past occurrences.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Dillon County, most of the census tracts exhibit moderately elevated levels of social vulnerability. Two Census tracts with high SoVI scores, show elevated levels of social vulnerability. Figure 1 provides maps of the Dillon County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

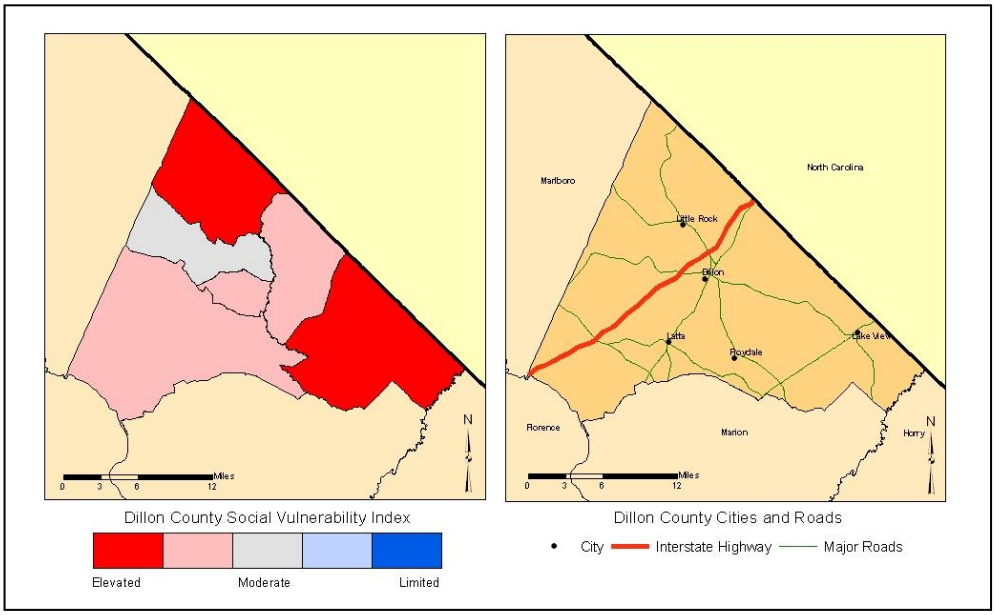


FIGURE 1. The Social Vulnerability for Dillon County, SC by US Census tracts and a general reference map of Dillon County.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.

Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.

Hazard – the potential threat to humans as well as the impact of an event on society and the environment.

Recurrence – a calculated number that examines the expected time interval between events based on the historic record.

Risk – the likelihood or probability of occurrence of a hazard or adverse event.

Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

South Carolina Emergency Management Division -
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E-mail: mberry@emd.sc.gov
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Hazard & Vulnerability Research Institute
University of South Carolina
E-mail: scutter.sc.edu
http://webra.cas.sc.edu/hvri

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Dillon County are hazardous material accidents, severe thunderstorms and wind, and wildfires. Hurricanes/tropical storms and drought are hazards with the lowest recurrence intervals. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Dillon County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	6	158	26.33	3.80
Ocean & Lake Surf[b]	1	16	16.00	6.25
Waterspout	0	16	*	*
Dam Failure	-	-	-	-
Drought	4	59	14.75	6.78
Flood	6	59	9.83	10.17
Fog	0	12	*	*
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	0	310	*	*
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	54	22	<0.50	245.45**
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	8,304	10	<0.50	83,040.00**
Severe Thunderstorm Events				
Funnel Cloud	0	16	*	*
Hail	53	59	1.11	89.83
Heavy Precipitation	1	15	15.00	6.67
Lightning	2	16	8.00	12.50
Thunderstorm & Wind	102	59	0.58	172.88**
Tornado	14	59	4.21	23.73
Temperature Extremes	0	16	*	*
Wildfire	1,410	21	<0.50	6,714.29**
Winter Weather (Snow & Ice)	11	59	5.36	18.64

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Dillon County has a higher probability of loss-producing winter weather, hurricane/tropical storm, and hail events. This comparison between the county and state in Figure 2 (page 3) shows hazards that exceeded the state mean in red type. Thunderstorms and wind are well below the state mean indicating that these hazards have historically produced fewer losses for the county when compared to the state as a whole.

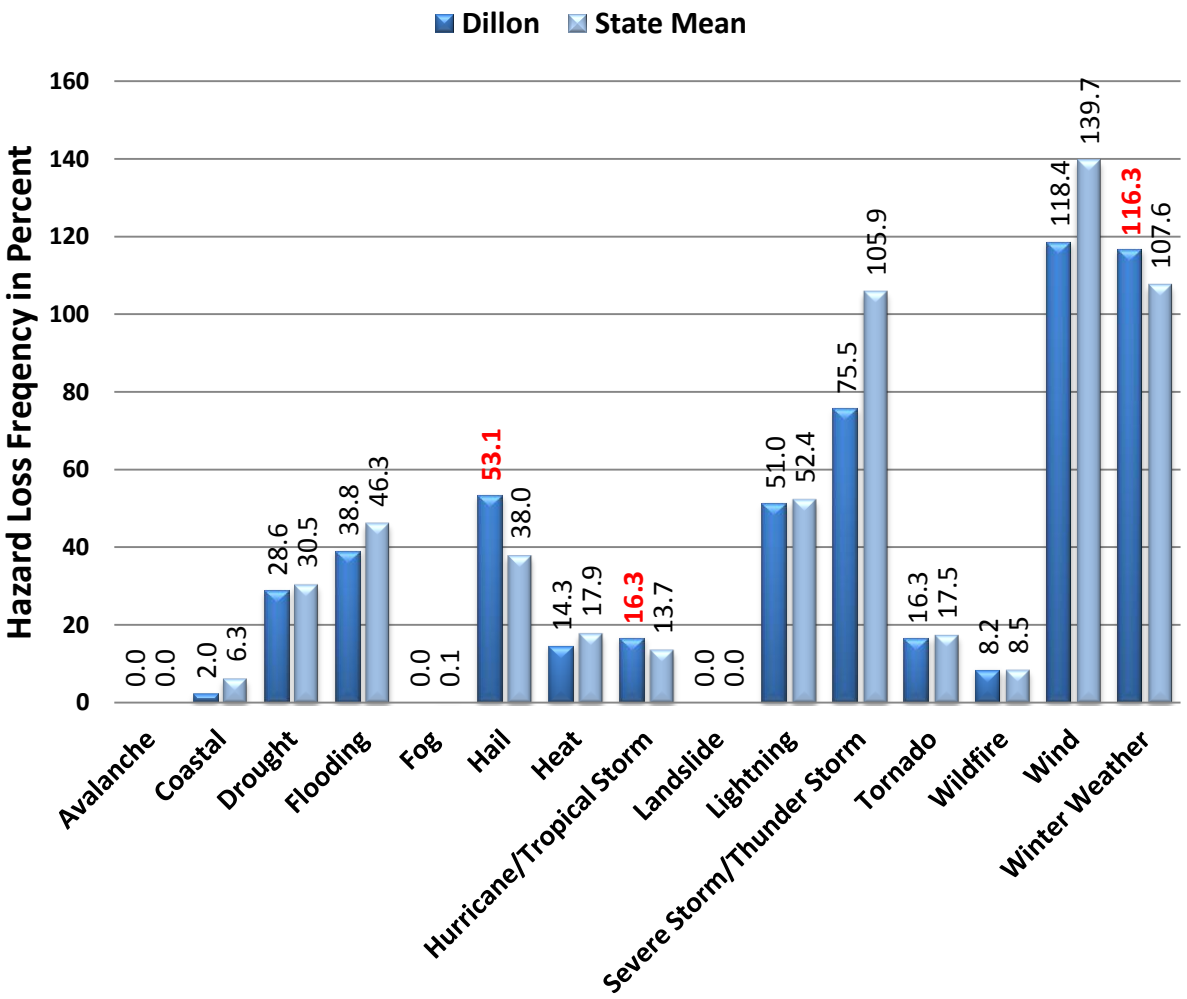


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Dillon County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the cumulative amount of damage from 1960 to 2008 based on twelve hazard types is computed from the Hazards and Vulnerability Research Institute's SHELDUS database (available at http://www.sheldus.org). The historic losses in Dillon County exceed $83 million, and are largely due to winter weather and hurricanes/ tropical storms. While significant for the county, these cumulative losses represent less than one percent of the state's total overall.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$6,476	0.01%
Drought	$14,055,942	2.26%
Flooding	$728,014	0.49%
Hail	$1,381,107	1.39%
Heat	$11,286,643	2.26%
Hurricane/ Tropical Storm	$18,101,543	0.34%
Lightning	$326,131	0.64%
Severe Storm/ Thunder Storm	$1,611,056	0.79%
Tornado	$6,051,802	2.66%
Wildfire	$334,042	2.18%
Wind	$10,261,259	7.31%
Winter Weather	$19,515,518	2.25%
Dillon - Total	**$83,659,533**	**0.91%**

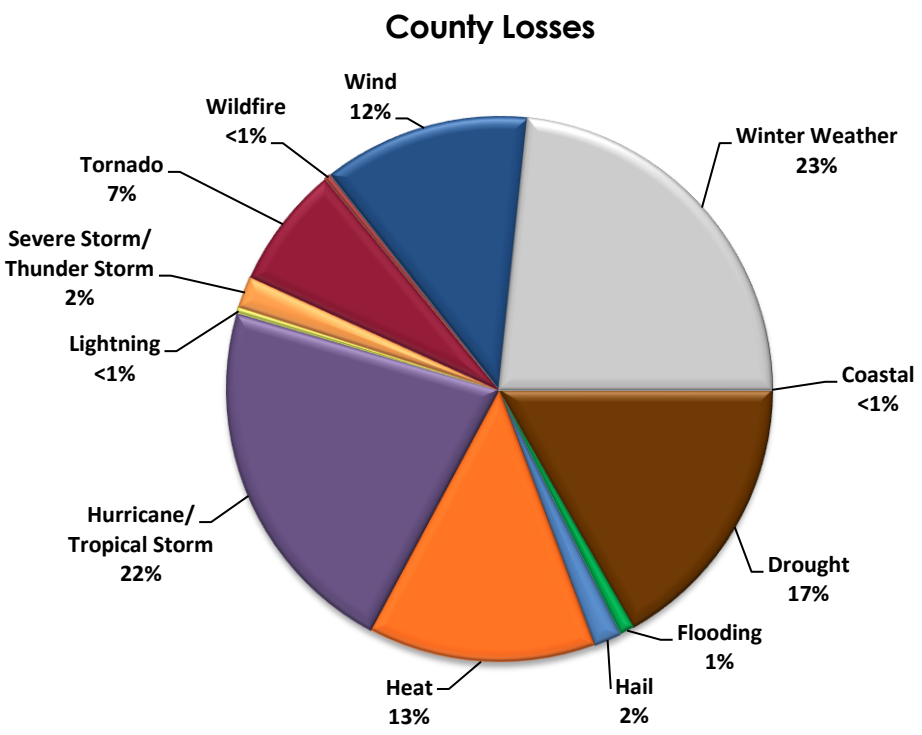
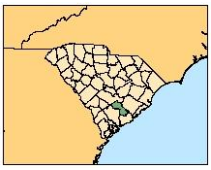


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Dillon County, SC.

