

# Anderson County, Tennessee

## Board of Commissioners

RESOLUTION No: 22-01-909

### RESOLUTION UPDATING AND AMENDING THE ANDERSON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN.

**WHEREAS**, the Federal Emergency Management Agency (FEMA) requires all jurisdictions to submit an update to the jurisdiction's Multi-Jurisdictional Hazard Mitigation Plan in order to comply with United States Code 44 CFR 201.6(b)-(d); and

**WHEREAS**, the Anderson County Office of Emergency Management has completed the update task and received FEMA approval on December 27, 2021 (*See, Updated Hazard Mitigation Plan – Exhibit 1 and FEMA Approval Letter – Exhibit 2*); and

**WHEREAS**, the participating municipalities have worked with the Anderson County Office of Emergency Management and recommend to the Anderson County Legislative Body that this plan be formally adopted.

**NOW THEREFORE, BE IT RESOLVED** by the Anderson County Legislative Body meeting in regular session this 18<sup>th</sup> day of January 2022 that we formally adopt the updated Anderson County Hazard Mitigation Plan as presented.

**BE IT FURTHER RESOLVED** that:

**Section 1:** The Anderson County Legislative Body approves the update in its entirety and adopts the Hazard Mitigation Plan for use in Anderson County along with any project identified by the Mitigation Planning Committee and the County agrees to be governed by the plan.

**Section 2:** The Anderson County Legislative Body authorizes the appropriate participating officials to pursue funding opportunities for implementation of proposals designated therein; and will upon receipt of such funding or other necessary resources, seek to implement the actions contained in the Hazard Mitigation Plan.

**Section 3:** The Anderson County jurisdiction, including participating municipalities, will continue to cooperate and participate in the hazard mitigation planning process, holding regular meetings, including reporting progress as required by FEMA, the Tennessee Emergency Management Agency (TEMA) and the Mitigation Planning Committee (MPC).

### VOTING SUMMATION

MOTION FOR APPROVAL BY COMMISSIONER \_\_\_\_\_

SECOND FOR APPROVAL MOTION BY COMMISSIONER \_\_\_\_\_

APPROVED by \_\_\_\_\_ in favor of passage and \_\_\_\_\_ not in favor of passage.

**COMMISSIONERS VOTING FOR PASSAGE** (Please sign beside name):

|  |       |
|--|-------|
| DISTRICT 1: COMMISSIONER CHUCK FRITTS        | _____ |
| DISTRICT 1: COMMISSIONER TRACY WANDELL       | _____ |
| DISTRICT 2: COMMISSIONER ROBERT JAMESON      | _____ |
| DISTRICT 2: COMMISSIONER RICK MEREDITH       | _____ |
| DISTRICT 3: COMMISSIONER JOSH ANDERSON       | _____ |
| DISTRICT 3: COMMISSIONER DENVER WADDELL      | _____ |
| DISTRICT 4: COMMISSIONER TIM ISBEL           | _____ |
| DISTRICT 4: COMMISSIONER SHAIN VOWELL        | _____ |
| DISTRICT 5: COMMISSIONER ROBERT McKAMEY      | _____ |
| DISTRICT 5: COMMISSIONER JERRY WHITE         | _____ |
| DISTRICT 6: COMMISSIONER STEVEN MEAD         | _____ |
| DISTRICT 6: COMMISSIONER CATHERINE DENENBERG | _____ |
| DISTRICT 7: COMMISSIONER THRESA SCOTT        | _____ |
| DISTRICT 7: COMMISSIONER JERRY CREASEY       | _____ |
| DISTRICT 8: COMMISSIONER ROBERT SMALLRIDGE   | _____ |
| DISTRICT 8: COMMISSIONER PHIL YAGER          | _____ |

**RESOLVED AND EFFECTIVE** this 18<sup>th</sup> day of January 2022.

\_\_\_\_\_  
Joshua N. Anderson, Chair

\_\_\_\_\_  
Terry Frank, County Mayor

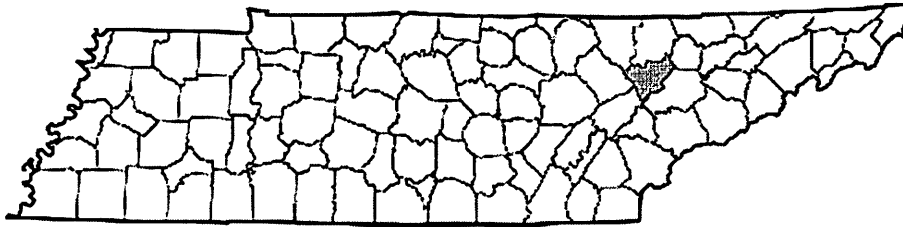
ATTEST:

\_\_\_\_\_  
Jeff Cole, County Clerk

ANDERSON COUNTY  
UPDATED  
MULTI-JURISDICTIONAL  
HAZARD MITIGATION  
PLAN  
(2022)

EXHIBIT 1

# **Anderson County Multi-Jurisdictional Hazard Mitigation Plan**



**November 5, 2021**

**Prepared By:**

**Anderson County Hazard Mitigation Committee  
Anderson County Emergency Management**

**Assistance Provided By:**

**Tennessee Emergency Management Agency  
*as part of the Tennessee Mitigation Initiative***

## Executive Summary

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

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

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

The 2021 update of the Anderson County Multi-Jurisdictional Hazard Mitigation Plan was created to act as a well-thought-out guide to be used by, and for, the people of Anderson County. For this plan to be successful, the following jurisdictions participated in the drafting and preparation of the plan update. The City of Oliver Springs did not participate.

- Anderson County (unincorporated)
- City of Clinton
- City of Norris
- City of Oak Ridge
- City of Rocky Top

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

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## Section 1: Planning Process

### Planning Process Update

The last Anderson County Multi-Jurisdictional Hazard Mitigation Plan was approved by FEMA on July 28, 2017. 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 plan's five-year update process took place at a meeting on September 21, 2021 with Anderson County, City of Clinton, City of Norris, City of Oak Ridge, City of Rocky Top and the Tennessee Emergency Management Agency (TEMA) (See Appendix 1 and 2). An additional one on one meeting was held with the City of Clinton on September 30, 2021 at 3:45 p.m. Representatives included individuals from fire/rescue, EMS, law enforcement, elected officials, utilities and emergency management. Emails were exchanged prior and post meeting to ensure completion of the needed information and communication. The Program Manager for Anderson County Emergency Management was designated as the person who would be leading staff and interested persons in updating the mitigation plan. The tasks undertaken at the meeting by the Anderson County Hazard Mitigation Committee consisted of continuing to get agencies and the public involved in the county's mitigation efforts, performing the 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, facilitating the meeting, and guiding the committee on planning requirements; (a service established as part of the Tennessee Mitigation Initiative). Additional activities during the meeting included reviewing past incidents, disasters, and data to gain a complete understanding of the hazards faced by Anderson County and all jurisdictions within. The committee proceeded to rate each hazard to evaluate risk. This rating of each hazard is incorporated into the plan under Risk Assessment. The mitigation goals were established and reviewed. Emails were exchanged to ensure appropriate documentation of desired projects along with completing the rating of each project.

Prior to these meetings, the Anderson County Emergency Management Program Manager 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 invitation to elected officials, county and city staff, representatives of the jurisdictions, neighboring counties, local businesses, state agencies, private organizations, academia, non-profits, and other noticeable persons. These invites included email, and phone contact by the Anderson County Emergency Management Program Manager and the Tennessee Emergency Management Agency.

Within this plan update, the participating jurisdictions are outlined in the Executive Summary. The Anderson County Hazard Mitigation Committee for the plan update consists of the following members:

| Member                        | Representation  |
|-------------------------------|---|
| Karen Ooten (Committee Chair) | Program Manager, Anderson County EMA                          |
| Gary Long                     | Road Superintendent, Anderson County Highway Department       |
| Marty Blackburn               | Corporal, Anderson County Sheriff                             |
| Steve Payne                   | Director, Anderson County EMA                                 |
| Scott Thomas                  | Deputy Director, Anderson County EMS                          |
| BJ Boyd                       | Emergency Management Contractor, Oak Ridge Fire Department    |
| Jody Durham                   | Assistant Chief, Oak Ridge Fire Department                    |
| Stephanie Fox                 | Chief, Marlow Volunteer Fire Department                       |
| Mike Poole                    | Police Chief, Norris Police Department                        |
| Ambrea Peters                 | Chief, Andersonville Volunteer Fire Department                |
| James Shetterly               | Police Chief, Rocky Top Police Department                     |
| Robert Sexton                 | Chief, Anderson County Sheriff's Office                       |
| Todd Loggins                  | Director of Engineering & Operations, Clinton Utilities Board |
| Bill Riggs                    | Senior Staff Advisor, City of Clinton                         |
| Josh Garner                   | District Coordinator, Tennessee Emergency Management Agency   |
| Michelle Klein                | Regional Planner, Tennessee Emergency Management Agency       |

The Anderson 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 2017 plan **2)** updating of the plan, **3)** public participation, **4)** review of the final updated plan, and **5)** adoption of the plan.

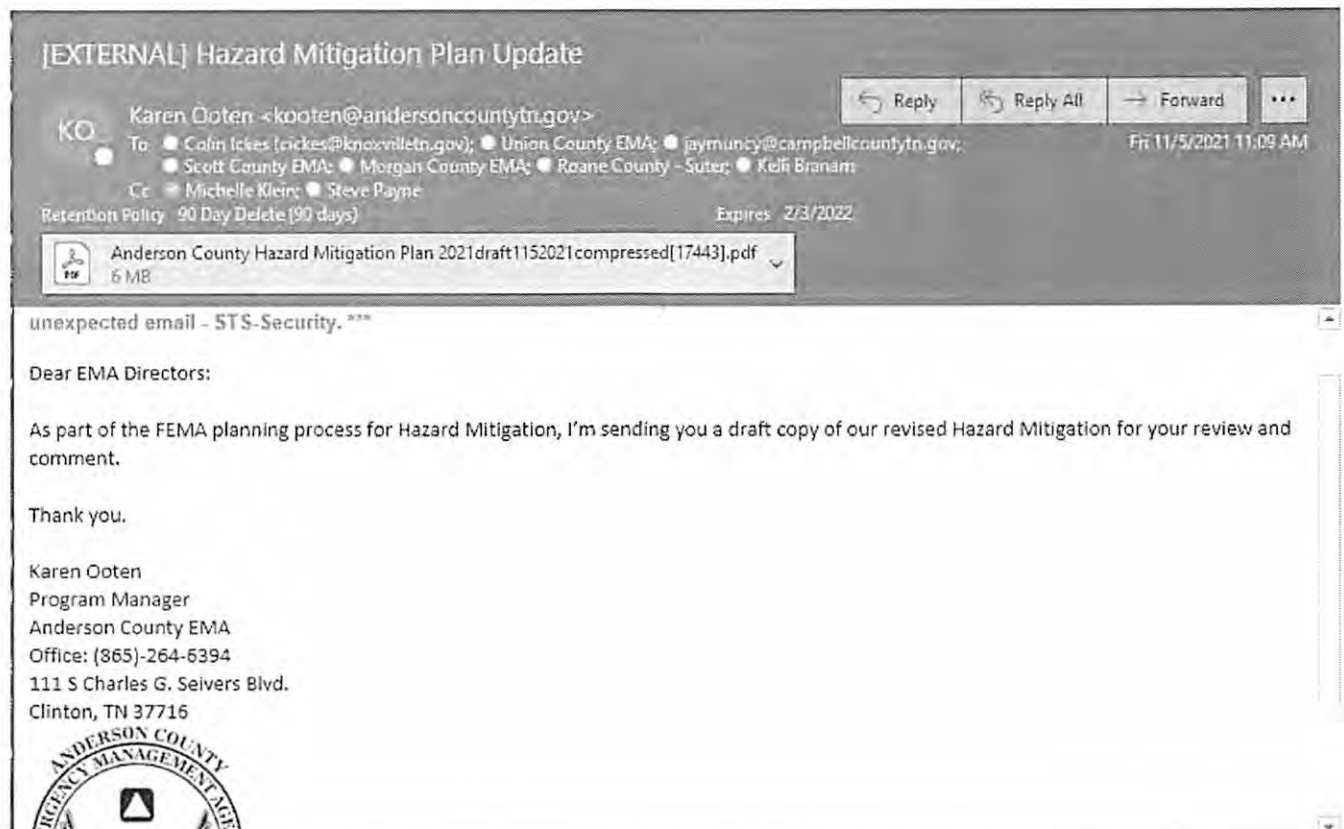
**Stage 1:** During the analysis of the plan, Anderson County Emergency Management, with assistance from TEMA, reviewed the original county plan and made notes on what sections would require the main updates. Anderson County Emergency Management suggested that the two core areas for needed updates were in the risk/vulnerability assessment and in the restructuring of the county's listed hazard mitigation projects. Additionally, a review of the hazards listed in the 2017 plan occurred. An intense discussion occurred to determine its best to focus on the top tier hazards for financial and planning purposes instead of focusing on every possible hazard that Anderson County, and all jurisdictions within, could face. Within this updated plan are now Hazards of Prime Concern.

**Stage 2:** From there the committee started making the updates to the plan. Tasks included soliciting for new mitigation projects to be added to the plan and examining the status of mitigation projects listed in the 2017 plan.

**Stage 3:** To encourage public involvement, the Anderson County Hazard Mitigation Committee advertised the committee meeting for September 21, 2021 in the local newspaper. This notice presents the purpose of the meeting, the time and date of the meeting, how to access the meeting, and stated that all are invited to attend. This meeting provided a great opportunity for the public to comment on the plan during the update drafting stage, to contribute in project proposals, and to participate in project reprioritization. [Appendix 1](#) provides a copy of the meeting's attendance sheet and [Appendix 2](#) presents a copy of the public notice for the meeting. No members of the public attended.

**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.

The Anderson County Emergency Management Program Manager sent a request to the surrounding Counties to provide opportunity for review and comment. The below is a screenshot of that request. These Counties are Campbell, Scott, Morgan, Roane, Loudon, Union and Knox.



**Stage 5:** Upon receiving the “Approval Pending Adoption” designation from FEMA’s review, adoption/resolution will be obtained for each participating jurisdiction.

### **Review of Existing Information**

A preliminary review of existing plans, reports, and information was conducted during the initial phase of creating the Anderson County Multi-Jurisdictional 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:

- Anderson County Multi-Jurisdictional Hazard Mitigation Plan, 2017
- Anderson County Emergency Operations Plan
- State of Tennessee Hazard Mitigation Plan
- Tennessee Emergency Management Plan

All the listed plans, studies, and data sources were incorporated into the Anderson County Multi-Jurisdictional 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 projects (aka: 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 Anderson County Multi-Jurisdictional Hazard Mitigation Plan. Anderson County reviewed and analyzed each section of the original plan and made updates in the following ways:

#### **Section 1: Planning Process**

Anderson 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 meeting that took place in 2021, and documented the last opportunities for the public to get involved. Anderson County also reviewed the list of existing documents from the 2017 plan and updated accordingly.

#### **Section 2: County Profile**

Anderson County created a new development trends section in this plan update.

#### **Section 3: Risk Assessment**

The committee reviewed their hazards from the 2017 plan and decided to focus more on hazards of prime concern. This shift was made to allow for more meaningful mitigation actions/projects. These hazards include: Flooding, Severe Storms (Wind, Tornado), Winter Weather, Wildfire, and Landslides.

As part of the plan update, Anderson County updated their previous occurrence hazard listings going back to 1950, except for Wildfires, allowing for re-evaluation of each hazard’s extent, probability, and potential impacts. The source for this data was NOAA’s National

Centers for Environmental Information, Storm Events Database (NCDC), and TN Forestry Division. In some NCDC instances, this data did not go back to 1950 but all documented events from the NCDC are included. 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 (as seen in the plan's appendices).

#### Section 4: Mitigation Strategy

Anderson County, and all jurisdictions within, changed their mitigation goals from the 2017 plan to allow for a broader focus and the likely shift in priorities as the 5 years progress. Additionally, Anderson County, and all jurisdictions within, has utilized a new method for prioritizing mitigation projects, (thought to be superior to the previous method). Anderson County, and all jurisdictions within, brainstormed many 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

Anderson County, and all jurisdictions within, 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, stated that Anderson 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**

Anderson County was formed from portions of Knox and Grainger County in 1801. It was named for Joseph Anderson, a U.S. Senator from Tennessee. During the Second World War, the federal government founded Oak Ridge as one of the Manhattan Project's primary research sites. The location was selected for a number of reasons, including its relatively low incidence of natural disasters and access to fresh water and infrastructure. The influx of government employees and funding brought Anderson County and Oak Ridge from a roughly 20,000 inhabitants to a peak of 84,000 before the war's end.

The construction of Norris Dam, the first dam built by the Tennessee Valley Authority, brought major changes to the county in the 1930s. Approximately 2900 families were relocated from reservoir lands in Anderson and nearby counties during the construction, which began in 1933 and was completed in 1936. The City of Norris was initially built as a planned community to house the workers involved in the construction of this dam. As a result of the dam completion and operation, the temperature of the downstream Clinch River bed changed, so that a former pearl industry which had been successful for many years evaporated as the mussels, once prevalent in the river, were not able to sustain life in the changed climate.

According to the U.S. Census Bureau, the county has a total area of 345 square miles, of which 337 square miles is land and 7.6 square miles (2.2%) is water.

Anderson County has a thriving tourism industry, thanks to major attractions such as Norris Lake, the Museum of Appalachia, and American Museum of Science and Energy, and the county is considered a part of the Norris Highlands.

Anderson County does not allow construction within its FEMA designated floodplains without a floodplain construction certificate. The certificate requires any structure to be raised to a BFE. Increased growth will not increase Anderson County or its jurisdiction's vulnerability to flooding due to the enforcement of the certificates.

### **Population**

Population estimates is as follows:

Anderson County: 76,978 (2019); 75,082 (2010)

City of Clinton: 10,075 (2019); 9,760 (2010)

City of Norris: 1,469 (2019); 1,491 (2010)

City of Oak Ridge: 29,156 (2019); 29,328 (2010)

City of Rocky Top: 1,767 (2019); 1,781 (2010)

### **Future growth**

The committee was asked to provide feedback and information on future trends. The specific question asked was, "List the areas in your jurisdiction (region, subdivision, etc.) that have experienced growth in the past 10 years or are anticipated to have significant growth in the near future, as well as any potential complications from natural hazards due to the development."

The committee's answers are as follows. For Industrial Growth: "Last 10 years: Carden Farm Industrial Park, Eagle Bend Industrial Park, I-75 Industrial Park & David Jones Industrial Park. Future Growth: currently working on an additional 30 acres to the David Jones Industrial Park; possibly adding more acreage to the other 3 industrial parks as well." For Commercial Growth: "In the area of the industrial parks mentioned in Industrial Growth." For Residential Growth: "We've had moderate growth in the eastern area of Anderson County as well as the southern area in the area between US highway 25 and the Bull Run. The Marlow area has had modest growth as well as the area around Rocky Top. There is also a large subdivision currently being developed in the Sinking Springs area between the I-75 exit and Clinton. This subdivision is estimated to have 140 building parcels. This development should start building houses within the next twelve months. From our prospective there are some drainage issues along the state route 61 corridor between Anderson County, High School, and the river traveling west. We're not sure the new subdivision going in at the Sinking Springs will impact this or not. We really don't think so because it should drain to Hinds Creek."

#### Resource Capabilities

|  | YES | NO |
|--|-----|----|
| Does your jurisdiction enforce building code ordinances?               | X   |    |
| Does your jurisdiction enforce zoning code ordinances?                 | X   |    |
| Is your jurisdiction a member of the National Flood Insurance Program? | X   |    |
| Does your jurisdiction have the following resources in place?          |     |    |
| Law enforcement  | X   |    |
| Full-time fire services  |     | X  |
| Grant writer   |     | X  |
| Public information officer   | X   |    |

#### Expanding & Improving Mitigation Programs

The committee was asked, "What mitigation actions has your jurisdiction accomplished in the past 5 years, to include with both local (building/zoning codes, incorporating mitigation into existing planning) and external (grants such as mitigation, CDBG, USDA, etc.) funding?"

The most recent completed CDBG Waterline project effected Strong Hollow Road, Twin Oaks Rd., and the Miller Hollow Rd. area. Also, Humphrey Cemetery Circle, Mill Creek Rd., McAfee Ln., and Ridge Circle Rd.

1. Elza Drive Business District – Sewer Improvements – TN-17665 – 2013 award date; 2015 completion date.
  - \$400,000.00 Total Cost; \$200,000 ARC; \$200,000 Local

- The project entails an extension of existing 8-inch sewer serving the Army Reserve facility along State Route 95. With a bore of State Route 95, a 3-inch force main can be extended along the south side of Elza Drive to serve the existing business area. The force main will remain on the north side of Elza Drive until Elza Drive intersects State Route 95. The force main will then bore State Route 95 and turn east until it crosses SR 61 near a Marathon Oil Station. A total of 14 businesses and 4 residences will be served by the proposed sewer improvements.
2. Claxton Business District Improvements – Sewer Improvements – TN-17157 – 2011 award date; 2012 completion date.
    - \$1,00,000.00 Total Cost; \$500,000 ARC; \$500,000 Local
    - In order to provide sewer to the Claxton business area, the existing 8” sewer serving the Greenview Village development must be extended. The extension of approximately 1,400 liner foot of sewer line will be utilized in the project construction; with a bore of Edgemoor Road, sewer can be extended along the north side of Edgemoor Road to serve the existing business area. Two businesses on the south side of Edgemoor Road can be reached by boring the road and connecting to the gravity sewer. A total of thirteen (13) businesses will be served by the sewer improvements. Project will be located in road right-of-way.
  3. Phase I Claxton Sewer Line Extension – # 11355; 2011 Award date; 2012 Completion date.
    - \$566,542 Total Cost; \$491,781 CDBG; \$74,761 Local
    - The project involved running sewer along Raccoon Valley Road, Gadson Chapel Lane, Gadsontown Land and Thomas Lane.
  4. North Anderson Waterline Extension – # 45442 - 2015 Award Date; 2017 completion date
    - \$610,465 Total Cost; \$525,000 CDBG; \$85,465 Local
    - Waterline extension on Twin oaks Road, Strong Hollow Lane, Miller Hollow Lane, McAfee Land, Ridge Circle Road, Mill Creek Road And Humphrey Cemetery Circle.
  5. North Anderson Waterline Extension – # 14049 - 2019 Award Date; Completion date to be decided.
    - \$630,370.00 Total Cost; \$523,207.00 CDBG; \$107,163.00 Local
    - Waterline extension on Buchanan Lane, Savage Garden Road, Foust Lane, Collins Gap Road, Judson Road and Hinds Creek Road.

## Section 3: Risk Assessment

### Hazard Identification

To begin to assess Anderson County, and all jurisdictions within, 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 Anderson County by going through newspaper articles, Anderson County Emergency Management records, the 2017 Anderson County Hazard Mitigation Plan, National Weather Service data 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 prime concern by the Anderson County Hazard Mitigation Committee. There is a change in focus from the 2017 plan to the 2021 plan to allow for balancing of priorities. The 2017 plan risk assessment was too overwhelming to allow for identification of the prime hazards. By focusing on hazards that are a top priority for the committee, it allowed for better committee discussion and awareness. In some cases, sources of data are restricted to the State of Tennessee Hazard Mitigation Plan and state agencies to ensure continuity of reporting into future years. Consideration has been paid to local needs, input and sensitivities to ensure state and federal input doesn't influence the needs or desires, as deemed appropriate by the committee, of this local plan.

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

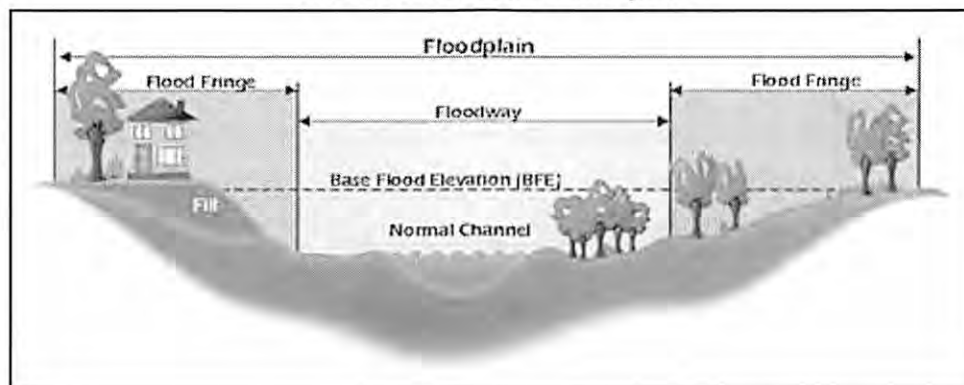
*Source: The Field Studies Council*

| Common Causes of Flooding     |   |
|-------------------------------|---|
| Factor                        | Effect on Flooding  |
| <b>Geology</b>                | 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.  |
| <b>Relief</b>                 | Water reaches the channel more rapidly in a steeper basin as water is travelling more quickly downhill.   |
| <b>Vegetation</b>             | 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.   |
| <b>Meteorological Factors</b> | 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. |
| <b>Catchment Shape</b>        | It takes less time for water to reach the channel in a circular basin as all extremities are roughly equidistant from the channel.  |
| <b>Land Use</b>               | 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.   |
| <b>Catchment Size</b>         | Water reaches the channel more rapidly in a smaller basin as water has a shorter distance to travel.  |
| <b>Antecedent Conditions</b>  | 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 Anderson 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 Anderson 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:

Airport Road  
Tri-County Blvd

Midway Drive  
Windrock Road  
Bacon Springs Road  
Lake City Hwy @ Pumphouse Lane  
Lake City Hwy @ Granite Road  
Granite Road  
Cane Creek Road  
Beets Valley Road  
Bolin Road  
Railroad Ave  
Chestnut Ave  
Hwy 441  
Church Street @ Third St  
Jacksboro Ave @ Community Center & Athletic Field  
Offutt Road  
Old Dutch Valley Road  
Hwy 116 near Dump  
Hwy 116 at Andy's Ridge Road  
Beach Grove Road  
Irwin Mill Road  
Brooks Gap Road  
Pumpkin Hollow  
Sinking Springs Road  
Hinds Creek Road  
Mountain Road  
Brushy Valley Road  
Hillvale Road  
Lambdin Road  
Fox Hollow Lane  
Sequoyah Marina Area Roads  
Indian Gap Road  
Mill Creek at Ridge Circle  
Mill Creek at Old Boy Scout Road  
Park Lane at Clear Springs Cemetery Rd  
Huntington Lane at Andersonville Pike  
Bloomfield Hills Mobile Home Park

*Detailed Flood Insurance Rate Maps (FIRMs) are also included in **Appendix 3**, which shows where FEMA has placed the 100-year and 500-year floodplains for each jurisdiction.*

The next information graphic was brought forward from the 2017 Hazard Mitigation Plan illustrating Anderson County and its jurisdictions Floodplain areas. Anderson County and its participating jurisdictions have utility structures, municipal building, school buildings, and commercial and residential structures in floodplains. Flooding can cause minimal or complete

damage to any of these types of facilities taking them offline for days to years depending on the resources available after an event.



Anderson County, and all jurisdictions within, 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 Anderson County from 1950 to 2021 and a list of each flood's description of impacts imposed on the community. No flood was listed for Anderson County prior to 1996.

The following information was obtained by accessing the NOAA database.

<https://www.ncdc.noaa.gov/stormevents/>. This information represents all the events and extent of the Flooding hazard experienced by Anderson County, including the jurisdictions located within, and is the only source of data accessible. The information provided for Anderson County also applies to the school district due to the geographic distribution of the schools throughout the County.

### Flood Events in Anderson County: 1950 to 2021

| Location       | Date      | Event Type  | Deaths | Injuries | Property Damage | Impact/Extent Description   |
|----------------|-----------|-------------|--------|----------|-----------------|---|
| Oak Ridge      | 6/13/1996 | Flash Flood | 0      | 0        | 2000            | Nearly two inches of rainfall within thirty-five minutes causing roads to close due to flooding.  |
| Clinton        | 7/13/1996 | Flash Flood | 0      | 0        | 0               | Heavy rain from thunderstorms resulted in mud slides and flash flooding along highway 25W between Clinton and Lake City.  |
| Countywide     | 3/3/1997  | Flash Flood | 0      | 0        | 0               | Heavy rain training over the county caused widespread flooding. Several routes closed including Highway 116...Highway 441 and I-75 in the Lake City area...and Highway 330 around the community of Frost Bottom.  |
| Clinton        | 6/19/1997 | Flash Flood | 0      | 0        | 0               | Numerous city streets were closed due to water up to 2 feet deep. Also some county roadways were underwater.  |
| Lake City      | 4/17/1998 | Flash Flood | 1      | 0        | 0               | Driver drowned when her jeep was swept away in Hinds Creek when she attempted to driver family members to safety.   |
| Clinton        | 4/18/1998 | Flood       | 0      | 0        | 0               | Water over roads on the west side of Clinton.   |
| Countywide     | 4/19/1998 | Flood       | 0      | 0        | 0               | Several roads closed due to heavy rain.   |
| Clinton        | 6/1/1998  | Flood       | 0      | 0        | 0               | Rockslide reported by Sheriff's office. Minor flooding on Clinton Highway, East Valley Road, Highway 61 and Buffalo Road.   |
| Lake City      | 6/2/1998  | Flood       | 0      | 0        | 500             | Highway 25W flooded near Lake City. Car washed off road.  |
| Countywide     | 7/11/1999 | Flash Flood | 0      | 0        | 0               | Widespread showers and thunderstorms with heavy rain caused flooding problems throughout much of East Tennessee. In Cocke County, flooding occurred along Knoxville Highway west of Newport and in the fairgrounds. In Blount County, numerous streets and roads were closed. The Abrams Creek Campground in the Cades Cove area of the Great Smoky Mountains National Park was evacuated as a precautionary measure Sunday. The campground was reopened Monday. The bottom two apartments of Atchley Apartments in Maryville had 6 inches of water in them early Monday morning. In Knox County, many cars were stranded in flooded underpasses. In Bledsoe County, the Jack Branch Road bridge along Highway 30 on the Van Buren County line was washed out. Numerous incidents of minor flooding were reported around the remainder of the region. Water began to recede across the region by late afternoon/early evening Monday. |
| Oliver Springs | 7/24/1999 | Flood       | 0      | 0        | 0               | 2 feet of water washing large tree limbs and other debris across the 2400 block of Dutch Valley Road.   |
| Countywide     | 4/4/2000  | Flash Flood | 0      | 0        | 0               | Many roads washed out and closed.   |

|                       |           |             |   |   |       |   |
|-----------------------|-----------|-------------|---|---|-------|---|
| Countywide            | 1/23/2002 | Flash Flood | 0 | 0 | 0     | Prolonged heavy rain throughout the day resulted in numerous road closings across much of central East Tennessee.   |
| Not provided          | 3/17/2002 | Flood       | 0 | 0 | 0     | Widespread flooding occurred across most of East Tennessee with the hardest hit counties in central East Tennessee including Bledsoe, Meigs, Roane, Rhea, Loudon, Blount, Knox, and Sevier Counties. Rainfall totals between five and eight inches were reported in 36 hours. Numerous major rivers flooded including the Clinch, Powell, Sequatchie, and Pigeon Rivers. Total damage estimates were calculated to be over 5 million dollars.   |
| Countywide            | 3/18/2002 | Flash Flood | 0 | 0 | 0     | Widespread flooding occurred across most of East Tennessee. Rainfall totals between five and eight inches were reported in 36 hours. Total damage estimates were calculated to be over 5 million dollars.   |
| North Central Portion | 5/26/2002 | Flash Flood | 0 | 0 | 6000  | Residents were stranded in homes by flooding on lower Briceville road in northern portion of the county.  |
| Not provided          | 2/14/2003 | Flood       | 0 | 0 | 58000 | Four day rainfall totals of two to eight inches fell across east Tennessee, with the highest amounts occurring across the Cumberland Plateau and adjacent valleys areas. This rainfall combined with a melting snowpack (reports of up to a foot in the higher elevations) to produce widespread flooding of rivers and streams with numerous mudslides also reported (one notable mudslide pushed an apartment complex off its foundation in Knox County). The Powell, Clinch and Holston rivers measured the most significant rises with Claiborne, Rhea and Knox counties reporting the most significant damage. |
| Countywide            | 2/15/2003 | Flash Flood | 0 | 0 | 0     | Numerous roads reported closed by law enforcement due to high water with several reports of mud slides. One home had to be evacuated and one business on Clinton Highway was filled with water.   |
| Not provided          | 2/21/2003 | Flood       | 0 | 0 | 0     | With the ground already saturated from the previous week's rainfall, three day rainfall totals of one to three inches created some flooding of streams and rivers as well as several mudslides across east Tennessee. Rivers which rose above their flood stages included the South Chickamauga, Clinch, Powell, Holston, Pigeon, French Broad and Sequatchie rivers.   |
| Not provided          | 4/10/2003 | Flood       | 0 | 0 | 0     | Seven day rainfall totals (4th through the 10th) of three to five inches were reported across central east Tennessee and northeast Tennessee, with one to three inches occurring on the 10th. Several secondary roads across the area were flooded with several rivers experiencing some minor flooding including the Clinch, French Broad, Holston, Pigeon and Powell rivers.  |
| Oak Ridge             | 6/23/2004 | Flash Flood | 0 | 0 | 0     | Claxton Road, Old Emory Road, and Bewells Road were all flooded and closed.   |
| Clinton               | 9/18/2009 | Flash Flood | 0 | 0 | 0     | Isolated flash flooding occurred with a foot of water over area roads in the Clinton, Tennessee area. A mud slide occurred due to the flash flooding on Spring Street in Clinton, Tennessee and Johnson Gap and Granite roads were also closed due to flash flooding.   |

|                   |           |             |   |   |        |  |
|-------------------|-----------|-------------|---|---|--------|--|
| Oak Ridge Airport | 9/26/2009 | Flood       | 0 | 0 | 0      | Heavy rainfall resulted in areal flooding from near Oak Ridge to Clinton, Tennessee. Several inches of water was reported to be over and flowing across low lying areas along highways 61, 95 and 10 in Anderson county. |
| Elza              | 6/24/2011 | Flash Flood | 0 | 0 | 10000  | Law enforcement personnel reported heavy rain from thunderstorms caused water completely covering the road on Blockhouse Valley Road southwest of Clinton.   |
| Clinton           | 3/1/2017  | Flash Flood | 0 | 0 | 0      | Creek out of its banks on Gamble Farm.   |
| Clinton           | 3/1/2017  | Flash Flood | 0 | 0 | 1000   | Flooding reported at the Ponderosa Zoo.  |
| Marlow            | 3/1/2017  | Flash Flood | 0 | 0 | 0      | Flooding along Marlow Road.  |
| Oak Ridge Airport | 2/10/2018 | Flood       | 0 | 0 | 0      | Part of Airport Road closed by flooding.   |
| Andersonville     | 2/6/2019  | Flash Flood | 0 | 0 | 3000   | Cars flooded in Andersonville, as deep as halfway up the car doors.  |
| Norris            | 2/23/2019 | Flood       | 0 | 0 | 600000 | Portion of Dairy Pond Road closed. All told, Emergency Management estimated about \$600,000 in flood damages across Anderson County from the overall event.  |

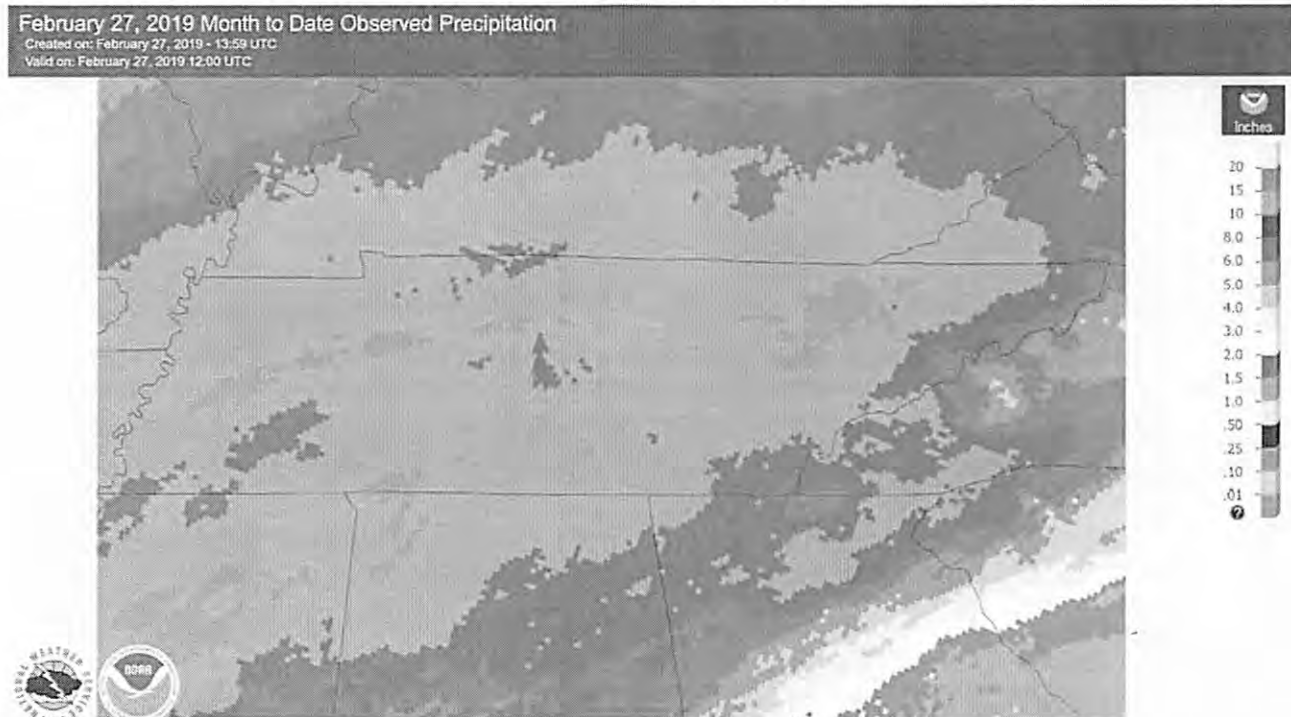
The committee shared their personal experiences of flooding events that have occurred in Anderson County, Clinton, Norris, Oak Ridge, and Rocky Top. The following is transcribed from their thoughts.

