# Multi-Jurisdictional Hazard Mitigation Plan 2026

For Carroll County and the Cities of Bowdon, Bremen, Carrollton, Mount Zion, Roopville, Temple, Villa Rica and Whitesburg


ABSTRACT

*Carroll County and its cities have assessed major hazards facing the area, including: Flooding, Tornadoes, Severe Thunderstorms, Tropical Cyclones, Winter Storms, Drought and Wildfires, Earthquakes, Pandemics, Extreme Temperatures, Technological (Hazardous Materials Incidents, Dam Failure, Terrorism) and All-Hazards. For each hazard, goals, objectives and action steps were developed to mitigate the effects of each hazard to life, property and the environment.*



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## Record of Changes

| Change # | Date | Part Affected | Date Posted | Who Posted |
|---|---|---|---|---|
| 1 | 2026 | Updated wording and content for each Chapter<br><br>I Introduction<br><br>II Community Profile and Capabilities Assessment<br><br>III Hazard Vulnerability Assessment (added hazards Extreme Temperatures and Terrorism, as well as National Risk Index)<br><br>IV Mitigation Strategies (added strategies for Extreme Temperatures and Terrorism)<br><br>V Executing the Plan<br><br>VI Acknowledgments<br><br>VII References<br><br>Appendix<br><br>A full description of changes can be found at the beginning of each chapter. | | |
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# Chapter I. Introduction

*Update for 2026: Reviewed 2023 Comprehensive Plan and the Hazard Risk Analysis from the Carl Vinson Institute, University of Georgia. Updated planning process and references. Updated participants list, flow chart, and public participation strategy, including a new survey. Reviewed and updated STAPLEE.*

*Update for 2021: Reviewed 2018 Comprehensive Plan and the Hazard Risk Analyses from the Carl Vinson Institute, University of Georgia. Updated participants list. Updated flow chart and public participation strategy. Reviewed and updated STAPLEE.*

*Update for 2016: More detailed explanation on hazard mitigation planning origins, as well as processes and terminology, such as FEMA categories and STAPLEE method. Clarified county's processes and added a flow chart. Discussed public participation strategy in further detail.*

## A. Purpose and Need of the Plan, Authority and Statement of the Problem

Hazard Mitigation Plans are essential tools in protecting the public's health, safety and welfare in a disaster. In mitigating the potential effects ahead of time, Carroll County is acting proactively to protect life, safety, property and the environment from natural and technological hazards. As disasters become increasingly expensive, it is vital that the county has the necessary regulations in place to safeguard its interests. How can Carroll County build more sustainably and with more resilience? What policies could be put in place to better protect residents or increase public awareness? This update will seek to answer those questions and further expand on the risks and vulnerabilities that Carroll County faces in terms of disasters, as well as the mitigation steps needed to abate those concerns.

Mitigation offers an opportunity to save both lives and money, making communities more sustainable and resilient. Several acts make up the federal law as it pertains to disaster prevention and emergency management. To support the expanded role of emergency management, Congress passed the **Disaster Mitigation Act of 2000**, amending the **Stafford Act**, which deals with the development of local Hazard Mitigation Plans. Its purpose is to establish a national program for pre-disaster mitigation, streamline administration of disaster relief, and control federal costs of disaster assistance with the ultimate goal of reducing the loss of life and property during a disaster.

To remain eligible for federal grant funds, each jurisdiction in the state must adopted a Hazard Mitigation Plan to be approved by its state agency and by FEMA.

Established by Congress in 1988 and since amended, the **Hazard Mitigation Grant Program (HMG)** provides funds to mitigate development after a disaster so that it is more resilient against natural hazards. Examples of this include: property acquisition and relocation projects and structural retrofitting to minimize damages from natural hazards. Both are examples of projects that Carroll County has received HMGP funds after past disasters. Other Hazard Mitigation programs include BRIC (Building Resilience Infrastructure and Community), Flood Mitigation Assistance (FAM), and the Safeguarding Tomorrow Revolving Loan Fund.

Funding for the **Pre-Disaster Mitigation Program (PDM)** is to assist state, local and tribal governments in implementing cost-effective hazard mitigation activities that complement a comprehensive mitigation program, such as providing planning grants to local jurisdictions to enable them to develop local hazard mitigation plans. To qualify, the jurisdiction must participate in the **National Flood**

**Insurance Program (NFIP)**, be in good standing with NFIP, and have a FEMA approved Hazard Mitigation Plan. Carroll County's participation in the NFIP is detailed in Chapter III. C. 1.

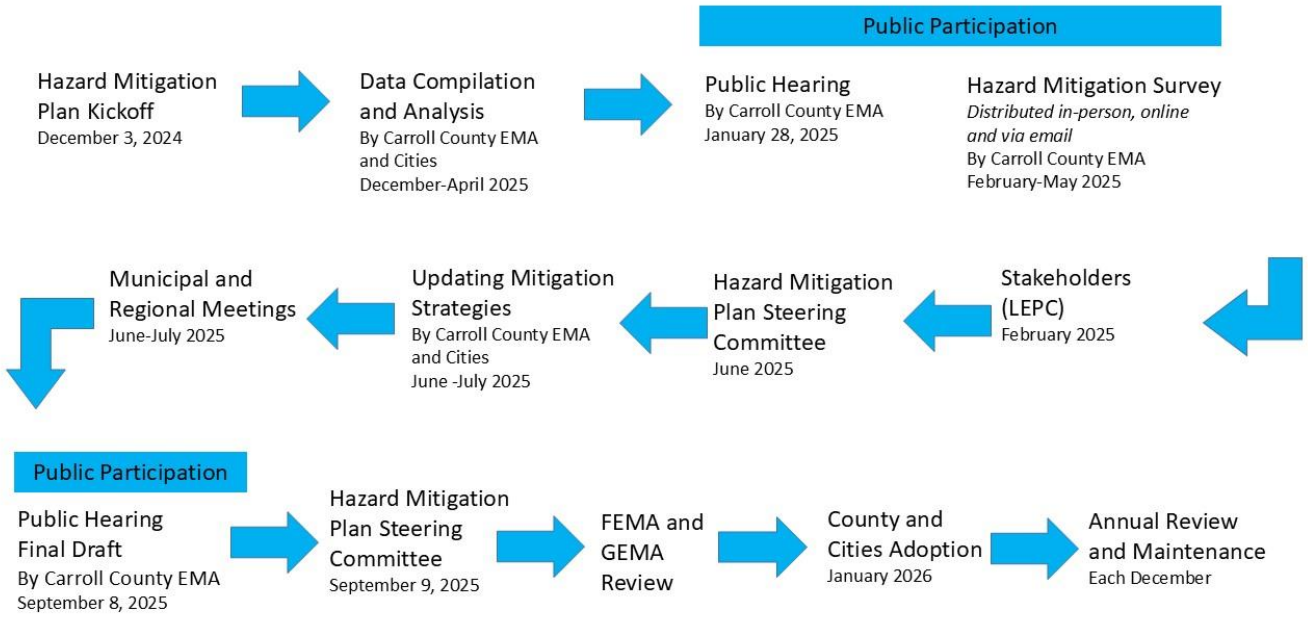
## B. Local Methodology, Brief Description of Plan Update Process and Participants in the Update Process

The county followed the process in the Local Mitigation Planning Handbook, which includes: 1) organizing resources and identifying stakeholders, 2) assessing risks and vulnerabilities to the community, 3) reviewing community capabilities and developing a mitigation strategy, and 4) creating a safe and resilient community by adopting, implementing, and monitoring the plan.

In preparing the Hazard Mitigation Plan, staff conducted a review of the county's 2023 Comprehensive Plan, the Local Emergency Operations Plan, the Hazard Risk Analyses Supplement to the Carroll County Joint Hazard Mitigation Plan provided by the University of Georgia's Carl Vinson Institute, and the county's environmental ordinances. Additionally, data for each of the hazard categories was analyzed and updated using the references included at the end of the document. In particular, the National Climate Data Center, National Weather Services, Georgia Department of Natural Resources, Georgia Forestry, and Georgia Emergency Management Agency were useful sources of information. Carroll County's Community Wildfire Protection Plan is currently "in process" and will be further incorporated upon the document's completion.

Below is a Flow Chart that details Carroll County's Hazard Mitigation Planning Process.

Figure 1.1 Hazard Mitigation Plan Flow Chart



## 1. Hazard Mitigation Plan Steering Committee

The Plan is the result of a community-wide effort put forth over the past fifteen months utilizing FEMA's Hazard Mitigation Plan "How To" Guides to aid in laying out the planning process described above. Stakeholders and persons with technical expertise were identified early in the process. As was the case in the 2010, 2016, and 2021 plan updates, full participation was provided by Carroll County and the cities of Bowdon, Bremen, Carrollton, Mount Zion, Roopville, Temple, Villa Rica and Whitesburg. Each jurisdiction of Carroll County had representatives on the Hazard Mitigation Plan Steering Committee and were present at planning meetings and responsive to requests for information. The Hazard Mitigation Plan Steering Committee was comprised of representatives from the following agencies listed below.

Table 1.1: Participants in Hazard Mitigation Plan Update

<table>
<tr><td colspan="2">Carroll County<br>Board of Commissioners<br>Michelle Morgan (Chair)<br>Montrell McClendon, District 1 Commissioner<br>Clint Chance, District 2 Commissioner<br>Tommy Lee, District 3 Commissioner<br>Steve Fuller, District 4 Commissioner<br>Ben Hicks, District 5 Commissioner<br>Danny Bailey, District 6 Commissioner</td></tr>
<tr><td>Carroll County Community Development<br>Peter Debick, GIS Manager</td><td>Carroll County E-911<br>Felicia Rowland, Director<br>Matt Clotfelter, CAD Manager</td></tr>
<tr><td>Carroll County Fire Department<br>Dave Wade, Chief</td><td>Carroll County Public Works<br>Danny Yates, Director</td></tr>
<tr><td>Carroll County Sheriff's Office<br>Terry Langley, Sheriff</td><td>Carroll County Sheriff's Office Emergency Management<br>Craig Dodson, Director<br>Brandon Wiggins, Deputy Director<br>Amy Goolsby, Planner</td></tr>
<tr><td colspan="2">Municipalities</td></tr>
<tr><td colspan="2">City of Bowdon<br>Jeff Reese, City Manager</td></tr>
<tr><td colspan="2">City of Bremen<br>Perry Hicks, City Manager<br>Mike Thompson, Operations Manager<br>Jason Hurley, Fire Chief</td></tr>
<tr><td colspan="2">City of Carrollton<br>Betty Cason, Mayor<br>Hayler Beaver, Planner<br>Tommy Holland, Engineer</td></tr>
</table>

| | |
|---|---|
| **City of Carrollton Fire Department**<br>Allen English, Chief<br><br>**City of Carrollton Police Department**<br>Joel Richards, Chief | |
| **City of Mount Zion Police Department**<br>Brian Sims, Chief | |
| **City of Roopville**<br>Tommy Eason, Mayor | |
| **City of Temple**<br>Lisa Jacobson, City Administrator<br><br>**City of Temple Police Department**<br>Crieg Lee, Chief | |
| **City of Villa Rica**<br>Diana DeSanto, City Manager<br>Brecca Carter, Community Development<br>John Bain, Public Works Director<br><br>**City of Villa Rica Police Department**<br>Michael Mansour, Police Chief | |
| **City of Whitesburg**<br>Amy Williford, Mayor<br>Keith Creel, Police Chief | |
| ***Utilities*** | |
| **Carroll County Water Authority**<br>Matt Windom, Executive Director | **Carroll EMC**<br>Matt Young, Safety Coordinator |
| **Georgia Power**<br>Bart Cater, Engineer | **Plantation Pipeline**<br>Wes Malton |
| **Southern Natural Gas**<br>Michell Bell, Representative | |
| ***Schools and Universities*** | |
| **Carroll County Schools**<br>Glen Harding, Assistant Superintendent<br>Tim Gribben, Director of Student Services | **Carrollton City Schools**<br>Craig George, Assistant Superintendent |
| **University of West Georgia**<br>Ned Watson, Police Chief | **West Georgia Technical College**<br>James Perry, Police Chief |

| *Agencies and Organizations* |
|---|
| **District 4 Public Health / Carroll County Health Department**<br>Lauren Denny, Nurse Manager |
| **Carroll County Department of Family and Children Services**<br>Cindy Jones |
| **Georgia Emergency Management Agency**<br>Tim Reeve, Area 6 Field Coordinator |
| **Georgia Forestry**<br>Max Driver, Chief Ranger |
| **Georgia State Patrol**<br>Justin Hogan, Post Commander |
| **Red Cross**<br>Virgil Watkins |
| **Salvation Army – Carrollton**<br>Roberta Woolbright |
| **Tanner Health System**<br>Gary Thomas, Vice President |
| **West Georgia Ambulance**<br>Amy Jerome, Director of Operations |
| **West Georgia Ham Radio Operators**<br>John Playford, Member |
| **West Georgia Local Emergency Planning Committee (LEPC)**<br>Matt Clotfelter and Jennifer Philips, Co-Chairs |

On December 3, 2024, the Carroll County Hazard Mitigation Plan kick-off meeting was held with representatives from 911, fire, law enforcement and public works. The committee reviewed a PowerPoint from GEMA Hazard Mitigation. Local Emergency Management staff began collecting and updating data for the plan, as well as contacting the jurisdictions to determine the status of mitigation, goals, objectives and action steps. A second meeting followed on June 10, 2025, and a final meeting was held September 9, 2025 to review the draft plan. Meetings, emails and phone calls with individual jurisdictions occurred during this period as well.

The responsibilities of a Hazard Mitigation Plan Steering Committee member were as follows:

- Attend Meetings
- Provide Information and Feedback

- Assess Mitigation Alternatives
- Adopt the Plan

## 2. Regional Outreach

Carroll County prides itself on working together with neighboring counties on regional projects as well as providing mutual aid. One example of this is the Western Area Regional Radio System (WARRS), an authority made up of Haralson, Carroll, Heard and Coweta counties which provides radio communications to the region. Another is the West Georgia Local Emergency Planning Committee (LEPC) made up of Carrol, Haralson, and Heard. The planning effort has been discussed at regional meetings. Carroll County further communicated with neighboring counties (Coweta, Douglas, Haralson, Heard, and Paulding) via email and/or in-person meetings, providing them with a link to the plan draft so that they could provide any input. Along with Paulding and Douglas Counties, each of our neighboring WARRS counties has signed off on our plan as being in supportive of regional goals and objectives. This is documented in Appendix J.

## 3. Public Participation Strategy

Via social media (Facebook, Twitter and the county website), the public was encouraged to provide comments to the local Emergency Management Agency (EMA) before, during and after the drafting of the Hazard Mitigation Plan by responding to requests for handwritten surveys, providing feedback through emails or attending a meeting.

Carroll County Emergency Management Agency has been proactive in engaging the public with social media. The public can find us at the following locations:

- https://www.facebook.com/profile.php?id=61578773784316 (Facebook)
- https://twitter.com/CarrollGA_EMA (Twitter)
- http://www.carrollcountyga.com/150/Emergency-Management-Agency (County Website)

This will continue on an ongoing basis after the plan is adopted, especially during the annual review and update which is detailed in G. For examples of our social media usage, please refer to Appendix B.

### *a. Hazards Survey*

For the 2026 update, a survey was conducted both online and in-person asking residents which hazards they were most concerned about. The in-person survey was conducted at an event for senior citizens in the area, while the online survey was distributed via the website, social media, and email groups. Both groups expressed the most concern about tornados and severe thunderstorms, followed by flooding, winter weather, and excessive cold for Seniors and hazardous materials spills, winter weather, tropical storms and wildfires for online respondents. The combined results are in the chart below. These results are similar to previous surveys conducted in 2016 and 2021.

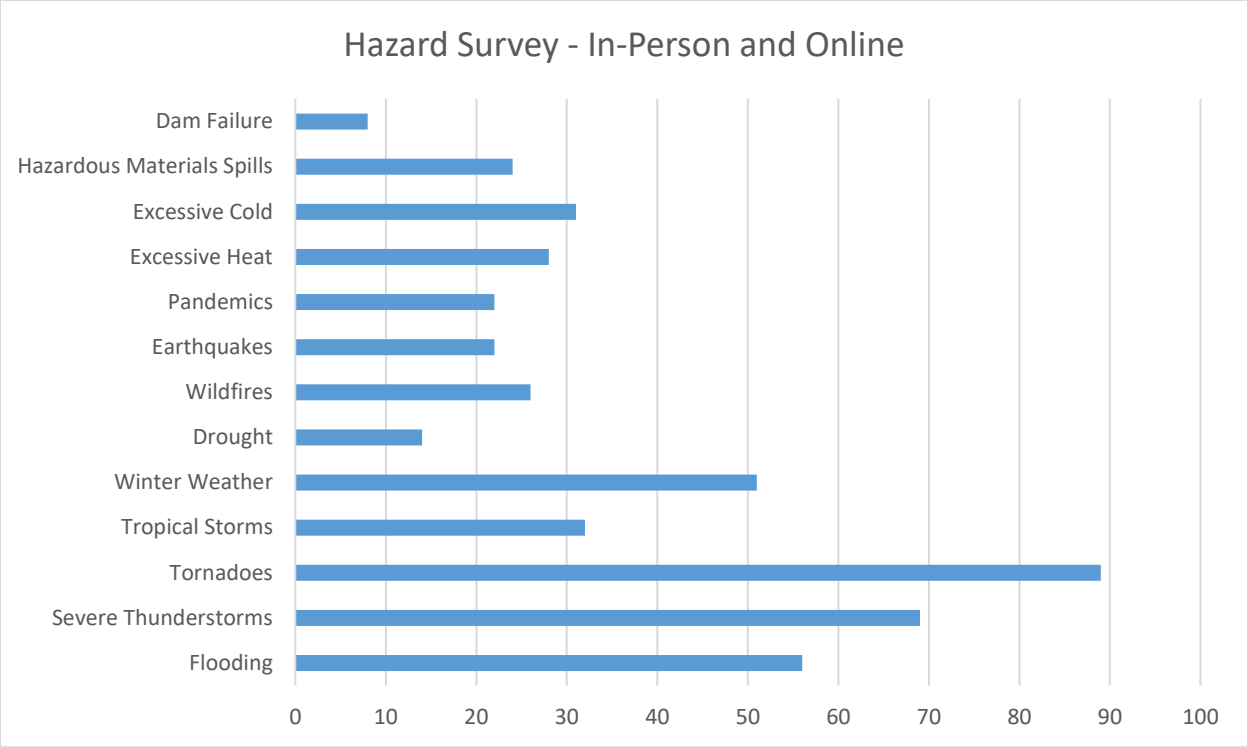



Figure 1.2: Hazards Ranked by Residents

The public was also asked what measures the county and municipalities should consider. Most of the responses were for more preparedness, public education, and warning alerts via text or app. Other suggestions included: working with other agencies to procure equipment, assessment of trees, and increased training for staff.

When asked for their location, survey respondents represented the following areas: Bremen, Carrollton, Roopville, Temple, Villa Rica, Whitesburg, and Other.

For the 2016 and 2021 updates, a survey was conducted to measure the residents' concerns as to the many threats that the county faces, including: tornadoes, hazmat releases, wildfires, flooding and earthquakes. For this version, they were asked to rate each their level of concern from none to high.

The number one hazard for Carroll County was tornadoes, closely followed by thunderstorms. These categories received overwhelmingly medium-to-high responses. Many were also concerned with hazardous materials releases. The next tier of hazard concerns included drought/wildfire, pandemics, winter weather, and flooding, which had about half the responses as low to medium concern. Lastly, dams and earthquakes received mostly responses of no or low concern from residents.

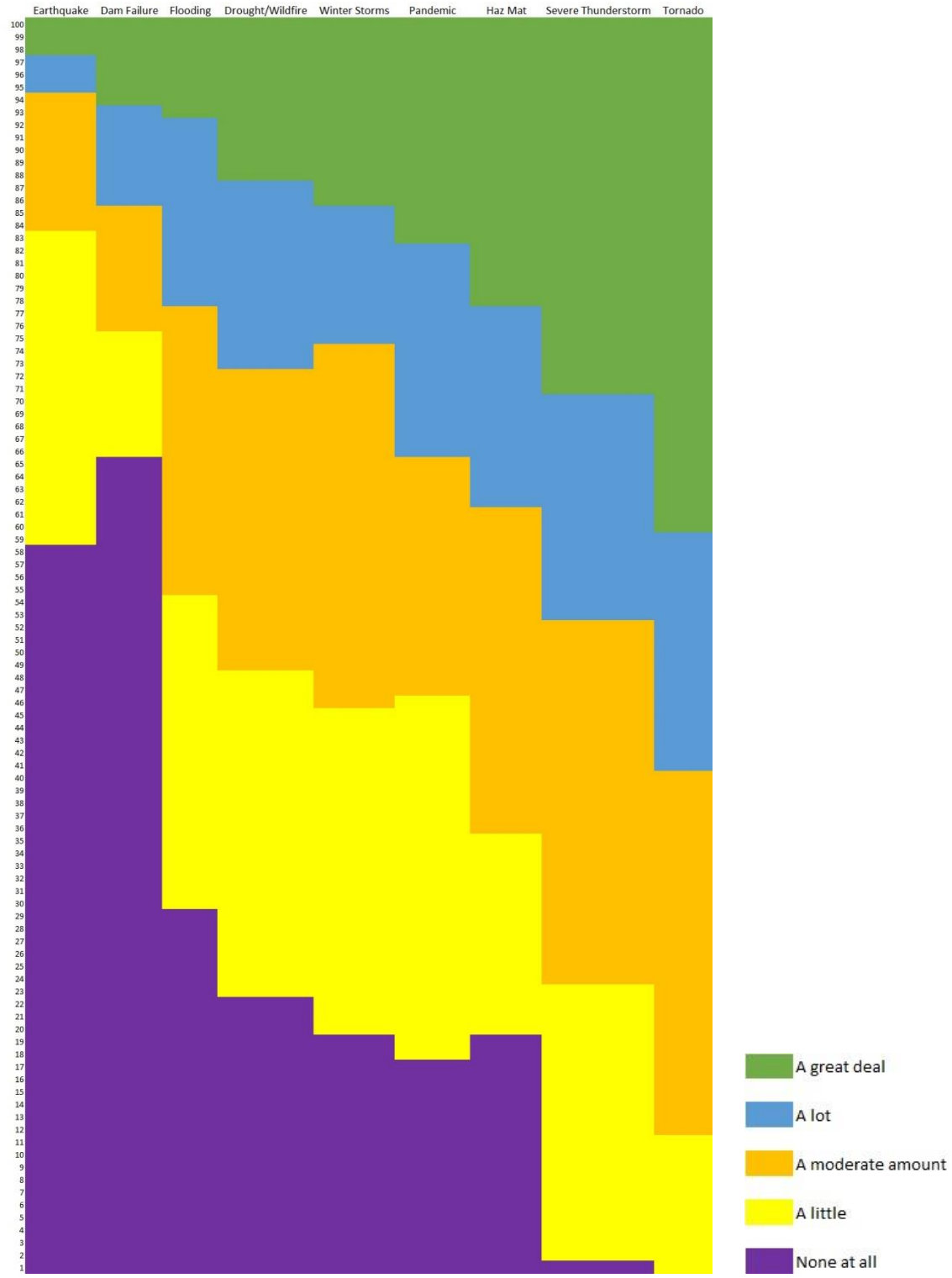



Figure 1.3: Residents' Level of Concern over Hazards Facing the County and Municipalities (2021)

*b. Public Hearings*

A public meeting was held on January 28, 2025 to kickoff the project. A final public hearing was held September 8, 2025. Public feedback was recorded at the meetings and can be found in Appendix B. It was reviewed for consideration and incorporated into the plan as warranted. The Board of Commissioners and each of the cities will adopt the plan after it has been approved by the Georgia Emergency Management Agency and Federal Emergency Management Agency, and these resolutions will be located in Appendix A. Requests for comments were also posted on the county website and social media. The efforts to involve the public and obtain valuable citizen input are documented in Appendix B.

| | Table 1.2: Municipality Participation in Mitigation Plan | | | | |
|---|---|---|---|---|---|
| *Municipality* | *2026 Plan* | *2021 Plan* | *2016 Plan* | *2010 Plan* | *2004 Plan* |
| Bowdon | ✓ | ✓ | ✓ | ✓ | ✓ |
| Bremen | ✓ | ✓ | ✓ | ✓ | ✓ |
| Carrollton | ✓ | ✓ | ✓ | ✓ | ✓ |
| Mount Zion | ✓ | ✓ | ✓ | ✓ | ✓ |
| Temple | ✓ | ✓ | ✓ | ✓ | ✓ |
| Roopville | ✓ | ✓ | ✓ | ✓ | ✓ |
| Villa Rica | ✓ | ✓ | ✓ | ✓ | ✓ |
| Whitesburg | ✓ | ✓ | ✓ | ✓ | ✓ |

## C. Original Plan Review and Revisions

The original plan was reviewed by the Hazard Mitigation Plan Steering Committee and changes to mitigation strategies were recommended and discussed. Each municipality located in the Carroll County also reviewed the original plan and made changes needed for their area. The completed and deleted action steps and the unchanged action steps are listed in Chapter IV in each section accordingly. The introduction to each chapter also contains a brief listing of changes made.

Public participation was welcomed in the process and sought utilizing a variety of methods. The updated plan was placed on the county website for review prior to a meeting for final public comment held on September 8, 2025. The update was also presented at meetings of the Local Emergency Planning Committee (LEPC), which consists of public safety, private businesses and industry representatives, who develop and review the district's emergency response plan.

Citizen participation through the survey, social media blasts, stakeholder committees (Emergency Management Volunteers and LEPC) and public meetings was an important part of the drafting process, and comments received were reviewed and assessed by the Hazard Mitigation Team. A complete list of mitigation strategies and action steps can be found in Chapter IV.

## D. Organization of the Plan

The Carroll County Hazard Mitigation Plan contains the following sections: Introduction, Community Profile and Capabilities Assessment, Hazard Vulnerability Assessment (Natural and Technological Hazards), Mitigation Goals (Natural and Technological), Plan Execution, Acknowledgments and References.

## E. Local Hazard, Risk, and Vulnerability Summary, Local Mitigation Goals and Objectives

The main purpose of a mitigation plan is to develop a strategy to reduce risks to the community, and in turn, creating a more resilient, sustainable future. To assess its Hazards, Risks, and Vulnerability, Carroll County followed the following process as laid out in the Local Mitigation Planning Handbook (2025).

1. Identify Hazards:
   Risks occur when hazards overlap with community assets, including people, structures, and other resources. The county collected information from a variety of sources including previous plans, including those of neighboring counties and the State Mitigation Plan. A detailed hazard history of Carroll County provided by the National Weather Service was reviewed. The complete natural hazard history is provided in Appendix C of this document. Additionally, the county received a Hazus Report from the University of Georgia that models the risk and cost of natural disasters in the county. This data was used to determine the probability of different hazards affecting Carroll County.

2. Describe Hazards:
   Hazard data combined hazard history and projections based upon historical data for predicting the possibilities for future events. A majority of the hazards in Carroll County are not location specific and are general to Carroll County, such as tornadoes or thunderstorms. Flooding and hazardous materials spills are more likely to occur in specific zones within the county (flood plains, highways, etc.). Flooding generally occurs in the flood zones adjacent to bodies of water, unless it is a flash flood which is located more in urban areas with impervious surfaces. The hazard event profile is available in Appendix C of this document. Each hazard is profiled in the assessment in terms of its past occurrences and locations.

3. Identify Community Assets:
   Community Assets can include 1) people, 2) new and existing structures, 3) critical facilities including utilities and hospitals, 4) natural, historic, and cultural resources, and 5) the economy, such as major employers or sectors. These assets were profiled in the Community Capabilities section and further under hazard assessment.

4. Analyze Impacts:
   To analyze impacts, the county looked at risks, where hazards overlap with assets. For most of the county, those risks are county wide, making it very difficult to estimate losses. The combination of structure loss, contents loss and function loss were evaluated 100 percent of assessed value for most hazards. For flooding, the county is able to map properties located in the flood zones at risk of flooding. Repetitive Loss Properties are depicted in the Hazard Assessment. With Category 1 Dams, the state of Georgia requires an Emergency Action Plan to be developed noting the inundation zone where water will likely flow in the event of a dam failure.

5. Summarize Vulnerability
   Vulnerability denotes community assets being at greater risk from the effects of hazards. The county has included data and maps from the National Risk Index in Chapter 3. E. A local example of vulnerability would be mobile home parks at risk from tornadoes.

In assessing the hazards facing Carroll County, the committee looked at Impact and Vulnerability. With impact, it is the effect of the hazard on the community and its assets, whereas vulnerability looks at how exposed or susceptible the asset is to damage.

The information that was obtained and/or developed during this project was used to identify possible mitigation efforts to further reduce the vulnerability of Carroll County to both natural and technological hazards. Each jurisdiction assigned a responsible organization, coordinating organization, timeline, costs, funding sources, estimated benefit and priority for each of the mitigation action steps.

## F. STAPLEE and Benefit Cost Review

The committee evaluated its mitigation actions, by determining the social, technical, administrative, political, lead, environmental, and economic considerations for each action. This is known as the STAPLEE method, considerations which guided the evaluation of the range of measures considered by the Hazard Mitigation Plan Steering Committee and the final recommended action programs for each participating jurisdiction.

The STAPLEE Criteria are listed as follows:

<u>Social</u>

- Community acceptance
- What is the impact on each segment of citizens?

<u>Technical</u>

- Feasible
- Is this a long term solution?
- Secondary impacts – Will this create other problems?

<u>Administrative</u>

- Staffing current- or can it be obtained
- Funding
- Can the jurisdiction provide maintenance?

Political

- Political support
- A local champion
- Will there be enough political support?

Legal

- State authority
- Existing local authority – will new ordinances/regulations be needed?
- Potential legal challenge

Economic

- Benefit of action
- Cost of action
- Contributes to economic goals
- Outside funding required

Environmental – especially when using federal funds

- Impact on land/water
- Endangered species
- Hazmat/waste sites
- Consistent with local environmental goals
- Consistent with federal laws

Mitigation actions from previous plans and recommended actions to add were reviewed against the STAPLEE criteria by local emergency management staff, and these were provided to the committee for review. These were reorganized into the 2016 plan in Chapter IV and updated for 2026. STAPLEE worksheets can be found in Appendix I. All projects are deemed important to the county and municipalities. Some of the county's most critical projects may score lower with STAPLEE simply because of a lack of funding.

Action steps were given priority using a benefit-cost review. This process consisted of listing the actions, identifying the benefits and cost of each action step, and assigning a priority of low, medium, and high as described in Table 4.1.1 below. Completed action steps and ones no longer being considered were removed and placed on the completion lists in each respective section.

Additionally, the plan identifies which federal category each of the mitigation actions is grouped: prevention, property protection, public education and awareness, natural resource protection, structural projects and emergency services. Descriptions for each FEMA category can be found below:

- ***Prevention***. Adopting and administering ordinances, regulations, and programs that manage the development of land and buildings to minimize risks of loss due to natural hazards.
- ***Property Protection.*** Actions that involve the modification of existing buildings or infrastructure to protect them from a hazard or removal from the hazard area.
- ***Public Education and Awareness.*** Educating and informing the public about risks of hazards and the techniques available to reduce loss of life or property.
- ***Natural Resource Protection.*** Minimizing hazard losses while preserving and restoring the functions of natural systems.
- ***Structural Projects.*** Construction of structures to reduce the impact of a hazard.
- ***Emergency Services.*** Actions such as hazard threat recognition, hazard warning systems, emergency response, protection of critical facilities, and health and safety maintenance

The methods above guided the Hazard Mitigation Plan Steering Committee in reviewing and prioritizing its mitigation goals, objectives and action steps.

## F. Multi-Jurisdictional Special Consideration Goals and At-Risk Populations

The cities of Bowdon, Bremen, Carrollton, Mount Zion, Roopville, Temple, Villa Rica and Whitesburg were active participants in the hazard mitigation planning process. Representatives from each of the cities participated in the general session meetings and via inter-agency correspondence. Mitigation projects were provided by each municipality within Carroll County. Considerations were given to at-risk populations in developing these strategies.

## G. Adoption, Monitoring, Evaluation, Updating and Plan Maintenance

The Carroll County Board of Commissioners and the mayors of Bowdon, Bremen, Carrollton, Mount Zion, Roopville, Temple, Villa Rica and Whitesburg will act to formally adopt this plan upon the confirmation of its approval by both Georgia Emergency Management Agency (GEMA) and FEMA Region IV.

The Carroll County Emergency Management Agency will be responsible for all monitoring, evaluating and updating of the plan. A copy of the adoption resolution for the County and each of the Cities will be located in Appendix A.

Updates to the plan will be conducted on an as-needed basis, with an annual review each December performed by Carroll County Emergency Management Agency. The plan update will include the following milestones:

- Analyze, update and develop goals, objectives and action steps
- Mitigation Strategy Update
- Update the Planning Process
- Plan Adoption and Implementation
- Update Plan Maintenance and Implementation

- Submit Plan to GEMA/FEMA for review and approval (as required)

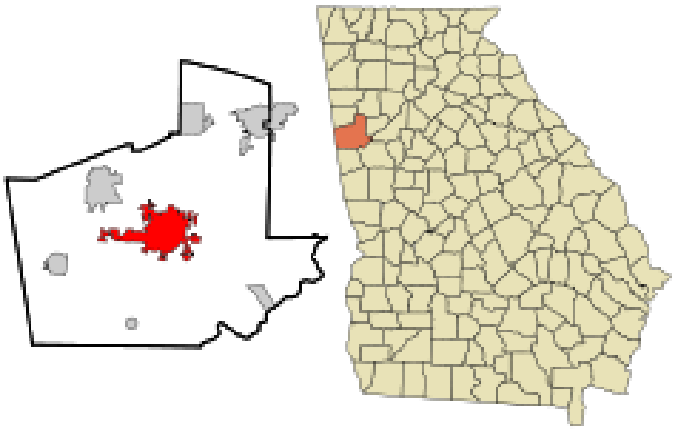
Through the continued use of social media, presentations to various civic groups and surveys, the public will be kept informed and engaged concerning the Hazard Mitigation Plan. The Carroll County Emergency Management Agency will be reviewing the plan every five years to reflect changes in development, note progress in the county's mitigation efforts and discuss any changes in priorities.

Carroll County's Comprehensive Plan was updated in 2023 and will be again in 2028. It is a priority to cross reference the goals, objectives and action steps of the Hazard Mitigation Plan with the Comprehensive Plan to provide a guide for better, more resilient development. Additionally, the county and the City of Carrollton have completed Safe Streets for All Safety Action Plans to prioritize improvements to reduce fatal crashes on our road network.

Table 1.3: Plan Adoption by Jurisdiction

| City | Date Adoption |
|---|---|
| Carroll County | Upon GEMA and FEMA Approval |
| Bowdon | Upon GEMA and FEMA Approval |
| Bremen | Upon GEMA and FEMA Approval |
| Carrollton | Upon GEMA and FEMA Approval |
| Mount Zion | Upon GEMA and FEMA Approval |
| Roopville | Upon GEMA and FEMA Approval |
| Temple | Upon GEMA and FEMA Approval |
| Villa Rica | Upon GEMA and FEMA Approval |
| Whitesburg | Upon GEMA and FEMA Approval |

# Chapter II. Community Profile and Capabilities Assessment



*Update for 2026: Demographic and jurisdictional data for Carrollton, Temple, Villa Rica, Bremen, Bowdon, Mount Zion, Roopville, Whitesburg, and the county, as well as new and updated maps. Added information on the SS4A Plan*

*Update for 2021: Demographic and jurisdictional data for Carrollton, Temple, Villa Rica and the county updated. Maps were updated.*

*Update for 2016: This chapter was added to better incorporate capabilities assessment and land use planning into the Hazard Mitigation Plan.*

## A. Carroll County

Carroll County and the incorporated municipalities of Bowdon, Bremen, Carrollton, Mount Zion, Roopville, Temple, Villa Rica, and Whitesburg worked together to develop the mitigation goals and strategies in this update to the Hazard Mitigation Plan. Together, these entities have the resources and staff to carry out these strategies, as funding becomes available, to achieve mitigation.

### 1. General

Carroll County is located on the western side of the state along the Alabama State line and is considered part of the Atlanta Metropolitan Region, located just 45 miles west of Atlanta along Interstate 20.

Carroll County was organized in 1826 from lands acquired by a treaty signed with the Cherokee and Creek Indian Nations. The signing of the Indian Springs Treaty resulted in the murder of Chief William McIntosh, the son of a Scotsman and a full-blood Creek woman, who owned a vast plantation along the Chattahoochee River in southeast Carroll.

The county's boundaries were created by the Georgia General Assembly on June 9, 1826 but it was not named until December 14, 1826. Carroll County takes its name from Charles Carroll of Maryland, at the time the last surviving signer of the *U.S. Declaration of Independence*. Carrollton, the county seat, was

also named after Charles Carroll. Other incorporated areas include Bowdon, Bremen (which lies predominately in Haralson County), Mount Zion, Roopville, Temple, Villa Rica and Whitesburg.

Settlers were drawn to the area by the prospects of good farming due to the rich soil. Others came looking for the once abundant amount of gold in the northern part of the county, the gold rush that gave the city of Villa Rica its name.

According to Census estimates, the population of Carroll County in 2024 was approximately 129,911 persons (119,148 in the 2020 Decennial Census), covering a total area of 504 square miles. With healthcare, higher education and industry, Carroll is an economic center for the region, ranking second to Fulton County as of the 2000 Census for the number of commuters who commute to work within their home county. The county has a mixture of rural, urban and suburban land uses. Most of the residential uses can be found to the north and east of Carrollton, while other parts tend to be more rural, agricultural uses. Carroll's rural roots remain healthy as the county continues as an agricultural leader, boasting the largest cattlemen's association in the state and continuing as a major poultry producer.

In terms of regional planning, the county is part of the Three Rivers Regional Commission and the Georgia Emergency Management Agency's Area Six. Upon the last Census, a portion of the county in Villa Rica has been deemed urbanized.

## 2. Government

Carroll County is governed by a Board of Commissioners consisting of a Chairman elected at-large and six District Commissioners. Total appropriations for the county are $81,654,394.00. A breakdown of public safety and other related departments is listed below. Over half of county appropriations go to public safety or related agencies, whose mission is to serve the public and promote health, safety and welfare of its residents. Public safety spending is up from the last plan period by 1.14%.

Table 2.1: Carroll County Appropriations for 2024-2025

| **Carroll County** | **$81,654,394.00** |
|---|---|
| Sheriff's Office | 22,290,900.00 |
| Fire Rescue | 13,781,695.00 |
| EMS Medical Services | 1,974,640.00 |
| 800 MHz Communications | 216,000.00 |
| Emergency Management | 349,500.00 |
| Public Works | 6,521,200.00 |
| Health Department | 40,140.00 |
| Codes Enforcement / Community Development | 1,277,600.00 |

| | |
|---|---|
| **Sub Total** | $46,451,675.00 |
| **Percentage of Total** | 56.89% |

## 3. Public Safety

Additionally, Carroll County has a Special Purpose Local Option Sales Tax, a 1-cent tax on each dollar spent that helps fund capital projects in the community. Previous SPLOST's aided the Board of Commissioners in funding a $5 million expansion of E-911 and the county's Emergency Operations Center. The expansion gave the dispatchers and emergency personnel the space and equipment they needed to respond, whether it is an average busy day or during a natural disaster. Emergency personnel already do a great job prioritizing calls to dispatchers and getting citizens the help that they need. This has only been enhanced by the additional space and technology upgrades.

The Emergency Management Agency is under the Sheriff's Office, allowing for better coordination and response. Emergency management personnel is able to send public alerts through the Integrated Public Alert Warning System (IPAWS), which will broadcast emergency messages to cell phones, television, and radio stations warning of a hazardous situation and how residents should respond. These alerts will be used sparingly and only for the high-level hazards that meet the qualifications (i.e. chemical leak on Main Street, please shelter in place if you reside within 1 mile).

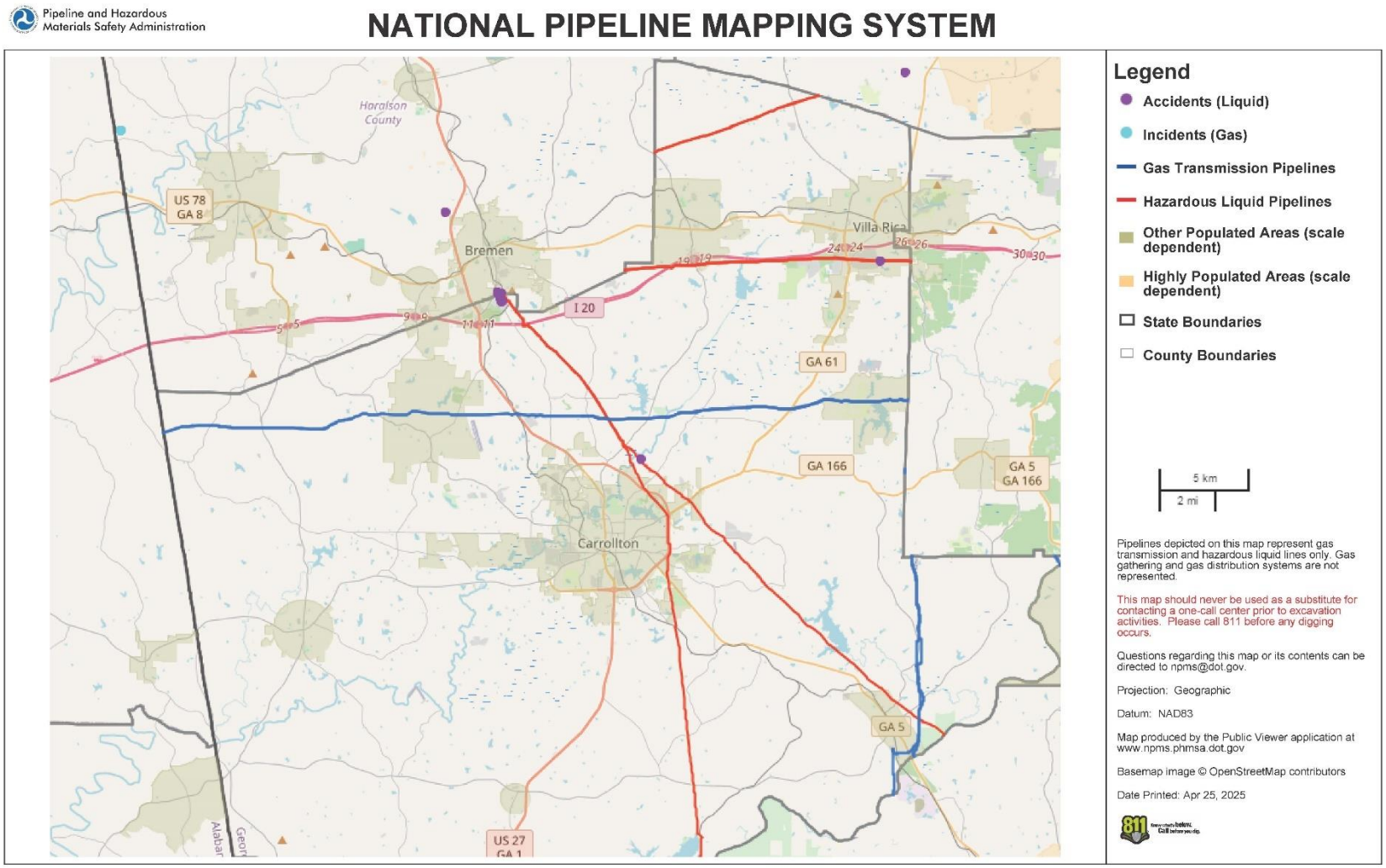
The upgrades to the consoles and Radio system will eventually bring next Generation 911 to Carroll County and make our communications even stronger. Carroll County is currently a participant in the Western Area Regional Radio System, along with Coweta, Haralson and Heard, utilizing an 800-MHz system that allows for communication between all public safety personnel in the 4-county region. This encourages better mutual aid between the agencies.

## 4. Utilities

Carroll County has several water providers. Bowdon, Bremen, Carrollton, Villa Rica and Carroll County Water Authority all operate water treatment plants, with the latter providing water to the unincorporated area as well as the other cities. Roopville and Whitesburg both operate municipal wells. Carroll County Water Authority also operates sewer treatment at Fairfield Plantations, a large, planned community on the east side of the county below Villa Rica. Villa Rica, Temple, Bowdon, Bremen and Carrollton all have municipal sewer treatment plants. The remainder of the county is on septic.

Carroll County is serviced by three electric providers: Georgia Power, Carroll EMC and Greystone Power. Georgia Power covers municipal areas, with Greystone covering a portion in the northeast adjacent to its service area in Douglas County. Carroll EMC covers the remainder of the unincorporated area.

Plantation Pipeline and Colonial Gas operate pipelines. Additionally, Plantation Pipeline operates a large storage facility near Bremen, Georgia. Local emergency management and fire rescue have participated in pipeline safety courses.




Map 2.1: Plantation Pipeline in Carroll County, Georgia

## 5. Transportation

### *a. Roadways*

Most transportation in Carroll County is done by personal vehicles. In July 2017, a low-cost van pool began operations to help transport residents in need. There are also three Georgia Department of Transportation Park and Rides in the county to help promote carpooling.

Interstate 20 runs east to west in the northern portion of Carroll, along with Highway 78. Highways 16, 166 and 5 also run east to west in central to southern Carroll. Running north to south, Highway 27 and Highway 61 are both 4-lane roads, carrying most of the traffic off the interstate to Carrollton, the county seat. Additionally, 2-lane roads, Highway 113 and Highway 100, run north to south.

Other major secondary roadways include:

Tyus-Carrollton Road
Lovvorn Road
Smithville Road
Hog Liver Road
Shady Grove Road
Hickory Level Road
North and South Vanwert Road
Rainey Road
Center Point Road
Pleasant Ridge Road
Miller Academy Road
Jones Mill Road
Horsey Mill Road
Oak Mountain Road
Clem Lowell Road

While the Georgia Department of Transportation is charged with maintenance of the state and federal highways above, Carroll County is responsible for the secondary roadways in the event of an emergency.

In 2022, Carroll County received a Safe Streets 4 All grant (SS4A) from the US Department of Transportation to develop a SS4A Safety Action Plan. Using the Safe System approach, the Action Plan identified counter measures across the following approaches: Safe Road Users, Safe Vehicles, Safe Speeds, Safe Roads, and Post Crash Care to create systemic improvements to the safety of Carroll County roadways. The SS4A Action Plan was adopted April 4, 2025, and the county has submitted a grant proposal to widen 6 rural transportation corridors that are in the High Injury Network: Rainey Road, Harlan Lane, Bowdon-Tyus Road, Center Point Road, Jones Mill Road and Lowell Road. Systemic improvements to the transportation infrastructure, such as these, will result in a safer roadway network.

*b. Railways*

Norfolk Southern operates commercial rail service on an east-west and north-south line in the county, transporting a variety of materials, some hazardous.


Map 2.2: Georgia's Railway System

*c. Airways*

The West Georgia Regional Airport, located in western Carroll near Mount Zion, serves commercial and recreational air traffic for the region. Passenger air traffic is primarily serviced by Atlanta Hartsfield-Jackson International Airport, located to the northeast of Carroll County.

Additionally, there are 20 privately owned airstrips in the county.

A considerable amount of commodities flow through Carroll County daily, mostly via roads and railways. A hazardous materials (Haz Mat) incident is a primary concern for the county and its municipalities.

## 6. Schools

Carroll County is home to two school systems, Carrollton City Schools and Carroll County Schools. Carrollton operates five schools on a large campus near downtown Carrollton. Carroll County has five high schools, with 25 total schools across the county's seven school districts, with the largest high school, Villa Rica, located in the northeast area of the county. In addition to public schools, the county has several private schools, including Oak Mountain Academy.

Carroll County is also home to two institutions of higher learning. The University of West Georgia has a student population of 14,394 spread across a 645-acre campus in Carrollton, as well as a smaller campus in Newnan, enrolled in 87 programs of study. West Georgia Technical College has a Carrollton Campus, along with administrative offices downtown in Adamson Square.

School safety has been a top priority of the Carroll County Emergency Management Agency with the EMA Director participating in the School Safety teams for each school system that coordinate the annual Safety Summit, along with tabletops and exercises conducted at each school.

## 7. Recreation

Carroll County is home to six recreation departments, including the County, Villa Rica, Temple, Bowdon, Mount Zion and Carrollton, each offering recreational sports for their areas and operating ballfields, pavilions and senior centers. By tradition, active recreation districts follow school boundaries. As part of service delivery strategy, the county compensates each jurisdiction a portion of their recreation program funds.

The county has five large passive recreation parks, ranging between 290 to 500 acres, open to the public - John Tanner Park, Little Tallapoosa Park, McIntosh Reserve Park, Moore's Bridge Park, and Moss Ferry Park, as well as large acreages at Blackjack Mountain and Snake Creek under conservation. These parks offer a variety of amenities, from camping to multi-use trails.

The City of Carrollton has completed an 18-mile green belt around the city that provides recreational and alternative transportation to the city's residents.

Emergency Management has worked with recreation officials to provide National Weather Service (NWS) Storm Spotter training to recreation staff and further invites them to attend severe weather briefings. Knowledge of potential severe weather often leads to cancellation or postponement of an event or to move inside in case of imminent danger from lightning or a funnel cloud.

## 8. Healthcare

Tanner Health System operates three hospitals in the region with locations in Carrollton, Villa Rica and Bremen. There is also a behavioral health facility, Willowbrooke in Villa Rica, three urgent care centers and 24 practices operating under Tanner Medical Group.

The Carroll County Health Department is in Carrollton and offers immunizations, family planning and screenings to the community, among many other services. Part of District 4 Public Health, the county participates in the Strategic National Stockpile (SNS) program and has established two potential Points of Distribution (POD) in the event of an epidemic/pandemic. Further, the county has signed up many of its larger employers as Closed Points of Distribution (POD), enabling them to distribute medicine to their employees and families.

Tanner acquired West Georgia Ambulance and now operates the advanced emergency medical services for the area, with Carroll County Fire Rescue offering basic. Two companies have established heliports in the county to provide air medical services when it is necessary to transport a patient quickly to a trauma center.

## 9. Land Use and Development

Construction in Carroll County is subject to the following codes:

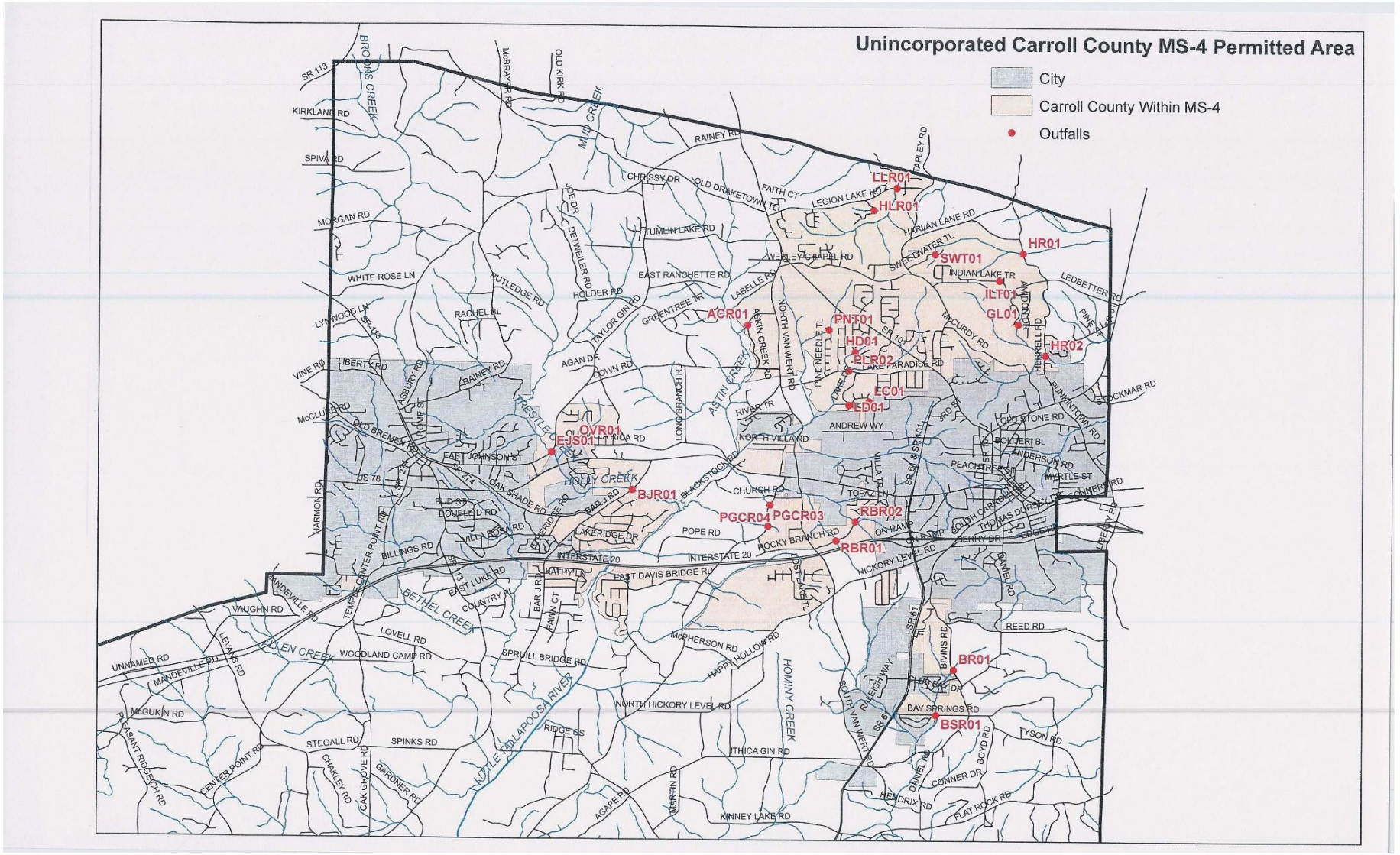
2018 International Residential Code
2018 International Building Code
2018 NEC Electrical Code
2018 International Plumbing Code
2018 International Mechanical Code
2018 International Gas Code
2018 International Energy Code
2018 International Existing Building Code
2018 International Fire Code
Including all Georgia 2023 amendments and supplements

Under the Department of Community Development, the county has a Chief Building Official and inspector charged with reviewing plans and inspecting construction to ensure that buildings comply. New construction in the county must be built to withstand a 90-100 miles per hour wind.

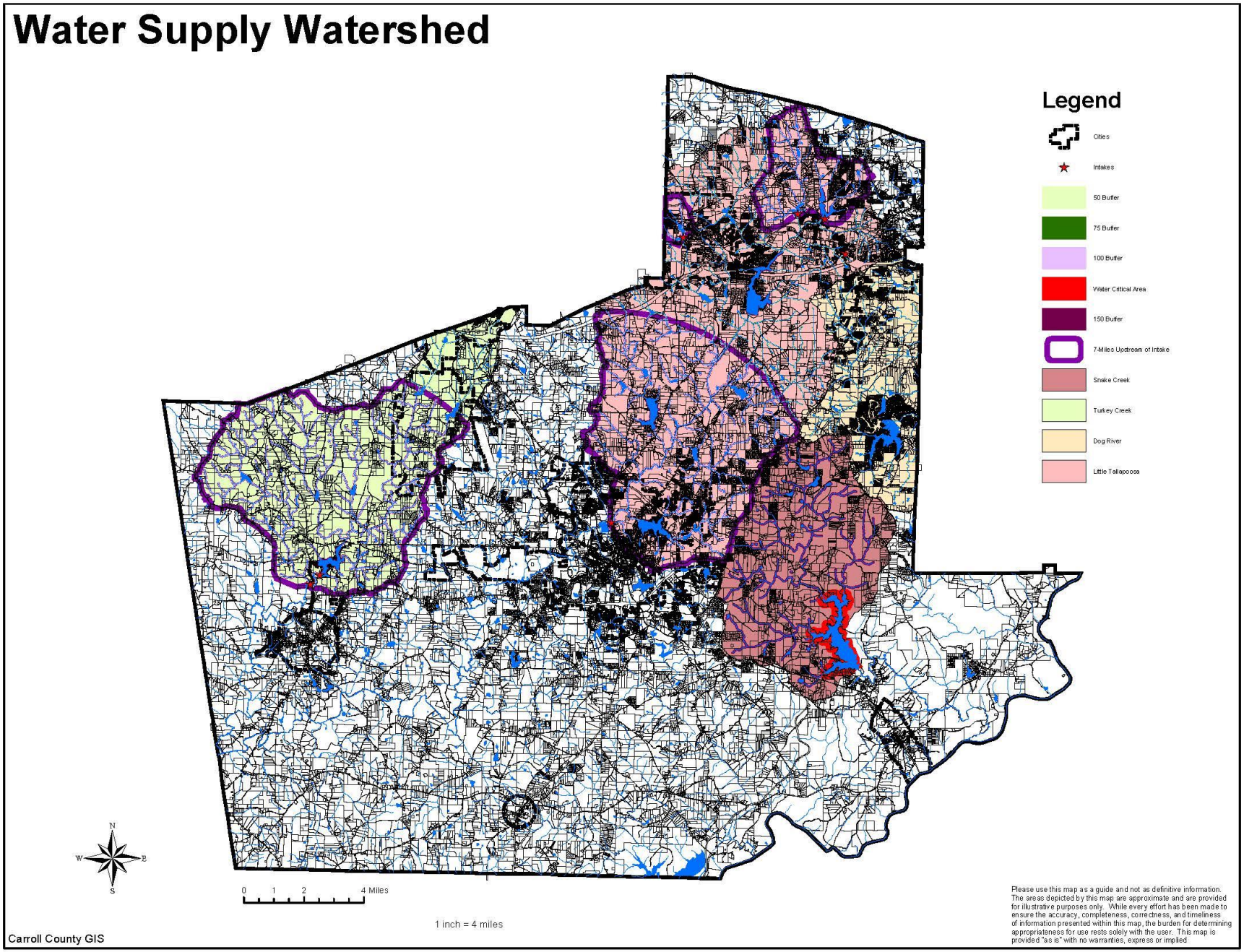
Grading and land disturbance are reviewed by the County Engineer, with designated Erosion Control Officers charged with keeping sedimentation out of our streams. Engineering further checks that development does not encroach the minimum buffers required on streams. Each permit is reviewed by the Floodplain Manager to ensure that construction does not occur in the floodplain. Portions of northern Carroll County have now been designated as MS4 and require storm water permitting and enforcement, as depicted in Map 2.3 MS4 Outfalls. The county is home to 4 Water Supply Watersheds, with the requirement to obtain a riparian buffer in areas. The watersheds are noted in Map 2.4 below.

Carroll County's zoning and land use plans apply to the unincorporated areas of the county. Northern Carroll between the cities of Temple and Villa Rica, down to Carrollton is where the most residential population growth has occurred since 1990. The southern and western part of the county is predominately rural/agricultural, characterized by larger tracts of agricultural or timber land mixed with home sites. Increasing population growth which necessitates increased public infrastructure and critical facilities has resulted in the county becoming more vulnerable to hazards, such as flooding, tornadoes, thunderstorms, tropical cyclones, winter storms, drought and wildfire and pandemics. The county must be vigilant in utilizing best management practices and in achieving its mitigation goals and objectives.