DORCHESTER COUNTY, SC



I. Summary

Dorchester County is vulnerable to both natural (hurricanes/tropical storm) and technological (hazardous material incidents) hazards. Hurricane/tropical storms produce the greatest monetary damages; however, the recurrence interval is 11.3 years, making it a relatively rare event. Drought is the most frequent costly hazard with a recurrence interval of 2.8 years. Wildfires, thunderstorms, and hazardous material incidents are some of the prominent hazards that regularly affect the county based on past occurrences.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Dorchester County, most of the census tracts exhibit the moderate to limited levels of social vulnerability, with the exception of two tracts—one census tract in the north and the city of Summerville. Figure 1 provides maps of the Dorchester County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

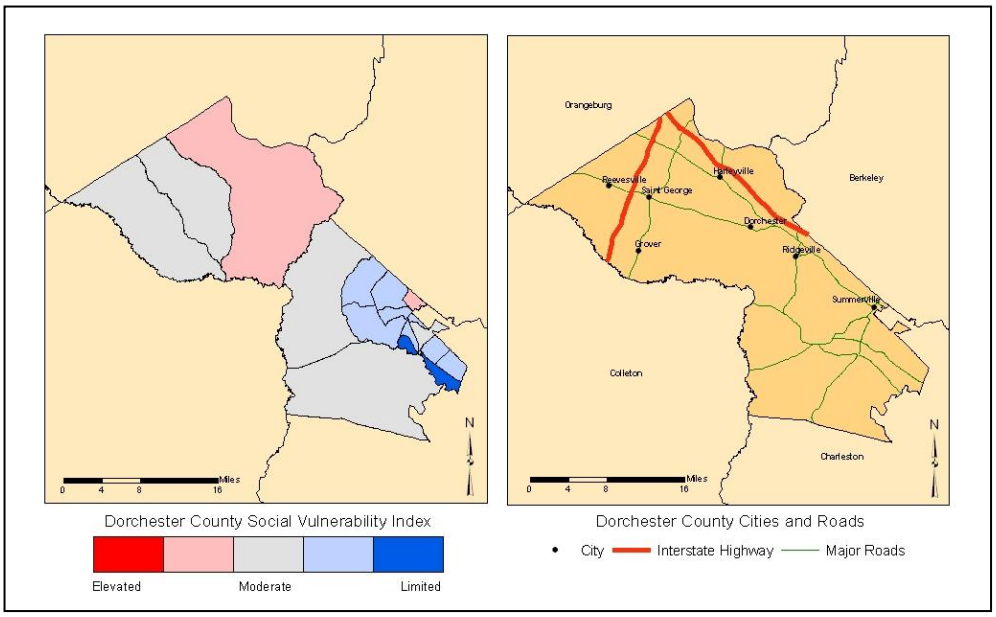


FIGURE 1. The Social Vulnerability for Dorchester County, SC by US Census tracts and a general reference map of Dorchester County.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.

Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.

Hazard – the potential threat to humans as well as the impact of an event on society and the environment.

Recurrence – a calculated number that examines the expected time interval between events based on the historic record.

Risk – the likelihood or probability of occurrence of a hazard or adverse event.

Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

South Carolina Emergency Management Division -
Mitigation Division
E-mail: mberry@emd.sc.gov
http://www.scemd.org

Hazard & Vulnerability Research Institute
University of South Carolina
E-mail: scutter.sc.edu
http://webra.cas.sc.edu/hvri

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Dorchester County are hazardous material accidents, severe thunderstorms and wind, and wildfires. The least frequent are hurricanes/tropical storms and winter weather, which have the lowest recurrence intervals. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Dorchester County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	14	158	11.29	8.86
Ocean & Lake Surf[b]	1	16	16.00	6.25
Waterspout	0	16	*	*
Dam Failure	-	-	-	-
Drought	21	59	2.81	35.59
Flood	22	59	2.68	37.29
Fog	0	12	*	*
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	192	310	1.61	61.94
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	170	22	<0.50	772.73**
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	21,230	10	<0.50	212,300.00**
Severe Thunderstorm Events				
Funnel Cloud	2	16	8.00	12.50
Hail	98	59	0.60	166.10**
Heavy Precipitation	0	15	*	*
Lightning	11	16	1.45	68.75
Thunderstorm & Wind	184	59	0.32	311.86**
Tornado	16	59	3.69	27.12
Temperature Extremes	9	16	1.78	56.25
Wildfire	2,463	21	<0.50	11,728.57**
Winter Weather (Snow & Ice)	4	59	14.75	6.78

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Dorchester County has a higher probability of loss-producing wind, thunderstorm, heat, and hurricane/tropical storm events. This comparison between the county and state in Figure 2 (page 3) shows hazards that exceeded the state mean in red type. Hail, lightning, and winter weather are well below the state mean indicating that these hazards have historically produced fewer losses for the county when compared to the state as a whole.

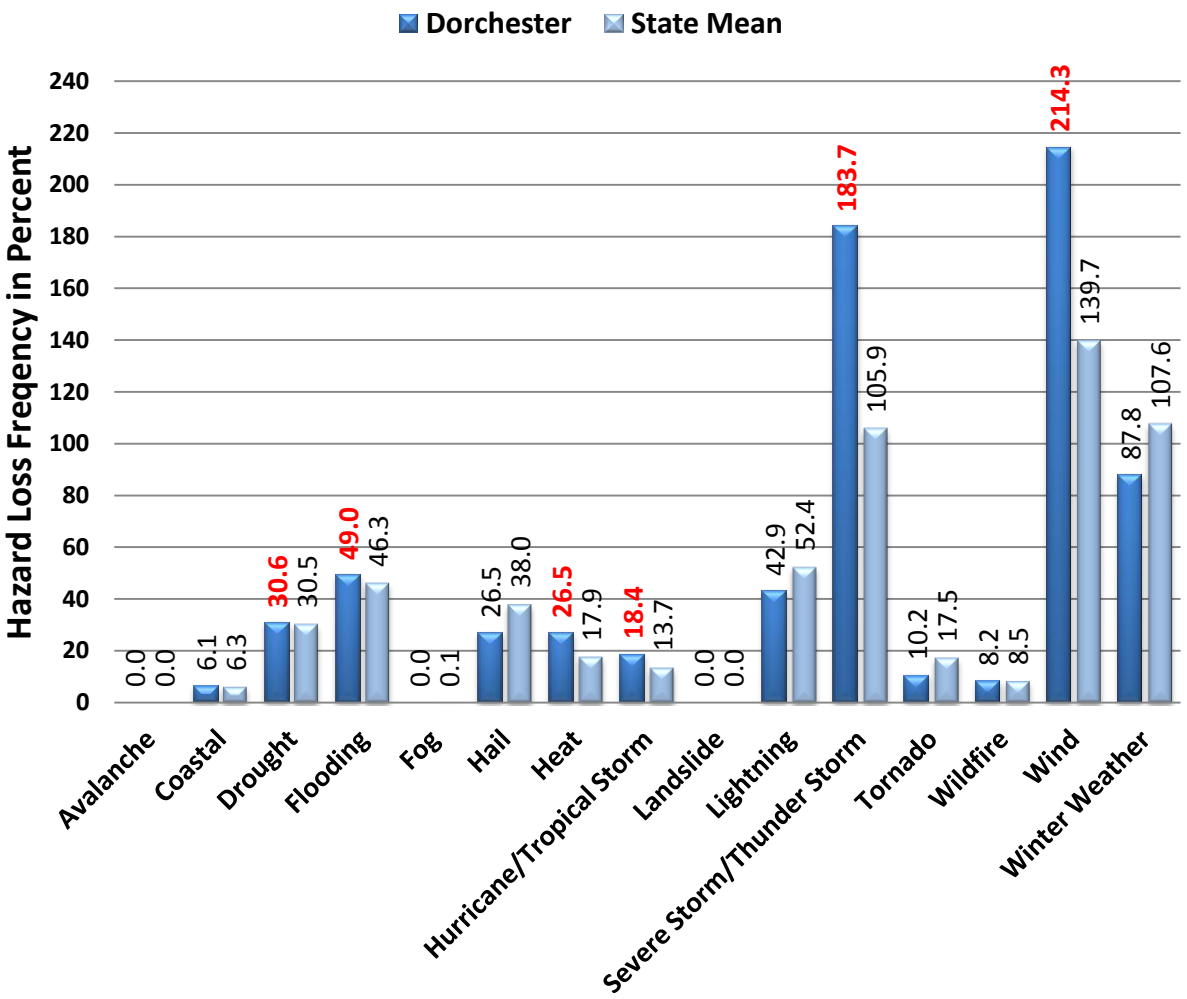


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Dorchester County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the cumulative amount of damage from 1960 to 2008 based on twelve hazard types is computed from the Hazards and Vulnerability Research Institute's SHELDUS database (available at http://www.sheldus.org). The historic losses in Dorchester County exceed $228 million, and are largely due to hurricanes and tropical storms, followed by drought and winter weather. Hurricane/tropical storm represented 79% of the damage in Dorchester County. While significant for the county, these cumulative losses represent 2.5% of the state's total overall, but 3.4% of the state's total damages related to hurricane/tropical storms.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$295,699	0.03%
Drought	$14,058,478	2.26%
Flooding	$1,161,340	0.78%
Hail	$340,734	0.34%
Heat	$11,286,643	2.26%
Hurricane/ Tropical Storm	$180,919,981	3.42%
Lightning	$276,625	0.55%
Severe Storm/ Thunder Storm	$1,381,653	0.68%
Tornado	$2,643,993	1.16%
Wildfire	$334,042	2.18%
Wind	$911,461	0.65%
Winter Weather	$14,616,599	1.69%
Dorchester - Total	**$228,227,248**	**2.48%**