- Public Education on Turn Around, Don't Drown; residents continue to drive through flooded roadways.

Small, localized flood events are likely to occur at least two to three times every year in Anderson County. The severity of flooding that may occur in the county is measured by inches of rainfall and by feet of flooding. Based on previous occurrences, in a worst-case scenario it is possible for the extent of a flooding event to exceed 15 inches of rainfall. For example, in March 2002, an event caused over \$5 million in damages across East Tennessee.

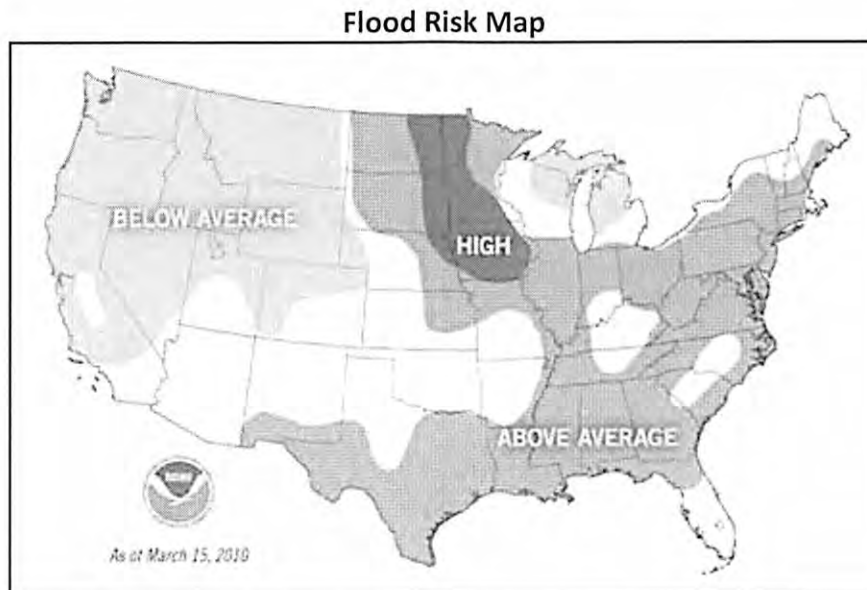
As seen below, a stationary frontal boundary stalled over or near the Tennessee Valley for nearly a week in mid to late February 2019. Persistent southwest flow aloft brought copious amounts of Gulf of Mexico moisture northward and interacted with this boundary for many days, causing a prolonged period of heavy rain and flooding throughout Tennessee from Tuesday, February 19 through early Sunday, February 24. Due to the heavy rainfall that had already fallen earlier in the month, along with the already unusually wet winter season, widespread flash flooding and river flooding resulted, with dozens of water rescues being conducted and numerous homes and businesses flooded. Additionally, there were numerous reports of mudslides throughout the state impacting critical interstate travel. In addition, this heavy rainfall set new monthly rainfall records for the month of February at many locations including Nashville and Crossville, both of which saw over a foot of rain. By the end of the month, nearly the entire state of Tennessee had received between 10" and 20" of rain in February 2019. This event led to a Presidential Disaster Declaration (DR4427).

#### Tennessee February 2019 Flood - Precipitation for February 2019



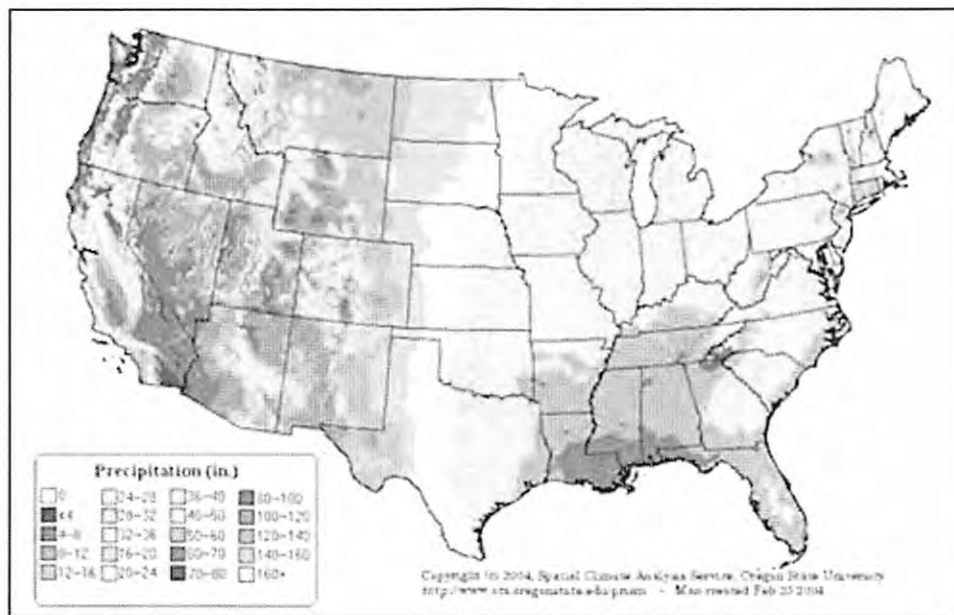
According to a NOAA Flood Risk Map (see map below), the majority of Tennessee was in an “above average” risk of flooding zone during spring 2010. This proposed vulnerability is coupled with the

fact that on average Tennessee usually acquires over 50-60 inches of rainfall a year (see following map).



*Source: NOAA*

**Average Annual Precipitation per Year (1971-2000)**



| Jurisdiction                   | Impacts |          |          | Vulnerability  |
|--------------------------------|---------|----------|----------|----------------|
|                                | Human   | Property | Business | H+P+B=#; #/3=V |
| Anderson County Unincorporated | 4       | 3        | 1        | 2.67           |
| City of Clinton                | 1       | 2        | 2        | 1.67           |
| City of Norris                 | 1       | 2        | 1        | 1.33           |
| City of Oak Ridge              | 2       | 3        | 1        | 2.0            |
| City of Rocky Top              | 2       | 3        | 1        | 2.0            |

| Jurisdiction                   | Vulnerability | Probability | Risk<br>V+P=R |
|--------------------------------|---------------|-------------|---------------|
| Anderson County Unincorporated | 2.67          | 5           | 7.67          |
| City of Clinton                | 1.67          | 2           | 3.67          |
| City of Norris                 | 1.33          | 2           | 3.33          |
| City of Oak Ridge              | 2.0           | 5           | 7.00          |
| City of Rocky Top              | 2.0           | 5           | 7             |

| 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             |

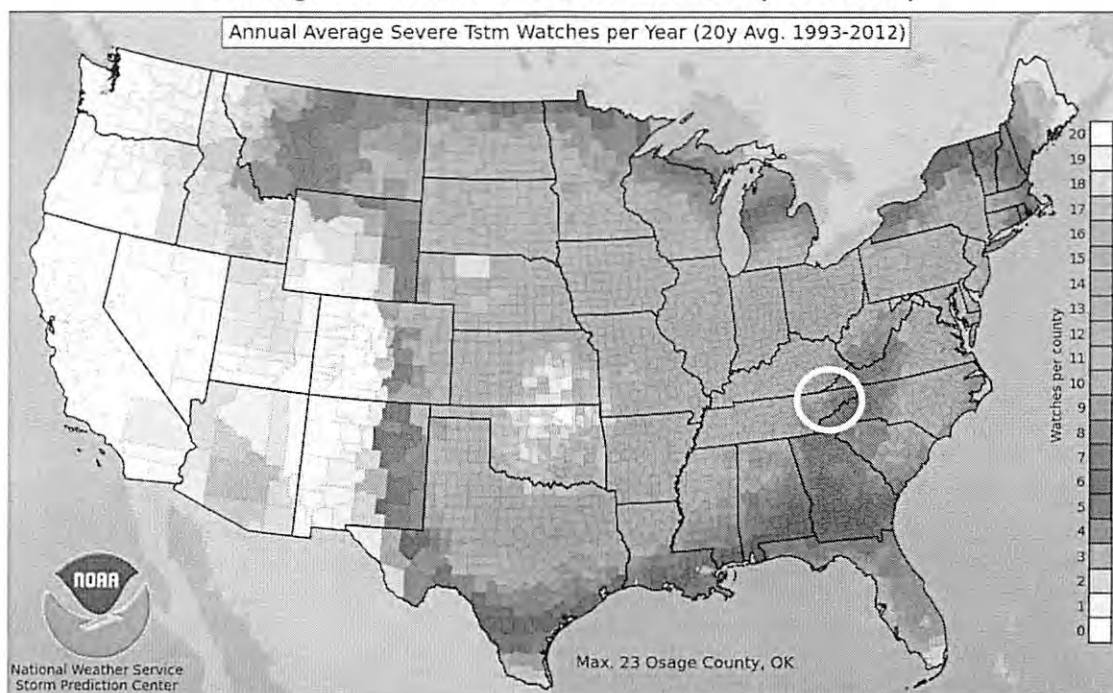
| Probability  |                               |
|--|-------------------------------|
| <i>Likelihood of the hazard occurring within a given span of years</i> |                               |
| 1  | Less than once every 10 years |
| 2  | About once every 5-10 years   |
| 3  | About once every 2-5 years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

For further information about flooding hazards in Anderson County, see the HAZUS vulnerability study in [Appendix 4](#).

### **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  $\frac{3}{4}$  of an inch or greater in diameter, or produce tornadoes. On average, a typical county in Tennessee has about 5 to 10 severe storm watches per year (see map below).

**Average Severe Storm Watches Per Year (1993-2012)**



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 Anderson 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

Anderson County historically has had a few tornadoes in the past. Based on NOAA NCDC data, the following chart provides a list of tornado events occurring in Anderson County from 1950 to 2021 and a description of impacts. The largest tornado occurred in 2002 at an F2 with multiple homes damaged or destroyed.

The following information was obtained by accessing the NOAA database.

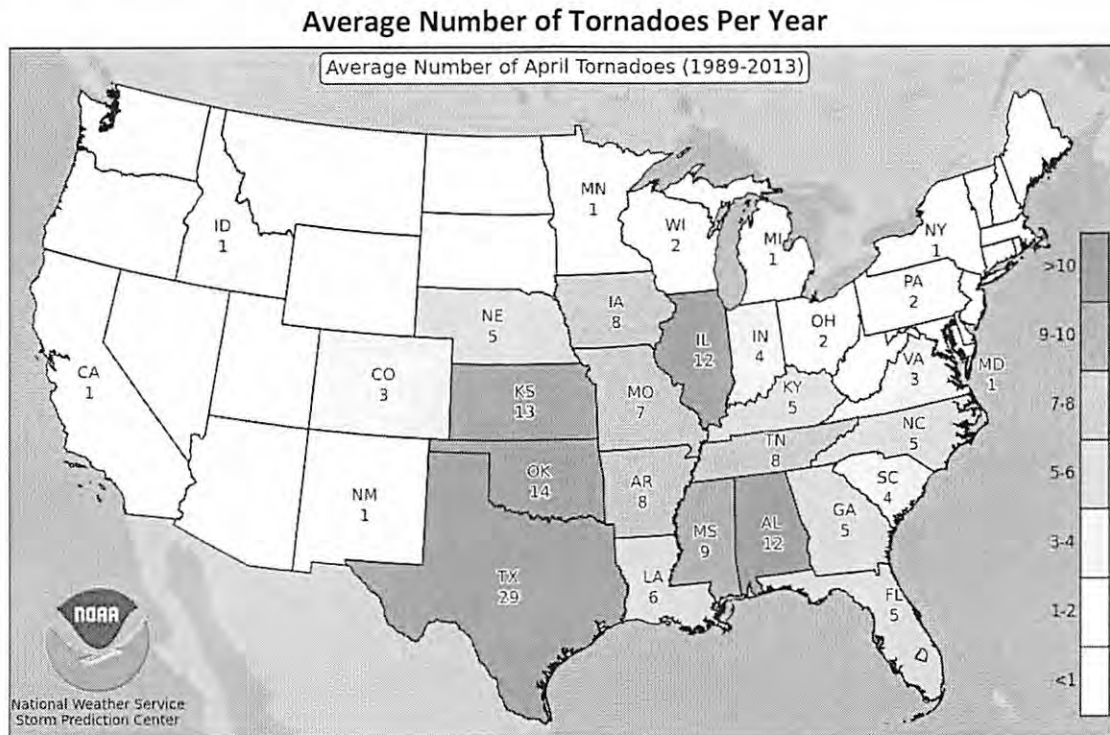
<https://www.ncdc.noaa.gov/stormevents/>. This information represents all the events and extent of the Tornado hazard experienced by Anderson County, including the jurisdictions located within, and is the only source of data accessible. The information provided for Anderson County also applies to the school district due to the geographic distribution of the schools throughout the County.

### Tornado Events in Anderson County: 1950 to 2021

| Location       | Date       | Extent | Deaths | Injuries | Property Damage | Impact/Extent Description   |
|----------------|------------|--------|--------|----------|-----------------|---|
| Not provided   | 5/2/1953   | F2     | 0      | 0        | 2500            | Not provided (NP)   |
| Not provided   | 4/4/1974   | F0     | 0      | 0        | 2500            | Not provided  |
| Oliver Springs | 4/16/1998  | NP     | 0      | 0        | 0               | Public reported a funnel cloud at Norwood near Oliver Springs.  |
| Lake City      | 11/10/2002 | F2     | 0      | 0        | 213000          | An F2 tornado produced a damage path 75 yards wide for a distance of 5.5 miles from near Briceville to Medford. The Medford community received the brunt of the damage, which was concentrated along Highway 25W, Leinart Road, Bryant Circle and Old and New Clear Branch roads. In all, 32 homes were damaged while 3 were totally destroyed. In addition, 9 mobile homes were damaged. |
| Oak Ridge      | 6/24/2011  | EF1    | 0      | 0        | 50000           | Scattered thunderstorms developed along a boundary during the evening hours and even continued into the overnight hours. Storm reports were varied and ranged from two tornadoes as well damaging thunderstorm wind. Flooding was also reported.  |

Based on previous occurrences, it's a rare occurrence for Anderson County, and the jurisdictions within, to experience a tornado due to five occurrences since 1950 with no death or injury recorded by the National Weather Service.

The following map may provide some idea for probability information.



The severity of tornadoes that may occur in the county is measured using the Enhanced Fujita Scale for tornadoes (see chart below). Based on tornado events in other East Tennessee counties, in a worst-case scenario it is possible for the extent of a tornado to exceed an EF4 ranking.

### 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

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 four times a year in Anderson County. The severity of severe storm winds is commonly measured by wind speed (knots or mph). It is not unusual for Anderson County to experience winds speeds up to 100 knots (115 mph) causing structural damage, power outages and trees down as seen on May 7, 1999 in Claxton.

The following chart provides severe storm wind event information for Anderson County between 1950 and 2021. The following information was obtained by accessing the NOAA database. <https://www.ncdc.noaa.gov/stormevents/>. This information represents all the events and extent of the Severe Storm Wind hazard experienced by Anderson County, including the jurisdictions located within, and is the only source of data accessible. The information provided for Anderson County also applies to the school district due to the geographic distribution of the schools throughout the County.

# Wind Events in Anderson County: 1950 to 2021

NP = not provided

| Location     | Date      | Extent<br>in<br>Knots | Deaths | Injuries | Property<br>Damage | Extent/Impact Description |
|--------------|-----------|-----------------------|--------|----------|--------------------|---------------------------|
| Not provided | 7/16/1956 | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 6/17/1957 | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 1/21/1959 | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 6/10/1963 | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 7/15/1966 | 63                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 6/22/1967 | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 4/13/1970 | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 7/13/1971 | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 5/23/1973 | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 4/19/1975 | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 2/18/1976 | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 3/30/1977 | 61                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 8/22/1979 | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 5/7/1984  | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 5/7/1984  | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 6/15/1984 | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 4/5/1985  | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 4/5/1985  | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 5/22/1986 | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 7/13/1986 | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 7/5/1987  | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 7/16/1988 | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 4/28/1990 | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 6/9/1990  | NP                    | 0      | 0        | 0                  | Not provided              |
| Not provided | 3/27/1991 | NP                    | 0      | 0        | 0                  | Not provided              |

|                   |           |    |   |   |       |   |
|-------------------|-----------|----|---|---|-------|---|
| Not provided      | 4/9/1991  | NP | 0 | 0 | 0     | Not provided  |
| Not provided      | 6/16/1991 | NP | 0 | 0 | 0     | Not provided  |
| Not provided      | 6/16/1991 | NP | 0 | 0 | 0     | Not provided  |
| Not provided      | 6/15/1992 | NP | 0 | 0 | 0     | Not provided  |
| Not provided      | 6/15/1992 | NP | 0 | 0 | 0     | Not provided  |
| Not provided      | 7/3/1992  | NP | 0 | 0 | 0     | Not provided  |
| Oak Ridge         | 1/24/1993 | NP | 0 | 0 | 500   | Some trees fell on a few power lines.   |
| Oak Ridge         | 6/9/1994  | NP | 0 | 0 | 5000  | Several trees and power lines were knocked down.  |
| Claxton           | 6/16/1994 | NP | 0 | 0 | 50000 | Several trees, power lines and power poles were knocked down. A few of the trees went into some homes.  |
| Norris            | 5/13/1995 | NP | 0 | 0 | 10000 | Several trees were knocked down. One fallen tree damaged the deck of a house and a van.   |
| Oak Ridge         | 5/14/1995 | NP | 0 | 0 | 5000  | Some trees and power lines were knocked down.   |
| Clinton           | 5/18/1995 | NP | 0 | 0 | 20000 | The county courthouse was damaged. Many trees and power lines were blown down. One tree fell on a house.  |
| Northern Anderson | 6/10/1995 | NP | 0 | 0 | 2000  | Some trees were knocked down.   |
| Oak Ridge         | 6/11/1995 | NP | 0 | 0 | 30000 | One outbuilding was blown down. One home had its garage roof ripped off. A large number of trees were blown down as well. Some of the fallen trees damaged nearby vehicles. |
| Clinton           | 7/14/1995 | NP | 0 | 0 | 10000 | Some metal roofs were blown off. Several trees and power lines were knocked down as well.   |
| Countywide        | 5/24/1996 | NP | 0 | 0 | 0     | County dispatch reported trees down countywide.   |
| Countywide        | 5/27/1996 | NP | 0 | 0 | 0     | Numerous trees were downed across the county.   |
| Oak Ridge         | 6/13/1996 | NP | 0 | 0 | 2000  | Trees fell onto powerlines.   |
| Andersonville     | 8/24/1996 | NP | 0 | 0 | 25000 | Numerous trees and powerlines were knocked down countywide. A tree fell onto the Andersonville Elementary School damaging the roof.   |
| Northeast Part    | 8/27/1996 | NP | 0 | 0 | 0     | Powerlines were downed in the northeast part of the county.   |
| Marlow            | 1/5/1997  | NP | 0 | 0 | 25000 | A mobile home was overturned by high winds in the community of Marlow, north of Oak Ridge. Reported by a ham radio operator.  |

|               |            |     |   |   |       |   |
|---------------|------------|-----|---|---|-------|---|
| Norris        | 2/21/1997  | NP  | 0 | 0 | 0     | Trees down in Norris.   |
| Andersonville | 6/13/1997  | 52  | 0 | 0 | 1000  | Several trees down and a flag pole blown down in Andersonville.<br>Several trees down in Lake City.                     |
| Clinton       | 6/14/1997  | NP  | 0 | 0 | 0     | Two trees down on Pumpkin Road near Clinton.  |
| Clinton       | 6/19/1997  | NP  | 0 | 0 | 10000 | A telephone pole and a few trees down just west of Clinton.   |
| Claxton       | 6/21/1997  | NP  | 0 | 0 | 0     | A severe thunderstorm knocked down trees in the Claxton area.   |
| Andersonville | 7/23/1997  | NP  | 0 | 0 | 14000 | Powerlines down in Brushy Valley area.  |
| Oak Ridge     | 7/28/1997  | NP  | 0 | 0 | 0     | Trees down.   |
| Oak Ridge     | 3/20/1998  | NP  | 0 | 0 | 0     | Trees down in Fairview Subdivision.   |
| Lake City     | 5/25/1998  | NP  | 0 | 0 | 0     | Several trees down around Beech Grove Road near Lake City. A<br>few trees down around Mill Creek Road in Andersonville. |
| Clinton       | 6/30/1998  | NP  | 0 | 0 | 0     | A few trees down.   |
| Clinton       | 11/25/1998 | NP  | 0 | 0 | 0     | Trees down.   |
| Oak Ridge     | 5/6/1999   | NP  | 0 | 0 | 0     | Trees down.   |
| Claxton       | 5/7/1999   | 100 | 0 | 0 | 0     | Not provided  |
| Clinton       | 5/7/1999   | NP  | 0 | 0 | 0     | Trees down in and south of town.  |
| Countywide    | 6/2/1999   | NP  | 0 | 0 | 20000 | Trees and power lines down. 2000 customers lost power. Power<br>was restored about an hour later.                       |
| Marlow        | 7/24/1999  | NP  | 0 | 0 | 3000  | Trees down.   |
| Clinton       | 7/27/1999  | NP  | 0 | 0 | 5000  | Power lines down in north part of county.   |
| Clinton       | 7/27/1999  | NP  | 0 | 0 | 10000 | Trees and power lines down in southwest part of county.   |
| Oak Ridge     | 5/23/2000  | NP  | 0 | 0 | 0     | Trees down.   |
| Countywide    | 5/25/2000  | NP  | 0 | 0 | 0     | Trees down in Claxton, Lake City and Oak Ridge.   |
| Lake City     | 5/27/2000  | NP  | 0 | 0 | 0     | Trees down.   |
| Countywide    | 5/27/2000  | NP  | 0 | 0 | 0     | Trees down.   |
| Claxton       | 7/28/2000  | NP  | 0 | 0 | 0     | Trees down.   |
| Countywide    | 7/29/2000  | NP  | 0 | 0 | 0     | Trees down.   |
| Devonia       | 7/30/2000  | NP  | 0 | 0 | 0     | Trees down.   |
| Countywide    | 8/10/2000  | NP  | 0 | 0 | 0     | Trees down.   |
| Claxton       | 11/9/2000  | NP  | 0 | 0 | 0     | Trees down.   |

|                |            |    |   |   |       |  |
|----------------|------------|----|---|---|-------|--|
| Lake City      | 12/16/2000 | NP | 0 | 0 | 0     | Trees down.  |
| Oak Ridge      | 6/29/2001  | NP | 0 | 0 | 18000 | Tree down on three cars.   |
| Oak Ridge      | 6/29/2001  | NP | 0 | 0 | 0     | Three trees down along South George Road off Pellissippi.  |
| Lake City      | 7/4/2001   | NP | 0 | 0 | 0     | Trees down.  |
| Oliver Springs | 7/4/2001   | NP | 0 | 0 | 0     | Trees down.  |
| Marlow         | 7/5/2001   | NP | 0 | 0 | 0     | Numerous trees down.   |
| Lake City      | 10/24/2001 | NP | 0 | 0 | 0     | Trees down.  |
| Countywide     | 1/24/2002  | NP | 0 | 0 | 10000 | Trees and power lines down.  |
| Countywide     | 4/28/2002  | NP | 0 | 0 | 5000  | A few trees were reported down in the far northern and far southern sections of the county.  |
| Norris         | 5/13/2002  | NP | 0 | 0 | 10000 | Trees reported down on power lines near Norris.  |
| Clinton        | 7/2/2002   | NP | 0 | 0 | 25000 | Numerous trees were reported down countywide. One tree was downed on 25W near the Knox County line and another was reported down on Tilleary Road.                             |
| Oliver Springs | 7/3/2002   | NP | 0 | 0 | 20000 | A large tree was downed on two buildings of the Oliver Springs Public Library.   |
| Oak Ridge      | 7/21/2002  | NP | 0 | 0 | 50000 | A large oak tree weighing approximately 70 tons fell on a three bedroom home as a result of thunderstorm wind gusts caving in a section and cracking the walls and foundation. |
| Clinton        | 7/30/2002  | NP | 0 | 0 | 0     | Trees down on Norris Freeway and New River Highway.  |
| Norris         | 8/2/2002   | NP | 0 | 0 | 10000 | A few trees were reported down in the Norris Lake area.  |
| Mills Creek    | 8/2/2002   | 60 | 0 | 0 | 10000 | Boat dock was blown into Norris lake near the Union County line with wind speed estimated at 60 mph.   |
| Mills Creek    | 8/2/2002   | NP | 0 | 0 | 15000 | Several trees were reported down near Sequoyah Boat Dock on Norris Lake.   |
| Countywide     | 11/10/2002 | NP | 0 | 0 | 15000 | Trees and power lines were reported down across the county.  |
| Countywide     | 11/10/2002 | NP | 0 | 0 | 25000 | Numerous trees and power lines were reported down across the county.   |
| Countywide     | 11/11/2002 | NP | 0 | 0 | 20000 | Numerous trees and power lines were reported down throughout the county.   |

|                |           |    |   |   |       |   |
|----------------|-----------|----|---|---|-------|---|
| Not provided   | 2/3/2003  | 40 | 0 | 0 | 1000  | Strong winds (with gusts up to 40 mph) associated with a band of showers caused numerous reports of fallen trees and power outages across east Tennessee. |
| Countywide     | 2/22/2003 | 60 | 0 | 0 | 5000  | Numerous trees down and power outages reported by 911 dispatch.   |
| Countywide     | 4/25/2003 | 60 | 0 | 0 | 10000 | Numerous trees reported down across the county with several secondary roads blocked by trees.   |
| Norris         | 5/1/2003  | 60 | 0 | 0 | 10000 | Several trees were reported down along Riverside Road three miles southeast of Norris.  |
| Clinton        | 5/11/2003 | 55 | 0 | 0 | 15000 | Numerous trees were reported down in Clinton.   |
| Oak Ridge      | 5/15/2003 | 61 | 0 | 0 | 5000  | A wind gust was estimated at 60 to 70 miles per hour at Oak Ridge.  |
| Claxton        | 5/15/2003 | 55 | 0 | 0 | 10000 | A few trees were reported down in Claxton and in the Dutch Valley area.   |
| Countywide     | 5/17/2003 | 55 | 0 | 0 | 20000 | Several trees were reported down across the county.   |
| Countywide     | 6/11/2003 | 55 | 0 | 0 | 15000 | A few trees were reported down across the county.   |
| Oliver Springs | 7/9/2003  | 60 | 0 | 0 | 0     | A few trees and power lines reported down by power company.   |
| Oak Ridge      | 7/9/2003  | 60 | 0 | 0 | 0     | A few trees reported down by highway department near Frills road.   |
| Clinton        | 7/12/2003 | 60 | 0 | 0 | 0     | Six trees reported down by highway department.  |
| Clinton        | 8/4/2003  | 60 | 0 | 0 | 0     | Several trees reported down by 911 dispatch.  |
| Countywide     | 8/17/2003 | 60 | 0 | 0 | 0     | Three trees reported down by utility company including two between Lake City and Clinton and one along highway 330.                                       |
| Oak Ridge      | 8/31/2003 | 60 | 0 | 0 | 0     | Several trees reported down by police department.   |
| Oak Ridge      | 5/26/2004 | 70 | 0 | 0 | 40000 | Thirty to forty trees were reported down on highway 95 in south Oak Ridge.  |
| Clinton        | 6/17/2004 | 65 | 0 | 0 | 10000 | Trees down  |
| Clinton        | 7/5/2004  | 60 | 0 | 0 | 10000 | Large trees were reported down near Andersonville.  |
| Clinton        | 7/5/2004  | 60 | 0 | 0 | 10000 | A few trees were reported down in Claxton.  |
| Oak Ridge      | 7/6/2004  | 60 | 0 | 0 | 5000  | A few trees were reported down in the Marlow area three miles north of Oak Ridge.   |
| Lake City      | 7/6/2004  | 60 | 0 | 0 | 6000  | A few trees were reported down near Norris Dam.   |

|               |            |    |   |   |       |  |
|---------------|------------|----|---|---|-------|--|
| Countywide    | 7/12/2004  | 60 | 0 | 0 | 12000 | A few trees were reported down across the county.  |
| Oak Ridge     | 7/13/2004  | 65 | 0 | 0 | 20000 | Numerous trees were reported down across the county.   |
| Oak Ridge     | 7/13/2004  | 65 | 0 | 0 | 20000 | Numerous trees were reported down across the county between 1130 and 1140 pm EDT.  |
| Oak Ridge     | 7/17/2004  | 60 | 0 | 0 | 12000 | Several trees were reported down in Oak Ridge.   |
| Oak Ridge     | 4/22/2005  | 60 | 0 | 0 | 0     | Not provided   |
| Clinton       | 6/14/2005  | 65 | 0 | 0 | 15000 | Several trees down across north half of county.  |
| Oak Ridge     | 6/20/2005  | 52 | 0 | 0 | 0     | Wind gust estimated to 60 mph at the Hospital.   |
| Countywide    | 6/27/2005  | 65 | 0 | 0 | 15000 | Several trees and a few powerlines downed across the county. Reported by Clinton Utilities and the Anderson County Highway Department.   |
| Briceville    | 7/27/2005  | 55 | 0 | 0 | 15000 | A total of five trees were reported down in Briceville and Beech Grove.  |
| Countywide    | 8/4/2005   | 60 | 0 | 0 | 10000 | Two trees reported down across the county.   |
| Clinton       | 8/6/2005   | 60 | 0 | 0 | 18000 | Several trees in and around Claxton.   |
| Norris        | 8/6/2005   | 65 | 0 | 0 | 18000 | Numerous trees down countywide.  |
| Norris        | 8/15/2005  | 65 | 0 | 0 | 20000 | Numerous trees and powerlines down across the northeast portions of the county in the Norris area and surrounding areas. Reported by Clinton Utilities.                        |
| Clinton       | 8/17/2005  | 60 | 0 | 0 | 20000 | Numerous trees and powerlines down across the eastern third of county. Reported by Clinton Utilities.  |
| Lake City     | 8/19/2005  | 60 | 0 | 0 | 15000 | A few trees down on powerlines near Lake City. Reported by Clinton Utilities.  |
| Oak Ridge     | 10/21/2005 | 55 | 0 | 0 | 0     | Estimated 60+ mph wind in downtown Oak Ridge. Reported by trained spotter.   |
| Andersonville | 1/2/2006   | 60 | 0 | 0 | 3000  | One tree was reported down on Sequoyah Lane.   |
| Marlow        | 1/2/2006   | 60 | 0 | 0 | 3000  | One tree was downed on a railroad track in the Marlow vicinity.  |
| Countywide    | 4/2/2006   | 70 | 0 | 0 | 30000 | The roof on a school gymnasium in Clinton was damaged. Numerous trees and powerlines down across the county. The Clinton Utility Board reported around 3000 people lost power. |

