

# Loudon County Commission Workshop

Loudon, Tennessee

Monday, November 21, 2022

Courthouse Annex

6:00 pm

- 1) Comments by Members of the General Public
- 2) Loudon County Director of Purchasing - Susan Huskey
  - A. Multi-Year Contract for Phone Services
  - B. Multi-Year Copier Lease for Register of Deeds  
(\$82.21 / Month for 60 months)
- 3) Loudon County Emergency Management - Kelli Branam
  - C. Hazard Mitigation Plan / Resolution
- 4) Mayor - Bradshaw
  - A. Ice Machine at Annex
  - B. Public Records Commission Vacancies
  - C. Handicap Front Door Push Button
  - D. 2023 Loudon County Commission Meeting Dates
  - E. 2023 Loudon County Government Holiday's
  - F. Vet License
- 5) Commission Chairman - Henry Cullen
  - A. National Guard Resolution
- 6) Commissioner - Van Shaver
  - A. Discussion of Vacancy of Commissioner Duff's seat
  - B. Discussion of Lenoir City Annexation Outside UGB
  - C. Discussion of Storage Facility
  - D. Discussion of Formal Agreement with Cities for Re-appraisals

7) Commissioner - Adam Waller

- A. Attendance Requirements
- B. Contractor Bonds
- C. Plat Approval in the UGB
- D. Future Virtue Road Issue

8) Director of Accounts & Budgets - Tracy Blair

- A. Budget Recommendations

*Loudon County Commission*

*Monday, November 21, 2022*

***Multi-Year Contract for Phone Services***

## Monthly Recurring Service Costs

RingCentral MVP	User Count	List Price	Adjusted Price	Total Cost
RingCentral Standard MVP (Message/Video/Phone/SMS/Fax) Digital Line	94	\$22.99	\$12.49	\$1,174.06
RingCentral Limited Extension (Dialtone only) Limited Extension	17	\$14.99	\$10.49	\$178.33
e911	111	\$1.00	\$1.00	\$111.00
Compliance and Administrative Cost Recovery Fee (CRF)	111	\$4.00	\$4.00	\$444.00
Additional Local Numbers	1	\$4.99	\$0.99	\$0.99
Monthly Recurring Service Costs				\$1,908.38
Hardware Rental (if applicable)				\$0.00
Monthly Total				\$1,908.38
Annual Payment				\$22,900.56
Proservice TBD, 36 month contract, annual payment				

Professional Services	Quantity	Unit Price	Adjusted Price	Total Cost
Remote Implementation: Users - Budgetary, needs to be scoped	111	\$60.00	\$20.00	\$2,220.00
Remote Implementation: Sites - Budgetary, needs to be scoped	17	\$600.00	\$200.00	\$3,400.00
Remote Admin and User Training	1	\$2,000.00	\$1,500.00	\$1,500.00
Total Implementation Cost				\$7,120.00

Hardware Purchase	Phone Count	Purchase Price	Adjusted Price	Total Cost
PolyCom VVX 450 - admin/exec type phone	14	\$270.00	\$148.50	\$2,079.00
Polycom VVX 250 - common user phone	80	\$178.00	\$97.50	\$7,800.00
Polycom VVX 150 - basic phone for lobby, cafeteria, etc	17	\$100.00	\$65.70	\$1,116.90
Total Hardware Purchase Cost				\$10,995.90

Order Summary		
Total Annual Recurring Cost		\$22,900.56
Total Non-Recurring Charges		\$18,115.90



*Loudon County Commission*

*Monday, November 21, 2022*

***Multi-Year Copier Lease for Register of Deeds***

# IMAGE SOLUTIONS

November 1, 2022

Register of Deeds

Susan Huskey

Quote Number 02252020CS-01

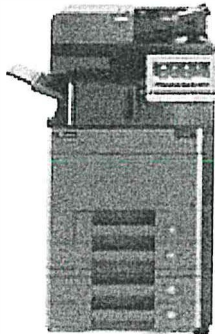
CS-4003i / TA-4003i – 40 ppm A3 B&W MFP Printer

DP - 7110 Dual Scan Document Processor

Fax System 12 – Fax Board

Copier Cabinet Stand

OMNIA Price \$4173.00 or \$82.21 / month 60 months



*Loudon County Commission*

*Monday, November 21, 2022*

**Hazard Mitigation Plan / Resolution**



RESOLUTION # \_\_\_\_\_

**A RESOLUTION ADOPTING THE LOUDON COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN.**

**WHEREAS**, the Federal Emergency Management Agency (FEMA) requires all jurisdictions to submit a Multi-Jurisdictional Hazard Mitigation Plan in order to comply with United States Code 444 CFR 201.6: and

**WHEREAS**, the Loudon County Homeland Security and Emergency Management has completed the plan and received FEMA approval on October 31, 2022 (See, Hazard Mitigation Plan – Exhibit 1 and FEMA Approval Letter - Exhibit 2): and

**WHEREAS**, Loudon County Homeland Security and Emergency Management worked with participating municipalities to develop the plan and request the Loudon County Commission to formally adopt the Loudon County Hazard Mitigation Plan as presented.

**BE IT FURTHER RESOLVED**, that:

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

**Section 2:** The Loudon County Commission 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 Loudon 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).

**BE IT FINALLY RESOLVED** that this resolution take effect immediately and is spread upon the minutes of Loudon County Commission Meeting in regular Session on

December 5, 2022

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Loudon County Commission Chair

Attest:

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Loudon County Clerk

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Loudon County Mayor





FEMA

October 31, 2022

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

Reference: Loudon County Hazard Mitigation Plan

Dear Mr. Worden:

The Federal review of the draft Loudon County Hazard Mitigation Plan for compliance with the planning requirements contained in 44 CFR §201.6 is complete. The plan is compliant with Federal requirements, subject to formal community adoption.

For our office to issue formal approval of the plan, the jurisdiction(s) must submit adoption resolution (s) and final public meeting documentation. Upon receipt of the adoption resolution(s) to our office, we will issue formal approval of the Loudon County Hazard Mitigation Plan. Once approved, please submit a final copy of the Plan, without draft notations and track changes.

If you or any plan participant need assistance, please do not hesitate to contact Robin Berzins, of my staff, at (678) 822-8516.

Sincerely,

A handwritten signature in blue ink that reads "Kristen M. Martinenza".

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

# Loudon County Multi-Jurisdictional Hazard Mitigation Plan

Loudon County  
Tennessee



**September 27, 2022**

**Prepared By:**

**Loudon County Hazard Mitigation Committee  
Loudon 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 Building Resilient Infrastructure and Communities, Flood Mitigation Assistance, and Hazard Mitigation Grant Programs.

The 2022 Loudon 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 Loudon County. This is the first plan for Loudon County. For this plan to be successful, the following jurisdictions participated in the drafting and preparation of the plan update.

- Loudon County (unincorporated)
- Lenoir City
- City of Greenback
- Town of Philadelphia
- City of Loudon

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

This is the first plan submission for Loudon County Multi-Jurisdictional Hazard Mitigation. The Loudon County Hazard Mitigation Committee is aware, and as 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. The purpose of every 5-years is to assure local governments are continuing to re-evaluate their risks and to regularly implement mitigation projects that can reduce community vulnerabilities.

The Hazard Mitigation Committee meeting took place with representatives from Loudon County, Lenoir City, Fire Departments, Building Codes, Flood Plain Management, City of Philadelphia, Greenback, City of Loudon, and the Tennessee Emergency Management Agency (TEMA) ([See Appendix 1 and 2](#)) on June 28, 2022. Emails were exchanged prior to and post-meeting to ensure the completion of the needed information and communication. The Director for Loudon County Emergency Management was designated as the person who would be leading staff and interested persons in completing the mitigation plan. TEMA provided requested technical assistance at the beginning of the process by presenting successful strategies that have been used in 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 Loudon 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 Loudon County Emergency Management Director began organizing 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 Loudon County Emergency Management Director and the Tennessee Emergency Management Agency. There were hopes more representatives participated in the meeting with 30 people being invited.

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

Member	Representation
Kelli Branam	Director, Loudon County EMA, Committee Chair
Travis Estes	Director, Priority Ambulance
Greg Buckner	Lenoir City, Storm Water Manager
Matt Acuff	Loudon County EMA Volunteer; EMT-IV, Priority Ambulance; Loudon County Fire Rescue,

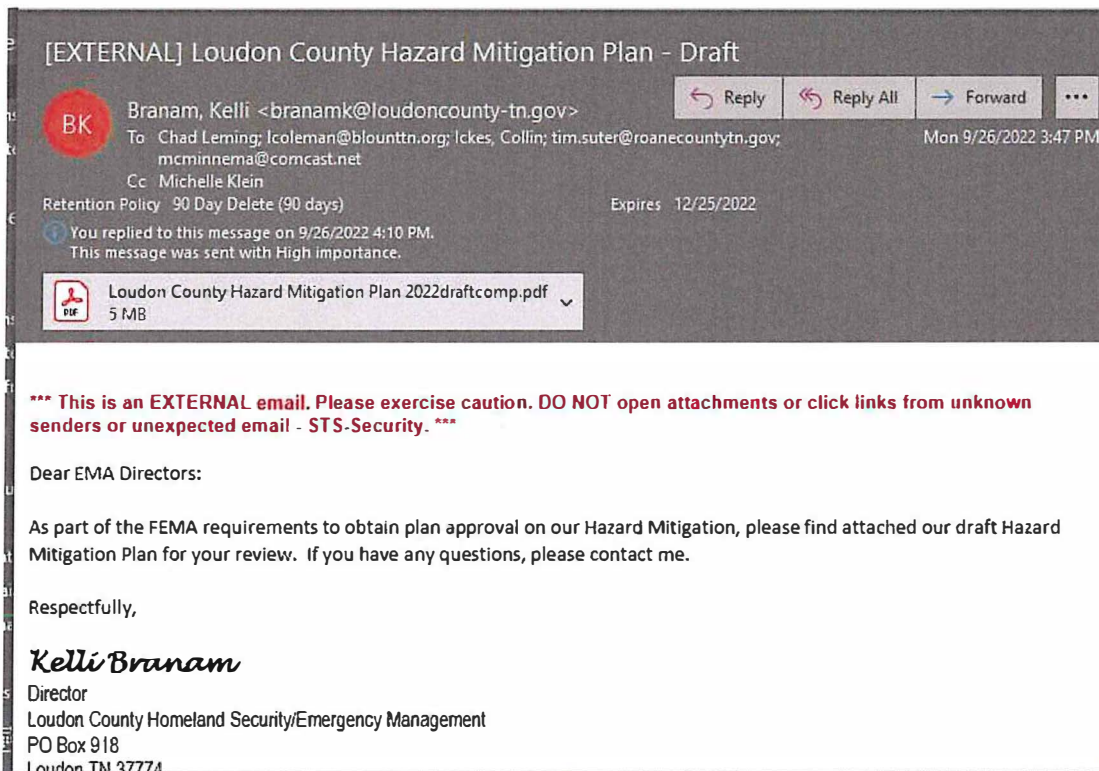
	Volunteer Firefighter; City of Loudon, Firefighter; Greenback Fire Department, Volunteer Firefighter; Philadelphia Fire Department, Volunteer Firefighter
Brittany Langley	Loudon County EMA Assistant
Jerry Dougherty	Chief, TVFD Tellico Village Fire Department
Josh Berry	Safety Coordinator, Fort Loudon Electric Cooperative
Rose White	Assistant Director, 911
James Jenkins	Codes Director, Loudon County
Mike Brubaker	Public Safety Director, Loudon County Fire/Police
Jim Jenkins	Building Official/Codes Enforcement/FEMA Floodplain Admin – Loudon County; City of Philadelphia Codes Enforcement Officer
Rondel Branam	Building Official, Codes Enforcement Officer, ADA Coordinator- Lenoir City
Jonathan Carrier	Regional Planner, Tennessee Emergency Management Agency, Southeast
Bob Crane	District Coordinator, Tennessee Emergency Management Agency, East
Michelle Klein	Regional Planner, Tennessee Emergency Management Agency, East

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

To encourage public involvement, the meeting was advertised on June 18 at the Emergency Operations Center. The notice presents the purpose of the meeting, the time and date of 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 to project proposals, and to participate in project prioritization. [Appendix 2](#) presents a copy of the public notice for the meeting. No members of the public attended.

The committee evaluated the written 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 Loudon County Emergency Manager sent a request to the surrounding Counties to provide an opportunity for review and comment. Below is a screenshot of that request. These Counties are Monroe, Blount, Knox, Roane and McMinn.



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 Loudon County Multi-Jurisdictional Hazard Mitigation Plan. The primary purpose of reviewing this information was to identify local hazards, recognize local risks, and understand local vulnerabilities. The following list of sources identifies some of the existing studies that were reviewed:

- Loudon County Emergency Operations Plan
- State of Tennessee Hazard Mitigation Plan
- Tennessee Emergency Management Plan
- Loudon County Building Codes



- Loudon County Flood Plain management
- FEMA “How to” Guides
- NWS historical data records
- 911 reports

All the listed plans, studies, and data sources were incorporated into the Loudon 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).

## Section 2: County and Local Jurisdiction Profile

According to the U.S. Census Bureau, the county has a total area of 247 square miles (640 km<sup>2</sup>), of which 229 square miles (590 km<sup>2</sup>) is land and 18 square miles (47 km<sup>2</sup>) (7.3%) is water.[11]

The Little Tennessee River joins the Tennessee River at Lenoir City. The lower part of the Little Tennessee River is part of Tellico Lake, created by Tellico Dam near the mouth of the river. Fort Loudoun Dam spans the Tennessee River just upstream from its confluence with the Little Tennessee, creating Fort Loudoun Lake. The section of the river downstream from Fort Loudoun Dam is part of Watts Bar Lake.

Loudon County, TN provides businesses excellent access to US markets. Two of the nation's most heavily traveled interstates, I-40 and I-75, converge in the county, putting Loudon County within a day's drive of 70% of the US markets.

A Roane State Community College satellite campus is in Loudon County offering associate degree programs and technical career certificate programs along with customized training for the local business community.

With eight business and industrial parks, excellent infrastructure, and a diverse mix of commercial, service, and industrial companies creating a highly skilled workforce, Loudon County has a business environment where companies such as Kimberly Clark, Dupont Tate Lyle, Maremont, Malibu Boats, and Yale Commercial Locks are thriving.

A great place to locate a business, Loudon County is also a wonderful place to live. Situated in the foothills of The Great Smoky Mountains National Park with five major waterways, including beautiful Fort Loudon Lake, outstanding golf courses, quality schools, state-of-the-art health care, charming historic downtowns, local wineries, and easy access to diverse shopping and dining,

### County Specific Information

#### Population

Historical population		
Census	Pop.	%±
1880	9,148	—
1890	9,273	1.4%
1900	10,838	16.9%
1910	13,612	25.6%

<b>1920</b>	16,275	19.6%
<b>1930</b>	17,805	9.4%
<b>1940</b>	19,838	11.4%
<b>1950</b>	23,182	16.9%
<b>1960</b>	23,757	2.5%
<b>1970</b>	24,266	2.1%
<b>1980</b>	28,553	17.7%
<b>1990</b>	31,255	9.5%
<b>2000</b>	39,086	25.1%
<b>2010</b>	48,556	24.2%
<b>2020</b>	54,886	13.0%

### 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: "We have experienced and anticipate more industrial growth. The City of Loudon has heavy industry and has several more industrial areas that are not fully developed." For Commercial Growth: "Loudon County as a whole has experienced some commercial growth in the past few years and we are anticipating more growth around the Hwy 72 and I 75 exchange." For Residential Growth: "Loudon County as a whole is experiencing extensive residential growth especially within the City of Lenoir City and the City of Loudon. Loudon County rural areas have grown, but are moving away from small parcels to large parcels."

### Resource Capabilities

	YES	NO
<b>Does your jurisdiction enforce building code ordinances?</b>	<b>X</b>	
<b>Does your jurisdiction enforce zoning code ordinances?</b>	<b>X</b>	

<b>Is your jurisdiction a member of the National Flood Insurance Program?</b>	<b>X</b>	
<b>Does your jurisdiction have the following resources in place?</b>		
<b>Law enforcement</b>	<b>X</b>	
<b>Full-time fire services</b>		<b>X</b>
<b>Grant writer</b>		<b>X</b>
<b>Public information officer</b>		<b>X</b>

The committee was asked, "Are you able to expand these capabilities? If yes, state how? If no, what would allow your community to do so?" Response: "We would be able to expand, but funding issues are the biggest challenge seen."

#### 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?"

Response: "Loudon County has amended its Zoning Resolution to drastically reduce the density of Residential Development. This has less impact on services and less density provides greater open spaces. We have also hired an additional staff to conduct inspections."

In what ways do you see opportunity to expand or enhance mitigation programs in your community? Committee response: "Making leader of County aware of the hazards that may exist as the county continues to grow. And provide the public with information to those hazards and how best to develop without increasing hazards."

What challenges do you face in being able to implement and/or expand mitigation into your jurisdiction? Committee response: "Funding and staffing are the biggest challenges."

#### **City of Greenback**

The city is situated around the junction of Tennessee State Route 95 and Morganton Road, with the greater community extending to U.S. Route 411 to the south and U.S. Route 321 to the north, and along Morganton Road westward to East Tellico Parkway (which follows the shores of Tellico Lake). A small commercial area is located around the intersection of Highway 411 and Highway 95.

The relatively flat land in and around Greenback is part of a valley carved by Baker Creek, a tributary of the Little Tennessee River. Chilhowee Mountain and the Great Smoky Mountains are visible to the south. The Red Knobs, part of a heavily dissected ridge typical of the Appalachian Ridge-and-Valley range, rise just north of Greenback's city limits.

According to the United States Census Bureau, the city has a total area of 7.2 square miles (19 km<sup>2</sup>), of which 7.1 square miles (18 km<sup>2</sup>) is land and 0.1 square miles (0.26 km<sup>2</sup>) (1.80%) is water.



In the late 1880s, the Knoxville Southern Railroad (not to be confused with the larger Southern Railway) began building a rail line connecting Knoxville with Blue Ridge, Georgia. Developers bought up the land surrounding this railroad's intersection with Morganton Road with plans to develop a town, initially known as "Allegheny" after the resort hotel to the south. Lots were sold, and a depot was constructed in 1891. Thompson moved his post office, still known as "Greenback," to the Swanay Brothers Store in the new town. The name "Greenback" gradually came to be favored over "Allegheny," and the railroad changed the name of the station to "Greenback" in 1897.

By the late 1890s, Greenback had three stores, a barbershop, blacksmith shop, school, livery stables, a hotel, and two baseball teams (segregated between white and black players). The Knoxville Southern was purchased by the Marietta and North Georgia Railroad, which was in turn purchased by the Atlanta, Knoxville and Northern Railroad in 1895. The Louisville and Nashville Railroad (L&N), which was building a rail line between Cincinnati and Atlanta, purchased the Atlanta, Knoxville and Northern in 1902. The L&N's Greenback Depot, completed in 1914, still stands in Greenback, and has since been remodeled by Ron Edmondson as a community events center. The Greenback Drug Company, opened in 1923, still stands and has served as a community restaurant and diner for the past few decades. Locals still call it "the drugstore" and meet there for food and community.

Prior to the Great Depression, thirty-four commercial buildings were constructed in Greenback. Over half of these, however, were destroyed in a series of six major fires during this period.[10] Though the community's growth slowed, Greenback was officially incorporated in 1957, with Glenn McTeer as its first mayor. A community center— built by the town's residents with no outside help or outside funding— was completed in 1978. It now houses a library, the city hall, and recreational facilities.

On September 22, 1964, one of the first confrontations between the Tennessee Valley Authority and conservation groups over the proposed Tellico Dam project took place in a meeting at Greenback High School. TVA had called the meeting in hopes of gaining the support of locals, and the agency was surprised when most of the 400 or so in attendance vehemently opposed the project. TVA Chairman Aubrey Wagner, who spoke on the Authority's behalf, was continuously interrupted throughout his speech. At one point, Wagner was shouted down by legendary Monroe County judge Sue K. Hicks, who as president of the Fort Loudoun Association feared the destruction of the historic fort's site by the proposed dam's reservoir.

In 2011, H&R Block featured Greenback in its national advertising campaign. The campaign, known as "Greenbacks for Greenback," included a review of many of the citizens' taxes - a program H&R Block calls "second look." The campaign saved locals more than \$14,000 in taxes. The savings were revealed in a celebration with the community at Greenback School. Television, radio and print advertising featured the historic Greenback Depot, the Greenback Drugstore Diner, Greenback School and the Greenback Historical Society as well as many people who call Greenback home.

<b>Historical population</b>
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Census	Pop.	%±
<u>1960</u>	285	—
<u>1970</u>	318	11.6%
<u>1980</u>	546	71.7%
<u>1990</u>	611	11.9%
<u>2000</u>	954	56.1%
<u>2010</u>	1,064	11.5%
<b>2019 (est.)</b>	1,219 <sup>[5]</sup>	14.6%

#### 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: "Growth has been light, but this is an area that is growing in population and has areas for industries to move into." For Commercial Growth: "There has been slight commercial growth to serve an increasing population as people are moving into the region." For Residential Growth: "Residential growth has been on the increase. There are not as many dense subdivisions being developed at this time, but larger agricultural tracts are being divided into smaller residential properties."

#### Resource Capabilities

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

The committee was asked, "Are you able to expand these capabilities? If yes, state how? If no, what would allow your community to do so?" Response: "We would be able to expand, but funding

issues are the biggest challenge seen.” The response: “We would be able to expand, but funding issues are the biggest challenge seen.”

#### 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?”

Response: “Subdivision regulation changes have been made to keep the rural areas of the area less dense and more open. Additional staff has been hired to help conduct inspections.”

In what ways do you see opportunity to expand or enhance mitigation programs in your community? Committee response: “Continuing to inform City leaders of the hazards that exist in the community and continued public education on regulations of development and awareness of potential hazards.”

What challenges do you face in being able to implement and/or expand mitigation into your jurisdiction? Committee response: “Typically the biggest challenge is funding for studies, mediation and staffing.”

#### **City of Lenoir City**

The Tennessee River and TVA's Fort Loudoun and Watts Bar reservations provide the city's southern boundary. Four major federal highways pass through Lenoir City: U.S. Route 11, which runs roughly parallel to the river shore, traverses the city east-to-west; U.S. Route 321, which crosses Fort Loudon Dam south of the city, traverses the city north-to-south. Interstate 75 and U.S. Route 70 intersect US-321 in the northern part of the city. I-75 provides access to the city from exit 81, and leads northeast 26 miles (42 km) to downtown Knoxville (via a connection with I-40), and southwest 91 miles (146 km) to Chattanooga. U.S. 321 runs through the center of town from southeast to northwest, leading northwest seven miles (11 km) to I-40 at exit 364 (the highway's northern terminus), and east twenty miles (32 km) to Maryville. U.S. 70 runs to the north of the city, leading northeast nine miles (14 km) to Farragut and northwest 19 miles (31 km) to Kingston. U.S. 11 runs through the center of the city, leading northeast to Farragut and Knoxville, and southwest seven miles (11 km) to the city of Loudon.

