

## CHAPTER 1 – INTRODUCTION TO HAZARD MITIGATION

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Table 1.1: Overview of updates to Chapter 1

I. Purpose and need of the plan, authority & statement of problem	<ul style="list-style-type: none"><li>Sections I and II Presidential Declared Disasters summarized</li></ul>
II. Local methodology, brief description of plan update process, Participants in update process	<ul style="list-style-type: none"><li>Section VIII explained the people involved, and dates of plan update meetings 25 September, 2018 through 2021, as well as where publicized</li></ul>
III. Description of how each section of the original plan was reviewed and analyzed and whether it was revised	<ul style="list-style-type: none"><li>Section IX reflects a complete overhaul of the organization of the plan's update to present a logical and concise revision.</li></ul>
IV. Organization of the plan	<ul style="list-style-type: none"><li>See above</li></ul>
V. Local Hazard, Risk, and Vulnerability (HRV) summary, local mitigation goals and objectives	<ul style="list-style-type: none"><li>Section XI explains how the (now Chapter 3) Goals and actionable strategies planned to address the additional input of ideas and current evaluations</li></ul>
VI. Multi-Jurisdictional special considerations (HRV, goals, special needs)	<ul style="list-style-type: none"><li>Section XII identified the flood areas as spatial and somewhat consistent, and left wind and fire events to all regions</li></ul>
VII. Adoption & implementation	<ul style="list-style-type: none"><li>This did not require revision</li></ul>
VIII. Community Data (demographics, census, commerce, history, etc.)	<ul style="list-style-type: none"><li>Current Statistics entered</li></ul>

## Section I - Executive Summary:

The Federal Emergency Management Agency (FEMA) lists the major natural disaster declarations for the state of [Georgia](#). From March of 1993 (EM 3097) through October of 2018, there are these 10 events. The subsequent disaster (FEMA-3422-EM) on 09/01/2019 was not included as Bulloch County was not designated in the Hurricane Dorian event.

- In March of 1993 a Presidential Declaration (EM-3097-GA) was made for a winter snow storm. Public assistance A & B were approved for Bulloch County
- In Fall of 1994, (DR 1042-GA) involved both Private and Public Assistance A-G in Bulloch County for Heavy rains, flooding and high winds
- In July of 1997, (EM-3044-GA) involved both Individual Assistance and Public Assistance A & B were awarded for Bulloch County for Drought
- In March of 1998, (DR-1209-GA) was declared for Severe Storms, Tornadoes and Flooding bringing Individual Assistance to Bulloch County
- In September of 2005, (EM-3218-GA) gave Public Assistance B to Bulloch County for expenditures secondary to evacuations due to Hurricane Katrina
- In March of 2014, (DR-4165-GA) Public Assistance A-G was given to Bulloch County for Severe Winter Storm PAX. Reimbursements totaled \$199,546.54 from FEMA and the State of Georgia
- In October of 2016, (DR-4284-GA) both Individual and Public Assistance A-G were issued for damages resulting from Hurricane Matthew
- In January of 2017, (DR-4297-GA) Public Assistance was necessary for the damages resulting from Severe storms, straight-line winds, and flooding in Bulloch County
- In September of 2017, (DR-4338-GA) Public Assistance was awarded for damages incurred from Hurricane Irma
- In October of 2018, (DR-4400-GA), Public Assistance came to Bulloch County for recovery from damages incurred from Hurricane Michael

The cost of a major disaster to our community goes well beyond those damages that are directly sustained. Recovery from disasters requires resources to be diverted from other important public and private programs, and adversely affects the productivity of our workforce. The magnitudes of these losses are appropriately considered at local, rather than national levels. As the costs from disasters continue to rise, it becomes more and more important for pre-disaster steps and strategies to be taken in order to reduce the losses for our community. This strategy is known as mitigation and is a far superior choice than only being reactive. State figures estimate that for every dollar spent in mitigation efforts, six dollars have not been spent unnecessarily.

Building a more disaster resilient community is a program that presents challenges for Bulloch County. Reducing the effects of natural disasters makes economic sense, and it is good public policy because it seeks to protect the citizens and their future aspirations.



The initial Bulloch County Hazard Mitigation Plan was an aggregate of data from 01/01/1950 to 10/31/2004 during which a great many losses occurred. This Hazard Mitigation 2020 Plan Update is being developed in hopes of limiting these losses suffered by individuals, families, and businesses, and seeks to:

- 1) assess natural hazard risks
- 2) identify specific mitigation actions to help reduce identified risks
- 3) foster collaborative partnerships and positive community relationships between business owners, citizens, and the media
- 4) increase public awareness of, and support for, related initiatives.

The Hazard Mitigation (HMP) Plan was produced through a Georgia Emergency Management Agency (GEMA) PDM Planning Grant and the joint efforts of the Bulloch County Hazard Update Mitigation Committee. The integration of the current [Bulloch County Comprehensive Plan 2019 Update](#), the [2018 Community Wildfire Protection Plan](#), the county Building and Zoning Codes and [Ordinances](#), [2010 Flood Insurance Study](#), maps, ideas, and data from the [Georgia Hazard Mitigation Strategy 2019-2024](#), and Emergency Plans within the county and municipalities' Emergency Services Divisions, were all addressed when planning the action items to be implemented by the various agencies and individuals involved. No conflicts were identified and each will encompass the others' (for each update) to continue that level of compliance. This plan is required to maintain Bulloch County and its municipalities' eligibility for federal and state public assistance funds in the event of an emergency situation. This year 2020 plan update assures the continuity of those qualifications.

This Plan Update identifies activities that can be undertaken by both the public and the private sectors to reduce safety hazards, health hazards, and property damages caused by natural hazards, and outlines activities that can be implemented to reduce or eliminate losses from the natural hazards that could occur in Southeast Georgia. The following chapters and appendices to the plan cover hazard identification and analyze an assessment of the County's risk evaluation and vulnerability to natural hazards. The essence of the plan is contained in Chapters 2; Hazard History and Probability of recurrence, and Chapter 3; Mitigation Goals and Action Steps, which outlines activities which can be implemented to reduce exposure to natural hazards, or contribute to the County's resiliency.

The emphasis of the strategies section is on reducing losses from exposure to flooding events, high wind events, and wildfires. While these are not the only hazards within Bulloch County, they were identified as those hazards most likely to have a negative impact on the greatest number of citizens and the greatest land area.

Additionally, flooding is also the only natural hazard where the area of impact can be directly predicted given the rainfall amount or severe weather event, and the characteristics of the drainage basin. Thus, flood damage prevention has the most potential to reduce citizen vulnerability to natural hazards.



Bulloch County



## Section II - Community Profile:

Located in Southeast Georgia, Bulloch County was created February 8, 1796. Portions of Bulloch County were later added to Candler County. The County seat is Statesboro, founded in 1866. According to the year [2019 census estimate](#) figures, the population of Bulloch County is 79,608, and Statesboro is 32,954 (see population table below).

The County spans approximately [672.81](#) square miles. Much of the land area in the County is classified as agricultural land.

Populations:	Year <a href="#">2019</a> :
Bulloch County	79,866
Brooklet	1,815
Portal	692
Register	195
Statesboro	32,954

## Section III – Geography:

Bulloch County is located in the Coastal Plain in southeastern Georgia approximately 50 miles inland from the Atlantic Ocean along the 30° 25' north latitude. It is the state's seventh largest county in terms of land area, covering 672.81 square miles or about 437,700 acres - *- roughly one-half the size of Rhode Island*. The climate is very temperate, with an average

annual rainfall of 44 inches. There has been a cyclic series of drought followed by excessive rainfall in recent years.

There are five drainage basins in Bulloch County. These include: the Ogeechee River along the eastern boundary; Mill Creek in the northeast portion of the county; to the south, Black Creek, the largest drainage area; Lotts Creek on the western border, and Ten Mile Creek, which drains the remainder of the western section of the county. The numerous tributaries which feed these major creeks and river fit into a capillary-like drainage pattern.

Bulloch County also has over 1,000 ponds larger than two acres in size. Cypress Lake, the largest pond, covers approximately 600 acres.

The county's topography is flat to gently rolling with a number of swamps and wetlands, as well as the aforementioned ponds. There are no major escarpments, bluffs, or significant hills; therefore, views and vistas are limited to areas where the cover has been removed to provide farming areas. Elevations range from 40 feet above sea level along the Ogeechee River and Black Creek near the Bryan County line to more than 300 feet at several points in the northern part of the county near the Jenkins County line. Brooklet is located at 155 feet above sea level, while Register's elevation is about 195 feet and Portal's is 295 feet.

## **Section IV - Land Use**

The percent change in population for Bulloch County from April of 2010 to July 1<sup>st</sup> of 2019 had been expected to top 70,000, (about a 13.3% increase) and did. In Bulloch County, Statesboro will see continued growth as a regional trade/service center. Its location along I-16 near Savannah, the continuing growth of Georgia Southern University, and the public services sector will remain the local community's economic engine and major growth influences. Proper planning and land use management through hazard mitigation will provide the local communities with the ability to reduce damage caused by natural disasters, and recover more rapidly directly due to proper planning.

Both Statesboro and Hwy. #67 south to I-16 are expected to continue to be the focus and center of most development in the county. The new perimeter roads around the city are yet another magnet for such growth. Residential growth is expected to continue around the City of Statesboro, Georgia Southern University, and extend beyond the perimeter roads off all main roads leading to the city.

The (2 to 4 lanes, plus turn lanes, and deceleration lanes) widening of Highway #67 from Statesboro South to Interstate 16 (completed in early 2021), and the Georgia Department of Transportation allocating \$1,193,000 to the City of Statesboro for infrastructure improvements to South Main Street (Tillman Road to Brannen Street) known locally as The Blue Mile, are accommodations made specifically for this growth. (see Statesboro Herald TAD article in Appendix B.)

Strict adherence to Zoning regulations will tend to slow down the rapid growth of subdivisions in agricultural areas. There will continue to be limited residential growth near the Brooklet, Portal and Register areas.

The coordinated goals recommended by this plan recognize that management and control of land use in Bulloch County, Brooklet, Portal, Register and Statesboro are the critical keys to bringing about the desired hazard mitigation. The chosen goals and implementation actions are responsive to identified needs, and consistent with community desires as expressed in this plan update, and the Bulloch County Comprehensive Plan Update and others. (See section 1 of this chapter.)

The desired community of the future is detailed in the understanding of what it will take to accomplish those goals, and implement the actions. The specific goals, and action steps established for the county and the municipalities are detailed in this plan. These action steps are the true heart of the plan and should be utilized to guide governmental decision making on the location of development, and infrastructure, and in specific and careful wording, and enforcement of ordinances and zoning variances thereof.

## **Section V – Authority:**

In the past, federal legislation has provided funding for disaster relief, recovery, and some hazard mitigation planning. The Hazard Mitigation Plan (HMP) Program was authorized by the Robert T. Stafford Disaster Assistance and Emergency Relief Act (Stafford Act), 42 USC, as amended by the Disaster Mitigation Act of 2000. The Disaster Mitigation Act of 2000 (DMA 2000) is the latest legislation which sought to improve this planning process and was put into motion on October 10, 2000, when the President signed the Act (Public Law 106-390). The new legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. As such, this Act establishes a pre-disaster natural hazard mitigation program and new requirements for the national Hazard Mitigation Grant Program (HMGP). Section 322 of the Act specifically addresses continuous mitigation planning at the state and local levels.

The State and the communities must have a current, State and Federally approved mitigation plan update in place prior to receiving post-disaster HMGP funds. Local mitigation plan updates must demonstrate that their proposed mitigation measures are based on a sound planning process that account for the risk to, and the capabilities of, the individual communities. To implement the new DMA 2000 requirements, the Federal Emergency Management Agency (FEMA) prepared an Interim Final Rule, published in the Federal Register on February 26, 2002 at 44 CFR Parts 201 and 206, which establishes planning and funding criteria for states and local communities. The Rule identifies criteria for detailed Hazard, Risk, and Vulnerability (HRV) assessments.

Failure to meet the new criteria will render state and local governments ineligible for Stafford Assistance, and thus forfeit some types of emergency assistance and other funding streams.

## **Section VI - Statement of the Problem**

Since 1993, Bulloch County has experienced more than a dozen Disaster Declarations and numerous emergencies. A large county land area, coastal plains topography, poorly planned development, or a lack of disaster recovery resources can exacerbate our community's susceptibility to natural hazards thus lessening the county's resilience.

In order to develop a dynamic plan for managing natural hazard risk in Bulloch County we need to develop a model that educates the public regarding hazard mitigation, incorporates hazard mitigation into the development planning process, continues to update the hazard mitigation plan, and seeks funding for emerging needs of the anticipated growth.

## **Section VII - Purpose of the Plan**

The purpose of this plan is to fulfill Bulloch County's hazard mitigation plan update requirements, and facilitate implementation of hazard mitigation management activities through an action strategy. The Federal Emergency Management Agency (FEMA) defines hazard mitigation as any sustained action taken to reduce long-term risk to human life and property from natural hazards. An effective plan will improve the County's ability to deal with disasters and will document valuable local knowledge on the most efficient and effective ways to reduce losses. Keeping a plan dynamic lessens the impact of a disaster before it happens, and will provide the following benefits to the County:

- Reduced public and private damage costs.
- Reduced social, emotional, and economic disruption.
- Continuity for businesses located within the county.
- Better access to funding sources for mitigation projects.
- Improved ability to implement post-disaster recovery projects.
- Improved Public Awareness.

