

Smith County 2018 Hazard Mitigation Plan Update



Prepared By:

**Smith County Hazard Mitigation Committee
Smith County Emergency Management**

Includes the City of Carthage and Towns of Gordonsville and South Carthage

Assistance Provided By:

Tennessee Emergency Management Agency
as part of the Tennessee Mitigation Initiative

Executive Summary

Over the past two decades, hazard mitigation has gained increased national attention due to the large number of natural disasters that have occurred throughout the U.S. and the rapid rise in costs associated with those disaster recoveries. It has become apparent that money spent mitigating potential impacts of a disaster event can result in substantial savings of life and property. With these benefit cost ratios being extremely advantageous, the Disaster Mitigation Act of 2000 was developed as U.S. Federal legislation that reinforces the importance of pre-disaster mitigation planning by calling for local governments to develop mitigation plans (*44 CFR 201*).

The purpose of a local hazard mitigation plan is to identify the community's notable risks and specific vulnerabilities, and then to create/implement corresponding mitigation projects to address those areas of concern. This methodology helps reduce human, environmental, and economical costs from natural and man-made hazards through the creation of long-term mitigation initiatives.

The advantages of developing a local hazard mitigation plan are numerous including improved post-disaster decision making, education on mitigation approaches, an organizational method for prioritizing mitigation projects, etc. It has been noted that communities who successfully complete and maintain a mitigation plan receive larger amounts of Federal and State funding to be used on mitigation projects, and receive these funds faster, than communities who do not have a plan. Such funding sources that the plan caters to are Pre-Disaster Mitigation, Flood Mitigation Assistance, Severe Repetitive Loss, and Hazard Mitigation Grant Programs.

The 2016 Smith County Hazard Mitigation Plan was created to act as a well thought-out guide to be used by, and for, the people of Smith County. For this plan to be successful, each jurisdiction within the county participated in the drafting and preparation of the plan. These participating jurisdictions include:

- Smith County (unincorporated)
- City of Carthage
- Town of Gordonsville
- Town of South Carthage

In reference to federal code title *44 CFR 201*, the plan is required to be submitted to both TEMA (State) and FEMA (Federal) for review to be approved. When the plan is deemed "approval pending adoption" by FEMA (*44 CFR 201.6(c)5*), each of the participating jurisdictions will adopt the plan through a local resolution

50	Table of Contents	
51	Executive Summary	2
52	Table of Contents	3
53	Section 1: Planning Process	6
54	Planning Process	6
55	Public Participation	7
56	Review of Existing Information	8
57	Section 2: County Profile	9
58	Development Trends	9
59	Local Government	12
60	Major highways	12
61	Critical Infrastructure	12
62	Jurisdictional Capabilities	13
63	Legal & Regulatory Capability	13
64	Section 3: Risk Assessment	14
65	Hazard Identification	14
66	Flooding	14
67	Tornadoes/Severe Storms	22
68	Freezes/Winter Storms	39
69	Drought	45
70	Earthquakes	49
71	Section 4: Mitigation Strategy	55
72	Mitigation Goals	55
73	Identification and Prioritization of Mitigation Projects	55

74	Smith County Project List	58
75	National Flood Insurance Program Compliance.....	61
76	Section 5: Plan Maintenance	63
77	Monitoring, Evaluating, and Updating	63
78	Incorporation into Planning Mechanisms	64
79	Continued Public Participation.....	64
80	APPENDICES.....	65
81	Appendix A:	66
82	A: Planning Meeting 1 Information	66
83	i. Sign-in Sheet – Meeting 1 – March 7, 2018	66
84	ii. Minutes – Meeting 1	66
85	Appendix B:	67
86	B: Planning Meeting 2 Information	67
87	i. Sign-in Sheet – Meeting 2 - March 19, 2018	67
88	ii. Minutes – Meeting 2	67
89	Appendix C:.....	68
90	C: Planning Meeting 3 Information	68
91	i. Sign-in Sheet – Meeting 3 – March 26, 2018	68
92	ii. Public Notice – Meeting 3	68
93	iii. Minutes – Meeting 3	69
94	Appendix D	70
95	D: Critical Infrastructure – Smith County	70
96	Appendix E.....	82
97	E: Community Profiles – Smith County.....	82
98	F: HAZUS Report – Smith County	95

Smith County Hazard Mitigation Plan

Return to [Table of Contents](#)

99 Appendix F 110

100 F. Flood Insurance Rate Maps (FIRMS) – Smith County 110

101

Section 1: Planning Process

Planning Process

The process of creating this plan began after the August 2010 (*FEMA-1937-DR*) Tennessee Severe Storm & Flooding events, in which Smith County was declared as a disaster area. Realizing that this disaster event provided a window of opportunity to incorporate mitigation actions into the recovery process, Smith County initiated a local hazard mitigation plan.

The initial start of the planning process took place at a meeting between Smith County Emergency Management and the Tennessee Emergency Management Agency (TEMA) on March 7, 2018 (See [Appendix A](#)). At this meeting Smith County Emergency Management was designated the role of leading staff and interested persons through the development of the plan. Tasks to be undertaken by Smith County Emergency Management consisted of getting agencies and the public involved in the county's mitigation efforts, setting up and coordinating the Smith County Hazard Mitigation Committee, performing the written plan drafts, and soliciting for mitigation actions/projects. TEMA provided requested technical assistance at the beginning of the planning process by presenting successful strategies that have been used in developing a mitigation plan and a mitigation planning committee as part of the newly established Tennessee Mitigation Initiative.

At this meeting Smith County started organizing a county-wide hazard mitigation committee. Realizing that a successful mitigation committee includes a number of representatives, specialists, and individuals who can give valuable/unique insights that local emergency management staff may not have considered; during a regularly scheduled Local Emergency Planning Committee (LEPC) meeting, an invitation to be a part of this committee included an open invitation to elected officials, county and city staff, representatives of the jurisdictions, neighboring counties, local businesses, state agencies, private organizations, academia, non-profits, and other noticeable persons. Additional stakeholders were invited by phone or e-mail.

Based on the invited responses of interest, the Smith County Hazard Mitigation Committee was formed. Within this committee all jurisdictions are participants, as well as a cross-section of other representatives. The Smith County Hazard Mitigation Committee consists of:

Member	Representation	Title/Role
Sonny Carter (Chair)	Smith County Emergency Management	Director
Michael Nesbitt	Smith County Government	Mayor
Jimmy Wheeler	City of Carthage Government	Mayor
James Gibbs	Town of Gordonsville Government	Mayor
Sonya King	Smith County Government	Land Use Administrator
Melinda Wood	Smith County Highway Department	Administrative Assistant

Smith County Hazard Mitigation Plan

Return to [Table of Contents](#)

Jeff Crockett	Smith County EMS/911	Director
Brit Davis	City of Carthage Government	Chief of Police
Kit Jenkins	Smith County Sheriff's Office	Lieutenant

130

131 The Smith County Hazard Mitigation Committee was deemed the county's lead in all mitigation
 132 efforts and in the development of the county's mitigation plan. The committee member's efforts
 133 in the development of the plan were broken down into two stages: the brainstorming/drafting
 134 stage and the reviewing stage. During the brainstorming/drafting stage the committee identified
 135 hazards, evaluated risks, calculated and located each jurisdiction's vulnerable areas, identified
 136 the county's critical facilities, determined the county's mitigation goals/objectives, created and
 137 sponsored mitigation projects, and prioritized those mitigation projects. During the review
 138 stage the committee evaluated the written drafts of the plan. Also, in this process each
 139 jurisdiction reviewed written drafts that specifically addressed aspects of their jurisdiction (i.e.,
 140 each jurisdiction's individual risks and vulnerabilities).

141 The second Smith County Hazard Mitigation Committee meeting was held on March 19, 2018 at
 142 the Smith County EMA Office. At this meeting the committee reviewed the Hazard Mitigation
 143 planning process and discussed steps to complete the Hazard Mitigation Plan in a timely
 144 manner. Several committee members had participated in Hazard Mitigation Planning meetings
 145 in 2011 although that plan was never approved. TEMA personnel were present at this meeting
 146 to answer mitigation planning and grant questions. [Appendix B](#) provides a copy of the meeting's
 147 attendance sheet.

148 The third Smith County Hazard Mitigation Committee meeting was held on March 26, 2018 at
 149 the Smith County EMA Office. At this meeting the committee evaluated risks, determined
 150 community vulnerabilities, began discussing created mitigation projects, discussed new and
 151 previous mitigation projects and prioritized them. EMA personnel were present at this meeting
 152 to answer mitigation planning and grant questions. [Appendix C](#) provides a copy of the meeting's
 153 attendance sheet.

154 **Public Participation**

155 To encourage public involvement, the Smith County Hazard Mitigation Committee advertised
 156 their third committee meeting in the Carthage Courier, which is accessible to everyone in the
 157 Smith County as well as neighboring counties. This notice presented the purpose of the
 158 meeting, the time and date of the meeting, the exact location of the meeting, and stated that all
 159 are invited to attend. This meeting provided a great opportunity for the public to comment on
 160 the plan during drafting stages, to contribute in project proposals, and to participate in project
 161 prioritization. [Appendix C](#) provides documentation of the meeting's attendance sheet and
 162 present a copy of the public notice for the meeting. Additionally, a representative from the

county’s newspaper, the Carthage Courier, served on the committee and kept the community informed of the progress of the committee and relevant news.

Upon receiving the “Approval Pending Adoption” designation from FEMA, the public will be given a chance to comment on the final draft of the plan prior to its adoption by each local jurisdiction. This opportunity will take place at a local board meeting for each jurisdiction before the plan adoption decision takes place. The opportunity for final public comment will therefore be documented through the receipt of a signed adoption resolution.

Review of Existing Information

A preliminary review of existing plans, reports, and information was conducted during the initial phase of creating the Smith County Hazard Mitigation Plan. The primary purpose of reviewing this information was to identifying local hazards, recognizing local risks, and understanding different local vulnerabilities. The following list of sources identifies some of the existing studies that were reviewed:

- Smith County School Safety Plan
- Smith County Basic Emergency Operations Plan (BEOP)
- City of Carthage Zoning Ordinance
- City of Carthage Floodplain Ordinance
- State of Tennessee Hazard Mitigation Plan
- Tennessee Emergency Management Plan (TEMP)
- U.S. Census Bureau
- FEMA Mitigation “How to” Guides
- NOAA National Climatic Data Center (NCDC) storm reports

All of the listed plans, studies, and data sources were incorporated into the Smith County Hazard Mitigation Plan. These sources developed the plan’s hazard, risk, and vulnerability assessment sections that in return led to the establishment of meaningful mitigation actions.

Section 2: County Profile

Development Trends

Smith County is in the mid-east part of Tennessee (fig. 1). It was established in 1799 from a portion of Sumner County and was named for Daniel Smith, a U.S. Senator and former Secretary of the Southwest Territory. The location of the county seat was hotly contested between Bledsoesborough (near modern Dixon Springs) and William Walton's ferry and tavern at the confluence of the Caney Fork and the Cumberland River. In 1804, voters chose Walton's site, and a town, named Carthage, was platted the following year. The county seat is located in Carthage and incorporated towns are Gordonsville and South Carthage. Rural unincorporated communities are:

- Brush Creek
- Chestnut Mound
- Defeated
- Difficult
- Dixon Springs
- Elmwood
- Hickman
- Kempville
- Lancaster
- Pleasant Shade
- Riddleton
- Rome

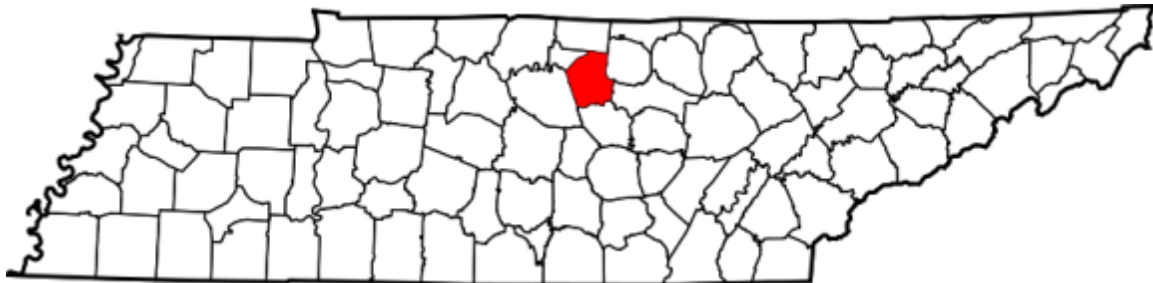


Figure 1: Smith County Location

Smith County is located in a very scenic area, and it is located near the northern center of Tennessee in that portion of the State known as the Central Basin. The county embraces an area of 325 miles which is comprised of a varying terrain ranging from flat bottom lands, to undulating, hilly uplands, to precipitous slopes and cliffs. Traversing the county are the Cumberland and Caney Fork Rivers, which attracted the first known settlers to the area including William Walton, the builder of the famed Walton Road across the Cumberland Plateau. Geographically from a national level, it is located in the Southeast region of the US. Geographically from a state level, it is located in Middle Tennessee area. Situated 50 miles East of Nashville, Smith County is conveniently located between Nashville, Knoxville, and Chattanooga. According to the U.S. Census Bureau, the county has a total area of 325 square miles (840 km²), of which 314 square miles (810 km²) is land and 11 square miles (28 km²) (3.4%) is water.

Smith County Hazard Mitigation Plan

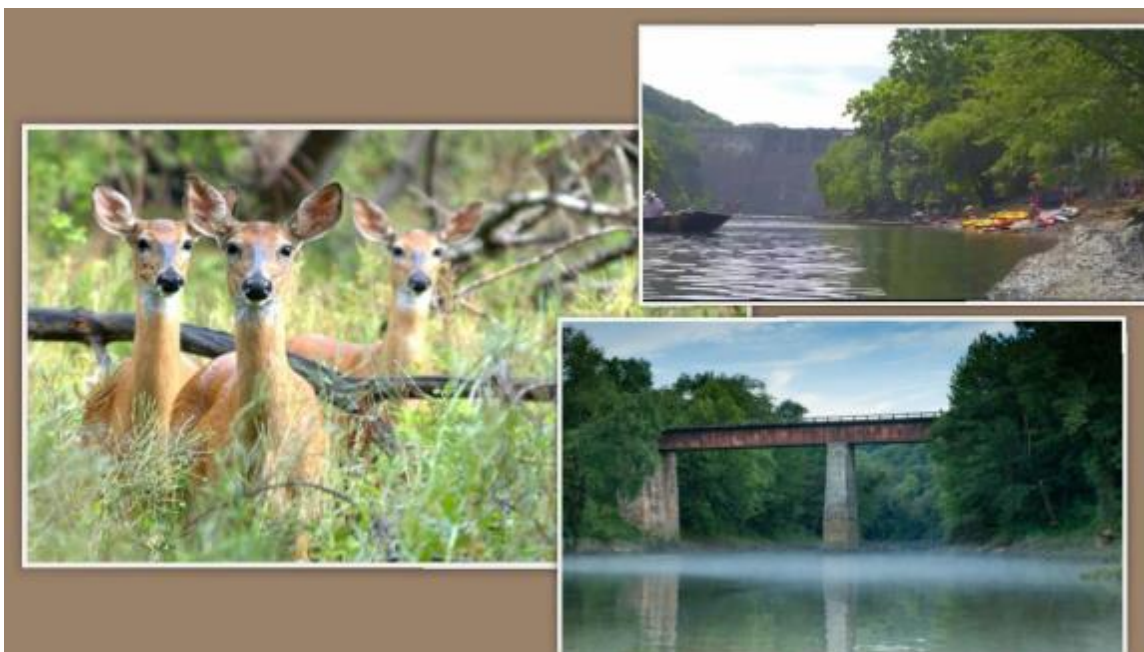
Return to [Table of Contents](#)

Smith County is proud to be the home of former Vice President, Al Gore, and at onetime was the home of former US Secretary of State, Cordell Hull, who practiced law here as a young man. The county is also known for its Second Empire-style Courthouse, built in 1879, its many antique shops, and its many beautiful historic homes.



The U.S. Census Bureau estimates that in July 2016 there were 19,447 people in Smith County, in 6,878 of households. 34.10% of households had children under the age of 18 living with them, 60.10% were married couples living together, 9.80% had a female householder with no husband present, and 26.30% were non-families. 23.40% of all households were made up of individuals and 11.10% had someone living alone who was 65 years of age or older. The average household size was 2.55 and the average family size was 3.00. . The racial makeup of the county was 95.3% White, 2.2% Black or African American, 0.5% Native American, 0.4% Asian, and 1.6% from two or more races. 2.4% of the population were Hispanic or Latino of any race.

Cordell Hull Lake is located on the Cumberland River in Smith, Jackson, and Clay counties of Tennessee. It is operated and managed by the Nashville District of the US Army Corps of Engineers. The lake is named in honor of one of America's outstanding statesmen, Cordell Hull, in recognition of his contributions to the people of the United States and the world. The dam is located at river mile 313.5, about 5 miles upstream from Carthage in Smith County. The project is one of the multipurpose projects in the Corps of Engineers' coordinated plan for development of the water resources of the Cumberland River Basin. Each year Cordell Hull Lake provides recreational opportunities to millions of visitors. Because of the temperate climate and relatively long recreation season, visitors have many opportunities to fish, hunt, camp, picnic, boat, canoe, hike, ride horseback, and enjoy the outdoors in many other ways. The lake and/or river contain Largemouth Bass, Smallmouth Bass, Crappie, Catfish, White Bass, Striped Bass, (Rockfish), Sauger, Trout, and Bream.



Carthage, South Carthage and Gordonsville continue to set new standards of quality that have helped the county repeatedly earn the ThreeStar designation from the Tennessee Department of Economic Development. To score this highest rating, the County has proved measurable excellence in:

- Jobs and economic development
- Fiscal strength and efficient government
- Public safety
- Education and workforce development
- Health and welfare

With an agricultural and tourism base already thriving, Smith County offers strategic opportunity for a variety of sectors, with effective programs also in place to nurture small to medium-sized business. Smith County's natural resources include hay, corn, soybeans, tobacco, strawberries, green peppers, tomatoes and apples; cattle are also raised here. Mineral resources include crushed stone and zinc, while timber stands include oak, hickory, ash, cedar, maple and walnut.

Smith County Hazard Mitigation Plan

Return to [Table of Contents](#)

Local Government

Within Smith County there are three incorporated communities. As the county seat, Carthage is the center of local government and business activities and is the largest of the incorporated communities. South Carthage, which is located just across the Cumberland River from Carthage, developed primarily because of the railroad. Gordonsville, which encompasses the largest land area of the incorporated communities, is bisected by Interstate 40. The incorporated communities of Carthage, South Carthage, and Gordonsville are governed by mayors and town councils. Smith County is governed by a mayor and a board of county commissioners. Each of the incorporated communities and Smith County have active planning commissions.

Major highways

- State Highways: 25, 53, 80, 96 & 264
- Nearest Interstate: I-40

Critical Infrastructure

For some facilities, even the slightest chance of a hazard impact is too great of a threat. These types of critical facilities need to be given special consideration when developing a hazard mitigation plan. A critical facility is defined as a facility in either the public or private sector that provides essential products and services to the general public, is otherwise necessary to preserve the welfare and quality of life in the County, or fulfills important public safety, emergency response, and/or disaster recovery functions.

The critical facilities identified in Smith County are shelters; hospital and other health care facilities; gas, electric, and communication utilities; water and wastewater treatment plants; facilities with flammable or toxic materials; schools; fire and police stations and government services.

[Appendix E](#) provides a complete list of critical facilities identified in Smith County.

Jurisdictional Capabilities

Currently, the city of Carthage enforces building codes to make sure structures are built in accordance to national standards. Smith County, the City of Carthage and Towns of Gordonsville and South Carthage enforce floodplain ordinances as part of adopting into the National Flood Insurance Program (NFIP). Additionally, all jurisdictions have zoning codes to lead to sensible growth and land development patterns. These instituted planning mechanisms help guide growth away from floodplains and other identified hazardous areas, thus reducing vulnerabilities to the jurisdictions.

Legal & Regulatory Capability

Regulatory Tools/Plans	Regulatory Type: Ordinance Resolution Codes Plans, Etc.	Smith County	City of Carthage	Town of Gordonsville	Town of South Carthage
Building Codes	Municipal Code	Y	Y	Y	Y
Zoning		Y	Y	Y	Y
Emergency Response Plan	Basic Emergency Operations Plan (BEOP)	Y	Y	Y	Y
National Flood Insurance Program Participant		Y	Y	Y	Y
Post-Disaster Recovery Plan	BEOP	Y	Y	Y	Y

Section 3: Risk Assessment

Hazard Identification

To begin to assess Smith County's risk to natural hazards and identify the community's areas of highest vulnerability, the mitigation committee had to identify which hazards have or could impact the county. This hazard identification process began with researching previous hazard events that have occurred in Smith County by going through newspaper articles, Smith County Emergency Management records, and recalling personal experiences. From there Emergency Management staff also analyzed hazard events that could occur in the county by reviewing scientific studies and the State of Tennessee Hazard Mitigation Plan. Jurisdictionally specific information is unavailable. County information is consistent for flooding and drought for the City of Hohenwald. In alignment with the State of Tennessee Hazard Mitigation Plan, sinkholes were not added to this Plan update, as data has only recently become available to the State on this hazard. The Committee agreed that since there have been limited minor incidents. Sinkholes would be excluded from this Plan update until the State Hazard Mitigation Plan has been approved and the State can provide additional guidance. The following hazards have been identified as hazards of concern by the Smith County mitigation committee. The following hazards have been identified as hazards of concern by the Smith County mitigation committee.

Flooding

The Smith County Hazard Mitigation Committee ranked Flooding as its highest risk priority.

Generally, flooding events occur when excess water from rivers and other bodies of water overflow onto riverbanks and adjacent floodplains. In addition, lower lying regions can collect water from rainfall and poorly drained land can accumulate rainfall through ponding on the surface. Floods in Smith County are usually caused by rainfall, but may also be caused by snowmelt and man-made incidents. The below charts explain common ways flooding occurs and common factors that contribute toward the severity of floods.

Common Ways Flooding Occurs	
Methods	Description
Overland Flow (a) Infiltration (b) Saturation	-Excess overland flow occurs when the rain is falling more rapidly than it infiltrates into the soil. -Excess overland flow occurs when soil spaces are so full of water that no more rain can be absorbed.
Throughflow	-Rainwater which has infiltrated into unsaturated soil can move horizontally to the river channel. This process is slower than overland flow but faster than baseflow.
Baseflow	-Rainwater which has percolated to the aquifer can seep into the river channel. This is the slowest process.

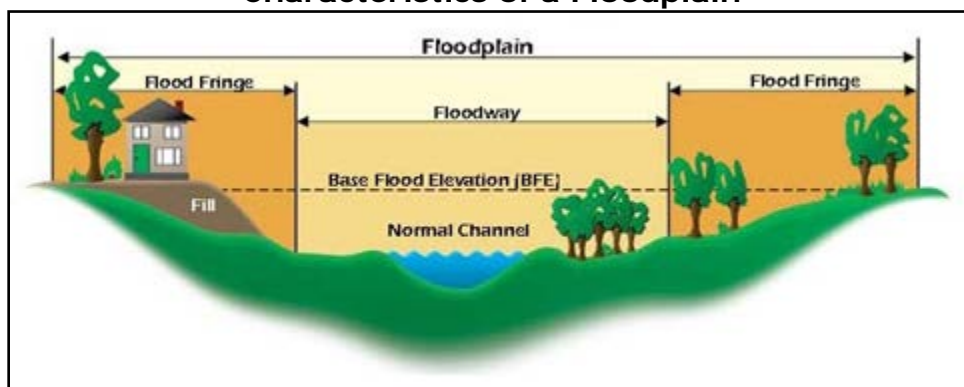
Source: The Field Studies Council

Common Causes of Flooding	
Factor	Effect on Flooding
Geology	Impermeable rocks are saturated more quickly than porous and pervious rocks. Saturation-excess overland flow is more common. Sandy soils have larger pore spaces than clay soils. Infiltration is most rapid in sandy soils.
Relief	Water reaches the channel more rapidly in a steeper basin as water is travelling more quickly downhill.
Vegetation	Vegetation intercepts a large proportion of rainfall. Where trees are deciduous, discharge is higher in a forested basin in winter as there is less interception.
Meteorological Factors	Where rain is falling faster than the infiltration rate there is infiltration-excess overland flow. This is common after a summer storm. Snow does not reach the channel but is stored on the ground surface. As snow melts, the meltwater will reach the channel quickly as infiltration is impeded if the ground is still frozen.
Catchment Shape	It takes less time for water to reach the channel in a circular basin as all extremities are roughly equidistant from the channel.
Land Use	Surface runoff is higher in urban areas because there are more urban surfaces (concrete & tarmac) and sewers take water rapidly to rivers. There is less interception and evapotranspiration and more surface runoff in a deforested catchment.
Catchment Size	Water reaches the channel more rapidly in a smaller basin as water has a shorter distance to travel.
Antecedent Conditions	The level of discharge before the storm is called the antecedent discharge. Even a small amount of rain can lead to flooding.

Source: The Field Studies Council

In Smith County some areas are more flood-prone than others. One of the ways of identifying these flood-prone areas is through determining the county's 100- and 500-year floodplains. 100-year floods are calculated to be the level of flood water expected to be equaled or exceeded every 100 years on average, meaning a flood that has a 1% chance of being equaled or exceeded in magnitude in any single year. A 500-year floodplain has a 0.2% chance. A 100-year floodplain would include the areas adjoining a stream, river, or watercourse that would be covered by water in the event of a 100-year flood (see diagram below).

Characteristics of a Floodplain



Source: FEMA

In Smith County, all jurisdictions have 100-year floodplains located within their boundaries and all jurisdictions are susceptible to smaller localized flooding outside of the 100-year floodplains. Areas in the county known to flood more often include:

- Pleasant Shade
- Winding Hills
- Rolling Hills

Smith County is underlain predominantly by rocks of Mississippian age. Rock exposures of Silurian and Ordovician age only occur in the major drainage valleys in the county. The most prominent rock formation is the Fort Payne Formation (Mississippian age). This formation is characterized by bedded and disseminated chert, shale, and siltstone and by limey and dolomitic zones. At the base of the Fort Payne Formation is the Chattanooga Shale. The Chattanooga Shale is used throughout the southeast region as a regional marker bed. The Chattanooga Shale is also important because of its influence on ground-water quality and quantity throughout central and eastern Tennessee.

Another major geologic factor in the survey area is the Tuscaloosa Gravel (Cretaceous age). Remnants of the Tuscaloosa Formation only exist in a few places across Tennessee. However, the influence of the Tuscaloosa Gravel can be seen in the colluvial deposits throughout Smith County. The chert gravel occurring at the base of hillslopes and on valley floors is a combination of the Tuscaloosa Gravel and chert from the Mississippian age rocks. The source for the Tuscaloosa Gravel is thought to be Cambrian-age and Ordovician-age formations of the Pascola Arch, an eastward-sloping extension of the Ozark Dome. During the late Cretaceous age, approximately 70 million years ago, material eroded from the formations of the Pascola Arch were deposited in a shallow sea that covered most of middle Tennessee. The remnants of those deposits are the Tuscaloosa Gravel. Important mineral resources in Smith County are chert gravel, iron, and phosphate. An excellent report of the iron industry in the county is available in the Tennessee Division of Geology Bulletin 39. There has been a minimum of oil and gas exploration in Smith County.