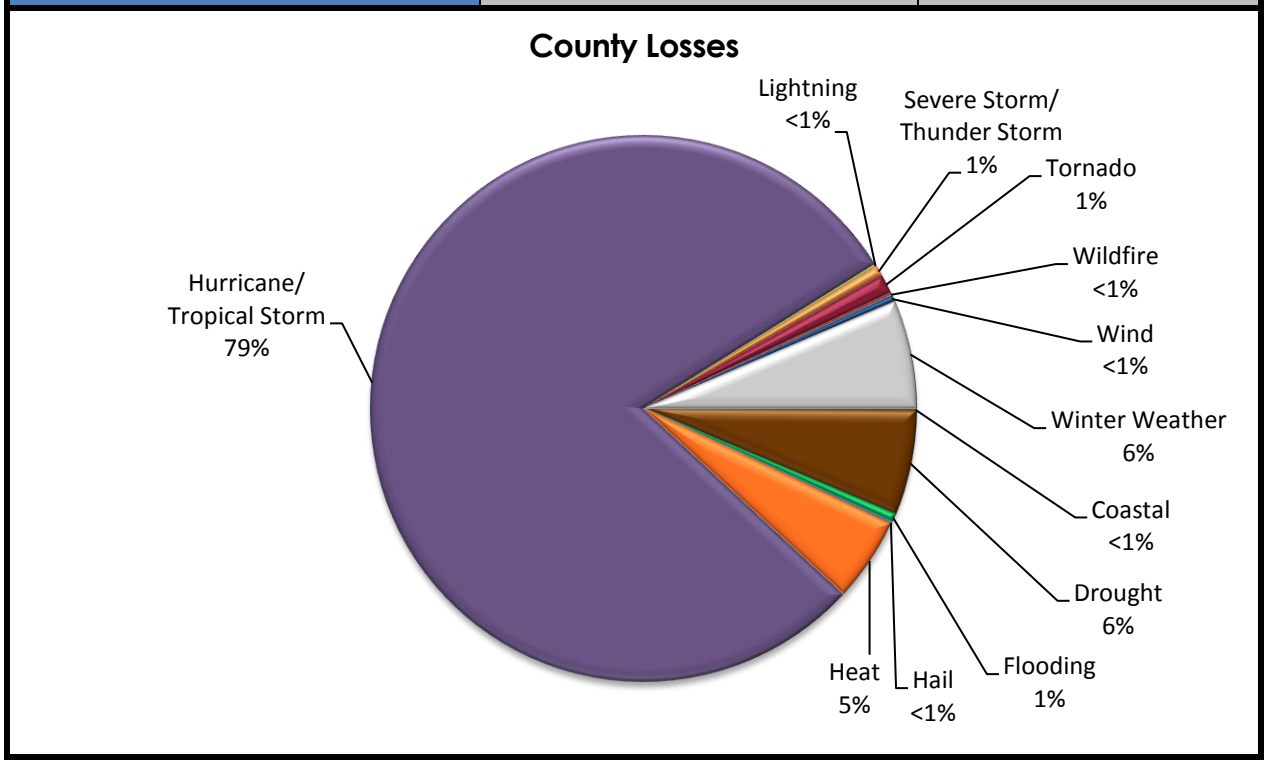
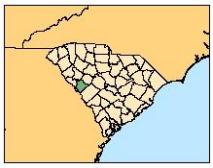


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Dorchester County, SC.

EDGEFIELD COUNTY, SC



I. Summary

Edgefield County is vulnerable to both natural (hurricanes/tropical storm) and technological (hazardous material incidents) hazards. Winter weather and drought produce the greatest monetary damage; however, the recurrence interval is 12 and 59 years, respectively making these relatively rare events. Wildfires, thunderstorms, and hazardous material incidents are some of the prominent hazards that regularly affect the county, based on past occurrences.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Edgefield County, most of the census tracts show moderate to moderately limited levels of social vulnerability. Only the census tract in the eastern quarter of the county exhibits a moderately high SoVI score. Figure 1 provides maps of the Edgefield County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

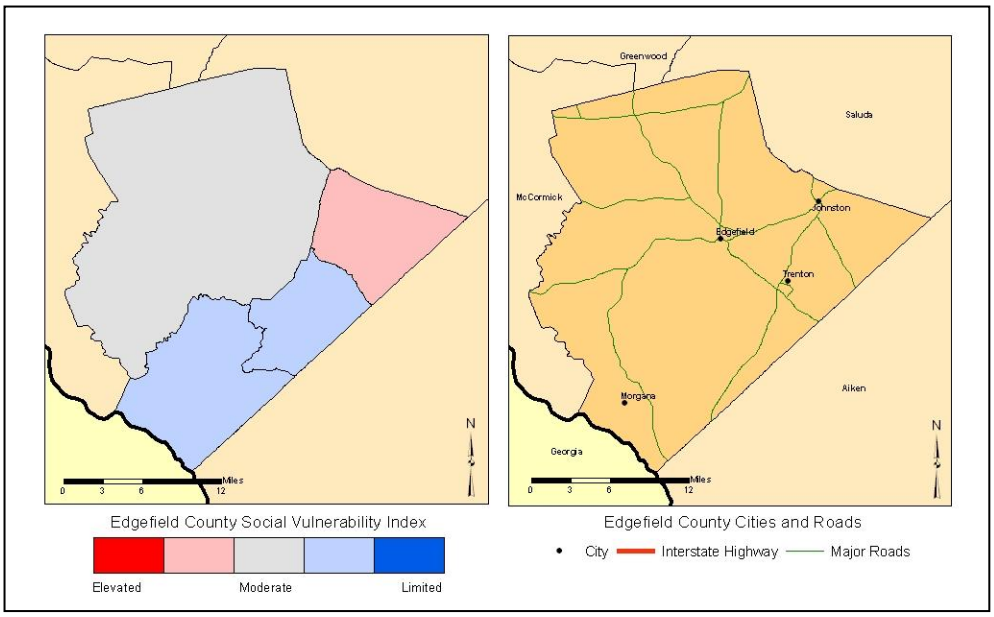


FIGURE 1. The Social Vulnerability for Edgefield County, SC by US Census tracts and a general reference map of Edgefield County.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.

Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.

Hazard – the potential threat to humans as well as the impact of an event on society and the environment.

Recurrence – a calculated number that examines the expected time interval between events based on the historic record.

Risk – the likelihood or probability of occurrence of a hazard or adverse event.

Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

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IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Edgefield County are hazardous material accidents, severe thunderstorms and wind, and wildfires. The least common are earthquakes, hurricanes/tropical storms, and flooding. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Edgefield County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	3	158	52.67	1.90
Ocean & Lake Surf[b]	1	16	16.00	6.25
Waterspout	0	16	*	*
Dam Failure	-	-	-	-
Drought	1	59	59.00	1.69
Flood	3	59	19.67	5.08
Fog	0	12	*	*
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	3	310	103.33	0.97
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	38	22	0.58	172.73**
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	3,530	10	<0.50	35,300.00**
Severe Thunderstorm Events				
Funnel Cloud	0	16	*	*
Hail	48	59	1.23	81.36
Heavy Precipitation	0	15	*	*
Lightning	0	16	*	*
Thunderstorm & Wind	76	59	0.78	128.81*
Tornado	15	59	3.93	25.42
Temperature Extremes	0	16	*	*
Wildfire	674	21	<0.50	3,209.52*
Winter Weather (Snow & Ice)	5	59	11.80	8.47

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Edgefield County has a slightly higher probability of loss-producing drought and tornado events. This comparison between the county and state in Figure 2 (page 3) shows hazards that exceeded the state mean in red type. Severe summer weather and winter weather are well below the state mean indicating that these hazards have historically produced fewer losses for the county when compared to the state as a whole.

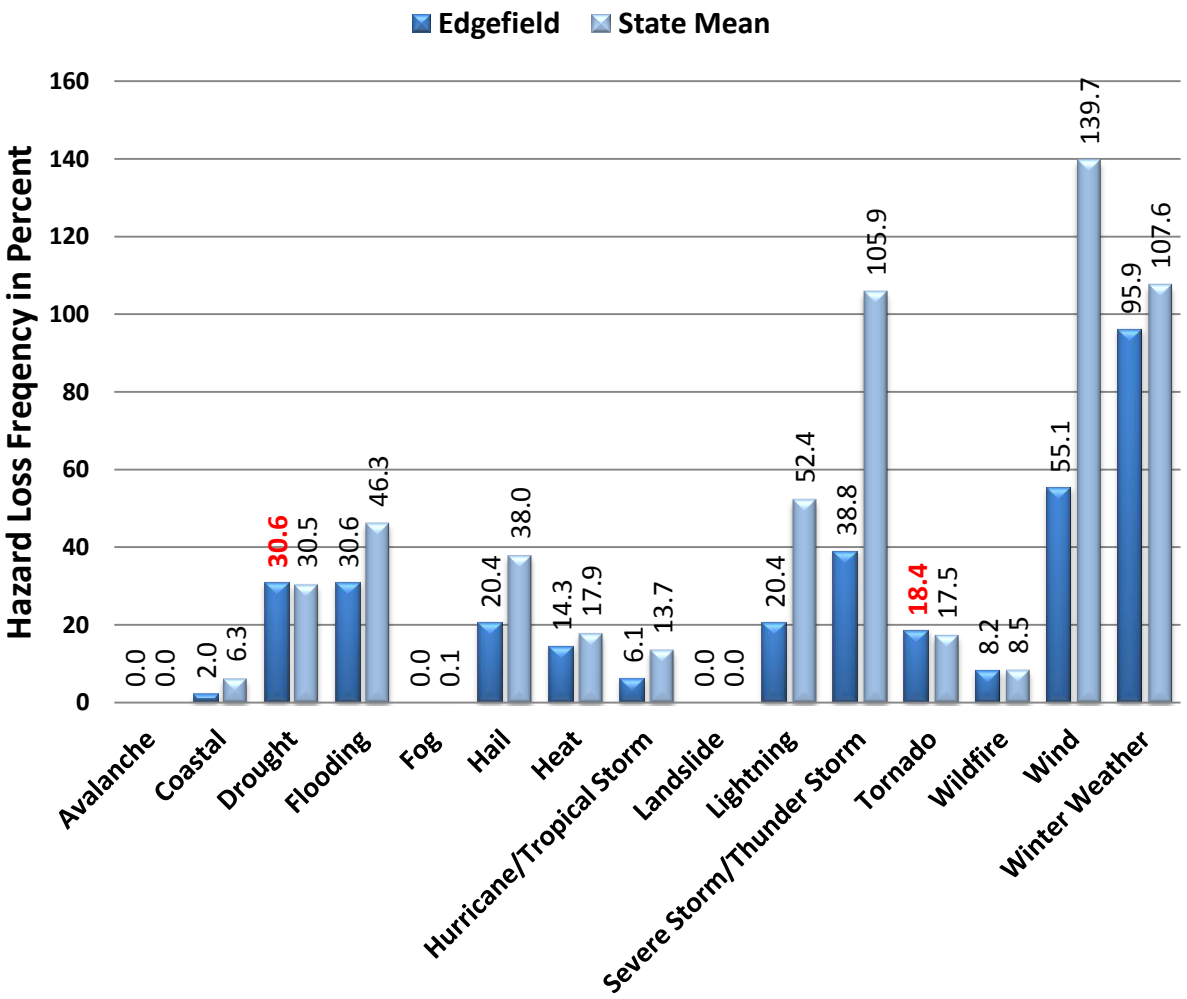


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Edgefield County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the cumulative amount of damage from 1960 to 2008 based on twelve hazard types is computed from the Hazards and Vulnerability Research Institute's SHELDUS database (available at http://www.sheldus.org). The historic losses in Edgefield County exceed $48 million, and are largely due to winter weather, drought, heat, and tornadoes. While significant for the county, these cumulative losses represent less than one percent of the state's overall total.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$6,476	0.01%
Drought	$14,058,478	2.26%
Flooding	$513,631	0.34%
Hail	$868,250	0.87%
Heat	$11,286,643	2.26%
Hurricane/ Tropical Storm	$329,868	0.01%
Lightning	$150,860	0.30%
Severe Storm/ Thunder Storm	$556,821	0.27%
Tornado	$4,788,848	2.10%
Wildfire	$334,042	2.18%
Wind	$366,231	0.26%
Winter Weather	$15,096,552	1.74%
Edgefield - Total	**$48,356,701**	**0.53%**