|              |            |    |   |   |       |   |
|--------------|------------|----|---|---|-------|---|
| Lake City    | 4/7/2006   | 60 | 0 | 0 | 7000  | A few trees down in Lake City   |
| Norris       | 4/7/2006   | 60 | 0 | 0 | 8000  | A few trees down in Norris.   |
| Countywide   | 4/7/2006   | 60 | 0 | 0 | 12000 | Numerous trees down countywide.   |
| Clinton      | 5/20/2006  | 60 | 0 | 0 | 8000  | A few trees were reported down in the Northern part of Anderson county.   |
| Lake City    | 6/23/2006  | 60 | 0 | 0 | 6000  | A few trees down in Lake City.  |
| Oak Ridge    | 6/30/2006  | 60 | 0 | 0 | 3000  | One tree and powerlines down in Oak Ridge.  |
| Clinton      | 6/30/2006  | 60 | 0 | 0 | 4000  | Large limbs downed on a powerline near Clinton.   |
| Oak Ridge    | 7/21/2006  | 60 | 0 | 0 | 12000 | A few trees were reported down in Oak Ridge.  |
| Oak Ridge    | 7/21/2006  | 60 | 0 | 0 | 12000 | A few trees were reported down just south of Oak Ridge.   |
| Clinton      | 7/28/2006  | 60 | 0 | 0 | 25000 | Several trees and power lines were reported down between the Briceville highway and the Old Dutch Valley road about one mile west of Medford.     |
| Oak Ridge    | 7/28/2006  | 60 | 0 | 0 | 3000  | A tree was reported down on a power line at 124 Mirmar Circle in Oak Ridge.   |
| Clinton      | 7/28/2006  | 60 | 0 | 0 | 3000  | A tree was reported down on Coward Road in Clinton.   |
| Clinton      | 8/4/2006   | 60 | 0 | 0 | 10000 | Several trees and powerlines down across the northern half of the county.   |
| Claxton      | 8/10/2006  | 60 | 0 | 0 | 8000  | Several trees down in Claxton area.   |
| Lake City    | 8/10/2006  | 60 | 0 | 0 | 8000  | Several trees down in Lake City.  |
| Claxton      | 9/28/2006  | 60 | 0 | 0 | 8000  | One tree and several power lines were reported down near Claxton.   |
| Clinton      | 10/5/2006  | 60 | 0 | 0 | 0     | A few trees were reported down near Clinton by the Highway Department.  |
| Lake City    | 10/11/2006 | 60 | 0 | 0 | 10000 | Two trees and powerlines down in the Miller Hollow area.  |
| Not provided | 12/1/2006  | 60 | 0 | 0 | 30000 | Numerous trees and powerlines down countywide. Estimated wind gusts to 60 mph at Buffalo Mountain. Many carports, awnings and signs were damaged. |

|               |           |    |   |   |       |   |
|---------------|-----------|----|---|---|-------|---|
| Lake City     | 4/3/2007  | 55 | 0 | 0 | 60000 | Numerous trees were reported down across the county although the greatest concentration of tree damaged was in the vicinity of Lake City. Also Lighthouse Marina on Norris Dam sustained damage to the docks and boats. |
| Lake City     | 4/26/2007 | 55 | 0 | 0 | 20000 | Numerous trees down near Lake City.   |
| Oak Ridge     | 5/4/2007  | 55 | 0 | 0 | 20000 | Numerous trees were reported down in the eastern half of Oak Ridge.   |
| Oak Ridge     | 6/8/2007  | 60 | 0 | 0 | 20000 | Several trees and powerlines were downed by thunderstorm winds in and around Oak Ridge.   |
| Lake City     | 7/16/2007 | 60 | 0 | 0 | 0     | Two trees were reported down in Lake City.  |
| Clinton       | 8/1/2007  | 40 | 0 | 0 | 2000  | Sheriffs dispatch reported one tree down on Highway 61 between Clinton and Norris.  |
| Lake City     | 8/2/2007  | 40 | 0 | 0 | 1000  | Sheriff's dispatch reported one tree down on Foster Road near Lake City.  |
| Rosedale      | 8/3/2007  | 52 | 0 | 0 | 2000  | The sheriffs dispatch reported two trees downed by thunderstorm winds near Rosedale.  |
| Oak Ridge     | 1/29/2008 | 50 | 0 | 0 | 0     | Numerous trees were reported down in Marlow.  |
| Lake City     | 4/11/2008 | 60 | 0 | 0 | 10000 | The utility company reported several trees downed by thunderstorm winds along Norris Freeway.   |
| South Clinton | 6/11/2008 | 60 | 0 | 0 | 12000 | Trained spotter reported numerous trees downed by thunderstorm winds in Claxton.  |
| South Clinton | 6/28/2008 | 60 | 0 | 0 | 15000 | Dispatch reported numerous trees downed by thunderstorm winds countywide.   |
| Mills Creek   | 7/21/2008 | 55 | 0 | 0 | 0     | Several trees were reported down three miles north northeast of Norris.   |
| South Clinton | 2/11/2009 | 62 | 0 | 0 | 35000 | Law enforcement personnel reported numerous trees and powerlines downed by thunderstorm winds countywide. In addition, 3 homes were damaged by the winds.   |
| Mills Creek   | 5/8/2009  | 55 | 0 | 0 | 0     | Numerous trees were reported down.  |
| Buffalo       | 5/8/2009  | 55 | 0 | 0 | 0     | A few trees were reported down in Northwest Anderson county.  |

|               |            |    |   |   |        |  |
|---------------|------------|----|---|---|--------|--|
| Elza          | 5/15/2009  | 50 | 0 | 0 | 0      | A few trees were reported down along Wolf Valley Road.   |
| Bethel        | 5/25/2009  | 50 | 0 | 0 | 0      | Several trees were reported down on Norris Freeway.  |
| Oak Ridge     | 6/11/2009  | 58 | 0 | 0 | 12000  | The newspaper reported several trees and powerlines downed by thunderstorm winds in the Oak Ridge area.  |
| South Clinton | 6/16/2009  | 60 | 0 | 0 | 20000  | Law enforcement personnel reported numerous trees downed by thunderstorm winds countywide.   |
| Knapp         | 6/16/2009  | 58 | 0 | 0 | 10000  | Law enforcement personnel reported a home was damaged by thunderstorm winds southeast of Lake City.  |
| Seeber Flats  | 6/16/2009  | 55 | 0 | 0 | 0      | A gust of 63 mph was measured at a TVA tower.  |
| South Clinton | 6/16/2009  | 60 | 0 | 0 | 20000  | Law enforcement personnel reported numerous trees and powerlines downed by thunderstorm winds in the Clinton area.   |
| Andersonville | 6/18/2009  | 52 | 0 | 0 | 2000   | Amateur radio personnel reported one tree downed by thunderstorm winds near Andersonville.   |
| Clinton       | 6/18/2009  | 55 | 0 | 0 | 8000   | Highway department personnel reported several trees downed by thunderstorm winds across the eastern side of the county.  |
| South Clinton | 6/22/2009  | 58 | 0 | 0 | 15000  | Law enforcement personnel reported a few trees and powerlines downed by thunderstorm winds countywide. In addition, a home in Claxton was damaged by a falling tree from the wind. |
| South Clinton | 6/28/2009  | 55 | 0 | 0 | 5000   | Law enforcement personnel reported a few trees downed by thunderstorm winds in the southern portions of Clinton.   |
| South Clinton | 7/5/2009   | 45 | 0 | 0 | 100000 | A 100 year old elm tree fell onto a home which resulted in damage to the home's deck, back room, and the roof over the kitchen.  |
| Clinton       | 8/4/2009   | 50 | 0 | 0 | 2000   | Law enforcement officials reported one tree downed by thunderstorm winds south of Clinton.   |
| Clinton       | 10/9/2009  | 55 | 0 | 0 | 10000  | Law enforcement officials reported several trees downed by thunderstorm winds in Clinton.  |
| Lake City     | 10/26/2010 | 55 | 0 | 0 | 5000   | Highway department personnel reported a few trees downed by thunderstorm winds in Lake City.   |
| Norris        | 10/26/2010 | 55 | 0 | 0 | 5000   | Highway department personnel reported a few trees downed by thunderstorm winds in Norris.  |

|                |           |    |   |   |       |  |
|----------------|-----------|----|---|---|-------|--|
| Clinton        | 2/28/2011 | 52 | 0 | 0 | 5000  | Law enforcement personnel reported a few trees downed by thunderstorm wind at Clinton.   |
| Clinton        | 4/4/2011  | 55 | 0 | 0 | 15000 | Law enforcement personnel reported numerous trees downed by thunderstorm wind countywide.  |
| Leinart        | 5/22/2011 | 55 | 0 | 0 | 0     | Numerous trees were reported down across much of the northern third of the county.   |
| Clinton        | 6/23/2011 | 52 | 0 | 0 | 3000  | Law enforcement personnel reported 2 trees downed by thunderstorm wind on Oliver Springs Highway 2 miles southwest of Clinton.                               |
| Lake City      | 3/31/2012 | 50 | 0 | 0 | 0     | A few trees were reported down in Lake City.   |
| Lake City      | 4/26/2012 | 52 | 0 | 0 | 5000  | A trained spotter reported several trees downed by thunderstorm wind near Lake City.   |
| Scarboro       | 7/1/2012  | 50 | 0 | 0 | 0     | A few trees were reported down in the southern portion of the county one mile south of Oak Ridge.  |
| Oak Ridge      | 8/1/2012  | 50 | 0 | 0 | 2000  | An individual from the public reported a large tree downed by thunderstorm wind near Oak Ridge.  |
| Frost Bottom   | 5/17/2013 | 50 | 0 | 0 | 0     | Two trees were reported down near highway 61 between Oliver Springs and Clinton.   |
| Oak Ridge      | 5/19/2013 | 56 | 0 | 0 | 0     | A wind gust of almost 70 mph was measured on the west side of Oak Ridge.   |
| South Clinton  | 5/19/2013 | 50 | 0 | 0 | 0     | Several trees were reported down on roadways in various parts of the county.   |
| Oliver Springs | 6/13/2013 | 50 | 0 | 0 | 5000  | Law enforcement personnel reported a few trees downed by thunderstorm wind near 3 miles east of Oliver Springs.  |
| Lake City      | 6/27/2013 | 50 | 0 | 0 | 2000  | Dispatch personnel reported 1 tree downed by thunderstorm wind 1 mile northwest of Lake City on Beech Grove Road.  |
| Norris         | 8/31/2013 | 50 | 0 | 0 | 8000  | Law enforcement personnel reported several trees downed by thunderstorm wind 5 miles southeast of Norris along the Norris Freeway near the Knox county line. |
| Mills Creek    | 7/27/2014 | 50 | 0 | 0 | 0     | Two trees were reported down on Indian Gap Road in Andersonville.  |

|               |           |    |   |   |      |   |
|---------------|-----------|----|---|---|------|---|
| Andersonville | 7/27/2014 | 50 | 0 | 0 | 0    | Several trees were reported down in Andersonville.  |
| South Clinton | 7/27/2014 | 55 | 0 | 0 | 0    | Several trees were reported down in Clinton.  |
| Clinton       | 8/20/2014 | 52 | 0 | 0 | 8000 | Law enforcement personnel reported many trees downed by thunderstorm wind countywide.   |
| South Clinton | 7/18/2015 | 50 | 0 | 0 | 0    | Several trees were reported down off West Wolf Valley Road in Clinton.  |
| South Clinton | 2/24/2016 | 50 | 0 | 0 | 0    | A barn/storage structure were damaged.  |
| South Clinton | 2/24/2016 | 50 | 0 | 0 | 0    | Several trees were reported down.   |
| South Clinton | 2/24/2016 | 50 | 0 | 0 | 0    | Several power lines and trees were reported down along Lee Road.  |
| Not provided  | 3/30/2016 | 66 | 0 | 0 | 0    | A 76 mph gust was measured at the Camp Creek wind tower.  |
| South Clinton | 7/6/2016  | 50 | 0 | 0 | 0    | Several trees were reported down in Clinton.  |
| Scarboro      | 7/8/2016  | 55 | 0 | 0 | 0    | One tree was reported down in the eastern part of Oak Ridge.  |
| South Clinton | 7/12/2016 | 50 | 0 | 0 | 0    | Several trees were reported down across the eastern part of the county.   |
| Leinart       | 7/19/2016 | 50 | 0 | 0 | 0    | Several trees were reported down near Briceville.   |
| Oak Ridge     | 3/1/2017  | 50 | 0 | 0 | 0    | Trees were reported down on Key Springs Road.   |
| Norris        | 3/1/2017  | 50 | 0 | 0 | 0    | A tree was reported down at Norris.   |
| South Clinton | 5/27/2017 | 50 | 0 | 0 | 0    | Several trees were reported down across the county.   |
| Not provided  | 1/19/2019 | 51 | 0 | 0 | 0    | A 59 mph wind gust was recorded at the Camp Creek wind tower two miles south of Camp Creek.   |
| Batley        | 4/14/2019 | 50 | 0 | 1 | 0    | A woman was struck and injured by a falling tree at her home on Nesper Road in Oak Ridge.   |
| Batley        | 4/14/2019 | 60 | 0 | 0 | 0    | Widespread power lines and trees were downed across Oak Ridge. Multiple trees fell on commercial buildings, homes, and across roads. A rook was partially blown off a building on Warehouse Road. |
| Andersonville | 6/21/2019 | 55 | 0 | 0 | 0    | A gazebo and other structural debris were blown onto Buffloa Road in Andersonville.   |
| Leinart       | 6/21/2019 | 55 | 0 | 0 | 0    | Several reports of downed trees were received from across the county.   |

|            |            |    |   |   |   |   |
|------------|------------|----|---|---|---|---|
| Offutt     | 6/24/2019  | 50 | 0 | 0 | 0 | A large tree was down along Lake City Highway between Rocky Top and Clinton.            |
| Clinton    | 6/24/2019  | 50 | 0 | 0 | 0 | Multiple trees were reported down near Clinton.   |
| Clinton    | 10/31/2019 | 55 | 0 | 0 | 0 | A large tree fell onto a home causing extensive damage.                                 |
| Norris     | 10/31/2019 | 55 | 0 | 0 | 0 | A few trees were downed on Pine Road.   |
| Clinton    | 3/3/2020   | 50 | 0 | 0 | 0 | One tree and a few power lines were reported down at East Wolf Valley Road in Heiskell. |
| Edgemoor   | 7/20/2020  | 50 | 0 | 0 | 0 | Several trees reported down in the Claxton area.  |
| Briceville | 7/31/2020  | 50 | 0 | 0 | 0 | Several trees reported down in the Briceville area.                                     |
| Leinart    | 7/31/2020  | 50 | 0 | 0 | 0 | Several trees reported down in Dutch Valley.  |
| Leinart    | 5/28/2021  | 52 | 0 | 0 | 0 | Trees down around Anderson, and some power outages.                                     |

The committee shared their personal experiences of tornado/wind events that have occurred in Anderson County, Clinton, Norris, Oak Ridge, and Rocky Top. The following is transcribed from their thoughts.

Tornados generally go around Oak Ridge but we have significant wind events.

Trees Down – multiple streets

Anderson 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 analysis's 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 |
| Anderson County Unincorporated | 2       | 3        | 1        | 2.0            |
| City of Clinton                | 4       | 4        | 3        | 3.67           |
| City of Norris                 | 4       | 3        | 2        | 3.00           |
| City of Oak Ridge              | 5       | 5        | 4        | 4.67           |
| City of Rocky Top              | 4       | 3        | 2        | 3              |

| Jurisdiction                   | Vulnerability | Probability | Risk<br>V+P=R |
|--------------------------------|---------------|-------------|---------------|
| Anderson County Unincorporated | 2.0           | 5           | 7.0           |
| City of Clinton                | 3.67          | 1           | 4.67          |
| City of Norris                 | 3.0           | 1           | 4.0           |
| City of Oak Ridge              | 4.67          | 2           | 6.67          |
| City of Rocky Top              | 3             | 1           | 4             |

| 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         |

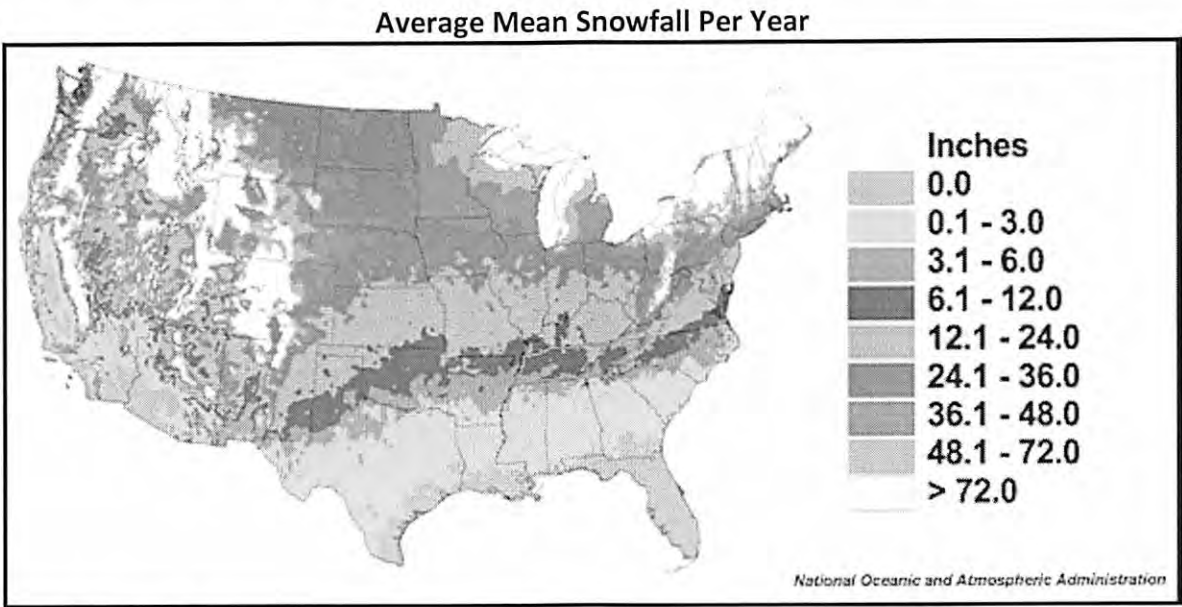
## **Winter Weather**

A freeze occurs when temperatures are below 32 degrees Fahrenheit for a period. 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 Anderson 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, Anderson County can experience multiple winter weather events in one year affecting all jurisdictions within equally.

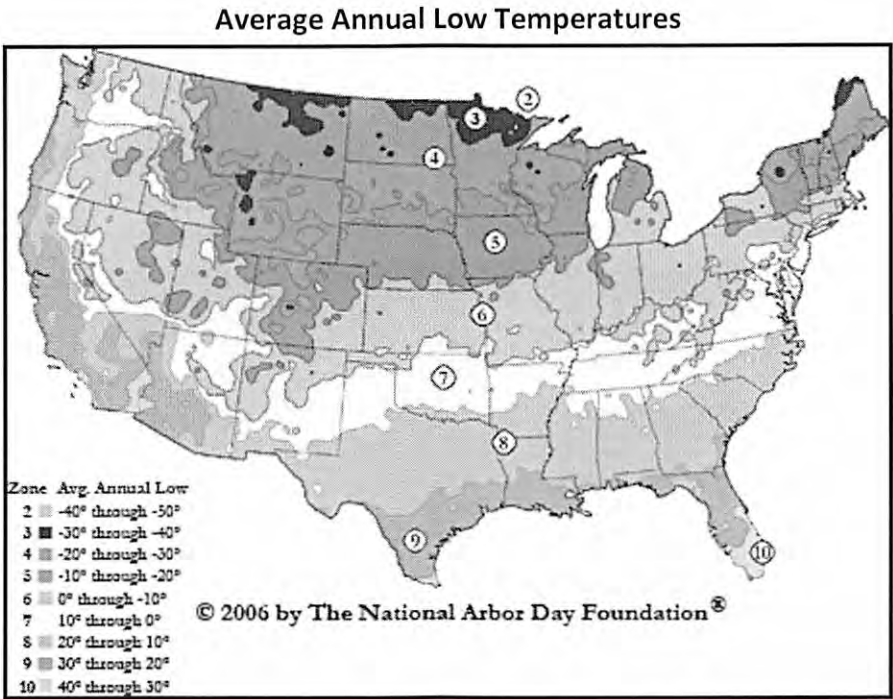
The severity of winter storms is commonly measured by inches of snowfall. It is possible for snowfall to accumulate up to 30 inches in Anderson County and/or ice accumulations to cause for

hazardous conditions due to its proximity in and around the mountains. The average mean snowfall per year in Anderson County is between 4-8 inches (as seen on the map below).



*Source: NOAA*

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



*Source: NOAA*

The following chart provides winter storm event information for Anderson County between 1950 and 2021. The following information was obtained by accessing the NOAA database. <https://www.ncdc.noaa.gov/stormevents/>. This information represents all the events and extent of the Winter Weather hazard experienced by Anderson County, including the jurisdictions located within, and is the only source of data accessible. The information provided for Anderson County also applies to the school district due to the geographic distribution of the schools throughout the County.

### Winter Storm Impacts in Anderson County: 1950 - 2020

| Date       | Event Type   | Deaths | Injuries | Property Damage | Impact/Extent Description   |
|------------|--------------|--------|----------|-----------------|---|
| 1/6/1996   | Winter Storm | 0      | 0        | 0               | Snow to parts of East Tennessee and between one to three feet of snow to southwest Virginia. Numerous trees and power lines fell. Many roads became impassable shutting down schools and businesses across the area. There were also isolated incidents of collapsed roofs. |
| 1/11/1996  | Winter Storm | 0      | 0        | 0               | Heavy snow accumulations of 4 to 8 inches caused numerous power outages and car accidents. Numerous trees fell as well. Schools and businesses were closed.   |
| 2/2/1996   | Winter Storm | 0      | 0        | 0               | Numerous minor traffic accidents were reported though no major accidents. Some specific snow amounts reported were: Anderson 18 to 24 inches  |
| 12/18/1996 | Winter Storm | 0      | 0        | 0               | A strong upper level disturbance brought heavy snow showers to the area resulting in widespread icy roads and hazardous driving conditions. Across northeast Tennessee, amounts were generally between 1 and 2 1/2".  |
| 1/10/1997  | Winter Storm | 0      | 0        | 0               | An arctic cold front and associated upper level disturbance swept through the southern Appalachians. Snowfall amounts 3-5 inches in northeast Tennessee.  |
| 12/30/1997 | Winter Storm | 0      | 0        | 0               | A series of fast-moving upper level disturbances caused heavy snow shower activity across East Tennessee. Amounts were generally 2 to 5"  |
| 12/22/1998 | Ice Storm    | 0      | 0        | 0               | The ice storm left minor accumulations of ice in valley locations due to warm ground temperatures. Most of the ice was on trees and bridges. Most roads were only wet. In higher elevations, the ice was much heavier.  |
| 1/6/1999   | Winter Storm | 0      | 0        | 0               | Generally less than 2 inches of snow fell across East Tennessee, resulting in numerous school closings and traffic accidents.   |

|            |              |   |   |   |  |
|------------|--------------|---|---|---|--|
| 3/13/1999  | Winter Storm | 0 | 0 | 0 | A very wet weather system brought heavy amounts of rain to East Tennessee. Heavy rain began early Saturday morning, changed to heavy snow in some places during the day Saturday, back to rain Saturday night, then finally to snow Sunday night. There were also isolated reports of freezing rain. The snow was confined to northeast Tennessee, generally northeast of Knoxville. Rainfall amounts across much of East Tennessee was 1-2 inches. Snowfall amounts in northeast Tennessee averaged 1-3 inches. |
| 1/22/2000  | Winter Storm | 0 | 0 | 0 | Generally 2-4 inches of snow fell across central and northeast portions of East Tennessee, with only a few reports of amounts in the 1-2 inch range and 4-5 inch range   |
| 12/2/2000  | Winter Storm | 0 | 0 | 0 | Widespread snow fell across East Tennessee. Amounts varied widely. In northeast Tennessee, snowfall amounts averaged 1 to 3 inches, with a few spots in the mountains reporting 2 to 4 inches  |
| 12/18/2000 | Winter Storm | 0 | 0 | 0 | Widespread light snow fell across East Tennessee. Amounts in counties in the valley generally ranged from 1 to 2 inches. In the higher mountain elevations, amounts were a bit higher, averaging 2 to 4 inches.  |
| 1/1/2001   | Winter Storm | 0 | 0 | 0 | A strong upper level disturbance swept through the Tennessee Valley and southern Appalachians bringing a round of light snow to the area. Amounts were generally 1/2 inch to 2 inches. There were a few isolated reports of 3 inches, mainly near the mountains.   |
| 1/20/2001  | Winter Storm | 0 | 0 | 0 | Low pressure moved northeast across the southern Appalachians, bringing light snow to the region. A few spots received around 4 inches. Across the remainder of East Tennessee, amounts were under 1 inch.   |
| 1/5/2003   | Heavy Snow   | 0 | 0 | 0 | Across northeast Tennessee, amounts average between a dusting and a half inch. Widespread snows over northern East Tennessee...and all of the mountain regions brought 4 to 6 inches of snow between 4 A.M. and noon.  |
| 1/16/2003  | Winter Storm | 0 | 0 | 0 | A storm system moved from the southern plains across the Tennessee Valley of Alabama into the southern Appalachians bringing snowfall amounts ranging from 2 to 8 inches across eastern Tennessee. The higher accumulations were concentrated across extreme northeast sections of the state.  |

|            |              |   |   |       |   |
|------------|--------------|---|---|-------|---|
| 1/22/2003  | Winter Storm | 0 | 0 | 0     | Snowfall amounts ranged from 2 to 5 inches in the lower elevations while higher elevations across the region picked up totals ranging from 5 to 8 inches.   |
| 2/9/2003   | Heavy Snow   | 0 | 0 | 0     | Three to six inches of snow was reported across most of the Cumberland Plateau, with up to four inches of snow reported across portions of the far eastern Tennessee mountains.   |
| 1/9/2004   | Winter Storm | 0 | 0 | 0     | The storm produced snowfall amounts ranging from 1 to 4 inches. Most of East Tennessee averaged 2-3 inches of snow  |
| 2/26/2004  | Heavy Snow   | 0 | 0 | 0     | No information provided.  |
| 1/29/2010  | Heavy Snow   | 0 | 0 | 0     | Heavy snow occurred across east Tennessee, with snowfall amounts ranging from four to eight inches in the lower elevations to ten to fourteen inches across the higher elevations. Much of the region ended up with ice accumulation around one quarter inch with some locations measuring as much as one half inch of ice. Trees and power lines were downed across parts of the region due to ice accumulation.   |
| 12/16/2010 | Ice Storm    | 0 | 0 | 20000 | A storm system moving through the region produced an initial burst of two to four inches at several locations. As warmer air moved into the region, freezing rain followed the snowfall, resulting in a quarter to half of an inch of icing at most locations.  |
| 1/17/2013  | Heavy Snow   | 0 | 0 | 0     | Very strong lifting of a moist air mass in the presence of an upper level low pressure system resulted in a heavy wet snowfall event during the period from around noon est until early evening. Atmospheric dynamics were so intense at times, that lightning was generated; i.e. thundersnow. Much of the snow accumulated across the region from Central East Tennessee northeast through Southwest Virginia, generally north of Interstate 40 and east of Interstate 75. The upper level low moved east from Northern to Northeast Georgia generating 3 to 5 inches of snow across the Great Valley of Central East Tennessee northeast to the Tri-Cities area. |
| 2/13/2014  | Heavy Snow   | 0 | 0 | 0     | Heavy snow blanketed the area as strong upper level disturbance combined with deep moisture pulled from the Carolina coast over a 2 day period. The largest snowfall totals were in the mountains where up to 16 inches was reported at Newfound Gap.   |

|           |              |   |   |   |  |
|-----------|--------------|---|---|---|--|
| 3/3/2014  | Ice Storm    | 0 | 0 | 0 | ice storm that produced accretions ranging from around one tenth to as much as one half inch.  |
| 2/21/2015 | Winter Storm | 0 | 0 | 0 | For the second time this month conditions were for both for up to 1/2 inch of freezing rain and snow up to 8 inches. Driving on area roads was dangerous.                    |
| 1/20/2016 | Heavy Snow   | 0 | 0 | 0 | Moderate to heavy snowfall occurred in an area along interstate 40 and points north across the Cumberland Plateau, Snowfall amounts were generally in the 3 to 5 inch range. |

The committee shared their personal experiences of winter weather events that have occurred in Anderson County, Clinton, Norris, Oak Ridge, and Rocky Top. The following is transcribed from their thoughts.

Due to the City being built on ridges, people tend to be stuck in their homes. Most of the impact on people would be related to car accidents.

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

| Jurisdiction                   | Impacts |          |          | Vulnerability          |
|--------------------------------|---------|----------|----------|------------------------|
|                                | Human   | Property | Business | $H+P+B=\#; \# / 3 = V$ |
| Anderson County Unincorporated | 3       | 2        | 1        | 2.0                    |
| City of Clinton                | 1       | 1        | 1        | 1.0                    |
| City of Norris                 | 1       | 1        | 1        | 1.0                    |
| City of Oak Ridge              | 1       | 3        | 2        | 2.0                    |
| City of Rocky Top              | 2       | 2        | 1        | 1.67                   |

| Jurisdiction                   | Vulnerability | Probability | Risk<br>$V+P=R$ |
|--------------------------------|---------------|-------------|-----------------|
| Anderson County Unincorporated | 2.0           | 5           | 7.0             |
| City of Clinton                | 1.0           | 1           | 2.0             |
| City of Norris                 | 1.0           | 1           | 2.0             |
| City of Oak Ridge              | 2.0           | 1           | 3.0             |
| City of Rocky Top              | 1.67          | 5           | 6.67            |

| 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         |

## **Wildfire**

As reported on March 5, 2021 by wate.com, a 40-acre wildfire occurred in Rocky Top.

As reported on November 7, 2016 on wkrr.com, a 1400-acre fire burned near State Route 116 in Anderson County near Rosedale School. The fire did threaten one cabin and was determined to be arson.

As reported on November 11, 2016 on wbir.com, there were 4 active wildfires burning 4230 acres in Anderson County.

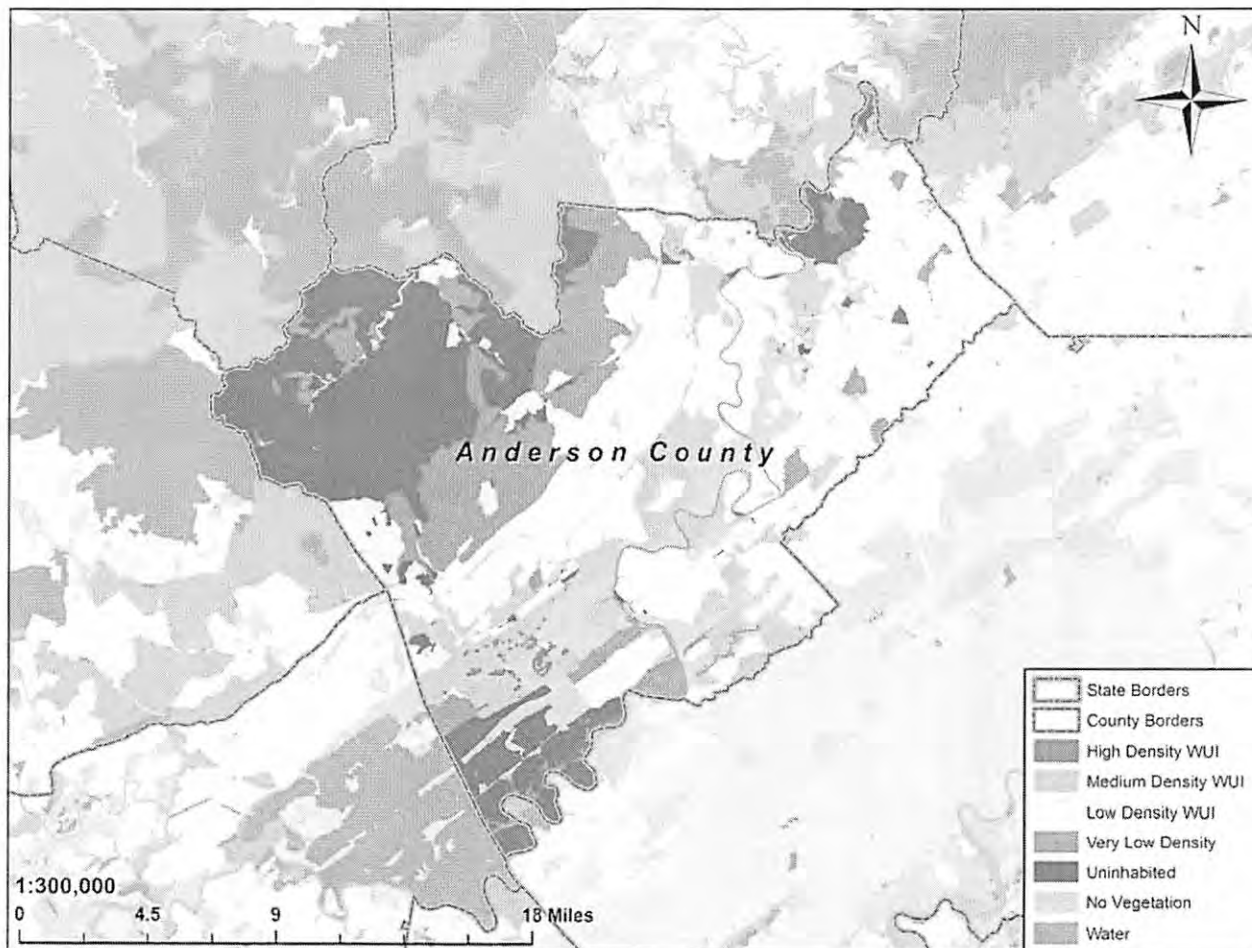
As reported on March 25, 2017 by oakridgetoday.com, a wildfire burned about 18 acres of federal land in west Oak Ridge.

As reported on March 25, 2019 by oakridgetoday.com, CSX said it held train traffic out of the area during a brush and grass fire near the railroad tracks in east Oak Ridge. The fire burned grass on the side of a steep embankment supporting the railroad tracks that cross over Elza Drive. It also appeared to spread to nearby brush and grass near an unused rail line that splits off near the Clinch

River to enter east Oak Ridge at Melton Lake Drive. The fire sent up a large plume of black and gray smoke that was visible for miles. Flames were moving quickly, fueled by strong winds and excess brush in the area.