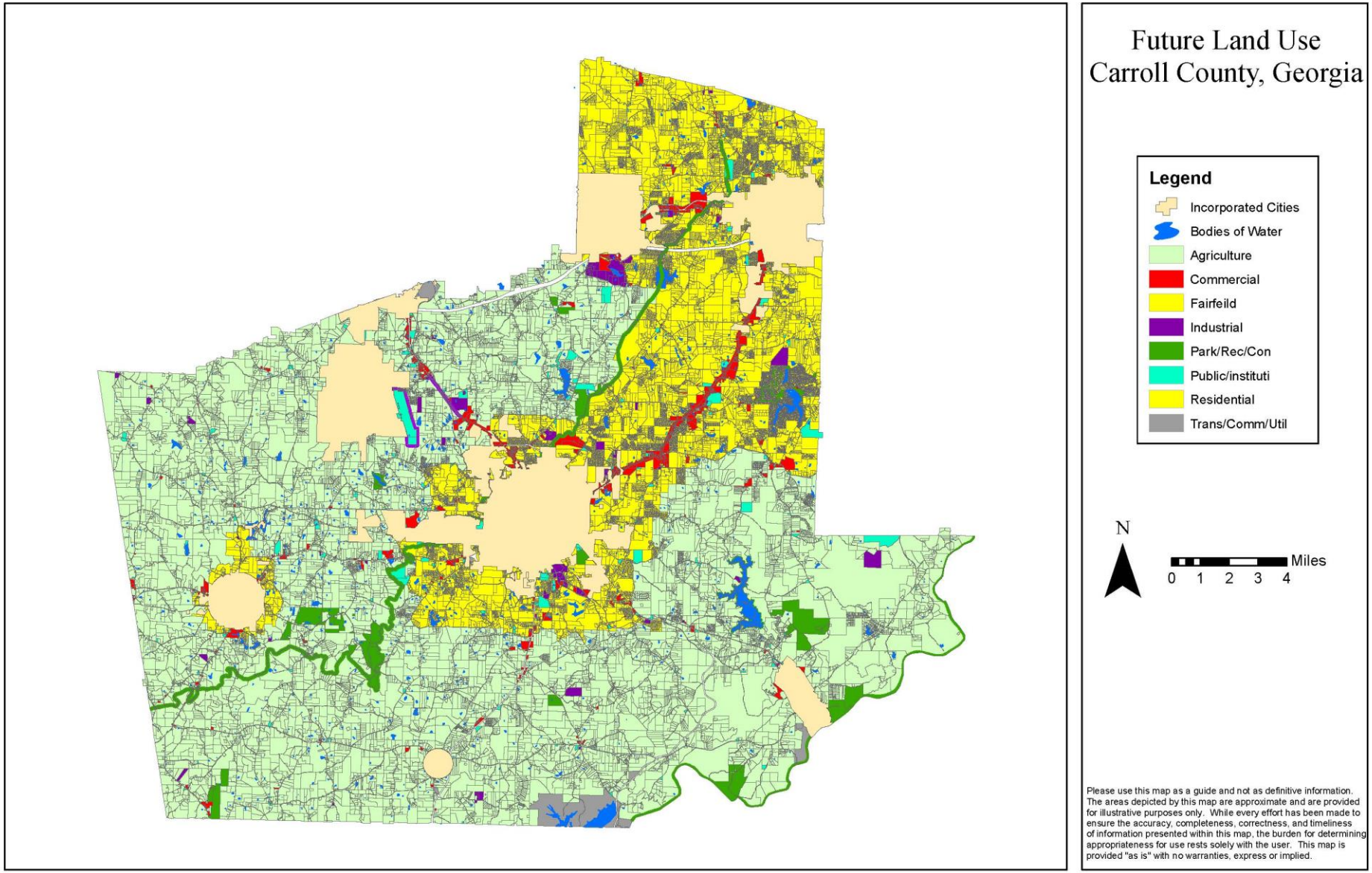
For additional Community information, please reference Appendix E, as well as the 2023 Carroll County Comprehensive Plan. Carroll County's Future Land Use Map is shown in Map 2.5 below.




Map 2.3: MS4 Outfalls




Map 2.4: Water Supply Watershed Map

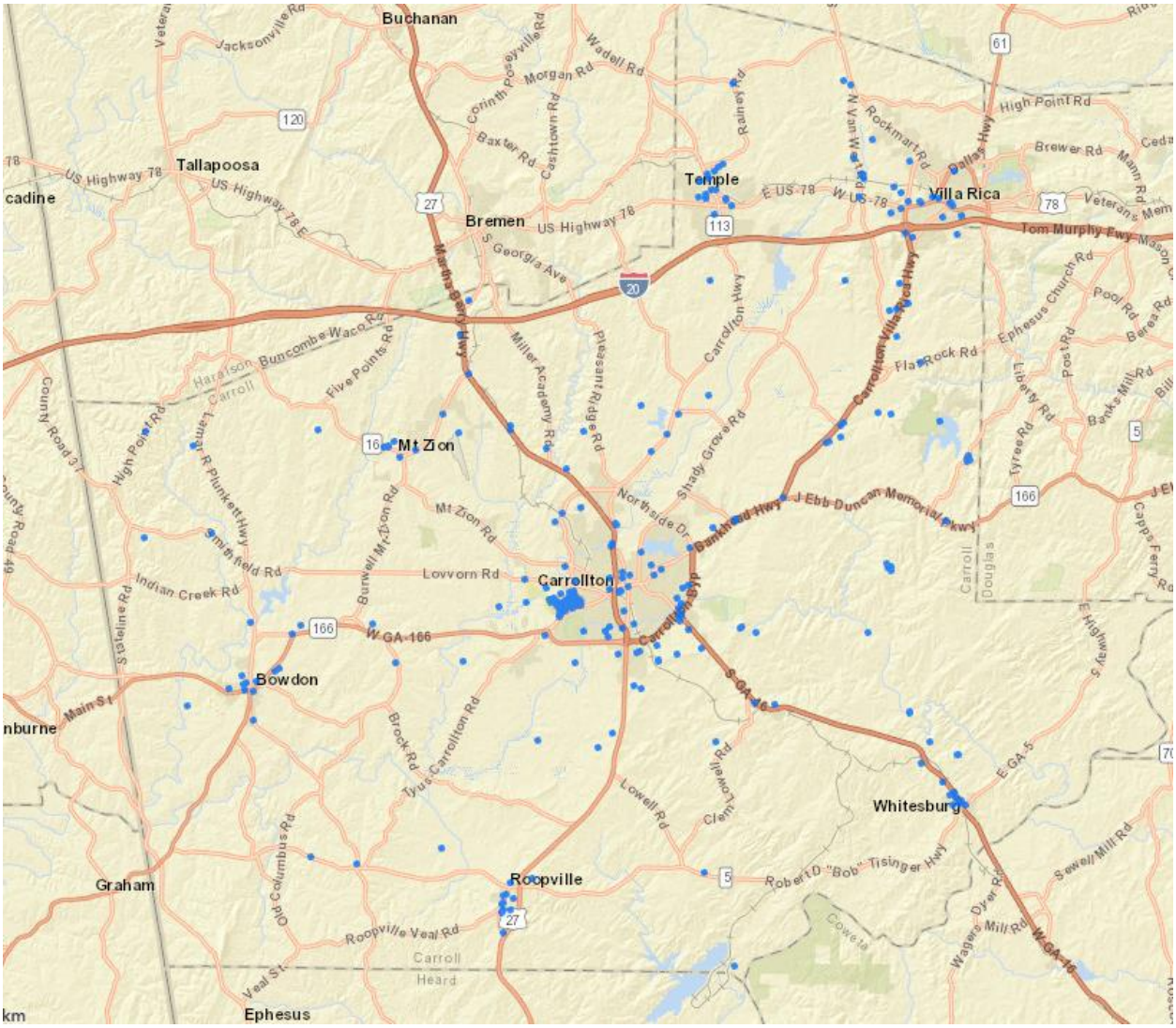


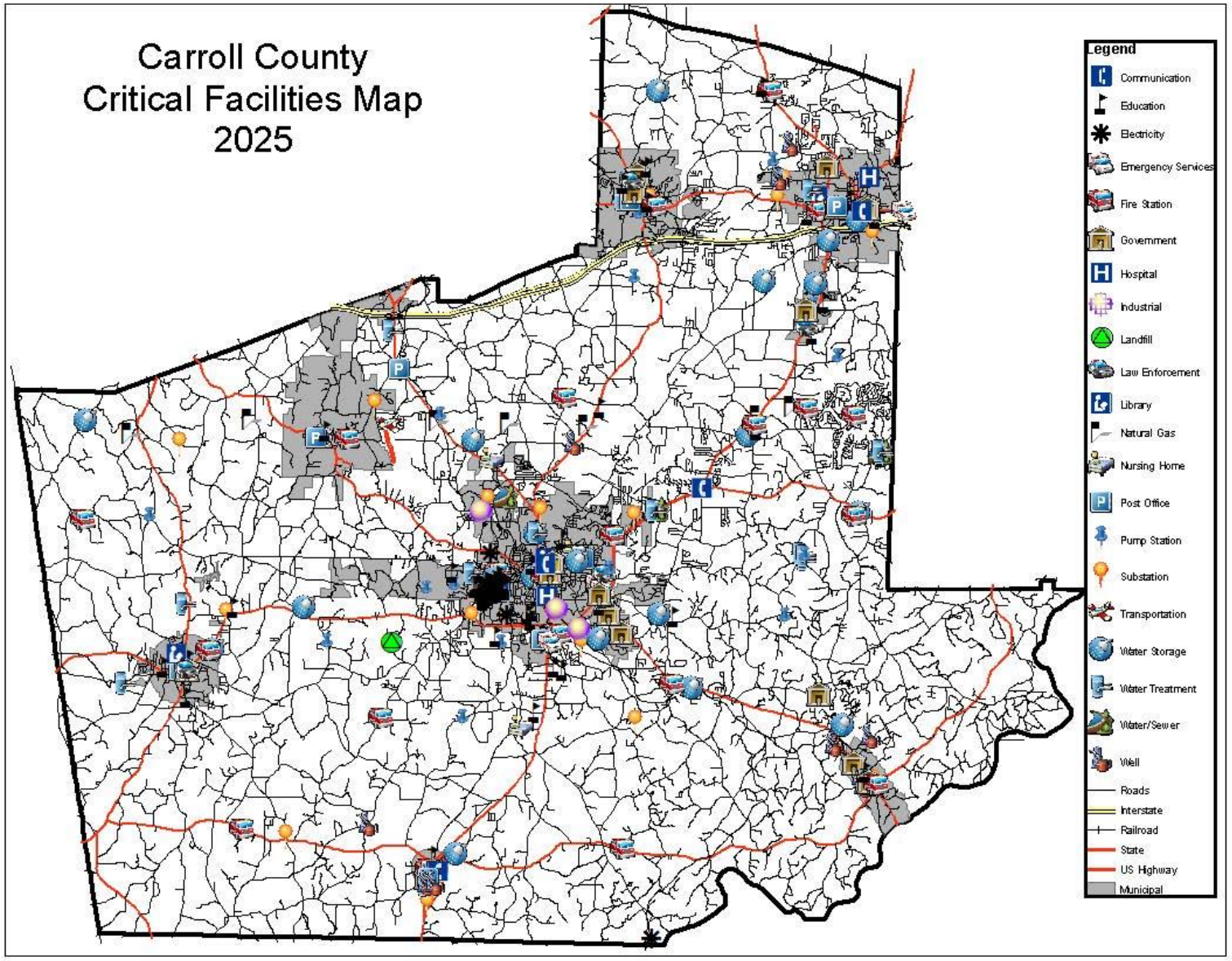

Map 2.5: Carroll County, Georgia Future Land Use Map

## 10. Critical Facilities

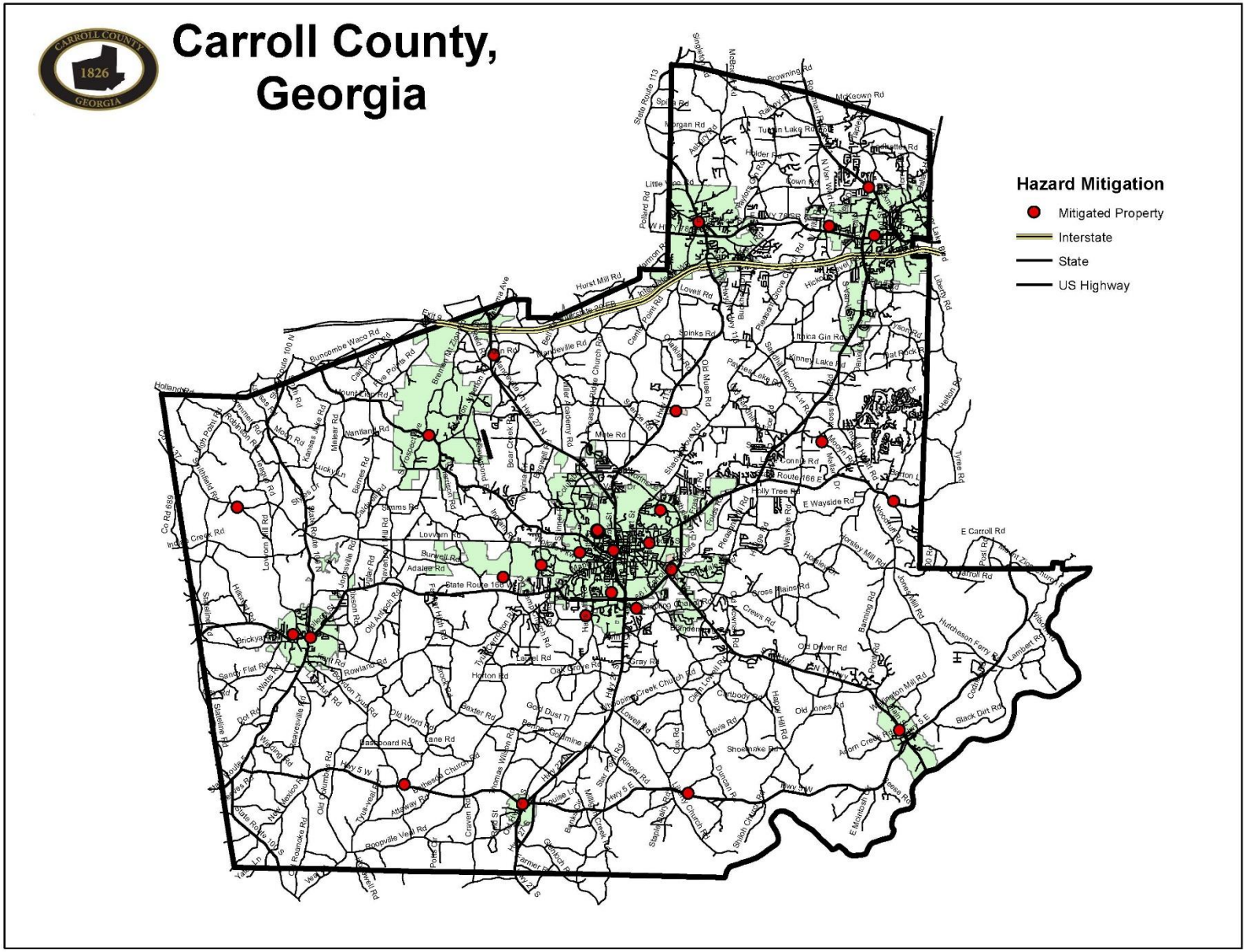
Carroll County and its cities, school systems, healthcare and public utility providers have identified numerous critical facilities that are essential to the community. The Critical Facilities List was added as a layer to the county's Geographic Information Systems (GIS) in the 2016 Plan, updated in 2020 and 2025. See Map 2.7 for the latest update. The county has also added its mitigated properties in Map 2.8. As the county and its cities move forward with planning, each will be able to better integrate Critical Facilities information into decision making processes. Below are maps of each municipality depicting their boundaries, streams and lakes, as well as transportation routes.

### Map 2.6: GMIS Critical Facilities for Carroll






Map 2.7: Carroll County Critical Facilities Map




Map 2.8: Carroll County Mitigated Properties Map

## B. City of Bowdon

### 1. General

Located in Carroll County, the City of Bowdon is approximately 10 miles south of the I-20 corridor. The community was incorporated on January 1, 1859 and was named for Franklin Welch Bowdon, an Alabama congressman in 1853. According to the United Census Bureau, Bowdon has a total area of 3.4 square miles with a population of 2,161 as of the 2020 Census. The City of Bowdon is affectionately referred to as the "Friendly City." It lives up to the name with a thriving downtown business district that has recently undergone significant redevelopment, much in the Historic district. Downtown is home to several new restaurants, a specialty coffee roaster, an art gallery and a veterinary hospital.

The citizens of Bowdon can easily access medical care, educational institutions, entertainment and recreational venues. However, Bowdon's most admirable qualities of life are the natural beauty of the farms and woodlands that surround the city.

### 2. Government

A mayor and 4 council members govern the City of Bowdon.

### 3. Public Safety

Bowdon has a municipal police department, while fire protection is provided by Carroll County Fire Rescue.

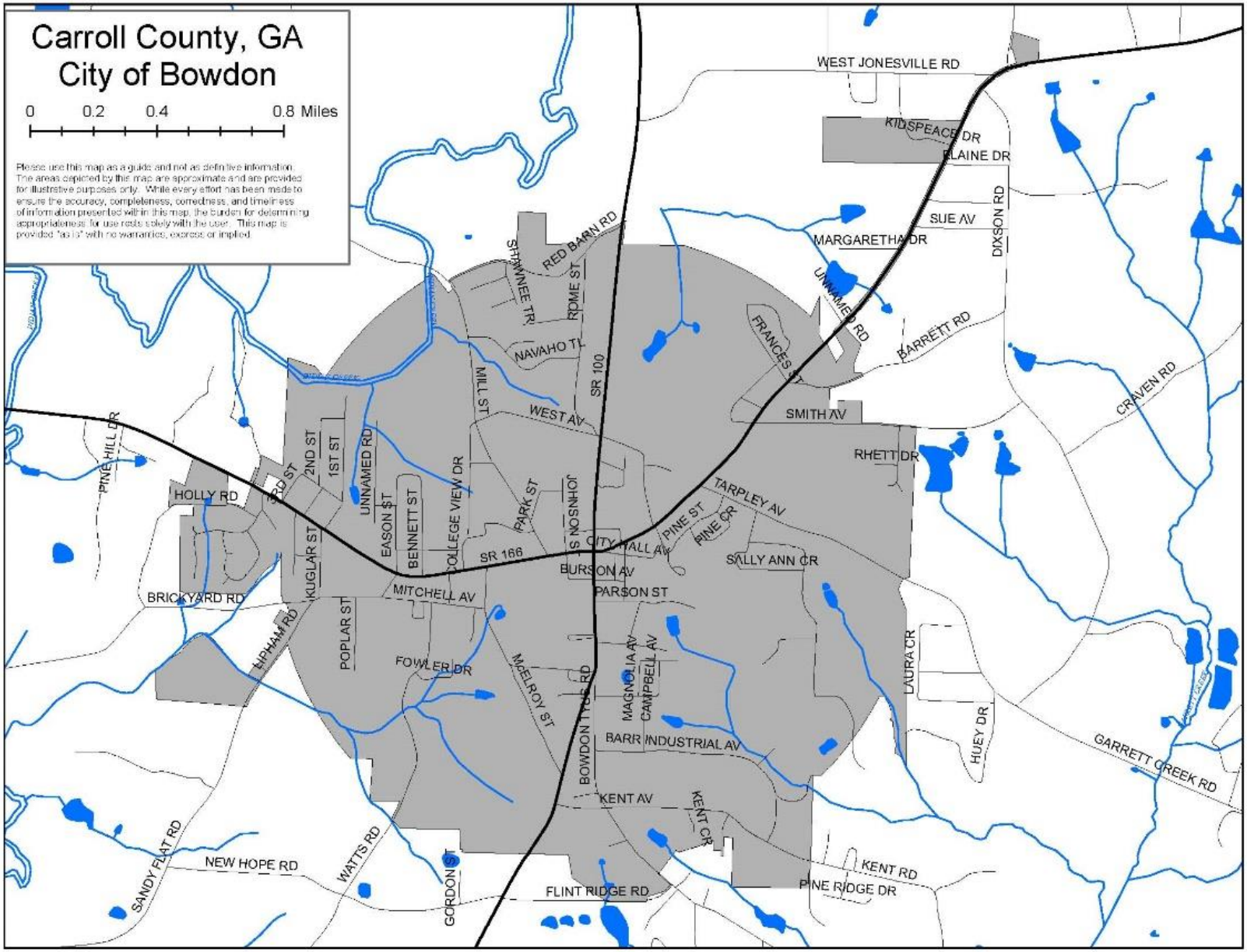
### 4. Parks and Recreation

Bowdon has several municipal parks, a senior center, and Copeland Hall, a cultural arts center where residents can enjoy the performance arts.

### 5. Land Use and Development

Bowdon has maintained its small-town feel. It is amid a sparsely populated agricultural and timbered area. With its proximity to the interstate, many trucks travel down Highway 100 from I-20, navigating the narrow streets of downtown. A road improvement project to construct a bypass to divert these large trucks from the center of town has been proposed. This will help with alleviating any Haz Mat concerns.

The city also operates its own water and wastewater treatment plants, the latter with interconnected lift stations. Bowdon was recently awarded a Hazard Mitigation Grant to fund fixed generators for its water and wastewater treatment plants.




Map 2.9: City of Bowdon

## C. City of Carrollton

### 1. General

Carrollton is the County seat, and sits in the center of the county, with transportation veins extending in all cardinal directions. The city's population has grown 2.5% in the last five years, from 26,397 in 2018, to an estimated 27,058 in 2023. Carrollton has had a historically steady growth rate of approximately 1.28% annually. Because Carrollton is relatively autonomous from the economic and development dynamics of the metro Atlanta area, this growth rate is more closely tied to Carrollton's own economy, which is diversified and stable. Carrollton's slow, steady growth rate has benefited the city by allowing jobs and services to grow simultaneously with the population. The city limits cover approximately 24.19 square miles, including 0.5 square miles of water. This gives Carrollton an average density of 1,142 persons per square mile.

Carrollton has a median age of 27.4 years, which is almost a decade younger than the average in the state of Georgia. This is due in part to the substantial college student population and growing popularity with young professionals.

The City of Carrollton initially adopted a Complete Streets Policy in 2015. This policy states that every public right-of-way will be planned, designed, constructed and maintained such that all residents within the City of Carrollton have multi-modal transportation options to safely and conveniently travel to and from their destinations. This includes making recommendations for pedestrians and bicycles in new roadway construction and reconstruction projects in a manner that is appropriate to the context of the planned roadway features, surrounding land use and desires of the community. The Complete Street Policy is an ongoing policy for public projects.

Education, healthcare and manufacturing represent approximately 42% of all jobs within the City of Carrollton. Carrollton's three largest employers are electrical wiring manufacturer Southwire, Tanner Health System (the regional hospital) and the University of West Georgia. Combined, they represent more than 9,000 jobs in the city. 6.1% of the population worked remotely in 2020; however, this number is likely much higher as companies transition to hybrid work models after the pandemic. Much of Carrollton's unique character can be attributed to its independence from the Atlanta job market. The average commute time for a resident in the city is 18.2 minutes – proof that Carrollton's citizens are also local employees.

The Carrollton City School System is one of 21 independent city school systems in the state of Georgia. The campus is comprised of four schools – the elementary, upper elementary, middle and high school – with a total of 5,418 students in 2022. In 2022/23, the city school system purchased more than 100 acres across the bypass for a planned expansion of recreational and athletic assets.

The Norfolk Southern rail line winds through Carrollton, as it serves industries located, for the most part, in the south and northwest areas of the city.

Carrollton does not currently have public transit. The University of West Georgia provides bus service exclusively to its students and provides service from the campus to several of the commercial shopping areas and downtown. Carroll County serves Carrollton residents with the Rural Transportation Initiative Program, providing public transportation on a per call basis.

The Carrollton GreenBelt is a 20+ mile bicycle and pedestrian trail system that encircles the community and connects schools, parks and shopping areas with city neighborhoods. The primary "loop" was completed in 2017 and was built through a combination of public and private funds. The plan was developed by the Friends of the Carrollton GreenBelt in coordination with the City of Carrollton. Several spokes, or trail spurs, have been constructed off of the primary loop, providing better access to the city's amenities. These spurs provide a safe alternative mode of travel for community residents.

Carrollton is a town with a university where housing units are predominantly renter-occupied, however the rate of homeownership has consistently increased since 2000. In 2021, the City of Carrollton's Housing Study provided a total of 9,641 housing units (with a unit being defined as 1 kitchen) within the city, but the total is 15,001 units if bedrooms are counted as units in the student housing complexes. UWG's enrollment is steady, with an estimated 14,500 students today.

## 2. Government

The City of Carrollton is governed by a Mayor and City Council. The mayor is elected at large, while the four city council members represent wards within the city. General Fund appropriations for the city exceeded $34 million in Fiscal Year 2025. Over half of these appropriations were for police and fire protection and response, and 9% were for Streets/Engineering and Planning/Community Development, as detailed below.

Table 2.2: Carrollton General Fund Appropriations for 2024 - 2025

| **City of Carrollton General Fund** | **$ 34,027,445** |
|---|---|
| Police Department | **$11,563,470** |
| Fire Department | **$7,384,263** |
| Streets / Engineering | **$1,739,215** |
| Planning/Community Development/Codes Enforcement | **$1,198,173** |
| **Subtotal** | **$21,885121** |
| **Percentage of total** | 64.3% |

In addition to the General Fund, the City of Carrollton has a Water Enterprise Fund that totaled $20,851,287 in FY 2024-25, and a Sanitation Enterprise Fund that was $6,663,793 the same year.

## 3. Public Safety

The City of Carrollton Police Department employs 81 full-time and part-time sworn police officers, who are supported by 14 full-time and 3 part-time civilians. As part of its citywide duties, the Carrollton Police Department collaborates with the University of West Georgia's police officers, whose jurisdiction extends 500 yards beyond the University's boundaries.

L.E.A.P., one of the many community programs implemented by the Police Department, is a voluntary program designed to help first responders provide faster, more effective assistance to residents with special needs or medical conditions. By filling out an L.E.A.P. form, residents can have important

information—such as mobility limitations, hearing or vision impairments, or other medical conditions—entered into Carroll County 911's system. If a 911 call is received from that residence, dispatch will alert responding personnel, helping to reduce response times and prevent critical miscommunications.

This program is especially vital as our city grows, ensuring that our elderly, disabled, and vulnerable residents are never alone in an emergency. L.E.A.P. enhances community safety, fosters a stronger sense of neighborly support, and gives families peace of mind.

The City of Carrollton Fire Department has 67 full time personnel, 4 engine crews, one ladder crew, and maintains four fire stations. The Department takes a proactive approach towards fire safety and prevention, targeting home life, schools, and the work environment. The Department conducts a number of life-saving community programs, most of which are free, and which include:

- Fire Extinguisher Classes
- CPR First Aid Classes
- Fire Safety Education Classes (taught to schools, civic clubs, churches, and industries)
- Carbon Monoxide Monitoring
- Fire Safety Inspections
- Blood Pressure Checks

Each October, which is National Fire Safety Month, the Carrollton Fire Department visits elementary schools to teach fire safety. Subjects include: How to use the 911 emergency phone system, how to escape from the house if there is a fire or if you see or smell smoke, creating a safe meeting place outside the home, what to do if your clothes catch fire, how smoke detectors work and their importance, the dangers of playing with matches or lighters, and how firefighters look and sound with their protective clothing and air packs on.

At the high school level, the Fire Department teams with Police Department personnel demonstrate vehicle extrication and dangers of drinking and impaired driving. Advanced fire safety classes cover fire extinguisher operation, CPR and first aid.

## 4. Recreation

The Carrollton Parks and Recreation Department is a CAPRA-certified agency that continues to provide an exceptional array of parks, facilities, and programs that enrich the lives of residents and visitors alike.

As of May 2025, the department manages a diverse portfolio of recreation and specialty facilities, including the Lakeshore Recreation Center/Natatorium, which offers gym space, swimming, and multi-purpose rooms for classes and events. The East Carrollton Recreation Center serves as a hub for gymnastics, youth programs, and event rentals, while the Catherine Hardy Lavender Center provides flexible meeting spaces for community gatherings, a gymnasium, computer lab, mini spray park and hosts Legends West Amphitheater. Seasonal aquatic fun is available at the Midtown Water Park, and the Carrollton Senior Center is dedicated to senior wellness and social activities. Additional community facilities, such as the Bonner Recreation Center and The WPA, further support local programming and events. The department now boasts 25 pickleball courts.

Carrollton's extensive park system features over 30 parks, each offering unique amenities. Highlights include Alice Park with its fountain and pergola, Castle Playground with picnic areas and GreenBelt access, and central locations like City Hall Park and Courthouse Park, which feature water elements and pavilions. Lakeshore Park is equipped with tennis courts, batting cages, and sports fields, while Lake Carroll Park provides docks, boardwalks, and picnic areas. Longview Park stands out with its dog park and walking track, and Hobbs Park boasts an 18-hole disc golf course. The city's commitment to accessibility is evident at Safari Park, which features a wheelchair-accessible playground and pavilion. Numerous other parks, such as Grace, Kramer, Hay's Mill, Optimist, Oil, Presbyterian, Rome Street, Shay Hill, Smith, Triangle, and Worthy Park, offer additional amenities like skate parks, gazebos, and water features.

The department's programming is comprehensive and inclusive, serving youth, adults, seniors, and individuals with disabilities. Sports leagues, gymnastics, pickleball, and fitness classes are offered alongside arts and crafts, outdoor skills workshops, and a variety of camps, including summer day camps and specialized sessions for pickleball, gymnastics, mountain biking, and general sports. Aquatic offerings include swimming lessons, aquatic fitness, and competitive swim teams. The department also prioritizes therapeutic recreation for individuals with disabilities and provides seniors with tailored fitness, wellness, and social opportunities.

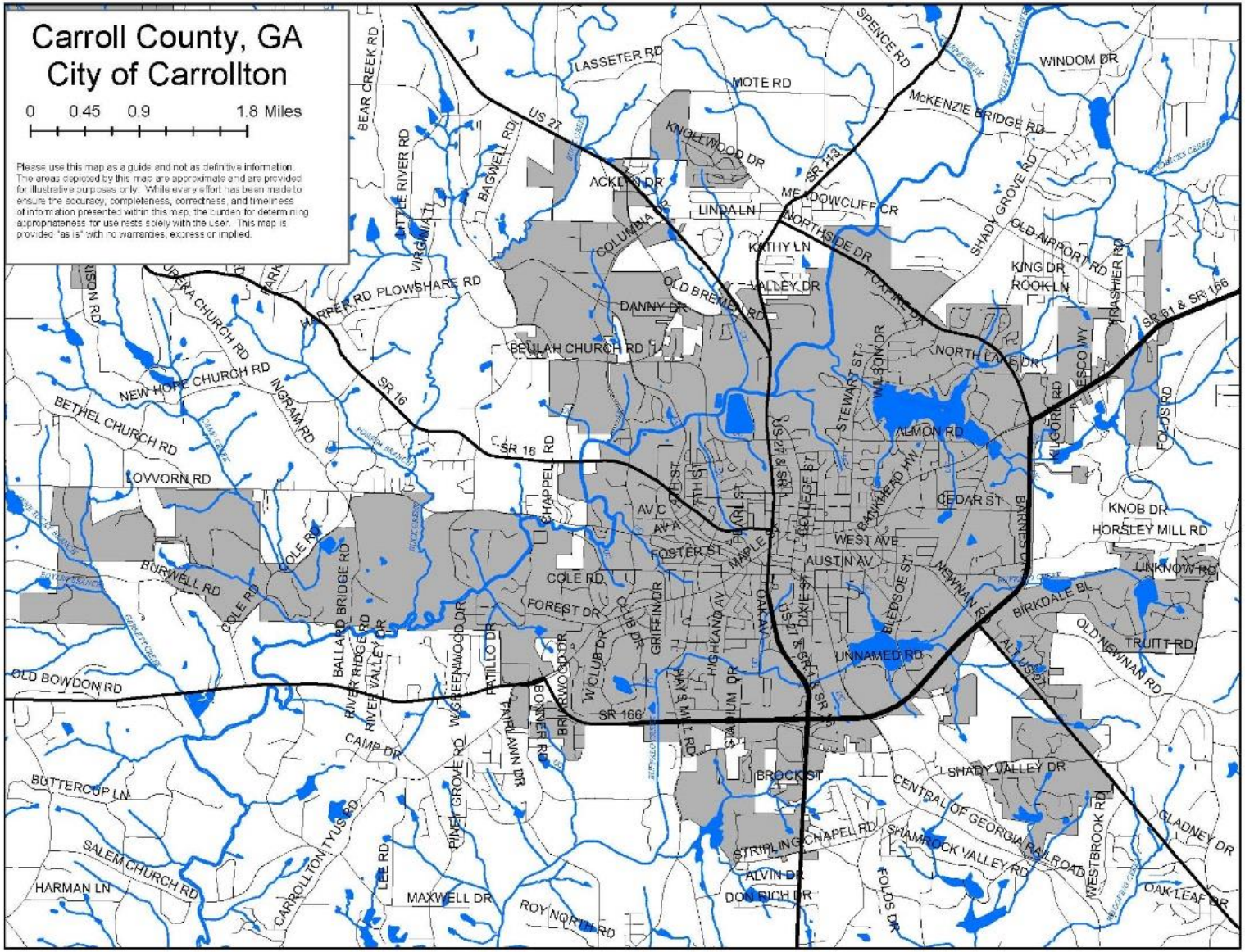
Special events are a cornerstone of community engagement, with activities such as the Carrollton Run Race Series, kids' fishing derbies, and greenhouse tours that blend recreation with environmental education. The department also facilitates facility rentals for private events, including the pickleball courts, and hosts free, family-friendly events that foster volunteerism and community spirit.

## 5. Land Use and Development

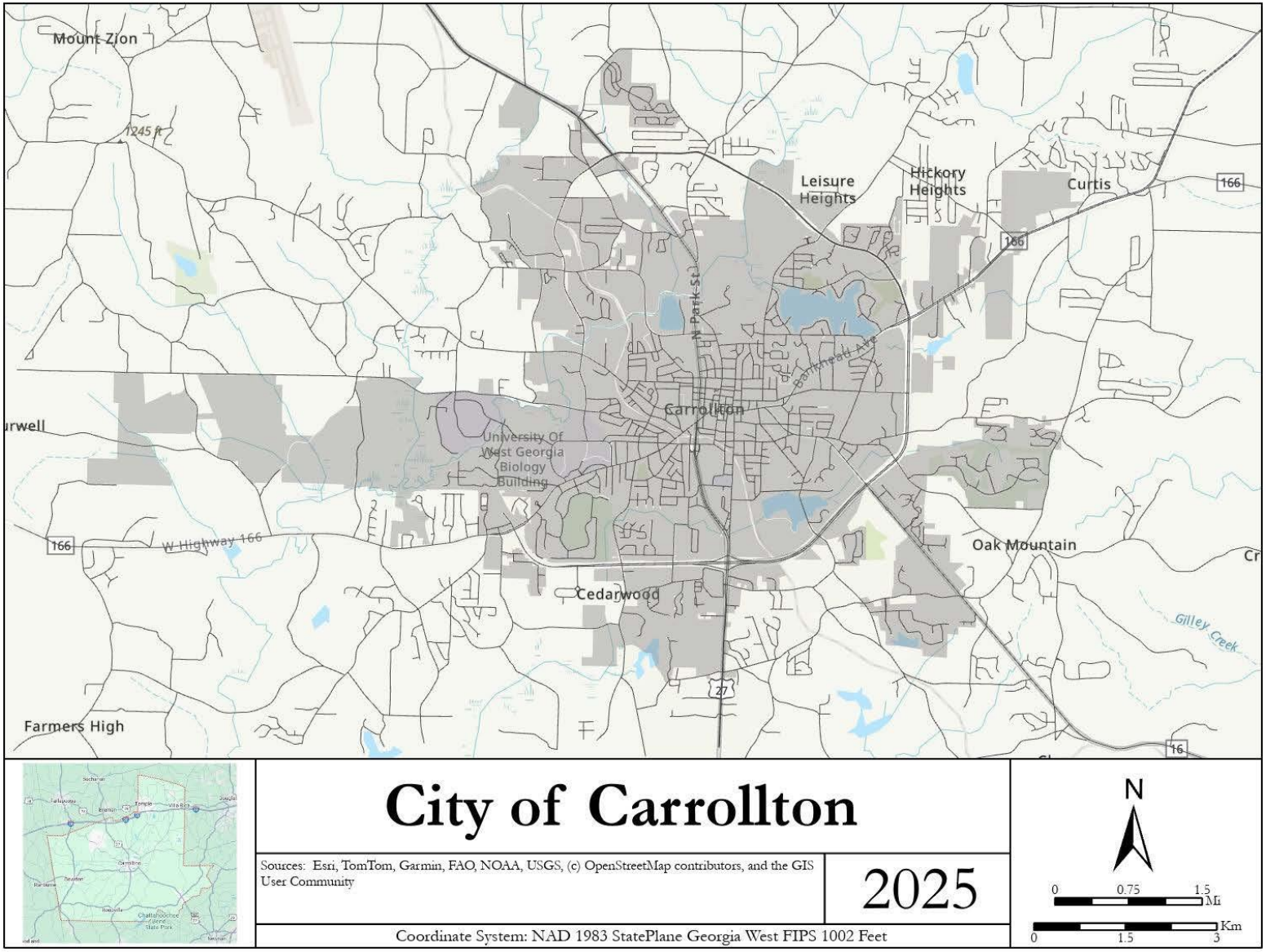
Building activity in Carrollton is currently strong, with an average of 390 building permits being issued annually over the course of the last 5 years.

The City's Community Development Department and Engineering Department reviews plans for new construction, and issues building, land disturbance, plumbing, electrical, and related permits. The City Engineer and Enforcement Officers inspect projects for code compliance, prior to issuing Certificates of Occupancy. The Department also works with its Planning Commission, Board of Development Appeals and Historic Preservation Commission to interpret, enforce and update the City's 2007 Unified Development Ordinance and map, including environmental sections relating to Flood Damage Protection, Water Resource Districts, River Corridor Protection and Soil, Erosion and Sedimentation Control.

Carrollton has a number of lakes and streams, which make it vulnerable to flooding. With urban densities, it is also vulnerable to tornadoes, tropical cyclones, winter weather and pandemics. Many industries reside in Carrollton, increasing the potential for hazardous materials spill. Utilizing best management practices and having access to the West Georgia Regional HAZ-MAT Team (located out of Carrollton Fire Station #21 behind Carrollton City Hall), provide for safety measures within the community.




Map 2.10: City of Carrollton




Map 2.11: City of Carrollton 2025

## D. City of Bremen

### 1. General

Located in both Carroll and Haralson Counties, the City of Bremen lies on both Interstate 20 and Highway 27 corridors. An active railroad line runs through the center of town. The city, originally called Kramer, was incorporated on September 5, 1883 and named after the Germany city of Bremen. The largest city in Haralson County, Bremen has a population of 7,647 as of the 2024 Census estimate, with a small percentage of residents in Carroll County.

### 2. Government

A mayor and 3 council members govern the City of Bremen.

### 3. Public Safety

Bremen has its own police and fire departments. Haralson County, along with Carroll, Heard and Coweta are members of a Western Area Regional Radio System, allowing for radio communications and mutual aid between the neighboring counties.

### 4. Parks and Recreation

Bremen has several municipal parks, a senior center, and other recreational opportunities.

### 5. Schools

The City of Bremen has its own school district, operating 4 schools: Jones Elementary, Bremen Middle, Bremen High and Bremen Academy. Consistently, Bremen is one of the top districts in the state in academia.

### 6. Land Use and Development

The Carroll County portion of the City of Bremen lies along the I-20 corridor and includes a mix of commercial, limited residential and timber land. Plantation Pipeline has a large facility near the county line. The city's vibrant downtown area, located in Haralson County, is guided by a Downtown Development Authority.

With traffic along Interstate 20, Highway 27 and the rail line, a considerable amount of commodities flow through the town daily, causing some concern as to the possibility of a Haz Mat incident.

Bremen operates its own water and wastewater treatment plants, the latter with interconnected lift stations.

## E. City of Mount Zion

### 1. General

The City of Mount Zion is in northern Carroll County and has a population of 2,284 in the 2023 American Community Survey. Mount Zion is spread over 9.8 square miles and is characterized by low-density development with a large amount of agriculture zoning designations. It is made up of mostly traditional single-family homes with acreage and some small livestock however the city is looking to grow.

Mount Zion does not have a designated center of town or main street area but does support a local school cluster. Mount Zion would like to coordinate opportunities of growth without losing the small-town atmosphere. Located in proximity to Highway 27 and the I-20 corridor, Mount Zion also abuts the West Georgia Regional Airport.

### 2. Government

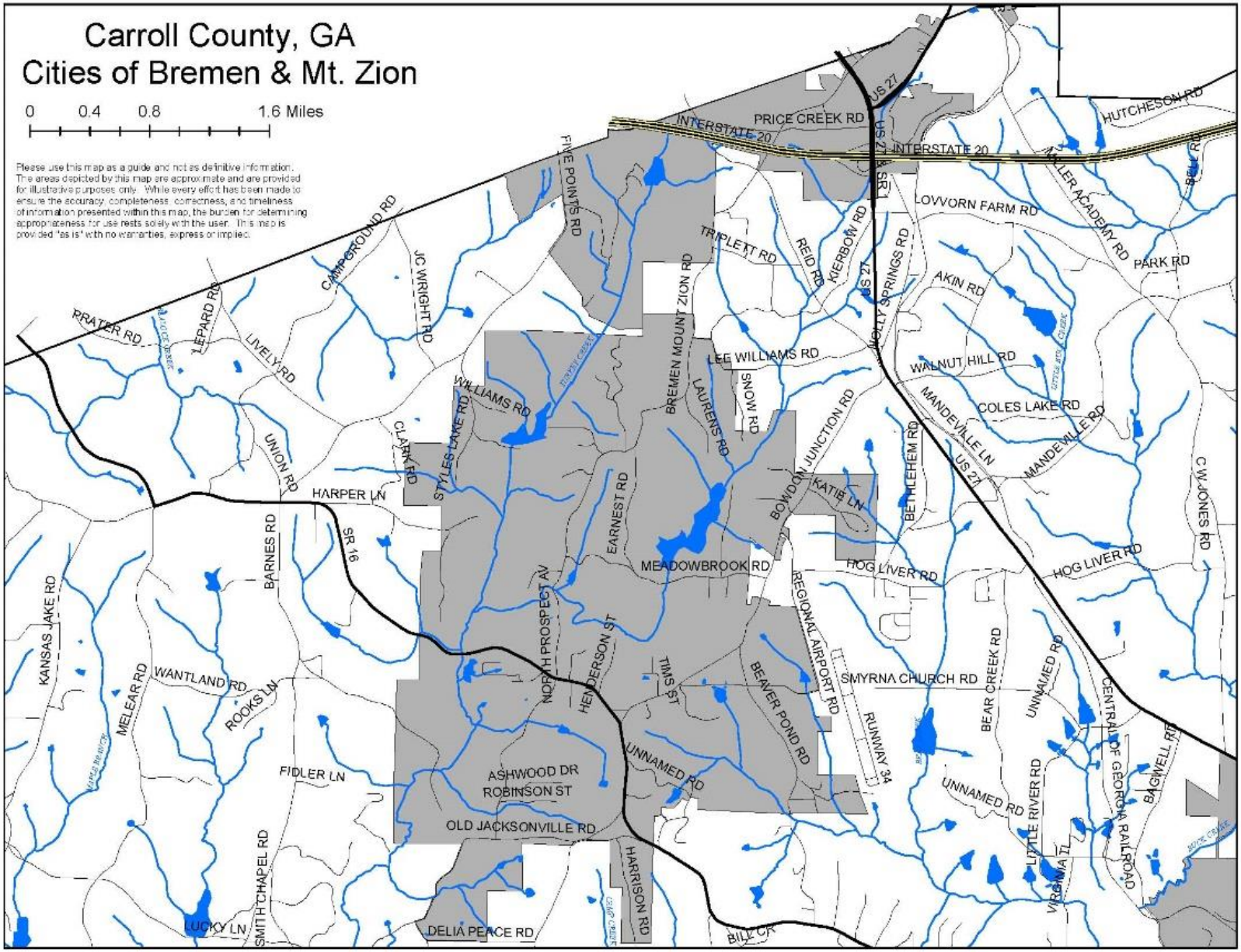
A mayor and 4 council members govern the City of Mount Zion.

### 3. Public Safety

Mount Zion has a police department, relying on the county for fire and ambulance.

### 4. Land Use and Development

With one of the largest cities by size, Mount Zion is also one of the smallest in terms of population. It is sparsely populated. Some areas are prone to flooding, and it is important that development regulations are followed to restrict building in those areas.




Map 2.11: Cities of Bremen and Mount Zion

## F. City of Roopville

### 1. General

The City of Roopville is in southern Carroll County at the intersection of GA Hwy 5, Old U.S. 27 and the new U.S. 27 Bypass. Roopville is distinctively situated on 0.77 square miles and on a ridge in which Old U.S. 27 divides the Tallapoosa and Chattahoochee River Basins. According to the U.S. Census Bureau, the total population of Roopville was 408 in 2023 in its American Community Survey. The town's location was on an historic trading route, the McIntosh Trail and historically it was a thriving business and trading community. But with the decline of trading opportunities in the new age, Roopville has opted to become a quieter community. The town boasts a museum, playground, as well as the renovated Roop House. Roopville also acquired a large acreage for a passive park with walking trails and amenities, featuring a restored grist mill.

### 2. Government

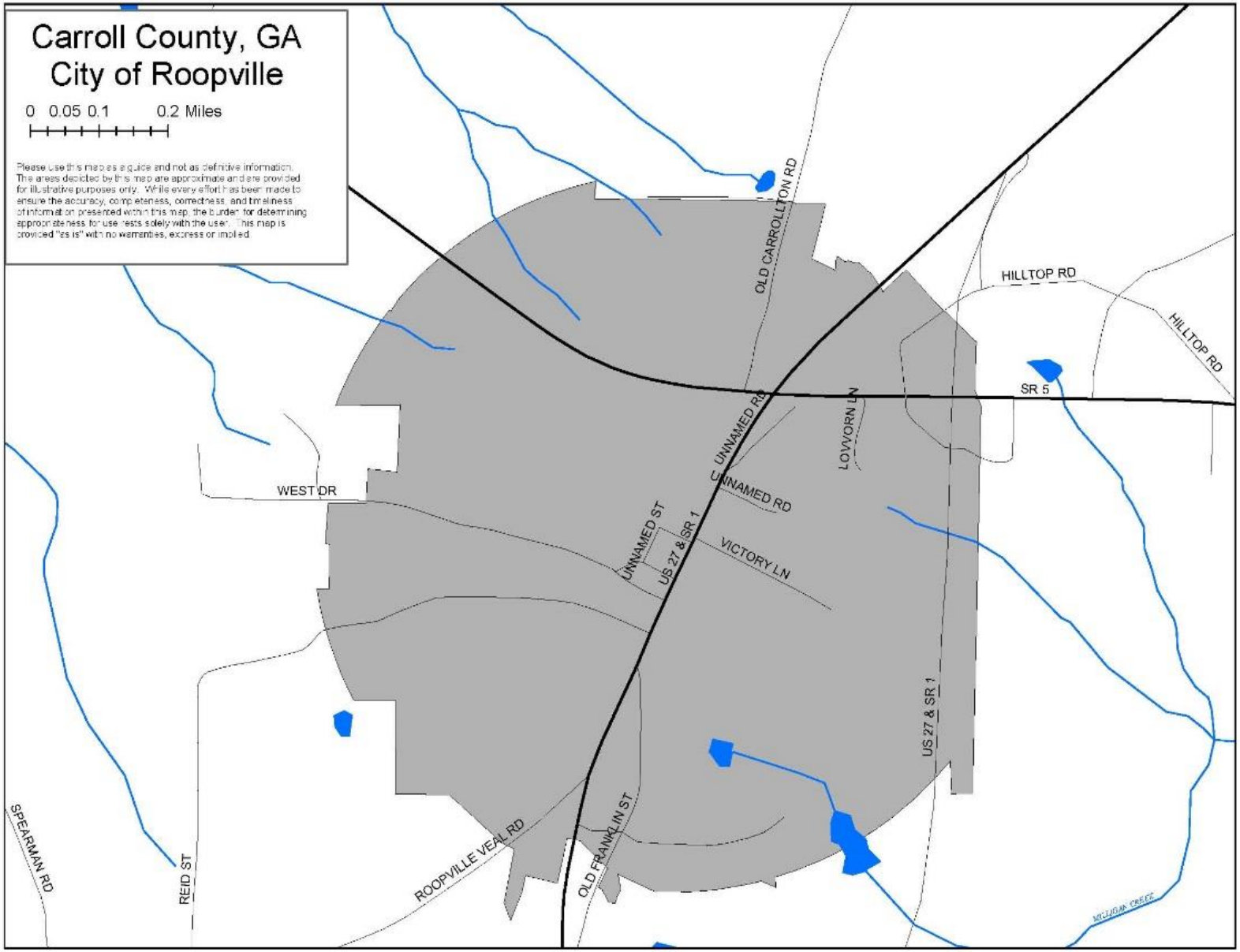
A mayor and 4 council members govern the City of Roopville.

### 3. Public Safety

As part of service delivery, police, fire and ambulance are provided by Carroll County.

### 4. Land Use and Development

Roopville is the smallest jurisdiction in acreage and in population. It has had very limited growth, and since Highway 27 has been rerouted, its vulnerability to hazardous materials incidents has been lessened.




Map 2.12: City of Roopville

## G. City of Temple

### 1. General

Located off I-20, 42 miles west of Atlanta and 11 miles north of Carrollton, the city of Temple is situated in Carroll and Haralson counties. Temple holds a rich history, known statewide due to the Temple Model School and its claim to the nation's first school bus. The city's development can be traced from the cotton-farming era through the Great Depression to the present time, where most citizens earn their livelihood through employment in local businesses and industries. During the housing boom of the early 2000s, Temple experienced considerable population growth, as residents moved westward from Atlanta, increasing from 2,383 in 2000 to 4,228 in 2010, and then to an estimated 6,406 in 2024.

### 2. Government

The Mayor and City Council govern the City of Temple. The mayor is elected at large, and five Council members represent wards. The General Fund appropriations for the City exceed $6 million for Fiscal Year 2025.

Table 2.4: Temple General Fund Appropriations for 2025

| **General Fund** | **$6,438,129** |
|---|---|
| Police Department | 2,031,953 |
| Public Works | 583,898 |
| **Subtotal** | *2,615,851* |
| **Percentage of Total** | 41% |

Table 2.5: Temple Enterprise Funds for 2025

| **Water/Sewer Fund** | **$5,223,657** |
|---|---|
| Waste Water Plant | 681,426 |
| Water Distribution | 2,436,894 |
| **Subtotal** | *3,118,320* |
| **Percentage of Total** | 60% |

### 3. Public Safety

Temple maintains a police department. Fire and ambulance services are provided by Carroll County. The Temple Police Department has 16 employees. Police department responsibilities include answering and responding to all 911 calls dispatched from the Carroll County 911 center, patrolling all businesses and

residents within the city limits, reporting and investigating all criminal activity, and protecting lives and property. The Temple Police Department is also proactive in the community. Officers participate in all parades and school events that involve public buildings, streets, and recreation, and also take part in the "Shop with a Cop" program.

## 4. Public Works

The Public Works Department has eight full-time employees. The Public Works Department provides many of the basic services that affect the daily lives of citizens. The responsibilities encompass administration, planning, street maintenance, grass cutting and landscaping, construction management, and technical engineering of the city's infrastructure, including roads, water distribution systems, sanitary sewer treatment, and maintenance of the city's MS4 structures. The Public Works Department also offers a Spring clean-up yearly to help residents eliminate accumulated debris from their properties. This type of routine maintenance is referenced in the Hazard Mitigation Plan, as it helps reduce stormwater and flash flooding.

## 5. Sewer

The Sewer Department has two full-time employees and one part-time employee. The department provides plant operations, sampling and monitoring for state-required compliance, process control sampling and analysis of solids, as well as spray field land application management and compliance reporting.

## 6. Senior Center

The Temple Senior Center employs six staff members. The Senior Center serves on average 199 meals a day, with around 125 of these to the homebound community, which are either picked up or delivered by staff and volunteers. A variety of activities are offered, including fitness classes, tech club, dances, special events, and games. They also offer free blood pressure checks, provided by various organizations. The Senior Center is responsible for ensuring the safety of its food, following all health department guidelines, and must pass a yearly inspection by the Carroll County Health Department.

## 7. Utility Billing and Accounts Receivable

The Billing Department employs two full-time employees. The Utility Billing Customer Service Department compiles meter readings based on meter readings, bills for water, sewer, and garbage collection, issues work orders for rechecks of meters, turns services on and off, monitors and collects on delinquent accounts, and provides customer service. The department keeps track and processes accounts and incoming payments in compliance with financial policies and procedures. Accounts receivable performs day-to-day financial transactions, including verifying, classifying, computing, posting, and recording accounts receivable data, and reconciling the accounts receivable ledger to ensure that all payments are accounted for and properly posted.

## 8. Accounts Payable

The Accounts Payables Department employs one full-time employee. The department maintains records of incoming invoices and payables per established financial policies and procedures. Accounts payable performs day-to-day financial transactions, including verifying, classifying, computing, posting, and

recording accounts payable data, and reconcile with the accounts payable ledger to ensure that all payments are accounted for and properly posted.

## 9. Parks and Recreation

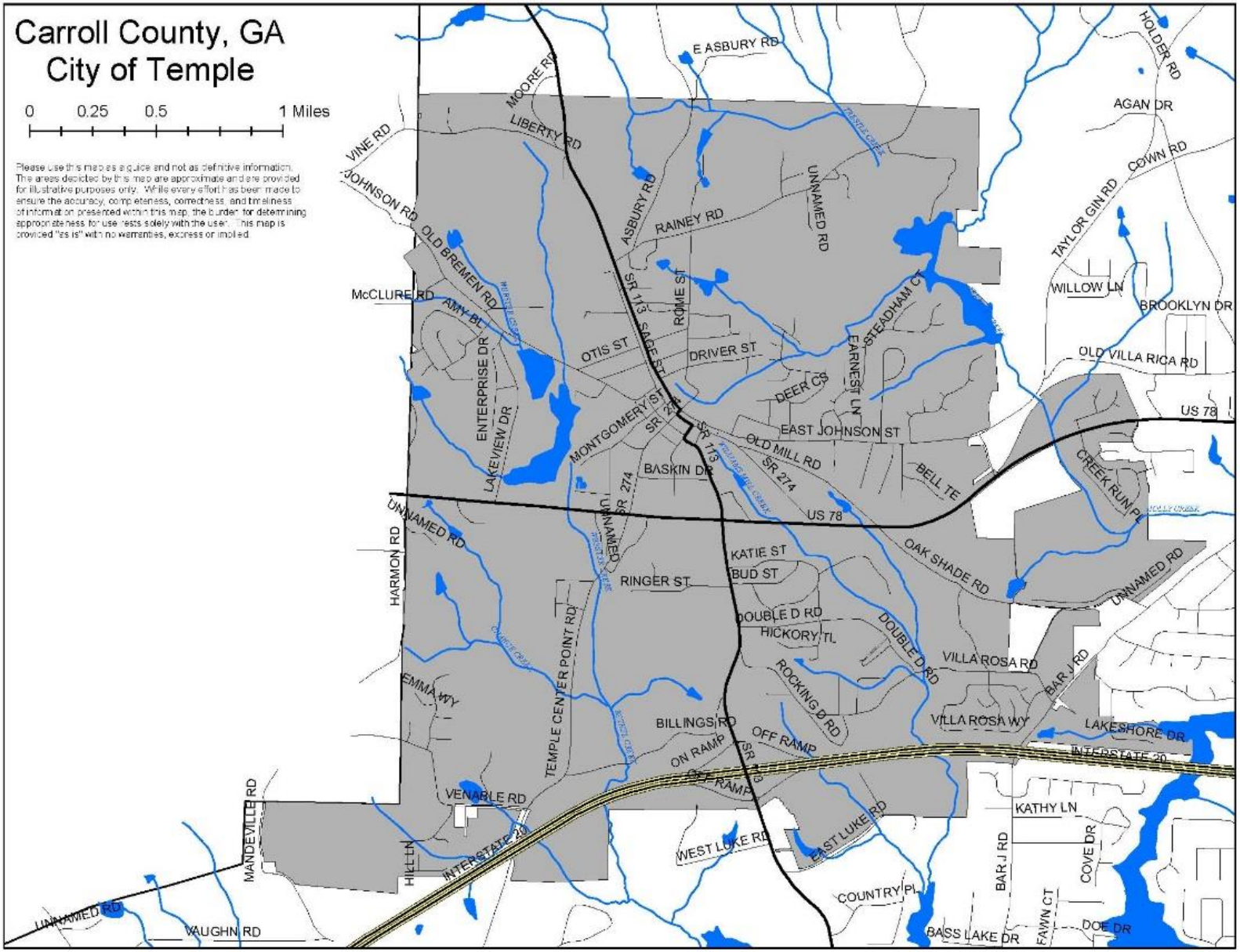
The Parks and Recreation Department employs six full-time staff members and eight part-time seasonal staff members. Depending on the season, the Recreation Department can have 350 kids participating in various sports-related activities. Programs that are offered include basketball, football, baseball, softball, soccer, volleyball, track and field, cheerleading and Zumba classes. Responsibilities include game management, fields and building maintenance, scheduling and community service work.

## 10. Land Use and Development

Temple has several lakes and streams within its boundaries, which make it vulnerable to flooding. The diligence of the Public Works Department in requiring annual yard maintenance will aid in the city's efforts to reduce flash flooding.

Temple's Industrial Park and the city's location on the Interstate and rail line increase the potential for a hazardous materials spill. Mitigation of rail line crossings would greatly help to reduce those risks, as trucks and buses are routinely stuck on the tracks.

The city's suburban densities make it vulnerable to tornadoes, tropical cyclones, winter weather and pandemics. Utilizing best management practices will help make the city more resilient.




Map 2.13: City of Temple

## H. City of Villa Rica

### 1. General

Villa Rica is known as the City of Gold, where arts and culture are at the heart and soul of the community. Located just 35 miles west of downtown Atlanta, Villa Rica is conveniently located just off Interstate 20. Jobs, a relatively low cost of living, and access to healthcare and excellent schools are responsible for the city's population growth, having reached an estimated 20,095 residents in 2024, up 17.7% since the 2020 Census. This growth is thanks to new industry and the expansion of existing businesses throughout the community.

A key strategy in economic development has been the expansion of existing businesses and industry in Villa Rica. Tanner Health System recently announced some new construction and renovations on the Villa Rica campus, offering new services and providing room for expansion of current offerings. Sugar Foods and Southwire continue to thrive.