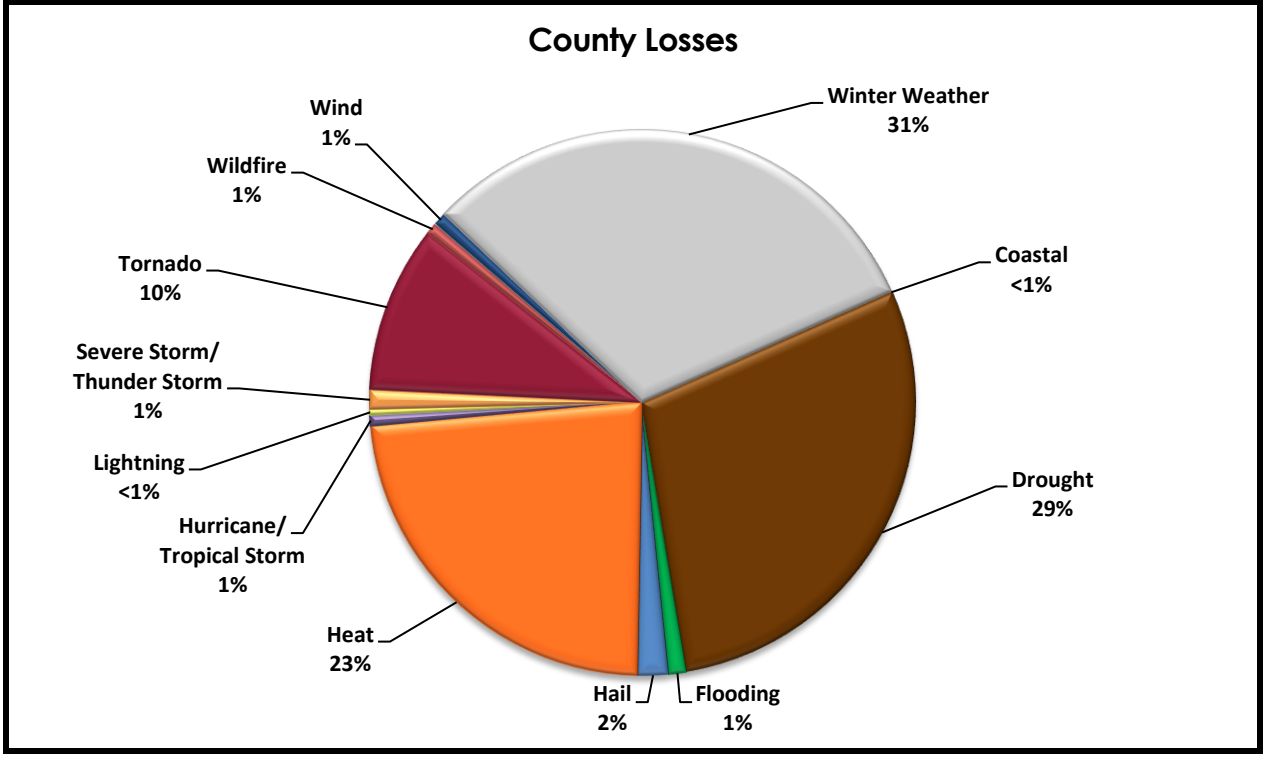
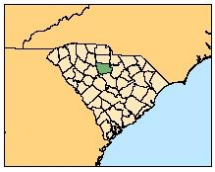


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Edgefield County, SC.

FAIRFIELD COUNTY, SC



I. Summary

Fairfield County is vulnerable to both natural (hurricanes/tropical storm) and technological (hazardous material incidents). Winter weather produces the greatest monetary damage with a recurrence interval of 5 years. Drought events also produce significant damages but are less frequent. Wildfires, thunderstorms, and hazardous material incidents are some of the prominent hazards that regularly affect the county, based on past occurrences.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Fairfield County, most of the census tracts are in the moderately elevated levels of social vulnerability. Figure 1 provides maps of the Fairfield County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

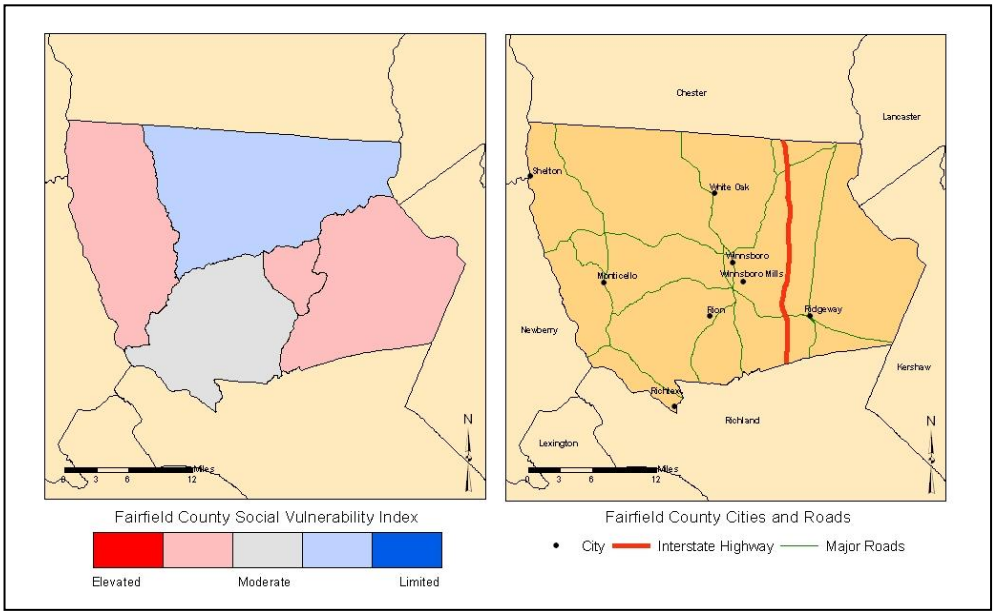


FIGURE 1. The Social Vulnerability for Fairfield County, SC by US Census tracts and a general reference map of Fairfield County.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.

Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.

Hazard – the potential threat to humans as well as the impact of an event on society and the environment.

Recurrence – a calculated number that examines the expected time interval between events based on the historic record.

Risk – the likelihood or probability of occurrence of a hazard or adverse event.

Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

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IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Fairfield County are hazardous material accidents, severe thunderstorms and wind, wildfires, and earthquakes. Flooding, hurricanes/tropical storms, and drought are hazards with the lowest recurrence intervals. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Fairfield County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	10	158	15.80	6.33
Ocean & Lake Surf[b]	1	16	16.00	6.25
Waterspout	0	16	*	*
Dam Failure	-	-	-	-
Drought	1	59	59.00	1.69
Flood	3	59	19.67	5.08
Fog	0	12	*	*
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	555	310	0.56	179.03**
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	77	22	<0.50	350.00**
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	4,556	10	<0.50	45,560**
Severe Thunderstorm Events				
Funnel Cloud	0	16	*	*
Hail	46	59	1.28	77.97
Heavy Precipitation	0	15	*	*
Lightning	0	16	*	*
Thunderstorm & Wind	110	59	0.54	186.44**
Tornado	20	59	2.95	33.90
Temperature Extremes	1	16	16.00	6.25
Wildfire	1,346	21	<0.50	6,409.52**
Winter Weather (Snow & Ice)	12	59	4.92	20.34

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Fairfield County has a higher probability of loss-producing winter weather events, and is slightly above the state average for hail and drought. This comparison between the county and state in Figure 2 (page 3) shows hazards that exceeded the state mean in red type. Thunderstorms and wind are well below the state mean indicating that these hazards have historically produced fewer losses for the county when compared to the state as a whole.

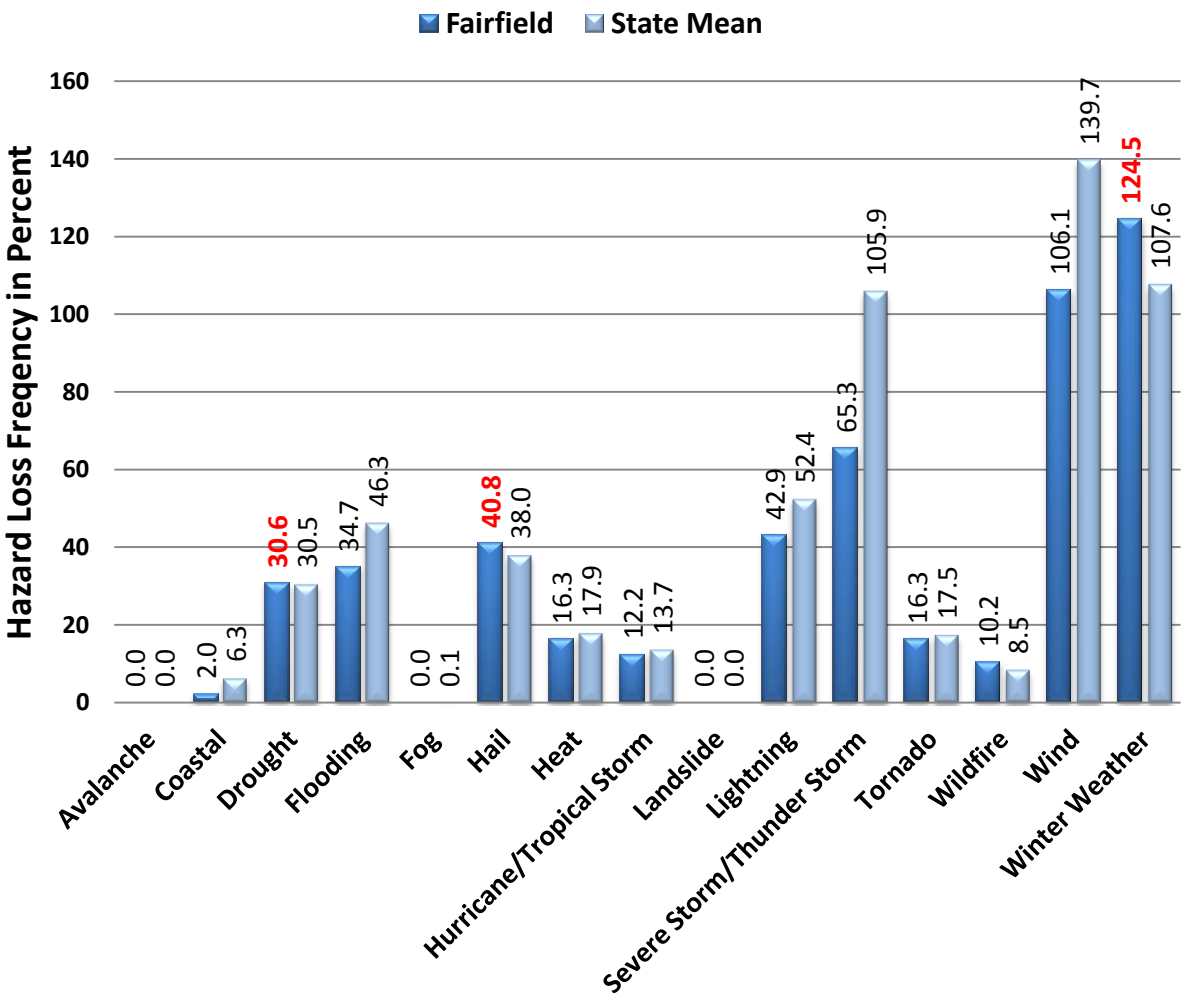


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Fairfield County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the cumulative amount of damage from 1960 to 2008 based on twelve hazard types is computed from the Hazards and Vulnerability Research Institute's SHELDUS database (available at http://www.sheldus.org). The historic losses in Fairfield County exceed $66 million, and are largely due to a combination of winter weather, drought, heat, and hurricanes and tropical storms. While significant for the county, these cumulative losses represent less than one percent of the state's total overall, but 4% of the state's total damages related to hail.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$6,476	0.01%
Drought	$14,058,478	2.17%
Flooding	$380,877	0.25%
Hail	$4,311,971	4.18%
Heat	$11,286,643	2.17%
Hurricane/ Tropical Storm	$10,514,866	0.19%
Lightning	$262,226	0.50%
Severe Storm/ Thunder Storm	$687,405	0.33%
Tornado	$4,514,201	1.91%
Wildfire	$347,075	2.17%
Wind	$4,166,668	2.86%
Winter Weather	$15,590,612	1.73%
Fairfield - Total	**$66,127,499**	**0.66%**

