



Blount County, TN Hazard Mitigation Plan

March 12, 2018

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Blount County Hazard Mitigation Committee
Blount County Emergency Management

Assistance Provided By:

Tennessee Emergency Management Agency
as part of the Tennessee Mitigation Initiative

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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, and Hazard Mitigation Grant Programs.

The 2018 update of the Blount County Hazard Mitigation Plan was created to act as a well thought-out guide to be used by, and for, the people of Blount County. For this plan to be successful, each jurisdiction within the county participated in the drafting and preparation of the plan update. These participating jurisdictions include:

- Blount County
- City of Alcoa
- City of Friendsville
- Town of Louisville
- City of Maryville
- Town of Rockford
- City of Townsend

In reference to federal code title 44 CFR 201, an updated hazard mitigation plan is required to be submitted to both TEMA (State) and FEMA (Federal) for review every five years to be reapproved. 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.

Section 1: Planning Process

Planning Process Update

The original Blount County Hazard Mitigation Plan was created and approved by FEMA in 2006. Per federal requirements stated in 44 CFR 201, all local hazard mitigation plans are required to go through a FEMA update review every 5 years to remain eligible for hazard mitigation grants. This update methodology was developed to assure that local governments are continuing to re-evaluate their risks and to regularly implement mitigation projects that can reduce community vulnerabilities.

The beginning of the plan's five year update process took place at a meeting between Blount County Emergency Management, Blount County Highway Department, law enforcement, fire and rescue, Chamber and business leaders and representatives from all three school systems and utility and public works agencies as well as the Tennessee Emergency Management Agency (TEMA) on Sept. 20, 2016 in Room 433 at the Blount County Courthouse. (See Appendix 1). At this meeting Blount County Emergency Management stated that they would continue the role of leading staff and interested persons in updating their mitigation plan.

The tasks to be undertaken by Blount County Emergency Management consisted of continuing to get agencies and the public involved in the county's mitigation efforts, performing the written required 5-year plan update, and soliciting for new mitigation actions/projects to be added to the plan. TEMA provided requested technical assistance at the beginning of the update process by presenting successful strategies that have been used in updating hazard mitigation plans; (a service established as part of the newly created Tennessee Mitigation Initiative). Sign in sheets and notes from all of the Hazard Vulnerability Assessment meetings also are included in Appendix 1.

Prior to this meeting Blount County Emergency Management Director Lance Coleman began reorganizing the 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; invites to be a part of this plan update included open invitations to elected officials, county and city staff, representatives of the jurisdictions, neighboring counties, local businesses, state agencies, private organizations, academia, non-profits, and other notable persons.

Within this plan update committee all jurisdictions remained participants, as well as a cross-section of other representatives. The Blount County Hazard Mitigation Committee for the plan update consists of the following members:

Member	Representation
Lance Coleman (committee chair)	Blount County EMA Director
Steven Cardwell	Asst. Director Blount County EMA
Susan Porter	Blount County E911, supervisor/training officer
Jeremy Pearson	City of Alcoa Planning Department, planner
Doug McClanahan	Blount County Fire Department, chief
Mike Caylor	Maryville Fire Department, deputy chief
Jonathan Rodgers	Rural/ Metro, Operations Manager
David Carswell	Alcoa Police Department, Chief
Jimmy Long	Blount County E911 director
David Graves	Maryville Police Department, captain
Don Stallions/Tim Tipton	Blount County Government/Risk Manager/General Services Director.
Gary Stein	American Red Cross, volunteer/Blount LEPC chair
Rachel Buchanan	Blount Partnership, director of economic development
Terry Willett	Town of Rockford, City Recorder
Tony Crisp	Maryville Fire and Police Departments, Chief
Bob Crane	TEMA, District Coordinator
David Prichard	Director of Maryville Planning
Doug Hancock	Blount County Planner
Robert Schmidt	Blount County Health Department, director
Ronnie Lett	Greenback Volunteer Fire Department, chief
Jeff Headrick/Chico Messer	Blount County Highway Department: superintendent and assistant superintendent
Stan Burnette	Blount County Schools, student services supervisor
Deputy Chief Darren Stinnett	Alcoa Fire Department
Mike Jeffries	City of Friendsville, deputy chief
Chief Don Stallions	Townsend Area Volunteer Fire Department chief
Jerry Roberts	Newell/Rubbermaid tooling manager
Charles Loveday	Tennessee Air National Guard fire department chief
Chief John Linsenbigler	Seymour Volunteer Fire Department
Marcus Sheppard	Blount Memorial Hospital, Emergency Preparedness Coordinator
Mayor Tom Bickers	Town of Louisville
Michelle Harrigan	TEMA, Emergency Management Planner

The Blount County Hazard Mitigation Committee continues to be the county's lead in all mitigation efforts and in the development of the county's mitigation plan. The committee member's efforts in the plan update were broken down into five stages: 1) analysis of the original plan (the plan as it stood prior to the updates), 2) updating of the plan, 3) public participation, 4) review of the final updated plan, and 5) adoption of the plan.

Stage 1:

During the analysis of the plan, Blount County Emergency Management reviewed the original county plan and made notes on what sections would require the main updates. Blount County Emergency Management suggested that the two core areas for needed updates were in the risk/vulnerability assessment and in the restructuring of the county's listed hazard mitigation projects.

Stage 2:

From there the committee started making the updates to the plan. The initial Blount County Hazard Mitigation Committee meeting held on Sept. 20, 2016 in Room 433 at the Blount County Courthouse. Then six Hazard Vulnerability Assessments were done for all five incorporated areas and the unincorporated areas of Blount County. The meetings happened on the following dates: Oct. 11, 2016, for unincorporated areas of Blount County at the Blount County Courthouse Room 433; Oct. 17, 2016, for the City of Alcoa at the City of Alcoa Municipal Building; Oct. 18, 2016, for the City of Townsend at the Tally Ho Inn; Oct. 20, 2016, for the City of Friendsville at the Friendsville Volunteer Fire Department; Oct. 25, 2016, for the City of Maryville at the City of Maryville Fire Department; Oct. 31, 2016, at the Blount County Courthouse Room 433 for the towns of Rockford and Louisville. Appendix 1 provides a copy of each meeting's sign in sheets and minutes.

Tasks in the Hazard Vulnerability Assessments meetings included re-evaluating the plan's hazards, re-assessing their risks, re-calculating each jurisdiction's vulnerable areas, re-establishing the county's mitigation goals, soliciting for new mitigation projects to be added to the plan, and examining the status of mitigation projects listed in the original plan. TEMA personnel were available to answer mitigation planning and grant questions.

To give Hazard Mitigation Planning Team members an update of progress, Blount County Emergency Management Agency Director Lance Coleman and Assistant Director Steven Cardwell held a second meeting on June 25, 2018 in Room 433 of the Blount County Courthouse. Although not many of the Hazard Mitigation Planning Team were able to attend because of prior commitments, member Trevis Gardner did suggest asking a member of the county realtor's association and/or the county's homebuilder's association to inspect the plan as well. Appendix 2 provides copies of the meetings' attendance sheets.

Stage 3:

Since obtaining public participation at meetings is often difficult to impossible, Blount County decided to take a different route. To encourage public involvement during this drafting stage, the Blount County Hazard Mitigation Committee advertised in a newspaper of general circulation that from 8 a.m. to 4:30 p.m. from August 20-24, the plan was made available for public viewing at the Blount County Mayor's Office at 341 Court St.,

Maryville, TN 37804. A sign in sheet along with a form for comments was also placed with the plan. This was the most beneficial and effective way for Blount County to accomplish this mission. This provided a great opportunity for the public to comment and give input on the plan during the update drafting stage, to contribute in project proposals, and to participate in project reprioritization.

While no one from the general public took advantage of the opportunity, once Blount County receives Approval Pending Adoption by FEMA, the public will be afforded another opportunity to provide input. Appendix 3 provides a copy of the meeting's attendance sheet and public notice for the meeting.

Although no members of the public attended the advertised meeting or came to the office to review the document during the week, public comments would have been incorporated within the plan if they did. Blount County will continue public outreach and comment incorporation throughout all future planning processes.

Stage 4:

Next the committee evaluated the written updates of the plan against FEMA's crosswalk requirements via email correspondence. This also included having the jurisdictions review the drafts that specifically addressed aspects of their jurisdiction before the plan is sent to FEMA for review.

Stage 5:

Upon receiving the "Approval Pending Adoption" designation from FEMA's review, the public will be given a chance to comment on the final draft of the update plan prior to its adoption by each local jurisdiction. This opportunity will take place at a local board meeting for each jurisdiction before the updated 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 Blount 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:

- 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
- Blount County Basic Emergency Operations Plan (BEOP)
- Blount Memorial Hospital Emergency Preparedness Manual.
- Blount County School Safety Plan

All of the listed plans, studies, and data sources were incorporated into the Blount 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

Updates within the Plan

It is important to note that this countywide plan was entirely reorganized and updated head-to-toe from the original Blount County Hazard Mitigation Plan. Blount County reviewed and analyzed each section of the original plan and made updates in the following ways:

Section 1: Planning Process

Blount County updated the original plan's description of the planning process to include the new or no longer participating committee members, updated the plan's description of the most recent countywide mitigation meetings that took place in 2016 and 2018, and documented the last opportunities for the public to get involved. Blount County also compiled a new list of existing documents that they reviewed in updating the plan.

Section 2: County Profile

Blount County created a new development trends section within this plan update.

Section 3: Risk Assessment

The committee kept all of their listed hazards from the original 2006 Blount County Hazard Mitigation Plan in the 2018 update except for 'Hazardous Materials,' which was deemed to be better profiled in the county's BEOP than the hazard mitigation plan. Both FEMA & TEMA only review natural hazards in county hazard mitigation plans and 'Hazardous Materials' doesn't fall under this category.

As part of the plan update, Blount County updated their previous occurrence hazard listings to cover the most recent five years and re-evaluated each hazard's extent, probability, & potential impacts. The county then decided to use a different method for determining vulnerabilities/risks because this new method was considered superior to the older plan's method. Also the plan now has a HAZUS-flood model study and simplified countywide floodplain maps for the first time, (as seen in the plan's appendices).

Section 4: Mitigation Strategy

Blount County kept their mitigation goals from the 2006 plan the same for the 2018 plan update, but has utilized a new method for prioritizing mitigation projects, (thought to be superior to the previous method). Blount County also has brainstormed some new mitigation projects that were added to the list, used a new chart method to profile project details, and developed a system to describe where their previous plan's projects are in terms of being implemented.

Section 5: Plan Maintenance

Blount County updated how they would work with the other jurisdictions in monitoring, evaluating, and updating the plan, provided an updated list of mechanisms they could incorporate mitigation within, stated that Blount County Basic Emergency Operations Plan has mitigation concepts incorporated within it, and updated how all the jurisdictions would keep the public involved in updating processes.

Section 2: County Profile

Development Trends

Blount County is one of the oldest counties in Tennessee. The County contains 584 square miles and is bordered on the east by the Great Smoky Mountains National Park and on the west by the great chain of lakes created by the Tennessee Valley Authority. Little River, flowing out of the Great Smoky Mountains, winds its way across the County and pours into the Tennessee Valley lakes. The Little Tennessee River parallels the southern border. The County is served by several major highways: U.S. Highway 129, 140, 411 and 321, as well as State Route 33 and 95, and State Highway 73.

More than 100 manufacturing plants can be found in Blount County. DENSO Manufacturing TN, Inc. and Rubbermaid are two of the area's newest and growing employers. Denso is the largest employer in the county, with all three school systems, ALCOA, Inc., Clayton Homes and Blount Memorial Hospital being other leaders.

There are more than 200 churches in Blount County. Blount Memorial Hospital is the main hospital in Blount County. There are three main public school systems in Blount County: Alcoa City Schools, Maryville City Schools, and Blount County Schools. Also, there are five private schools that serve the area.

According to Property Assessor Tim Helton, the majority of residential and commercial growth occurring in Blount County as of June of 2018 was in the West Maryville/Blount County area in and around Morganton Road, in the eastern portion of the county in the Walland/Seymour/Townsend area and in central Alcoa where a new city center with combined residential/professional/commercial development is in the beginning stages of infrastructure construction. "Building permits always follow infrastructure development," he said.

Population specifics are as follows: City of Alcoa 9,316; City of Friendsville 845; Town of Louisville 2,434; City of Maryville 27,824; Town of Rockford 873; City of Townsend 470; and Blount County Unincorporated 83,903.

According to the Boyd Center for Economic and Business Research at the University of Tennessee, Blount County's total population as of July 1, 2016, based on the 2016 Intercensal Population Estimate, was 128,670. Boyd Center projections show the total population in Blount County continuing to grow in the two years since the Intercensal Population Estimate was released (130,122 in 2017 and 131,538 in 2018), as well as in each of the next 10 years running through 2028. Boyd Center projections show the following populations figures per year: 132,919 in 2019; 134,265 in 2020; 135,580 in 2021; 136,865 in 2022; 138,116 in 2023; 139,337 in 2024; 140,526 in 2025; 141,685 in 2026; 142,813 in 2027; 133,912 in 2028.

The Boyd Center projections are based in part on birth rates, death rates and the rates at which people are projected to migrate to and from each county in the state.

Section 3: Risk Assessment

Hazard Identification

To begin to assess Blount 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 Blount County by going through newspaper articles, Blount 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. The following hazards have been identified as hazards of concern by the Blount County mitigation committee within the update process.

Flooding

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 Blount 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.

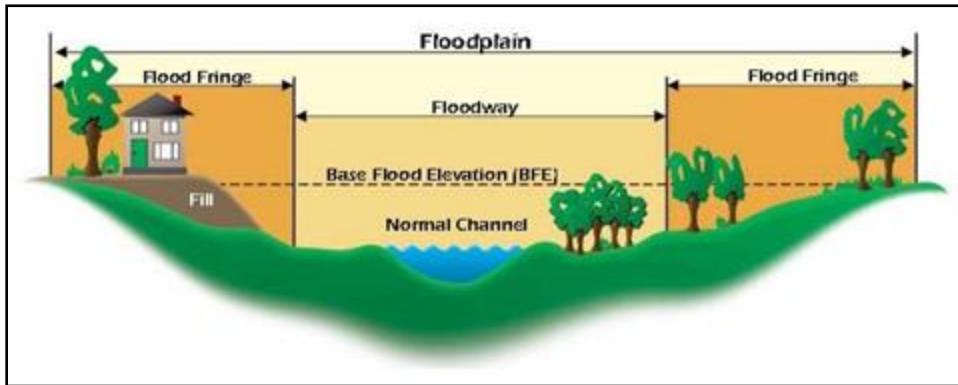
Common Ways Flooding Occurs	
Methods	Description
Overland Flow (a) Infiltration (b) Saturation	-Excess overland flow occurs when the rain is falling more rapidly than it infiltrates into the soil. -Excess overland flow occurs when soil spaces are so full of water that no more rain can be absorbed.
Throughflow	-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.

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 Blount 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 Blount 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, according to TEMA and the Blount County Highway Department:

- The 6200 block of Old Walland Highway
- The 900 block of East Lincoln Street
- The 700 block of Oxford Hills Drive
- 1311 A.R. Davis Road
- 537 Helton Road
- 2053 Porter Bridge Road
- 2316 Chota Road
- 3411 McGhee Road
- 799 Carr's Creek Road

Detailed Flood Insurance Rate Maps (FIRMs) are also included in Appendix 6, which shows where FEMA has placed the 100-year and 500-year floodplains for each jurisdiction.

Blount County historically has had many flood events in the past. Based on NOAA NCDC data, the following charts provide a list of flood events occurring in Blount County from December 2007 to December 2017 and a list of floods with descriptions of their impacts imposed on the community.

Flood Events in Blount County: Dec. 2007 to Dec. 2017

Location	Date	Type	Deaths	Injuries	Property Damage
Alcoa	9/26/2009	Flood	0	0	0
Walland	8/5/2012	Flash Flood	0	0	3K
Walland	8/5/2012	Flash Flood	0	0	1K
Walland	1/15/2013	Flood	0	0	10K
Maryville	1/30/2013	Flood	0	0	0
Townsend	1/30/2013	Flood	0	0	10K
Sixmile	12/2/2015	Flood	0	0	0
Maryville	12/2/2015	Flood	0	0	0
Maryville	4/23/2017	Flood	0	0	1K

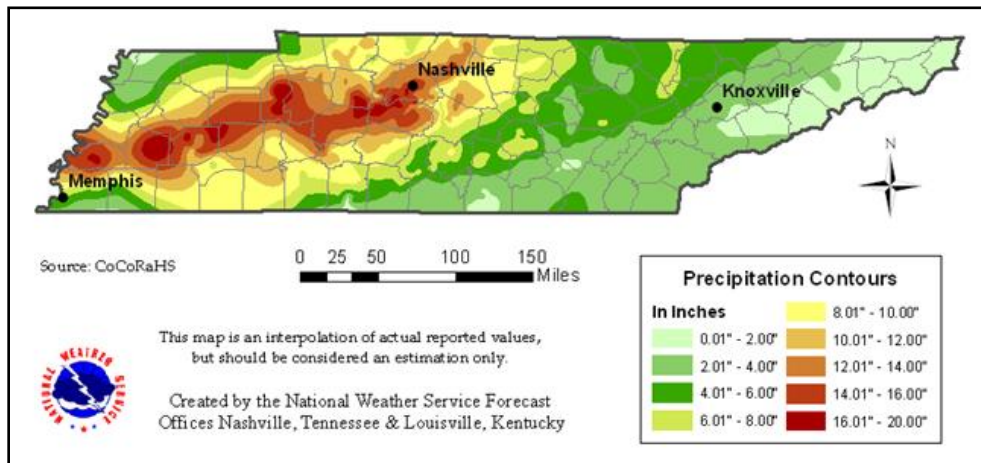
Flood Impacts in Blount County: Dec. 2007 – Dec. 2017

Location	Date	Impact Description
Alcoa	9/26/2009	Heavy rainfall resulted in area flooding from Alcoa to Maryville. Several area roads had several inches to nearly a foot of water.
Walland	8/5/2012	Several roads in the area were impassable. Mudslide occurred on Old Walland Highway.
Walland	1/15/2013	Several homes were flooded.
Maryville	1/30/2013	Bridge washout on Carrs Creek Road. Low area of Old Walland Hwy along the river had two feet of water.
Townsend	1/30/2013	Several roads closed across the county.
Sixmile	12/2/2015	Helton Road closed by flooding.
Maryville	12/2/2015	Blockhouse Road closed by flooding.
Maryville	4/23/2017	Several roadways were flooded across Blount County and the city of Maryville.

Small localized flood events are likely to occur at least once a year in Blount 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 reach 6.48 inches of rainfall over two days and cause 15.75 feet of localized flooding – flood stage for the Little River is 8 feet. This occurred on March 27, 28, 1994.

Another flood incident of note was the May 2010 Tennessee Flood Event (DR-1909), where 20 inches or more of rainfall amassed within two days (see following map).