Mitigation is the ongoing effort to lessen negative effects from natural disasters on people and property. The Federal Emergency Management Agency has designated mitigation as the cornerstone of effective emergency management. Bulloch County Public Safety/Emergency Management Agency ([BCEMA](#)) also believes that the best

response to natural disaster is to prevent or diminish its impact before it occurs. Mitigation begins with local communities assessing their risks and repetitive problems and making a plan for creating solutions to these problems wherever possible, and reducing the vulnerability of its citizens and property to these inherent hazard risks. There are a variety of mitigation measures. They are organized under six general strategies:

- Structural control projects: e.g., wind design speed, levees, and bridge improvements
- Property protection: e.g., [Building Codes](#), relocation out of harm's way, retrofitting buildings, insurance, buffer zones
- Preventive: e.g., zoning, building codes, dynamic county plans, and Storm Readiness
- Emergency services: e.g., warning, sandbagging, and evacuation assistance
- Natural resource protection: e.g., [Greenway Project Master Plan](#) and wetlands protection, urban [forestry programs](#)
- Public information: e.g., outreach projects, technical assistance to property owners

Through the application of mitigation technologies and practices, we can lessen the negative impact on County and municipal citizens from natural disasters. Mitigation measures can help reduce disaster losses and suffering so that there is less demand for money and resources in the aftermath. The end result of successful mitigation is a reduction in the cost of natural disaster response and recovery to each individual Bulloch County taxpayer; and also in the losses suffered by each homeowner and business owner in the event of a natural disaster.

## **Section VIII - Planning Methodology**

Development of the Bulloch County Hazard Mitigation Plan Update was a concerted effort on the part of Bulloch County and the City of Statesboro, and Towns of Brooklet, Portal, and Register. By proclamation, the Bulloch County Board of Commissioners approved the scope of work for the development of the plan:

Formation of the Bulloch County Hazard Mitigation 2020 Plan Update Committee, including electing Committee Officers, comprised of -  
Mr. Ted Wynn – Bulloch County Public Safety/Emergency Management Agency Director and Chair of the Bulloch County Hazard Mitigation Plan Update Committee, Vice Chair; Lee Eckles (Public Safety/EMA), and the GEMA Hazard Mitigation Planners; Shelby Meyers and Alan Sloan  
Participation included the following individuals collectively: Ted Wynn, Lee Eckles (Public Safety), Kelly Barnard (911), County Commissioner Jappy Springer, Paul Conner (BC Board of Commissioners), Casey Brown (BC GIS), Jason Boyles (City of Statesboro)



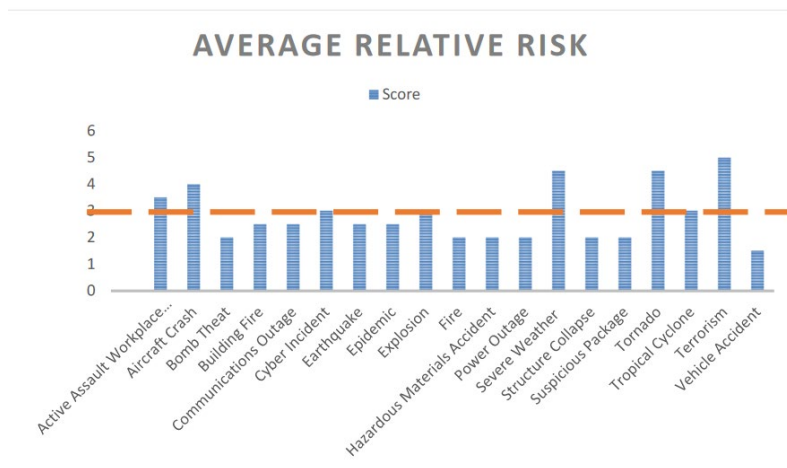
Public Works/Engineer), Barbara Rushing (Mayor of Register), Mike Arrieta (Portal Clerk), Jim Stanoff (Seat 3 Councilman Brooklet), Angela Wirth (Brooklet Planning and Zoning Admin.), Sheriff Bill Black (BCSO), Doug Vickers (Director Bulloch EMS, Hermon (Dink) Butler (Bulloch County Public Works), Christopher Ivey (Bulloch County FD), Tammy Mascarello (East Georgia Regional Medical Center), Tod Mashburn (BC BOE Director of School Safety), Charles Wilson (Bulloch County Schools), Diane Hardee (Bulloch County DFCS), Kelly Nilsson (Georgia Southern University) Stan York (Ogeechee Technical College), Collin Hopf (GEMA), Doug Chassereau (GFC),

This represents Directors/Chiefs/Mayors/Chairpersons/EMS and other staff from Bulloch County, City of Statesboro, and all three town governments, Fire Departments, Police and Sheriff's office, various private businesses, two of the three local colleges, The Georgia Board of Health, Georgia Forestry Commission, Georgia Emergency Management Agency/Department of Homeland Security, and the Division of Children and Family Services.

Invitations to attend the Kick-off Meeting were extended via e-mail on 09/17/2018 to all Mayors and other department heads of all Bulloch County jurisdictions, representatives of local and neighboring utilities, Red Cross, East Georgia Regional Hospital, Health Management Agencies, Department of Public Health, all Police Departments within the County as well as Sheriff Neil Brown, all Fire Departments, all local media contacts including the WTOC reporter Dal Cannady, the Bulloch County Colleges, Georgia State Patrol, Georgia Forestry, Fire Task Force, Bulloch County School Board, and The United Way of Georgia. The planners for Bryan County also extended an invitation verbally to Bryan County EMA personnel.

Bulloch County being a smaller type community, attendees knowledgeable of the other County and City plans' ideas and requirements were well known, and no conflict was voiced.

GSU utilized a list of known hazards and their planning committee conducted a hazard and vulnerability analysis (HVA). The following graphic illustrates the results of that analysis.




A common scoring process and tool was used, and the data was included in a Threat, Hazard Identification and Capability Assessment (THIRA). The relative risk shown in



bars are based on the average of individual analysis scores. The dashed line establishes a baseline for prioritizing hazards of most concern based on committee consensus. Two of the top five threats were Natural Hazards. The Bulloch County Hazard Mitigation Plan Update 2020 committee invited several of the University staff to meet with them to address their concerns.

In October of 2019, a separate meeting to add, adjust, and verify Critical Facilities within Georgia Southern University (GSU) Campus and solicit actionable mitigation items was held. This was important to include as the college has an economic impact of more than \$1 billion and a total enrollment over 26,000. Present were Kelly Nilsson (GSU Director of Public Safety), Ron Stalnaker (Chief Information Officer), Sam Robinson (Asst. Director of Telecommunications), Stephen L Frawley (Superintendent Facilities), Bryan Rountree (Facilities), Matthew Shingler (Director of Facilities), Ann Hall (IT Services), Tim Stillwell (Associate Director of Construction), and Tyler Brown (Production Chef). Several (5) informal meetings occurred to decide upon hazards to be included, amass Hazard, Risk and Vulnerability (HRV) assessment data, and formulate goals and mitigation strategies based on collected assessments.

In April of 2019, private meetings were held with city and town Mayors, Councilmen and city Managers; Jason Boyles (Statesboro City Manager), Randy Newman (Brooklet), Barbara Rushing (Mayor of Register), Jim Stanoff (Brooklet Councilman), and Mike Arrieta (Portal Court Clerk) and they were very forthcoming in ideas regarding improvements to infrastructure, need for funding, and updating critical facility data.

The local Emergency Management Agency Director, Ted Wynn, served as Chair of the Bulloch County Hazard Mitigation 2020 Plan Update Committee and was responsible for daily oversight, planning, and coordination of plan development. A public meeting was held in the Emergency Operation Center (EOC) on September 25, 2018 for local and state representatives to introduce Bulloch County residents to the Hazard Mitigation plan update process, and to address any questions or concerns within the community relative to natural hazards. (see  invitation, Agenda, Sign-in Sheets etc. in Appendix E)

The Bulloch County Hazard Mitigation 2020 Plan Update was developed with extensive research. Public input was considered critical to the success of the plan, and was solicited by invitation for the initial Kick-Off Meeting (see Appendix E) and per meetings, e-mail, and phone regularly thereafter. These meetings spanned from 06/28/2018 through January of 2020.

## **Section IX - Plan Organization**

The Bulloch County Hazard Mitigation Plan 2020 Update is organized in a fashion to assist local government officials, county residents, public and private sector organizations, and any other interested parties in participating in, and planning for natural hazards. The Hazard Mitigation Plan Update contains (Worksheets 3a): Hazard,

Risk and Vulnerability (HRV) assessments (Appendix A-Data), sections on natural hazards that typically occur within the county, and a section identifying specific mitigation goals, and associated courses of action. Finally, a framework for plan implementation and maintenance is presented. These were evaluated with current datasets, condensed, and revised to reflect seven current existing natural hazards identifiable in Bulloch County and its municipalities.

The plan describes those hazards that are considered to have the highest probability of occurrence in relation to their historical background, vulnerability, potential loss, and frequency of occurrence. The plan update also identifies and prioritizes hazard mitigation opportunities in each vulnerable area based on input from Plan Update Committee Members, data from the original plan, numerous government agencies, local businesses, and Bulloch County citizenry both in meetings and direct discussions. For other jurisdictional representation, see Sign-in Sheets, Agendas, and Minutes in Appendix E

The public was able to view the draft plan on the county website and was asked for their comments and suggestions. They were also encouraged to attend future plan updates for continuity of mitigation projects going forward.

Each destructive force (Water, Wind, and Fire) was analyzed for spatial occurrences, and frequency, and changes were made to an action plan wherever members deemed relevant, instead of the prior format of addressing each of the seven hazards individually, & the redundancies that resulted from that approach. Proudly, most of the changes were the deletion of completed action steps.

## **Section X - Hazard, Risk and Vulnerability Assessment**

A local risk assessment was accomplished by compiling data on the hazards that have, and could again, affect Bulloch County and its residents, profiling these past hazard events, and then assessing the community's vulnerability to these hazards. The Bulloch County Hazard Mitigation Plan Update Committee accomplished the current risk assessment by conducting the following steps:

- (1) Hazard Identification
- (2) Hazard Event Profiling
- (3) Vulnerability Assessment
- (4) Potential Loss Estimates

*(1) Hazard Identification:* Maps and historical data sources were studied and reviewed in order to identify the geographic extent, intensity, and probability of occurrence for various hazard events.

The Bulloch County Hazard Mitigation 2020 Plan Update addresses the following grouped hazards considered by committee members to pose the most threat to the residents, property and economy of Bulloch County:

Damages from Water:

- Drought
- Flooding

Damages from Wind:

- Coastal Storms
- Severe winter storms
- Tornadoes
- Thunderstorms/ High Wind Events

Damages from Wildfires:

Wildfires, Wildland fires, and Urban Interface fires

*(2) Hazard Event Profiling:* Past hazard event data were collected through a comprehensive process that utilized input from Plan Update Committee members, research on past disaster declarations in the County, information provided from the National Climatic Data Center (NCDC), and the National Weather Service, a review of current Flood Insurance Rate Maps (FIRM), internet and newspaper data searches, interviews with local residents, interviews with GEMA, and Federal, state (the Georgia Mitigation Information System website,) and local agencies.

The committee analyzed the causes and characteristics of each hazard, how the hazard had affected Bulloch County in the past, and what part of Bulloch County's population and infrastructure had historically been vulnerable to each specific hazard.

*(3) Vulnerability Assessment:* The asset inventory component of the HRV assessment data included the inclusion into a database that provides county infrastructure and critical facilities data as well as structure dollar values for loss estimates. This critical facilities database collected data which includes structure location, value, construction details, was there a vulnerable population present, and facility type. This information was also entered into the State of Georgia's Mitigation Information System.

New critical facilities were entered into the system as well as updating all of the structure values of the critical facilities already listed therein.

A critical facility, for the purposes of this plan, is defined as a facility in either the public or private sector that provides essential products and services to the general public, is otherwise necessary to preserve the welfare and quality of life in the County, or fulfills

important public safety, emergency response and/or disaster recovery functions. Bulloch County critical facilities are listed in Appendix A.

A community's vulnerability can be described in terms of the assets located within the extent of a hazard event and the potential losses if such an event occurs. Therefore, the vulnerability assessment was accomplished by comparing each previously identified hazard with the inventory of all structures countywide and affected critical facilities and population exposed to each hazard. GEMA Worksheet #3a, provided in Appendix A, outlines this step of the HRV assessment.

Assessing vulnerability, for the purposes of this plan, also included a review of the Bulloch County 2040 Comprehensive Plan, and the City of Statesboro Plans to assess general land use patterns and development trends. (See these plans in Appendix B)

*(4) Potential Loss Estimates:* Using the best available data and mathematical modeling, estimated damages and financial losses likely to be sustained in a geographic area during a hazard event were calculated. Describing vulnerability in terms of dollar losses provides the county with a common framework in which to measure the effects of hazards on critical facilities.

The number and type of structures in the County have been determined for potential loss estimations. The main source of this information was the County Tax Assessor's Office.