The 2017 Hazard Mitigation Plan had additional occurrences and stated, “The first occurred on 11/14/1993 that burned 1 acre just south of Oak Ridge. A second fire burned 7 acres south of Clinton on November 17th and was put out by local FD and TN State Forestry. A third fire occurred on November 18th on multiple ridgelines northwest of Briceville. This fire required multiagency support and burned an estimated 250 to 350 acres. No one was injured or killed in any of the three fires.”

Below is the Wildland Urban Interface for Anderson County. Anderson County and its jurisdictions range from uninhabited to no vegetation with many areas susceptible to wildfires.



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.

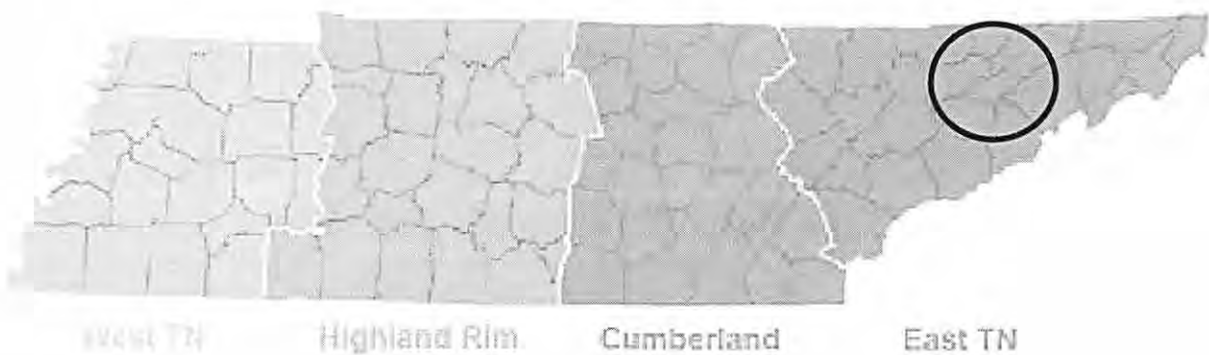
An area's topography (terrain and land slopes) affects its susceptibility to wildfire spread. Fire intensities and rates of spread increase as slope increases due to the tendency of heat from a fire to rise via convection and radiation. The natural arrangement of vegetation throughout a hillside can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

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 15<sup>th</sup>. Fall fire season begins around October 15, when the leaves begin to fall and usually ends December 15<sup>th</sup> due to shorter, cooler, wetter days. Still, wildland fires occur year-round. A burning permit is required for outdoor burning between October 15<sup>th</sup> and May 15<sup>th</sup>.

The committee shared their personal experiences of wildfire events that have occurred in Anderson County, Clinton, Norris, Oak Ridge, and Rocky Top. The following is transcribed from their thoughts.

The potential impact is on the west end of Oak Ridge. All the homes that back up to E. Boundary Rd. on Whippoorwill could potentially be severely impacted if there were a fire on the DOE reservation.



Anderson County is in the East TN District of the TN Division of Forestry. The TN Division of Forestry provides statistics for each region summarizing wildfire events. Due to outside data sources including federal and state land, causing confusion in wildfire data, the TN Division of Forestry will always remain the only source for Counties within the State of Tennessee for information. It is not the responsibility of Anderson County to mitigate federal or state land. Hopefully, in the future, a more defined dataset can be provided. At this time, this is the only information Anderson County can obtain that is consistent and confirmed. Below are the statistics for Anderson County from 2007 to 2016. These statistics also provide extent of the Wildfire Hazard. For Area, the total number of acres for the East TN District is 6,245,119.29. The percentage is calculated by taking the percentage and calculating the total area by percentage within the entire district. Size is calculated by total number of acres divided by total number of fires.

| Year | # of Fires Forested | # of Fires Non-Forested | Total | # of Acres Forested | # of Acres Non-Forested | Total   | Size  | Area  |
|------|---------------------|-------------------------|-------|---------------------|-------------------------|---------|-------|-------|
| 2016 | 18                  | 3                       | 21    | 4,764.0             | 14.5                    | 4,778.5 | 227.5 | 0.018 |
| 2015 | 2                   | 0                       | 2     | 16.0                | 0.0                     | 16.0    | 8.0   | 0.000 |
| 2014 | 6                   | 1                       | 7     | 39.0                | 4.0                     | 43.0    | 6.1   | 0.000 |
| 2013 | 4                   | 0                       | 4     | 60.0                |                         | 60.0    | 15.0  | 0.000 |
| 2012 | 6                   | 1                       | 7     | 879.0               | 20.0                    | 899.0   | 128.4 | 0.003 |
| 2011 | 1                   | 1                       | 2     | 5.0                 | 0.1                     | 5.1     | 2.6   | 0.000 |
| 2010 | 3                   | 2                       | 5     | 10.0                | 6.4                     | 16.4    | 3.3   | 0.000 |
| 2009 | 6                   | 1                       | 7     | 237.0               | 106.0                   | 343.0   | 49.0  | 0.001 |
| 2008 | 9                   | 1                       | 10    | 141.5               | 0.1                     | 141.6   | 14.2  | 0.001 |
| 2007 | 22                  | 4                       | 26    | 386.2               | 4.1                     | 390.3   | 15.0  | 0.001 |

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

| Jurisdiction                   | Impacts |          |          | Vulnerability  |
|--------------------------------|---------|----------|----------|----------------|
|                                | Human   | Property | Business | H+P+B=#; #/3=V |
| Anderson County Unincorporated | 2       | 3        | 1        | 2.0            |
| City of Clinton                | 1       | 2        | 1        | 1.33           |
| City of Norris                 | 1       | 2        | 1        | 1.33           |
| City of Oak Ridge              | 4       | 5        | 1        | 3.33           |
| City of Rocky Top              | 2       | 3        | 1        | 2.0            |

| Jurisdiction                   | Vulnerability | Probability | Risk<br>V+P=R |
|--------------------------------|---------------|-------------|---------------|
| Anderson County Unincorporated | 2.0           | 4           | 6.00          |
| City of Clinton                | 1.33          | 1           | 2.33          |
| City of Norris                 | 1.33          | 2           | 3.33          |
| City of Oak Ridge              | 3.33          | 3           | 6.33          |

|                   |     |   |   |
|-------------------|-----|---|---|
| City of Rocky Top | 2.0 | 4 | 6 |
|-------------------|-----|---|---|

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

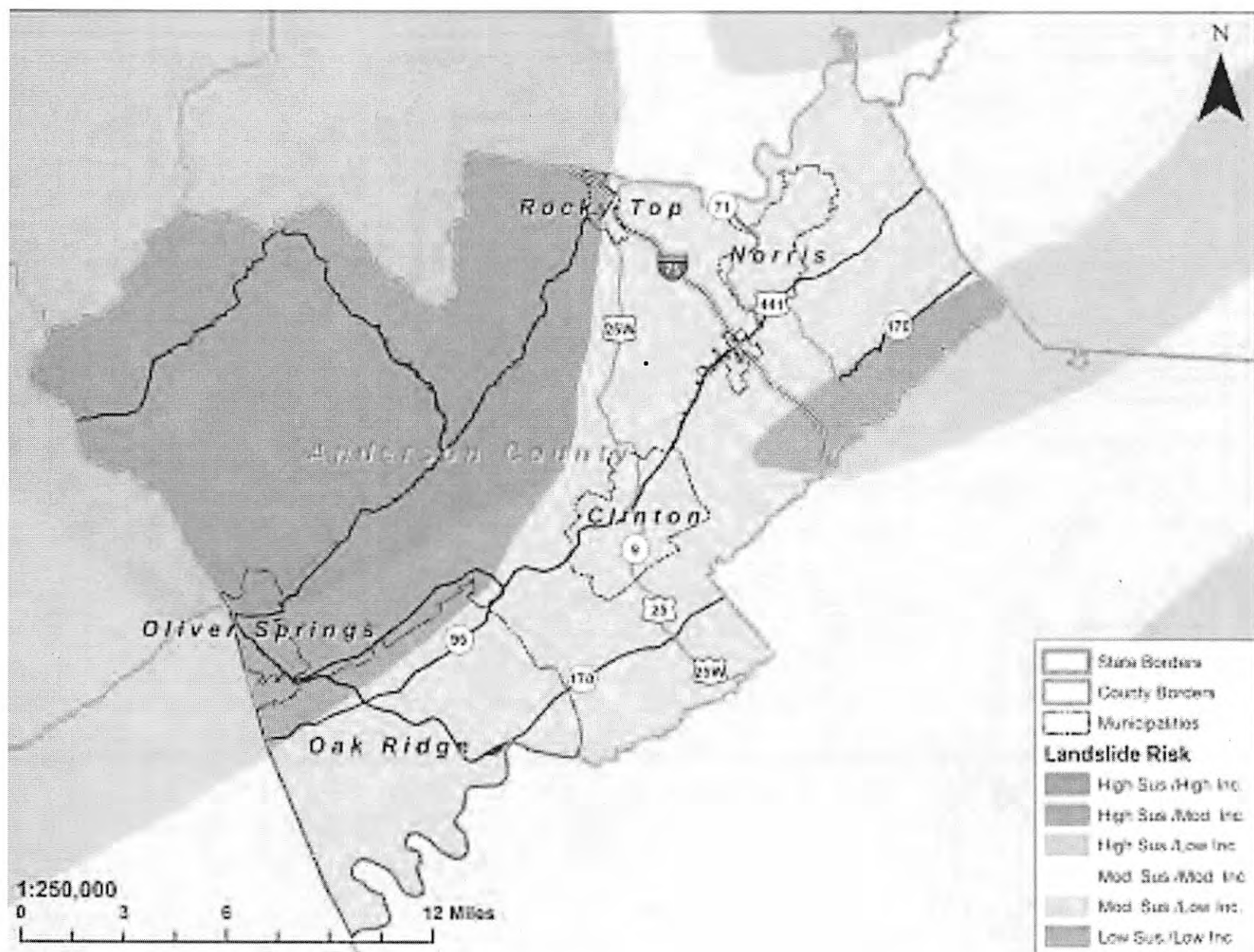
## **Landslides**

In Eastern Tennessee, the primary way landslides occur is through significant rainfall. Many rainfall-induced landslides transform into debris flows (fast-moving slurries of water, soil, and rock) as they travel down steep slopes, especially those that enter stream channels where they may mix with additional water and sediment.

The topography of East Tennessee lends to the risk of landslides. According to worldatlas.com, varied ranges of the Appalachian Mountain system cover the eastern third of Tennessee, including the Bald, Great Smoky, Holston, Stone, Unaka and Unicoi mountains. Located along its border with North Carolina, Clingmans Dome (at 6,643 ft.) is the state's highest point. In fact, it's the third highest point in the Appalachian Mountain range; only Mt. Mitchell in North Carolina (6,684 ft.), and Mt. Craig (6,647 ft.) in Mt. Mitchell State Park rise higher. To the immediate west of those mountains (stretching south to north) the Appalachian Valley is a series of lower ridges, hills, and very fertile farmland. The Cumberland Plateau, a run of flat hills, valleys and round top mountains, stretches north from Chattanooga to the Kentucky border. Lookout Mountain (1,850 ft.), to the southwest of Chattanooga, provides views of seven states on a clear day.

According to the United States Geological Survey, a landslide is defined as the movement of a mass of rock, debris, or earth down a slope. Landslides are a type of "mass wasting," which denotes any down-slope movement of soil and rock under the direct influence of gravity. The term "landslide" encompasses five modes of slope movement: falls, topples, slides, spreads, and flows. These are further subdivided by the type of geologic material (bedrock, debris, or earth). Debris flows (commonly referred to as mudflows or mudslides) and rock falls are examples of common landslide types. Almost every landslide has multiple causes. Slope movement occurs when forces acting down-slope (mainly due to gravity) exceed the strength of the earth materials that compose the slope. Causes include factors that increase the effects of down-slope forces and factors that contribute to low or reduced strength. Landslides can be initiated in slopes already on the verge of movement by rainfall, snowmelt, changes in water level, stream erosion, changes in ground water, earthquakes, volcanic activity, disturbance by human activities, or any combination of these factors. Other factors pertinent to East Tennessee is the high risk of Wildfire which is a documented hazard within this plan. Wildfire promotes erosion and can contribute to future landslide potential.

This map below shows the distribution of relative landslide susceptibility across Anderson County. This map was brought forward from the 2017 Hazard Mitigation Plan. In the 2017 Hazard Mitigation Plan, there were no Landslide incidents. The past five years have showed an increase of risk in relation to this hazard.



Landslides continue to be a major concern for Anderson County residents. Below is the information about landslide occurrences in Anderson County and its jurisdiction. State route 116 continues to be a significant issue. During heavy rain that caused significant flooding, State Route 116 hillside failed.



2017

US 441 Near Norris Dam, Norris

2018

ST RT Hwy 116 in Briceville Community, Briceville  
Granite Road, Clinton

2019

ST RT Hwy 116  
Ridgeview Road, Clinton  
Eaglebend Road, Clinton  
Bear Creek Road, Oak Ridge

2020

ST RT Hwy 116, New River

For the purposes of hazard mitigation, the following roads are the focus of this committee.

SR 116 entire route

SR 9 around LM 13 to LM 17 and LM 2

SR330 around LM 8

SR 71 around LM 1 to LM 6

SR 61 around LM 16 to LM 17 and LM 3

To illustrate potential issues surrounding landslides in Oak Ridge, a landslide occurred on February 23, 2019 next to the access road to the Oak Ridge Water Treatment Plant on Pine

Ridge, above the Y-12 National Security Complex. The Water Treatment plant is a critical facility.



The committee shared their personal experiences of landslide events that have occurred in Anderson County, Clinton, Norris, Oak Ridge, and Rocky Top. The following is transcribed from their thoughts.

The landslide on Bear Creek Rd. cost Oak Ridge Public Works over \$250,000.

| Jurisdiction                   | Impacts |          |          | Vulnerability  |
|--------------------------------|---------|----------|----------|----------------|
|                                | Human   | Property | Business | H+P+B=#; #/3=V |
| Anderson County Unincorporated | 1       | 2        | 1        | 1.33           |
| City of Clinton                | 1       | 3        | 2        | 2              |
| City of Norris                 | 1       | 2        | 2        | 1.67           |
| City of Oak Ridge              | 1       | 4        | 2        | 2.33           |
| City of Rocky Top              | 1       | 1        | 1        | 1              |

| Jurisdiction                   | Vulnerability | Probability | Risk<br>V+P=R |
|--------------------------------|---------------|-------------|---------------|
| Anderson County Unincorporated | 1.33          | 2           | 3.33          |

|                   |      |   |      |
|-------------------|------|---|------|
| City of Clinton   | 2    | 2 | 4    |
| City of Norris    | 1.67 | 3 | 4.67 |
| City of Oak Ridge | 2.33 | 3 | 5.33 |
| City of Rocky Top | 1    | 3 | 4    |

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

## Presidential Disaster Declarations

The source of this information came from <https://www.fema.gov/disasters>. All disasters included in the table below that were provided on this website.

| FEMA DR | Date       | Hazard            |           |                     |          | PA  | IA  |
|---------|------------|-------------------|-----------|---------------------|----------|-----|-----|
| 4427    | 4/17/2019  | Flooding          | Landslide | Mudslide            |          | yes | no  |
| 1260    | 1/15/1999  | Winter Storm      |           |                     |          | No  | Yes |
| 4211    | 4/2/2015   | Winter Storm      | Flooding  |                     | .        | yes | no  |
| 4189    | 8/13/2014  | Severe Storms     | Tornadoes | Straight Line Winds | Flooding | yes | no  |
| 4005    | 7/20/2011  | Severe Storms     | Tornadoes | Straight Line Winds | Flooding | yes | no  |
| 3095    | 3/14/1993  | Winter Storm      |           |                     |          | yes | no  |
| 3217    | 9/5/2005   | Hurricane Katrina |           |                     |          | yes | no  |
| 366     | 5/15/1972  | Heavy Rains       | Flooding  |                     |          | yes | Yes |
| 533     | 4/29/1977  | Severe Storms     | Flooding  |                     |          | yes | Yes |
| 889     | 1/4/1991   | Severe Storms     | Flooding  |                     |          | No  | Yes |
| 1464    | 5/8/2003   | Severe Storms     | Tornadoes | Flooding            |          | No  | Yes |
| 1456    | 3/20/2003  | Severe Storms     | Flooding  |                     |          | yes | no  |
| 1441    | 11/13/2002 | Severe Storms     | Tornadoes | Flooding            |          | yes | Yes |
| 1408    | 4/5/2002   | Severe Storms     | Flooding  |                     |          | yes | no  |
| 2346    | 11/2/2000  | Wildfire          |           |                     |          | yes | no  |
| 1331    | 5/23/2000  | Severe Storms     | Tornadoes | Flooding            |          | yes | no  |
| 1215    | 4/20/1998  | Severe Storms     | Tornadoes | Flooding            |          | yes | Yes |

PA = Public Assistance

IA = Individual Assistance

## 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 Anderson County Hazard Mitigation Committee identified the following goals to be the forefront in the overall development of this plan. All actions/projects recommended as mitigation efforts for the Hazard Mitigation Plan must first meet or further at least one of these goals. The goals are provided in a ranked order where the first goal is paramount.

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

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

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

### Identification and Prioritization of Mitigation Projects

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

The Anderson 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                                     | <b>Societal:</b> 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                                     | <b>Administrative:</b> 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                                     | <b>Financial:</b> 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                                     | <b>Environmental:</b> 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                                     | <b>Technical:</b> 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 Anderson County Hazard Mitigation Project List.

### Anderson County Project List

The following Project List provides an overview of all the Anderson County Multi-Jurisdictional Hazard Mitigation Committee projects. This includes potential funding sources, implementation timeframes, the project's responsible agency, and other information. The committee went into extensive discussion surrounding projects that would be beneficial for our community.

### Anderson County Project List

| Hazard Mitigated | Project # | Anderson County (Unincorporated) Action/Project Name | Priority Rank | Addresses New or Existing Buildings/Infra? | Responsible Agency | Possible Funding Source(s) | Timeframe |
|------------------|-----------|--|---------------|--|--------------------|----------------------------|-----------|
| Flooding         | 1         | Alert Broadcast & Warning System                     | 35            | Existing                                   | EMA                | BRIC, FMA, HMGP            | 1-5 years |
|                  | 2         | RL/SRL Property Buy-out                              | 55            | Existing                                   | EMA                | BRIC, FMA, HMGP            | 1-5 years |
|                  | 3         | Public Awareness & Education                         | 42            | Existing                                   | EMA                | BRIC, FMA, HMGP            | 1-5 years |
|                  | 38        | Hwy 116 near Dump                                    | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 39        | Hwy 116 at Andy's Ridge Road                         | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 40        | Beach Grove Road                                     | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 50        | Fox Hollow Lane                                      | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 51        | Sequoyah Marina Area Roads                           | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 52        | Indian Gap Road                                      | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 53        | Mill Creek at Ridge Circle                           | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 54        | Mill Creek at Old Boy Scout Road                     | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 55        | Park Lane at Clear Springs Cemetery Rd               | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 56        | Huntington Lane at Andersonville Pike                | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 24        | Bacon Springs Road - Clinton                         | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 25        | Lake City Hwy @ Pumphouse Lane                       | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 26        | Lake City Hwy @ Granite Road                         | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 27        | Granite Road   | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 28        | Cane Creek Road                                      | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 29        | Beets Valley Road                                    | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 36        | Offutt Road  | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 37        | Old Dutch Valley Road                                | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 41        | Irwin Mill Road                                      | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 42        | Brooks Gap Road                                      | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 43        | Pumpkin Hollow                                       | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 44        | Sinking Springs Road                                 | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 45        | Hinds Creek Road                                     | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 46        | Mountain Road  | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |
|                  | 47        | Brushy Valley Road                                   | 1             | Existing                                   | Highway Dept       | BRIC, FMA, HMGP            | 1-5 years |

|                       |    |   |    |          |                        |                 |           |
|-----------------------|----|---|----|----------|------------------------|-----------------|-----------|
|                       | 48 | Hillvale Road   | 1  | Existing | Highway Dept           | BRIC, FMA, HMGP | 1-5 years |
|                       | 49 | Lambdin Road  | 1  | Existing | Highway Dept           | BRIC, FMA, HMGP | 1-5 years |
|                       | 57 | Bloomfield Hills Mobile Home Park   | 1  | Existing | Highway Dept           | BRIC, FMA, HMGP | 1-5 years |
|                       | 62 | Storm Water Drainage System   | 55 | Both     | CUB                    | BRIC, HMGP      | 1-5 years |
| <b>Tornado/Wind</b>   | 1  | Alert Broadcast & Warning System  | 35 | Existing | EMA                    | BRIC, HMGP      | 1-5 years |
|                       | 3  | Public Awareness & Education  | 42 | Existing | EMA                    |                 | 1-5 years |
|                       | 10 | Generator - Oliver Springs Waste Water Treatment Plant                            | 43 | Existing | City of Oliver Springs | BRIC, HMGP      | 1-5 years |
|                       | 11 | Generator - Ambulance Service - Clinton, Oak Ridge (2), Andersonville & Rocky Top | 43 | Existing | Ambulance Service      | BRIC, HMGP      | 1-5 years |
|                       | 12 | Generator - Andersonville Volunteer Fire Dept - 2 stations                        | 43 | Existing | AVFD                   | BRIC, HMGP      | 1-5 years |
|                       | 13 | Generator - Briceville Volunteer Fire Dept  | 43 | Existing | BVFD                   | BRIC, HMGP      | 1-5 years |
|                       | 14 | Generator - Claxton Volunteer Fire Dept - 2 stations                              | 43 | Existing | CVFD                   | BRIC, HMGP      | 1-5 years |
|                       | 15 | Generator - Medford Volunteer Fire Dept   | 43 | Existing | MVFD (Medford)         | BRIC, HMGP      | 1-5 years |
|                       | 16 | Generators - Marlow Volunteer Fire Dept - 2 stations                              | 43 | Existing | MVFD (Marlow)          | BRIC, HMGP      | 1-5 years |
|                       | 17 | Generator - Andersonville Elementary School                                       | 36 | Existing | Schools                | BRIC, HMGP      | 1-5 years |
|                       | 18 | Generator - Fairview Elementary School  | 36 | Existing | Schools                | BRIC, HMGP      | 1-5 years |
|                       | 19 | Generator - Briceville Elementary School  | 36 | Existing | Schools                | BRIC, HMGP      | 1-5 years |
|                       | 20 | Generator - Claxton Elementary School   | 36 | Existing | Schools                | BRIC, HMGP      | 1-5 years |
|                       | 21 | Generator - Lake City Elementary School   | 36 | Existing | Schools                | BRIC, HMGP      | 1-5 years |
|                       | 22 | Generator - Lake City Middle School   | 36 | Existing | Schools                | BRIC, HMGP      | 1-5 years |
|                       | 23 | Generator - His Hands Reaching Academy  | 59 | Existing | His Hands Reaching     | BRIC, HMGP      | 1-5 years |
|                       | 59 | Backup Generators - Clinton Utilities Board (CUB)                                 | 43 | Both     | CUB                    | BRIC, HMGP      | 1-5 years |
|                       | 60 | Looped Grid Power Systems   | 59 | Both     | CUB                    | BRIC, HMGP      | 1-5 years |
|                       | 61 | Tree Wire Installations   | 59 | Both     | CUB                    | BRIC, HMGP      | 1-5 years |
| <b>Winter Weather</b> | 1  | Alert Broadcast & Warning System  | 35 | Existing | EMA                    | BRIC, HMGP      | 1-5 years |
|                       | 3  | Public Awareness & Education  | 42 | Existing | EMA                    | BRIC, HMGP      | 1-5 years |
|                       | 6  | Water line insulation program   | 63 | Existing | CUB                    | BRIC, HMGP      | 1-5 years |
|                       | 10 | Generator - Oliver Springs Waste Water Treatment Plant                            | 43 | Existing | City of Oliver Springs | BRIC, HMGP      | 1-5 years |
|                       | 11 | Generator - Ambulance Service - Clinton, Oak Ridge (2), Andersonville & Rocky Top | 43 | Existing | Ambulance Service      | BRIC, HMGP      | 1-5 years |

|           |    |   |    |          |                        |            |           |
|-----------|----|---|----|----------|------------------------|------------|-----------|
|           | 12 | Generator - Andersonville Volunteer Fire Dept - 2 stations                        | 43 | Existing | AVFD                   | BRIC, HMGP | 1-5 years |
|           | 13 | Generator - Briceville Volunteer Fire Dept  | 43 | Existing | BVFD                   | BRIC, HMGP | 1-5 years |
|           | 14 | Generator - Claxton Volunteer Fire Dept - 2 stations                              | 43 | Existing | CVFD                   | BRIC, HMGP | 1-5 years |
|           | 15 | Generator - Medford Volunteer Fire Dept   | 43 | Existing | MVFD (Medford)         | BRIC, HMGP | 1-5 years |
|           | 16 | Generators - Marlow Volunteer Fire Dept - 2 stations                              | 43 | Existing | MVFD (Marlow)          | BRIC, HMGP | 1-5 years |
|           | 17 | Generator - Andersonville Elementary School                                       | 36 | Existing | Schools                | BRIC, HMGP | 1-5 years |
|           | 18 | Generator - Fairview Elementary School  | 36 | Existing | Schools                | BRIC, HMGP | 1-5 years |
|           | 19 | Generator - Briceville Elementary School  | 36 | Existing | Schools                | BRIC, HMGP | 1-5 years |
|           | 20 | Generator - Claxton Elementary School   | 36 | Existing | Schools                | BRIC, HMGP | 1-5 years |
|           | 21 | Generator - Lake City Elementary School   | 36 | Existing | Schools                | BRIC, HMGP | 1-5 years |
|           | 22 | Generator - Lake City Middle School   | 36 | Existing | Schools                | BRIC, HMGP | 1-5 years |
|           | 23 | Generator - His Hands Reaching Academy  | 59 | Existing | His Hands Reaching     | BRIC, HMGP | 1-5 years |
|           | 59 | Backup Generators - Clinton Utilities Board (CUB)                                 | 43 | Both     | CUB                    | BRIC, HMGP | 1-5 years |
| Wildfires | 60 | Looped Grid Power Systems   | 59 | Both     | CUB                    | BRIC, HMGP | 1-5 years |
|           | 61 | Tree Wire Installations   | 59 | Both     | CUB                    | BRIC, HMGP | 1-5 years |
|           | 1  | Alert Broadcast & Warning System  | 35 | Existing | EMA                    | BRIC, HMGP | 1-5 years |
|           | 3  | Public Awareness & Education  | 42 | Existing | EMA                    | BRIC, HMGP | 1-5 years |
|           | 10 | Generator - Oliver Springs Waste Water Treatment Plant                            | 43 | Existing | City of Oliver Springs | BRIC, HMGP | 1-5 years |
|           | 11 | Generator - Ambulance Service - Clinton, Oak Ridge (2), Andersonville & Rocky Top | 43 | Existing | Ambulance Service      | BRIC, HMGP | 1-5 years |
|           | 12 | Generator - Andersonville Volunteer Fire Dept - 2 stations                        | 43 | Existing | AVFD                   | BRIC, HMGP | 1-5 years |
|           | 13 | Generator - Briceville Volunteer Fire Dept  | 43 | Existing | BVFD                   | BRIC, HMGP | 1-5 years |
|           | 14 | Generator - Claxton Volunteer Fire Dept - 2 stations                              | 43 | Existing | CVFD                   | BRIC, HMGP | 1-5 years |
|           | 15 | Generator - Medford Volunteer Fire Dept   | 43 | Existing | MVFD (Medford)         | BRIC, HMGP | 1-5 years |
|           | 16 | Generators - Marlow Volunteer Fire Dept - 2 stations                              | 43 | Existing | MVFD (Marlow)          | BRIC, HMGP | 1-5 years |
|           | 17 | Generator - Andersonville Elementary School                                       | 36 | Existing | Schools                | BRIC, HMGP | 1-5 years |
|           | 18 | Generator - Fairview Elementary School  | 36 | Existing | Schools                | BRIC, HMGP | 1-5 years |
|           | 19 | Generator - Briceville Elementary School  | 36 | Existing | Schools                | BRIC, HMGP | 1-5 years |
|           | 20 | Generator - Claxton Elementary School   | 36 | Existing | Schools                | BRIC, HMGP | 1-5 years |

|            |    |   |    |          |                    |            |           |
|------------|----|---|----|----------|--------------------|------------|-----------|
|            | 21 | Generator - Lake City Elementary School           | 36 | Existing | Schools            | BRIC, HMGP | 1-5 years |
|            | 22 | Generator - Lake City Middle School               | 36 | Existing | Schools            | BRIC, HMGP | 1-5 years |
|            | 23 | Generator - His Hands Reaching Academy            | 59 | Existing | His Hands Reaching | BRIC, HMGP | 1-5 years |
|            | 59 | Backup Generators - Clinton Utilities Board (CUB) | 43 | Both     | CUB                | BRIC, HMGP | 1-5 years |
|            | 60 | Looped Grid Power Systems                         | 59 | Both     | CUB                | BRIC, HMGP | 1-5 years |
|            | 61 | Tree Wire Installations                           | 59 | Both     | CUB                | BRIC, HMGP | 1-5 years |
| Landslides | 1  | Alert Broadcast & Warning System                  | 35 | Existing | EMA                | BRIC, HMGP | 1-5 years |
|            | 3  | Public Awareness & Education                      | 42 | Existing | EMA                | BRIC, HMGP | 1-5 years |
|            | 4  | Slope Reinforcement                               | 62 | Existing | Highway            | BRIC, HMGP | 1-5 years |
|            | 5  | Structural integrity monitoring systems           | 58 | Existing | EMA/911            | BRIC, HMGP | 1-5 years |

| Hazard Mitigated | Project # | City of Clinton Action/Project Name   | Priority Rank | Addresses New or Existing Buildings/Infra? | Responsible Agency | Possible Funding Source(s) | Timeframe |
|------------------|-----------|---|---------------|--|--------------------|----------------------------|-----------|
| Flooding         | 1         | Alert Broadcast & Warning System  | 35            | Existing                                   | EMA                | BRIC, FMA, HMGP            | 1-5 years |
|                  | 2         | RL/SRL Property Buy-out   | 55            | Existing                                   | City of Clinton    | BRIC, FMA, HMGP            | 1-5 years |
|                  | 3         | Public Awareness & Education  | 42            | Existing                                   | EMA                | BRIC, FMA, HMGP            | 1-5 years |
|                  | 62        | Storm Water Drainage System   | 55            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
| Tornado/Wind     | 1         | Alert Broadcast & Warning System  | 35            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 3         | Public Awareness & Education  | 42            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 11        | Generator - Ambulance Service - Clinton, Oak Ridge (2), Andersonville & Rocky Top | 43            | Existing                                   | Ambulance Service  | BRIC, HMGP                 | 1-5 years |
|                  | 59        | Backup Generators - Clinton Utilities Board (CUB)                                 | 43            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
|                  | 60        | Looped Grid Power Systems   | 59            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
|                  | 61        | Tree Wire Installations   | 59            | both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
| Winter Weather   | 63        | Generator - Community Center  | 43            | Existing                                   | City of Clinton    | BRIC, HMGP                 | 1-5 years |
|                  | 1         | Alert Broadcast & Warning System  | 35            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 3         | Public Awareness & Education  | 42            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 6         | Water line insulation program   | 63            | Existing                                   | Clinton Utilities  | BRIC, HMGP                 | 1-5 years |
|                  | 11        | Generator - Ambulance Service - Clinton, Oak Ridge (2), Andersonville & Rocky Top | 43            | Existing                                   | Ambulance Service  | BRIC, HMGP                 | 1-5 years |
|                  | 59        | Backup Generators - Clinton Utilities Board (CUB)                                 | 43            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
|                  | 60        | Looped Grid Power Systems   | 59            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
|                  | 61        | Tree Wire Installations   | 59            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
| Wildfires        | 63        | Generator - Community Center  | 43            | Existing                                   | City of Clinton    | BRIC, HMGP                 | 1-5 years |
|                  | 1         | Alert Broadcast & Warning System  | 35            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 3         | Public Awareness & Education  | 42            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 11        | Generator - Ambulance Service - Clinton, Oak Ridge (2), Andersonville & Rocky Top | 43            | Existing                                   | Ambulance Service  | BRIC, HMGP                 | 1-5 years |
|                  | 59        | Backup Generators - Clinton Utilities Board (CUB)                                 | 43            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
|                  | 60        | Looped Grid Power Systems   | 59            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
|                  | 61        | Tree Wire Installations   | 59            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
|                  | 63        | Generator - Community Center  | 43            | Existing                                   | City of Clinton    | BRIC, HMGP                 | 1-5 years |

|            |   |   |    |          |                 |            |           |
|------------|---|---|----|----------|-----------------|------------|-----------|
| Landslides | 1 | Alert Broadcast & Warning System        | 35 | Existing | EMA             | BRIC, HMGP | 1-5 years |
|            | 3 | Public Awareness & Education            | 42 | Existing | EMA             | BRIC, HMGP | 1-5 years |
|            | 4 | Slope Reinforcement                     | 62 | Existing | City of Clinton | BRIC, HMGP | 1-5 years |
|            | 5 | Structural integrity monitoring systems | 58 | Existing | EMA/911         | BRIC, HMGP | 1-5 years |