### 2. Government

The City of Villa Rica is governed by a Mayor and 5 council members. The Mayor is elected at large, and five city council members represent wards. General fund appropriations for the City for 2020 are over $14 million and the major appropriations were divided as detailed below:

Table 2.6: Villa Rica General Fund Appropriations for 2020

| **General Fund** | **$14,069,930** |
|---|---|
| Police Department | 5,240,131 |
| Streets | 866,603 |
| Community Development | 686,162 |
| Parks and Recreation | 2,197,472 |
| Library | 500,120 |
| **Subtotal** | $9,490,488 |

### 3. Public Safety

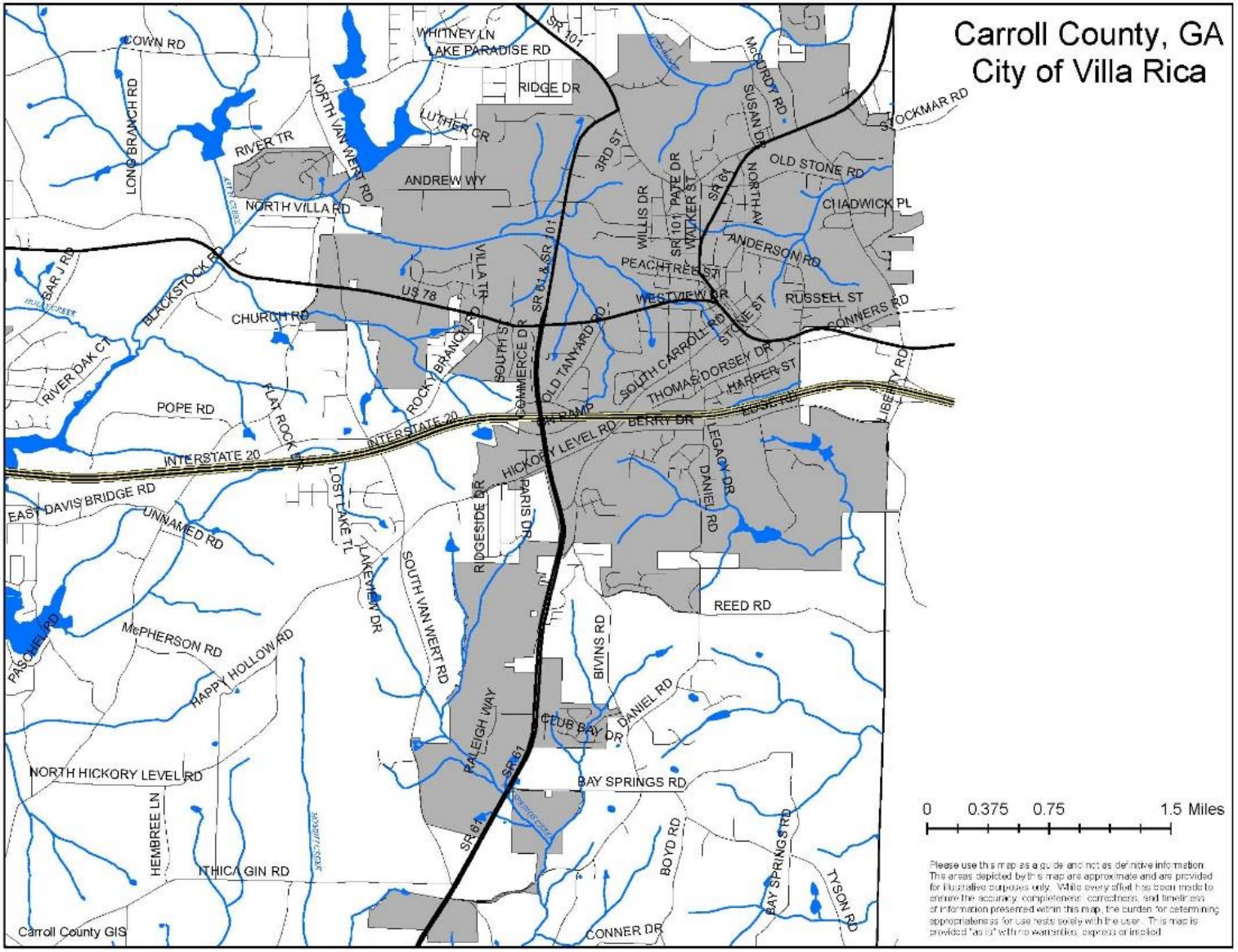
Villa Rica has a police department. Fire and ambulance services are provided by Carroll and Douglas counties.

## 4. Land Use and Development

Villa Rica has several lakes and streams, which make it vulnerable to flooding. A portion of the city's urbanized area has been designated as MS4, requiring the development and implementation of a storm water management program (SWMP) to reduce the contamination of storm water runoff and prohibit illicit discharges. The MS4 Outfalls Map (2.3) can be found in II.A.9.

Villa Rica's Industrial Parks and its location on the highway and rail line increase its vulnerability for a hazardous materials spill. Mitigation of rail line crossings would greatly help to reduce that risk, as trucks and buses are routinely stuck on the tracks.

The city's urban and suburban densities make it vulnerable to tornadoes, tropical cyclones, winter weather and pandemics. Utilizing best management practices will help make the city more resilient.




Map 2.14: City of Villa Rica

# I. City of Whitesburg

## 1. General

The City of Whitesburg is made up of 2.8 square miles and had a population of 622 as of 2023. With a charming small-town atmosphere, Whitesburg is located between the intersections of Highway 5 and Highway 16 (Alternate 27). Its elementary school is in the Central School District cluster.

## 2. Government

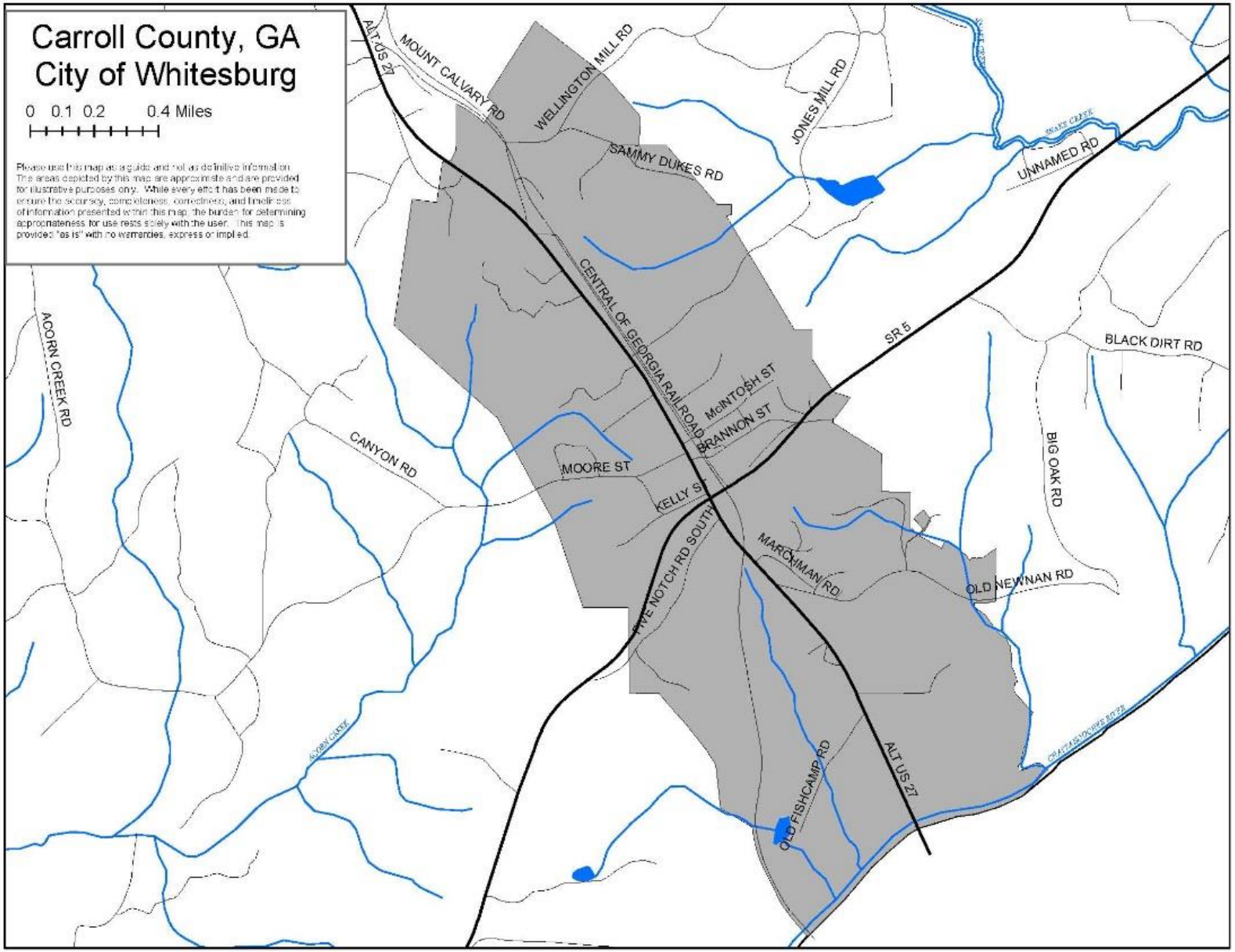
The City of Whitesburg is governed by a Mayor and 4 council members.

## 3. Public Safety

Whitesburg has a police department, while receiving fire and ambulance service from Carroll County.

## 4. Land Use and Development

Whitesburg is small in terms of acreage and in population. With Highway 16 (Alternate 27) and Highway 5 intersecting the town, there is considerable traffic, making it vulnerable to a hazardous materials spill. The Chattahoochee River borders the south side of town, putting it at high risk for flooding.




Map 2.15: City of Whitesburg

## J. Multi-Jurisdictional Planning and the Incorporation of Existing Planning Mechanisms

In future updates, all of the municipalities in Carroll County will work with the Carroll County Emergency Management Agency and the Department of Community Development to better cross-reference and enhance the plans and programs that are already in place. The Hazard Mitigation Plan Steering Committee will also use information from the plans, codes and programs listed below in Table 2.7, when drafting the future mitigation strategies.

Carroll County's Hazard Mitigation Plan and Comprehensive Plans are completed in-house by county staff, allowing for better local coordination of planning efforts. Carrollton and Villa Rica have full-time planning staff as well. Many of the other cities utilize the Three Rivers Regional Commission for their land use planning. Through participation in comprehensive and mitigation planning processes, all jurisdictions are encouraged to consider the integration of mitigation strategies into both plans, as well as into their capital improvement plans, economic development plans, local emergency operations plans (LEOP), continuity of operations plans, transportation plans, and storm water management plans if applicable. Another useful tool for the county and city governments for hazard information is the State of Georgia's Hazard Mitigation Plan.

The 2008 Carroll County Comprehensive Plan took into consideration FEMA flood zones and environmental character areas in developing its future land use. Mitigation planning will be further noted in subsequent updates.

The county has traditionally relied on the Carroll County Chamber of Commerce in guiding its economic development, and capital improvements have been funded through a Special Purpose Local Option Sales Tax (SPLOST). The LEOP is updated annually by the Carroll County Emergency Management Agency. Carroll County's Community Wildfire Protection Plan is currently being drafted.

In 2015, a portion of northern Carroll County fell under the MS4 guidelines, requiring storm water reporting. The area is reflected in Map 2.3.

A summary of the review and incorporation of existing plans, studies, reports and technical information can be found in Table 2.7 and 2.8.

Table 2.7: Review of Existing Plans, Reports and Technical Information

| Planning Document | Considered in Developing Mitigation Plan |
|---|---|
| Comprehensive Plan | Yes, Environmental, Population, Transportation and Land Use Elements |
| Economic Development Plan | Yes, Economic Reports (Appendix E) |
| Local Emergency Operations Plan | Yes |
| Continuity of Operations Plan | N/A – county is drafting a COOP |
| Transportation Plan | Yes, transportation routes (Appendix E) |
| Storm Water Management Plan | Yes, MS4 area (Map 2.6) |
| Community Wildfire Protection Plan | Currently being drafted by Georgia Forestry. Southern Wildfire Risk Assessment reviewed and included in Appendix. |
| State of Georgia Hazard Mitigation Plan | Yes, hazard information |

Table 2.8: Existing Programs, Policies, or Technical Documents

| | *Bowdon* | *Bremen* | *Carrollton* | *Mount Zion* | *Roopville* | *Temple* | *Villa Rica* | *Whitesburg* | *Carroll County* |
|---|---|---|---|---|---|---|---|---|---|
| Comprehensive Plans | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Watershed Management Plans | | | | | | | ✓ | | ✓ |
| Regional Development Plans | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Downtown Redevelopment | ✓ | ✓ | ✓ | | | | ✓ | | |
| Airport Plans | | | | | | | | | ✓ |
| Long-range Recreation Plans | | | ✓ | | | | | | |
| Open Space Plans | | | ✓ | | | | | | ✓ |
| Building Codes | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Land Development Codes | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Zoning Ordinance | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ |
| Historic Preservation Ordinance | ✓ | ✓ | ✓ | | ✓ | | ✓ | | ✓ |
| Development/ Subdivision Guidelines | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Service Delivery Act | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

| | *Bowdon* | *Bremen* | *Carrollton* | *Mount Zion* | *Roopville* | *Temple* | *Villa Rica* | *Whitesburg* | *Carroll County* |
|---|---|---|---|---|---|---|---|---|---|
| Transportation Plans / Safe Streets for All | | | ✓ | | | | | | ✓ |

# Chapter III. Hazard Vulnerability Assessment

*Update for 2026: Updated planning process, list of disasters, NFIP process and information, river flooding information, and updated statistics for the last 5 years for all hazards. Added further details for Hurricanes Zeta and Helene. Added State Functional Map. Added Extreme Temperatures, Terrorism to Hazards. Added National Risk Index data and maps for Carroll County. Renumbered graphics by hazard.*

*Update for 2021: Updated list of disasters, data and descriptions. Added details of the Christmas Eve Floods from 2015. Added details for Hurricane Irma. Hazard Risk Analyses developed by Carl Vinson Institute provided by GEMA and incorporated into the assessment. Added general hazard 3A worksheets for each jurisdiction and flooding specific ones for the county, Bowdon, Carrollton, Mount Zion, Temple and Villa Rica. Added Flood Zones Maps for the county, Bowdon, Carrollton, Mount Zion, Temple and Villa Rica. Added information regarding river gauges. Added brief description for Hurricane Zeta. Added the Beaufort Wind Scale to Severe Thunderstorms. Added the Drought Monitor Time Series Graph and the Wildlife Urban Interface Map for wildfires. Added brief description of the SARS-CoV2 event in Pandemic/Epidemic. Added information about new requirement of Emergency Action Plans for Category I Dams.*

*Update for 2016: Further explanation and updated numbers for the following sections: Hazard Identification Flooding, Assets Exposed to Flooding Hazard, Repetitive Loss Properties, Hazard Profile Flooding, Land Use Flooding (updated Building Code, detailed TPL project on Little Tallapoosa River and new monitoring flood levels at Chattahoochee River in Whitesburg), Hazard Identification Tornado, Enhanced Fujita Scale (replacing Fujita Scale), Hazard Profile Tornado, Land Use and Development Tornado (updated Building Code), Hazard Identification Severe Thunderstorms (added Hail), Hazard Profile Severe Thunderstorms, Land Use Severe Thunderstorms (updated Building Code, added Preparedness section), Hazard Identification and Profile Winter Storms (added Extreme Cold / Wind Chill), Hazard Identification and Profile Drought and Wildfires (added latest data from Georgia Forestry), Land Use Drought (added discussion of green building and best management practices), Earthquakes Profile and Identification, (added Richter scale/map and updated latest numbers for Georgia), Hazard Profile and Identification Pandemic/Epidemic (added livestock, POD information), Hazard Profile and Identification Hazardous Materials (added information about Nuclear spills, removed statement on Methamphetamines as production has shifted to outside Carroll County), and Tropical Cyclones were added as a Hazard.*

## A. Comparison of State and County Hazards

The Natural and Man-Made Hazards documented in III. follow the hazards listed in the State of Georgia's Hazard Mitigation Plan, except where documented in the following table:

| Hazards Identified in 2024 Georgia State Plan | Equivalent Hazards Identified in the 2026 Carroll County Plan | Difference |
|---|---|---|
| Inland Flooding | Flooding | Difference in terminology. |
| Tornadoes | Tornado | |
| Drought | Drought | |
| Severe Winter Weather | Winter Storms | |
| Wind | Severe Thunderstorms | The county views wind as an associated hazard. |
| Wildfire | Wildfire | |
| Hurricane Wind | Tropical Cyclones | Difference in terminology. |
| Severe Weather | Severe Thunderstorms | Difference in terminology. |
| Dam Failure | Dam Failure | |
| Extreme Heat | Extreme Temperatures | Difference in terminology. |
| Seismic Hazards | Earthquake | Difference in terminology. |
| Coastal Hazards | | Due to county's inland location, not viewed as a threat. |
| Geologic Hazards | | County does not view as a threat. |
| Infectious Disease | Pandemics/Epidemics | Difference in terminology. |
| Cybersecurity Attack | Terrorism | Referenced |
| Active Shooter | Terrorism | Referenced as Mass Casualty |
| Radiological Release | Hazardous Materials Spills | Referenced |
| Hazardous Materials Release | Hazardous Materials Spills | |
| Infrastructure Failure | | County views this as a growing concern. |

## B. Federal and Local Declared Disasters

Carroll County has been federally declared for many types of disasters over the years, including hurricanes, tornadoes, flooding, and winter storms. Locally, it has been declared for droughts.

Here is a list of the declarations:

**Georgia Hurricane Zeta (DR-4579)**
Incident period: October 29, 2020
Major Disaster Declaration declared on January 12, 2021

**Georgia Hurricane Irma (DR-4338)**
Incident period: September 7, 2017 to September 20, 2017
Major Disaster Declaration declared on September 15, 2017

**Georgia Severe Storms and Flooding (DR-4259)**
Incident period: December 22, 2015 to January 13, 2016
Major Disaster Declaration declared on February 26, 2016

**Georgia Severe Winter Storm (DR-4165)**
Incident period: February 10, 2014 to February 15, 2014
Major Disaster Declaration declared on March 06, 2014

**Carroll County, Georgia Drought**
Incident period: April, 2013
Local Declared State of Emergency

**Georgia Severe Storms and Flooding (DR-1858)**
Incident period: September 18, 2009 to October 08, 2009
Major Disaster Declaration declared on September 24, 2009

**Georgia Severe Storms and Flooding (DR-1761)**
Incident period: May 11, 2008 to May 12, 2008
Major Disaster Declaration declared on May 23, 2008

**Georgia Hurricane Ivan (DR-1554)**
Incident period: September 14, 2004 to October 30, 2004
Major Disaster Declaration declared on September 18, 2004

**Carroll County, Georgia Drought**
Incident period: August, 2000
Local Declared State of Emergency (funding received from State of Georgia)

**Georgia Tornadoes (DR-1315)**
Incident period: February 14, 2000
Major Disaster Declaration declared on February 15, 2000

**Georgia Winter Storm (DR-1311)**
Incident period: January 22, 2000 to February 01, 2000
Major Disaster Declaration declared on January 28, 2000

**Georgia Hurricane Floyd (EM-3144)**
Incident period: September 14, 1999 to September 17, 1999
Emergency Declaration declared on September 14, 1999

**Georgia Severe Storms and Tornadoes (DR-1271)**
Incident period: April 15, 1999
Major Disaster Declaration declared on April 20, 1999

**Georgia Severe Storms, Tornadoes and Flooding (DR-1209)**
Incident period: February 14, 1998 to May 11, 1998
Major Disaster Declaration declared on March 11, 1998

**Georgia Hurricane Opal (DR-1071)**
Incident period: October 04, 1995 to October 05, 1995
Major Disaster Declaration declared on October 10, 1995

**Georgia Heavy Rains, Tornadoes, Flooding, High Winds (DR-1042)**
Incident period: October 01, 1994 to November 16, 1994
Major Disaster Declaration declared on October 19, 1994

**Georgia Tornadoes, Flooding, Heavy Rain, Tropical Storm Alberto (DR-1033)**
Incident period: July 03, 1994 to July 25, 1994
Major Disaster Declaration declared on July 07, 1994

**Georgia Severe Storm, Tornadoes, Flooding (DR-1020)**
Incident period: March 27, 1994 to April 10, 1994
Major Disaster Declaration declared on March 31, 1994

**Georgia Severe Snowfall, Winter Storm (EM-3097)**
Incident period: March 13, 1993 to March 17, 1993
Emergency Declaration declared on March 15, 1993

**Georgia Tornadoes, High Winds, Heavy Rain (DR-980)**
Incident period: February 21, 1993 to February 22, 1993
Major Disaster Declaration declared on March 04, 1993

**Georgia Heavy Rain, High Winds, Tornadoes (DR-969)**
Incident period: November 22, 1992 to December 07, 1992
Major Disaster Declaration declared on December 01, 1992

**Georgia Flooding, Severe Storm (DR-897)**
Incident period: March 01, 1991 to March 21, 1991
Major Disaster Declaration declared on March 15, 1991

**Georgia Flooding, Severe Storm (DR-880)**
Incident period: October 11, 1990 to October 29, 1990
Major Disaster Declaration declared on October 19, 1990

**Georgia Flooding, Severe Storm, Tornado (DR-857)**
Incident period: February 10, 1990 to February 24, 1990
Major Disaster Declaration declared on February 23, 1990

## C. Natural Hazard, Risk, and Vulnerability Summary

The Natural Hazard, Risk, and Vulnerability Summary was put together using the Local Mitigation Planning Handbook. This process was described in more detail in a Chapter I. E. The committee assessed hazards based on impacts and vulnerability. With impact, it is the effect of the hazard on the community and its assets, whereas vulnerability looks at how exposed or susceptible the asset is to damage.

The Hazard Mitigation Plan Steering Committee collected data related to all-natural hazards which have historically affected the county. The types of events determined to have a significant impact included floods, tornadoes, thunderstorm winds and lightning, tropical cyclones, winter storms, drought and wildfires, earthquakes, pandemics and epidemics and extreme temperatures. Additionally man-made hazards such as dam failure, hazardous materials spills, and terrorism were included in the plan. Floods are generally more localized in their impacts, whereas the rest of the hazards threaten the entire community. Since the last adopted plan in 2021, the county has added extreme temperatures and terrorism as a hazard group. The hazards are broken down by frequency and extent in the table below and further describe the potential impact on each jurisdiction. Vulnerability describes the exposure of assets to the hazard. Most of the county is considered low risk with low annual loss according to the National Risk Index in 3. E, except for census tracts in Carrollton and Villa Rica, which have moderate risk with moderate annual loss.

Valuations were provided by the Carroll County Tax Assessors Office and the Carroll County Emergency Management Agency. For the categories Agricultural, Commercial, Industrial and Residential, the loss values are taken from the assessed values for that district. These values do not include personal property. Critical Facilities loss values were taken from the GMIS table used in the 2026 plan that was updated by the county staff, reflecting increased values as well as a number of capital investments in buildings and equipment. Assessed values do not equal fair market values, so these are just estimates and not actual replacement costs.

| Table 3.0: Overall Likelihood and Extent of Hazards for the County | |
|---|---|
| **Dam Failure** | |
| Frequency | Low |
| Severity | Moderate |
| Probability | Low |
| **Drought** | |
| Frequency | Medium |
| Severity | Moderate |
| Probability | Medium |
| **Earthquake** | |
| Frequency | Very Low |
| Severity | Low |
| Probability | Very Low |
| **Extreme Temperatures** | |
| Frequency | Low |
| Severity | Moderate |
| Probability | Low |
| **Flooding** | |
| Frequency | High |
| Severity | Extensive |
| Probability | High |
| **Hazardous Materials Incident** | |
| Frequency | Medium |
| Severity | Moderate |
| Probability | Medium |
| **Pandemic and Epidemic** | |
| Frequency | Medium |
| Severity | High |
| Probability | Medium |
| **Severe Thunderstorm (includes Hail, Wind and Lightning)** | |
| Frequency | High |
| Severity | High |
| Probability | High |
| **Terrorism (including Cyber Event, Mass Casualty)** | |
| Frequency | Low |
| Severity | Moderate |
| Probability | Low |
| **Tornado** | |
| Frequency | Medium |
| Severity | High |
| Probability | Medium |
| **Tropical Cyclone** | |
| Frequency | Low |
| Severity | Moderate |
| Probability | Low |

| Wildfire | |
|---|---|
| Frequency | Medium |
| Severity | Moderate |
| Probability | Low |
| **Winter Storms** | |
| Frequency | Medium |
| Severity | High |
| Probability | Medium |

Table 3.1: Overall Likelihood and Extent of Hazards for Municipalities

| Hazard | | *Bowdon* | *Bremen* | *Carrollton* | *Mount Zion* | *Roopville* | *Temple* | *Villa Rica* | *Whitesburg* |
|---|---|---|---|---|---|---|---|---|---|
| **Dam Failure** | Frequency | Low | Low | Medium | Low | Low | Medium | Medium | Low |
| | Severity | Moderate | Moderate | High | Moderate | Moderate | High | High | Moderate |
| | Probability | Low | Low | Medium | Low | Low | Medium | Medium | Low |
| **Drought** | Frequency | Medium | Medium | Medium | Medium | Medium | Medium | Medium | Medium |
| | Severity | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate |
| | Probability | Medium | Medium | Medium | Medium | Medium | Medium | Medium | Medium |
| **Earthquake** | Frequency | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| | Severity | Low | Low | Low | Low | Low | Low | Low | Low |
| | Probability | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low | Very Low |
| **Extreme Temperatures** | Frequency | Low | Low | Low | Low | Low | Low | Low | Low |
| | Severity | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate |
| | Probability | Low | Low | Low | Low | Low | Low | Low | Low |
| **Flooding** | Frequency | Medium | Medium | High | Medium | Low | High | High | Low |
| | Severity | Moderate | Moderate | Extensive | Moderate | Low | Extensive | Extensive | Moderate |
| | Probability | Medium | Medium | High | Medium | Low | High | High | Low |

| Hazard | | *Bowdon* | *Bremen* | *Carrollton* | *Mount Zion* | *Roopville* | *Temple* | *Villa Rica* | *Whitesburg* |
|---|---|---|---|---|---|---|---|---|---|
| **Hazmat Release** | Frequency | Medium | Medium | Medium | Low | Low | Medium | Medium | Low |
| | Severity | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate |
| | Probability | Medium | Medium | Medium | Low | Low | Medium | Medium | Low |
| **Pandemics and Epidemics** | Frequency | Medium | Medium | Medium | Medium | Medium | Medium | Medium | Medium |
| | Severity | High | High | High | High | High | High | High | High |
| | Probability | Medium | Medium | Medium | Medium | Medium | Medium | Medium | Medium |
| **Severe Thunderstorms (Hail, Wind, and Lightning)** | Frequency | High | High | High | High | High | High | High | High |
| | Severity | High | High | High | High | High | High | High | High |
| | Probability | High | High | High | High | High | High | High | High |
| **Terrorism** | Frequency | Low | Low | Low | Low | Low | Low | Low | Low |
| | Severity | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate |
| | Probability | Low | Low | Low | Low | Low | Low | Low | Low |
| **Tornado** | Frequency | Medium | Medium | Medium | Medium | Medium | Medium | Medium | Medium |
| | Severity | High | High | High | High | High | High | High | High |
| | Probability | Medium | Medium | Medium | Medium | Medium | Medium | Medium | Medium |

| Hazard | | *Bowdon* | *Bremen* | *Carrollton* | *Mount Zion* | *Roopville* | *Temple* | *Villa Rica* | *Whitesburg* |
|---|---|---|---|---|---|---|---|---|---|
| **Tropical Cyclone** | Frequency | Low | Low | Low | Low | Low | Low | Low | Low |
| | Severity | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate |
| | Probability | Low | Low | Low | Low | Low | Low | Low | Low |
| **Wildfire** | Frequency | Medium | Medium | Medium | Medium | Medium | Medium | Medium | Medium |
| | Severity | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate | Moderate |
| | Probability | Low | Low | Low | Low | Low | Low | Low | Low |
| **Winter Storms** | Frequency | Medium | Medium | Medium | Medium | Medium | Medium | Medium | Medium |
| | Severity | High | High | High | High | High | High | High | High |
| | Probability | Medium | Medium | Medium | Medium | Medium | Medium | Medium | Medium |

**Key for Table 3.0 and 3.1 – Vulnerability Assessment Frequency and Probability Definitions**

| | | |
|---|---|---|
| VL | = | Very low risk/occurrence |
| L | = | Low risk; little damage potential (for example, minor damage to less than 5% of the jurisdiction) |
| M | = | Medium risk; moderate damage potential (for example, causing partial damage to 5-15% of the jurisdiction, infrequent occurrence) |
| H | = | High risk; significant risk/major damage potential (for example, destructive, damage to more than 15% of the jurisdiction, regular occurrence) |
| EX | = | Extensive risk/probability/impact |

**Key for Table 3.0 and 3.1 – Vulnerability Assessment Severity Definitions**

| **Hazards** | **Low** | **Mod** | **High** | **Ext.** |
|---|---|---|---|---|
| Tropical Cyclonic Events | *(See Wind & Inland Flooding)* | | | |
| Wind – Wind Speed | 38 MPH | 39–50 MPH | 50-73 MPH | 73–91 MPH |
| Severe Weather | *(See Wind & Inland Flooding)* | | | |
| Tornado - Magnitude | < F3 | F3 | F4 | F5 |
| Inland Flooding - Water depth | 3" or less | 3 – 8" | 8-12" | 12"+ |
| Severe Winter Storms – Ice/ Sleet | ½" or less | ½ – 4" | 4-7" | 7"+ |
| Severe Winter Storms - Snow | 1" or less | 1-6" | 6-12" | 12"+ |
| Drought – Duration | 1 year | 1 – 2 years | 2-5 years | 5+ years |
| Wildfire - # of Acres | <50 | 50-110 | 110-200 | 200+ |
| Earthquake - Magnitude | 1-2 | 3 | 4 | 5+ |
| Pandemics | Cluster: Few cases | Outbreak: More cases linked Epi (person, place, time) | Multiple Outbreaks (small scale) | Epidemic (large scale) |
| Hazardous Materials Incidents<br>Fixed<br>Transportation | <br>0-2<br>0-1 | <br>3-5<br>2-3 | <br>6-8<br>4-5 | <br>9-10+<br>6+ |

## 1. Flooding

### *a. Hazard Identification*

One of the costliest of natural disasters, flooding occurs from the overflow of rivers and streams due to severe storms or torrential rains and also as a secondary effect of a tropical storm or hurricane. Different variables impact flooding: topography, ground saturation, previous rainfall, soil types, drainage, basin size, drainage patterns of streams and vegetative cover. Georgia's red clay contributes to the problem of flooding in the Piedmont area of the state.

Flooding may occur slowly or become a flash flood, such as in the case of dam failure. The potential failure of a dam may result in people living downstream being in imminent danger from flooding. Weathering, mechanical changes and chemical agents can impact a dam, and reservoir sedimentation can significantly reduce flood control capability.

This section was updated utilizing historical data from the National Weather Service, National Climatic Data Center, Georgia Department of Natural Resources and other published reports. 3A Worksheets related to flooding were completed for the following jurisdictions: Carroll County, Cities of Bowdon, Bremen, Carrollton, Mount Zion, Temple, and Villa Rica. Bremen, Whitesburg and Roopville do not have any flood zones within their city limits.

### *b. National Flood Insurance Program*

Carroll County and the jurisdictions within participate in the National Flood Insurance Program (NFIP), joining in 2007, and continue to participate in good standing.

Table 3.1.1: NFIP Information for Carroll County and its municipalities

| Number | Jurisdiction | Initial FIRM Date | Current Map Date |
|---|---|---|---|
| # 130464 | CARROLL COUNTY | 12/15/1990 | 08/15/2019 |
| # 130208 | CARROLLTON | 04/03/1978 | 09/19/2007 |
| # 130335 | BREMEN | 08/01/1986 | 09/26/2008 |
| # 130244 | BOWDON | 06/17/1986 | 09/19/2007 |
| # 130286 | MOUNT ZION | 09/01/1987 | 09/19/2007 |
| # 130287 | ROOPVILLE | 09/19/2007 | NSFHA |
| # 130288 | TEMPLE | 09/18/1987 | 09/19/2007 |
| # 130289 | VILLA RICA | 09/1/1986 | 08/15/2019 |
| # 130503 | WHITESBURG | 09/19/2007 | 04/19/2017 |

Carroll County has adopted a Flood Plain Ordinance as well as a Watershed Protection Overlay that establishes a riparian buffer along its major waterways.

The NFIP strategy for the county and its cities is for each jurisdiction to promote the NFIP to existing residents in the flood zone. The county maintains the latest flood zone information and FIRM data from FEMA and has a FEMA flood plain administrator (FPA), who also serves as GIS manager, on staff who checks building permits for the county and cities to encourage any new structures to be built outside of the flood zone. The FPA meets with permit applicants when complaints arise about being in a Special Flood Hazard Area, making property owners aware of NFIP through printed materials. The combined strategy of insuring and mitigating existing structures and preventing future losses has been successful. The FPA is working to renew the Flood Plain Manager certification.

One barrier to an effective program has been no established Base Flood Elevation. The number of existing policies and claims is unknown. There are 4,348 parcels that make up this 41.7 square miles in the flood plain with roughly half (2,934 parcels) having structures on the parcel. In addition to FEMA Maps, the FPA uses Georgia DNR Flood Mapper and in-house GIS. There are no outstanding complaints or violations. No community assistance visit has been scheduled. Any damaged structures are identified through visual inspections.

The Town of Roopville is a Non-Special Flood Hazard Area, described as a property not at immediate risk for overflowing rivers or heavy rains. The town still participates in the NFIP.

Carroll County meets but does not exceed the compliance of the NFIP. It does not currently participate in the Community Rating system. The county's FIRM maps are digital. Floodplain development regulations exceed state minimum in that it is 1 foot above finished floor elevation. All building applications are reviewed by the FPA.

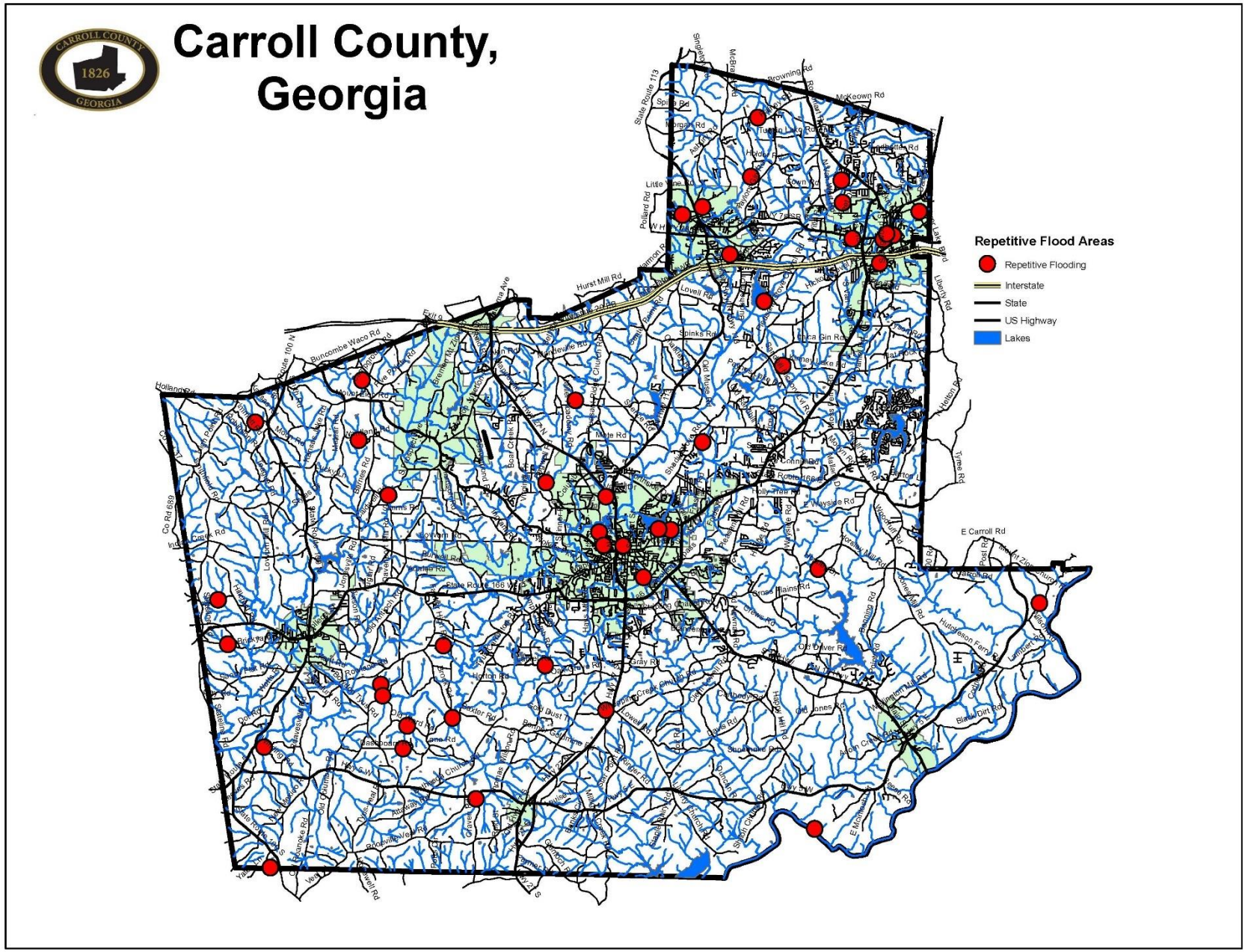
### *c. Repetitive Loss Projects*

Carroll County has several potential repetitive loss areas. Evaluating and prioritizing these properties could result in elimination of qualified properties from their current locations in the flood plain. This program can reduce the flood insurance burden and add green space to the county.

Fourteen residential properties have been purchased through the Repetitive Loss Program. The City of Carrollton is the only jurisdiction to have purchased repetitive loss properties, identifying a group of homes on Valley Circle that experienced prior flooding loss that benefitted from acquisition.


Figure 3.1.1: Repetitive Loss Properties Acquired *(Georgia Emergency Management Agency/Federal Emergency Management Agency)*

Carroll County is developing a proactive program to evaluate and prioritize homes in the county that should be bought, demolished and retained as green space because of frequent flooding. As detailed below in Assets Exposed to Flooding, there are a considerable number of structures in the special flood hazard areas. As of December 2015, there are approximately 20 residential repetitive loss properties in the county and municipalities combined. Carroll County will continue participating in NFIP, with diligence in progressing in achieving its mitigation strategies, such as acquisition, zoning and code enforcement.




Map 3.1.1: Repetitive Flood Areas (Carroll County GIS)

*d. Hazard Profile*

There are 31 significant flooding and flash flooding events on record at the National Climatic Data Center for Carroll County since 1996, resulting in over $26 million in property damage. The most significant flood occurred on September 21, 2009 and was described as a 500-year flood event. The 2009 flood received a Federal Declaration (DR-1858) and resulted in approximately $22,950,000 in damage throughout Carroll County and its municipalities and one fatality.

In terms of government assistance, the county and municipalities received the following amounts from FEMA to help repair and rebuild after the floods.

Table 3.1.1: Amounts Received from 2009 Floods

| Jurisdiction | Amount |
|---|---|
| Carroll County | $3,505,134.28 |
| Carrollton | $556,308.11 |
| Temple | $49,415.16 |
| Villa Rica | $158,926.50 |
| Water Authority | $681,631.90 |
| Board of Education | $36,134.43 |
| | $4,987,550.38 |

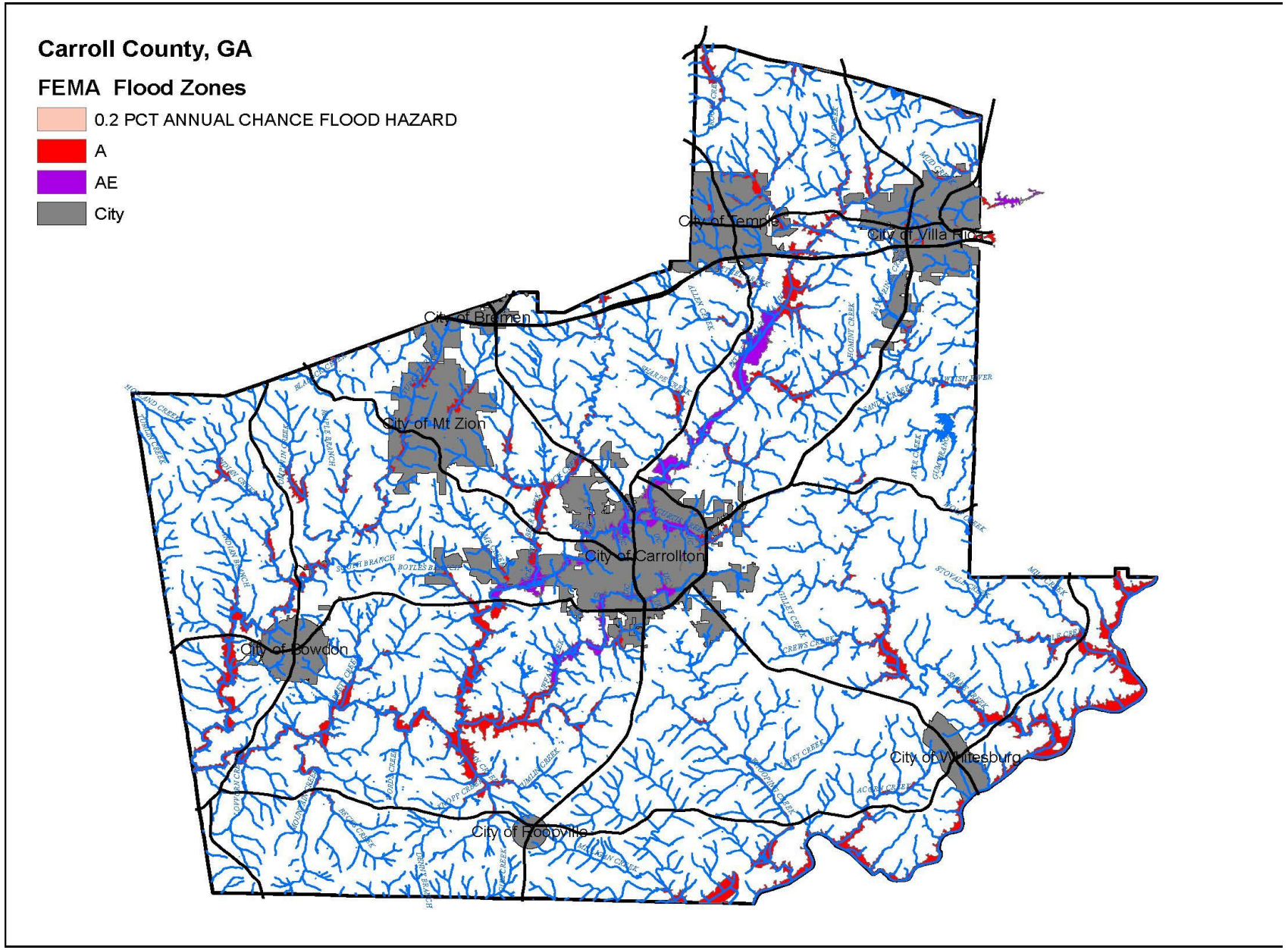
*Georgia Emergency Management Agency*

In the 2009 Flood, the county's reservoir dam on Snake Creek performed as designed with only minor damage to the left spillway, which has since been repaired. Protective construction techniques of dams may assist in mitigating such a hazard.

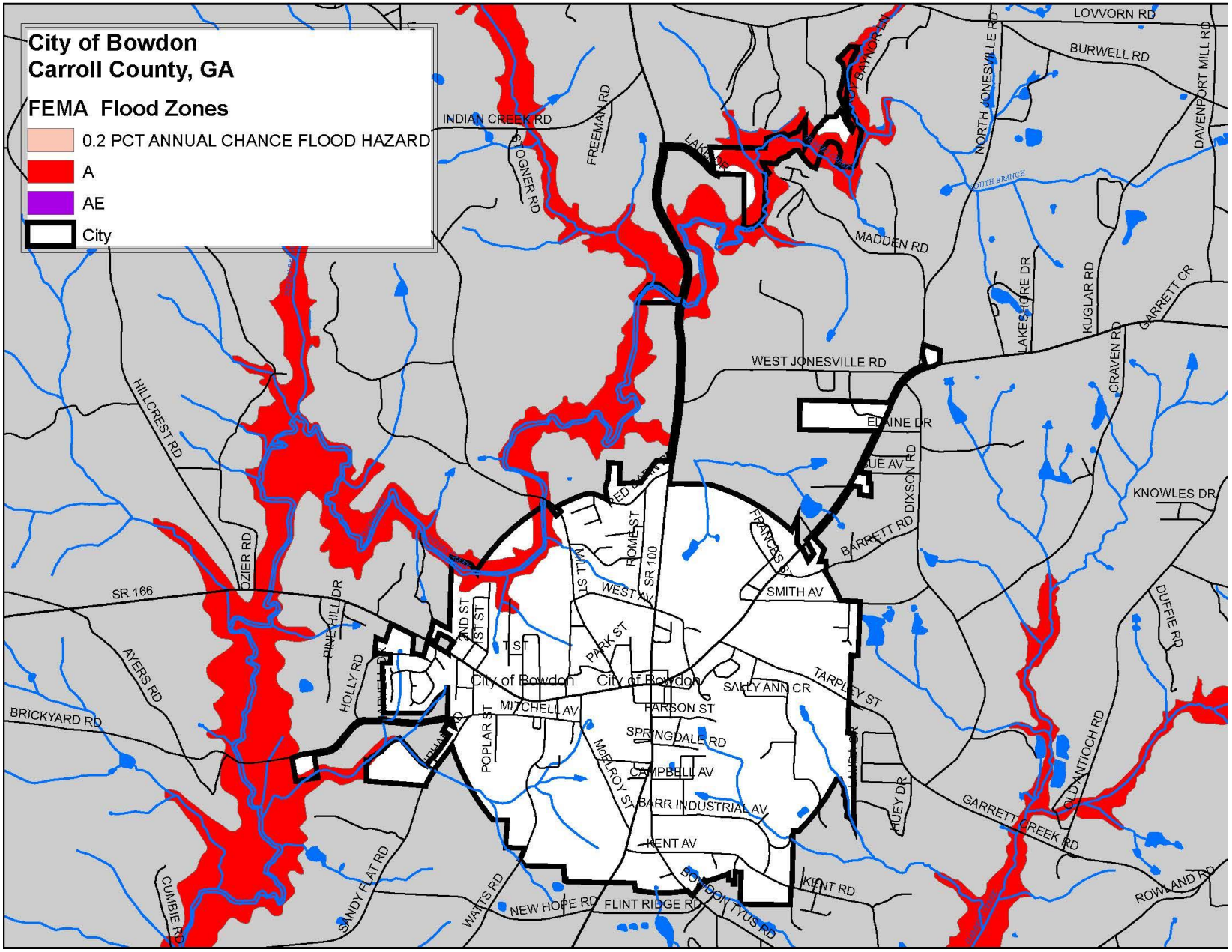
In 2015, Carroll experienced another flooding event on Christmas Eve that shut down numerous county roads, causing significant damage to several of them. This Christmas Eve Floods received a federal declaration (DR-4259), resulting in $20 million public assistance grants being obligated to the state.

Historically, there is an 89% chance that a flood will occur in Carroll County each year. Since 1996, there have been 22 flash flood events and 9 flooding events in the Storm Events Database. 197 Heavy Rain events were reported in the database since 2001 contributing to flooding. Localized flooding is commonplace in Carroll County. This is mainly due to flash flooding from storm runoff, causing a rise in creeks over roadways. Typically, these streams recede without the need for significant repairs. As Table 3.1: Overall Likelihood and Extent of Hazards for Municipalities depicts, there is a medium to high probability of a flood occurring each year in all jurisdictions except for Roopville and Whitesburg.

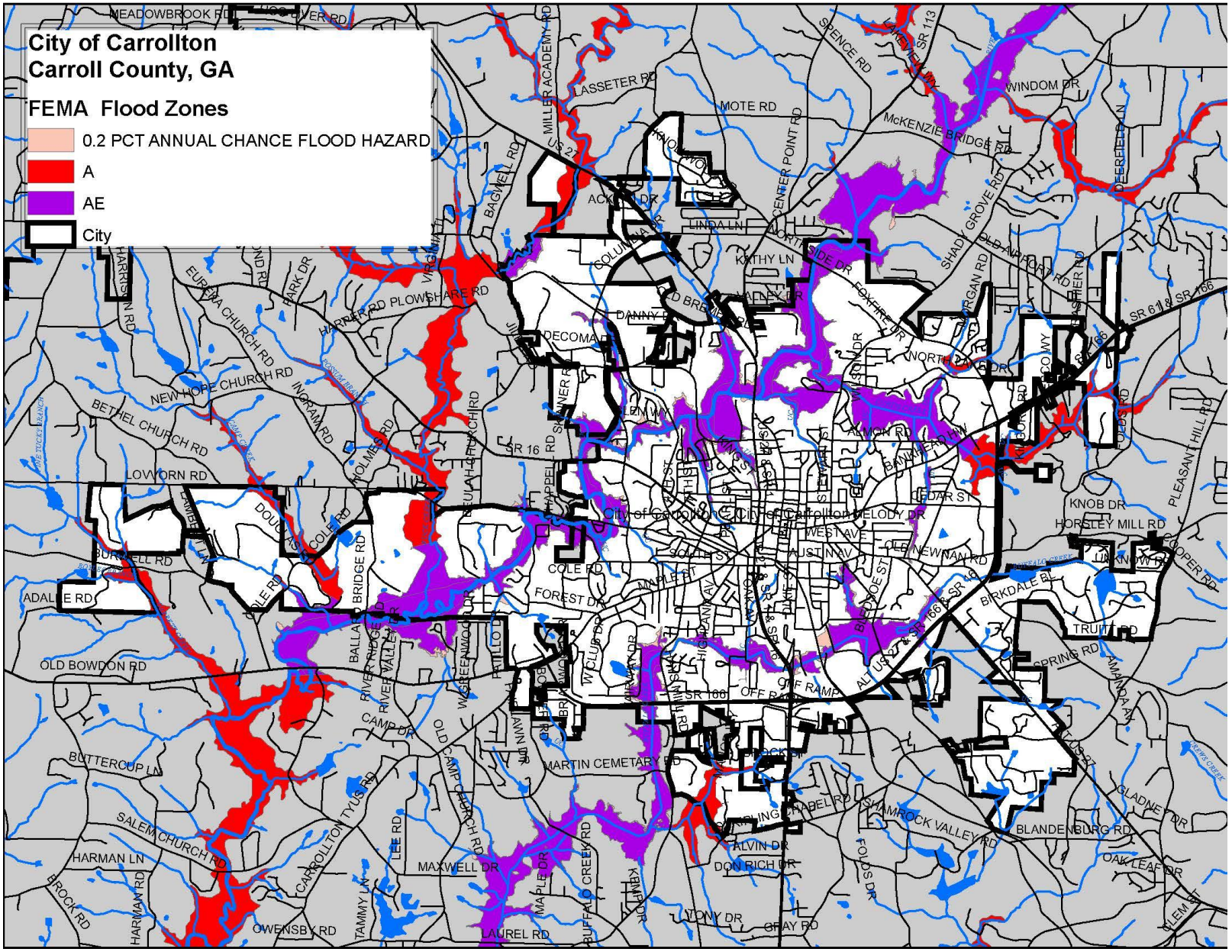
Carroll County's FEMA Flood Zones are depicted in Map 3.1.1. Flood Zone Maps for the cities of Bowdon, Carrollton, Mount Zion, Temple and Villa Rica follow. The cities of Bremen (Carroll County portion, Whitesburg and Roopville do not contain any flood zones.



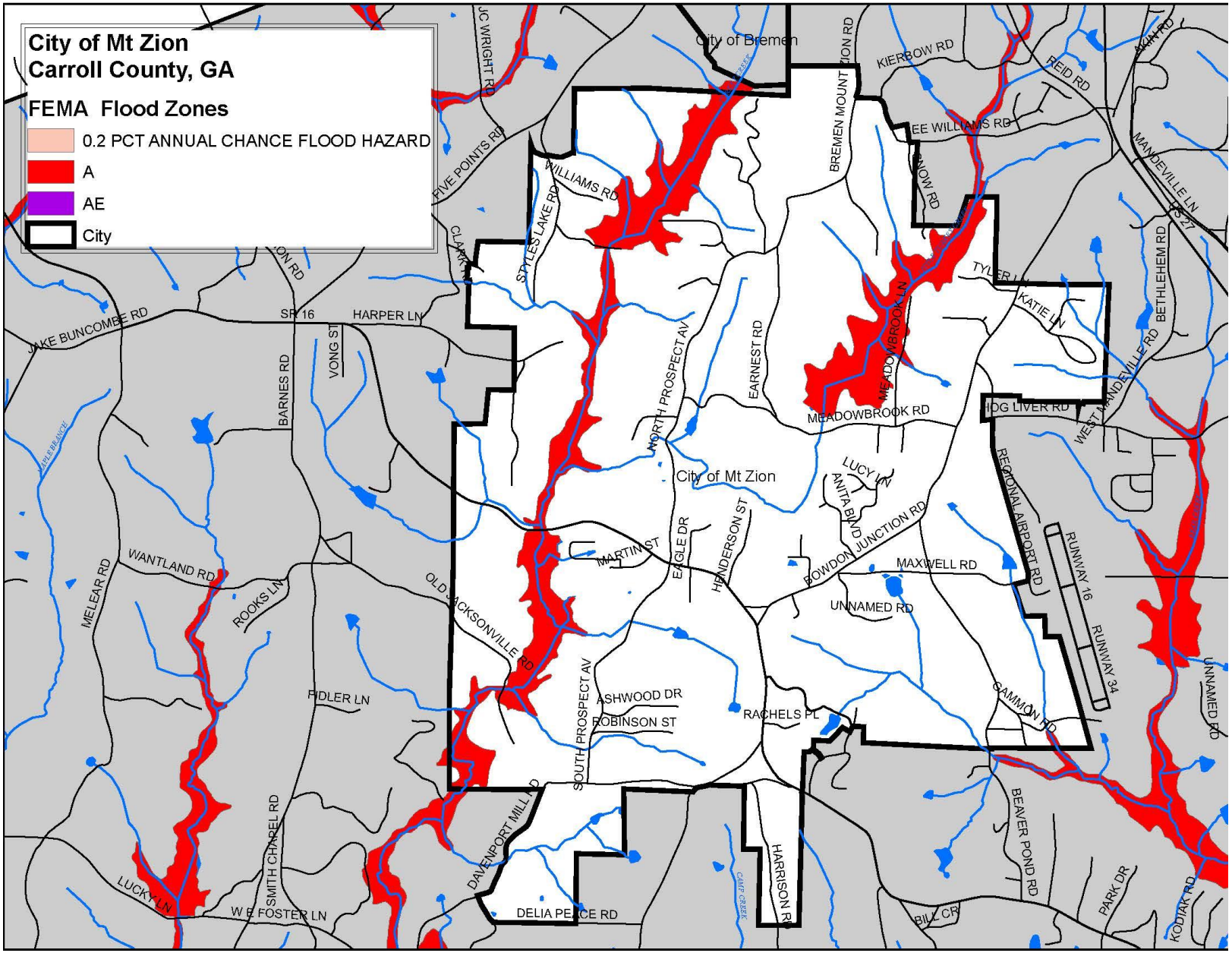

Map 3.1.2: FEMA Flood Zones (Carroll County GIS)



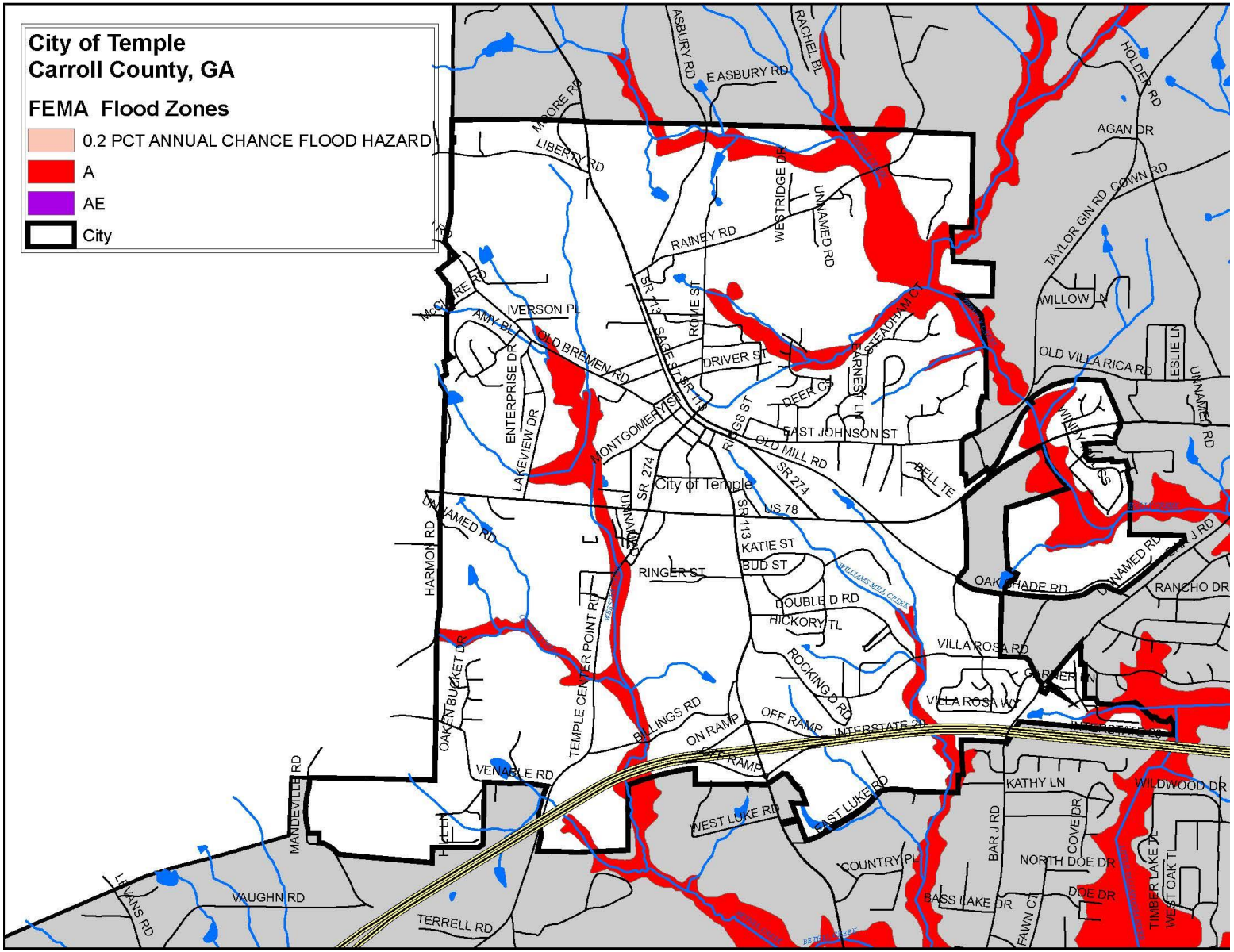

Map 3.1.3: FEMA Flood Zones – City of Bowdon



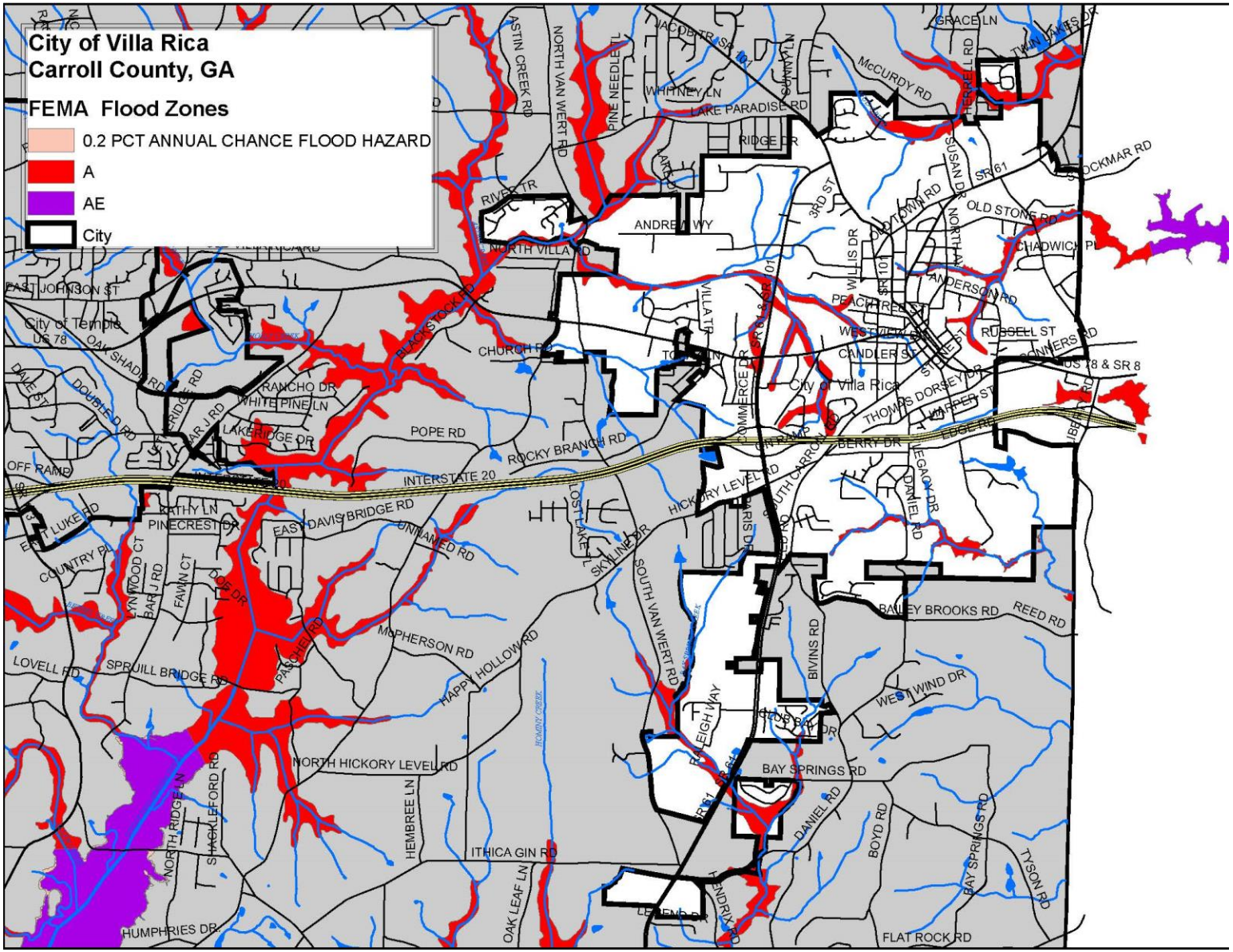

Map 3.1.4: FEMA Flood Zones – City of Carrollton




Map 3.1.5: FEMA Flood Zones – City of Mount Zion




Map 3.1.6: FEMA Flood Zones – City of Temple




Map 3.1.7: FEMA Flood Zones – City of Villa Rica

*e. Assets Exposed to Hazard*

There are many assets within Carroll County which are exposed to flooding hazards. There are 100 bridges, 44 culverts, and 104 dams that were determined to be critical to Carroll County. For more information on Dams, please see III. D. 2.