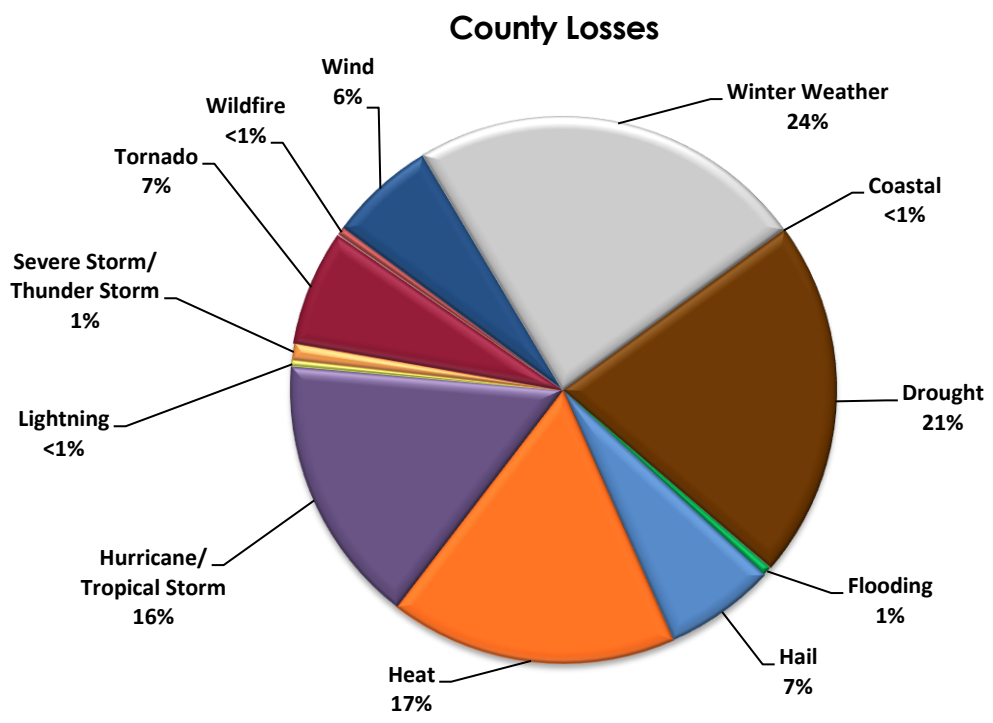
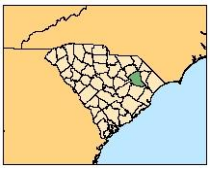


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Fairfield County, SC.

FLORENCE COUNTY, SC



I. Summary

Florence County is vulnerable to both natural (hurricanes/tropical storm) and technological (hazardous material incidents) hazards. Hurricane/tropical storms produce the greatest monetary damage; however, the recurrence interval for hurricanes is 19.8 years, making it a rare event. Wildfires, thunderstorms, hail, and hazardous material incidents are some of the prominent hazards within the county.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Florence County, most of the census tracts exhibit moderate range of social Vulnerability. In Florence City there are tracts with elevated vulnerability (higher SoVI scores), as well as moderately elevated tracts in the southern portion of the county Figure 1 provides a map of the Florence County US Census Tracts and their associated social vulnerability.

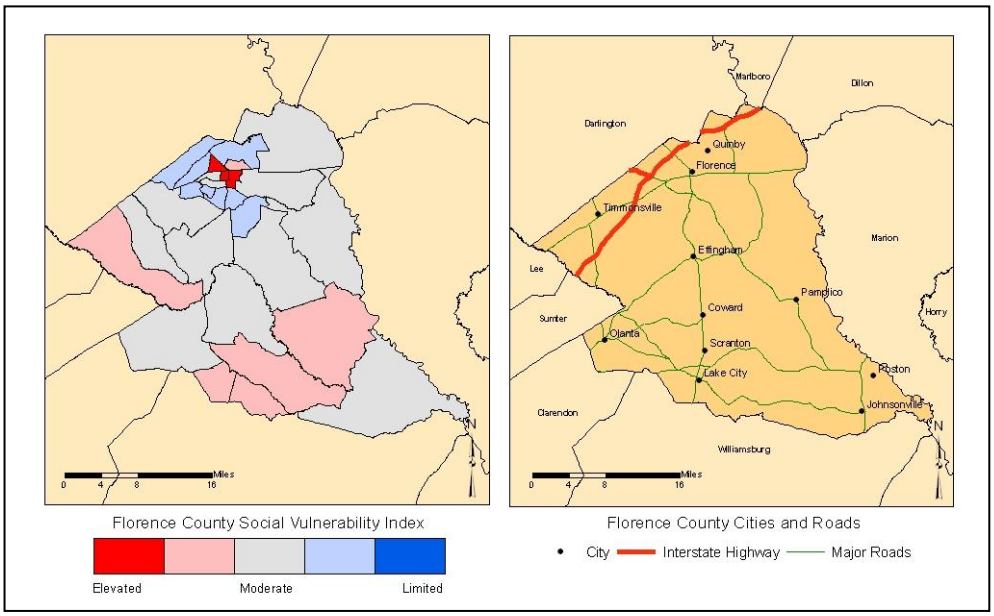


FIGURE 1. The Social Vulnerability for Florence County, SC by US Census tracts.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.

Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.

Hazard – the potential threat to humans as well as the impact of an event on society and the environment.

Recurrence – a calculated number that examines the expected time interval between events based on the historic record.

Risk – the likelihood or probability of occurrence of a hazard or adverse event.

Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element in distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents based on event frequency. The most common hazards in Florence County are hazardous material accidents, severe thunderstorm and wind, hail, and wildfires. Earthquakes, hurricanes/tropical storms, and temperature extremes are among the lowest recurrence intervals. The recurrence and hazard frequency table can be seen in table 1.

TABLE 1. The Hazard Profile for Florence County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	8	158	19.75	5.06
Ocean & Lake Surf[b]	1	16	16.00	6.25
Waterspout	0	16	*	*
Dam Failure	-	-	-	-
Drought	9	59	6.56	15.25
Flood	13	59	4.54	22.03
Fog	1	12	12.00	8.33
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	1	310	310.00	0.32
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	183	22	<0.50	831.82**
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	35,885	10	<0.50	358,850.00**
Severe Thunderstorm Events				
Funnel Cloud	1	16	16.00	6.25
Hail	102	59	0.58	172.88**
Heavy Precipitation	6	15	2.50	40.00
Lightning	16	16	1.00	100.00
Thunderstorm & Wind	156	59	<0.50	264.41**
Tornado	31	59	1.90	52.54
Temperature Extremes	1	16	16.00	6.25
Wildfire	4,131	21	<0.50	19,671.43**
Winter Weather (Snow & Ice)	9	59	6.56	15.25

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Florence County has a higher probability of loss-producing fog, hail, hurricane/tropical storm, lightning, and tornado events. It has roughly has the state average for heat and wind events. This comparison between the county and state in Figure 2 (page 3) shows hazards that exceeded the state mean in red type. Thunderstorms and winter weather are well below the state mean indicating that these hazards have historically produced fewer losses for the county when compared to the state as a whole.