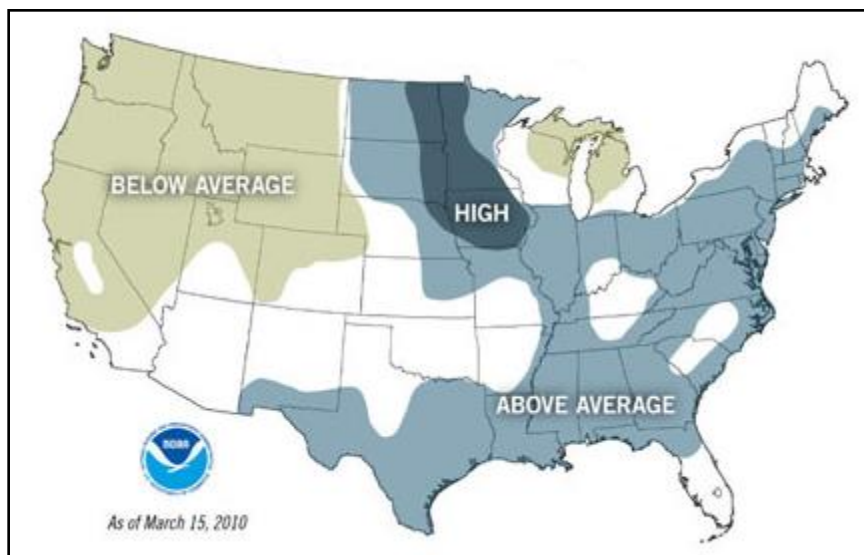
Tennessee May Flood- Precipitation for May 1st & 2nd 2010



SOURCE: NATIONAL WEATHER SERVICE

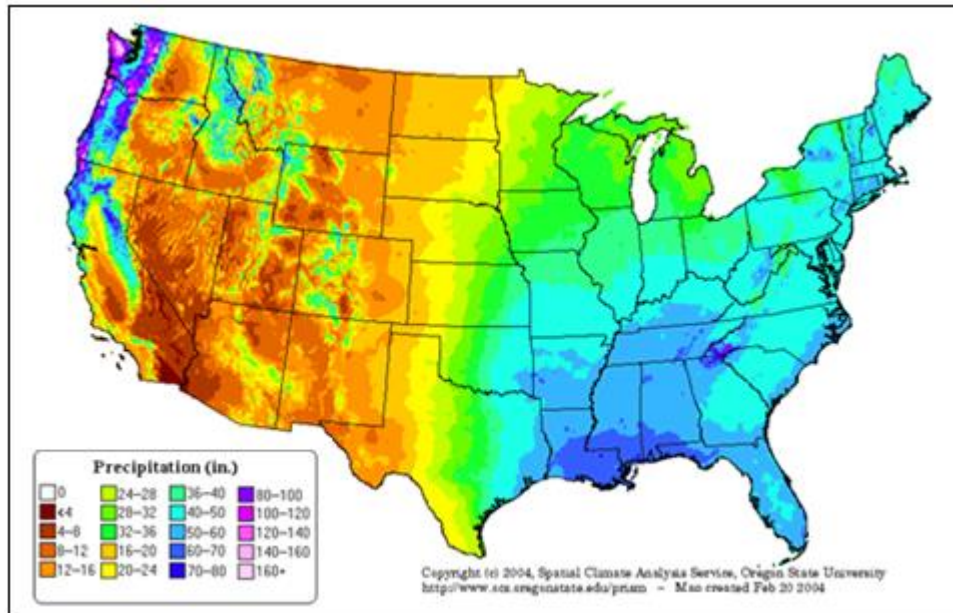
According to a NOAA Flood Risk Map (see map below), the majority of Tennessee was located in an “above average” risk of flooding zone during spring 2010. This proposed vulnerability is coupled with the fact that on average Tennessee usually acquires over 50-60 inches of rainfall a year (see following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

Flood Risk Map



SOURCE: NOAA

Average Annual Precipitation per Year (1971-2000)



SOURCE: SPATIAL CLIMATE ANALYSIS SERVICE, OREGON STATE UNIVERSITY

Blount 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.

Jurisdiction	Impacts			Vulnerability
	Human	Property	Business	H+P+B=#; #/3=V
Blount County Unincorporated	2	5	2	3
City of Alcoa	1	3	1	1.66
Town of Friendsville	4	5	3	4
Town of Louisville	1	4	1	2
City of Maryville	1	3	1	1.66
Town of Rockford	2	4	2	2.67
Town of Townsend	4	4	2	3.33

Jurisdiction	Vulnerability	Probability	Risk V+P=R	
Blount County Unincorporated	3	2	5	Moderate
City of Alcoa	1.66	1	2.66	Low
Town of Friendsville	4	3	7	High
Town of Louisville	2	1	3	Low
City of Maryville	1.66	1	2.66	Low
Town of Rockford	2.67	1	3.67	Moderate
Town of Townsend	3.33	3	6.33	Medium

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

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

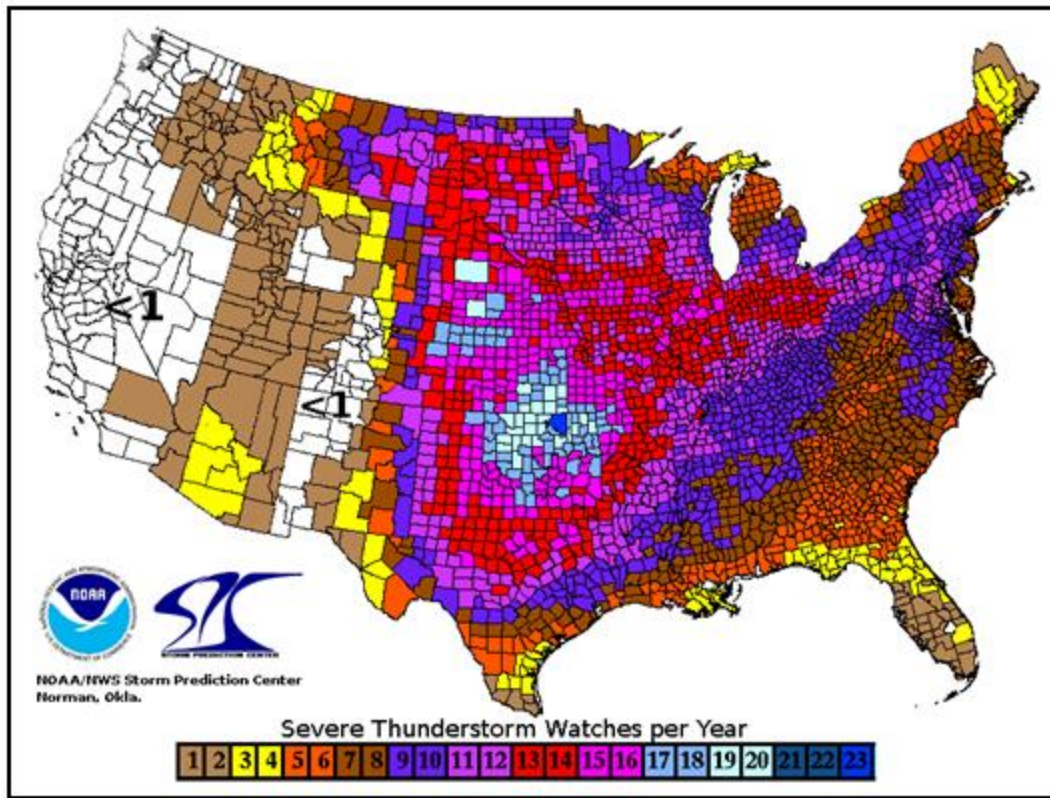
Probability	
<i>Likelihood of the hazard occurring within a given span of years</i>	
1	Less than once every 10 years
2	About once every 5-10 years
3	About once every 2-5 years
4	About once a year
5	More than once a year

For further information about flooding hazards in Blount County, see the HAZUS vulnerability study in Appendix 7.

Tornadoes/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 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)

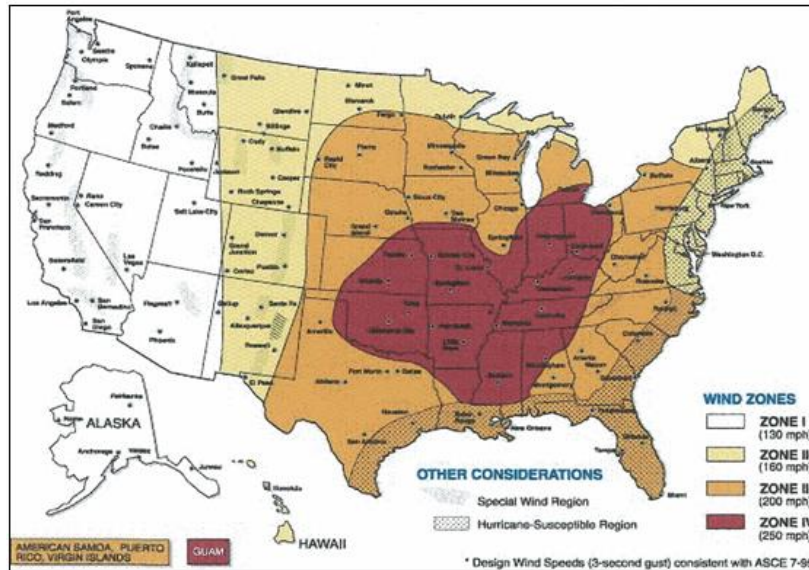


SOURCE: NOAA/NWS STORM PREDICTION CENTER

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 Blount County, all jurisdictions are vulnerable to

tornado threats. The following map places much of Tennessee in the highest wind zone (see following map).

Wind Zones in the United States



SOURCE: FEMA

Blount County historically has had a few tornadoes in the past. Based on NOAA NCDC data, the following charts provide a list of tornado events occurring in Blount County from December 2007 to December 2017 and a description of each tornado's impacts within the county.

Tornado Events in Blount County: Dec. 2007 to Dec. 2017

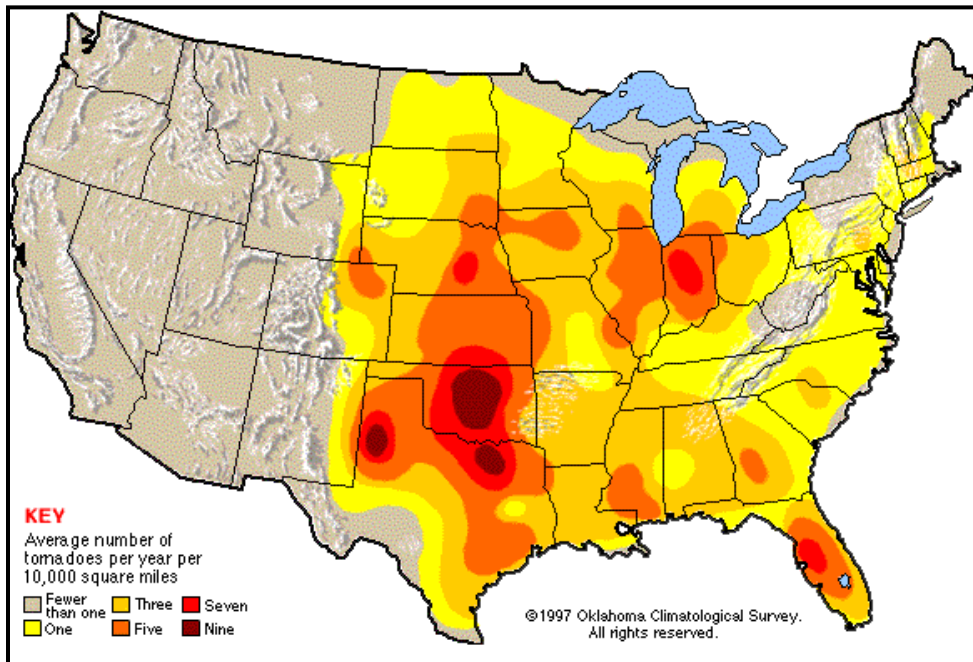
Location	Date	Extent	Deaths	Injuries	Property Damages
Lanier	4/25/2010	EF2	0	0	20K
Kiser	3/23/2011	EF3	0	2	2.5M
Chilhowee	4/27/2011	EF4	0	0	1M
Maryville	4/27/2011	unknown	0	0	0
Middle Settlement	4/27/2011	EF0	0	0	10K
Chilhowee	4/27/2011	EF0	0	0	10K
Brick Mill	4/27/2011	EF0	0	0	10K
Marble Hill	2/29/2012	EF0	0	0	25K
Prospect	3/1/2012	EF0	0	0	20K

Tornado Impacts in Blount County: Dec. 2007 to Dec. 2017

Location	Date	Impact Description
Lanier	4/25/2010	It was classified as an EF2 tornado with winds estimated at 110 mph with a path width of 100 yards.
Kiser	3/23/2011	An EF-3 tornado produced 140 mph winds along a 5.8 mile path with a maximum damage path width of 500 yards. Twenty six homes sustained damage ranging from fifty percent to entirely demolished as a result of the tornado.
Chilhowee	4/27/2011	An EF4 tornado touched down west of Chilhowee Lake in northern Monroe County. The max wind of 170 mph smashed a TVA transmission tower in the Lake, and ground up miles of forest in both Cherokee National Forest, then in Great Smoky Mountains National Park. This tornado started in northern Monroe County in the Cherokee National Forest, then crossed Chilhowee Lake where it smashed a tower entering into Blount County. Its total path was 14.5 miles long.
Maryville	4/27/2011	Funnel cloud from a thunderstorm between Maryville and Greenback.
Middle Settlement	4/27/2011	An EF0 tornado touched down near Louisville. It formed near Dug Gap Road and tracked to near Topside Road and Singleton Station Road where it dissipated. The max winds of 70 mph downed trees along its path.
Chilhowee	4/27/2011	EF0 tornado touched down near Chilhowee Lake in Monroe County and tracked into Blount County where it dissipated. It had a path width of 440 yards and a path length of 15 miles. The max wind of 70 mph downed many trees.
Brick Mill	4/27/2011	An EF0 tornado touched down just east of Greenback. It had a path width of 100 yards and a path length of 3.8 miles. The 70 mph wind downed several trees.
Marble Hill	2/29/2012	An EF0 tornado touched down in Blount County 3 miles northeast of Greenback on Maple Lane. It had a path width of about 100 yards and a path length of 3/4 of a mile. The maximum wind of 85 mph was responsible for damaging a few trees and dislodging a light awning from the front of a house.
Prospect	3/1/2012	An EF-0 tornado touched down three miles south of Seymour on Keener Road. The path length was 1.5 miles long with a width of 70 yards. The tornado generated winds around 75 miles an hour.

Based on previous occurrences, tornado events are likely to occur approximately every two years or so in Blount County; (see the following map for other probability information).

Average Number of Tornadoes Per Year



SOURCE: OKLAHOMA CLIMATOLOGICAL SURVEY

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 worst case scenario it is possible for the extent of a tornado to exceed an EF4 ranking. The EF4 tornado on April 27, 2011, moved from Monroe County into Blount County with a maximum wind speed of 170 mph. It smashed a TVA transmission tower in the lake and ground up miles of forest in both the Cherokee National Forest and then the Great Smoky Mountain National Park. The total path was 14.5 miles long.

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

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 Blount County. The severity of hail is measured by the diameter of the hail itself, commonly using the TORRO Hail Index (see following chart). Blount County's largest hail extent is reported at 1.75 inches (H5) on April 27, 2011 in Friendsville, May 26, 2011 in Maryville and Feb. 29, 2012 in Maryville. Most of the county's hail events only were reported causing minor roof damage to several homes and vehicles.

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.

SOURCE: THE TORNADO & STORM RESEARCH ORGANIZATION

The following chart provides hail event information for Blount County between December 2007 and December 2017.

Hail Events in Blount County: Dec. 2007 to Dec. 2017

Location	Date	Extent in Inches	Deaths	Injuries	Property Damage
Alcoa	5/9/2008	1	0	0	0
Maryville	5/9/2008	1	0	0	0
Happy Valley	5/15/2009	0.88	0	0	0
Oakhurst	6/3/2009	1	0	0	0
Maryville	6/17/2009	0.75	0	0	0
Cades Cove	6/17/2009	0.75	0	0	0
Alcoa	8/27/2009	1	0	0	1K
Maryville	5/28/2010	1	0	0	0
Big Springs	4/27/2011	1	0	0	0
Knoxville McGhee Tyson	4/27/2011	1	0	0	0
Friendsville	4/27/2011	1.75	0	0	0
Townsend	4/27/2011	1.25	0	0	0
Maryville	5/26/2011	1.5	0	0	0
Marble Hill	5/26/2011	1.25	0	0	0
Maryville	5/26/2011	1.25	0	0	0
Maryville	5/26/2011	1.75	0	0	0
Maryville	5/26/2011	1.5	0	0	0
Alcoa	8/18/2011	1	0	0	0
Maryville	2/29/2012	1.75	0	0	0
Townsend	2/29/2012	1	0	0	0
Maryville	3/2/2012	1	0	0	0
Maryville	3/29/2012	1	0	0	0
Tallassee	4/1/2012	1	0	0	0
Happy Valley	4/3/2012	1	0	0	0
Alcoa	7/27/2014	1	0	0	0
Walland	6/2/2015	1	0	0	0
Pumpkin Center	5/2/2016	1	0	0	0
Prospect	6/14/2016	1	0	0	0

Severe Storm Winds

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 six times a year in Blount 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 Blount County between December 2010 and December 2017.

Wind Events in Blount County: Dec. 2010 – Dec. 2017

Location	Date	Extent in KTS	Deaths	Injuries	Property Damage
Blount County	2/1/2011	60	0	0	15K
Blount County	2/25/2011	55	0	0	8K
Maryville	4/4/2011	55	0	0	10K
Knoxville McGhee Tysons	4/25/2011	50	0	0	0
Walland	4/27/2011	50	0	0	3K
Maryville	4/27/2011	55	0	0	10K
Alcoa	4/27/2011	60	0	0	40K
Townsend	5/22/2011	55	0	0	0
Townsend	5/22/2011	55	0	0	0
Maryville	6/21/2011	52	0	0	5K
Maryville	6/21/2011	52	0	0	0
Lanier	7/4/2011	50	0	0	0
Kagley	7/12/2011	50	0	0	0
Alcoa	8/3/2011	50	0	0	5K
Maryville	8/8/2011	52	0	0	5K
Shooks Gap	8/8/2011	52	0	0	3K
Alcoa	8/18/2011	52	0	0	3K
Maryville	9/3/2011	55	0	0	0
Plainfield	3/29/2012	50	0	0	0
Alcoa	5/31/2012	50	0	0	0
Townsend	6/14/2012	50	0	0	2K
Townsend	6/14/2012	50	0	0	2K
Townsend	7/1/2012	50	0	0	0
Forest Hill	7/5/2012	60	0	0	0
Maryville	7/5/2012	60	0	0	0
Cades Cove	7/5/2012	60	0	3	0
Tremont	7/5/2012	60	0	4	0
Walland	8/9/2012	50	0	0	3K
Blount County	12/20/2012	55	0	0	8K
Blount County	12/20/2012	60	0	0	25K
Blount County	2/10/2013	55	0	0	5K
Blount County	2/10/2013	55	0	0	5K
Blount County	2/10/2013	55	0	0	5K
Blount County	2/26/2013	53	0	0	8K
Happy Valley	5/21/2013	50	0	0	0
Maryville	5/21/2013	50	0	0	0
Maryville	6/13/2013	50	0	0	8K
Friendsville	8/23/2013	50	0	0	2K
Blount County	2/5/2014	55	0	0	5K
Blount County	2/5/2014	55	0	0	5K
Knoxville McGhee Tysons	2/21/2014	55	0	0	0

Wellsville	5/22/2014	50	0	0	0
Maryville	7/24/2014	50	0	0	0
Alcoa	7/27/2014	50	0	0	0
Townsend	7/27/2014	60	0	0	0
Townsend	7/27/2014	50	0	0	0
Walland	8/20/2014	50	0	0	5K
Blount County	10/13/2014	39	0	0	0
Blount County	10/14/2014	50	0	0	0
Blount County	10/14/2014	60	0	0	15K
Blount County	10/14/2014	60	0	0	15K
Blount County	2/21/2015	43	0	0	0
Blount County	2/21/2015	42	0	0	0
Maryville	4/19/2015	55	0	0	10K
Townsend	4/25/2015	50	0	0	5K
Townsend	7/14/2015	50	0	0	0
Townsend	7/14/2015	50	0	0	0
Arline	7/20/2015	50	0	0	0
Walland	8/10/2015	50	0	0	0
Blount County	12/28/2015	55	0	0	0
Blount County	12/28/2015	56	0	0	0
Forest Hill	6/17/2016	50	0	0	0
Blockhouse	6/17/2016	50	0	0	0
Cades Cove	6/17/2016	50	0	0	0
Rockey Branch	7/8/2016	60	0	0	0
Knoxville McGhee Tysons	7/8/2016	55	0	0	0
Maryville	8/27/2016	50	0	0	0
Maryville	8/27/2016	50	0	0	0
Maryville	11/30/2016	50	0	0	0
Little River	2/25/2017	50	0	0	0
Providence	3/21/2017	50	0	0	0
Chilhowee	3/21/2017	50	0	0	0
Cades Cove	3/21/2017	50	0	0	0
Mentor	4/17/2017	50	0	0	0
Maryville	5/27/2017	50	0	0	0
Knoxville McGhee Tysons	11/18/2017	50	0	0	0

Throughout the county all buildings and infrastructure are vulnerable to tornadoes and severe storm impacts. Blount County's building stock can be broken down into the following percentage categories: 80.4% residential, 12.9% commercial, 3.3 % industrial, 0.3% agricultural, 0.4 % governmental, 2.0% religious, and 0.8% educational. 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.