Lenoir City is traditionally spread out along US-11, west of the road's junction with US-321. This section of the city still roughly follows a grid plan laid out in the 1890s. In recent decades, Lenoir City has annexed a 5-mile (8.0 km) corridor of land along US-321 between its US-11 intersection and I-40 intersection. This corridor contains the city's newer, commercial area which caters to the high volume of traffic brought to the area by I-75 and I-40.

Beginning in the 1930s during the Great Depression, a series of federal government projects provided a needed boost to Lenoir City's economy and invested in regional infrastructure. The Tennessee Valley Authority's construction of Fort Loudoun Dam and reservoir, which began in 1940,

provided hundreds of locals with jobs. It also resulted in numerous road improvements, and generation of hydropower for electrification of the region.

In the 1950s and 1960s, construction associated with the Interstate Highway System resulted in building I-75 and I-40—two trans-national highways that intersect just northeast of Lenoir City. U.S. Highway 321 was built through Lenoir City in the 1980s primarily to provide greater access to the Great Smoky Mountains National Park, some 40 miles (64 km) down the road in Blount County.

On February 21, 1993 at 5:05PM, an F-3 tornado touched down in eastern Roane County (just west of town) and tracked east-southeast directly toward the City. The tornado devastated parts of the city. Parts of downtown, as well as the area near A Street and 5th Avenue, were destroyed. The Lenoir City High School/Middle School property suffered major damage (it was redeveloped as River Oaks Place). The tornado continued east-southeastward, going through the town of Friendsville before lifting in western Maryville. The death toll was one (in Lenoir City) and 55 people were injured, per the NWS Tornado Database.

In March 1998, a historic landmark, the William B. Lenoir Hotel, the block of Broadway (US 11) between A and B streets, was destroyed by a massive fire. The entire block was lost as it had been built with a common attic and basement, meaning there were no firewalls between buildings. Wilburn's Barbershop, the Lenoir City Public Library, a Mexican grocery, offices for TV Readers magazine and Habitat for Humanity, a school photography company and photo finishing lab, and several apartments, were all destroyed by the blaze.[14] This block was redeveloped for Roane State Community College, Tennessee Career Center, and a new Lenoir City Public Library.

In the early 2000s, Lenoir City's economy expanded. New businesses developed along U.S. Highway 321, where new franchise restaurants, such as Ruby Tuesday, Chili's, Cracker Barrel, Aubrey's, and Zaxby's, were added. New stores included Home Depot, Goody's Family Clothing (now defunct), Cato, and Blockbuster Video (also defunct). A new hospital, Fort Loudoun Medical Center, was built to replace the old Fort Sander's Loudon Hospital in nearby Loudon.

In the late 2000s, two major commercial developments were announced. Creekwood Park is located parallel to I-75 between US-321 and US-70. A new four-lane road was built between the two highways. A luxury apartment complex was built on part of the site. In 2014, business development finally started in the area, with a few medical offices completed. From 2016 to 2017, the city constructed a new community center called "The Venue", and a new headquarters here for the Lenoir City Utilities Board here.

### Population

Historical population		
Census	Pop.	%±
<a href="#"><u>1880</u></a>	236	—

<u><b>1910</b></u>	3,392	—
<u><b>1920</b></u>	4,210	24.1%
<u><b>1930</b></u>	4,470	6.2%
<u><b>1940</b></u>	4,373	-2.2%
<u><b>1950</b></u>	5,159	18.0%
<u><b>1960</b></u>	4,979	-3.5%
<u><b>1970</b></u>	5,324	6.9%
<u><b>1980</b></u>	5,180	-2.7%
<u><b>1990</b></u>	6,147	18.7%
<u><b>2000</b></u>	6,819	10.9%
<u><b>2010</b></u>	8,642	26.7%
<u><b>2020</b></u>	10,117	17.1%

#### 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: "No substantial growth." For Commercial Growth: "We have experienced commercial growth in the past 10 years, and we expect more in the future especially with the forecasted residential growth." For Residential Growth: "Our residential growth in the past 10 years has been positive. However, the growth forecasted in the near future is exponential."

#### Resource Capabilities

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

In order to clarify the table above, yes, Lenoir City is part of NFIP.

The committee was asked, "Are you able to expand these capabilities? If yes, state how? If no, what would allow your community to do so?" Response: "No, I feel that we are considerably expansive in our services. At this time, it would be difficult to expand because of our limited number of staff."

#### 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?"

Response: "No response."

In what ways do you see opportunity to expand or enhance mitigation programs in your community? Committee response: "I see the need for more discussion with all partners involved."

What challenges do you face in being able to implement and/or expand mitigation into your jurisdiction? Committee response: "None."

#### **City of Loudon**

Loudon is a city in and the county seat of Loudon County, Tennessee. According to the United States Census Bureau, the city has a total area of 9.6 square miles (25 km<sup>2</sup>), of which 9.3 square miles (24 km<sup>2</sup>) is land and 0.3 square miles (0.78 km<sup>2</sup>) (3.42%) is water.

#### Population

Historical population		
Census	Pop.	%±
<u>1880</u>	832	—
<u>1890</u>	942	13.2%



<b><u>1900</u></b>	875	-7.1%
<b><u>1910</u></b>	995	13.7%
<b><u>1930</u></b>	2,578	—
<b><u>1940</u></b>	3,017	17.0%
<b><u>1950</u></b>	3,567	18.2%
<b><u>1960</u></b>	3,812	6.9%
<b><u>1970</u></b>	3,728	-2.2%
<b><u>1980</u></b>	3,943	5.8%
<b><u>1990</u></b>	4,026	2.1%
<b><u>2000</u></b>	4,476	11.2%
<b><u>2010</u></b>	5,381	20.2%
<b>2019 (est.)</b>	5,890 <sup>[5]</sup>	9.5%

#### 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: "We will be experiencing limited to moderate industrial growth. We are heavily industry laden but we have several more industrial areas that are not fully developed at this time." For Commercial Growth: "We anticipate significant commercial growth with a lot of growth around the interstate 75/highway 72 exchange. Current growth in progress is a Love's truck stop/service center, Arby's, Deluxe campground, dollar general store, with several more projects being discussed." For Residential Growth: "We are experiencing heavy residential growth with no end in sight. We have 4 sub-divisions currently being built or nearing completion. We have more than doubled previous years building permits issued."

#### 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	

The committee was asked, "Are you able to expand these capabilities? If yes, state how? If no, what would allow your community to do so?" Response: "No response."

#### 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?"

Response: "We have doubled the size and output from our building & codes department. We have added more staff and are completing significant more enforcement in building, and codes."

In what ways do you see opportunity to expand or enhance mitigation programs in your community? Committee response: "We hope to increase the capabilities of our building and codes department. We have recently went to an all online permit application experience for our customers, this added benefit has been well received and increased departmental productivity."

What challenges do you face in being able to implement and/or expand mitigation into your jurisdiction? Committee response: "Our only challenge is trying to keep up with the growth we are experiencing and funding this will be an even greater challenge."

#### **City of Philadelphia**

The town is situated along Sweetwater Creek, which empties into the Watts Bar Lake impoundment of the Tennessee River a few miles to the north.

Philadelphia is concentrated around an area northwest of the junction of U.S. Route 11 (Lee Highway), which connects Philadelphia with Loudon to the north and Sweetwater to the south, and State Route 323 (Pond Creek Road), which connects Philadelphia with Interstate 75 to the west.

According to the United States Census Bureau, the city has a total area of 1.6 square miles (4.1 km<sup>2</sup>), all land.

Philadelphia was founded in the early 1820s by William Knox and Jacob Pearson. The town initially grew quickly and prospered as a center of business in the Sweetwater Valley. By the mid-19th century, Philadelphia had two general stores, a tanning yard, a stillhouse, and a hotel.

On October 20, 1863, during the Civil War, two Confederate cavalry regiments attacked and routed a Union brigade at Philadelphia while conducting maneuvers following the Battle of Chickamauga. The Confederates captured 700 soldiers, 6 cannon, and 50 supply wagons.

On October 20, 2001, there was a reenactment of the events in 1863.

#### Population

##### **Historical population**

Census	Pop.	%±
<u>1880</u>	332	—
<u>1970</u>	554	—
<u>1980</u>	507	-8.5%
<u>1990</u>	463	-8.7%
<u>2000</u>	533	15.1%
<u>2010</u>	656	23.1%
<b>2019 (est.)</b>	729 <sup>[4]</sup>	11.1%

#### 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: “N/A at this time. A major hurdle that keeps us from growth at this time would be wastewater services.” For Commercial Growth: “N/A. Same issue as commercial growth.” For Residential Growth: “We have some residential growth in the past five years. We don’t have a vast amount of real estate growth.”

#### Resource Capabilities

	Y E S	N O
Does your jurisdiction enforce building code ordinances?	✓	
Does your jurisdiction enforce zoning code ordinances?		✓
Is your jurisdiction a member of the National Flood Insurance Program?		✓
Does your jurisdiction have the following resources in place?		
Law enforcement	✓	
Full-time fire services		✓
Grant writer		✓
Public information officer		✓

Note: An error was made at the time the above table was completed. City of Philadelphia is a part of NFIP.

The committee was asked, "Are you able to expand these capabilities? If yes, state how? If no, what would allow your community to do so?" Response: "Yes, with the correct funding, we could implement all the above boxes checked no."

#### 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?"

Response: "CDBG grant to construct new emergency service building."

In what ways do you see opportunity to expand or enhance mitigation programs in your community? Committee response: "Some of the reason for the minimum growth in our residential are properties that are vacant or not maintained properly. A grant writer would give us a better ability to apply for grants to make improvements such as street improvements, wastewater services, etc."

What challenges do you face in being able to implement and/or expand mitigation into your jurisdiction? Committee response: "The major challenge is funding."

## Section 3: Risk Assessment

### Hazard Identification

To begin to assess Loudon 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 Loudon County by going through newspaper articles, Loudon County Emergency Management records, 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 Loudon County Hazard Mitigation Committee. The committee identified hazards of prime concern and are included in this risk assessment. 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 Loudon 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
<b>Overland Flow</b> <b>(a) Infiltration</b> <b>(b) Saturation</b>	-Excess overland flow occurs when the rain is falling more rapidly than it infiltrates into the soil. -Excess overland flow occurs when soil spaces are so full of water that no more rain can be absorbed.
<b>Throughflow</b>	-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.
<b>Baseflow</b>	-Rainwater which has percolated to the aquifer can seep into the river channel. This is the slowest process.

*Source: The Field Studies Council*

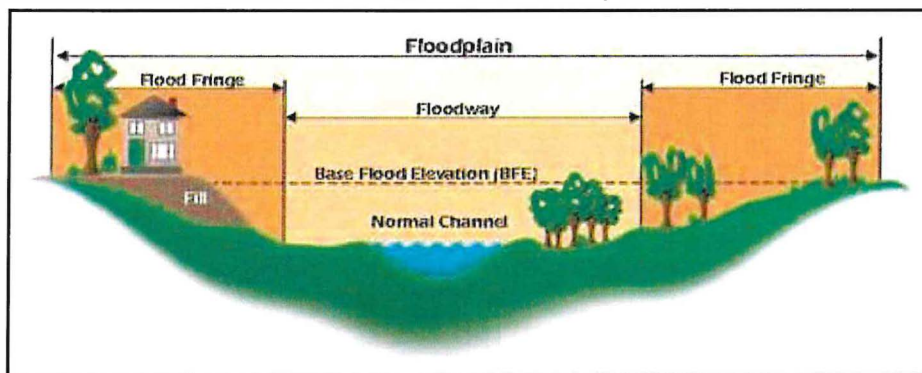


Common Causes of Flooding	
Factor	Effect on Flooding
<b>Geology</b>	Impermeable rocks are saturated more quickly than porous and pervious rocks. Saturation-excess overland flow is more common. Sandy soils have larger pore spaces than clay soils. Infiltration is most rapid in sandy soils.
<b>Relief</b>	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 Loudon 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 Loudon 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:

#### Upper

Highway 11 @ Old Midway



Shaw Ferry Rd @ Holland Trail  
Huntsville Hollow Rd  
Hwy 11 @ Meadow Walk  
Martel Rd @ Wilson Rd  
Harvey Rd @ Wilkerson Rd  
Old Midway Rd @ Muddy Creek Rd  
Dutton Rd @ Old Kingston  
Hwy 11 @ Highland Park Rd  
Highway 70 @ Waldrop (192 Hwy 70 W)  
Breazeal Rd @ Hotchkiss Valley Rd  
Shaw Ferry Rd @ Wesley Rd

**Lower**

Malone Rd @ Watkins Rd  
Clearbranch Rd  
Rausin Rd  
Steekee Creek Rd @ Corinth Rd  
Sunnyside Rd @ Davis Dairy Rd  
7500 Sunnyside Rd  
Calloway Road

**Greenback**

Lou Goddard Lane  
Friendsville Rd @ Hwy 321  
Big Hill Road at both ends  
Old Sinking Creek Rd @ Brooks Rd  
Jackson Ferry Rd @ Hwy 95  
Pine Grove Circle

**Lenoir City**

Rock Springs Rd ( btwn McGee Blvd & 4<sup>th</sup> Ave)

**Loudon City**

River Rd @ Butler Dr  
Commerce Street

*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.*

Loudon 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 Loudon County from 1950 to 2022 and a list of each flood's description of impacts imposed on the community. No flood was listed for Loudon County prior to 1997.

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 Loudon County, including the jurisdictions located within, and is the only source of data accessible. The information provided for Loudon County also applies to the school district due to the geographic distribution of the schools throughout the County.

### Flood Events in Loudon County: 1950 to 2022

Location	Date	Deaths	Injuries	Property Damage	Extent/Impact Description
Countywide	6/12/1997	0	0	0	Water 5 feet deep across the road at junction of Old Route 95 and Harrison Road due to stream overflow. Water 5 feet deep across the road at junctions of Monterey Drive and Stockton Road with Highway 72 due to stream overflow. High water on Browder Hollow Road, on Mulberry Street in Loudon and at junction of Hotchkiss Hollow Road and Breazale Road.
Lenoir City	4/17/1998	0	0	250000	The News-Herald newspaper office in Lenoir City had 44 inches deep in the basement, destroying several computers, company records and turned a refrigerator on its side. Radio station WLIL was almost swept off its foundation by waters rising from adjacent Town Creek. A number of families in the Highland Park area were evacuated when homes in low-lying areas were flooded by runoff. Numerous complaints of residential flooding and vehicles stalled on Highway 11 north of Lenoir City.
Countywide	7/11/1999	0	0	0	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.
Countywide	1/23/2002	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	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	3/17/2002	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.
Not Provided	2/14/2003	0	0	50000	Four day rainfall totals of two to eight inches fell across east Tennessee. 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. The Powell, Clinch and Holston rivers measured the most significant.
Countywide	2/16/2003	0	0	0	Several major roads closed due to high water with three homes evacuated along Huntsville Hollow road.

Not Provided	2/21/2003	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	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.
Countywide	5/5/2003	0	0	3920000	Numerous roads flooded and closed countywide. Also, mudslides occurred.
Lenoir City	6/22/2004	0	0	0	Simpson Road West was flooded and closed.
Lenoir City	7/6/2005	0	0	0	Widespread flooding of streets and low lying areas in early every section of city.
Lenoir City	8/5/2005	0	0	0	Several streets under water in the Eatonwood subdivision.
Countywide	9/23/2006	0	0	0	A stationary thunderstorm complex produced over two inches of rain an hour, causing flooding which closed roads countywide, but especially in the northeastern sections, along the Knox County line.
Lenoir City	9/23/2006	0	0	0	Thunderstorms produced 3.5 inches of rain since midnight and flooding closed roads over the entire county, but especially in the Melton Hill Dam and Lenoir City areas.
Loudon	9/23/2006	0	0	0	Drivers had to be rescued from their cars after driving into flooded roads.
Highland Park	5/15/2009	0	0	0	Flash flooding was occurring with four roads with several inches of water covering the roads.
Philadelphia	9/17/2009	0	0	0	Flash flooding occurred along highway 11 in Philadelphia, Tennessee with several inches of water reported across the road.
Highland Park	9/26/2009	0	0	0	Areal flooding occurred along old highway 95 and near highway 11 in Lenoir City, Tennessee. Several inches of water was over the road, with a few areas briefly impassable due to the flooding.
Lenoir City	1/30/2013	0	0	1000	Numerous secondary roads flooded.
Lenoir City	7/14/2015	0	0	0	Numerous roads closed due to flooding.
Philadelphia	2/3/2016	0	0	3000	Submerged vehicle was reported on I-75 near mile marker 68.
Big Piney	5/22/2018	0	0	0	Water over the roadway at 15000 Vonore Rd.

The committee shared their personal experiences of flooding events that have occurred. The following is transcribed from their thoughts.

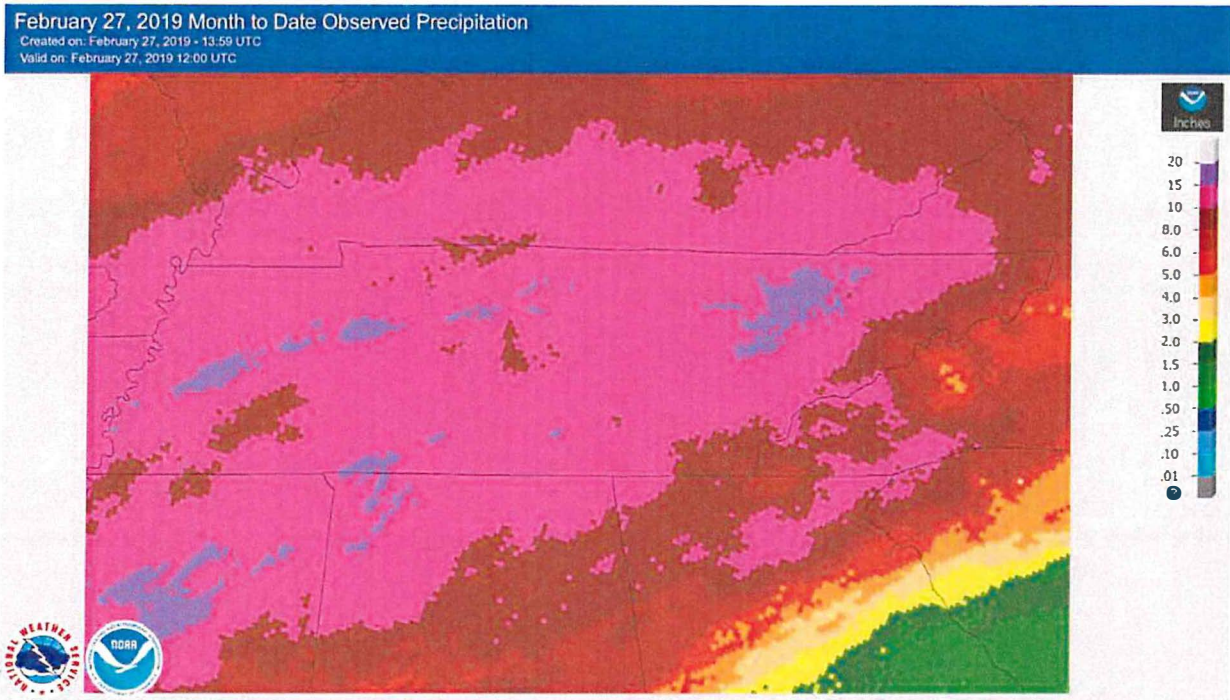
- Localized flooding approximately once per year. Mainly causing flooded basements in homes with roads flooding.
- Air Survey of multi homes flooded in Duff Turner Estates with a cross street of Hines Valley Rd.
- Numerous roads flood.
- Town Creek Rd., prior to 1997, Homeowner did some mitigation work to the property.
- Lee Dr.
- Numerous roads flood routinely
- Rescue events from homes to vehicles
- Damage occurred outside SFHA
- Generalized localized flooding in low areas in the Greenback community. Maple Lane

Small, localized flood events are likely to occur at least two to three times every year in Loudon 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.

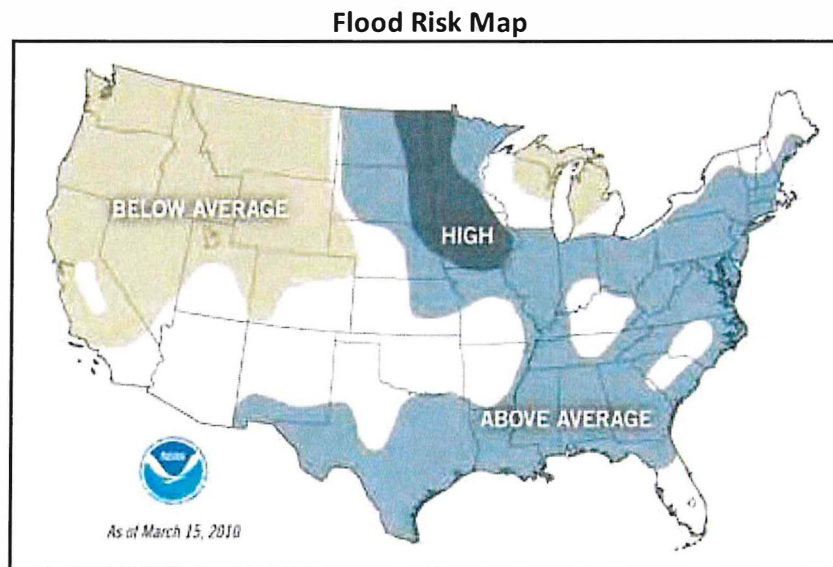
As seen below, a stationary frontal boundary stalled over or near the Tennessee Valley for nearly a week in mid to late February 2019. Persistent southwest flow aloft brought copious amounts of Gulf of Mexico moisture northward and interacted with this boundary for many days, causing a prolonged period 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**

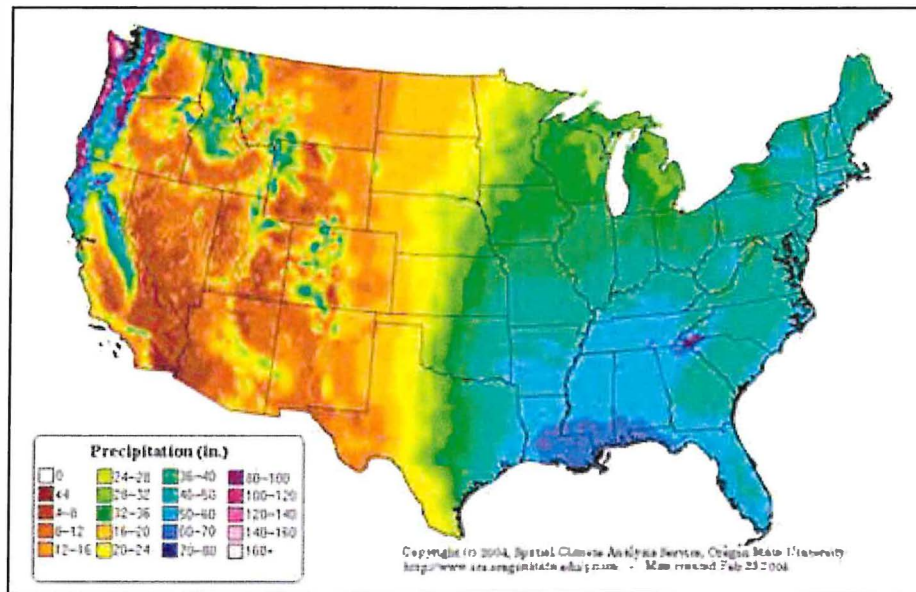




According to a NOAA Flood Risk Map (see map below), the majority of Tennessee was in an “above average” risk of flooding zone during spring 2010. This proposed vulnerability is coupled with the fact that on average Tennessee usually acquires over 50-60 inches of rainfall a year (see following map).