75

Flood Events in Smith County: January 1998 – December 2017

Location	County/ Zone	Date	Time	Type
GRANT	SMITH CO.	11/7/2017	6:00	Flood
CLUB SPGS	SMITH CO.	7/15/2017	7:30	Flash Flood
EDGEFIELD	SMITH CO.	7/2/2017	17:00	Flash Flood
PLEASANT SHADE	SMITH CO.	7/29/2016	13:00	Flash Flood
SOUTH CARTHAGE	SMITH CO.	6/23/2016	23:30	Flood
ROME	SMITH CO.	5/11/2016	3:00	Flash Flood
RIDDLETON	SMITH CO.	5/11/2016	18:00	Heavy Rain
CLUB SPGS	SMITH CO.	8/21/2013	10:42	Flash Flood
SOUTH CARTHAGE	SMITH CO.	8/7/2013	7:00	Heavy Rain
GRANT	SMITH CO.	7/6/2013	7:15	Flash Flood
GRANT	SMITH CO.	7/4/2013	12:30	Flash Flood
KEMPVILLE	SMITH CO.	8/17/2010	14:25	Flash Flood
DIXON SPGS	SMITH CO.	5/1/2010	16:58	Flood
CANEY FORK	SMITH CO.	3/12/2010	11:50	Heavy Rain
DIXON SPGS	SMITH CO.	9/16/2009	2:00	Flood
CARTHAGE	SMITH CO.	11/30/2004	12:20	Flash Flood
SMITH (ZONE)	SMITH (ZONE)	2/5/2004	13:02	Flood
COUNTYWIDE	SMITH CO.	5/7/2003	2:00	Flash Flood
COUNTYWIDE	SMITH CO.	5/5/2003	6:00	Flash Flood
COUNTYWIDE	SMITH CO.	3/17/2002	20:00	Flash Flood
COUNTYWIDE	SMITH CO.	1/24/2002	7:00	Flash Flood
PLEASANT SHADE	SMITH CO.	6/21/2000	19:50	Flash Flood
COUNTYWIDE	SMITH CO.	7/2/1999	2:00	Flash Flood
COUNTYWIDE	SMITH CO.	1/22/1999	23:35	Flash Flood
WEST CENTRAL PORTION	SMITH CO.	7/23/1998	0:00	Flash Flood
ELMWOOD	SMITH CO.	6/21/1998	8:30	Flash Flood
COUNTYWIDE	SMITH CO.	6/17/1998	9:00	Flash Flood
COUNTYWIDE	SMITH CO.	6/10/1998	10:55	Flash Flood
COUNTYWIDE	SMITH CO.	6/10/1998	20:04	Flash Flood

76

77

78

Source: <http://www.ncdc.noaa.gov/>**Smith County Hazard Mitigation Plan**Return to [Table of Contents](#)

79

Flood Impacts in Smith County: January 1998 – December 2017

Location	Date	Type	Deaths	Injuries	Property Damage	Crop Damage
GRANT	11/7/2017	Flood	0	0	0.00K	0.00K
CLUB SPGS	7/15/2017	Flash Flood	0	0	0.00K	0.00K
EDGEFIELD	7/2/2017	Flash Flood	0	0	5.00K	0.00K
PLEASANT SHADE	7/29/2016	Flash Flood	0	0	10.00K	0.00K
SOUTH CARTHAGE	6/23/2016	Flood	0	0	0.00K	0.00K
ROME	5/11/2016	Flash Flood	0	0	2.000M	0.00K
RIDDLETON	5/11/2016	Heavy Rain	0	0	0.00K	0.00K
CLUB SPGS	8/21/2013	Flash Flood	0	0	0.00K	0.00K
SOUTH CARTHAGE	8/7/2013	Heavy Rain	0	0	0.00K	0.00K
GRANT	7/6/2013	Flash Flood	0	0	0.00K	0.00K
GRANT	7/4/2013	Flash Flood	0	0	0.00K	0.00K
KEMPVILLE	8/17/2010	Flash Flood	0	0	1.000M	100.00K
DIXON SPGS	5/1/2010	Flood	0	0	1.600M	1.00K
CANEY FORK	3/12/2010	Heavy Rain	0	0	50.00K	0.00K
DIXON SPGS	9/16/2009	Flood	0	0	50.00K	0.00K
CARTHAGE	11/30/2004	Flash Flood	0	0	1.00K	0.00K
SMITH (ZONE)	2/5/2004	Flood	0	0	0.00K	0.00K
COUNTYWIDE	5/7/2003	Flash Flood	0	0	0.00K	0.00K
COUNTYWIDE	5/5/2003	Flash Flood	0	0	10.00K	0.00K
COUNTYWIDE	3/17/2002	Flash Flood	0	0	0.00K	0.00K
COUNTYWIDE	1/24/2002	Flash Flood	0	0	0.00K	0.00K
PLEASANT SHADE	6/21/2000	Flash Flood	0	0	0.00K	0.00K
COUNTYWIDE	7/2/1999	Flash Flood	0	0	50.00K	0.00K
COUNTYWIDE	1/22/1999	Flash Flood	0	0	100.00K	0.00K
WEST CENTRAL PORTION	7/23/1998	Flash Flood	0	0	20.00K	0.00K
ELMWOOD	6/21/1998	Flash Flood	0	0	0.00K	0.00K
COUNTYWIDE	6/17/1998	Flash Flood	0	0	0.00K	0.00K
COUNTYWIDE	6/10/1998	Flash Flood	0	0	0.00K	0.00K
COUNTYWIDE	6/10/1998	Flash Flood	0	0	0.00K	0.00K

80

81

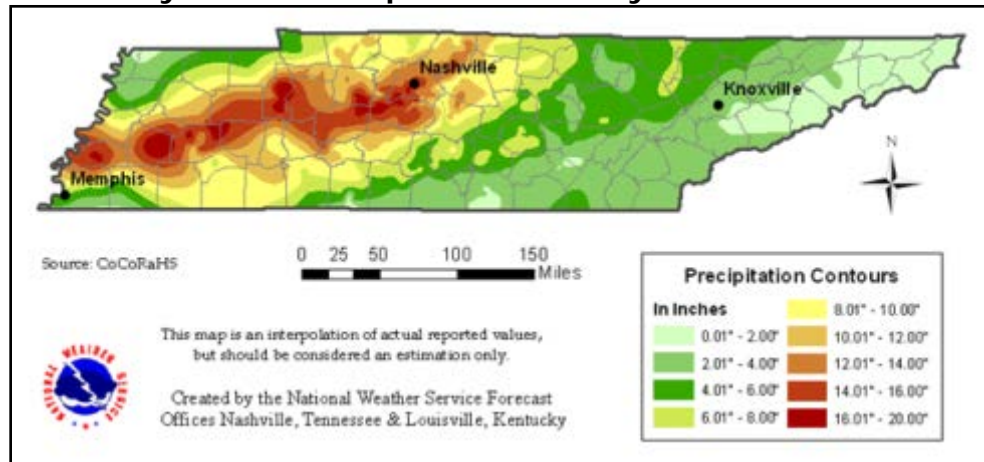
82

83

Source: <http://www.ncdc.noaa.gov/>

Small localized flood events are likely to occur frequently in Smith County. The severity of flooding that may occur in the county is measured by inches of rainfall and by feet of flooding. Based on previous occurrences, in a worst case scenario it is possible for the extent of a flooding event to exceed 6 inches of rainfall and cause over 4 feet of localized flooding in the span of two days. As seen with the May 2010 Tennessee Flood Event (DR-1909), it is possible for 20 inches or more of rainfall to amass within two days (see following map).

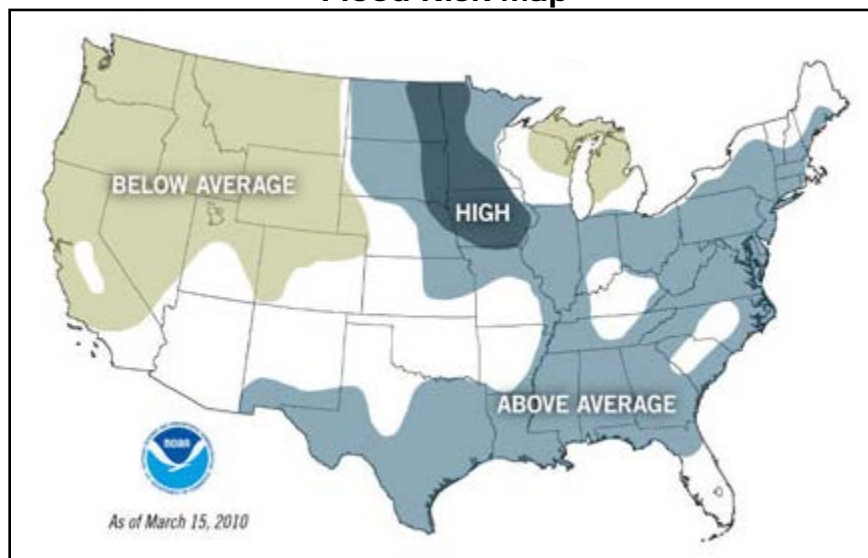
Tennessee May Flood- Precipitation for May 1st & 2nd 2010



Source: National Weather Service <http://www.srh.noaa.gov/ohx/?n=may2010epicfloodevent>

According to a NOAA Flood Risk Map (see map below), the majority of Tennessee was located in an “above average” risk of flooding zone during spring 2010. This proposed vulnerability is coupled with the fact that on average Tennessee usually acquires over 50-60 inches of rainfall a year (see following map).

Flood Risk Map



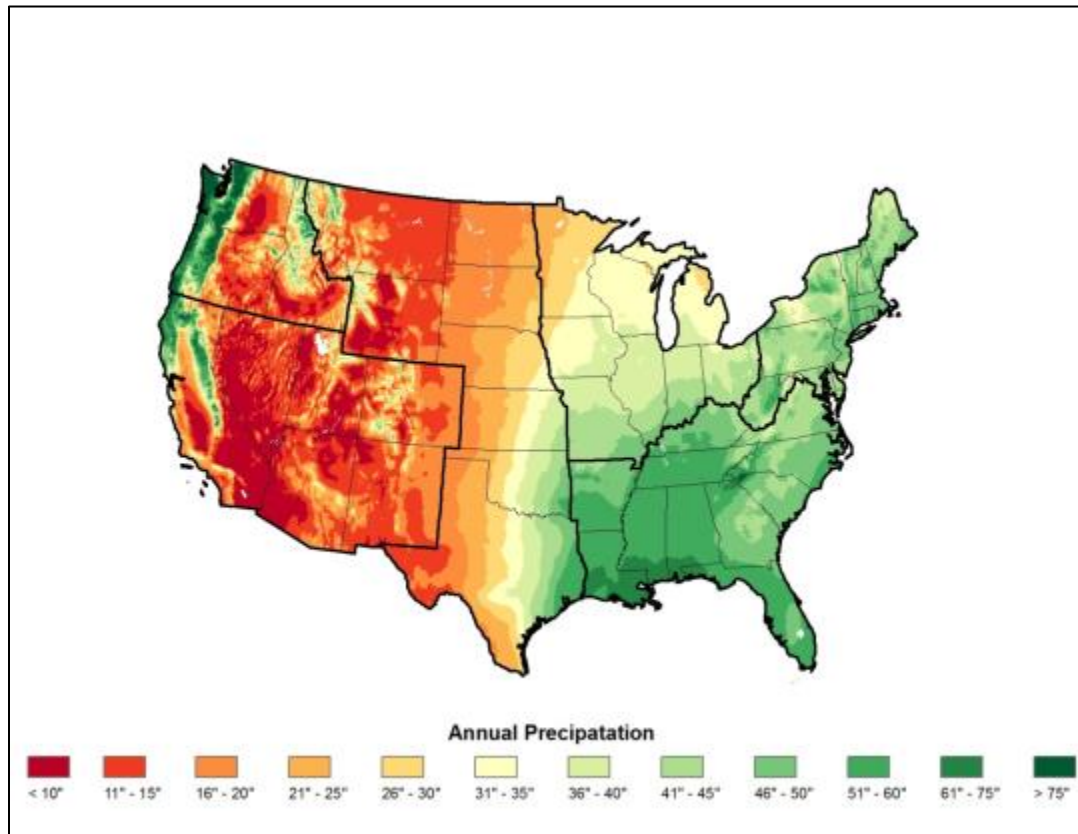
Source: NOAA

<https://www.climate.gov/news-features/featured-images/above-average-flood-risk-forecast-one-third-us>

Smith County Hazard Mitigation Plan

Return to [Table of Contents](#)

104

Average Annual Precipitation (1981-2010)

105

Source:

http://scenarios.globalchange.gov/sites/default/files/b/figures/UnitedStates/US_Annual_Precipitation.jpg

106

107

108

Throughout the county all buildings and infrastructure are vulnerable to flood impacts. Smith County's building stock can be broken down into the following percentage categories: 77.3% residential, 13.5% commercial, 4.9% industrial, .0.4% agricultural, 0.5% governmental, .2.5% religious, and 0.9% educational (source: Smith County Hazus Flood Study – table 1 in [Appendix E](#)). For further information about flooding hazards in Smith County, see the HAZUS vulnerability study in [Appendix E](#). Smith County uses a ranking system to determine each jurisdiction's vulnerability to flooding events. This system is based off simple arithmetic which analyzes potential impacts to determine vulnerabilities and then analyzes the probability of a flood event occurring to calculate a flood risk ranking for each jurisdiction.

117

Event: Flood	Human 1-5	Property 1-5	Business 1-5	Sub-Total Average	Probability 1-5	Risk Score = $[(H+P+B)/3] + P$	8.4
Smith County	4	5	2	3.67	5	8.67	
Town of Carthage	4	5	3	4.00	5	9.00	
Town of Gordonsville	3	4	2	3.00	4	7.00	
Town of South Carthage	4	5	3	4.00	5	9.00	

118

Source: Calculation of Planning Committee Input using the [Vulnerability Calculator](#)

119

Smith County Hazard Mitigation PlanReturn to [Table of Contents](#)

Human						
<i>Risk of injuries and deaths from the hazard</i>						
1	Death very unlikely, injuries are unlikely					
2	Death unlikely, injuries are minimal					
3	Death unlikely, injuries may be substantial					
4	Death possible, injuries may be substantial					
5	Deaths probable, injuries will likely be substantial					
Property						
<i>Amount of residential property damage associated from the hazard</i>						
1	Less than \$500 in damages					
2	\$500-\$10,000 in damages					
3	\$10,000-\$500,000 in damages					
4	\$500,000-\$2,000,000 in damages					
5	More than \$2,000,000 in damages					
Business						
<i>Amount of business damage associated from the hazard</i>						
1	Less than 3 businesses closed for only a day					
2	More than 3 businesses closed for a week					
3	More than 3 businesses closed for a few months					
4	More than 3 businesses closed indefinitely or relocated					
5	A top-10 local employer closed indefinitely					
Probability						
<i>Likelihood of the hazard occurring within a given span of years</i>						
1	Less than once every 10 years					
2	About once every 5-10 years					
3	About once every 2-5 years					
4	About once a year					
5	More than once a year					

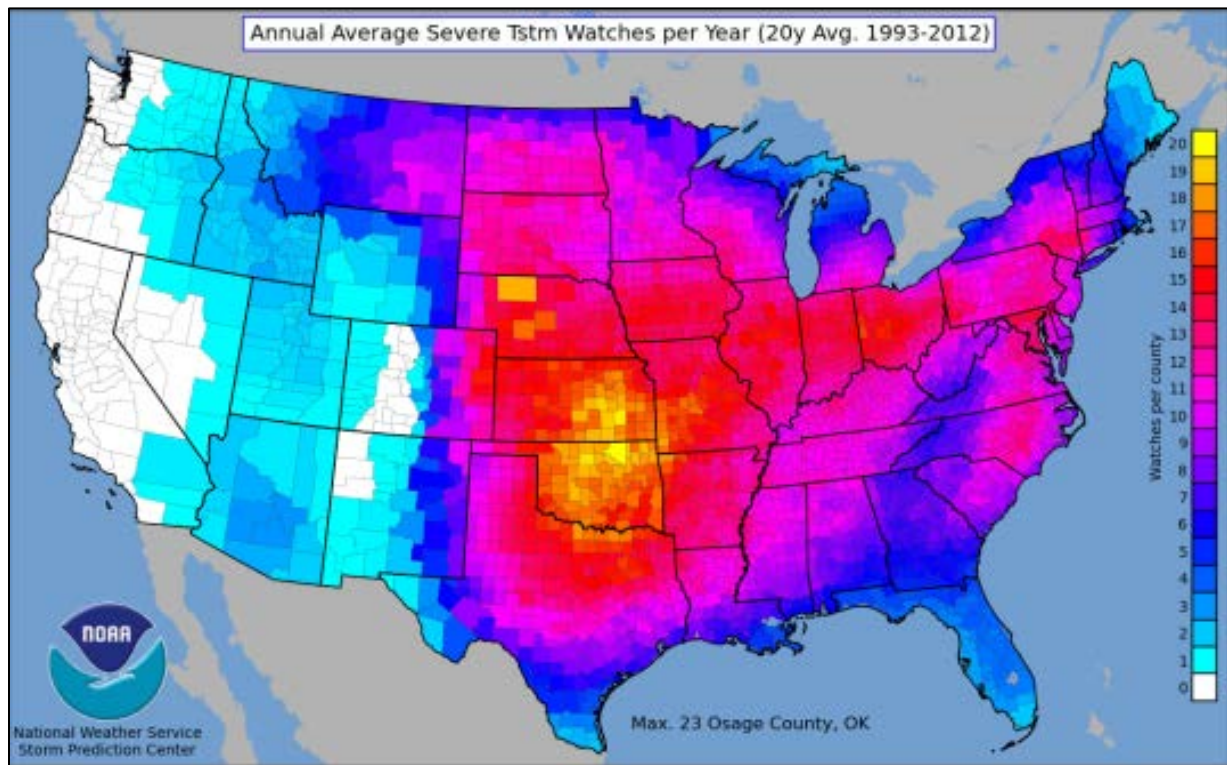
Scale	
Low	2-3.6
Moderate	3.7-5.2
Medium	5.3-6.8
High	6.9-8.4
Severe	8.5-10

Tornadoes/Severe Storms

The Smith County Hazard Mitigation Committee ranked Tornadoes as its second highest risk priority, followed by Wind Events and Severe Storms.

According to the National Weather Service, to consider a storm severe it must encompass one of three traits: produce winds greater than 58 miles per hour (50.4 knots), produce hail $\frac{3}{4}$ of an inch or greater in diameter, or produce tornadoes. On average, a typical county in Tennessee has about 10 severe storm watches per year (see map below)

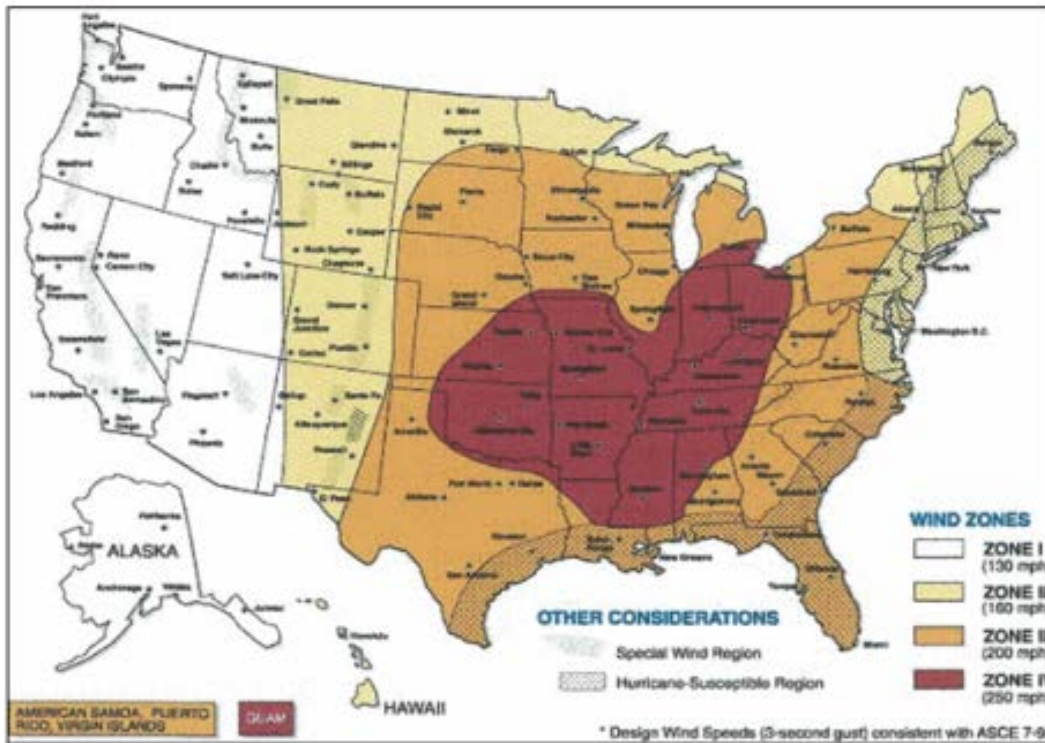
Average Severe Storm Watches Per Year (1999-2008)



Source: <http://www.spc.noaa.gov/wcm/20ysvra.png>

A tornado is a violently rotating column of air that extends from a thunderstorm, etc. down to the ground, and can reach wind speeds of 40 mph to 250 mph and higher. Tornadoes paths, lengths, and widths can vary greatly. In Smith County, all jurisdictions are vulnerable to tornado threats. Much of Tennessee is in the highest wind zone (see map, below).

Wind Zones in the United States



Source: FEMA

Smith County historically has had several tornadoes in the past. Based on NOAA NCDC data, the following charts provide a list of tornado events occurring in Smith County from January 1997 to December 2017 and a description of each tornado's impacts within the county.

Tornado Events in Smith County: January 1997 – December 2017

Location	County/ Zone	State	Date	Time	T.Z.	Type
ROME	SMITH CO.	TN	5/24/2017	10:36	CST-6	Tornado
BRUSH CREEK	SMITH CO.	TN	3/1/2017	7:47	CST-6	Tornado
SYKES	SMITH CO.	TN	3/1/2017	7:51	CST-6	Tornado
LANCASTER HILL	SMITH CO.	TN	12/23/2015	22:21	CST-6	Tornado
GRANT	SMITH CO.	TN	10/1/2012	16:31	CST-6	Tornado
NEW MIDDLETON	SMITH CO.	TN	4/27/2011	5:24	CST-6	Tornado
CARTHAGE	SMITH CO.	TN	3/28/1997	21:17	CST	Tornado
BRUSH CREEK	SMITH CO.	TN	1/24/1997	17:28	CST	Tornado

Source: <http://www.ncdc.noaa.gov/>

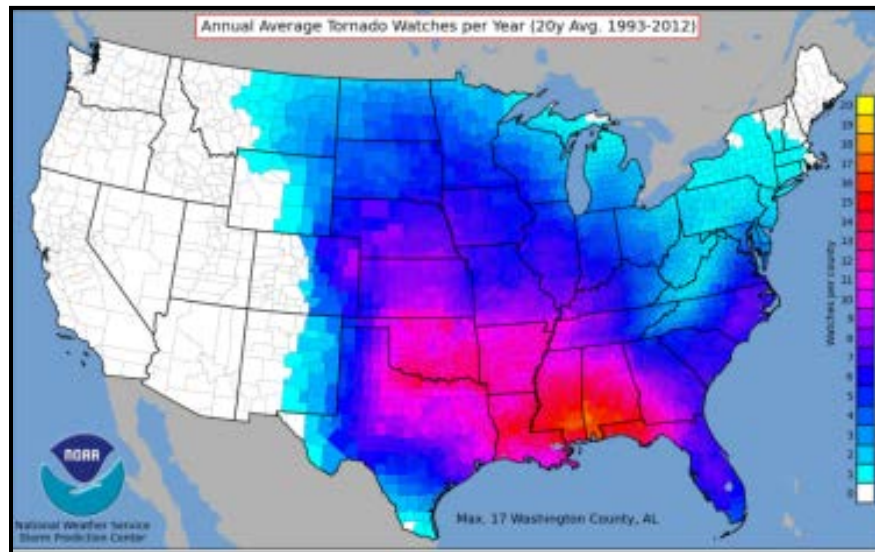
Tornado Impacts in Smith County: January 1998 – December 2017

Location	Date	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
ROME	5/24/2017	Tornado	EF0	0	0	50.00K	0.00K
BRUSH CREEK	3/1/2017	Tornado	EF0	0	0	10.00K	0.00K
SYKES	3/1/2017	Tornado	EF1	0	0	40.00K	0.00K
LANCASTER HILL	12/23/2015	Tornado	EF2	0	0	300.00K	0.00K
GRANT	10/1/2012	Tornado	EF1	0	0	15.00K	0.00K
NEW MIDDLETON	4/27/2011	Tornado	EF0	0	0	5.00K	11.00K
CARTHAGE	3/28/1997	Tornado	F1	0	0	50.00K	0.00K
BRUSH CREEK	1/24/1997	Tornado	F2	0	6	1.000M	0.00K

Source: <http://www.ncdc.noaa.gov/>

The strongest tornado ever recorded in Smith County was an EF 2 tornado on January 24, 1997, that resulted in six injuries and over a million dollars in damages. Based on previous occurrences, tornado events are likely to occur approximately every one or two years or so in Smith County; (see the following map for other probability information).

Average Number of Tornadoes Per Year



Source: <http://www.spc.noaa.gov/wcm/20ytora.png>

The severity of tornadoes that may occur in the county is measured using the Enhanced Fujita Scale for tornadoes (see chart below). Based on historical events, in a worse case scenario it is possible for the extent of a tornado to exceed an EF3 ranking.

Smith County Hazard Mitigation Plan

Return to [Table of Contents](#)

Fujita Scale/Enhanced Fujita Scale for Tornadoes

Fujita Scale/Enhanced Fujita Scale for Tornadoes				
F-Scale	Fastest Quarter Mile Wind Speed	Typical Impacts	Enhanced Scale: 3 Sec Wind Gust Speed	Enhanced F-Scale
F0	40-72 mph	Some damage to chimney; breaks branches off trees; pushes over shallow-rooted trees; damages sign boards.	65-85 mph	EF0
F1	73-112 mph	Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.	86-110 mph	EF1
F2	113-157 mph	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.	111-135 mph	EF2
F3	158-206 mph	Roof and some walls torn off well constructed houses; trains overturned; most trees in forest uprooted.	136-165 mph	EF3
F4	207-260 mph	Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.	166-200 mph	EF4
F5	261-318 mph	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel reinforced concrete structures badly damaged.	Over 200 mph	EF5

Source: [NOAA National Weather Service](#); [The Tornado Project](#)

Hail is the frozen form of precipitation, falling as small spheres of solid ice. Even though the risk from hail is relatively low, all jurisdictions have the possibility of hail causing some window and roof damage. Historically, hail events occur about twice a year in Smith County. The severity of hail is measured by the diameter of the hail itself, commonly using the TORRO Hail Index (see following chart). Smith County's largest hail extent is reported at 2.0 inches (H5). Most of the county's hail events only were reported causing minor roof damage to several homes and vehicles.

174

TORRO Hail Index

TORRO Hail Index			
Scale	Max Diameter	Comparisons	Typical Impacts
H0	5-9mm	Pea	No damage.
H1	10-15mm	Mothball	Slight general damage to plants, crops.
H2	16-20mm	Marble	Significant damage to fruit, crops, vegetation.
H3	21-30mm	Walnut	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored.
H4	31-40mm	Pigeon's Egg	Widespread glass damage, vehicle bodywork damage.
H5	41-50mm	Golf Ball	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries.
H6	51-60mm	Hen's Egg	Bodywork of grounded aircraft dented, brick walls pitted.
H7	61-75mm	Tennis Ball	Severe roof damage, risk of serious injuries.
H8	76-90mm	Soft Ball	Severe damage to aircraft bodywork.
H9	91-100mm	Grapefruit	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open.

175

176

Source: The Tornado & Storm Research Organization (<http://www.torro.org.uk/hscale.php>)

177 Throughout the county all buildings and infrastructure are vulnerable to tornadoes and severe
 178 storm impacts. Smith County's building stock can be broken down into the following percentage
 179 categories: 75.7% residential, 11.3% commercial, 7.8% industrial, .2% agricultural, 3.2%
 180 governmental, .7% religious, and 1.1% educational (source: Smith County Hazus Flood Study –
 181 table 1 in [Appendix G](#)).