A good example of a loss estimate for a spatial hazard is as follows:

A flooding event could potentially impact ~ 40% of the gross digest. These are sub-categorized as: Residential \$2,433,756,998., Agricultural losses - \$34,569,988., Commercial - \$883,106,171., Industrial - \$82,603,491., for Utilities - \$167,328,240., Religious & Non-profit - \$62,314,224., Governmental - \$42,071,953., & Educational properties at \$837,255,858. with commercial and industrial properties being the least hardest hit.

Additionally, an unknown percentage of the total raw/forage [2019 Farm Gate Value](#): \$137,174,589; as well as an unknown monetary percentage of one the top commodities (timber product output) as over 70% of the county land is forested (based upon figures from 2019 CWPP) and Georgia as a whole is consistently ranked the top forestry state in the nation.

As seen in the Georgia Mitigation Information System (GMIS) reports (in Appendix Aa); Countywide, flood could incur \$1,353,100. in losses involving those essential critical facilities having a flood hazard score greater than zero.

The farms in the county build up the low and affected areas as their finances allow.

## **Section XI - Mitigation Goals & Action Steps**

The Bulloch County Hazard Mitigation Plan Update Committee used the results of the Hazard, Risk and Vulnerability assessment to identify and prioritize appropriate

mitigation goals and actions. The Plan Update Committee identified mitigation strategies they felt would benefit the community, and deleted those which had been implemented in the interim.

Development of these strategies began in a formal committee meeting, along with data and input from GEMA, and GFC. Past occurrences of disasters and historical trend data aided committee members in assigning priorities.

After ensuring that all interested persons had been given ample opportunity to contribute to strategy development, mitigation action steps were next reviewed for priority status by committee members.

## **Section XII – Multi-Jurisdictional Considerations**

The City of Statesboro, Town of Brooklet, Town of Portal, Town of Register and Bulloch County were active participants in the plan update process. Mitigation goals, and action steps identified in this plan for wind and fire damage are applicable to all municipalities and the County areas, unless where specifically noted otherwise.

In flood especially, action items with an emphasis on higher spatial frequency of occurrence and extent, were adapted for those areas (example, Portal has no flood areas, and Brooklet built a replacement City Hall/Police HQ at a higher elevation location).

## **Section XIII - Plan Implementation & Maintenance**

To implement the Bulloch County Hazard Mitigation Plan Update, the committee has chosen an Implementation Team devised of the EMA Director, the County Commission Chair and the Mayor or Counsel of each municipality to assign tasks appropriately and ensure the ongoing operation of the Plan Update through branches of city and county government as was advised in the original plan of 2006.

Bulloch County currently utilizes comprehensive land use planning and building codes to guide and control development within the county. These existing mechanisms will have hazard mitigation strategies integrated into their guidance. Local authorities responsible for the Local Emergency Operations Plan (LEOP) and other County and City of Statesboro (see Appendix B and C) plans, as applicable to multi-jurisdictional plans, will utilize guidance from this Hazard Mitigation Plan Update.

Mitigation action items also include strong educational outreach strategies (Newspaper, school presentations, Social media presences) that were identified by the plan update committee, and are to be implemented throughout.

The Bulloch County Hazard Mitigation Plan Update Committee had developed a method to ensure that regular review and update of the Hazard Mitigation Plan occur. The Emergency Management Agency Director will assemble a committee when deemed

necessary (e.g., when other involved Plans are updated), and after any severe hazard event. Committee members will be responsible for monitoring and evaluating the progress of the mitigation strategies in the Plan. The committee will review each goal and action step to determine relevance to changing situations in the County, as well as changes in state and federal policy, and to ensure that goals are addressing current and expected conditions. The committee will also review the risk assessment portion of the Plan Update to determine if this information should be modified.

Bulloch County is dedicated to involving the public directly in the continual reshaping and updating of the Hazard Mitigation Plan. A dynamic website, Twitter, and Facebook presence is now being utilized to extend that reach.

Copies of the Plan/Plan Update will be available at the Bulloch County Public Library and at the local EMA office. The existence and location of these copies will be publicized in the local newspaper. All comments and questions will be directed to the local Public Safety/EMA office for follow-up. The public County Commission meeting to evaluate the Plan Update will provide the citizenry a forum for which they can express concerns, opinions, or ideas about the Plan Update as seen on the Bulloch County website.

#### **Section XIV – Adoption by Local Government**

It is the intent of the Bulloch County Board of Commissioners to submit this plan update to Georgia Emergency Management Agency (GEMA) and Federal Emergency Management Agency (FEMA) Region IV for approval. Having approval by GEMA and subsequently FEMA Region IV, the Bulloch County Board of Commissioners and the governing bodies for the City of Statesboro, Town of Brooklet, Town of Portal and Town of Register will formally adopt the Bulloch County Hazard Mitigation 2020 Plan Update and submit their present resolutions to be included into the plan update.

Section I, 2-15	<b><u>Water Hazards:</u></b>	<b>Drought, Flash Floods, Ice Storms, and Tropical Storms</b>
Section II, 15-19	<b><u>Wind Hazards:</u></b>	<b>High Winds/Thunderstorm Winds, Tornadoes</b>
Section III, 20-22	<b><u>Wildfire Hazard:</u></b>	<b>Wildfires</b>

A brief summary of the changes which have been made:

Chapter 2 Section	Updates to section:
<b>I. Water: Drought, Flash Floods, Ice Storms, &amp; damage secondary to Hurricanes and Tropical Storms</b>	Added/Updated 10- & 20-year Storm Events and their frequency Added new, and eliminated outdated Bulloch County critical facilities and revised their values
<b>II. Wind: High Winds/Thunderstorm Winds, Tornadoes</b>	Added/Updated 10- & 20-year Storm Events and their frequency Added new and eliminated outdated Bulloch County critical facilities and revised their values
<b>III Wildfire: Wildland Fire, &amp; Urban Wildland Interface Fire</b>	Added/Updated 10- & 20-year Storm Events and their frequency Added new and eliminated outdated Bulloch County critical facilities and revised their values

The Bulloch County Hazard Mitigation Plan (HMP) Update 2020 Committee initially identified all natural hazards which could potentially enter Bulloch County. This list was then refined to include those hazards most likely to occur and have a negative impact on the county through Worksheet 1. (in Appendix A)

Hail: as there are not many things one could choose as mitigating defense against hail; it was decided that none were thought to be practical given the scope of the hazard, so Hail was removed from this plan update.

The 2020 plan update executive committee, in a meeting on June 26<sup>th</sup>, 2019 determined that the seven remaining hazards which posed a direct and measurable threat to Bulloch County could be consolidated to three sections by the detrimental force(s) of nature contributing to the final damages we attempt to mitigate here.

**Note** All on-line data provided through the GEMA On-line Georgia Mitigation Information System [Critical Facility Tools](#) are provided in Appendix A. Property values were updated to reflect the US inflation rate increase from February, 2014 to February of 2019 as seen from an online inflation rate calculator, and data from tax documents from each of the jurisdictions, as well as data from Georgia Southern University Information Technology (IT).

The 2015 Update Natural Hazards listed can be found as: “Natural Hazard events in Bulloch County from the 2015 Update” and will be found in Appendix A – Data.



## **Section I – *Water: Drought, Flash Floods, & damage secondary to Hurricanes and Tropical Storms, Severe Winter Storms/Ice Storms***

### **A. Hazard Identification**

The HMP 2020 Update Committee compiled data from National Climatic Data Center (NCDC), Georgia Department of Natural Resources (DNR), and the Georgia Forestry Commission in researching drought conditions for Bulloch County. Not since 7/19/1977, has there been an Emergency Declaration ([EM-3044](#)) for drought in Georgia per Federal Emergency Management Agency (FEMA), but in September of 2019 Bulloch County was looking at a [10 inch deficit in rainfall](#).

By definition, a drought is a protracted lack of rain or periods of abnormally dry weather sufficiently prolonged for the lack of water to cause a serious hydrologic imbalance in the affected area. Drought conditions affect the cultivation of crops as well as a water availability and water quality. Drought is also a key factor in wildfire development. Drought conditions make natural fuels (grass, brush, trees, and dead vegetation) more flammable.

More than 84 percent of Bulloch County is considered Agricultural-Forestry. In a county with considerable rural acreage, natural water sources from rainfall amounts affect the many residential and commercial property wells, and are vital to efficient firefighting on the more isolated properties.

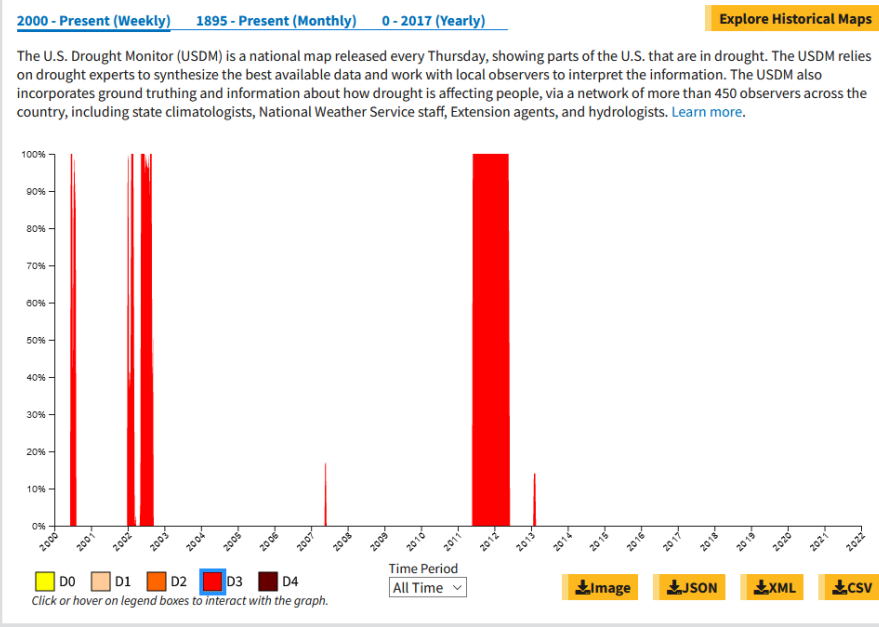
### **B. Hazard Profile**

Drought is a condition of climatic dryness that is severe enough to reduce soil moisture and water levels below the minimum necessary for sustaining plant, animal, and economic systems. Unlike some hazard events such as floods, drought has neither a clearly defined onset, nor spatial restriction within Bulloch County. It can, however; be a contributing factor for wildfire (which is addressed in Section III of this chapter).

Looking at the Georgia 20 year NCDC record from 2000 to 2020, 16 events of drought occurred from 9/1/2000 through 9/1/2002, and the 6 events listed below, this gives the county a 80% chance of a less than extreme drought event in any given year. This is considerably higher than the (100 year) 37% chance seen in the last update. The discrepancy between number of occurrences as seen by NCDC, and those much fewer events listed in the US Drought Monitor as seen below, is attributed to the difference in the minimum criteria to be met by each.

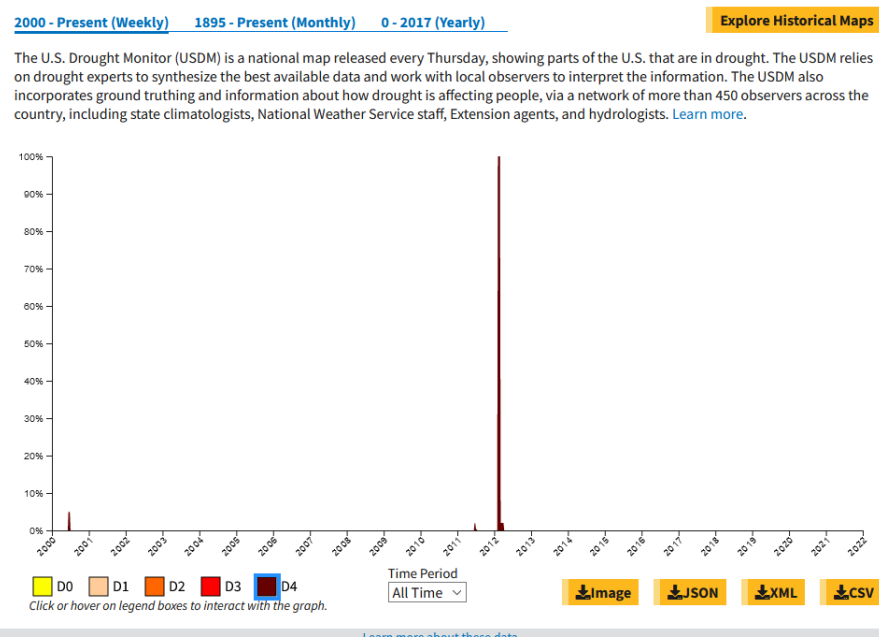
Records kept with US Drought Monitor have events of severe or extreme drought occurring June of 2000 through November of 2000, June of 2001, Nov. 2001 – Nov 2002, May of 2007, June 2011 – June 2012, and Dec. of 2012 – Feb of 2013 (6 events in an almost 13 year period) which demonstrates that an attempt to quantify this hazard would be futile, as county, state, and federal data do not agree, nor do the parameters for determining drought events, and no drought events have occurred since the last plan update. (See graphic below <https://www.drought.gov/states/Georgia/county/Bulloch>)