| Hazard Mitigated | Project # | City of Norris Action/Project Name                | Priority Rank | Addresses New or Existing Buildings/Infra? | Responsible Agency | Possible Funding Source(s) | Timeframe |
|------------------|-----------|---|---------------|--|--------------------|----------------------------|-----------|
| Flooding         | 1         | Alert Broadcast & Warning System                  | 35            | Existing                                   | EMA                | BRIC, FMA, HMGP            | 1-5 years |
|                  | 2         | RL/SRL Property Buy-out                           | 55            | Existing                                   | City of Norris     | BRIC, FMA, HMGP            | 1-5 years |
|                  | 3         | Public Awareness & Education                      | 42            | Existing                                   | EMA                | BRIC, FMA, HMGP            | 1-5 years |
|                  | 62        | Storm Water Drainage System                       | 55            | Both                                       | City of Norris     | BRIC, HMGP                 | 1-5 years |
| Tornado/Wind     | 1         | Alert Broadcast & Warning System                  | 35            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 3         | Public Awareness & Education                      | 42            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 58        | Generators - Norris Water Treatment Plant (2)     | 43            | Existing                                   | City of Norris     | BRIC, HMGP                 | 1-5 years |
|                  | 59        | Backup Generators - Clinton Utilities Board (CUB) | 43            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
|                  | 60        | Looped Grid Power Systems                         | 59            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
|                  | 61        | Tree Wire Installations                           | 59            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
| Winter Weather   | 1         | Alert Broadcast & Warning System                  | 35            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 3         | Public Awareness & Education                      | 42            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 6         | Water line insulation program                     | 63            | Existing                                   | City of Norris     | BRIC, HMGP                 | 1-5 years |
|                  | 58        | Generators - Norris Water Treatment Plant (2)     | 43            | Existing                                   | Water Plant        | BRIC, HMGP                 | 1-5 years |
|                  | 59        | Backup Generators - Clinton Utilities Board (CUB) | 43            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
|                  | 60        | Looped Grid Power Systems                         | 59            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
|                  | 61        | Tree Wire Installations                           | 59            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
| Wildfires        | 1         | Alert Broadcast & Warning System                  | 35            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 3         | Public Awareness & Education                      | 42            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 58        | Generators - Norris Water Treatment Plant (2)     | 43            | Existing                                   | Water Plant        | BRIC, HMGP                 | 1-5 years |
|                  | 59        | Backup Generators - Clinton Utilities Board (CUB) | 43            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
|                  | 60        | Looped Grid Power Systems                         | 59            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
|                  | 61        | Tree Wire Installations                           | 59            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
| Landslides       | 1         | Alert Broadcast & Warning System                  | 35            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 3         | Public Awareness & Education                      | 42            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 4         | Slope Reinforcement                               | 62            | Existing                                   | City of Norris     | BRIC, HMGP                 | 1-5 years |
|                  | 5         | Structural integrity monitoring systems           | 58            | Existing                                   | EMA/911            | BRIC, HMGP                 | 1-5 years |

| Hazard Mitigated | Project # | City of Oak Ridge Action/Project Name   | Priority Rank | Addresses New or Existing Buildings/Infra? | Responsible Agency | Possible Funding Source(s) | Timeframe |
|------------------|-----------|---|---------------|--|--------------------|----------------------------|-----------|
| Flooding         | 1         | Alert Broadcast & Warning System  | 35            | Existing                                   | EMA                | BRIC, FMA, HMGP            | 1-5 years |
|                  | 2         | RL/SRL Property Buy-out   | 55            | Existing                                   | City of Oak Ridge  | BRIC, FMA, HMGP            | 1-5 years |
|                  | 3         | Public Awareness & Education  | 42            | Existing                                   | EMA                | BRIC, FMA, HMGP            | 1-5 years |
|                  | 62        | Storm Water Drainage System   | 55            | Both                                       | OR Public Works    | BRIC, HMGP                 | 1-5 years |
| Tornado/Wind     | 1         | Alert Broadcast & Warning System  | 35            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 3         | Public Awareness & Education  | 42            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 11        | Generator - Ambulance Service - Clinton, Oak Ridge (2), Andersonville & Rocky Top | 43            | Existing                                   | Ambulance Service  | BRIC, HMGP                 | 1-5 years |
|                  | 59        | Backup Generators - Clinton Utilities Board (CUB)                                 | 43            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
|                  | 60        | Looped Grid Power Systems   | 59            | Both                                       | ORED               | BRIC, HMGP                 | 1-5 years |
|                  | 61        | Tree Wire Installations   | 59            | Both                                       | ORED               | BRIC, HMGP                 | 1-5 years |
| Winter Weather   | 1         | Alert Broadcast & Warning System  | 35            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 3         | Public Awareness & Education  | 42            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 6         | Water line insulation program   | 63            | Existing                                   | City of Oak Ridge  | BRIC, HMGP                 | 1-5 years |
|                  | 11        | Generator - Ambulance Service - Clinton, Oak Ridge (2), Andersonville & Rocky Top | 43            | Existing                                   | Ambulance Service  | BRIC, HMGP                 | 1-5 years |
|                  | 59        | Backup Generators - Clinton Utilities Board (CUB)                                 | 43            | Both                                       | City of Oak Ridge  | BRIC, HMGP                 | 1-5 years |
|                  | 60        | Looped Grid Power Systems   | 59            | Both                                       | ORED               | BRIC, HMGP                 | 1-5 years |
|                  | 61        | Tree Wire Installations   | 59            | Both                                       | ORED               | BRIC, HMGP                 | 1-5 years |
| Wildfires        | 1         | Alert Broadcast & Warning System  | 35            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 3         | Public Awareness & Education  | 42            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 7         | Oak Ridge Westwood Subdivision  | 57            | Existing                                   | Oak Ridge Fire     | BRIC, H BRIC, HMGP MGP     | 1-5 years |
|                  | 11        | Generator - Ambulance Service - Clinton, Oak Ridge (2), Andersonville & Rocky Top | 43            | Existing                                   | Ambulance Service  | BRIC, HMGP                 | 1-5 years |
|                  | 59        | Backup Generators - Clinton Utilities Board (CUB)                                 | 43            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
|                  | 60        | Looped Grid Power Systems   | 59            | Both                                       | ORED               | BRIC, HMGP                 | 1-5 years |

|            |    |   |    |          |                   |            |           |
|------------|----|---|----|----------|-------------------|------------|-----------|
|            | 61 | Tree Wire Installations                 | 59 | Both     | ORED              | BRIC, HMGP | 1-5 years |
| Landslides | 1  | Alert Broadcast & Warning System        | 35 | Existing | EMA               | BRIC, HMGP | 1-5 years |
|            | 3  | Public Awareness & Education            | 42 | Existing | EMA               | BRIC, HMGP | 1-5 years |
|            | 4  | Slope Reinforcement                     | 62 | Existing | City of Oak Ridge | BRIC, HMGP | 1-5 years |
|            | 5  | Structural integrity monitoring systems | 58 | Existing | EMA/911           | BRIC, HMGP | 1-5 years |

| Hazard Mitigated | Project # | City of Rocky Top Action/Project Name   | Priority Rank | Addresses New or Existing Buildings/Infra? | Responsible Agency | Possible Funding Source(s) | Timeframe |
|------------------|-----------|---|---------------|--|--------------------|----------------------------|-----------|
| Flooding         | 1         | Alert Broadcast & Warning System  | 35            | Existing                                   | EMA                | BRIC, FMA, HMGP            | 1-5 years |
|                  | 2         | RL/SRL Property Buy-out   | 55            | Existing                                   | City of Rocky Top  | BRIC, FMA, HMGP            | 1-5 years |
|                  | 3         | Public Awareness & Education  | 42            | Existing                                   | EMA                | BRIC, FMA, HMGP            | 1-5 years |
|                  | 30        | Bolin Road  | 1             | Existing                                   | City of Rocky Top  | BRIC, FMA, HMGP            | 1-5 years |
|                  | 31        | Railroad Ave  | 1             | Existing                                   | City of Rocky Top  | BRIC, FMA, HMGP            | 1-5 years |
|                  | 32        | Chestnut Ave  | 1             | Existing                                   | City of Rocky Top  | BRIC, FMA, HMGP            | 1-5 years |
|                  | 33        | Hwy 441   | 1             | Existing                                   | City of Rocky Top  | BRIC, FMA, HMGP            | 1-5 years |
|                  | 34        | Church Street @ Third St  | 1             | Existing                                   | City of Rocky Top  | BRIC, FMA, HMGP            | 1-5 years |
|                  | 35        | Jacksboro Ave @ Community Center & Athletic Field                                 | 1             | Existing                                   | City of Rocky Top  | BRIC, FMA, HMGP            | 1-5 years |
|                  | 62        | Storm Water Drainage System   |               | Both                                       | RTPW               | BRIC, HMGP                 | 1-5 years |
| Tornado/Wind     | 1         | Alert Broadcast & Warning System  | 35            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 3         | Public Awareness & Education  | 42            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 8         | Generator Rocky Top Police & Fire   | 43            | Existing                                   | Police/Fire        | BRIC, HMGP                 | 1-5 years |
|                  | 9         | Generator Rocky Top Sewer   | 43            | Existing                                   | Sewer Dept.        | BRIC, HMGP                 | 1-5 years |
|                  | 11        | Generator - Ambulance Service - Clinton, Oak Ridge (2), Andersonville & Rocky Top | 43            | Existing                                   | Ambulance Service  | BRIC, HMGP                 | 1-5 years |
|                  | 59        | Backup Generators - Clinton Utilities Board (CUB)                                 | 43            | Both                                       | CUB                | BRIC, HMGP                 | 1-5 years |
|                  | 60        | Looped Grid Power Systems   | 59            | Both                                       | CUB/LUB            | BRIC, HMGP                 | 1-5 years |
|                  | 61        | Tree Wire Installations   | 59            | Both                                       | CUB/LUB            | BRIC, HMGP                 | 1-5 years |
| Winter Weather   | 1         | Alert Broadcast & Warning System  | 35            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 3         | Public Awareness & Education  | 42            | Existing                                   | EMA                | BRIC, HMGP                 | 1-5 years |
|                  | 6         | Water line insulation program   | 63            | Existing                                   | City of Rock Top   | BRIC, HMGP                 | 1-5 years |
|                  | 8         | Generator Rocky Top Police & Fire   | 43            | Existing                                   | Police/Fire        | BRIC, HMGP                 | 1-5 years |
|                  | 9         | Generator Rocky Top Sewer   | 43            | Existing                                   | Sewer Dept.        | BRIC, HMGP                 | 1-5 years |
|                  | 11        | Generator - Ambulance Service - Clinton, Oak Ridge (2), Andersonville & Rocky Top | 43            | Existing                                   | Ambulance Service  | BRIC, HMGP                 | 1-5 years |

|                   |    |   |    |          |                   |            |           |
|-------------------|----|---|----|----------|-------------------|------------|-----------|
|                   | 59 | Backup Generators - Clinton Utilities Board (CUB)                                 | 43 | Both     | CUB               | BRIC, HMGP | 1-5 years |
|                   | 60 | Looped Grid Power Systems   | 59 | Both     | CUB/LUB           | BRIC, HMGP | 1-5 years |
|                   | 61 | Tree Wire Installations   | 59 | Both     | CUB/LUB           | BRIC, HMGP | 1-5 years |
| <b>Wildfires</b>  | 1  | Alert Broadcast & Warning System  | 35 | Existing | EMA               | BRIC, HMGP | 1-5 years |
|                   | 3  | Public Awareness & Education  | 42 | Existing | EMA               | BRIC, HMGP | 1-5 years |
|                   | 8  | Generator Rocky Top Police & Fire   | 43 | Existing | Police/Fire       | BRIC, HMGP | 1-5 years |
|                   | 9  | Generator Rocky Top Sewer   | 43 | Existing | Sewer Dept.       | BRIC, HMGP | 1-5 years |
|                   | 11 | Generator - Ambulance Service - Clinton, Oak Ridge (2), Andersonville & Rocky Top | 43 | Existing | Ambulance Service | BRIC, HMGP | 1-5 years |
|                   | 59 | Backup Generators - Clinton Utilities Board (CUB)                                 | 43 | Both     | CUB               | BRIC, HMGP | 1-5 years |
|                   | 60 | Looped Grid Power Systems   | 59 | Both     | CUB/LUB           | BRIC, HMGP | 1-5 years |
| <b>Landslides</b> | 61 | Tree Wire Installations   | 59 | Both     | CUB/LUB           | BRIC, HMGP | 1-5 years |
|                   | 1  | Alert Broadcast & Warning System  | 35 | Existing | EMA               | BRIC, HMGP | 1-5 years |
|                   | 3  | Public Awareness & Education  | 42 | Existing | EMA               | BRIC, HMGP | 1-5 years |
|                   | 4  | Slope Reinforcement   | 62 | Existing | City of Rocky Top | BRIC, HMGP | 1-5 years |
|                   | 5  | Structural integrity monitoring systems   | 58 | Existing | EMA/911           | BRIC, HMGP | 1-5 years |

## Project List Update

The Anderson County Hazard Mitigation Committee reviewed the actions/projects in the 2017 plan. The decision to keep, discard or change is noted below.

| Mitigation Project or Activity                       | Status  |
|--|---|
| Alert, Broadcast, & Warning System                   | Keeping   |
| Attain StormReady Community Status                   | Removed due to other priorities.                                      |
| Backup Generators                                    | Keeping but being more specific                                       |
| Bionets  | Removed due to other priorities.                                      |
| Bury Utility Lines, Pipes, & Tanks                   | Removed due to other priorities.                                      |
| Compaction Grouting                                  | Removed due to other priorities.                                      |
| Dam Repair & Retrofit                                | Removed due to Dam's no longer being a Hazard of Prime concern.       |
| Debris & Natural Fuels Reduction Program             | Keeping for Wildfires but more specific.                              |
| Defensible Spaces/Buffer Zones Program               | Keeping for Wildfires but more specific.                              |
| Elevate Structures                                   | Not allowable under the TN Hazard Mitigation Program.                 |
| FEMA Code 361 Safe Room                              | Removed due to other priorities.                                      |
| Insulation & Energy Efficiency Upgrade               | Removed due to other priorities - Winter Storms                       |
| Looped Grid Power Systems                            | Keeping   |
| Property Buyout                                      | Keeping but specific to Repetitive/Severe Repetitive Loss properties. |
| Public Awareness & Education Program                 | Keeping   |
| Relocate or Rebuild Vulnerable Structures            | Removed due to other priorities.                                      |
| Slope Reinforcement                                  | Keeping   |
| Snow Fence Installation                              | Removed due to other priorities.                                      |
| Storm Water Drainage System Upgrade                  | Removed due to other priorities.                                      |
| Structural Integrity Monitoring Instruments          | Keeping   |
| Transportation Status & Routing Notification Systems | Removed due to other priorities.                                      |
| Tree Wire Installation                               | Keeping   |
| Water Line Insulation Program                        | Keeping   |
| Wildfire Structural Retrofit Program                 | Removed due to other priorities.                                      |

## 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, Anderson County unincorporated, City Clinton, City of Norris, City of Oak Ridge, City of Oliver Springs, and the City of Rocky top are NFIP participants. FEMA has listed these jurisdictions to have a current effective map date as of July 3, 2006. Below gives an overview of NFIP policy and loss data for Anderson County.

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. Currently, all three residential repetitive loss properties are located in Anderson County; one in the unincorporated section of the County, one in Oliver Springs and one in Rocky Top. In all likelihood, there is an error in the NFIP data. It shows Oliver Springs located in Morgan, Anderson and Roane Counties along with Oak Ridge located in Anderson and Roane Counties.

The chart below provides a summary of their NFIP policy and loss data. The first table provides a description of the columns located within the NFIP policy data.

|                   |  |
|-------------------|--|
| Adjuster Expense  | The total amount paid to adjusters for all claims within the community and/or county. It includes all special expenses, allocated loss adjusted expense, and allocated ICC expense.                  |
| Building Coverage | Building coverage for a policy or claim (whole dollars)  |
| Building Payments | The total amount paid for all losses for building.   |
| Community Name    | The official NFIP name of the community in which the claim or policy exists.   |
| Community Number  | The 6 character community ID in which the claim or policy exists.  |
| Contents Coverage | Contents coverage for a policy or claim (whole dollars)  |
| Contents Payments | The total amount paid for all losses for contents  |
| County Name       | The official FIPS county name for the claim or policy. It is determined by geocoding of the policy or claim address, rather than the historical method of using the community to look up the county. |
| Data as of Date   | The date of the most recent validated data upon which the report is based.   |
| ICC Coverage      | ICC coverage for a policy or claim (whole dollars)   |
| ICC Payments      | The total amount paid for all losses for ICC   |
| Number of Losses  | The number of losses (claims) reported within that community and/or county.  |
| State             | The state in which the policy or claim exists. The value is determined by the geocoded data first, and in the absence of geocoding, by the community state.  |

|                              |   |
|------------------------------|---|
| Total Policy Count           | The total number of policies reported within the community and/or county in force as of the given date. All condo units are counted for each condo master policy. |
| Total Premium and Policy Fee | The policy premium and associated policy fee for the policies.  |
| WYO or Direct                | An indicator of whether the policy or claim is administered by NFIP Direct ("Direct") or a Write-Your-Own Company ("WYO")   |

| Community Name<br>(Number)                | County             | Direct<br>Premium<br>and FPF | WYO<br>Premium<br>and FPF | Total<br>Premium<br>and FPF | Direct<br>Policy<br>Count | WYO<br>Policy<br>Count | Total<br>Policy<br>Count | Direct<br>Coverage (in<br>Thousands) | WYO<br>Coverage (in<br>Thousands) | Total<br>Coverage<br>(in<br>Thousands) | Direct<br>Losses | WYO<br>Losses | Total<br>Losses | Direct<br>Dollars<br>Paid | WYO<br>Dollars<br>Paid | Total<br>Dollars<br>Paid | Adjuster<br>Expense |
|---|--------------------|------------------------------|---------------------------|-----------------------------|---------------------------|------------------------|--------------------------|--------------------------------------|-----------------------------------|--|------------------|---------------|-----------------|---------------------------|------------------------|--------------------------|---------------------|
| ANDERSON<br>COUNTY *<br>(470217)          | ANDERSON<br>COUNTY | \$ 3,066                     | \$ 35,086                 | \$ 38,152                   | 7                         | 32                     | 39                       | \$ 1,616                             | \$ 6,119                          | \$ 7,735                               | 5                | 14            | 19              | \$ 13,368                 | \$ 43,487              | \$ 56,854                | \$ 7,088            |
| CLINTON,<br>CITY OF<br>(470001)           | ANDERSON<br>COUNTY | \$ 1,964                     | \$ 14,663                 | \$ 16,627                   | 5                         | 23                     | 28                       | \$ 1,750                             | \$ 10,586                         | \$12,336                               | -                | 3             | 3               | \$ -                      | \$ 2,900               | \$ 2,900                 | \$ 540              |
| NORRIS,<br>CITY OF<br>(470003)            | ANDERSON<br>COUNTY | \$ -                         | \$ 444                    | \$ 444                      | -                         | 1                      | 1                        | \$ -                                 | \$ 350                            | \$ 350                                 | -                | -             | -               | \$ -                      | \$ -                   | \$ -                     | \$ -                |
| OAK RIDGE,<br>CITY OF<br>(475441)         | ANDERSON<br>COUNTY | \$ 6,183                     | \$ 38,842                 | \$ 45,025                   | 10                        | 39                     | 49                       | \$ 3,314                             | \$ 12,770                         | \$16,084                               | 1                | 4             | 5               | \$ 11,089                 | \$ -                   | \$ 11,089                | \$ 3,956            |
| OLIVER<br>SPRINGS,<br>TOWN OF<br>(470005) | ANDERSON<br>COUNTY | \$ 3,384                     | \$ 12,972                 | \$ 16,356                   | 5                         | 11                     | 16                       | \$ 1,433                             | \$ 2,020                          | \$ 3,453                               | -                | 6             | 6               | \$ -                      | \$ 29,098              | \$ 29,098                | \$ 2,925            |
| ROCKY<br>TOP, CITY<br>OF<br>(475436)      | ANDERSON<br>COUNTY | \$ 1,868                     | \$ 4,539                  | \$ 6,407                    | 2                         | 10                     | 12                       | \$ 1,137                             | \$ 888                            | \$ 2,025                               | 1                | 7             | 8               | \$ -                      | \$ 66,351              | \$ 66,351                | \$ 3,600            |
| OLIVER<br>SPRINGS,<br>TOWN OF<br>(470005) | MORGAN<br>COUNTY   | \$ 2,531                     | \$ 5,126                  | \$ 7,657                    | 1                         | 2                      | 3                        | \$ 210                               | \$ 468                            | \$ 678                                 | 1                | 1             | 2               | \$ 16,214                 | \$ 10,108              | \$ 26,322                | \$ 1,675            |
| OAK RIDGE,<br>CITY OF<br>(475441)         | ROANE<br>COUNTY    | \$ 1,665                     | \$ 14,345                 | \$ 16,010                   | 3                         | 20                     | 23                       | \$ 805                               | \$ 5,872                          | \$ 6,676                               | -                | 2             | 2               | \$ -                      | \$ 6,816               | \$ 6,816                 | \$ 1,160            |
| OLIVER<br>SPRINGS,<br>TOWN OF<br>(470005) | ROANE<br>COUNTY    | \$ 375                       | \$ 42,430                 | \$ 42,805                   | 1                         | 29                     | 30                       | \$ 280                               | \$ 4,358                          | \$ 4,638                               | -                | -             | -               | \$ -                      | \$ -                   | \$ -                     | \$ -                |

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

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

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

The plan will be formally updated every five years in accordance with 44 CFR 201.6(d)3, which states that the plan shall be reviewed, revised, and resubmitted for approval within five years to continue eligibility for HMGP grant funding. For the five-year update, Anderson County Emergency Management will notify the jurisdictional governments and the Anderson 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 Anderson County Hazard Mitigation Committee's goal is to have at least 5 meetings within this time span; dates, public notices, and objectives for these meetings will be determined by Anderson County Emergency Management.

Five months prior to the plan's expiration date, Anderson 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 Anderson 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 Anderson County Multi-Jurisdictional Hazard Mitigation Plan into other planning documents and mechanisms, information contained in the mitigation plan can help fill-in

missing gaps in existing documents, can contribute to already existing mitigation-based projects, and can create a strengthen stance of mitigation implementation and awareness within the county and its jurisdictions.

The committee discussed incorporating this plan into other plans that exist within the County and all jurisdictions within and due to other jurisdictional priorities and demands (especially during this COVID-19 pandemic), no other plans or options were identified by the members. What you see below is what was discussed and documented. As required, this will be discussed within committee during the next plan update.

Some of the mechanisms that the Anderson County Multi-Jurisdictional Hazard Mitigation Plan could be incorporated into include:

- Anderson County Emergency Operations Plan
- Building Codes
- Floodplain management

The process of incorporating the hazard mitigation plan into other plans will begin during the other plan's update cycles. Anderson County Emergency Management will first review the plans side-by-side, and where deemed necessary, Emergency Management will make notes on how mitigation concepts and actions can be incorporated into the other plans. These recommendations will be submitted to the lead agencies of the other planning mechanisms for them to place relevant information within the documents.

### **Continued Public Participation**

The Anderson 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 Anderson County Multi-Jurisdictional 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 Sheet Meeting #1

| Anderson Co. EMA Hazard Mitigation Committee Mtg. 9/7/21 |                   |                            |                |
|--|-------------------|----------------------------|----------------|
| NAME   | AGENCY            | EMAIL                      | PHONE          |
| Karen Oster  | Anderson Co EMA   |                            | 680-2435       |
| Jose G. Galt   |                   | jose.galt@ta.gov           | 519-5177       |
| Thomas McCombs   | Oliver Springs    | oscitymanager@comcast.net  | 351-7845       |
| David Galt   | Oliver Springs PD | dgalt@oliversprings-ta.gov | 865-801-8195   |
| Mary Fung  |                   |                            | 680-6791       |
| Mark Blainwell   | ACSD              |                            | 719-9108       |
| Steve Ryan   | AC EMA            | paypkey@hctand.a           | 888-67582      |
| Scott Thomas   | AC EMS            | stthomas@andersonems.com   | 265-316-1714   |
| MICHELLE KLEIN   | TEMA              |                            |                |
| Bl. Boyd   | ORFD              | bjboyd@anderson-ta.com     | 265-4625-358   |
| Jody Durham  | ORFD              | jdurham@anderson-ta.gov    | (803) 776-9678 |
| STEPHANIE FOX  | MAKIN VFD         | MAKINVF@MAILBOX            | 365-7-0110     |
| FINNEKA PETERS   | AMERICANVILLE VFD | FINNEKA.PETERS@LVJGA       | 365-455-7538   |
| Mila Pook  | North P.D.        | mpook, northpd@gmail.com   | 865-494-0350   |
| James Shetley  | Rocky Mt PD       | Jshetley@rockymt-ta.org    |                |
| ROBERT SEXTON  | ANDERSON CO SO    | RSEXTON@TUPSO.NET          | 865-789-0577   |

## Appendix 2

### Public Notices

### *Publisher's Affidavit*

I do solemnly swear that the attached  
Notice was published for 1 consecutive  
weeks in The Courier News on the following dates:

9/8/21

Signed: [Signature]

Publisher or Editor

Subscribed and sworn to before me this, the 29th  
day of September, 2021

[Signature]  
Tennessee  
Notary Public

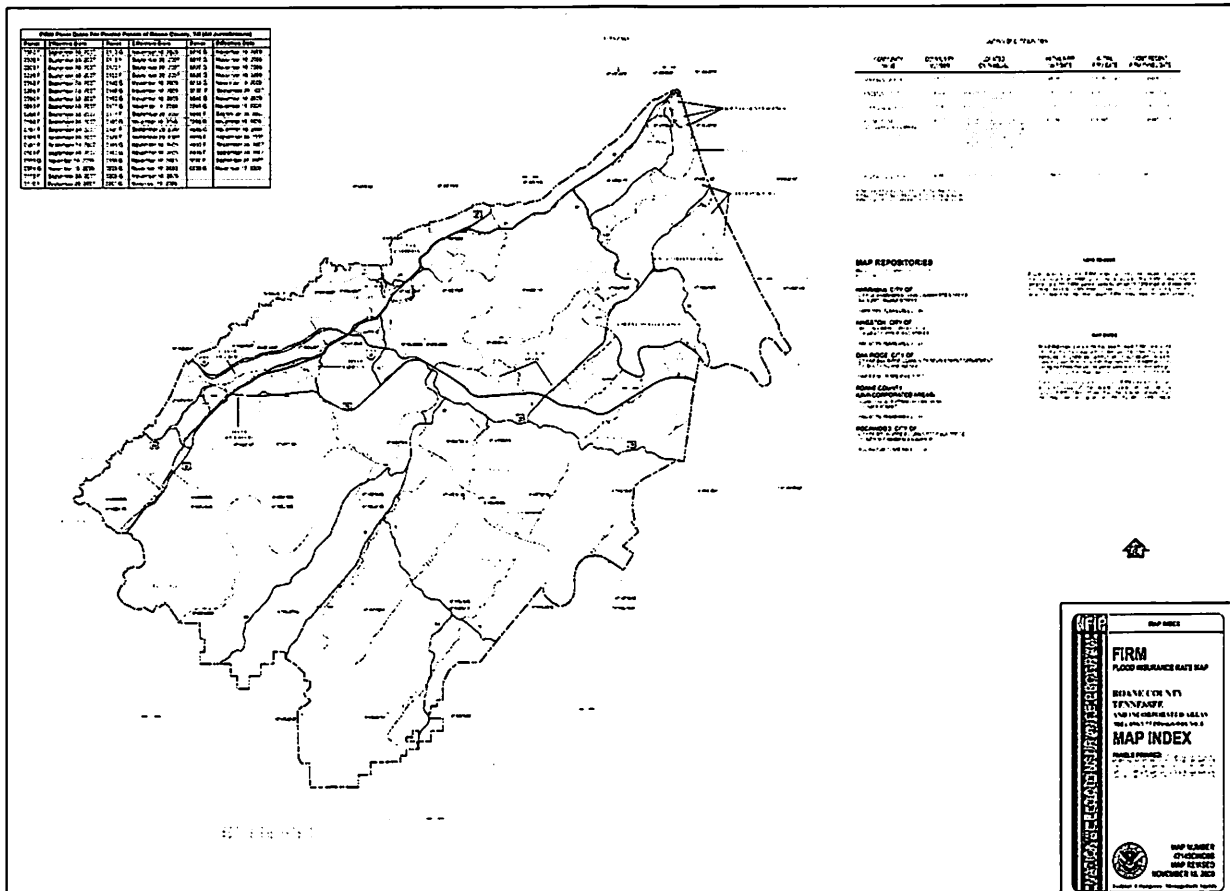
Notary Public

My Commission Expires: 9/28/24

## NOTICE

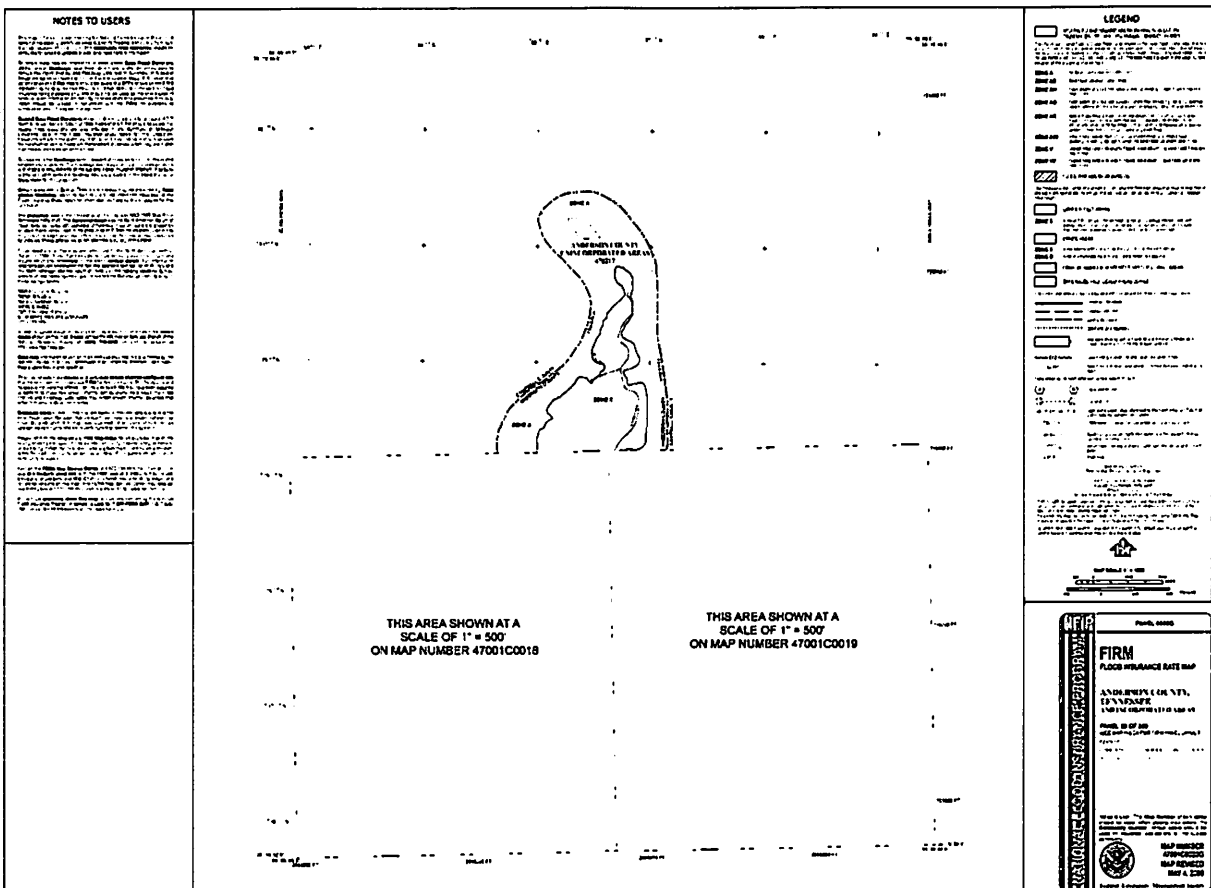
The Anderson County Emergency Management Agency will host a Anderson County Hazard Mitigation Committee Meeting at 9:30 a.m. on September 21 in room #312 of the Anderson County Courthouse. The purpose of this meeting is to review past hazards and disasters which will lead to discussions surrounding beneficial projects Anderson County can put into place to help reduce long-term impacts from disastrous events. The meeting will also help Anderson County Emergency Management Agency develop a meaningful and Federal Emergency Management Agency approved Hazard Mitigation plan to assist with understanding the true impacts of natural disaster events along with being eligible for future grants to assist with paying for the projects. Anyone interested in attending can call the Anderson County Emergency Management Agency Office at 865-264-6394 for additional information.