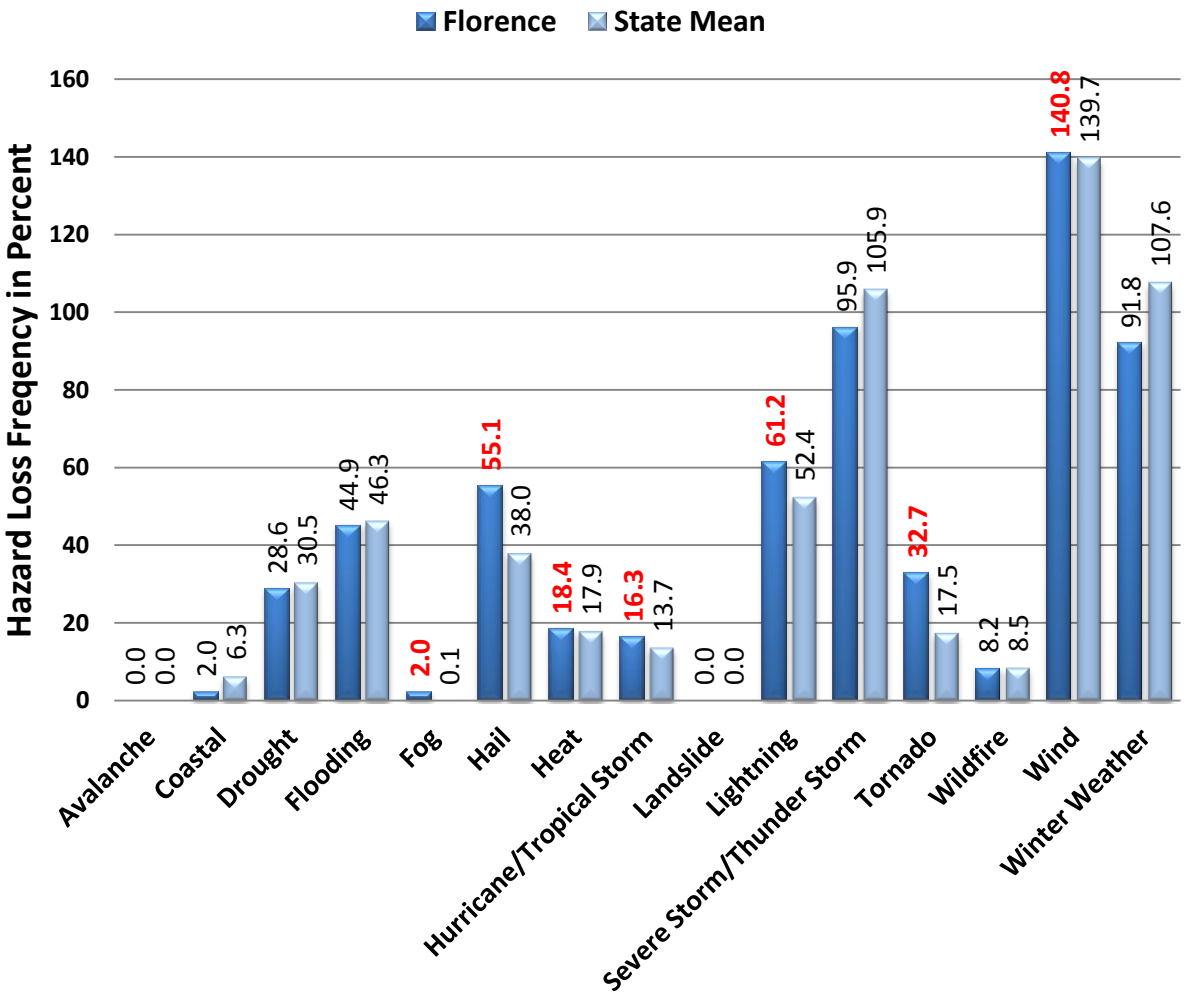


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Florence County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the cumulative amount of damage from 1960 to 2008 based on twelve hazard types is computed from the Hazards and Vulnerability Research Institute's SHELDUS database (available at http://www.sheldus.org). The historic losses in Florence County exceed $273 million, and are largely due to hurricanes and tropical storms. Hurricane/tropical storm represented 64% of the damage in Florence County. While significant for the county, these cumulative losses represent 2.9% of the state's total overall. The county contains 13% of the state's hail damage, and 59% of the losses due to fog.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$6,476	0.01%
Drought	$14,055,942	2.17%
Flooding	$4,190,964	2.71%
Fog	$23,908	59.13%
Hail	$13,744,080	13.33%
Heat	$11,286,643	2.17%
Hurricane/ Tropical Storm	$174,101,543	3.16%
Lightning	$2,365,276	4.50%
Severe Storm/ Thunder Storm	$17,027,047	8.06%
Tornado	$3,622,286	1.53%
Wildfire	$334,042	2.09%
Wind	$14,950,380	10.26%
Winter Weather	$18,242,463	2.02%
Florence - Total	**$273,951,050**	**2.86%**

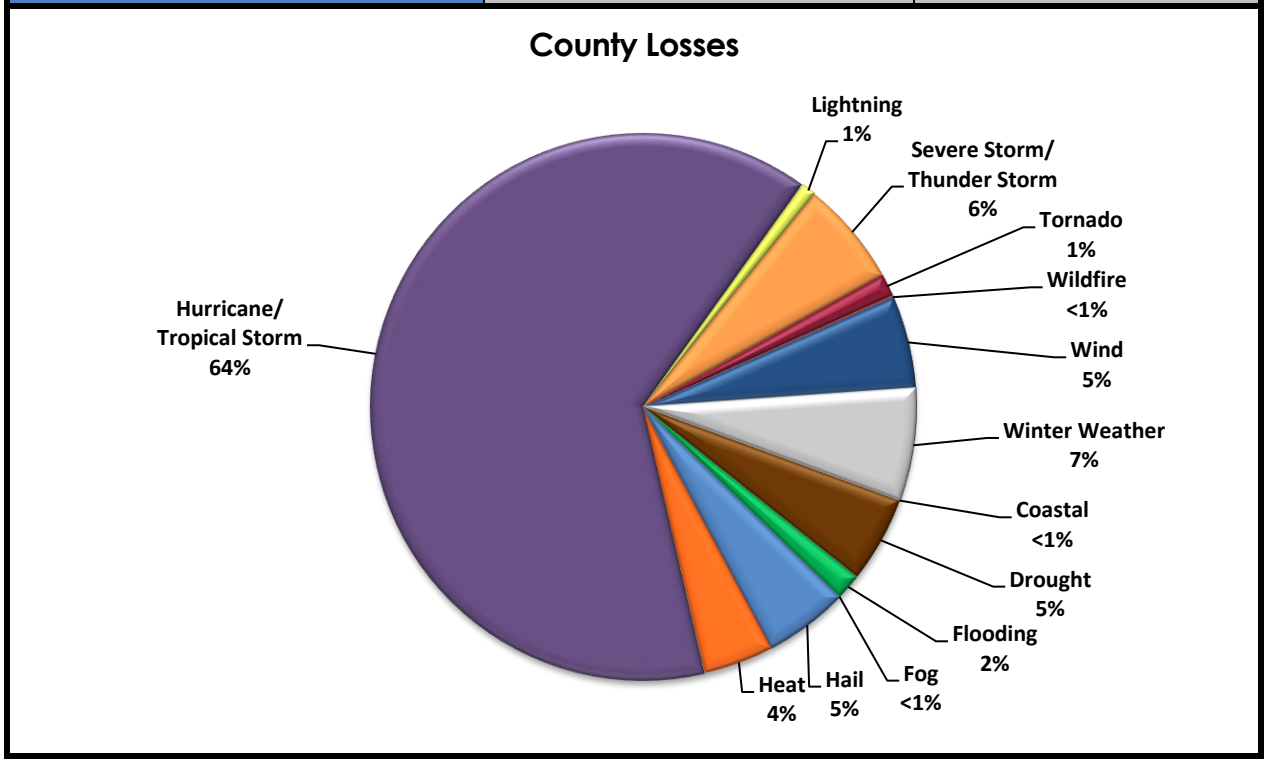
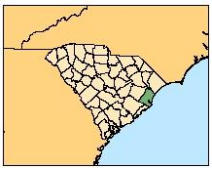


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Florence County, SC.

GEORGETOWN COUNTY, SC



I. Summary

Georgetown County is vulnerable to both natural (hurricanes/tropical storm) and technological (hazardous material incidents). Hurricane/tropical storms produce the highest monetary damages; however, the recurrence interval is 9.3 years, making it a relatively infrequent event. Winter weather, another infrequent event also is quite costly, as our drought and heat events. Coastal storms, hazardous material incidents, thunderstorms, and wildfires are some of the prominent hazards that regularly affect the county based on past occurrences, but result in few reported losses.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Georgetown County, most of the census tracts exhibit moderate to moderately elevated levels of social vulnerability, based on statewide comparisons. Limited SoVI scores are along the coast in the northern portion of the county. Figure 1 provides maps of the Georgetown County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

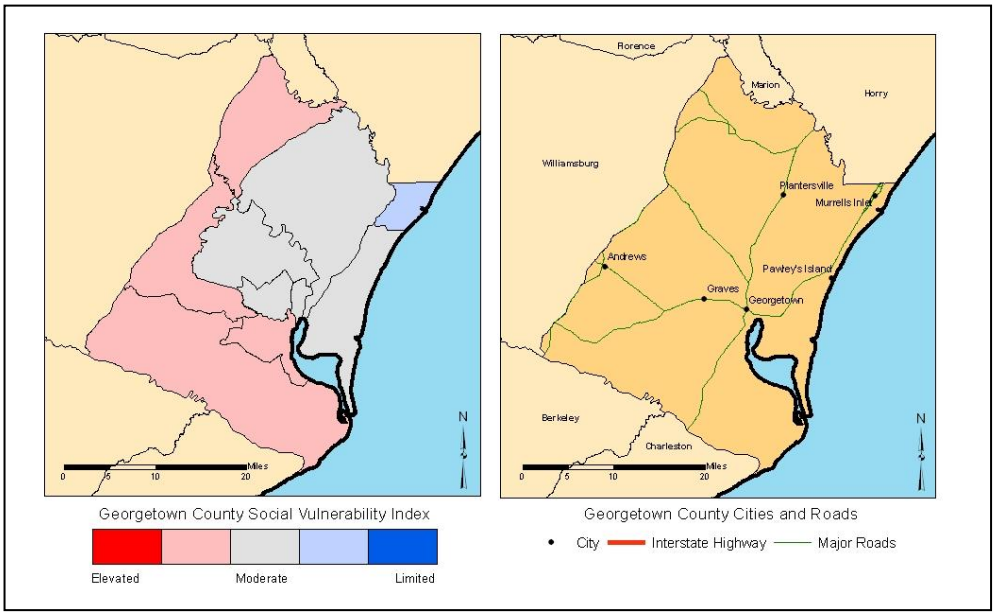


FIGURE 1. The Social Vulnerability for Georgetown County, SC by US Census tracts and a general reference map of Georgetown County.

III. Terms

Disaster – a singular hazard event that results in widespread human losses or has profound impacts on local environments.

Frequency – a calculated number showing the chance of an event occurring each year based on the historic record.

Hazard – the potential threat to humans as well as the impact of an event on society and the environment.

Recurrence – a calculated number that examines the expected time interval between events based on the historic record.

Risk – the likelihood or probability of occurrence of a hazard or adverse event.

Vulnerability – the potential for loss or the capacity to suffer harm from a hazard event.

South Carolina Emergency Management Division -
Mitigation Division
E-mail: mberry@emd.sc.gov
http://www.scemd.org

Hazard & Vulnerability Research Institute
University of South Carolina
E-mail: scutter.sc.edu
http://webra.cas.sc.edu/hvri

IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Georgetown County are hazardous material accidents, and severe thunderstorms. Floods, tornadoes, and hurricanes occur on average every 3, 4, and 9 years respectively. Earthquakes and winter weather have the lowest recurrence interval include. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Georgetown County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	17	158	9.29	10.76
Ocean & Lake Surf[b]	7	16	2.29	43.75
Waterspout	6	16	2.67	37.50
Dam Failure	-	-	-	-
Drought	7	59	8.43	11.86
Flood	17	59	3.47	28.81
Fog	0	12	*	*
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	2	310	155.00	0.65
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	341	22	<0.50	1,550.00**
Nuclear Power Plant	0	8	*	*
Terrorism	0	29	*	*
Transportation (Motor Vehicle)	11,111	10	<0.50	111,110.00**
Severe Thunderstorm Events				
Funnel Cloud	2	16	8.00	12.50
Hail	49	59	1.20	83.05
Heavy Precipitation	19	15	0.79	126.67**
Lightning	17	16	0.94	106.25**
Thunderstorm & Wind	88	59	0.67	149.15**
Tornado	13	59	4.54	22.03
Temperature Extremes	1	16	16.00	6.25
Wildfire	2,420	21	<0.50	11,523.81**
Winter Weather (Snow & Ice)	3	59	19.67	5.08

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Georgetown County has a higher probability of coastal hazards, flooding, hurricanes, tornadoes, lightning, and drought. Figure 2 (page 3) shows those loss causing hazards occurring in the county that exceeded the state mean in red font. Winter weather, wind, and thunderstorms are well below the state mean indicating that these hazards historically have had less impact on Georgetown County than elsewhere in South Carolina.