182

183 The following chart provides hail event information for Smith County between January 1996 and
 184 December 2017.

185 **Hail Events in Smith County: January 1996 – December 2017**

Location			Date	Time	Type
CARTHAGE	SMITH CO.	TN	6/3/1996	20:00 CST	Hail
GORDONSVILLE	SMITH CO.	TN	1/24/1997	17:30 CST	Hail
ELMWOOD	SMITH CO.	TN	8/19/1997	17:32 CST	Hail
PLEASANT SHADE	SMITH CO.	TN	4/16/1998	15:50 CST	Hail
ELMWOOD	SMITH CO.	TN	7/4/1998	13:15 CST	Hail
ELMWOOD	SMITH CO.	TN	1/17/1999	20:57 CST	Hail
ELMWOOD	SMITH CO.	TN	4/19/1999	18:33 CST	Hail
CHESTNUT MOUND	SMITH CO.	TN	4/19/1999	19:43 CST	Hail
BRUSH CREEK	SMITH CO.	TN	5/25/2000	0:30 CST	Hail
CARTHAGE	SMITH CO.	TN	5/1/2001	15:25 CST	Hail
CARTHAGE	SMITH CO.	TN	4/28/2002	5:37 CST	Hail
NORTH CENTRAL PO	SMITH CO.	TN	5/10/2005	16:07 CST	Hail
CARTHAGE	SMITH CO.	TN	5/10/2005	16:46 CST	Hail
CARTHAGE	SMITH CO.	TN	5/16/2006	16:54 CST	Hail
DIFFICULT	SMITH CO.	TN	7/21/2008	15:15 CST-6	Hail
CEDAR PT	SMITH CO.	TN	1/21/2010	15:45 CST-6	Hail
GORDONSVILLE	SMITH CO.	TN	3/12/2010	8:15 CST-6	Hail
BRUSH CREEK	SMITH CO.	TN	3/23/2011	17:25 CST-6	Hail
CARTHAGE	SMITH CO.	TN	6/15/2011	9:59 CST-6	Hail
PLEASANT SHADE	SMITH CO.	TN	6/15/2011	20:10 CST-6	Hail
SOUTH CARTHAGE	SMITH CO.	TN	3/2/2012	16:55 CST-6	Hail
CARTHAGE	SMITH CO.	TN	4/26/2012	5:08 CST-6	Hail
GRAVELTOWN	SMITH CO.	TN	4/26/2012	16:28 CST-6	Hail
CARTHAGE	SMITH CO.	TN	8/21/2013	10:33 CST-6	Hail
CANEY FORK	SMITH CO.	TN	6/10/2014	12:00 CST-6	Hail
CARTHAGE	SMITH CO.	TN	4/25/2015	20:54 CST-6	Hail
DEFEATED	SMITH CO.	TN	7/8/2016	15:05 CST-6	Hail
CARTHAGE JCT	SMITH CO.	TN	7/8/2016	15:30 CST-6	Hail
NEW MIDDLETON	SMITH CO.	TN	4/5/2017	15:34 CST-6	Hail
CARTHAGE	SMITH CO.	TN	4/5/2017	15:40 CST-6	Hail
CARTHAGE	SMITH CO.	TN	4/5/2017	15:40 CST-6	Hail
CARTHAGE	SMITH CO.	TN	4/5/2017	15:42 CST-6	Hail

Source: <http://www.ncdc.noaa.gov/>

190

Hail Impacts in Smith County: January 1996 – December 2017

Location	Date	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
CARTHAGE	6/3/1996	Hail	0.88 in.	0	0	0.00K	0.00K
GORDONSVILLE	1/24/1997	Hail	0.88 in.	0	0	0.00K	0.00K
ELMWOOD	8/19/1997	Hail	2.75 in.	0	0	0.00K	0.00K
PLEASANT SHADE	4/16/1998	Hail	1.75 in.	0	0	0.00K	0.00K
ELMWOOD	7/4/1998	Hail	0.88 in.	0	0	0.00K	0.00K
ELMWOOD	1/17/1999	Hail	0.75 in.	0	0	0.00K	0.00K
ELMWOOD	4/19/1999	Hail	0.88 in.	0	0	0.00K	0.00K
CHESTNUT MOUND	4/19/1999	Hail	0.88 in.	0	0	0.00K	0.00K
BRUSH CREEK	5/25/2000	Hail	0.75 in.	0	0	0.00K	0.00K
CARTHAGE	5/1/2001	Hail	0.75 in.	0	0	0.00K	0.00K
CARTHAGE	4/28/2002	Hail	0.75 in.	0	0	0.00K	0.00K
NORTH CENTRAL PO	5/10/2005	Hail	1.00 in.	0	0	0.00K	0.00K
CARTHAGE	5/10/2005	Hail	1.25 in.	0	0	0.00K	0.00K
CARTHAGE	5/16/2006	Hail	0.88 in.	0	0	0.00K	0.00K
DIFFICULT	7/21/2008	Hail	0.88 in.	0	0	0.00K	0.00K
CEDAR PT	1/21/2010	Hail	0.75 in.	0	0	0.00K	0.00K
GORDONSVILLE	3/12/2010	Hail	1.00 in.	0	0	10.00K	0.00K
BRUSH CREEK	3/23/2011	Hail	1.00 in.	0	0	0.00K	0.00K
CARTHAGE	6/15/2011	Hail	1.00 in.	0	0	0.00K	0.00K
PLEASANT SHADE	6/15/2011	Hail	1.00 in.	0	0	0.00K	0.00K
SOUTH CARTHAGE	3/2/2012	Hail	0.88 in.	0	0	0.00K	0.00K
CARTHAGE	4/26/2012	Hail	0.88 in.	0	0	0.00K	0.00K
GRAVELTOWN	4/26/2012	Hail	0.75 in.	0	0	0.00K	0.00K
CARTHAGE	8/21/2013	Hail	1.00 in.	0	0	0.00K	0.00K
CANEY FORK	6/10/2014	Hail	1.00 in.	0	0	0.00K	0.00K
CARTHAGE	4/25/2015	Hail	0.88 in.	0	0	0.00K	0.00K
DEFEATED	7/8/2016	Hail	0.75 in.	0	0	0.00K	0.00K
CARTHAGE JCT	7/8/2016	Hail	0.75 in.	0	0	0.00K	0.00K
NEW MIDDLETON	4/5/2017	Hail	1.75 in.	0	0	0.00K	0.00K
CARTHAGE	4/5/2017	Hail	0.88 in.	0	0	0.00K	0.00K
CARTHAGE	4/5/2017	Hail	1.00 in.	0	0	0.00K	0.00K
CARTHAGE	4/5/2017	Hail	0.88 in.	0	0	0.00K	0.00K

Source: <http://www.ncdc.noaa.gov/>

191

192

193

194

195

196

197

198

199

200

Severe storm winds most commonly occur as straight-line winds; a downburst of wind created by an area of significantly rain-cooled air that spreads out in all directions after hitting the ground. All jurisdictions are vulnerable to receiving damage from these severe storm winds. Historically, severe storm wind events occur about five times a year in Smith County. The severity of severe storm winds is commonly measured by wind speed (knots or mph). The following chart provides severe storm wind event information for Smith County between January 1995 and December 2017.

Smith County Hazard Mitigation PlanReturn to [Table of Contents](#)

201

Wind Events in Smith County: January 1995 – December 2017

Location	County/ Zone	State	Date	Time	T.Z.
BRUSH CREEK	SMITH CO.	TN	11/18/2017	17:32	CST-6
BRUSH CREEK	SMITH CO.	TN	11/18/2017	17:33	CST-6
SYKES	SMITH CO.	TN	11/18/2017	17:34	CST-6
LANCASTER HILL	SMITH CO.	TN	11/18/2017	17:40	CST-6
ROME	SMITH CO.	TN	7/23/2017	17:05	CST-6
ROCK CITY	SMITH CO.	TN	7/23/2017	17:13	CST-6
GORDONSVILLE	SMITH CO.	TN	7/23/2017	17:28	CST-6
HICKMAN	SMITH CO.	TN	7/23/2017	17:34	CST-6
CHESTNUT MOUNTAIN	SMITH CO.	TN	6/23/2017	14:05	CST-6
FLAT ROCK	SMITH CO.	TN	5/27/2017	18:40	CST-6
GRANT	SMITH CO.	TN	5/27/2017	18:45	CST-6
KEMPVILLE	SMITH CO.	TN	5/27/2017	18:47	CST-6
ROME	SMITH CO.	TN	5/24/2017	10:36	CST-6
ROME	SMITH CO.	TN	5/24/2017	10:37	CST-6
TANGLEWOOD	SMITH CO.	TN	4/29/2017	19:10	CST-6
NEW MIDDLETON	SMITH CO.	TN	4/5/2017	15:34	CST-6
CARTHAGE	SMITH CO.	TN	4/5/2017	15:40	CST-6
CARTHAGE	SMITH CO.	TN	4/5/2017	15:40	CST-6
CARTHAGE	SMITH CO.	TN	4/5/2017	15:42	CST-6
BRUSH CREEK	SMITH CO.	TN	3/1/2017	7:47	CST-6
SYKES	SMITH CO.	TN	3/1/2017	7:51	CST-6
BRUSH CREEK	SMITH CO.	TN	3/1/2017	7:49	CST-6
BRUSH CREEK	SMITH CO.	TN	3/1/2017	7:50	CST-6
LANCASTER HILL	SMITH CO.	TN	3/1/2017	7:55	CST-6
CHESTNUT MOUNTAIN	SMITH CO.	TN	3/1/2017	8:02	CST-6
TANGLEWOOD	SMITH CO.	TN	12/18/2016	0:12	CST-6
DIXON SPGS	SMITH CO.	TN	12/17/2016	23:45	CST-6
PLEASANT SHADE	SMITH CO.	TN	12/17/2016	23:51	CST-6
DIFFICULT	SMITH CO.	TN	12/17/2016	23:53	CST-6
DEFEATED	SMITH CO.	TN	7/27/2016	14:15	CST-6
DEFEATED	SMITH CO.	TN	7/27/2016	14:20	CST-6
BRUSH CREEK	SMITH CO.	TN	7/19/2016	13:20	CST-6
TANGLEWOOD	SMITH CO.	TN	7/14/2016	12:52	CST-6
ROME	SMITH CO.	TN	7/8/2016	20:25	CST-6
RIDDLETON	SMITH CO.	TN	7/8/2016	20:27	CST-6
PLEASANT SHADE	SMITH CO.	TN	7/8/2016	20:29	CST-6
NEW MIDDLETON	SMITH CO.	TN	7/8/2016	20:30	CST-6
DEFEATED	SMITH CO.	TN	7/8/2016	15:05	CST-6
CARTHAGE JCT	SMITH CO.	TN	7/8/2016	15:30	CST-6

202

Smith County Hazard Mitigation PlanReturn to [Table of Contents](#)

Location	County/ Zone	State	Date	Time	T.Z.
ROME	SMITH CO.	TN	7/7/2016	14:31	CST-6
RIDDLETON	SMITH CO.	TN	7/7/2016	14:33	CST-6
KEMPVILLE	SMITH CO.	TN	7/7/2016	14:40	CST-6
CARTHAGE	SMITH CO.	TN	7/7/2016	14:42	CST-6
BRUSH CREEK	SMITH CO.	TN	7/7/2016	14:55	CST-6
FLAT ROCK	SMITH CO.	TN	7/6/2016	14:06	CST-6
DIXON SPGS	SMITH CO.	TN	7/6/2016	14:08	CST-6
RIDDLETON	SMITH CO.	TN	7/6/2016	14:11	CST-6
RIDDLETON	SMITH CO.	TN	7/6/2016	15:28	CST-6
CARTHAGE	SMITH CO.	TN	7/4/2016	14:28	CST-6
CARTHAGE	SMITH CO.	TN	6/23/2016	23:10	CST-6
ROME	SMITH CO.	TN	6/15/2016	15:37	CST-6
CARTHAGE	SMITH CO.	TN	6/15/2016	15:48	CST-6
ELMWOOD	SMITH CO.	TN	6/15/2016	15:55	CST-6
HICKMAN	SMITH CO.	TN	6/4/2016	9:35	CST-6
STONEWALL	SMITH CO.	TN	6/4/2016	9:45	CST-6
RIDDLETON	SMITH CO.	TN	5/11/2016	2:50	CST-6
SOUTH CARTHAGE	SMITH CO.	TN	5/11/2016	3:03	CST-6
SOUTH CARTHAGE	SMITH CO.	TN	5/11/2016	3:05	CST-6
SOUTH CARTHAGE	SMITH CO.	TN	4/6/2016	17:05	CST-6
LANCASTER HILL	SMITH CO.	TN	12/23/2015	22:21	CST-6
HICKMAN	SMITH CO.	TN	11/6/2015	5:15	CST-6
ROCK CITY	SMITH CO.	TN	7/14/2015	13:48	CST-6
GRANT	SMITH CO.	TN	7/14/2015	14:00	CST-6
CARTHAGE	SMITH CO.	TN	4/25/2015	20:54	CST-6
BRUSH CREEK	SMITH CO.	TN	8/20/2014	13:18	CST-6
GRANT	SMITH CO.	TN	6/21/2014	15:29	CST-6
CHESTNUT MOUNTAIN	SMITH CO.	TN	6/10/2014	13:10	CST-6
CANEY FORK	SMITH CO.	TN	6/10/2014	12:00	CST-6
SOUTH CARTHAGE	SMITH CO.	TN	4/4/2014	5:20	CST-6
CARTHAGE	SMITH CO.	TN	2/20/2014	21:00	CST-6
CARTHAGE	SMITH CO.	TN	12/21/2013	22:31	CST-6
CARTHAGE	SMITH CO.	TN	8/21/2013	10:33	CST-6
MONOVILLE	SMITH CO.	TN	6/10/2013	14:16	CST-6
CARTHAGE	SMITH CO.	TN	5/21/2013	12:15	CST-6
CARTHAGE	SMITH CO.	TN	5/21/2013	12:33	CST-6
RIDDLETON	SMITH CO.	TN	1/30/2013	3:55	CST-6
CARTHAGE	SMITH CO.	TN	1/30/2013	4:15	CST-6
GORDONSVILLE	SMITH CO.	TN	1/30/2013	4:25	CST-6
GRANT	SMITH CO.	TN	10/1/2012	16:31	CST-6

Location	County/ Zone	State	Date	Time	T.Z.
CARTHAGE	SMITH CO.	TN	7/8/2012	16:25	CST-6
CARTHAGE	SMITH CO.	TN	4/26/2012	5:08	CST-6
GRAVELTOWN	SMITH CO.	TN	4/26/2012	16:28	CST-6
SOUTH CARTHAGE	SMITH CO.	TN	3/2/2012	16:55	CST-6
CARTHAGE	SMITH CO.	TN	2/29/2012	14:50	CST-6
CARTHAGE	SMITH CO.	TN	6/15/2011	9:59	CST-6
PLEASANT SHADE	SMITH CO.	TN	6/15/2011	20:10	CST-6
BRUSH CREEK	SMITH CO.	TN	6/5/2011	13:04	CST-6
NEW MIDDLETON	SMITH CO.	TN	4/27/2011	5:24	CST-6
CARTHAGE	SMITH CO.	TN	4/27/2011	5:31	CST-6
SOUTH CARTHAGE	SMITH CO.	TN	4/4/2011	13:50	CST-6
TANGLEWOOD	SMITH CO.	TN	4/4/2011	14:10	CST-6
BRUSH CREEK	SMITH CO.	TN	3/23/2011	17:25	CST-6
CARTHAGE	SMITH CO.	TN	8/14/2010	18:15	CST-6
CARTHAGE	SMITH CO.	TN	8/5/2010	12:30	CST-6
ELMWOOD	SMITH CO.	TN	7/12/2010	21:25	CST-6
GORDONSVILLE	SMITH CO.	TN	3/12/2010	8:15	CST-6
CEDAR PT	SMITH CO.	TN	1/21/2010	15:45	CST-6
SOUTH CARTHAGE	SMITH CO.	TN	6/16/2009	13:55	CST-6
MONOVILLE	SMITH CO.	TN	2/11/2009	12:50	CST-6
DIFFICULT	SMITH CO.	TN	7/21/2008	15:15	CST-6
FLAT ROCK	SMITH CO.	TN	2/6/2008	3:15	CST-6
PLEASANT SHADE	SMITH CO.	TN	2/6/2008	3:25	CST-6
ROME	SMITH CO.	TN	1/29/2008	19:55	CST-6
LANCASTER HILL	SMITH CO.	TN	10/18/2007	23:45	CST-6
DIFFICULT	SMITH CO.	TN	10/18/2007	23:50	CST-6
CARTHAGE	SMITH CO.	TN	9/23/2006	5:07	CST
COUNTYWIDE	SMITH CO.	TN	9/23/2006	14:30	CST
CARTHAGE	SMITH CO.	TN	5/16/2006	16:54	CST
SMITH (ZONE)	SMITH (ZONE)	TN	11/28/2005	13:30	CST
SOUTH PORTION	SMITH CO.	TN	11/15/2005	20:35	CST
DIXON SPGS	SMITH CO.	TN	7/4/2005	16:30	CST
NORTH CENTRAL P	SMITH CO.	TN	5/10/2005	16:07	CST
CARTHAGE	SMITH CO.	TN	5/10/2005	16:46	CST
CHESTNUT MOUNI	SMITH CO.	TN	12/7/2004	5:10	CST
COUNTYWIDE	SMITH CO.	TN	7/13/2004	20:10	CST
GRANT	SMITH CO.	TN	7/6/2004	16:40	CST
COUNTYWIDE	SMITH CO.	TN	7/5/2004	14:13	CST
CHESTNUT MOUNI	SMITH CO.	TN	7/28/2003	14:30	CST
PLEASANT SHADE	SMITH CO.	TN	7/9/2003	16:40	CST


Smith County Hazard Mitigation PlanReturn to [Table of Contents](#)

Location	County/ Zone	State	Date	Time	T.Z.
NORTH PORTION	SMITH CO.	TN	6/10/2003	14:45	CST
COUNTYWIDE	SMITH CO.	TN	5/7/2003	1:56	CST
COUNTYWIDE	SMITH CO.	TN	5/13/2002	4:00	CST
CARTHAGE	SMITH CO.	TN	4/28/2002	5:37	CST
COUNTYWIDE	SMITH CO.	TN	10/24/2001	19:36	CST
SOUTH CARTHAGE	SMITH CO.	TN	9/5/2001	16:30	CST
CARTHAGE	SMITH CO.	TN	6/27/2001	14:00	CST
CARTHAGE	SMITH CO.	TN	5/1/2001	15:25	CST
ROME	SMITH CO.	TN	2/25/2001	1:40	CST
CARTHAGE	SMITH CO.	TN	11/9/2000	13:05	CST
BRUSH CREEK	SMITH CO.	TN	5/25/2000	0:30	CST
SOUTH CARTHAGE	SMITH CO.	TN	1/3/2000	22:30	CST
CARTHAGE	SMITH CO.	TN	1/3/2000	22:35	CST
PLEASANT SHADE	SMITH CO.	TN	6/2/1999	13:05	CST
NORTH PORTION	SMITH CO.	TN	5/23/1999	14:35	CST
GORDONSVILLE	SMITH CO.	TN	5/23/1999	16:38	CST
LANCASTER	SMITH CO.	TN	5/23/1999	16:45	CST
ELMWOOD	SMITH CO.	TN	4/19/1999	18:33	CST
CHESTNUT MOUNTAIN	SMITH CO.	TN	4/19/1999	19:43	CST
DEFEATED	SMITH CO.	TN	1/22/1999	18:55	CST
CARTHAGE	SMITH CO.	TN	1/17/1999	21:00	CST
DIXON SPGS	SMITH CO.	TN	1/17/1999	21:00	CST
ELMWOOD	SMITH CO.	TN	1/17/1999	20:57	CST
CARTHAGE	SMITH CO.	TN	7/4/1998	13:00	CST
ELMWOOD	SMITH CO.	TN	7/4/1998	13:15	CST
SOUTH PORTION	SMITH CO.	TN	6/20/1998	11:40	CST
NORTH PORTION	SMITH CO.	TN	6/14/1998	10:20	CST
COUNTYWIDE	SMITH CO.	TN	6/14/1998	22:00	CST
PLEASANT SHADE	SMITH CO.	TN	6/14/1998	22:00	CST
CARTHAGE	SMITH CO.	TN	5/21/1998	18:26	CST
PLEASANT SHADE	SMITH CO.	TN	4/16/1998	15:50	CST
ELMWOOD	SMITH CO.	TN	8/19/1997	17:32	CST
ELMWOOD	SMITH CO.	TN	8/19/1997	17:32	CST
DEFEATED	SMITH CO.	TN	6/13/1997	15:00	CST
CARTHAGE	SMITH CO.	TN	3/28/1997	21:17	CST
BRUSH CREEK	SMITH CO.	TN	1/24/1997	17:28	CST
GORDONSVILLE	SMITH CO.	TN	1/24/1997	17:30	CST
NEW MIDDLETON	SMITH CO.	TN	7/21/1996	13:30	CST
CARTHAGE	SMITH CO.	TN	7/21/1996	18:20	CST
CARTHAGE	SMITH CO.	TN	7/21/1996	18:30	CST
CARTHAGE	SMITH CO.	TN	6/7/1996	11:30	CST
CARTHAGE	SMITH CO.	TN	6/3/1996	20:00	CST
CARTHAGE	SMITH CO.	TN	5/26/1996	15:50	CST
Carthage	SMITH CO.	TN	5/18/1995	12:30	CST

Source: <http://www.ncdc.noaa.gov/>**Smith County Hazard Mitigation Plan**Return to [Table of Contents](#)


207


Wind Impacts in Smith County: January 1995 – December 2017

Location	Date	Type	 Magnitude	Deaths	Injuries	Property Damage	Crop Damage
BRUSH CREEK	11/18/2017	Thunderstorm Wind	61 kts. EG	0	0	5.00K	0.00K
BRUSH CREEK	11/18/2017	Thunderstorm Wind	74 kts. EG	0	0	20.00K	0.00K
SYKES	11/18/2017	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
LANCASTER HILL	11/18/2017	Thunderstorm Wind	61 kts. EG	0	0	3.00K	0.00K
ROME	7/23/2017	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
ROCK CITY	7/23/2017	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
GORDONSVILLE	7/23/2017	Thunderstorm Wind	55 kts. EG	0	0	5.00K	0.00K
HICKMAN	7/23/2017	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
CHESTNUT MOUNTAIN	6/23/2017	Thunderstorm Wind	40 kts. EG	0	0	2.00K	0.00K
FLAT ROCK	5/27/2017	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
GRANT	5/27/2017	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
KEMPVILLE	5/27/2017	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
ROME	5/24/2017	Thunderstorm Wind	61 kts. EG	0	0	9.00K	0.00K
TANGLEWOOD	4/29/2017	Thunderstorm Wind	48 kts. EG	0	0	1.00K	0.00K
NEW MIDDLETON	4/5/2017	Hail	1.75 in.	0	0	0.00K	0.00K
CARTHAGE	4/5/2017	Hail	0.88 in.	0	0	0.00K	0.00K
CARTHAGE	4/5/2017	Hail	1.00 in.	0	0	0.00K	0.00K
CARTHAGE	4/5/2017	Hail	0.88 in.	0	0	0.00K	0.00K
BRUSH CREEK	3/1/2017	Thunderstorm Wind	56 kts. EG	0	0	3.00K	0.00K
BRUSH CREEK	3/1/2017	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
LANCASTER HILL	3/1/2017	Thunderstorm Wind	70 kts. EG	0	0	25.00K	0.00K
CHESTNUT MOUNTAIN	3/1/2017	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
TANGLEWOOD	12/18/2016	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
DIXON SPGS	12/17/2016	Thunderstorm Wind	61 kts. EG	0	0	75.00K	0.00K
PLEASANT SHADE	12/17/2016	Thunderstorm Wind	52 kts. EG	0	0	8.00K	0.00K
DIFFICULT	12/17/2016	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
DEFEATED	7/27/2016	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
DEFEATED	7/27/2016	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
BRUSH CREEK	7/19/2016	Thunderstorm Wind	52 kts. EG	0	0	3.00K	0.00K
TANGLEWOOD	7/14/2016	Thunderstorm Wind	48 kts. EG	0	0	5.00K	0.00K
ROME	7/8/2016	Thunderstorm Wind	52 kts. EG	0	0	3.00K	0.00K
RIDDLETON	7/8/2016	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
PLEASANT SHADE	7/8/2016	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
NEW MIDDLETON	7/8/2016	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
DEFEATED	7/8/2016	Hail	0.75 in.	0	0	0.00K	0.00K
CARTHAGE JCT	7/8/2016	Hail	0.75 in.	0	0	0.00K	0.00K

208


209

Location	Date	Type	 Magnitude	Deaths	Injuries	Property Damage	Crop Damage
ROME	7/7/2016	Thunderstorm Wind	48 kts. EG	0	0	3.00K	0.00K
RIDDLETON	7/7/2016	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
KEMPVILLE	7/7/2016	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
CARTHAGE	7/7/2016	Thunderstorm Wind	48 kts. EG	0	0	2.00K	0.00K
BRUSH CREEK	7/7/2016	Thunderstorm Wind	48 kts. EG	0	0	1.00K	0.00K
FLAT ROCK	7/6/2016	Thunderstorm Wind	55 kts. EG	0	0	5.00K	0.00K
DIXON SPGS	7/6/2016	Thunderstorm Wind	55 kts. EG	0	0	5.00K	0.00K
RIDDLETON	7/6/2016	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
RIDDLETON	7/6/2016	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
CARTHAGE	7/4/2016	Thunderstorm Wind	48 kts. EG	0	0	5.00K	0.00K
CARTHAGE	6/23/2016	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
ROME	6/15/2016	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
CARTHAGE	6/15/2016	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
ELMWOOD	6/15/2016	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
HICKMAN	6/4/2016	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
STONEWALL	6/4/2016	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
RIDDLETON	5/11/2016	Thunderstorm Wind	56 kts. EG	0	0	15.00K	0.00K
SOUTH CARTHAGE	5/11/2016	Thunderstorm Wind	52 kts. EG	0	0	2.00K	0.00K
SOUTH CARTHAGE	5/11/2016	Thunderstorm Wind	52 kts. EG	0	0	1.00K	0.00K
SOUTH CARTHAGE	4/6/2016	Thunderstorm Wind	52 kts. EG	0	0	1.00K	0.00K
HICKMAN	11/6/2015	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
ROCK CITY	7/14/2015	Thunderstorm Wind	52 kts. EG	0	0	3.00K	0.00K
GRANT	7/14/2015	Thunderstorm Wind	52 kts. EG	0	0	3.00K	0.00K
CARTHAGE	4/25/2015	Hail	0.88 in.	0	0	0.00K	0.00K
BRUSH CREEK	8/20/2014	Thunderstorm Wind	56 kts. EG	0	0	10.00K	0.00K
GRANT	6/21/2014	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
CHESTNUT MOUNTAIN	6/10/2014	Thunderstorm Wind	48 kts. EG	0	0	2.00K	0.00K
CANEY FORK	6/10/2014	Hail	1.00 in.	0	0	0.00K	0.00K
SOUTH CARTHAGE	4/4/2014	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
CARTHAGE	2/20/2014	Thunderstorm Wind	56 kts. EG	0	0	10.00K	0.00K
CARTHAGE	12/21/2013	Thunderstorm Wind	52 kts. EG	0	0	1.00K	0.00K
CARTHAGE	8/21/2013	Hail	1.00 in.	0	0	0.00K	0.00K
MONOVILLE	6/10/2013	Thunderstorm Wind	61 kts. EG	0	0	20.00K	0.00K
CARTHAGE	5/21/2013	Thunderstorm Wind	60 kts. EG	0	0	20.00K	0.00K
CARTHAGE	5/21/2013	Thunderstorm Wind	60 kts. EG	0	0	5.00K	0.00K
RIDDLETON	1/30/2013	Thunderstorm Wind	60 kts. EG	0	0	40.00K	0.00K
CARTHAGE	1/30/2013	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
GORDONSVILLE	1/30/2013	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
CARTHAGE	7/8/2012	Thunderstorm Wind	55 kts. EG	0	0	25.00K	0.00K