### ***Firm Panels***











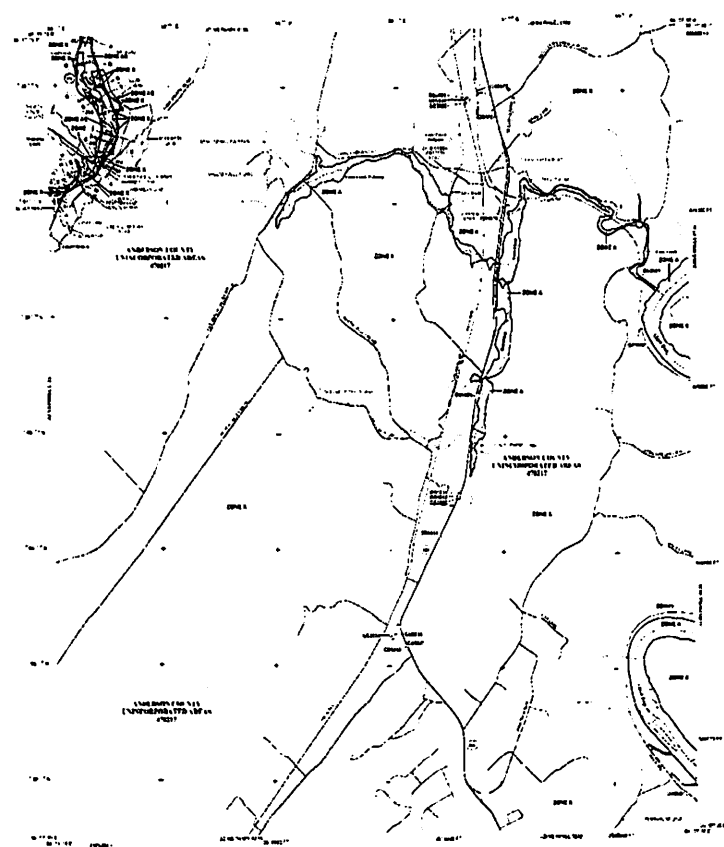


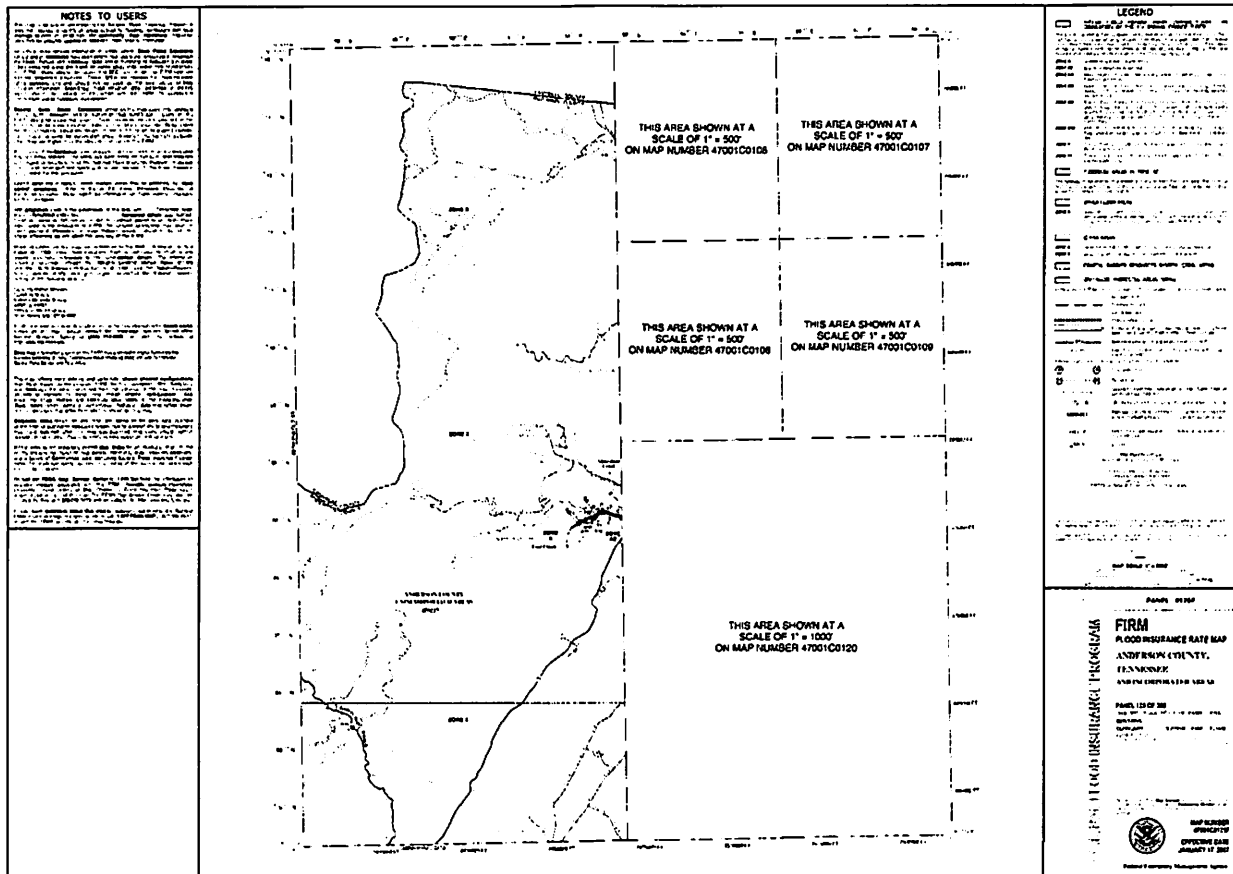




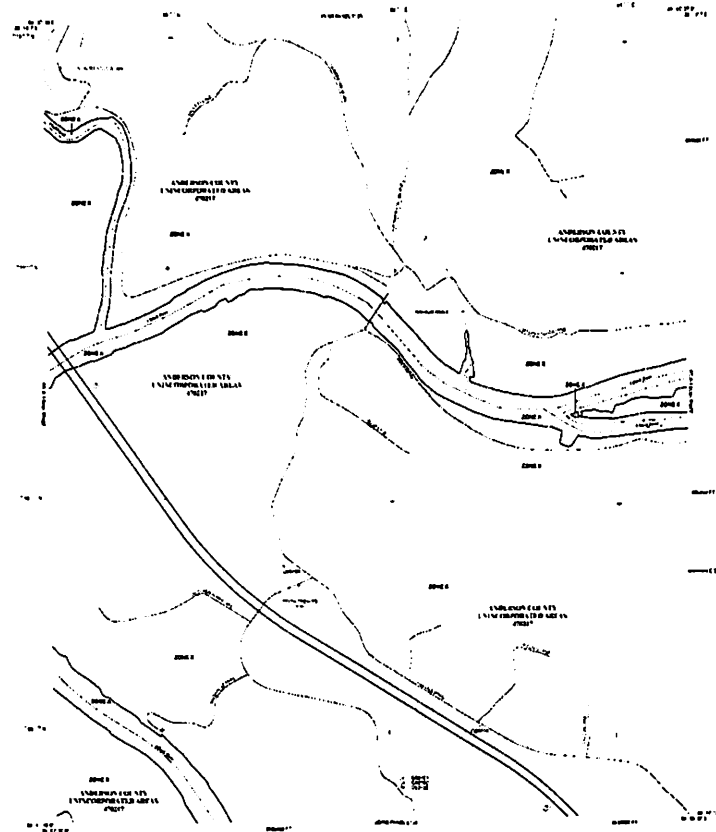




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**FIRM**  
FLOOD INSURANCE RATE MAP

**ANDERSON COUNTY,  
TENNESSEE**  
A MAP OF CERTAIN FLOOD-PRONE  
AREAS, ISSUED BY THE  
FEDERAL EMERGENCY MANAGEMENT AGENCY,  
WASHINGTON, D.C. 20548

MAP NUMBER  
COMMERCIAL  
MAP REVISED  
MAY 4, 1983

United States Government Printing Office

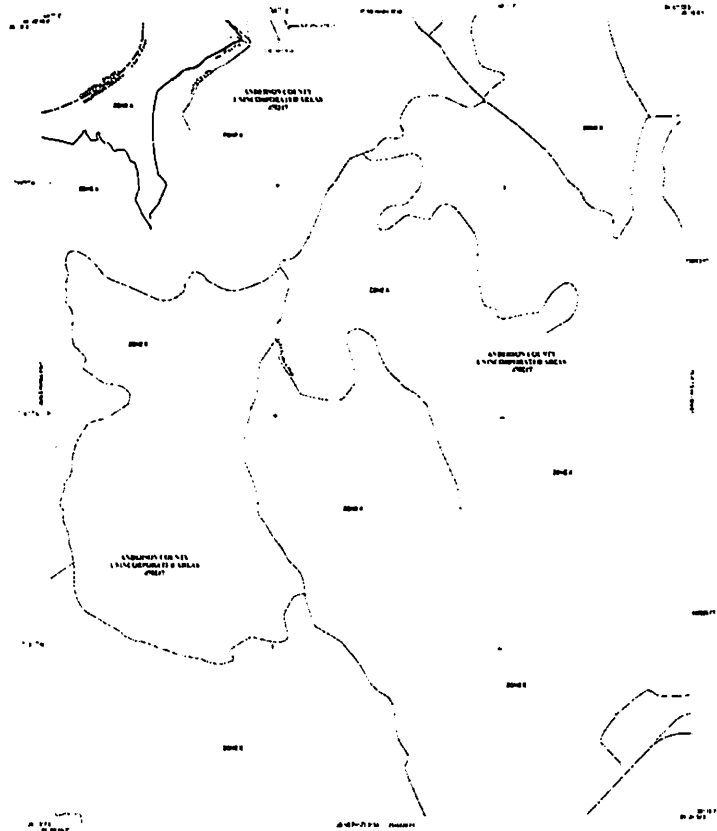


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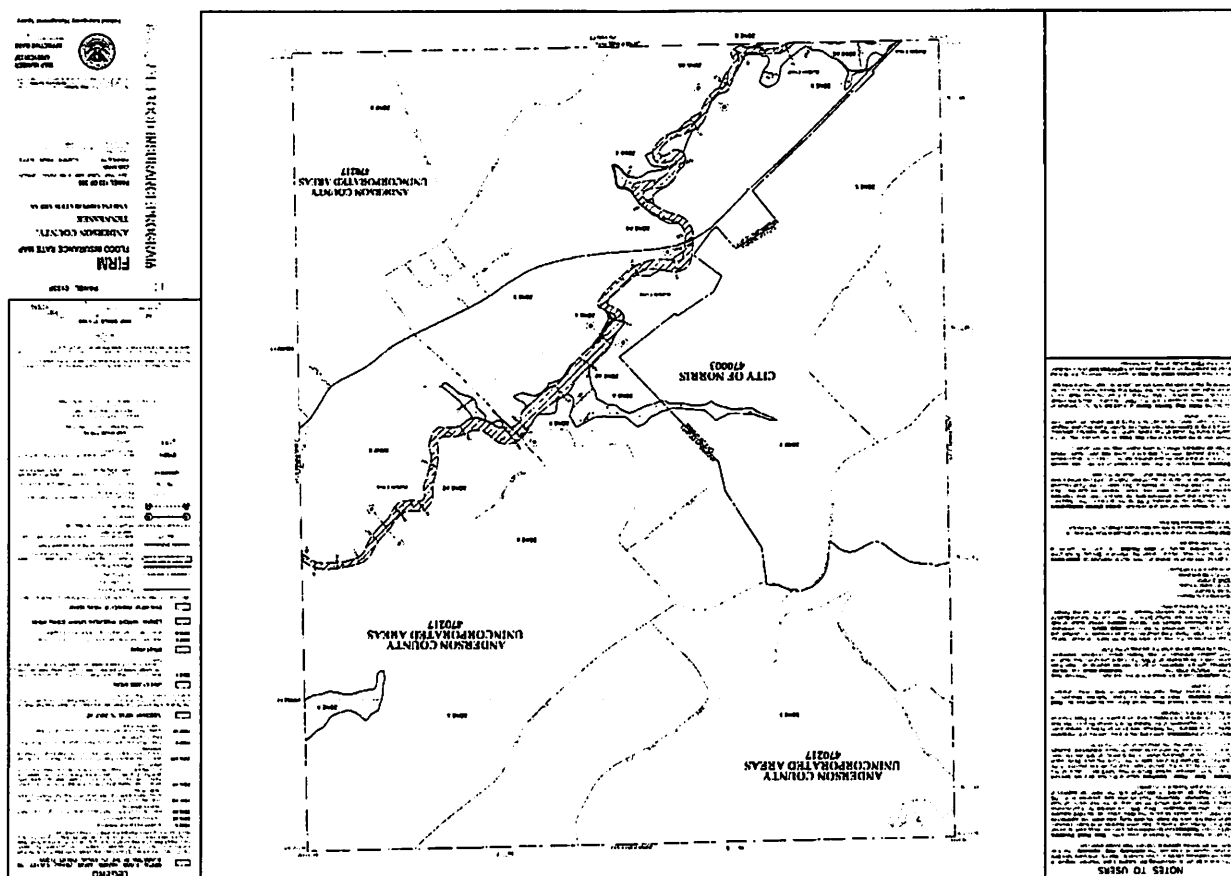
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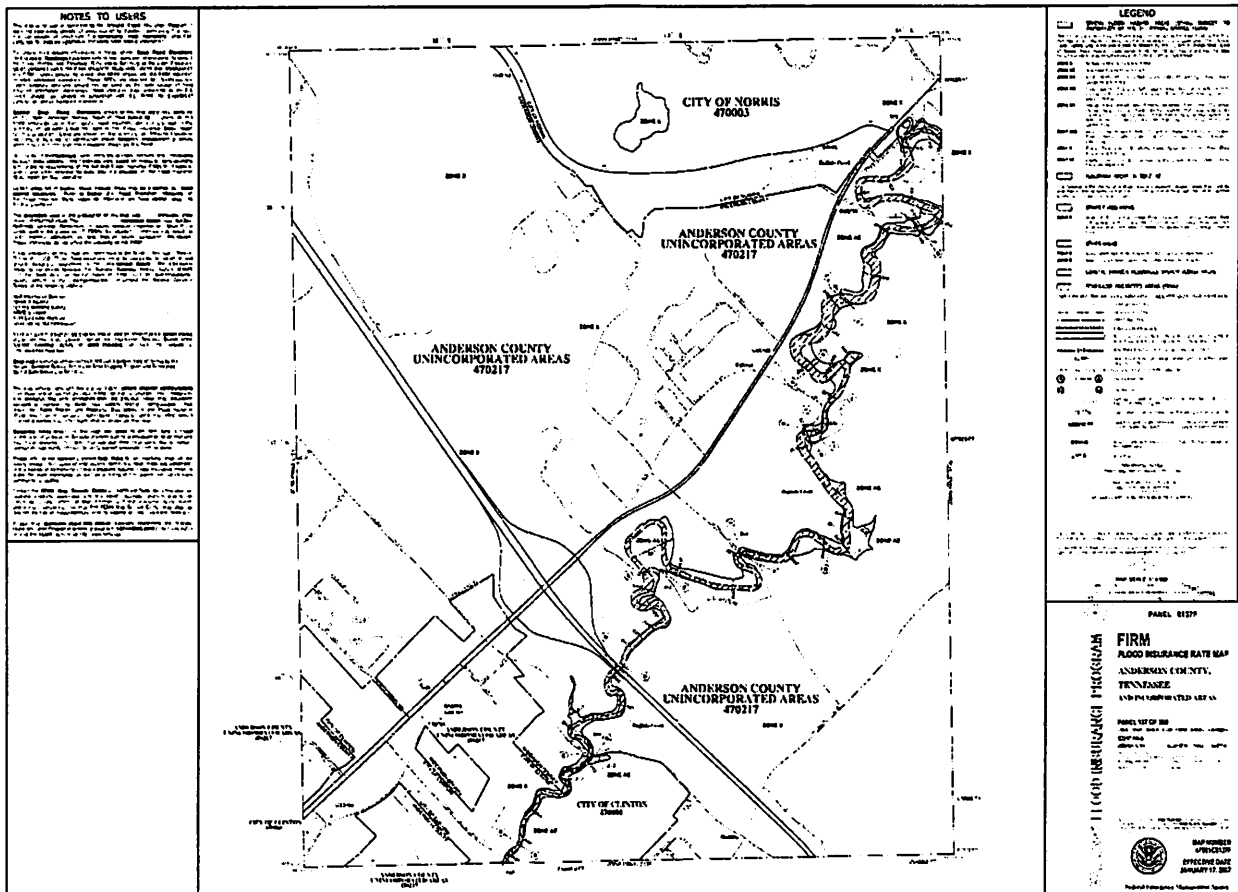
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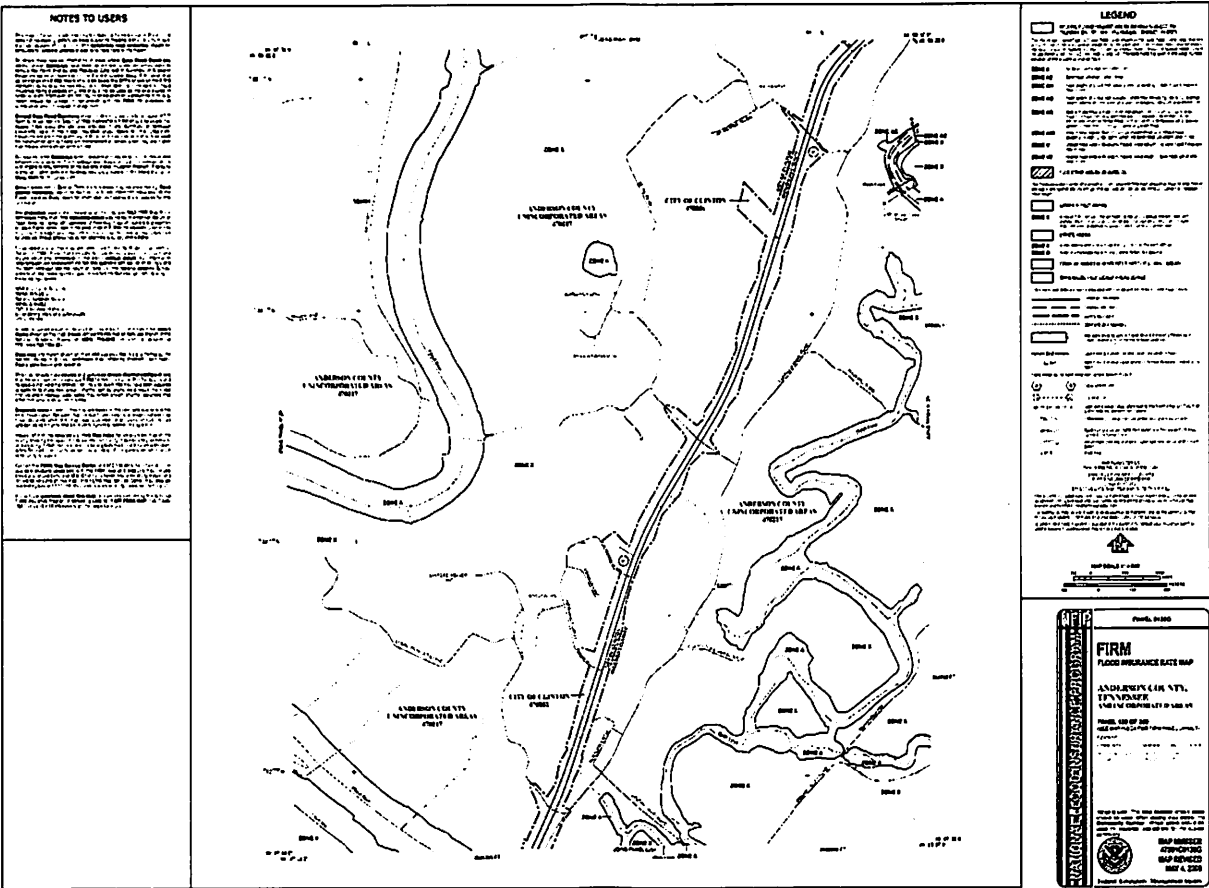
GOVERNMENT  
 MAP REVIEW  
 MAY 4, 1968











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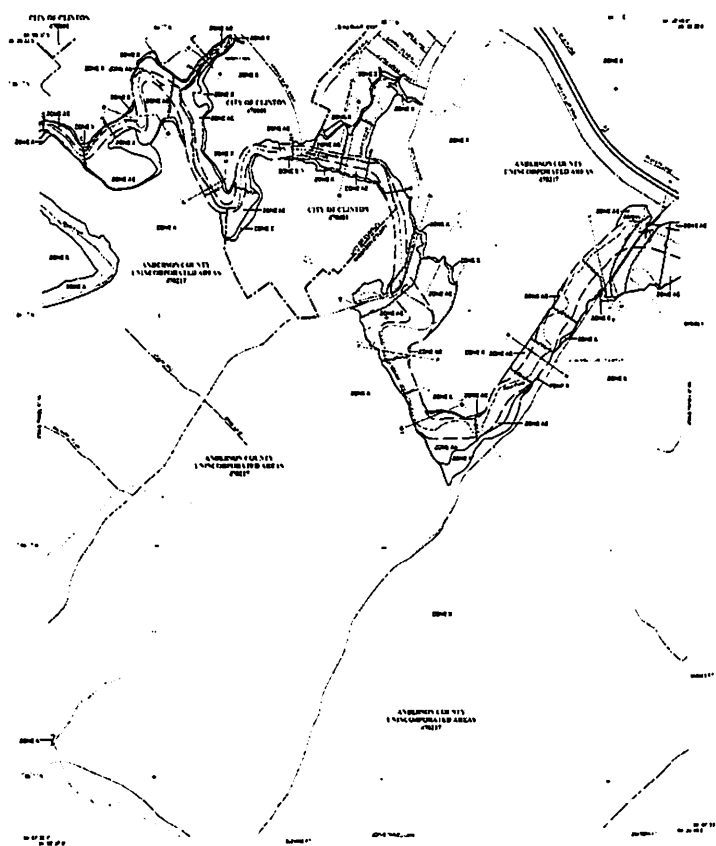
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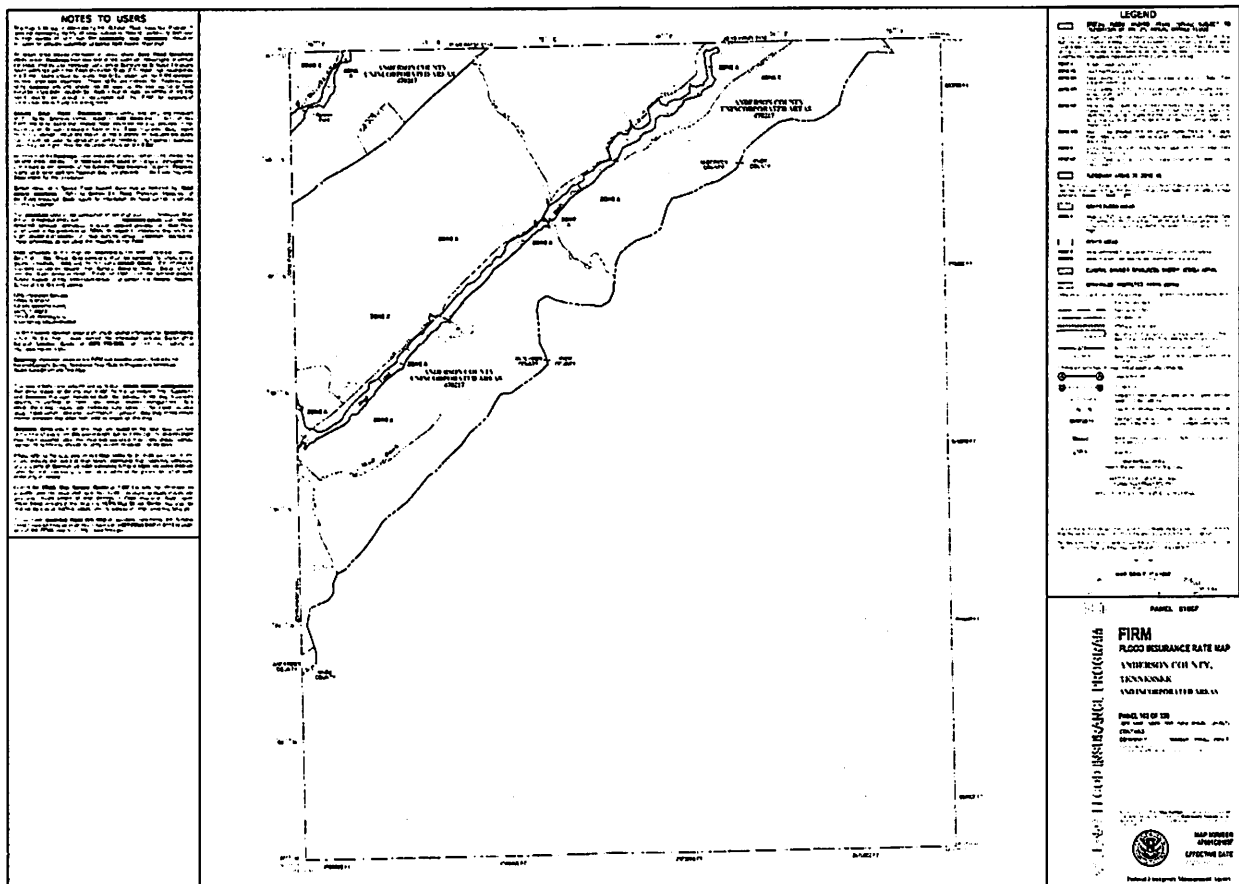
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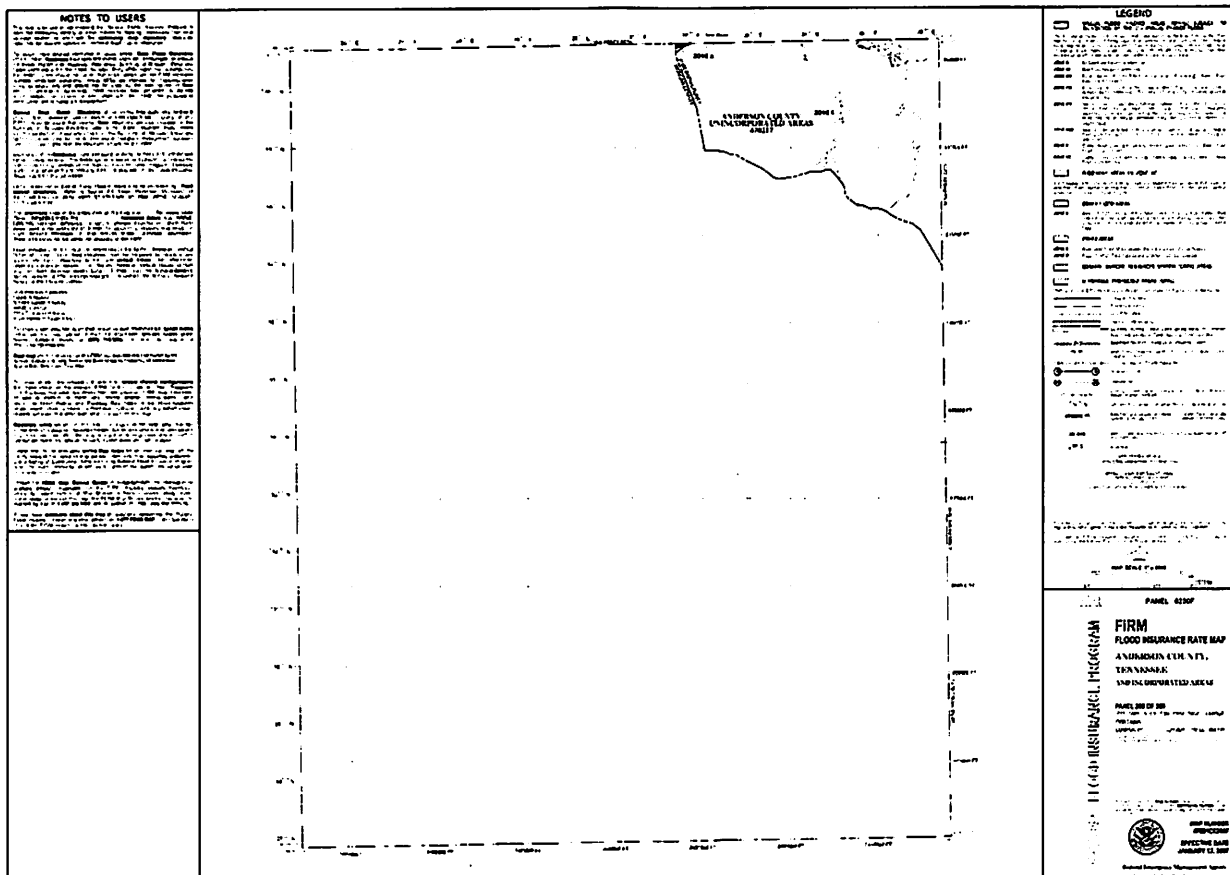
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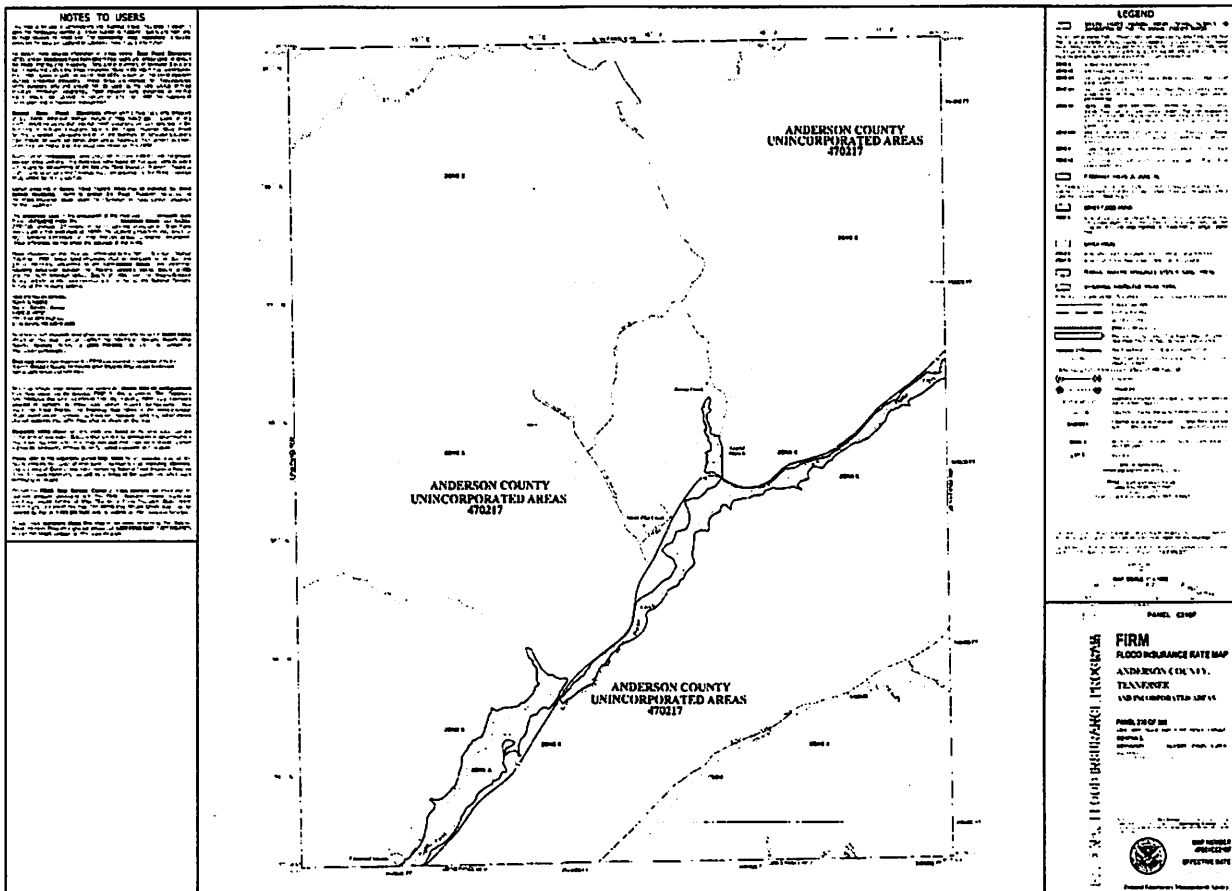


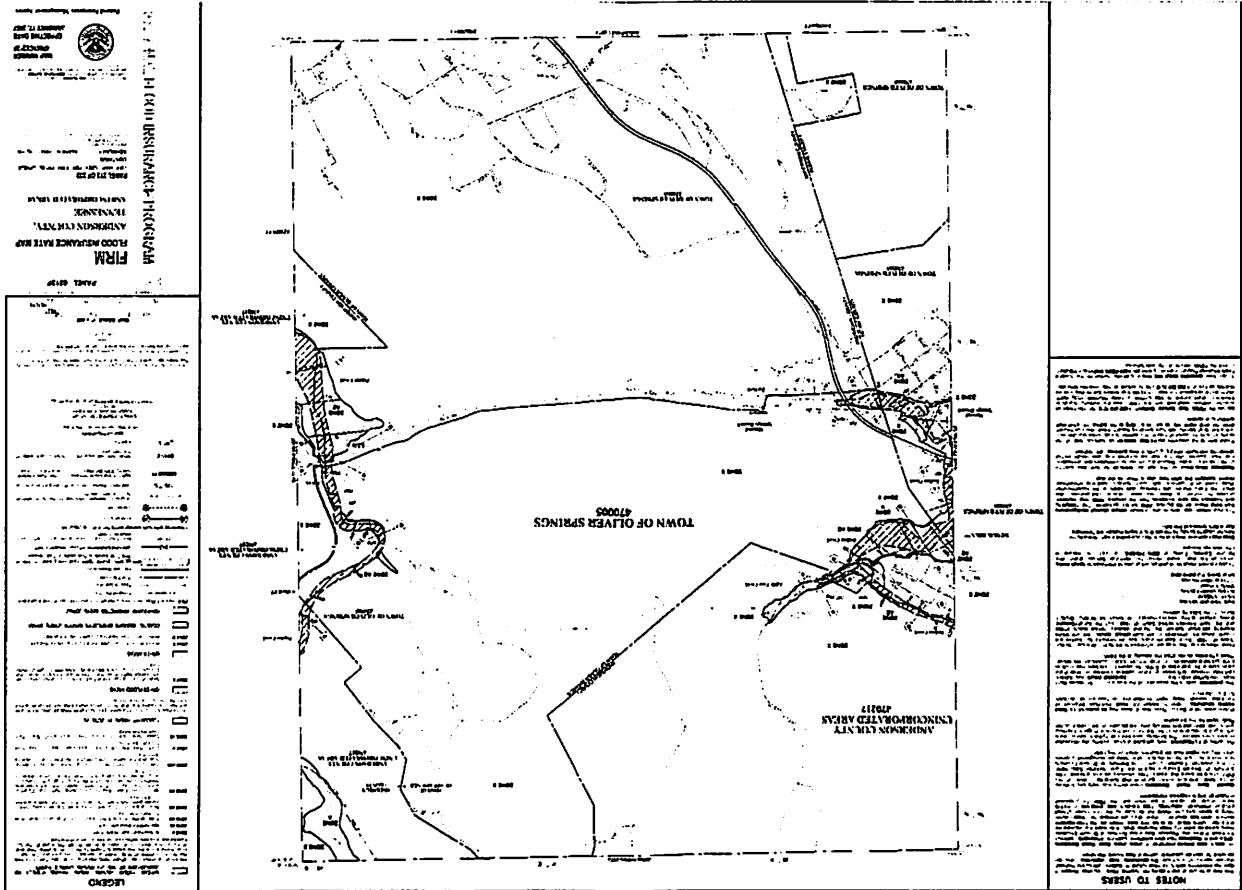








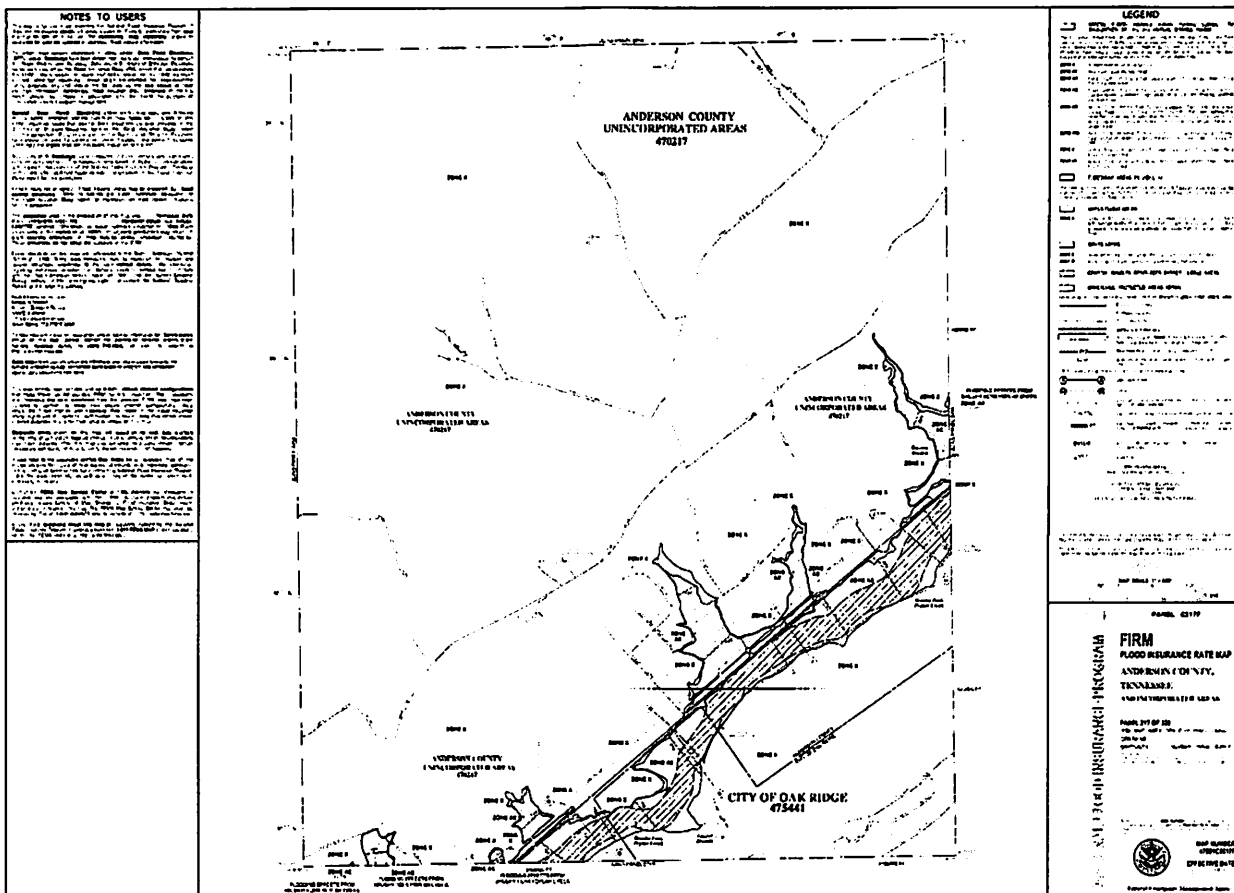








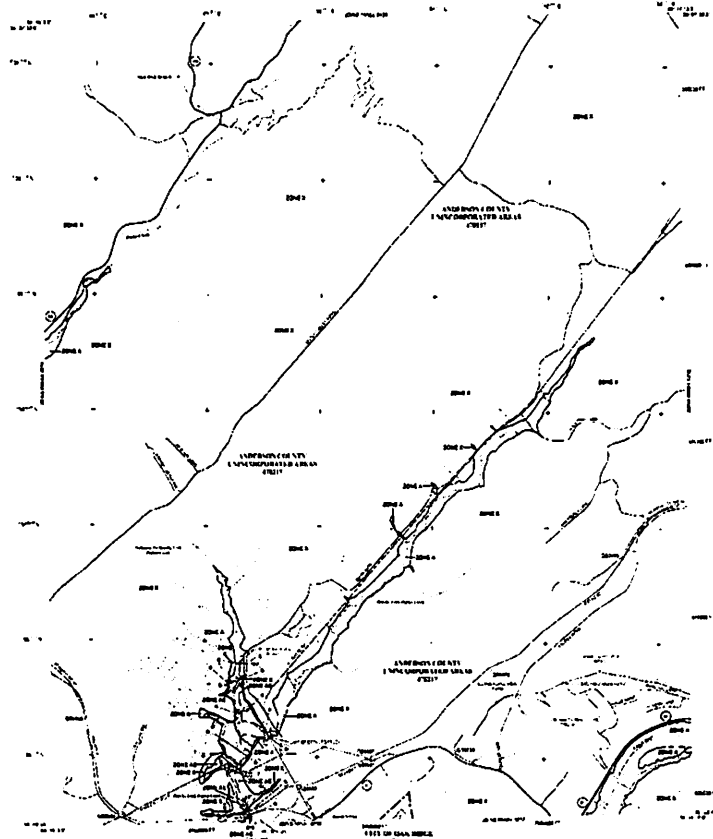








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1. **NAME** (Last, first, middle initial)  
 2. **DATE OF BIRTH** (Month, day, year)  
 3. **SEX** (Male, Female)  
 4. **EDUCATION** (High school, college, university, etc.)  
 5. **EMPLOYMENT** (Current and previous employers)  
 6. **RESIDENCE** (Current and previous addresses)  
 7. **RELIGION** (If any)  
 8. **INTERESTS** (Hobbies, sports, etc.)  
 9. **REFERENCES** (Names and addresses of people who can vouch for you)  
 10. **COMMENTS** (Any other information you wish to provide)