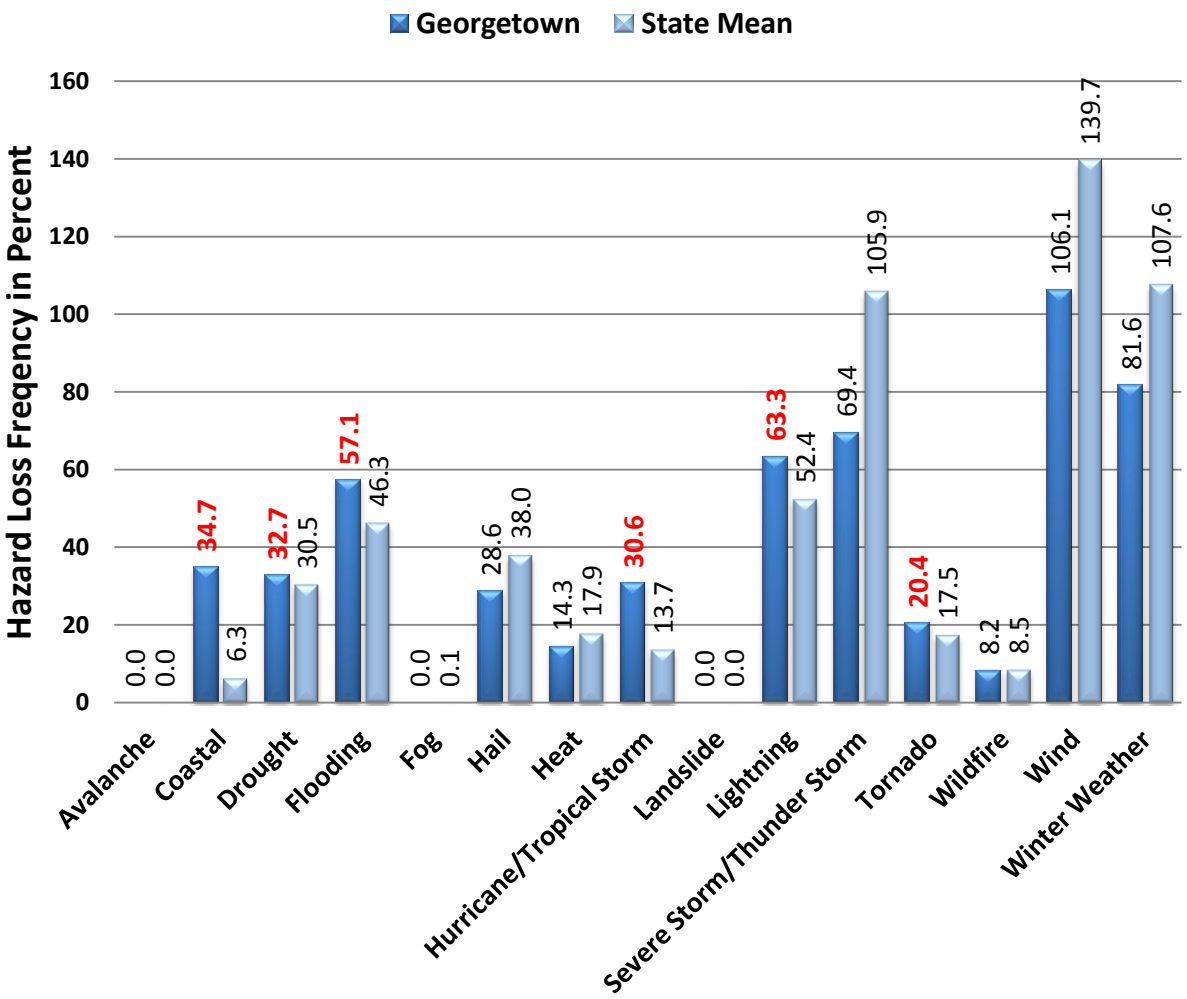


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Georgetown County compared to South Carolina as reported in SHELDUS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center Storm Data reports as a multiple event hazard (flooding, winter weather, coastal storm), and given a statewide or regional location, the impact of the event is equally distributed amongst the counties involved.

Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the cumulative amount of damage from 1960 to 2008 based on twelve hazard types is computed from the Hazards and Vulnerability Research Institute's SHELDUS database (available at http://www.sheldus.org). The historic losses in Georgetown County exceed $1billion, and were largely due to hurricanes and tropical storms, followed by coastal, winter weather, and drought, Hurricane/tropical storm represented 87% of the damage in Georgetown County. While significant for the county, these cumulative losses represent 12% of the state's total overall, but 18% of the state's total damages related to hurricane/tropical storms.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$88,380,683	8.57%
Drought	$14,201,478	2.28%
Flooding	$3,088,883	2.07%
Hail	$314,391	0.32%
Heat	$11,286,643	2.26%
Hurricane/ Tropical Storm	$958,776,895	18.10%
Lightning	$980,833	1.94%
Severe Storm/ Thunder Storm	$2,895,861	1.43%
Tornado	$2,676,242	1.17%
Wildfire	$334,042	2.18%
Wind	$3,256,095	2.32%
Winter Weather	$16,769,438	1.94%
Georgetown - Total	**$1,102,961,484**	**11.99%**

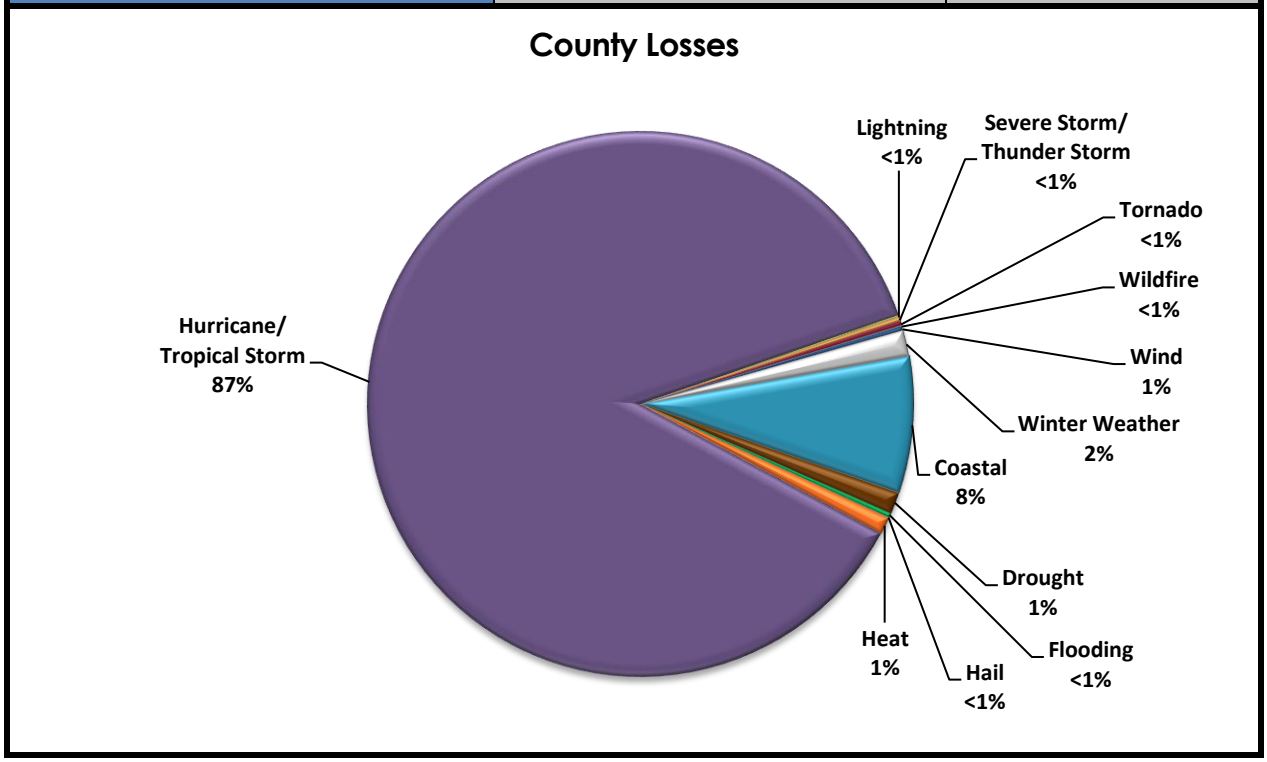
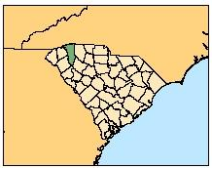


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Georgetown County, SC.

GREENVILLE COUNTY, SC



I. Summary

Greenville County is vulnerable to both natural (hurricanes/tropical storm) and technological (hazardous material incidents). Winter weather and flooding produce the highest monetary damages and occur at least once per year. Wildfires, thunderstorms, and hazardous material incidents are some of the prominent hazards that regularly affect the county, based on past occurrences. Less frequent events include hurricanes and earthquakes.

II. Social Vulnerability

Social vulnerability examines the socioeconomic and demographic character of places and helps to explain the variation in the population's ability to prepare for and respond to hazards. The Social Vulnerability Index (SoVI) is a statistical measure that compares social vulnerability to environmental hazards among places, and then visually displays these comparisons on a map. SoVI thus illustrates where there is uneven capacity for preparedness and response and where additional planning and response resources might be used most effectively to help residents. The variables used in determining the Social Vulnerability (SoVI) score along with how SoVI is calculated are available on the Hazards and Vulnerability Research Institute SoVI website (http://www.sovius.org).

Within Greenville County, most of the census tracts exhibit moderate to low levels of social vulnerability. However, there is a concentration of elevated vulnerability in Census tracts in the cities of Greenville, Greer, and Simpsonville with elevated SoVI scores. Figure 1 provides maps of the Greenville County depicting (on the left) social vulnerability by census tract and (on the right) cities and major roads.

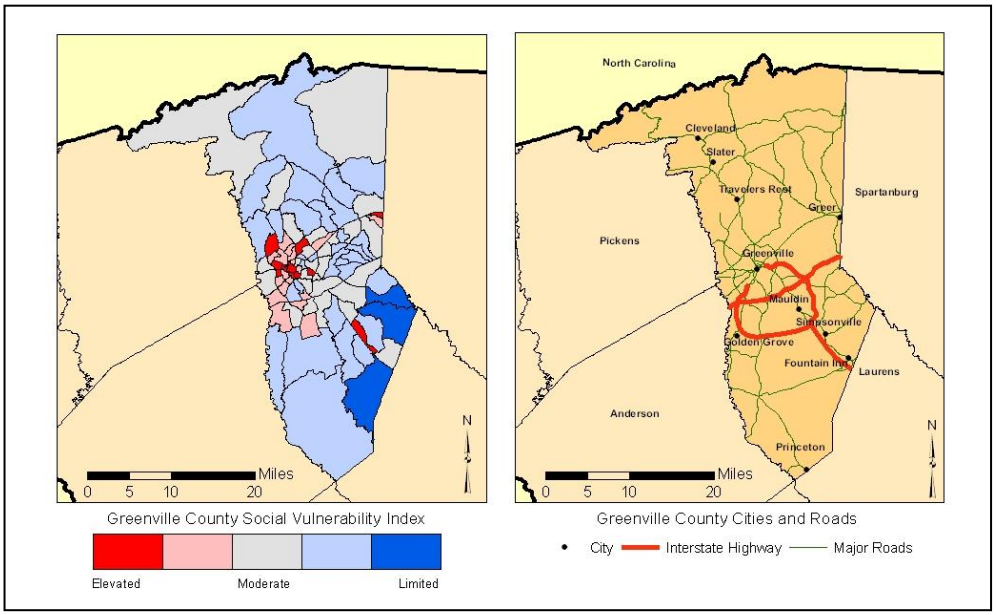


FIGURE 1. The Social Vulnerability for Greenville County, SC by US Census tracts and a general reference map of Greenville County.