Location	Date	Type	 Magnitude	Deaths	Injuries	Property Damage	Crop Damage
CARTHAGE	4/26/2012	Hail	0.88 in.	0	0	0.00K	0.00K
GRAVELTOWN	4/26/2012	Hail	0.75 in.	0	0	0.00K	0.00K
SOUTH CARTHAGE	3/2/2012	Hail	0.88 in.	0	0	0.00K	0.00K
CARTHAGE	2/29/2012	Thunderstorm Wind	52 kts. EG	0	0	10.00K	0.00K
CARTHAGE	6/15/2011	Hail	1.00 in.	0	0	0.00K	0.00K
PLEASANT SHADE	6/15/2011	Hail	1.00 in.	0	0	0.00K	0.00K
BRUSH CREEK	6/5/2011	Thunderstorm Wind	48 kts. EG	0	0	2.00K	0.00K
CARTHAGE	4/27/2011	Thunderstorm Wind	61 kts. MC	0	0	0.00K	0.00K
SOUTH CARTHAGE	4/4/2011	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
TANGLEWOOD	4/4/2011	Thunderstorm Wind	55 kts. EG	0	0	2.00K	0.00K
BRUSH CREEK	3/23/2011	Hail	1.00 in.	0	0	0.00K	0.00K
CARTHAGE	8/14/2010	Thunderstorm Wind	55 kts. EG	0	0	25.00K	0.00K
CARTHAGE	8/5/2010	Thunderstorm Wind	55 kts. EG	0	0	125.00K	0.00K
ELMWOOD	7/12/2010	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
GORDONSVILLE	3/12/2010	Hail	1.00 in.	0	0	10.00K	0.00K
CEDAR PT	1/21/2010	Hail	0.75 in.	0	0	0.00K	0.00K
SOUTH CARTHAGE	6/16/2009	Thunderstorm Wind	55 kts. EG	0	0	25.00K	0.00K
MONOVILLE	2/11/2009	Thunderstorm Wind	61 kts. EG	0	0	2.00K	0.00K
DIFFICULT	7/21/2008	Hail	0.88 in.	0	0	0.00K	0.00K
FLAT ROCK	2/6/2008	Thunderstorm Wind	50 kts. EG	0	11	5.00K	0.00K
PLEASANT SHADE	2/6/2008	Thunderstorm Wind	55 kts. EG	0	0	2.00K	0.00K
ROME	1/29/2008	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
LANCASTER HILL	10/18/2007	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
DIFFICULT	10/18/2007	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
CARTHAGE	9/23/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
COUNTYWIDE	9/23/2006	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CARTHAGE	5/16/2006	Hail	0.88 in.	0	0	0.00K	0.00K
SMITH (ZONE)	11/28/2005	High Wind	50 kts. EG	0	0	0.00K	0.00K
SOUTH PORTION	11/15/2005	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
DIXON SPGS	7/4/2005	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
NORTH CENTRAL P	5/10/2005	Hail	1.00 in.	0	0	0.00K	0.00K
CARTHAGE	5/10/2005	Hail	1.25 in.	0	0	0.00K	0.00K
CHESTNUT MOUNI	12/7/2004	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
COUNTYWIDE	7/13/2004	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
GRANT	7/6/2004	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
COUNTYWIDE	7/5/2004	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CHESTNUT MOUNI	7/28/2003	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
PLEASANT SHADE	7/9/2003	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
NORTH PORTION	6/10/2003	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
COUNTYWIDE	5/7/2003	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K

Smith County Hazard Mitigation Plan

Return to [Table of Contents](#)

Location	Date	Type	 Magnitude	Deaths	Injuries	Property Damage	Crop Damage
COUNTYWIDE	5/13/2002	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
CARTHAGE	4/28/2002	Hail	0.75 in.	0	0	0.00K	0.00K
COUNTYWIDE	10/24/2001	Thunderstorm Wind	57 kts. E	0	0	0.00K	0.00K
SOUTH CARTHAGE	9/5/2001	Thunderstorm Wind	50 kts. E	0	0	0.50K	0.00K
CARTHAGE	6/27/2001	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
CARTHAGE	5/1/2001	Hail	0.75 in.	0	0	0.00K	0.00K
ROME	2/25/2001	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
CARTHAGE	11/9/2000	Thunderstorm Wind	60 kts. E	0	0	0.00K	0.00K
BRUSH CREEK	5/25/2000	Hail	0.75 in.	0	0	0.00K	0.00K
SOUTH CARTHAGE	1/3/2000	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
CARTHAGE	1/3/2000	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
PLEASANT SHADE	6/2/1999	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
NORTH PORTION	5/23/1999	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
GORDONSVILLE	5/23/1999	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
LANCASTER	5/23/1999	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
ELMWOOD	4/19/1999	Hail	0.88 in.	0	0	0.00K	0.00K
CHESTNUT MOUNTAIN	4/19/1999	Hail	0.88 in.	0	0	0.00K	0.00K
DEFEATED	1/22/1999	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
CARTHAGE	1/17/1999	Thunderstorm Wind		0	0	1.00K	0.00K
DIXON SPGS	1/17/1999	Thunderstorm Wind		0	0	5.00K	0.00K
ELMWOOD	1/17/1999	Hail	0.75 in.	0	0	0.00K	0.00K
CARTHAGE	7/4/1998	Thunderstorm Wind		0	0	10.00K	0.00K
ELMWOOD	7/4/1998	Hail	0.88 in.	0	0	0.00K	0.00K
SOUTH PORTION	6/20/1998	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
NORTH PORTION	6/14/1998	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
COUNTYWIDE	6/14/1998	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
PLEASANT SHADE	6/14/1998	Thunderstorm Wind		0	0	20.00K	0.00K
CARTHAGE	5/21/1998	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
PLEASANT SHADE	4/16/1998	Hail	1.75 in.	0	0	0.00K	0.00K
ELMWOOD	8/19/1997	Thunderstorm Wind	60 kts.	0	0	0.00K	0.00K
ELMWOOD	8/19/1997	Hail	2.75 in.	0	0	0.00K	0.00K
DEFEATED	6/13/1997	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
GORDONSVILLE	1/24/1997	Hail	0.88 in.	0	0	0.00K	0.00K
NEW MIDDLETON	7/21/1996	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
CARTHAGE	7/21/1996	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
CARTHAGE	7/21/1996	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
CARTHAGE	6/7/1996	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
CARTHAGE	6/3/1996	Hail	0.88 in.	0	0	0.00K	0.00K
CARTHAGE	5/26/1996	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
Carthage	5/18/1995	Thunderstorm Wind	0 kts.	0	0	2.00K	0.00K

212

213

Source: <http://www.ncdc.noaa.gov/>**Smith County Hazard Mitigation Plan**Return to [Table of Contents](#)

Throughout the county all buildings and infrastructure are vulnerable to tornadoes and severe storm impacts. Smith County's building stock can be broken down into the following percentage categories: 77.3% residential, 13.5% commercial, 4.9% industrial, .04% agricultural, 0.5% governmental, .25% religious, and 0.9% educational (source: Smith County Hazus Flood Study – table 1 in [Appendix E](#)). For further information about flooding hazards in Smith County, see the HAZUS vulnerability study in [Appendix E](#)). Impacts could range from slight roof damages caused by hail to total structure flattening caused by strong tornadoes. In the county, manufactured homes, electrical lines, and older barns are some of the most vulnerable features.

Smith County uses a ranking system to determine each jurisdiction's vulnerability to severe storm events (with a focus on tornadoes). This system is based off simple arithmetic which analyzes potential impacts to determine vulnerabilities and then analyzes the probability of a severe storm event occurring to calculate a risk ranking for each jurisdiction.

Event: Tornado	Human 1-5	Property 1-5	Business 1-5	Sub-Total Average	Probability 1- 5	Risk Score = [(H+P+B)/3] + P	7.7
Smith County	4	4	3	3.67	4	7.67	
Town of Carthage	4	4	3	3.67	4	7.67	
Town of Gordonsville	4	4	3	3.67	4	7.67	
Town of South Carthage	4	4	3	3.67	4	7.67	

Event: Wind Event	Human 1-5	Property 1-5	Business 1-5	Sub-Total Average	Probability 1- 5	Risk Score = [(H+P+B)/3] + P	7.0
Smith County	2	3	1	2.00	5	7.00	
Town of Carthage	2	3	1	2.00	5	7.00	
Town of Gordonsville	2	3	1	2.00	5	7.00	
Town of South Carthage	2	3	1	2.00	5	7.00	



230 **Source:** Calculation of Planning Committee Input using the [Vulnerability Calculator](#).

Human							Scale	
<i>Risk of injuries and deaths from the hazard</i>							Low	2-3.6
1	Death very unlikely, injuries are unlikely						Moderate	3.7-5.2
2	Death unlikely, injuries are minimal						Medium	5.3-6.8
3	Death unlikely, injuries may be substantial						High	6.9-8.4
4	Death possible, injuries may be substantial						Severe	8.5-10
5	Deaths probable, injuries will likely be substantial							
Property								
<i>Amount of residential property damage associated from the hazard</i>								
1	Less than \$500 in damages							
2	\$500-\$10,000 in damages							
3	\$10,000-\$500,000 in damages							
4	\$500,000-\$2,000,000 in damages							
5	More than \$2,000,000 in damages							
Business								
<i>Amount of business damage associated from the hazard</i>								
1	Less than 3 businesses closed for only a day							
2	More than 3 businesses closed for a week							
3	More than 3 businesses closed for a few months							
4	More than 3 businesses closed indefinitely or relocated							
5	A top-10 local employer closed indefinitely							
Probability								
<i>Likelihood of the hazard occurring within a given span of years</i>								
1	Less than once every 10 years							
2	About once every 5-10 years							
3	About once every 2-5 years							
4	About once a year							
5	More than once a year							

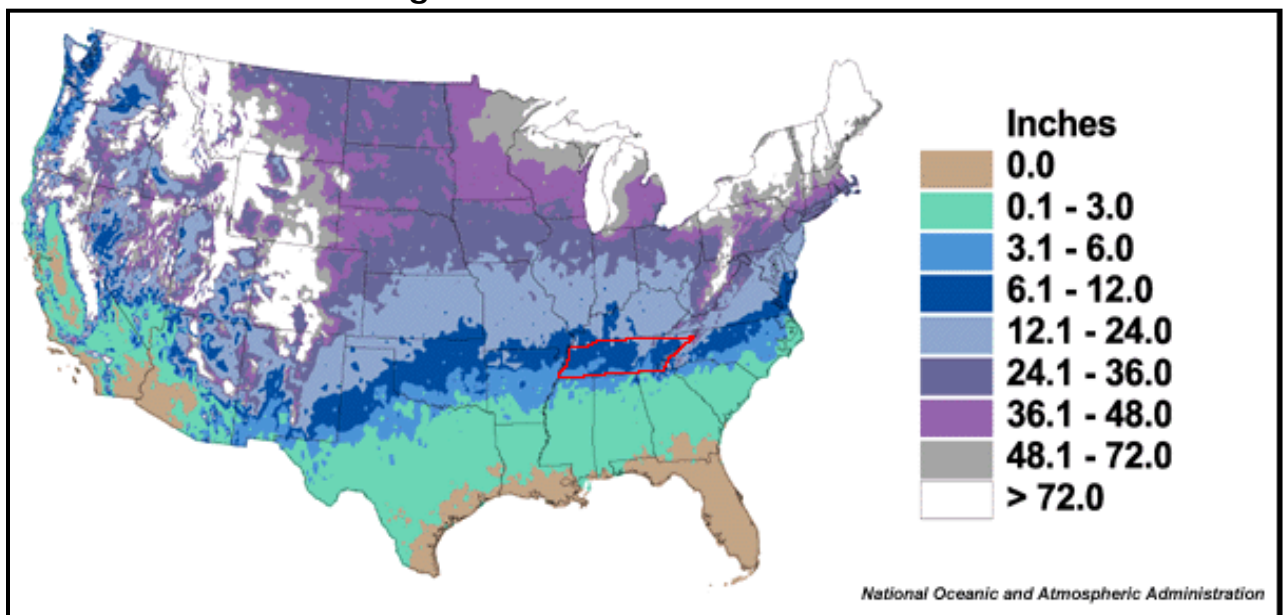
231

Freezes/Winter Storms

The Smith County Hazard Mitigation Committee ranked Winter Weather Events as its fourth highest risk priority. A freeze occurs when temperatures are below 32 degrees Fahrenheit for a period of time. These temperatures can damage agricultural crops, burst water pipes, and create layers of “black ice.” Winter storms are events that can range from a few hours of moderate snow to blizzard-like circumstances that can affect driving conditions and impact communications, electricity, and other services. In Smith County, all jurisdictions are vulnerable to freezes and moderate winter storms, but not to the severity level seen in much of the northern U.S.

Based on previous occurrences, Smith County usually experiences one major winter storm event every 2 years. The severity of winter storms is commonly measured by inches of snowfall. It is possible for snowfall to accumulate over 5 inches in Smith County. The average mean snowfall per year in Smith County is between 6 to 12 inches (as seen on the map below).

Average Mean Snowfall Per Year

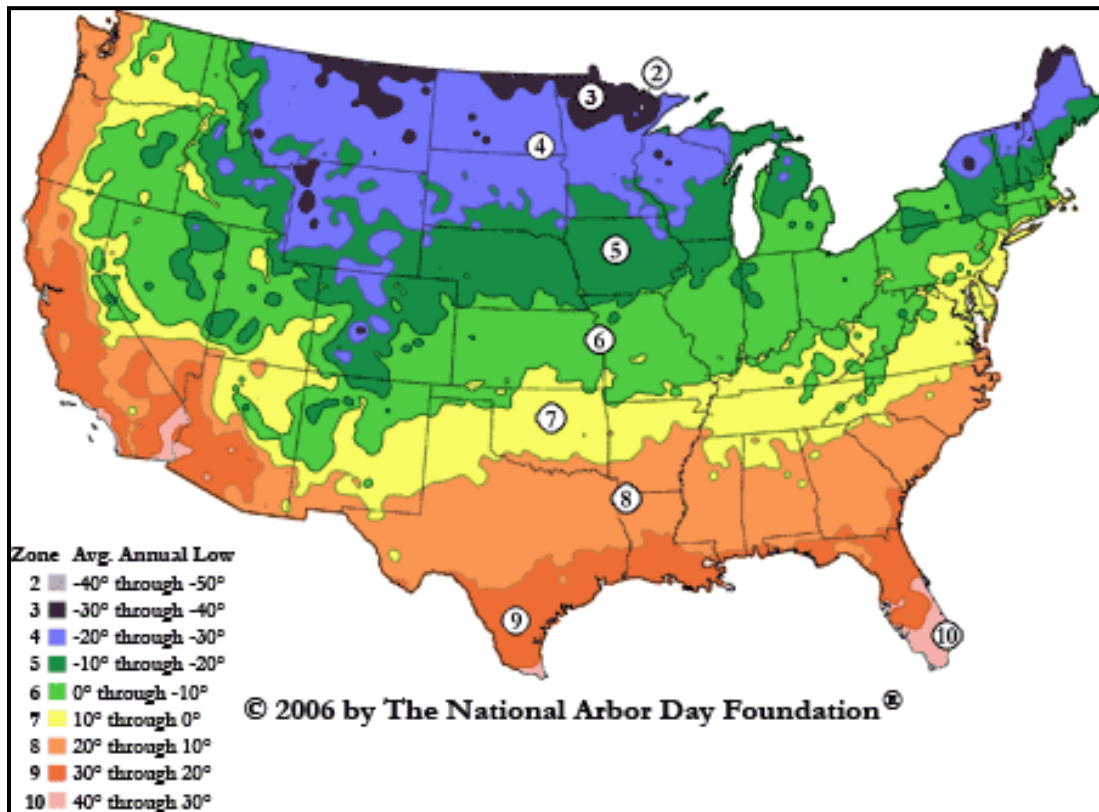


Source: NOAA

Smith County can experience temperatures between 15 to 5 degrees Fahrenheit, thus causing multiple freeze conditions during the winter months (see the following map for other average lows).

252

Average Annual Low Temperatures



253

254

Source: NOAA

255 Throughout the county all buildings and infrastructure are vulnerable to freezes and winter
 256 storm impacts. Smith County's building stock can be broken down into the following percentage
 257 categories: 77.3% residential, 13.5% commercial, 4.9% industrial, .04% agricultural, 0.5%
 258 governmental, .2.5% religious, and 0.9% educational (source: Smith County Hazus Flood Study –
 259 table 1 in [Appendix E](#)). For further information about flooding hazards in Smith County, see the
 260 HAZUS vulnerability study in [Appendix E](#)). Many of these structures wouldn't receive direct
 261 impacts from winter storms but they could receive indirect impacts such as downed electrical lines
 262 that cut off electricity to the structures, frozen pipelines that crack, destroyed agriculture crops,
 263 and customers not being able to access travels to the structures due to ice covered roads. In the
 264 county, road traveling conditions, electrical lines, and agricultural functions are some of the
 265 most vulnerable features.

266 The following chart provides winter storm event information for Smith County between January
 267 1997 and December 2017.

268 Winter Events in Smith County: January 1998 – December 2017

Location	Date	Time	Type	Magnitude
SMITH (ZONE)	2/14/2016	7:00	Winter Weather	
SMITH (ZONE)	2/8/2016	12:00	Winter Weather	
SMITH (ZONE)	1/21/2016	21:00	Winter Storm	
SMITH (ZONE)	1/20/2016	0:00	Winter Weather	
SMITH (ZONE)	3/4/2015	15:00	Winter Storm	
SMITH (ZONE)	2/25/2015	12:00	Winter Weather	
SMITH (ZONE)	2/20/2015	12:00	Winter Storm	
SMITH (ZONE)	2/18/2015	1:00	Winter Weather	
SMITH (ZONE)	1/23/2015	18:00	Winter Weather	
SMITH (ZONE)	11/17/2014	5:00	Winter Weather	
SMITH (ZONE)	1/5/2014	20:00	Winter Weather	
SMITH (ZONE)	1/2/2014	16:30	Winter Weather	
SMITH (ZONE)	12/9/2013	21:00	Winter Weather	
SMITH (ZONE)	3/6/2013	2:00	Winter Weather	
SMITH (ZONE)	1/31/2013	22:00	Winter Weather	
SMITH (ZONE)	2/19/2012	8:00	Winter Weather	
SMITH (ZONE)	2/10/2012	18:00	Winter Weather	
SMITH (ZONE)	1/12/2012	16:30	Winter Weather	
SMITH (ZONE)	2/9/2011	16:00	Winter Weather	
SMITH (ZONE)	1/26/2011	3:00	Winter Weather	
SMITH (ZONE)	1/20/2011	16:00	Winter Weather	
SMITH (ZONE)	1/11/2011	8:30	Winter Weather	
SMITH (ZONE)	1/10/2011	1:00	Heavy Snow	
SMITH (ZONE)	12/24/2010	22:00	Heavy Snow	
SMITH (ZONE)	12/15/2010	20:46	Winter Weather	
SMITH (ZONE)	12/12/2010	8:00	Heavy Snow	
SMITH (ZONE)	2/14/2010	10:30	Winter Weather	
SMITH (ZONE)	1/29/2010	9:30	Heavy Snow	
SMITH (ZONE)	12/5/2009	1:00	Winter Weather	
SMITH (ZONE)	12/17/2008	16:30	Winter Weather	
SMITH (ZONE)	3/7/2008	21:00	Winter Storm	
SMITH (ZONE)	12/22/2004	21:00	Winter Storm	
SMITH (ZONE)	1/16/2003	11:00	Heavy Snow	
SMITH (ZONE)	12/4/2002	6:00	Winter Storm	
SMITH (ZONE)	1/22/2000	14:30	Winter Storm	
SMITH (ZONE)	2/3/1998	17:00	Heavy Snow	
SMITH (ZONE)	2/1/1996	17:00	Winter Storm	
SMITH (ZONE)	1/6/1996	17:00	Winter Storm	

Source: <http://www.ncdc.noaa.gov/>

Smith County Hazard Mitigation Plan

Return to [Table of Contents](#)

271

Winter Impacts in Smith County: January 1998 – December 2017

Location	Date	Type	Deaths	Injuries	Property Damage	Crop Damage
SMITH (ZONE)	2/14/2016	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	2/8/2016	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	1/21/2016	Winter Storm	0	0	0.00K	0.00K
SMITH (ZONE)	1/20/2016	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	3/4/2015	Winter Storm	0	0	0.00K	0.00K
SMITH (ZONE)	2/25/2015	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	2/20/2015	Winter Storm	0	0	50.00K	0.00K
SMITH (ZONE)	2/18/2015	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	1/23/2015	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	11/17/2014	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	1/5/2014	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	1/2/2014	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	12/9/2013	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	3/6/2013	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	1/31/2013	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	2/19/2012	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	2/10/2012	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	1/12/2012	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	2/9/2011	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	1/26/2011	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	1/20/2011	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	1/11/2011	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	1/10/2011	Heavy Snow	0	0	0.00K	0.00K
SMITH (ZONE)	12/24/2010	Heavy Snow	0	0	0.00K	0.00K
SMITH (ZONE)	12/15/2010	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	12/12/2010	Heavy Snow	0	0	0.00K	0.00K
SMITH (ZONE)	2/14/2010	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	1/29/2010	Heavy Snow	0	0	0.00K	0.00K
SMITH (ZONE)	12/5/2009	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	12/17/2008	Winter Weather	0	0	0.00K	0.00K
SMITH (ZONE)	3/7/2008	Winter Storm	0	0	0.00K	0.00K
SMITH (ZONE)	12/22/2004	Winter Storm	0	0	0.00K	0.00K
SMITH (ZONE)	1/16/2003	Heavy Snow	0	0	0.00K	0.00K
SMITH (ZONE)	12/4/2002	Winter Storm	0	0	0.00K	0.00K
SMITH (ZONE)	1/22/2000	Winter Storm	0	0	0.00K	0.00K
SMITH (ZONE)	2/3/1998	Heavy Snow	0	0	0.00K	0.00K
SMITH (ZONE)	2/1/1996	Winter Storm	0	0	0.00K	0.00K
SMITH (ZONE)	1/6/1996	Winter Storm	0	0	0.00K	0.00K

Source: <http://www.ncdc.noaa.gov/>**Smith County Hazard Mitigation Plan**Return to [Table of Contents](#)272
273

274 Smith County uses a ranking system to determine each jurisdiction's vulnerability to
 275 freezes/winter storm events. This system is based off simple arithmetic which analyzes potential
 276 impacts to determine vulnerabilities and then analyzes the probability of a freeze/winter storm
 277 event occurring to calculate a risk ranking for each jurisdiction.

278

Event: Winter Weather	Human 1-5	Property 1-5	Business 1-5	Sub-Total Average	Probability 1- 5	Risk Score = [(H+P+B)/3] + P	6.0
Smith County	2	3	1	2.00	4	6.00	
Town of Carthage	2	3	1	2.00	4	6.00	
Town of Gordonsville	2	3	1	2.00	4	6.00	
Town of South Carthage	2	3	1	2.00	4	6.00	

279 **Source:** Calculation of Planning Committee Input using the [Vulnerability Calculator](#)

Human						
<i>Risk of injuries and deaths from the hazard</i>						
1	Death very unlikely, injuries are unlikely					
2	Death unlikely, injuries are minimal					
3	Death unlikely, injuries may be substantial					
4	Death possible, injuries may be substantial					
5	Deaths probable, injuries will likely be substantial					
Property						
<i>Amount of residential property damage associated from the hazard</i>						
1	Less than \$500 in damages					
2	\$500-\$10,000 in damages					
3	\$10,000-\$500,000 in damages					
4	\$500,000-\$2,000,000 in damages					
5	More than \$2,000,000 in damages					
Business						
<i>Amount of business damage associated from the hazard</i>						
1	Less than 3 businesses closed for only a day					
2	More than 3 businesses closed for a week					
3	More than 3 businesses closed for a few months					
4	More than 3 businesses closed indefinitely or relocated					
5	A top-10 local employer closed indefinitely					
Probability						
<i>Likelihood of the hazard occurring within a given span of years</i>						
1	Less than once every 10 years					
2	About once every 5-10 years					
3	About once every 2-5 years					
4	About once a year					
5	More than once a year					

Scale	
Low	2-3.6
Moderate	3.7-5.2
Medium	5.3-6.8
High	6.9-8.4
Severe	8.5-10

280

281

Drought

Drought is being added to this plan revision to document changes in conditions statewide that could potentially result in hazards requiring mitigation. Extended periods of drought contributed to wildfires in East Tennessee on November 28, 2016, resulting in 14 fatalities and damage to more than 2,400 structures in Sevier County.

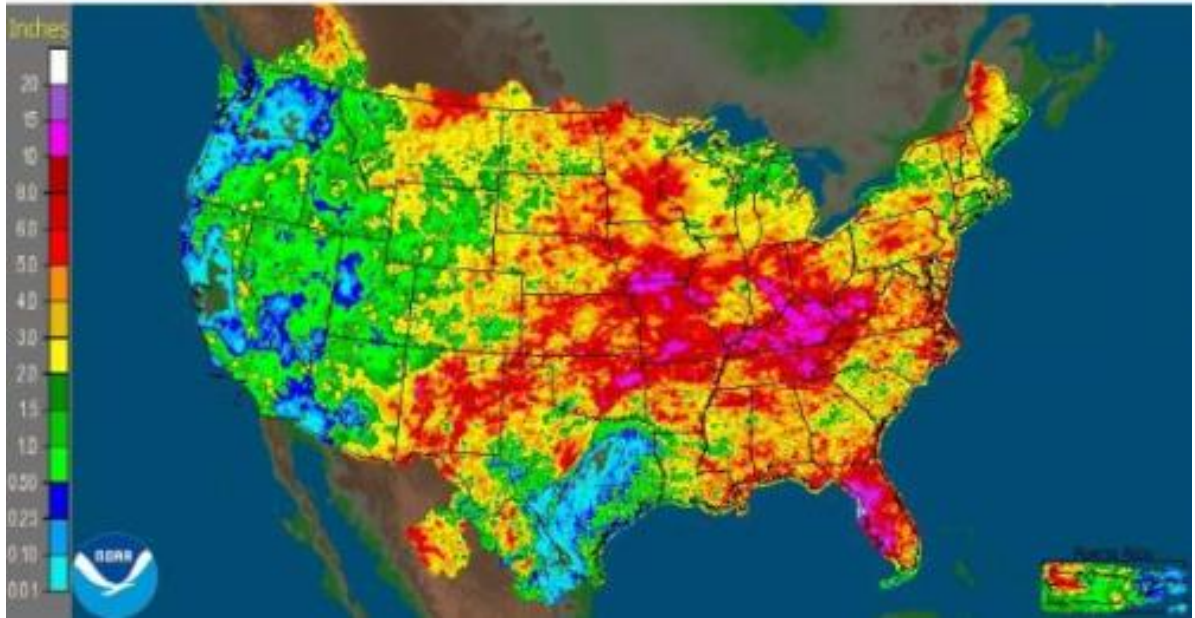
Although historical data in Smith County is limited, drought is being added to this plan revision since the rural nature of the county creates an economic dependence related to this hazard. Since 2007 Smith County has experienced no deaths, injuries or property damage as a result of drought. Since rainfall in Smith County and Tennessee in general has recently been above average and County historical data shows occurrences averaging every 2-5 years, consensus of the Committee is that the probability of drought is likely low. Probability of drought can best be determined approximately eleven months in advance:

<https://onlinelibrary.wiley.com/doi/full/10.1111/1752-1688.12562>.

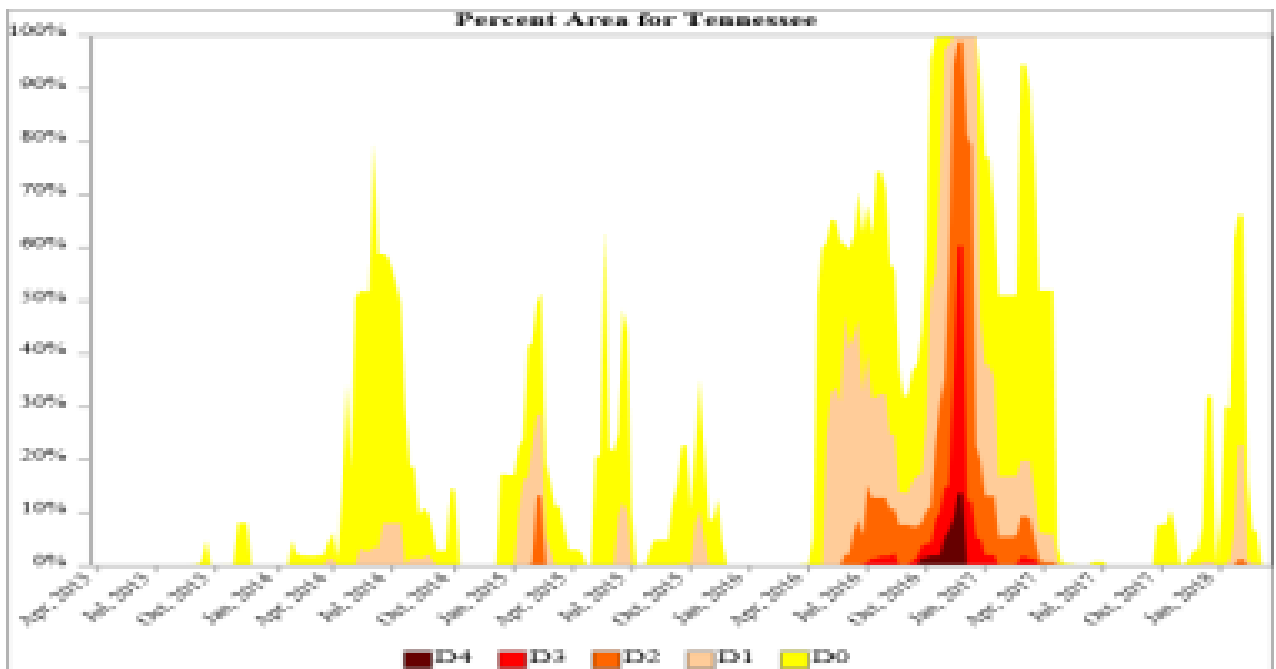
A drought is a period of unusually constant dry weather that persists long enough to cause deficiencies in water supply (surface or underground). Droughts are slow-onset hazards, but, over time, they can severely affect crops, municipal water supplies, recreational resources, and wildlife.