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



Source: Spatial Climate Analysis Service, Oregon State University

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

Jurisdiction	Impacts			Vulnerability
	Human	Property	Business	H+P+B=#; #/3=V
Loudon County Unincorporated	1.86	2.86	1.27	2.00
Lenoir City	2.00	3.00	1.57	2.09
City of Greenback	2.00	2.83	1.00	1.34
Town of Philadelphia	2.00	3.17	1.00	2.06
City of Loudon	2.00	3.00	1.75	2.25

Jurisdiction	Vulnerability	Probability	Risk V+P=R
Loudon County Unincorporated	2.00	3.00	5.00
Lenoir City	2.19	2.75	4.94
City of Greenback	1.94	2.83	4.78
Town of Philadelphia	2.06	2.83	4.89
City of Loudon	2.25	3.25	5.5

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

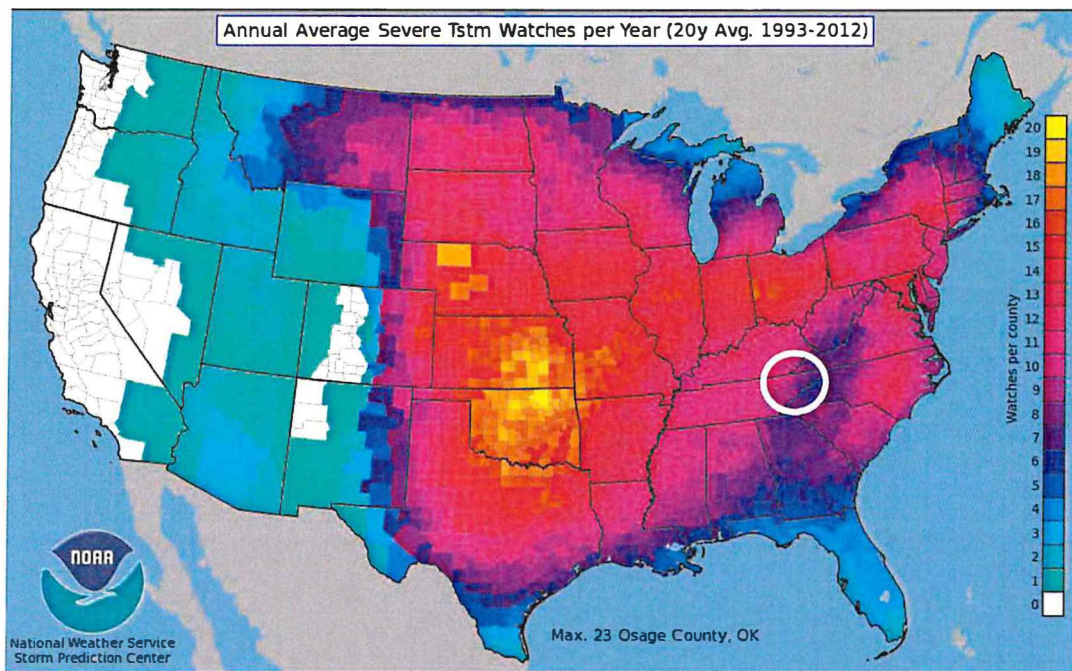
For further information about flooding hazards in Loudon County, see the HAZUS vulnerability study in [Appendix 4](#).

### **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)**

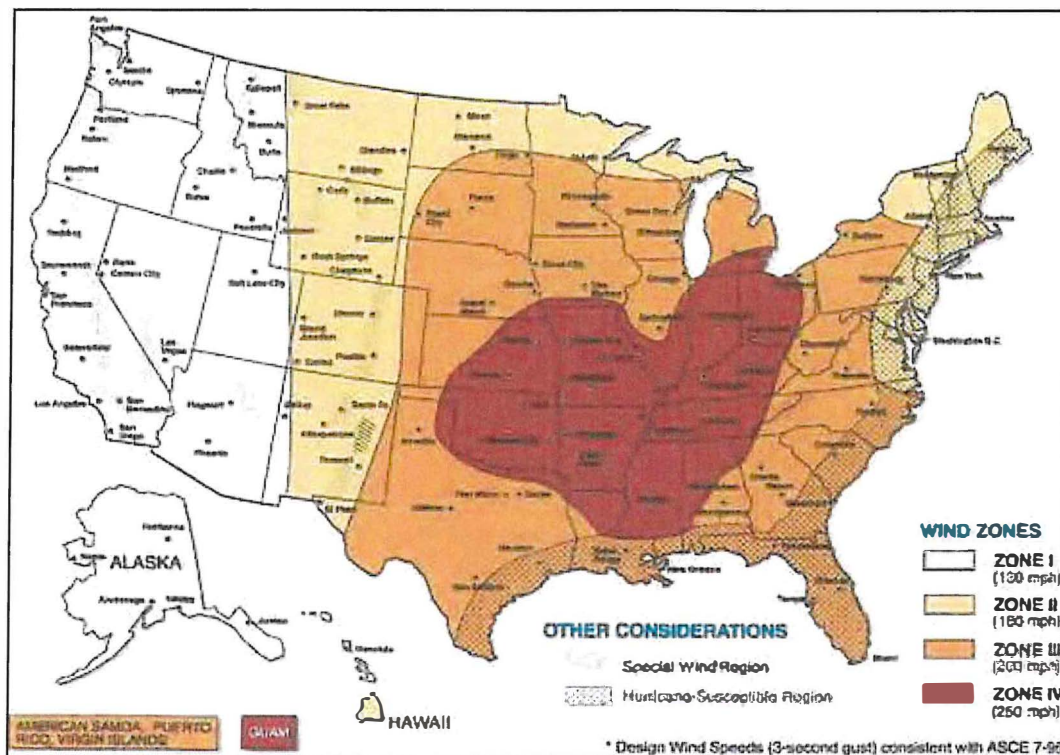




Source: NOAA/NWS Storm Prediction Center

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 Loudon 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

Loudon County historically has had several tornadoes in the past. Based on NOAA NCDC data, the following chart provides a list of tornado events occurring in Loudon County from 1950 to 2022 and a description of impacts. The largest tornado occurred in unknown year and date, according to the data from the NCDC, but was an F3 where one woman was killed, and multiple homes and businesses damaged or destroyed.

Additional research in reference to tornadoes in Loudon County was completed to determine additional extent due to missing data from the most serious event. According to [www.weather.gov](http://www.weather.gov), there was a major tornado outbreak in East Tennessee on May 18, 1995. The National Weather Service, at the time, identified a supercell and the Fountain City tornado that touched down in Loudon County, along with the surrounding Counties. This supercell had extensive rotation as it passed through Loudon County.

According to ORNL ([https://web.ornl.gov/~birdwellkr/web/Tornado\\_Loudon.pdf](https://web.ornl.gov/~birdwellkr/web/Tornado_Loudon.pdf)), the F3 tornado touched down on February 21, 1993, at 5:10 pm, killing one, injuring 55, and traveled 15 miles.

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 Loudon County, including the jurisdictions located within, and is the only source of data accessible. The information provided for Loudon County also applies to the school district due to the geographic distribution of the schools throughout the County.



### Tornado Events in Loudon County: 1950 to 2022

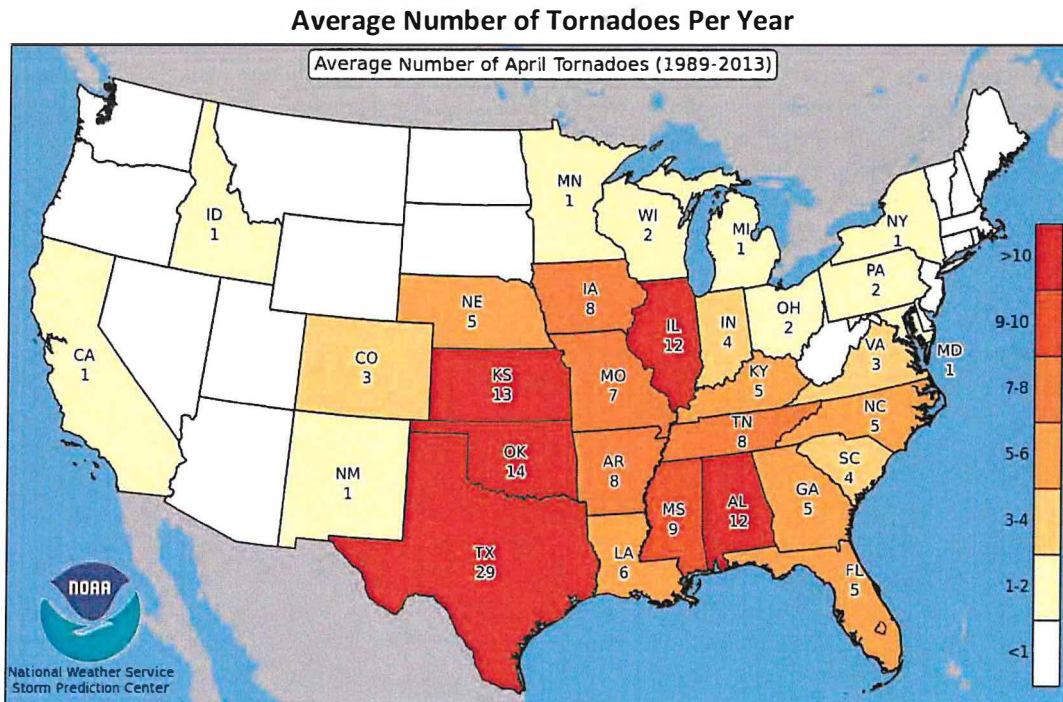
Location	Date	Type	Extent	Deaths	Injuries	Property Damage	Extent/Impact Description
Not provided	3/17/1965	Tornado	F1	0	0	2500	Not provided
Not provided	4/3/1974	Tornado	F2	0	2	250000	Not provided
Not provided	5/7/1984	Tornado	F2	0	0	250000	Not provided
**		Tornado	F3	1	55	5000000	The tornado that started in Roane County continued into Loudon County and moved through the town of Lenoir City. Between 15 and 20 homes were destroyed and another 144 homes were damaged. Eighteen businesses were damaged or destroyed. A woman was killed as the tornado destroyed her home. Numerous trees and power lines were knocked down.
Fort Loudon Lake	5/18/1995	Tornado	F0	0	0	1	A houseboat was torn loose from a boat dock. Several trees were knocked down.
Greenback	5/15/2003	Funnel Cloud		0	0	0	A funnel cloud was spotted moving southeast of Greenback.
Greenback	4/25/2010	Tornado	EF1	0	0	30000	The NWS storm survey determined the tornado entered from Monroe County tracked across extreme southern Loudon County then continued east into Blount County. It was classified as an EF1 tornado with winds estimated at 100 mph and a path width of 100 yards. The tornado snapped around 20 trees in extreme southern Loudon County near Greenback.
Greenback	10/26/2010	Tornado	EF1	0	0	25000	An EF-1 tornado with maximum winds of 90 miles an hour, produced scattered tree damage with several trees twisted and downed in its path. Two small outbuildings were also destroyed by the tornado.
Philadelphia	10/26/2010	Funnel Cloud		0	0	0	Amateur radio personnel reported a funnel cloud was spotted at exit 72 on Interstate 75 north of Philadelphia.

Greenback	4/27/2011	Tornado	EF0	0	0	10000	A NWS Storm Survey reported an EF0 tornado touched down near West Greenback. It had a path width of 50 yards and a path length of 1.0 miles. The max wind of 70 mph downed several trees.
Greenback	2/29/2012	Funnel Cloud		0	0	0	Law enforcement personnel reported a funnel cloud sighting 4 miles west of Greenback near Chilhowee Lake.
Lenoir City	4/29/2014	Funnel Cloud		0	0	0	A trained spotter sighted a funnel cloud from a thunderstorm 6 miles east-southeast of Lenoir City.
Woodlawn	7/27/2014	Funnel Cloud		0	0	0	A funnel cloud was reported near Melton Hill Dam.

\*\*Location was not clearly provided by the NWS, NCDC. It has been left blank but extent/impact description provides detail that the tornado touched down in Loudon.

Based on previous occurrences, it is not uncommon for Loudon County, and the jurisdictions within, to experience a tornado with the historical maximum of 3 in one year.

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 Loudon County. The severity of severe storm winds is commonly measured by wind speed (knots or mph). It is not unusual for Loudon County to experience winds speeds up to 70 knots (80 mph) causing structural damage, power outages and trees down as seen on April 25, 2020. There is one event at 80 knots (92 mph) on November 1, 1961. However, additional details could not be provided to due to the extent/description not being added to the data set by the NCDC.

The following chart provides severe storm wind event information for Loudon County between 1950 and 2022. 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 Loudon County, including the jurisdictions located within, and is the only source of data accessible. The information provided for Loudon County also applies to the school district due to the geographic distribution of the schools throughout the County.

### Wind Events in Loudon County: 1950 to 2022

NP = not provided

Location	Date	Extent	Deaths	Injuries	Property Damage	Extent/Impact Description
Not provided	4/8/1957	0	0	0	0	Not provided
Not provided	4/24/1958	0	0	0	0	Not provided
Not provided	5/11/1958	0	0	0	0	Not provided
Not provided	11/1/1961	80	0	0	0	Not provided
Not provided	6/8/1963	0	0	0	0	Not provided
Not provided	12/24/1964	0	0	0	0	Not provided
Not provided	5/26/1968	0	0	0	0	Not provided
Not provided	5/16/1970	0	0	0	0	Not provided
Not provided	8/1/1970	0	0	0	0	Not provided
Not provided	11/20/1974	0	0	0	0	Not provided
Not provided	1/10/1975	0	0	0	0	Not provided
Not provided	3/21/1976	0	0	0	0	Not provided
Not provided	6/22/1981	0	0	0	0	Not provided
Not provided	5/22/1985	0	0	0	0	Not provided
Not provided	4/20/1986	0	0	0	0	Not provided
Not provided	7/13/1986	0	0	0	0	Not provided
Not provided	7/14/1986	0	0	0	0	Not provided
Not provided	6/9/1990	0	0	0	0	Not provided
Not provided	7/1/1990	0	0	0	0	Not provided
Not provided	7/1/1990	0	0	0	0	Not provided
Loudon City	1/24/1993	0	0	0	500	Some trees fell on a few power lines.
Lenoir City	4/27/1994	0	0	0	500	A few trees were knocked down. Golf ball-size hail damaged about 30 vehicles at a car dealership. Several other cars were damaged as well. A large greenhouse was also damaged by the hail.
Loudon	5/10/1995	0	0	0	2000	A few trees were knocked down.
Lenoir City	6/6/1995	0	0	0	5000	Several trees and power lines were blown down.



Lenoir City	6/11/1995	0	0	0	5000	Several trees were knocked down.
Greenback	6/30/1995	0	0	0	2000	Several trees were knocked down.
Lenoir City	8/1/1995	0	0	0	10000	Numerous trees and powerlines down.
Lenoir City	4/20/1996	NP	0	0	0	A chimney and porch were damaged and trees and powerlines were knocked down.
Countywide	5/24/1996	NP	0	0	5000	Several trees and powerlines were blown down county-wide.
Countywide	5/24/1996	NP	0	0	0	Numerous trees and power lines were blown down countywide. Marble size hail was also reported.
Countywide	5/27/1996	NP	0	0	10000	Numerous trees and powerlines were downed throughout the county.
Dixie Lee Junction	8/26/1996	NP	0	0	0	Trees were downed on highway 70 near Dixie Lee Junction.
Loudon	1/5/1997	NP	0	0	0	One tree downed in the city of Loudon. A few power outages reported across the western portion of the county. Reported by the sheriff's office.
Greenback	2/21/1997	NP	0	0	0	Trees down near Greenback.
Loudon	6/13/1997	NP	0	0	0	Several trees reported down in southwest portion of county.
Philadelphia	6/13/1997	NP	0	0	0	Numerous trees down in southern portion of the county near and west of Philadelphia.
Countywide	6/14/1997	NP	0	0	0	A few trees down across the county.
Lenoir City	2/17/1998	NP	0	0	8500	Not provided
Loudon	6/22/1998	NP	0	0	18000	Trees and powerlines down in Loudon and throughout the county.
Eaton Crossroads	11/25/1998	NP	0	0	0	Trees down.
Loudon	5/5/1999	NP	0	0	0	Trees down on north side of town.
Loudon	7/7/1999	NP	0	0	19000	Trees down.
Lenoir City	7/27/1999	NP	0	0	9000	Trees down in north part of county.
Lenoir City	7/29/1999	NP	0	0	12000	Numerous trees down.
Lenoir City	8/1/1999	NP	0	0	20000	Trees and power ines down. At one point approximately 4-5000 customers were without power.
Countywide	7/29/2000	NP	0	0	0	Trees down.
Countywide	11/9/2000	NP	0	0	0	Trees down.
Countywide	12/16/2000	NP	0	0	0	Trees down.

Countywide	5/21/2001	NP	0	0	0	Trees down.
Lenoir City	6/4/2001	NP	0	0	2000	Several power lines and two trees down.
Central Portion	6/6/2001	NP	0	0	0	Trees down.
Countywide	6/6/2001	NP	0	0	0	Several trees down.
Lenoir City	6/29/2001	NP	0	0	0	Two large trees down on Martel Road.
Loudon	10/24/2001	NP	0	0	14000	Trees and power lines down.
Countywide	1/24/2002	NP	0	0	21000	Trees and power lines down.
Loudon	5/2/2002	NP	0	0	15000	Trees reported down county-wide by police.
Greenback	5/2/2002	NP	0	0	10000	Trees reported down in Greenback.
Countywide	7/2/2002	NP	0	0	25000	Trees were reported down across the county.
Lenoir City	7/2/2002	NP	0	0	25000	Numerous trees were reported down in Lenoir City and across the remainder of the county.
Loudon	7/3/2002	NP	0	0	10000	The dome atop the Loudon County Courthouse was damaged by thunderstorm wind gusts and a tree fell into a rear window of the second story of the building.
Lenoir City	7/23/2002	NP	0	0	0	Numerous large limbs and a few small trees down on Hidden Valley Lane.
Loudon	7/30/2002	NP	0	0	0	Trees down on Poplar Springs, Chili, and Sugarlimb Roads.
Countywide	8/2/2002	NP	0	0	30000	Trees and power lines were reported down across the county.
Countywide	8/2/2002	NP	0	0	15000	Trees and power lines were reported down.
Philadelphia	11/10/2002	NP	0	0	2000	A tree was reported down on Spring Street in Philadelphia.
Lenoir City	11/10/2002	NP	0	0	20000	Several trees were reported down in Lenoir City including one that fell on a home producing some damage.
Loudon	11/11/2002	NP	0	0	20000	Numerous trees and power lines were downed between Loudon and Lenoir City.
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.
Lenoir City	5/11/2003	55	0	0	8000	A few trees were reported down in Lenoir City.
Lenoir City	5/17/2003	55	0	0	8000	One tree was reported down on Friendship Road. Also, one tree was reported down on power lines on Town Creek Road.
Philadelphia	7/13/2003	60	0	0	0	A few trees reported down by 911 dispatch.
Philadelphia	7/13/2003	60	0	0	0	A few trees reported down near Sunnyside by spotter.

Eaton Crossroads	8/7/2003	60	0	0	0	A few trees reported down along Buttermilk road by utility company.
Loudon	8/15/2003	60	0	0	0	Two trees reported down by highway department on Vonore road off of highway 72.
Loudon	8/15/2003	60	0	0	0	Several trees and power lines reported down by utility company across eastern portions of the county.
Lenoir City	8/17/2003	60	0	0	0	A few trees reported down by 911 dispatch.
Countywide	8/17/2003	60	0	0	0	Several trees reported down by highway department.
Countywide	11/18/2003	60	0	0	10000	A few trees were reported down across the county.
Lenoir City	5/31/2004	55	0	0	12000	A few trees were reported down across the county.
Lenoir City	6/12/2004	60	0	0	2000	Several wrist size limbs and a large umbrella with stand thrown across the yard
Lenoir City	6/21/2004	60	0	0	10000	Trees down countywide
Lenoir City	7/5/2004	60	0	0	20000	Trees were reported down across the county.
Lenoir City	7/12/2004	60	0	0	6000	A few trees were reported down across the west portion of the county.
Loudon	7/13/2004	65	0	0	20000	Several trees were reported down across the county.
Loudon	7/13/2004	65	0	0	10000	The roof trusses for the Tate and Lyle Performing Arts Center in the Loudon Municipal Park were knocked down.
Loudon	2/21/2005	65	0	0	2000	A few trees down in the east half of the county
Lenoir City	5/14/2005	60	0	0	20000	Trees were reported down across the county.
Countywide	5/20/2005	65	0	0	30000	Numerous trees and power lines were reported down across the county.
Lenoir City	6/10/2005	40	1	0	0	A man riding in a golf cart was killed when a large limb from a tree fell and struck the moving cart.
Countywide	6/27/2005	65	0	0	12000	Several trees downed countywide.
Lenoir City	7/1/2005	60	0	0	15000	A few trees were reported down between Lenoir City and Loudon.
Countywide	7/27/2005	60	0	0	30000	Numerous trees were reported down across the county.
Lenoir City	8/5/2005	65	0	0	20000	Numerous trees down in and around Lenoir City.
Loudon	8/18/2005	60	0	0	18000	A few trees down on powerlines. Reported by Ft Loudon Electric.
Lenoir City	12/28/2005	65	0	0	15000	Several trees down countywide
Lenoir City	12/28/2005	60	0	0	8000	A few trees down countywide.
Lenoir City	4/21/2006	60	0	0	12000	Several trees down in Lenoir City.
Loudon	5/31/2006	60	0	0	10000	A few trees were reported down eight miles southwest of Loudon.