Of the 504 square miles that make up Carroll County, approximately 41.7 square miles lie within special flood hazard areas. 4,348 parcels make up this 41.7 square miles with roughly half (2,934 parcels) having structures on the parcel. Only 880 structures within the special flood area are part of platted subdivision communities. Almost all structures in the special flood area are contained to the banks of the major streams and rivers in the County, most notably along the Little Tallapoosa River and its reservoir Lake Buckhorn. This data was obtained from overlaying the 2024 County parcel data with the 2007 FEMA FIRM data effective September 19, 2007.

| Table 3.1.2 Areas of Concern for Localized Flooding |
|---|
| Wiley Wilson Road – Carroll County – south of Bowdon |
| Brickyard Road (east of bridge) – Carroll County – west of Bowdon |
| Laurel Road – Carroll County, south of Carrollton |
| Old Five Notch Road – Carroll county, east of Whitesburg |
| Yates Lane – Carroll County, south of Bowdon |
| Craven-Roopville Road – Carroll County, west of Roopville |
| Horsley Drive – Carroll County, east of Carrollton |
| Bagwell Road – Carroll County, northwest of Carrollton |
| J.C. Daniel Road – Carroll County, north of Carrollton |
| Holder Road (at creek) – Carroll County, east of Temple |
| Little Joe Road – Carroll County, west of Bowdon |
| Martin Road – Carroll County, north east of Carrollton |
| Grimmett Road – Carroll County, west of Mount Zion |
| Tanyard Road (at creek) – City of Villa Rica |
| Carrollton Tyus Road (at 3 bridges) – Carroll County, east of Bowdon |
| Denny Road off Hubbard Springs Rd (at creek) – north of Roopville |
| Wantland Road – Carroll County, west of Mount Zion |
| Campground Road (at creek) – Carroll County, northwest of Mt. Zion |

Davenport Mill Road (at creek near Caldwell Road) – Carrroll County, south of Mount Zion

McIntosh Reserve – Carroll County, west of Whitesburg

Victory Church Road at Victory Dashboard – Carroll County, east of Bowdon

Dashboard Road

Rocky Branch Road (across from car wash) – City of Villa Rica

Lake Drive (past Luther Circle) – Carroll County, west of Villa Rica

Old Bremen Road, Carroll County, north of Carrollton

Valley Circle – City of Carrollton

Bankhead Highway (at bridge) – City of Carrollton

West View Drive – City of Villa Rica

Kansas and Agnes Streets at Lake Buckhorn – Carroll County – southeast of Temple

Shadow Lake Drive – Carroll County, north of Carrollton

Molete Street – City of Carrollton

Strickland and Blandenburg Roads – City of Carrollton

Rome Street at John Wesley Plaza – City of Carrollton

Candler Street – City of Villa Rica

Punkintown Road at Old Stone Road – City of Villa Rica

Amberwood Lane –City of Villa Rica

Rainey Road – Carroll County, north of Temple

Villa Rosa Road – City of Temple

Rome Street – City of Temple

Old Bremen Road – City of Temple

Holliday Overlook – Carroll County, north of Villa Rica

Bankhead at South Dogwood – City of Villa Rica

Almon Rd at Lake Carroll Blvd – City of Carrollton

Old Word Rd and Harman Ln were noted to experience minor flooding in May, 2025, despite previous upgrades to the culverts.

*Carroll County Public Works, Carroll County Emergency Management Agency*

*f. Estimate of Potential Losses*

Complete losses of those properties located within flood zones which make up approximately 13 percent (or 66 square miles) of Carroll County could result in $1.6B in damages (assuming 100% loss).

Table 3.1.3: Total Property Losses for Carroll County on a Percentage Basis for Flooding

| **Structure Type and Amount of Structures** | **Value** | **75%** | **50%** | **25%** |
|---|---|---|---|---|
| Residential | $749,246,255 | $561,934,691 | $374,623,128 | $187,311,564 |
| Commercial | $30,367,878 | $22,775,908 | $15,183,939 | $7,591,969 |
| Industrial | $369,161,465 | $276,871,099 | $184,580,733 | $92,290,366 |
| Agricultural | $380,573,785 | $285,430,339 | $190,286,893 | $95,143,446 |
| Critical Facilities | $95,666,860 | $71,750,145 | $47,833,430 | $23,916,715 |

*Values provided by the Carroll County Tax Assessors and Carroll County Emergency Management Agency*

*g. Land Use and Development Trends*

Carroll County is making significant efforts to reduce building in flood hazard districts. Carroll County has adopted the 2018 Building Code with the 2023 amendments and has a flood plain manager who checks properties who are in the FEMA Flood Plain when a permit is requested.

Additionally, Carroll County Community Development reviews Erosion Sedimentation Plans and issues Land Disturbance Permits. Inspectors monitor the sites to ensure that sedimentation does not get into streams, potentially making flood conditions worse.

On the public side, the county has benefitted from mitigation efforts of the past by upsizing its culvert pipes whenever repairs are needed. This proved fortunate during a recent flood event in December, 2015, when Public Works Director Charles Pope noted on WLBB's Community Voice Program (12/28/2015) that the "Reason we didn't have as much damage this time is because of the 84 road projects we had in the '09 storms where we upgraded all of our storm [culvert] pipes." The county would have had more damage with that flooding event had it not been for those previous mitigation efforts.

These actions and a slower paced population growth have helped steady the county's vulnerability to flooding, which remains high, as it does for Carrollton, Temple and Villa Rica.

Two projects that have benefited the county indirectly in addressing the county's flooding hazard:

### *1. Trust for Public Land Pilot Study*

Carroll County participated in a Trust for Public Lands Pilot Study in 2002 that looked at the effects of land use on water quality in the Upper Little Tallapoosa Watershed. As a result of that study, the county passed a Special Purpose Local Option Sales Tax that allocated $20 million for green space acquisitions and development. Two passive use parks, one on the Little Tallapoosa River and another on the Chattahoochee River were purchased as a result.

The study also recommended increased monitoring and oversight of development in the watershed to ensure that erosion control best management practices were being enforced. The county obtained funds under an Environmental Protection Division 319 Grant to hire another enforcement officer. As indicated above, sedimentation buildup can diminish a reservoir's flood control capability. Stopping sedimentation before it enters a stream is an important preventative action.

### *2. Monitoring River Flooding*

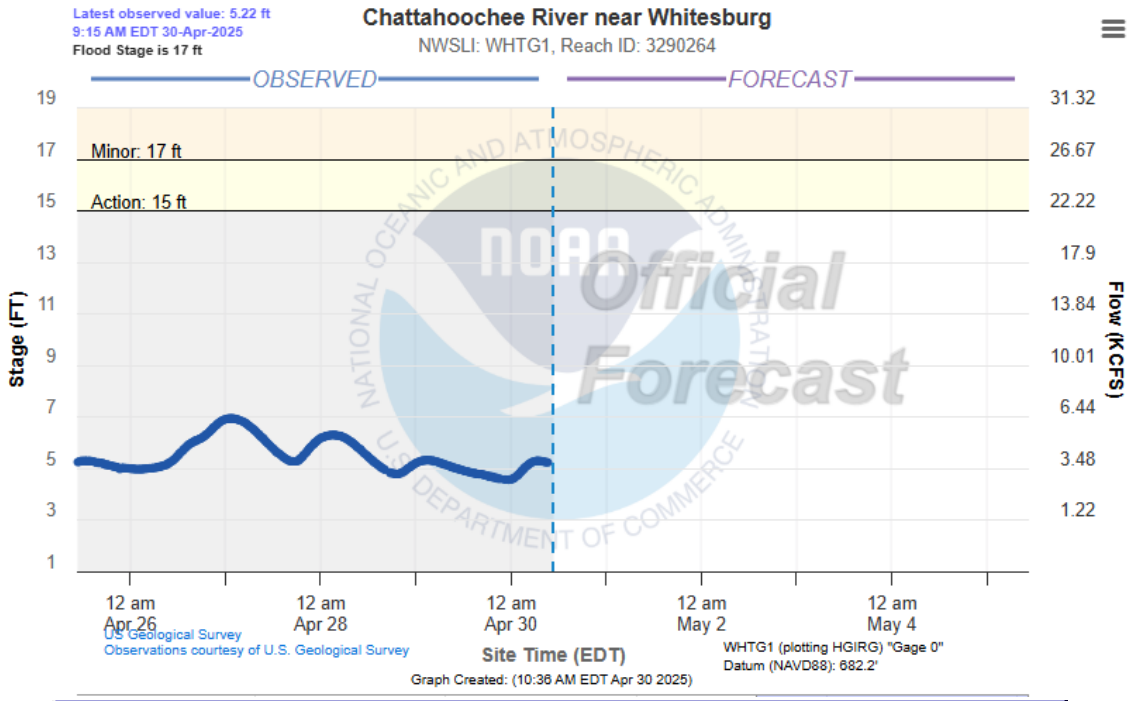
River monitoring flood gauges are located on the Little Tallapoosa River at Carrollton and Bowdon, on the Chattahoochee River at Whitesburg, and on the Snake Creek River, above and below the dam. There are no known gauges in Bremen, Mount Zion, Roopville, Temple or Villa Rica.

#### a. Chattahoochee River

The National Weather Service in conjunction with the Southeast River Forecast Center have adjusted flood stage levels for the Chattahoochee River at Whitesburg and will issue warnings accordingly to promote public safety and welfare. The following critical threshold levels were changed as of August 6, 2014 for the Chattahoochee River at Whitesburg (WHTG1):

| | |
|---|---|
| Bankfull/Action Stage | 15 feet |
| Flood Stage/Minor Flood | 17 feet |
| Moderate flood Stage | 21 feet |
| Major Flood Stage | 26 feet |

This allows public safety officials to have a better opportunity to respond in a flooding situation. Below is an example of the monitoring station's recorded values.



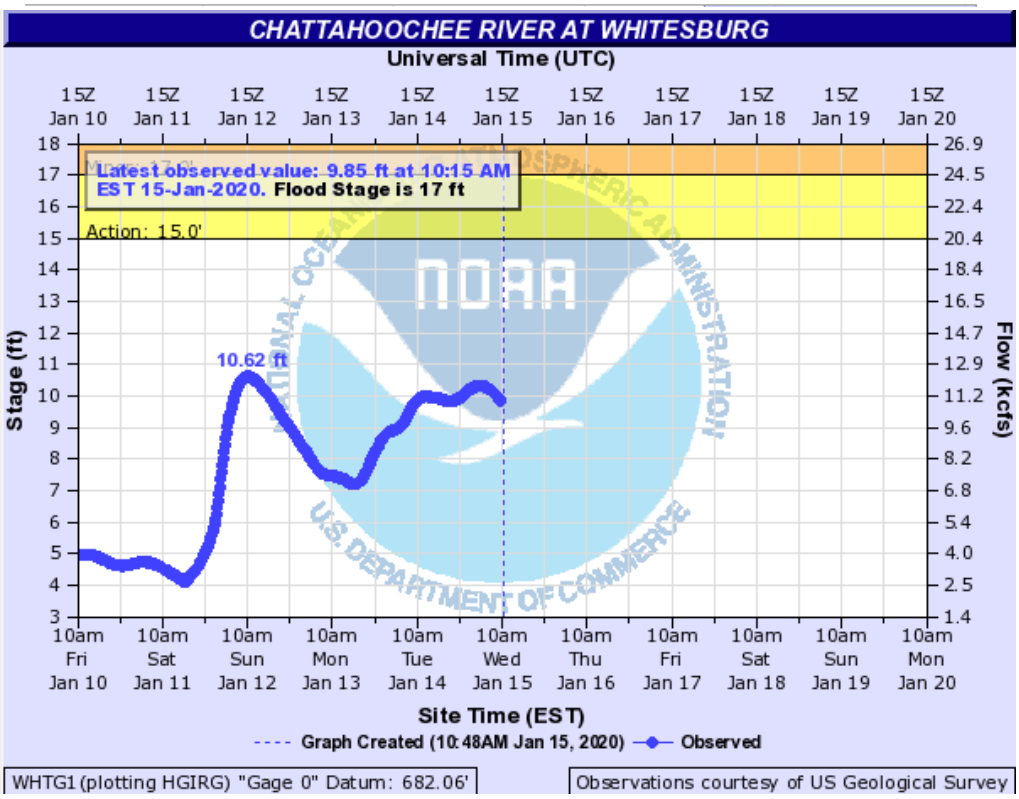




Figure 3.1.2: Monitoring Flood Level of Chattahoochee River at Whitesburg (2025/2020)

Historic crests for the Chattahoochee River:

(1) 29.84 ft on 09/23/2009 (500-year flood)
(2) 29.11 ft on 12/11/1919
(3) 27.50 ft on 02/25/1961
(4) 25.90 ft on 03/18/1990
(5) 25.10 ft on 01/10/1946

Recent crests for the Chattahoochee River:

(1) 18.59 ft on 02/14/2025
(2) 21.45 ft on 09/28/2024
(3) 17.55 ft on 05/05/2021
(4) 17.07 ft on 10/12/2020
(5) 17.63 ft on 02/07/2020

## b. Little Tallapoosa River (Carrollton and Bowdon)

The following threshold levels apply to Little Tallapoosa (Carrollton):

| | |
|---|---|
| Bankfull/Action Stage | 16 feet |
| Flood Stage/Minor Flood | 18 feet |
| Moderate flood Stage | 21 feet |
| Major Flood Stage | 24 feet |

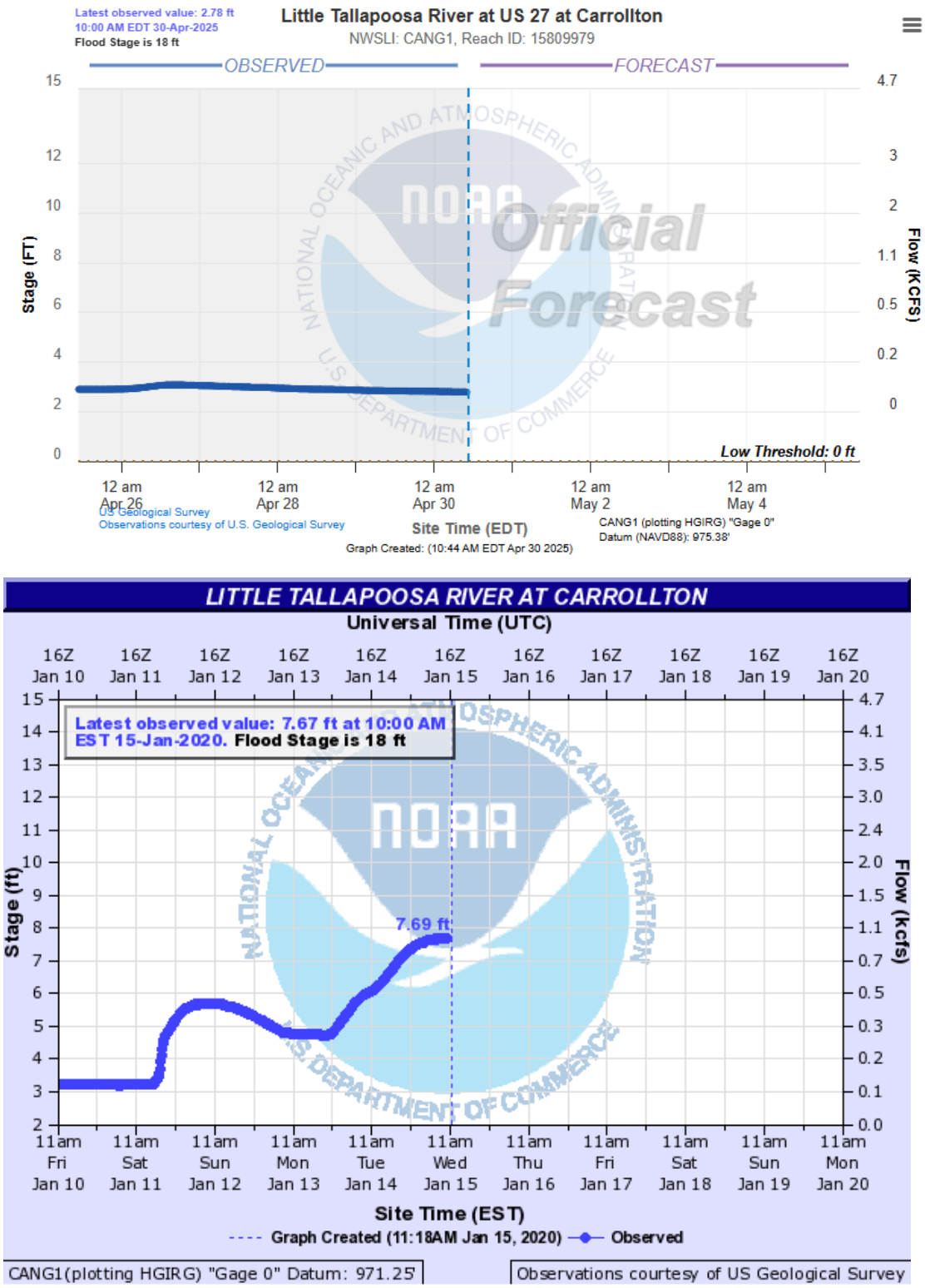



Figure 3.1.3: Monitoring Flood Level of Little Tallapoosa River at Carrollton (2025/2020)

Historic crests for the Little Tallapoosa River (Carrollton)

(1) 19.30 ft on 11/29/1948
(2) 17.05 ft on 09/21/2009 (500-year flood)
(3) 15.90 ft on 01/20/1947
(4) 15.30 ft on 12/21/1951
(5) 14.70 ft on 07/14/1945

Recent crests for the Little Tallapoosa River (Carrollton)

(1) 17.05 ft on 09/21/2009
(2) 15.30 ft on 12/21/1951
(3) 19.30 ft on 11/29/1948
(4) 15.90 ft on 01/20/1947
(5) 14.70 ft on 07/14/1945

The following threshold levels apply to Little Tallapoosa (Bowdon):

| | |
|---|---|
| Bankfull/Action Stage | 15 feet |
| Flood Stage/Minor Flood | 17 feet |
| Moderate flood Stage | 23 feet |
| Major Flood Stage | 28 feet |

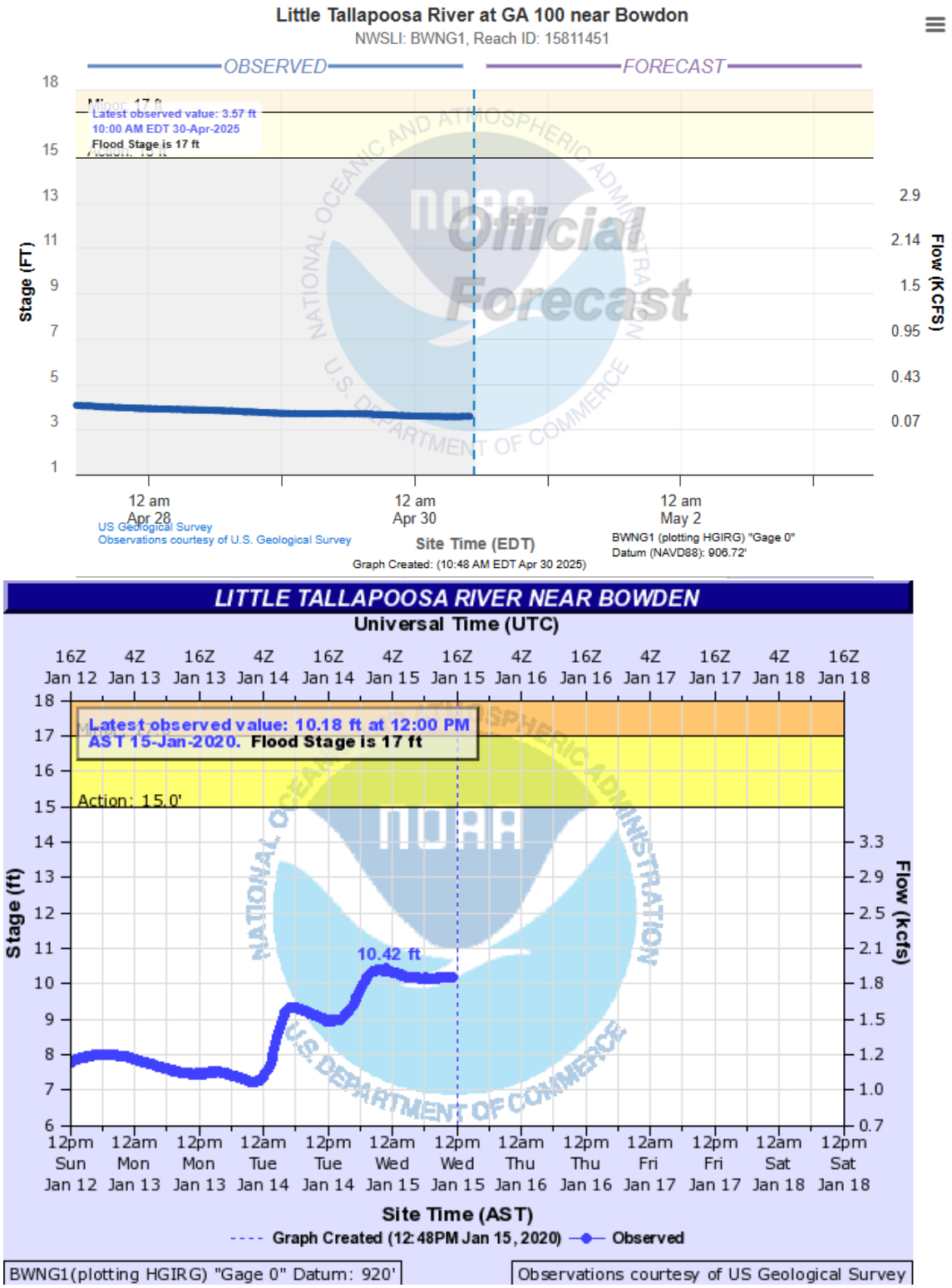



Figure 3.1.4: Monitoring Flood Level of Little Tallapoosa River at Bowdon (2025/2020)

Historic crests for the Little Tallapoosa River (Bowdon)

(1) 18.48 ft on 09/22/2009
(2) 18.13 ft on 12/26/2015
(3) 17.98 ft on 12/24/2015
(4) 17.62 ft on 04/07/2014
(5) 15.00 ft on 05/03/2010

Recent crests for the Little Tallapoosa River (Bowdon)

(1) 18.13 ft on 12/26/2015
(2) 17.98 ft on 12/24/2015
(3) 17.62 ft on 04/07/2014
(4) 14.13 ft on 03/03/2012
(5) 15.00 ft on 05/03/2010

### c. Snake Creek (Above and Below Lake Seaton Dam)

The following threshold levels apply to Snake Creek Above Dam:

| | |
|---|---|
| Bankfull/Action Stage | 11 feet |
| Flood Stage/Minor Flood | 13 feet |
| Moderate flood Stage | 15 feet |
| Major Flood Stage | 18 feet |

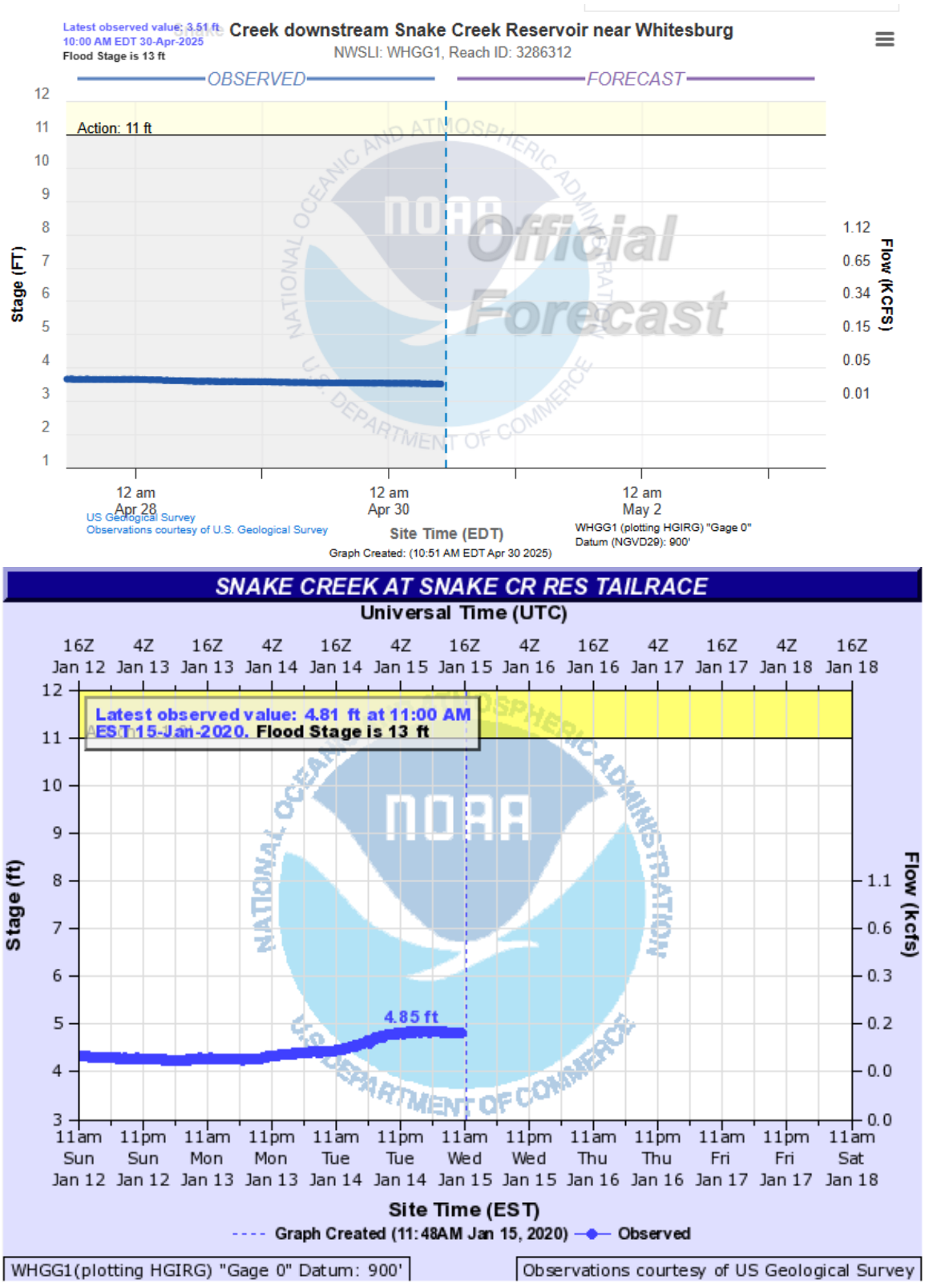



Figure 3.1.5: Monitoring Flood Level of Snake Creek above Dam (2025/2020)

Historic crests for the Snake Creek Above Dam

(1) 16.99 ft on 09/21/2009 (500-year flood)

Recent crests for the Snake Creek Above Dam

(1) 16.99 ft on 09/21/2009 (500-year flood)

The following threshold levels apply to Snake Creek Near Whitesburg:

| | |
|---|---|
| Bankfull/Action Stage | 10 feet |
| Flood Stage/Minor Flood | 12 feet |
| Moderate flood Stage | 14 feet |
| Major Flood Stage | 17 feet |

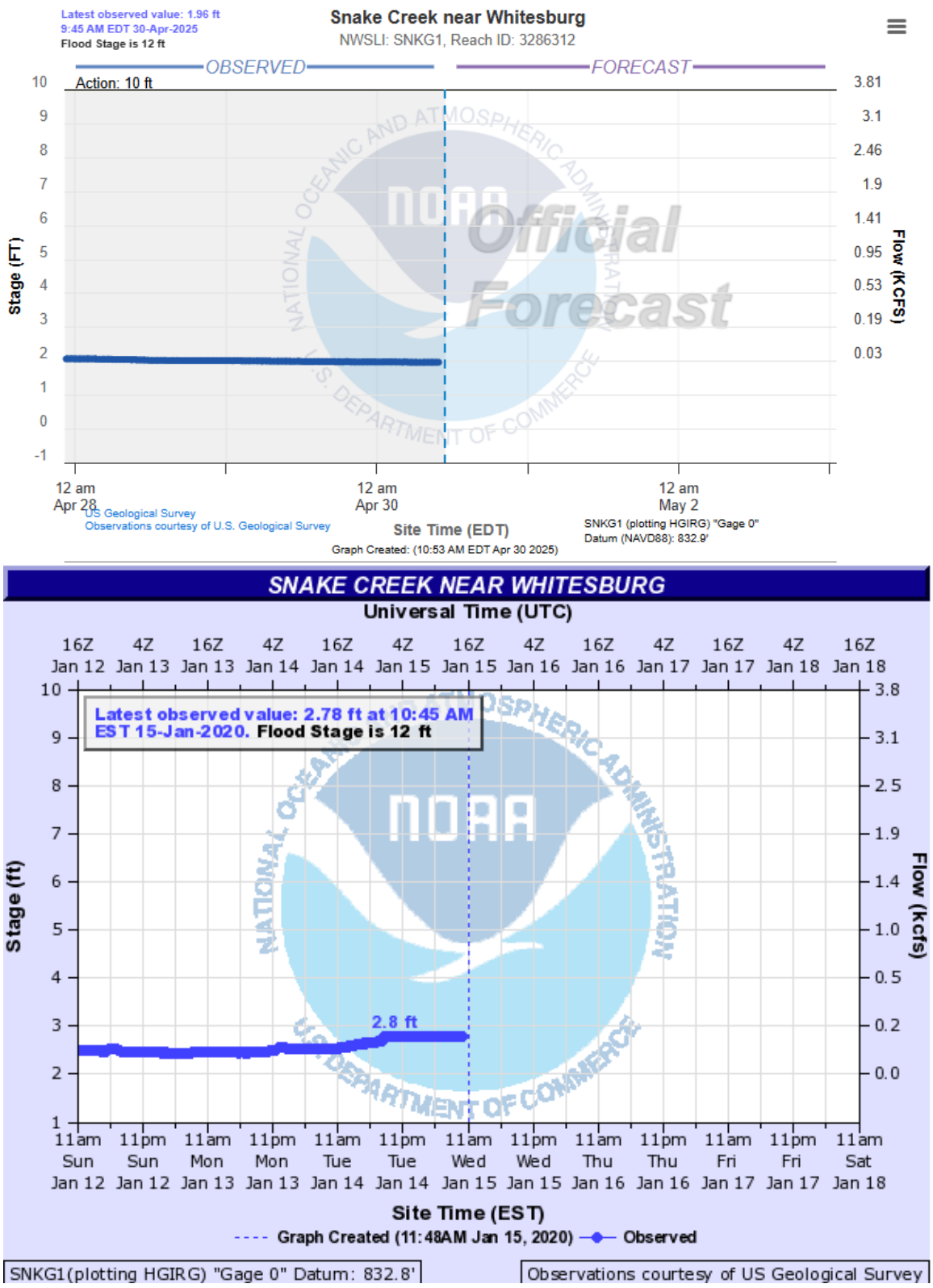



Figure 3.1.6: Monitoring Flood Level of Snake Creek near Whitesburg (2025/2020)

Historic crests for the Snake Creek near Whitesburg

(1) 17.30 ft on 09/21/2009 (500-year flood)
(2) 14.40 ft on 02/25/1961
(3) 13.40 ft on 02/03/1982
(4) 13.12 ft on 12/31/1973
(5) 12.80 ft on 03/16/1956

Recent crests for the Snake Creek near Whitesburg

(1) 17.30 ft on 09/21/2009 (500-year flood)
(2) 12.65 ft on 03/08/1998
(3) 13.40 ft on 02/03/1982
(4) 13.12 ft on 12/31/1973
(5) 14.40 ft on 02/25/1961

### *h. Multi-Jurisdictional Concerns*

All jurisdictions within Carroll County can potentially be affected by flooding. Based on current data limitations, the Hazard Mitigation Plan Steering Committee are unable to determine significant differences between the county and municipalities in terms of risk and vulnerabilities associated with flooding except for specifically designated flood plains. The flood zones have been identified on Map 3.1.1, primarily depicting possible flood areas in both the Little Tallapoosa and Chattahoochee River Basins.

Please see Chapter IV for flood objectives, goals, and projects for specific flooding areas identified. As a result, any mitigation steps taken related to flooding should be undertaken on a countywide basis and include all the cities. The county and two municipalities (Carrollton and Villa Rica) have identified areas where localized flooding (due to flash floods) is a concern. Individual projects must be undertaken to further characterize these events. When relevant flood data becomes available, it will be incorporated into future projects.

### *i. Hazard Summary*

Floods pose a significant threat to Carroll County. Although there is a low probability of a significant occurrence, there is a high probability of damage when flooding occurs. Flooding has caused extensive damage in the past. Carroll County remains vulnerable to flooding. Please find mitigation strategies related to flooding in IV. A. 1. A flood risk assessment can be found in the Hazard Risk Analyses located in Appendix D.

## 2. Tornadoes

### *a. Hazard Identification*

A violent rotating wind accompanied by a funnel-shaped cloud is classified as a tornado. Severe weather conditions, such as a supercell thunderstorm or hurricane, can produce a tornado. With average speeds on the ground of 30 miles per hour, tornados can do considerable damage depending how long they remain on the ground, which varies from seconds to hours although most are in the 10-minute range. Tornados typically travel from southwest to northeast. In Carroll County, they generally travel northeast from the Alabama or Heard County line. With the combined action of strong rotating winds and the impact of wind-born debris, devastating destruction can occur. Typical severe weather patterns are depicted in the map below. 2024 ranked as the year with the second highest number of confirmed tornadoes with 1,796

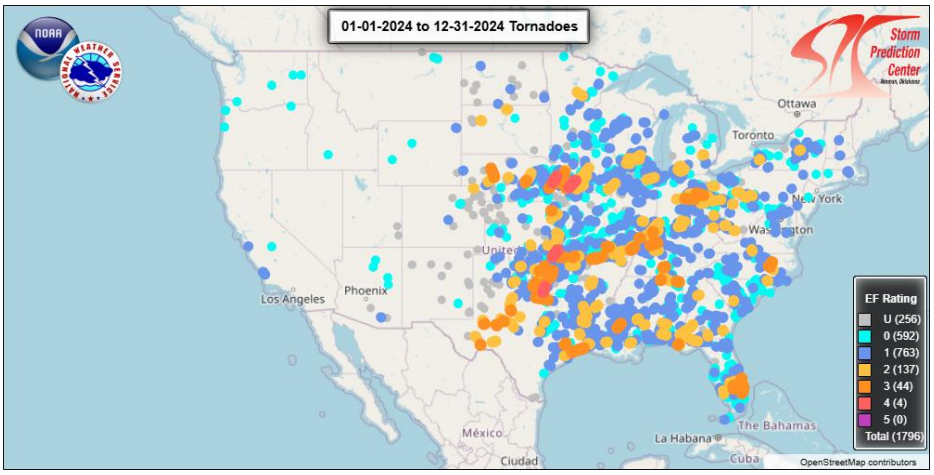



Figure 3.1.1: 2024 National Weather Service Severe Weather Reports (NOAA/NWS)

In measuring tornadoes, the National Weather Service relies on the Enhanced Fujita Scale, a modification of the Fujita Scale that was in previous plans. The Enhanced Fujita Scale is the standard scale for rating the severity of a tornado as measured by the damage it causes (see table below). According to insurance estimates, about 39 percent of insured catastrophic losses were the result of tornadoes. In the United States, approximately 80 percent of tornadoes are EF1 or smaller. Less than 1 percent are EF4 or greater, but by far, those tornadoes cause most of the damage. Carroll County and its municipalities have traditionally seen EF0 to EF3 tornadoes.

Table 3.2.1: The Enhanced Fujita Scale

| Scale | Wind speed MPH | Potential damage |
|---|---|---|
| **EF0** | 65–85 | Minor or no damage.<br><br>Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over. Confirmed tornadoes with no reported damage (i.e., those that remain in open fields) are always rated EF0. |
| **EF1** | 86–110 | Moderate damage.<br><br>Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken. |
| **EF2** | 111–135 | Considerable damage.<br><br>Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground. |
| **EF3** | 136–165 | Severe damage.<br><br>Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations are badly damaged. |
| **EF4** | 166–200 | Extreme damage.<br><br>Well-constructed and whole frame houses completely leveled; cars and other large objects thrown and small missiles generated. |
| **EF5** | >200 | Total destruction of buildings.<br><br>Strong framed, well built houses leveled off foundations and swept away; steel-reinforced concrete structures are critically damaged; tall buildings collapse or have severe structural deformations; some cars, trucks and train cars can be thrown approximately 1 mile. |

The official tornado season begins in March and continues through August, but tornadoes occur throughout the year. In putting together this hazard profile, historical data from the National Weather Service, National Climatic Data Center, and Georgia Tornado Database was used.

### *b. Hazard Profile*

Per the National Weather Service Storm Prediction Center, Carroll County averages two tornado days per year. From 2017-2020, Carroll had been issued 6 Tornado Warnings by the National

Weather Service. The county has already had 3 tornado warnings in 2025. Prior to 2025, twenty-four tornadoes and four funnel clouds have been recorded in the hazard history of Carroll County. These tornadoes have resulted in 10 deaths, 18 reported injuries and millions of dollars in damages. In 2025, there have been three confirmed tornadoes resulting in minor property damages.

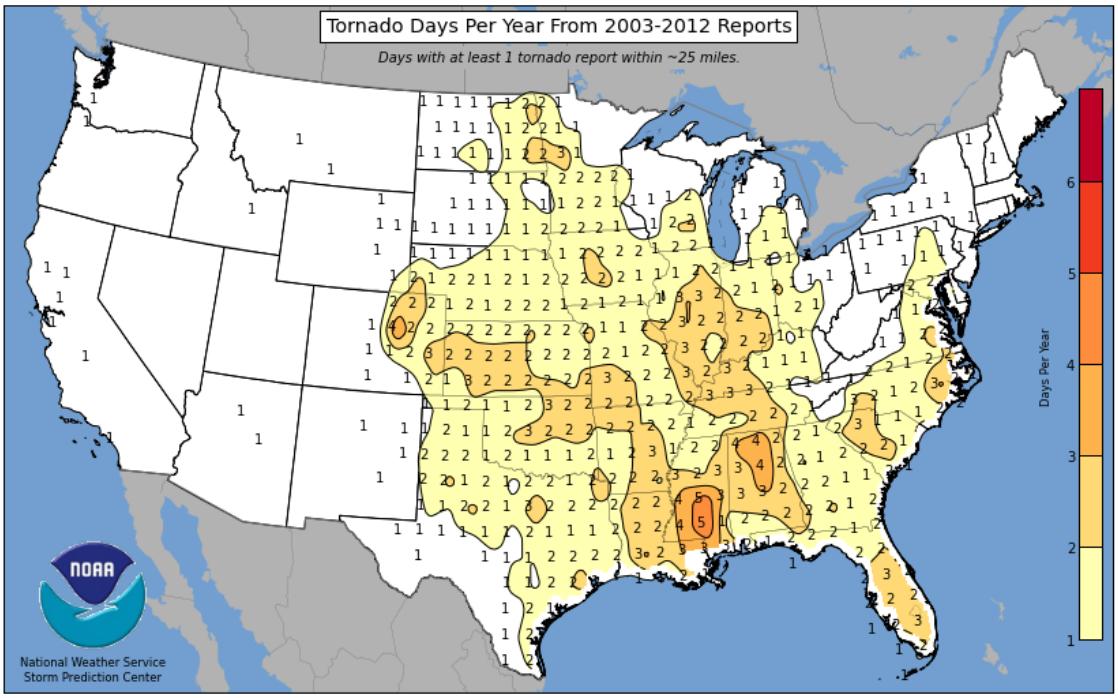



Figure 3.2.2: Tornado Days Per Year (NOAA)

Although they can occur at any time of the year, spring tornadoes have proven a significant hazard to Carroll County, mirroring nation-wide trends as shown in the figures below. In 2008, Carroll County experienced five tornadoes from February to May, ranging from EF1 to EF3 in strength. In April 2017, EF1 tornadoes struck downtown Carrollton causing downed trees, powerlines and damage to homes, businesses, and a fire station. In 2025, there have been three EF0s touching down in southern Carroll, in the Bowdon, Roopville, and Clem communities.

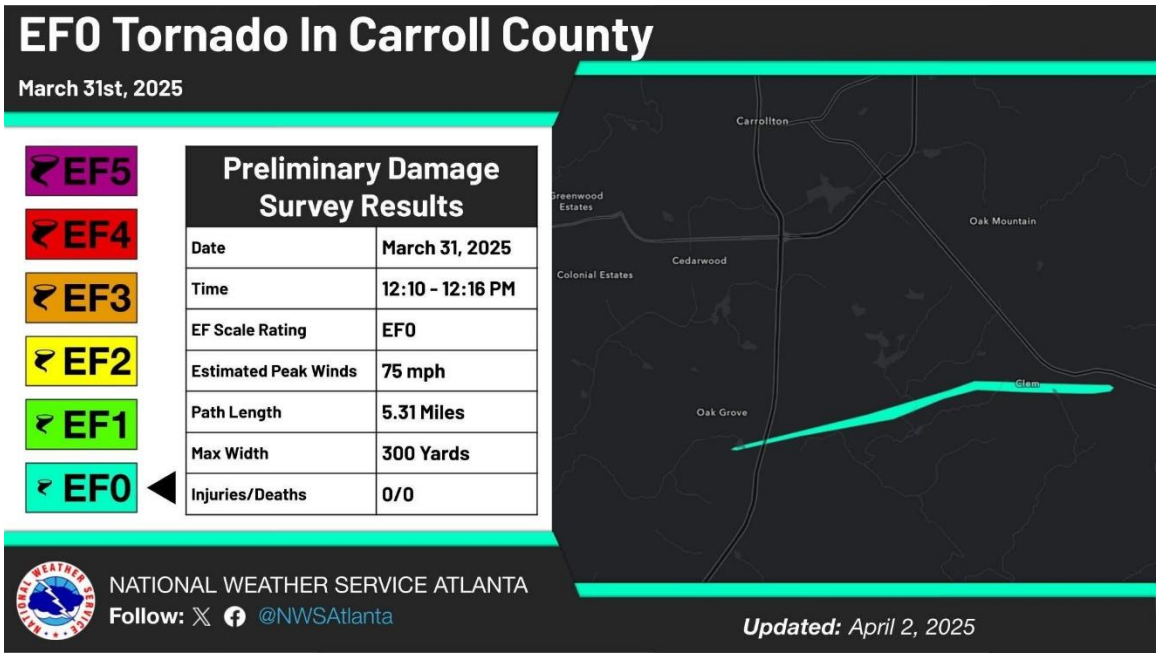



Figure 3.2.3: Clem Tornado (April 2025)

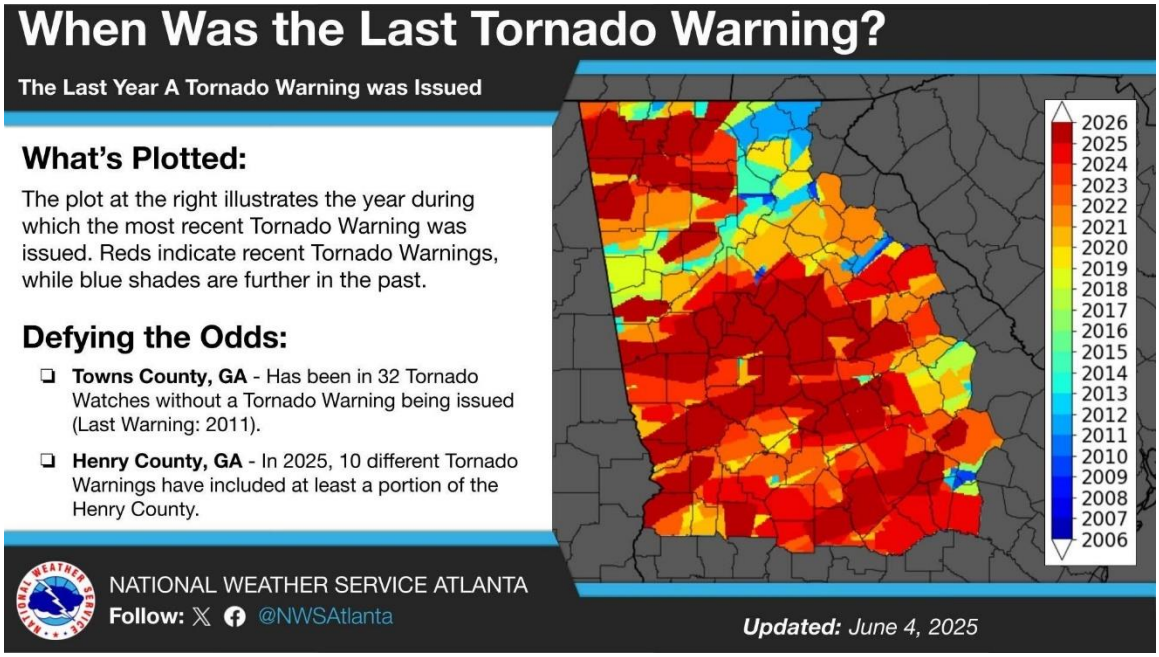



Figure 3.2.4: Tornado Warnings Georgia (2006-2026)

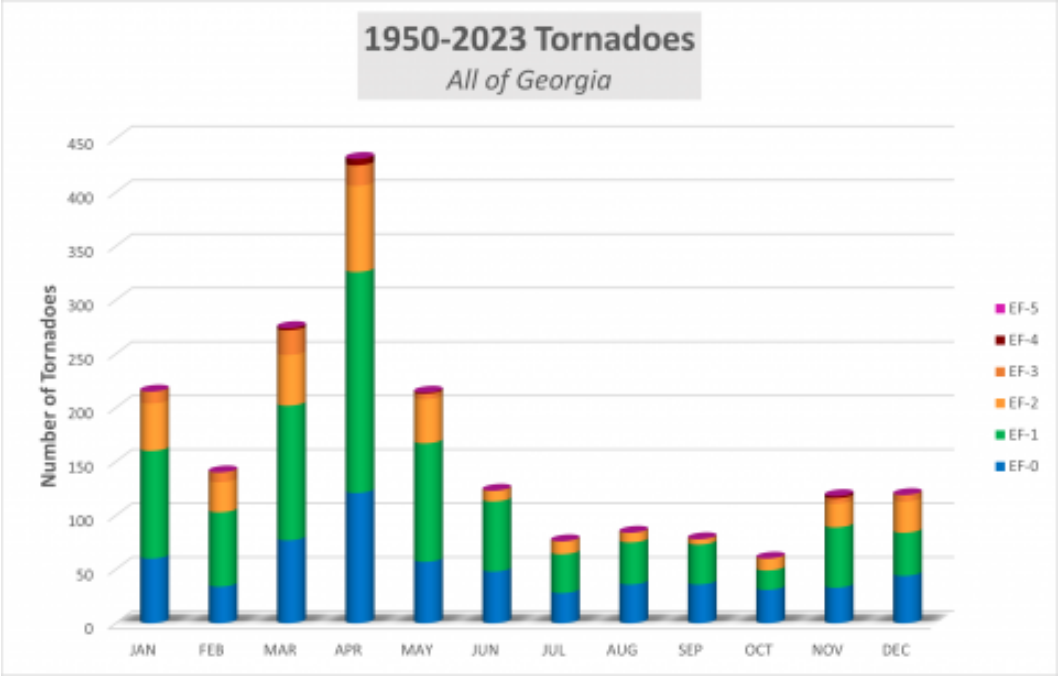



Figure 3.2.5: Tornadoes in Georgia by Month

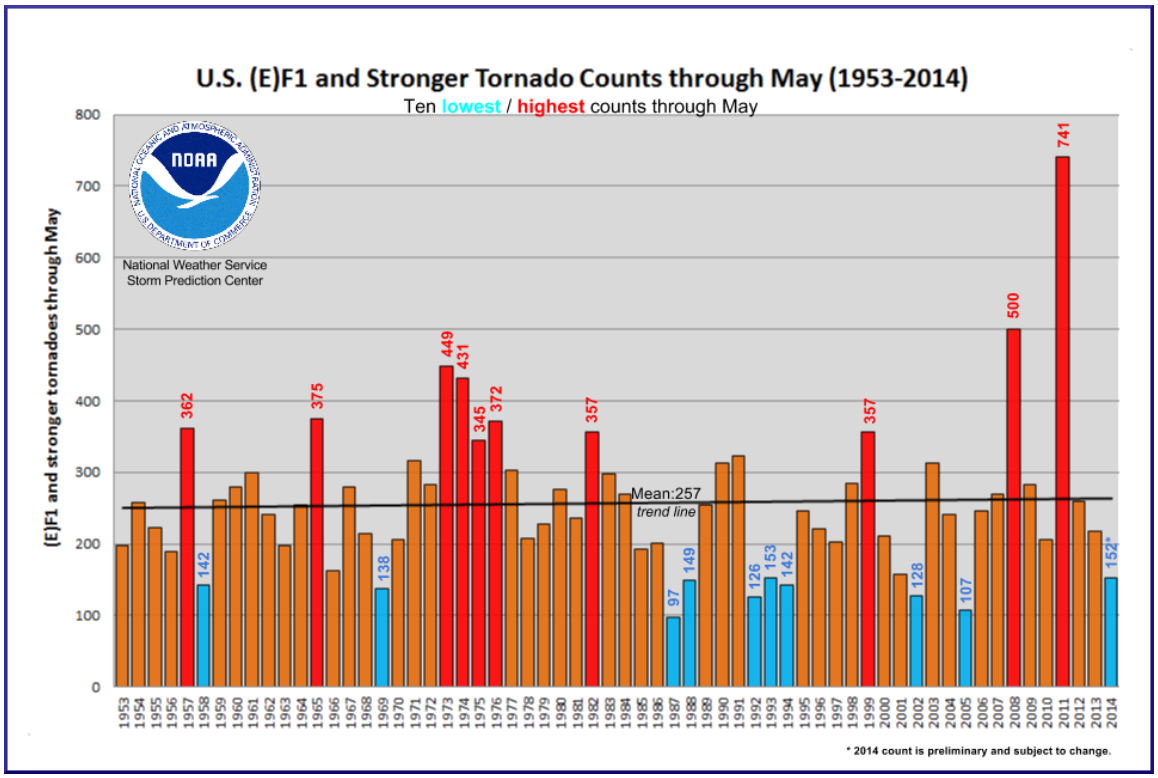



Figure 3.2.6: Spring Tornadoes (NOAA)

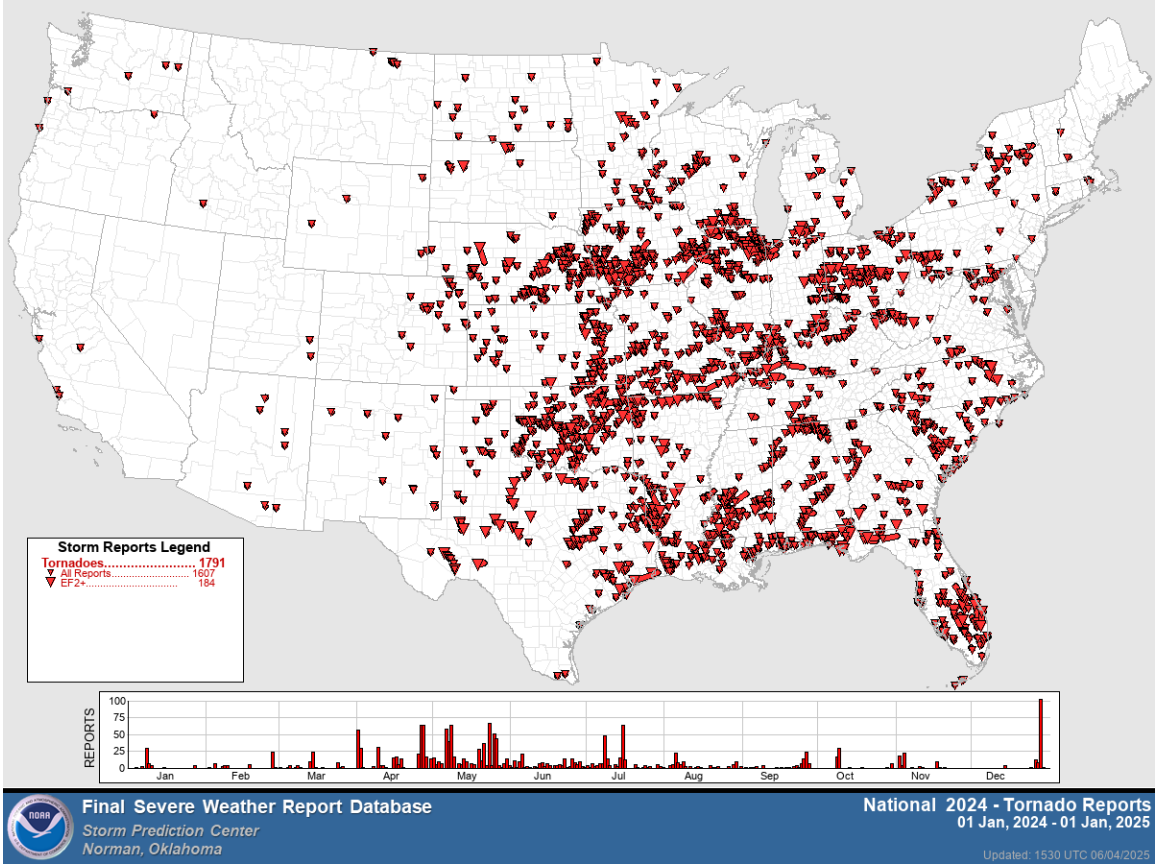



Figure 3.2.7: Annual Final Tornado Summary (NOAA)

### *c. Assets Exposed to Hazard*

All of Carroll County is susceptible to tornadoes as they are unpredictable in nature and do not follow any given pattern.

### *d. Estimate of Potential Losses*

Because all facilities within the county are subject to potential losses via tornadoes, estimations were made assuming 100% losses. This data is contained in Appendix C, with a tornado risk assessment found in the Hazard Risk Analyses located in Appendix D.

Table 3.2.2: Total Property Losses for Carroll County on a Percentage Basis for Tornadoes

| Structure Type and Amount of Structures | Value | 75% | 50% | 25% |
|---|---|---|---|---|
| Residential | $12,662,373,808 | $9,496,780,356 | $6,331,186,904 | $3,165,593,452 |
| Commercial | $446,353,883 | $334,765,412 | $223,176,941 | $111,588,471 |
| Industrial | $3,368,598,375 | $2,526,448,781 | $1,684,299,188 | $842,149,594 |
| Agricultural | $1,130,494,988 | $847,871,241 | $565,247,494 | $282,623,747 |
| Critical Facilities | $703,659,240 | $527,744,430 | $351,829,620 | $175,914,810 |

*Values provided by the Carroll County Tax Assessors and Carroll County Emergency Management Agency*

### *e. Land Use and Development*

Carroll County is in wind zone III, which is associated with 200 mph wind speeds. Carroll County has adopted the 2018 Building Code with the 2023 amendments, requiring construction to comply with applicable wind loads in 1609. In Carroll County's Comprehensive Plan, any newly constructed manufactured home community is recommended to install a tornado shelter for use by its residents.

As a county that had experienced a high rate of growth during the early 2000s, the land use in many areas transitioned from rural to suburban, particularly in northern Carroll County between Temple and Villa Rica. Denser populations make the county more vulnerable to damage from a tornado. The probability of a tornado remains medium, with a high level of severity.


Figure 3.2.8: Wind Zones in the United States (Federal Emergency Management Agency)

### *f. Multi-Jurisdictional Concerns*

All jurisdictions within Carroll County can be affected by tornadoes and are in the same wind zone. There are no significant differences between the county and its municipalities. Therefore, all mitigation projects should consider a county wide approach.

### *g. Hazard Summary*

Carroll County has a significant history with tornado activity. For this reason, the identified mitigation projects are a high priority for life safety, especially for the protection of vulnerable populations as the severity of damage when they do occur is high. Tornado specific mitigation actions are provided in Chapter IV. A. 2.

## 3. Severe Thunderstorms

### *a. Hazard Identification*

Thunderstorm winds tend to be short in duration involving straight-line winds and/or gusts in excess of 58 mph. All thunderstorms are accompanied by lightning. Lightning strikes precede from cloud-to-cloud, cloud-to-ground and ground-to-cloud. Lastly, hail often accompanies severe thunderstorms and can cause considerable damage to personal property, such as roofs and cars.

Data for this hazard category comes from: National Climatic Data Center and the National Weather Service.

### *b. Hazard Profile*

On average in Georgia, there are 19 days each year with damaging winds and seven days each year with hail that effect the National Weather Service Atlanta's County Warning Area (CWA). As one of the western most counties in the CWA, Carroll experiences a significant amount of severe weather, as it enters the state. This was especially true in Spring 2025 with what seemed like weekly watches and warnings affecting the county.

Thunderstorms are the most prevalent natural hazards. Since 1957, 218 occurrences of thunderstorm winds have been reported, with 113 reports of property damage and four fatalities. There were 60 reports of thunderstorm winds since 2021. Further there were eight events of strong winds and two reports of high winds.

Lightning resulted in 22 events with 19 instances of damage. There were 108 hail occurrences with eight causing significant damage. Thunderstorm winds, hail and lightning were found to be responsible for millions of dollars in property damages, significant enough to be reported.