If drought conditions extend over a number of years, the direct and indirect economic impacts can be significant. High temperatures, high winds, and low humidity can worsen drought conditions and also make areas more susceptible to wildfire. In addition, human actions and demands for water resources can accelerate drought-related impacts.

CONUS + Puerto Rico: Current Month to Date Observed Precipitation
Valid at 7/31/2015 1200 UTC- Created 7/31/15 18:27 UTC



Source: NOAA



Source: <https://www.drought.gov/drought/states/tennessee>

315 **The following chart provides drought event information for Smith County**
 316 **between January 1, 1998 – December 31 2017:**

Location	County/ Zone	State	Date	Time	T.Z.	Type
SMITH (ZONE)	SMITH (ZONE)	TN	12/1/2016	0:00	CST-6	Drought
SMITH (ZONE)	SMITH (ZONE)	TN	11/1/2016	0:00	CST-6	Drought
SMITH (ZONE)	SMITH (ZONE)	TN	7/3/2012	0:00	CST-6	Drought
SMITH (ZONE)	SMITH (ZONE)	TN	12/1/2008	0:00	CST-6	Drought
SMITH (ZONE)	SMITH (ZONE)	TN	11/1/2008	0:00	CST-6	Drought
SMITH (ZONE)	SMITH (ZONE)	TN	10/1/2008	0:00	CST-6	Drought
SMITH (ZONE)	SMITH (ZONE)	TN	9/1/2008	0:00	CST-6	Drought
SMITH (ZONE)	SMITH (ZONE)	TN	4/1/2008	0:00	CST-6	Drought
SMITH (ZONE)	SMITH (ZONE)	TN	3/1/2008	0:00	CST-6	Drought
SMITH (ZONE)	SMITH (ZONE)	TN	2/1/2008	0:00	CST-6	Drought
SMITH (ZONE)	SMITH (ZONE)	TN	1/1/2008	0:00	CST-6	Drought
SMITH (ZONE)	SMITH (ZONE)	TN	12/1/2007	0:00	CST-6	Drought
SMITH (ZONE)	SMITH (ZONE)	TN	11/1/2007	0:00	CST-6	Drought
SMITH (ZONE)	SMITH (ZONE)	TN	10/1/2007	0:00	CST-6	Drought
SMITH (ZONE)	SMITH (ZONE)	TN	9/1/2007	0:00	CST-6	Drought
SMITH (ZONE)	SMITH (ZONE)	TN	8/1/2007	0:00	CST-6	Drought
SMITH (ZONE)	SMITH (ZONE)	TN	7/1/2007	0:00	CST-6	Drought
SMITH (ZONE)	SMITH (ZONE)	TN	6/1/2007	0:00	CST-6	Drought
SMITH (ZONE)	SMITH (ZONE)	TN	5/1/2007	0:00	CST-6	Drought

The following chart provides drought impact information for Smith County between January 1, 1998 – December 31 2017:

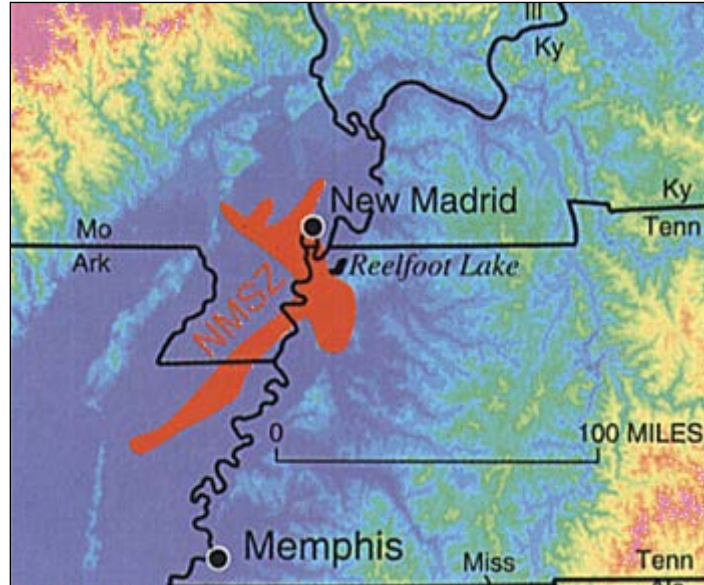
Location	Date	Type	Deaths	Injuries	Property Damage	Crop Damage
SMITH (ZONE)	12/1/2016	Drought	0	0	0.00K	0.00K
SMITH (ZONE)	11/1/2016	Drought	0	0	0.00K	0.00K
SMITH (ZONE)	7/3/2012	Drought	0	0	0.00K	0.00K
SMITH (ZONE)	12/1/2008	Drought	0	0	0.00K	0.00K
SMITH (ZONE)	11/1/2008	Drought	0	0	0.00K	0.00K
SMITH (ZONE)	10/1/2008	Drought	0	0	0.00K	0.00K
SMITH (ZONE)	9/1/2008	Drought	0	0	0.00K	0.00K
SMITH (ZONE)	4/1/2008	Drought	0	0	0.00K	0.00K
SMITH (ZONE)	3/1/2008	Drought	0	0	0.00K	0.00K
SMITH (ZONE)	2/1/2008	Drought	0	0	0.00K	0.00K
SMITH (ZONE)	1/1/2008	Drought	0	0	0.00K	0.00K
SMITH (ZONE)	12/1/2007	Drought	0	0	0.00K	0.00K
SMITH (ZONE)	11/1/2007	Drought	0	0	0.00K	0.00K
SMITH (ZONE)	10/1/2007	Drought	0	0	0.00K	0.00K
SMITH (ZONE)	9/1/2007	Drought	0	0	0.00K	0.00K
SMITH (ZONE)	8/1/2007	Drought	0	0	0.00K	0.00K
SMITH (ZONE)	7/1/2007	Drought	0	0	0.00K	0.00K
SMITH (ZONE)	6/1/2007	Drought	0	0	0.00K	0.00K
SMITH (ZONE)	5/1/2007	Drought	0	0	0.00K	0.00K

Source: <http://www.ncdc.noaa.gov/>

Earthquakes

Smith County is in close proximity to the major intraplate (within a tectonic plate) seismic zone known as the New Madrid Seismic Zone. The New Madrid Seismic Zone (NMSZ) is an approximately 120-mile long fault system that stretches across five states including Western Tennessee.

New Madrid Seismic Zone



Source: http://earthquake.usgs.gov/learn/topics/mag_vs_int.php

Historically the zone is known for producing four of the largest North American earthquakes in recorded history, all in which would have had been felt in all jurisdictions of Smith County. This includes the noted three-month period between December 1811 and February 1812 that had quakes reaching Richter Scale magnitudes into the 7.0 through 8.6 ranges.

Magnitude / Intensity Comparison	
Magnitude (Richter)	Typical Maximum Modified Mercalli Intensity
1.0 - 3.0	I
3.0 - 3.9	II - III
4.0 - 4.9	IV - V
5.0 - 5.9	VI - VII
6.0 - 6.9	VII - IX
7.0 and higher	VIII or higher

Source: <http://earthquake.usgs.gov/learn/topics/mercalli.php>

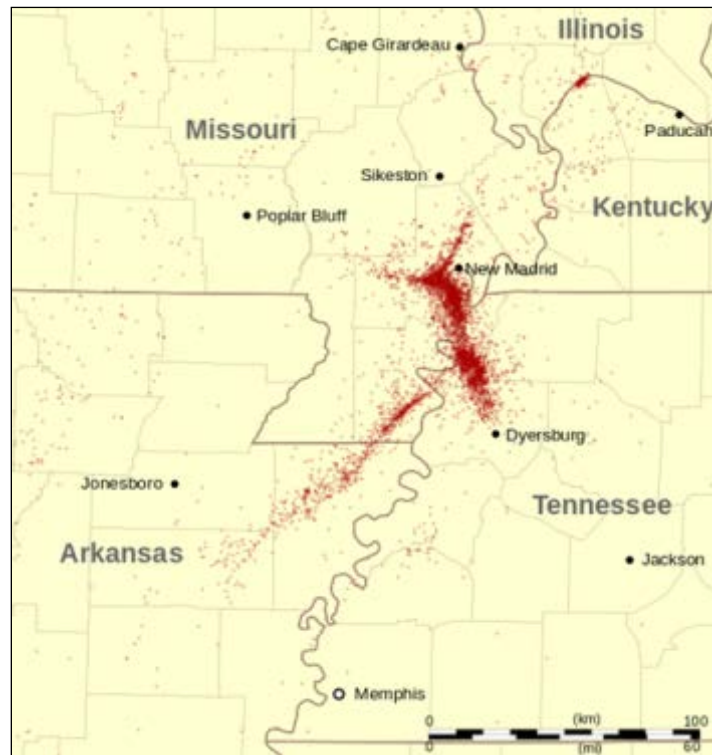
The Modified Mercalli Intensity Scale		
Intensity	Shaking	Description/Damage
I	<i>Not felt</i>	Not felt except by a very few under especially favorable conditions.
II	<i>Weak</i>	Felt only by a few persons at rest, especially on upper floors of buildings.
III	<i>Weak</i>	Felt quite noticeably by persons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

341

342 Since the 1812 earthquakes, the largest recorded quakes from this zone were the October 1895,
 343 6.6 magnitude quake (epicenter Charleston, MO) and the November 1968, 5.5 magnitude quake
 344 (epicenter in Dale, IL). From the time when seismic measurement instruments were installed in
 345 and around the zone in the 1970's, more than 4,000 small earthquakes have been recorded,
 346 with the vast majority being too small to be felt.

347

348

NMSZ Earthquakes Recorded Since 1974

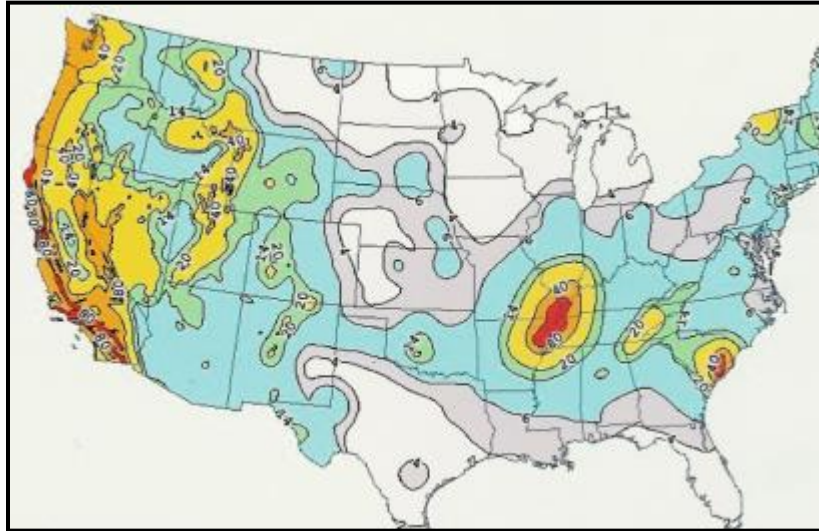
349

350 According to a FEMA report filed in 2008, a serious earthquake in the NMSZ could result in the
351 highest economic loss due to a natural disaster in U.S. history, causing widespread and
352 catastrophic damage across a seven-state radius with most of the worst impacts taking place in
353 Western Tennessee. Based on this report, a 7.7 magnitude quake in the NMSZ would result in
354 thousands of fatalities, tens of thousands of damages to structures, and total disruption of vital
355 infrastructure in Western Tennessee.

356 Although Tennessee is considered to be at risk of a major earthquake
357 <http://wkcr.com/2016/01/28/could-tennessee-experience-an-earthquake-similar-to-one-in-1800s/>,
358 no historical data is available for Smith County and consensus of the committee is that
359 Smith County would likely be less affected than West Tennessee and other Middle Tennessee
360 counties. No projects have been identified for this hazard,

361

National Seismic Hazard Map
Ground Motions with a 2% Chance of Occurring in 50 Years



Source: <http://earthquake.usgs.gov/hazards/products/>

The current lack of apparent land movement along the NMSZ has long puzzled scientists. Currently GPS measurements show that the NMSZ faults are moving no more than 0.0079 inches a year. In contrast the San Andreas Fault in California moves up to 1.5 inches a year. This has led some researchers to believe that the fault may be “shutting down” while others say it is a “sleeping giant.” These differing views have made it difficult for public policy makers to decide on if, how, and how much to prepare for and spend on mitigating a potential large scale earthquake.

Throughout the county all buildings and infrastructure are vulnerable to earthquake impacts. Smith County’s building stock can be broken down into the following percentage categories: 77.3% residential, 13.5% commercial, 4.9% industrial, .04% agricultural, 0.5% governmental, .25% religious, and 0.9% educational (source: Smith County Hazus Flood Study – table 1 in [Appendix E](#)). For further information about flooding hazards in Smith County, see the HAZUS vulnerability study in [Appendix E](#)). Smith County uses a ranking system to determine each jurisdiction’s vulnerability a large NMSZ earthquake. This system is based off simple arithmetic which analyzes potential impacts to determine vulnerabilities and then analyzes the probability of an earthquake event occurring to calculate a risk ranking for each jurisdiction.

Event: Earthquake	Human 1-5	Property 1-5	Business 1-5	Sub-Total Average	Probability 1-5	Risk Score = [(H+P+B)/3] + P	5.3
Smith County	4	5	4	4.33	1	5.33	
Town of Carthage	4	5	4	4.33	1	5.33	
Town of Gordonsville	4	5	4	4.33	1	5.33	
Town of South Carthage	4	5	4	4.33	1	5.33	

385 **Source:** Calculation of Planning Committee Input using the [Vulnerability Calculator](#)

Human							Scale	
<i>Risk of injuries and deaths from the hazard</i>							Low	2-3.6
1	Death very unlikely, injuries are unlikely						Moderate	3.7-5.2
2	Death unlikely, injuries are minimal						Medium	5.3-6.8
3	Death unlikely, injuries may be substantial						High	6.9-8.4
4	Death possible, injuries may be substantial						Severe	8.5-10
5	Deaths probable, injuries will likely be substantial							
Property								
<i>Amount of residential property damage associated from the hazard</i>								
1	Less than \$500 in damages							
2	\$500-\$10,000 in damages							
3	\$10,000-\$500,000 in damages							
4	\$500,000-\$2,000,000 in damages							
5	More than \$2,000,000 in damages							
Business								
<i>Amount of business damage associated from the hazard</i>								
1	Less than 3 businesses closed for only a day							
2	More than 3 businesses closed for a week							
3	More than 3 businesses closed for a few months							
4	More than 3 businesses closed indefinitely or relocated							
5	A top-10 local employer closed indefinitely							
Probability								
<i>Likelihood of the hazard occurring within a given span of years</i>								
1	Less than once every 10 years							
2	About once every 5-10 years							
3	About once every 2-5 years							
4	About once a year							
5	More than once a year							

386

387

Smith County Presidential Declared Disaster Chart:

388

2000		2007	
2001		2008	
2002		2009	
2003	DR-1464; Individual & PA Severe Storms, Flooding & Tornados	2010	DR-1909; Individual & PA Severe Storms, Flooding, Tornados & Straight Line Winds
2004		2011	DR-1974; Individual PA Severe Storms, Flooding, Tornados & Straight Line Winds
2005		2011	
2006		2012	
2007		2013	
2008		2014	
2015		2016	

Section 4: Mitigation Strategy

Mitigation Goals

The purpose for developing a set of Goals is to clearly state the community's overall vision for hazard mitigation and to provide a path towards building a safer, more resilient community. The Smith County Hazard Mitigation Committee identified the following goals to be the forefront in the overall development of this plan. All actions/projects recommended as mitigation efforts for the Hazard Mitigation Plan must first meet or further at least one of these goals. The goals are provided in a ranked order where the first goal is paramount.

Goal 1: Protect the lives and health of citizens from the effects of natural hazards.

Goal 2: Emphasize mitigation planning to decrease vulnerability of existing and new structures.

Goal 3: Encourage public support and commitment to hazard mitigation, by communicating mitigation benefits.

Identification and Prioritization of Mitigation Projects

Smith County has developed a comprehensive range of mitigation projects. These projects were solicited and identified by the different entities that make up the Smith County Hazard Mitigation Committee. Each jurisdiction considered multiple options to mitigate specific vulnerabilities for the hazards identified and projects relevant to multiple jurisdictions are noted, including those applicable to all jurisdictions. Consensus of the Committee was to not include projects for dam failure, drought or earthquake, though the public education project will address all hazards. Once the proposed projects attained a sponsoring agency and the details of the projects were discussed by the committee, the committee then proceeded to prioritize the mitigation projects.

The prioritization process was important since most mitigation projects represent a large investment of financial and personal resources. By evaluating each project's degree of feasibility and the level of costs versus benefits, Smith County was able to determine when and which projects should be implemented based on available funding and time.

The Smith County Hazard Mitigation Committee used the SAFE-T method to prioritize these projects. This approach was adopted from the successful methodology used by other counties in FEMA Region 4. This rating system uses five variables to evaluate the overall feasibility and appropriateness: Societal, Administrative, Financial, Environmental, and Technical. A focus on this methodology emphasizes the use of a cost-benefit review to maximize benefits.

Committee members ranked the projects as a group by determining the value for each variable and then by adding the variables rates up for a project sum value. All the project rankings can be seen on the Smith County Hazard Mitigation Project List.

Project Prioritization Method: SAFE-T			
Variable		Rank	Description
S	Societal: The public must support the overall implementation strategy and specified mitigation actions. The projects will be evaluated in terms of community acceptance and societal benefits.	1	Low community support or few societal benefits
		2	Moderate community support or some societal benefits
		3	High community support or many societal benefits
A	Administrative: The projects will be evaluated for anticipated staffing and maintenance requirements to determine if the jurisdiction has the personnel and administrative capabilities necessary to implement the project or whether outside help will be needed.	1	High staff requirements - outside staffing required
		2	Some outside staffing may be needed
		3	Low staffing requirements – no outside staffing required
F	Financial: The projects will be evaluated on general cost-effectiveness and whether additional outside funding will be required.	1	Low cost-effectiveness <i>or</i> mostly outside funding required
		2	Moderate cost-effectiveness <i>or</i> some outside funding required
		3	High cost-effectiveness <i>or</i> no outside funding required
E	Environmental: The projects will be evaluated for any immediate or long-term negative environmental impacts caused by their construction or operation.	1	Many negative environmental impacts, some long-term
		2	Some negative environmental impacts, possibly long-term
		3	Few negative environmental impacts, none long-term
T	Technical: The projects will be evaluated on their ability to reduce losses in the long-term, whether there are secondary impacts, and whether the proposed project solves the associated problem or if additional components are necessary.	1	Additional actions will be needed or short-term fix
		2	Additional actions may be needed
		3	Long-term fix or no other actions needed

Public education is the only project being carried forward. The Project List will remain active and may be updated throughout the five-year life-cycle of the plan. Please note that sinkholes and earthquakes were discussed, but due to priority the funding was discussed to be used elsewhere in each city and town participating in the committee. There are currently no proposed projects directly addressing sinkholes or earthquakes due to the low probability of these events impacting Smith County. However, should this change, the changes will be reflected during the five-year life-cycle of the plan.

Updating the Project List to add or remove a project may be necessary after a disaster or other event. Updates could include adding or modifying projects to address unforeseen issues or removing projects that are no longer feasible or relevant. The Mitigation Committee will notify TEMA of additions or changes to the Project List. TEMA will notify FEMA to ensure that official copies of the Smith County Hazard Mitigation Plan on file with TEMA and FEMA are updated appropriately.

The following Project List provides an overview of all the Smith County Hazard Mitigation Committee projects. Since 1950 Smith County has experienced no deaths, injuries or property damage as a result of drought. No projects are currently identified specific to drought or earthquake, although the public education project will address all hazards. This includes potential funding sources, implementation timeframes, the project's responsible agency, and other information. This list is to remain active and update.

443 **Smith County Project List**

Numerical Priority	Action/Project	Hazard Mitigated	Jurisdictions Benefitted & Represented	Addresses New or Existing Buildings/ Infrastructure	Estimated Cost	Responsible Agency	Possible Funding Source(s)	Population Affected	Timeframe
1	Buyout Program for homes in floodprone areas in Winding Hills, Rolling Hills subdivision & Pleasant Shade	Flooding	Smith County	Existing	\$ 300,000	Smith County EMA	HMGP, PDM	19.295	1-4 years
2	Provide mitigation info materials at public agencies & offices	All	All	Both	\$ 1,000	Smith County EMA	HMGP, Local	19.295	Continuous
3	Develop infrastructure affecting residential flooding, i.e., replacing culverts & low water bridges	Flooding	All	Both	\$ 750,000	Public Works	HMGP, PDM	19.295	1-4 Years
4	Retrofit school safe space (room) project	Tornado, Severe storms	All	Existing	\$ 1,000,000	Smith County EMA	HMGP, PDM	19.295	2-5 Years
5	Compile list of public and private safe shelters available for public use and distribute through fire departments, local schools, radio stations, newspapers, cable TV and public meetings	Severe Storms	All	Both	\$ 500	Smith County EMA	HMGP, PDM	19.295	1-2 Years

444

Numerical Priority	Action/Project	Hazard Mitigated	Jurisdictions Benefitted & Represented	Addresses New or Existing Buildings/ Infrastructure	Estimated Cost	Responsible Agency	Possible Funding Source(s)	Population Affected	Timeframe
6	Retrofit existing buildings determined to be critical infrastructure with generator adaptors for emergency portable generator support.	All	All	Both	\$ 300,000	Smith County EMA	HMGP, PDM	19.295	1 Year
7	Survey the number of wet and dry hydrants, evaluate capabilities, and make any needed adjustments	Wildfire	All	Both	\$ 2,000	County Fire	Local	19.295	Ongoing
8	Develop water use policies that will reduce water usage in times of limited water supply	Drought	All	Existing	N/A	Public Works	Local	19.295	Ongoing
9	Raise pumping stations	Flooding	Carthage, Gordonsonville & S. Carthage	Existing	\$ 1,500,000	Smith County Public Works	HMGP, PDM	4838	1-4 Years
10	Add address numbers to all houses in all jurisdictions	All	All	Both	\$ 45,000	Smith County EMA	Local	19.295	2 Years
11	Create continuity of operations space for government services, with full communication capabilities	All	All	Both	\$ 300,000	Smith County EMA	HMGP, PDM	19.295	1-3 Years

Numerical Priority	Action/Project	Hazard Mitigated	Jurisdictions Benefitted & Represented	Addresses New or Existing Buildings/ Infrastructure	Estimated Cost	Responsible Agency	Possible Funding Source(s)	Population Affected	Timeframe
12	Retrofit Smith County Agricultural Center	Flooding, Winter Weather	All	Existing	\$ 500,000	Smith County EMA	HMGP, PDM	19.295	1-4 Years
13	Build a hardened facility for storage of emergency responder vehicles & equipment	All	All	New	\$ 1,000,000	Smith County EMA		19.295	5-10 Years
14	Raise elevation on various roads in the county	Flooding	All	Existing	\$ 300,000	Smith County Highway Department	Local	19.295	2-4 Years

National Flood Insurance Program Compliance

The National Flood Insurance Program (NFIP) is a pre-disaster flood hazard mitigation and insurance protection program which has reduced the increasing cost of disasters. The intent of the program is to: require new and substantially improved structures be designed and constructed to minimize or eliminate future flood damage; provide floodplain residents and business owners with financial insurance assistance in the form of insurance after floods; and it transfers most of the cost of private property flood losses from the taxpayers to floodplain property owners through flood insurance premiums. Participation in the NFIP is based on an agreement between communities and FEMA.

Currently Smith County unincorporated and the City of Hohenwald are NFIP participants. Below is an overview of NFIP policy and loss data for Smith County.

Policies In-force: 187

Insurance In-force whole \$: 31,735,700

Written Premium In-force: \$ 197,389

Total Losses: 257

Closed Losses: 207

Open Losses: 0

CWOP Losses: 50

Total Payments: \$ 666,962.51

According to the National Flood Insurance Program, repetitive flood loss is defined as a facility or structure that has experienced two or more insurance claims of at least \$1,000 in any given 10 year period since 1978. Within the NFIP, repetitive flood loss properties are usually considered the most vital structures to mitigate. The chart below provides a summary of repetitive losses for the Smith County.

Smith County Repetitive Loss Properties

Jurisdiction	Structure Type	Flood Zone	Number of Losses	Total Building Payment	Total Contents Payment	Total Paid
City of Carthage	2-4 Family	AE	7	\$72,451.88	\$3,394.02	\$75,845.90
City of Carthage	2-4 Family	AE	4	\$ 75,511.12	\$ 2,924.12	\$ 78,435.24
Town of Pleasant Shade	Assmd Condo	A	2	\$ 35,510.41	\$ 13,269.62	\$ 48,780.03
City of Carthage	Single Family	B	5	\$ 50,596.67	\$ 2,736.31	\$ 53,332.98
City of Carthage	Assmd Condo	A	7	\$ 55,055.81	\$ 33,661.44	\$ 88,717.25
Town of Gordonsville	Single Family	A	2	\$ 8,964.88	\$ 4,811.15	\$ 13,776.03
City of Carthage	Single Family	A19	7	\$ 58,754.78	\$ 1,131.46	\$ 59,886.24
City of Carthage	Single Family	A19	4	\$ 111,973.63	\$ 32,277.21	\$ 144,250.84
City of Carthage	Single Family	A19	3	\$ 1,356.64	\$ 22,749.76	\$ 24,106.40
Town of Pleasant Shade	Other Non-Res	A	2	\$ 5,873.06	\$ 1,208.90	\$ 7,081.96
City of Carthage	Single Family	A19	3	\$ 80,940.17	\$ 6,374.06	\$ 87,314.23
City of Carthage	Single Family	B	5	\$ 27,855.15	\$ 40,191.90	\$ 68,047.05

Smith County Repetitive Loss Properties						
Jurisdiction	Structure Type	Flood Zone	Number of Losses	Total Building Payment	Total Contents Payment	Total Paid
City of Carthage	Single Family	A19	3	\$ 12,490.74	\$ 7,727.90	\$ 20,218.64
City of Carthage	Single Family	A19	4	\$ 26,729.06	\$ 5,104.79	\$ 31,833.85
City of Carthage	Single Family	A	2	\$ 20,845.09	\$ 15,603.30	\$ 36,448.39
City of Carthage	Single Family	B	4	\$ 106,303.41	\$ 32,279.05	\$138,582.46
City of Carthage	Single Family	C	8	\$ 124,969.35	\$ 28,474.93	\$153,444.28
Town of Dixon Springs	Single Family	A	2	\$ 17,000.00	\$ -	\$ 17,000.00
City of Carthage	Single Family	X	2	\$ 4,362.03	\$ 1,252.03	\$ 5,614.06
City of Carthage	Single Family	X	3	\$ 23,703.71	\$ 669.10	\$ 24,372.81
City of Carthage	Single Family	X	3	\$ 77,612.04	\$ 13,368.69	\$ 90,980.73
Town of Pleasant Shade	Single Family	B	2	\$ 28,072.17	\$ -	28072.17
Town of Gordonsville	Single Family	AE	2	\$ 86,595.94	\$ -	\$ 86,595.94
Town of Watertown	Single Family	C	2	\$ 7,967.25	\$ 18,848.36	\$ 26,815.61

To continue compliance with the NFIP, the jurisdictions have identified, analyzed, and prioritized three mitigation strategies to stay active with the program.

1. Continue to evaluate improved standards that are proven to reduce flood damage.
2. Maintaining supplies of FEMA/NFIP materials to help homeowners evaluate measures to reduce damage.
3. Maintaining a map of areas that flood frequently and prioritizing those areas for inspection immediately following heavy rains or flooding event.

Section 5: Plan Maintenance

Monitoring, Evaluating, and Updating

The Smith County Hazard Mitigation Committee is designated to monitor and evaluate the mitigation plan. This committee is chaired by Smith County Emergency Management who leads the monitoring, evaluating, and updating process.