Erie	6/1/2006	60	0	0	10000	A few trees down in Erie.
Countywide	7/21/2006	60	0	0	25000	Numerous trees were reported down across the county.
Countywide	7/28/2006	60	0	0	25000	Several trees were reported down onto roads across the county.
Loudon	7/28/2006	60	0	0	3000	A tree was reported down on Hines Valley Road near New Providence.
Greenback	8/6/2006	55	0	0	18000	Several trees down in Greenback. One tree fell on a home in Greenback damaging the roof.
Greenback	8/20/2006	55	0	0	5000	A few trees down in Greenback.
Loudon	9/28/2006	60	0	0	3000	One tree was reported down on Vonore Road three miles southeast of Loudon.
Loudon	9/28/2006	60	0	0	3000	One tree was reported down in Loudon.
Not provided	12/1/2006	60	0	0	20000	Numerous trees down countywide.
Philadelphia	4/3/2007	63	0	0	15000	Several trees were reported down in Philadelphia and a storm spotter measured wind speed at 73 mph.
Greenback	6/27/2007	50	0	0	15000	Thunderstorm winds downed a few trees and powerlines in Greenback and the surrounding area.
Jena	1/10/2008	50	0	0	0	One tree was reported down in Greenback.
Philadelphia	1/10/2008	50	0	0	0	One tree was reported down on Foshee road near Philadelphia.
Not provided	2/17/2008	45	1	0	0	The Knoxville News Sentinel newspaper reported a 63 year old man died when a tree on a hillside was pushed by strong winds and fell on his vehicle as he was traveling west on Vonroe Road in Loudon County.
Loudon	3/4/2008	50	0	0	0	Trees and power lines were reported down on Highway 11.
Martel	3/4/2008	50	0	0	0	A tree and power lines were reported down on Virtue rd.
Loudon	3/19/2008	50	0	0	0	A few trees were reported down at Loudon.
Highland Park	4/11/2008	60	0	0	20000	The utility company reported numerous trees and powerlines downed by thunderstorm winds in Lenoir City.
Bucktown	6/7/2008	50	0	0	2000	Law enforcement reported one large tree downed by thunderstorm winds on Old Sugar Limb Road 2 miles west of Lenoir City.
Loudon	6/11/2008	52	0	0	8000	Dispatch reported a few trees downed by thunderstorm winds in Loudon.
Highland Park	6/28/2008	52	0	0	5000	Dispatch reported a few trees downed by thunderstorm winds in the Lenoir City area.

Morgantown	6/28/2008	55	0	0	8000	Dispatch reported several trees downed by thunderstorm winds across the eastern portions of the county.
Highland Park	7/9/2008	55	0	0	0	Trees and power lines were reported down in Lenoir City.
Loudon	7/28/2008	55	0	0	0	One tree and one power pole with associated power lines were reported down one mile northeast of Loudon.
Loudon	7/31/2008	55	0	0	0	One tree was reported down on a power line in the Stockton Valley area.
Jena	2/11/2009	60	0	0	20000	The highway department personnel reported numerous trees and powerlines downed by thunderstorm winds around Greenback.
Philadelphia	4/2/2009	55	0	0	3000	Highway department officials reported two trees downed by thunderstorm winds in the Philadelphia area.
Philadelphia	4/10/2009	52	0	0	8000	Law enforcement personnel reported one tree and powerlines downed by thunderstorm winds in the Philadelphia area.
Loudon	5/15/2009	55	0	0	0	Thunderstorm winds knocked a large tree onto the Loudon County Courthouse damaging a portion of the roof's metal overhang and also breaking some of the glass in the building's windows.
Highland Park	5/15/2009	55	0	0	0	Numerous trees were reported down in Lenoir City. Some of the trees had fallen on homes.
Loudon	5/15/2009	55	0	0	0	Numerous trees were reported down in Loudon.
Loudon	5/15/2009	55	0	0	0	A few trees were reported down in Loudon.
Philadelphia	5/28/2009	50	0	0	0	Several trees were reported down.
Piney	6/10/2009	52	0	0	12000	Law enforcement officials reported numerous trees downed by thunderstorm winds from Tellico Village to Greenback.
Loudon	6/10/2009	55	0	0	5000	Law enforcement officials reported one tree and a powerlines downed by thunderstorm winds in Loudon.
New Providence	6/10/2009	52	0	0	2000	Law enforcement officials reported one tree downed by thunderstorm winds southwest of Lenoir City on Interstate 75.
Davis	6/17/2009	55	0	0	10000	Amateur radio operators reported several trees and powerlines downed by thunderstorm winds countywide.
Loudon	6/18/2009	60	0	0	20000	Utility company personnel reported several trees and powerlines downed by thunderstorm winds countywide.



Davis	6/18/2009	58	0	0	10000	Amateur radio personnel reported several trees and powerlines downed by thunderstorm winds countywide.
Highland Park	6/22/2009	55	0	0	8000	Law enforcement personnel reported several trees downed by thunderstorm winds countywide.
Oak Grove	6/28/2009	52	0	0	2000	Law enforcement personnel reported one tree downed by thunderstorms winds west of Lenoir City.
Loudon	6/28/2009	55	0	0	10000	Law enforcement personnel reported several trees downed by thunderstorm winds in Loudon. One tree fell on a parked car.
Loudon	10/9/2009	55	0	0	8000	Law enforcement officials reported several trees downed by thunderstorm winds countywide.
Greenback	4/25/2010	70	0	0	120000	The Daily Times newspaper in Maryville reported a home was destroyed and several trees and powerlines downed by thunderstorm winds near Greenback.
Loudon	10/26/2010	55	0	0	5000	Law enforcement personnel reported few trees downed by thunderstorm wind 7 miles southeast of Loudon.
Lenoir City	4/4/2011	52	0	0	3000	Law enforcement personnel reported a couple of trees downed by thunderstorm wind 4 miles northeast of Lenoir City...1 on Phelps Road and another one Beals Chapel Road.
Loudon	4/25/2011	60	0	0	25000	Law enforcement personnel reported numerous trees and powerlines downed by thunderstorm wind across the eastern half of the county.
Eaton Crossroads	5/22/2011	55	0	0	0	One tree was reported down at the intersection of Cardwell Road and Hines Valley Road.
Eaton Crossroads	5/22/2011	55	0	0	0	One tree was reported down on Town Creek Road.
Loudon	6/15/2011	55	0	0	10000	Law enforcement personnel reported several trees downed by thunderstorm wind countywide.
Lenoir City	6/21/2011	60	0	0	25000	Law enforcement personnel reported numerous trees downed by thunderstorm wind in Lenoir City.
Jena	7/4/2011	50	0	0	0	One tree was reported down.
Jena	9/3/2011	55	0	0	0	Several trees were reported down.
Highland Park	9/3/2011	55	0	0	0	Several trees were reported down.

Greenback	2/29/2012	60	0	0	25000	Emergency management personnel reported several trees downed by thunderstorm wind as well as structural damage to a storage building in Greenback.
Highland Park	7/5/2012	60	0	0	0	Several trees and power lines were reported down across the county.
Lenoir City	8/23/2013	50	0	0	2000	Law enforcement personnel reported 1 tree downed by thunderstorm wind 6 miles southwest of Lenoir City at the intersection of Vonore Road and Davis Ferry Road.
Loudon	2/21/2014	55	0	0	15000	The public reported a barn roof blown off and a garage door blown in 5 miles west of Loudon. In addition, a 3 foot diameter was downed by the wind along Highway 72.
Loudon	2/21/2014	50	0	0	8000	Law enforcement reported several trees downed by thunderstorm wind across the county.
Loudon	4/28/2014	50	0	0	2000	A trained spotter reported a tree downed by thunderstorm wind just south of Loudon.
Loudon	4/28/2014	50	0	0	2000	A trained spotter reported one tree downed by thunderstorm wind just south of Loudon.
Loudon	4/29/2014	55	0	0	10000	Law enforcement personnel reported several trees downed by thunderstorm wind countywide.
Meadow	5/22/2014	50	0	0	0	Numerous trees were reported down on Route 95 two miles northwest of Greenback near Ness Lane.
Loudon	6/10/2014	55	0	0	10000	Law enforcement personnel reported many trees downed by thunderstorms wind countywide.
Lenoir City	6/21/2014	50	0	0	5000	Law enforcement personnel reported 2 trees downed by thunderstorm wind in Lenoir City.
Greenback	6/23/2014	50	0	0	5000	Highway department personnel reported a couple of trees downed by thunderstorm wind across the county 6 miles west of Greenback.
Philadelphia	8/20/2014	58	0	0	40000	Law enforcement personnel reported multiple trees downed by thunderstorm wind in Philadelphia. At least barn was also damaged or destroyed.
Lenoir City	4/3/2015	50	0	0	2000	Dispatch personnel reported a tree downed by thunderstorm wind 3 miles north of Lenoir City on Hope Creek Road.
Loudon	4/3/2015	50	0	0	2000	Dispatch personnel reported a tree downed by thunderstorm wind 3 miles south of Loudon on Fork Creek Road.

Loudon	4/3/2015	52	0	0	5000	Highway department personnel reported a few trees downed by thunderstorm wind across the county.
Philadelphia	6/8/2015	50	0	0	0	Two trees were reported down in Philadelphia.
Loudon	6/8/2015	50	0	0	0	A tree was reported down on a house on Stockton Valley Road.
Loudon	6/18/2015	50	0	0	0	A tree and power line were reported down in Loudon.
Highland Park	6/30/2015	50	0	0	0	Two trees were reported down in the area.
Highland Park	7/14/2015	50	0	0	0	Several trees were reported down across the county.
Loudon	8/10/2015	50	0	0	0	Several trees were reported down near Loudon.
Highland Park	8/19/2015	50	0	0	0	A few trees were reported down near Lenoir City.
Jena	2/24/2016	50	0	0	0	Several trees were reported down in the vicinity of Greenback.
Loudon	6/14/2016	50	0	0	0	Multiple trees were reported down in the city of Loudon.
Loudon	7/6/2016	50	0	0	0	A few trees were reported down in Loudon.
Jena	7/6/2016	50	0	0	0	Several trees were reported down in Greenback.
Jena	7/8/2016	50	0	0	0	Numerous trees were reported down in the Greenback area.
Jena	11/30/2016	50	0	0	0	Power lines were reported down.
Highland Park	2/25/2017	50	0	0	0	Two trees were reported down across the county.
Highland Park	3/21/2017	52	0	0	0	Wind speeds were estimated at 60 to 70 mph.
Highland Park	3/21/2017	50	0	0	0	Several trees were reported down along the interstate.
Loudon	5/27/2017	50	0	0	0	Widespread trees and power lines were reported down across the county.
Highland Park	5/27/2017	50	0	0	0	A roof was removed from a shed in Lenoir City.
Highland Park	4/4/2018	50	0	0	0	One tree fell onto a home in Lenoir City.
Oak Grove	5/27/2018	50	0	0	0	Several trees were reported down just west of Lenoir City.
Loudon	6/25/2018	50	0	0	0	Two trees were reported down five miles northeast of Philadelphia.
Highland Park	6/26/2018	50	0	0	0	Two trees were reported down.
Loudon	6/26/2018	50	0	0	0	A few trees were reported down.
Fochee	6/27/2018	50	0	0	0	A few trees were reported down four miles west northwest of Philadelphia.
Jena	7/6/2018	50	0	0	0	Numerous trees were reported down across Southeast Loudon County near Greenback. Time was estimated by radar.
Highland Park	8/8/2018	50	0	0	0	Two trees were reported down.

Philadelphia	8/8/2018	50	0	0	0	Two trees were reported down.
Robinson Mill	11/6/2018	50	0	0	0	Several trees were reported down near Vonore Road.
Eaton Crossroads	11/6/2018	50	0	0	0	Several trees were reported down on Highway 321 which resulted in the road being closed.
Russell Store	6/17/2019	50	0	0	0	One tree was reported down at the intersection of Toqua Road and Oostanli Way.
Loudon	6/21/2019	55	0	0	0	Widespread reports of downed trees and power outages were received from across the county.
Highland Park	6/21/2019	55	0	0	0	A report was received of trees downed on homes near 9th Avenue and C Street in Lenoir City.
Highland Park	6/21/2019	55	0	0	0	Multiple trees were reported down near Justice Center on Highway 11.
Adolphus	6/24/2019	50	0	0	0	A tree was reported down on Marble Bluff and Highway 72.
Bucktown	6/24/2019	50	0	0	0	A tree was reported down on a car on Webb Drive.
Bucktown	6/24/2019	50	0	0	0	A tree was reported down across Riverview Road in Lenoir City.
Woodlawn	6/28/2019	50	0	0	0	Several trees were reported down on White Wing Road.
Adolphus	6/28/2019	50	0	0	0	Trees and power lines were reported down across the county.
Silver Ridge	6/28/2019	50	0	0	0	Trees were reported down along with structural damage to garage doors and power outages near Lenoir City.
Philadelphia	7/3/2019	50	0	0	0	Several trees were reported down along Highway 11.
Ft. Loudon Lake	3/29/2020	56	0	0	0	County dispatch reports a few small trees downed near the Lakeland Drive area.
Luttrell	4/9/2020	55	0	0	0	Multiple trees were reported down across the county.
Highland Park	4/25/2020	70	0	0	0	Trees and power lines were downed, and a carport was damaged. Minor damage was reported to some siding and shingles. The damage was concentrated between 4th and 5th avenues and A, B, C, and D streets. A storm survey which was conducted estimated peak wind as high as 80 mph.
Philadelphia	7/21/2020	50	0	0	0	Several trees and power lines were reported down. Additionally, a metal carport was lofted over a home off Allison Town Road which is nearby.

The committee shared their personal experiences of tornado/wind. The following is transcribed from their thoughts.

- Tornado in 2016 – pediatric death, Stockton Valley Rd., tree fell on mobile home.
- October 1014-15, possible tornado or funnel cloud south Loudon City & Philadelphia. We were actively driving around during storm helping residents or evacuating people.
- Wind shear in Lenoir City
- Wind shear in Avalon Subdivision
- Wind shear in Philadelphia
- 2011/4/27 – Tornado in Greenback
- 2012/2/29 – Tornado in Greenback
- 2010/4/25 – Tornado in Greenback and Lenoir City
- 12/24/?? – Lakepond Dr. Tree into trailer w/ one injury
- Feb. 21, 1993 – Tornado in Lenoir City
- Stockten Valley Rd. pedestrian death
- High winds & tornado have proven to be the biggest threat
- Yearly events with damage to homes, buildings and farms
- February 21, 1993, Adult died from tornado
- 2016 – Child death Stockton Valley Rd. Tree onto mobile home
- Fatality due to tree into vehicle
- Summertime, weekly power outages from storms. Tends to lead to tree damage to property on a bi-weekly basis. These events may not all be reported in the rate at which they occur in Greenback. In my experience, damage to homes due to winds is occurring at least monthly.

Loudon 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
Loudon County Unincorporated	3.57	3.29	1.57	2.81
Lenoir City	3.57	3.57	1.86	3.00
City of Greenback	3.67	3.00	1.50	2.72
Town of Philadelphia	3.50	3.00	1.50	2.67
City of Loudon	3.0	3.25	1.5	2.58

Jurisdiction	Vulnerability	Probability	Risk V+P=R
Loudon County Unincorporated	2.81	3.86	6.67
Lenoir City	3.00	3.71	6.71
City of Greenback	2.72	4.00	6.72
Town of Philadelphia	2.67	3.83	6.50



City of Loudon	2.58	4.00	6.58
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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

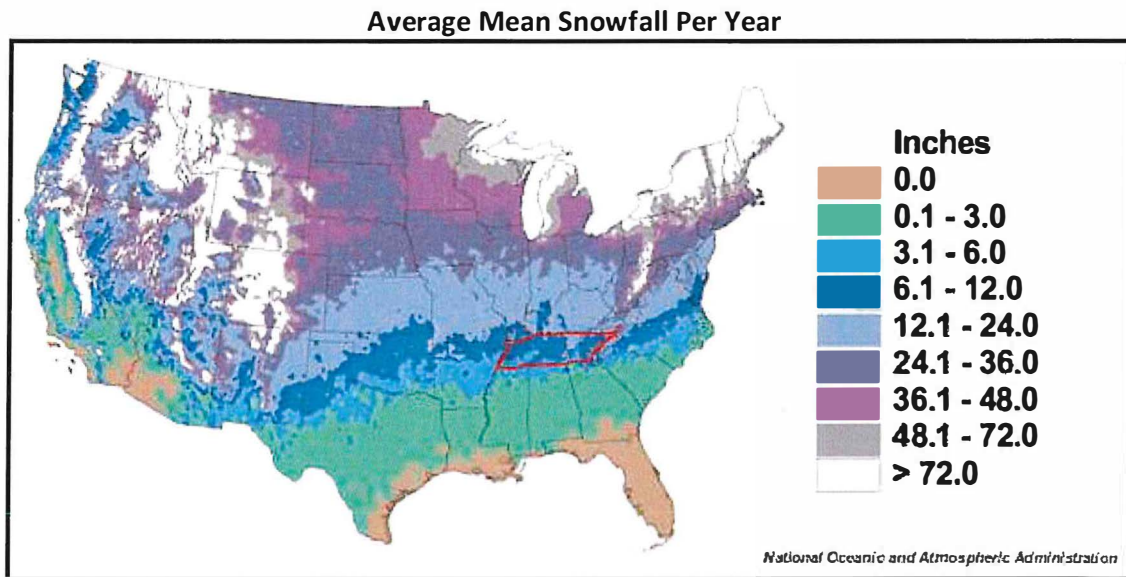
A freeze occurs when temperatures are below 32 degrees Fahrenheit for a period. These temperatures can damage agricultural crops, burst water pipes, and create layers of "black ice."

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 Loudon 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, Loudon County can experience multiple winter weather events in one year affecting all jurisdictions within equally.

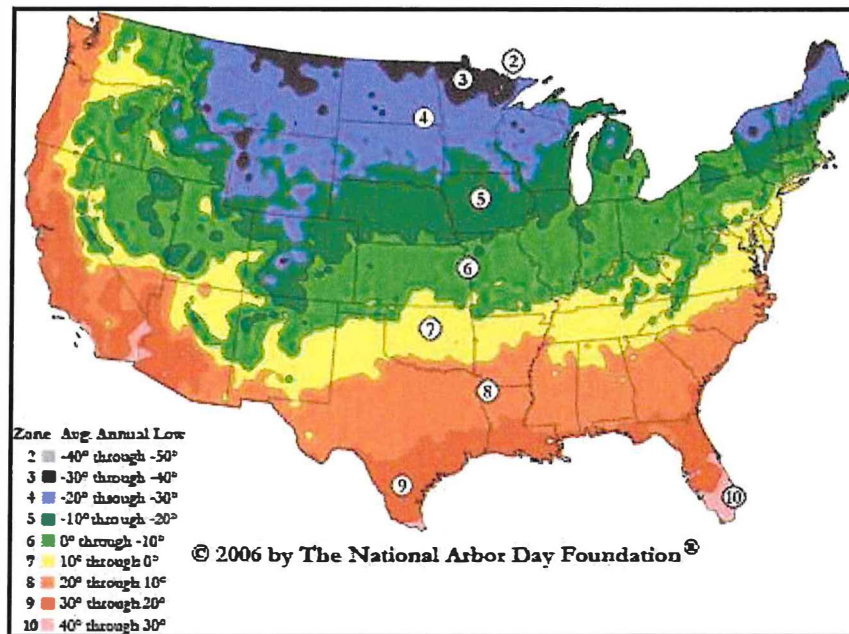
The severity of winter storms is commonly measured by inches of snowfall. It is possible for snowfall to accumulate up to 30 inches in Loudon County and/or ice accumulations to cause for hazardous conditions due to its proximity in and around the mountains. The average mean snowfall per year in Loudon County is between 4-8 inches (as seen on the map below).



Source: NOAA

Loudon 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).

#### Average Annual Low Temperatures



Source: NOAA

The following chart provides winter storm event information for Loudon County between 1950 and 2022. The worst event within the data is 8.5 inches. 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 Loudon County, including the jurisdictions located within, and is the only source of data accessible. The information provided for Loudon County also applies to the school district due to the geographic distribution of the schools throughout the County.

### Winter Storm Impacts in Loudon County: 1950 - 2022

Date	Event Type	Deaths	Injuries	Property Damage	Extent/Impact Description
1/6/1996	Winter Storm	0	0	0	One foot of snow to parts of East Tennessee. 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	Snowfall amounts across the region ranged from 4 inches in Southeast Tennessee to nearly 24 inches in parts of Middle East Tennessee. Numerous minor traffic accidents were reported though no major accidents.
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	Snowfall amounts were 1-3 inches in southeast Tennessee, 2-4 inches, and 3-5 inches in northeast Tennessee.
12/30/1997	Winter Storm	0	0	0	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	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. 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	In central East Tennessee, amounts ranged between 1 and 3 inches, with a few isolated reports of 3 to 5 inches.
12/18/2000	Winter Storm	0	0	0	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	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	A few spots received around 4 inches. Across the remainder of East Tennessee, amounts were under 1 inch.
1/5/2002	Winter Storm	0	0	0	In central East Tennessee, amounts were generally 2-4 inches, with a few spots receiving as much as 5 inches, and as little as a half inch.
1/16/2003	Winter Storm	0	0	0	Snowfall amounts ranging from 2 to 8 inches across eastern Tennessee.
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.
1/9/2004	Winter Storm	0	0	0	1-2 inches snowfall
1/29/2005	Ice Storm	0	0	0	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.
1/29/2010	Heavy Snow	0	0	0	Four inches of snow was reported in Lenoir City, Tennessee.
12/16/2010	Ice Storm	0	0	10000	Law enforcement personnel reported freezing rain produced 0.25 inches of ice on the roads in Loudon.
2/12/2014	Heavy Snow	0	0	0	A trained spotter reported 5 inches of snow fell 4 miles east-northeast of Lenoir City.
2/13/2014	Heavy	0	0	0	Amateur radio personnel reported 7 inches of snow fell in Lenoir City.