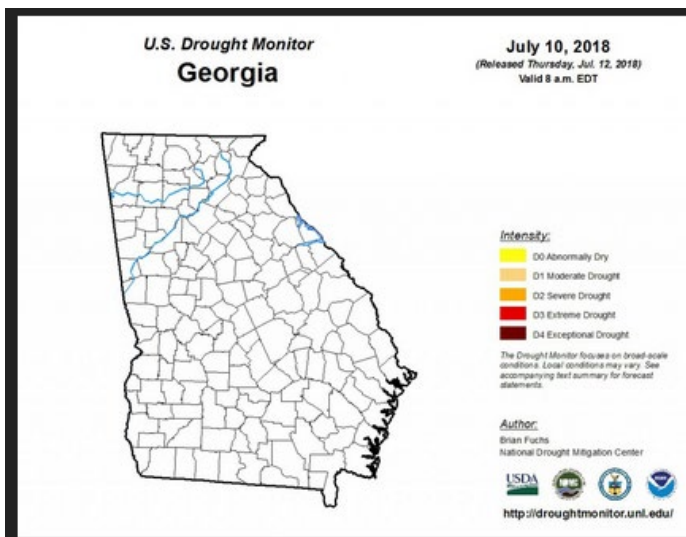
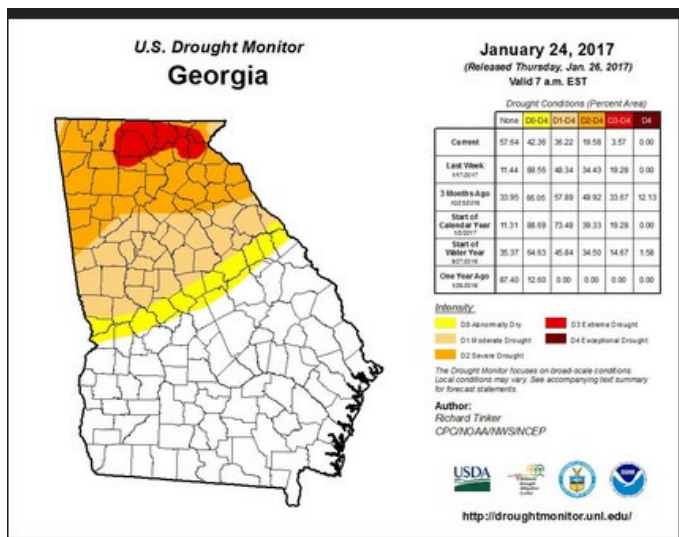
Historical Conditions for Bulloch County



Red D3, is Extreme Drought while Black D4 is Exceptional Drought and neither appear after 2013

Historical Conditions for Bulloch County





US Drought Monitor can be found [here](http://droughtmonitor.unl.edu/) for any given day.

### C. Assets Exposed to Hazard

Drought conditions typically pose little or no threat to structures and is not spatially defined; however, fires can occur as a result of dry weather. The Bulloch County Hazard Mitigation Plan Update Committee concluded that drought, in itself, presents no credible threat to critical facilities.

Wildfire, as a result of drought, was considered, and the Committee determined that this hazard does bear a significant threat to the community and will be addressed in Section III.

### D. Estimates of Potential Losses

According to the Bulloch County tax assessor data, there are 79,866 residents of Bulloch County. Many of Bulloch County residents rely upon farming income and could see negative financial effects from drought with regard to their agriculture assets. The Farm Gate Value of 2017 for Bulloch County (report can be found in Appendix C) is \$137.17M. Crops, timber losses, reduced yields or higher costs for livestock, water restrictions and reduced tourism now generated at the new Agricultural Complex are all potentially at risk.

### E. Land Use & Development Trends

The County population and number of new structures continue to grow as described in Chapter 1, Section IV.

Bulloch County, City of Statesboro, and the Towns of Brooklet, Portal, and Register do not, at this time, have land use or development trends limited to drought. The vulnerability for these jurisdictions has not changed with regard to water availability, and the codes for retention ponds are enforced, which lowers the communities' risk of drought losses.

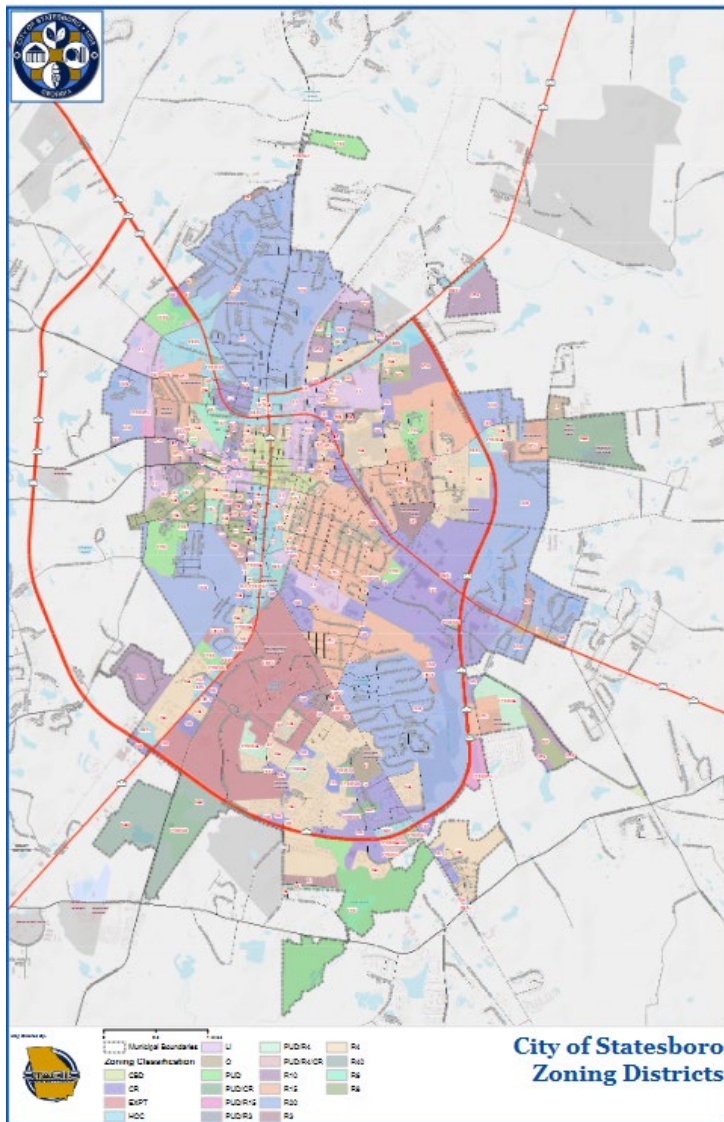
As the #67 highway widening has just occurred, the County can expect to see future growth at or near Highway #67 between the Statesboro southern city limits and South to Interstate #16.

## F. Multi-Jurisdictional Concerns

All of Bulloch County could potentially be affected by drought conditions, particularly as concerns the agriculture, livestock, and forestry communities and the inherent threat of wildfire. As a result, any mitigation steps taken related to drought should be undertaken on a countywide basis and include the City of Statesboro, Town of Brooklet, Town of Portal and Town of Register. The cities of Statesboro, Brooklet, Portal, Register and some adjacent areas of the county are serviced by pressurized water systems with hydrants available.

Streams studied (Little Lotts Creek, Lotts Creek, Lower Black Creek, Mill Creek, and all tributaries of these Creeks), assist in providing some relief in times of drought especially for the city of Statesboro and areas of unincorporated Bulloch County.

The City of Statesboro as seen here, is mostly (5,540) residential properties, with 1510 commercial land use



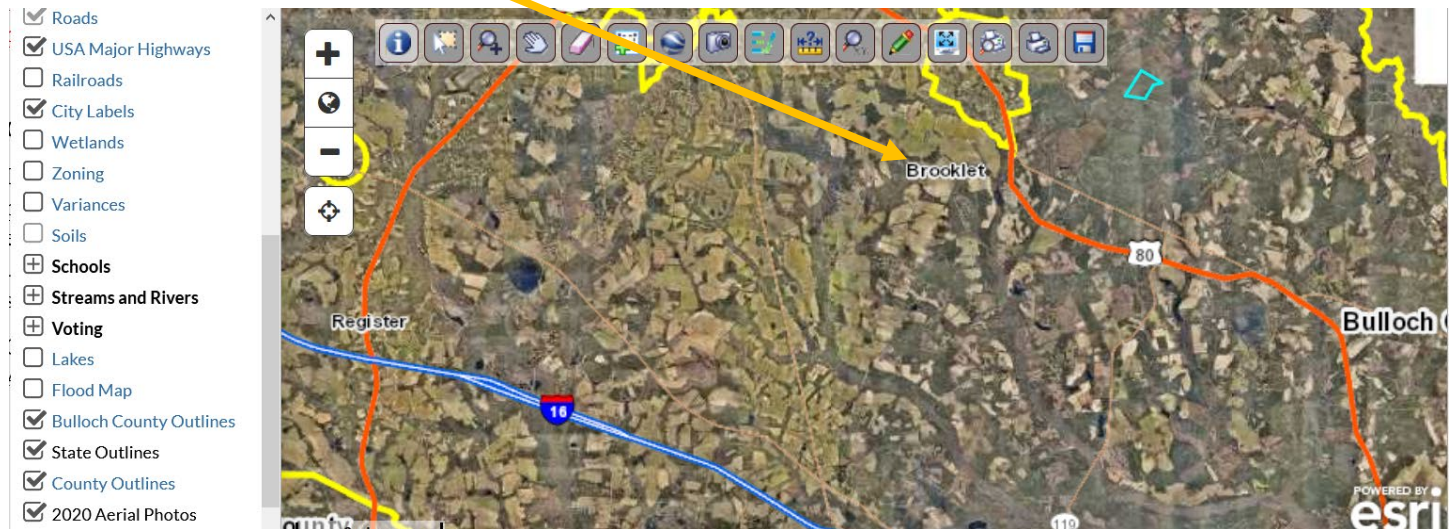
parcels.

nearly inconsequential except for those outlying farming land areas.

The deleterious drought effects would be



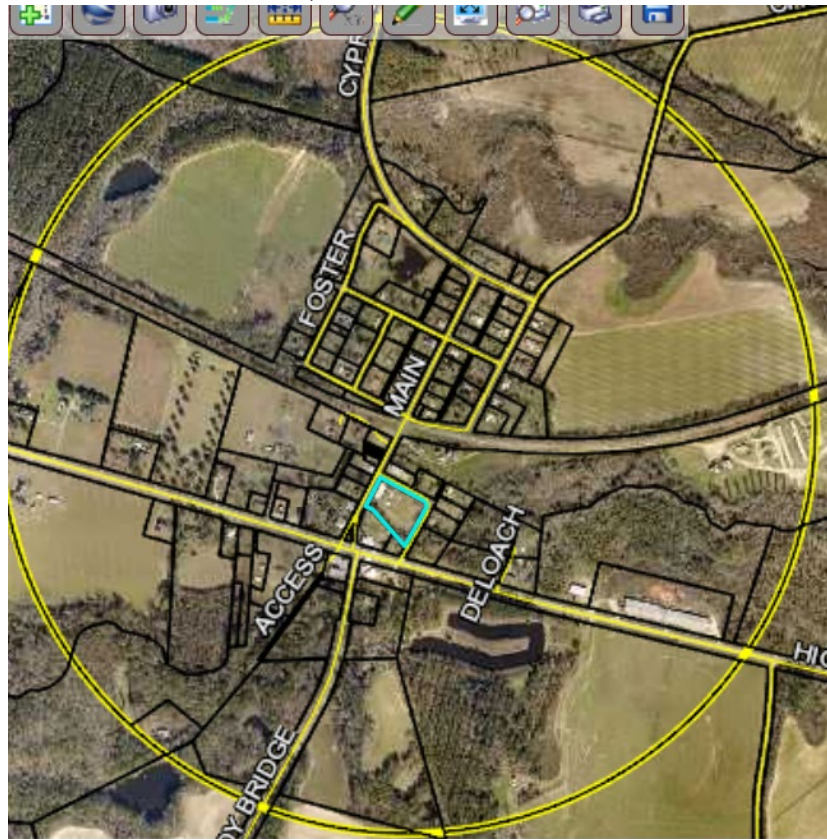
As seen here the Town of Brooklet is primarily farm and timber properties interspersed with 669 residential properties. Drought would indeed be a concern for its financial stability.



The town of Portal would have only minimal losses from drought with 269 residential properties and no agricultural property concerns.



The 195 residential town of Register has 89 structures within it, 70 of which are homes. For size reference, the



aqua outlined area is a 2-acre property.

They list only 11 commercial properties and no agricultural properties are listed. The town government supplies their water. Bulloch County has a total area of 689 square miles. Many of its residents live in unincorporated areas.

## G. Hazard Summary

Drought is a threatening hazard of nature common to virtually all climates. It originates from a deficiency of precipitation over an extended period of time, usually a season or more. Ample water supply is critical to the economic condition of Bulloch County. During droughts, crops do not mature, wildlife and livestock are undernourished, firefighting water reserves diminish, and unemployment increases. The economic losses sustained during Bulloch County's protracted droughts give emphasis to our vulnerability to this natural hazard.

Chapter 3 provides the Bulloch County Hazard Mitigation Plan Update Committee's Drought related Goals, and Action steps in both the steps common to all events section, as well as water hazards section.