In terms of extent, severe thunderstorms in Carroll County can include wind gusts or straight-line winds that will take down trees and powerlines. An example of this was a severe thunderstorm that occurred on 9/10/2019 that included 60mph winds and 1" hail. On January 11, 2020, a severe thunderstorm system went through Carroll causing numerous downed trees and powerlines.

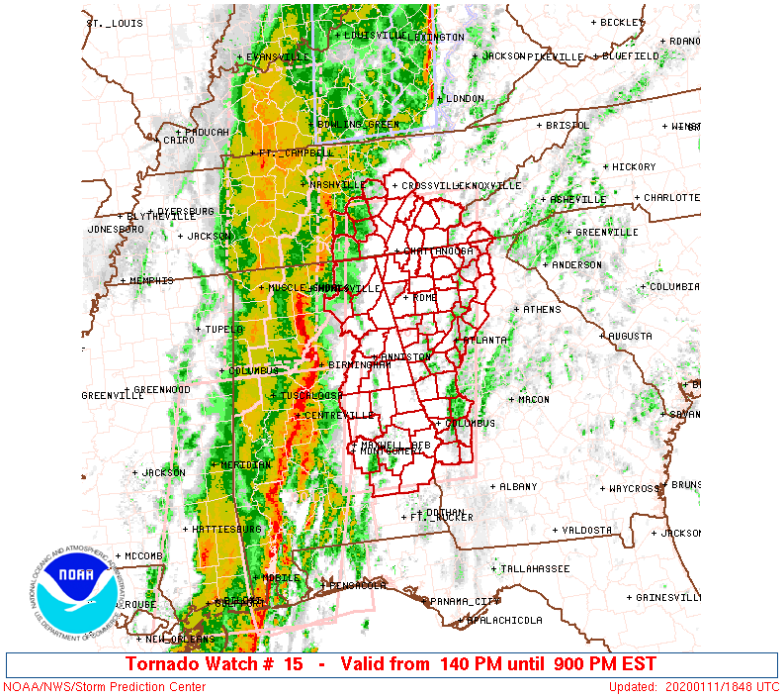



Figure 3.3.1: Severe Thunderstorms/Tornado Watch – 1/10/2020

Trends analysis shows that Carroll County is subject to approximately 25 days per year with severe thunderstorms. There is a high probability of occurrence, leaving the county vulnerable to damage.

| Table 3.3.1: Beaufort Wind Scale | | | | |
|---|---|---|---|---|
| **Force** | **Wind (Knots)** | **WMO Classification** | **Appearance of Wind Effects** | |
| | | | **On the Water** | **On Land** |
| **0** | Less than 1 | Calm | Sea surface smooth and mirror-like | Calm, smoke rises vertically |
| **1** | 1-3 | Light Air | Scaly ripples, no foam crests | Smoke drift indicates wind direction, still wind vanes |
| **2** | 4-6 | Light Breeze | Small wavelets, crests glassy, no breaking | Wind felt on face, leaves rustle, vanes begin to move |
| **3** | 7-10 | Gentle Breeze | Large wavelets, crests begin to break, scattered whitecaps | Leaves and small twigs constantly moving, light flags extended |
| **4** | 11-16 | Moderate Breeze | Small waves 1-4 ft. becoming longer, numerous whitecaps | Dust, leaves, and loose paper lifted, small tree branches move |
| **5** | 17-21 | Fresh Breeze | Moderate waves 4-8 ft taking longer form, many whitecaps, some spray | Small trees in leaf begin to sway |
| **6** | 22-27 | Strong Breeze | Larger waves 8-13 ft, whitecaps common, more spray | Larger tree branches moving, whistling in wires |
| **7** | 28-33 | Near Gale | Sea heaps up, waves 13-19 ft, white foam streaks off breakers | Whole trees moving, resistance felt walking against wind |
| **8** | 34-40 | Gale | Moderately high (18-25 ft) waves of greater length, edges of crests begin to break into spindrift, foam blown in streaks | Twigs breaking off trees, generally impedes progress |
| **9** | 41-47 | Strong Gale | High waves (23-32 ft), sea begins to roll, dense streaks of foam, spray may reduce visibility | Slight structural damage occurs, slate blows off roofs |
| **10** | 48-55 | Storm | Very high waves (29-41 ft) with overhanging crests, sea white with densely blown foam, heavy rolling, lowered visibility | Seldom experienced on land, trees broken or uprooted, "considerable structural damage" |
| **11** | 56-63 | Violent Storm | Exceptionally high (37-52 ft) waves, foam patches cover sea, visibility more reduced | |
| **12** | 64+ | Hurricane | Air filled with foam, waves over 45 ft, sea completely white with driving spray, visibility greatly reduced | |

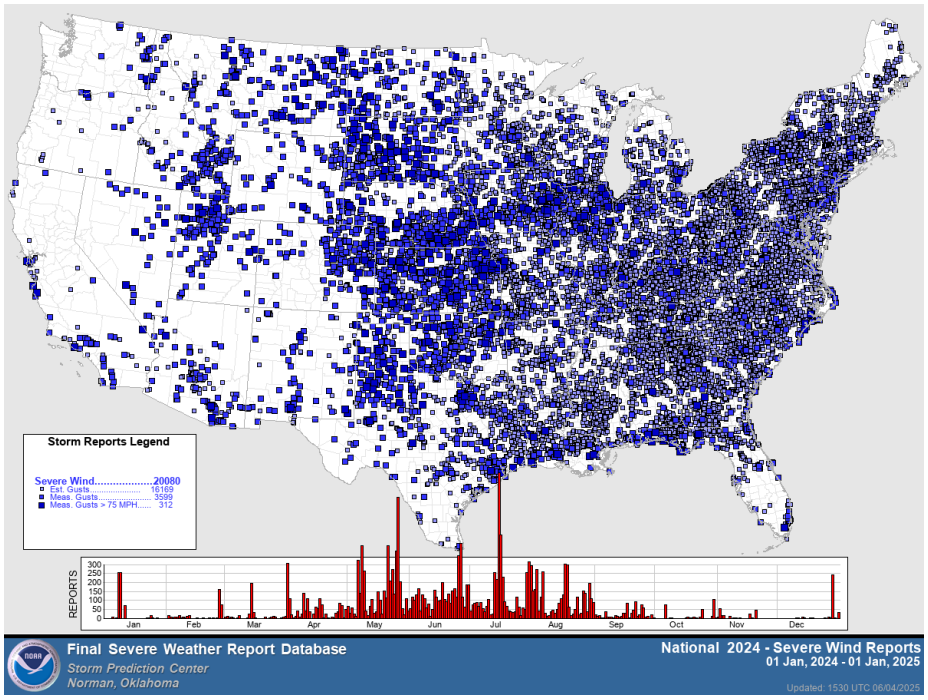



Figure 3.3.2: 2024 Annual Final Wind Summary (NOAA)

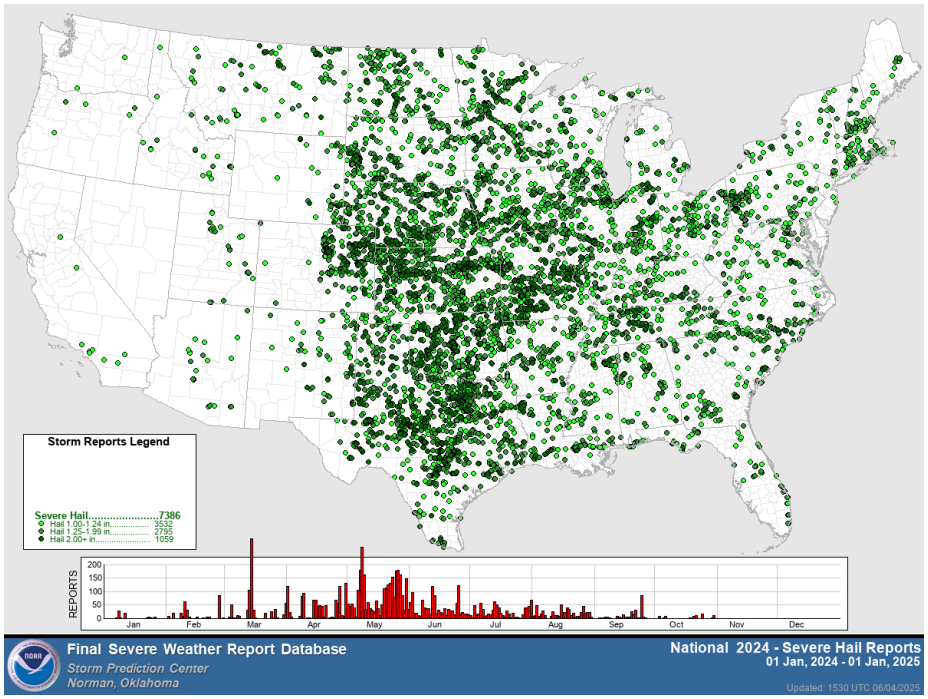



Figure 3.3.3: 2024 Annual Final Hail Summary (NOAA)

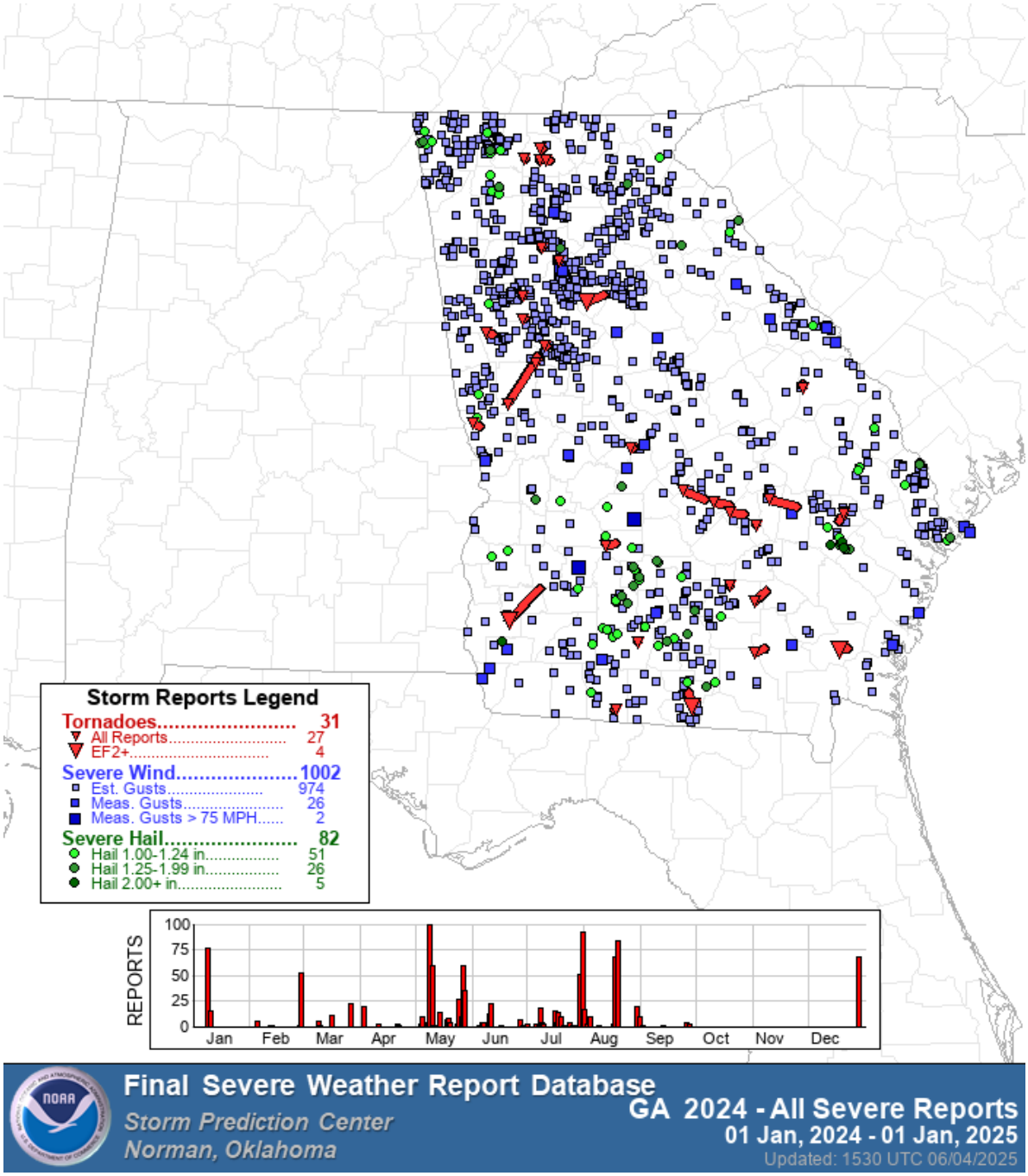



Figure 3.3.4: Severe Georgia 2024

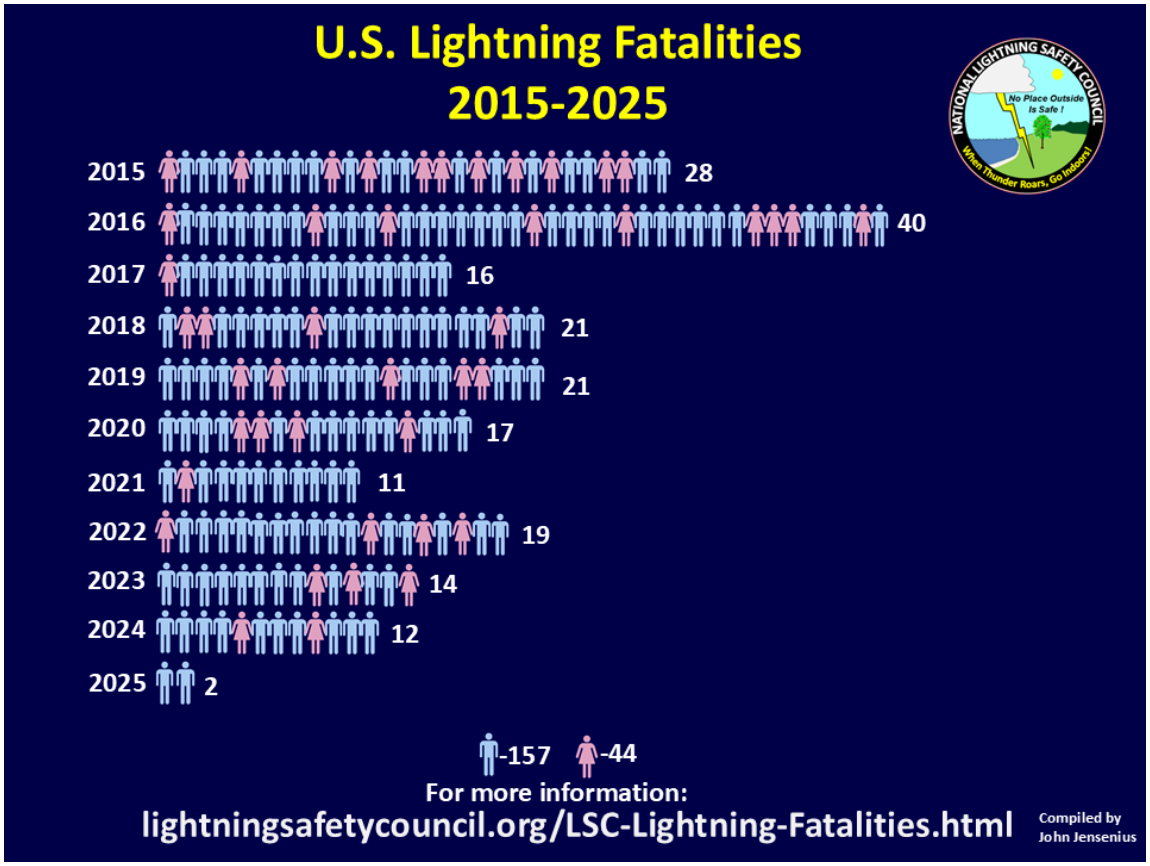



Figure 3.3.5: Lightning Deaths 2015-2025

*c. Assets Exposed to Hazards*

There is no way to estimate the facilities most likely damaged by thunderstorm winds, hail and lightning due to their widespread nature.

*d. Estimate of Potential Losses*

Because all facilities within the county are subject to potential losses via thunderstorm winds and lightning, estimations were made assuming 100% losses. A list of Critical Facilities including estimated values can be found in Appendix C.

Table 3.3.2: Total Property Losses for Carroll County on a Percentage Basis for Thunderstorm Winds, Hail and Lightning

| Structure Type and Amount of Structures | Value | 75% | 50% | 25% |
|---|---|---|---|---|
| Residential | $12,662,373,808 | $9,496,780,356 | $6,331,186,904 | $3,165,593,452 |
| Commercial | $446,353,883 | $334,765,412 | $223,176,941 | $111,588,471 |
| Industrial | $3,368,598,375 | $2,526,448,781 | $1,684,299,188 | $842,149,594 |
| Agricultural | $1,130,494,988 | $847,871,241 | $565,247,494 | $282,623,747 |
| Critical Facilities | $703,659,240 | $527,744,430 | $351,829,620 | $175,914,810 |

*Values provided by the Carroll County Tax Assessors and Carroll County Emergency Management Agency*

### *e. Land Use and Development Trends*

Carroll County's adopted 2018 Building Code with the 2023 amendments provides for reasonable protection from most natural hazards although they are not hazard specific. Mitigation actions to reduce the possibility of property damage, including interlocking shingles and surge protectors are encouraged.

The county and municipalities all have critical facilities, including recreational fields and parks that are subject to the effects of thunderstorm damage. This is especially true in the county's most populated areas between Carrollton, Villa Rica and Temple.

**Preparedness**

For thunderstorm wind, lightning and hail, the focus is on preparedness. Notice is key. This past year, the National Weather Service conducted an in-person Storm Spotter Class for the county, as well as offering the course online.

Through social media, Emergency Management notifies the public of NWS forecasts and through Weather Warn, any severe thunderstorm warnings are sent out via weather sirens. Funding from Georgia Emergency Management Agency and the Sheriff's Office initiated a program of giving weather radios to local citizens in need. The public is encouraged to take shelter from storms to possibly prevent injury or loss of life.

Despite these programs, Carroll County and its municipalities remain extremely vulnerable to thunderstorm winds, hail and lightning that occur frequently and are known to cause extensive damage.

### *f. Multi-Jurisdictional Concerns*

There is no significant difference between Carroll County and its municipalities based upon the chance of occurrence of thunderstorms winds and lightning because they are random events.

### *g. Hazard Summary*

Severe storms are the most prevalent natural hazards in Carroll County. They have the capability of producing widespread property and crop damage, injuries and even death. Mitigation projects must be considered which reduce the overall damage due to thunderstorm winds, hail and lightning. Severe thunderstorms occur frequently in Carroll County, and as such, probability is high and damage can be extensive. Mitigation plans in relation to severe storms are contained in IV. A. 3.

## 4. Tropical Cyclones

### *a. Hazard Identification*

Tropical Cyclones are among nature's most dangerous and costly storms. Since 1970, there has been an average of 11 Atlantic tropical storms per year, with 6 of those becoming hurricanes. These storms bring a combination of winds, tornadoes and flooding to the area. Even to those counties that lie further inland, the effects of a tropical cyclone can be devastating. For 2025, NOAA is predicting an above normal season with 13-19 named storms, 6-10 hurricanes, of which 3-5 are major hurricanes.

A tropical cyclone can come in the form of a Tropical Depression (sustained winds of 38 mph), a Tropical Storm (sustained winds of 39 to 73 mph), Hurricane (maximum sustained winds of 74 mph or higher) and major hurricane (maximum sustained winds of 111mph or higher. Major hurricanes correspond to Category 3, 4, or 5 on the Saffir-Simpson Hurricane Wind Scale.

Table 3.4.1: The Enhanced Fujita Scale

| Category | Sustained Winds | Types of Damage Due to Hurricane Winds |
|---|---|---|
| 1 | 74-95 mph | **Very dangerous winds will produce some damage:** Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days. |
| 2 | 96-110 mph | **Extremely dangerous winds will cause extensive damage:** Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks. |
| 3 (major) | 111-129 mph | **Devastating damage will occur:** Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes. |
| 4 (major) | 130-156 mph | **Catastrophic damage will occur:** Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months. |
| 5 (major) | 157 mph or higher | **Catastrophic damage will occur:** A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. |

| Table 3.4.1: The Enhanced Fujita Scale | | |
|---|---|---|
| **Category** | **Sustained Winds** | **Types of Damage Due to Hurricane Winds** |
| | | Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months. |

Data for this hazard category comes from: National Climatic Data Center and the National Weather Service.

### *b. Hazard Profile*

Carroll County has a significant history with tropical cyclones considering its placement in-land at the foothills of the Appalachian Mountains, particularly with storms coming north out of the Gulf of Mexico. Since 2002, the National Weather Service has documented 15 occurrences of tropical cyclones (including 3 hurricanes) that have impacted the county. Five storms alone occurred in 2005, the year of Hurricane Katrina. The most memorable of tropical cyclones that directly hit the area occurred from Hurricane Eloise in 1975, which caused considerable damage from its winds and from Hurricane Opal in 1995 with overall damages exceeding $5 billion dollars and 5 fatalities in Georgia alone. With Hurricane Opal, many residents lost power for a week, while schools and businesses were closed. Its magnitude illustrates the importance of preparation to families during a Tropical Cyclone event. In 2017, Hurricane Irma came up through the state of Florida. northwest into Georgia leading to a statewide federal declaration (DR-4338). Hurricane Zeta followed in 2020, leading to another federal declaration to address storm debris (DR 4579). The probability of a tropical cyclone affecting the county remains high.

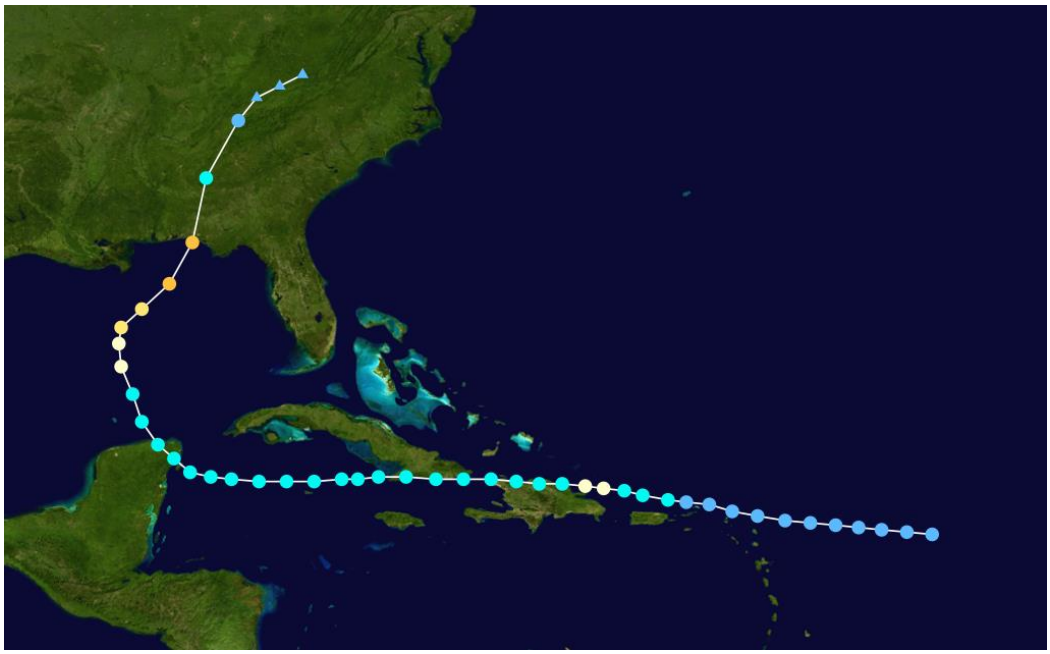


Figure 3.4.1:  Hurricane Eloise, 1975

Figure 3.4.2:  Hurricane Opal, 1995

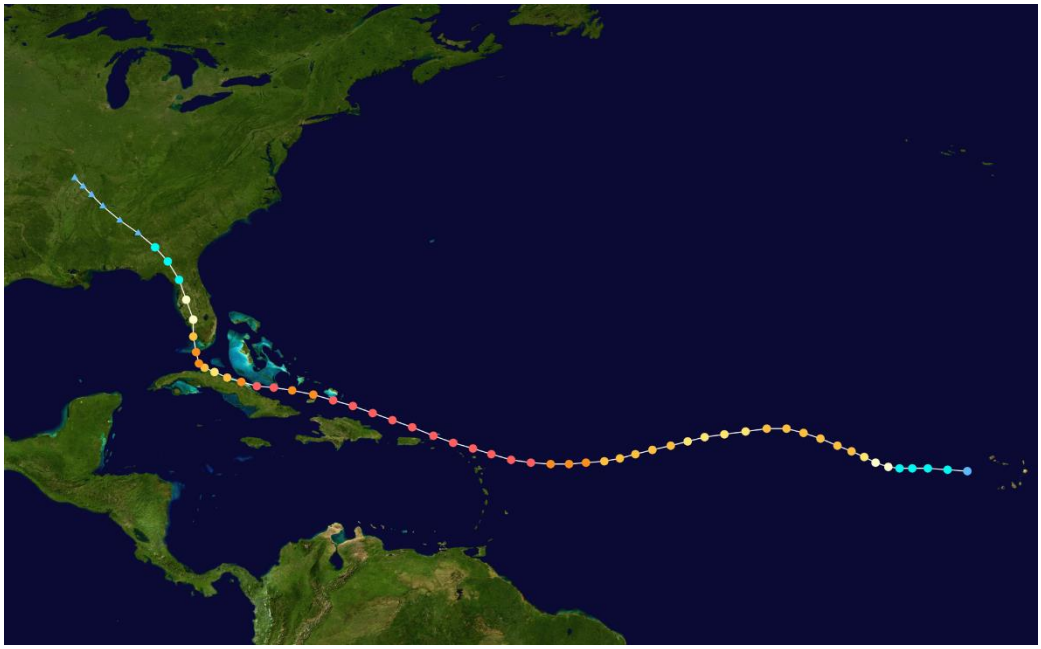


Figure 3.4.3: Hurricane Irma, 2017

Even without a direct hit from a Hurricane, damage can be significant. Due to Carroll County's location, it has experienced tornadoes spun from outlying bands, such as occurred with Hurricane Katrina. Even if the storm is located along the coasts, evacuees fill local hotels and may necessitate opening of a shelter. Whether directly or indirectly, tropical cyclones have a costly impact on the county. The southeast portion of the county has the most exposure and risk, facing up to 75-mph winds in a 100-year storm event according to the Hazard Risk Analyses. A category 1 storm can result in over 21 tons of storm debris.

2020 was a busy hurricane season, as the remnants of Hurricane Sally came through Carroll in September, and on October 29th, Tropical Storm Zeta crossed north of Carroll, hammering the county with winds up to 49mph, taking down many trees and powerlines. Carroll received a federal declaration for damages related to Zeta.

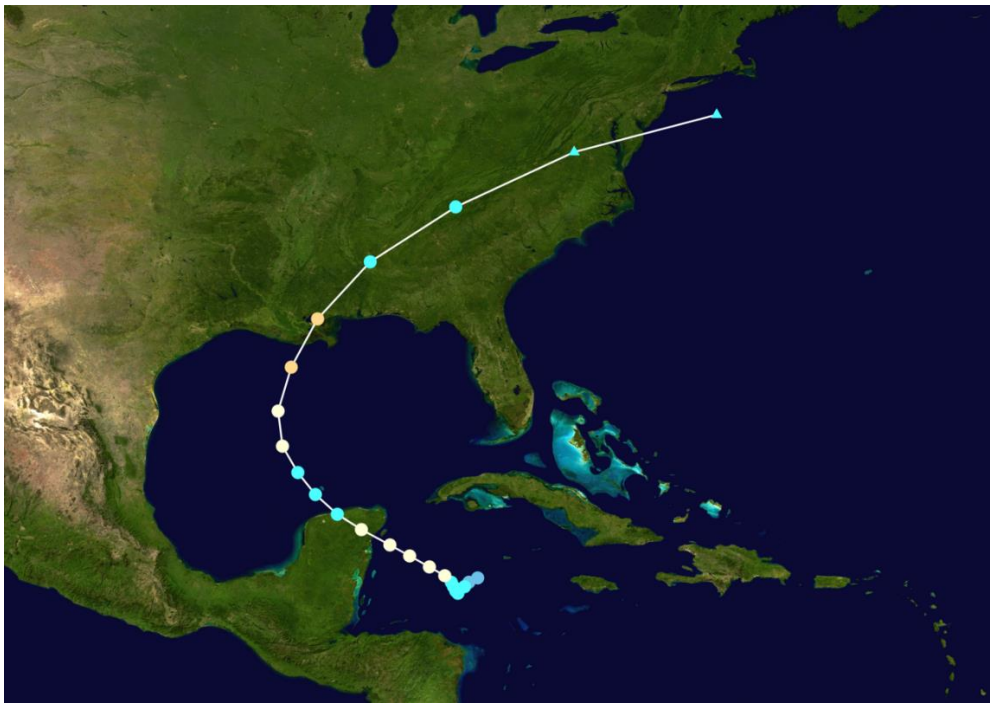


Figure 3.4.4:  Hurricane Zeta, 2020

2024 brought the county another potential disaster in Hurricane Helene.  Local government public safety prepared for the storm, however, it ended up tracking east and causing significant damage to east Georgia and western North Carolina.

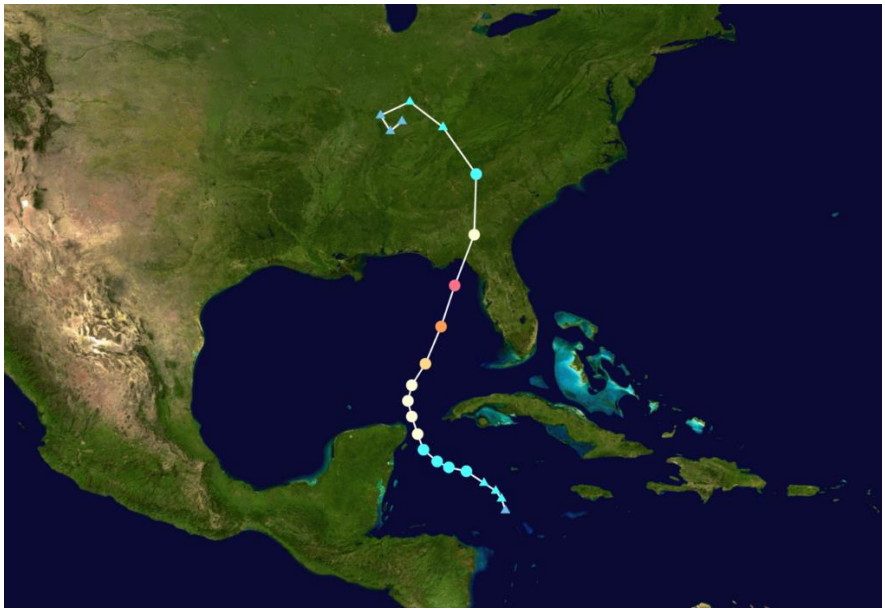


Figure 3.4.5:  Hurricane Helene, 2024

### *c. Assets Exposed to Hazards*

There is no way to estimate the facilities most likely damaged by tropical cyclones due to their magnitude. Strong winds can topple trees and buildings, while overflowing rivers can cause flooding.

### *d. Estimate of Potential Losses*

Because all facilities within the county are subject to potential losses via tropical cyclones, estimations assume 100% losses. A list of Critical Facilities including estimated values can be found in Appendix C.

Table 3.4.2: Total Property Losses for Carroll County on a Percentage Basis for Tropical Cyclones

| **Structure Type and Amount of Structures** | **Value** | **75%** | **50%** | **25%** |
|---|---|---|---|---|
| Residential | $12,662,373,808 | $9,496,780,356 | $6,331,186,904 | $3,165,593,452 |
| Commercial | $446,353,883 | $334,765,412 | $223,176,941 | $111,588,471 |
| Industrial | $3,368,598,375 | $2,526,448,781 | $1,684,299,188 | $842,149,594 |
| Agricultural | $1,130,494,988 | $847,871,241 | $565,247,494 | $282,623,747 |
| Critical Facilities | $703,659,240 | $527,744,430 | $351,829,620 | $175,914,810 |

*Values provided by the Carroll County Tax Assessors and Carroll County Emergency Management Agency*

### *e. Land Use and Development Trends*

Carroll County's adopted 2018 Building Code with the 2023 amendments provides for reasonable protection from most natural hazards although they are not hazard specific. The codes require building that will sustain an 80-mph wind.

With an increased suburban population since the early 2000s housing boom, which necessitated the construction of additional critical facilities, the county remains vulnerable to the effects of tropical cyclones, particularly to high winds and flooding. Although there is a low probability of occurrence, tropical cyclones cause extensive damage.

### *f. Multi-Jurisdictional Concerns*

When a tropical cyclone occurs, it will affect the entire county, resulting in downed trees, widespread power outages and flooding.

Cities along evacuation routes are more likely to be impacted by evacuees, particularly those along I-20 or Highway 27, including Carrollton, Bremen, Temple and Villa Rica.

### *g. Hazard Summary*

A somewhat rare occurrence, but when it does, the level of severity is extensive. Tropical cyclones have the potential for direct and indirect devastation. They have the capability of producing widespread property and crop damage, injuries and even death. Mitigation projects must be considered which reduce the overall damage due to tropical cyclones. Mitigation plans in relation to tropical cyclones are contained in IV. A. 4. A hurricane risk assessment can be found in the Hazard Risk Analyses located in Appendix D.

## 5. Winter Storms

### *a. Hazard Identification*

Historical data from the National Climactic Data Center and the National Weather Service was collected for this plan. Winter storms bring threat of freezing rain, snow and ice to Carroll County. A heavy accumulation of ice, especially when accompanied by high winds, devastates trees and power lines, causing widespread outages. Streets and highways become extremely hazardous to motorists and pedestrians when winter weather occurs.

### *b. Hazard Profile*

Since 1996, there have been 32 snow and ice events recorded in the winter storm history for Carroll County, indicating a high probability of an annual occurrence. These events have ranged in magnitude from ½ inch to 1 inch of snow to the blizzard of 1993. The blizzard caused extensive damage across Georgia. The most damaging of winter storms involve ice because it sticks to tree limbs and tends to bring down power lines. For many in Carroll County, solely on electricity, this means a lack of power and heat for a considerable period. In 2005, Carroll County experienced a winter storm that brought ½ in of ice and 1½ in of hail. The most recent federally declared winter storm that occurred in Carroll County in February 2014, resulted in the county and local nonprofits receiving reimbursements of over $1 million in federal assistance to cover costs associated with storm debris. The extent of that storm resulted in 2-4 inches of snow and up to ½ in of ice. A December snowstorm in 2017 brought a foot of snow to Carroll causing significant debris, outages and road closures, and in 2025, Winter Storm Cora resulted in 2+ inches of snow with minimal damages.

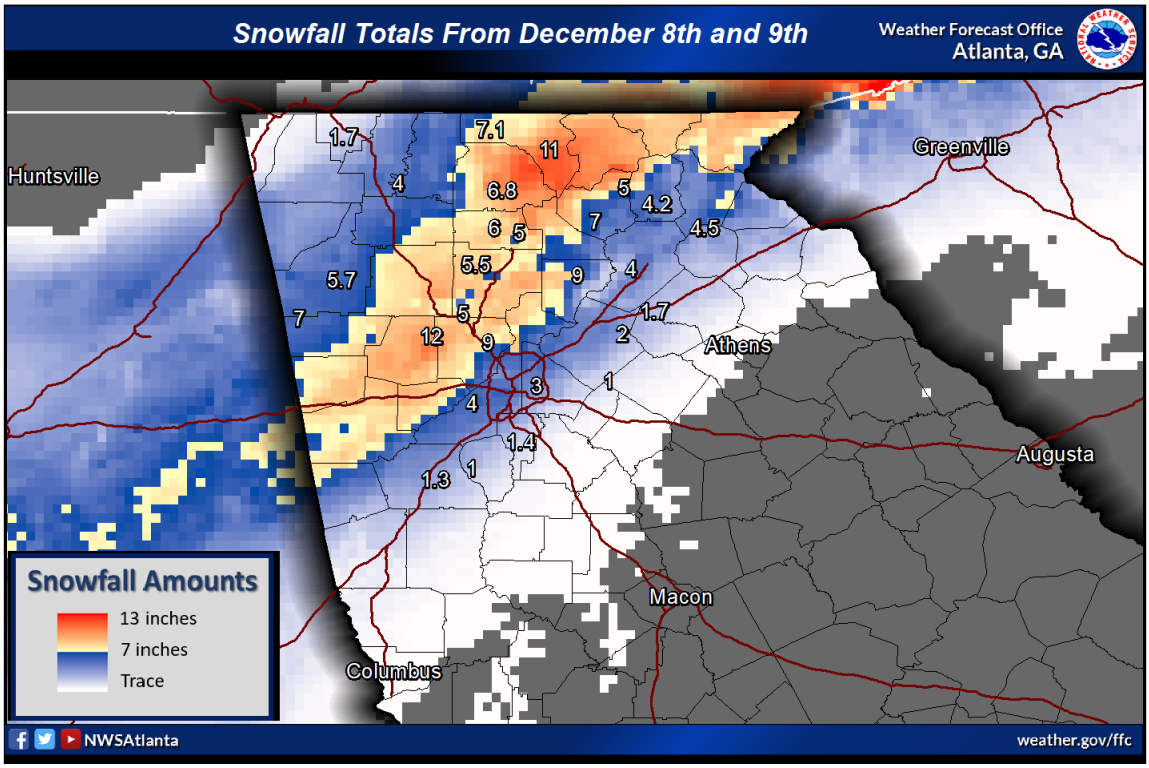
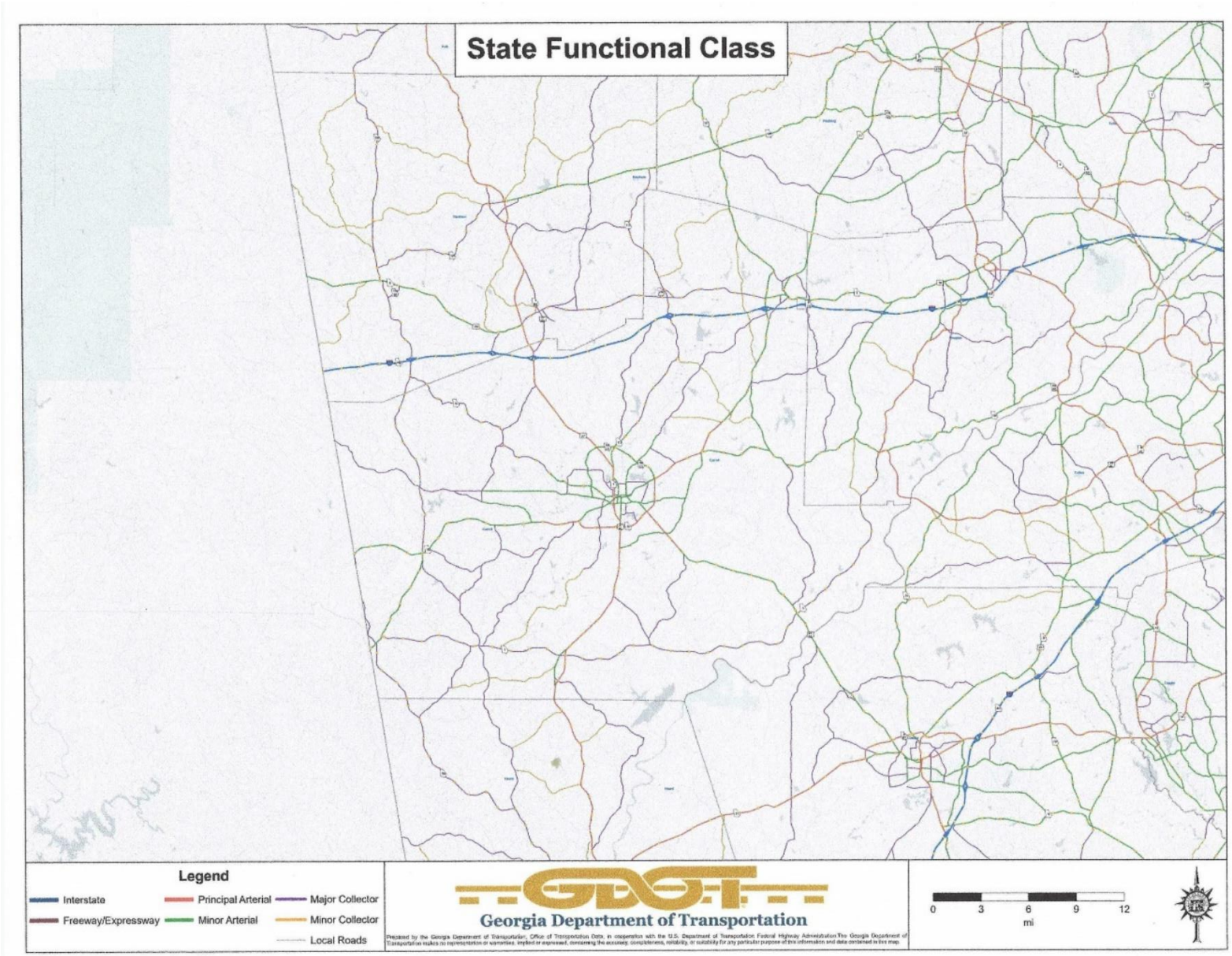


Figure 3.5.1: Winter Storm 2017

*c. Assets Exposed to Hazard*

All assets within the county are susceptible to winter storms and extreme cold. Mitigation projects focusing on back-up power sources and debris removal should be given high priority countywide. In addition to state and federal routes depicted on the State Functional Class Map 3.5.1, the following county roads listed in 3.5.2 have been identified as being critical to treating in event of icing and clearing of storm debris, due to their importance as secondary transportation routes.




Map 3.5.1: State Functional Class Roads

**Table 3.5.1: Secondary Transportation Routes (maintained by Carroll County)**

Tyus-Carrollton Road
Lovvorn Road
Smithville Road
Hog Liver Road
Shady Grove Road
Hickory Level Road
North and South Vanwert Road
Rainey Road
Center Point Road
Pleasant Ridge Road
Miller Academy Road
Jones Mill Road
Horsey Mill Road
Oak Mountain Road
Clem Lowell Road

*d. Estimate of Potential Losses*

Because all facilities within the county are subject to potential losses due to winter storms, estimations were made assuming 100% losses. This data is contained in Appendix C.

Table 3.5.2: Total Property Losses for Carroll County on a Percentage Basis for Winter Weather

| Structure Type and Amount of Structures | Value | 75% | 50% | 25% |
|---|---|---|---|---|
| Residential | $12,662,373,808 | $9,496,780,356 | $6,331,186,904 | $3,165,593,452 |
| Commercial | $446,353,883 | $334,765,412 | $223,176,941 | $111,588,471 |
| Industrial | $3,368,598,375 | $2,526,448,781 | $1,684,299,188 | $842,149,594 |
| Agricultural | $1,130,494,988 | $847,871,241 | $565,247,494 | $282,623,747 |
| Critical Facilities | $703,659,240 | $527,744,430 | $351,829,620 | $175,914,810 |

*Values provided by the Carroll County Tax Assessors and Carroll County Emergency Management Agency*

### *e. Land Use and Development Trends*

Carroll County's adopted 2018 Building Code with the 2023 amendments provides for reasonable protection from most natural hazards although they are not hazard specific.

Most of the county's power lines are above ground, making them subject to damage from falling trees. As such, Carroll County's vulnerability to winter storms remains high, and the occurrence is increasing.

### *f. Multi-Jurisdictional Concerns*

All of Carroll County is subject to winter storms and therefore should be included in any prospective mitigation projects.

### *g. Hazard Summary*

Carroll County's vulnerability to winter storms is high, with an increasing probability of occurrence. When winter storms hit the southeastern United States, they generally are destructive. Buildings are not built to withstand large amounts of accumulated snowfall. Motorists are not culturally accustomed to driving in snow and ice conditions, thereby increasing the chances for accidents. Winter storm related mitigation activities can be viewed in IV. A. 5.

## 6. Drought and Wildfires

### *a. Hazard Identification*

A drought is a prolonged period without rain, particularly during the planting and growing season in agricultural areas. It can range from two weeks to six months or more and affects water availability and quality. In Georgia, droughts affect municipal and industrial water supplies, stream water quality, recreation at reservoirs, hydropower generation, navigation, agricultural and forest resources. Additionally, droughts can impact the spread of wildfires. Data collected from the National Climatic Data Center, the Georgia Forestry Commission and the Southern Wildfire Risk Assessment was used for this report. Carroll County's Community Wildfire Protection Plan is currently being developed by the Georgia Forestry.

### *b. Hazard Profile*

There have been 23 drought events recorded since 1997, with the most recent being a short-term moderate drought in 2019. During this span, there was one reported instance of crop damage due to drought. Below is a graph from the University of Lincoln Nebraska's U.S. Drought Monitor, which shows Extreme to Exceptional droughts in Georgia in 2000, 2002, 2008, 2012, 2017, and 2019.

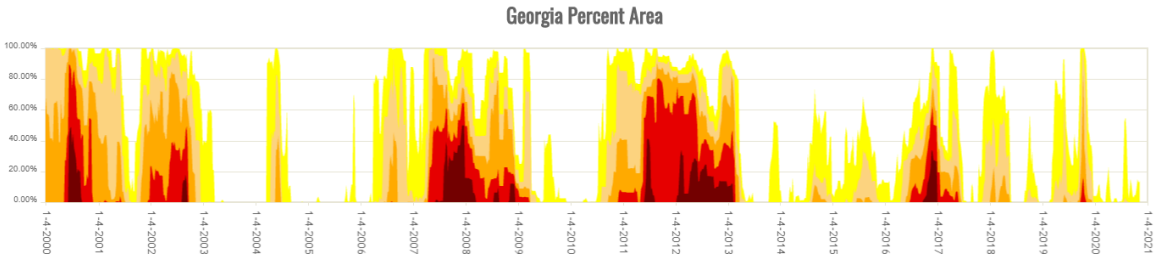



Figure 3.6.1: Drought Monitor Times Series Graph (Georgia)

The Southeast region has seen improvement of its drought conditions over the course of 2024-2025 as depicted below. A very rainy Spring in Georgia and Alabama has improved drought conditions, whereas they have worsened in Florida.

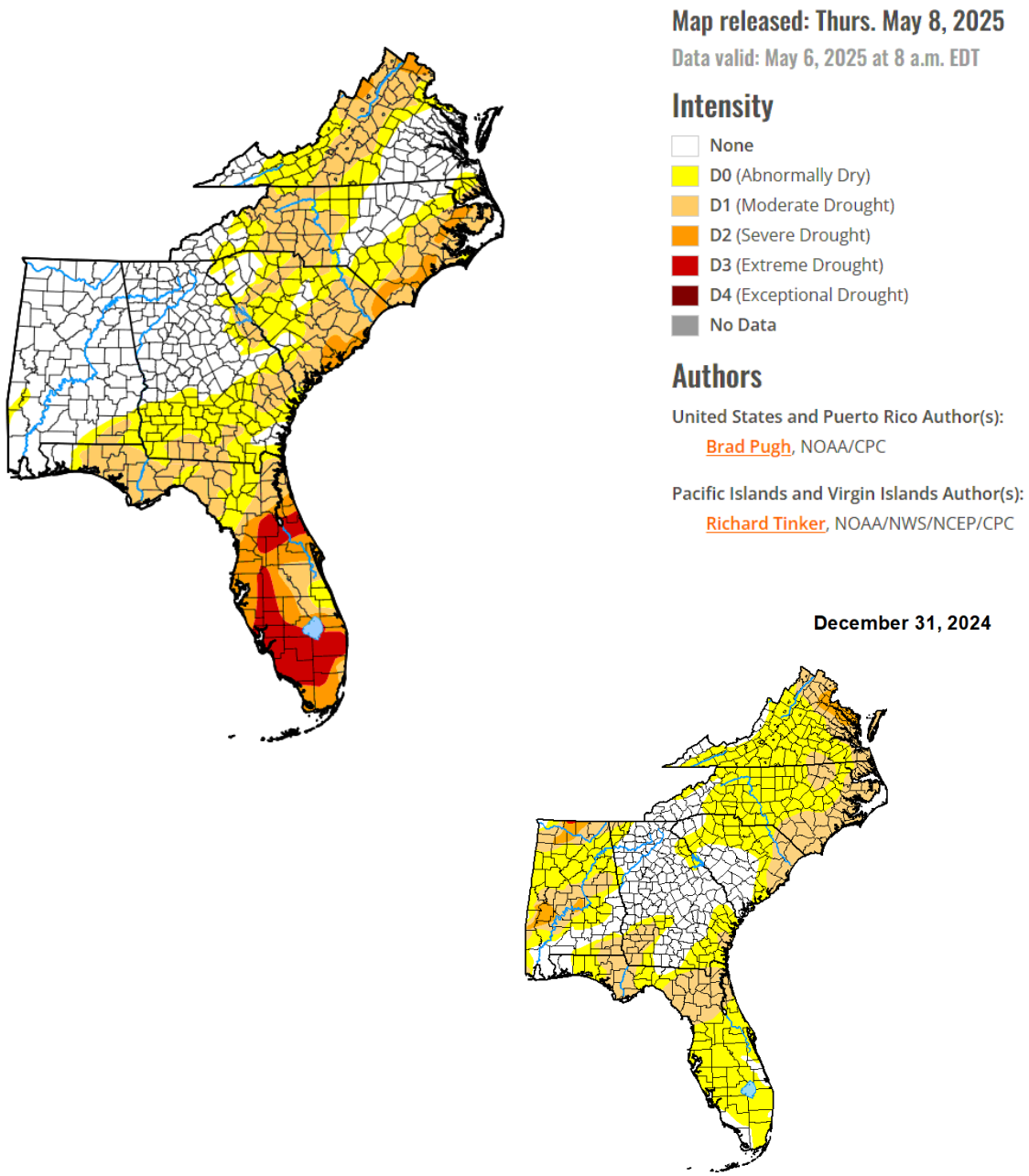
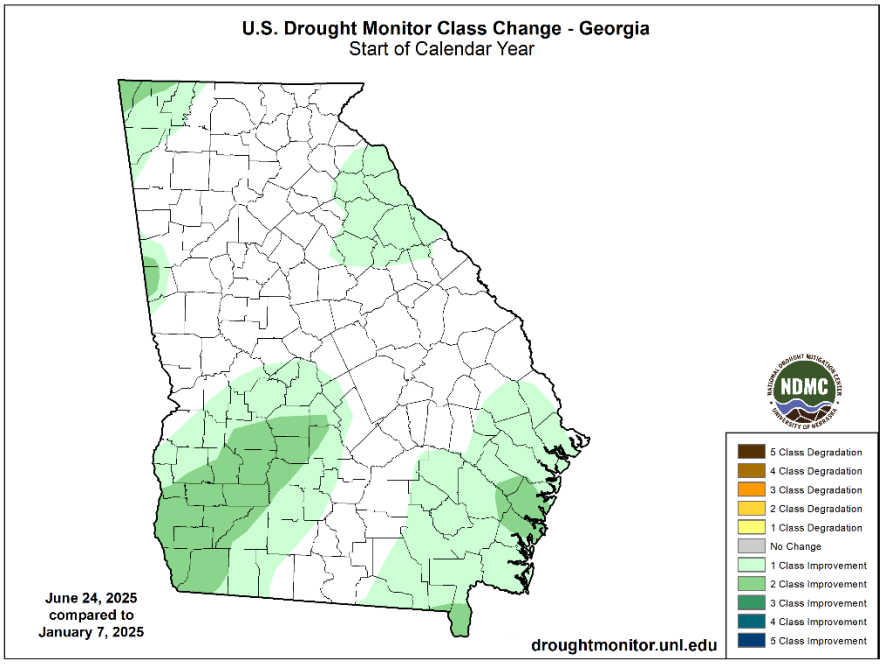



Figure 3.6.2: Drought Southeast United States 2024, 2025

From the start of the calendar year, you can see many areas in Georgia have improved, including a portion of western Carroll. As of June 2025, there are no drought conditions in Georgia.



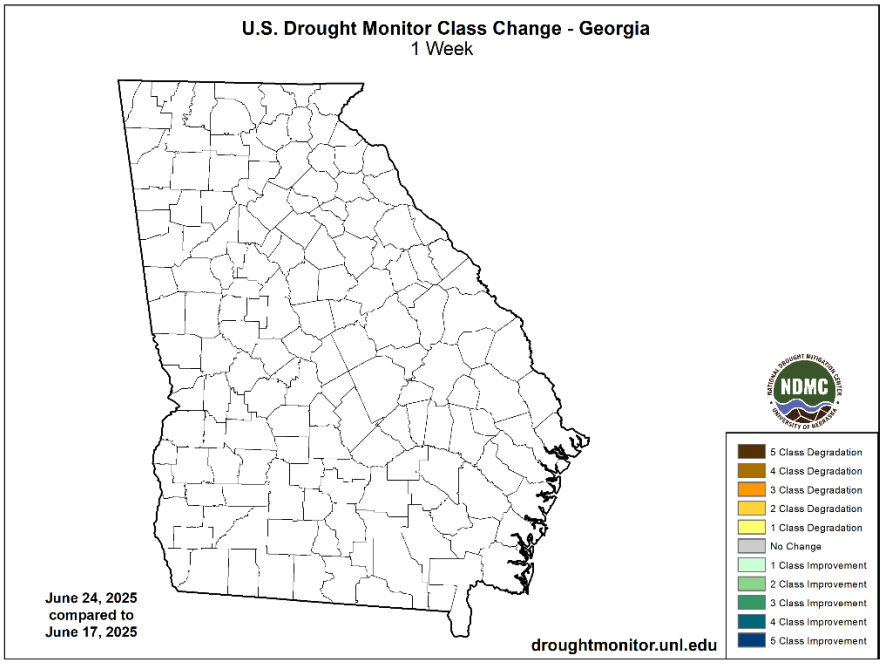
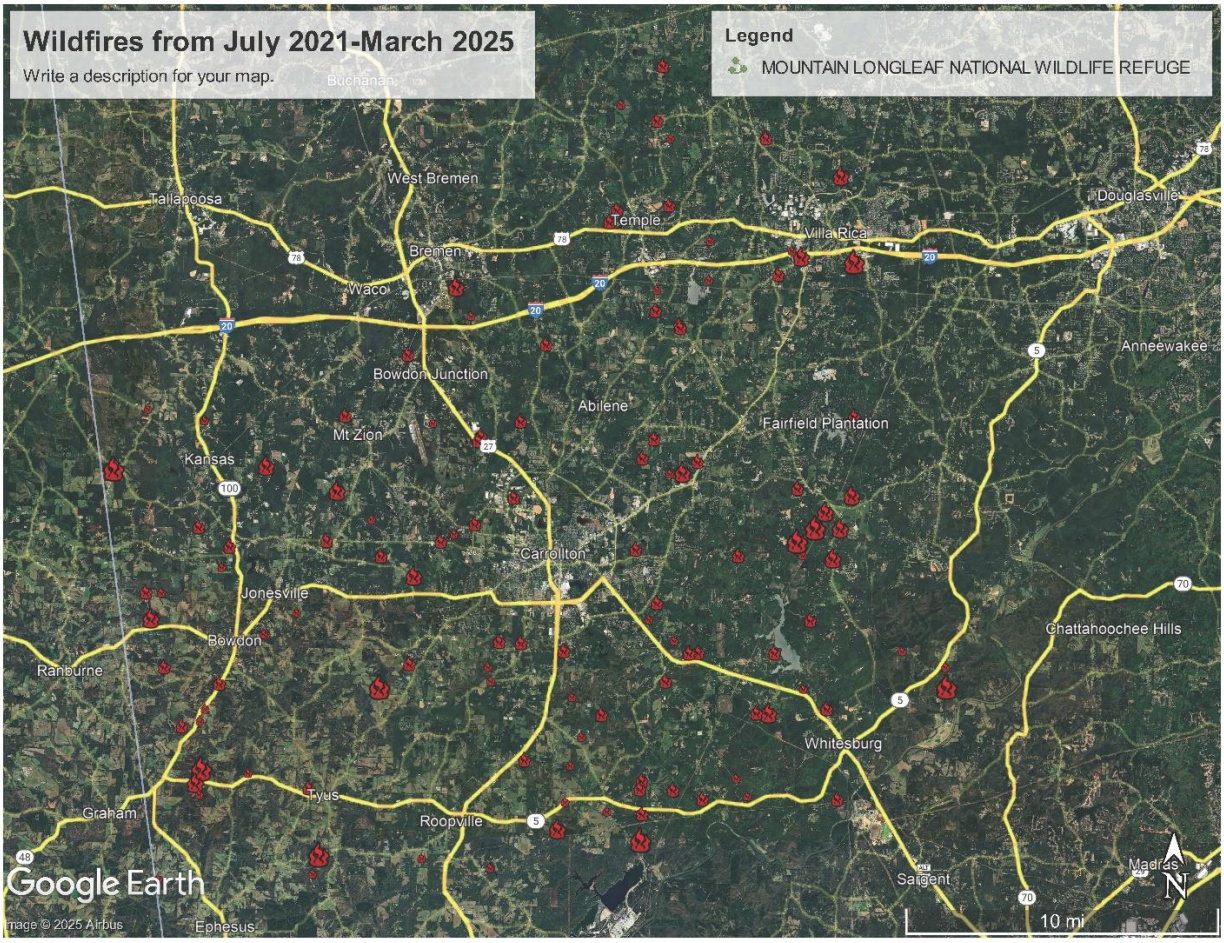




Figure 3.6.3: Drought Change Map January-June 2025

In the last 5 years, Carroll County has experienced a total of 133 fires that affected 428.88 acres for an average of 27 fires, affecting 86 acres per year. This represented numerous small brush fires that had to be put out by the Georgia Forestry Commission and local fire service. Causes of these fires ranged from campfires, smoking and debris burning to incendiary and lightning. The right combination of drought and small brush fire could lead to a more significant wildfire considering the amount of wooded acreage in Carroll County. Carroll County has been fortunate to have not experienced a large wildfire in recent history. There is a high probability of drought affecting Carroll County, with a low to moderate probability of wildfires. See section *e. Land Use and Development Trends* below for more information on Wildfires.




Map 3.6.1: Carroll County Wildfires Map (July 2021-March 2025) from Georgia Forestry Commission

### *c. Assets Exposed to Hazard*

The exposure of assets to drought-related hazards are generally indirect. The occurrence of a drought drastically increases the risk of fire and the loss of crops due to low water tables.

*d. Estimate of Potential Losses*

With over 70% of Carroll County deemed agricultural/rural (approximately 350 square miles), the potential effects of a wildfire or a long-term drought are devastating. There is no estimated damage to facilities due to droughts. All impact would be secondary in nature. Potential losses to crops or livestock cannot be accurately quantified unless all of the drought variables are known (such as duration, temperatures, severity, crop type, etc.). Wildfires generally occur under drought conditions, and given the county's rural characteristics, do pose a threat to all structure types. Houses in the fringe areas in the rural areas are most susceptible.