Monitoring activities will involve Smith County Emergency Management setting up a committee meeting to be held on an annual basis. Smith County Emergency Management will prepare a brief annual report of the meeting's findings by addressing mitigation progress and shortfalls within the county.

The plan is to be evaluated annually and after any significant disaster causing human, infrastructure, and property losses. Following each annual informal evaluation of the plan by emergency management staff, any proposed revisions or recommendations will be brought before the Mitigation Committee to be incorporated into the plan. Potential updates to the plan will address changes to the hazard assessment, the critical facilities list, the repetitive loss list, the committee membership list, and the project priority list.

The plan will be formally updated every five years in accordance to 44 CFR 201.6(d)3, which states that the plan shall be reviewed, revised, and resubmitted for approval within five years to continue eligibility for HMGP grant funding. For the five year update, Smith County Emergency Management will notify the jurisdictional governments and the Smith County Hazard Mitigation Committee approximately one year prior to the plan's expiration date. The review of the plan will include updating the planning process, the hazard profiles, the risk assessment, the vulnerability assessment, the mitigation strategies, and the plan maintenance descriptions.

The five year plan update will also include soliciting other interested persons/agencies to join the Mitigation Committee and a review of what has been accomplished in the past 5 years. The Smith County Hazard Mitigation Committee's goal is to have at least 5 meetings within this time span; dates, public notices, and objectives for these meetings will be determined by Smith County Emergency Management.

Five months prior to the plan's expiration date, Smith County Emergency Management will submit the revised plan to the Tennessee Emergency Management Agency for preliminary review. Upon approval by the state, TEMA will submit the updated plan to FEMA for review.

Once Smith County has attained the designation of the plan's approval pending adoption, each jurisdiction will adopt the plan through a resolution within a year.

Incorporation into Planning Mechanisms

Because of the length of time since approval of the last Smith County Hazard Mitigation Plan, it has not been actively incorporated into other planning documents in the past five years. However, by incorporating the Smith County Hazard Mitigation Plan into other planning documents and mechanisms, information contained in the mitigation plan can help fill-in missing gaps in existing documents, can contribute to already existing mitigation-based projects, and can create a strengthen stance of mitigation implementation and awareness within the county and its jurisdictions.

Smith County Hazard Mitigation Plan intends to incorporate its Hazard Mitigation Plan into the following documents, including, but not limited to:

- Smith County Basic Emergency Operations Plan (BEOP)
- City of Carthage Zoning Ordinance
- City of Carthage Floodplain Ordinance
- Smith County School Safety Plan

The process by which Smith County will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate will begin during after receiving FEMA approval. Smith County Emergency Management will first review the plans side-by-side, and where deemed necessary, Emergency Management will make notes on how mitigation concepts and actions can be incorporated into the other plans. These recommendations will be submitted to the lead agencies of the other planning mechanisms for them to place relevant information within the documents.

Continued Public Participation

The Smith County Mitigation Committee will strive to involve the public in future mitigation activities. This will be accomplished by continuing to post Mitigation Committee Meeting dates in the local newspaper, by attempting to have a public mitigation meeting once a year, by providing public access to copies of the Smith County Hazard Mitigation Plan in the local emergency management office, and by soliciting other interested persons to participate in the mitigation planning process. By implementing these methods, the public will have an opportunity to comment on the plan during the update drafting stage and prior to plan approval.

APPENDICES

- A. Planning Meeting 1 information
 - i. Sign-In Sheet
 - ii. Minutes
- B. Planning Meeting 2 information
 - i. Sign-In Sheet
 - ii. Public Notices
 - iii. Minutes
- C. Planning Meeting 3 information
 - i. Sign-In Sheet
 - ii. Minutes
- D. Planning Meeting 4 information
 - i. Sign-In Sheet
 - ii. Minutes
- E. Planning Meeting 5 information
 - i. Sign-In Sheet
 - ii. Minutes
- F. HAZUS Flood Model – Smith County

Appendix A:

A: Planning Meeting 1 Information

i. Sign-in Sheet – Meeting 1 – March 7, 2018

Sign-In Sheet
Smith County Hazard Mitigation Planning March 7, 2018

Name	Title	Department	Email Address
Sonny Carter	Director	EMA	SMITHCOUNTYEMAC@COM.NET
Andy Bates	District Coordinator	TEMA	ANDREW.BATES@TN.GOV
Tracey Davis	Regional Planner	TEMA	tracey.davis@tn.gov

ii. Minutes – Meeting 1

EMA Director Sonny Carter opened the meeting.

Challenges with previous Hazard Mitigation Committee planning were discussed. Tracey Davis, TEMA Regional Planner, reviewed the planning process, steps to be taken to ensure successful development and review, and expected timeline for completion.. Potential committee members were discussed, and a date of March 19, 2018 was set for Meeting # 2.

Meeting was adjourned.

Appendix B:

B: Planning Meeting 2 Information

i. Sign-in Sheet – Meeting 2 –

Sign-In Sheet
Smith County Hazard Mitigation Planning March 19, 2018

Name	Title	Department	Email Address
Tracey Davis	Director	EMA	SMITHCOUNTYEMA@BREC.COM-MS
Tracey Davis	Planner	TEMA	tracey.davis@tn.gov
ANDY BATES	DISTRICT COORDINATOR	TEMA	ANDREW.BATES@TN.GOV
Chris Johnson	Major Town Administrator	CITY	major.bates@smithcounty.com
Chris Johnson	Regional Director	TEMA	Chris.W.Johnson@Tn.gov
Sonya G. King	Land Use Administrator	Smith Co. Planning	sking@smithcounty.com
Michael F. Nesbitt	Smith County Mayor	Smith County	mnesbitt@smithcounty.com
Eugene Roberts	Chief	Smith County Sheriff	e.chief@smithcounty.com
Steve Hopper	Sheriff	Smith County Sheriff	sheriff@smithcounty.com
Jeff Coxworth	Director	Smith Co. EMS/911	smithcountyems@smithcounty.com
Steve Cable	Rel. Superintendent	Smith Hwy Dep	smithhwy@tnc.com.net
Peggy Carter			

ii. Minutes – Meeting 2

EMA Director Sonny Carter opened the meeting.

Copies of FEMA planning documents were provided to members. Tracey Davis, TEMA Regional Planner, gave a PowerPoint presentation of the hazard mitigation planning process and suggested a course of action for effective use of the committee's time.

Committee members were given printed copies of examples of hazard mitigation best practices from the FEMA website (<https://www.fema.gov/best-practice-stories>) in preparation for the next meeting, and a date of March 26, 2018 was set for Meeting # 3.

Meeting was adjourned.

Appendix C:

C: Planning Meeting 3 Information

i. Sign-in Sheet – Meeting 3 – March 26, 2018

Sign-In Sheet
Smith County Hazard Mitigation Planning March 26, 2018

Name	Title	Department	Email Address
Sonny Carter	DIRECTOR	EMA	SMITHCOUNTYEMA@DISCOM.NET
Andy Bates	DISTRICT COORDINATOR	TENA	ANDREW.BATES@TN.GOV
Jeff Cackatt	Director	Smith EMS/911	smithcackatt@smithcounty.com
Jimmy Wheeler	Mayor	SC Carthage	Jimmy.Wheeler@bell.southcarolina.net
Brit Davis	Chief of Police	Carthage	clayde7281@gmail.com
K. Jenkins	Lt Sheriff's Office	SCSO	Detective@smithcounty.com
James Miller	Mayor	Gordonville	
Alison Nashitt	Smith County Mayor	Smith County	alison@smithcounty.com
Sony King	Land Use Administrator	S.C. Planning	sking@smithcounty.com
Melinda Wood	Smith County Health Dept. Admin Asst		smithhwy@tdt.com.net
Tracey Davis	Regional Planner	TENA	tracey.davis@tn.gov

ii. Public Notice – Meeting 3

Meeting # 3 was advertised in the Carthage Courier, a weekly newspaper with a circulation of approximately 1,000 serving Smith County. The public website of this newspaper is accessible to all neighboring communities at:

<https://1701.newstogo.us/editionviewer/default.aspx?Edition=b763b5f7-8074-49a4-bd0f-e25e169ceadf&Page=fad1b84c-5263-4069-a203-775d575a75fe>

Hazardous mitigation meeting set for county

Officials will be meeting to study the county's Hazardous Mitigation Plan.

The meeting is set for 9 a.m., March 28, at the Smith County Reserve Squad Building at 521 Jefferson Avenue East.

The mitigation plan is reviewed and necessary changes made every five years, according to Emergency Management Director Sonny Carter.

Using past experiences and data, the study helps better prepare the county for any future adverse events.

iii. Minutes – Meeting 3

EMA Director Sonny Carter opened the meeting.

Copies of the historical hazard event data from the National Oceanic and Atmospheric Administration Storm Events database <https://www.ncdc.noaa.gov/stormevents/> and the [Vulnerability Calculator](#) were provided to members for discussion. Event hazard probability was then discussed and ranked by the Committee. The project list from previous Hazard Mitigation Committee planning was provided to members, who were encouraged to discuss with their respective agencies in preparation for the next Hazard Mitigation Committee meeting.

Copies of the priority list and SAFE-T project prioritization method were provided to members.

Items on the priority list were discussed, then rated using the SAFE-T methodology. When the committee did not immediately agree on a score there was a discussion, with the final rating deferred by the committee to representatives of that jurisdiction. Consensus was reached on the scoring and prioritization of each project.

Meeting was adjourned.

Appendix D:

D: Critical Infrastructure – Smith County

BUILDING INSPECTION AND CONDEMNATION

I. Lead Agency: Carthage/South Carthage/Gordonsville Code Enforcement Office/Smith County
Emergency Management Agency

II. Support Agencies: Smith County Board of Education

Carthage/South Carthage/Gordonsville Department of Public Works

III. Introduction

A. Purpose

The purpose of this Emergency Support Function (ESF) is to provide public works and engineering support to perform inspections of buildings damaged during disasters.

B. Scope

1. ESF 3 support includes technical advice and evaluations, engineering services, construction management and inspection, emergency contracting, and real estate support for these functions.
2. The restoration of electric and gas utilities, which is grouped under ESF 3 in the Federal Response Plan, is provided by ESF 12 (Energy) in the county Emergency Management Plan.
3. Activities within this subsection of ESF 3 include:
 - a. The performance of inspections of buildings and structures damaged by a disaster,
 - b. Emergency demolition or stabilization of damaged structures and facilities,
 - c. Technical assistance with regard to inspections of damaged buildings, and
 - d. Maintain the guidelines for establishing the structural integrity of buildings and the training of local officials to perform inspections.

IV. Policies

- A. The inspection, condemnation, and demolition of buildings damaged by a disaster is essential to prevent persons from being injured as a result of entering damaged facilities.

V. Situation and Assumptions

A. Situation

1. Most disasters involve damage to property to some extent. Structures that are damaged must be inspected and either certified for continued use or destroyed to insure that no one is injured or killed by further weakening or collapse of the structure.

B. Planning Assumptions

1. Local government has some capability to perform building inspections.
2. Significant personnel with engineering and construction skills, along with construction equipment and materials, may be required from outside the affected area(s).
3. Earthquake aftershocks and the effects of secondary hazards may necessitate periodic reevaluation of inspected structures in affected areas.
4. Local governments will maximize their use of local building and codes inspectors before requesting assistance from outside the area.

VI. Concept of Operations

A. General

1. Following a disaster, building and codes officials will be used to inspect damaged structures to determine their viability. Local officials may request assistance from outside sources for several reasons:
 - a. Technical advice concerning damaged structures,
 - b. Inspectors to examine special-use structures,
 - c. Assistance in applying code requirements to specific structures,
2. All requests for assistance with inspection functions will be routed to the ESF 3 Manager at the EOC so inspectors from surrounding jurisdictions may be utilized if available.
3. The Tennessee Department of Commerce and Insurance will provide training to local officials in evaluating structures damaged by disasters.

B. Organization and Responsibilities

1. Carthage/South Carthage/Gordonsville Code Enforcement Office/Smith County Emergency Management Agency

- a. Provide an individual to act as the Emergency Services Coordinator (ESC) in the EOC, as well as an alternate to insure 24-hour availability.
- b. Maintain building, occupancy, fire, and other codes for use within the county.
- c. Coordinate a disaster inspection plan.

2. Smith County Board of Education

- a. Provide building inspections of local educational facilities within the limits of agency capabilities.

3. Carthage/South Carthage/Gordonsville Department of Public Works

- a. Provide logistical support for demolition operations.

VII. Mitigation and Preparedness Activities

A. Carthage/South Carthage/Gordonsville Code Enforcement Office/Smith County Emergency Management Agency

1. Implement building, fire, and other codes programs within the county.
2. Secure training programs for local officials and provide same on regular basis.
3. Maintain standard criteria for use in evaluating buildings damaged by disasters using descriptive names (i.e., safe, unsafe, marginally safe, etc.).
4. Maintain standardized form for use in evaluating buildings damaged by disasters, print, and warehouse for future use.
5. Maintain procedures for prioritizing inspection of facilities.
6. Maintain procedures for reentry and removal of personal items from damaged structures.
7. Maintain procedures for securing unsafe areas.
8. Maintain guidelines for demolition of unsafe buildings and procedures for implementing same.
9. Identify county (or regional) contractors to assist in demolition and surveys.

B. Smith County Board of Education

1. Maintain guidelines for assisting officials with inspections of local educational institutions.
2. Maintain structural and non-structural guidance for educational facilities to reduce reduce the chances of student/faculty injury during all types of emergencies.
3. Encourage maintaining school/library emergency preparedness plans (coordinate with EMA).

C. Carthage/South Carthage/Gordonsville Department of Public Works

1. Maintain procedures for supplying logistical support to demolition operations, to include the provision of engineering assistance, assistance with demolition activities, and the removal of debris from affected areas to appropriate receiving areas.

ROUTE CLEARANCE AND BRIDGE INSPECTION

I. Lead Agency: Smith County Highway Department/Carthage/ South Carthage/Gordonsville
Department of Public Works

II. Support Agencies: Law Enforcement Agencies

Fire Departments

Smith County Rescue Squad

III. Introduction

A. Purpose

1. The purpose of this annex is to allow the county to make a determination as to which routes are open for traffic and to prioritize the removal of debris from roadways and thoroughfares. This information is critical for guiding the response of emergency personnel into the affected area(s).

B. Scope

1. ESF 3 provides the capability of determining route conditions based on ground and aerial observations, and providing for removal of debris from roadways and other routes to open them up for use by responding personnel.
2. ESF 3 also provides for debris removal from major roadways and, after roadways are opened, from other areas as determined by the Direction and Control group at the EOC.

IV. Policies

- A. The Department of Public Works is responsible for maintaining the county's roadways in a navigable condition. This function is an extension of their normal, day-to-day operational capabilities.
- B. The Tennessee Department of Transportation is responsible for maintaining the state highways and bridges in the county. Additionally, TDOT may provide limited assistance to local governments in carrying out road and bridge inspections.

V. Situation and Assumptions

A. Situation

1. Any emergency can create conditions on roadways that render them untenable by emergency vehicle traffic. A small tornado can down several trees and power

- lines and create a situation whereby EMS and fire units cannot move into the affected area(s). Larger disasters generally create more serious problems.
2. The removal of debris from roadways and airfields, and the inspection of bridges to insure safety for emergency vehicles, is of paramount importance in a serious emergency. Failure to open these routes means that help cannot arrive for victims.

B. Planning Assumptions

1. Emergencies of every type may necessitate debris removal from roadways and/or airfields.
2. Accidents and other emergencies may render bridges unsuitable for use by emergency vehicles and by victims trying to exit the affected area(s).
3. Local public works crews will be responsible for debris removal from county-owned roads and bridges. State crews will be responsible for state-owned roads and will, after local resources are exhausted, assist local officials with debris removal activities.
4. Debris may consist of vehicle wreckage, snow and ice, tree limbs, power lines, building debris, signs, etc.

VI. Concept of Operations

A. General

1. The status of routes into an area affected by an emergency is of vital concern to the county. Resources cannot be given definitive directions into an area until it is known for sure that the route is open. The first priority after the onset of any emergency is the determination of which routes are open and which are not.
2. The use of aerial reconnaissance may be dictated in major disasters (i.e., earthquakes, flooding, etc.). Preliminary reports from local agencies and aircraft can be used to set priorities for inspections by ground crews. Ground crews will be inserted into affected areas to make final determination of route viability. This information will be provided to ESF 5 and other ESFs for use in the routing of resources.
3. Airstrips may also be used to position resources. It is therefore necessary to open these facilities as well.
4. The Department of Public Works is responsible for maintaining the viability of county owned roads and bridges. State officials are responsible for maintaining state-owned roads and bridges. State resources may be used to assist local debris clearance operations when they are not needed for operations on state-owned systems.

B. Organization and Responsibilities

1. Smith County Highway Department/Carthage/ South Carthage/Gordonsville Department of Public Works

- a. Provide an individual to act as the Emergency Services Coordinator (ESC) in the EOC, as well as an alternate to insure 24-hour availability.
- b. Collect information and intelligence concerning the viability of major routes designated for use in major emergencies and Maintain a plan of action to open up routes that are blocked in a timely manner.
- c. Deploy personnel and equipment to evaluate damaged bridges and roadways, and to take actions to restore them to a usable condition.
- d. Deploy personnel and equipment to remove blockages on major routes.
- e. Assist municipal governments in opening damaged/blocked routes.
- f. Provide routing information to ESFs in the EOC, state government, and private citizens.
- g. Complete the requirements listed in the Mitigation/Preparedness section and be prepared to implement the requirements of the Response/Recovery section.

2. Law Enforcement Agencies

- a. Assist with the identification of damaged/blocked routes/structures.
- b. Provide traffic control functions through ESF 13 (Law Enforcement).
- c. Complete the requirements listed in the Mitigation/Preparedness section and be prepared to implement the requirements of the Response/Recovery section.

3. Fire Departments/Smith County Rescue Squad

- a. Assist with the identification of damaged/blocked routes/structures.
- b. Complete the requirements listed in the Mitigation/Preparedness section and be prepared to implement the requirements of the Response/Recovery section.

VII. Mitigation and Preparedness Activities

A. Smith County Highway Department/Carthage/South Carthage/Gordonsville Department of Public Works

1. Maintain procedures for recording incoming intelligence concerning the status of routes and bridges, and for transmitting this information to ESF 5 and other ESFs requesting or having a need for it.
2. Maintain procedures for prioritizing the inspection of routes and bridges by Public Works officials.
3. Maintain procedures for restoring damaged/blocked routes to operational condition as soon as practicable.
4. Maintain policies concerning the prioritization of route/bridge repairs.
5. Maintain procedures for interfacing with state DOT officials with regard to requests from the county to the state DOT for assistance.
6. Maintain procedures for deploying personnel to remove blockages, repair bridges, and open routes. Include provisions for utilizing other agencies' resources as well as other public and private sector resources.

B. Law Enforcement Agencies

1. Maintain standardized format and procedures for transmitting intelligence from field units concerning the status of roadways/bridges to the Public Works ESC at the EOC.
2. Maintain procedures for deploying personnel to perform traffic control functions around major blockages and at other points dictated by Public Works officials (through ESF 13, Law Enforcement).

C. Fire Departments/Smith County Rescue Squad

1. Maintain standardized format and procedures for transmitting intelligence from field units concerning the status of roadways/bridges to the Public Works ESC in the EOC.

DEBRIS REMOVAL

I. Lead Agency: Smith County Highway Department/Carthage/ South Carthage/Gordonsville
Department of Public Works

II. Support Agencies: Smith County Landfill
Smith County Rescue Squad

III. Introduction

A. Purpose

1. The purpose of this subfunctional annex is to provide debris removal operations in areas affected by emergencies or disasters.

B. Scope

1. This ESF coordinates the removal of debris generated through the demolition of unsafe structures, recovery activities, or through the disaster itself.

IV. Policies

- A. Debris removal is necessary in affected areas to prevent the spread of vector-based epidemiological agents and general sanitation problems.
- B. Current landfill capacity will be utilized to the maximum extent practical until such time as it is determined that the site's capacity may be exceeded if such use is continued.
- C. Normal permitting practices may be waived by state and federal officials if necessary to allow for the disposal of building debris, downed vegetation, and similar materials.

- D. All disposal activities will be conducted with health concerns being the foremost consideration.

V. Situation and Assumptions

A. Situation

1. Most emergencies produce some type of debris that will affect recovery activities. The debris may be from direct damage to buildings and/or vegetation, or through destruction of components of the environment,
2. Allowing debris to accumulate for long periods of time can lead to the spread of diseases, and to the propagation of vermin and insects.

B. Planning Assumptions

1. Emergencies and disasters will generate some refuse or debris that will have to be disposed of.
2. There will be some landfill space available for use in or near areas affected by disasters.
3. Many emergencies will generate quantities of debris that will exceed or significantly reduce current landfill capabilities and will, therefore, require alternative disposal measures.
4. Permitting requirements associated with normal landfill use will be waived if necessary to allow for the disposal of non-hazardous debris resulting from the emergency.

VI. Concept of Operations

A. General

1. Many disasters generate debris. If left to sit or accumulate improperly, this debris will foster the spread of diseases and illness. Additionally, this material may be used as a breeding ground for mice, rats, mosquitoes, and other pests. It is therefore essential to remove debris to a suitable dumping area as soon as is practical after the termination of the emergency.
2. Decisions regarding the disposal of debris will be made with environmental concerns considered.
3. The county Department of Public Works will be responsible for debris removal operations. Decisions regarding the disposal of debris will be made jointly by local officials, with input provided by state environmental agencies when required.
4. Monitoring of areas with significant accumulations of debris will be conducted until the debris is removed.

B. Organization and Responsibilities

1. Smith County Highway Department/Carthage/ South Carthage/Gordonsville Department of Public Works

- a. Responsible for the physical removal of debris. The Public Works ESC may request assistance from other ESFs with necessary capabilities.
- b. Coordinate the removal of debris with state and federal environmental officials.
- c. Complete the requirements listed in the Mitigation/Preparedness section and be prepared to implement the requirements of the Response/Recovery section.

2. Smith County Landfill

- a. Provide assistance with storage of debris.

3. Smith County Rescue Squad

- a. Provide assistance with debris removal operations.

VII. Mitigation and Preparedness Activities

A. Smith County Highway Department/Carthage/ South Carthage/Gordonsville Department of Public Works

- 1. Maintain procedures for deploying personnel and equipment to perform debris removal operations where required.
- 2. Maintain procedures for coordinating disposal activities with state and federal environmental officials.

B. Smith County Landfill

- 1. Maintain procedures for proper storage of debris during a disaster.

C. Smith County Rescue Squad

- 1. Maintain resource listings and procedures for deploying personnel to assist with debris removal operations.

WATER AND WASTEWATER SYSTEMS

I. Lead Agency: Smith County Water Department

II. Support Agencies: Smith County Department of Health

III. Introduction

A. Purpose

1. The purpose of this subfunction of ESF 3 is to assess, repair, and restore operable potable water and sanitary sewer systems in areas affected by emergencies.

B. Scope

1. This subfunction provides technical and regulatory operation and restoration of potable water delivery and sanitary sewer systems damaged by earthquakes, floods, or other disasters.

IV. Policies

- A. The restoration of potable water supplies and sanitary wastewater capabilities is of prime importance following a disaster; the health and safety of both the victim population and the emergency responders must be insured.

V. Situation and Assumptions

A. Situation

1. Disasters of any magnitude may reduce or eliminate the community's ability to supply potable water to its citizens.
2. Many disasters (especially earthquakes) can damage the sanitary sewer system in a community, to include either the pipe grid or the treatment facilities or both.
3. The lack of potable water and a sanitary sewer system, where one existed before, poses severe health concerns for the affected community.
4. Water supply systems are necessary to insure adequate fire protection capabilities.

B. Planning Assumptions

1. Potable water delivery systems may be affected by any type of disaster.
2. Sanitary sewer systems may be affected by any type of disaster.
3. The failure of a sanitary sewer system in a community may lead to serious health problems.
4. Disaster victims and emergency responders in the affected area(s) will need access to potable water sources within 24 hours of a disaster.

VI. Concept of Operations

A. General

1. A large disaster, especially an earthquake or flood, will cause severe damage to a community's potable water delivery system. This may be in the form of damage

- to the piping system, damage to the treatment facilities, destruction of reservoir capabilities, loss of power to the pumping system, or infiltration of the reservoirs by unsanitary water or other fluids.
2. Priority will be given to the delivery of potable water to areas affected by a disaster, either through restoration of the community's delivery system or through the provision of water in containers to residents within a community.
 3. Local water and sewer officials are responsible for the physical restoration of the local water delivery and sewer systems. Technical assistance will be made available through the state Department of Environment and Conservation.
 4. Local units will be used to distribute potable water to residents in affected areas when possible.

B. Organization and Responsibilities

1. Smith County Water Department

- a. Provide an individual(s) to act as the Emergency Services Coordinator (ESC) in the EOC, as well as an alternate to insure 24-hour availability.
- b. Responsible for inspecting and assessing damage to water delivery system and Maintaining plans for the restoration of services in as expedient a manner as possible.
- c. Complete the requirements listed in the Mitigation/Preparedness section and be prepared to implement the requirements of the Response/Recovery section.
- d. Provide an individual(s) to act as the Emergency Services Coordinator (ESC) in the EOC, as well as an alternate to insure 24-hour availability.
- e. Responsible for inspecting and assessing damage to wastewater system and Maintaining plans for the restoration of services in as expedient a manner as possible.

2. Smith County Department of Health

- a. Responsible for monitoring the health effects associated with damage to, or the functional degradation of, the water delivery and sanitary sewer systems within the community.
- b. Responsible for formulating plans for dealing with the situation in affected areas with regards to health maintenance for victims and emergency responders.
- c. Complete the requirements listed in the Mitigation/Preparedness section and be prepared to implement the requirements of the Response/Recovery section.

VII. Mitigation and Preparedness Activities

A. Smith County Water Department

1. Maintain procedures for inspecting water treatment and delivery systems to determine if they are fully functional or must be fully or partially shut down.
2. Maintain procedures for acquiring waivers for certain permitting requirements (i.e., those not health-related) concerning the reconstitution of water delivery systems in

1142 areas affected by disasters.

- 1143 3. Maintain emergency plans, Maintain back-up power capabilities, and take other
- 1144 preparedness measures to reduce the possibility of system failures.
- 1145 4. Maintain procedures for inspecting sewage treatment and disposal systems to
- 1146 determine if they are fully functional or must be fully or partially shut down.
- 1147 5. Maintain procedures for acquiring waivers for certain permitting requirements (i.e.,
- 1148 those not health-related) concerning the reconstitution of water delivery systems in
- 1149 areas affected by disasters.
- 1150 6. Maintain emergency plans, Maintain back-up power capabilities, and take other
- 1151 preparedness measures to reduce the possibility of system failures.

1152
1153 **B. Smith County Department of Health**

- 1154
- 1155 1. Maintain plans for assessing the public health consequences of malfunctioning
- 1156 water and sewer systems.
- 1157 2. Maintain SOPs for issuing instructions through the Public Information Officer
- 1158 regarding citizen use of untreated and/or contaminated water supplies in affected
- 1159 areas.
- 1160

Appendix E:

E: Community Profiles – Smith County

Smith County is a level 3 participant in the Three Star Program, the highest level attainable. As a service to local businesses and those considering relocating to Smith County, the Smith County Chamber provides data and research to help businesses make sound decisions. Small business is the backbone of Smith County's economy. The community embraces the impact of these companies on our culture and lifestyle. The Chamber of Commerce and other community organizations have developed a variety of resources designed to help all small businesses succeed.



QUICK FACTS

County Seat: Carthage
 Area in Square Miles (County): 314
 Elevation: 515'
 Market Region: Cookeville
 Time Zone: Central
 City Email Address: carthagecity@smithcounty.com
 Additional Incorporated Cities within the County: Gordonsville, South Carthage. Unincorporated Cities: Brush Creek, Chestnut Mound, Defeated, Dixon Springs, Elmwood, Hickman, Lancaster, Monoville, Pleasant Shade, Riddleton.