## SECTION I – *WATER* continued:

### A. Flood Hazard Identification

Bulloch County is located in a known floodplain. Flooding from major hazardous events has occurred many times in the past 200 years. Flash Flooding occurs during prolonged rainfall or intense rainfall over a short period of time; rivers overflow their banks; severe thunderstorms may bring heavy rain in the spring and

summer; coastal storms and the secondary inland damages from hurricanes are a constant threat in the summer and fall months.

A flood is a natural event for rivers and streams. Excess water from rainfall or storm surge accumulates and overflows onto the banks and adjacent floodplains. Floodplains are lowlands, adjacent to rivers and oceans that are subject to recurring floods. The Bulloch County Hazard Mitigation Plan Update Committee examined historical data from the [National Climatic Data Center](#), past newspaper articles, the [State of Georgia Hazard Mitigation Strategy](#), historical facts from Bulloch County Citizens, and from [FEMA presidentially declared disasters](#) during its research on the effects of flooding in Bulloch County.

Nature is not the only cause of flooding. New construction and paving alter land's ability to drain properly. As a result, runoff is increased two to six times over what would occur on natural terrain. Areas that were initially zoned as low-risk can quickly become high-risk as urban development alters topography.

## **B. Hazard Profile**

Within Bulloch County, flooding has caused significant damage on several occasions. Presidential Declarations for recent flood events include: From October 1, 1994 to November 16, 1994, the Federally Declared flood disaster (DR 1042) where Bulloch, together with 12 neighboring counties, received disaster funding for flooding along with tornadoes and high winds, March 11, 1998 (DR1209), when individual assistance was given within Bulloch County as one of 119 Georgia Counties with flood damages due to flooding from severe storms which included tornadoes. [The NCDC Bulloch County database](#) lists flooding in June of 2004, March and June of 2005, a flash flood on December 14, 2009, on [8/6/2013 a flash flood](#) which incurred approximately \$10,000 in property damage, and 13 days later, Statesboro had [a flash flood event](#) with approximately \$50,000 in property damage, with another state declared emergency declaration County flood event in [March of 2020](#). (the next section B, for hurricane, lists hazard events since these occurred)

Most flooding issues occur in the eastern portion of the county and are attributable to the Ogeechee River rising over the banks when heavy rainfall occurs in the central portion of Georgia. Problems occur in the unincorporated area along the numerous unpaved roads. This flooding occurs, on average, every three years. Problems include road erosion, dam failures, and culvert damage, as well as power outages from uprooted trees. The undermining of the roads from the uncommon amount of water has historically done an immeasurable amount of weakening of the county paved roads.

Chapter I Geography section thoroughly describes the 5 drainage basins and topography within Bulloch County.

Approximately 46 percent of the land area in Bulloch County falls within a 100-year flood zone (see maps to follow). No Critical Facilities exist within the 100-year flood zone for Brooklet, Portal, or Register. The Town of Portal contains no flood zone areas, Brooklet contains ~ 8% percent flood zone areas, Statesboro contains ~ 20% percent flood zone areas and Register contains approximately 18% flood zone areas. The Geographic Information System (GIS) software for Bulloch County Board of Tax Assessors department provided this data. Speaking with town officials provided additional confirmation.

The [National Weather Service](#) lists the occurrences seen below measured on the Ogeechee River near the Screven County border.



### Historic Crests

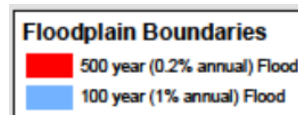
- (1) 13.92 ft on 03/23/2003
- (2) 13.88 ft on 02/22/2020
- (3) 12.99 ft on 03/08/2020
- (4) 12.70 ft on 07/29/2003
- (5) 12.50 ft on 03/31/2005
- (6) 12.43 ft on 02/13/2020
- (7) 12.41 ft on 04/06/2009
- (8) 12.33 ft on 04/13/2003
- (9) 12.28 ft on 12/31/2015
- (10) 11.83 ft on 07/13/2013
- (11) 11.62 ft on 12/27/2009
- (12) 11.62 ft on 02/28/2013
- (13) 11.41 ft on 02/02/2010
- (14) 11.40 ft on 12/27/2019
- (15) 11.32 ft on 04/08/2016
- (16) 11.24 ft on 04/28/2020
- (17) 11.13 ft on 12/23/2019
- (18) 11.06 ft on 05/25/2003
- (19) 11.02 ft on 02/08/2016

### Flood Categories (in feet)

Major Flood Stage:	23
Moderate Flood Stage:	18
Flood Stage:	13
Action Stage:	12

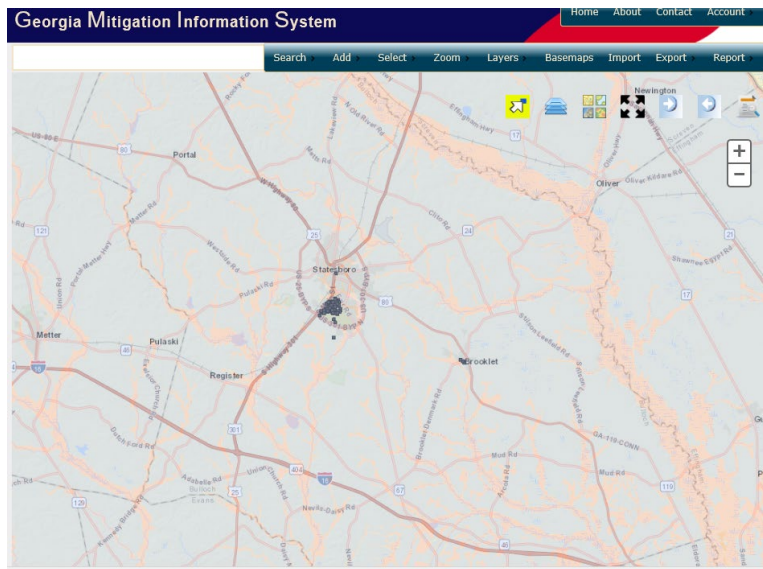
The Bulloch County Flood Insurance Study (found in Appendix C) addresses the five drainage basins described in Section III of Chapter 1.

As seen in the Hazard Frequency Table in Appendix A, the county has had 9 flood events in the past 10 years, and 17 events within the past 20 years. This indicates that, in an average year, there is an 85% chance of a flood event occurring.

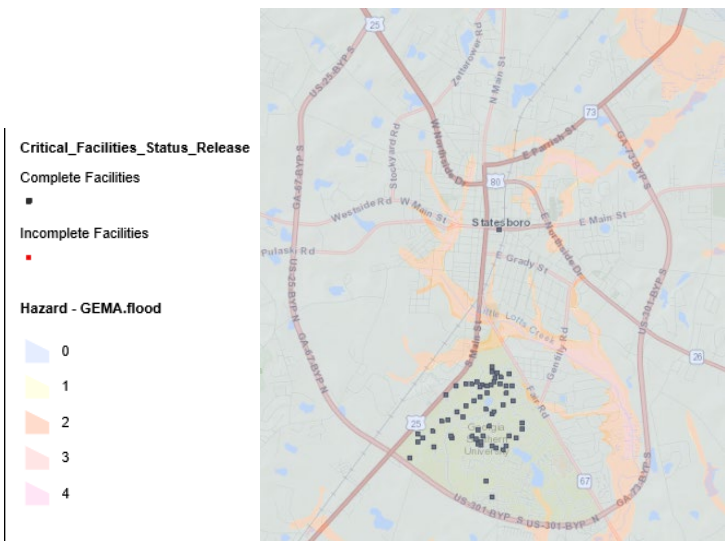


per FEMA

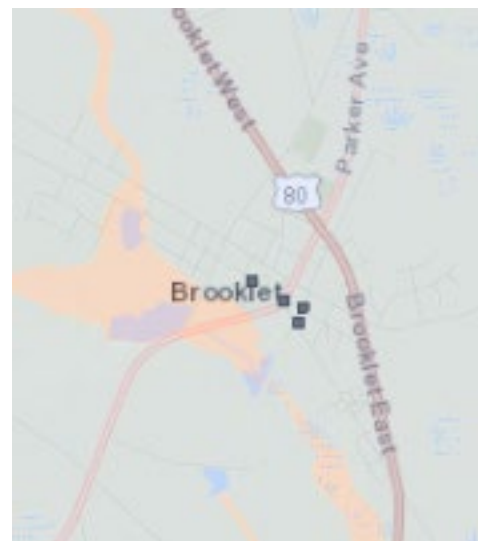
Score	Original Value	Description
4	Floodway	Floodway (within zone AE)
	V	1% with Velocity no Base Flood Elevation (BFE)
	VE	1% with Velocity BFE
3	A	1% Annual Chance no BFE
	A99	1% Federal flood protection system
	AE	1% has BFE
	AH	1% Ponding has BFE
	AO	1% Sheet Flow has depths
	AR	1% Federal flood protection system
2	X500	0.2% Annual Chance
1	ANI	Area not included in survey
	D	Undetermined but possible
0	UNDES	Undesignated
	X	Outside Flood Zones



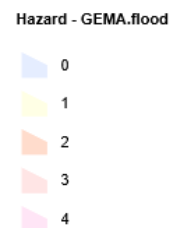
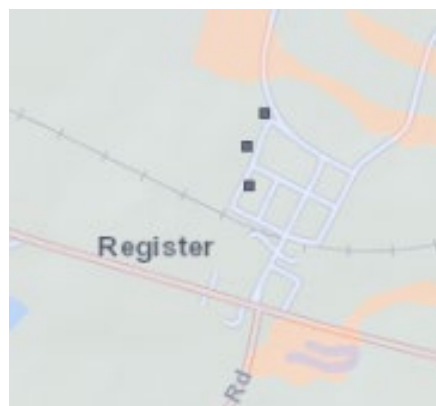
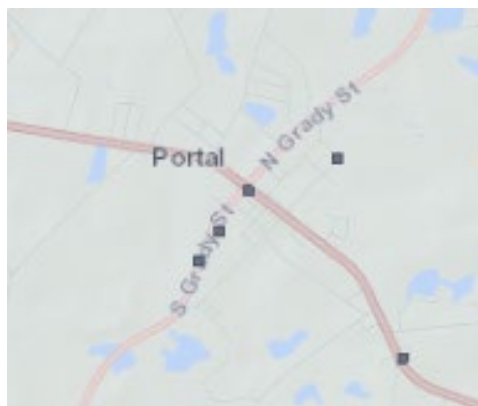
Bulloch County GMIS Flood Zones



Statesboro



Brooklet



## C. Assets Exposed to Hazard

The Bulloch County Hazard Mitigation Plan Update Committee established a list with location of all critical facilities within the County. Bulloch County GIS prepared maps of the County showing the boundaries of the flood hazard areas as seen on the previous page. Any existing critical facility located in the floodplain will be reviewed for flood mitigation measures should the FEMA FIRM's change.

The Plan Update Committee is not aware at this time of any future building planned for a floodplain area. Although flash flooding can occur in any jurisdiction, Statesboro and Brooklet know their weak areas/low elevation lands and considered these in recent construction projects completed and the project below under construction in 2021.

The [Bulloch County 2040 Comprehensive Plan](#) listed three proposed future development projects (A GSU South Campus development, South Main Redevelopment Plan "The Blue Mile", & Old Register Road Redevelopment Plan) that were within all state and local codes and ordinances with regard to flood areas so should pose no greater risk of flood water. A list of critical facilities and maps are located in Appendix A.

## D. Estimate of Potential Losses

As seen in the 3a worksheets for flood losses in Appendix A Data: The County could lose up to \$461,724,452; Statesboro - \$27,902,440; Brooklet - \$955,660; Portal does not have any structures in a flood zone; and Register - \$112,820.

Estimating indirect costs from flood damage was prepared using guidance provided in How-To-Guide 386-2, Understanding Your Risks, Identifying Hazards and Estimating Losses, and data from the Bulloch County 2020 HAZUS Study (a natural hazard based geographic information system developed by the Federal Emergency Management Agency).

A flooding event could potentially impact ~ 40% of the gross digest.

Table 9: Bulloch County Riverine 1% Building Losses

Occupancy Classification	Total Buildings	Total Buildings Damaged	Total Building Exposure	Total Losses to Buildings	Loss Ratio of Exposed to Damaged
<b>Brooklet</b>					
Residential	595	10	\$ 94,280,575	\$ 198,315	0.21%
<b>Statesboro</b>					
Residential	6,261	237	\$ 1,817,215,744	\$ 4,597,587	0.25%
Religious	12	3	\$ 5,189,268	\$ 23,921	0.46%
Industrial	76	6	\$ 107,203,274	\$ 25,594	0.02%
Commercial	1,229	31	\$ 1,431,099,805	\$ 387,625	0.03%
<b>Unincorporated</b>					
Commercial	502	8	\$ 1,032,067,739	\$ 91,364	0.01%
Government	4	4	\$ 1,101,349	\$ 11,886	1.08%
Residential	13709	790	\$ 2,321,109,407	\$ 10,792,370	0.46%
<b>Total</b>	<b>22,388</b>	<b>1,089</b>	<b>\$ 6,809,267,161</b>	<b>\$ 16,128,662</b>	

per 2020 HAZUS Report.