11. **SIGNATURE** (Handwritten)  
 12. **DATE** (Month, day, year)

13. **STAMP** (Official seal or stamp of the organization)

14. **REMARKS** (Any additional notes)

15. **APPROVAL** (Signature and stamp of the approving authority)

16. **RECEIVED** (Date and time of receipt)

17. **FILED** (Date and time of filing)

18. **INDEXED** (Date and time of indexing)

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**FIRM**  
FLOOD INSURANCE RATE MAP

ANDERSON (IN ST),  
TENNESSEE  
LAND FLOODING LEFT BY LAND USE

POWER, END OF MAP  
NOT CONTAINING IN PART (continued), page 10  
of 10 pages

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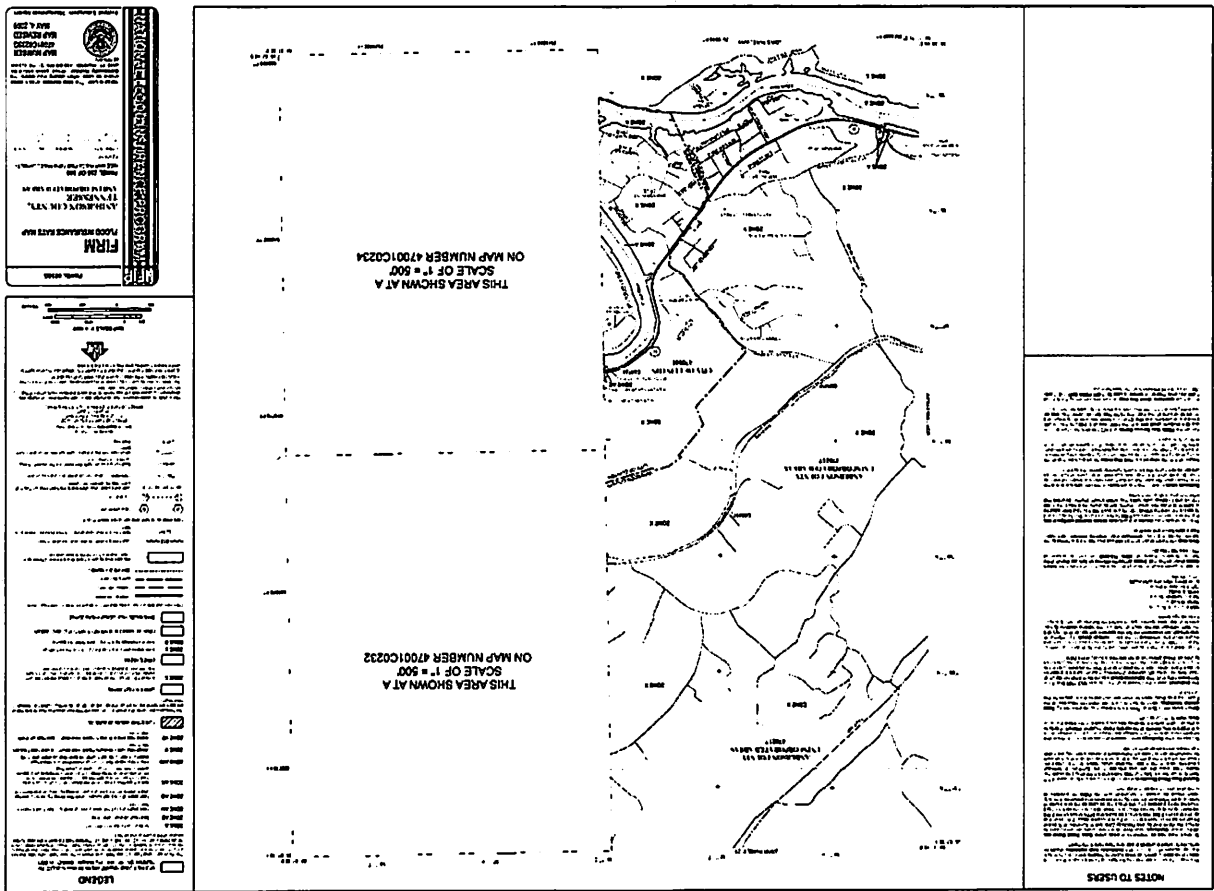
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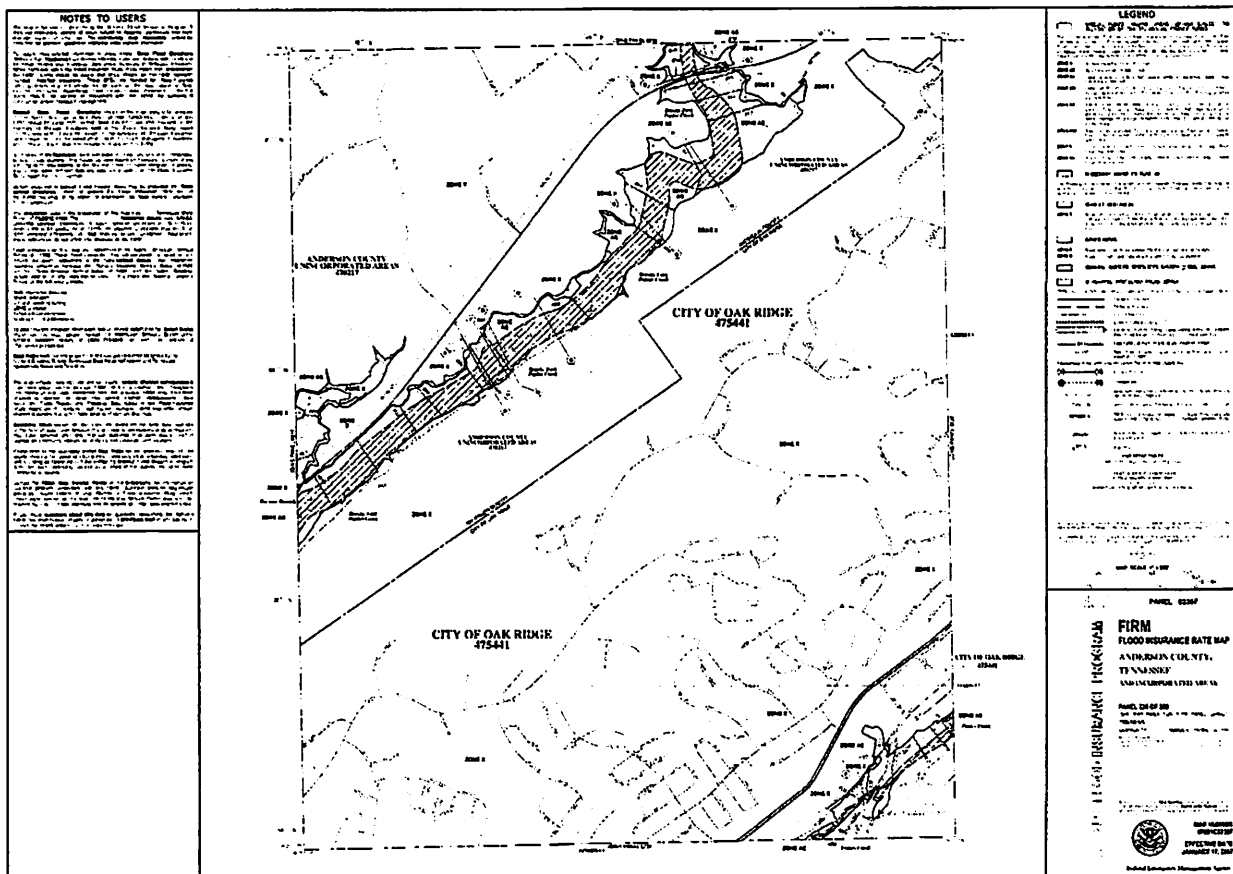
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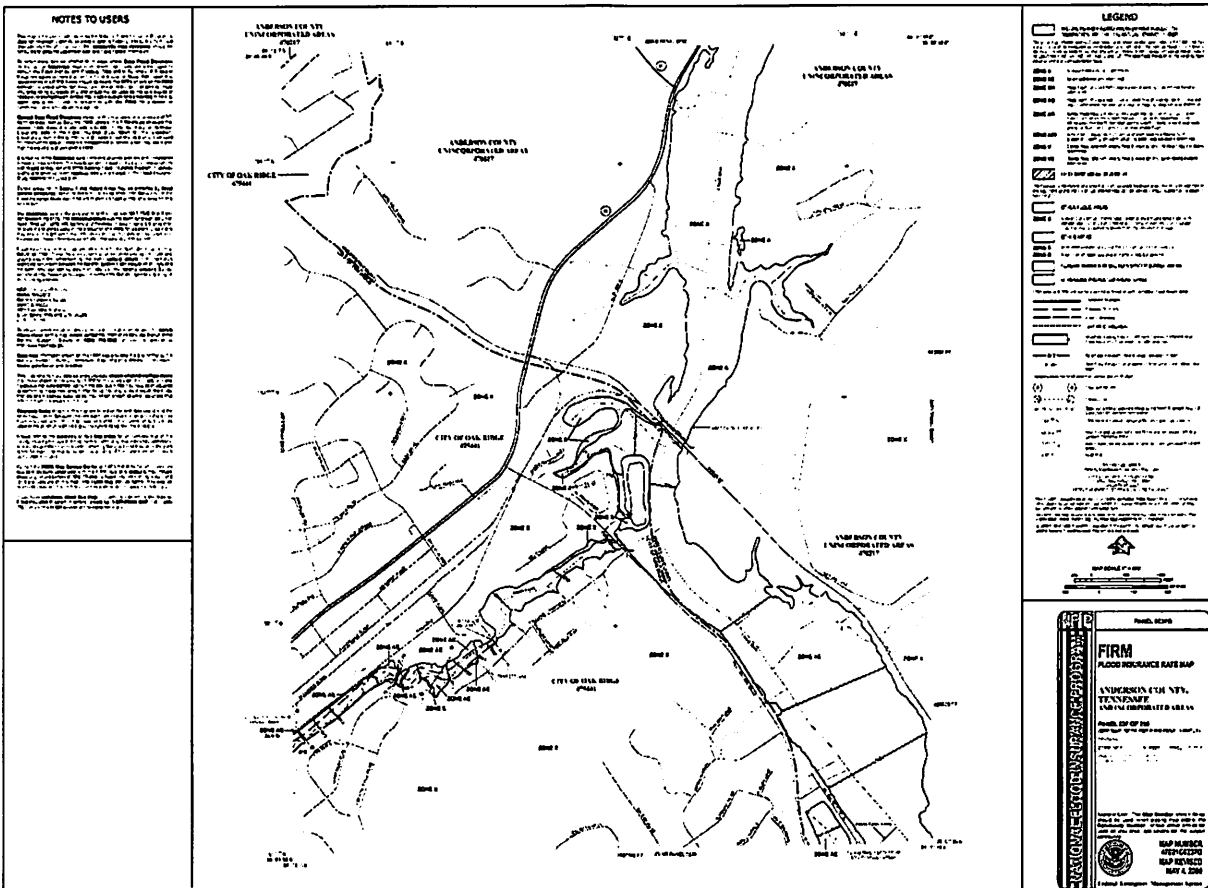
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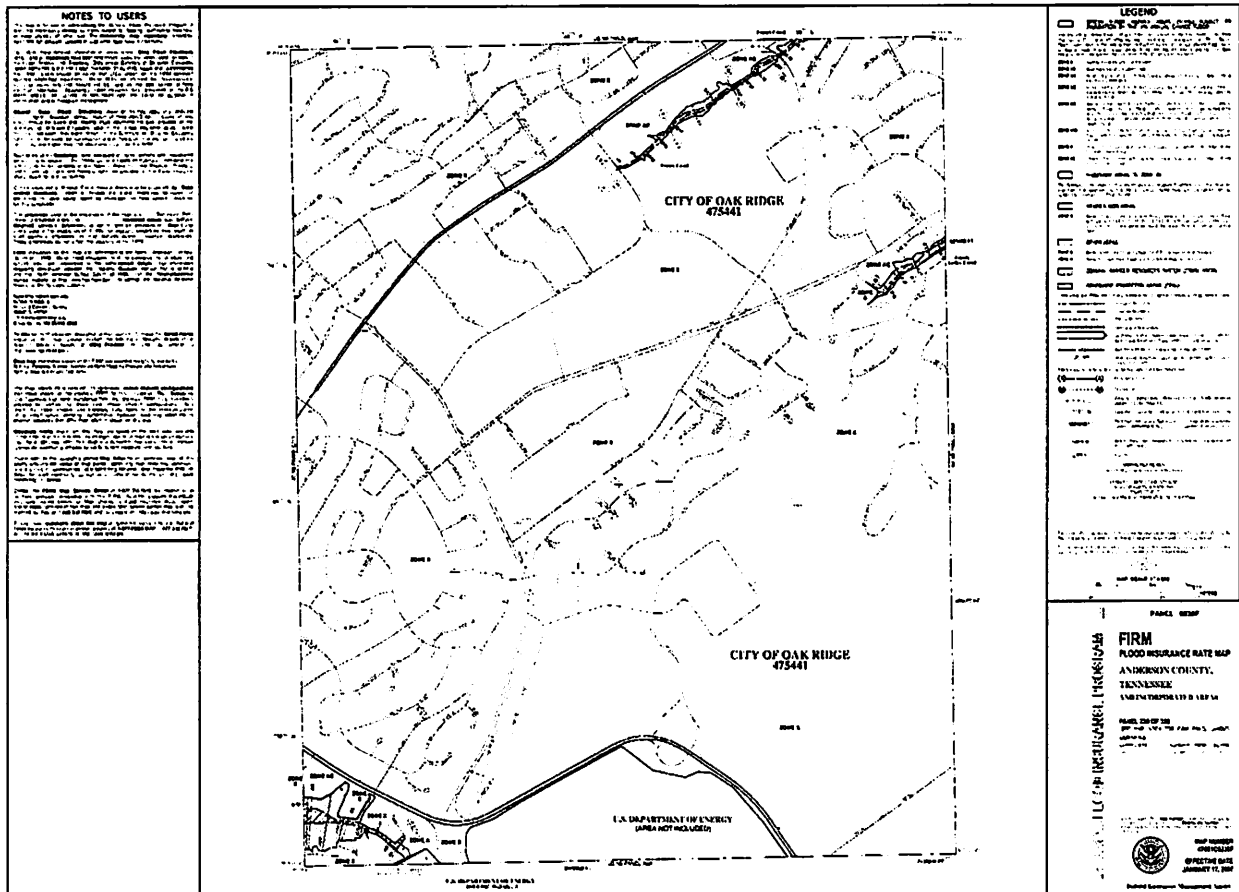








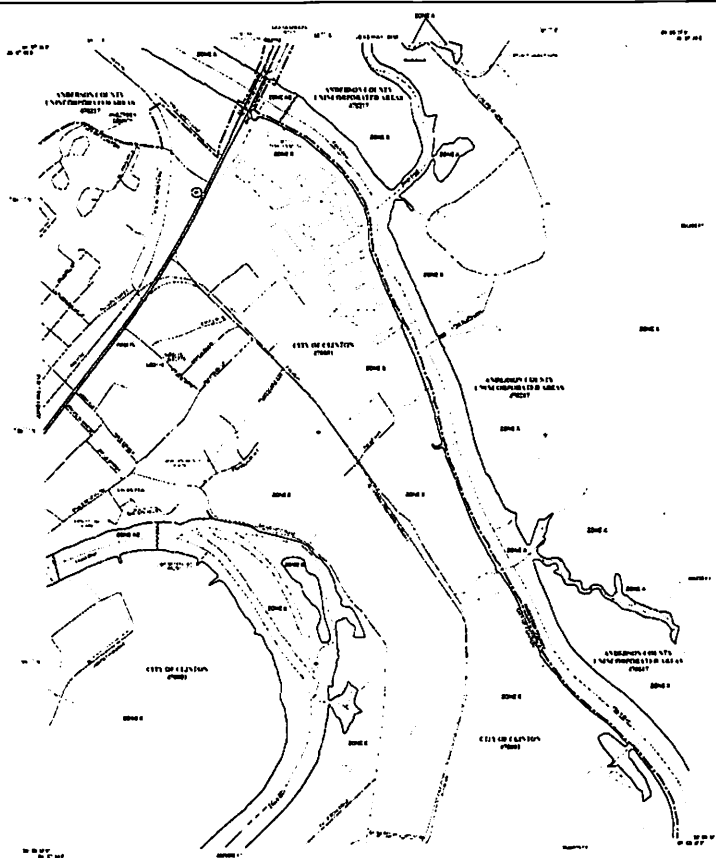








**THE** "Lancet" and "The Times" have both published reports of the results of the first 100 cases of the new treatment. The "Lancet" report, based on 100 cases treated at the Royal Free Hospital, London, shows that the new treatment is effective in 90 per cent of cases. The "Times" report, based on 100 cases treated at the St. Mary's Hospital, London, shows that the new treatment is effective in 85 per cent of cases. Both reports conclude that the new treatment is a significant advance in the treatment of this disease.



**QUESTION 1** ☐ **QUESTION 2** ☐ **QUESTION 3** ☐ **QUESTION 4** ☐ **QUESTION 5** ☐ **QUESTION 6** ☐ **QUESTION 7** ☐ **QUESTION 8** ☐ **QUESTION 9** ☐ **QUESTION 10** ☐ **QUESTION 11** ☐ **QUESTION 12** ☐ **QUESTION 13** ☐ **QUESTION 14** ☐ **QUESTION 15** ☐ **QUESTION 16** ☐ **QUESTION 17** ☐ **QUESTION 18** ☐ **QUESTION 19** ☐ **QUESTION 20** ☐ **QUESTION 21** ☐ **QUESTION 22** ☐ **QUESTION 23** ☐ **QUESTION 24** ☐ **QUESTION 25** ☐ **QUESTION 26** ☐ **QUESTION 27** ☐ **QUESTION 28** ☐ **QUESTION 29** ☐ **QUESTION 30** ☐ **QUESTION 31** ☐ **QUESTION 32** ☐ **QUESTION 33** ☐ **QUESTION 34** ☐ **QUESTION 35** ☐ **QUESTION 36** ☐ **QUESTION 37** ☐ **QUESTION 38** ☐ **QUESTION 39** ☐ **QUESTION 40** ☐ **QUESTION 41** ☐ **QUESTION 42** ☐ **QUESTION 43** ☐ **QUESTION 44** ☐ **QUESTION 45** ☐ **QUESTION 46** ☐ **QUESTION 47** ☐ **QUESTION 48** ☐ **QUESTION 49** ☐ **QUESTION 50** ☐ **QUESTION 51** ☐ **QUESTION 52** ☐ **QUESTION 53** ☐ **QUESTION 54** ☐ **QUESTION 55** ☐ **QUESTION 56** ☐ **QUESTION 57** ☐ **QUESTION 58** ☐ **QUESTION 59** ☐ **QUESTION 60** ☐ **QUESTION 61** ☐ **QUESTION 62** ☐ **QUESTION 63** ☐ **QUESTION 64** ☐ **QUESTION 65** ☐ **QUESTION 66** ☐ **QUESTION 67** ☐ **QUESTION 68** ☐ **QUESTION 69** ☐ **QUESTION 70** ☐ **QUESTION 71** ☐ **QUESTION 72** ☐ **QUESTION 73** ☐ **QUESTION 74** ☐ **QUESTION 75** ☐ **QUESTION 76** ☐ **QUESTION 77** ☐ **QUESTION 78** ☐ **QUESTION 79** ☐ **QUESTION 80** ☐ **QUESTION 81** ☐ **QUESTION 82** ☐ **QUESTION 83** ☐ **QUESTION 84** ☐ **QUESTION 85** ☐ **QUESTION 86** ☐ **QUESTION 87** ☐ **QUESTION 88** ☐ **QUESTION 89** ☐ **QUESTION 90** ☐ **QUESTION 91** ☐ **QUESTION 92** ☐ **QUESTION 93** ☐ **QUESTION 94** ☐ **QUESTION 95** ☐ **QUESTION 96** ☐ **QUESTION 97** ☐ **QUESTION 98** ☐ **QUESTION 99** ☐ **QUESTION 100** ☐ **QUESTION 101** ☐ **QUESTION 102** ☐ **QUESTION 103** ☐ **QUESTION 104** ☐ **QUESTION 105** ☐ **QUESTION 106** ☐ **QUESTION 107** ☐ **QUESTION 108** ☐ **QUESTION 109** ☐ **QUESTION 110** ☐ **QUESTION 111** ☐ **QUESTION 112** ☐ **QUESTION 113** ☐ **QUESTION 114** ☐ **QUESTION 115** ☐ **QUESTION 116** ☐ **QUESTION 117** ☐ **QUESTION 118** ☐ **QUESTION 119** ☐ **QUESTION 120** ☐ **QUESTION 121** ☐ **QUESTION 122** ☐ **QUESTION 123** ☐ **QUESTION 124** ☐ **QUESTION 125** ☐ **QUESTION 126** ☐ **QUESTION 127** ☐ **QUESTION 128** ☐ **QUESTION 129** ☐ **QUESTION 130** ☐ **QUESTION 131** ☐ **QUESTION 132** ☐ **QUESTION 133** ☐ **QUESTION 134** ☐ **QUESTION 135** ☐ **QUESTION 136** ☐ **QUESTION 137** ☐ **QUESTION 138** ☐ **QUESTION 139** ☐ **QUESTION 140** ☐ **QUESTION 141** ☐ **QUESTION 142** ☐ **QUESTION 143** ☐ **QUESTION 144** ☐ **QUESTION 145** ☐ **QUESTION 146** ☐ **QUESTION 147** ☐ **QUESTION 148** ☐ **QUESTION 149** ☐ **QUESTION 150** ☐ **QUESTION 151** ☐ **QUESTION 152** ☐ **QUESTION 153** ☐ **QUESTION 154** ☐ **QUESTION 155** ☐ **QUESTION 156** ☐ **QUESTION 157** ☐ **QUESTION 158** ☐ **QUESTION 159** ☐ **QUESTION 160** ☐ **QUESTION 161** ☐ **QUESTION 162** ☐ **QUESTION 163** ☐ **QUESTION 164** ☐ **QUESTION 165** ☐ **QUESTION 166** ☐ **QUESTION 167** ☐ **QUESTION 168** ☐ **QUESTION 169** ☐ **QUESTION 170** ☐ **QUESTION 171** ☐ **QUESTION 172** ☐ **QUESTION 173** ☐ **QUESTION 174** ☐ **QUESTION 175** ☐ **QUESTION 176** ☐ **QUESTION 177** ☐ **QUESTION 178** ☐ **QUESTION 179** ☐ **QUESTION 180** ☐ **QUESTION 181** ☐ **QUESTION 182** ☐ **QUESTION 183** ☐ **QUESTION 184** ☐ **QUESTION 185** ☐ **QUESTION 186** ☐ **QUESTION 187** ☐ **QUESTION 188** ☐ **QUESTION 189** ☐ **QUESTION 190** ☐ **QUESTION 191** ☐ **QUESTION 192** ☐ **QUESTION 193** ☐ **QUESTION 194** ☐ **QUESTION 195** ☐ **QUESTION 196** ☐ **QUESTION 197** ☐ **QUESTION 198** ☐ **QUESTION 199** ☐ **QUESTION 200** ☐ **QUESTION 201** ☐ **QUESTION 202** ☐ **QUESTION 203** ☐ **QUESTION 204** ☐ **QUESTION 205** ☐ **QUESTION 206** ☐ **QUESTION 207** ☐ **QUESTION 208** ☐ **QUESTION 209** ☐ **QUESTION 210** ☐ **QUESTION 211** ☐ **QUESTION 212** ☐ **QUESTION 213** ☐ **QUESTION 214** ☐ **QUESTION 215** ☐ **QUESTION 216** ☐ **QUESTION 217** ☐ **QUESTION 218** ☐ **QUESTION 219** ☐ **QUESTION 220** ☐ **QUESTION 221** ☐ **QUESTION 222** ☐ **QUESTION 223** ☐ **QUESTION 224** ☐ **QUESTION 225** ☐ **QUESTION 226** ☐ **QUESTION 227** ☐ **QUESTION 228** ☐ **QUESTION 229** ☐ **QUESTION 230** ☐ **QUESTION 231** ☐ **QUESTION 232** ☐ **QUESTION 233** ☐ **QUESTION 234** ☐ **QUESTION 235** ☐ **QUESTION 236** ☐ **QUESTION 237** ☐ **QUESTION 238** ☐ **QUESTION 239** ☐ **QUESTION 240** ☐ **QUESTION 241** ☐ **QUESTION 242** ☐ **QUESTION 243** ☐ **QUESTION 244** ☐ **QUESTION 245** ☐ **QUESTION 246**

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**NOTES TO USERS**

1. This map was prepared by the Federal Emergency Management Agency (FEMA) under contract to the United States Army Corps of Engineers (USACE). The map is based on data provided by the USACE and is not a representation of the USACE's official position. The map is for informational purposes only and should not be used for any other purpose.

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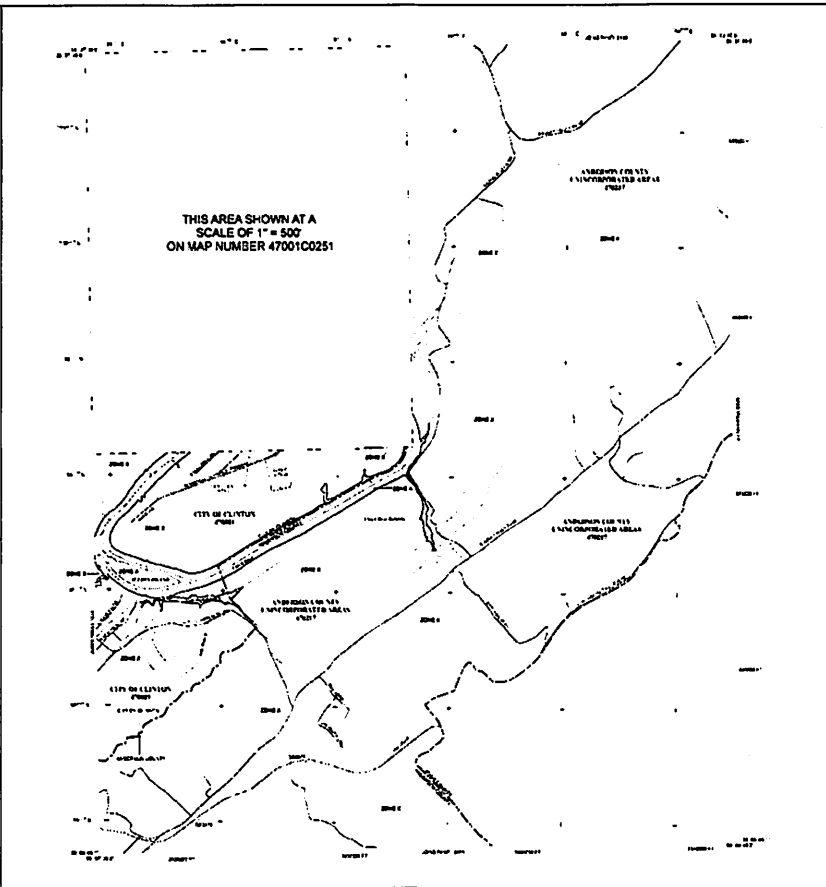
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**LEGEND**

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**FIRM**  
FLOOD INSURANCE RATE MAP

ANDREWS & IN STL.  
TENNIS

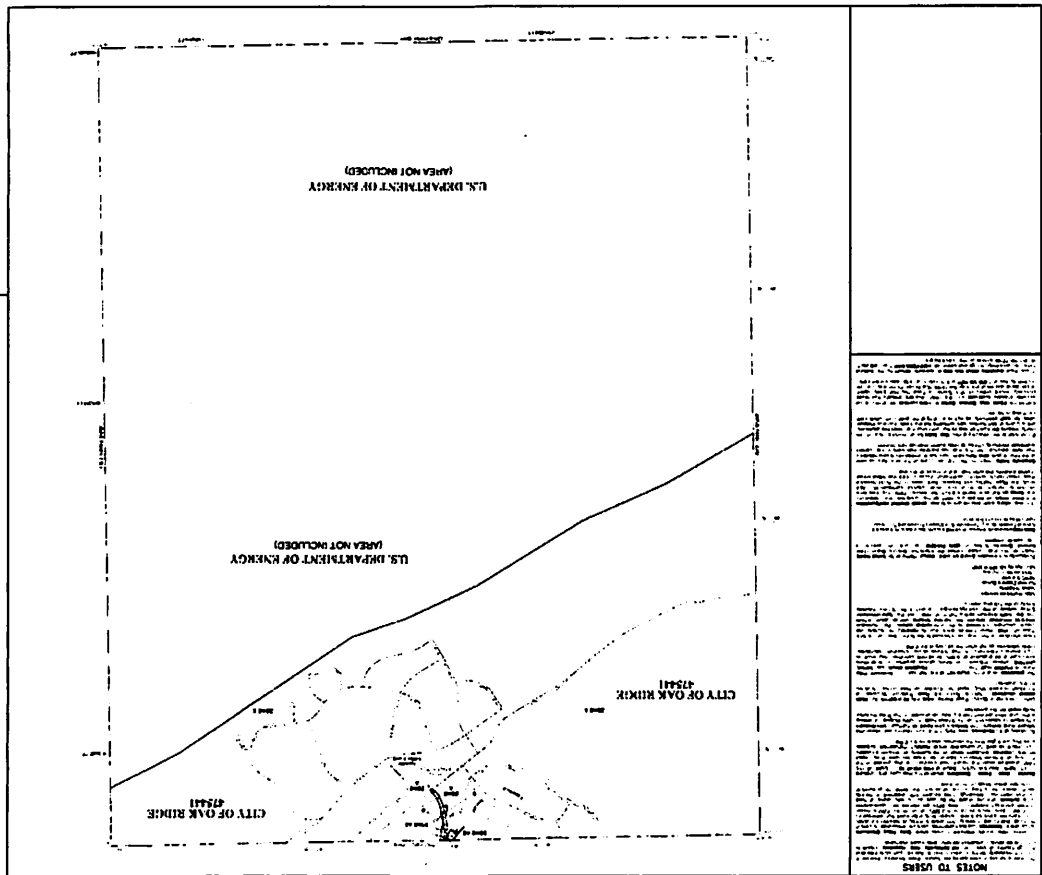
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DATE: 1984

MAP NUMBER  
47001C0251  
DATE: 1984



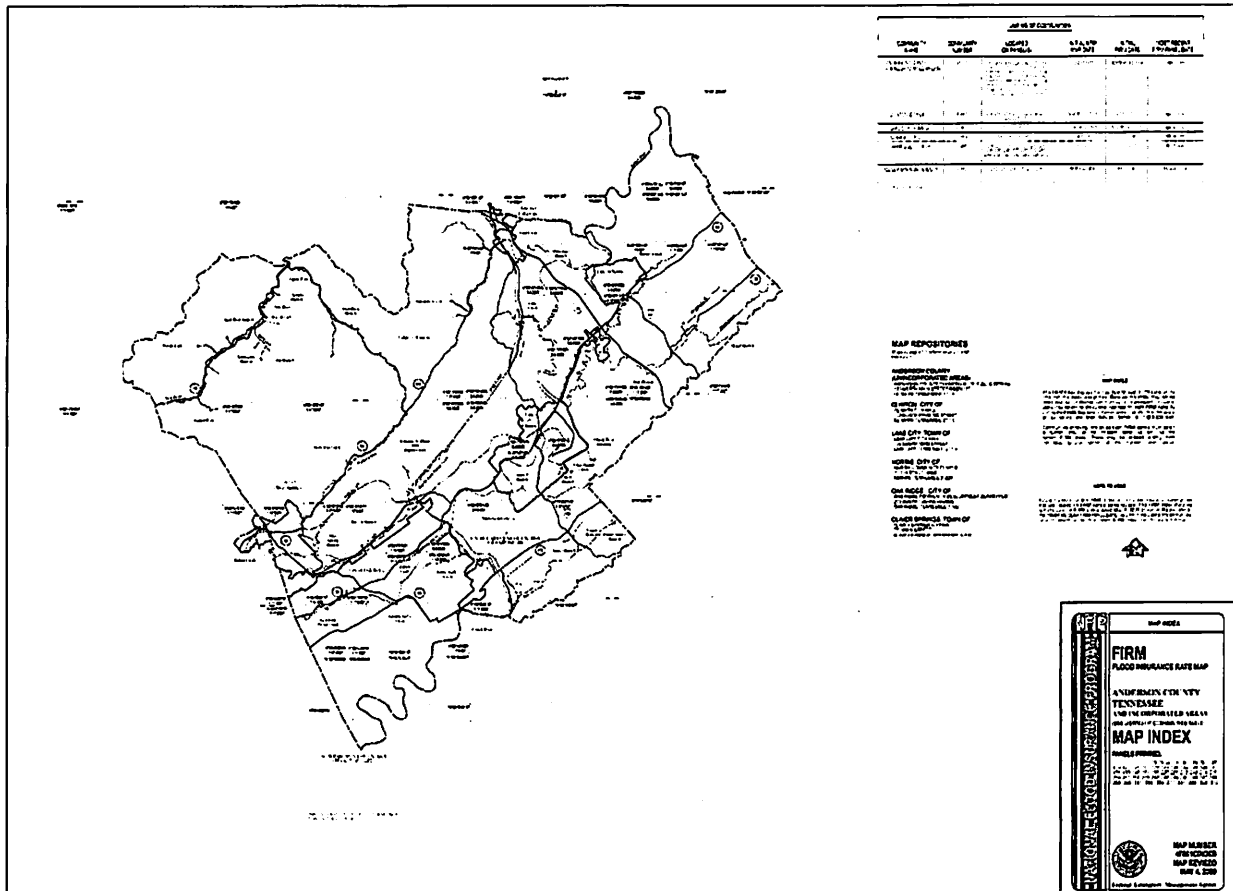




[illegible]









**APPENDIX 4: HAZUS**  
**Flood Insurance Rate Maps for Anderson County**

## Hazus: Flood Global Risk Report

**Region Name:** Anderson\_County

**Flood Scenario:** Anderson\_County\_100yr\_Flood

**Print Date:** Monday, August 23, 2021

**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 approximately 345 square miles and contains 3,000 census blocks. The region contains over 31 thousand households and has a total population of 75,129 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 32,814 buildings in the region with a total building replacement value (excluding contents) of 8,227 million dollars. Approximately 92.22% of the buildings (and 70.91% of the building value) are associated with residential housing.