Blount 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.

Jurisdiction	Impacts			Vulnerability
	Human	Property	Business	$H+P+B=\#; \#/3=V$
Blount County Unincorporated	4	5	1	3.3
City of Alcoa	2	3	1	2.00
City of Friendsville	4	3	5	4.00
Town of Louisville	2	4	1	2.33
City of Maryville	4	5	3	4.00
Town of Rockford	3	4	1	2.67
City of Townsend	4	3	1	2.66

Jurisdiction	Vulnerability	Probability	Risk $V+P=R$	
Blount County Unincorporated	3.3	5	8.33	High
City of Alcoa	2.00	2	4.00	Moderate
City of Friendsville	4.00	4	8.00	High
Town of Louisville	2.33	3	5.33	Medium
City of Maryville	4.00	3	7.00	High
Town of Rockford	2.67	2	4.67	Moderate
City of Townsend	2.66	5	7.66	High

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

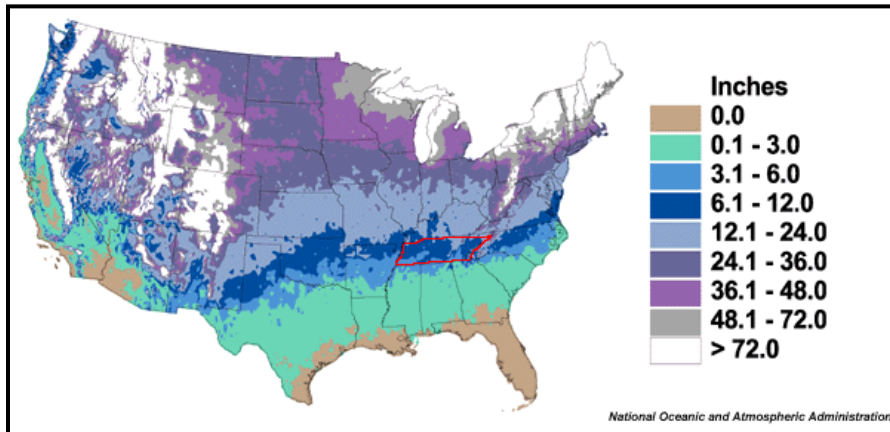
Freezes/Winter Storms

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 Blount 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, Blount County usually experiences one major winter storm event once a year on average. The severity of winter storms is commonly measured by inches of snowfall. It is possible for snowfall to accumulate over 5 inches in Blount County, such as on Dec. 26, 2010 when between 5- and 10-inches of snow was reported.

The average mean snowfall per year in Blount County is 7.37 inches, based on previous recorded amounts between 2007 and 2017. (See map below).

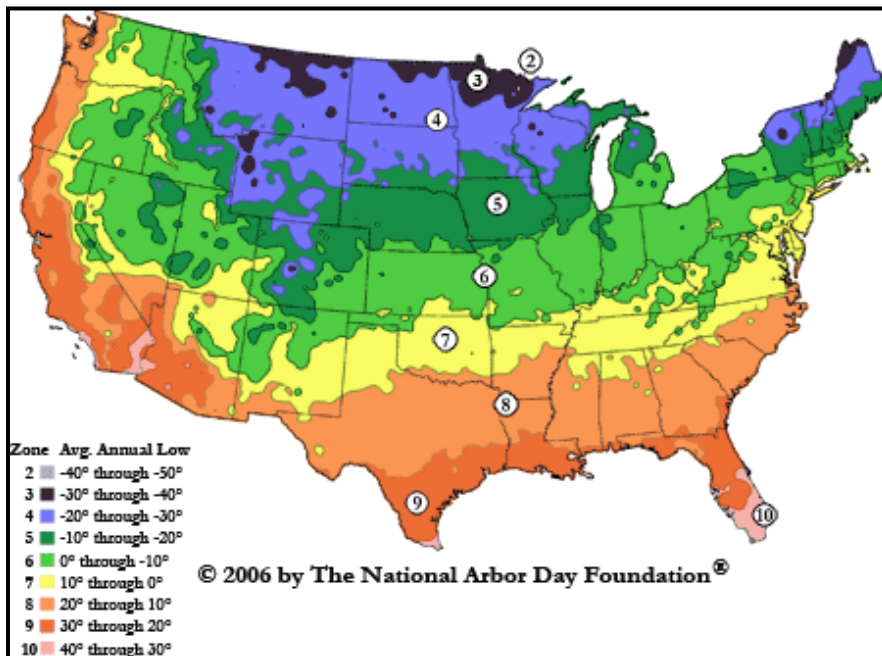
Average Mean Snowfall Per Year



SOURCE: NOAA

Blount County can experience temperatures between 10 degrees to 0 degrees Fahrenheit, thus causing multiple freeze conditions during the winter months (see the following map for other average lows).

Average Annual Low Temperatures



SOURCE: NOAA

The following chart provides winter storm event information for Blount County between December 2010 and December 2017.

Winter Events in Blount County: Dec. 2010 to Dec. 2017

Event Type	Date	Impact Description
Heavy Snow	12/12/2010	9 inches of snow at Cades Cove southwest of Townsend.
Ice Storm	12/16/2010	Freezing rain produced 0.25 inches of ice on the roads in Maryville.
Heavy Snow	12/26/2010	5 to 10 inches of snow reported.
Heavy Snow	1/10/2011	3.8 to 5.5 inches of snow reported.
Heavy Snow	3/5/2013	Six inches of snow was reported.
Heavy Snow	2/12/2014	6 inches of snow reported.
Heavy Snow	2/13/2014	6.5 to 7 inches of snow reported.
Heavy Snow	11/1/2014	3 inches of snow was measured with several trees downed due to heavy snow along Tremont Road.
Heavy Snow	2/25/2015	4.0 inches of snow reported.
Heavy Snow	2/26/2015	4.5 to 9 inches of snow reported.
Heavy Snow	1/22/2016	4 inches of snow reported.
Heavy Snow	1/6/2017	4 inches of snow reported.
Heavy Snow	1/6/2017	5 to 6 inches of snow reported.

Throughout the county many buildings and the majority of infrastructure networks can be vulnerable to winter storm impacts. Blount County's building stock can be broken down into the following percentage categories: 80.4% residential, 12.9% commercial, 3.3% industrial, 0.3% agricultural, 0.4% governmental, 2.0% religious, and 0.8% educational. Many of these structures wouldn't receive direct impacts from winter storms but they could receive indirect impacts such as downed electrical lines that cut off electricity to the structures, frozen pipelines that crack, destroyed agriculture crops, and customers not being able to access travels to the structures due to ice covered roads. In the county, road traveling conditions, electrical lines, and agricultural functions are some of the most vulnerable features.

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

Jurisdiction	Impacts			Vulnerability
	Human	Property	Business	$H+P+B=\#; \#/3=V$
Blount County Unincorporated	4	5	2	3.66
City of Alcoa	3	3	1	2.00
City of Friendsville	4	4	4	4.00
Town of Louisville	2	4	1	2.33
City of Maryville	2	3	2	2.33
Town of Rockford	1	3	1	1.66
City of Townsend	2	3	1	2.00

Jurisdiction	Vulnerability	Probability	Risk $V+P=R$	
Blount County Unincorporated	3.66	4	7.66	High
City of Alcoa	2.00	1	3.00	Low
City of Friendsville	4.00	3	7.00	High
Town of Louisville	2.33	2	4.33	Moderate
City of Maryville	2.33	5	7.33	High
Town of Rockford	1.66	1	2.66	Low
City of Townsend	2.00	4	6.00	Medium

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

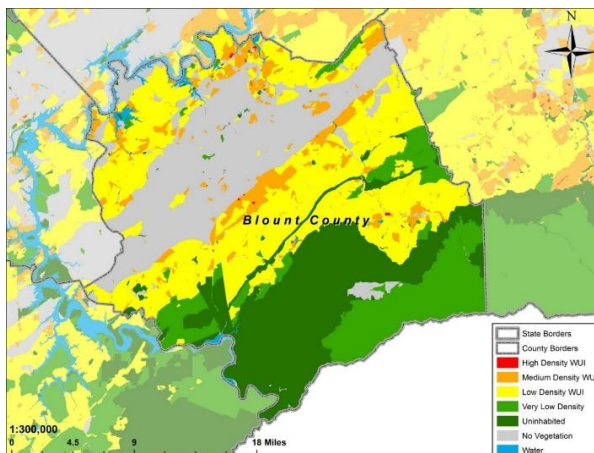
Property	
<i>Amount of residential property damage associated from the hazard</i>	
1	Less than \$500 in damages
2	\$500-\$10,000 in damages
3	\$10,000-\$500,000 in damages
4	\$500,000-\$2,000,000 in damages
5	More than \$2,000,000 in damages

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

Wildfires

Blount County has a range of no vegetation to uninhabited areas. Wildfires are not only in forested areas. Many occur in grassland areas such as yards and pastures. When the conditions are right, all these areas become vulnerable to devastating wildfires. Below is the Wildland Urban Interface for Blount County.



According to the TN Division of Forestry, debris burning and arson are the two main causes of wildfires. Generally, there are three major factors that sustain wildfires and allow for predictions of a given area's potential to burn. These factors include:

- Fuel;
- Topography; and
- Weather.

Fuel is the material that feeds a fire and is a key factor in wildfire behavior. Fuel is generally classified by type and by volume. Fuel sources are diverse and include everything from dead tree needles, twigs, and branches to dead standing trees, live trees, brush, and cured grasses. Man-made structures and other associated combustibles are also to be considered as a fuel source. The type of prevalent fuel directly influences the behavior of wildfire. Light fuels such as grasses burn quickly and serve as a catalyst for spreading wildfires.

An area's topography (terrain and land slopes) affects its susceptibility to wildfire spread. Fire intensities and rates of spread increase as slope increases due to the tendency of heat from a fire to rise via convection and radiation. The natural arrangement of vegetation throughout a hillside can also contribute to increased fire activity on slopes

Weather components such as temperature, relative humidity, wind, and lightning also affect the potential for wildfire. High temperatures and low relative humidity dry out the fuels that feed the wildfire creating a situation where fuel will more readily ignite and burn more intensely. Wind is the most treacherous weather factor. The issue of drought conditions contributes to concerns about wildfire vulnerability.

East Tennessee typically has two fire seasons. The spring fire season, prompted by warming weather, begins about February 15 and ends near May 15th, when the forest has "greened up". Fall fire season begins around October 15, when the leaves begin to fall and usually ends December 15th due to shorter, cooler, wetter days. Still, wildland fires occur year round. A burning permit is required for outdoor burning between October 15th and May 15th.



Blount County is located in the East Tennessee District of the TN Division of Forestry. The TN Division of Forestry provides statistics for each region, summarizing wildfire events. Below are the statistics for Blount County from 2007 to 2016.

Year	# of Fires Forested	# of Fires Non-Forested	Total	# of Acres Forested	# of Acres Non-Forested	Total	Size	Area
2016	13	3	16	1,932.5	6.3	1,938.8	121.2	0.007
2015	1	0	1	0.5		0.5	0.5	0.000
2014	8	5	13	46.5	15.8	62.3	4.8	0.000
2013	3	0	3	145.0		145.0	48.3	0.001
2012	8	1	9	110.5	0.6	111.1	12.3	0.000
2011	1	0	1	185.0		185.0	185.0	0.001
2010	4	0	4	284.0		284.0	71.0	0.001
2009	4	0	4	33.0		33.0	8.3	0.000
2008	5	2	7	691.5	35.0	726.5	103.8	0.003
2007	19	1	20	836.3	13.5	849.8	42.5	0.003

Jurisdiction	Impacts			Vulnerability
	Human	Property	Business	H+P+B=#; #/3=V
Blount County Unincorporated	2	5	1	2.66
City of Alcoa	N/A	N/A	N/A	N/A
City of Friendsville	2	3	3	2.6
Town of Louisville	1	3	1	1.67
City of Maryville	N/A	N/A	N/A	N/A
Town of Rockford	2	5	1	2.67
City of Townsend	2	4	2	2.66

Jurisdiction	Vulnerability	Probability	Risk V+P=R	
Blount County Unincorporated	2.66	5	7.66	High
City of Alcoa	N/A	N/A	N/A	N/A
Town of Friendsville	2.6	3	5.6	Medium
Town of Louisville	1.67	2	3.67	Moderate
City of Maryville	N/A	N/A	N/A	N/A
Town of Rockford	2.67	1	3.67	Moderate
Town of Townsend	2.66	2	4.66	Moderate

Blount County Presidential Declared Disaster Chart:

(Jan. 1993 – Dec. 2017)

DR	Date	Event Type	Public Assistance	Individual Assistance
4211	5/7/2015	Winter Storm, Flooding	Yes	No
1974	6/7/2011	Severe Storms, Tornado, Straight Line Winds, Flooding	Yes	No
1464	5/8/2003	Severe Storms, Tornado, Flooding	No	Yes
1408	4/5/2002	Storms, Flooding	Yes	Yes
1215	4/20/1998	Severe Storms, Tornado, Flooding	No	Yes
1022	4/14/1994	Rain, Flash Flooding	Yes	Yes

The May 27th 2017 storm caused straight line winds and extensive damage in Blount County and the Springbrook community of Alcoa was also a Presidentially Declared Disaster – Disaster 4620. While damage didn't rise to the level of Individual Assistance, Public Assistance was awarded by the Federal Emergency Management Agency to help agencies, departments and first responders recoup some of the cost of responding to the storm.

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 Blount County Hazard Mitigation Committee identified the following goals to be the forefront in the overall development of this plan update. 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

Blount County has developed a comprehensive range of mitigation projects. These projects were solicited and identified by the different entities whom make up the Blount County Hazard Mitigation Committee. 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, Blount County was able to determine when and which projects should be implemented based on available funding and time.

The Blount 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.

Project Prioritization Method: SAFE-T			
	Variable	Value	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 priority, few societal benefits
		2	Moderate community acceptance/priority
		3	High community acceptance/priority
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 staffing, outside needed
		2	Some staffing, help may be needed
		3	Low staffing, no outside help needed
F	Financial: The projects will be evaluated on their general cost-effectiveness and whether additional outside funding will be required.	1	Somewhat cost-effective
		2	Moderately cost-effective
		3	Very cost-effective
E	Environmental: The projects will be evaluated for any immediate or long-term environmental impacts caused by their construction or operation.	1	Many environ. impacts, possibly long-term
		2	Some environ. Impacts, some possibly long-term
		3	Few, if any, environ. impacts
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	Other actions are needed or short-term fix
		2	Other actions may be needed for long-term fix
		3	Other actions not needed, long-term fix

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 Blount County Hazard Mitigation Project List.

Blount County Project List

The following Project List provides an overview of all the Blount County Hazard Mitigation Committee projects. This includes potential funding sources, implementation timeframes, the project's responsible agency, and other information. This list is to remain active and updated.

Blount County Project List

Priori ty Rank	Action/Project	Hazard Mitigat ed	Jurisdictions Benefitted/Represe nted	Addresses New or Existing/Infrastruc ture	Responsibl e Agency	Possibl e Fundi ng Sourc e	Timefra me
5	Utilities placed on steel poles or buried.	All	All	New and Existing	Sevier County Electric, Maryville and Alcoa Electric	FEMA	10 years.
1	Safe Rooms in or at existing community centers	Tornad o	All	New and Existing	Blount County Emergency Manageme nt	FEMA	10 years
2	Buying Flood Prone Properties/Rebuil ding bridges/raising roads/Installing culverts	Floodin g	All	New and Existing	Blount County Emergency Manageme nt	FEMA	10 years
3	Building Codes Upgrade	All	All	New and Existing	Individual municipalit ies		5 years
4	Regional Storm Water Detention Pond	Floodin g	Maryville/Alcoa	New and Existing	Blount County Emergency Manageme nt	FEMA	5 years

Timeframe: The timeframes listed for each project represent the timeframe for each project once each is funded either through hazard mitigation grant funds or other funds.

Project Priorities:

The priority of Townsend's Hazard Mitigation Projects would mirror the rankings of the natural hazards facing the city: 1. Wind (microbursts and severe weather), 2. Flooding, 3. Snow/ice and winter storms, 4. Wildfire.

The priority of Rockford's Hazard Mitigation Projects would mirror the rankings of the natural hazards facing the town: 1. Windstorms/Severe Weather, 2. Flooding and Wildfire and 4. Snow/Ice/Winterstorm.

The priority of Louisville’s Hazard Mitigation Projects would mirror rankings of the natural hazards facing the town: 1. Windstorms/Severe Weather, 2. Snow/Ice/Winter Storms, 3. Wildfire, 4. Flooding.

The priority of Alcoa’s Hazard Mitigation Projects would mirror rankings of the natural hazards facing the city: 1. Lightning and Windstorms, 3. Snow/Ice/Winter Storms, 4. Flooding.

The priority of (unincorporated) Blount County’s Hazard Mitigation Projects would mirror rankings of the natural hazards facing the unincorporated county: 1. Windstorms/Severe Weather, 2. Snow/Ice/Winterstorms and Wildfires, 4. Flooding.

The priority of Friendsville’s Hazard Mitigation Projects would mirror rankings of the natural hazards facing the Town of Friendsville: 1. Snow/Ice/Winter Storms; 2. Wind Storms; 3. Flooding; 4. Wildfire.

The priority of Maryville’s Hazard Mitigation Projects would mirror rankings of the natural hazards facing the city: 1. Wind Storms/Severe Weather; 2. Snow/Ice/Winter Storms; 3. Flooding; 4. Tornado

Blount County Project List by Jurisdiction

Town of Louisville	
Windstorm/Severe Weather	1-A Utilities buried or hardened 1-B Building codes upgrade 1-C Safe Rooms
Snow/Ice/Winter Storms	2-A Utilities buried or hardened 2-B Building codes upgrade 2-C Safe Rooms
Wildfire	3-A Utilities buried or hardened 3-B Building codes upgrade 3-C Firewise Training
Flooding	4-A Utilities buried or hardened 4-B Building codes upgrade 4-C Buying flood-prone properties/ building bridges/raising roads
City of Maryville	
Snow/Ice/Winter Storms	1-A Utilities buried or hardened 1-B Building codes upgrade 1-C Safe rooms
Wind Storms/Severe Weather	2-A Utilities buried or hardened 2-B Building codes upgrade 2-C Safe rooms
Flooding	3-A Utilities buried or hardened 3-B Building codes upgrade 3-C Buying flood-prone properties/building bridges/raising roads 3-D Regional Detention pond
Tornado	4-A Utilities buried or hardened 4-B Building codes upgrade

	4-C Safe Rooms
Blount County Unincorporated	
Wind Storms/Severe Weather	1-A Utilities buried or hardened 1-B Building codes upgrade 1-C Safe rooms
Snow/Ice/Winter storms & Wild fires	2-A/3-A Utilities buried or hardened 2-B/3-B Building codes upgrade 2-C/3-C Firewise Education
Flooding	4-A Utilities buried or hardened 4-B Building codes upgrade 4-C Buying flood-prone properties/building bridges/raising roads
City of Alcoa	
Windstorms/Severe Weather & Lightning	1-A/2-A Utilities buried or hardened 1-B/2-B Building codes upgrade 1-C/2-C Safe rooms
Snow/Ice/Winter storms	3-A Utilities buried or hardened 3-B Building codes upgrade 3-C Safe Rooms
Flooding	4-A Utilities buried or hardened 4-B Building codes upgrade 4-C Buying flood-prone properties/building bridges/raising roads 4-D Regional detention pond
Town of Friendsville	
Snow/Ice/Winter storms	1-A Utilities buried or hardened 1-B Building codes upgrade 1-C Safe Rooms
Wind storms/Severe Weather	2-A Utilities buried or hardened 2-B Building codes upgrade 2-C Safe rooms
Flooding	3-A Utilities buried or hardened 3-B Building codes upgrade 3-C Buying flood-prone properties/building bridges/raising roads
Wildfire	4-A Utilities buried or hardened 4-B Building codes upgrade 4-C Firewise Education
Town of Townsend	
Wind storms/Severe Weather	1-A Utilities buried or hardened 1-B Building codes upgrade 1-C Safe rooms
Flooding	2-A Utilities buried or hardened 2-B Building codes upgrade 2-C Buying flood-prone properties/building bridges/raising roads

Snow/Ice/Winter storms	3-A Utilities buried or hardened 3-B Building codes upgrade 3-C Safe Rooms
Wildfire	4-A Utilities buried or hardened 4-B Building codes upgrade 4-C Firewise Education
Town of Rockford	
Wind Storms/Severe Weather	1-A Utilities buried or hardened 1-B Building codes upgrade 1-C Safe Rooms
Flooding and Wildfires tied	2-A/3-A Utilities buried or hardened 2-B/3-B Building codes upgrade 2-C/3-C Buying Flood-prone properties/building bridges/raising roads 2-D/3-D Firewise Education
Snow/Ice/Winter Storms	4-A -Utilities buried or hardened 4-B Building codes upgrade 4-C Safe Rooms

Mitigation Actions/Projects with emphasis on new and existing buildings

Reducing Hazard Impact on New Buildings and Infrastructure

Some of the mitigation actions and projects included in this plan include:

- ☐ Adopting and/or enforcing comprehensive building codes.
- ☐ Requiring emergency generator pigtails on new government and special needs structures.
- ☐ Providing builders information on hazard areas and associated restrictions.
- ☐ Restrictions on building structures in hazard areas.
- ☐ Developing and or enforcing a comprehensive land use plan.
- ☐ Encouraging new power lines to be buried to reduce power outages.
- ☐ Encouraging “right of way” maintenance programs for power lines and pipelines to remove burnable debris and trees that could create natural gas, oil, and power outages.
- ☐ Extending water lines and hydrants to combat fires.