	Snow				
2/13/2014	Heavy Snow	0	0	0	A trained spotter reported 8.5 inches of snow fell at Lenoir City.
2/13/2014	Heavy Snow	0	0	0	The public reported 7 inches of snow fell in Loudon.
2/16/2015	Winter Storm	0	0	0	A trained spotter reported freezing rain produced 0.30 inches of ice accumulation 5 miles north-northwest of Lenoir City.
2/16/2015	Ice Storm	0	0	0	Emergency management personnel reported 1/2 inch or more of ice across the county. Widespread power outages. Hazardous road conditions.
2/17/2015	Ice Storm	0	0	0	Emergency manager personnel reported trees and powerlines downed by the ice in Lenoir City.
2/25/2015	Heavy Snow	0	0	0	The public recorded 4.0 inches of snow in Lenoir City.
2/26/2015	Heavy Snow	0	0	0	The public recorded 6 inches of snow in Loudon.
2/26/2015	Heavy Snow	0	0	0	The public recorded 6.5 inches of snow in Lenoir City.
1/29/2019	Heavy Snow	0	0	0	A snowfall amount of 3 inches was recorded at Greenback.
2/8/2020	Heavy Snow	0	0	0	Snow depth was estimated at 1 inch four miles north northwest of Lenoir City.

The committee shared their personal experiences of winter weather events that have. The following is transcribed from their thoughts.

- Winter weather events have occurred about every year in some part of Loudon County
- Power outages
- Loss of heat and home oxygen
- Travel impacts
- Road fatalities from MVA
- Usually expensive. At least one week long power event due to winter weather and ice.

Loudon 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	$H+P+B=\#; \#/3=V$
Loudon County Unincorporated	2.00	2.14	1.43	1.86
Lenoir City	1.80	2.20	1.20	1.73
City of Greenback	1.80	2.00	1.20	1.67
Town of Philadelphia	1.80	2.00	1.20	1.67
City of Loudon	1.33	1.66	1.00	1.33

Jurisdiction	Vulnerability	Probability	Risk $V+P=R$
Loudon County Unincorporated	1.86	3.14	5.00
Lenoir City	1.73	3.60	5.33
City of Greenback	1.67	3.60	5.27
Town of Philadelphia	1.67	3.60	5.27
City of Loudon	1.33	3.33	4.66

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

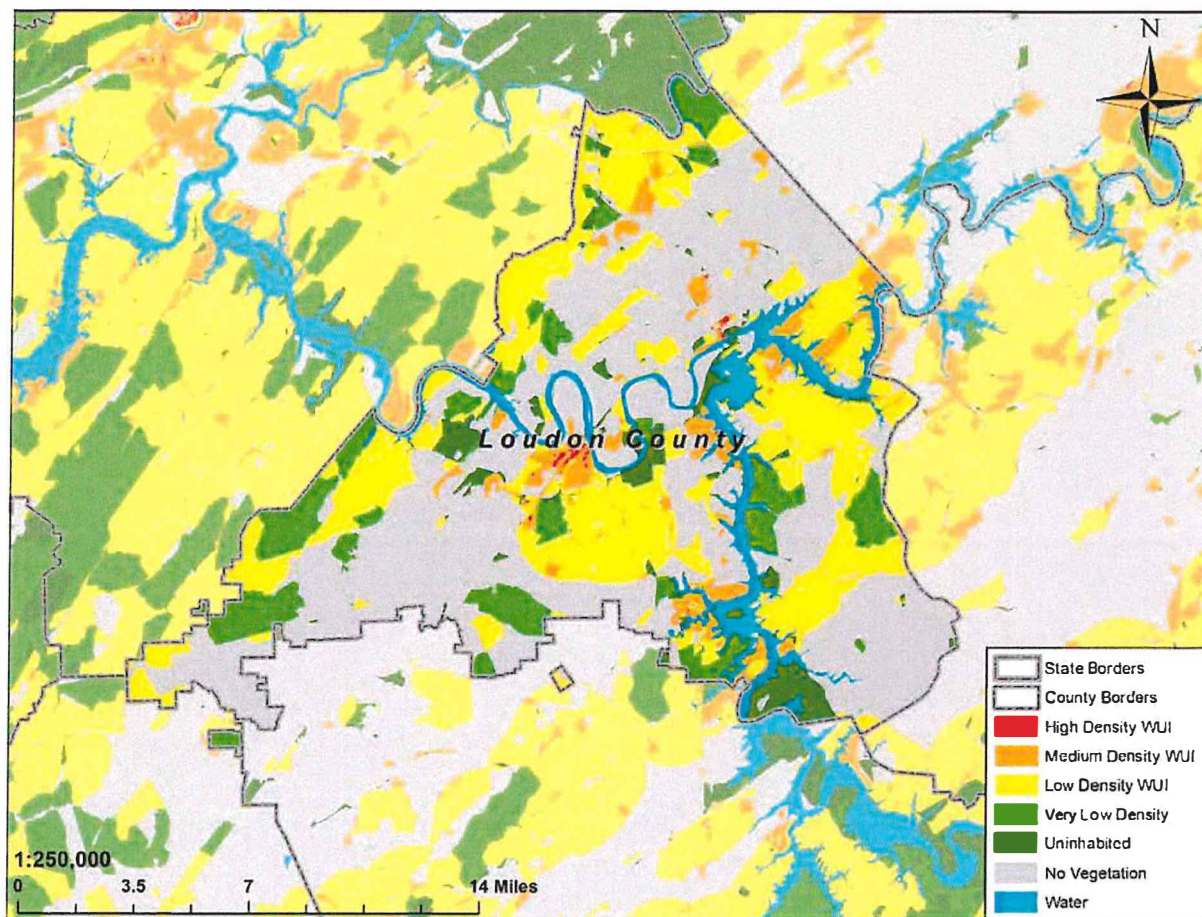
Property	
<i>Amount of residential property damage associated from the hazard</i>	
1	Less than \$500 in damages
2	\$500-\$10,000 in damages
3	\$10,000-\$500,000 in damages
4	\$500,000-\$2,000,000 in damages
5	More than \$2,000,000 in damages

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

Below is the Wildland Urban Interface for Loudon County. Loudon 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 with wildfire events. Additionally, they were able to provide more data on wildfire events from their 911 system. The following is transcribed from their thoughts.

911 system data

Year	# of Acres	Year	# of Acres
2022	2	2014	98.71
2021	7	2013	18.85
2020	1.5	2012	11.98
2019	15	2011	25.56
2018	No damage	2010	No damage
2017	No damage	2009	No damage
2016	100.97	2008	No damage
2015	28.17	2007	No damage

- 2016 – Several wildland fires broke out in Loudon, Lenoir City and Loudon County. This was at the same time as the Gatlinburg fires
- All wildfires within Loudon County have been few in number and have been relatively small.
- Normally small and contained by local fire departments





Loudon 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 Loudon 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 Loudon County can obtain that is consistent and confirmed. Below are the statistics for Loudon 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	7	2	9	26.6	30.0	56.5	6.3	0.000
2015	2	0	2	9.0		9.0	4.5	0.000
2014	4	2	6	15.0	12.5	27.5	4.6	0.000
2013	1	0	1	2.0		2.0	2.0	0.000
2012	2	2	4	1.7	2.1	3.8	1.0	0.000
2011	1	0	1	2.9		2.9	2.9	0.000
2010	1	2	3	2.5	31.4	33.9	11.3	0.000
2009	2	0	2	9.0		9.0	4.5	0.000
2008	5	0	5	39.0	15.0	54.0	10.8	0.000
2007	8	7	15	48.6	169.0	217.6	14.5	0.001

Loudon 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
Loudon County Unincorporated	1.63	2.00	1.25	1.63

Lenoir City	1.83	2.50	1.25	1.89
City of Greenback	1.83	1.83	1.33	1.67
Town of Philadelphia	1.83	2.00	1.33	1.72
City of Loudon	1.5	1.75	1.00	1.43

Jurisdiction	Vulnerability	Probability	Risk V+P=R
Loudon County Unincorporated	1.63	2.00	3.63
Lenoir City	1.89	2.00	3.89
City of Greenback	1.67	2.00	3.67
Town of Philadelphia	1.72	2.00	3.72
City of Loudon	1.41	2.75	4.15

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

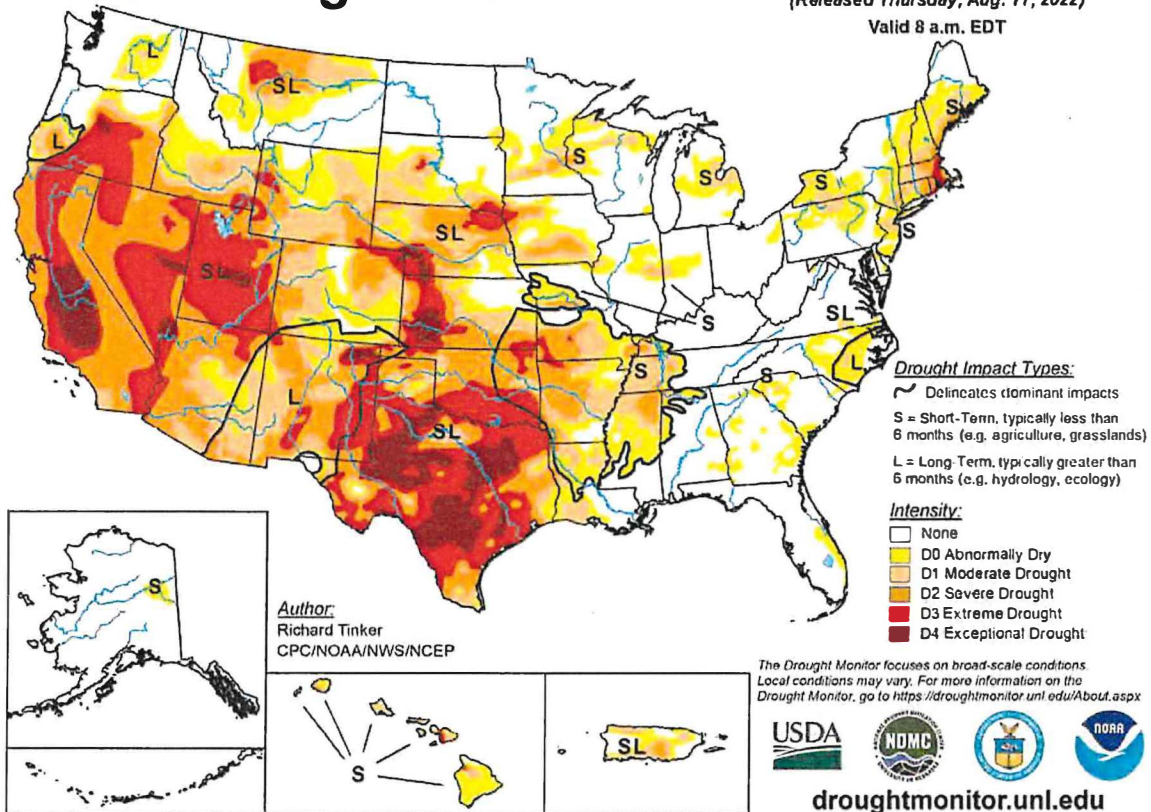
## **Drought**

Drought is a slow-onset hazard that can last for months or years. As a hazard, it has the potential to impact many aspects of life, including two of our most important needs: drinking water and food. Because of the long duration of droughts, the impacts last for years and can ripple through a community over time. When drought strikes Loudon County, there is an increased risk of wildfires and affects the stabilization of karst structures causing for an increase of sinkhole activity. Drought can affect the viability and economic stability of Loudon County.

The US Drought Monitor provides weekly updates by analyzing data and illustrating the issue through a map. This is the most current map.

# U.S. Drought Monitor

August 9, 2022  
(Released Thursday, Aug. 11, 2022)  
Valid 8 a.m. EDT



Source: US Drought Monitor (<http://droughtmonitor.unl.edu/CurrentMap.aspx>).

The U.S. Drought Monitor is jointly produced by the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration. Map courtesy of NDMC-UNL.

The map (above) provides a quick snapshot of drought conditions. The accompanying drought severity classification table (below) shows the ranges for each indicator for each dryness level. Because the ranges of the various indicators often don't coincide, the final drought category tends to be based on what most of the indicators show and on local observations. The analysts producing the map also weigh the indices according to how well they perform in various parts of the country and at different times of the year.

The Drought Monitor summary map identifies general areas of drought and labels them by intensity. D1 is the least intense level and D4 the most intense. Drought is defined as a moisture deficit bad enough to have social, environmental, or economic effects.

D0 areas are not in drought but are experiencing abnormally dry conditions that could turn into drought or are recovering from drought but are not yet back to normal.

We indicate whether primary physical effects are for short- or long-term drought:

- S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically more than 6 months (e.g. hydrology, ecology)



## Drought Severity Classification

Category	Description	Possible Impacts	Ranges				
			Palmer Drought Severity Index (PDSI)	CPC Soil Moisture Model (Percentiles)	USGS Weekly Streamflow (Percentiles)	Standardized Precipitation Index (SPI)	Objective Drought Indicator Blends (Percentiles)
D0	Abnormally Dry	Going into drought: <ul style="list-style-type: none"> <li>• short-term dryness slowing planting, growth of crops or pastures</li> </ul> Coming out of drought: <ul style="list-style-type: none"> <li>• some lingering water deficits</li> <li>• pastures or crops not fully recovered</li> </ul>	-1.0 to -1.9	21 to 30	21 to 30	-0.5 to -0.7	21 to 30
D1	Moderate Drought	<ul style="list-style-type: none"> <li>• Some damage to crops, pastures</li> <li>• Streams, reservoirs, or wells low, some water shortages developing or imminent</li> <li>• Voluntary water-use restrictions requested</li> </ul>	-2.0 to -2.9	11 to 20	11 to 20	-0.8 to -1.2	11 to 20
D2	Severe Drought	<ul style="list-style-type: none"> <li>• Crop or pasture losses likely</li> <li>• Water shortages common</li> <li>• Water restrictions imposed</li> </ul>	-3.0 to -3.9	6 to 10	6 to 10	-1.3 to -1.5	6 to 10
D3	Extreme Drought	<ul style="list-style-type: none"> <li>• Major crop/pasture losses</li> <li>• Widespread water shortages or restrictions</li> </ul>	-4.0 to -4.9	3 to 5	3 to 5	-1.6 to -1.9	3 to 5
D4	Exceptional Drought	<ul style="list-style-type: none"> <li>• Exceptional and widespread crop/pasture losses</li> <li>• Shortages of water in reservoirs, streams, and wells creating water emergencies</li> </ul>	-5.0 or less	0 to 2	0 to 2	-2.0 or less	0 to 2

Short-term drought indicator blends focus on 1-3 month precipitation. Long-term blends focus on 6-60 months. Additional indices used, mainly during the growing season, include the USDA/NASS Topsoil Moisture, Keetch-Byram Drought Index (KBDI), and NOAA/NESDIS satellite Vegetation Health Indices. Indices used primarily during the snow season and in the West include snow water content, river basin precipitation, and the Surface Water Supply Index (SWSI). Other indicators include groundwater levels, reservoir storage, and pasture/range conditions.

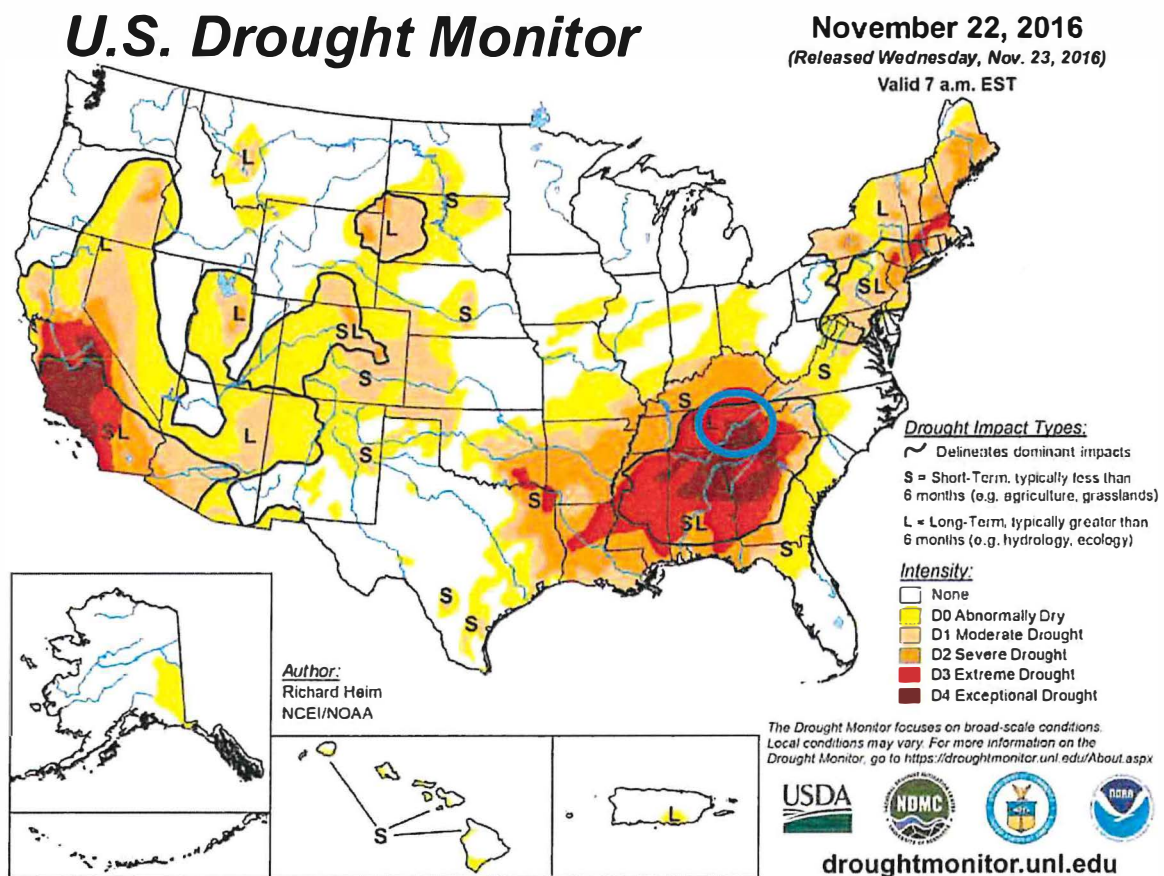




The US Drought Monitor limits how far back data can be pulled. From June 2001 to June 2022, Loudon County had experienced the following in drought conditions. With the assistance of the above legend and the below conditions, the extent is provided.

- No drought: 663 days
- D0: 205 days
- D1: 116 days
- D2: 73 days
- D3: 43 days
- D4: 19 days

D4 occurred 11/8/2016 to 12/5/2016; 8/14/2007 to 11/26/2007. The map below provides historic drought conditions for November 22, 2016, when Loudon County was in exceptional drought.



The information provided in the summary of the drought issue located in Loudon County, TN is the only source of information to provide a clear picture of the issue. Due to lack of resources in presentation of the issue, the information provided is the only source. No other details are available for research or study.

The committee shared their personal experiences and the following is transcribed from their thoughts.

- Concern with Drought conditions is often burning in the County; not issue any burn permits.
- Very few '19' days in D4
- Mostly damage to crop and livestock
- Puts our power utility at an extreme high risk of fires developing.

Jurisdiction	Impacts			Vulnerability
	Human	Property	Business	H+P+B=#; #/3=V
Loudon County Unincorporated	1.00	2.29	1.14	1.48
Lenoir City	1.00	1.86	1.00	1.29
City of Greenback	1.00	1.50	1.00	1.17
Town of Philadelphia	1.00	1.50	1.00	1.17
City of Loudon	1.25	1.25	1.00	1.16

Jurisdiction	Vulnerability	Probability	Risk V+P=R
Loudon County Unincorporated	1.48	2.14	3.62
Lenoir City	1.29	2.29	3.57
City of Greenback	1.17	2.17	3.33
Town of Philadelphia	1.17	2.17	3.33
City of Loudon	1.67	3.25	4.42

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
366	5/15/1972	Heavy Rains	Flooding			yes	Yes

424	4/4/1974	Tornadoes				yes	Yes
3095	3/14/1993	Winter Storm				yes	no
1215	4/20/1998	Severe Storms	Tornadoes	Flooding		yes	Yes
1260	1/15/1999	Winter Storm				No	Yes
1408	4/5/2002	Severe Storms	Flooding			yes	Yes
1456	3/20/2003	Severe Storms	Flooding			yes	no
1464	5/8/2003	Severe Storms	Tornadoes	Flooding		No	Yes
3217	9/5/2005	Hurricane Katrina				yes	no
1974	5/1/2011	Severe Storms	Tornadoes	Straight Line Winds	Flooding	yes	no
4005	7/20/2011	Severe Storms	Tornadoes	Straight Line Winds	Flooding	yes	no
4211	4/2/2015	Winter Storm	Flooding			yes	no
4320	6/23/2017	Severe Storms	Straight Line Winds	Flooding		yes	no
4427	4/17/2019	Flooding	Landslide	Mudslide		yes	no
4514	4/2/2020	Pandemic				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 Loudon 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

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

The Loudon 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
<b>S</b>	<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
<b>A</b>	<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
<b>F</b>	<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
<b>E</b>	<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
<b>T</b>	<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 Loudon County Hazard Mitigation Project List.

### Loudon County Project List

The following Project List provides an overview of all the Loudon 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. In a few of the hazards and due to priorities or limited budget, the two project per hazard per jurisdiction requirement was not met. However, each hazard has at least one project.



