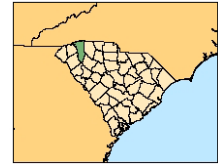


# GREENVILLE COUNTY, SC

## Hazard Profile for 2008

An Excerpt from the State of South Carolina Hazard Assessment for 2008



### 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.

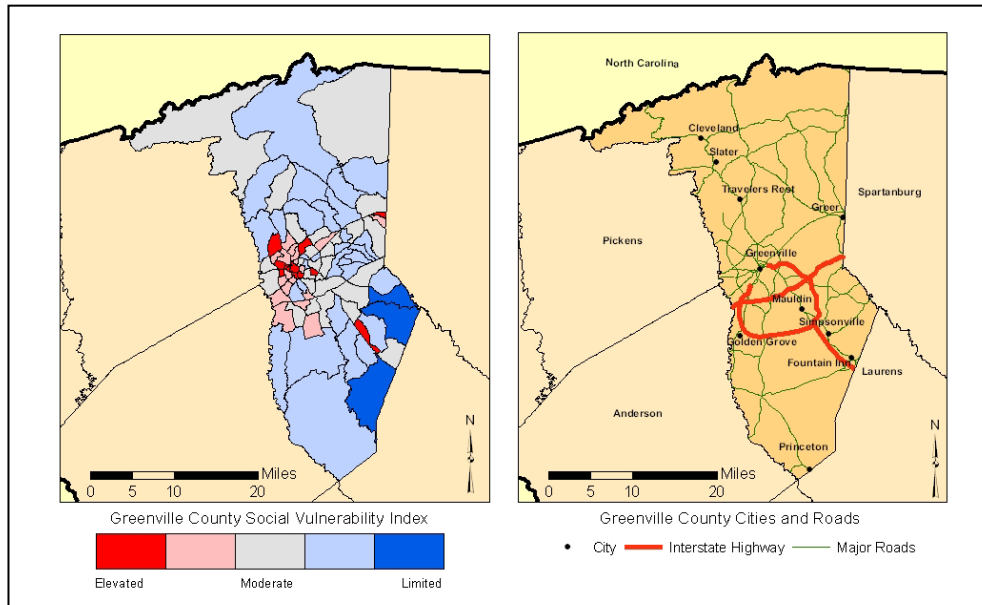


FIGURE 1. The Social Vulnerability for Greenville County, SC by US Census tracts and a general reference map of Greenville County.

### III. Terms

**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: [mbery@emd.sc.gov](mailto:mbery@emd.sc.gov)  
<http://www.scemd.org>

Hazard & Vulnerability  
Research Institute  
University of South Carolina  
E-mail: [scutter.sc.edu](mailto:scutter.sc.edu)  
<http://webra.cas.sc.edu/hvri>



GREENVILLE COUNTY HAZARD PROFILE 2008

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 <sup>a</sup>  | Number of Events | Years in Record | Recurrence Interval (Years)   | Hazard Frequency (Percent Chance per Year) |
|--|------------------|-----------------|---|--|
| <b>Coastal Events</b>  |                  |                 |   |  |
| Hurricane/Tropical Storm   | 2                | 158             | 79.00   | 1.27                                       |
| Ocean & Lake Surf <sup>b</sup>   | 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                                      |
| <b>Geophysical Events</b>  |                  |                 |   |  |
| Avalanche  | 0                | 49              | *   | *  |
| Earthquake   | 7                | 310             | 44.29   | 2.26                                       |
| Landslide  | 0                | 49              | *   | *  |
| <b>Human-Induced Events</b>  |                  |                 |   |  |
| 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**                             |
| <b>Severe Thunderstorm Events</b>  |                  |                 |   |  |
| 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**                                   |
| <sup>a</sup> Data Sources: National Climatic Data Center ( <a href="http://www.ncdc.noaa.gov/cgi-win/wcqi.dll?wwEvent~Storm">www.ncdc.noaa.gov/cgi-win/wcqi.dll?wwEvent~Storm</a> ); National Geophysical Data Center ( <a href="http://www.ngdc.noaa.gov/hazard/">www.ngdc.noaa.gov/hazard/</a> )<br><sup>b</sup> Includes coastal flooding, coastal erosion, coastal winds |                  |                 | * Unable to calculate (cannot divide by zero)<br>** Percent is greater than 100.00, therefore hazard can be expected to occur more than once per year<br>- 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.