Reducing Hazards Impact on Existing Buildings and Infrastructure

Some of the mitigation actions in this plan that reduce impact on existing buildings and infrastructure include:

- ☐ Retrofitting structures to reduce high wind loss
- ☐ Burying existing power lines to reduce outages
- ☐ Improving drainage capacity of canals and ditches

- ☐ Installing emergency generators in critical government and special needs structures
- ☐ Clearing public utility power line “right of way”

Project List Update

After reviewing the original list of mitigation projects seen in the 2006 Blount County Hazard Mitigation Plan, the mitigation committee has determined since it’s been a significant lapse in time since the previous update that’s its best to start over in determining the appropriate mitigation projects for Blount County. Additionally, the majority of the listed “mitigation” projects were actually “preparedness” projects or related to man-made disasters. Preparedness projects assist people to react or respond more efficiently to threats (example: putting a fire extinguisher in a room so someone could use it to react to a fire threat) whereas mitigation projects are meant to be long-term projects that utilize the built environment in a way that doesn’t necessarily require people to react because the project itself does the reacting (example: putting fire retardant material in the walls of a room). Blount County has thus decided to delete those preparedness projects and not include them in the updated mitigation action list. These projects will still be worked on in the community, just not through the means of mitigation planning. Appendix 8 provides the projects/actions that were included in the 2006 Blount County Hazard Mitigation Plan.

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 Blount County unincorporated, the City of Alcoa, City of Friendsville, Town of Louisville, City of Maryville, Town of Rockford and City of Townsend are NFIP participants. Below are two charts that give an overview of NFIP policy and loss data for Blount County.

NFIP Policy Data for Blount County			
Jurisdiction	Policies In-Force	Insurance In-Force Whole \$	Written Premium In-Force
City of Alcoa	26	6,474,300	35,744
Blount County Unincorporated	191	45,023,900	174,091
City of Friendsville	2	114,500	1,420
Town of Louisville	11	3,629,000	6,042

City of Maryville	71	15,649,300	56,444
Town of Rockford	2	544,000	1,136
City of Townsend	25	3,838,400	36,169

POLICIES IN-FORCE: NUMBER OF NFIP FLOOD INSURANCE POLICIES

INSURANCE IN-FORCE WHOLE \$: VALUE OF BUILDING AND CONTENTS INSURED BY THE NFIP

WRITTEN PREMIUM IN-FORCE: TOTAL PREMIUMS PAID FOR NFIP INSURANCE POLICIES

NFIP Loss Data for Blount County					
Jurisdiction	Total Losses	Closed Losses	Open Losses	CWOP Losses	Total Payments
City of Alcoa	6	4	0	2	742,666.09
Blount County Unincorporated	13	11	0	2	111,529.68
City of Maryville	9	6	0	3	67,039.33
City of Townsend	1	0	0	1	.00

TOTAL LOSSES: NUMBER OF FLOOD INSURANCE CLAIMS FILLED BY POLICYHOLDERS

CLOSED LOSSES: NUMBER OF FLOOD INSURANCE CLAIMS PAID TO POLICYHOLDERS

OPEN LOSSES: CLAIMS THAT ARE STILL BEING PROCESSED

CWOP LOSSES: CLAIMS THAT WERE "CLOSED WITHOUT PAYMENT"

TOTAL PAYMENTS: TOTAL DOLLARS PAID TO POLICYHOLDERS

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 Blount County.

Repetitive Loss Properties for Blount County						
Jurisdiction	Type of Structure	Flood Zone	Number of Losses	Total Building Payment	Total Contents Payment	Total Paid
Walland	Single Family	X	2	\$5,165.83	0	\$5,165.83
Maryville	Single Family	X	2	\$3,039.00	\$2,599.05	\$5,638.05
Maryville	Single Family	X	2	\$47,299.09	\$10,360.53	\$57,659.62

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

Monitoring activities will involve Blount County Emergency Management setting up a committee meeting to be held on an annual basis. Blount 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 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 hazard mitigation grant funding. For the next five year update, Blount County Emergency Management will notify the jurisdictional governments and the Blount 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 Blount County Hazard Mitigation Committee's goal is to have at least five meetings within this

time span; dates, public notices, and objectives for these meetings will be determined by Blount County Emergency Management.

The October Local Emergency Planning Committee meeting will be our annual opportunity to do a status update on all mitigation projects.

Five months prior to the plan's expiration date, Blount 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 Blount 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

By incorporating the Blount 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 strengthened stance of mitigation implementation and awareness within the county and its jurisdictions.

Some of the mechanisms that the Blount County Hazard Mitigation Plan could be incorporated into include:

- Blount County Basic Emergency Operations Plan (BEOP)
- Zoning Ordinances
- Floodplain Ordinances
- Subdivision Regulations
- Blount County School Safety Plan
- Blount Memorial Hospital Emergency Plan

The process of incorporating the hazard mitigation plan into other plans will begin during the other plan's update cycles.

Each jurisdiction has full authority through their charters to expand programs, policies and their use of resources. They each have their own individual processes and mechanisms to draft, review and approve said policies, programs and use of resources.

Entities that with authority to carry out mitigation strategies include the councils and commissions and/or boards of aldermen in each jurisdiction; the Blount County Planning Commission, the Blount County Development Services (Building and Safety Codes); City of Alcoa Planning and Codes and the City of Maryville Building and Codes.

Blount 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.

In the past few years, information from the original Blount County Hazard Mitigation Plan has been incorporated into the Blount County Basic Emergency Operations Plan (BEOP) (This method of incorporation roughly followed the described process stated above.)

Policies, People and Priorities:

The City of Townsend collects their portion of the state sales tax but the local government does not charge a property tax. They have a Planning Commission and utilize the East Tennessee Development District to serve as administrator for planning. Their building codes adhere to the International Building Code. The city's decision-making body is the Board of Commissioners and Mayor and they would be responsible, along with the Blount County School Board in cases where a project was on school property, for facilitating any hazard mitigation projects in the City of Townsend.

The Town of Rockford collects their portion of the state sales tax but the local government does not charge a property tax. They have a Planning Commission and utilize the East Tennessee Development District to serve as administrator for planning. Their building codes adhere to the International Building Code. The city's decision-making body is the City Commission, which is composed of the mayor and two commissioners, would be responsible, along with the Blount County School Board in cases where a project was on school property, for facilitating any hazard mitigation in the Town of Rockford.

The Town of Louisville collects their portion of the state sales tax but the local government does not charge a property tax. They have a Planning Commission and utilize the Blount County Development Department as administrator for planning. Their building codes adhere to the International Building Code. The town's decision-making body is the Board of Mayor and Alderman and they would be responsible, along with the Blount County School Board in cases where a project was on school property, for facilitating any hazard mitigation projects in the Town of Louisville.

The City of Alcoa collects their own property tax and also collects their portion of the state sales tax. They have a planning commission and their own administrator/staff for planning. Their building codes adhere to the International Building Code. The city's decision-making body is the Alcoa City Commission and they, along with the Alcoa City School Board in cases where a project was on school property, for facilitating any hazard mitigation projects in the City of Alcoa.

Blount County (Unincorporated) collects a property tax as well as the county's portion of the state sales tax. The county has a planning commission as well as a county planner who works out of the Development Department. Blount County's building codes adhere to the International Building Code. The county's legislative body is the Blount County Commission and the county's executive body is the Blount County Mayor. The Blount County Commission and Blount County Mayor, as well as the Blount County School Board in cases where a project was on school property, are responsible for facilitating any hazard mitigation projects in unincorporated Blount County.

The Town of Friendsville **does not collect** property tax and they collect the local portion of the state sales tax.

They have a Planning Commission and **utilize** the East Tennessee Development District to serve as administrator for planning. Their building codes adhere to the International Building Code and Blount County Codes Department enforces those codes. The city's decision-making body is the City Commission, which is composed of the mayor, vice mayor and four commissioners, would be responsible, along with the Blount County School Board in cases where a project was on school property, for facilitating any hazard mitigation project in the Town of Friendsville

The City of Maryville collects their own property tax and also collects their portion of the state sales tax. They have a planning commission and their own administrator/staff for planning. Their building codes adhere to the International Building Code. The city's decision-making body is the Maryville City Council and they, along with the Maryville City School Board in cases where a project was on school property, would be responsible for facilitating any hazard mitigation projects in the City of Maryville.

Blount County Legal and Regulatory Capabilities Summary								
	Capabilities	Blount County	Alcoa	Friendsville	Louisville	Maryville	Rockford	Townsend
1	Building Codes	Y	Y	Y	Y	Y	Y	Y
2	Emergency Operations Plan	Y	Y	Y	Y	Y	Y	Y
3	Economic Development Plan	Y	Y	Y	Y	Y	Y	Y
4	Capital Improvements Plan	Y	Y	N	Y	Y	N	N
5	Stormwater Management Ordinance	Y	Y	Y	Y	Y	N	Y
6	Zoning Management Ordinance	Y	Y	Y	Y	Y	Y	Y
7	Subdivision Ordinance	Y	Y	Y	Y	Y	Y	Y
8	Erosion Management Ordinance	Y	Y	Y	Y	Y	N	Y
9	Current Floodplain Map	Y	Y	Y	Y	Y	Y	Y
10	Floodplain Management Ordinance	Y	Y	Y	Y	Y	Y	Y
11	NFIP Community	Y	Y	Y	Y	Y	Y	Y
12	National Flood Insurance Join Date	6/12/07	1/08/72	5/03/07	1/08/72	12/07/71	08/01/95	6/18/76
13	NFIP Community Number	470356	475421	407302	475421	475439	470320	470281
14	Wildfire Ordinance	N	N	N	N	N	N	N
15	Zoning Ordinances	Y	Y	Y	Y	Y	Y	Y

Continued Public Participation

The Blount 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 Blount 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.

Appendix 1: Attendance Sheets Meeting 1/Notes from Hazard Mitigation Planning Team Meeting and Hazard Vulnerability Assessment Meetings:

BLOUNT COUNTY Hazard Mitigation Planning Team Sept. 20, 2016

NAME	ORGANIZATION	ADDRESS	CELL/ BUSINESS/ HOME PHONE	E MAIL
Tom Aiken	MKAA-McChoe Tyson Airport	2055 Alcoa Hwy Alcoa 37701-3183	Cell 865 7407421	tom.aiken@tys.org
Jerry Roberts	MSWELL	1427 WILSON BLAUNT DRIVE	865 684 7853	Jerry.Roberts@mswellco.com
SHEPPARD, MARCUS	B.M.H.	907 E. LA PKY	865 680 7128	msheppard@bmr.net
David Hodges	MFD	402 W. Broadway Maryville	865-323- 5137	dhodges@maryville-tn.gov
Chad Dourty	City of Maryville	416 W. Broadway Maryville, TN 37801	865 323-7520	cdourty@maryville-tn.gov
DAVID GRAVES	MSD	418 W. Broadway M.T. 37801	323 3044	dmgroves@maryville-tn.gov
Jimmy Long	BCSO	940 E. LA PKY	865-368-8128	jlange@bcso.com
Jay Whitte	Rockford		207-9198	
ROD FREERCH	BLAUNT CO COMMISSIONER		865 919-0856	
Rochel Brekman	BLAUNT Partnership	201 S. Washington St Maryville	865 659-8490	rbrekman@blountpartnership.com
TREVIS GARDNER	METRO KNOX AIRPORT AUTH	2055 AIRPORT HWY ALCOA, TN 37803	865 342-1089	TREVIS@TKG.ORG
Tim Morse	Friendsville Fire Dept.	115 N. Young St. Friendsville TN 37759	865 256-4431	timmorese@gmail.com
JEREMY PEARSON	CITY OF ALCOA	223 ASSOCIATES BLVD 37701	380- 4730	jpearson@cityofalcoa-tn.gov
Doug Hancock	Blount Co.	1223 McArthur Blvd	273 5750	dhancock@blounttn.org
BOB CRANE	TEMA	803 N. CANCER ST KNOXVILLE, 37919	865 414-1393	BCRANE@TEMA.ORG

Blount County, TN
Hazard Mitigation Plan
March 2018 Update

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BLOUNT COUNTY
Hazard Vulnerability Assessment
Unincorporated Areas
October 11, 2016

NAME	ORGANIZATION	ADDRESS	CELL/ BUSINESS/ HOME PHONE	E MAIL
Robert Schmitt	Health Dept		(865) 229-2339	Robert.Schmitt@jwga
Stan Burnette	Blount Co. Schools		(865) 740-9492	stan.burnette@blountschools.org
John Loope	FL EC		865-740-6579	
Danny Gregory	South Blount		865-310-5888	danny.gregory@southblount.org
Barbara Collins	City of Alcoa Greene		865-742-7398	bcollins@cityofalcoa-tn.gov
Kenny Wiggins	City of Alcoa		865-679-9724	kwiggins@cityofalcoa-tn.gov
LARRY STARGEL	City of Alcoa		679-3178	lstargel@cityofalcoa-tn.gov
Jerry Phillips	Blount Fire		389-4157	jerry.phillips@blountfire.org
Doug McCLANAHAN	Blount Fire		755-2155	BLOUNT FIRE @ MIA N. CO.
Jonathan Rodgers	R/m Blount		293-9740	Jonathan.Rodgers@meteo.com

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Unincorporated County - Blount

Impacts:

Human

Property

Business

Sum of Impacts

Vulnerability (Sum/3)

Probability

Risk (Vulnerability + Probability)

Scale

³ Flood	² Wind	¹ Snow/Ice	⁴ Wildfire
2	4	4	2
5	5	5	5
2	1	2	1
9	10	11	8
3	3.33	3.66	2.66
2	5	4	5
5	8.33	7.66	7.66
Moderate	High	High	High

BLOUNT COUNTY
Hazard Vulnerability Assessment
Alcoa
October 17, 2016

NAME	ORGANIZATION	ADDRESS	CELL/ BUSINESS/ HOME PHONE	E MAIL
BILL Smock	ALCOA FIRE	2010 N WRIGHT RD ALCOA, TN 37701	865 380-4999	Bsmock@cityofALCOA-TN.GOV
Roger Robinson	" "	" "	"	rrobinson@cityofalcoa-tn.gov
LARRY STARGEL	ALCOA Electric	1725 Universal ST ALCOA, TN	615-3178	lstargel@cityofalcoa-tn.gov
Jonathan Rodgers	R/m	296 E. HAWEST ALCOA, TN 37701	293-9740	Jonathan.Rodgers@metrocom
Jeremy Pearson	Alcoa, plumbing and code	223 Association Blvd. Alcoa, TN 37701	380-4730	jpearson@cityofalcoa-tn.gov
Lance Coleman	Event. Alcoa	341 Central Morgantown, WI 37801	865-273-5835	Lcolem@blountcounty.org

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City of Alcoa

Impacts:

Human

Property

Business

Sum of Impacts

Vulnerability (Sum/3)

Probability

Risk (Vulnerability + Probability)

Scale

Flood	Wind	Snow/Ice	Lightning
1	2	3	1
3	3	3	3
1	1	1	1
5	6	6	5
1.66	2.00	2.00	1.66
1	2	1	3
2.66	4.00	3.00	4.66
Low	Moderate	Low	Moderate

①

[illegible]

BLOUNT COUNTY
Hazard Vulnerability Assessment
Friendsville
October 20, 2016

NAME	ORGANIZATION	ADDRESS	CELL/ BUSINESS/ HOME PHONE	E MAIL
David Amans	city of Friendsville		865 306-8016	davidamans@friendsville.city
Tom Greene	FFD		865 363-5967	tom.greene@flec.org
Mike Jeffries	FFD		865 6802666	
Tim Morse	FFD		865 256-4431	timmorse@ymail.com
Steven Cardwell	FVFD		394-8307	scardwell@bcsd.com

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Friendsville

	Flood	Wind	Snow/Ice	Wildfire
Impacts:				
Human	4	4	4	2
Property	5	3	4	3
Business	3	5	4	3
Sum of Impacts	12	12	12	8
Vulnerability (Sum/3)	4	4	4	2.6
Probability	3	4	3	3
Risk (Vulnerability + Probability)	7	8	7	5.6
Scale	High	High	High	Medium

4

Scale

Flood	Wind	Snow/Ice	Wildfire
4	4	4	2
5	3	4	3
3	5	4	3
12	12	12	8
4	4	4	2.6
3	4	3	3
7	8	7	5.6
High	High	High	Medium

BLOUNT COUNTY
Hazard Vulnerability Assessment
Louisville/Rockford
Oct. 31, 2016

NAME	ORGANIZATION	ADDRESS	CELL/ BUSINESS/ HOME PHONE	E MAIL
Danny Gregory	SBCUD	118 W. Lamar A 100 PKY	310-5288	
Terry Willett	City of Rockford	3719 Withers River Road	207 9198	
Dick McGill	Louisville	3623 Louisville Rd 3777	696-2275 389-0541	codes@louisvilletn.gov
Linda Webb	Louisville	3623 Louisville Rd 3777	681-1983 865-977-0352	manager@louisvilletn.gov
Jonathan Rodgers	Rlm Blount	296 E. Howe St Alcoa, TN 37701	865-293-9740 983-2133	Jonathan.Rodgers@rlmeteo.com
Jerry Phillips	Blount Fire	2549 K. Brand Vlg M.T. 37804	389-4157	jerry.phillips@blountfire.org

Rockford

Impacts:

Human

Property

Business

Sum of Impacts

Vulnerability (Sum/3)

Probability

Risk (Vulnerability +
Probability)

Scale

Flood	Wind	Snow/Ice	Wildfire
2	3	1	2
4	4	3	5
2	1	1	1
8	8	5	8
2.67	2.67	1.66	2.67
1	2	1	1
3.67	4.67	2.66	3.67
Moderate	Moderate	Low	Moderate

75

Louisville

Impacts:

Human

Property

Business

Sum of Impacts

Vulnerability (Sum/3)

Probability

Risk (Vulnerability +
Probability)

Scale

Flood	Wind	Snow/Ice	Wildfire
1	2	2	1
4	4	4	3
1	1	1	1
6	7	7	5
2	2.33	2.33	1.67
1	3	2	2
3	5.33	4.33	3.67
Low	Medium	Medium-High	High

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Maryville
Oct. 25, 2016
Hazard Vulnerability Assessment

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City of Maryville

Impacts:

Human

Property

Business

Sum of Impacts

Vulnerability (Sum/3)

Probability

Risk (Vulnerability + Probability)

Scale

Flood	Wind	Snow/Ice	Earthquake
1	4	2	1
3	5	3	1
1	3	2	1
5	12	7	3
1.66	4	2.33	1
1	3	5	1
2.66	7	7.33	2
Low	High	High	Low

City of Maryville

3

1

2

2

Impacts:

Human

Property

Business

Sum of Impacts

Vulnerability (Sum/3)

Probability

Risk (Vulnerability + Probability)

Scale

	Flood	Wind	Snow/Ice	Earthquake
Human	1	4	2	1
Property	3	5	3	1
Business	1	3	2	1
Sum of Impacts	5	12	7	3
Vulnerability (Sum/3)	1.66	4	2.33	1
Probability	1	3	5	1
Risk (Vulnerability + Probability)	2.66	7	7.33	2
Scale	Low	High	High	Low

• Education

• Shelters

• Holding/Borg lines - not getting b/ok re traffic lights

• Maintaining line sight - using public/private

• Detection

• Building Codes

Building Codes

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• "No perfect" intersections - 3 pass, any intersection fl 321/Interlock Drive

BLOUNT COUNTY
Hazard Vulnerability Assessment
Townsend
Oct. 18, 2016

NAME	ORGANIZATION	ADDRESS	CELL/ BUSINESS/ HOME PHONE	E MAIL
Michael Talley	Townsend	255 Riverview Rd ³⁹⁸⁸⁸	865 387-2754	talleymho@hotmail.com
Ron Suttles	Townsend PD.	133 Tiger Dr. P.O. 307	865- 448-6886	
Brent Cyle	Sevier Co Electric	315 E. Main St SEVIERVILLE	774-6238 604-7272	bcyle@scs.net
Danny Williamson	City of Townsend	P.O. Box 307, Townsend TN 37802	659-9358/ 448-6886	jcityoft@aol.com
Don Stillins	TAFD			dstillins@blount.org
Lance Clanner	EMH	341 (65) Wingfield, TN 37804		lclanner@blount.org

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Townsend

Impacts:

Human

Property

Business

Sum of Impacts

Vulnerability (Sum/3)

Probability

Risk (Vulnerability +
Probability)

Scale

Flood	Wind	Snow/Ice	Wildfire
4	4	2	2
4	3	3	4
2	1	1	2
10	8	6	8
3.33	2.66	2	2.66
3	5	4	2
6.33	7.66	6	4.66
Medium	High	Medium	Moderate

Rockford

Hazard Vulnerability Assessment

Oct. 31, 2016

Location: Blount County Courthouse Room 433/backup Emergency Operations Center

Present: Present: Danny Gregory, South Blount Utility District; Terry Willett, City of Rockford; Dick McGill, Louisville, Linda Webb, Louisville city manager; Jonathan Rodgers, Rural/Metro Ambulance; Jerry Phillips, Blount County Fire Protection District.