Hazard Mitigated	Project #	Loudon County (Unincorporated) Action/Project Name	Priority Rank	Addresses New or Existing Buildings/Infra?	Responsible Agency	Possible Funding Source(s)	Timeframe
Flooding	1	Public Education	43	Existing	Loudon County HS/EM	FMA, HMGP, local budget	1-5 years
	2	County Courthouse Annex – Building floods when it rains – flood diversion and storage	2	Existing	Loudon County HS/EM	FMA, HMGP, BRIC	1-5 years
	3	Town Creek Rd. West - flood diversion	2	Existing	Lenoir City Street Dept.	FMA, HMGP, BRIC	1-5 years
	4	Browder Hollow/Stevens Lane - flood diversion	1	Existing	Lenoir City Street Dept.	FMA, HMGP, BRIC	1-5 years
	5	Meadow Rd. West - flood diversion	66	Existing	Loudon County Highway Dept.	FMA, HMGP, BRIC	1-5 years
	6	Martel Rd. - flood diversion	2	Existing	Loudon County Highway Dept.	FMA, HMGP, BRIC	1-5 years
	7	Bright Rd./Pond Creek - flood diversion	44	Existing	Loudon County Highway Dept.	FMA, HMGP, BRIC	1-5 years
	8	Hall Rd.- flood diversion	44	Existing	Loudon County Highway Dept.	FMA, HMGP, BRIC	1-5 years
	9	Duff Tower Estates - flood diversion with possible property buy-out	44	Existing	Loudon County Building Codes	FMA, HMGP, BRIC	1-5 years
Tornado/Wind	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years
	10	Crossroad Christian Academy Safe Room	67	Existing	Crossroad Christian Academy	HMGP, BRIC	1-5 years
	11	Steekee Elementary School Safe Room	51	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	12	Blairland Baptist Church Safe Room	51	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	13	Loudon High School Safe Room	51	Existing	Loudon County Schools System	HMGP, BRIC	1-5 years
	14	North Middle School Safe Room	51	Existing	Loudon County Schools System	HMGP, BRIC	1-5 years

	15	New Providence Baptist Church Safe Room	51	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	16	Tellico Village Community Church Safe Room	51	Existing	Tellico Village Fire Department	HMGP, BRIC	1-5 years
	17	Piney Ruritan Center Safe Room	51	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	18	Fort Loudon Middle School Safe Room	51	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	19	Loudon Elementary School Safe Room	51	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	20	Generator: Loudon County Courthouse	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	21	Generator: Loudon County Courthouse Annex	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	22	Generator: New Providence Baptist Church	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	23	Generator: Tellico Village Community Church	12	Existing	Tellico Village Fire Department	HMGP, BRIC	1-5 years
	24	Generator: Piney Ruritan Center	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	25	Generator: Fort Loudon Middle School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	26	Generator: Loudon Elementary School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	27	Generator: Loudon High School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	28	Generator: Steekee Elementary School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
Winter Weather	29	Generator Blairland Baptist Church	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	1	Public Education	43	Existing	Loudon County School System	HMGP, local budget	1-5 years
	20	Generator: Loudon County Courthouse	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	21	Generator: Loudon County Courthouse Annex	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	22	Generator: New Providence Baptist Church	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	23	Generator: Tellico Village Community Church	12	Existing	Tellico Village Fire Department	HMGP, BRIC	1-5 years
	24	Generator: Piney Ruritan Center	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years



	25	Generator: Fort Loudon Middle School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	26	Generator: Loudon Elementary School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	27	Generator: Loudon High School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	28	Generator: Steekee Elementary School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	29	Generator Blairland Baptist Church	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
Wildfires	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years
	20	Generator: Loudon County Courthouse	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	21	Generator: Loudon County Courthouse Annex	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	22	Generator: New Providence Baptist Church	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	23	Generator: Tellico Village Community Church	12	Existing	Tellico Village Fire Department	HMGP, BRIC	1-5 years
	24	Generator: Piney Ruritan Center	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	25	Generator: Fort Loudon Middle School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	26	Generator: Loudon Elementary School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	27	Generator: Loudon High School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	28	Generator: Steekee Elementary School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	29	Generator Blairland Baptist Church	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
Drought	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years

Hazard Mitigated	Project #	Lenoir City Action/Project Name	Priority Rank	Addresses New or Existing Buildings/Infra?	Responsible Agency	Possible Funding Source(s)	Timeframe
Flooding	1	Public Education	43	Existing	Loudon County HS/EM	FMA, HMGP, local budget	1-5 years
	30	Lenoir City Industrial Park - flood diversion due to dam water release	44	Existing	Loudon County HS/EM	FMA, HMGP, BRIC	1-5 years
	31	Town Creek - flood diversion	44	Existing	Loudon County Highway Department	FMA, HMGP, BRIC	1-5 years
	32	Old Highway 95/Harrison Ave. - flood diversion	44	Existing	Lenoir City Street Department	FMA, HMGP, BRIC	1-5 years
	33	Broadway/Grand St.- flood diversion	44	Existing	Lenoir City Street Department	FMA, HMGP, BRIC	1-5 years
Tornado/Wind	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years
	34	Central United Methodist Safe Room	5	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	35	First Baptist Church Safe Room	5	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	36	Eaton Elementary School Safe Room	5	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	37	Lenoir City Middle School Safe Room	5	Existing	Lenoir City School System	HMGP, BRIC	1-5 years
	38	Lenoir City High School Safe Room	5	Existing	Lenoir City School System	HMGP, BRIC	1-5 years
	40	Highland Park Elementary School Safe Room	5	Existing	Lenoir City School System	HMGP, BRIC	1-5 years
	41	Lenoir City Elementary School Safe Room	5	Existing	Lenoir City School System	HMGP, BRIC	1-5 years
	42	Generator: Lenoir City Fire Department Station 1	12	Existing	Lenoir City Fire Department	HMGP, BRIC	1-5 years
	43	Generator: Lenoir City Fire Department Station 2	12	Existing	Lenoir City Fire Department	HMGP, BRIC	1-5 years
	44	Generator: City of Lenoir City Municipal Building	12	Existing	Lenoir City Fire Department	HMGP, BRIC	1-5 years
	45	Generator: Eaton Elementary School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	46	Generator: Highland Park Elementary School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years



	47	Generator: North Middle School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	48	Generator: Lenoir City Elementary School	12	Existing	Lenoir City School System	HMGP, BRIC	1-5 years
	49	Generator: Lenoir City Middle School	12	Existing	Lenoir City School System	HMGP, BRIC	1-5 years
	50	Generator: Lenoir City High School	12	Existing	Lenoir City School System	HMGP, BRIC	1-5 years
	51	Generator: War Memorial Building	12	Existing	City Of Lenoir City Mayor's Office	HMGP, BRIC	1-5 years
	66	Generator: EMS Building	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
Winter Weather	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years
	42	Generator: Lenoir City Fire Department Station 1	12	Existing	Lenoir City Fire Department	HMGP, BRIC	1-5 years
	43	Generator: Lenoir City Fire Department Station 2	12	Existing	Lenoir City Fire Department	HMGP, BRIC	1-5 years
	44	Generator: City of Lenoir City Municipal Building	12	Existing	Lenoir City Police Department	HMGP, BRIC	1-5 years
	45	Generator: Eaton Elementary School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	46	Generator: Highland Park Elementary School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	47	Generator: North Middle School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	48	Generator: Lenoir City Elementary School	12	Existing	Lenoir City School System	HMGP, BRIC	1-5 years
	49	Generator: Lenoir City Middle School	12	Existing	Lenoir City School System	HMGP, BRIC	1-5 years
	50	Generator: Lenoir City High School	12	Existing	Lenoir City School System	HMGP, BRIC	1-5 years
	51	Generator: War Memorial Building	12	Existing	Lenoir City Police Department	HMGP, BRIC	1-5 years
	66	Generator: EMS Building	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
Wildfires	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years
	42	Generator: Lenoir City Fire Department Station 1	12	Existing	Lenoir City Fire Department	HMGP, BRIC	1-5 years
	43	Generator: Lenoir City Fire Department Station 2	12	Existing	Lenoir City Fire Department	HMGP, BRIC	1-5 years



	44	Generator: City of Lenoir City Municipal Building	12	Existing	Lenoir City Police Department	HMGP, BRIC	1-5 years
	45	Generator: Eaton Elementary School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	46	Generator: Highland Park Elementary School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	47	Generator: North Middle School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	48	Generator: Lenoir City Elementary School	12	Existing	Lenoir City School System	HMGP, BRIC	1-5 years
	49	Generator: Lenoir City Middle School	12	Existing	Lenoir City School System	HMGP, BRIC	1-5 years
	50	Generator: Lenoir City High School	12	Existing	Lenoir City School System	HMGP, BRIC	1-5 years
	51	Generator: War Memorial Building	12	Existing	Lenoir City Police Department	HMGP, BRIC	1-5 years
	66	Generator: EMS Building	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
<b>Drought</b>	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years

Hazard Mitigated	Project #	City of Loudon Action/Project Name	Priority Rank	Addresses New or Existing Buildings/Infra?	Responsible Agency	Possible Funding Source(s)	Timeframe
Flooding	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years
Tornado/Wind	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years
	52	Generator City of Loudon Fire Station 2	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
Winter Weather	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years
	52	Generator City of Loudon Fire Station 2	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
Wildfires	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years
	52	Generator City of Loudon Fire Station 2	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
Drought	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years

The committee is aware this does meet the two projects, per hazard, per jurisdiction requirement. However, the City of Loudon felt it important to focus on projects that were able to be completed based on timeframe and budget.

Hazard Mitigated	Project #	City of Greenback Action/Project Name	Priority Rank	Addresses New or Existing Buildings/Infra?	Responsible Agency	Possible Funding Source(s)	Timeframe
Flooding	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years
Tornado/Wind	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years
	53	Greenback Community Center Safe Room	51	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	54	Greenback Public School Safe Room	51	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	55	Generator: Greenback Fire Station 1	12	Existing	Greenback Fire Department	HMGP, BRIC	1-5 years
	56	Generator: Greenback Fire Station 2	12	Existing	Greenback Fire Department	HMGP, BRIC	1-5 years
	57	Generator: Greenback Fire Station 3	12	Existing	Greenback Fire Department	HMGP, BRIC	1-5 years
	58	Generator: Glendale Community Center	12	Existing	City of Greenback, Mayor	HMGP, BRIC	1-5 years
	59	Generator: Greenback Community Center	12	Existing	City of Greenback, Mayor	HMGP, BRIC	1-5 years
	60	Generator: Greenback Public School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
Winter Weather	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years
	55	Generator: Greenback Fire Station 1	12	Existing	Greenback Fire Department	HMGP, BRIC	1-5 years
	56	Generator: Greenback Fire Station 2	12	Existing	Greenback Fire Department	HMGP, BRIC	1-5 years
	57	Generator: Greenback Fire Station 3	12	Existing	Greenback Fire Department	HMGP, BRIC	1-5 years
	58	Generator: Glendale Community Center	12	Existing	City of Greenback, Mayor	HMGP, BRIC	1-5 years
	59	Generator: Greenback Community Center	12	Existing	City of Greenback, Mayor	HMGP, BRIC	1-5 years
	60	Generator: Greenback Public School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
Wildfires	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years

	55	Generator: Greenback Fire Station 1	12	Existing	Greenback Fire Department	HMGP, BRIC	1-5 years
	56	Generator: Greenback Fire Station 2	12	Existing	Greenback Fire Department	HMGP, BRIC	1-5 years
	57	Generator: Greenback Fire Station 2	12	Existing	Greenback Fire Department	HMGP, BRIC	1-5 years
	58	Generator: Glendale Community Center	12	Existing	City of Greenback, Mayor	HMGP, BRIC	1-5 years
	59	Generator: Greenback Community Center	12	Existing	City of Greenback, Mayor	HMGP, BRIC	1-5 years
	60	Generator: Greenback Public School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
<b>Drought</b>	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years

The committee is aware this does meet the two projects, per hazard, per jurisdiction requirement. However, the Greenback felt it important to focus on projects that were able to be completed based on timeframe and budget.



Hazard Mitigated	Project #	Town of Philadelphia Action/Project Name	Priority Rank	Addresses New or Existing Buildings/Infra?	Responsible Agency	Possible Funding Source(s)	Timeframe
Flooding	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years
Tornado/Wind	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years
	61	Safe Room First Baptist Church	51	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	62	Philadelphia Elementary School Safe Room	51	Existing	Loudon County School System	HMGP, BRIC	1-5 years
	63	Generator: Luttrell Community Center/Fire Department	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	64	Generator: First Baptist Church	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	65	Generator: Philadelphia Elementary School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
Winter Weather	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years
	63	Generator: Luttrell Community Center/Fire Department	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	64	Generator: First Baptist Church	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	65	Generator: Philadelphia Elementary School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
Wildfires	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years
	63	Generator: Luttrell Community Center/Fire Department	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	64	Generator: First Baptist Church	12	Existing	Loudon County HS/EM	HMGP, BRIC	1-5 years
	65	Generator: Philadelphia Elementary School	12	Existing	Loudon County School System	HMGP, BRIC	1-5 years
Drought	1	Public Education	43	Existing	Loudon County HS/EM	HMGP, local budget	1-5 years

The committee is aware this does meet the two projects, per hazard, per jurisdiction requirement. However, Philadelphia felt it important to focus on projects that were able to be completed based on timeframe and budget.



## 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 to 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 transfer 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.

At the time of the meetings and the writing of this plan, there was no established procedure for communities to obtain updated NFIP data. The data used in this plan is from 2019 data released to the Tennessee Emergency Management Agency.

Currently, Loudon County unincorporated, City of Greenback, City of Lenoir City, City of Loudon, and Town of Philadelphia are NFIP participants. FEMA has listed these jurisdictions to have a current effective map date as of May 16, 2007. Below gives an overview of NFIP policy and loss data for Loudon 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 six residential repetitive loss properties are located in Loudon County.

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 (Number)	County	Direct Premium and FPF	WYO Premium and FPF	Total Premium and FPF	Direct Policy Count	WYO Policy Count	Total Policy Count	Direct Coverage (in Thousands)	WYO Coverage (in Thousands)	Total Coverage (in Thousands)	Direct Losses	WYO Losses	Total Losses	Direct Dollars Paid	WYO Dollars Paid	Total Dollars Paid	Adjusted Expense
GREENBACK, CITY OF (470303)	LOUDON COUNTY	\$ -	\$ 401	\$ 401	-	1	1	\$ -	\$ 350	\$ 350	-	-		\$ -	\$ -	\$ -	\$ -
LENOIR CITY, CITY OF (475438)	LOUDON COUNTY	\$ 2,365	\$ 3,552	\$ 5,917	1	4	5	\$ 145	\$ 500	\$ 645	1	4	5	\$ 35,688	\$ 31,439	\$ 67,127	\$ 4,550
LOUDON, CITY OF (470110)	LOUDON COUNTY	\$ 986	\$ 302	\$ 1,288	2	1	3	\$ 350	\$ 250	\$ 600	1	-	1	\$ -	\$ -	\$ -	\$ 129
LOUDON COUNTY* (470107)	LOUDON COUNTY	\$ 4,873	\$ 55,473	\$ 60,346	9	92	101	\$ 2,867	\$ 29,525	\$ 32,392	2	33	35	\$ 13,946	\$ 416,873	\$ 430,819	\$ 24,488
PHILADELPHIA, CITY OF (470276)	LOUDON COUNTY	\$ -	\$ 4,747	\$ 4,747	-	5	5	\$ -	\$ 364	\$ 364	-	2	2	\$ -	\$ 4,132	\$ 4,132	\$ 575

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

Monitoring activities will involve Loudon County Emergency Management setting up a committee meeting to be held on an annual basis. Loudon 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, Loudon County Emergency Management will notify the jurisdictional governments and the Loudon 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 Loudon 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 Loudon County Emergency Management.

Five months prior to the plan's expiration date, Loudon 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 Loudon 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 Loudon 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, 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 Loudon County Multi-Jurisdictional Hazard Mitigation Plan could be incorporated into include:

- Loudon County Emergency Operations Plan
- Building Codes
- Floodplain management
- Strategic Planning
- Economic Development

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

LOUDON County HAZARD Mitigation Mtg. 6/28/2022

NAME	JOB TITLE	AGENCY NAME
MICHELLE KLEIN	REGIONAL PLANNER	TEMA
Kelli Brannan	Loudon Co EMA Director	
Tom's Estes	Director	Priority Ambulance
BOB CRANE	TEMA - DISTRICT COORDINATOR	TEMA
GREG BUCKNER	LENOIR City Codes	LENOIR City
Roscel Brannan	LENOIR City Codes	LENOIR City
Matt Auff	Loudon Co EMA Agent	Loudon Co Fire/Rescue
Brittany Langley	EMA Asst.	LOUDON
Greg Decker	TVFD CHIEF	
Josh Barry	Safety Coordinator	FLEC
Rose White	Assistant Director	911
James Jenkins	Loudon County Codes Director	Loudon County
Mike Brubaker	Loudon Co Fire/Police	LFP/CPD
JONATHAN CARRIER	SE REGIONAL PLANNER	TEMA

Jim Jenkins is FEMA Flood Admin. for Loudon County - City of Philadelphia And Greenback. Also Building codes and Planning

Matt Auff - Greenback Fire, Philadelphia Fire, Priority EMS, Loudon EMA, Loudon Dive Team, Loudon Co Fire Rescue, City of Loudon FD

## Appendix 2

### Public Notices

#### AFFIDAVIT OF PUBLICATION

STATE OF TENNESSEE  
COUNTY OF

ACCOUNT NAME:  
LOUDON COUNTY EMERGENCY  
MANAGEMENT

LOUDON COUNTY EMERGENCY  
MANAGEMENT  
PO Box 918  
London, TN 37774

ACCT. NUMBER:  
STLCFM

COST OF PUBLICATION:  
\$53.00

Before the undersigned, a Notary Public of said County and State, duly commissioned, qualified, and authorized by law to administer oaths, personally appeared Wendy Bretz who being first duly sworn, deposes and says: that he (she) is Multimedia Mkt. Executive (Publisher or other officer or employee authorized to make affidavit) of ADAMS PUBLISHING GROUP, LLC, engaged in the publication of a newspaper known as News Herald, published, issued, and entered as periodicals class mail in the city of in said County and State of Tennessee, that he (she) is authorized to make this affidavit and sworn statement; that the notice or other legal advertisement, a true copy of which is attached hereto, was published in News Herald on the following dates:

06/15/22

#### Loudon County Emergency Management PUBLIC NOTICE

Loudon County Emergency Management Agency will host a Hazard Mitigation Planning Meeting on June 28, 2022, at 9:30 AM at the Emergency Operations Center located at 500 John Parisis Drive, Loudon, TN. This meeting will assist Loudon County EMA in developing a FEMA approved Hazard Mitigation Plan. For further information please contact the E/M office at 865-458-7298.

**NEWS-HERALD**

P.O. BOX 310, LENOIR CITY, TN 37771  
865-906-6581

Subscribed and sworn to before me on this 15th day of June, 2022

Newspaper Representative: Wendy Bretz

Notary Public: Carrie A. Fox

My Commission Expires: 08-13-2025

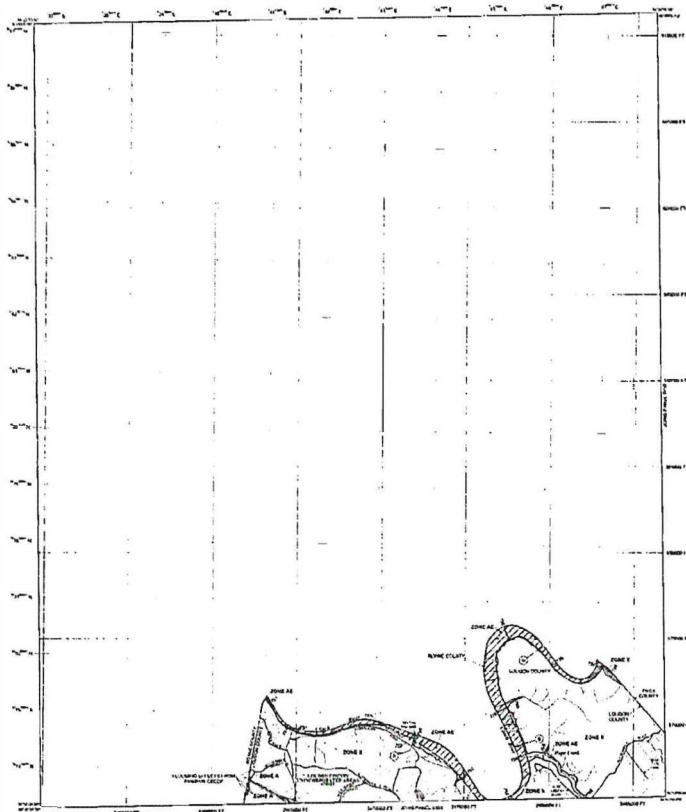


Thereafter said publication notice has been posted: (1) On the newspaper's website, where it shall be published contemporaneously with the notice's first print publication and will remain in website for at least as long as the notice appears in the newspaper; or (2) On a website where the notice has been maintained as an initiative and service of the Tennessee Press Association as a necessary to such notices.

### *Firm Panels*





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**WINDOWN PROPOSITIONS**

**FIRM**  
**FLOOD INSURANCE RATE MAP**  
**LOUDON COUNTY,**  
**TENNESSEE**  
**AND UNINCORPORATED AREAS**

**PANEL 12 OF 20**  
2001 FIRM FLOOD INSURANCE RATE MAP, 1/2/99

**GENERAL**  
SPECIAL FLOOD HAZARD  
INSURANCE

**NUMBER: 1700, PANEL: 12 OF 20**

**DATE: 1-9-99**

**MADE MEMBER**  
**OF THE**  
**EFFECTIVE DATE**  
**MAY 15, 2007**

**Federal Emergency Management Agency**









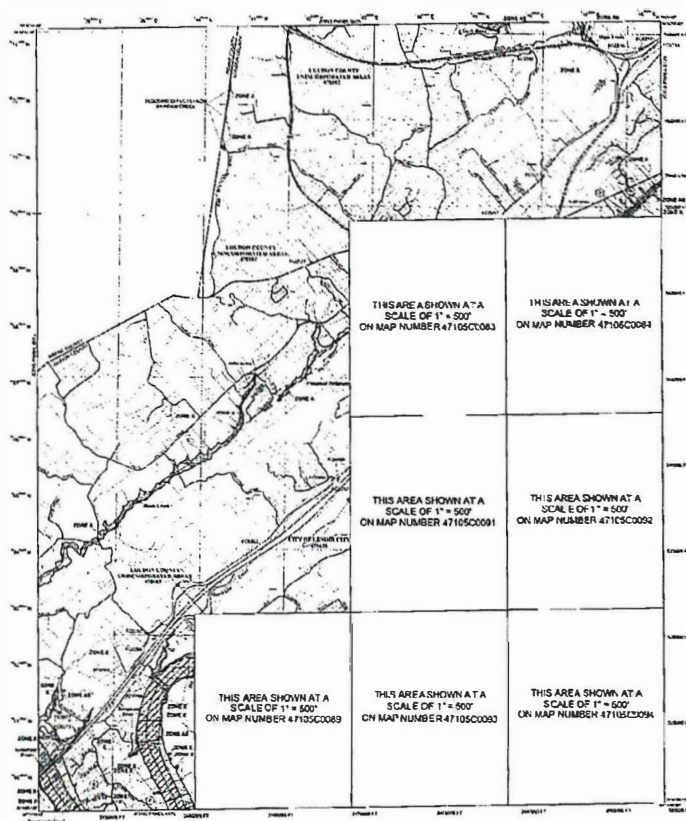










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1. *Journal of Management Studies*, 1996, 33, 1, 1-15.