Year Incorporated: 1804
 Latitude: N36° 15.13'
 Longitude: W85° 57.10'
 Distance From Nashville: 50 miles

POPULATION

	City	County
2000 (Census)	2,251	17,712
2010 (Census)	2,306	19,166
Estimated July 1, 2015	2,278	19,295
¹ Population Projection 2020	2,568	20,833
Percent Population Change 2000 – 2010	2.4 %	8.2 %

Source: U.S. Census Bureau

¹Source: University of TN Center for Business & Economic Research

CLIMATE

Annual Average Temperature: 58.6° F
 Average High Temperature: 70.5° F
 Average Low Temperature: 46.6° F
 Annual Average Precipitation: 51.41"
 Annual Average Snowfall: 3.0"
 Prevailing Winds: Southerly
 Mean Length of Freeze-Free Period (days): 180-220

TAX STRUCTURE

LOCAL

	City	County
Property Taxes: (2016)		
Rate per \$100 value	\$ 1.15	\$ 2.32
Ratio of Assessment:		
Residential and Farm	25 %	25 %
Commercial/Industrial	40 %	40 %
Personal (Equipment)	30 %	30 %
Bonded Debt (2016)	\$ 599,727	\$ 25,283,013
Total Local Assessment (2015)	\$ 42,796,681	\$ 322,829,082
Hotel-Motel Tax	5.0 %	0 %

Source: Tennessee Comptroller of the Treasury, Division of Property Assessments

STATE

Sales Tax: 5% tax on food and food ingredients; 7% on all other tangible personal property unless specifically exempted.

Local Sales Tax Rate: 2.75 %

Local & State Sales Tax Collected (FY2016): \$ 14,695,920

Income Tax

- **Personal:** 6 % on Interest & Dividends
- **Corporate Excise Tax:** 6.5% of Tennessee taxable income
- **Franchise Tax:** .25% of the greater of net worth or real and tangible property in Tennessee. The minimum tax is \$100.
- **Unemployment Tax:** New Employers 2.7% of first \$9,000

Source: Tennessee Department of Revenue

EDUCATION

District Name: Smith County
 District Grades Served: PreK-12
 Number of Teachers: 210
 Total Number of Students: 3,205

Grades:

PreK-4: 417
 PreK-6: 460
 PreK-8: 898
 5-8: 311
 7-12: 468
 9-12: 651

Number of High School Graduates (2015-16): 228
 Graduation Rate: 93.8 %

Source: Tennessee Department of Education (October 2016)

Regional Higher Education Institutions	City
Cumberland University	Lebanon
Tennessee College of Applied Technology	Hartsville
Tennessee Technological University	Cookeville

Source: www.tnecd.com/county-profiles/

State Industrial Training Service Available: Yes
 Type of Public School System: County

GOVERNMENT

Governing Body:

City: Mayor with Board of Aldermen/women
 Meets: 1st Thursday Time: 7:00 p.m.
 Place: Town Hall
 County: Mayor and County Commissioners
 Meet: January, March, May, July, September,
 November 2nd Monday Time: 7:00 P.M.
 Place: Smith County Jail & Courts Facility

Fire Department:

full-time fire fighters in city: 0	city volunteers: 25
full-time fire fighters in county: 0	county volunteers: 124
fire stations in city: 1	city fire trucks: 3
fire stations in county: 9	county fire trucks: 17
	Tankers: 2
	Brush Trucks: 2

- 3 EMS Stations with 6 ambulances and 20 EMS full-time employees

Law Enforcement:

full-time police officers in city: 8
 full-time police officers in county & sheriff: 30
 city patrol cars: 8
 county patrol cars: 27

	City	County
Insurance Rating:	9	9/10
Zoning Regulations:	Yes	Yes
Planning Commission:	Yes	Yes
Industrial Development Corp:	Yes	Yes

TRANSPORTATION

AIR SERVICE:

Nearest General Aviation:

Lebanon Municipal Airport
 Location Identifier: M54
 Distance from City: 22 miles
 Runway Length: 5,000 feet
 Surface: Asphalt/Turf
 Lighting: MIRL/PAPI
 Fuel: 100LL/Jet A
 Repair: Major
 Transportation: Taxi and Rental Car

Nearest Commercial Service:

Nashville International Airport
 Location Identifier: BNA
 Distance from Carthage: 49 miles
 Served by 10 major air carriers, 3 cargo carriers, and 2 fixed-base operators; serving 70 markets, 50 non-stops, 390 daily flights (2013).

HIGHWAYS:

U.S Highways: 70 N
 State Highways: 25, 263, 264, 80, 85, 53
 Nearest Interstate: Interstate 40

COMMON CARRIERS:

Air Freight Companies: None
 Motor Freight Companies: 1
 Terminal Facilities: 0
 Bus Services – Inter-City: Yes
 Local: No Carrier Service: Yes

RAILROADS SERVED BY:

Nashville and Eastern Railroad

NAVIGABLE WATERWAYS:

River: Cumberland
 Nearest Port Facility: Nashville
 Channel Depth: 9 feet
 Miles: 50

COMMUNICATIONS

Newspapers:

Carthage Courier
 The Tennessean

Frequency:

Weekly
 Daily

Telephone Companies: DTC Communications, AT&T, and North Central
 Radio Stations: 2

Television Networks: 5

Cable Service Available: Yes Channels: unlimited
 Provider: DTC Communications, Comcast, Direct TV, Dish Network, and Charter Communications
 Internet Service Available: Yes

Provider: DTC Communications, AT&T, Comcast, Charter Communications and North Central
 Fiber Optic Available: Yes
 Provider: DTC Communications and Charter Communications

COMMUNITY FACILITIES

Health Care:

Doctors: 20 Dentists: 3

Hospitals: 1	Beds: 35
Clinics: 9	Beds: N/A
Nursing Homes: 1	Beds: 128
Retirement Homes: 1	Beds: 10
Residential Care/Assisted Living: 1	Beds: 40

Religious Organizations:

Protestant: 15	Catholic: 0	Jewish: 0
Jehovah's Witness: 1	Spanish: 1	
Other: 5		

Day Care Centers: 7 Day Care Homes: 0

Recreation:

Libraries: 2	Parks: 3
Golf Courses (Public & Private): 1	
Swimming Pools (Public & Private): 1	
Country Clubs: 1	Theaters: 0
Bowling Alleys: 0	

Hotels & Motels: 2 Rooms: 77

Bed & Breakfasts: 4

Largest Meeting Room Capacity: 300

Restaurants: 25

Other: Ball fields, tennis courts, Cordell Hull Lake, hiking trail/horse trail, campground, marina, museum, playground, walking track, soccer field, community playground.

FINANCIAL INSTITUTIONS

(Countywide)

Commercial Banks: 4

Savings Institutions: 0

Credit Unions: 0

Total # of Institutions: 4

Total # of Branches: 9

Combined Deposits: \$ 455,481,000 (Deposits for June 2016)

Source: Federal Deposit Insurance Corporation

INDUSTRIAL SUPPORT SERVICES

Service	Town	Distance (Miles)
Tool & Die	Local	
Heat Treating	Cookeville	34
Foundry	Cookeville	34
Heavy Hardware	Cookeville	34
Sheet Metal	Local	
Lubricants	Local	
Welding Supplies	Local	
Abrasives	Local	
Other:		

SELECTED ECONOMIC INDICATORS

2015 Annual Averages

	County	Labor Market Area*
<u>Labor Force:</u>		
Civilian Labor Force	8,494	130,386
Employment	8,009	123,329
Unemployment	485	7,057
Unemployment Rate	5.7 %	6.1 %

* Labor Market Area is defined as DeKalb, Jackson, Macon, Putnam, Smith, Trousdale and Wilson Counties in Tennessee.

Manufacturing in Area (Annual Averages 2015):

Number of Units:	23
Ann. Avg. Employment:	1,337

Source: Tennessee Department of Labor and Workforce Development

County 10-Year Growth Report

Years: 2007-2016	New Plants	Expansions
Number Projects:	7	20
Job Opportunities:	293	285
Total Investments:	\$ 21,310,000	\$ 24,207,000

Source: Tennessee Department of Economic and Community Development

Per Capita Personal Income

Year: 2015 Amount: \$ 35,182

Source: Bureau of Economic Analysis

Average Homes Sales

Year: 2015 Number of homes sold: 199
Average Cost: \$ 111,871

Source: Tennessee Housing Development Agency

Retail Sales

Year: 2015 Amount: \$ 174,758,916

Source: Tennessee Department of Revenue

NATURAL RESOURCES

Minerals: Crushed Stone and Zinc
Timber: Oak, Hickory, Ash, Cedar, Maple and Walnut

AGRICULTURAL

Crops: Hay, corn, soybeans, tobacco, strawberries, green peppers, tomatoes and apples
Livestock: Cattle

UTILITIES

GAS

Local Distributor: Middle Tennessee Gas

Phone: 615.683.1021

Website: www.mtng.com

Source Company: East Tennessee Natural Gas

Fuel Oil Suppliers: 3

Suppliers of LP Gas: 2

WATER

Water Supplier: Town of Carthage

Phone: 615.735.1881 or 615.735.9392

Website: None at this time

Source: Cumberland River

Capacity: 1,400,000 GPD

Current Consumption: 750,000 GPD

Storage Capacity: 600,000 Gallons

SEWER

Sewer Provider: Town of Carthage

Phone: 615.735.1881

Website: None at this time

Type of Treatment: Activated sludge

Capacity: .625 MGD

Current Usage: .350 MGD

City Sewer Coverage: 95 %

Storm Sewer Coverage: 95 %

Solid Waste Disposal Type: Yes

ELECTRICITY

Source Company: Tennessee Valley Authority

Local Power Company for City and County:

Upper Cumberland Electric Membership Corp.

General Manager: Jimmy Gregory

Address: Post Office Box 159
138 Gordonsville Highway
South Carthage, Tennessee 37030-0159

Phone: 615.735.2940

Outages: 615.735.0911

Fax: 615.735.2603

Website: www.ucemc.com

MTIDA works closely with the Tennessee Valley Authority, which supplies electric power to Middle Tennessee through our 25 member local power companies.

MAJOR INDUSTRIAL MANUFACTURERS/DISTRIBUTION

<u>Firm (Countywide)</u>	<u>Product or Service</u>	<u>Total Employees</u>	<u>Union</u>	<u>Phone Number</u>
Bonnell Aluminum Manufacturing, Inc.	Aluminum extrusion	519	None	615-683-8291
Dana Driveshaft Products, LLC	Driveshaft supplier	272	None	615-683-8201
Shiroki Manufacturing	Automotive supplier	210	None	615-683-3500
Fabricated Tube Products	Metal tube fabrication	199	None	615-735-3201
Graphic Packaging	Paper board packaging	156	None	615-683-6352
Nyrstar Zinc Mine	Zinc mining	150	None	615-683-6411
Rackley Roofing Co.	Commercial roofing-sheet metal	80	None	615-735-1197
Filtra Systems	Filtra equipment	58	None	615-683-8261
Taiho TN, Mfg. LLC	Head gaskets	35	None	615-683-8000
Tom Arnold Construction	State bid work	18	None	615-735-2155
Eatherly Group, Inc.	Road-bridge const. grading, drainage	18	None	615-735-8200
Crockett-Phillips Construction, Inc.	Construction	10	None	615-683-3332

For information on industrial sites and available industrial buildings contact:

Robert T. Bibb, Executive Director
Middle Tennessee Industrial Development Association
2108 Westwood Avenue
Nashville, Tennessee 37212
Phone: 615.269.5233 Fax: 615.269.5184
Email: mtida@mtida.org Website: www.mtida.org

The information contained herein was obtained from sources we consider reliable. We can not be responsible, however, for errors or change in information.

Billy M. Woodard, Executive Director
Smith County Chamber of Commerce/Industrial Board of Smith County
939 Upper Ferry Road
Carthage, Tennessee 37030
Phone: 615.735.2093 Fax: 615.735.9904
Email: bwoodard@smithcountychamber.org Website: www.smithcountychamber.org

Michael Nesbitt, County Mayor
Smith County
122 Turner High Circle
Carthage, Tennessee 37030
Phone: 615.735.2294 Fax: 615.735.8240
Email: mnesbitt@smithcounty.com Website: www.smithcountychamber.org

Updated March 2017

[Return to Table of Contents](#)



Middle Tennessee Industrial Development Association 2017 Community Data Profile



GORDONSVILLE Smith County

QUICK FACTS

County Seat: Carthage
 Area in Square Miles (County): 314
 Elevation: 598'
 Market Region: Cookeville
 Time Zone: Central
 City Email Address: gordcity@dtccom.net
 Additional Incorporated Cities within the County: Carthage, South Carthage, Unincorporated Cities: Brush Creek, Chestnut Mound, Defeated, Dixon Springs, Elmwood, Hickman, Lancaster, Monoville, Pleasant Shade, Riddleton.

Year Incorporated: 1909
 Latitude: N36° 10.37'
 Longitude: W85° 55.78'
 Distance From Nashville: 50 miles

TAX STRUCTURE

LOCAL

	City	County
Property Taxes: (2016)		
Rate per \$100 value	\$ 0.7938	\$ 2.32
Ratio of Assessment:		
Residential and Farm	25 %	25 %
Commercial/Industrial	40 %	40 %
Personal (Equipment)	30 %	30 %
Bonded Debt (2016) - Sewer	\$ 500,000	\$ 25,283,013
Total Local Assessment (2015)	\$ 46,330,939	\$ 322,829,082
Hotel-Motel Tax	3.0 %	0 %

Source: Tennessee Comptroller of the Treasury, Division of Property Assessments

POPULATION

	City	County
2000 (Census)	1,248	17,712
2010 (Census)	1,213	19,166
Estimated July 1, 2015	1,204	19,295
¹ Population Projection 2020	1,248	20,833
Percent Population Change 2000 - 2010	-2.8 %	8.2 %

Source: U.S. Census Bureau

¹Source: University of TN Center for Business & Economic Research

CLIMATE

Annual Average Temperature: 58.6° F
 Average High Temperature: 70.5° F
 Average Low Temperature: 46.6° F
 Annual Average Precipitation: 51.41"
 Annual Average Snowfall: 3.0"
 Prevailing Winds: Southerly
 Mean Length of Freeze-Free Period (days): 180-220

STATE

Sales Tax 5% tax on food and food ingredients; 7% on all other tangible personal property unless specifically exempted.

Local Sales Tax Rate 2.75 %

Local & State Sales Tax Collected (FY2016): \$ 14,695,920

Income Tax

- **Personal:** 6 % on Interest & Dividends
- **Corporate Excise Tax:** 6.5% of Tennessee taxable income
- **Franchise Tax:** .25% of the greater of net worth or real and tangible property in Tennessee. The minimum tax is \$100.
- **Unemployment Tax:** New Employers 2.7% of first \$9,000

Source: Tennessee Department of Revenue

EDUCATION

District Name: Smith County
 District Grades Served: PreK-12
 Number of Teachers: 210
 Total Number of Students: 3,205
Grades:
 PreK-4: 417
 PreK-6: 460
 PreK-8: 898
 5-8: 311
 7-12: 468
 9-12: 651

Number of High School Graduates (2015-16): 228
 Graduation Rate: 93.8 %

Source: Tennessee Department of Education (October 2016)

Regional Higher Education Institutions	City
Cumberland University	Lebanon
Tennessee College of Applied Technology	Hartsville
Tennessee Technological University	Cookeville

Source: www.tned.com/county-profiles/

State Industrial Training Service Available: Yes
 Type of Public School System: County

GOVERNMENT

Governing Body:

City: Mayor with Board of Aldermen/women
 Meets: 2nd Monday Time: 6:15 p.m.
 Place: City Hall
 County: Mayor and County Commissioners
 Meet: January, March, May, July, September,
 November 2nd Monday Time: 7:00 P.M.
 Place: Smith County Jail & Courts Facility

Fire Department:

full-time fire fighters in city: 0	city volunteers: 19
full-time fire fighters in county: 0	county volunteers: 124
fire stations in city: 1	city fire trucks: 2
fire stations in county: 9	county fire trucks: 17
	Tankers: 2
	Brush Trucks: 2

- 3 EMS Stations with 6 ambulances and 20 EMS full-time employees

Law Enforcement:

full-time police officers in city: 6
 full-time police officers in county & sheriff: 30
 city patrol cars: 7 county patrol cars: 27

	City	County
Insurance Rating:	6	9/10
Zoning Regulations:	Yes	Yes
Planning Commission:	Yes	Yes
Industrial Development Corp:	Yes	Yes

TRANSPORTATION

AIR SERVICE:

Nearest General Aviation:
 Lebanon Municipal Airport
 Location Identifier: M54
 Distance from City: 24 miles
 Runway Length: 5,000 feet
 Surface: Asphalt/Turf
 Lighting: MIRL/PAPI
 Fuel: 100LL/Jet A
 Repair: Major
 Transportation: Taxi and Rental Car

Nearest Commercial Service:

Nashville International Airport
 Location Identifier: BNA
 Distance from Gordonsville: 45 miles
 Served by 10 major air carriers, 3 cargo carriers, and 2 fixed-base operators; serving 70 markets, 50 non-stops, 390 daily flights (2015).

HIGHWAYS:

U.S Highways: 70 N and US Highway 141
 State Highways: 25, 263, 264, 80, 85, 53
 Nearest Interstate: Interstate 40

COMMON CARRIERS:

Air Freight Companies: None
 Motor Freight Companies: 1
 Terminal Facilities: 0
 Bus Services – Inter-City: Yes
 Local: No Carrier Service: Yes

RAILROADS SERVED BY:

Nashville and Eastern Railroad

NAVIGABLE WATERWAYS:

River: Cumberland Channel Depth: 9 feet
 Nearest Port Facility: Nashville Miles: 50

COMMUNICATIONS

Newspapers:

Carthage Courier
 The Tennessean

Frequency:

Weekly
 Daily

Telephone Companies: DTC Communications, AT&T, and North Central
 Radio Stations: 2

Television Networks: 5

Cable Service Available: Yes Channels: unlimited
 Provider: DTC Communications, Comcast, Direct TV, Dish Network,
 and Charter Communications
 Internet Service Available: Yes

Provider: DTC Communications, AT&T, Comcast, Charter Communications and North Central

Fiber Optic Available: Yes

Provider: DTC Communications and Charter Communications

COMMUNITY FACILITIES

Health Care:

Doctors: 20 Dentists: 3

Hospitals: 1	Beds: 35
Clinics: 9	Beds: N/A
Nursing Homes: 1	Beds: 128
Retirement Homes: 1	Beds: 10
Residential Care/Assisted Living: 1	Beds: 40

Religious Organizations:

Protestant: 8	Catholic: 0	Jewish: 0
Jehovah's Witness: 1	Spanish: 1	
Other: 3		

Day Care Centers: 4 Day Care Homes: 0

Recreation:

Libraries: 2	Parks: 3
Golf Courses (Public & Private): 1	
Swimming Pools (Public & Private): 1	
Country Clubs: 1	Theaters: 0
Bowling Alleys: 0	

Hotels & Motels: 2 Rooms: 77

Bed & Breakfasts: 4

Largest Meeting Room Capacity: 300

Restaurants: 25

Other: City park has paved walking path, playground equipment, community playground

FINANCIAL INSTITUTIONS

(Countywide)

Commercial Banks: 4

Savings Institutions: 0

Credit Unions: 0

Total # of Institutions: 4

Total # of Branches: 9

Combined Deposits: \$ 455,481,000 (Deposits for June 2016)

Source: Federal Deposit Insurance Corporation

SELECTED ECONOMIC INDICATORS

2015 Annual Averages

	County	Labor Market Area*
Labor Force:		
Civilian Labor Force	8,494	130,386
Employment	8,009	123,329
Unemployment	485	7,057
Unemployment Rate	5.7 %	6.1 %

* Labor Market Area is defined as DeKalb, Jackson, Macon, Putnam, Smith, Trousdale and Wilcox Counties in Tennessee.

Manufacturing in Area (Annual Averages 2015):

Number of Units:	23
Ann. Avg. Employment:	1,337

Source: Tennessee Department of Labor and Workforce Development

County 10-Year Growth Report

Years: 2007-2016	New Plants	Expansions
Number Projects:	7	20
Job Opportunities:	293	285
Total Investments:	\$ 21,310,000	\$ 24,207,000

Source: Tennessee Department of Economic and Community Development

Per Capita Personal Income

Year: 2015 Amount: \$ 35,182

Source: Bureau of Economic Analysis

Average Homes Sales

Year: 2015 Number of homes sold: 199
Average Cost: \$ 111,871

Source: Tennessee Housing Development Agency

Retail Sales

Year: 2015 Amount: \$ 174,758,916

Source: Tennessee Department of Revenue

INDUSTRIAL SUPPORT SERVICES

Service	Town	Distance (Miles)
Tool & Die	Local	
Heat Treating	Cookeville	34
Foundry	Cookeville	34
Heavy Hardware	Cookeville	34
Sheet Metal	Local	
Lubricants	Local	
Welding Supplies	Local	
Abrasives	Local	
Other:		

NATURAL RESOURCES

Minerals: Crushed Stone and Zinc
Timber: Oak, Hickory, Ash, Cedar, Maple and Walnut

AGRICULTURAL

Crops: Hay, corn, soybeans, tobacco, strawberries, green peppers, tomatoes and apples
Livestock: Cattle

UTILITIES

GAS

Local Distributor: **Middle Tennessee Gas**

Phone: 615.683.1021

Website: www.mtng.com

Source Company: East Tennessee Natural Gas

Fuel Oil Suppliers: 3

Suppliers of LP Gas: 2

WATER

Water Supplier: **Smith Utility District**

Phone: 615.735.2793

Website: None at this time

Source: Caney Fork River/Cumberland River

Capacity: 3,000,000 GPD

Current Consumption: 1,200,000 GPD

Storage Capacity: 2,840,000 Gallons

SEWER

Sewer Provider: **Town of Gordonsville**

Phone: 615.683.8282

Website: None at this time

Type of Treatment: Activated sludge

Capacity: .325 MGD

Current Usage: 75,000 GPD

City Sewer Coverage: 0 %

Storm Sewer Coverage: 0 %

Solid Waste Disposal Type: Yes

ELECTRICITY

Source Company: Tennessee Valley Authority

Local Power Company for City and County:

Upper Cumberland Electric Membership Corp.

General Manager: Jimmy Gregory

District Office: Post Office Box 159
138 Gordonsville Highway
South Carthage, Tennessee 37030-0159

Phone: 615.735.2940

Outages: 615.735.0911

Fax: 615.735.2603

Website: www.ucemc.com

MTIDA works closely with the Tennessee Valley Authority, which supplies electric power to Middle Tennessee through our 25 member local power companies.

MAJOR INDUSTRIAL MANUFACTURERS/DISTRIBUTION

<u>Firm (Countywide)</u>	<u>Product or Service</u>	<u>Total Employees</u>	<u>Union</u>	<u>Phone Number</u>
Bonnell Aluminum Manufacturing, Inc.	Aluminum extrusion	519	None	615-683-8291
Dana Driveshaft Products, LLC	Driveshaft supplier	272	None	615-683-8201
Shiroki Manufacturing	Automotive supplier	210	None	615-683-3500
Fabricated Tube Products	Metal tube fabrication	199	None	615-735-3201
Graphic Packaging	Paper board packaging	156	None	615-683-6352
Nyrstar Zinc Mine	Zinc mining	150	None	615-683-6411
Rackley Roofing Co.	Commercial roofing-sheet metal	80	None	615-735-1197
Filtra Systems	Filtra equipment	58	None	615-683-8261
Taiho TN, Mfg. LLC	Head gaskets	35	None	615-683-8000
Tom Arnold Construction	State bid work	18	None	615-735-2155
Eatherly Group, Inc.	Road-bridge const. grading, drainage	18	None	615-735-8200
Crockett-Phillips Construction, Inc.	Construction	10	None	615-683-3332

For information on industrial sites and available industrial buildings contact:

Robert T. Bibb, Executive Director
Middle Tennessee Industrial Development Association
2108 Westwood Avenue
Nashville, Tennessee 37212
Phone: 615.269.5233 Fax: 615.269.5184
Email: mtida@mtida.org Website: www.mtida.org

Billy M. Woodard, Executive Director
Smith County Chamber of Commerce/Industrial Board of Smith County
939 Upper Ferry Road
Carthage, Tennessee 37030
Phone: 615.735.2093 Fax: 615.735.9904
Email: bwoodard@smithcountychamber.org Website: www.smithcountychamber.org

Michael Nesbitt, County Mayor
Smith County
122 Turner High Circle
Carthage, Tennessee 37030
Phone: 615.735.2294 Fax: 615.735.8240
Email: mnesbitt@smithcounty.com Website: www.smithcountychamber.org/

The information contained herein was obtained from sources we consider reliable. We can not be responsible, however, for errors or change in information.

Updated March 2017



Middle Tennessee Industrial Development Association 2017 Community Data Profile



SOUTH CARTHAGE Smith County

QUICK FACTS

County Seat: Carthage
Area in Square Miles (County): 314
Elevation: 499'
Market Region: Cookeville
Time Zone: Central
City Email Address: sccityhall@dtccom.net
Additional Incorporated Cities within the County: Carthage, Gordonsville.
Unincorporated Cities: Brush Creek, Chestnut Mound, Deleated, Dixon Springs, Elmwood, Hickman, Lancaster, Monoville, Pleasant Shade, Riddleton.

Year Incorporated: 1963
Latitude: N36° 14.51'
Longitude: W85° 57.11'
Distance From Nashville: 53 miles

POPULATION

	City	County
2000 (Census)	1,302	17,712
2010 (Census)	1,322	19,166
Estimated July 1, 2015	1,334	19,295
¹ Population Projection 2020	1,465	20,833
Percent Population Change 2000 – 2010	1.5 %	8.2 %

Source: U.S. Census Bureau

¹Source: University of TN Center for Business & Economic Research

CLIMATE

Annual Average Temperature: 58.6° F
Average High Temperature: 70.5° F
Average Low Temperature: 46.6° F
Annual Average Precipitation: 51.41"
Annual Average Snowfall: 3.0"
Prevailing Winds: Southerly
Mean Length of Freeze-Free Period (days): 180-220

TAX STRUCTURE

LOCAL

	City	County
Property Taxes: (2016)		
Rate per \$100 value	\$ 0.9704	\$ 2.32
Ratio of Assessment:		
Residential and Farm	25 %	25 %
Commercial/Industrial	40 %	40 %
Personal (Equipment)	30 %	30 %
Bonded Debt (2016)	\$ 151,668	\$ 25,283,013
Total Local Assessment (2015)	\$ 19,204,884	\$ 322,829,082
Hotel-Motel Tax	0 %	0 %

Source: Tennessee Comptroller of the Treasury, Division of Property Assessments

STATE

Sales Tax 5% tax on food and food ingredients; 7% on all other tangible personal property unless specifically exempted.

Local Sales Tax Rate 2.75 %

Local & State Sales Tax Collected (FY2016): \$ 14,695,920

Income Tax

- **Personal:** 6 % on Interest & Dividends
- **Corporate Excise Tax:** 6.5% of Tennessee taxable income
- **Franchise Tax:** .25% of the greater of net worth or real and tangible property in Tennessee. The minimum tax is \$100.
- **Unemployment Tax:** New Employers 2.7% of first \$9,000

Source: Tennessee Department of Revenue

EDUCATION

District Name: Smith County
 District Grades Served: PreK-12
 Number of Teachers: 210
 Total Number of Students: 3,205

Number of Schools: 9
 Number of Administrators: 20

Grades:

PreK-4: 417
 PreK-6: 460
 PreK-8: 898
 5-8: 311
 7-12: 468
 9-12: 651

Number of High School Graduates (2015-16): 228
 Graduation Rate: 93.8 %

Source: Tennessee Department of Education (October 2016)

Regional Higher Education Institutions

Cumberland University	City
Tennessee College of Applied Technology	Lebanon
Tennessee Technological University	Hartsville
	Cookeville

Source: www.tned.com/county-profiles/

State Industrial Training Service Available: Yes
 Type of Public School System: County

GOVERNMENT

Governing Body:

City: Mayor with Board of Aldermen/women
 Meets: 1st Thursday Time: 7:00 p.m.
 Place: Town Hall
 County: Mayor and County Commissioners
 Meet: January, March, May, July, September,
 November 2nd Monday Time: 7:00 P.M.
 Place: Smith County Jail & Courts Facility

Fire Department:

full-time fire fighters in city: 0	city volunteers: 20
full-time fire fighters in county: 0	county volunteers: 124
fire stations in city: 1	city fire trucks: 2
fire stations in county: 9	county fire trucks: 17
	Tankers: 2
	Brush Trucks: 2

- 3 EMS Stations with 6 ambulances and 20 EMS full-time employees

Law Enforcement:

full-time police officers in city: 4
 full-time police officers in county & sheriff: 30
 city patrol cars: 5
 county patrol cars: 27
 Part-time police officers in city: 2

	City	County
Insurance Rating:	6	9/10
Zoning Regulations:	Yes	Yes
Planning Commission:	Yes	Yes
Industrial Development Corp:	Yes	Yes

TRANSPORTATION

AIR SERVICE:

Nearest General Aviation:
 Lebanon Municipal Airport
 Location Identifier: M54
 Distance from City: 23 miles
 Runway Length: 5,000 feet
 Surface: Asphalt/Turf
 Lighting: MRL/PAPI
 Fuel: 100LL/Jet A
 Repair: Major
 Transportation: Taxi and Rental Car

Nearest Commercial Service:

Nashville International Airport
 Location Identifier: BNA
 Distance from South Carthage: 48 miles
 Served by 10 major air carriers, 3 cargo carriers, and 2 fixed-base operators; serving 70 markets, 50 non-stops, 390 daily flights (2015).