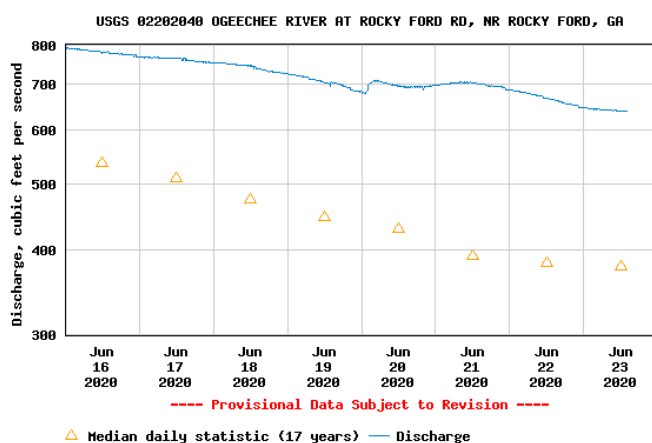
Additionally, an unknown percentage of the Bulloch County total 2017 Farm Gate Value ([\\$148,199,678](#)) total grower value for 2017 ([\\$131,407,527](#)), total row/forage gate value ([\\$62,970,918](#)): as well as an unknown monetary value for timber product output ([\\$10,422,088](#)) as 72.8% of the county land is forested. People, poultry, and livestock have also been known to die in severe/flash flooding.

Table 13: Bulloch County Existing Land Use			
Classification	Acres	% Dist.	% Change 2009-2019
Vacant Land-Undeveloped	95,893	21.8%	0.0%
Agriculture-Forestry	320,058	72.8%	-0.7%
Parks/Recreation/Conservation	248	0.1%	18.1%
Residential	18,906	4.3%	9.9%
Commercial	1,754	0.4%	8.7%
Industrial	1,467	0.3%	17.6%
Institutional	350	0.1%	2.9%
Transportation-Communications-Utilities	979	0.2%	1.5%
<b>Total</b>	<b>439,655</b>	<b>100.0%</b>	<b>0.00%</b>

(Comprehensive Plan)

As seen in the Georgia Mitigation Information System (GMIS) reports (in Appendix A Data); Countywide, flood could incur \$12,153,100.00 in losses involving those critical facilities having a flood hazard score greater than zero.

Potential losses can be reduced by monitoring websites displaying current river levels at various locations such as United States Geological Survey (USGS), showing one example here:



## E. Land Use & Development Trends

Bulloch County, the city of Statesboro, and the town of Brooklet participate in the National Flood Insurance Program (NFIP). Portal does not have identified flood areas, and Register was newly [sanctioned on 8/5/2011](#) and is addressing the feasibility of participation in the NFIP. There are specific [local ordinances](#) prohibiting development in flood-prone areas, and construction must adhere to the Georgia State Minimum Standard Codes (Uniform Codes Act) and the International Building Code. The County oversees issuing building permits, subsequent inspections, and code enforcement to maintain the integrity of the new growth within the County. The minimum standards established by these codes do provide reasonable protection to persons and property within structures that comply with the regulations for most natural hazards.

Codes and ordinances in the City and County demanded provisions for rainwater before a zoning change for proposed new construction is issued. The county has six residential repetitive loss properties; four of which are in Statesboro and the other two were in Brooklet. Brooklet has since constructed a new critical facility pictured below to accommodate the Police Department and City Hall at a higher elevation.



## F. Multi-Jurisdictional Concerns

Less than forty-two percent (< 42%) of Bulloch County could potentially be affected by flood conditions, particularly as concerns a hurricane or storm event. Statesboro has approximately 20% of its land area exposed to flood events; Brooklet has approximately 8%; Portal has no flood areas; and the town of Register has about 18% of its land area exposed to flood events. Other than some road closures and trees uprooting from saturated ground due to flood, Statesboro and the towns of Brooklet, and Register will rarely be suffering any flood damages. The town of Portal is not considered vulnerable.

In flash flood data for the past twenty years, only four years brought flash flood conditions, with only two events in Statesboro having reported property damages, “on 8/6/2013 at the Georgia Villas near Georgia Southern University there was an estimated two to three feet of standing water.” In the 2014 flood event: “several roads closed and automobiles stalled due to flooding. Flooding also caused water damage to a house on Johnson Street. Roads closed included Fair and Gentilly, Forest, Proctor, Ellis, Johnson, Chandler, Herty and Highway 67. Several rescues were needed for vehicles stalled in water half way up car doors. Parking lots were flooded in Georgia Southern Campus with water as deep as 2.5 feet.”

In the 20 year span, no flood damage was reported for Brooklet, Portal or Register. A few of the 12 days with flash flood events temporarily closed roads in Statesboro, Brooklet and Register until the water subsided.

The City of Statesboro first adopted a Flood Plain Damage Prevention Ordinance in 1987. This ordinance regulates the development in the proximity of the flood plain. The City of Statesboro’s Flood Plain Management Damage Prevention Ordinance can be viewed in its entirety at <http://www.municode.com> under Chapter 46 – Flood Damage Prevention Ordinance.

In January of 2015, Statesboro approved a new stormwater fee for improving storm drainage. “The stormwater fee is based on the area covered by impervious surfaces — roofs and pavement, mostly — at each address. For single-family homes, the fee will be a flat \$3.95 a month, although credits are possible. For apartment complexes, businesses, schools and churches, the fee will be \$3.95 for every 3,200 square feet of impervious surface area. Credits will be available for steps taken to reduce runoff or conserve water.”

(<https://www.statesboroherald.com/local/statesboro-city-council-approves-stormwater-fee/> )

“Monthly billing for the fee, expected to net \$1 million per year, will begin in July. About \$275,000 will replace money currently being spent on drainage services from the general fund. The rest will be used to hire a new four-member crew and a project technician and to pay for improvement projects.”



Jurisdiction	Name	Haza
Brooklet town	Brooklet Police Department	3
Bulloch County	Proctor St Well	3
Statesboro city	Statesboro Water Storage Tower	3
Statesboro city	Senior Citizens Community Center	3

The four critical facilities located in Flood Hazard Score greater than zero areas are at left. The value of those properties total \$1,353,100.

While the Brooklet Police Department (Photo on page 13) has a small body of water to the west of it, the area south of the facility is of a lower elevation and the excess rainfall travels to a nearby greenspace.

Portal had only one instance of rainwater causing a problem. In February of 2020, parts of Bulloch County were drenched with up to 12 inches of rain. This event caused “Rainwater spilled across the roads at W.O. Peacock, Old Portal and Buie Driggers roads Wednesday, causing the county public works department to close the roads. Wynn said crews are inspecting other areas in the county to monitor whether closure is necessary.”

<https://www.statesboroherald.com/local/river-flooding-expected-more-rain-falls/>

The town of Register had one heavy rainfall event in the past 20 years. This caused several roads to flood in June of 2004. “Heavy rainfall flooded several roads including Routes 46 and 292.” No property damages were reported, and no injuries or deaths resulted from this event.

<https://www.ncdc.noaa.gov/stormevents/eventdetails.jsp?id=5405483>

## G. Hazard Summary

The Bulloch County Hazard Mitigation Plan Update Committee located flood prone areas and the roads and bridges likely to be affected. The county has six residential repetitive loss properties; four in Statesboro (two of which are insured), and the remaining two are in Brooklet.

Members identified many mitigation measures for flood prone areas as a high priority. These measures can be seen in Chapter #3 and should receive full consideration for implementation respecting the assigned priorities stated therein.

## SECTION I – *WATER continued*

### A. Hurricane/Coastal Storm Hazard Identification

Hurricanes and tropical storms, as well as tropical depressions, are all tropical cyclones defined as warm-core non-frontal synoptic-scale cyclones, originating over tropical or subtropical waters, with organized deep convection and closed surface wind circulation around a well-defined center. A hurricane is a category of tropical storm with wind speeds greater than 74 miles per hour. Hurricanes develop over warm waters and are caused by the atmospheric instability created by the collision of warm air with cooler air. Hurricane winds blow in a large spiral around a calm center called the eye, which can be  $\leq 20\text{-}30$  miles wide. When a hurricane nears

land, it may bring torrential rains, destructively high winds, storm surges, coastal flooding, inland flooding, and sometimes, tornadoes. The upper right quadrant of the hurricane total area usually has the highest wind speeds.

A single hurricane can last for more than two weeks over water and can extend outward 400 miles. The hurricane season for the Atlantic coast is June 1<sup>st</sup> to November 30<sup>th</sup>. According to data from the National Hurricane Center (NHC), about 36 hurricanes have hit the U.S. from 1995 to 2017, 13 of which have been considered major hurricanes, or a Category 3 or above, at the time when they made landfall.

On average, five hurricanes strike the United States every year. In a two-year period, an average of three significant (category 3 or higher) hurricanes will strike the United States. Hurricanes can flood both coastal and inland areas, even as the storm dissipates in wind strength; while windy hurricanes primarily affect coastal areas with their high winds and storm surge. Because hurricanes are large moving storm systems, they can affect entire states or entire coastlines. Therefore, hurricanes/tropical storms are not, by themselves, separate or distinct hazards. But should the (now inland) storm stall over an area, the amount of flash flood water will be more than most any area could tolerate without losses.

## B. Hazard Profile

In the fifty years from 1970 through most of 2020 (present), Bulloch County has been negatively affected by the following hurricanes as windstorm events only. None of the [flash flood dates](#) coincide with the dates listed below:

- Hurricane Bertha July 11, 1996
- Hurricane Fran September 3, 1996
- Hurricane Floyd September 14, 1999
- Tropical Storm [Jeanne](#) (DR 1567)
- Hurricane Katrina (EM 3218) -- signed September 5, 2005  
(One hundred fifty-nine (159) counties. Effective August 29, 2005, to cover Category B, emergency protective measures. (i.e. Measures taken before, during, and after a disaster to eliminate/reduce an immediate threat to life, public health, or safety, or to eliminate/reduce an immediate threat of significant damage to improved public and private property through cost-effective measures )
- Tropical Storm [Alberto](#) in June of 2006
- Hurricane Dora July 22, 2011

Since the previous plan update, these declared wind and flood disasters have occurred:

[Georgia Hurricane Matthew \(DR-4284\)](#) Bulloch received both public, and individual assistance for this event

Incident period: October 04, 2016 to October 15, 2016

Major Disaster Declaration declared on October 08, 2016

[Georgia Hurricane Matthew \(EM-3379\)](#)

Incident period: October 04, 2016 to October 15, 2016

Emergency Declaration declared on October 06, 2016

[Georgia Hurricane Irma \(DR-4338\)](#) Bulloch received public assistance categories A-G



Incident period: September 07, 2017 to September 20, 2017

Major Disaster Declaration declared on September 15, 2017

[Georgia Hurricane Irma \(EM-3387\)](#)

Incident period: September 07, 2017 to September 20, 2017

Emergency Declaration declared on September 08, 2017

[Georgia Hurricane Michael \(DR-4400\)](#) Bulloch was included in those counties receiving public assistance

Incident period: October 09, 2018 to October 23, 2018

Major Disaster Declaration declared on October 14, 2018

[Georgia Hurricane Michael \(EM-3406\)](#)

Incident period: October 09, 2018 to October 23, 2018

Emergency Declaration declared on October 10, 2018

### Hurricane extent is measured using the Saffir-Simpson Scale:

#### **The Saffir-Simpson Scale**

##### Category One Hurricane:

Winds 74-95 mph (64-82 kt or 119-153 kph). Storm surge generally 4-5 ft above normal. No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Some damage to poorly constructed signs. Also, some coastal road flooding and minor pier damage.

##### Category Two Hurricane:

Winds 96-110 mph (83-95 kt or 154-177 kph). Storm surge generally 6-8 feet above normal. Some roofing material, door, and window damage of buildings. Considerable damage to shrubbery and trees with some trees blown down. Considerable damage to mobile homes, poorly constructed signs, and piers. Coastal and low-lying escape routes flood 2-4 hours before arrival of the hurricane center. Small craft in unprotected anchorages break moorings.

##### Category Three Hurricane:

Winds 111-130 mph (96-113 kt or 178-209 kph). Storm surge generally 9-12 ft above normal. Some structural damage to small residences and utility buildings with a minor amount of curtainwall failures. Damage to shrubbery and trees with foliage blown off trees and large trees blown down. Mobile homes and poorly constructed signs are destroyed. Low-lying escape routes are cut by rising water 3-5 hours before arrival of the hurricane center. Flooding near the coast destroys smaller structures with larger structures damaged by battering of floating debris. Terrain continuously lower than 5 ft above mean sea level may be flooded inland 8 miles (13 km) or more. Evacuation of low-lying residences with several blocks of the shoreline may be required.

##### Category Four Hurricane:

Winds 131-155 mph (114-135 kt or 210-249 kph). Storm surge generally 13-18 ft above normal. More extensive curtainwall failures with some complete roof structure failures on small residences. Shrubs, trees, and all signs are blown down. Complete destruction of mobile homes. Extensive damage to doors and windows. Low-lying escape routes may be cut by rising water 3-5 hours before arrival of the hurricane center. Major damage to lower floors of structures near the shore. Terrain lower than 10 ft above sea level may be flooded requiring massive evacuation of residential areas as far inland as 6 miles (10 km).