Table 3.6.1: Total Property Losses for Carroll County on a Percentage Basis for Wildfires

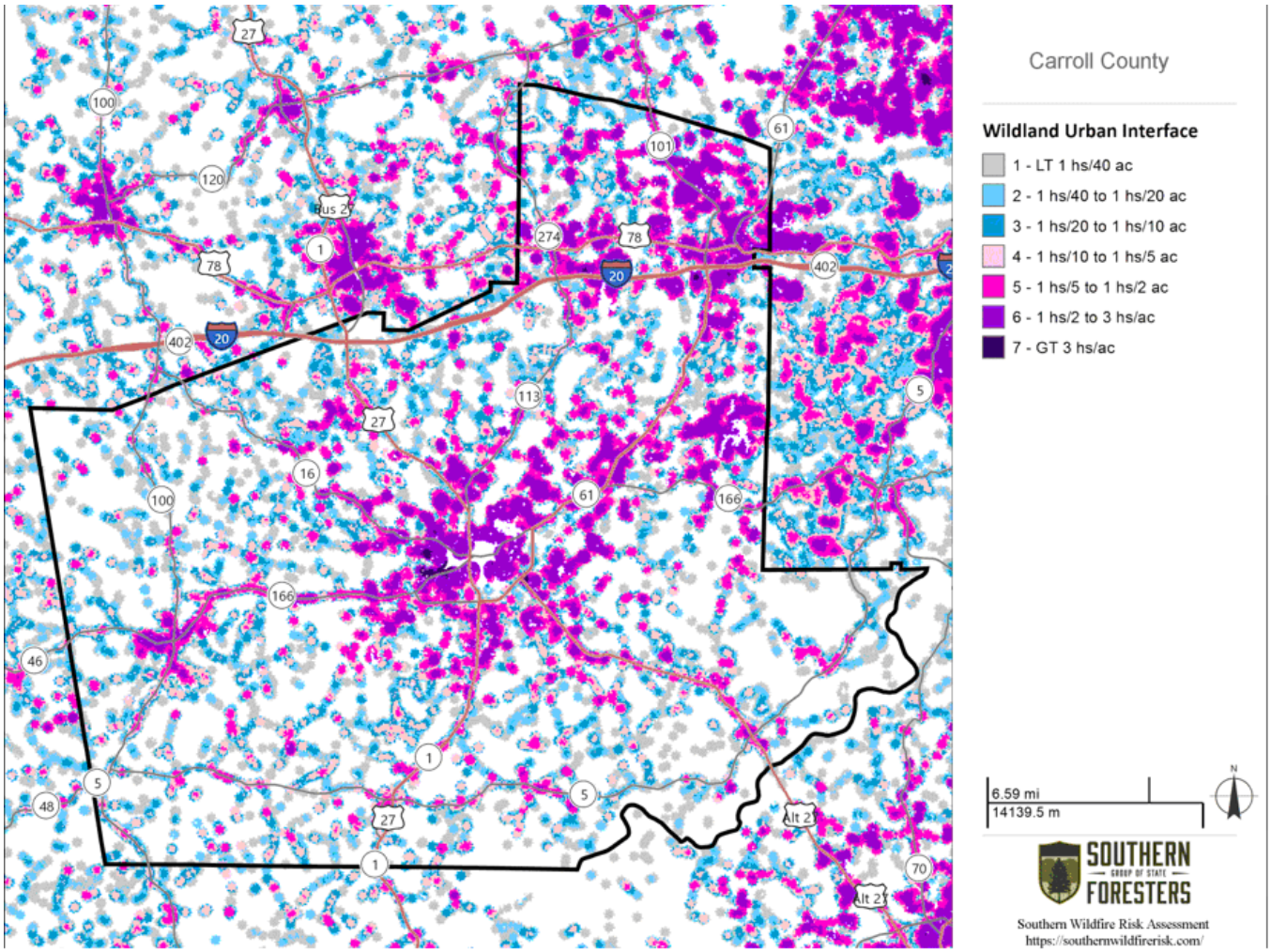
| **Structure Type and Amount of Structures** | **Value** | **75%** | **50%** | **25%** |
|---|---|---|---|---|
| Residential | $12,662,373,808 | $9,496,780,356 | $6,331,186,904 | $3,165,593,452 |
| Commercial | $446,353,883 | $334,765,412 | $223,176,941 | $111,588,471 |
| Industrial | $3,368,598,375 | $2,526,448,781 | $1,684,299,188 | $842,149,594 |
| Agricultural | $1,130,494,988 | $847,871,241 | $565,247,494 | $282,623,747 |
| Critical Facilities | $703,659,240 | $527,744,430 | $351,829,620 | $175,914,810 |

*Values provided by the Carroll County Tax Assessors and Carroll County Emergency Management Agency*

*e. Land Use and Development Trends*

Development in rural areas exposes more assets to the potential loss from wildfires. According to the Southern Wildfire Risk Assessment Summary Report, 106,493 or 96.4% of the 2010 Census population live in the Wildlife Urban Interface. The threat increases are more people move to rural areas. Most of Carroll County's population is in the 1 house on 2 acres or 1 house on a half-acre or more, becoming less dense as you move away from the cities. In terms of the WUI Risk Index, most of the county is at moderate (or less) risk in terms of impact. This takes into consideration fire intensity data that is modeled to incorporate penetration into the urban fringe. 36% of the county is vulnerable to minor impacts from wildfires. The higher fire intensity areas tend to be in the county's most rural areas including those under the ownership of large timber companies.

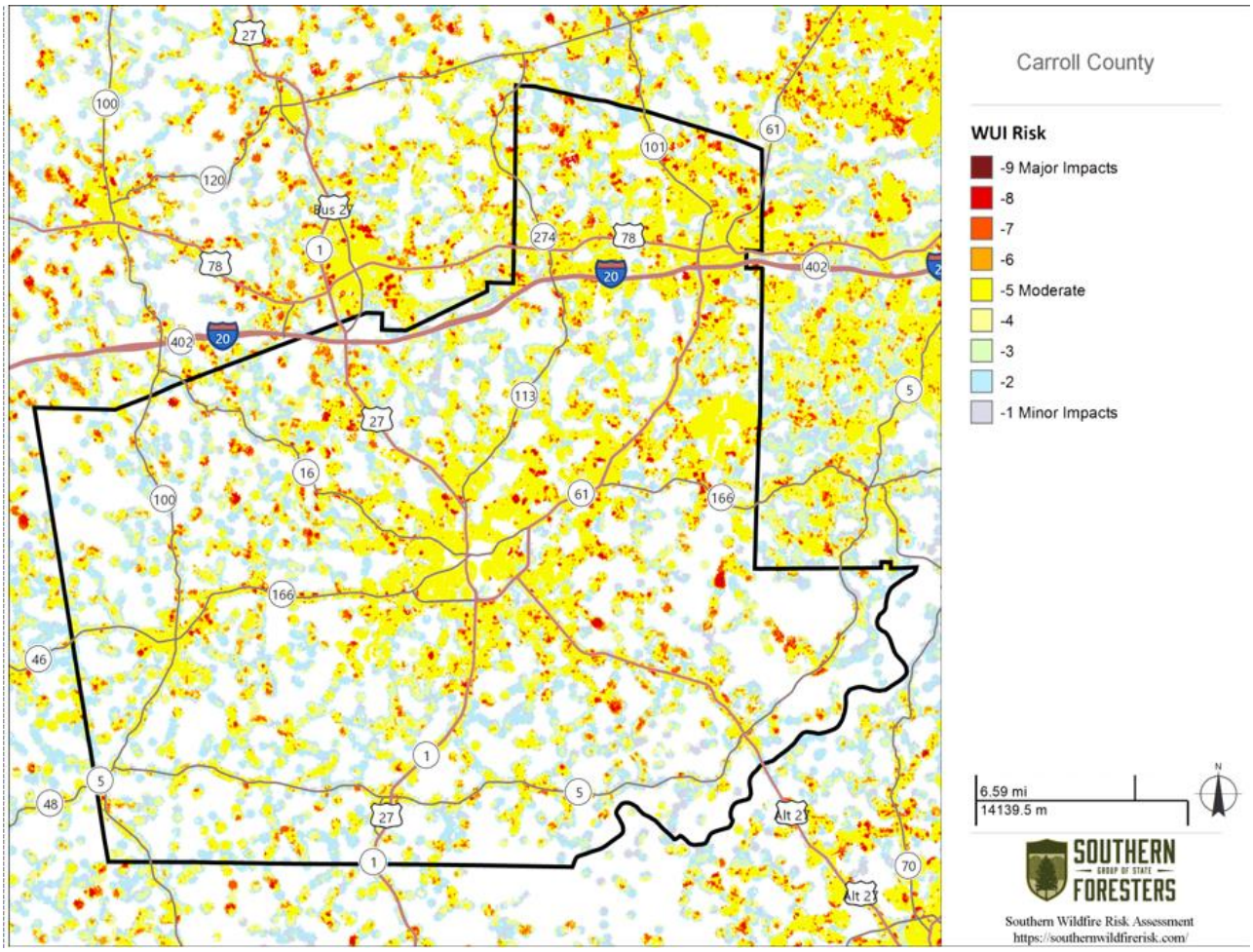
Focus for mitigation actions should be in areas where residential fringe assets meet timberlands. This is shown in Map 3.6.5 Community Protection Zones.




Map 3.6.2: Wildlife Urban Interface

| Housing Density | WUI Population | Percent of WUI Population | WUI Acres | Percent of WUI Acres |
|---|---|---|---|---|
| LT 1hs/40ac | 732 | 0.7 % | 41,722 | 21.9 % |
| 1hs/40ac to 1hs/20ac | 1,694 | 1.6 % | 28,399 | 14.9 % |
| 1hs/20ac to 1hs/10ac | 3,888 | 3.7 % | 30,257 | 15.9 % |
| 1hs/10ac to 1hs/5ac | 9,440 | 8.9 % | 32,509 | 17.1 % |
| 1hs/5ac to 1hs/2ac | 23,955 | 22.5 % | 33,056 | 17.4 % |
| 1hs/2ac to 3hs/1ac | 61,763 | 58.0 % | 24,091 | 12.7 % |
| GT 3hs/1ac | 5,021 | 4.7 % | 361 | 0.2 % |
| **Total** | **106,493** | **100.0 %** | 190,395 | 100.0 % |

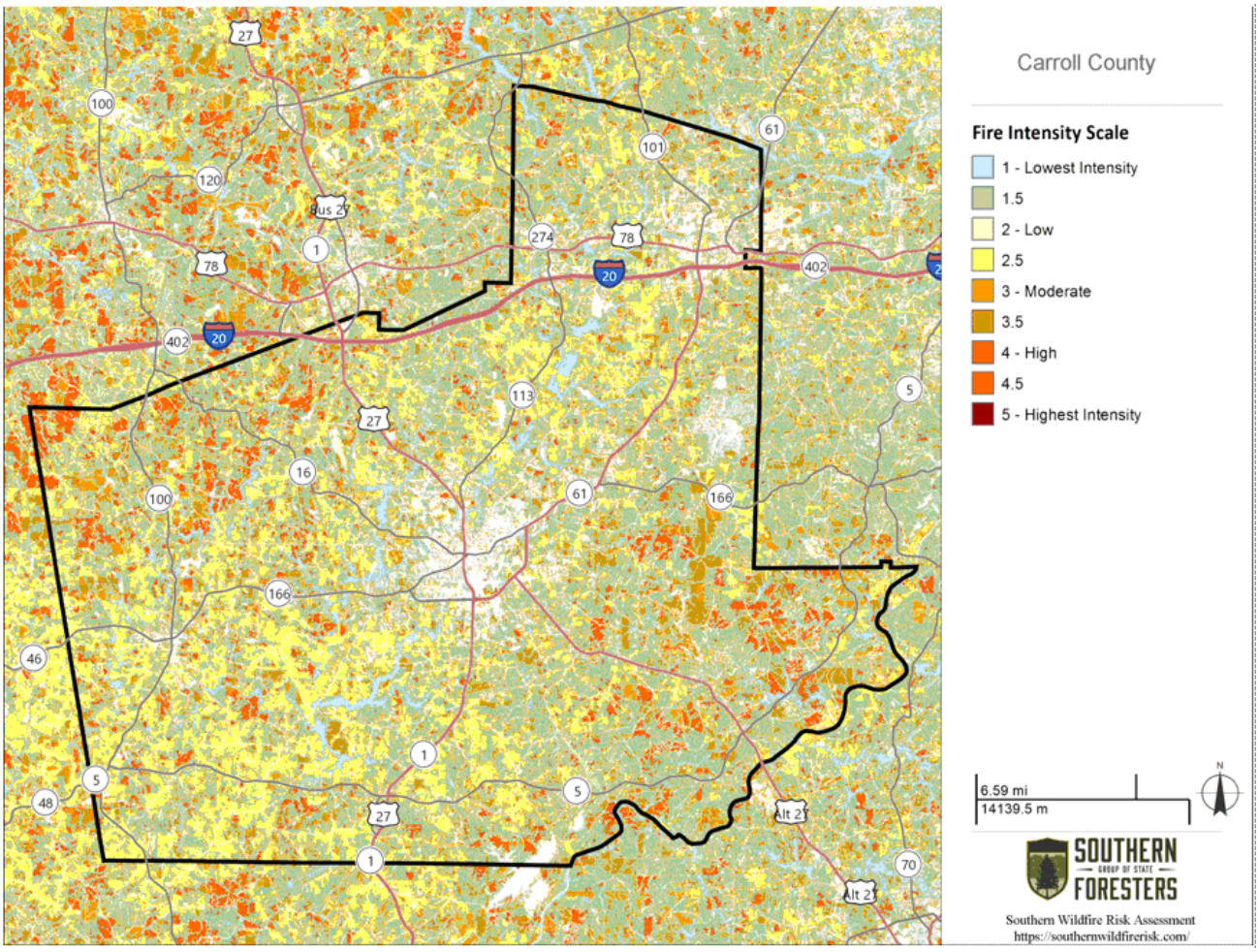
Figure 3.6.4: Wildlife Urban Interface Population and Acres (Southern Region)




Map 3.6.3: Wildlife Urban Interface Risk Map

| | Class | Acres | Percent |
|---|---|---|---|
| | -9 Major Impacts | 3 | 0.0 % |
| | -8 | 2,308 | 1.2 % |
| | -7 | 8,524 | 4.5 % |
| | -6 | 6,228 | 3.3 % |
| | -5 Moderate | 68,745 | 36.5 % |
| | -4 | 31,082 | 16.5 % |
| | -3 | 15,758 | 8.4 % |
| | -2 | 42,936 | 22.8 % |
| | -1 Minor Impacts | 12,836 | 6.8 % |
| | **Total** | **188,420** | **100.0 %** |

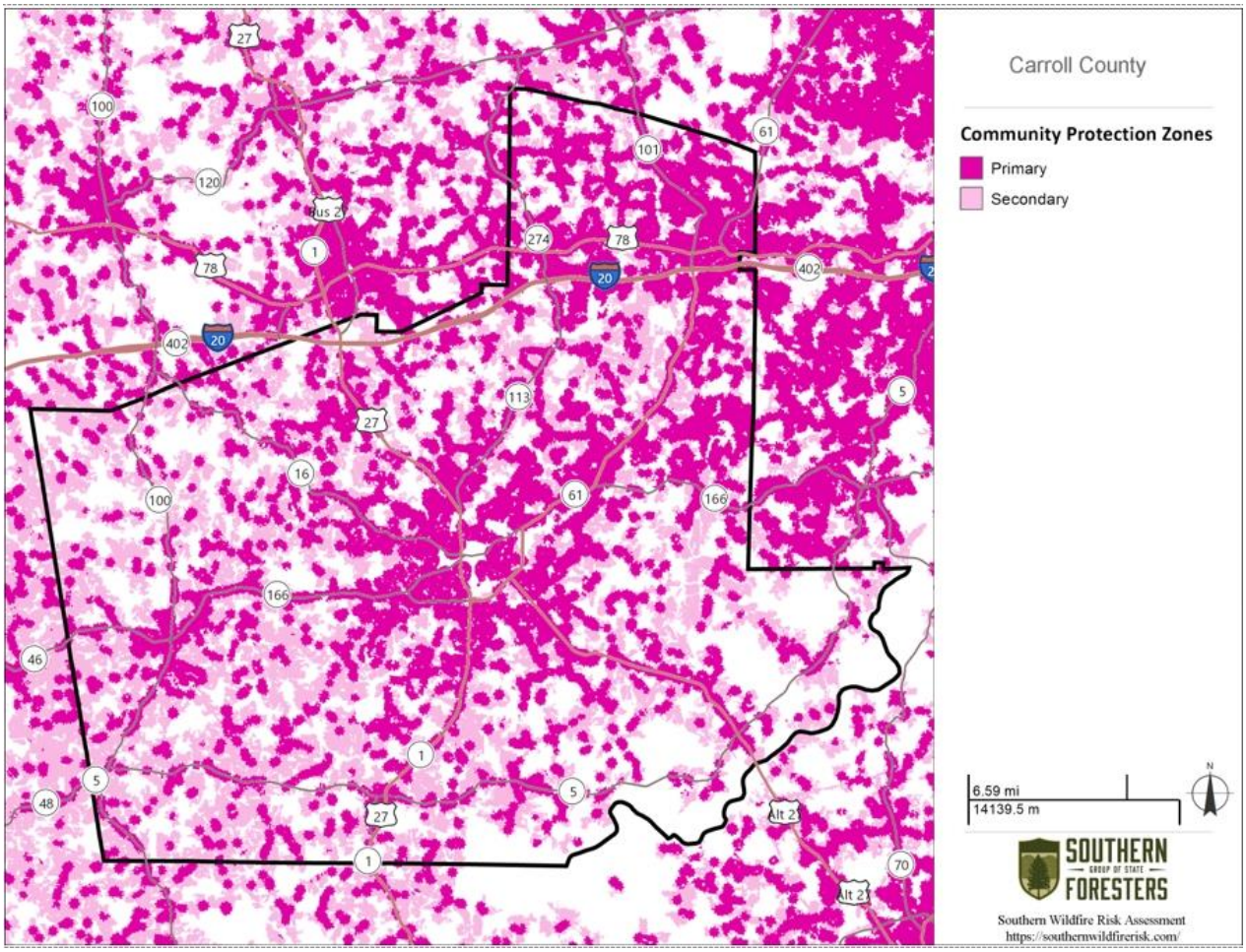
Figure 3.6.5: Wildlife Urban Interface Risk Class and Acres (Southern Region)




Map 3.6.4: Fire Intensity Scale Map

| | Class | Acres | Percent |
|---|---|---|---|
| | Non-Burnable | 33,979 | 10.5 % |
| | 1_Lowest Intensity | 12,769 | 4.0 % |
| | 1.5 | 127,199 | 39.4 % |
| | 2_Low | 26,714 | 8.3 % |
| | 2.5 | 59,629 | 18.5 % |
| | 3_Moderate | 10,737 | 3.3 % |
| | 3.5 | 36,883 | 11.4 % |
| | 4_High | 14,590 | 4.5 % |
| | 4.5 | 4 | 0.0 % |
| | 5_Highest Intensity | 0 | 0.0 % |
| | **Total** | **322,504** | **100.0 %** |

Figure 3.6.6: Fire Intensity Scale Class and Acres (Southern Region)




Map 3.6.5: Community Protection Zones

Utilizing fire growth simulations, the Southern Wildlife Risk Assessment Summary Report also developed a Burn Probability Layer. Most of the county is in a 5 or less (out of 10) probability for burning. The only area that was slightly higher was SW Carroll outside of Bowdon. The likely fire type for Carroll is a surface fire which includes grass, timber litter, shrubs/brush and other vegetation, as opposed to a canopy fire which relates to burning the crowns of trees. Carroll is also moderate to less in terms of dozer operability which aids response so that fires can be put out quickly.

Timber best management practices, utilized by timber companies, help to grow a healthy forest of trees to be harvested, reducing the risks of wildfires.

The county's vulnerability to drought remains moderate, although vulnerability to wildfires has been reduced due to utilizing best management practices.

### *f. Multi-Jurisdictional Concerns*

The highest occurrence of crop losses due to drought will be in the rural areas of Carroll County. The entire county should be included in drought planning.

### *g. Hazard Summary*

Carroll County is vulnerable to droughts, but fortunately, they have had a short duration. Although droughts do not generally have an immediate effect, they cause havoc through secondary means such as wildfires, crop loss, reduction in water supplies and economic stress. Drought-related mitigation strategies are present in IV. A. 6.

## 7. Earthquakes

### *a. Hazard Identification*

An earthquake is a sudden movement of the earth, caused by abrupt release or strain that has accumulated over a long time. The forces of plate tectonics shape the earth as the huge plates that form the earth's surface slowly move over, under and past each other. Sometimes the movement is gradual. At other times, the plates are locked together, unable to release the accumulated energy. When the accumulated energy grows strong enough, the plates break free. If the earthquake occurs in a populated area, it may cause many deaths, injuries and extensive property damage.

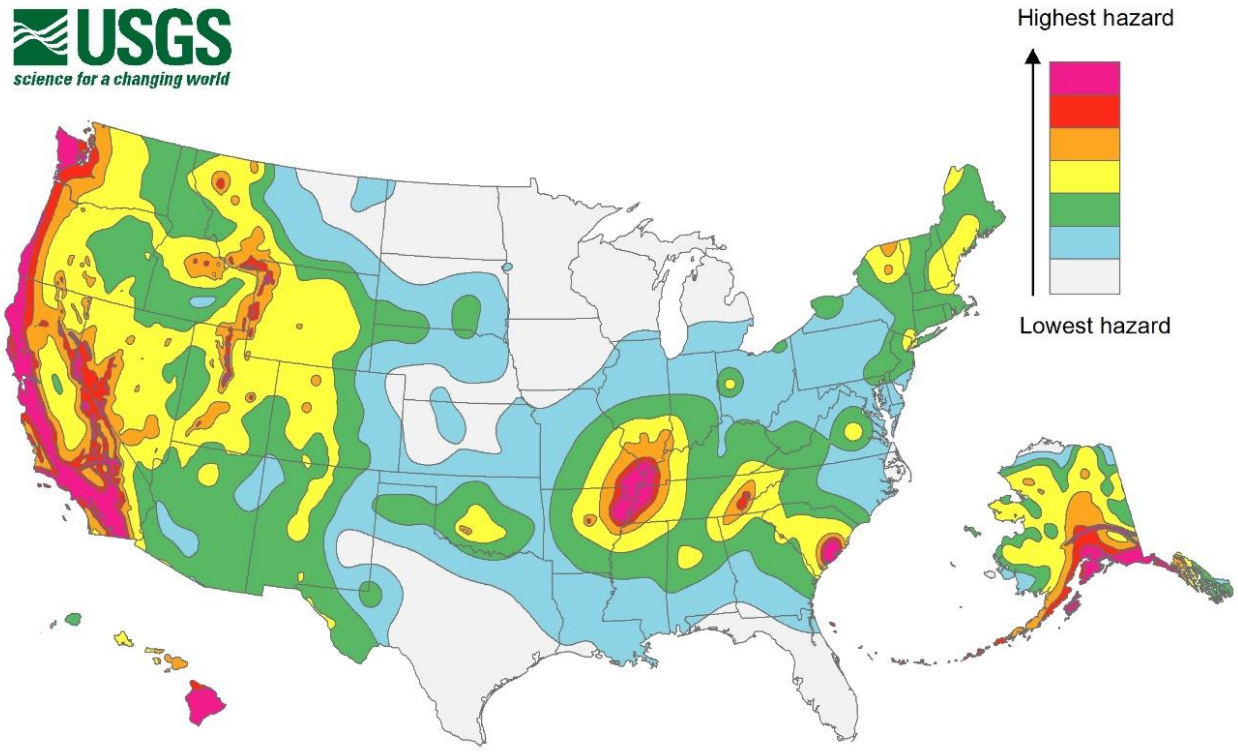



Figure 3.7.1: United States Geological Society (USGS) Earthquake Hazard Zone Map

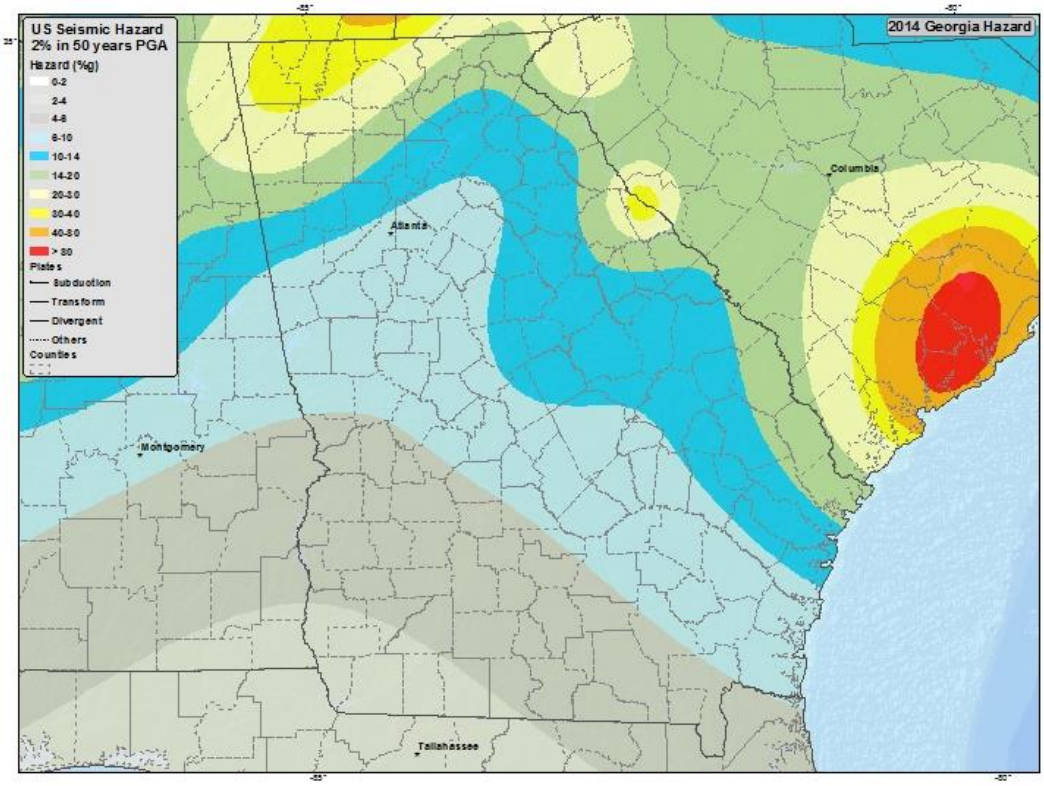



Figure 3.7.2: United States Geological Society (USGS) Earthquake Hazard Zone Map – Georgia

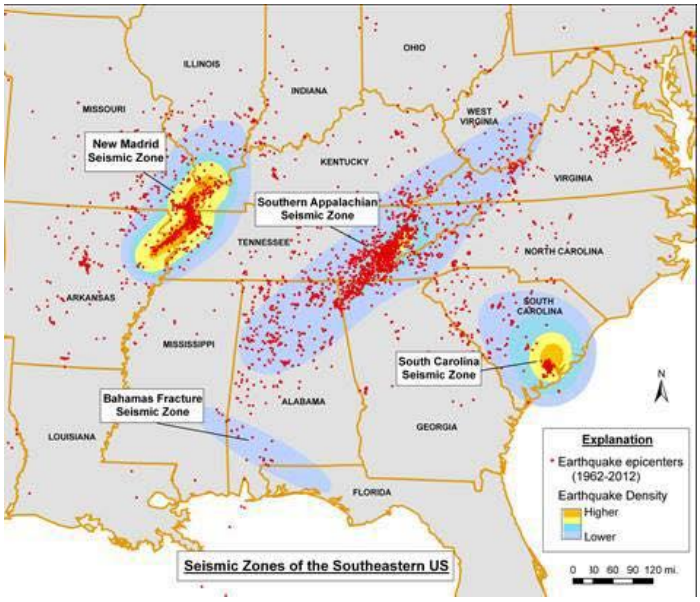



Figure 3.7.3: Southeastern US Seismic Zones

Table 3.7.1: Richter Scale of Magnitudes

| Magnitude | Description | Average earthquake effects | Average frequency of occurrence (estimated) Worldwide |
|---|---|---|---|
| Less than 2.0 | Micro | Micro earthquakes, not felt, or felt rarely by sensitive people. Recorded by seismographs. | Continual/several million per year |
| 2.0–2.9 | Minor | Felt slightly by some people. No damage to buildings. | Over one million per year |
| 3.0–3.9 | | Often felt by people, but very rarely causes damage. Shaking of indoor objects can be noticeable. | Over 100,000 per year |
| 4.0–4.9 | Light | Noticeable shaking of indoor objects and rattling noises. Felt by most people in the affected area. Slightly felt outside. Generally causes none to minimal damage. Moderate to significant damage very unlikely. Some objects may fall off shelves or be knocked over. | 10,000 to 15,000 per year |
| 5.0–5.9 | Moderate | Can cause damage of varying severity to poorly constructed buildings. At most, none to slight damage to all other buildings. Felt by everyone. | 1,000 to 1,500 per year |
| 6.0–6.9 | Strong | Damage to a moderate number of well-built structures in populated areas. Earthquake-resistant structures survive with slight to moderate damage. Poorly designed structures receive moderate to severe damage. Felt in wider areas; up to hundreds of miles/kilometers from the epicenter. Strong to violent shaking in epicentral area. | 100 to 150 per year |
| 7.0–7.9 | Major | Causes damage to most buildings, some to partially or completely collapse or receive severe damage. Well-designed structures are likely to receive damage. Felt across great distances with major damage mostly limited to 250 km from epicenter. | 10 to 20 per year |

| | | | |
|---|---|---|---|
| 8.0–8.9 | Great | Major damage to buildings, structures likely to be destroyed. Will cause moderate to heavy damage to sturdy or earthquake-resistant buildings. Damaging in large areas. Felt in extremely large regions. | One per year |
| 9.0 and greater | | Near or at total destruction - severe damage or collapse to all buildings. Heavy damage and shaking extends to distant locations. Permanent changes in ground topography. | One per 10 to 50 years |

*Source: United States Geological Survey*

*b. Hazard Profile*

The ancient Brevard Fault identified by the US Geological Survey in 1905 transversed Georgia from Virginia to Alabama, including western Georgia. The fault is currently dormant, inactive for millions of years and not experiencing any seismic movement. However, many other minor fault lines in northern Georgia continue to cause seismic activity and can be felt in Carroll County. The state of Georgia has experienced seven earthquakes from 1974 to 2003, according to USGS (United States Geological Survey) information.

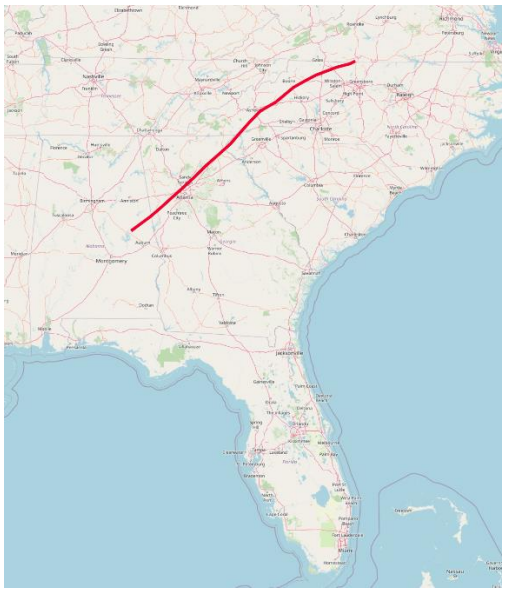


Figure 3.7.4: Brevard Fault

On April 29, 2003, Georgia was hit with a 4.9 magnitude earthquake. The earthquake could be felt across Carroll County. Earlier in 2025, a 4.1 magnitude earthquake in Tennessee could be felt by many in Carroll. With only minor fault lines located beneath the county's soil, the probability of damage from an earthquake to the county and its municipalities is considered low. As depicted in the USGS map above, Carroll is one of the lower hazard zones.

*c. Assets Exposed to Hazard*

All structures and facilities within Carroll County are susceptible to earthquake damage since they can occur in any portion of the county.

*d. Estimate of Potential Losses*

Because all facilities within the county are subject to potential losses due to earthquakes, estimations were made assuming 100% losses. A list of Critical Facilities including estimated values can be found in Appendix C.

Table 3.7.2: Total Property Losses for Carroll County on a Percentage Basis for Earthquakes

| Structure Type and Amount of Structures | Value | 75% | 50% | 25% |
|---|---|---|---|---|
| Residential | $12,662,373,808 | $9,496,780,356 | $6,331,186,904 | $3,165,593,452 |
| Commercial | $446,353,883 | $334,765,412 | $223,176,941 | $111,588,471 |
| Industrial | $3,368,598,375 | $2,526,448,781 | $1,684,299,188 | $842,149,594 |
| Agricultural | $1,130,494,988 | $847,871,241 | $565,247,494 | $282,623,747 |
| Critical Facilities | $703,659,240 | $527,744,430 | $351,829,620 | $175,914,810 |

*Values provided by the Carroll County Tax Assessors and Carroll County Emergency Management Agency*

### *e. Land Use and Development Trends*

Due to its low probability, there are currently no specific land use or development regulations related to earthquakes. New construction is subject to Carroll County's adopted 2018 Building Code with the 2023 amendments, which is deemed enough given the county's low vulnerability to earthquakes.

### *f. Multi-Jurisdictional Concerns*

Any portion of Carroll County, including each of the municipalities, could potentially be affected by earthquakes. All areas within Carroll County, including the Cities of Bowdon, Bremen, Carrollton, Mount Zion, Roopville, Temple, Villa Rica and Whitesburg, carry the same threat for earthquakes. Any steps taken to mitigate the effects of earthquakes should be undertaken on a county wide basis and include all municipalities.

### *g. Hazard Summary:*

The probability of an earthquake causing significant damage to Carroll County is limited. Earthquake specific mitigation actions are provided in IV. A. 7 of this document.

## 8. Pandemic and Epidemics

### *a. Hazard Identification*

A widespread pandemic or epidemic event has the potential to be a major hazard to Carroll County. Pandemic and epidemic events are not only a threat to the citizens of Carroll County but also to the emergency responders who serve the county. This can include influenza, tuberculosis, polio, smallpox, Severe Acute Respiratory Syndrome (SARS, including SARS-CoV2), Swine Influenza (H1N1) and other health related events. Diseases that had been previously thought eradicated, such as measles, have re-emerged.

In addition to humans, epidemics can cause widespread devastation to livestock, as evidenced by the recent concerns for Avian Influenza in poultry. Bioterrorism incidents can also be included under this hazard.

### *b. Hazard Profile*

Carroll County experienced many pandemic or epidemic events over the years. Influenza cases begin to come into the Carroll County Health Department every winter, usually between October and March. Influenza, often referred to as "the flu," is a specific viral infection that is responsible for a substantial number of deaths each year. It is particularly deadly among seniors 65 and older, when combined with another infection such as pneumonia. In 2023, the number of deaths in the United States from Influenza and Pneumonia was a combined 62,850, according to the Centers for Disease Control and Prevention.

Carroll County was affected by SARS-CoV-2 (Covid-19) starting in March 2020. As of March 27, 2024, the county has had 17,305 cases with 198 confirmed deaths from Covid-19. The local EMA and our public health and public safety partners responded quickly to the pandemic. In April 2020, a stay-at-home order was issued by the governor for non-essential workers, which ended in May as reopening began. The county and cities launched campaigns to encourage social distancing, hand washing and mask wearing, while the governments and local businesses followed recommended guidelines from the governor's office for reopening. When a vaccine was approved, the local EMA worked with its partners to help coordinate its distribution. The county, in cooperation with the Carroll County Health Department, opened a public Points of Distribution (POD) Site to distribute its share of the Strategic National Stockpiles' (SNS) supply of vaccinations. Many of the county's largest employers such as Southwire, Tanner Health, Carroll EMC, Carroll County Schools, Carrollton City Schools, the county, and its larger cities, have signed on as a private Closed PODs to disseminate to their employees, helping to expedite the distribution process during a pandemic.

The agriculture community continues to be diligent in its response to Avian influenza, monitoring poultry and responding as needed. According to the Georgia Department of Agriculture, in 2025, there have been three cases of Avian influenza in Georgia, two in commercial poultry operations in Elbert County, and one backyard non-poultry in Clayton County.

In addition to the flu and SARS, Carroll County has also experienced outbreaks of meningitis in its schools and Cryptosporidium in the City of Carrollton's water supply, both since 1985.

### *c. Assets Exposed to Hazard*

All critical facilities, as well as all public, private, and commercial property, are susceptible to being impacted by a pandemic/epidemic event due to people being infected transmitting it in school or the workplace. The entire population of Carroll County is vulnerable to pandemic/epidemics outbreaks. There is no way for the county to predict the impact, magnitude, location or time these events will occur. The local health department, Georgia Department of Agriculture, and Carroll County Emergency Management continue to monitor reports from state Public Health officials and the Centers for Disease Control as to possible epidemics.

### *d. Estimate of Potential Losses*

There is no estimated damage to facilities due to pandemic or epidemic events in Carroll County. The impact of human resources would suffer the most with a significant portion of the workforce becoming ill. If spread among livestock, there would be widespread loss, devastating that sector. The economy of Carroll County could take a major hit should a pandemic or epidemic occurred.

Table 3.8.1: Total Property Losses for Carroll County on a Percentage Basis for Pandemics or Epidemic

| **Structure Type and Amount of Structures** | **Value** | **75%** | **50%** | **25%** |
|---|---|---|---|---|
| Residential | $12,662,373,808 | $9,496,780,356 | $6,331,186,904 | $3,165,593,452 |
| Commercial | $446,353,883 | $334,765,412 | $223,176,941 | $111,588,471 |
| Industrial | $3,368,598,375 | $2,526,448,781 | $1,684,299,188 | $842,149,594 |
| Agricultural | $1,130,494,988 | $847,871,241 | $565,247,494 | $282,623,747 |
| Critical Facilities | $703,659,240 | $527,744,430 | $351,829,620 | $175,914,810 |

*Values provided by the Carroll County Tax Assessors and Carroll County Emergency Management Agency*

### *e. Land Use and Development Trends*

All of Carroll County is susceptible to pandemic or epidemic outbreaks due to a continual growth in the county and the social nature of humans.

Carroll County is located on a major interstate (I-20) and federal routes (US 27 and US 78) that carry a significant amount of people to and across the county daily. Densely populated cities, with schools and places of work or worship allow for the spread of communicable diseases. Even in more rural areas, diseases among livestock or crops may spread. The county's probability of an outbreak is medium, although if it occurred, the severity could be high.

### *f. Multi-Jurisdictional Concerns*

All of Carroll County is susceptible to the effects of pandemic or epidemic events. The more densely populated the area is the greater the pandemic or epidemic will spread.

### *g. Hazard Summary*

Pandemic or epidemic events pose a threat to all of Carroll County. All the critical facilities as well as workplaces and schools could ultimately be affected, with a large portion of the workforce being ill. The agricultural community is particularly vulnerable to loss by the potential transmission of disease among livestock. Pandemic and epidemic specific mitigation actions are provided in IV. A. 8 of this document.

## 9. Extreme Temperatures

### *a. Hazard Identification*

When they occur, extreme temperatures can have devastating effects on the local population. Physically, extreme chill can cause hyperthermia, whereas excessive heat may result in heat exhaustion or heat stroke. Extreme cold and wind chill occur in winter months, necessitating calls to the public to protect pets, pipes, plants and people. When a hard freeze occurs, it is damaging to crops as well as building infrastructure due to pipes freezing and breaking. Nationally, more fatalities occur each year due to winter cold than summer heat per the Centers for Disease Control.

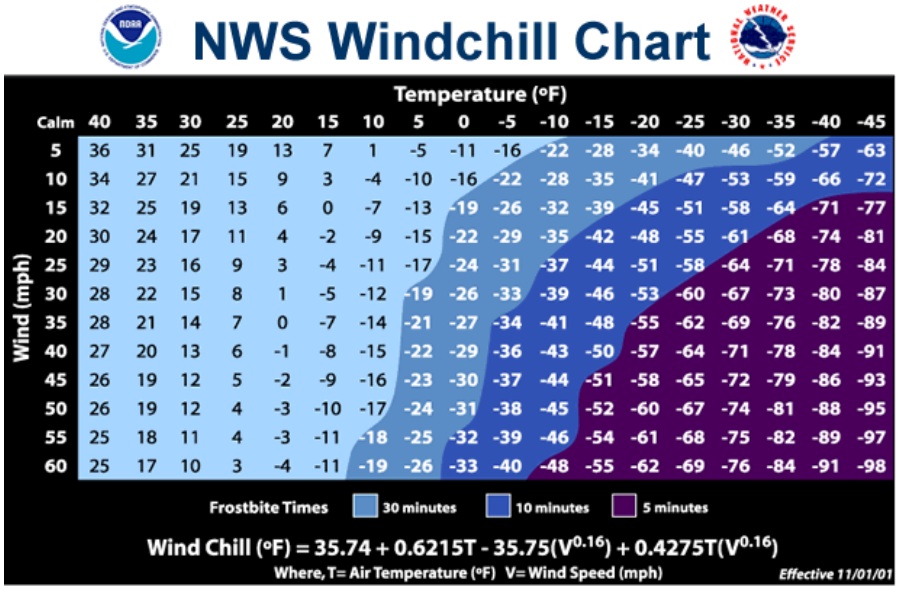



Figure 3.9.1: Wind Chill (NWS)

The county also experiences periods of excessive heat in the summer months that further impacts a dry landscape, but also can take a toll on the residents, particularly the elderly, those who spend long hours laboring outdoors, or those who suffer from asthma. Prolonged exposure to excessive heat can result in heat exhaustion or heat stroke, which can be fatal.

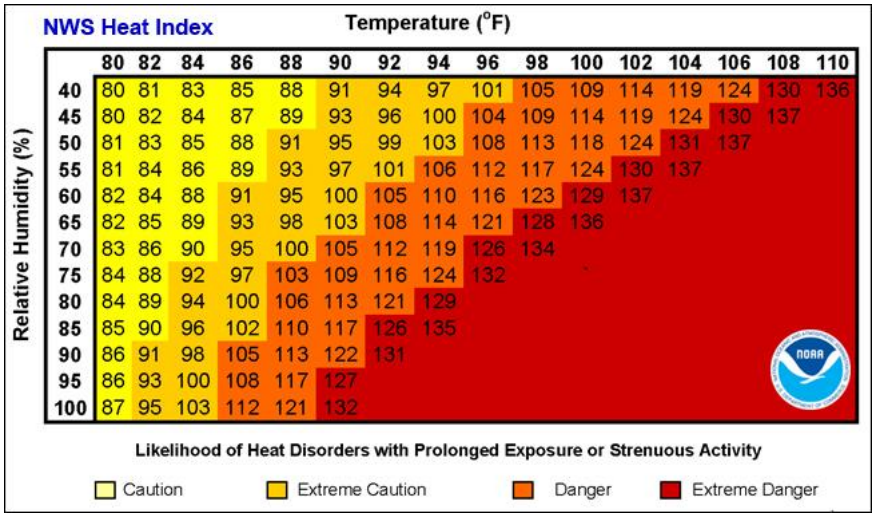



Figure 3.9.2: Heat Index (NWS)

### *b. Hazard Profile*

Over 12 instances of winter chill were reported by the National Weather Service in Carroll County in the early 2000s. In 2015, Carroll County experienced temperatures as low as six degrees Fahrenheit during a polar Vortex. Many area homes lack the needed insulation to protect pipes, resulting in costly water line repairs. Further, there is a potential for damage to crops with a hard freeze.

Carroll County has had two reported days of excessive heat and 10 occurrences of heat since 1950 in the Storm Events Database. It is not uncommon to have heat advisories during the summer months. Excessive heat can have a significant effect on residents, particularly the elderly. Heat stroke and heat exhaustion from exposure can lead to death.

### *c. Assets Exposed to Hazard*

Excessive temperatures has the potential to affect all property in Carroll County.

### *d. Estimate of Potential Losses*

Considerable losses could occur from excessive temperatures from the loss of crops or livestock, damage to buildings from waterline leaks.

Table 3.9.1: Total Property Losses for Carroll County on a Percentage Basis for Extreme Temperatures

| Structure Type and Amount of Structures | Value | 75% | 50% | 25% |
|---|---|---|---|---|
| Residential | $12,662,373,808 | $9,496,780,356 | $6,331,186,904 | $3,165,593,452 |
| Commercial | $446,353,883 | $334,765,412 | $223,176,941 | $111,588,471 |
| Industrial | $3,368,598,375 | $2,526,448,781 | $1,684,299,188 | $842,149,594 |
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| Critical Facilities | $703,659,240 | $527,744,430 | $351,829,620 | $175,914,810 |

*Values provided by the Carroll County Tax Assessors and Carroll County Emergency Management Agency*

### *e. Land Use and Development Trends*

Carroll County's adopted 2018 Building Code with the 2023 amendments provides for reasonable protection from most natural hazards although they are not hazard specific.

Because of the infrequency of extreme chill, many county homes have insufficient insulation around water pipes, resulting in damage when they burst. The Carroll County Emergency Management Agency has utilized social media to remind residents to protect the P's during winter weather, which includes people, pipes, pets and plants.

### *f. Multi-Jurisdictional Concerns*

All of Carroll County is subject to extreme temperatures, and therefore should be included in any prospective mitigation projects.

### *g. Hazard Summary*

Related to other hazards, such as Winter Storms and Drought, extreme temperatures can have a devastating effect on the local economy. A hard freeze and excessive wind chill can have damaging impacts on pipes and crops, whereas extreme heat can worsen the effects of a

drought. Excessive temperatures can be especially harmful to the elderly, those who work outside or those with respiratory illness. Pandemic and epidemic specific mitigation actions are provided in IV. A. 9 of this document.

## D. Technological Hazard, Risk, and Vulnerability Summary

### 1. Hazardous Material Spills

#### *a. Hazard Identification*

A major source of hazardous material accidents are spills along roadways, railways, pipelines, rivers and port areas. Hazardous materials are substances which are harmful to the health and safety of people and property. Jurisdictions with facilities that produce, process or store hazardous materials are at risk, as are facilities that treat, store or dispose of hazardous wastes. Mitigation of this hazard may be accomplished by adherence to federal, state and manufacturer safety standards. Proper packaging, storage and handling will assist in elimination of hazardous materials incidents. Historical data was collected from Carroll County Fire Department and Emergency Management, Carrollton Fire Department, Georgia Department of Natural Resources and the Environmental Protection Division.

#### *b. Hazard Profile*

Hazardous materials are prevalent in Carroll County. They are used, stored, and transported via truck, railway and pipe across the county, ranging from the combustible to corrosive substances. As seen in the county profile above, Norfolk-Southern runs an east-west and north-south line, while Plantation Pipeline (shown) and Colonial Gas both have pipelines in Carroll County. Since 2010, there have been 55 reported hazardous materials spills in Carroll County to the Georgia Environmental Protection Division, ranging from industrial sites to transportation-related incidents, averaging 11 per year. These numbers do not include routine calls for natural gas leaks or small fuel spills. The large number of instances is partly due to the county's large industrial base, allowing for the possibility of fixed-facility spills, as well as to the presence of the Interstate 20 corridor, accounting for some of the transportation-related events. A complete list of reported hazardous materials incidents can be found in Appendix H, and a copy of the 2008 Commodity Flow Study is in Appendix G. There is a high probability of a hazardous materials spill in the county.

The railroad system in Carroll County is an area where there is a potential for hazardous material spills. For planning purpose, Norfolk-Southern has provided Carroll County Emergency Management with a log of substances transported along the railway, including the corrosive and combustible.

**Waste Isolation Pilot Plant Recovery (Nuclear)**

In addition to hazardous materials, nuclear waste is also being transported via Interstate 20 from the Savannah River site to Carlsbad, New Mexico for storage in a salt mine. Through GEMA/FEMA, local first responders are receiving training on how to deal with a nuclear spill in the unlikely event of an occurrence. On a much smaller scale, nuclear materials are used for such healthcare procedures such as radiation therapy and must be treated with safety precautions.

### *c. Assets Exposed to Hazard*

The most prevalent asset damaged during a hazardous materials release is the environment. The waterways tend to have the highest impact (with air quality issues dissipating over time). The waterways in Carroll County which are most susceptible to hazardous materials spills are the Little Tallapoosa River and Lake Buckhorn due to their location along Interstate 20. Another waterway susceptible to spills is the Lake Seaton Reservoir, a 600-acre lake which supplies the drinking water to Carroll County. It should also be noted that one of the largest chemical fixed facility users in Carroll County is located within ½ mile of Tanner Medical Center- Carrollton, the largest healthcare provider.

### *d. Estimate of Potential Losses*

The damage to the environment due to hazardous materials spills cannot be estimated. The permanent damage to a critical facility due to a fixed facility spill has not been recorded. Values below assume 100% losses. A list of Critical Facilities including estimated values can be found in Appendix C.

Table 3.10.1: Total Property Losses for Carroll County on a Percentage Basis for Hazardous Materials Spills

| **Structure Type and Amount of Structures** | **Value** | **75%** | **50%** | **25%** |
|---|---|---|---|---|
| Residential | $12,662,373,808 | $9,496,780,356 | $6,331,186,904 | $3,165,593,452 |
| Commercial | $446,353,883 | $334,765,412 | $223,176,941 | $111,588,471 |
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| Critical Facilities | $703,659,240 | $527,744,430 | $351,829,620 | $175,914,810 |

*Values provided by the Carroll County Tax Assessors and Carroll County Emergency Management Agency*

### *e. Land Use and Development Trends*

Per the Carroll County Future Land Use Map, Commercial and Industrial sites are encouraged in more appropriate areas designated for that use, away from residential neighborhoods. This helps to limit exposure to residents. With its many transportation corridors, Carroll County is vulnerable to a hazardous materials release.

Because of a strong Local Emergency Planning Committee and the use of best management practices by local industry, the county's vulnerability to hazardous materials has declined since the last plan. There is a medium risk of occurrence.

### *f. Multi-Jurisdictional Concerns*

Hazardous materials incidents have been recorded in all Carroll County jurisdictions. Those jurisdictions that fall along the I-20, US-78, SR-61, US-27, and SR-16 as well as the jurisdictions surrounding the railroad corridors are the most susceptible to transportation-related events.

### *g. Hazard Summary*

Hazardous materials spills are a common occurrence in Carroll County, although with best management practices this has declined in recent years with fewer occurrences. The county is still moderately vulnerable. Mitigation plans must be executed to reduce the threat to lives and property as a result of hazardous materials releases. Mitigation strategies specific to this threat can be found in IV. B. 1 of this document.

## 2. Dam Failure

### *a. Hazard Identification*

The potential failure of a dam may result in people living downstream being in imminent danger of flooding. Weather, structural changes, and chemical agents can impact a dam. Reservoir sedimentation can significantly reduce flood control capacity. Protective construction of dams may assist in mitigating such a hazard. The Hazard Mitigation Plan Steering Committee gathered research from the Georgia Department of Natural Resources during its research on dam failures in Carroll County.

### *b. Hazard Profile*

Eight dam failures were recorded since 1999. The dams involved included: Fairfield Plantation (leak), Papillion (failure of principal spillway), Sioux (breach of spillway), and Legion (overtopping), farm pond on Four Notch Road (dam failure), Lake Seaton (spillway), Twin Lakes (overtopping), Paynes Lake (Spillway Activation). Because of the oversight of county dams, there is a medium to low probability of dam failure in any given year.

There are 116 dams in Carroll County. Of these Twenty-five (25) are high hazard dams, including the dams listed in Table 3.11.1 below.

FEMA has added two Carroll County High Hazard Potential Dams into its list for rehabilitation.

Table 3.11.1 FEMA HHPD 2022 Eligible Dam List

| Dam Name | County | NID |
|---|---|---|
| Lake Ashley Dam | Carroll | GA02362 |
| Tara Lake Dam | Carroll | GA00118 |

Table 3.11.2: Category 1/High Hazard Dams

| |
|---|
| Lake Carroll |
| George Lake |
| H.C Seaton Lake |
| Jerry Driver Pond |
| Little Tallapoosa River STR #13 |
| Little Tallapoosa River STR #21 |
| Little Tallapoosa River STR #25 |
| Little Tallapoosa River STR #29 |
| Little Tallapoosa River STR #30 |

| |
|---|
| Little Tallapoosa River STR #31 |
| Little Tallapoosa River STR #36 |
| Ashley Lake (Little Treasure) |
| Lower Little Tallapoosa River #35 |
| Lower Little Tallapoosa River #36 |
| Lower Little Tallapoosa River #82 |
| Lower Little Tallapoosa River #86 |
| Plant Wansley Main Storage Lake |
| H.C. Seaton Reservoir #2 |
| Richard's Lake |
| Sharpe Creek |
| Sharpe Creek Reservoir Lake |
| Snake Creek Reservoir |
| Sunset Hills Country Club Lake |
| Tara Lake |
| Walkers Lake |

*Georgia Safe Dams*

### *c. Assets Exposed to Hazard*

There are 116 dams in Carroll County which are exposed to the potential for failure. There are also numerous residences and agricultural properties located close to these dams. Approximately 1% of the properties in Carroll County are in a flood zone. Each individual dam will have a different number and value of properties associated with it.

### *d. Estimate of Potential Losses*

It is difficult to extrapolate the potential damage from a dam failure without knowing the type of break, the extent of the break and other factors. For this reason, the standard 25%, 50%, 75%, and 100% damage estimates were performed on all properties county-wide.

Table 3.11.3: Total Property Losses for Carroll County on a Percentage Basis for Dam Failure

| Structure Type and Amount of Structures | Value | 75% | 50% | 25% |
|---|---|---|---|---|
| Residential | $12,662,373,808 | $9,496,780,356 | $6,331,186,904 | $3,165,593,452 |
| Commercial | $446,353,883 | $334,765,412 | $223,176,941 | $111,588,471 |
| Industrial | $3,368,598,375 | $2,526,448,781 | $1,684,299,188 | $842,149,594 |
| Agricultural | $1,130,494,988 | $847,871,241 | $565,247,494 | $282,623,747 |
| Critical Facilities | $703,659,240 | $527,744,430 | $351,829,620 | $175,914,810 |

*Values provided by the Carroll County Tax Assessors and Carroll County Emergency Management Agency*

### *e. Land Use Development Trends*

Carroll County is making significant efforts to reduce building in a flood hazard districts through zoning. Carroll County and its municipalities participate in the National Flood Insurance Program (NFIP). The 2012 Edition of the International Building Codes, which were adopted by Carroll County and its municipalities, provide reasonable guidance for development within flood prone areas.

The Carroll County Emergency Management Agency in conjunction with Carroll County Community Development is looking to map high hazard dams and their spill ways. This will help restrict residential growth from hazardous areas.

In 2018, a state rule change prompted Carroll County, other local jurisdictions and private landowners to complete an Emergency Action Plan (EAP) for all Category 1 Dams. An Emergency Action Plan or EAP is a formal plan that identifies potential emergency conditions at a dam and outlines procedures to follow to minimize damage and potential loss of life. Having an effective EAP is critical to reducing the risk of property damage and loss of life from a dam failure. An EAP includes inundation mapping that describes the potential direction and timing of the water flow in a dam break scenario and allows public safety to plan accordingly.

### *f. Multi-Jurisdictional Concerns*

There is no way to determine with any statistical significance whether dams in one area of Carroll County are in danger of failure more than others (as most are similar in construction and age).

*g. Hazard Summary*

The potential for dam failure in Carroll County is great due to the presence of 116 dams (25 Category I), but because of their maintenance and participation in the Safe Dams program, the county is at a low probability for dam failure. If dam failure occurred, there is a possibility of significant damage to life and/or property. Mitigation efforts for dam failures are in IV. B. 2.

## 3. Terrorism

### *a. Hazard Identification*

Carroll County, Georgia, located approximately 40 miles west of Atlanta and bordering Alabama, is a significant geographic and transportation connector to Metro Atlanta. The county supports 129,911 citizens across 504 square miles, encompassing urban density, commercial and industrial development, rural farmland, wooded terrain, and critical infrastructure resources. The county's infrastructure includes high-traffic highways, railroads, petroleum pipelines, regional power plants, critical facilities, and an airport, which makes the county vulnerable to threats of terrorism.

Carroll County and its municipalities recognize terrorism — both domestic and international — as a persistent, unpredictable, and evolving threat. Although there have been no terrorism events in Carroll County, recent national trends and local risk profiles place the county in the "elevated" threat category, particularly for domestic terrorism and cyber-attacks. Increasing incidents of ideologically inspired violence, active shooter events, and critical infrastructure targeting throughout the nation demand proactive local mitigation and response. Potential terrorist acts in the county include domestic terrorism, mass casualty incidents, as well as cyber terrorism.

### *b. Hazard Profile*

#### A. Domestic Terrorism and Mass Casualty Attacks

Mass casualty incidents (MCI), especially active shooter or improvised explosive device (IED) attacks, remain the highest priority. Carroll County has experienced armed attacker situations, including a multi-jurisdictional chase of two shooters who wounded officers and crippled police vehicles. These events illustrate the danger to the public and the need for protective, rapid response assets.

Potential Mass Casualty Situations:

- School or government facility coordinated shootings
- Bomb threats or IEDs on public events or on campuses
- Attack on hospitals or emergency services infrastructure

#### B. Cyber Terrorism

Cyber threats are increasing across the public and private sectors. Carroll County's utilization of digital networks for emergency dispatch (Carroll E-911), hospital operations, power infrastructure, and public services make it vulnerable to cyber threats. These can include:

- Ransomware attacks on government systems
- Data breaches on 911 dispatch or EOC coordination
- Disruption of utility or pipeline systems via digital intrusion

Carroll County vulnerabilities include aging firewalls, legacy software applications, low IT staffing levels, and no formal incident response procedures for major cyber events.

### C. Sabotage of Critical Infrastructure

Terrorists may seek to disrupt local or regional stability by targeting Critical Infrastructure and Key Resources (CIKR). Carroll County assets not only support the local population but are also a significant contributor to Metro Atlanta's stability and economy.

High-Risk CIKR Targets Identified:

- Health & Medical: Tanner Hospital, Trinka Davis Veterans Village
- Government: Carroll County Courthouse & County/City Government Complex
- Energy & Utilities: Carroll EMC, Georgia Power's Plant Yates & Plant Wansley
- Transportation: West Georgia Regional Airport, rail lines, major highways
- Education: University of West Georgia, West Georgia Technical College
- Private Sector/Industrial: Southwire and other global manufacturers
- Communications & Emergency Response: Carroll E-911, Emergency Operations Center, Western Area Regional Radio System
- Petroleum/Energy Transport: Plantation Pipeline

The disruption of any of these systems could have a cascading impact, such as, disruption of essential services, economic loss, and potential injury or loss of life.

#### *c. Vulnerability Assessment*

Geographic Distribution: Challenging terrain and wide rural areas make rapid deployment of tactical teams and law enforcement personnel challenging without specialized equipment.

Shared Jurisdictional Burden: Local law enforcement and fire rescue routinely support adjacent counties (Heard, Coweta, Haralson), which increases regional response stress during concurrent emergencies.

Cyber Infrastructure Gaps: Underdeveloped in-country cybersecurity capability and outdated or underfunded IT defenses increase the likelihood and potential impact of a cyberattack.

#### *d. Assets Exposed to Hazard*

Terrorism could potentially occur anywhere in the county, but particularly in places with large gatherings of people or in areas that have critical facilities and infrastructure.

Table 3.12.1: Total Property Losses for Carroll County on a Percentage Basis for Terrorism

| Structure Type and Amount of Structures | Value | 75% | 50% | 25% |
|---|---|---|---|---|
| Residential | $12,662,373,808 | $9,496,780,356 | $6,331,186,904 | $3,165,593,452 |
| Commercial | $446,353,883 | $334,765,412 | $223,176,941 | $111,588,471 |
| Industrial | $3,368,598,375 | $2,526,448,781 | $1,684,299,188 | $842,149,594 |
| Agricultural | $1,130,494,988 | $847,871,241 | $565,247,494 | $282,623,747 |
| Critical Facilities | $703,659,240 | $527,744,430 | $351,829,620 | $175,914,810 |

*Values provided by the Carroll County Tax Assessors and Carroll County Emergency Management Agency*

*e. Estimate of Potential Losses.*

All of Carroll County could face potentially cascading losses due to an act of terrorism, making it difficult to estimate.