From their own personal experience, the group members ranked the natural hazards facing the Town of Rockford as 1. Flooding; 2. Windstorms/severe weather; 3. Snow/ice/winter storms; 4. Wildfire.

Using the formula suggested by the Tennessee Emergency Management Agency, those present ranked natural hazards facing the Town of Rockford in the following order: 1. Windstorms/severe weather with a risk score of 4.67 and a scale rating of moderate; 2. Flooding and Wildfire tied with a risk score of 3.67 and a scale rating of moderate and 4. Snow/ice/winter storm was fourth with a risk score of 2.66 and a scale of low.

Regarding human impacts, Windstorms/severe weather had a 3 score, meaning death unlikely, injuries may be substantial. Flooding and Wildfire each had scores of 2, meaning death unlikely and injuries are minimal while Snow/ice/winter storms had an impact score of 1, meaning death very unlikely and injuries are unlikely.

Regarding property impacts, Wildfire had a score of 5, meaning more \$2 million in damage could be possible while both Flooding and Windstorms/severe weather had scores of 4, meaning between \$500,000 and \$2 million is possible. Snow/ice/winter storms had a score of 3, meaning between \$10,000 and \$500,000 in damages is possible.

Regarding business impacts, Flooding had a score of 2, meaning more than three businesses closed for a week. Windstorms/severe weather, Snow/ice/winter storms and Wildfires all had scores of 1, meaning less than three businesses closed for only a day.

The sum of the human, property and business impacts were added up for each hazard and divided by 3 to determine how vulnerable the Town of Rockford is to each hazard. Flooding; Windstorms/severe weather and Wildfire all three were given 2.67 scores by the group while they gave Snow/ice/winter storm a score of 1.66

Regarding probability that either of these hazards would occur in a given period of time, the group gave a 1 score to Flooding; Snow/ice/winter storm and Wildfire, meaning they occur less than once every 10 years. The gave windstorms/severe weather a score of 2, meaning these occur about once every five to 10 years.

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Regarding mitigation projects, the group said education through social media or news releases; establishing or building safe room/shelters and hardening/burying utilities are good mitigations projects for all the hazards.

The group also suggested establishing evacuation routes, building an interchange off Russell Road to the proposed Pellissippi Parkway Extension and purchasing temporary signage to help divert traffic to evacuation routes because of the topography of the town.

Louisville

Hazard Vulnerability Assessment

Oct. 31, 2016

Location: Blount County Courthouse Room 433/backup Emergency Operations Center

Present: Danny Gregory, South Blount Utility District; Terry Willett, City of Rockford; Dick McGill, Louisville, Linda Webb, Louisville city manager; Jonathan Rodgers, Rural/Metro Ambulance; Jerry Phillips, Blount County Fire Protection District.

From their own personal experience, the group members ranked the natural hazards facing the Town of Louisville as 1. Windstorms/severe weather; 2. Snow/ice/winter storms; 3. Wildfire and 4. Flooding.

Using the formula suggested by the Tennessee Emergency Management Agency, those present ranked natural hazards facing the Town of Louisville in the following order: 1. Windstorms/severe weather with a risk score of 5.33 and a scale rating of medium; 2. Snow/ice/winter storms with a risk score of 4.33 and a scale rating of moderate; 3. Wildfire with a risk score of 3.67 and a scale rating of moderate and; 4. Flooding with a risk score of 3 and a scale rating of low.

While Windstorms/severe weather and Snow/ice/winter storms each had human impact scores of 2, meaning death unlikely, injuries are minimal, Wildfire and Flooding each had human impact scores of 1, meaning death very unlikely and injuries are unlikely.

Regarding property impacts, Windstorms/severe weather, Snow/ice/winter storms and Flooding all garnered scores of 4, meaning between \$500,000 and \$2 million in damage possible. Wildfire merited a 3 property impact score, meaning between \$10,000 and \$500,000 in damages possible, according to the group.

Windstorms/severe weather, Snow/ice/winter storms, Flooding and Wildfires all got 1 scores regarding their impact on business, meaning less than three businesses closed for only a day, the participants said.

Vulnerability was determined by adding up the impact scores for human, property and business categories and then dividing by 3. Regarding vulnerability, the group said Louisville was equally

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vulnerable to Windstorms/severe weather and Snow/ice/winter storms with vulnerability scores of 2.33 each. The town was less vulnerable to Flooding, with a vulnerability score of 2, and Wildfires, with a vulnerability score of 1.67, the participants said.

Regarding probability, the group said it was more probable that the town's residents would face Windstorms/severe weather with a probability score of 3 and Snow/ice/winter storms and Wildfire, which both earned probability scores of 2. Flooding appeared the least probable hazard with a probability score of 1, participants said.

Regarding mitigation plans for Windstorms/severe weather as well as Snow/ice/winter storms, the group said trimming tree limbs near utility lines on right of ways and between private residences and businesses and the utility poles could prevent downed lines from falling trees or limbs.

Also for Windstorms/severe weather and Snow/ice/winter storms, the group said hardening or burying utilities could be an effective mitigation project.

Regarding wildfires, education regarding Firewise practices such as cutting back trees near homes was also an effective mitigation project.

Regarding flooding, the group suggested implementing planning codes to prevent residents from building in flood plains, using federal funds to buy homes that are repeatedly flooded and establishing evacuation routes.

The group said safe rooms/shelters could also be established for all four hazards and education via social media or news releases could also help residents deal with any of the hazards.

Maryville

Hazard Vulnerability Assessment

Oct. 25, 2016

Location: Maryville Fire Department Training Room/Emergency Operations Center

Present: Fire/Police Chief Tony Crisp, Deputy Fire Chief David Hodges, Capt. David Graves with Maryville Police Department, Chad Davis, City of Maryville development services, Lance Coleman, Blount County Emergency Management Agency.

From their own personal experience as first responders and in city planning, the group ranked the natural hazards facing the City of Maryville as: 1. Windstorms/severe weather; 2. Snow/ice/winter storms; 3. Flooding; 4. Earthquakes.

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Using the formula suggested by the Tennessee Emergency Management Agency, those present ranked natural hazards facing Maryville in the following order: 1. Snow/ice/winter storms with a risk score of 7.33 and a high scale rating; 2. Windstorms/severe weather with a risk score of 7.0 and a high scale rating; 3. Flooding with a 2.66 risk score and a low scale rating; 4. Earthquakes with a 2.0 risk score and a low scale rating.

Impacts from each of the hazards on humans, property and business were each represented on a scale of 1 to 5 with 1 reflected the least impact and 5 reflected the most severe impact.

While Windstorms/severe weather had a human impact score of 4 (meaning death possible, injuries may be substantial), Snow/ice/winter storms had a human impact score of 2 (meaning death unlikely, injuries are minimal). Flooding and Earthquakes both had human impact scores of 1 (meaning death is very unlikely and injuries are unlikely).

Windstorms/severe weather had a property impact score of 5 (meaning more than \$2 million in residential damages is likely) and both Snow/ice/winter storms and Flooding had property impact scores of 3 (meaning between \$10,000 and \$500,000 in damage). Earthquake had a property impact score of 1 (meaning less than \$500 in damage).

Windstorms/severe weather had a business impact score of 3 (meaning more than three businesses closed for a few months) and Snow/ice/winter storms had a business impact score of 2 (meaning more than three businesses closed for a week). Flooding and Earthquakes had business impact scores of 1 (meaning less than three businesses closed for only a day).

Vulnerability was determined by adding up the impact scores for human, property and business categories and dividing by 3. Regarding vulnerability, the group said Maryville was more vulnerable to windstorms/severe weather and snow/ice/winter storms with scores of 4 and 2.33 respectively versus scores of 1.56 and 1.0 for flooding and earthquakes.

Regarding probability, Snow/ice/winter storms had a probability score of 5 (meaning these likely occur more than once a year) while Windstorms/severe weather had a probability score of 3 (meaning these occur about once every two to five years). Flooding and Earthquakes each had probability scores of 1 (meaning these occur less than once every 10 years).

Regarding Risk, which is determined by adding the Vulnerability and Probability scores, Snow/ice/winter storms had a 7.33 score with a high scale rating while Windstorms/severe weather had a 7.0 score with a high scale rating. Flooding and Earthquake had scores of 2.66 and 2.0, respectively, and each had a low scale rating.

Regarding possible mitigation projects, the group agreed that education via social media or news releases/education events could be used for hazards regarding each of the four hazards. Enacting improved building codes and establishing and/or updating shelters also would also be appropriate for each of the four hazards, according to the group.

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A regional detention facility could be a viable mitigation project for an area of West Maryville that sees flooding and hardening or burying utility lines also could be a mitigation project regarding windstorms and snow/ice/winter storms.

Installing battery back-up power sources in traffic lights for each of the city's eight main intersections also could mitigate against a power outage that would leave the traffic lights dark and snarl traffic on the city's main thoroughfares.

Trimming back tree and tree limbs in the public right of ways below utility lines and educating residents about keeping tree limbs trimmed back from utility lines on private property also could help mitigate damage from windstorms and snow/ice/winter storms.

Blount County – Unincorporated Areas

Hazard Vulnerability Assessment

Oct. 11, 2016

Location: Blount County Courthouse Room 433 – Back-up Emergency Operations Center

Present: Robert Schmidt, director, Blount County Health Department, Stan Burnette, Blount County Schools, John Loope, Fort Loudoun Electric Co-op, Danny Gregory, South Blount Utilities, Barbara Collins, City of Alcoa Electric, Kenny Wiggins, City of Alcoa Electric, Larry Stargel, City of Alcoa Electric, Deputy Chief Jerry Phillips, Blount County Fire Protection District, Chief Doug McClanahan, Blount County Fire Protection District, Jonathan Rodgers, Rural/Metro Ambulance Service, Lance Coleman, Blount County Emergency Management Agency.

From their own personal experiences serving as first responders and from living and working in Blount County several years, the group members ranked the hazards facing the unincorporated areas of the county as: 1. Snow/Ice/winter storms; 2. Wind storms/severe weather; 3. Flooding; 4. Wildfire.

Using the formula suggested by the Tennessee Emergency Management Agency, the group ranked the hazards in the following order: 1. Windstorms/severe weather with a risk score of 8.33 and a scale rating of high. Snow/ice/winter storms and Wildfire each had risk scores of 7.66 and high scale ratings; and 4. Flooding had a risk score of 5 with a moderate scale rating.

Regarding Human Impacts, both Windstorms/severe weather and Snow/ice/winter storms had scores of 4 (meaning death is possible, injuries may be substantial) while Flooding and Wildfire each had scores of 2 (meaning death unlikely, injuries are minimal).

Regarding Property Impacts, all four hazards had scores of 5 (meaning more than \$2 million in damages is possible.)

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Regarding Business Impacts, Snow/ice/winter storms and flooding each had scores of 2 (meaning more than three businesses closed for a week) while Windstorms and Wildfire each had scores of 1 (meaning less than three businesses closed for only a day).

Regarding Vulnerability, which is determined by adding up the sum of the impacts in each hazard and dividing by 3, Snow/ice/winter storms had a score of 3.66 while Wind storms/severe weather had a score of 3.33. Flooding had a score of 3.00 and Wildfire had a 2.66 score.

Regarding Probability, Windstorms/severe weather and Wildfire had scores of 5 (meaning these occur more than once a year). Snow/ice/winter storms had a score of 4 (meaning these occur about once a year) and flooding had a score of 2 (meaning these occur once every five to 10 years).

Regarding mitigation projects, the group agreed that developing underground utilities were good mitigation projects for both Snow/ice/winter storms and Windstorms/severe weather as well as Wildfire. Education via social media or news releases could also be an effective project for Snow/ice/winter storms, Windstorms/severe weather, Flooding and Wildfire. Developing evacuation shelters or safe spaces also could be a mitigation for all four hazards while trimming tree limbs around utility lines in the right of ways would make good mitigation against Windstorms/severe weather and Snow/ice/winter storms. Using federal funds, the group said the county could purchase homes frequently subject to flooding and clear those structures off the property that could then be used for another purpose such as a park.

Alcoa

Hazard Vulnerability Assessment

Oct. 17, 2016

Location: Alcoa City Municipal Building

Present: Chief Roger Robinson, Alcoa Fire Department, Deputy Chief Darren Stinnett, Alcoa Fire Department, Lt. Bill Smock, Alcoa Fire Department, Larry Stargel, Alcoa Electric Utility, Jonathan Rogers, Rural/Metro Ambulance Service, Jeremy Pearson, Alcoa City Planning and Lance Coleman, Blount County Emergency Management Agency

From their own personal experience as firefighters, first responders and utility/city officials for several years, the group ranked the natural hazards facing Alcoa city as: 1. Snow/ice/winter storms; 2. Wind storms; 3. Flooding; and 4. Lightning.

Using the formula suggested by the Tennessee Emergency Management Agency, those present ranked natural hazards facing Alcoa in the following order: 1. Lightning and Wind storms tied with a 4.66 risk

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score and a moderate scale rating with 3. Snow/ice/winter storms ranked third with a risk score of 3.22 and a low scale rating and Flooding ranked fourth with a risk score of 2.66 and a low scale rating.

Regarding Human Impacts, the group said Snow/ice/winter storms had a 3 score (meaning death unlikely, injuries may be substantial, Windstorms/severe weather had a 2 score (meaning death unlikely, injuries minimal) and Flooding and Lightning each got a 1 score (meaning death very unlikely, injuries are unlikely.)

Regarding Property Impacts, all four hazards garnered a 3 score (meaning between \$10,000 and \$500,000 in damages possible).

Regarding Business Impacts, all four hazards received a 1 score (meaning less than three businesses closed for only a day).

Regarding probability, both flooding and snow/ice/winter storms were rated with 1 scores on the scale, meaning those events occur once every 10 years. Wind storms had a 2 rating because Alcoa sees significantly damaging wind storms about once every five to 10 years and lightning had a 3 rating every two to five years, a lightning strike causes damage to at least one residence in the city, the group said.

Regarding mitigation projects, the group said educating residents through social media or news releases about how to respond to any of the four hazards was on option. Another option for all four hazards was to establish safe shelters in communities throughout the city as well as hardening or burying utility lines.

Regarding flooding, the group suggested implementing new building/zoning codes to keep people from building in flood zones, building a regional detention holding center for stormwater and educating public regarding maintaining stream bank buffering with natural vegetation to prevent erosion.

Regarding wind storms, the group suggested educating the public via social media or news releases regarding importance of trimming tree limbs around power lines from the utility poles to the private residences as well as using city crews to keep trees and limbs away from lines in the public right of way. Improved building codes also could be a mitigation project for this hazard, the group said.

Regarding snow/ice/winter storms, the group said updating building codes and operating standards would be effective projects.

Regarding lightning, the group said educating the public on how to respond to this hazard such as proper use of surge protectors and trimming back trees/limbs from power lines going into private residences would be effective mitigation projects.

Friendsville

Hazard Vulnerability Assessment

Oct. 20, 2016

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Location: Friendsville Volunteer Fire Department

Present: FVFD Chief Tom Greene, David Amonns with the City of Friendsville, Mike Jeffries with FVFD, Tim Morse with FVFD and Steven Cardwell with Blount County Sheriff's Office/Emergency Management/FVFD

From their own personal experience as firefighters/first responders serving Friendsville for several years, the group ranked the hazards facing their town as: 1. Snow/ice/winter storms, 2. Wind storms, 3. Flooding and 4. Wildfire.

Using the formula suggested by the Tennessee Emergency Management Agency, those present ranked natural hazards facing Friendsville in the exact same order with 1. Snow/ice/winter storms, 2. Wind storms, and 3. Flooding all received high ranks on the scale (7,8,7 respectively) and wildfire reaching a 5.6 score for a medium scale description.

Regarding Human Impacts, the group scored Flooding, Windstorms/severe weather and Snow/ice/winter storms at a 4 (meaning death possible, injuries may be substantial). They gave Wildfire a 2 score (meaning death unlikely, injuries are minimal).

Regarding Property Impacts, the group scored Flooding at 5 (meaning more than \$2 million in damages is possible), while they scored Snow/ice/winter storms at 4 (meaning between \$500,000 and \$2 million in damage is possible). Windstorms/severe weather and Wildfire each received scores of 3 (meaning between \$10,000 and \$500,000 in damage is possible).

Regarding Business Impacts, the group gave Windstorms/severe weather a 5 score (meaning a top-10 local employer closed indefinitely). The group scored Snow/ice/winter storms with a 4 (meaning more than three businesses closed indefinitely or relocated) and they scored Flooding and Wildfire each at a 3 (meaning more than three businesses closed for a few months).

Regarding vulnerability, the top three hazards rated scores of 4 while wildfire rated a 2.6 score.

Regarding probability, snow/ice/winterstorms rated a 3, as did floods, and wildfire because the town usually sees these incidents occur at least once every two to five years. Wind storms rated a 4 because they see these incidents at least once a year, the participants said.

Regarding mitigation projects, the participants agreed that promoting education about how to respond to the hazards through news releases and social media, establishing or/re-establishing emergency shelters, obtaining a generator or a memorandum of understanding with a private vendor such as Anderson Rentals for use of a generator for the department's radio repeater and establishing an emergency communications system to reach those without landline telephones were viable mitigation projects for all hazards.

In addition, the group agreed that establishing memorandums of understanding with organizations like Second Harvest could help the city be able to provide emergency food supplies for residents dealing with any of the hazards for an extended period of time.

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The group also said they would contact the national guard and/or airport through Emergency Management to obtain use of vehicles needed to transport food to residents over rough terrain and/or roads made impassable because of all four hazards.

For wind storms and snow/ice/winter storms, the group also suggested educating the public on keeping tree limbs cut back from power lines going from the utility pole to the private residences as well as keeping trees and tree limbs cut back from the public right of way around the power lines.