##### Category Five Hurricane:

Winds greater than 155 mph (135 kt or 249 kph). Storm surge generally greater than 18 ft above normal. Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. All shrubs, trees, and signs blown down. Complete destruction of mobile homes. Severe and extensive window and door damage. Low-lying escape routes are cut by rising water 3-5 hours before arrival of the hurricane center. Major damage to lower floors of all structures located less than 15 ft above sea level and within 500 yards of the shoreline. Massive evacuation of residential areas on low ground within 5-10 miles (8-16 km) of the shoreline may be required.

The extent to which Bulloch County has encountered Hurricane Matthew: An emergency manager reported a tree fell on a vehicle on Burkhalter Road during Hurricane Matthew, resulting in 1 fatality, and a second fatality when a tree fell on a home near the intersection of Clay Road and Macedonia Road. Numerous injuries were also reported. Matthew tracked parallel to the northern half of the Southeast Georgia coast as a Category 2 hurricane (110 mph), on the 8<sup>th</sup> of October 2016 before continuing to weaken to a Category 1 hurricane (85 mph) while passing much of the lower Southeast South Carolina coast. Minimum surface pressures of 983.1 mb at Savannah International Airport (KSAV), 980.6 mb at Beaufort Airport (KNBC) and 981.7 mb at Charleston International Airport (KCHS) where recorded as Matthew passed just offshore. The main impacts from Matthew included heavy rain, wind damage in the form of scattered to widespread trees and power lines blown down on as many as 20-30 homes and closing roads and emergency vehicles' access to those affected, more than a week without power, and a peak storm total rainfall of 17.49 inches was recorded at nearby Hunter Army Airfield. In Bulloch County the media relayed an image on social media that showed a mobile home and surrounding buildings inundated with flash flood water from heavy rains associated with Hurricane Matthew in the 8300 block of Sinkhole Road.

See Bulloch County Newspaper Article in Appendix E

Looking at the number of hurricane events which had a negative impact on Bulloch County for the last 20 years, there is a 30% probability of occurrence in a given year.

### **C. Assets Exposed to Hazard**

All structures and facilities within Bulloch County, City of Statesboro, Towns of Brooklet, Portal (to a lesser extent), and Register could be damaged by a hurricane event causing flash flooding, including all public safety facilities, government buildings (\$42,071,953.), water and wastewater treatment facilities, public utilities (\$167,328,240), education centers (\$837,255,858.), the commercial (\$883,106,171.), farm & agricultural (\$34,569,988.), and residential structures (\$2,433,756,998). As Hurricanes and Tropical Storms are not spatial hazards, no structures could be excluded. Worksheets 3A can be found in Appendix A.

### **D. Estimate of Potential Losses**

A hurricane could potentially affect over 37,267 structures in Bulloch County, the City of Statesboro, & the towns of Brooklet, Portal, and Register at an estimated dollar value of \$4,543,008,101. and could have a negative impact on 79,866 citizens.

Based on the Georgia Mitigation Information System on-line critical facility tools, all 158 critical facilities for a total of \$1,550,309,387.00 are located within a hurricane wind and flood hazard area. (Worksheets #3a and GMIS Flood and Wind reports are located in Appendix A. Data)

### **E. Land Use & Developmental Trends**

The largest concerns during a hurricane event are the reparations after flooding caused by heavy rainfall, and more frequently; the damages from high winds. The likelihood of storm surge as far inland as Bulloch County is almost non-existent.

Bulloch County, Statesboro, and Brooklet participate in the [National Flood Insurance Program](#) (NFIP). The town of Register was newly sanctioned by the program on [08/05/2011](#) and is addressing participation in the NFIP, and Portal has no known flood areas. There are specific local ordinances prohibiting development in flood-prone areas, and any new construction must also adhere to the Georgia State Minimum Standard Codes (Uniform Codes Act) and the International Building Code. The minimum standards established by these codes provide reasonable protection to persons and property within structures that comply with the regulations for most natural hazards.

The Georgia Department of Transportation allocated \$1,193,000 to the City of Statesboro for infrastructure improvements to South Main Street (Tillman Road to Brannen Street) known locally as The Blue Mile, are accommodations made specifically for this growth. The creek and canal are currently being improved for prior history of water accumulation in that area. Other plans for in-progress and future growth can be seen in the Statesboro Herald TAD article in Appendix B and Chapter 1 Section IV.

When dealing with flood events; there are fifteen emergency support functions within law enforcement, search and rescue, firefighting, and public health administration. Each of these serves a very specific purpose with specific agencies tasked with them. (E.g. If there are roads being washed out or bridges being potentially compromised, that comes under the jurisdiction of DOT.) If there's a need or a request for additional law enforcement support, that's going to come under the jurisdiction of Georgia State Patrol and they will do whatever is possible to provide the extra personnel. The extent of the flood event will dictate how many resources will need to be involved.

## **F. Multi-Jurisdictional Concerns**

All of Bulloch County, the City of Statesboro, Towns of Brooklet, Portal, and Register could potentially be affected by damages secondary to a hurricane event. As a result, any mitigation steps taken related to hurricanes should be undertaken on a countywide basis and include its municipalities as all jurisdictions within Bulloch County have seen population growth.

There will always be concern for the more than 700 county-maintained, unpaved miles of road has some claim to being “the dirt road capital” of Georgia. No money to pave these roads has been found/allocated.

It was announced in 2019 that Statesboro would receive \$750,000 for drainage and street improvements from a grant awarded by the Georgia Department of Community Affairs. These improvements began in 2020.

Statesboro has approximately 20% of its land area exposed to flood events and improvements to the sewer system are still in progress, Brooklet has approximately 8% now that the Police Station and Town Hall have been rebuilt as one structure at a higher elevation, Portal has no known flood areas, and the town of Register has about 18% of its land area exposed to flood events, (the Town of Register, Georgia Adopted their 2008 Solid Waste Management Plan on the 22nd day of July, 2008.)

According to the current tax base, Bulloch County as a whole could lose \$4,543,008,101.00, Statesboro could possibly lose up to \$606,392,625.00 in property, Brooklet could lose \$88,847,787.00, Register could lose \$6,087,670.00 while Portal would lose no structures monetarily to flood waters, (but in 2020 briefly had a few sections of road closed due to excessive rainwater), but could lose \$20,556,125.00 to extremely high winds or wind shear (a difference in wind speed or direction over a relatively short distance in the atmosphere.)

## **G. Hazard Summary**

Bulloch County has a lower probability for exposure to potential damages caused by hurricanes than the coastal Georgia Counties nearby, with the exception of excessive hurricane rainwater falling, and high winds which have caused destruction in the past, damaging areas inland when these hurricanes/coastal storms stall. Committee members spent considerable time deliberating appropriate mitigation strategies to reduce the destruction from flooding and high winds. While no amount of mitigation can prevent the damages caused by a Category 5 hurricane, early warning systems could save lives and property, and have been implemented.

## **SECTION I – *WATER continued***

### **A. Severe Winter Storm/Ice Storm Hazard Identification**

Severe winter storms bring the threat of freezing rain, ice and snow accumulation. Heavy accumulations of ice, especially when accompanied by high winds, can result in extensive damage to trees and above ground electric and media transmission lines. Ice and/or snow-covered roads pose hazardous conditions for traffic and can greatly complicate response and recovery efforts.

Severe winter storms could result in the loss of utilities, expected increase in traffic accidents, impassable roads, and short-term lost income and productivity when normal commuting is hindered. Critical facilities are exposed to the effects of severe winter storms, but vulnerability is a function of the potential disruption of services

(primarily electricity) and transportation systems. Extremely cold temperatures accompanied by strong winds can result in wind chills that cause bodily injury such as frostbite and death. A variety of phenomena and conditions occur during winter storms. The National Weather Service uses the following terminology:

- Heavy snowfall - the accumulation of six or more inches of snow in a 12-hour period or eight or more inches in a 24-hour period.
- Blizzard - the occurrence of sustained wind speeds in excess of 35 miles per hour accompanied by heavy snowfall or large amounts of blowing or drifting snow.
- Ice storm - an occurrence where rain falls from warmer upper layers of the atmosphere to the colder ground, freezing upon contact with the ground and exposed objects near the ground.
- Freezing drizzle/freezing rain - the effect of drizzle or rain freezing upon impact on objects that have a temperature of 32 degrees Fahrenheit or below.
- Sleet - solid grains or pellets of ice formed by the freezing of raindrops or the refreezing of largely melted snowflakes. This ice does not cling to surfaces.
- Wind chill - an apparent temperature that describes the combined effect of wind and low air temperatures on exposed skin.

A severe winter storm can be large enough to affect several states, while others may affect only a single community. Many winter storms are accompanied by freezing temperatures that can last for prolonged periods. The Bulloch County Hazard Mitigation Plan Update Committee researched historical data from the National Climatic Data Center, The National Weather Service, FEMA Declared disaster listings, and our own County history for information relating to winter storms in Bulloch County. A heavy accumulation of ice, especially when accompanied by high winds, had destroyed trees and power lines in the past. Streets and highways became extremely hazardous to pedestrians and motorists, and the very real threat of hypothermia existed for people, livestock, poultry and pets.

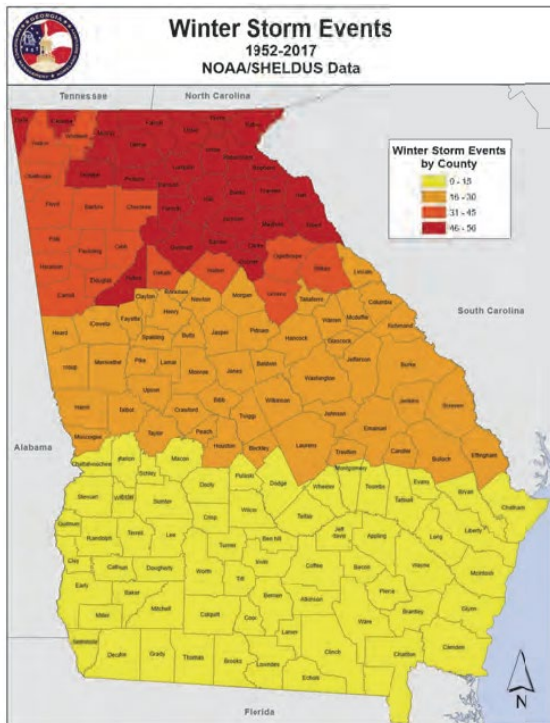
## B. Hazard Profile

Records maintained by the State Climatologist's office indicate that Bulloch County is in the region that usually receives less than 3-inches of snow per year. Although winter storms occur infrequently, they have the potential to wreak havoc on the community when they do strike. Statistically, Bulloch County can expect a winter storm frequency of  $\leq 45\%$  in any given year based on the 10-year history of 8 events, and 9 in 20 years.

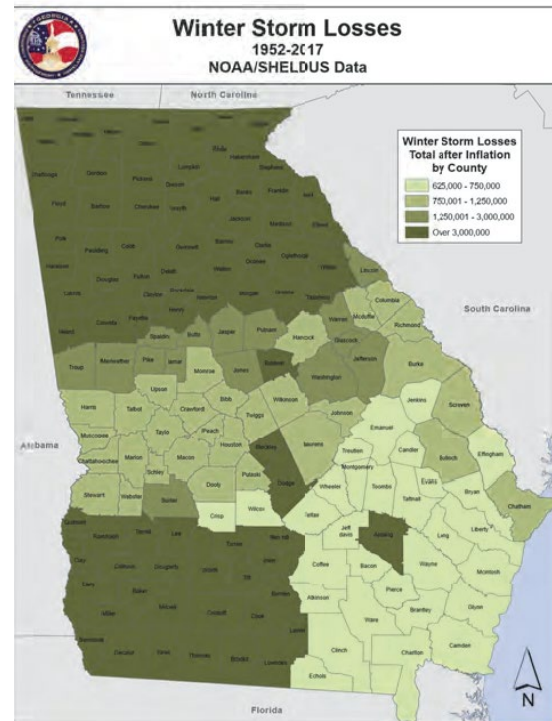
In February of 2014 an Ice Storm named Pax was declared as a natural disaster by Federal authorities, Governor of the State of Georgia, and Bulloch County declarations. Recent ice storms in Bulloch County have occurred in 2002, 2011, & 2014. NCDC Has one Winter Storm/Ice storm events reported from 2014 to 11/30/2020. On Bulloch County social media pages, the snowstorm of 2018 recorded:

...Bulloch County...	Snowfall amounts
Nevils	4.0 500 PM 1/03/2018
Brooklet	3.5 500 PM 1/03/2018
SE Brooklet	3.5 500 PM 1/03/2018
SSE Stilson	3.5 311 PM 1/03/2018
Statesboro	3.0 500 PM 1/03/2018.

**FIGURE 2.36 WINTER STORM EVENTS  
IN GEORGIA, 1952–2017.**



**FIGURE 2.37 WINTER STORM LOSSES  
IN GEORGIA, 1952–2017**



## C. Assets Exposed to Hazard

In evaluating assets that may potentially be compromised by the effects of winter storms, the committee determined that all critical facilities, as well as all public, private and commercial property, are susceptible to some degree. The cost for replacement of power lines, (supplies and man hours) and the cost of monitoring and debris cleanup must be factored in. Disaster debris is briefly addressed in section 3.2 of the Solid Waste Management Plan. As Winter Storms and Ice Storms are not predisposed to any given area, topographical maps indicate a drop in elevation in southeastern Bulloch County between Lotts Creek and Black Creek where temperatures are lower in general due to the laws of physics.