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## Building Inventory

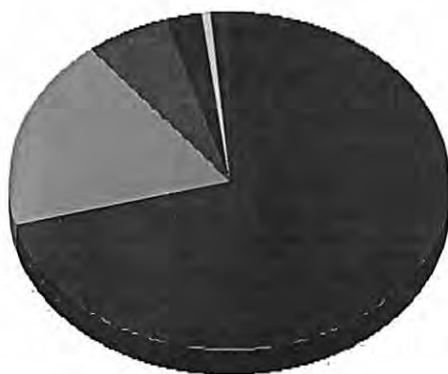
### General Building Stock

Hazus estimates that there are 32,814 buildings in the region which have an aggregate total replacement value of 8,227 million 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  | 5,833,995         | 70.9%            |
| Commercial   | 1,504,816         | 18.3%            |
| Industrial   | 493,053           | 6.0%             |
| Agricultural | 17,580            | 0.2%             |
| Religion     | 213,457           | 2.6%             |
| Government   | 48,684            | 0.6%             |
| Education    | 115,492           | 1.4%             |
| <b>Total</b> | <b>8,227,077</b>  | <b>100%</b>      |

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



|               |                    |
|---------------|--------------------|
| Residential   | \$5,833,995        |
| Commercial    | \$1,504,816        |
| Industrial    | \$493,053          |
| Agricultural  | \$17,580           |
| Religion      | \$213,457          |
| Government    | \$48,684           |
| Education     | \$115,492          |
| <b>Total:</b> | <b>\$8,227,077</b> |



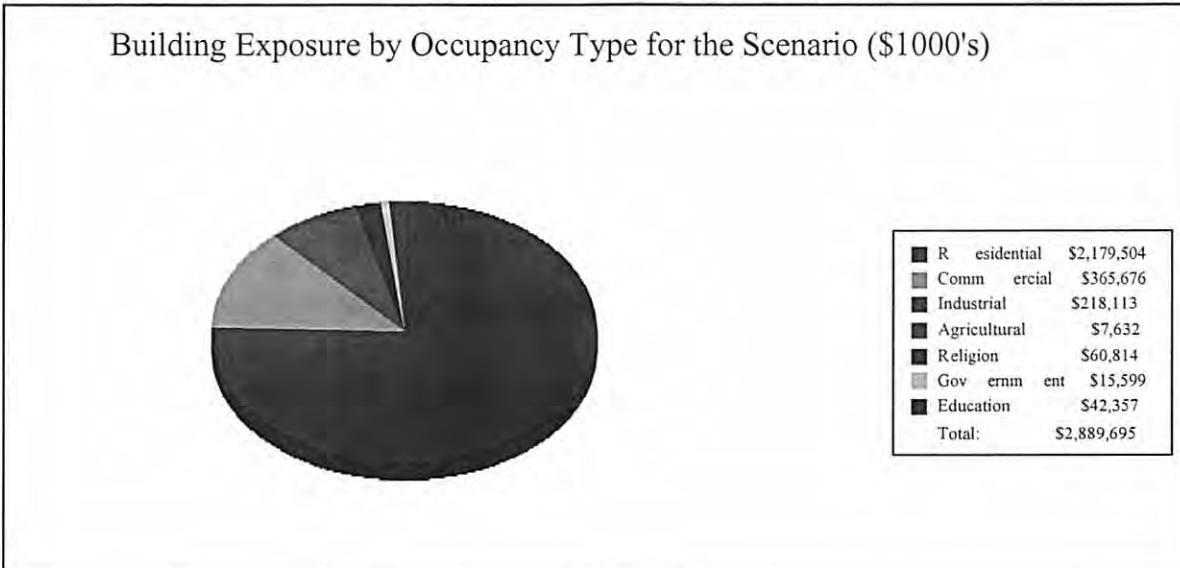
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**Table 2**  
**Building Exposure by Occupancy Type for the Scenario**

| Occupancy    | Exposure (\$1000) | Percent of Total |
|--------------|-------------------|------------------|
| Residential  | 2,179,504         | 75.4%            |
| Commercial   | 365,676           | 12.7%            |
| Industrial   | 218,113           | 7.5%             |
| Agricultural | 7,632             | 0.3%             |
| Religion     | 60,814            | 2.1%             |
| Government   | 15,599            | 0.5%             |
| Education    | 42,357            | 1.5%             |
| <b>Total</b> | <b>2,889,695</b>  | <b>100%</b>      |



### Essential Facility Inventory

For essential facilities, there are 2 hospitals in the region with a total bed capacity of 241 beds. There are 32 schools, 9 fire stations, 5 police stations and 1 emergency operation center.



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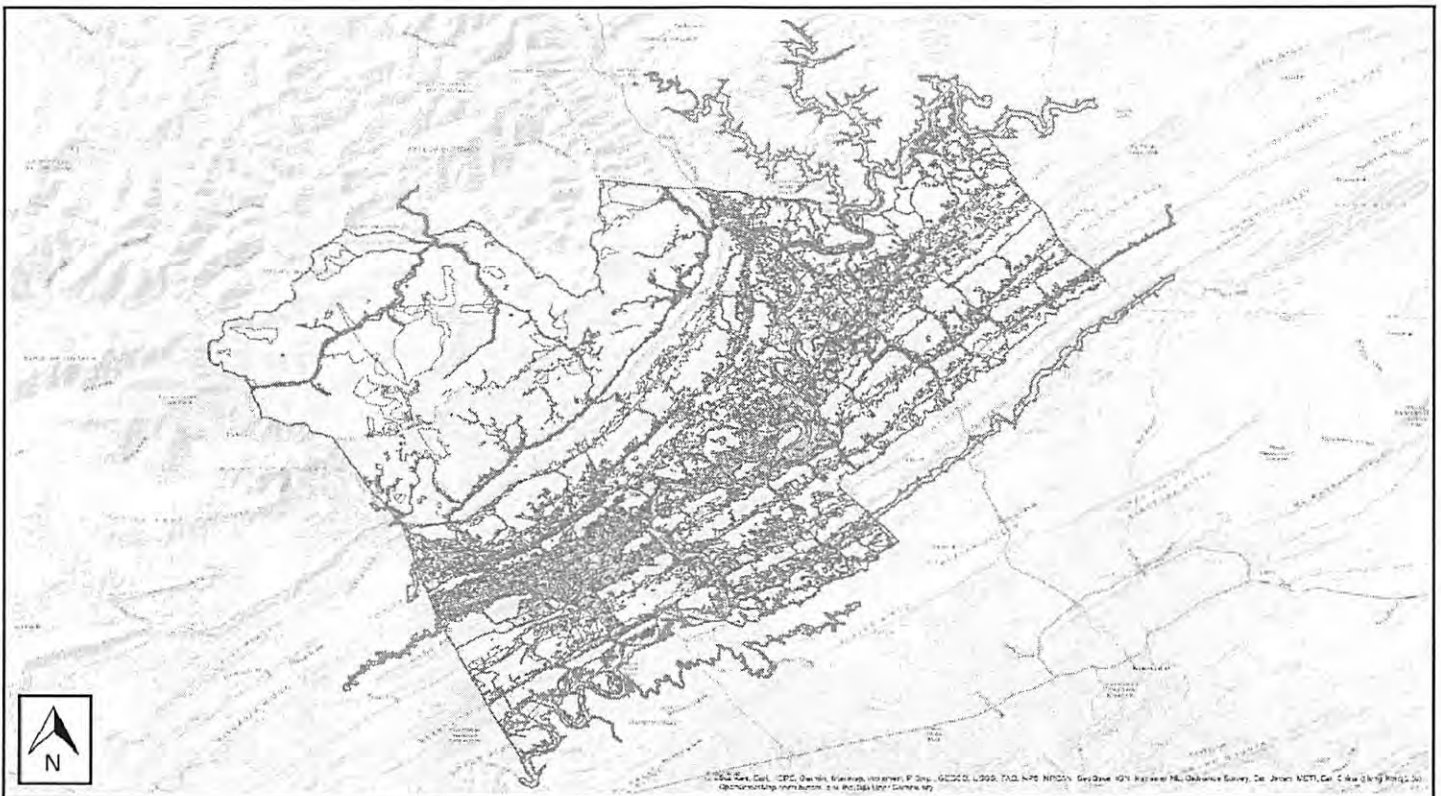
## Flood Scenario Parameters

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

|                            |                             |
|----------------------------|-----------------------------|
| Study Region Name:         | Anderson_County             |
| Scenario Name:             | Anderson_County_100yr_Flood |
| Return Period Analyzed:    | 100                         |
| Analysis Options Analyzed: | No What-Ifs                 |

### Study Region Overview Map

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



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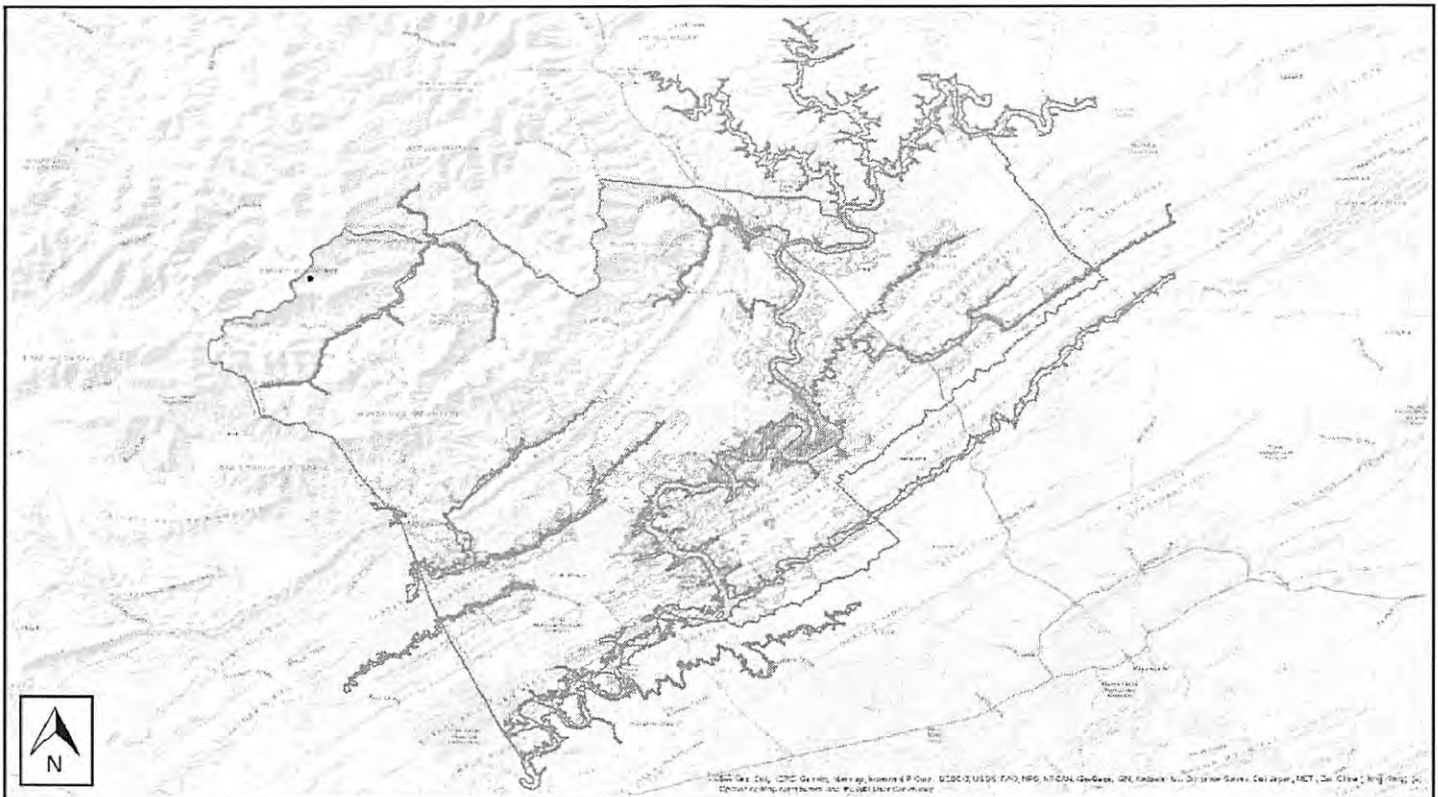


## Building Damage

### General Building Stock Damage

Hazus estimates that about 649 buildings will be at least moderately damaged. This is over 12% of the total number of buildings in the scenario. There are an estimated 481 buildings that will be completely destroyed. The definition of the 'damage states' is provided in 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.

**Total Economic Loss (1 dot = \$300K) Overview Map**



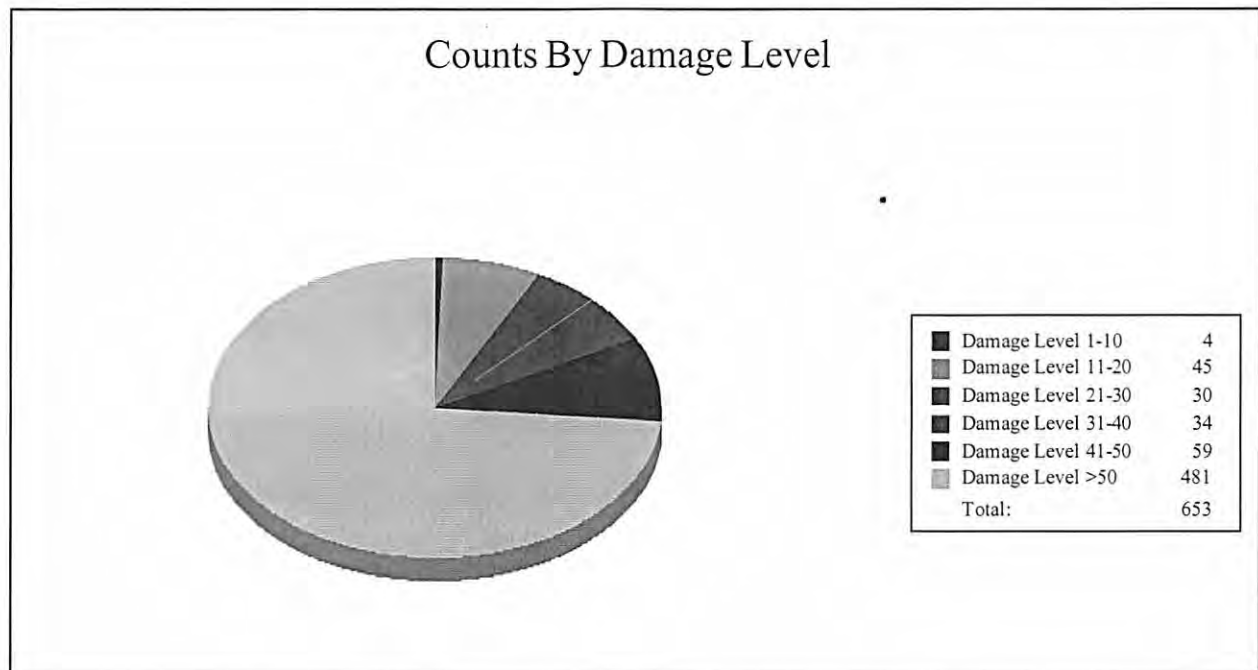
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Table 3: Expected Building Damage by Occupancy

| Occupancy    | 1-10     |     | 11-20     |     | 21-30     |     | 31-40     |     | 41-50     |     | >50        |     |
|--------------|----------|-----|-----------|-----|-----------|-----|-----------|-----|-----------|-----|------------|-----|
|              | Count    | (%) | Count     | (%) | Count     | (%) | Count     | (%) | Count     | (%) | Count      | (%) |
| Agriculture  | 0        | 0   | 0         | 0   | 0         | 0   | 0         | 0   | 0         | 0   | 0          | 0   |
| Commercial   | 0        | 0   | 2         | 25  | 0         | 0   | 0         | 0   | 1         | 13  | 5          | 63  |
| Education    | 0        | 0   | 0         | 0   | 0         | 0   | 0         | 0   | 0         | 0   | 0          | 0   |
| Government   | 0        | 0   | 0         | 0   | 0         | 0   | 0         | 0   | 0         | 0   | 0          | 0   |
| Industrial   | 0        | 0   | 1         | 20  | 0         | 0   | 0         | 0   | 1         | 20  | 3          | 60  |
| Religion     | 0        | 0   | 0         | 0   | 0         | 0   | 0         | 0   | 0         | 0   | 0          | 0   |
| Residential  | 4        | 1   | 42        | 7   | 30        | 5   | 34        | 5   | 57        | 9   | 473        | 74  |
| <b>Total</b> | <b>4</b> |     | <b>45</b> |     | <b>30</b> |     | <b>34</b> |     | <b>59</b> |     | <b>481</b> |     |



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Table 4: Expected Building Damage by Building Type

| Building Type | 1-10  |     | 11-20 |     | 21-30 |     | 31-40 |     | 41-50 |     | >50   |     |
|---------------|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|
|               | Count | (%) | Count | (%) | Count | (%) | Count | (%) | Count | (%) | Count | (%) |
| Concrete      | 0     | 0   | 0     | 0   | 0     | 0   | 0     | 0   | 0     | 0   | 1     | 100 |
| ManufHousing  | 0     | 0   | 0     | 0   | 0     | 0   | 0     | 0   | 0     | 0   | 27    | 100 |
| Masonry       | 0     | 0   | 1     | 3   | 1     | 3   | 0     | 0   | 3     | 8   | 32    | 86  |
| Steel         | 0     | 0   | 1     | 25  | 0     | 0   | 0     | 0   | 0     | 0   | 3     | 75  |
| Wood          | 4     | 1   | 41    | 7   | 29    | 5   | 34    | 6   | 55    | 9   | 426   | 72  |



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## Essential Facility Damage

Before the flood analyzed in this scenario, the region had 241 hospital beds available for use. On the day of the scenario flood event, the model estimates that 241 hospital beds are available in the region.

Table 5: Expected Damage to Essential Facilities

| Classification              | Total | # Facilities      |                      |             |
|-----------------------------|-------|-------------------|----------------------|-------------|
|                             |       | At Least Moderate | At Least Substantial | Loss of Use |
| Emergency Operation Centers | 1     | 0                 | 0                    | 0           |
| Fire Stations               | 9     | 1                 | 1                    | 1           |
| Hospitals                   | 2     | 0                 | 0                    | 0           |
| Police Stations             | 5     | 2                 | 0                    | 1           |
| Schools                     | 32    | 0                 | 1                    | 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.



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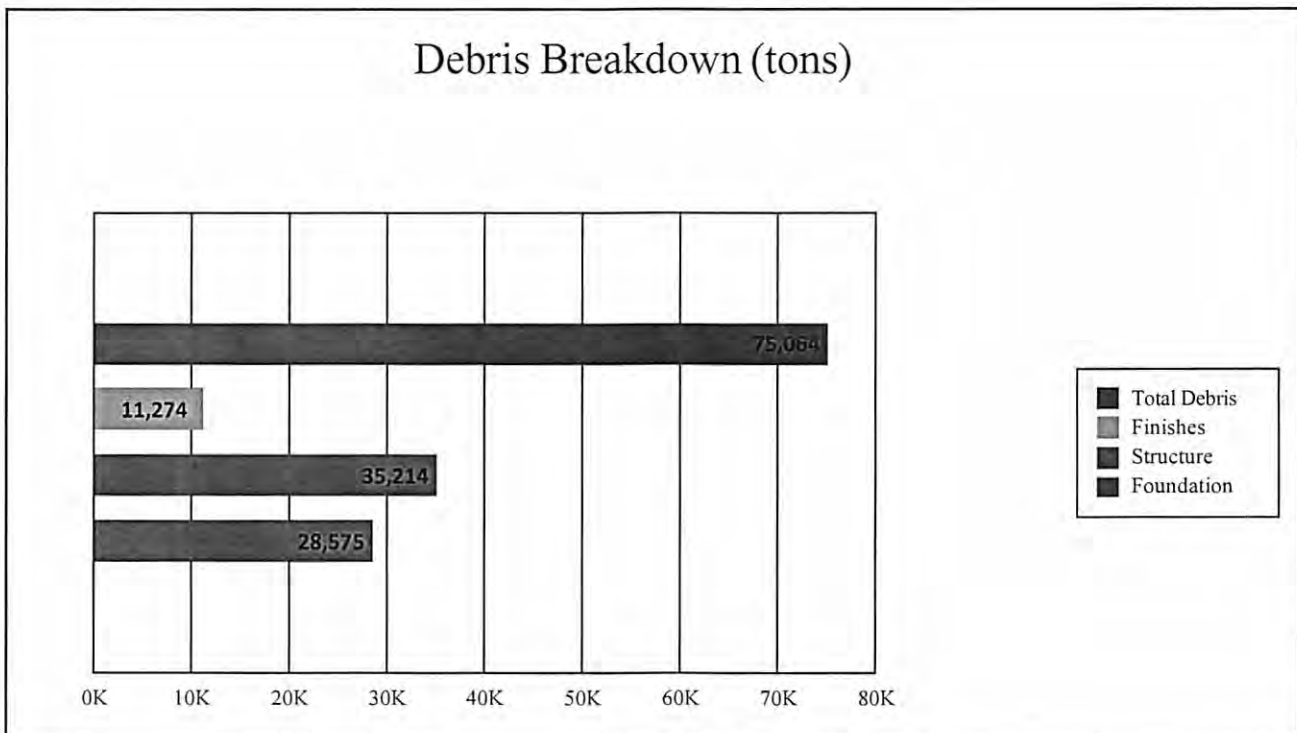
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## Induced Flood Damage

### 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 75,064 tons of debris will be generated. Of the total amount, Finishes comprises 15% of the total, Structure comprises 47% of the total, and Foundation comprises 38%. If the debris tonnage is converted into an estimated number of truckloads, it will require 3003 truckloads (@25 tons/truck) to remove the debris generated by the flood.



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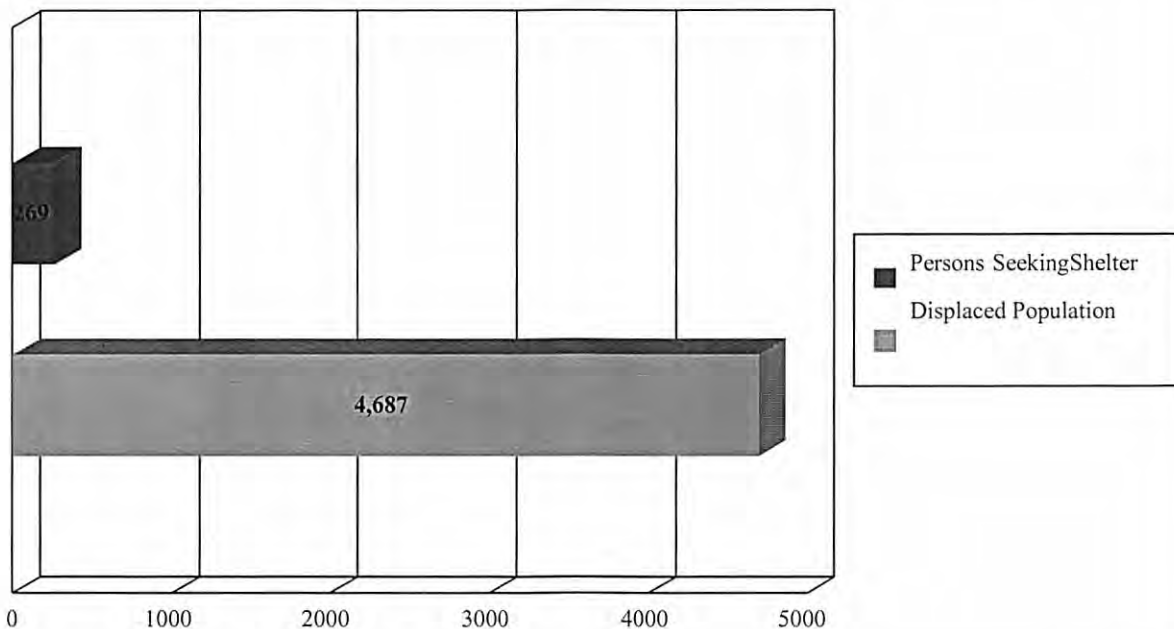


## Social Impact

### 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 1,562 households (or 4,687 of people) will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 269 people (out of a total population of 75,129) will seek temporary shelter in public shelters.

Displaced Population/Persons Seeking Short Term Public Shelter



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## Economic Loss

The total economic loss estimated for the flood is 976.73 million dollars, which represents 33.80 % 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 630.26 million dollars. 35% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 33.30% of the total loss. Table 6 below provides a summary of the losses associated with the building damage.



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

| Category                     | Area            | Residential   | Commercial    | Industrial    | Others        | Total         |
|------------------------------|-----------------|---------------|---------------|---------------|---------------|---------------|
| <b>Building Loss</b>         |                 |               |               |               |               |               |
|                              | Building        | 183.92        | 54.57         | 38.99         | 12.16         | 289.64        |
|                              | Content         | 91.10         | 98.13         | 93.22         | 37.51         | 319.96        |
|                              | Inventory       | 0.00          | 3.12          | 17.41         | 0.14          | 20.66         |
|                              | <b>Subtotal</b> | <b>275.02</b> | <b>155.81</b> | <b>149.62</b> | <b>49.81</b>  | <b>630.26</b> |
| <b>Business Interruption</b> |                 |               |               |               |               |               |
|                              | Income          | 0.86          | 55.66         | 2.87          | 12.44         | 71.83         |
|                              | Relocation      | 34.35         | 18.14         | 2.65          | 6.85          | 62.00         |
|                              | Rental Income   | 12.95         | 12.50         | 0.74          | 0.72          | 26.90         |
|                              | Wage            | 2.04          | 58.28         | 3.81          | 121.62        | 185.74        |
|                              | <b>Subtotal</b> | <b>50.20</b>  | <b>144.57</b> | <b>10.07</b>  | <b>141.62</b> | <b>346.47</b> |
| <b>ALL</b>                   | <b>Total</b>    | <b>325.22</b> | <b>300.39</b> | <b>159.68</b> | <b>191.43</b> | <b>976.73</b> |



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## Appendix A: County Listing for the Region

Tennessee

- Anderson



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## **Appendix B: Regional Population and Building Value Data**

|                           | Population    | Building Value (thousands of dollars) |                  |                  |
|---------------------------|---------------|---------------------------------------|------------------|------------------|
|                           |               | Residential                           | Non-Residential  | Total            |
| <b>Tennessee</b>          |               |                                       |                  |                  |
| Anderson                  | 75,129        | 5,833,995                             | 2,393,082        | 8,227,077        |
| <b>Total</b>              | <b>75,129</b> | <b>5,833,995</b>                      | <b>2,393,082</b> | <b>8,227,077</b> |
| <b>Total Study Region</b> | <b>75,129</b> | <b>5,833,995</b>                      | <b>2,393,082</b> | <b>8,227,077</b> |



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APPROVAL LETTER  
FROM FEDERAL  
EMERGENCY  
MANAGEMENT AGENCY  
(FEMA)

EXHIBIT 2



**FEMA**

December 27, 2021

Mr. Doug Worden  
State Hazard Mitigation Officer  
Tennessee Emergency Management Agency  
3041 Sidco Drive  
Nashville, TN 37204

Reference: Multi-Jurisdictional Hazard Mitigation Plan: Anderson County

Dear Mr. Worden:

This is to confirm that we have completed a Federal review of the Anderson County Hazard Mitigation Plan Update for compliance with the Federal hazard mitigation planning requirements contained in 44 CFR 201.6(b)-(d). Based on our review and comments, Anderson County developed and submitted all the necessary revisions. Our staff has reviewed and approved these revisions. We have determined that the Anderson County Hazard Mitigation Plan is compliant with Federal requirements, subject to formal community adoption.

For our office to issue formal approval of the plan, Anderson County must submit adoption documentation and document that the final public meeting occurred. Upon submittal of these items to our office, we will issue formal approval of the Anderson County Hazard Mitigation Plan.

For further information, please do not hesitate to contact Harlie Clark, of the Hazard Mitigation Assistance Branch, at (770) 220-5219, or Robin Berzins, of my staff, at (678) 822-8516.

Sincerely,

A handwritten signature in black ink, reading "Kristen M. Martinenza".

Kristen M. Martinenza, P.E., CFM  
Branch Chief  
Risk Analysis  
FEMA Region 4

RESOLUTION NO. 17-4-631

At a meeting of the County Commission of Anderson County, held April 17, 2017

**Resolution of the County Commission of Anderson County; Adopting the finalized Anderson County Hazard Mitigation Plan; Providing and effective date; and for other purposes:**

**WHEREAS, The participating jurisdictions of Anderson County have worked together to develop a strategy known as the Anderson County Hazard Mitigation Plan to improve disaster resistance in the planning area; AND**

**WHEREAS, the Federal Disaster Mitigation Act of 2000 (DMA2000) pursuant 44 CFR Part 201 and the Federal Emergency Management Agency (FEMA) require communities to adopt an approved hazard mitigation plan in order to be eligible to receive pre-disaster and post disaster federal funding for mitigation purposes; AND**

**WHEREAS, the participating jurisdiction has participated in the hazard mitigation plan by the formation of a Mitigation Planning Committee (MPC); AND**

**WHEREAS, the MPC recommends the formal adoption of the Anderson County Hazard Mitigation Plan by the passing of this resolution.**

**Therefore, be it resolved by the County Commission of Anderson County**

**THAT:**

**Section 1: The participating stakeholder hereby approves and adopts the hazard mitigation plan in its entirety with projects as adopted by the MPC; AND agree to be governed by the Hazard Mitigation Plan attached hereto and incorporated.**

**Section 2: The participating stakeholder authorizes the appropriate participating officials to pursue funding opportunities for implementation of proposals designated therein; AND will upon receipt of such funding or other necessary resources, seek to implement the actions contained in the hazard mitigation plan.**

**Section 3: The participating jurisdiction will continue to cooperate and participate in the hazard mitigation planning process, holding regular meetings, including reporting of progress as required by FEMA, the Tennessee Emergency Management Agency (TEMA) and the MPC.**

The resolution was offered for adoption by Commissioner Tim Isbel  
The motion to adopt was seconded by Commissioner Robert McKamey

~~And upon being put to a successful vote:~~ County Commission of Anderson County's signatories:

Alan Kowalski  
 Jerry Casey  
 John Scott  
 Robert McManey  
 Jim Label  
 Steven R. Enist  
 My handi