HIGHWAYS:

U.S Highways: 70 N
 State Highways: 25, 263, 264, 80, 85, 53
 Nearest Interstate: Interstate 40

COMMON CARRIERS:

Air Freight Companies: None
 Motor Freight Companies: 1
 Terminal Facilities: 0
 Bus Services – Inter-City: Yes
 Local: No Carrier Service: Yes

RAILROADS SERVED BY:

Nashville and Eastern Railroad

NAVIGABLE WATERWAYS:

River: Cumberland
 Nearest Port Facility: Nashville
 Channel Depth: 9 feet
 Miles: 50

COMMUNICATIONS

Newspapers:

Carthage Courier
 The Tennessean

Frequency:

Weekly
 Daily

Telephone Companies: DTC Communications, AT&T, and North Central
 Radio Stations: 2

Television Networks: 5

Cable Service Available: Yes Channels: unlimited
 Provider: DTC Communications, Comcast, Direct TV, Dish Network, and Charter Communications

Internet Service Available: Yes

Provider: DTC Communications, AT&T, Comcast, Charter Communications and North Central

Fiber Optic Available: Yes

Provider: DTC Communications and Charter Communications

COMMUNITY FACILITIES

Health Care

Doctors: 20 Dentists: 3

Hospitals: 1	Beds: 35
Clinics: 9	Beds: N/A
Nursing Homes: 1	Beds: 128
Retirement Homes: 1	Beds: 10
Residential Care/Assisted Living: 1	Beds: 40

Religious Organizations

Protestant: 8	Catholic: 0	Jewish: 0
Jehovah's Witness: 1	Spanish: 1	
Other: 3		

Day Care Centers: 7 Day Care Homes: 0

Recreation

Libraries: 2	Parks: 3
Golf Courses (Public & Private): 1	
Swimming Pools (Public & Private): 1	
Country Clubs: 1	Theaters: 0
Bowling Alleys: 0	

Hotels & Motels: 2 Rooms: 77
 Bed & Breakfasts: 4
 Largest Meeting Room Capacity: 300
 Restaurants: 25
 Other: Ball fields, tennis courts, Cordell Hull Lake, hiking trail/horse trail, campground, marina, museum, community playground, walking track, soccer field.

FINANCIAL INSTITUTIONS

(Countywide)

Commercial Banks: 4
 Savings Institutions: 0
 Credit Unions: 0
 Total # of Institutions: 4
 Total # of Branches: 9
 Combined Deposits: \$ 455,481,000 (Deposits for June 2016)

Source: Federal Deposit Insurance Corporation

INDUSTRIAL SUPPORT SERVICES

Service	Town	Distance (Miles)
Tool & Die	Local	
Heat Treating	Cookeville	34
Foundry	Cookeville	34
Heavy Hardware	Cookeville	34
Sheet Metal	Local	
Lubricants	Local	
Welding Supplies	Local	
Abrasives	Local	
Other:		

SELECTED ECONOMIC INDICATORS

2015 Annual Averages

	County	Labor Market Area*
<u>Labor Force:</u>		
Civilian Labor Force	8,494	130,386
Employment	8,009	123,329
Unemployment	485	7,057
Unemployment Rate	5.7 %	6.1 %

* Labor Market Area is defined as DeKalb, Jackson, Macon, Putnam, Smith, Trousdale and Wilson Counties in Tennessee.

Manufacturing in Area (Annual Averages 2015):

Number of Units:	23
Ann. Avg. Employment:	1,337

Source: Tennessee Department of Labor and Workforce Development

County 10-Year Growth Report

Years: 2007-2016	New Plants	Expansions
Number Projects:	7	20
Job Opportunities:	293	285
Total Investments:	\$ 21,310,000	\$ 24,207,000

Source: Tennessee Department of Economic and Community Development

Per Capita Personal Income

Year: 2015 Amount: \$ 35,182

Source: Bureau of Economic Analysis

Average Homes Sales

Year: 2015 Number of homes sold: 199
 Average Cost: \$ 111,871

Source: Tennessee Housing Development Agency

Retail Sales

Year: 2015 Amount: \$ 174,758,916

Source: Tennessee Department of Revenue

NATURAL RESOURCES

Minerals: Crushed Stone and Zinc
 Timber: Oak, Hickory, Ash, Cedar

AGRICULTURAL

Crops: Hay, tobacco, soybeans and corn
 Livestock: Cattle

UTILITIES

GAS

Local Distributor: **Middle Tennessee Gas**

Phone: 615.683.1021

Website: www.mtng.com

Source Company: East Tennessee Natural Gas

Fuel Oil Suppliers: 3

Suppliers of LP Gas: 2

WATER

Water Supplier: **Smith Utility District**

Phone: 615.735.2793

Website: None at this time

Source: Caney Fork River/Cumberland River

Capacity: 3,000,000 GPD

Current Consumption: 1,200,000 GPD

Storage Capacity: 2,840,000 Gallons

SEWER

Sewer Provider: **Town of Carthage/City of South Carthage**

Phone: 615.735.1881 / 615.735.2727

Website: None at this time

Type of Treatment: Activated sludge

Capacity: .325 MGD

Current Usage: .835 MGD

City Sewer Coverage: 95 %

Storm Sewer Coverage: 95 %

Solid Waste Disposal Type: Yes

ELECTRICITY

Source Company: Tennessee Valley Authority

Local Power Company for City and County:

Upper Cumberland Electric Membership Corp.

General Manager: Jimmy Gregory

Address: Post Office Box 159
138 Gordonsville Highway
South Carthage, Tennessee 37030-0159

Phone: 615.735.2940

Outages: 615.735.0911

Fax: 615.735.2603

Website: www.ucemc.com

MTIDA works closely with the Tennessee Valley Authority, which supplies electric power to Middle Tennessee through our 25 member local power companies.

MAJOR INDUSTRIAL MANUFACTURERS/DISTRIBUTION (18+ Employees)

<u>Firm (Countywide)</u>	<u>Product or Service</u>	<u>Total Employees</u>	<u>Union</u>	<u>Phone Number</u>
Bonnell Aluminum Manufacturing, Inc.	Aluminum extrusion	519	None	615-683-8291
Dana Driveshaft Products, LLC	Driveshaft supplier	272	None	615-683-8201
Shiroki Manufacturing	Automotive supplier	210	None	615-683-3500
Fabricated Tube Products	Metal tube fabrication	199	None	615-735-3201
Graphic Packaging	Paper board packaging	156	None	615-683-6352
Nyrstar Zinc Mine	Zinc mining	150	None	615-683-6411
Rackley Roofing Co.	Commercial roofing-sheet metal	80	None	615-735-1197
Filtra Systems	Filtra equipment	58	None	615-683-8261
Taiho TN, Mfg. LLC	Head gaskets	35	None	615-683-8000
Tom Arnold Construction	State bid work	18	None	615-735-2155
Eatherly Group, Inc.	Road-bridge const. grading, drainage	18	None	615-735-8200
Crockett-Phillips Construction, Inc.	Construction	10	None	615-683-3332

For information on industrial sites and available industrial buildings contact:

Robert T. Bibb, Executive Director
Middle Tennessee Industrial Development Association
2108 Westwood Avenue
Nashville, Tennessee 37212
Phone: 615.269.5233 Fax: 615.269.5184
Email: mtida@mtida.org Website: www.mtida.org

Jimmy Wheeler, City Mayor
City of South Carthage
106 S. Main Street
Carthage, Tennessee 37030
Phone: 615.735.2727 Fax: 615.735.2492
Email: sccityhall@dtccom.net Website:

Billy M. Woodard, Executive Director
Smith County Chamber of Commerce/Industrial Board of Smith County
939 Upper Ferry Road
Carthage, Tennessee 37030
Phone: 615.735.2093 Fax: 615.735.9904
Email: bwoodard@smithcountychamber.org
Website: www.smithcountychamber.org

Michael Nesbitt, County Mayor
Smith County
122 Turner High Circle
Carthage, Tennessee 37030
Phone: 615.735.2294 Fax: 615.735.8240
Email: mnesbitt@smithcounty.com
Website: www.smithcountychamber.org

The information contained herein was obtained from sources we consider reliable. We can not be responsible, however, for errors or change in information.

Updated March 2017

[Return to Table of Contents](#)

Appendix F:

F: HAZUS Report – Smith County



Hazus-MH: Flood Global Risk Report

Region Name: SmithCounty
Flood Scenario: 100 Year Flood
Print Date: Monday, March 12, 2018

Disclaimer:

This version of Hazus utilizes 2010 Census Data.

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

The estimates of social and economic impacts contained in this report were produced using Hazus loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific Flood. These results can be improved by using enhanced inventory data and flood hazard information.



FEMA

RiskMAP
Increasing Resilience Together

Smith County Hazard Mitigation Plan

Return to [Table of Contents](#)

Table of Contents

Section	Page #
General Description of the Region	3
Building Inventory	
General Building Stock	4
Essential Facility Inventory	5
Flood Scenario Parameters	6
Building Damage	
General Building Stock	7
Essential Facilities Damage	9
Induced Flood Damage	10
Debris Generation	
Social Impact	10
Shelter Requirements	
Economic Loss	12
Building-Related Losses	
Appendix A: County Listing for the Region	15
Appendix B: Regional Population and Building Value Data	16



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 2 of 16

Smith County Hazard Mitigation Plan

Return to [Table of Contents](#)



General Description of the Region

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

The flood loss estimates provided in this report were based on a region that included 1 county(ies) from the following state(s):

- Tennessee

Note:

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

The geographical size of the region is 325 square miles and contains 1,230 census blocks. The region contains over 7 thousand households and has a total population of 19,166 people (2010 Census Bureau data). The distribution of population by State and County for the study region is provided in Appendix B.

There are an estimated 8,584 buildings in the region with a total building replacement value (excluding contents) of 1,651 million dollars (2010 dollars). Approximately 92.70% of the buildings (and 77.32% of the building value) are associated with residential housing.



FEMA

Building Inventory

General Building Stock

Hazus estimates that there are 8,584 buildings in the region which have an aggregate total replacement value of 1,651 million (2014 dollars). Table 1 and Table 2 present the relative distribution of the value with respect to the general occupancies by Study Region and Scenario respectively. Appendix B provides a general distribution of the building value by State and County.

Table 1
Building Exposure by Occupancy Type for the Study Region

Occupancy	Exposure (\$1000)	Percent of Total
Residential	1,276,598	77.3%
Commercial	222,356	13.5%
Industrial	80,138	4.9%
Agricultural	6,902	0.4%
Religion	41,797	2.5%
Government	8,705	0.5%
Education	14,590	0.9%
Total	1,651,086	100.0%

Building Exposure by Occupancy Type for the Study Region
(\$1000's)

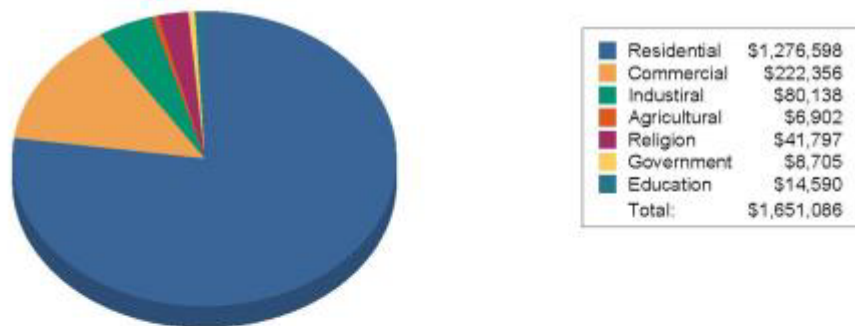
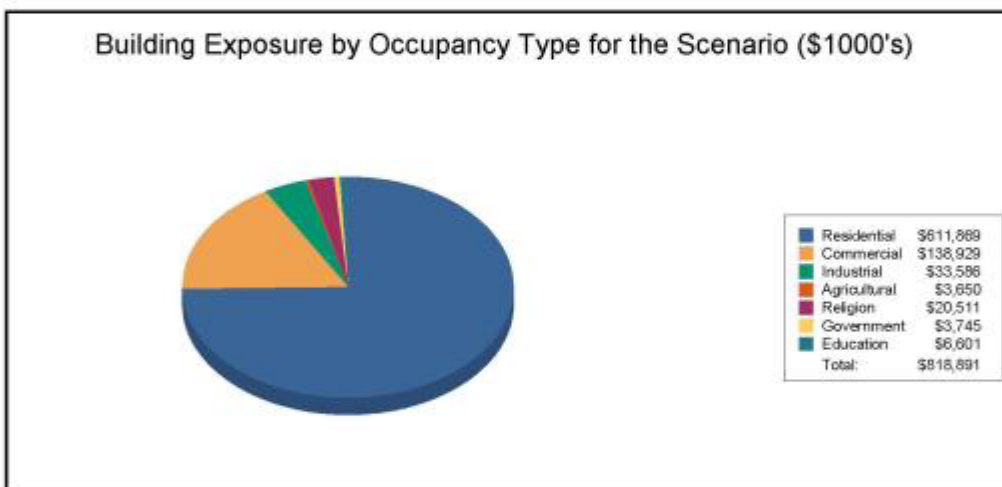


Table 2
Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure (\$1000)	Percent of Total
Residential	611,869	74.7%
Commercial	138,929	17.0%
Industrial	33,586	4.1%
Agricultural	3,650	0.4%
Religion	20,511	2.5%
Government	3,745	0.5%
Education	6,601	0.8%
Total	818,891	100.0%



Essential Facility Inventory

For essential facilities, there are 2 hospitals in the region with a total bed capacity of 69 beds. There are 12 schools, 14 fire stations, 4 police stations and no emergency operation centers.

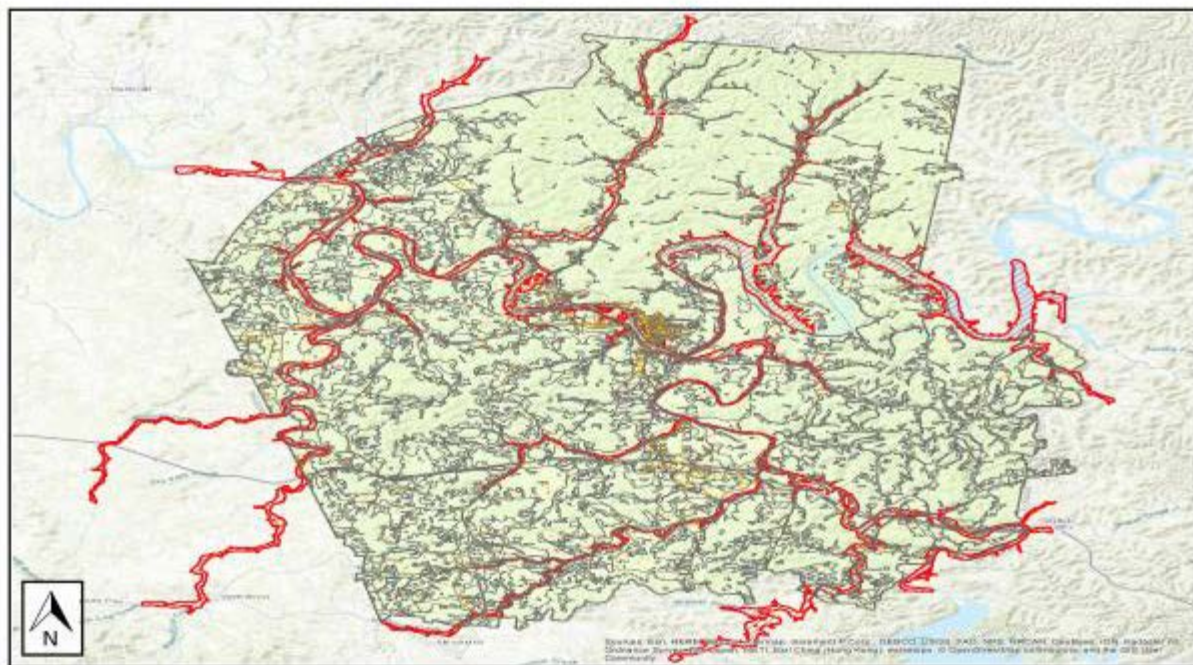
Flood Scenario Parameters

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

Study Region Name:	SmithCounty
Scenario Name:	100 Year Flood
Return Period Analyzed:	100
Analysis Options Analyzed:	No What-ifs

Study Region Overview Map

Illustrating scenario flood extent, as well as exposed essential facilities and total exposure





Hazus estimates that about 26 buildings will be at least moderately damaged. This is over 10% of the total number of buildings in the scenario. There are an estimated 23 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the Hazus Flood Technical Manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 summarizes the expected damage by general building type.



Table 3: Expected Building Damage by Occupancy

Occupancy	1-10		11-20		21-30		31-40		41-50		Substantially	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Education	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Government	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Religion	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Residential	1	3.70	2	7.41	0	0.00	0	0.00	1	3.70	23	85.19
Total	1		2		0		0		1		23	

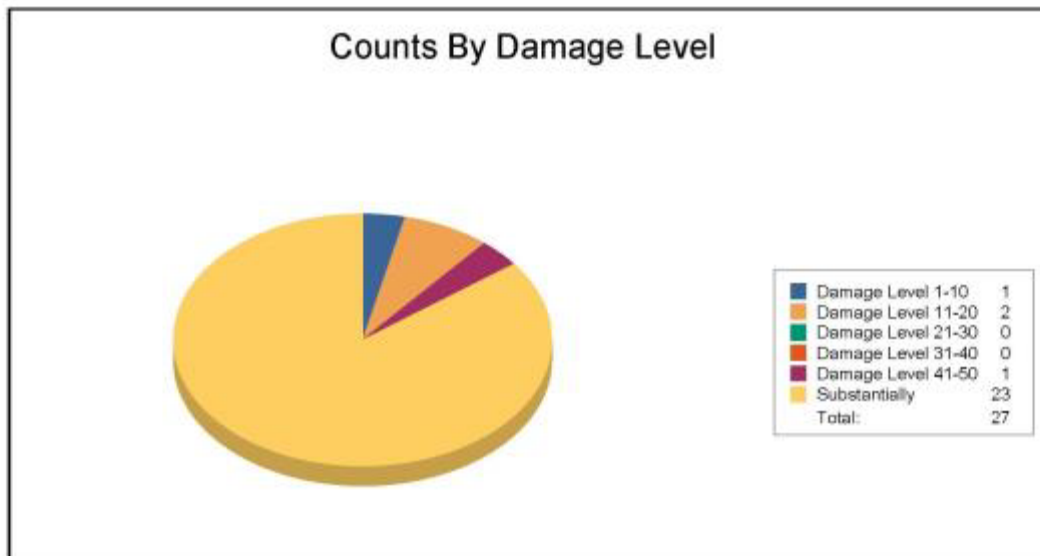


Table 4: Expected Building Damage by Building Type

Building Type	1-10		11-20		21-30		31-40		41-50		Substantially	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	0	0	0	0	0	0	0	0	0	0	0	0
ManufHousing	0	0	0	0	0	0	0	0	0	0	2	100
Masonry	0	0	0	0	0	0	0	0	0	0	0	0
Steel	0	0	0	0	0	0	0	0	0	0	0	0
Wood	1	4	2	8	0	0	0	0	1	4	21	84



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 9 of 16

Smith County Hazard Mitigation Plan

Return to [Table of Contents](#)

Essential Facility Damage

Before the flood analyzed in this scenario, the region had 69 hospital beds available for use. On the day of the scenario flood event, the model estimates that 69 hospital beds are available in the region.

Table 5: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate	At Least Substantial	Loss of Use
Fire Stations	14	1	0	2
Hospitals	2	0	0	0
Police Stations	4	0	0	0
Schools	12	0	0	0

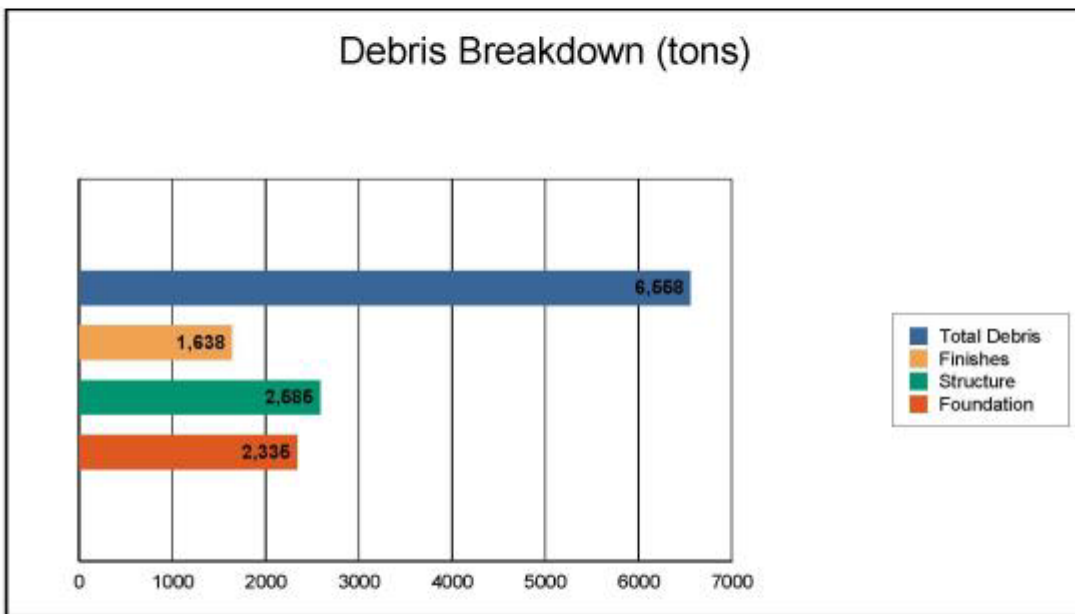
If this report displays all zeros or is blank, two possibilities can explain this.

- (1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.
- (2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Induced Flood Damage

Debris Generation

Hazus estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories: 1) Finishes (dry wall, insulation, etc.), 2) Structural (wood, brick, etc.) and 3) Foundations (concrete slab, concrete block, rebar, etc.). This distinction is made because of the different types of material handling equipment required to handle the debris.

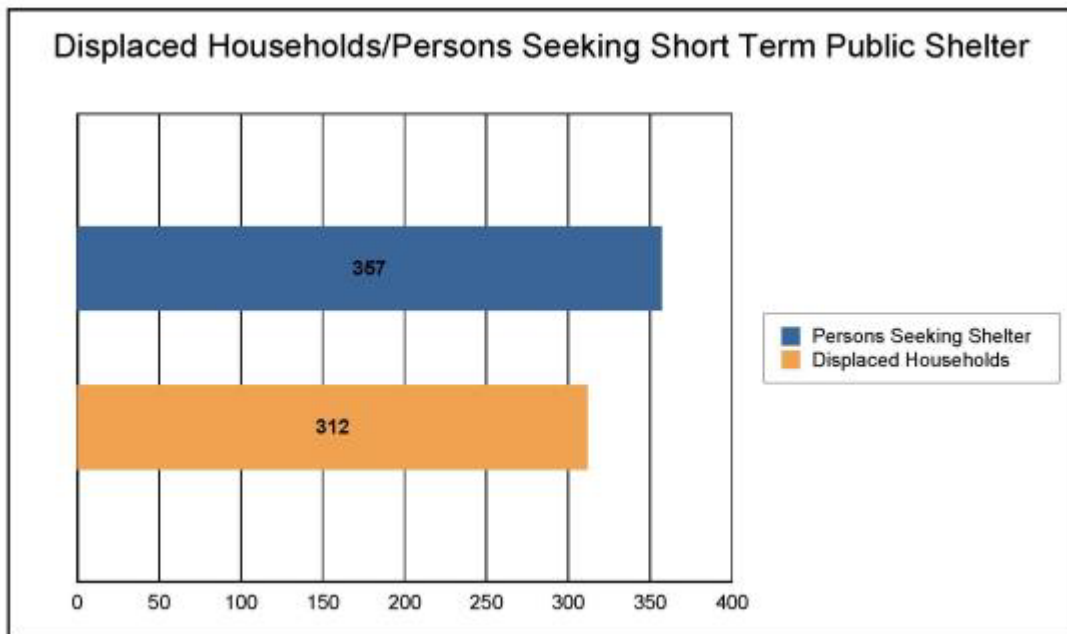


The model estimates that a total of 6,558 tons of debris will be generated. Of the total amount, Finishes comprises 25% of the total, Structure comprises 39% of the total. If the debris tonnage is converted into an estimated number of truckloads, it will require 262 truckloads (@25 tons/truck) to remove the debris generated by the flood.

Social Impact

Shelter Requirements

Hazus estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. Hazus also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 312 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 357 people (out of a total population of 19,166) will seek temporary shelter in public shelters.



FEMA

Flood Global Risk Report

RiskMAP
Increasing Resilience Together

Page 12 of 16



Economic Loss

The total economic loss estimated for the flood is 71.01 million dollars, which represents 8.67 % of the total replacement value of the scenario buildings.

Building-Related Losses

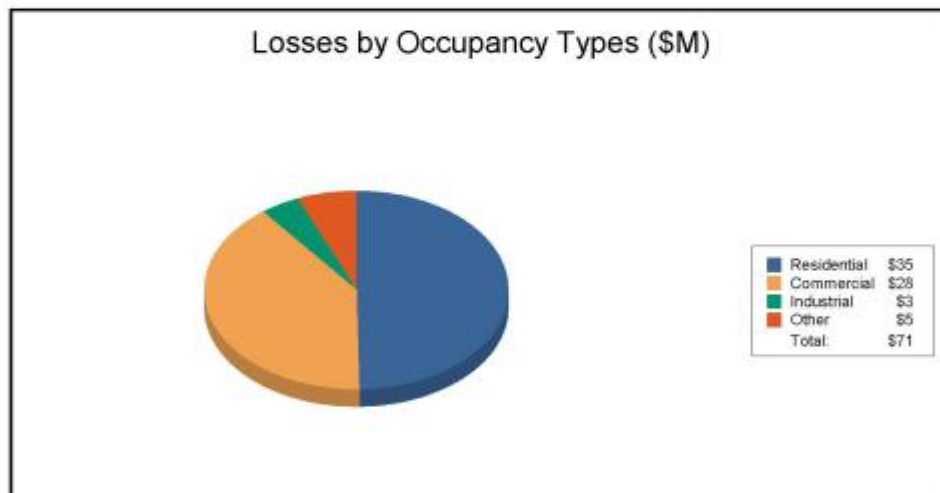
The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability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

The total building-related losses were 70.69 million dollars. 0% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 49.70% of the total loss. Table 6 below provides a summary of the losses associated with the building damage.



Table 6: Building-Related Economic Loss Estimates
(Millions of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building Loss						
	Building	23.74	8.12	0.99	1.05	33.90
	Content	11.55	16.61	1.70	3.26	35.32
	Inventory	0.00	1.13	0.28	0.06	1.47
	Subtotal	35.28	28.07	2.97	4.37	70.69
Business Interruption						
	Income	0.00	0.02	0.00	0.00	0.02
	Relocation	0.01	0.03	0.00	0.00	0.03
	Rental Income	0.00	0.02	0.00	0.00	0.02
	Wage	0.00	0.05	0.00	0.19	0.24
	Subtotal	0.01	0.12	0.00	0.19	0.32
All	Total	35.29	28.19	2.97	4.56	71.01



Appendix B: Regional Population and Building Value Data

	Population	Building Value (thousands of dollars)		
		Residential	Non-Residential	Total
Tennessee				
Smith	19,166	1,276,598	374,488	1,651,086
Total	19,166	1,276,598	374,488	1,651,086
Total Study Region	19,166	1,276,598	374,488	1,651,086



Flood Global Risk Report



Page 16 of 16

Appendix F:

F. Flood Insurance Rate Maps (FIRMS) – Smith County