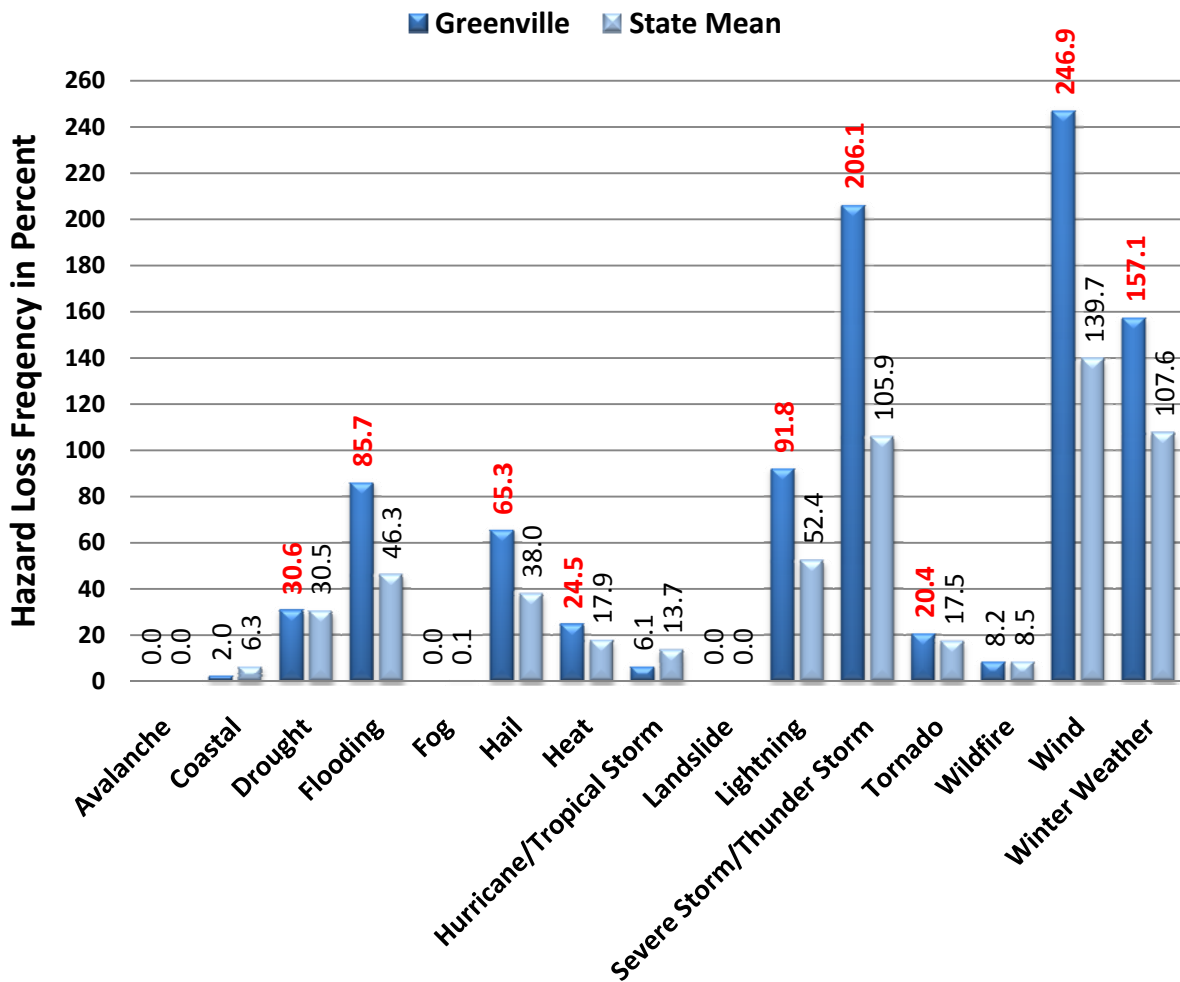


FIGURE 2. The historic loss causing hazard frequency between 1960 and 2008 for Greenville County compared to South Carolina as reported in SHELUDS. Percentage numbers indicated in red are when the county total exceeds the state mean. Also, a hazard that is identified in the National Climatic Data Center 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 SHELUDS database (available at <http://www.sheldus.org>). The historic losses in Greenville County are nearly \$1 billion 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<br>(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%            |
| <b>Greenville - Total</b>   | <b>\$94,858,702</b>               | <b>0.99%</b>     |

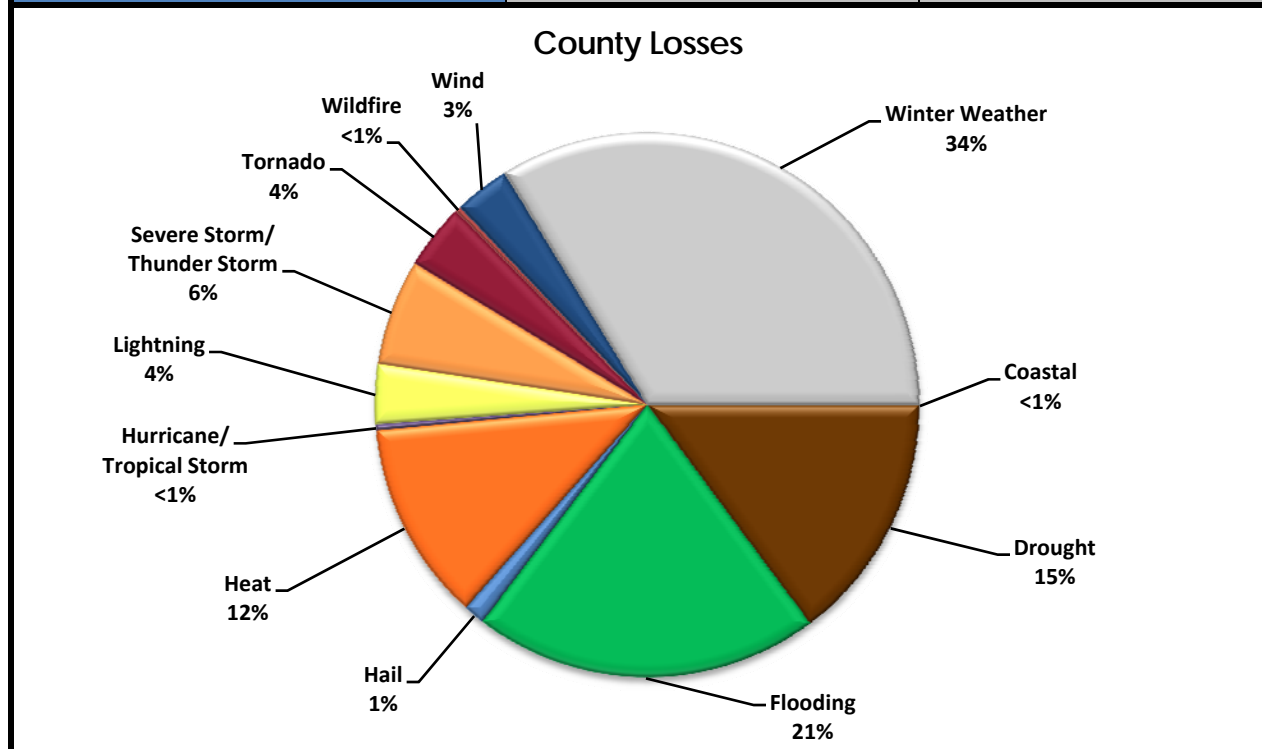


FIGURE 3. Historic Hazard Event Damages (property and crop) between 1960 and 2008 for Greenville County, SC.