Townsend

Hazard Vulnerability Assessment

Oct. 18, 2016

Location: Talley Ho Inn

Present: Mayor Michael Talley, City Manager Danny Williamson, Townsend Police Chief Ronnie Suttles, Townsend Area Volunteer Fire Chief Don Stallions, Brent Ogle, Sevier County Electric and Lance Coleman, Blount County Emergency Management Agency

Using the formula suggested by the Tennessee Emergency Management Agency, those present ranked natural hazards facing Townsend as: 1. Wind (microbursts/severe weather), flood, snow/ice and wildfire. Windstorms/severe weather got a 7.6 risk score with a high scale rating, Flooding received a 6.33 risk score with a medium scale rating, Snow/ice/winter storm got a 6 risk score with a medium scale rating and Wildfire received a 4.66 risk score with a moderate scale rating.

Regarding Human Impacts, the group gave Flooding and Windstorms/severe weather scores of 4 (meaning death possible, injuries may be substantial). They gave Snow/ice/winter storms and Wildfire scores of 2 (meaning death unlikely, injuries are minimal).

Regarding Property Impacts, the group scored both Flooding and Wildfire at a 4 (meaning between \$500,000 and \$2 million in damages is possible). The group gave Windstorms/severe weather and Snow/ice/winter storms a score of 3 (meaning between \$10,000 and \$500,000 in damages is possible).

Regarding Business Impacts, the group scored Flooding and Wildfire at a 2 (meaning more than three businesses closed for a week). They gave Windstorms/severe weather and Snow/ice/winter storms a score of 1 (meaning less than three businesses closed for only a day).

Regarding Vulnerability, the group gave flooding a score of 3.33, following by Windstorms/severe weather and Wildfire at 2.66 with Snow/ice/winter storms at a score of 2.

Regarding Probability, the group ranked Windstorms/severe weather as most likely to occur with a score of 5, following by Snow/ice/winter storms at 4, Flooding at 3 and Wildfire with a score of 2.

Possible mitigation projects for each hazard included:

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Flood:

- Improving building codes to prevent building in flood zones and ensuring existing homes are 3 feet above flood level.
- Buy out property owners in flood zones where flooding has occurred repeatedly.
- Propose high water/low water levels regulations to protect those tubing on the river during flood incidents.
- Set river gauges at Wears Valley Road Bridge and Wilson Bridge.
- Ask U.S. Geological Survey to recalibrate how often they update electronic river gauge.
- Need a city ordinance to dictate at what levels to allow tubing.
- Build a new auxiliary water line to ensure clean, drinkable water in the event flooding takes out the main water line going into Townsend from the water treatment plant downstream on the Little River.

Wind/Severe Weather

- Maintain, update training for personnel at shelters at Tuckaleechee United Methodist and do training to establish shelter at Townsend Elementary School.
- Education through social media or news releases to educate residents on creating buffers around utility lines and their homes.
- Education through social media or news releases to educate residents on how to secure property during severe weather.

Snow/Ice:

- Education through social media or news releases to educate residents on where to go in event of inclement winter weather, dos and don'ts such as not using propane grills inside to keep warm or cook.
- Maintain, update training for personnel at shelters at Tuckaleechee United Methodist and do training to establish shelter at Townsend Elementary School.

Wildfire

- Firewise education to help reduce foliage next to homes in heavily wooded areas.
- Install fire hydrants in areas where wildfires threaten residential areas within the city.

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Appendix 2: Attendance Sheet Meeting 2

BLOUNT COUNTY Hazard Mitigation Planning Team June 25, 2018

NAME	ORGANIZATION	ADDRESS	CELL/ BUSINESS/ HOME PHONE	E MAIL
Marcus Sheppard	BMT	902 E. LA. PKY MARYVILLE	980 4905	msheppard@bmt.net.com
Steve Cardwell	EMA	940 E. LA. PKY MARYVILLE	394-8302	scardwell@bmt.net.com
James Clum	EMA	133 E. HART MARYVILLE	548-1991	jclum@blounttn.org
TREVIS GARTNER	MKAA	905 BROAD KNOXVILLE, TN 37803	865 342-3088	TREVIS@TYS.ORG
Tanner Jones	Mayor's Off.	2714 Homestead Court, Maryville TN	865 414-7391	tannersjones06@gmail.com
Josh Wright	"	169 Peach Trail, Maryville	423-512- 852	jcwright77@gmail.com
Amy Slaughter	Prop Assessor	901 E. LA. PKY MARYVILLE 37803	865- 771-4470	aslaughter@blounttn.org
Phillip Stephens	Pro. Ass.	815 Court St.	(865)-223- 2742	pstephens@blounttn.org
Sherry E. Kins	Prop Assessor	3392 Penny Rd	423 754-7496	eikins,sherryd50@gmail.com
Randy Sarrat	Prop. Assessor	961 Lane Dr	865 202-9681	r.sarrat@blounttn.org
Theresa Stetson	Prop Ass.	527 Laurenwood Dr	865 566-1102	
Jewel Shahan	Property Assessor	4202 Kayley Chapel Rd	865-273- 5855	jshahan@blounttn.org
Kim Henry	Prop. Ass.	P.O. Box 5061 Maryville 37803	865 273-5852	khenry@blounttn.org
Peggy Lawson	Reg of Deeds	1628 Poplar Hill Dr ATLANTA, TN 37201	865 273-5880	plawson@clarktn.net
Lisa Lathan	Prop. Ass.	3085 Penny Lane Mn TN 37803	865-273-5882	lathan@blounttn.org

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Blount County
Hazard Mitigation Planning Team

June 25, 2018

Welcome: Bob Crane, Area Coordinator, Tennessee Emergency Management Agency


New Business: Blount County Emergency Management Director Lance Coleman updates team members on the progress of the county's 2016-18 draft hazard mitigation plan.

Other Comments:

Adjourn

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6/29/2018



in:trash

Hazard mitigation planning team luncheon - lcoleman@blounttn.org - Blount County Government Mail

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Spam (113)

Trash

Lance

+

Hazard mitigation planning team luncheon

Trash x

Lance Coleman <lcoleman@blounttn.org>

to jlong, david, Mike, David, Darren, Jerry, jpearson, dsprichard, mayorbickers, timothy.morse, John, rockfordtennes., Donald, Jo

Attention Hazard Mitigation Planning Team members,

As a requirement with the Federal Emergency Management Agency, we are holding a second meeting to update you all on the progress of our draft Hazard Mitigation Plan at 11 a.m., on Monday, June 25th in Room 433 at the Blount County Courthouse. We've made quite a bit of progress and, after almost two years of work, are in the final stages of editing.

Please RSVP if you plan to attend. Lunch will be provided.

Thanks again,

Lance Coleman

Director

Blount County Emergency Management Agency

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Appendix 3: Attendance Sheet Meeting 3

Appendix 4: Public Notice Meeting 1

BLOUNT COUNTY
Draft Hazard Mitigation Plan
Public Viewing Opportunity
September 4th to September 7th, 2018

NAME	ORGANIZATION	ADDRESS	CELL/ BUSINESS/ HOME PHONE	E MAIL

AFFIDAVIT OF PUBLICATION
IN

THE DAILY TIMES

PUBLIC NOTICE

The draft 2018 Blount County Hazard Mitigation Plan is ready for public inspection. The draft plan will be on display in the Blount County Mayor's Office from 8 a.m., Tuesday, Sept. 4 to 4:30 p.m., Friday, Sept. 7, 2018.

The plan was created with the input from a cross-section of the different communities in Blount County. Projects like installing culverts to prevent flooding or building safe rooms in the event of severe weather are examples of hazard mitigation projects that make a community safer.

Comments from the public will be recorded and considered for inclusion in the plan. For more information call Blount County Emergency Management Agency at 865-273-5835.

Aug 28, 29, 30, 31 and Sept. 1, 2, 3, 2018

State of Tennessee, County of Blount,
ss: Evelyn Sandlin being duly sworn,
deposes and says that she is the Adv.
Director of the Daily Times, a newspaper
published in Maryville, Blount County,
Tennessee and that the notice hereto
attached was published 7 consecutive
days/weeks in said newspaper, first
publication date being
August 28 2018, the last
publication date being September 3
2018.

Signed: Evelyn Sandlin



Subscribed and sworn to before me this
11th day of September

Notary Public: Rebecca J. Anderson
My commission expires: Aug 3, 2020

The referenced publication of notice has also been made: (1) On the newspaper's website where it will be published contemporaneously with the notice's first print publication; and will remain on the website for as long as the notice appears in the newspaper; and (2) On a nationwide website established and maintained as an initiative and service of the Tennessee Press Association and its members.

The Daily Times
307 E. Harper Avenue
Maryville, TN 37804
(865) 981-1100

Thank you for taking time to review the draft 2018 Blount County Hazard Mitigation Plan. The draft plan will be on display in the Blount County Mayor's Office from 8 a.m., Tuesday, Sept. 4 to 4:30 p.m., Friday Sept. 7, 2018.

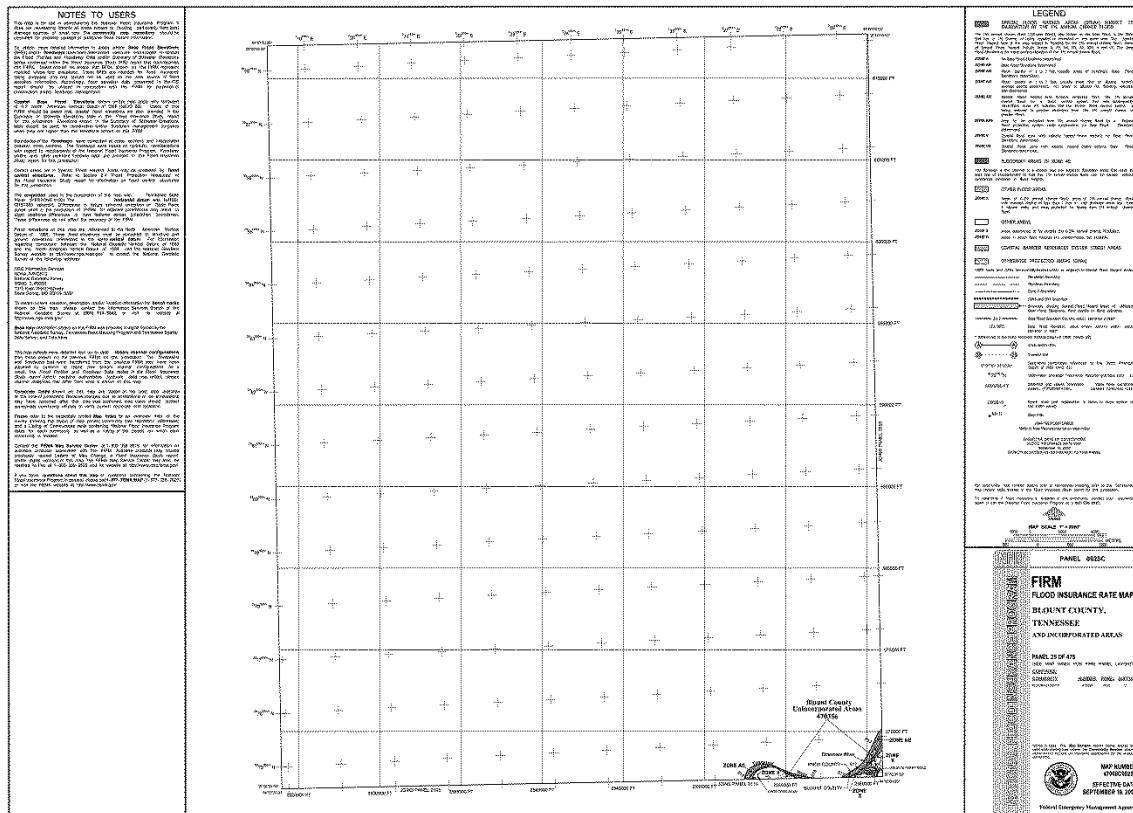
The plan was two years in the making and was crafted with input from a cross-section of the different communities and the five municipalities in Blount County. Projects like installing culverts to prevent flooding or building safe rooms in the event of severe weather are examples of hazard mitigation projects that make a community safer.

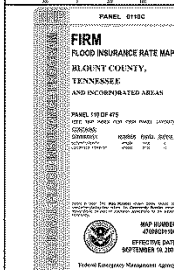
Comments from the public will be recorded and considered for inclusion in the plan. Simply write down your input on the blank pages to the left of the plan binder along with the page number. For more information, call Blount County Emergency Management Agency at 865-273-5835.