*f. Hazard Summary*

Terrorism — in its new forms — poses an existing and real threat to the citizens, infrastructure, and economy of Carroll County. Reducing these threats through strategic preparedness, equipment acquisition, and investment in cybersecurity will prepare the county for a stronger, more durable response in the event of an attack. With adequate equipment, training, and partnerships, Carroll County can and will rise to meet the new threat of terrorism. Mitigation efforts for terrorism are in IV. B. 3.

## E. National Risk Index

The National Risk Index provides data and insight into which US communities are most at risk for 18 natural disasters, including tornadoes, flooding, tornadoes, etc. The cumulative results can be found below. Carroll's overall risk is relatively low compared to other parts of the country. Certain census tracts within the county, however, were found to be moderately at risk, as depicted in the maps below.

Table 3.13.1: National Risk Index Hazards for Carroll County, Georgia

| Hazard | Rating |
|---|---|
| Tornado | High |
| Hail, Ice Storm, Landslide, Lightning, Riverine Flooding, | Moderate |
| Earthquake, Hurricane, Strong Wind, Wildfire, Winter Weather | Low |
| Avalanche, Coastal Flooding, Tsunami, Volcanic Activity | Not Applicable |
| Cold Wave, Drought, Heat Wave, | No Rating |

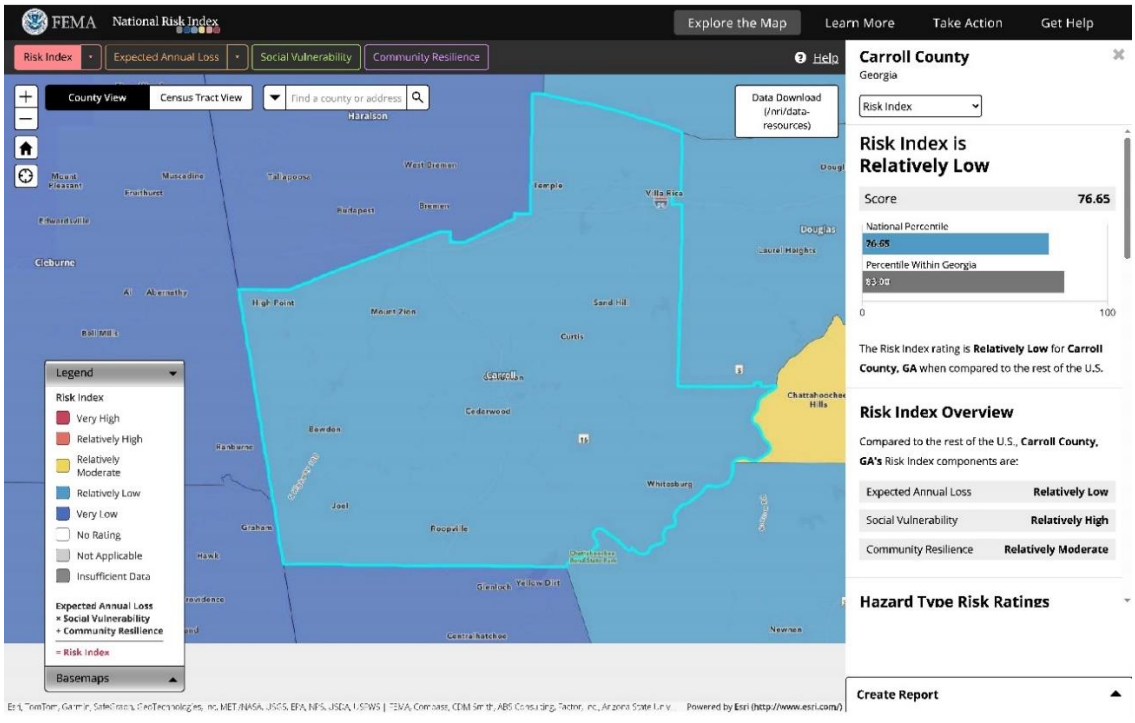


**Figure 3.13.1: Risk Index Carroll County**

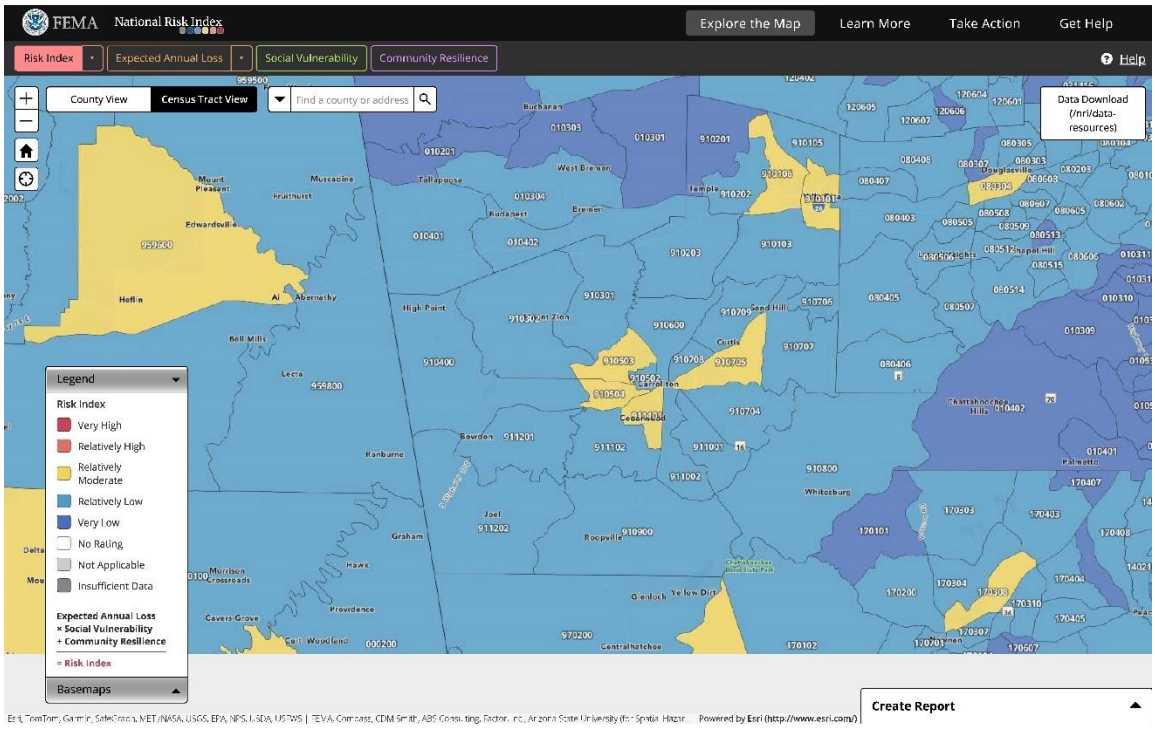


**Figure 3.13.2: Risk Index Carroll County by Census Tract**

For expected annual loss, FEMA takes the community's exposure multiplied by its frequency and historic losses. Carroll's expected annual loss is relatively low when compared to the rest of the country. As seen in the maps below, while the county's loss is relatively low, several of the census tracts were rated as relatively moderate.

Table 3.13.2: Expected Annual Losses for Carroll County, Georgia

| **Hazard** | **Rating** |
|---|---|
| Tornado | High |
| Hail, Ice Storm, Landslide, Lightning, Riverine Flooding, Strong Wind | Moderate |
| Earthquake, Hurricane, Wildfire, Winter Weather | Low |
| Avalanche, Coastal Flooding, Tsunami, Volcanic Activity | Not Applicable |
| Cold Wave, Drought, Heat Wave, | No Expected Losses |

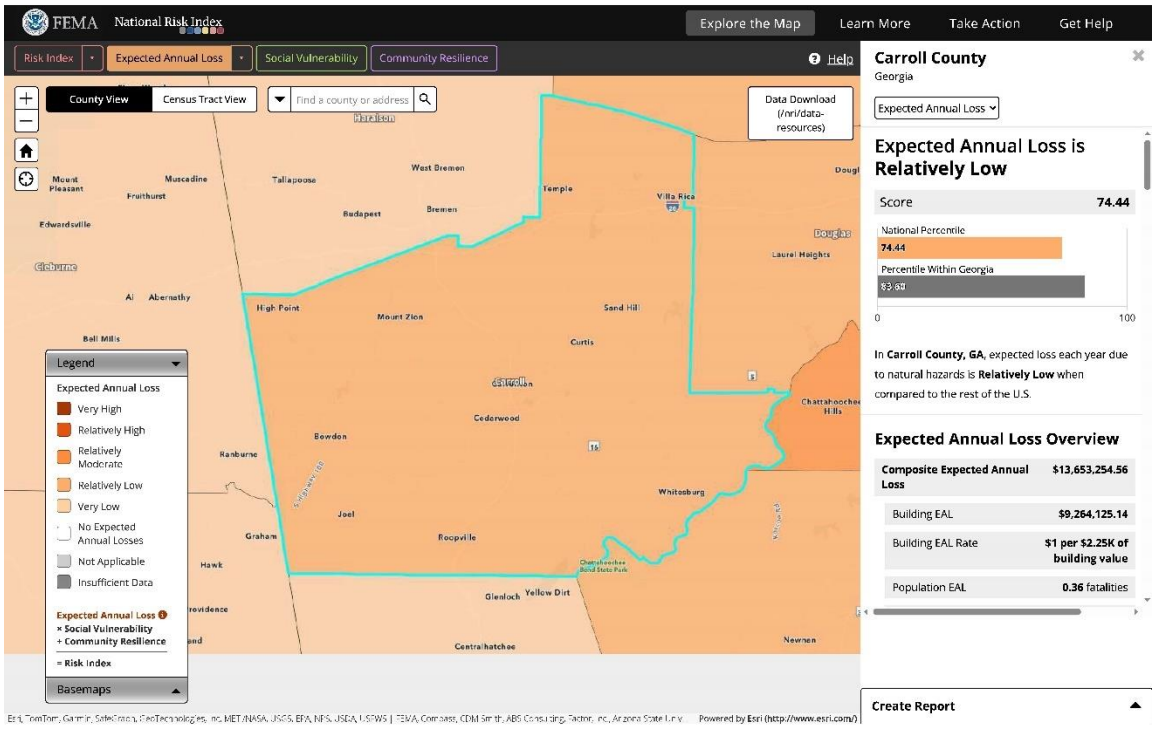


**Figure 3.13.3: Expected Annual Losses for Carroll County**

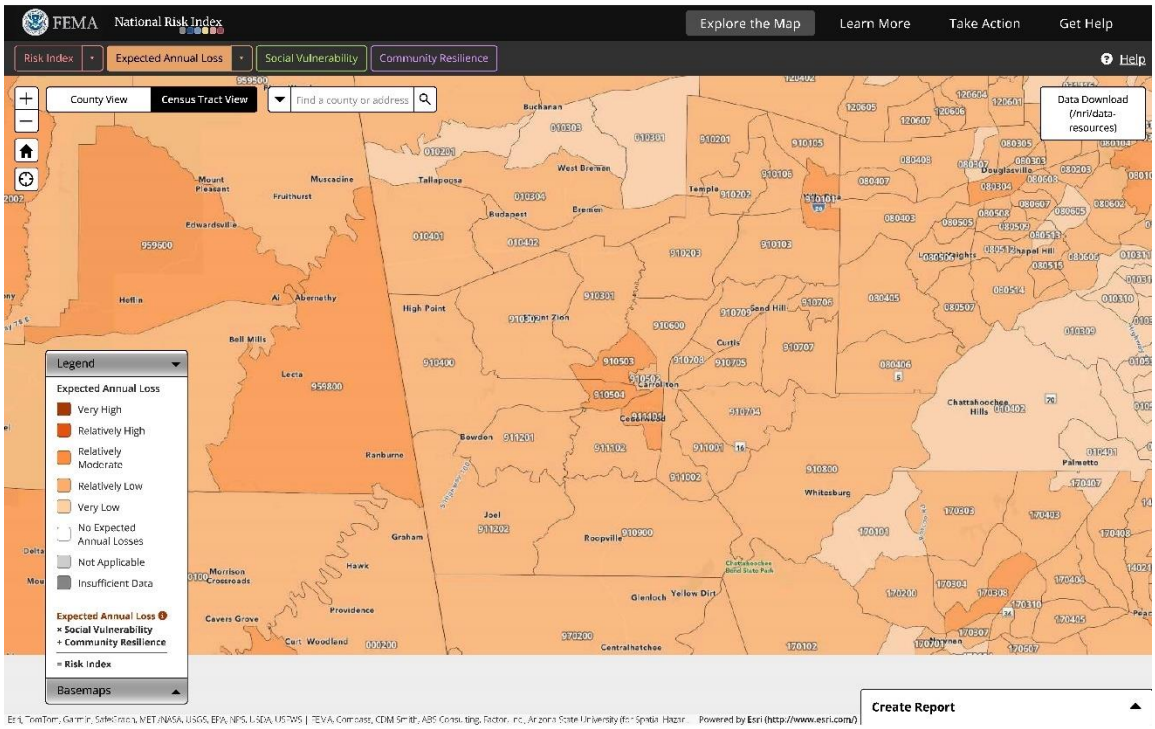


**Figure 3.13.4: Expected Annual Losses for Carroll County by Census Tract**

Overall, Carroll County's Community Resilience, a measure of losses and vulnerabilities was found to be relatively moderate as compared to other communities in the country. Resilience is a measure of the county's ability to prepare for hazards, adapt to changing conditions, and recover rapidly. This is comparable to neighboring counties of Douglas, Fulton, and Coweta.

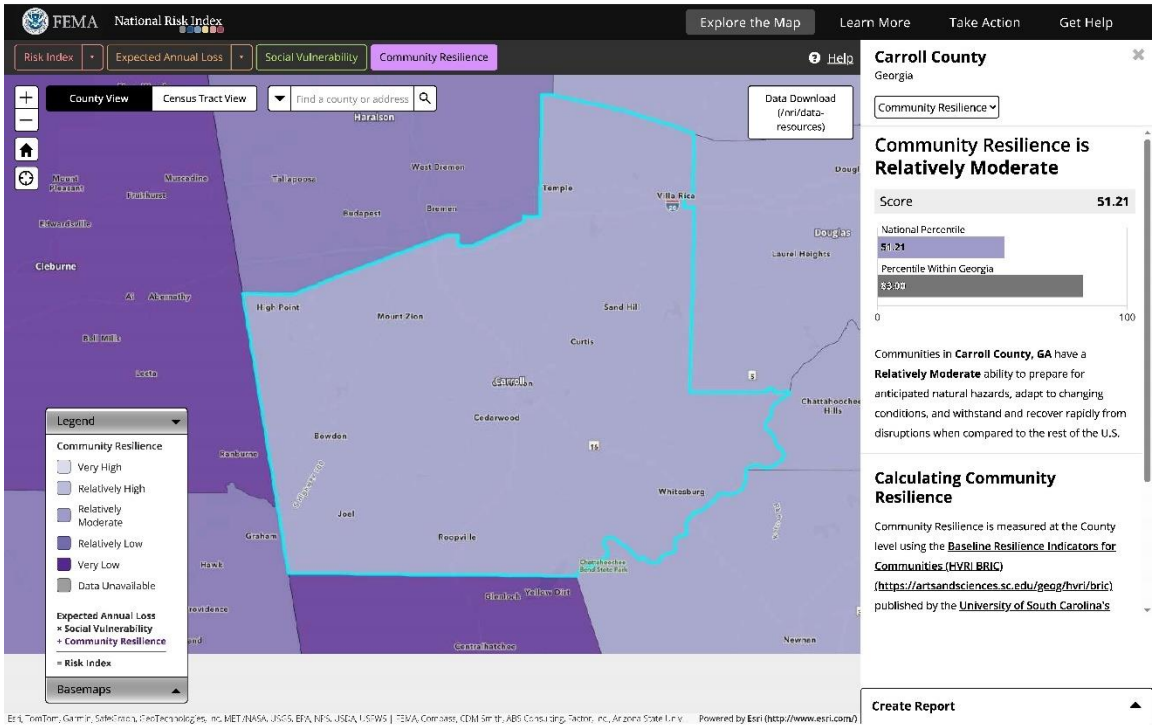


**Figure 3.13.5: Community Resilience for Carroll County**

Census tracks around Villa Rica (910106) and Carrollton (910503, 910502, 911101, 910708, and 910705) were found to have a high level of Social Vulnerability and susceptibility to the adverse impacts of natural hazards as compared to the rest of the United States. Carroll County, overall, had a relatively high Social Vulnerability index, 76.8, in line with Douglas and Fulton Counties to the east.

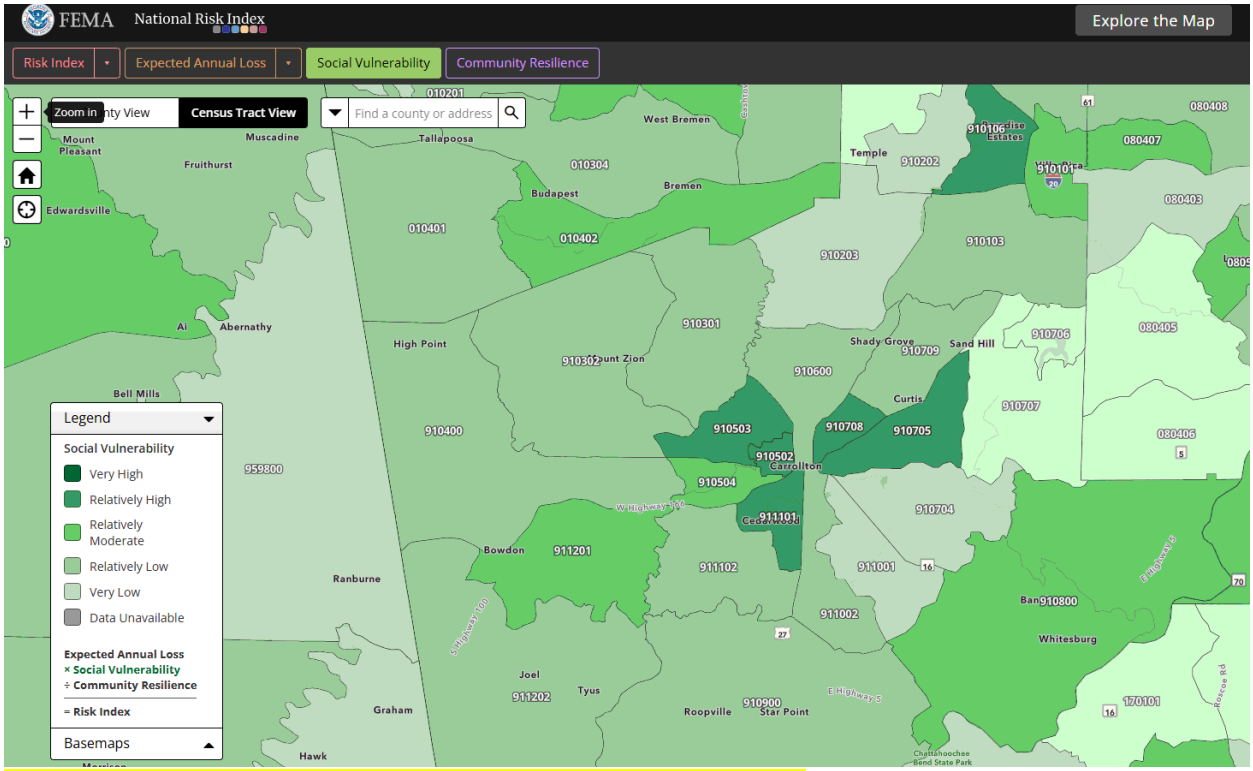


**Figure 3.13.6: Social Vulnerability for Carroll County**

# Chapter IV. Mitigation Strategies

All action steps were evaluated by the respective jurisdictions and updated for all hazards. The STAPLEE Method (described in Chapter I. E.) was utilized to prioritize action steps and to identify new ones. Action steps were given priority using a benefit-cost review. This process consisted of listing the actions, identifying the benefits and cost of each action step, and assigning a priority of low, medium, and high as described in Table 4.1.1 below. Completed action steps and ones no longer being considered were removed and placed on the completion lists in each respective section.

Table 4.1.1: Benefit/Costs Analysis

| *Benefit/Cost* | *Definition* |
|---|---|
| Low | Difficult to assess benefits and has a long-term time frame for implementation. Difficult to fund. |
| Medium | Long-term impact on reduction of losses is anticipated; implemented within 5-7 years. Potentially funded over multiple budgets or with grant funding. |
| High | Meaningful impact on reduction of loses; implementation within 5 years; funds available in existing budget, with SPLOST funds or with grant funding. |

Additionally, the Action Steps from IV. A. and IV. B. cover a cross section of the six FEMA categories. Several of the steps had aspects that fit more than one category and are listed accordingly.

The FEMA categories, which were described in Chapter I. E. are as follows:

- ***Prevention***. Adopting and administering ordinances, regulations, and programs that manage the development of land and buildings to minimize risks of loss due to natural hazards.

- ***Property Protection.*** Actions that involve the modification of existing buildings or infrastructure to protect them from a hazard or removal from the hazard area.

- ***Public Education and Awareness.*** Educating and informing the public about risks of hazards and the techniques available to reduce loss of life or property.

- ***Natural Resource Protection.*** Minimizing hazard losses while preserving and restoring the functions of natural systems.

- ***Structural Projects.*** Construction of structures to reduce the impact of a hazard.

- ***Emergency Services.*** Actions such as hazard threat recognition, hazard warning systems, emergency response, protection of critical facilities, and health and safety maintenance

*For the 2026 Update:*

*Chapters reordered to accommodate the addition of Extreme Temperatures and Terrorism, with All-Hazards and All-Technical Hazards located at the end of their respective sections. Mitigation items moved from Winter Storms and Drought/Wildfires to Extreme Temperatures, as well as from All Technological Disasters to Terrorism. Mitigation items were added for Thunderstorms, All Hazards, and Terrorism.*

*The following Action Items have been added:*

*Installation of a generator at VRPD Training Center to use as an Emergency Command Center.*

*Purchase a grapple bucket to aid in debris removal*

*Acquire additional communications radios and backup power*

*Utilize SCADA Communications to monitor and control distribution of resources*

*Acquire 4 portable light towers*

*Purchase two high-performance Starlink kits for essential communications*

*Purchase a Rook - an armored critical incident utility vehicle to operate in extreme and hazardous conditions, as well as a Ford F-350 Dually Pickup Truck to transport the Rook.*

*Purchase 2 Rangers to use at county parks during severe weather or wildfires*

*Add response equipment for severe weather, such as struts, search cameras, and search and rescue equipment, to GSAR-TF-6.*

*Prepare a safety plan for all county parks.*

*The following Action Items have been moved to Extreme Temperatures:*

*Provide warming shelters during extreme cold.*

*Provide cooling shelters during extreme heat.*

*Offer free admission to water parks during extreme heat waves.*

*The following Action Items have been completed and will be removed from the Mitigation Strategies:*

*Replace the culvert on Holder Road (at creek) with a larger diameter culvert.*

*Add an additional culvert on Old Four Notch Road.*

*Replace bridge at Victory Church Road at Victory Dashboard.*

*Replace (or install) culvert on Daniel Rd in Bowdon with a larger diameter culvert.*

*Replace the culvert on Horsley Drive with a larger diameter culvert.*

*Replace the culvert on J.C. Daniel Road with a larger diameter culvert.*

*Replace Old Tanyard Road Steam Culvert*

*Property acquisitions/raze businesses at Bankhead at South Dogwood to NFIP compliance/ standards.*

*Address drainage issues at Rockmart and 2nd St.*

*Research, purchase and installation of a portable Natural Gas Generator for Bowdon Waste Water Lift Stations (12). (Scope amended to include Water Plant and Police Station/EOC)*

*Research, purchase and installation of a fixed Diesel Generator for Carroll County Critical Facility, Fire Station #1.*

*Research, purchase and installation of a fixed Diesel Generator for Carroll County Critical Facility, Fire Station #2.*

*Research, purchase and installation of a fixed Diesel Generator for Carroll County Critical Facility, Fire Station #4.*

*Research, purchase and installation of a fixed Diesel Generator for Carroll County Critical Facility, Fire Station #5.*

*Research, purchase and installation of a fixed Diesel Generator for Carroll County Critical Facility, Fire Station #7.*

*Research, purchase and installation of a fixed Diesel Generator for Carroll County Critical Facility, Fire Station #8.*

*Research, purchase and installation of a fixed Diesel Generator for Carroll County Critical Facility, Fire Station #12.*

*Research, purchase and installation of a fixed Diesel Generator for Carroll County Critical Facility, Fire Station #14.*

*Research, purchase and installation of a fixed Diesel Generator for Carroll County Critical Facility, Fire Station #15.*

*The following Action Items are no longer being considered:*

Purchase and install 10 weather sirens throughout the county.

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*For 2021 Update:*

Every jurisdiction has at least one mitigation action item, and there are multiple mitigation items shared by all.

*The following Action Items have been added to address flooding:*

*Improve drainage between Tanner Street and Old City Hall Avenue (Carrollton).*

*Improve drainage at West Reese Street (Carrollton).*

*Improve drainage at Johnson Ave (Carrollton).*

*Improve drainage between Johnson Ave and City Hall Ave (Carrollton).*

*Improve drainage between West Reese Street and Hwy 27 (Carrollton).*

*The following Action Items have been added to address drought:*

*Add a Raw Water Holding Pond at the Water Treatment Plant (Carrollton).*

*Improve Stripling Chapel Rd water main (Carrollton).*

*Add water tanks (Carrollton).*

*Upgrades to water system (Roopville)*

*The following Action Items have been added to address all hazards:*

*Research, purchase and installation of a Natural Gas Generator for Bremen Waste Water Lift Station at I-20.*

*Purchase and distribute NOAA Weather Radios to cover all major buildings on the UWG Campus*

*Improve emergency access road to Mount Zion Middle School (Mount Zion)*

*The following Action Items have been completed and will be removed from the Mitigation Strategies:*

*Develop a procedure for and initiate routine drainage system maintenance to ensure all storm drains are free of debris (completed in the MS4 Area in north Carroll.*

*Conduct an engineering study comparing base flood elevation to the emergency spillway elevation on all category one (1) dams – completed via the Georgia Safe Dams EAP requirement.*

*Replace bridge on Carrollton Tyus Rd (to be completed by June 2020)*

*Install culverts on Kansas and Agnes Streets at Lake Buckhorn.*

*Replace the culvert at the creek on Davenport Mill Road (near Caldwell Road) with a larger diameter culvert.*

*Replace the culvert at Shadow Lake Drive with a larger diameter culvert.*

*Replace the culvert on Little Joe Road with a larger diameter culvert.*

*Replace the culvert on Martin Road with a larger diameter culvert.*

*Replace the culverts at Holliday Overlook with a larger diameter culvert.*

*Address drainage issues on Vanwert Rd (before the railroad tracks).*

*Replace (or install) culvert on Brickyard Rd with a larger diameter culvert.*

*Replace (or install) culvert on East Wayside Rd with a larger diameter culvert.*

*Replace (or install) culvert on Four Notch Rd with a larger diameter culvert.*

*Replace (or install) culvert on Harman Ln with a larger diameter culvert.*

*Replace (or install) culvert on Oak Grove Church Rd at Nugget Rd with a larger diameter culvert.*

*Replace (or install) culvert on Old Word Rd with a larger diameter culvert.*

*Replace (or install) culvert on Smyrna Church Rd with a larger diameter culvert.*

*Replace (or install) culvert on Wiley Wilson Rd with a larger diameter culvert.*

*Replace (or install) culvert on Whooping Creek Rd with a larger diameter culvert.*

*Replace (or install) culvert on Yancey Rd with a larger diameter culvert.*

*Replace (or install) culvert on Old Carrollton Rd (off Hwy 61) with a larger diameter culvert.*

*Replace (or install) culvert on Mount Olive Church Rd with a larger diameter culvert – completed in 2 places.*

*Replace (or install) culvert on East Wayside Rd with a larger diameter culvert.*

*Replace (or install) culvert on Spruill Creek Rd with a larger diameter culvert.*

*Upgrade culverts on Almon Rd. at Lake Carroll Blvd.*

*Address drainage issues on Ben Scott Blvd.*

*Research, purchase and installation of a fixed Natural Gas Generator for Carrollton Water Treatment Plant.*

*Research, purchase and installation of a portable Natural Gas Generator for Carrollton Waste Water Life Stations.*

*Research, purchase and installation of a fixed Natural Gas Generator for Carrollton Waste Water Little Tallapoosa Lift Station.*

*Research, purchase and installation of a fixed Natural Gas Generator for Carrollton Waste Water Buffalo Creek Lift Station.*

*Research, purchase and installation of a portable Natural Gas Generator for Carrollton Fire Station #22.*

*Build a state-of-the-art Emergency Operations Center (EOC)*

*Accurately plot in GIS the location of each category (1) and (2) dam and their emergency spillways (Completed for Category 1 dams. No longer being considered for Category 2).*

*Improve Lake Carroll dam/spillway based on assessment.*

*Construct emergency access road to Mount Zion Middle School*

*The following Action Items are amended:*

*Install generator back-up at all critical facilities in Carroll County. This has been completed for the City of Carrollton, and they are no longer listed as Responsible Organization.*

*Research, purchase and installation of a portable Natural Gas Generator for Bowdon Waste Water Plant and Lift Stations 11 (Amended to include Water Plant and Police Station/EOC).*
Improve Lake Carroll dam/spillway based on assessment (downgraded from Category 1, spillway improvements completed).

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*For 2016 Update:*

*In Chapter 4, all action steps were evaluated by the respective jurisdictions and updated for all hazards. The STAPLEE Method (described in Chapter I. E.) was utilized to prioritize action steps and to identify new ones. Completed action steps and ones no longer being considered were removed and placed on the completion lists in each respective section.*

*Additionally, action steps now specify FEMA categories and are sorted by FEMA category in IV. C.*

*The following is a brief summary of changes to Mitigation Strategies:*

*Action Item: Replace culverts under Rome Street at John Wesley Plaza with large diameter culverts should read Bradley instead of Rome.*

*Action Item: Add an additional culvert on Old Five Notch Rd should read Old Four Notch Rd*

*Action Item: Replace bridge on Carrollton Tyus Rd. is now Replace bridge at Carrollton-Tyus Rd due to repetitive flooding and traffic hazards.*

*After the Christmas Eve 2015 flooding, the following action steps were added:*

1. *Replace culvert on Mt. Olive Church Rd with larger diameter culvert to mitigate flooding.*
2. *Replace culvert on Oak Grove Church Rd at Nugget Rd with a larger diameter culvert.*
3. *Replace culvert on Harris Rd with a larger diameter culvert.*
4. *Replace culvert on Spruill Creek Dr. with a larger diameter culvert.*
5. *Replace culvert on Stogner Rd. with a larger diameter culvert.*
6. *Assess the flood plain of Milner Lake (off Shadow Lake Drive) to determine ways to mitigate flooding for repetitive loss properties was added.*
7. *Upgrade culverts on Almon Rd. at Lake Carroll Blvd.*
8. *Replace culvert with a box concrete culvert on Ben Scott Blvd*

*Action Item: Tornado safety training for city and county employees was added.*

*Action item: Improve Lake Carroll dam/spillway based on assessment was added for the City of Carrollton.*

*Action Items: Provide cooling shelters and offer free admission to City of Carrollton Pools during extreme heat were added.*

*Action Item: Provide warming shelters in cases of extreme cold was added.*

*Additionally, a series of action items were added in response to mitigation of the 2014 Winter Storm, adding generators to critical facilities for the City of Carrollton and Carroll County.*

*Goals, Objectives and Action Items were added for Tropical Cyclones:*

1. *Develop a readiness program to encourage citizens to prepare a storm kit in the event of an emergency.*
2. *Promote the construction of safe rooms in shelter areas and in public buildings.*
3. *Promote the use of special roofing shingles designed to interlock and resist uplift forces for both new construction and retrofits.*
4. *Research the feasibility of using underground utilities.*
5. *Retrofit public schools with special high wind-resistant films for doors and windows.*

*The following Action Steps were added under All-Hazards:*

1. *Acquire a portable digital reader board to utilize during disasters.*
2. *Maintain stock of supplies and equipment for mass casualty.*

3. *Encourage best management practices in development ordinances to build stronger, more resilient communities.*
4. *Construct an emergency access road at Mount Zion Middle School.*

*Action Item: Provide continual training and equipment for Community Emergency Response Team (CERT) has been amended to include Emergency Management Agency Volunteers.*

*Action Item: Provide confined space Haz Mat training at the county's Confined Space Training Center.*

*Mitigation objective to enhance workplace safety for employees of critical facilities was added.*

*Action Item: Develop safety flip charts for all critical facilities and provide active shooter/safety training for employees of all critical facilities were added.*

# A. Natural Mitigation Goals and Objectives

## 1. Flooding

### *a. Mitigation Goals*

As noted in III. C. 1, flooding has caused significant damage throughout the years in Carroll County. There are (41) locations throughout the county where localized flooding is continuously a problem during heavy rains. This effects approximately 20 properties that are considered repetitive loss. The county and its cities are diligent in in pursuing mitigation strategies that improve incidents of repetitive loss and in furthering the goals of the NFIP. For more details, please see Repetitive Loss Properties in III. C. 1. c.

### *b. Range of Mitigation Options*

The suggested mitigation options to reduce the effects of flooding in Carroll County include new policies and procedures, enhanced data collection and efforts to reduce localized flooding. The community has identified both structural and non-structural mitigation efforts to reduce the future impacts of floods on Carroll County. A proactive county Public Works Department has been responsible for upsizing many of the culverts on low lying roadways, and as such, those items have been removed from the plan.

### *c. Mitigation Strategies for Flooding*

Action steps were given priority using a benefit-cost review. This process consisted of listing the actions, identifying the benefits and cost of each action step, and assigning a priority of low, medium, and high. With priorities being reviewed, there was no change in priorities since the last plan. The STAPLEE method described in Chapter I was utilized to rank the projects.

For each mitigation action, timeline refers to the amount of time it would take to finish the mitigation project after funding has been secured. Continuous refers to projects or programs that are ongoing.

## Flooding

MItigation Items: Flooding

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 1:** To minimize the losses of life and property in Carroll County due to flooding. | | | | | | | | | | | |
| **Objective 1:** To protect the citizens, critical facilities and critical infrastructure of Carroll County from the effects of flooding. | | | | | | | | | | | |
| 1.1.1 | Continued vigilance in issuing permits on property with special flood hazard areas. | Carroll County and Cities* | Department of Community Development | Ongoing | Staff Time | General Funds | Unknown | High | New | Prevention | 18 |
| 1.1.2 | Ensuring that future dwellings comply with NFIP and the county flood ordinance. | Carroll County and Cities* | Department of Community Development | Ongoing | Staff Time | General Funds | Unknown | High | New | Prevention | 16 |
| 1.1.3 | Inventory and plot in Geographical Information Systems (GIS) all drain facilities on public property (right of ways). | Carroll County and Cities* | Department of Community Development | 1 year | $1,200,000 | General Funds | $20,000,000 | Low | Both | Property Protection | 13 |
| 1.1.4 | Install water level monitoring devices on all category one (1) dams and on all major tributaries in Carroll County. | Carroll County | Carroll County EMA | 2 years | $25,000 | Hazard Mitigation Grants and General Funds | Unknown | Medium | Existing | Emergency Services | 17 |
| 1.1.5 | Enhance warning system below Lake Seaton Dam. | Carroll County Water Authority | Carroll County EMA | 1 year | $100,000 | Hazard Mitigation Grants and General Funds | Unknown | High | Both | Emergency Services | 15 |
| 1.1.6 | Conduct a study to properly size culverts to drainage basins. | Carroll County | Carroll County Public Works | 3 years | $200,000 | Hazard Mitigation Grants and General Funds | $20,000,000 | Medium | Both | Property Protection | 13 |

*Cities refers to the following: Bowdon, Bremen, Carrollton, Mount Zion, Roopville, Temple, Villa Rica and Whitesburg

## Flooding

Mitigation Items: Flooding

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 1:** To minimize the losses of life and property in Carroll County due to flooding. | | | | | | | | | | | |
| **Objective 2:** To reduce the incident rates of localized flooding in Carroll County. | | | | | | | | | | | |
| 1.2.1 | Assess the flood plain of Milner Lake (off Shadow Lake Drive) to determine ways to mitigate flooding for repetitive loss properties. | Carroll County | Public Works and Transportation | 1 year | Staff Time | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Existing | Prevention | 14 |
| 1.2.2 | Replace the bridge at McIntosh Reserve. | Carroll County | Public Works and Transportation | 1 year | $500,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Structural Projects | 17 |
| 1.2.3 | Install bridge on Bagwell Road. | Carroll County | Public Works and Transportation | 3 years | $500,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Structural Projects | 17 |
| 1.2.4 | Install a culvert at creek on Campground Road. | Carroll County | Public Works and Transportation | 1 year | $8,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |
| 1.2.5 | Replace the culvert on Craven- Roopville Veal Road with a larger diameter culvert. | Carroll County | Public Works and Transportation | 2 year | $5,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |
| 1.2.6 | Replace the culvert on Tanyard Road with a larger diameter culvert. | Carroll County | Public Works and Transportation | 2 years | $5,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 17 |

## Flooding

Mitigation Items: Flooding

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 1:** To minimize the losses of life and property in Carroll County due to flooding. | | | | | | | | | | | |
| **Objective 2:** To reduce the incident rates of localized flooding in Carroll County. | | | | | | | | | | | |
| 1.2.7 | Install a culvert at creek on Denny Road. | Carroll County | Public Works and Transportation | 2 years | $5,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |
| 1.2.8 | Install a culvert at creek on Wantland Road. | Carroll County | Public Works and Transportation | 1 year | $5,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |
| 1.2.9 | Property acquisitions/raze homes at Old Bremen Road (Carrollton) to NFIP compliance/ standards. | Carroll County | Public Works and Transportation | 3 years | $1,000,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 15 |
| 1.2.10 | Replace culverts under Bradley Street at John Wesley Plaza with larger diameter culverts. | City of Carrollton | Public Works and Transportation | 2 years | $500,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |
| 1.2.11 | Property acquisitions/address drainage at River and House Streets to NFIP compliance/ standards. | City of Carrollton | City of Carrollton Housing Authority | 2 years | $2,000,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 15 |
| 1.2.12 | Replace the culvert at Old Bremen Road with a larger diameter culvert. | City of Temple | Public Works and Transportation | 2 years | $10,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |

## Flooding

Mitigation Items: Flooding

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 1:** To minimize the losses of life and property in Carroll County due to flooding. | | | | | | | | | | | |
| **Objective 2:** To reduce the incident rates of localized flooding in Carroll County. | | | | | | | | | | | |
| 1.2.13 | Replace the culvert at Rome Street with a larger diameter culvert. | City of Temple | Public Works and Transportation | 1 year | $10,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |
| 1.2.14 | Replace the culvert at Rainey Road with a larger diameter culvert. | City of Temple | Public Works and Transportation | 1 year | $8,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |
| 1.2.15 | Address drainage issues at Baskin St at Carrollton St. | City of Temple | Public Works and Transportation | 2 year | $10,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |
| 1.2.16 | Replace the West View Drive culvert with a larger diameter culvert. | City of Villa Rica | Public Works and Transportation | 3 years | $500,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |
| 1.2.17 | Replace (or install) culvert on Bagwell Rd with a larger diameter culvert. | Carroll County | Public Works and Transportation | 3 years | $5,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |
| 1.2.18 | Install an additional culvert on Highway 101 at the Hickory Point Subdivision. | Carroll County | Public Works and Transportation | 1 year | $5,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |

## Flooding

Mitigation Items: Flooding

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 1:** To minimize the losses of life and property in Carroll County due to flooding. | | | | | | | | | | | |
| **Objective 2:** To reduce the incident rates of localized flooding in Carroll County. | | | | | | | | | | | |
| 1.2.19 | Replace the culvert on Grimmett Road with a larger diameter culvert. | Carroll County | Public Works and Transportation | 1 year | $5,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |
| 1.2.20 | Replace the culvert on Yates Lane with a larger diameter culvert. | Carroll County | Public Works and Transportation | 2 years | $5,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |
| 1.2.21 | Replace culvert at Amberwood Lane with a larger diameter culvert. | Carroll County | Public Works and Transportation | 3 years | $5,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |
| 1.2.22 | Replace the culvert at Villa Rosa Rd with a larger diameter culvert. | Carroll County | Public Works and Transportation | 3 years | $5,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |
| 1.2.23 | Address drainage issues at Spring St. and S. Carroll. | Carroll County | Public Works and Transportation | 3 years | $50,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |
| 1.2.24 | Address drainage issues at Old Stone and Punkintown. | Carroll County | Public Works and Transportation | 3 years | $50,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |

## Flooding

Mitigation Items: Flooding

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 1:** To minimize the losses of life and property in Carroll County due to flooding. | | | | | | | | | | | |
| **Objective 2:** To reduce the incident rates of localized flooding in Carroll County. | | | | | | | | | | | |
| 1.2.25 | Improve drainage between Tanner Street and Old City Hall Avenue | City of Carrollton | Public Works and Transportation | 1 year | $200,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |
| 1.2.26 | Improve drainage at West Reese Street. | City of Carrollton | Public Works and Transportation | 1 year | $800,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |
| 1.2.27 | Improve drainage at Johnson Ave. | City of Carrollton | Public Works and Transportation | 3 years | $400,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |
| 1.2.28 | Improve drainage between Johnson Ave and City Hall Ave. | City of Carrollton | Public Works and Transportation | 2 years | $200,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |
| 1.2.29 | Improve drainage between West Reese Street and Hwy 27. | City of Carrollton | Public Works and Transportation | 4 years | $200,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 16 |

### *d. Multi-Jurisdictional Considerations*

Flooding events have affected all areas of Carroll County. All municipalities in Carroll County are participants in flood planning, education and mitigation activities.

### *e. Public Information and Awareness Strategies*

The Hazard Mitigation Plan Steering Committee has identified many public awareness campaigns to ensure that the citizens of Carroll County are kept abreast of the hazards affecting them and the mitigation effort to alleviate potential situations. Many of the public awareness campaigns are all-hazard in nature and include educational brochures and programs, warning sirens and public notification systems, and workshops.

### *f. Completed and Deleted Action Steps from Plan*

The Carroll County Public Works Director Charles Pope recently commented after a flooding event in December 2015 that the situation would have been much worse had the county not mitigated the culverts after the 2009 floods, when 84 road projects were upsized. Carroll County has made significant strides in mitigating flooding in the community. Some of the strategies have been significant and beneficial to reducing loss of life and property from flooding throughout Carroll County. Among those completed are the following:

For the 2026 Update:

1. Replace the culvert on Holder Road (at creek) with a larger diameter culvert.
2. Add an additional culvert on Old Four Notch Road.
3. Replace bridge at Victory Church Road at Victory Dashboard.
4. Replace (or install) culvert on Daniel Rd in Bowdon with a larger diameter culvert.
5. Replace the culvert on Horsley Drive with a larger diameter culvert.
6. Replace the culvert on J.C. Daniel Road with a larger diameter culvert.
7. Replace Old Tanyard Road Steam Culvert
8. Property acquisitions/raze businesses at Bankhead at South Dogwood to NFIP compliance/ standards.
9. Address drainage issues at Rockmart and 2nd St.

For the 2021 Update:

1. Develop a procedure for and initiate routine drainage system maintenance to ensure all storm drains are free of debris (completed in the MS4 Area in north Carroll.)
2. Conduct an engineering study comparing base flood elevation to the emergency spillway elevation on all category one (1) dams – completed via the Georgia Safe Dams EAP requirement.
3. Replace bridge on Carrollton Tyus Rd (to be completed by June 2020)
4. Install culverts on Kansas and Agnes Streets at Lake Buckhorn.
5. Replace the culvert at the creek on Davenport Mill Road (near Caldwell Road) with a larger diameter culvert.
6. Replace the culvert at Shadow Lake Drive with a larger diameter culvert.
7. Replace the culvert on Little Joe Road with a larger diameter culvert.

8. Replace the culvert on Martin Road with a larger diameter culvert.
9. Replace the culverts at Holliday Overlook with a larger diameter culvert.
10. Address drainage issues on Vanwert Rd (before the railroad tracks).
11. Replace (or install) culvert on East Wayside Rd with a larger diameter culvert.
12. Replace (or install) culvert on Four Notch Rd with a larger diameter culvert.
13. Replace (or install) culvert on Harman Ln with a larger diameter culvert.
14. Replace (or install) culvert on Oak Grove Church Rd at Nugget Rd with a larger diameter culvert.
15. Replace (or install) culvert on Old Word Rd with a larger diameter culvert.
16. Replace (or install) culvert on Smyrna Church Rd with a larger diameter culvert.
17. Replace (or install) culvert on Whooping Creek Rd with a larger diameter culvert.
18. Replace (or install) culvert on Yancey Rd with a larger diameter culvert.
19. Replace (or install) culvert on Old Carrollton Rd (off Hwy 61) with a larger diameter culvert.
20. Replace (or install) culvert on Mount Olive Church Rd with a larger diameter culvert – completed in 2 places.
21. Replace (or install) culvert on East Wayside Rd with a larger diameter culvert.
22. Replace (or install) culvert on Spruill Creek Rd with a larger diameter culvert.
23. Upgrade culverts on Almon Rd. at Lake Carroll Blvd.
24. Address drainage issues on Ben Scott Blvd.

For 2016 Update:

1. Replace the culvert on Rocky Branch Road (across from car wash) with a larger diameter culvert.
2. Install a bridge on Lake Drive (past Luther Circle) to replace the culvert.
3. Replace the Wiley Wilson Road culvert with a larger diameter culvert.
4. Replace the Brickyard Road (east of bridge) culvert with a larger diameter culvert.
5. Replace the bridge at Laurel Road.
6. Raze homes on Valley Circle.
7. Replace culvert at 408 Candler Street.
8. Replace culvert at Punkintown and Old Stone Road.

Previously completed:

1. Develop new county and city soil erosion and sediment ordinances in order to further protect valuable water resources.
2. Develop Watershed Management Plans and Source Water Protection Plans to ensure protection of water quality.
3. Update the FEMA flood map for Carroll County and its municipalities- Updated in 2008.
4. Install additional drainage on Lovvorn Road at Brumbelow Road- Completed in 2009.
5. Replace the Old Jones Road culvert with a larger diameter culvert- Damaged in flooding (DR-1858) and repaired.
6. Replace the culvert on Cumbie Road with a larger diameter culvert- Damaged in flooding (DR-1858) and repaired.
7. Replace the bridge on Horsley Mill Road- Damaged in flooding (DR-1858) and repaired.
8. Install a bridge on Holmes Road- Culverts upgraded by the county in 2007.

The following action steps from the previous plan were removed because they were no longer found as a threat to Carroll County:

For 2016 Update:

1. Replace the bridge on Bankhead Highway at Lake Carroll.
2. Property acquisitions/raze homes on Molete Street to NFIP compliance/ standards.
3. Raise Strickland and Blandenburg Roads where they cross Richards Lake (culvert work was performed there instead.)

Previously removed:

1. Install an additional culvert on Moss Ferry Road (at the lake).
2. Install a larger culvert on Lakeview Drive.
3. Build road up at low points on Tallapoosa between Muse Bridge and Northside Drive.
4. Add additional culvert on Cavender Creek Road.
5. Replace the culvert on Truitt Road.

### *g. Unchanged Action Steps*

The Hazard Mitigation Plan Steering Committee found that some of the action steps from the previous plan had either not been completed or were still a hazard to the citizens of Carroll County. The steps that remain unchanged include:

1. Address drainage issues at Baskin St at Carrollton St.
2. Address drainage issues at Spring St. and S. Carroll.
3. Address drainage issues at Old Stone and Punkintown.
4. Assess the flood plain of Milner Lake (off Shadow Lake Drive) to determine ways to mitigate flooding for repetitive loss properties.
5. Conduct a study to properly size culverts to drainage basins.
6. Continued vigilance in issuing permits on property with special flood hazard areas.
7. Enhance warning system below Lake Seaton Dam.
8. Ensuring that future dwellings comply with NFIP and the county flood ordinance.
9. Install a culvert at creek on Campground Road.
10. Install a culvert at creek on Denny Road.
11. Install a culvert at creek on Wantland Road.
12. Install an additional culvert on Highway 101 at the Hickory Point Subdivision.
13. Install bridge on Bagwell Road.
14. Install water level monitoring devices on all category one (1) dams and on all major tributaries in Carroll County.
15. Inventory and plot in GIS all drain facilities on public property.
16. Property acquisitions/raze homes at Old Bremen Road (Carrollton) to NFIP compliance/ standards.
17. Property acquisitions/address drainage at River and House Streets to NFIP compliance/standards.
18. Replace culverts under Bradley Street at John Wesley Plaza with larger diameter culverts.
19. Replace (or install) culvert on Bagwell Rd with a larger diameter culvert.
20. Replace the Bridge at McIntosh.
21. Replace culvert at Amberwood Lane with a larger diameter culvert.

22. Replace the culvert at Old Bremen Road with a larger diameter culvert.
23. Replace the culvert at Rainey Road with a larger diameter culvert.
24. Replace the culvert at Rome Street with a larger diameter culvert.
25. Replace the culvert in Craven-Roopville Veal Road with a larger diameter culvert.
26. Replace the culvert on Grimmett Road with a larger diameter culvert.
27. Replace the culvert on Tanyard Road with a larger diameter culvert (amended wording).
28. Replace the culvert on Yates Lane with a larger diameter culvert.
29. Replace the culvert at Villa Rosa Rd with a larger diameter culvert.
30. Replace the West View Drive culvert with a larger diameter culvert.

## 2. Tornadoes

### *a. Mitigation Goals*

The potential for significant damage to property and crops as well as injuries and or deaths are often associated with tornadoes. There is a great need for advanced planning due to the major consequences of this type of event. There are also several courses of action which could greatly increase the survival chances of vulnerable populations while also reducing the overall damages to facilities.

### *b. Range of Mitigation Options*

The suggested mitigation options for tornadoes in Carroll County provide enhanced sheltering options as well as options for more sustainable facilities. These mitigation efforts include both structural and non-structural programs. Modifications to structures should be made to enhance structural integrity in order to minimize loss of life and damage to property. The non-structural projects identify policies and procedures that need to be implemented to reduce overall chances of damage due to a tornado.

### *c. Mitigation Strategies for Tornadoes*

Action steps were given priority using a benefit-cost review. This process consisted of listing the actions, identifying the benefits and cost of each action step, and assigning a priority. The Hazard Mitigation Plan Steering Committee gave projects a priority of low, medium, and high, and a STAPLEE review was conducted to rank them. With priorities being reviewed, there was no change in priorities since the last plan.

For each mitigation action, timeline refers to the amount of time it would take to finish the mitigation project after funding has been secured. Continuous refers to projects or programs that are ongoing.

## Tornadoes

Mitigation Items: Tornadoes

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 2:** To minimize the losses of life and property due to tornadoes in Carroll County. | | | | | | | | | | | |
| **Objective 1:** To reduce the effects of high winds from tornadoes on residential, commercial and governmental properties. | | | | | | | | | | | |
| 2.1.1 | Perform tornado safety training for the government employees. | Carroll County and Cities* | Carroll County EMA and municipal police+ | 3 years | Staff Time | General Funds | Unknown | High | Both | Public Education and Awareness | 20 |
| 2.1.2 | Retrofit public schools with special high wind-resistant films for doors and windows. | Carroll County School System and Carrollton City Schools | Carroll County EMA | 3 years | $2,000,000 | Hazard Mitigation Grants | Unknown | High | Both | Property Protection | 13 |
| 2.1.3 | Research the feasibility of using underground utilities. | Georgia Power, Carroll EMC, Others | Carroll County EMA | 3 years | $50,000 | State and Federal Grants | Unknown | Medium | Both | Property Protection, Structural Projects | 12 |
| 2.1.4 | Promote the use of special roofing shingles designed to interlock and resist uplift forces for both new construction and retrofits. | Carroll County | Carroll County EMA | 3 years | Staff Time | Hazard Mitigation Grants | Unknown | Medium | Both | Structural Projects | 16 |
| 2.1.5 | Promote the construction of safe rooms in shelter areas and in public buildings. | Carroll County | Carroll County EMA | 3 years | $5,000,000 | Hazard Mitigation Grants | Unknown | Medium | Both | Structural Projects | 13 |

*Cities refers to the following: Bowdon, Bremen, Carrollton, Mount Zion, Roopville, Temple, Villa Rica and Whitesburg

+Municipal police refers to Bremen, Bowdon, Carrollton, Mount Zion, Temple and Villa Rica

### *d. Multi-Jurisdictional Considerations*

Tornadoes have affected all areas of Carroll County. All of the municipalities in Carroll County should be participants in tornado mitigation activities. There is no significant difference in the risk for a tornado between any of the municipalities in Carroll County. The random nature of tornadoes requires that all areas of the county be prepared for these events.

### *e. Public Information and Awareness Strategies*

The Hazard Mitigation Plan Steering Committee has identified many public awareness campaigns to ensure that the citizens of Carroll County are kept aware of the hazards affecting them and the mitigation efforts to alleviate potential situations. Many of the public awareness campaigns are all-hazard in nature and include: educational brochures and programs, warning sirens and public notification systems, and workshops.

### *f. Completed and Deleted Action Steps from Plan*

The Hazard Mitigation Plan Steering Committee found that the county has worked diligently to reduce the loss of life and property as a result of tornadoes. The following step was completed:

In 2016:

1. Implement a county wide mandate requiring enhanced anchoring of manufactured homes.

### *g. Unchanged Action Steps*

Because many of the action steps from the previous plan are not shown as completed or deleted doesn't mean that progress has not been made. The following steps remain unchanged:

1. Promote the construction of safe rooms in shelter areas and in public buildings.
2. Promote the use of special roofing shingles designed to interlock and resist uplift forces for both new construction and retrofits.
3. Research the feasibility of using underground utilities.
4. Retrofit public schools with special high wind-resistant films for doors and windows.
5. Perform tornado safety training for the government employees.

## 3. Severe Thunderstorms

### *a. Mitigation Goals*

Thunderstorm winds and lightning have caused numerous injuries and deaths and millions of dollars in property damages to Carroll County over the past 45 years. There is a great need to reduce the risk to lives and property due to this hazard. There is a lot of overlap for mitigation needs for thunderstorm winds and tornadoes, therefore this section mainly deals with mitigation solutions to lightning events.

### *b. Range of Mitigation Options*

Possible mitigation options for severe storms including early warning devices and property protection systems. The early warning devices should allow residents to take shelter before the storm approaches. These suggestions may also result in changes to current policies.

### *c. Mitigation Strategy for Thunderstorm Winds and Lightning*

Action steps were given priority using a benefit-cost review. This process consisted of listing the actions, identifying the benefits and cost of each action step, and assigning a priority. The Hazard Mitigation Plan Steering Committee gave projects a priority of low, medium, and high, and the STAPLEE method was used to rank the action steps. With priorities being reviewed, there was no change in priorities since the last plan.

For each mitigation action, timeline refers to the amount of time it would take to finish the mitigation project after funding has been secured. Continuous refers to projects or programs that are ongoing.

## Thunderstorms

Mitigation Items: Thunderstorms

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 3:** To minimize the losses of life and property due to thunderstorm winds and lightning in Carroll County. | | | | | | | | | | | |
| **Objective 1:** To protect people and property from the effects of electrical storms in Carroll County. | | | | | | | | | | | |
| 3.1.1 | Distribute severe weather preparedness literature at appropriate/ identified events. | Carroll County | Carroll County EMA | Ongoing | $2,000 | General Funds | Unknown | High | Both | Public Education and Awareness | 22 |
| 3.1.2 | Provide National Oceanic and Atmospheric Administration (NOAA) weather radios to identified citizens from at-risk populations. | Carroll County | Carroll County EMA | Ongoing | $5,000 | Hazard Mitigation Grants and General Funds | Unknown | High | Both | Public Education and Awareness | 18 |
| 3.1.3 | Install generator back-up at all critical facilities in Carroll County. | Carroll County and Cities* except Carrollton | Carroll County EMA | 5 years | $10,000,000 | Hazard Mitigation Grants and General Funds | Unknown | Medium | Both | Property Protection | 17 |
| 3.1.4 | Install surge protectors on critical facilities' electronic equipment in essential county and city facilities. | Carroll County and Cities* | Carroll County EMA | 5 years | $250,000 | Grants, General Funds, and SPLOST | Unknown | High | Both | Property Protection | 17 |
| 3.1.5 | Equip all county and city recreation parks with lightning detectors. | Carroll County and Cities* | Parks and Recreation Departments+ and Carroll County EMA | 3 years | $36,000 | Grants, General Funds, and SPLOST | Unknown | High | Both | Property Protection | 17 |
| 3.1.6 | Installation of a generator at VRPD Training Center to use as an Emergency Command Center. | City of Villa Rica | Public Works | 1 year | $65,000 | Hazard Mitigation Grants, General Funds | Unknown | High | Both | Property Protection | 17 |

*Cities refers to the following: Bowdon, Bremen, Carrollton, Mount Zion, Roopville, Temple, Villa Rica and Whitesburg

+Parks and Recreation refers to Bremen, Bowdon, Carrollton, Mount Zion, Temple, Villa Rica and Carroll County

### *d. Multi-Jurisdictional Considerations*

All of Carroll County will be considered when developing mitigation strategies related to thunderstorm winds and lightning. Thunderstorms have caused damage in all areas of the counties in the past. There is no significant difference in the risks and vulnerabilities each of the jurisdictions. As a result, all mitigation strategies will have a county wide focus.

### *e. Public Information and Awareness Strategies*

The Carroll County public safety community is taking all-hazards approach to community awareness programs. Thunderstorm winds and lightning events are portions of this all-hazards program. Some of the suggested public awareness campaigns include educational brochures and programs, warning sirens and public notification systems, and workshops.

### *f. Completed and Deleted Action Steps from the Plan*

For the 2026 Plan, the following have been completed and removed.

1. Research, purchase and installation of a fixed Diesel Generator for Carroll County Critical Facility, Fire Station #1.
2. Research, purchase and installation of a fixed Diesel Generator for Carroll County Critical Facility, Fire Station #2.
3. Research, purchase and installation of a fixed Diesel Generator for Carroll County Critical Facility, Fire Station #4.
4. Research, purchase and installation of a fixed Diesel Generator for Carroll County Critical Facility, Fire Station #5.
5. Research, purchase and installation of a fixed Diesel Generator for Carroll County Critical Facility, Fire Station #7.
6. Research, purchase and installation of a fixed Diesel Generator for Carroll County Critical Facility, Fire Station #8.
7. Research, purchase and installation of a fixed Diesel Generator for Carroll County Critical Facility, Fire Station #12.
8. Research, purchase and installation of a fixed Diesel Generator for Carroll County Critical Facility, Fire Station #14.
9. Research, purchase and installation of a fixed Diesel Generator for Carroll County Critical Facility, Fire Station #15.

### *g. Unchanged Action Steps*

The following action steps are ongoing or have not been completed:

1. Equip all county and city recreation parks with lightning detectors
2. Install surge protectors on critical facilities' electronic equipment in essential county and city buildings

3. Install generator back-up at all critical facilities in Carroll County. (Note the City of Carrollton has completed this for all Critical Facilities in city limits and removed from Responsible Organizations.)
4. Distribute severe weather preparedness literature at appropriate/ identified events.
5. Provide National Oceanic and Atmospheric Administration (NOAA) weather radios to identified at-risk populations.

## 4. Tropical Cyclones

### *a. Mitigation Goals*

Tropical cyclones have caused numerous injuries and deaths and millions of dollars in property damages to Carroll County over the past 45 years. There is a great need to reduce the risk to lives and property due to this hazard. There is some overlap for mitigation needs for tropical cyclones with those of severe thunderstorms and tornadoes.

### *b. Range of Mitigation Options*

Possible mitigation options for tropical cyclones include active citizen preparedness and best management practices for building.

### *c. Mitigation Strategy for Tropical Cyclones*

Action steps were given priority using a benefit-cost review. This process consisted of listing the actions, identifying the benefits and cost of each action step, and assigning a priority of low, medium, and high. The STAPLEE method was used to evaluate the action steps and rank them. This is a new plan category for 2016.