III. Terms

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IV. Hazard Identification

The estimated recurrence of a hazard is a useful element (based on event frequency) for distinguishing between infrequent hazards like earthquakes, and frequent hazards such as hazardous materials incidents or traffic accidents. The most common hazard events in Greenville County are hazardous material accidents, severe thunderstorms and wind, wildfires, winter weather, and flooding. Hurricanes/tropical storms and earthquakes are hazards with the lowest recurrence intervals. The recurrence and hazard frequency table can be seen in Table 1.

TABLE 1. The Hazard Profile for Greenville County, SC.

Hazard[a]	Number of Events	Years in Record	Recurrence Interval (Years)	Hazard Frequency (Percent Chance per Year)
Coastal Events				
Hurricane/Tropical Storm	2	158	79.00	1.27
Ocean & Lake Surf[b]	1	16	16.00	6.25
Waterspout	0	16	*	*
Dam Failure	-	-	-	-
Drought	34	59	1.74	57.63
Flood	89	59	0.664	150.85**
Fog	6	12	2.00	50.00
Geophysical Events				
Avalanche	0	49	*	*
Earthquake	7	310	44.29	2.26
Landslide	0	49	*	*
Human-Induced Events				
Civil Disturbance	-	-	-	-
Hazardous Materials (Hazmat)	489	22	<0.50	2,222.73**
Nuclear Power Plant	0	8	*	*
Terrorism	1	29	29.00	3.45
Transportation (Motor Vehicle)	101,383	10	<0.50	1,013,830.00**
Severe Thunderstorm Events				
Funnel Cloud	3	16	5.33	18.75
Hail	210	59	<0.50	355.93**
Heavy Precipitation	12	15	1.25	80.00
Lightning	17	16	0.94	106.25**
Thunderstorm & Wind	349	59	<0.50	591.53**
Tornado	22	59	2.68	37.29
Temperature Extremes	9	16	1.78	56.25
Wildfire	1,056	21	<0.50	5,028.57**
Winter Weather (Snow & Ice)	74	59	0.80	125.42**

[a] Data Sources: National Climatic Data Center (www.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storm); National Geophysical Data Center (www.ngdc.noaa.gov/hazard/

[b] Includes coastal flooding, coastal erosion, coastal winds

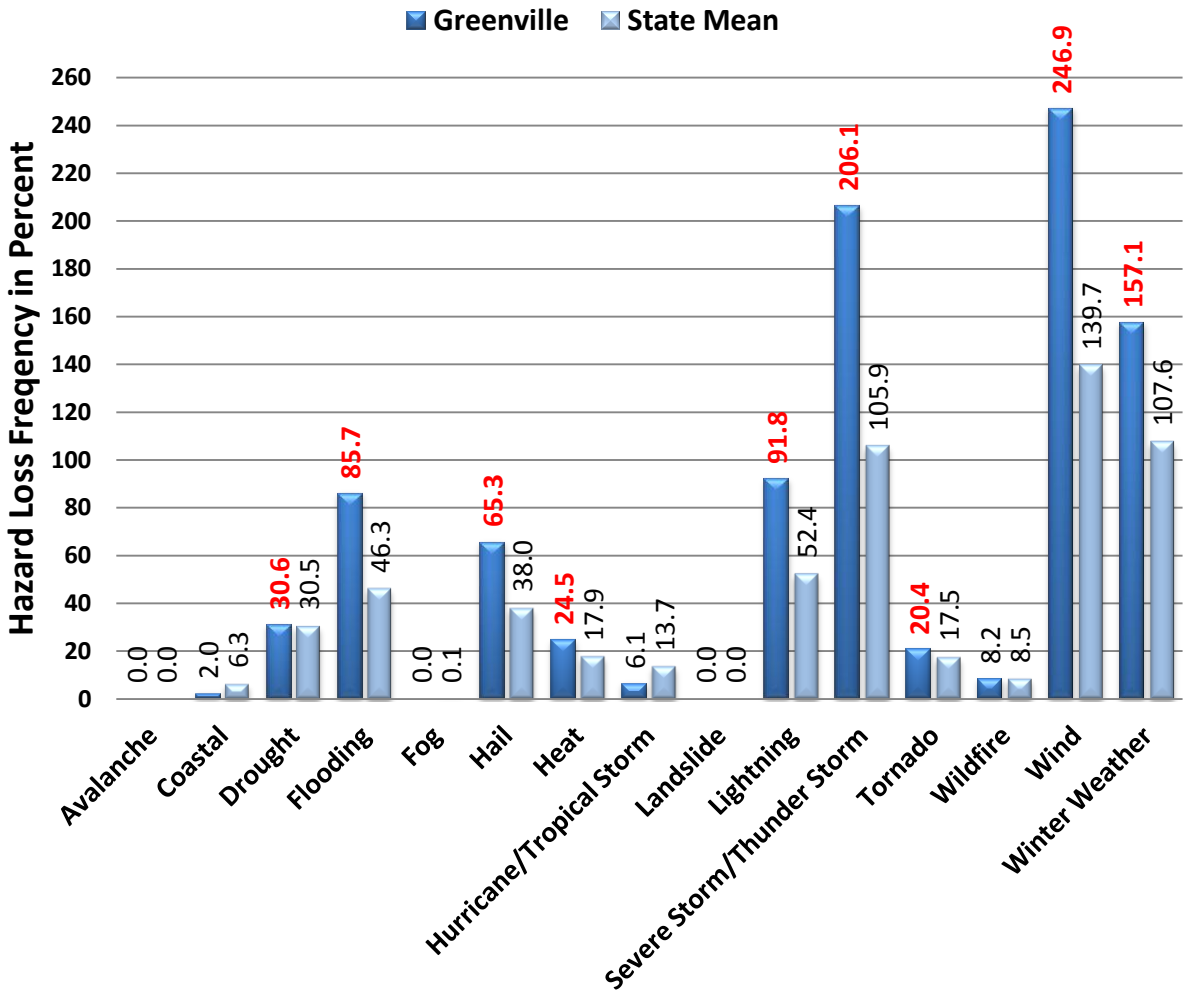
* Unable to calculate (cannot divide by zero)

** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year

\- Data Unavailable

V. Hazard Loss Information

When compared to South Carolina as a whole, Greenville County has a higher probability of loss-producing drought, flood, hail, heat, lightning, thunderstorm, tornado, wind, and winter weather events. This comparison between the county and state in Figure 2 (page 3) shows hazards that exceeded the state mean in red type. Hurricanes/tropical storms are below the state mean indicating that fewer of these loss causing hazards have historically occurred in Greenville County when compared to the state as a whole.



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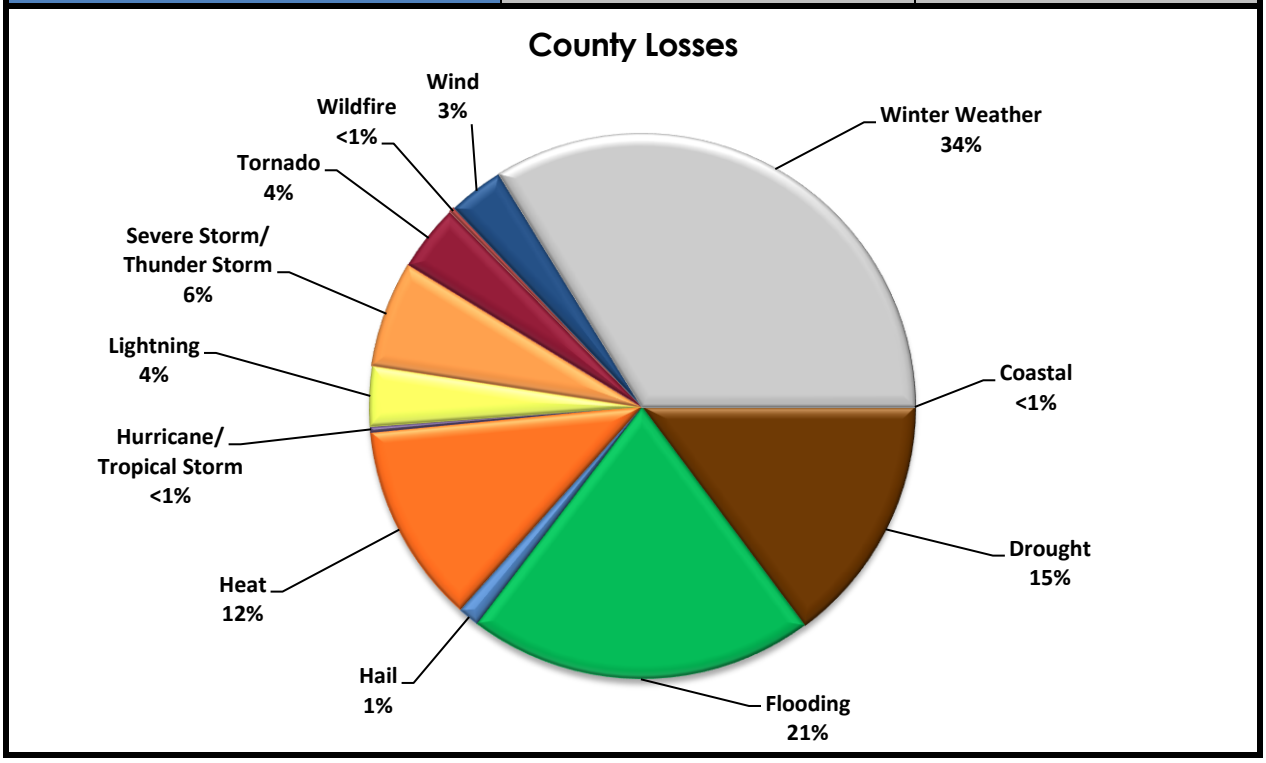
Another way of determining how vulnerable a county is to particular hazards is by examining the amount of damage caused by past events. In Figure 3 (page 4), the cumulative amount of damage from 1960 to 2008 based on twelve hazard types is computed from the Hazards and Vulnerability Research Institute's SHELDUS database (available at http://www.sheldus.org). The historic losses in Greenville County are nearly $1billion and are largely due to winter weather, flooding, drought, and heat. While significant for the county, these cumulative losses represent less than one percent of the state's total overall, but 12.6% of the state's total damages related to flooding, indicating that this hazard presents a major threat the lives and property within the county.

Hazard	Total Damage (in 2008 dollars)	Percent of State
Coastal	$6,476	0.01%
Drought	$14,058,478	2.17%
Flooding	$19,459,982	12.57%
Hail	$1,197,742	1.16%
Heat	$11,286,643	2.17%
Hurricane/ Tropical Storm	$329,868	0.01%
Lightning	$3,374,961	6.42%
Severe Storm/ Thunder Storm	$5,945,818	2.81%
Tornado	$3,703,364	1.57%
Wildfire	$334,042	2.09%
Wind	$3,102,308	2.13%
Winter Weather	$32,039,019	3.56%
Greenville - Total	**$94,858,702**	**0.99%**



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