Appendix 5: Public Notice Meeting 2

Blount County, TN
Hazard Mitigation Plan
March 2018 Update

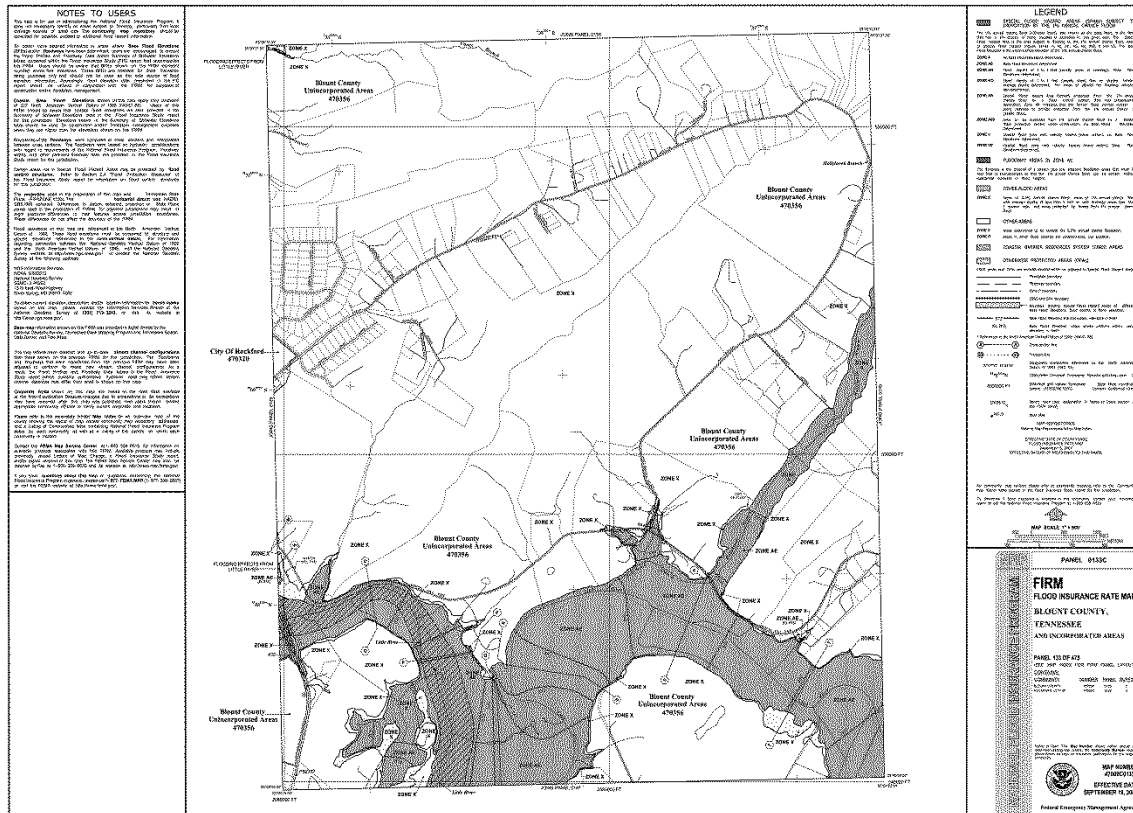


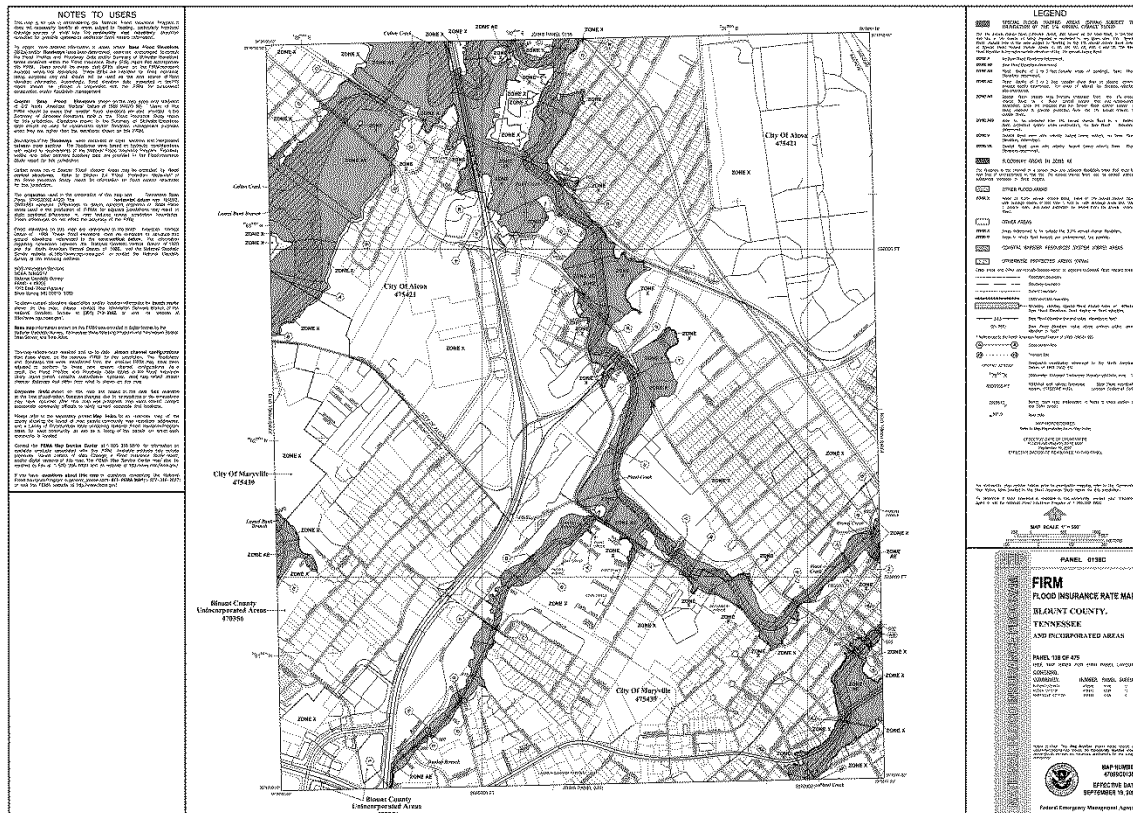


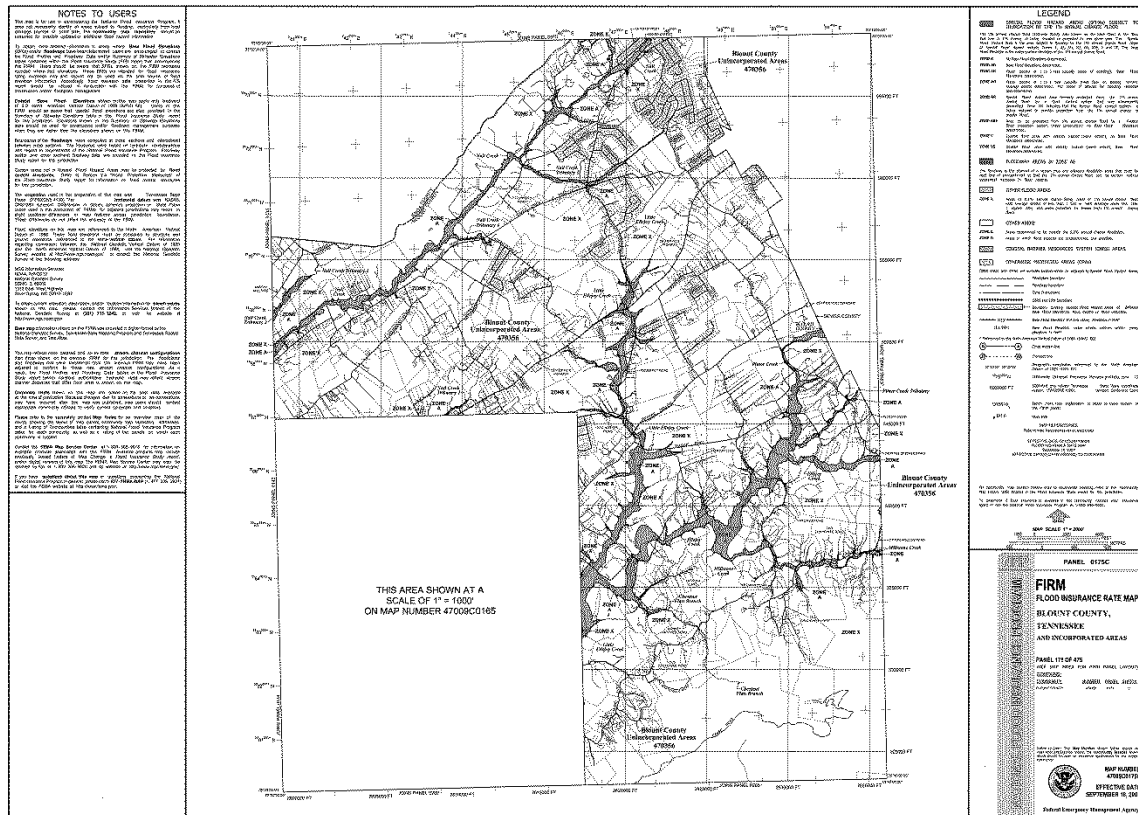


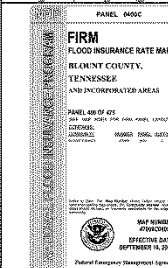
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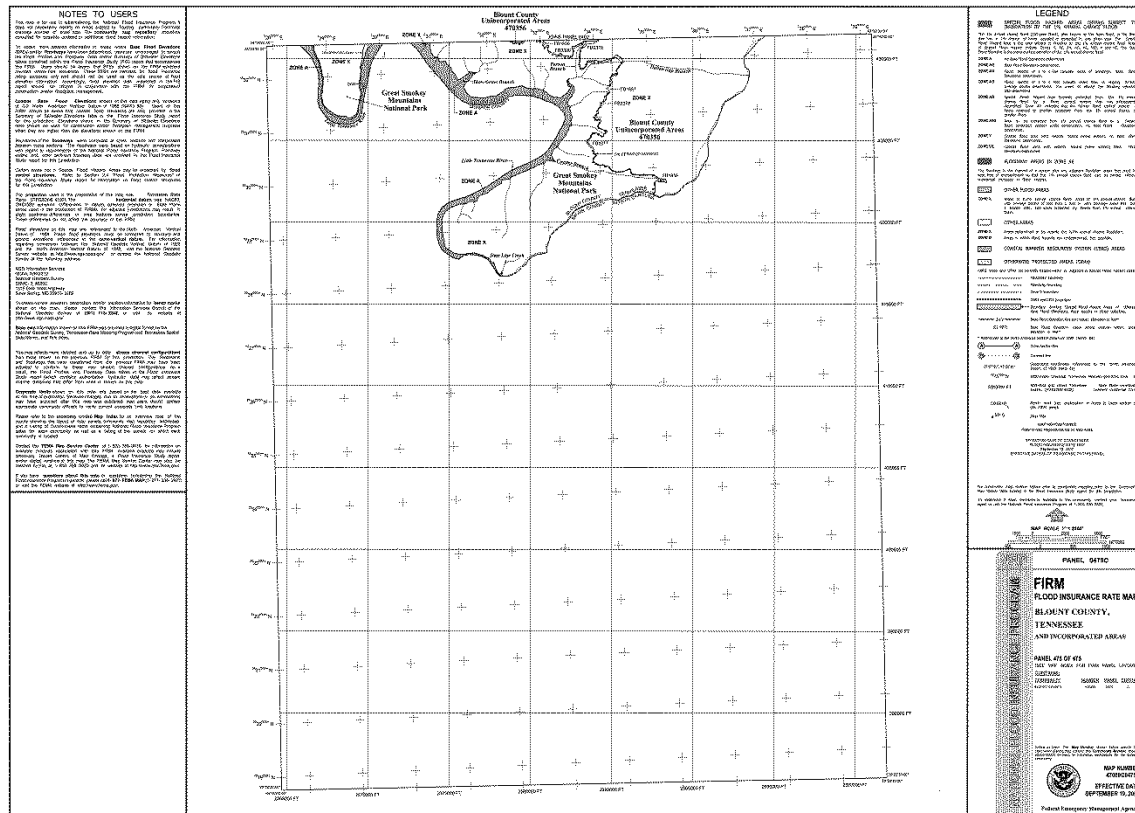
Blount County, TN
Hazard Mitigation Plan
March 2018 Update











Appendix 7: HAZUS Flood Model for Blount County

Hazus-MH: Flood Event Report

Region Name: BlountCo

Flood Scenario: 100-year flood study

Print Date: Thursday, February 23, 2017

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.

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General Description of the Region

Hazus is a regional multi-hazard loss estimation model that was developed by the Federal Emergency Management Agency (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 567 square miles and contains 4,852 census blocks. The region contains over 49 thousand households and has a total population of 123,010 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 54,702 buildings in the region with a total building replacement value (excluding contents) of 12,477 million dollars (2010 dollars). Approximately 92.43% of the buildings (and 80.37% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

Hazus estimates that there are 54,702 buildings in the region which have an aggregate total replacement value of 12,477 million (2010 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	10,027,006	80.4%
Commercial	1,611,859	12.9%
Industrial	405,548	3.3%
Agricultural	32,770	0.3%
Religion	248,651	2.0%
Government	55,476	0.4%
Education	95,517	0.8%
Total	12,476,827	100.00%

Table 2
Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure (\$1000)	Percent of Total
Residential	2,257,892	77.5%
Commercial	441,801	15.2%
Industrial	121,207	4.2%
Agricultural	10,587	0.4%
Religion	57,755	2.0%
Government	7,572	0.3%
Education	18,434	0.6%
Total	2,915,248	100.00%

Essential Facility Inventory

For essential facilities, there are 2 hospitals in the region with a total bed capacity of 277 beds. There are 36 schools, 6 fire stations, 7 police stations and one main emergency operation center at the Blount County E-911 Communications Building and two back up Emergency Operations Centers at the City of Maryville Police Department and the City of Alcoa Fire Department..

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:	BlountCo
Scenario Name:	100-year flood
Return Period Analyzed:	study 100
Analysis Options Analyzed:	No What-Ifs

Building Damage

General Building Stock Damage

Hazus estimates that about 277 buildings will be at least moderately damaged. This is over 42% of the total number of buildings in the scenario. There are an estimated 91 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	6	85.71	0	0.00	0	0.00	1	14.29	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	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Residential	25	8.50	59	20.07	47	15.99	36	12.24	36	12.24	91	30.95
Total	25		66		47		36		37		91	

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	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
ManufHousing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	6	100.00
Masonry	0	0.00	6	42.86	3	21.43	2	14.29	1	7.14	2	14.29
Steel	0	0.00	3	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Wood	25	8.77	60	21.05	45	15.79	34	11.93	36	12.63	85	29.82

Essential Facility Damage

Before the flood analyzed in this scenario, the region had 277 hospital beds available for use. On the day of the scenario flood event, the model estimates that 277 hospital beds are available in the region.

Table 5: Expected Damage to Essential Facilities

Classification	Total	# Facilities		Loss of Use
		At Least Moderate	At Least Substantial	
Fire Stations	6	0	0	0
Hospitals	2	0	0	0
Police Stations	7	0	0	0
Schools	36	1	0	1

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 25,131 tons of debris will be generated. Of the total amount, Finishes comprises 30% of the total, Structure comprises 38% of the total. If the debris tonnage is converted into an estimated number of truckloads, it will require 1,005 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 762 households will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 937 people (out of a total population of 123,010) will seek temporary shelter in public shelters.

Economic Loss

The total economic loss estimated for the flood is 201.22 million dollars, which represents 6.90 % 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 200.37 million dollars. 0% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 54.75% 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
<u>Building Loss</u>						
	Building	71.74	15.04	6.72	2.58	96.08
	Content	38.23	39.64	13.66	9.08	100.61
	Inventory	0.00	0.97	2.64	0.07	3.68
	Subtotal	109.97	55.65	23.02	11.73	200.37
<u>Business Interruption</u>						
	Income	0.02	0.23	0.00	0.03	0.28
	Relocation	0.07	0.03	0.00	0.01	0.11
	Rental Income	0.05	0.02	0.00	0.00	0.07
	Wage	0.06	0.23	0.00	0.12	0.41
	Subtotal	0.20	0.50	0.00	0.16	0.86
ALL	Total	110.18	56.15	23.02	11.89	201.22

Appendix A: County Listing for the Region

Tennessee
- Blount

Appendix B: Regional Population and Building Value Data

	Population	Building Value (thousands of dollars)		
		Residential	Non-Residential	To
Tennessee				
Blount	123,010	10,027,006	2,449,821	12,476,827
Total	123,010	10,027,006	2,449,821	12,476,827
Total Study Region	123,010	10,027,006	2,449,821	12,476,827

Appendix 8: 2005 Project List

Below are mitigation projects proposed in 2005 and the status of each is listed in the “Action/Project Description” box.

Action	Action/Project Description	Jurisdiction	Responsibility	Estimated Cost	Estimated Benefit
1.1	All municipalities will continue to participate in the National Flood Insurance Program (NFIP).	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend, NFIS	Blount Co. Emergency Management Agency, Blount County Government, City of Alcoa, City of Friendsville, Town of Louisville, City of Maryville, Town of Rockford, City of Townsend	***	***
Status: All municipalities and the county continue to participate in the National Flood Insurance Program.					
1.2	Warning systems must be implemented as there is slight warning time due to flash flooding.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend, National Park Service	***	***
Status: As of January of 2018, the county has access to the Integrated Public Alert Warning System. County also has access to US Geological Survey electronic river gauge with 15-minute updates on water level/speeds.					
1.3	Regulations need to be adopted and enforced to prohibit development in flood plain areas within the county and all jurisdictions.	Blount County, City of Alcoa, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County, City of Alcoa, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	***	***
Status: Those regulations have been adopted by the Blount County commission.					

1.4	Plans need to be developed to keep pace with rapid growth in the county as current land has become impermeable due to development which increases the rate of runoff.	Blount County, City of Alcoa, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County, City of Alcoa, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	***	***
	Status: Plans have been developed and are maintained by the County Development Department.				
1.5	Identify and inventory all mobile homes located in flood plain areas.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	25,000	100,000
1.6	Secure funding to purchase private land in Rockford surrounding the dam to increase security, and control accessibility.	Blount County, Town of Rockford	Blount County, Town of Rockford	Cost not available	Cost not available
	Status: The Koella family owns the property and allows access so there is no need to purchase land.				
1.7	Protect the structural integrity of Blount County's park areas, wetlands, steep slopes, floodplains, and other environmentally sensitive areas.	County governments, parks and recreation	Blount County and Foothills Conservancy	20,000	1,000,000
	Status: The county government, Maryville Alcoa Blount County Parks and Recreation and Foothills Land Conservancy continue this project.				
1.8	Ensure that future development in the county is as "hazard proof" as possible by insuring future planning reduces hazards.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend		
	Status: The county and cities work together to ensure development is as hazard-proof as possible.				

1.9	Continue the collaborative planning which was begun during the development of this document and compatible regulatory controls between the county and communities to promote infrastructure development practices that reduce the potential for flooding and property damage.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	500	1,000,000
	Status: The county and cities work together to ensure development reduces potential for flooding.				
1.1	Ensure that new dams or upgrades to the dams are constructed using methods and procedures that comply with the national dam safety hazard reduction initiative.	Blount County, City of Alcoa, City of Maryville	TVA, U.S. Corps of Engineers, TDEC		
	Status: No new dams have been constructed since the 2005 hazard mitigation plan was adopted.				
1.11	Evaluate storm water runoff and redirect areas which are identified as continual flooding areas.	Town of Rockford	Town of Rockford	50,000	200,000
	Status: New culverts and drains have been installed and project is ongoing.				
1.12	Encourage development of acquisition and management strategies to preserve open space for flood mitigation and water quality in the floodplain.	Blount County, City of Alcoa, City of Maryville, other smaller jurisdictions	Blount County, City of Alcoa, City of Maryville, other smaller jurisdictions	100	500,000
	Status: Project is ongoing.				

1.13	Encourage development of a plan to deal with groundwater and sewage contamination in event of flood events.	Louisville	Louisville, State of Tennessee, Blount County	100	1,000,000
	Status: Project is ongoing.				
2.1	Utilize the Emergency Alert System (EAS) and the IPAWS system to provide storm warning.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Emergency Management, 911	0	100,000
	Status: Blount County began contracting with Civic Ready in January, 2018, for direct access to the IPAWS network.				
2.3	Standardize and enforce the regulations for mobile home tie-downs for Blount County, City of Alcoa, City of Maryville and all smaller jurisdictions.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	State of Tennessee.		
	Status: Project is ongoing.				
2.4	Identify all mobile home parks located within Blount County, City of Maryville, City of Alcoa, which do not provide safe rooms within the park.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend		
	Status: Project ongoing - County Property Assessor has identified all mobile homes in the county, but not the status of whether any have safe rooms.				
2.5	Explore funding for building a safe room in Townsend at the Visitors Center.	Townsend	Blount County Emergency Management Agency, City of Townsend		
	Status: Project ongoing.				

2.6	Promote inclusion of tornado/severe wind shelters (safe rooms) in new construction of public buildings.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Planning departments, Blount County, City of Alcoa, City of Maryville, Blount County Emergency Management Agency	1000	1,000,000
	Status: Project ongoing.				
2.9	Encourage electrical utilities to use underground construction methods utilizing separate trenches where possible to reduce power outages from severe winter storms.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	100	500,000
	Status: Project ongoing.				
3.7	Continue rigid enforcement of existing fire and electrical codes.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	All Jurisdictional Planning & Zoning Departments	75,000	millions
	Status: Project ongoing.				
4.2	Continue the partnership between fire departments and the Division of Forestry.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County Fire Commission, Division of Forestry via the 16 county mutual aid plan, Townsend Fire Department	0	50,000
	Status: Project ongoing.				
4.3	Improve accessibility to mountainous areas by widening unimproved roads. Emergency and fire trucks cannot currently reach those in need.	Blount County, City of Townsend, State of Tennessee	Highway Department, Town of Louisville		
	Status: As of October, 2017, while many roads have been upgraded, this is ongoing goal for the Blount County Highway Department.				

4.7	Provide wild land firefighting equipment to all fire departments in the county.	Blount County, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	All Jurisdictional Governments	100,000	100,000
	Status: Project ongoing.				
7.3	Create a secure site for emergency operations.	City of Alcoa, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County, City of Alcoa, City of Maryville and smaller jurisdictions, Emergency Management.	0	100,000
	Status: The Blount County Emergency Operations Center opened in 2010 when the new Blount County E-911 Communications Center opened.				
7.4	Develop a coordinated communications system in time of emergency with the Blount County schools, City of Maryville schools, and City of Alcoa Schools, Blount County Health Department and Blount County health department.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County schools, City of Maryville schools, City of Alcoa Schools, Blount County Health Department and Blount County health department.	10,000	60,000
	Status: In 2016 – 17, EMA purchased licenses and did training with all these entities to use the ReadyOp digital communications system to foster interoperability.				
8.1	Partner with volunteer and emergency response agencies to post monthly notices of training available to citizens.	Blount County	Emergency Management, American Red Cross	500	25,000
	Status: Project ongoing.				

8.6	Provide weather spotter classes to Blount County citizens and school personnel.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	National Weather Service, Emergency Management	500	100,000
	Status: In 2016 and 2017, the National Weather Service partnered with Emergency Management to host an annual weather spotter class.				
8.7	Promote and encourage the use of NOAA weather radios in all homes, businesses, and critical/vulnerable facilities.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	National Weather Service, Blount County Emergency Management Agency, American Red Cross	500	1,000,000
	Status: Project ongoing.				
8.14	Assist fire departments in obtaining grants to purchase materials and equipment to enhance fire prevention programs.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County Emergency Management Agency	5,000	100,000
	Status: Project has been very successful and is ongoing.				
8.15	Publish news articles to promote wildfire awareness.	Blount County, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Division of Forestry, Blount County Fire Department	500	100,000
	Status: Beginning in September, 2017, Blount County Mayor Ed Mitchell hosted community meetings to brief residents on plans and resources to prevent and/or respond to wildfires.				

8.24	Designate management of the Blount County Mitigation Plan and associated consideration of natural, weather-related hazards and hazard mitigation actions to the Blount County Hazard Mitigation Planning Committee.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount Co. Emergency Management Agency, Planning, City and County Governments assigned departments	25,000	1,000,000
	Status: This committee will reconvene at the Local Emergency Planning committee meeting every October for the purpose of revising, updating, or otherwise managing the Blount County Hazard Mitigation Plan, thus maintaining the County's eligibility for hazard mitigation grant funding.				
8.25	Coordinate, upgrade, and make accessible current and additional early warning strategies into a comprehensive warning system for evacuation and sheltering in place. A comprehensive system will include warning systems to address persons indoors and outdoors and also include public education as to how to interpret warning system information and what should be done in the event of an emergency.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Emergency Management	50,000	15,000,000
	Status: In September, 2017, Blount County submitted an MOU with FEMA to have direct access to the IPAWS system to issue text alerts to residents and visitors throughout the county. A digital license with FEMA was obtained in December of 2017 and the system went live in January, 2018.				

8.26	Seek immediate funding to provide all unequipped health care facilities, schools, day care facilities, assisted living facilities, emergency management facilities, and other critical facilities with NOAA certified weather radios.	Blount County, City of Alcoa, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Emergency Management, Tennessee Emergency Management Agency (TEMA), and EMS, City governments	50,000	500,000
	Status: Project ongoing.				
8.27	Review annually and post disaster occurrence and revise the Blount County Emergency Operations Plans.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount Co. Emergency Management Agency, Blount County Government, All jurisdictions, American Red Cross, Blount Co Health Department	10,000	100,000
	Status: Blount County Emergency Management updated the Basic Emergency Operations Plan in 2015 and will update it again in 2020.				
8.28	Develop, maintain and revise annually a countywide comprehensive NIMS typed resources inventory.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County Emergency Management Agency	20,000	1,000,000
	Status: Project is ongoing.				
8.31	Encourage adoption of the National Incident Management System (NIMS) by all jurisdictions and/or the continued use of by Maryville.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County Emergency Management Agency	1000	2,000,000
	Status: Project is ongoing.				

8.32	Schedule and conduct incident command training annually for all fire, EMS, rescue and law enforcement personnel as a pre-requisite for National Incident Management System (NIMS) training.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County Emergency Management Agency	400,000	2,000,000
	Status: Project is ongoing.				
8.33	Schedule and conduct National Incident management System (NIMS) training annually.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County Emergency Management Agency	150,000	2,000,000
	Status: Project is ongoing.				
8.34	Conduct annual tabletop and/or full-scale disaster exercises involving all emergency response agencies.	Blount County, City of Alcoa, City of Maryville, smaller jurisdictions	Blount County Emergency Management Agency	20,000	100,000
	Status: Blount County Emergency Management works with all agencies on at least three exercises annually.				
8.36	Conduct annual tabletop disaster exercises involving all county, city and other not for profit agencies involved in emergency management, evacuation, and sheltering.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County Emergency Management Agency, all governmental agencies, American Red Cross, not for profits	20,000	1,000,000
	Status: Blount County Emergency Management works with all agencies on at least three exercises annually.				

8.37	Continue to activate the Emergency Alert System (EAS) and the IPAWS as needed.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County Emergency Management Agency	0	500,000
	Status: Blount County Emergency Management tests the IPAWS and ReadyOp systems monthly.				
8.38	Enhanced coordination of operations between different parts of local government, city and county that focus on emergency management and operations for a natural disaster or man-made emergency mitigation or response.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Planning, City and County Governments, Blount County Emergency Management Agency	10,000	1,000,000
	Status: Project ongoing.				
8.39	Enhanced written and oral communication plans to expand the interface with the military resources for mitigation and response.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County Emergency Management Agency	5000	50,000
	Status: As of October, 2017, Blount County was working closely with the leadership at McGhee Tyson Air National Guard Base on a variety of projects/initiatives.				
8.4	Secure funding for a multi-frequency communication trunking system.	Blount County, City of Alcoa, and City of Maryville	Blount County Emergency Management Agency	Depends on number of trunks required	
	Status: As of October, 2017, most of the first responder agencies in Blount County had access to the 800 mhz Tennessee Valley System. All agencies also had access to the ReadyOp digital communications system.				