For each mitigation action, timeline refers to the amount of time it would take to finish the mitigation project after funding has been secured. Continuous refers to projects or programs that are ongoing.

## Tropical Cyclones

Mitigation Items: Tropical Cyclones

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 4:** To minimize the losses of life and property due to tropical cyclones in Carroll County. | | | | | | | | | | | |
| **Objective 1:** To protect people and property from the effects of electrical storms in Carroll County. | | | | | | | | | | | |
| 4.1.1 | Develop a readiness program to encourage citizens to prepare a storm kit in the event of an emergency. | Carroll County | Carroll County EMA | Ongoing | $10,000 | General Funds, SPLOST | Unknown | High | Both | Public Education and Awareness | 22 |
| 4.1.2 | Retrofit public schools with special high wind-resistant films for doors and windows. | Carroll County School System and Carrollton City Schools | Carroll County EMA | 3 years | $2,000,000 | Hazard Mitigation Grants and General Funds | Unknown | High | Both | Property Protection | 13 |
| 4.1.3 | Promote the construction of safe rooms in shelter areas and in public buildings. | Carroll County and Cities* | Carroll County EMA | 3 years | $5,000,000 | Hazard Mitigation Grants and General Funds | Unknown | Medium | Both | Property Protection | 13 |
| 4.1.4 | Promote the use of special roofing shingles designed to interlock and resist uplift forces for both new construction and retrofits. | Carroll County | Carroll County EMA | 3 years | Staff Time | General Funds, SPLOST | Unknown | Medium | Both | Structural Projects | 19 |
| 4.1.5 | Research the feasibility of using underground utilities. | Georgia Power, Carroll EMC, Others | Carroll County EMA | 3 years | $50,000 | Hazard Mitigation Grants | Unknown | Medium | Both | Property Protection, Structural Projects | 12 |

*Cities refers to the following: Bowdon, Bremen, Carrollton, Mount Zion, Roopville, Temple, Villa Rica and Whitesburg

### *d. Multi-Jurisdictional Considerations*

All of Carroll County will be considered when developing mitigation strategies related to tropical cyclones. Tropical Cyclones have caused damage in all areas of the county in the past. There is no significant difference in the risks and vulnerabilities between each of the jurisdictions. As a result, all mitigation strategies will have a county wide focus.

### *e. Public Information and Awareness Strategies*

The Carroll County public safety community is taking all-hazards approach to community awareness programs. Tropical cyclonic events are portions of this all-hazards program. Some of the suggested public awareness campaigns include educational brochures and programs, warning sirens and public notification systems, and workshops.

### *f. Completed and Deleted Action Steps from the Plan*

There were no completed or deleted action steps in reference to tropical cyclones.

### *g. Unchanged Action Steps*

1. Promote the construction of safe rooms in shelter areas and in public buildings.
2. Promote the use of special roofing shingles designed to interlock and resist uplift forces for both new construction and retrofits.
3. Research the feasibility of using underground utilities.
4. Retrofit public schools with special high wind-resistant films for doors and windows.
5. Develop a readiness program to encourage citizens to prepare a storm kit in the event of an emergency.

## 5. Winter Storms

### *a. Mitigation Goals*

Although winter storms are not a frequent occurrence in Carroll County, they have the potential to cause extensive problems when they do occur. The county and municipalities do not have the proper equipment to efficiently deal with snow and ice removal.

### *b. Range of Mitigation Goals*

The major mitigation need for Carroll County in relation to winter storms is the purchase of the proper equipment to keep roadways clear and critical facilities operating. The infrequency of winter storms would make structural projects impractical. Most past damages and injuries were due to icy road conditions and downed trees. Mitigation efforts will focus on reducing these adverse conditions.

### *c. Mitigation Strategy for Winter Storms*

Action steps were given priority using a benefit-cost review. This process consisted of listing the actions, identifying the benefits and cost of each action step, and assigning a priority of low, medium, and high. The STAPLEE method was used to evaluate the action steps and prioritize them. With priorities being reviewed, there was no change in priorities since the last plan.

For each mitigation action, timeline refers to the amount of time it would take to finish the mitigation project after funding has been secured. Continuous refers to projects or programs that are ongoing.

## Winter Storms

Mitigation Items: Winter Storms

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 5:** To minimize the losses of lives and property due to winter storms in Carroll County. | | | | | | | | | | | |
| **Objective 1:** Protect people and property from the effects of winter storms in Carroll County. | | | | | | | | | | | |
| 5.1.1 | Distribute severe winter weather preparedness literature at appropriate/ identified community events. | Carroll County | Carroll County EMA | Ongoing | $5,000 | General Funds, SPLOST | Unknown | High | Both | Public Education and Awareness | 22 |
| 5.1.2 | Research, purchase and installation of a portable Natural Gas Generator for Temple Waste Water Lift Stations (13). | City of Temple | Public Works | 2 years | $550,000 | Hazard Mitigation Grants and General Funds | Unknown | High | Both | Property Protection | 17 |
| 5.1.3 | Purchase the equipment necessary to maintain adequate road, debris and clearing capabilities. | Carroll County | Public Works | 3 years | $300,000 | General Funds and SPLOST | Unknown | High | Both | Emergency Services | 17 |
| 5.1.4 | Research, purchase and installation of a fixed Natural Gas Generator for Carroll County Critical Facility, Emergency Shelter. | Carroll County | Public Works | 2 years | $97,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | Medium | Both | Emergency Services | 17 |
| 5.1.5 | Purchase spreader trucks for Carroll County, the City of Carrollton, the City of Villa Rica, the City of Temple, the City of Bowdon, the City of Bremen, the City of Mt. Zion, the City of Whitesburg and the City of Roopville. | Carroll County and Cities* | Public Works | 2 years | $130,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Emergency Services | 16 |
| 5.1.6 | Purchase a small sand spreader to attach to a 4-wheel drive pickup truck. | City of Bowdon | Public Works | 2 years | $15,000 | General Funds, SPLOST | Unknown | Medium | Both | Emergency Services | 17 |
| 5.1.7 | Purchase 4-wheel drive vehicles for emergency responders. | Carroll County and Cities* | Public Works | 1 year | $600,000 | General Funds, SPLOST | Unknown | High | Both | Emergency Services | 16 |
| 5.1.8 | Purchase a 4-wheel drive pickup truck. | City of Bowdon | Public Works | 1 year | $35,000 | General Funds, SPLOST | Unknown | Medium | Both | Emergency Services | 16 |

## Winter Storms

Mitigation Items: Winter Storms

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 5:** To minimize the losses of lives and property due to winter storms in Carroll County. | | | | | | | | | | | |
| **Objective 1:** Protect people and property from the effects of winter storms in Carroll County. | | | | | | | | | | | |
| 5.1.9 | Purchase an All Terrain Vehicle 4-wheeler | City of Temple | Public Works | 1 year | $6,500 | General Funds, SPLOST | Unknown | Medium | Both | Emergency Services | 16 |
| 5.1.10 | Purchase brush chipper. | City of Bowdon | Public Works | 1 year | $70,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | Medium | Both | Emergency Services | 16 |
| 5.1.11 | Purchase brush chipper. | City of Temple | Public Works | 1 year | $70,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | Medium | Both | Emergency Services | 16 |
| 5.1.12 | Purchase a 4-wheel drive Gator. | City of Temple | Public Works | 1 year | $8,000 | General Funds, SPLOST | Unknown | Medium | Both | Emergency Services | 16 |
| 5.1.13 | Purchase a pallet jack. | City of Temple | Public Works | 1 year | $600 | General Funds, SPLOST | Unknown | Medium | Both | Emergency Services | 16 |
| 5.1.14 | Purchase a portable 6" centrifugal pump, towable with hoses. | City of Temple | Public Works | 1 year | $21,500 | General Funds, SPLOST | Unknown | Medium | Both | Emergency Services | 16 |
| 5.1.15 | Purchase gas powered pressure washer, wand and hoses, tips operating at >/=2500 PSI. | City of Temple | Public Works | 1 year | $1,950 | General Funds, SPLOST | Unknown | Medium | Both | Emergency Services | 16 |

*Cities refers to the following: Bowdon, Bremen, Carrollton, Mount Zion, Roopville, Temple, Villa Rica and Whitesburg

### *d. Multi-Jurisdictional Considerations*

Winter storms have affected all areas of Carroll County. All of the municipalities in Carroll County will be participants in winter storm mitigation activities as there are no significant differences in their risks and vulnerabilities.

### *e. Public Information and Awareness Strategies*

The Hazard Mitigation Plan Steering Committee has identified many public awareness campaigns to ensure that the citizens of Carroll County are kept aware of the hazards affecting them and the mitigation efforts to alleviate potential situations. Some of the suggested public awareness campaigns include educational brochures and programs, warning sirens and public notification systems, and workshops.

### *f. Completed and Deleted Action Steps from Plan*

For the 2026 Plan, the following have been completed and removed.

10. Research, purchase and installation of a portable Natural Gas Generator for Bowdon Waste Water Lift Stations (12). (Scope amended to include Water Plant and Police Station/EOC)

Previously

1. Research, purchase and installation of a fixed Natural Gas Generator for Carrollton Water Treatment Plant.
2. Research, purchase and installation of a portable Natural Gas Generator for Carrollton Waste Water Lift Stations.
3. Research, purchase and installation of a fixed Natural Gas Generator for Carrollton Waste Water Little Tallapoosa Lift Station.
4. Research, purchase and installation of a fixed Natural Gas Generator for Carrollton Waste Water Buffalo Creek Lift Station.
5. Research, purchase and installation of a fixed Natural Gas Generator for Carrollton Fire Station 22.

### *g. Unchanged Action Steps*

The following action steps have not been completed and have been left in the plan:

11. Purchase the equipment necessary to maintain adequate road and debris and clearing capabilities.
12. Purchase spreader trucks for Carroll County, the City of Carrollton, the City of Villa Rica, the City of Temple, the City of Bowdon, the City of Bremen, the City of Mount Zion, the City of Whitesburg and the City of Roopville.
13. Purchase 4-wheel drive vehicles for emergency responders.
14. Distribute severe winter weather preparedness literature at appropriate/ identified community events.

15. Research, purchase and installation of a portable Natural Gas Generator for Temple Waste Water Lift Stations (13).
16. Research, purchase and installation of a fixed Natural Gas Generator for Carroll County Critical Facility, Emergency Shelter.
17. Purchase a small sand spreader to attach to a 4-wheel drive pickup truck.
18. Purchase a 4-wheel drive pickup truck.
19. Purchase an All-Terrain Vehicle 4-wheeler
20. Purchase brush chipper (Bowdon and Temple)
21. Purchase a pallet jack.
22. Purchase a portable 6" centrifugal pump, towable with hoses.
23. Purchase gas powered pressure washer, wand and hoses, tips operating at >/=2500 PSI.
24. Provide warming shelters during extreme cold.

## 6. Drought and Wildfires

### *a. Mitigation Goals*

Droughts have had severe effects upon the southern states during the past decade. Carroll County has seen its share of water shortages as a result of the widespread droughts. Because of this, there is a great deal of concern to be better prepared for the future.

### *b. Range of Mitigation Goals*

The main areas where mitigation projects are needed for drought conditions include expanding and enhancing the public water supply as well as increasing the public awareness to wildfire conditions.

### *c. Mitigation Strategy for Droughts*

Action steps were given priority using a benefit-cost review. This process consisted of listing the actions, identifying the benefits and cost of each action step, and assigning a priority of low, medium, and high. The STAPLEE method was used to evaluate the action steps and rank them. With priorities being reviewed, there was no change in priorities since the last plan.

For each mitigation action, timeline refers to the amount of time it would take to finish the mitigation project after funding has been secured. Continuous refers to projects or programs that are ongoing.

## Drought and Wildfires

MItigation Items: Drought and Wildfires

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 6:** To minimize the losses of lives and property due to drought in Carroll County. | | | | | | | | | | | |
| **Objective 1:** To protect the people and property of Carroll County from the devastating effects of a drought. | | | | | | | | | | | |
| 6.1.1 | Educate citizens and farmers about the potential negative effects that arise from extended drought conditions. | Carroll County EMA | Carroll County EMA | Ongoing | Staff Time | General Funds, SPLOST | Unknown | Medium | Both | Public Education and Awareness | 18 |
| 6.1.2 | Develop public awareness to promote water saving campaigns (such as low-flow water saving showerheads and toilets). | Carroll County and Cities Water Authority/ Departments* | Carroll County EMA | Ongoing | $50,000 | General Funds, SPLOST | Unknown | Medium | Both | Public Education and Awareness | 9 |
| 6.1.3 | Expand the Carroll County water system (county wide). | Carroll County Water Authority | Carroll County Water Authority | 5 years | $10,000,000 | Grants (such as CDBG), General Funds, SPLOST | Unknown | Medium | Both | Structural Projects | 16 |
| 6.1.4 | Add a Raw Water Holding Pond at the Water Treatment Plant. | City of Carrollton | City Water Department | 2 years | $6 Million | Grants, General Funds, and SPLOST | Unknown | Medium | Both | Structural Projects | 16 |
| 6.1.5 | Improve Stripling Chapel Rd water main. | City of Carrollton | City Water Department | 3 years | $2 Million | Grants, General Funds, and SPLOST | Unknown | Medium | Both | Structural Projects | 16 |
| 6.1.6 | Add water tanks. | City of Carrollton | City Water Department | 4 years | $2 Million | Grants, General Funds, and SPLOST | Unknown | Medium | Both | Structural Projects | 17 |
| 6.1.7 | Upgrades to water system | City of Roopville | City of Roopville | 4 years | $2,000,000 | Grants (ARC), General Funds, and SPLOST | Unknown | Medium | Both | Structural Projects | 16 |

*City Water Departments include Bowdon, Bremen, Carrollton, Temple, Villa Rica and Whitesburg

## Mitigation Actions: Drought and Wildfires

MItigation Items: Drought and Wildfires

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 6:** To minimize the losses of lives and property due to drought in Carroll County. | | | | | | | | | | | |
| **Objective 2:** To protect the people and property of Carroll County from the devastating effects of wildfires due to drought conditions. | | | | | | | | | | | |
| 6.2.1 | Develop a public awareness campaign to heighten awareness about brush fires and preventive maintenance to homeowners. | Carroll County and Carrollton Fire Department | Fire Department | Ongoing | $36,000 | General Funds, SPLOST | Unknown | High | Both | Emergency Services | 22 |
| 6.2.2 | Become a Firewise Community and integrate firewise standards into development codes | Carroll County and Carrollton Fire Department | Fire Department | 3 years | Staff Time | General Funds, SPLOST | Unknown | High | Both | Public Education and Awareness | 15 |

### *d. Multi-Jurisdictional Considerations*

Drought has affected all areas of Carroll County. No significant differences exist between the county and its municipalities in terms of risk and vulnerabilities associated with droughts. Therefore, all of the municipalities in Carroll County will be represented in drought-related mitigation activities.

### *e. Public Information and Awareness Strategies*

The Hazard Mitigation Plan Steering Committee has identified many public awareness campaigns to ensure that the citizens of Carroll County are kept aware of the hazards affecting them and the mitigation efforts to alleviate potential situations. Some of the suggested all-hazard public awareness campaigns include educational brochures and programs, warning sirens and public notification systems, and workshops.

### *f. Completed and Deleted Action Steps from the Plan*

The following actions have been completed in reference to droughts.

In 2016:

1. Map all wells in Carroll County with a flow of 100 Gallons Per Minute (GPM) or more for use by Emergency Management during a drought.
2. Map all government wells in Carroll County.

### *g. Unchanged Action Steps*

The following actions have not been completed and have been left in the plan:

1. Develop public awareness to promote water-saving campaigns.
2. Expand all Carroll County water systems.
3. Develop a public awareness campaign to heighten awareness about brush fires and preventative maintenance for homeowners.
4. Educate citizens and farmers about the potential negative effects that arise from extended drought conditions.
5. Offer free admission to Midtown Water Park and Lakeshore Pool during heat waves (Carrollton).
6. Provide cooling stations during heat waves.
7. Develop public awareness to promote water saving campaigns (such as low-flow water saving showerheads and toilets).
8. Become a Firewise Community and integrate firewise standards into development codes.

## 7. Earthquakes

### *a. Mitigation Goals*

Although earthquakes are not frequent events in Carroll County, they are still a potential hazard for the county and the citizens within.

### *b. Range of Mitigation Goals*

As a result of earthquakes being rare to both Georgia and Carroll County, there is a lack of preparedness and training for emergency responders and the citizens.

### *c. Mitigation Strategy for Earthquakes*

Action steps were given priority using a benefit-cost review. This process consisted of listing the actions, identifying the benefits and cost of each action step, and assigning a priority of low, medium, and high. The STAPLEE method was used to evaluate the action steps and rank them. With priorities being reviewed, there was no change in priorities since the last plan.

For each mitigation action, timeline refers to the amount of time it would take to finish the mitigation project after funding has been secured. Continuous refers to projects or programs that are ongoing.

## Earthquakes

MItigation Items: Earthquake

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 8:** To minimize the losses of lives and property due to earthquakes in Carroll County. | | | | | | | | | | | |
| **Objective 1:** Improve Carroll County's earthquake information distribution and warning to citizens. | | | | | | | | | | | |
| 7.1.1 | Distribute earthquake preparedness literature at community events. | Carroll County EMA | Carroll County EMA | Ongoing | Staff Time | General Funds, SPLOST | Unknown | Medium | Both | Public Education and Awareness | 22 |
| **Mitigation Goal 8:** To minimize the losses of lives and property due to earthquakes in Carroll County. | | | | | | | | | | | |
| **Objective 2:** Improve Carroll County's first responders' capabilities to prepare for and respond to earthquake events. | | | | | | | | | | | |
| 7.2.1 | Train all first responders on earthquakes search and rescue techniques. | Carroll County and Cities* | Fire Department | Ongoing | Staff Time | General Funds, SPLOST | Unknown | Medium | Both | Emergency Services | 8 |
| 7.2.2 | Provide Confined Space Haz Mat Training in Earthquake Scenario. | Carroll County and Cities* | Fire Department | Ongoing | Staff Time | General Funds, SPLOST | Unknown | Medium | Both | Emergency Services | 8 |

*Cities refers to the following: Bowdon, Bremen, Carrollton, Mount Zion, Roopville, Temple, Villa Rica and Whitesburg

### *d. Multi-Jurisdictional Considerations*

Earthquakes could potentially affect all of Carroll County. No significant differences exist between the county and its municipalities in terms of risks and vulnerabilities associated with earthquakes. Therefore, all of the municipalities in Carroll County will be represented in earthquake-related mitigation activities.

### *e. Public Information and Awareness Strategies*

The Hazard Mitigation Plan Steering Committee has identified many public awareness campaigns to ensure that the citizens of Carroll County are kept aware of the hazards affecting them and the mitigation efforts to alleviate potential situations. Some of the suggested public awareness campaigns include educational brochures and programs, warning sirens and public notification systems, and workshops.

### *f. Completed and Deleted Action Steps from the Plan*

There were no completed or deleted action steps in this section.

### *g. Unchanged Action Steps*

The following action steps have not been completed and have been left in the plan:

1. Distribute earthquake preparedness literature at community events.
2. Train all first responders on earthquakes search and rescue techniques.
3. Provide Confined Space Haz Mat Training in Earthquake Scenario.

## 8. Pandemics/Epidemics

### *a. Mitigation Goals*

Carroll County has a history of pandemics/epidemics but not any more than other parts of the state. Since pandemics/epidemics can be so widespread, a great deal of training is needed on all levels.

### *b. Range of Mitigation Goals*

The Hazard Mitigation Plan Steering Committee found many goals that if met could really help prepare for pandemic/epidemic events. Mitigation actions advancing these goals range from improving information distribution and warning citizens to training and preparing first responders to respond and handle these events.

### *c. Mitigation Strategy for Pandemics/Epidemics*

Action steps were given priority using a benefit-cost review. This process consisted of listing the actions, identifying the benefits and cost of each action step, and assigning a priority of low, medium, and high. The STAPLEE method was used to evaluate the action steps and rank them. With priorities being reviewed, there was no change in priorities since the last plan.

For each mitigation action, timeline refers to the amount of time it would take to finish the mitigation project after funding has been secured. Continuous refers to projects or programs that are ongoing.

## Pandemics and Epidemics

MItigation Items: Pandemics and Epidemics

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 10:** To minimize the loss of lives due to pandemics/epidemics in Carroll County. | | | | | | | | | | | |
| **Objective 1:** To protect the people and property of Carroll County from the effects of pandemic/epidemic events. | | | | | | | | | | | |
| 8.1.1 | Participate in Strategic National Stockpile drills and exercises. | Carroll County and Cities* | Carroll County EMA | Ongoing | $15,000 | General Funds | Unknown | High | Both | Emergency Services | 16 |
| 8.1.2 | Educate the public on pandemics, including isolation, quarantine, triage and medical care. | Carroll County EMA | Carroll County EMA | Ongoing | $10,000 | General Funds | Unknown | High | Both | Public Education and Awareness | 12 |
| 8.1.3 | Train all first responders on pandemic flu response. | Carroll County and Cities* | Carroll County EMA | Ongoing | $25,000 | General Funds | Unknown | High | Both | Emergency Services | 12 |
| 8.1.4 | Assist all critical departments in developing continuity of operations (COOP) plans. | Carroll County EMA | Carroll County EMA | 5 years | $25,000 | General Funds | Unknown | Medium | Both | Emergency Services | 10 |
| 8.1.5 | Acquire infectious diseases personal protective equipment for all first responders. | Carroll County and Cities* | Carroll County EMA | 2 years | $75,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Emergency Services | 15 |
| 8.1.6 | Provide chemical and biological safety training to employees | Carroll County and Cities* | Carroll County EMA | Ongoing | Staff Time | General Funds | Unknown | Medium | Both | Public Education and Awareness | 17 |

*Cities refers to the following: Bowdon, Bremen, Carrollton, Mount Zion, Roopville, Temple, Villa Rica and Whitesburg

### *d. Multi-Jurisdictional Considerations*

Pandemics/epidemics have affected all areas of Carroll County. No significant differences exist between the county and its municipalities in terms of risk and vulnerabilities associated with these events. Therefore, all of the municipalities in Carroll County will be represented in pandemic/epidemic related mitigation activities.

### *e. Public Information and Awareness Strategies*

The Hazard Mitigation Plan Steering Committee has identified many public awareness campaigns to ensure that the citizens of Carroll County are kept aware of the hazards affecting them and the mitigation efforts to alleviate potential hazardous situations. Some of the suggested public awareness campaigns include educational brochures and programs, public notification systems and workshops.

### *f. Completed and Deleted Action Steps from the Plan*

There are no completed or deleted action steps in this section.

### *g. Unchanged Action Steps*

The following action steps have not been completed and have been left in the plan:

1. Educate the public on pandemics, including isolation, quarantine, triage and medical care.
2. Train all first responders on pandemic flu response.
3. Participate in Strategic National Stockpile drills and exercises.
4. Acquire infectious diseases personal protective equipment for all first responders.
5. Assist all critical departments in developing continuity of operations (COOP) plans.
6. Provide chemical and biological safety training to employees.

## 9. Extreme Temperatures

### *a. Mitigation Goals*

Although extreme temperatures are not frequent events in Carroll County, they are still a potential hazard for the county, from hypothermia, freezing pipes and plants in the winter months to heat exhaustion or heat stroke in the summer months.

### *b. Range of Mitigation Goals*

Preparedness is key for extreme temperatures from drinking more water, staying indoors, and knowing the signs of heat exhaustion/stroke during a heat wave to insulating pipes and crops during a cold snap. Often warming and cooling shelters are opened during the event to provide people with a place to go.

### *c. Mitigation Strategy for Earthquakes*

Action steps were given priority using a benefit-cost review. This process consisted of listing the actions, identifying the benefits and cost of each action step, and assigning a priority of low, medium, and high. The STAPLEE method was used to evaluate the action steps and rank them. With priorities being reviewed, there was no change in priorities since the last plan.

For each mitigation action, timeline refers to the amount of time it would take to finish the mitigation project after funding has been secured. Continuous refers to projects or programs that are ongoing.

## Mitigation Actions: Extreme Temperatures

MItigation Items: Extreme Temperatures

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 9:** To minimize the losses of lives and property due to earthquakes in Carroll County. | | | | | | | | | | | |
| **Objective 1:** Improve Carroll County's earthquake information distribution and warning to citizens. | | | | | | | | | | | |
| 9.1.1 | Provide warming shelters during extreme cold. | Nonprofit Emergency Shelter | City of Carrollton | Ongoing | Staff Time | Grants and General Funds | Unknown | Low | Both | Emergency Services | 15 |
| 9.1.2 | Provide cooling stations during heat waves. | Nonprofit Emergency Shelter | City of Carrollton | Ongoing | Staff Time | Grants and General Funds | Unknown | Medium | Existing | Emergency Services | 16 |
| 9.1.3 | Offer free admission to Midtown Water Park and Lakeshore Pool during heat waves. | City of Carrollton | City of Carrollton | Ongoing | Staff Time | General Funds | Unknown | Medium | Existing | Emergency Services | 17 |

### *d. Multi-Jurisdictional Considerations*

Extreme temperatures could potentially affect all of Carroll County. No significant differences exist between the county and its municipalities in terms of risks and vulnerabilities associated with extreme temperatures. Therefore, all of the municipalities in Carroll County will be represented in extreme temperature-related mitigation activities.

### *e. Public Information and Awareness Strategies*

The Hazard Mitigation Plan Steering Committee has identified many public awareness campaigns to ensure that the citizens of Carroll County are kept aware of the hazards affecting them and the mitigation efforts to alleviate potential situations. Some of the suggested public awareness campaigns include educational brochures and social media blasts.

### *f. Completed and Deleted Action Steps from the Plan*

There were no completed or deleted action steps in this section.

### *g. Unchanged Action Steps*

The following action steps have not been completed and have been left in the plan, moved to this section:

1. Provide warming shelters during extreme cold.
2. Provide cooling shelters during extreme heat.
3. Offer free admission to water parks during extreme heat waves.

## 10. All-Hazards

### *a. Mitigation Goals*

Carroll County follows an all-hazards approach to community planning. There are many mitigation projects which can positively influence the outcomes of any natural disaster – these projects are described in this All-Hazard section. These projects have the potential to have great impacts due to their all-hazard nature.

### *b. Range of Mitigation Goals*

All-hazards mitigation goals cover a wide variety of projects, both structural and non-structural. Mitigation options range from warning systems and sirens to public policy changes and public awareness campaigns. The following section details potential mitigation strategies.

### *c. Mitigation Strategies for All-Hazards*

Action steps were given priority using a benefit-cost review. This process consisted of listing the actions, identifying the benefits and cost of each action step, and assigning a priority of low, medium, and high. The STAPLEE method was used to evaluate the action steps and rank them. With priorities being reviewed, there was no change in priorities since the last plan.

For each mitigation action, timeline refers to the amount of time it would take to finish the mitigation project after funding has been secured. Continuous refers to projects or programs that are ongoing.

## All Hazards

Mitigation Items: All Hazards

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 7:** To minimize the losses of life and property due to all natural hazards in Carroll County. | | | | | | | | | | | |
| **Objective 1:** To protect people and property from the effects of all natural hazards in Carroll County through public awareness campaigns. | | | | | | | | | | | |
| 10.1.1 | Improve interconnectivity of water systems to surrounding municipalities and counties. | Carroll County and Cities Water Authority / Department+ | Carroll County and Cities Water Authority / Department+ | 3 years | $1,500,000 | Grants (such as CDBG, ARC), General Funds, SPLOST | Unknown | Medium | Both | Structural Projects | 16 |
| 10.1.2 | Work with local cable and radio providers to enhance and broadcast public education on Emergency Preparedness. | Carroll County EMA | Carroll County EMA | Ongoing | $25,000 | General Funds, SPLOST | Unknown | Medium | Both | Public Education and Awareness | 22 |
| 10.1.3 | Acquire a portable digital reader board to utilize during disasters. | Carroll County EMA | Carroll County EMA | 2 years | $10,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Emergency Services | 16 |
| **Mitigation Goal 7:** To minimize the losses of life and property due to all natural hazards in Carroll County. | | | | | | | | | | | |
| **Objective 2:** To provide the equipment, organization and training necessary to protect the citizens of Carroll County from all-hazards. | | | | | | | | | | | |
| 10.2.1 | Purchase and install tracking devices on all County Government Vehicles. | Carroll County | Carroll County Public Works | 3 years | $500,000 | General Funds, SPLOST | Unknown | Medium | Both | Emergency Services | 17 |
| 10.2.2 | Provide continual training and equipment for Emergency Management Agency Volunteers and Community Emergency Response Team (CERT). | Carroll County EMA | Carroll County EMA | Ongoing | $50,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | Medium | Both | Emergency Services | 14 |
| 10.2.3 | Provide the emergency response personnel capable of responding to the effects of all hazards. | Carroll County and Cities* | Carroll County and Cities* | Ongoing | $600,000 | Grants (such as SAFER, COPS) and General Funds | Unknown | Medium | Both | Emergency Services | 15 |

## All Hazards

Mitigation Items: All Hazards

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 7:** To minimize the losses of life and property due to all natural hazards in Carroll County. | | | | | | | | | | | |
| **Objective 2:** To provide the equipment, organization and training necessary to protect the citizens of Carroll County from all-hazards. | | | | | | | | | | | |
| 10.2.4 | Maintain stock of supplies and equipment for mass casualty. | City of Bremen | City of Bremen | 5 years | $100,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Emergency Services | 15 |
| 10.2.5 | Research, purchase and installation of a Natural Gas Generator for Bremen Waste Water Lift Station at I-20. | City of Bremen | Carroll County EMA | 2 years | $150,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 17 |
| 10.2.6 | Purchase a grapple bucket to aid in debris removal | City of Villa Rica | Public Works | 1 year | $15,000 | Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 17 |
| 10.2.7 | Acquire additional communications radios and back up power | City of Villa Rica | Public Works, Police, and Utilities | 1 year | $60,000 | Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 17 |
| 10.2.8 | Utilize SCADA Communications to monitor and control distribution of resources | City of Villa Rica | Utilities | 1 year | $40,000 | Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 18 |
| 10.2.9 | Acquire 4 portable light towers | City of Temple | Public Works, Police, and Utilities | 3 years | $48,000 | Grants, General Funds, SPLOST | Unknown | High | Both | Property Protection | 17 |
| 10.2.10 | Purchase two high-performance Starlink kits for essential communications | Carroll County | Carroll Sheriff/EMA | 1 year | $8,000 | General Funds, SPLOST | Unknown | High | Both | Emergency Services | 19 |

## All Hazards

Mitigation Items: All Hazards

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.2.11 | Purchase a Rook - an armored critical incident utility vehicle to operate in extreme and hazardous conditions, as well as a Ford F-350 Dually Pickup Truck to transport the Rook. | Carroll County | Carroll Sheriff/EMA | 3 years | $647,340 | Hazard Mitigation/ Homeland Security Grants, SPLOST | Unknown | High | Both | Emergency Services | 17 |
| 10.2.12 | Purchase 2 Rangers to use at county parks during severe weather or wildfires | Carroll County | Carroll County Fire Rescue | 3 years | $80,000 | Hazard Mitigation/ Homeland Security Grants, SPLOST | Unknown | High | Both | Emergency Services | 17 |
| 10.2.13 | Add response equipment for severe weather, such as struts, search cameras, and search and rescue equipment, to GSAR-TF-6. | Carroll County | Carroll County Fire Rescue | 3 years | $150,000 | Hazard Mitigation/ Homeland Security Grants, SPLOST | Unknown | High | Both | Emergency Services | 17 |
| **Mitigation Goal 7:** To minimize the losses of life and property due to all natural hazards in Carroll County. | | | | | | | | | | | |
| **Objective 3:** To protect the people and property from the effects of all hazards in Carroll County through effective planning. | | | | | | | | | | | |
| 10.3.1 | Review current land use plans to modify or incorporate into the plan guidelines to direct development away from hazardous areas. | Carroll County and Cities* | Department of Community Development | Ongoing | $20,000 | Grants (Planning) and General Funds | Unknown | Medium | Both | Prevention | 18 |
| 10.3.2 | Encourage best management practices in development ordinances to build stronger, more resilient communities. | Carroll County and Cities* | Department of Community Development | Ongoing | $25,000 | General Funds, SPLOST | Unknown | Medium | Both | Prevention | 18 |
| 10.3.3 | Create a safety plan for all county parks | Carroll County | Carroll County EMA/CCSO | 2 years | $10,000 | General Funds, SPLOST | Unknown | Medium | Both | Prevention | 21 |
| **Mitigation Goal 7:** To minimize the losses of life and property due to all natural hazards in Carroll County. | | | | | | | | | | | |
| **Objective 4:** To implement a means of early warning throughout Carroll County. | | | | | | | | | | | |
| 10.4.1 | Assess outdoor warning for mass notification as a method of early warning for possible inclement weather or other hazards. | Carroll County EMA | Carroll County EMA | Ongoing | $15,000 | General Funds, SPLOST | Unknown | High | Both | Emergency Services | 18 |

## All Hazards

Mitigation Items: All Hazards

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.4.2 | Identify populations at-risk within Carroll County and implement individual notification of warnings and conditions. | Carroll County EMA | Carroll County EMA | 2 years | $35,000 | General Funds, SPLOST | Unknown | High | Both | Emergency Services | 18 |
| 10.4.3 | Purchase and distribute NOAA Weather Radios to cover all major buildings on the UWG Campus | Carroll County EMA/University of West Georgia | Carroll County EMA | 5 years | $20,000 | Hazard Mitigation Grants, General Funds, SPLOST | Unknown | High | Both | Emergency Services | 17 |

*Cities refers to the following: Bowdon, Bremen, Carrollton, Mount Zion, Roopville, Temple, Villa Rica and Whitesburg

+City Water Departments include Bowdon, Bremen, Carrollton, Temple, Villa Rica and Whitesburg

### *d. Multi-Jurisdictional Considerations*

Some of the above projects cross jurisdictional boundaries (such as training and early warning). There are no significant differences between the county and its municipalities in terms of the risk and vulnerabilities associated with the hazards identified. All jurisdictions will be represented in the planning process.

### *e. Public Information and Awareness Strategies*

The Hazard Mitigation Plan Steering Committee has identified many public awareness campaigns to ensure that the citizens of Carroll County are kept aware of the hazards affecting them and the mitigation efforts to alleviate potential hazards. Some of the suggested public awareness campaigns include educational brochures and programs, warning sirens and public notification systems, and workshops.

### *f. Completed and Deleted Action Steps from the Plan*

The following is no longer being considered in 2026.

1. Purchase and install 10 weather sirens throughout the county.

The following items were completed.

In 2021:

1. Build a state-of-the-art Emergency Operations Center.
2. Construct an emergency access road to Mt. Zion Middle School.

In 2016:

1. To hire a planner to assist with disaster and emergency planning.
2. Contract with someone to write the Hazard Mitigation Plan for the next update.

As Carroll County has become an operator of the Integrated Public Alert Warning System, launched social media Facebook and Twitter sites, and launched a new website that includes an Emergency Alert Center, the following item is no longer deemed necessary:

1. Purchase Public Notification System to warn residents of hazards.

### *g. Unchanged Action Steps*

The Hazard Mitigation Plan Steering Committee found that some of the action steps from the previous plan had either not been completed or were still a hazard to the citizens of Carroll County. Those steps remain unchanged include:

1. Improve interconnectivity of water systems to surrounding municipalities and counties.
2. Work with local cable and radio providers to enhance public education on emergency preparedness.
3. Acquire a portable digital reader board to utilize during disasters.
4. Purchase and install tracking devices on all County Government Vehicles.

5. Provide continual training and equipment for the Community Emergency Response Team (CERT).
6. Provide the emergency response personnel capable of responding to the effects of all hazards.
7. Review current land use plans to modify or incorporate into the plan guidelines to direct development away from hazardous areas.
8. Assess large outdoor venues for feasibility and impact of placing warning sirens as a method of early warning for possible inclement weather or other hazards.
9. Identify populations at-risk within Carroll County and implement individual notification of warnings and conditions.

## B. Technological Hazard Mitigation Goals and Objectives

### 1. Hazardous Materials Spills

#### *a. Mitigation Goals*

Hazardous materials spills were identified as the only significant technological hazard affecting Carroll County. As seen in III. B. 1, historical trends suggest that there will be approximately ten hazardous materials events in the county during any given year. This includes both fixed-facility and transportation-related incidents. The transportation threat is exacerbated due to the presence of an Interstate Highway, a major state route, and two rail transportation routes.

#### *b. Range of Mitigation Options*

The identified mitigation strategies for hazardous materials include training first responders to efficiently respond to a threat. The identified strategy is non-structural.

#### *c. Mitigation Strategy for Hazardous Material Spills*

Action steps were given priority using a benefit-cost review. This process consisted of listing the actions, identifying the benefits and cost of each action step, and assigning a priority of low, medium, and high. The STAPLEE method was used to evaluate the action steps and rank them. With priorities being reviewed, there was no change in priorities since the last plan.

For each mitigation action, timeline refers to the amount of time it would take to finish the mitigation project after funding has been secured. Continuous refers to projects or programs that are ongoing.

## Hazardous Materials Incidents

Mitigation Items: Hazardous Materials Incidents

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 11:** To minimize the losses of lives and property due to hazardous materials spills in Carroll County. | | | | | | | | | | | |
| **Objective 1:** To provide enhanced training for hazardous materials emergency response in Carroll County. | | | | | | | | | | | |
| 11.1.1 | Implement a county wide training program for emergency response to hazardous material incidents. | Carroll County and Cities* | Fire Department | 2 years | $60,000 | General Funds | Unknown | Medium | Both | Emergency Services | 15 |
| 11.1.2 | Provide Confined Space Haz Mat Training. | Carroll County and Cities* | Fire Department | Ongoing | Staff Time | General Funds | Unknown | Medium | Both | Emergency Services | 15 |

*Cities refers to the following: Bowdon, Bremen, Carrollton, Mount Zion, Roopville, Temple, Villa Rica and Whitesburg

### *d. Multi-Jurisdictional Considerations*

Hazardous materials events have occurred throughout Carroll County; however, the areas around I-20, SR-78, SR-61, US-27 and the railroad tracks have the greatest tendency for transportation-related events. There is no significant difference between the county and its municipalities in terms of the risks and vulnerabilities associated with hazardous materials. All jurisdictions should participate in training first responders.

### *e. Public Information and Awareness*

The Hazard Mitigation Plan Steering Committee has identified many public awareness campaigns to ensure that the citizens of Carroll County are kept abreast of the hazards affecting them and the mitigation efforts to alleviate potential situations. Some of the suggested public awareness campaigns include educational brochures and programs, warning sirens and notification systems, and workshops.

### *f. Completed and Deleted Action Steps from the Plan*

There were no completed or deleted action steps in reference to Hazardous Material Spills.

### *g. Unchanged Action Steps*

The following action step has not been completed and has been left in the plan:

1. Implement a county wide training program for emergency response to hazardous materials incidents.
2. Provide Confined Space Haz Mat Training.

## 2. Dam Failure

### *a. Mitigation Goals*

Dam failure was identified as a hazard affecting Carroll County. As seen in III. D. 2, the potential failure of a dam may result in downstream flooding, which may endanger lives and property. Failures can be due to weather, structural changes or chemical agents.

### *b. Range of Mitigation Options*

The identified mitigation strategies for dam failure include public awareness and accurate mapping of dams and spillways. The identified mitigation goals include maintaining watershed dams and developing appropriate land uses downstream of dams.

### *c. Mitigation Strategy for Dam Failure*

Action steps were given priority using a benefit-cost review. This process consisted of listing the actions, identifying the benefits and cost of each action step, and assigning a priority of low, medium, and high. The STAPLEE method was used to evaluate the action steps and rank them. With priorities being reviewed, there was no change in priorities since the last plan.

For each mitigation action, timeline refers to the amount of time it would take to finish the mitigation project after funding has been secured. Continuous refers to projects or programs that are ongoing.

## Dam Failure

Mitigation Items: Dam Failure

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 12:** To minimize the losses of lives and property due to incidents involving dam failure in Carroll County. | | | | | | | | | | | |
| **Objective 1:** To enhance the awareness of the existence of dams throughout the county and their potential for flooding downstream. | | | | | | | | | | | |
| 12.1.1 | Maintain/Update all watershed dams in Carroll County. | Carroll County and Cities* | Public Works | Ongoing | $25,000 | General Funds | Unknown | High | Both | Property Protection | 16 |
| 12.1.2 | Develop land use strategies to promote the safe use of land downstream from a dam. | Carroll County and Cities* | Community Development | 3 years | $25,000 | Grants (Planning) and General Funds | Unknown | Medium | Both | Prevention | 14 |

*Cities refers to the following: Bowdon, Bremen, Carrollton, Mount Zion, Roopville, Temple, Villa Rica and Whitesburg

### *d. Multi-Jurisdictional Considerations*

Dams are located throughout the county and its municipalities. Therefore, no significant differences exist between the county and its municipalities in terms of risks and vulnerabilities associated with dam failure. As a result, all jurisdictions will be represented in the planning and implementation process.

### *e. Public Information and Awareness Strategies*

The Hazard Mitigation Plan Steering Committee has identified many public awareness campaigns to ensure that the citizens of Carroll County are kept aware of the hazards affecting them and the mitigation efforts to alleviate potential situations. Some of the suggested public awareness campaigns include educational brochures and programs, warning sirens and public notification systems, and workshops.

### *f. Completed and Deleted Action Steps from the Plan*

1. Accurately plot in GIS the location of each category (1) and (2) dam and their emergency spillway. (Category 1 dams plotted as result of DNR Safe Dams rule change requiring Emergency Action Plans.)
2. Improve Lake Carroll dam/spillway based on assessment (Downgraded category and spillway improvement has been completed).

### *g. Unchanged Action Steps*

The following action step have not been completed and have been left in the plan:

1. Develop land use strategies to promote the safe use of land downstream from a dam.
2. Maintain/Update all watershed dams in Carroll County.

## 3. Terrorism

### *a. Mitigation Goals*

Terrorism, including mass casualty and cyber security incidents, was identified as a hazard affecting Carroll County. As seen in III. D. 3, Carroll County is vulnerable to terroristic acts, although they are hard to predict. Mitigation strategies center around public awareness, and the securing of resources including critical facilities and data.

### *b. Range of Mitigation Options*

The identified mitigation strategies for terrorism include public awareness, securing resources, and acquiring equipment that will aid in response.

### *c. Mitigation Strategy for Terrorism*

Action steps were given priority using a benefit-cost review. This process consisted of listing the actions, identifying the benefits and cost of each action step, and assigning a priority of low, medium, and high. The STAPLEE method was used to evaluate the action steps and rank them. With priorities being reviewed, there was no change in priorities since the last plan.

For each mitigation action, timeline refers to the amount of time it would take to finish the mitigation project after funding has been secured. Continuous refers to projects or programs that are ongoing.

## Terrorism

Mitigation Items: Terrorism (including Mass Casualty and Cyber Terrorism)

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 13:** To minimize the losses of life and property due to terrorism in Carroll County. | | | | | | | | | | | |
| **Objective 1:** To enhance terrorism awareness and response at all critical facilities. | | | | | | | | | | | |
| 13.1.1 | Provide active shooter/safety training to all critical facilities. | Carroll County and Cities* | Law Enforcement | Ongoing | Staff Time | General Funds | Unknown | Medium | Both | Public Education and Awareness | 22 |
| **Mitigation Goal 13:** To minimize the losses of life and property due to terrorism in Carroll County. | | | | | | | | | | | |
| **Objective 2**: To provide the equipment, organization and training necessary to protect the citizens of Carroll County from terrorism. | | | | | | | | | | | |
| 13.1.2 | Purchase two high-performance Starlink kits for essential communications | Carroll County | Carroll Sheriff/EMA | 1 year | $8,000 | General Funds, SPLOST | Unknown | High | Both | Emergency Services | 19 |
| 13.1.3 | Purchase a Rook - an armored critical incident utility vehicle to operate in extreme and hazardous conditions, as well as a Ford F-350 Dually Pickup Truck to transport the Rook. | Carroll County | Carroll Sheriff/EMA | 3 years | $647,340 | Hazard Mitigation/ Homeland Security Grants, SPLOST | Unknown | High | Both | Emergency Services | 17 |

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### *d. Multi-Jurisdictional Considerations*

No significant differences exist between the county and its municipalities in terms of risks and vulnerabilities associated with terrorism. As a result, all jurisdictions will be represented in the planning and implementation process.

### *e. Public Information and Awareness Strategies*

The Hazard Mitigation Plan Steering Committee has identified many public awareness campaigns to ensure that the citizens of Carroll County are kept aware of the hazards affecting them and the mitigation efforts to alleviate potential situations. Some of the suggested public awareness campaigns include educational brochures and programs, warning sirens and public notification systems, and workshops.

### *f. Completed and Deleted Action Steps from the Plan*

None

### *g. Unchanged Action Steps*

The following action step has been repeated in this section:

1. Provide active shooter/safety training to all critical facilities.

## 4. All-Hazards (Technological)

### *a. Mitigation Goals*

Carroll County identified other hazards that were technological in nature but were not as widespread as the hazardous materials problems. These other hazards are included in this all-hazards section.

### *b. Range of Mitigation Options*

Dangerous intersections, unmarked railroad crossings and fire prevention are technological hazards that have been identified as important issues in Carroll County.

### *c. Mitigation Strategy for All Hazards (Technological)*

Action steps were given priority using a benefit-cost review. This process consisted of listing the actions, identifying the benefits and cost of each action step, and assigning a priority of low, medium, and high. The STAPLEE method was used to evaluate the action steps and rank them. With priorities being reviewed, there was no change in priorities since the last plan.

For each mitigation action, timeline refers to the amount of time it would take to finish the mitigation project after funding has been secured. Continuous refers to projects or programs that are ongoing.

## All Technological Hazards

MItigation Items: All Technological Hazards

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mitigation Goal 14:** To minimize the losses of life and property due to technological hazards in Carroll County. | | | | | | | | | | | |
| **Objective 1:** To enhance residential fire safety in Carroll County. | | | | | | | | | | | |
| 14.1.1 | Promote an updated fire prevention and public education program. | Carroll County and City of Carrollton Fire | Fire Department | Ongoing | $20,000 | General Funds | Unknown | High | Both | Emergency Services | 19 |
| **Mitigation Goal 14:** To minimize the losses of life and property due to technological hazards in Carroll County. | | | | | | | | | | | |
| **Objective 2:** To enhance traffic safety in Carroll County. | | | | | | | | | | | |
| 14.2.1 | Improve emergency access road to Mount Zion Middle School. | Carroll County Schools, City of Mt. Zion and Carroll County Public Works | Public Works | 1 year | $300,000 | General Funds, SPLOST | Unknown | High | Existing | Property Protection, Emergency Services | 16 |
| 14.2.2 | Review traffic reports for hazardous intersections to determine if traffic signals are needed. | Carroll County and Cities* | Public Works and Transportation | 3 years | Staff Time | General Funds, SPLOST | Unknown | High | Both | Property Protection, Emergency Services | 16 |
| 14.2.3 | Enhance safety at the railroad crossing at Cheeves Street in Villa Rica. | City of Villa Rica | Public Works and Transportation | 5 years | $5,000,000 | Grants (Hazard Mitigation or Safe Streets), General Funds, SPLOST | Unknown | High | Existing | Property Protection, Emergency Services | 17 |
| 14.2.4 | Enhance safety at the railroad crossing at E. Johnson St. and Sage St. in Temple. | City of Temple | Public Works and Transportation | 5 years | $5,000,000 | Grants (Hazard Mitigation or Safe Streets), General Funds, SPLOST | Unknown | High | Existing | Property Protection, Emergency Services | 16 |

## All Technological Hazard

MItigation Items: All Technological Hazards

| Number | Mitigation Action | Responsible Organization | Coordinating Organization | Timeline | Approximate Cost | Funding Sources | Estimated Benefit | Priority | Structures Affected | FEMA Category | STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 14.2.5 | Ensure that all railroad crossings are properly marked and gated if needed. | Carroll County | Public Works and Transportation | 5 years | $50,000 | Grants (DOT) and General Funds | Unknown | High | Existing | Property Protection, Emergency Services | 16 |
| **Mitigation Goal 12:** To minimize the losses of life and property due to technological hazards in Carroll County. | | | | | | | | | | | |
| **Objective 3:** To enhance workplace safety at all critical facilities. | | | | | | | | | | | |
| 14.3.1 | Provide active shooter/safety training to all critical facilities. | Carroll County and Cities* | Law Enforcement | Ongoing | Staff Time | General Funds | Unknown | Medium | Both | Public Education and Awareness | 22 |
| 14.3.2 | Develop safety flip charts for all critical facilities. | Carroll County and Cities* | Carroll County EMA | 3 years | $50,000 | General Funds | Unknown | Medium | Both | Public Education and Awareness | 22 |

*Cities refers to the following: Bowdon, Bremen, Carrollton, Mount Zion, Roopville, Temple, Villa Rica and Whitesburg

### *d. Multi-Jurisdictional Considerations*

The above hazards can potentially affect all areas of Carroll County, therefore all jurisdictions should be involved in the planning and implementation process. However, no significant differences exist between the county and its municipalities in terms of the risks and vulnerabilities associated with technological hazards.

### *e. Public Information and Awareness Strategies*

The Hazard Mitigation Plan Steering Committee has identified many public awareness campaigns to ensure that the citizens of Carroll County are kept abreast of the hazards affecting them and the mitigation efforts to alleviate potential situations. Some of the suggested public awareness campaigns include educational brochures and programs, warning sirens and public notification systems, and workshops.

### *f. Complete and Deleted Action Steps from the Plan*

The Hazard Mitigation Plan Steering Committee found that the county has worked diligently to reduce the loss of life and property as a result of all-hazards. The following steps were completed or deleted:

For 2021:

1. Construct an emergency access road to Mount Zion Middle School.

From a Previous Plan:

1. Implement a county wide mandate for fire sprinklers in new residential construction.
2. Check railroad crossings to determine where crossings need to be repaired or signals need to be installed.

### *g. Unchanged Action Steps*

The following action steps have not been completed and have been left in the plan:

1. Promote an updated fire prevention and public education program.
2. Review traffic reports to determine hazardous intersections and if traffic signals are needed.
3. Enhance safety at the railroad crossing at Cheeves Street in Villa Rica.
4. Enhance safety at the railroad crossing at E. Johnson St. and Sage St. in Temple.
5. Ensure that all railroad crossings are properly marked and gated if needed.
6. Develop safety flip charts for all critical facilities.

## C. Reducing Vulnerabilities to Disasters

In developing and reaffirming the mitigation goals, objectives and action steps, Carroll County and its Cities are striving to protect the community's people, property and the environment from natural and man-made disasters. In doing so, the jurisdictions will become more resilient to disasters. To achieve resilience, there must be a long-term diligence in completing projects that are preventative, protect property, and improve the structural framework. This will help reduce the community's vulnerability to disasters. For example, with repetitive loss properties due to flooding, every property that has a FEMA flood plain is reviewed by the building department and restricted from building. When a culvert is washed out by flooding, the county documents it in its Geographic Information Systems and if a larger pipe can be put in place, Public Works will do so. These policies are helping prevent disaster damage in the future.

Carroll County's Hazard Mitigation Steering Committee is focused on the reduction of vulnerabilities by developing and codifying these steps into ordinances and each jurisdiction's Comprehensive Plan. There are many preventive steps that can be achieved at the onset of a building or modification permit. Further policies need to be in place that pursue projects that protect property and improve the structural framework in a capital improvement element. Currently, the county does not have an official Capital Improvement Plan. Instead, it relies on the Special Purpose Local Option Sales Tax to fund many of its capital projects. The committee needs to work with local officials to get consistent funding for these mitigation steps.

As the community moves forward with its 2028 Comprehensive Plan Updates and any update to Service Delivery, these goals, objectives and action steps need to be considered.

# Chapter V. Executing the Plan

## A. Implementing Action Plan

The Carroll County Hazard Mitigation Plan process was coordinated and written by the Carroll County Emergency Management Agency. The Carroll County Board of Commissioners and the Mayors and Councils of each municipality will adopt the plan upon the approval of FEMA and GEMA.

## B. Monitoring the Plan

Carroll County and its municipalities have designated that all emergency management and emergency planning functions will fall under the Carroll County Emergency Management Agency and it will be responsible for the Hazard Mitigation Plan's upkeep and maintenance. The mitigation plan will be monitored and evaluated annually and revised as needed and in accordance with the FEMA standards. It is the responsibility of the EMA Director to ensure that the plan is used as a guide for implementation of mitigation measures within Carroll County and its municipalities. The EMA will further work with each jurisdiction's Community Development staff as applicable to ensure that the mitigation items are incorporated into any land use/zoning plans or ordinances.

## C. Evaluation of the Plan

The Hazard Mitigation Plan Steering Committee will reconvene periodically to ensure that the projects are on track and to reevaluate the mitigation goals, objectives and action steps utilizing STAPLEE criteria as necessary. The steering committee will review the mitigation strategies to ensure that the plan is inclusive and further that the mitigation actions that are being implemented are effective. Should a disaster occur the Hazard Mitigation Plan Steering Committee will call a special meeting to assess the mitigation actions and evaluate whether changes should be made to the plan. The steering committee should also review the mitigation actions when funding becomes available to ensure that the actions are making the community safer and more resilient.

The local EMA and the Hazard Mitigation Plan Steering Committee need to continue to educate the public on the importance of the Hazard Mitigation Plan to increase public interest and input. All information will be put on the county website for public input and meetings will be announced in the newspaper should a public meeting be called. The mitigation plan shall be viewed as a "living document" in that it should be continuously evolving as the needs of Carroll County and its municipalities change. Periodically, mitigation items will be discussed utilizing social media to gather feedback.

## D: Updating the Plan

Although the plan must be updated every 5 years per federal requirements, Carroll County will perform an annual review to ensure that the county and its cities are doing everything possible to keep the citizens safe from all hazards. This review will indicate which action steps have been achieved and determine if further action steps are needed. Should a disaster occur, or funding come available, there will be a Hazard Mitigation Meeting to discuss the action steps and their priority.

When updating the plan, Carroll County will continue to use the same participants and team members to review the plan. Through the plan update process, the EMA Director shall identify projects which have been undertaken in the community to successfully mitigate hazards. These projects shall be noted within the document to indicate completion. During the plan update process, the Hazard Mitigation Plan Steering Committee should also reconvene to identify additional mitigation projects that need progress and/or to be included in the plan.

A list of possible mitigation goals, objectives and implementation steps was compiled with input from the entire steering committee.

## E. Further Incorporation of Existing Planning Mechanisms

In future updates, all the municipalities in Carroll County will work with the Carroll County Emergency Management Agency and the Department of Community Development to better cross-reference and enhance the plans and programs that are already in place. The Hazard Mitigation Plan Steering Committee will also use information from the plans, codes and programs listed below, when drafting the future mitigation strategies.

During the last Comprehensive Plan update process in 2023, mitigation was considered in developing the county's work program, and it will be considered in the 2028 update as well.

In the Safe Streets for All Plan that the county adopted in June 2025, the mitigation strategies of the Hazard Mitigation Plan were taken into consideration as far as their impact to roadway safety.

Table 5.1: Existing Program, Policy, or Technical Documents

| | *Bowdon* | *Bremen* | *Carrollton* | *Mount Zion* | *Roopville* | *Temple* | *Villa Rica* | *Whitesburg* | *Carroll County* |
|---|---|---|---|---|---|---|---|---|---|
| Comprehensive Plans | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Watershed Management Plans | | | | | | | ✓ | | ✓ |
| Regional Development Plans | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Downtown Redevelopment | ✓ | ✓ | ✓ | | | | ✓ | | |
| Airport Plans | | | | | | | | | ✓ |
| Long-range Recreation Plans | | | ✓ | | | | | | |
| Open Space Plans | | | ✓ | | | | | | ✓ |
| Building Codes | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Land Development Codes | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Zoning Ordinance | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ |
| Historic Preservation Ordinance | ✓ | ✓ | ✓ | | ✓ | | ✓ | | ✓ |
| Development/ Subdivision Guidelines | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Service Delivery Act | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Transportation Plans (Safe Streets for All) | | | ✓ | | | | | | ✓ |

# Chapter VI. Acknowledgments

The Carroll County Hazard Mitigation Plan Steering Committee has worked to ensure that the citizens of Carroll County are kept safe and aware of the potential hazards. The plan's mission is ultimately, "To minimize the losses of lives and property due to natural and man-made hazards in Carroll County." The goals, objectives and mitigation steps put forth in this plan would not have been possible without the contributions of representatives from all jurisdictions, as well as the numerous agencies, businesses and citizens throughout the county. All jurisdictions of Carroll County, including the County and the Cities of Bowdon, Bremen, Carrollton, Mount Zion, Roopville, Temple, Villa Rica and Whitesburg, were included in this process and played a valuable part in this update. Further, the Emergency Management Volunteers, the Local Emergency Planning Committee, regional partners and the public provided the steering committee with valuable insights and have helped in the development of a better Multi-Jurisdictional Hazard Mitigation Plan.

# Chapter VII. References

## A. Publications and Documents


The Disaster Mitigation Act of 2000

FEMA, *Local Mitigation Planning Handbook* (2025)

FEMA, *Local Mitigation Planning Policy Guide* (2025)

FEMA, *386 1-9* How To Guides

GEMA, *Getting Started*, How to Guide

Carroll County Local Emergency Operations Plan

Carroll County Hazard Mitigation Plan 2004, 2010, 2016, 2021

International Building Codes, 2012 Edition; 2018 with 2023 amendments


## B. Websites


www.fema.gov (FEMA)

www.ncei.noaa.gov/cdo-web/ (National Climate Data Center)

gema.georgia.gov (GEMA)

www.carrollcountyga.gov (Carroll County)

carrolltonga.com (City of Carrollton)

www.bowdon.net (City of Bowdon)

www.bremenga.gov/ (City of Bremen)

www.cityofmountzion.com (City of Mount Zion)

www.carroll-ga.org (Carroll County Chamber of Commerce)

www.templega.us (City of Temple)

www.villarica.org (City of Villa Rica)


## C. Other Resources


American Red Cross

Carroll County

Carroll County Chamber of Commerce

- Carroll County Emergency Management Agency
- City of Bowdon
- City of Bremen
- City of Carrollton
- City of Mount Zion
- City of Temple
- City of Roopville
- City of Villa Rica
- City of Whitesburg

Centers for Disease Control and Prevention

Federal Emergency Management Agency

Georgia Emergency Management Agency

Georgia Forestry

Georgia Safe Dams Programs

Georgia Department of Labor

Georgia Department of Natural Resources

National Climate Data Center

National Weather Service

U.S. Census Bureau

U.S. Department of Energy

# Hazard Mitigation Plan Appendix

Appendix A — Resolutions from Carroll County and Cities

Appendix B — Public Participation Strategy

- List of Meetings
- Hazard Mitigation Plan Steering Committee Meeting Notes and Sign-In Sheets
- Public Hearing Notes and Sign-In Sheets
- Press Releases
- Hazards Survey
- Social Media

Appendix C — Critical Facilities List

Appendix D — Hazard Risk Analyses: Supplement to the Carroll County Joint Hazard Mitigation Plan

Appendix E — County Economic and Transportation Reports

- 2014 Carroll Chamber of Commerce Community Profile
- Area Profile Georgia Department of Labor
- 2025 Safe Streets for All Safety Action Plan

Appendix F — Local Weather Data from National Climate Data Center, National Weather Service

Appendix G — Commodity Flow Study (2008)

Appendix H — Haz Mat Emergency Log (2015-2020)

Appendix I — STAPLEE Worksheets

Appendix J — Regional Outreach

Appendix K — Southern Wildfire Risk Assessment

Appendix L — 3A Worksheets