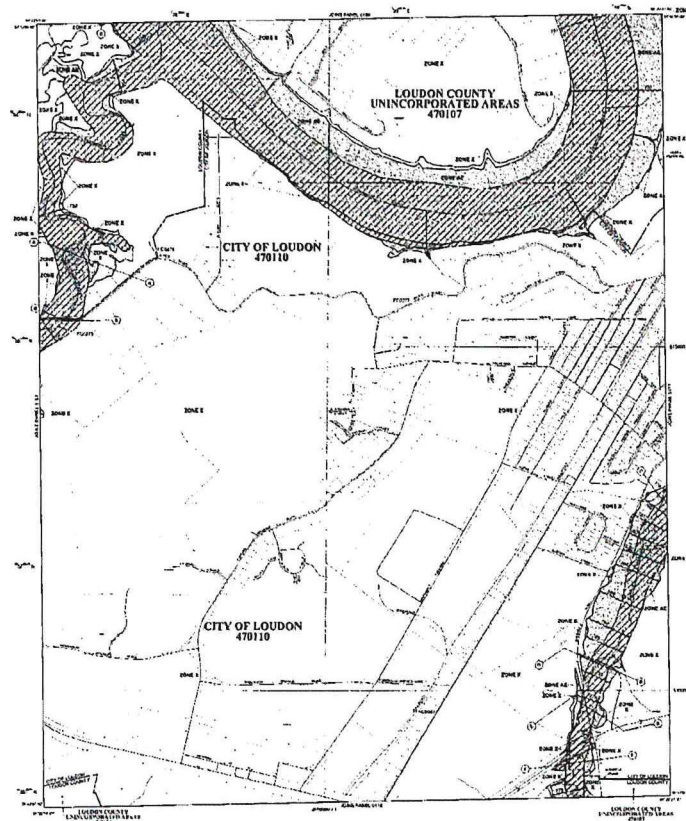




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 FLOOD INSURANCE RATE MAP  
 LOUDON COUNTY,  
 TENNESSEE  
 AND INCORPORATED AREAS  
 PANEL 103 OF 101  
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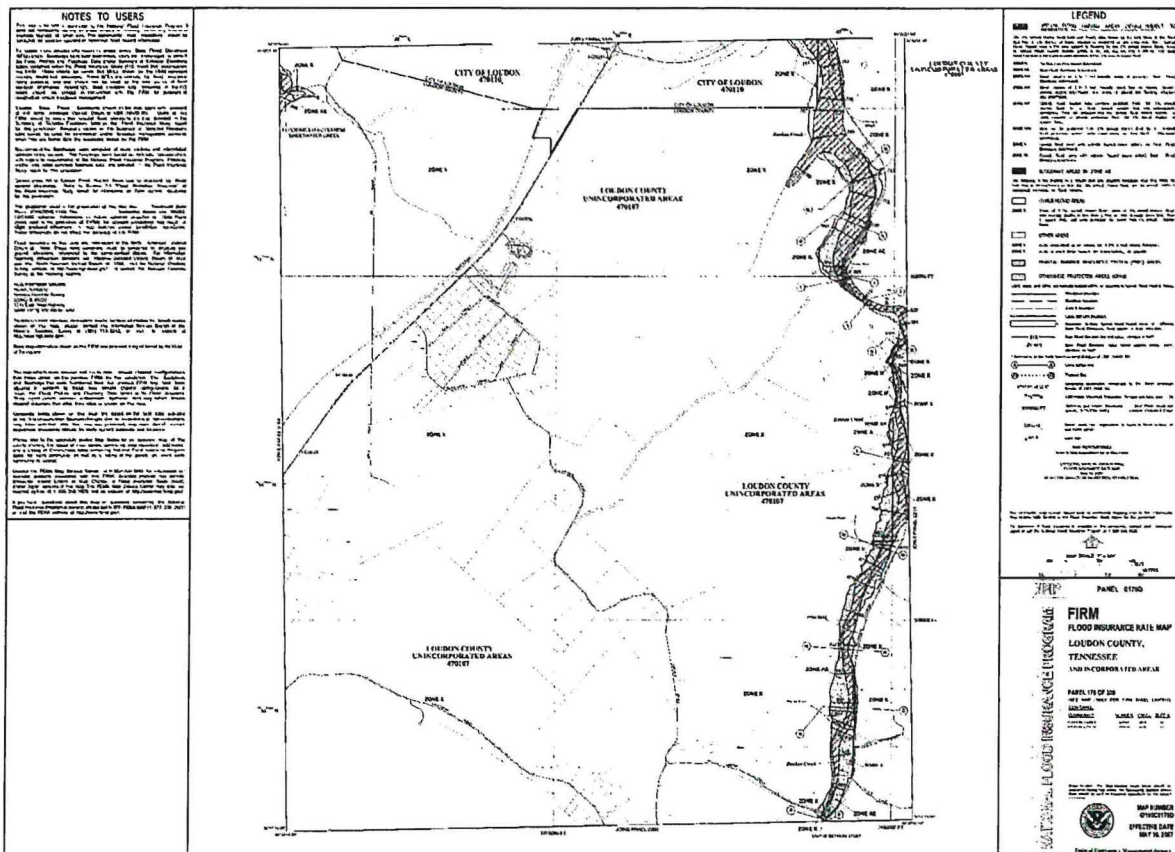


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4	4. AUTHORITY 25 USC 552
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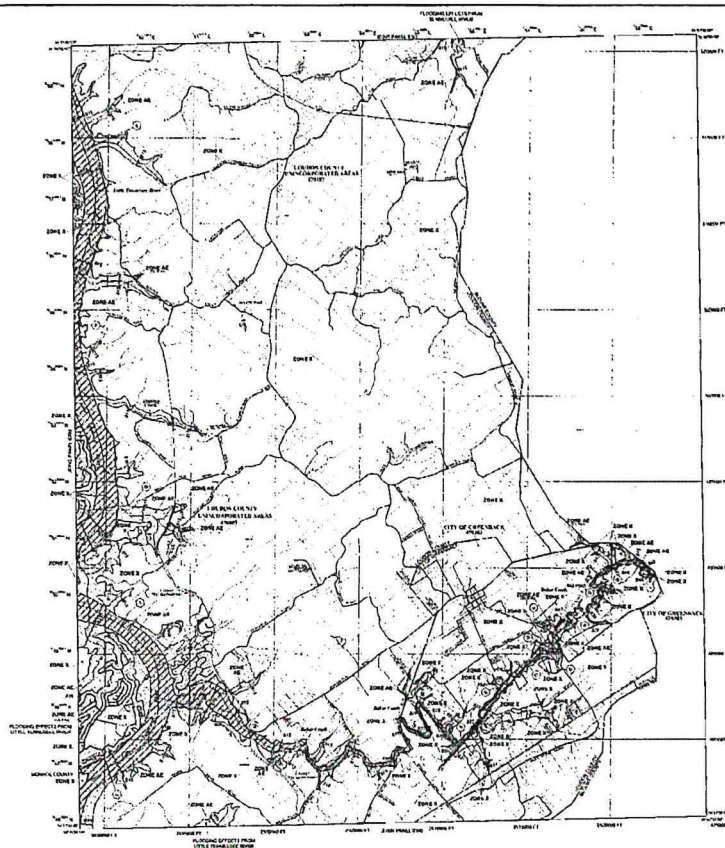


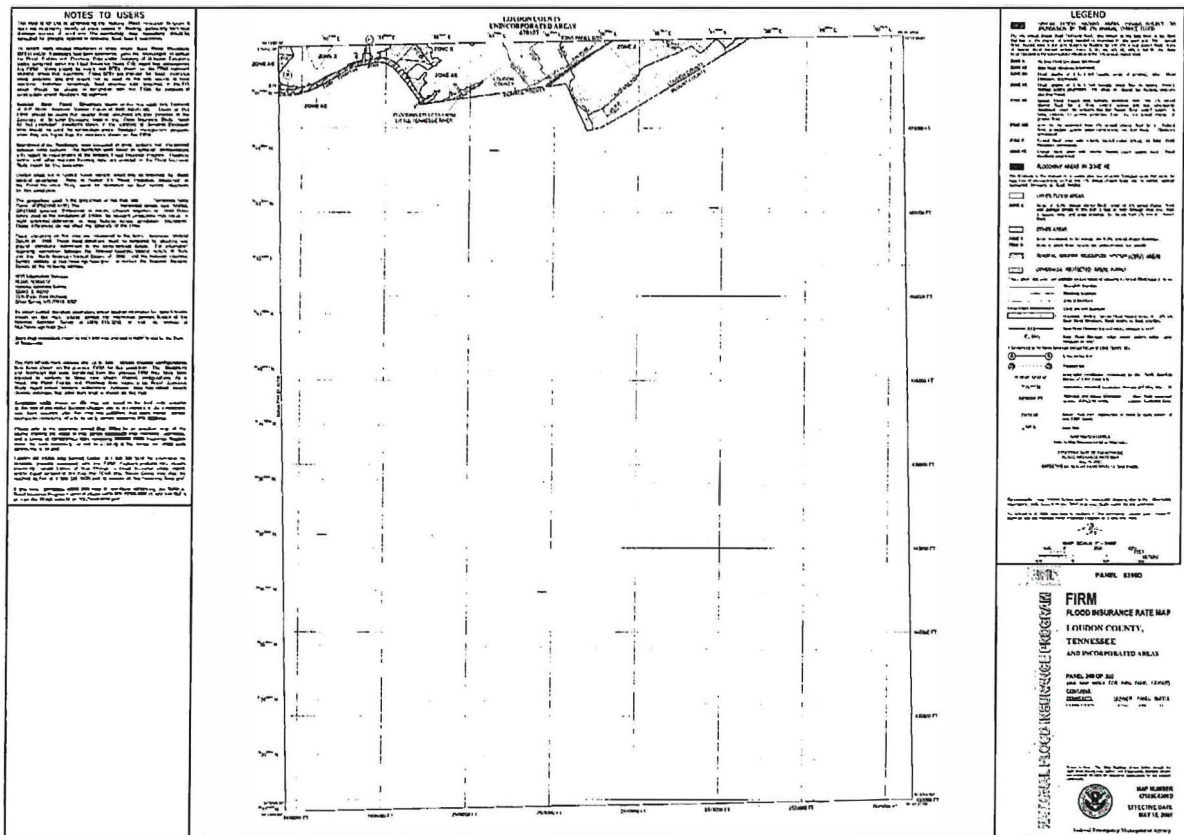






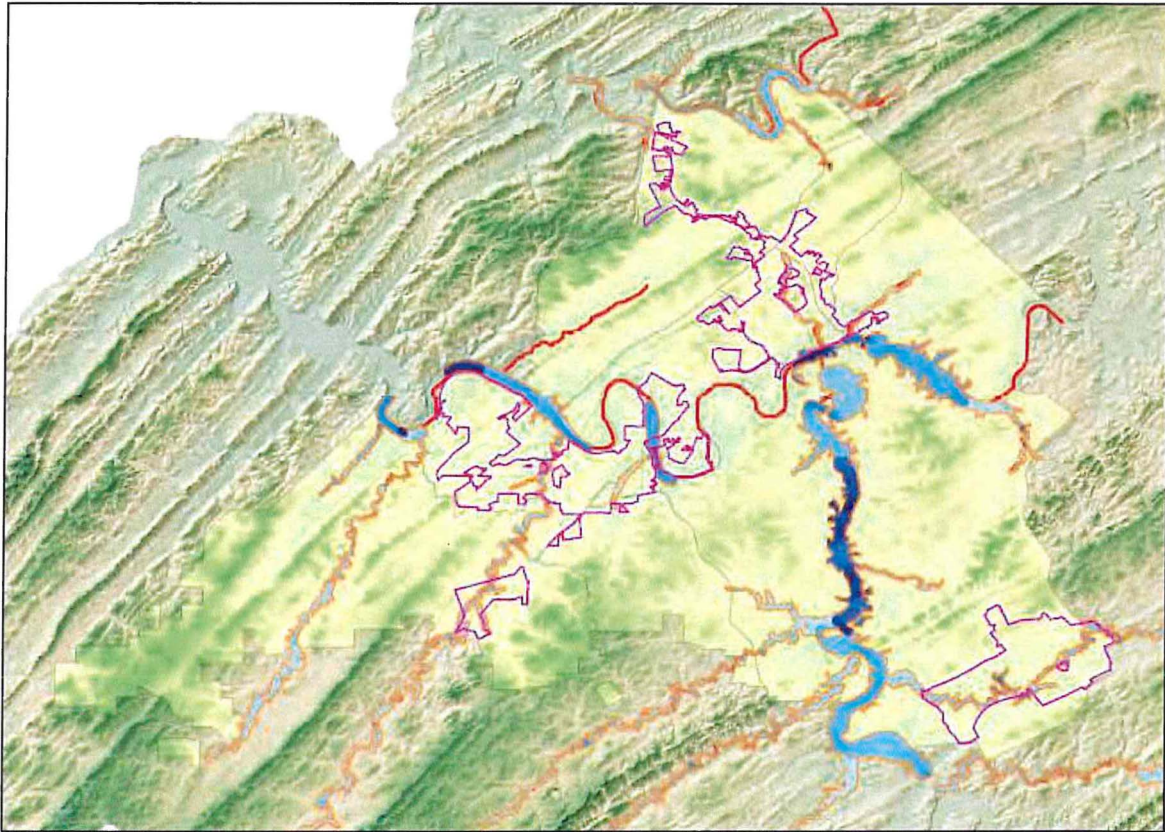


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**APPENDIX 4: HAZUS**  
***Flood Insurance Rate Maps for Loudon County***

Loudon County 100 year flood map





# Hazus: Flood Global Risk Report

**Region Name:** Loudon\_County

**Flood Scenario:** Loudon\_County\_100yr\_flood

**Print Date:** Tuesday, May 17, 2022

***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 Building Stock	4
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Appendix A: County Listing for the Region	15
Appendix B: Regional Population and Building Value Data	16



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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 247 square miles and contains 3,223 census blocks. The region contains over 20 thousand households and has a total population of 48,556 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 22,471 buildings in the region with a total building replacement value (excluding contents) of 5,000 million dollars. Approximately 91.70% of the buildings (and 75.96% of the building value) are associated with residential housing.



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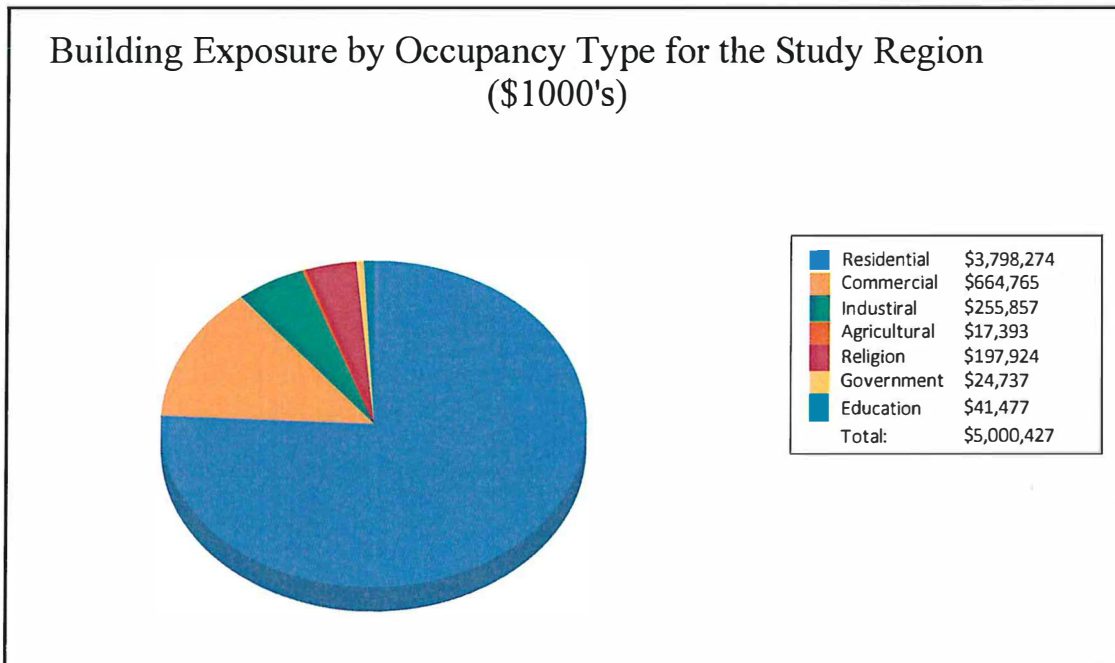
## Building Inventory

### General Building Stock

Hazus estimates that there are 22,471 buildings in the region which have an aggregate total replacement value of 5,000 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	3,798,274	76.0%
Commercial	664,765	13.3%
Industrial	255,857	5.1%
Agricultural	17,393	0.3%
Religion	197,924	4.0%
Government	24,737	0.5%
Education	41,477	0.8%
<b>Total</b>	<b>5,000,427</b>	<b>100%</b>

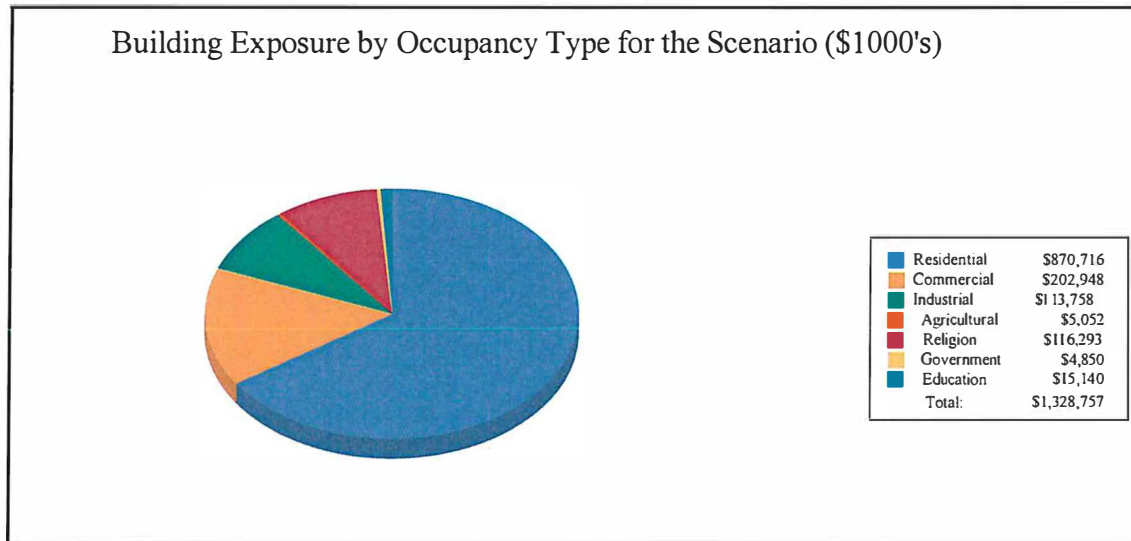


**FEMA**



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

Occupancy	Exposure (\$1000)	Percent of Total
Residential	870,716	65.5%
Commercial	202,948	15.3%
Industrial	113,758	8.6%
Agricultural	5,052	0.4%
Religion	116,293	8.8%
Government	4,850	0.4%
Education	15,140	1.1%
<b>Total</b>	<b>1,328,757</b>	<b>100%</b>



### Essential Facility Inventory

For essential facilities, there are 1 hospitals in the region with a total bed capacity of 50 beds. There are 15 schools, 13 fire stations, 3 police stations and 1 emergency operation center.