8.41	Strengthen multi-jurisdictional cooperation and communication among local governments, emergency services agencies, and entities responsible for critical and vulnerable facilities.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County Emergency Management Agency	0	100,000
	Status: Blount County Emergency Management uses ReadyOp digital communications system to keep everyone on the same page.				
8.42	Educate the public on personal and family disaster planning including shelter in place, evacuation, disaster kits and sources of information.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County Emergency Management Agency, Tennessee Emergency Management Agency, American Red Cross Blount County Chapter	200	50,000
	Status: Project ongoing.				
8.48	Continue to facilitate LEPC meetings and exercises on a regularly scheduled basis.	Blount County Sheriff's Department, Maryville Police Department, Alcoa Police Department, Blount County Emergency Management Agency	Blount County Sheriff's Department, Maryville Police Department, Alcoa Police Department, Blount County Emergency Management Agency	500	100,000
	Status: Our LEPC is growing. This project ongoing.				
8.5	Develop public and private partnerships to implement mitigation actions in all cities, jurisdictions and throughout Blount County.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	100	500,000
	Status: Project is ongoing.				

8.51	Continue to monitor and evaluate hazardous roads and possible flooding areas identified in Louisville in 2005-06.	Town of Louisville	Town of Louisville	500	1,000,000
	Status: Blount County Highway Department and Town of Louisville officials continue to monitor and evaluate road conditions.				
8.52	Install storm warning alerts at the boat docks: Louisville Point and Poland Creek Campground.	Town of Louisville	Town of Louisville	114,000	
	Status: This project has not been completed.				
8.53	Replace warning and name signs such as school signs and stop signs in Louisville.	Town of Louisville	Town of Louisville	25 at 200 each total 5000	
	Status: Town of Louisville has updated many of their signs and installed a new flashing light in the school zone. Project is ongoing.				
8.54	Install 3 traffic lights in Louisville.	Town of Louisville	Town of Louisville	150,000	
	Status: A round about was built at Louisville Road, Miser Station and Mentor Road and a flashing light was installed at Louisville and Topside roads.				
9.1	Improve and upgrade all county, city and municipal buildings evacuation plans.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County Emergency Management Agency, American Red Cross	1000	500,000
	Status: Project is ongoing.				
9.2	Improve and upgrade all county, city and municipal buildings shelter in place plans.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County Emergency Management Agency, American Red Cross	500	500,000
	Status: Blount County Emergency Management works with the safety teams at all three school systems for planning and incident response.				

9.3	Partner with volunteer agencies, the American Red Cross, county schools, churches to provide additional shelter facilities in rural areas.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount Co. Emergency Management Agency, The American Red Cross	35,000	100,000
	Status: Blount County Emergency Management partners with American Red Cross for emergency sheltering and with Chilhowee Baptist Association/First Baptist Church of Maryville for homeless warming centers during the winter.				
9.4	Cooperate with the American Red Cross, Blount County Chapter to annually update the list of approved emergency shelters.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount Co. Emergency Management Agency, The American Red Cross		
9.5	Assist in finding funding sources to equip rural shelter facilities.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount Co. Emergency Management Agency, American Red Cross	2,000	50,000
9.6	Evaluate schools and other public buildings for their suitability to serve as emergency evacuation shelters.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount Co. Emergency Management Agency, Blount County Government, All jurisdictions, American Red Cross, Blount Co Health Department	1,000	200,000
	Status: American Red Cross has evaluated schools and other buildings and made a list of facilities they will use as shelters.				

9.7	Upgrade all shelter and evacuation plans for Blount County annually.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount Co. Emergency Management Agency, Tennessee Emergency Management Agency, Blount County Government, American Red Cross Blount County Chapter	500	50,000
	Status: Project is ongoing.				
9.8	Form a task force to include the local veterinarians, UT Vet School, Blount County Health Department, the humane society, pet rescue groups, East Tennessee Regional Health Department, American Red Cross to address the issue of pet evacuations and sheltering.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Local veterinarians, UT Vet School, the humane society, Blount County Health Department, American Red Cross, TEMA.	100	500,000
	Status: As of October, 2017, Emergency Management partnered with Blount County Agricultural Extension to get Disaster Animal Response Training.				
9.9	Conduct annual inspections of designated shelters to assess the vulnerability of buildings to high winds (including debris impact), flooding, earthquakes, and other natural hazards.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County Emergency Management Agency, Code Departments, Tennessee Emergency Management Agency, Blount County Health Department, Blount Memorial Hospital, East TN Regional Health Department, Blount County Building Inspections, all fire departments, Blount County Chapter American Red Cross	2,000	2,000,000
	Status: As of October, 2017, Emergency Management also worked with American Red Cross to ensure shelters were accessible for individuals with disabilities.				

9.1	Develop recommendations to enable shelters to provide the necessary protection for their occupants.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	Blount County Emergency Management Agency, Tennessee Emergency Management Agency, Blount County Health Department, Blount Memorial Hospital, East TN Regional Health Department, Blount County Building Inspections, all fire departments, Blount County Chapter American Red Cross	10,000	500,000
	Status: Project is ongoing.				
9.11	Develop and/or continue emergency preparedness educational programs to enable families to prepare for emergencies and sheltering in place.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	All units of government, Blount County Emergency Management Agency, American Red Cross Blount County Chapter, Blount County Health Department	3,000	500,000
	Status: Project is ongoing.				
9.12	Instruct families and individuals to be proactive and prepare for disasters by having a two week supply of water, foods and medication on hand in event of disaster.	Blount County, City of Alcoa, City of Maryville, City of Friendsville, Town of Louisville, Town of Rockford, City of Townsend	All units of government, Blount County Emergency Management Agency, American Red Cross, Blount County Health Department, Blount Memorial Hospital, Blount County Schools, City of Alcoa Schools, City of Maryville Schools, local churches and religious organizations		
	Status: Project is ongoing.				
9.13	Replace and widen the one lane overpass/road leading to William Blount High School.	Blount County	Public works, roads, school system		

	Status: As of October, 2017, this project remains a priority according to the Blount County Highway Department.				
9.14	Widen roads leading thru Townsend to the Great Smoky Mountains National Park (GSMNP).	State of Tennessee, Blount Co.	Public works, highway department, TDOT		
	Status: This project has been completed.				
9.15	Develop contingency plans if an evacuation is required at International Jobbers and the bridge is out in Alcoa.	City of Alcoa Police, City of Alcoa Fire, Planning Department City of Alcoa	City of Alcoa Police, City of Alcoa Fire, Planning Department City of Alcoa	100	50,000
	Status: Alcoa Fire and Police Department have contingency plans and depending on the weather and the amount of chemical leaking as to evacuate or shelter in place. The Alcoa First Baptist and Alcoa First United Methodist churches could be used for sheltering if needed. The schools in Alcoa could also be used if students not present.				
9.16	Update transportation plans for mass evacuations from the schools and other public facilities.	Blount County, City of Alcoa, City of Maryville Schools	Blount County, City of Alcoa, City of Maryville Schools, Blount County Emergency Management Agency, BEST	10,000	1,000,000
	Status: Project is ongoing.				
9.17	Develop an effective procedure for evacuating the nursing home on High View Road, Riverwood and Helen McNabb facilities in Louisville.	Louisville, Blount County	Louisville, Blount County, Law enforcement, Blount County Emergency Management	500	1,000,000
	Status: As of October, 2017, all nursing homes are required to have an emergency operations plan to include evacuation contingencies.				
9.18	Develop alternative evacuation routes in Louisville on Lowe's Ferry Road.	Louisville, Blount County	Louisville, Blount County, Law enforcement, Blount County Emergency Management	1,000	1,000,000
	Status: Project is ongoing.				
9.19	Update sheltering annually in Louisville.	Louisville, Blount County, Blount Co Emergency Management Agency	Louisville, Blount County, Blount County Emergency Management, American Red Cross		
	Status: Project is ongoing.				

Appendix 9: 2018 Adoptions and Resolutions

Appendix 10: Population Projections

County FIPS	County	2016	2017	2018	2019	2020	2021
001	Anderson	75936	76284	76616	76931	77227	77505
003	Bedford	47484	48157	48825	49487	50143	50793
005	Benton	16014	15979	15952	15921	15887	15850
007	Bledsoe	14675	14772	14887	14996	15102	15200
009	Blount	128670	130122	131538	132919	134265	135580
011	Bradley	104490	105417	106322	107209	108080	108936
013	Campbell	39714	39771	39815	39848	39867	39874
015	Cannon	14027	14071	14116	14157	14193	14225
017	Carroll	28092	27982	27907	27827	27742	27653
019	Carter	56502	56369	56229	56077	55912	55733
021	Cheatham	39880	40059	40229	40388	40536	40671
023	Chester	17453	17547	17648	17750	17851	17949
025	Claiborne	31757	31795	31834	31867	31890	31906
027	Clay	7752	7719	7686	7653	7617	7579
029	Cocke	35219	35258	35286	35303	35310	35306
031	Coffee	54682	55088	55526	55953	56374	56789
033	Crockett	14411	14429	14449	14467	14481	14493
035	Cumberland	58655	59287	59895	60481	61043	61585
037	Davidson	684410	692506	700384	708041	715491	722745
039	Decatur	11769	11768	11763	11754	11742	11727
041	DeKalb	19361	19451	19544	19633	19716	19795
043	Dickson	52170	52794	53397	53985	54556	55111
045	Dyer	37708	37741	37778	37808	37833	37849
047	Fayette	39590	40170	40742	41303	41852	42389
049	Fentress	18033	18105	18172	18233	18286	18332
051	Franklin	41700	41775	41852	41927	41998	42062
053	Gibson	49401	49605	49803	49994	50179	50359
055	Giles	29307	29267	29228	29181	29129	29072
057	Grainger	23072	23156	23260	23356	23443	23521
059	Greene	68615	68891	69145	69382	69598	69796
061	Grundy	13389	13314	13245	13171	13098	13020
063	Hamblen	63785	64153	64537	64906	65264	65614
065	Hamilton	357738	360849	363888	366858	369758	372595
067	Hancock	6577	6551	6526	6498	6468	6436
069	Hardeman	25435	25322	25206	25088	24965	24839
071	Hardin	25679	25666	25656	25639	25615	25585
073	Hawkins	56563	56601	56620	56622	56606	56572
075	Haywood	17853	17723	17594	17464	17331	17197
077	Henderson	27822	27955	28086	28214	28336	28452
079	Henry	32310	32383	32445	32496	32538	32570
081	Hickman	24295	24367	24439	24505	24567	24623
083	Houston	8134	8135	8139	8143	8146	8149
085	Humphreys	18347	18357	18364	18370	18372	18371
087	Jackson	11566	11620	11678	11731	11779	11822
089	Jefferson	53535	53970	54390	54793	55178	55544
091	Johnson	17754	17757	17760	17760	17757	17751
187	Williamson	219107	224452	229992	235521	241035	246533
189	Wilson	132781	135376	137945	140489	143007	145499
47 TN State Total		6651194	6710488	6769368	6826985	6883347	6938513

Source: Boyd Center for Business and Economic Research, University of Tennessee, Knoxville - September 2017

Note: 2016 data are July 1, 2016, counts from the 2016 Intercensal Population Estimates (<https://www.census.gov/programs-surveys/popest/data/tables.html>). All other years (2017 to 2070) are Boyd Center projections.

Appendix 11: Rainfall/Flooding Record Information

Temperature (°F)	Act	Historic Avg.	Record
Precipitation (Inches)	Actual	Historic Avg.	Record
Precipitation	5.67	0	5.75
Month to Date	0	0	-
Year to Date	0	0	-
Degree Days (°F)	Actual	Historic Avg.	Record
Dew Point (°F)	Actual	Historic Avg.	Record
Wind (MPH)	Actual	Historic Avg.	Record
Sea Level Pressure (Hg)	Actual	Historic Avg.	Record
Astronomy	Day Length	Rise	Set

Daily Observations

Time	Temperature	Dew Point	Humidity	Wind	Wind Speed	Wind Gust	Pressure	Precip.	Precip Accum	Condition
11:31 AM	0 ° F	0 ° F	0 %	NE	3 mph	0 mph	28.7 in	0.0 in	0.0 in	Cloudy
12:00 AM	50 ° F	50 ° F	100 %	NE	5 mph	0 mph	28.7 in	0.1 in	0.0 in	Cloudy
2:00 AM	51 ° F	51 ° F	100 %	NW	10 mph	0 mph	28.6 in	0.1 in	0.0 in	Cloudy
2:28 AM	0 ° F	0 ° F	0 %	N	8 mph	0 mph	28.6 in	0.0 in	0.0 in	Cloudy
3:00 AM	51 ° F	51 ° F	100 %	N	6 mph	0 mph	28.6 in	0.2 in	0.0 in	Cloudy
3:35 AM	0 ° F	0 ° F	0 %	N	6 mph	0 mph	28.6 in	0.0 in	0.0 in	Cloudy
4:00 AM	52 ° F	52 ° F	100 %	NE	3 mph	0 mph	28.6 in	0.5 in	0.0 in	Cloudy
5:00 AM	53 ° F	53 ° F	100 %	SE	8 mph	0 mph	28.6 in	0.5 in	0.0 in	Cloudy
5:18 AM	0 ° F	0 ° F	0 %	S	9 mph	0 mph	28.6 in	0.0 in	0.0 in	Cloudy
6:00 AM	60 ° F	60 ° F	100 %	WSW	5 mph	0 mph	28.6 in	0.1 in	0.0 in	Cloudy

7/2/2018

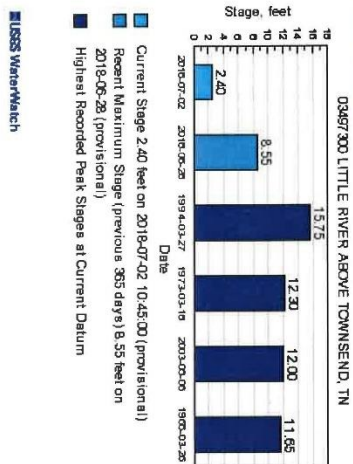
USGS Current Conditions for USGS 03497300 LITTLE RIVER ABOVE TOWNSEND, TN

► **WaterNow** – get the latest gage data from your mobile phone or email.

► **Rating Information**

► **NWS Flood Stage:** 8 ft.

▼ **Peak Chart**



Available Parameters **Available Period**

☒ 00060 Discharge 1990-01-29 2018-07-02

☒ 00065 Gage height 2007-10-01 2018-07-02

Output format

☒ Graph

☐ Graph w/ stats

☐ Graph w/o stats

☐ Graph w/ (up to 3) parms

☐ Table

☐ Tab-separated

Days (7)

Summary of all available data for this site

GO

-- of --

Begin date

2018-06-25

End date

2018-07-02

Instantaneous-data

availability statement

Temperature, water, degrees Celsius

Most recent instantaneous value: 18.5 07-02-2018 11:30 EDT

https://waterdata.usgs.gov/nwis/lv/?site_no=03497300&agency_cd=USGS

217

7/2/2018

McGhee Tyson, TN History | Weather Underground

(1)

Search Locations

★ (Home) **Memphis, TN**

Manhattan, NY ▲
92° F Sunny

Atlanta, GA
82° F Cloudy

Chicago, IL
75° F Fair

Boston, MA ▲
75° F Sunny

Log in (1/10)



Elev 981 ft, 35.81° N, 83.99° W

McGhee Tyson, TN ★

84° MCGHEE TYSON STATION (/HISTORY/DAILY/US/TN/KNOXVILLE/KTYS/DATE/2018-7-2?CM_VEN=LOCALWX_PWSPDASH) | CHANGE

HISTORY (/HISTORY/DAILY/US/TN/KNOXVILLE/KTYS/DATE/2018-7-2)

- TODAY (/WEATHER/KTYS)
- HOURLY (/HOURLY/KTYS)
- 10-DAY (/FORECAST/KTYS)
- CALENDAR (/CALENDAR/US/TN/KNOXVILLE/KTYS/DATE/2018-7)
- HISTORY (/HISTORY/DAILY/US/TN/KNOXVILLE/KTYS/DATE/2018-7-2)
- WUNDERMAP (/WUNDERMAP?LAT=35.81222153&LON=-83.99277496)

March

28

1994

View

Daily

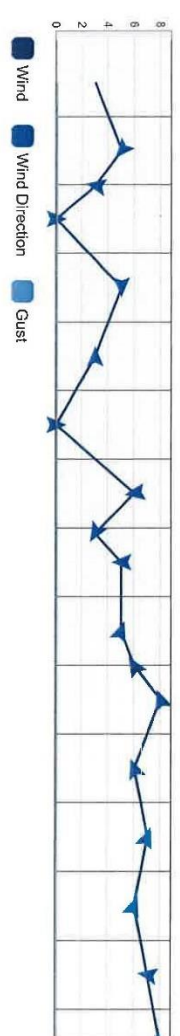
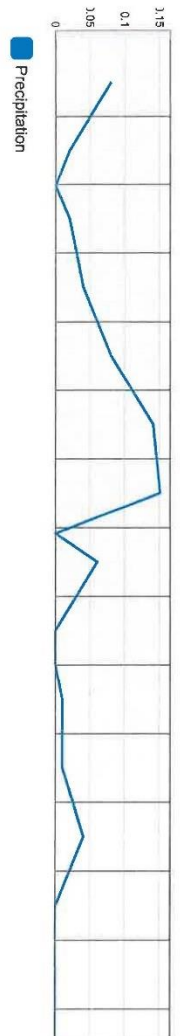
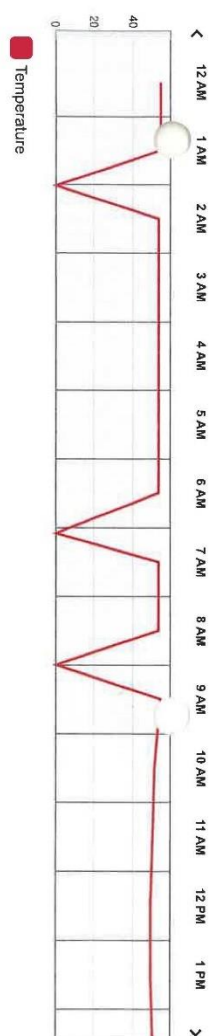
Weekly

Monthly

<https://www.wunderground.com/history/daily/KTYS/date/1994-3-28>

125

1/5



Summary

Temperature (° F)

High Temp

Low Temp

Day Average Temp

Precipitation (inches)

Precipitation

Month to Date

Year to Date

Actual

Historic Avg.

Record

54

0

85

45

0

24

50

0

-

Actual

Historic Avg.

Record

0.81

0

2.75

0

0

-

0

0

-

227

7/2/2018

McGhee Tyson, TN History | Weather Underground

(0)

Search Locations

Log in (1/0)...



★ **Memphis, TN**
(History/Forecast)

Manhattan, NY ▲
92 ° F Sunny

Atlanta, GA
82 ° F Cloudy

Chicago, IL
74 ° F Fair

Elev 981ft 35.81 °N, 83.99 °W

McGhee Tyson, TN ★ ↗

84° MCGHEE TYSON STATION (/HISTORY/DAILY/US/TN/KNOXVILLE/KTYS/DATE/2018-7-2?CM_VEN=LOCALWX_PWSDASH) | CHANGE ↕

HISTORY (/HISTORY/DAILY/US/TN/KNOXVILLE/KTYS/DATE/2018-7-2)

- TODAY (/WEATHER/KTYS)
- HOURLY (/HOURLY/KTYS)
- 10-DAY (/FORECAST/KTYS)
- CALENDAR (/CALENDAR/US/TN/KNOXVILLE/KTYS/DATE/2018-7)
- HISTORY (/HISTORY/DAILY/US/TN/KNOXVILLE/KTYS/DATE/2018-7-2)
- WUNDERMAP (/WUNDERMAP?LAT=35.81222153&LON=-83.99277496)

Daily

Weekly

Monthly

March

27

1994

View

<https://www.wunderground.com/history/daily/KTYS/date/1994-3-27>

229

1/5