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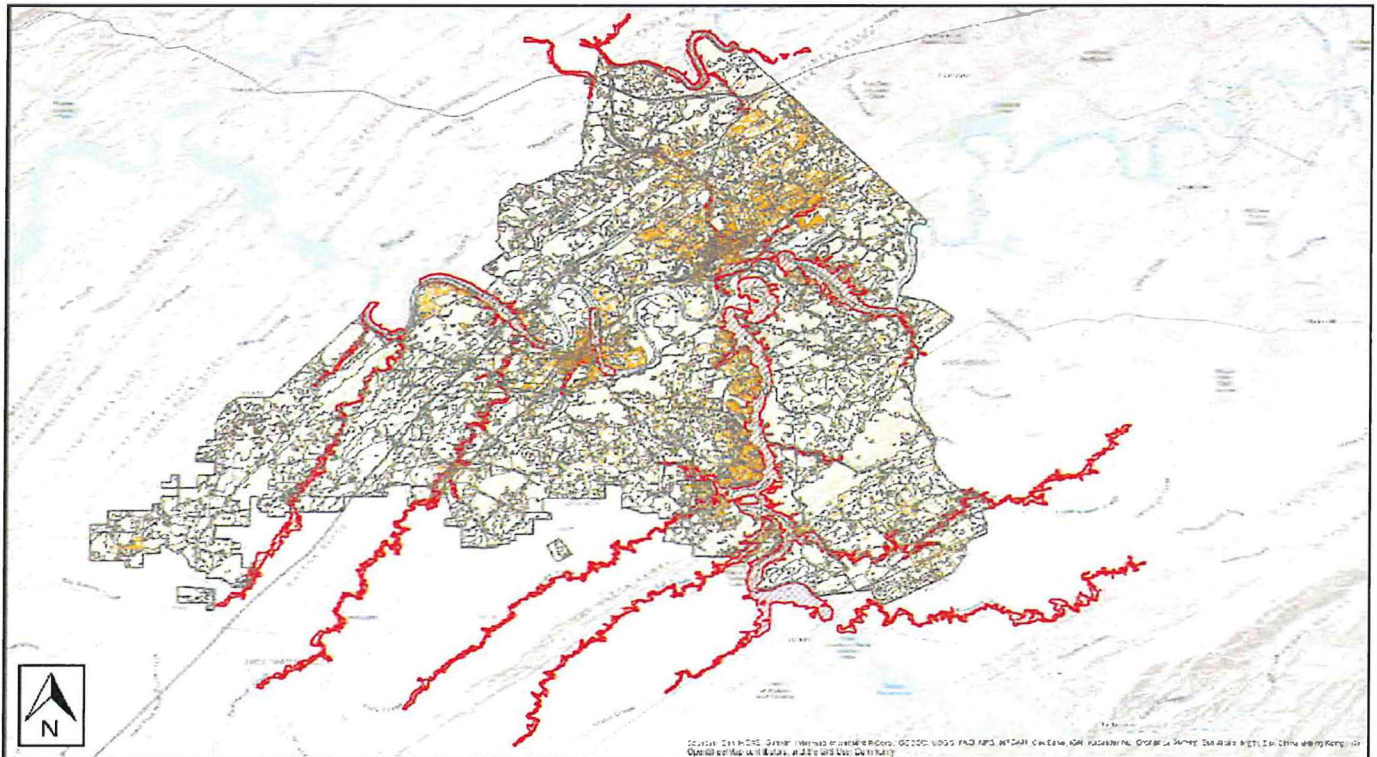
## Flood Scenario Parameters

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

<b>Study Region Name:</b>	Loudon_County
<b>Scenario Name:</b>	Loudon_County_100yr_flood 100
<b>Return Period Analyzed:</b>	No What-ifs
<b>Analysis Options Analyzed:</b>	

### Study Region Overview Map

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



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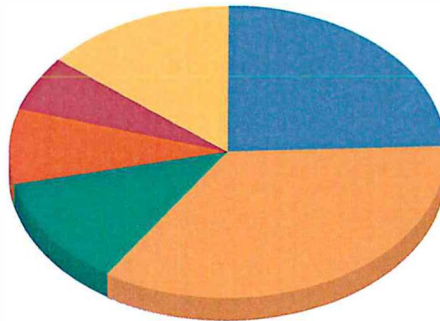




**Table 3: Expected Building Damage by Occupancy**

1-10			11-20		21-30		31-40		41-50		>50	
Occupancy	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	0	0	0	0	0	0	0	0	0	0	0	0
Commercial	1	100	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0	0	0	0	0
Residential	11	23	17	35	6	13	4	8	3	6	7	15
<b>Total</b>	<b>12</b>		<b>17</b>		<b>6</b>		<b>4</b>		<b>3</b>		<b>7</b>	

**Counts By Damage Level**



Damage Level 1-10	12
Damage Level 11-20	17
Damage Level 21-30	6
Damage Level 31-40	4
Damage Level 41-50	3
Damage Level >50	7
<b>Total:</b>	<b>49</b>



**FEMA**



**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	0	0
ManufHousing	0	0	0	0	0	0	0	0	0	0	0	0
Masonry	1	100	0	0	0	0	0	0	0	0	0	0
Steel	0	0	0	0	0	0	0	0	0	0	0	0
Wood	10	21	17	36	6	13	4	9	3	6	7	15



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## Essential Facility Damage

Before the flood analyzed in this scenario, the region had 50 hospital beds available for use. On the day of the scenario flood event, the model estimates that 50 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	13	0	0	0
Hospitals	1	0	0	0
Police Stations	3	0	0	0
Schools	15	0	0	0

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

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



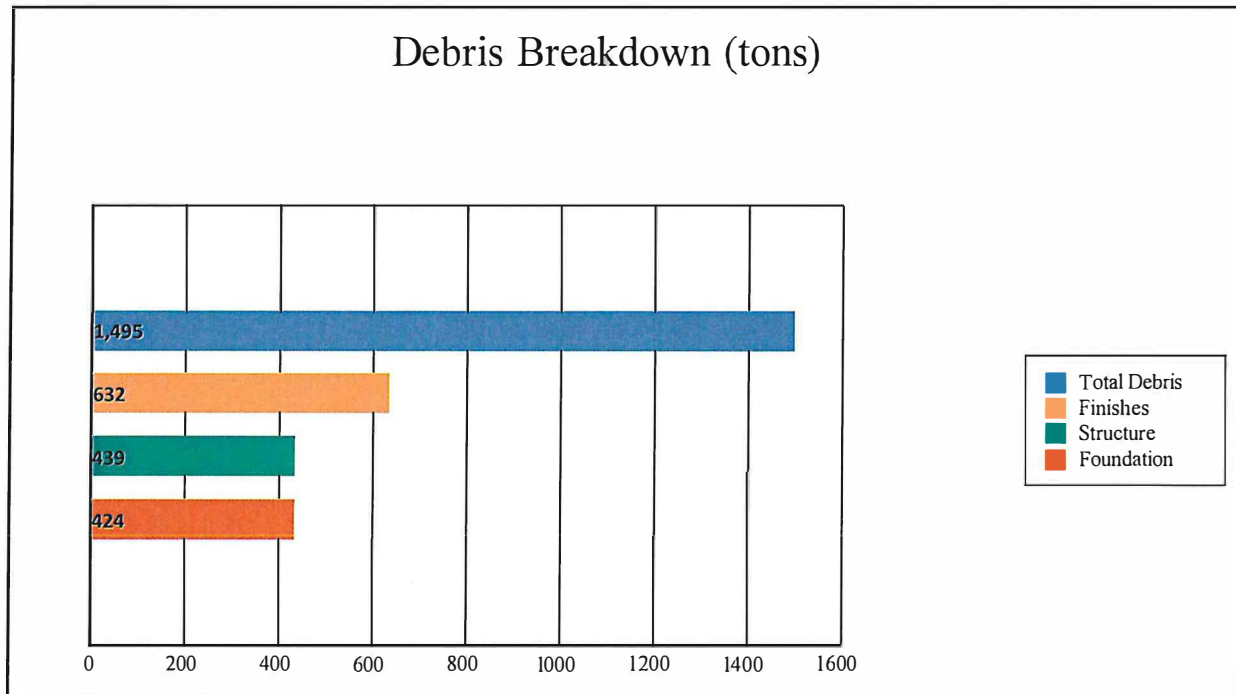
**FEMA**



## 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 1,495 tons of debris will be generated. Of the total amount, Finishes comprises 42% of the total, Structure comprises 29% of the total, and Foundation comprises 28%. If the debris tonnage is converted into an estimated number of truckloads, it will require 60 truckloads (@25 tons/truck) to remove the debris generated by the flood.



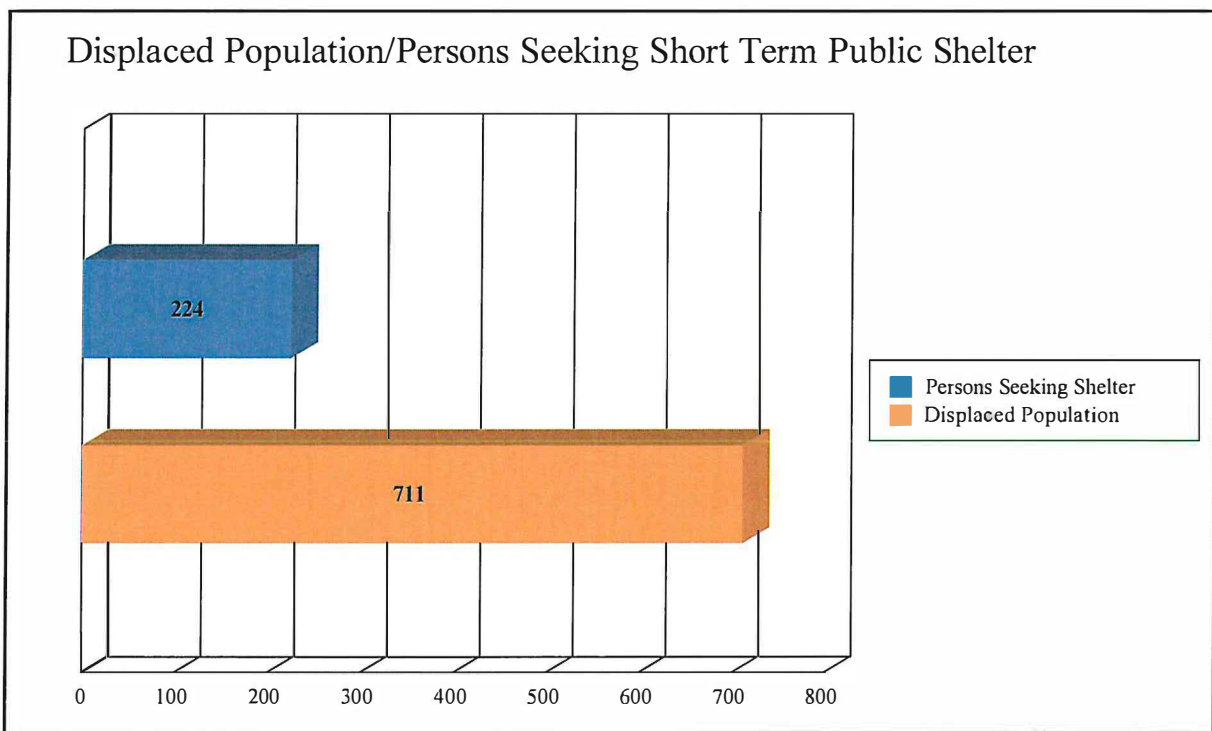
**FEMA**



## 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 237 households (or 711 of people) will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 224 people (out of a total population of 48,556) will seek temporary shelter in public shelters.



FEMA



## Economic Loss

The total economic loss estimated for the flood is 87.09 million dollars, which represents 6.55 % 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 48.95 million dollars. 44% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 31.96% of the total loss. Table 6 below provides a summary of the losses associated with the building damage.



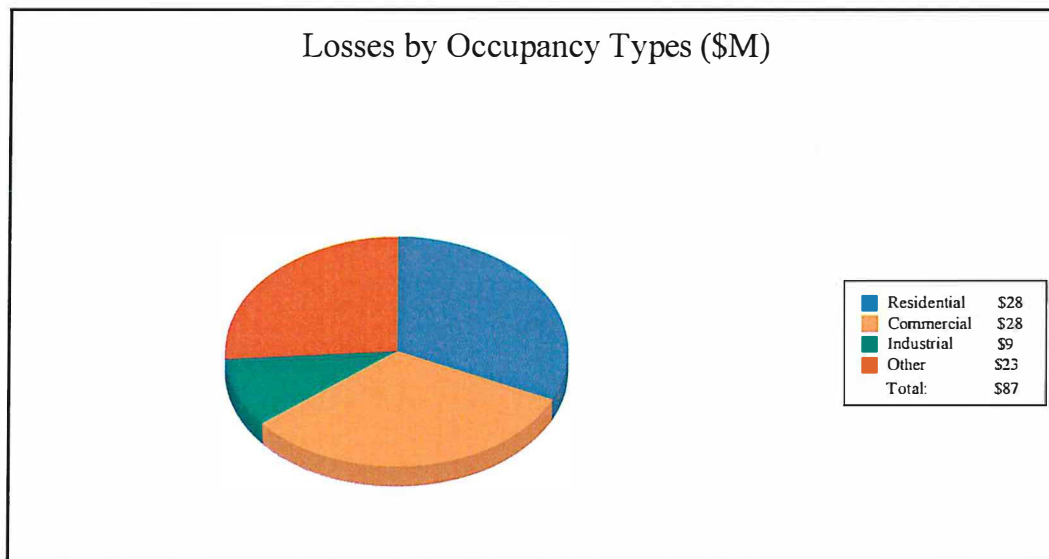
**FEMA**





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

Category	Area	Residential	Commercial	Industrial	Others	Total
<b>Building Loss</b>						
	Building	14.28	2.78	1.95	1.11	20.12
	Content	7.29	7.76	5.23	7.40	27.67
	Inventory	0.00	0.16	0.97	0.03	1.16
	<b>Subtotal</b>	<b>21.57</b>	<b>10.70</b>	<b>8.15</b>	<b>8.53</b>	<b>48.95</b>
<b>Business Interruption</b>						
	Income	0.27	7.77	0.10	2.36	10.49
	Relocation	4.04	1.30	0.10	1.16	6.60
	Rental Income	1.30	0.98	0.02	0.13	2.44
	Wage	0.65	7.29	0.15	10.53	18.62
	<b>Subtotal</b>	<b>6.26</b>	<b>17.35</b>	<b>0.37</b>	<b>14.17</b>	<b>38.15</b>
<b>ALL</b>	<b>Total</b>	<b>27.83</b>	<b>28.05</b>	<b>8.52</b>	<b>22.69</b>	<b>87.09</b>



**FEMA**

**RiskMAP**  
Increasing Resilience Together



## Appendix A: County Listing for the Region

Tennessee

- Loudon



**FEMA**

## Appendix B: Regional Population and Building Value Data

	Population	Building Value (thousands of dollars)		
		Residential	Non-Residential	Total
<b>Tennessee</b>				
Loudon	48,556	3,798,274	1,202,153	5,000,427
<b>Total</b>	<b>48,556</b>	<b>3,798,274</b>	<b>1,202,153</b>	<b>5,000,427</b>
<b>Total Study Region</b>	<b>48,556</b>	<b>3,798,274</b>	<b>1,202,153</b>	<b>5,000,427</b>



**FEMA**

**RiskMAP**  
Increasing Resilience Together

# *Loudon County Commission*

*Monday, November 21, 2022*

## ***Ice Machine at Annex***



**Sales Quote****Sales Quote Number: 455140**

Page: 1

**KaTom Restaurant Supply, Inc.**  
**305 Katom Dr.**  
**KODAK, TN 37764**

<b>Sales Quote Date:</b> 9/19/2022	<b>Due Date</b> 10/4/2022	<b>Ship Date</b> 9/19/2022
<b>Customer ID</b> 248089	<b>Contact</b> Lacey Orr	<b>SalesPerson</b> Tyler Whaley
<b>Cust. Phone</b> (865) 458-4663	<b>Cust. Fax</b> (865) 214-2684	<b>Quote Expires:</b>
ap@loudoncounty-tn.gov		

Sell  
To: Loudon County Schs & County Gov  
Lacey Orr  
100 River Road  
Box 109  
LOUDON, TN 37774  
USA

Ship  
To: Loudon County Schs & County Gov  
Lacey Orr  
100 River Road  
Box 109  
LOUDON, TN 37774  
USA

<b>Terms</b> NET 15/GOV	<b>Ext Doc No.</b>	<b>Your Reference</b>	<b>Ship Via</b>	<b>Loc Code</b> KODAK	<b>Loc Phone</b>	<b>Loc Fax</b>
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**Blueprint**

<b>No.</b>	<b>Number</b>	<b>Description</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Total Price</b>
	044-SCN60PA1SS	RES ICE MAKER UC NUGGET 65LB/60LB PUMP SS/SS OUT Free Shipping to Customer Must Ship LTL Quote Requested by Matt Quote Good For 5 Days Ships LTL Liftgate \$45 (optional)	1	EA	4,957.00	4,957.00

**Website:** katom.com **Phone:** (800) 541-8683 **Fax:** (800) 821-9130

This office will follow up with you within 24 hours to ensure you received this quotation. Quotation must be signed below to be official.

**Submitted by:** \_\_\_\_\_ **Accepted by:** \_\_\_\_\_

Subtotal: 4,957.00  
S, H, & I: 45.00

Total Sales Tax: 0.00

Total: 5,002.00

Federal and/or State tax laws may apply at the time of invoicing.

*Loudon County Commission*

*Monday, November 21, 2022*

**Handicap Front Door Push Button**

## Lock Medic LLC

PO Box 57  
Lenoir City, TN 37771  
8659860020  
ben@lockmedic.com | www.lockmedic.com



### RECIPIENT:

#### Loudon County Maintenance

1203 West Broadway Street  
Lenoir City, TN 37771

### Estimate #1525

Sent on 11/11/2022

**Total \$4,347.20**

### SERVICE ADDRESS:

1203 West Broadway Street  
Lenoir City, TN 37771

PRODUCT / SERVICE	DESCRIPTION	QTY.	UNIT PRICE	TOTAL
Service Call NT	Onsite service fee, includes up to 10 miles traveled (one-way) to jobsite	1	\$95.00	\$95.00*
Norton 5700 series low energy operator	5740-689 Same operator as used on courthouse annex front doors	1	\$4,145.00	\$4,145.00
Labor NT	Labor, per hour, non-taxable (performed on real property)	6	\$95.00	\$570.00*
Norton 502 square activating switch	hardwired, mounted to wall or glass mullion	2	\$237.00	\$474.00
misc	Wire, conduit, mounting hardware	1	\$150.00	\$150.00

\* Non-taxable

This quote is valid for the next 90 days, after which values may be subject to change.

<b>Subtotal</b>	\$5,434.00
Discount (20.0%)	- \$1,086.80
<b>Tax Exempt (gov/NP) (0.0%)</b>	\$0.00
<b>Total</b>	<b>\$4,347.20</b>

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



# *Loudon County Commission*

*Monday, November 21, 2022*

## **2023 Loudon County Commission Meeting Dates**



**LOUDON COUNTY COMMISSION**  
**2023 Loudon County Commission Meeting Dates**

<i>County Commission Meetings</i>	<i>Workshop Meetings</i>
January 3 <sup>rd</sup> (Tuesday)	January 17 <sup>th</sup> (Tuesday)
February 6 <sup>th</sup>	February 21 <sup>st</sup> (Tuesday)
March 6 <sup>th</sup>	March 20 <sup>th</sup>
April 3 <sup>rd</sup>	April 17 <sup>th</sup>
May 1 <sup>st</sup>	May 15 <sup>th</sup>
June 5 <sup>th</sup>	June 19 <sup>th</sup>
June 26 <sup>th</sup> (Budget Approval)	July 17 <sup>th</sup>
August 7 <sup>th</sup>	August 21 <sup>st</sup>
September 5 <sup>th</sup> (Tuesday)	September 18 <sup>th</sup>
October 2 <sup>nd</sup>	October 16 <sup>th</sup>
November 6 <sup>th</sup>	November 20 <sup>th</sup>
December 4 <sup>th</sup>	December 18 <sup>th</sup>
<b>**Commission Meetings are at 6PM at Annex**</b>	<b>**Workshops are at 6PM at Annex**</b>

**Workshop Meetings Schedule**

4:00 PM – 4:30 PM	Capitol Projects Committee	County Office Building
4:30 PM – 5:00 PM	Purchasing Committee	County Office Building
4:00 PM – 5:30 PM	Budget Committee	County Office Building
6:00 PM	Commission Workshop	Courthouse Annex

**\*\* Commission Meeting Agendas are posted at [www.loudoncounty-tn.gov](http://www.loudoncounty-tn.gov) prior to meeting \*\***

# *Loudon County Commission*

*Monday, November 21, 2022*

## **2023 Loudon County Government Holiday's**

## 2023 Loudon County Government Holidays

Day	Date	Holiday
Monday	January 2nd	New Year's Day
Monday	January 16 <sup>th</sup>	Martin Luther King Jr. Day
Monday	February 20 <sup>th</sup>	President's Day
Friday	April 7 <sup>th</sup>	Good Friday
Monday	May 29 <sup>th</sup>	Memorial Day
Tuesday	July 4 <sup>th</sup>	Independence Day
Monday	September 4 <sup>th</sup>	Labor Day
Friday	November 10 <sup>th</sup> **	Veteran's Day
Thursday	November 23 <sup>rd</sup>	Thanksgiving
Friday	November 24 <sup>th</sup>	Day after Thanksgiving
Monday	December 25 <sup>th</sup>	Christmas Day
Tuesday	December 26 <sup>th</sup>	Day After Christmas



# *Loudon County Commission*

*Monday, November 21, 2022*

## **National Guard Resolution**



**JEFFERSON COUNTY, TENNESSEE  
BOARD OF COMMISSIONERS**

**RESOLUTION 2022-47**

**A RESOLUTION REQUESTING THE GOVERNOR OF TENNESSEE  
AND STATE ATTORNEY GENERAL TAKE APPROPRIATE ACTION  
TO PROTECT THE MEDICAL FREEDOM OF THOSE SERVING IN  
THE TENNESSEE ARMY AND AIR NATIONAL GUARD AND  
TENNESSEE STATE GUARD**

County Commission Sponsors: Austin Brooks, Marcus Reed, Rob Blevins

**WHEREAS**, the Tennessee Army and Air National Guard provide a vital service to the citizens of Tennessee in times of emergency, and to the United States for national security; and

**WHEREAS**, the Biden Administration and the U.S. Secretary of Defense Llyod Austin issued an arbitrary order that Tennessee Army and Air National Guard service members be vaccinated against the Covid-19 virus as a condition of their service to the state and nation; and

**WHEREAS**, said vaccinations are making recruiting efforts difficult, compromising the readiness of the Tennessee Army and Air National Guard, and violate the medical freedom of our guardsmen.

**NOW, THEREFORE, BE IT RESOLVED** by the Board of Jefferson County, Tennessee Board of Commissioners meeting this 17<sup>th</sup> Day of October 2022, as follows:

**SECTION 1:** That the Governor of Tennessee is urged to act as follows to mitigate the arbitrary and unjustified action of the Biden administration to require Covid-19 vaccinations of Tennessee Guardsmen as a condition of service to our great state and our nation.

- a. reinstate the Tennessee Army and Air National Guard members full benefits who have refused the COVID-19 vaccine; and

- b. publicly condemn the firings and non-pay status of Tennessee Army and Air National Guard members; and
- c. request that the Tennessee Attorney General coordinate a lawsuit and file an emergency injunction with other states against the Department of Defense and the Biden Administration for the unjustified vaccine mandate published by the U. S. Secretary of Defense Llyod Austin on August 24th, 2021. (Reference Title 32)
- d. issue salary payments to the Tennessee Army and Air National Guard members who are on a no-pay status relative to State Active Duty (SAD) orders for refusing the COVID-19 vaccine; and
- e. request the Tennessee Adjutant General, Major General Jeffery Holmes, to halt any further firings of Tennessee Army and Air National Guard members who have refused the COVID-19 vaccine, including those with medical or religious exemptions; and
- f. file a Request for Information and/or subpoena the Tennessee Army and Air National Guard for any documentation related to vaccination results within the state regarding vaccine injuries, guard member retention, and readiness of the force over the past 6 years and make public any findings thereof; and
- g. terminate the COVID-19 vaccine mandate for the Tennessee State Guard, a volunteer state force that is not federally funded and cannot be federalized for any deployments.

**SECTION 2:** That a copy of this resolution be transmitted to each of the Representatives and State Senator that represent Jefferson County, Tennessee with the recommendation that appropriate action be taken by the Tennessee General Assembly in regular or special called session to facilitate the recommendations made in Section 1 of this resolution.

**SECTION 3:** That a copy of this resolution be transmitted by the Jefferson County Clerk to each of the other county clerks in the state of Tennessee through the Tennessee State Association of County Clerks with the recommendation that this resolution be considered for action by other county legislative bodies in the state of Tennessee to mitigate the harm caused by arbitrary and unjustified vaccine mandates made by the Biden Administration and the United States Secretary of Defense Llyod Austin on August 24th, 2021.

Resolution 2022-47

Votes: 20 1 0  
Yes No Abstain

Attest: Frank C Herndon Date: 10/18/22  
Frank C. Herndon, County Clerk

Approved: Mark Potts Date: 10/18/22  
Mark Potts, County Mayor