## D. Estimate of Potential Losses

In the February 2014 Ice Storm Event, expenses included: Statesboro Fire Dept. overtime pay, mileage etc. = \$28,659., public works; personnel expenses, equipment expenses, tippage, etc. had a cumulative total exceeding \$110,607., Bulloch County Sheriff's Office deputies incurred \$13,744 in overtime pay from 11-13 February, debris for the landfill cost = \$13,560.68, Bulloch County EMS's projected cost of Pax = \$1,118.64, and the board of Commissioners Transportation budget suffered equipment, labor & overhead expenditures of \$83,187.50. The aftermath: removal of > 664 tons of debris = \$134,798.61 in 38 pieces of equipment during 871 man-hours of their use.

In a worst case scenario, a severe winter storm could potentially impact all 37,267 structures in Bulloch County, City of Statesboro, Towns of Brooklet, Portal, and Register at an estimated dollar value of \$4,543,008,101.00, could impact 79,866 people, and poultry, and livestock.



## **E. Land Use & Developmental Trends**

Chapter 1 Section IV discusses the known new growth plans for Bulloch County. Both Statesboro and South to I-16 are expected to continue to be the focus and center of most development in the county. The new perimeter roads around the city are yet another magnet for such growth. Residential growth is expected to continue around the City of Statesboro and extend beyond the perimeter roads off all main roads leading to the city.



The ice storm vulnerability for Bulloch County, the City of Statesboro, & the towns of Brooklet, Portal, and Register is not changing and therefore all jurisdictions currently have no land use or development trends specific to Ice Storms and Winter Storms as they are so rare. For the most part, urban areas of the County suffer the negative effects of power outages from downed trees, and all areas historically have needed to close schools due to road conditions.

Any recent or future structural growth within Bulloch County would be vulnerable to these hazards, and continued population growth is also expected.

## **F. Multi-Jurisdictional Concerns**

All of Bulloch County can potentially see damages from winter storms. As a result, any mitigation steps taken related to winter storms should be undertaken on a countywide basis and include the City of Statesboro, and towns of Brooklet, Portal and Register, as well as unincorporated areas.

Due to its infrequency of occurrence, building codes at this latitude do not require roofs to bear an ice load, but all jurisdictions know it is a possibility. Should future conditions change due to climate flux, this would be addressed at that time.

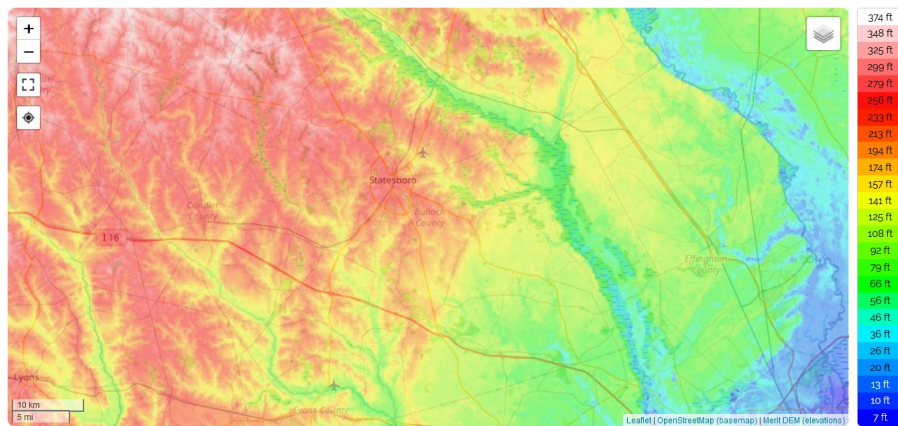
Areas in the Southeast portions of Bulloch County, including Brooklet and Southern Statesboro areas (Nevils, Denmark, Emit, Stilson, etc.) are, and will be more susceptible to the adverse effects from colder temperatures as they are lower in elevation.

<https://en-us.topographic-map.com/maps/ztra/Bulloch-County/>

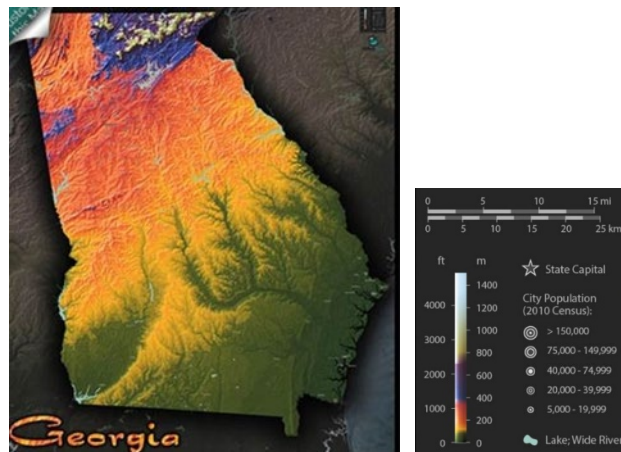
## Bulloch County

Topographic maps > United States > Georgia > Bulloch County

Click on the map to display elevation.



Statesboro is at the center of this map.



A topographic map of Bulloch County shows many low-lying areas where colder air will sink.

## G. Hazard Summary

Winter storms, typically afford communities some advance warning. The National Weather Service issues winter storm warnings and advisories as these storms make their way southeast. Unfortunately, even with advanced warning, some of the most destructive winter storms have occurred in the southern United States, where building roofs, infrastructure, livestock, poultry, and crops are not typically designed to sustain prolonged severe winter conditions. Even minor winds during ice-loading can break or uproot trees. Also, motorists not accustomed to driving in snow and icy conditions pose an additional danger on roads and highways. With a large percentage of dirt road, hills, and curves, most school buses cannot safely drive their routes. Bulloch County does not possess the winter road equipment (e.g. plows and salt trucks) which make driving easier for motorists. Therefore, the impact from a winter storm will last longer, and is more dangerous, for all motorists. The Bulloch County Hazard Mitigation Plan Update Committee recognized the dangers posed by winter storms



and identifies specific mitigation actions in Chapter 3. This update saw no changes in vulnerability for Bulloch County.

## **SECTION II – *WIND***

### **A. Tornado Hazard Identification**

A tornado is a violently rotating column of air (seen only when containing condensation, dust, or debris) in contact with the surface of the ground. Exceptionally large tornadoes may not exhibit the classic “funnel” shape but may appear as a large, turbulent cloud near the ground or a large rain shaft. Destructive with their strong winds and windborne debris, tornadoes can topple buildings, roll mobile homes, cars, & trucks, uproot vegetation and launch small and large objects hundreds of yards.

Tornado season typically occurs from March through August; however, tornadoes can strike at any time of the year if ideal weather front conditions are present.

### **B. Hazard Profile**

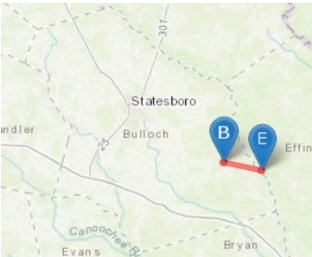
According to records maintained by the [National Climactic Data Center](#), Bulloch County has been struck by three tornados in the last 10 years, & nine tornadoes in the last 20 years with property damages reported at \$415K. Historic frequency of occurrence can be expected at 30 - 45% per year. On February 9<sup>th</sup>, 2017 an EF-2 Tornado occurred. This was the only occurrence since Bulloch County’s last update.

The National Weather Service reported: “The tornado began near Stillson Lee field Road, in Bulloch County, GA. Most of the damage within the first few miles of the event was due to many snapped and uprooted trees.

The most significant damage occurred near the center of the path, in an area just west of South Old River Road to near Terrell Road, in Bulloch County, GA. There were several mobile homes along this portion of the path that were either completely destroyed, or severely damaged. The extent of damage to the mobile homes was the reason for the high end EF2 rating with estimated maximum wind speeds up to 130 mph. Two mobile homes just north of Little Hagan Road were completely destroyed, being flipped and tossed 30 to 40 feet from their foundations. One of the mobile homes in this area was not occupied, but the other one had five people inside, plus pets. All five were injured, one seriously, with broken bones in their neck. Two pets in the same mobile home survived, but one died from its injuries. There was also a car pushed 20 to 30 feet and a large metal trucking container, weighing approximately 9,000 pounds, pushed about 50 feet.

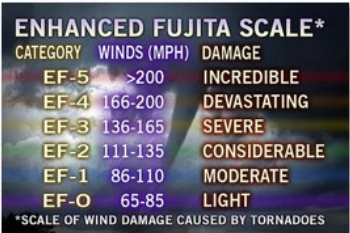
Continuing about 200 yards southeast along the path, a single family home sustained moderate damage, mainly from projectiles and debris hitting it from the mobile homes upstream. A large carport/overhang was completely torn from the home, which then fell on and damaged 3 cars. A large hole was punched through the north wall of the home from debris hitting the window and pushing into the home. Otherwise, some minor shingle damage was observed, with 20-30% of the shingles missing.

Another 200 yards southeast of this home was another mobile home that was severely damaged. It was lifted and rolled 30 to 40 feet off of its foundation, crushing 2 cars before coming to rest on the edge of a bluff. There



were 2 people severely injured in this home with one pet injured.

The tornado then continued across the Ogeechee River into Effingham



Event	Tornado
-- Scale	EF2
-- Length	5.5 Miles
-- Width	300 Yards
State	GEORGIA
County/Area	BULLOCH

County.”

From straight line winds, to EF 2 tornadoes, Bulloch County has dealt with 9 tornadoes in the past 20 years incurring more than \$420 K in property damage and several injuries to our citizens. These wind events are categorized in the Fujita Scale seen on the left.

### C. Assets Exposed to Hazard

As wind damage events are not spatially defined, all structures and facilities within Bulloch County, City of Statesboro, Towns of Portal, and Register could, and historically all have, seen damages by tornadoes or straight-line winds and they are among the most unpredictable of weather phenomena and are indiscriminate as to when or where they strike. The values for how much damage could occur for the County and its municipalities can be found in Appendix A 3a worksheets. (e.g. \$4,543,008,101.00 in possible extreme Wind losses for Bulloch County)

The GMIS web database gives all Critical Facilities within Bulloch County a hazard score of 3 (100-109 mph winds), and the Hazard Risk Analysis Supplement (HAZUS) report references the Essential Facilities, the 3a worksheets calculate all structures for each of their jurisdictions.

Note: NCDC reported \$550.6 K in damages from individual Thunderstorm Wind events for the county in the past 20 years. From 2001 data to July of 2006, damages were not reported. That practice evolved after. It could be safely assumed that Tornado Winds has a similar data deficit. The NCDC reports were from all areas of the County which made it a non-spatial hazard.

The next section; Estimate of Potential Losses has tried to assemble “Best available data.” Hazard Risk Analysis Supplemental data is included.

## D. Estimate of Potential Losses

From the nine listed tornadoes (see NCDC 20 year tornado document in Appendix A), there was a total of about \$415K in damages and 7 reports of injuries during that period.

Tornadoes have the capability of damaging countless buildings, citizens, livestock, crops, equipment, and vehicles.

Bulloch County E-911, which serves Bulloch, Evans and Candler Counties, has purchased a reverse 911 system. This system is used to notify citizens of potential hazards or sharing information with the community-at-large during a disaster. All landline telephones are in the Reverse 911 system, and cell phone users can register at the county website: <https://bec.onthealert.com/>

In the hypothetical tornado scenario which the Hazard Risk Analysis Supplement (Appendix A Data), an EF3 tornado was modeled and “estimated that on this path through the city of Statesboro, 907 buildings could be damaged, with estimated losses at approximately \$145.9 million in current replacement costs. The Assessor records often do not distinguish parcels by occupancy class if the parcels are not taxable and thus the number of buildings and replacement costs may be underestimated. The results of the analysis are depicted in Table 14.”

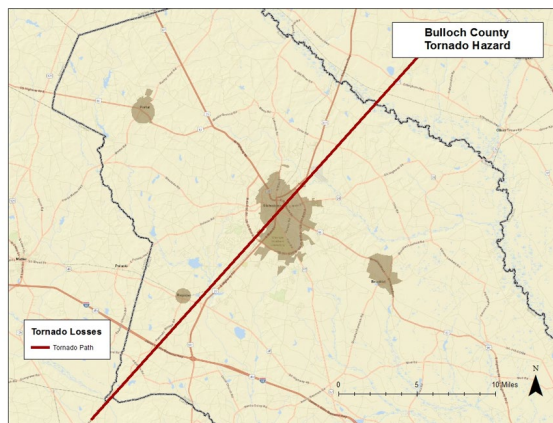


Figure 13: Hypothetical EF3 Tornado Path

Table 14: Estimated Building Losses by Occupancy Type

Occupancy Classification	Buildings Damaged	Building Losses
Commercial Retail	80	\$ 23,779,190
Commercial Repair	10	\$ 2,500,754
Banks	10	\$ 982,278
Business Service	58	\$ 26,185,565
Medical Office/Clinic	3	\$ 92,572
Entertainment	14	\$ 5,401,717
Schools / Libraries	4	\$ 1,122,851
Government	1	\$ -
Industrial - Heavy	7	\$ 17,096,231
Industrial - Light	10	\$ 506,421
Church	2	\$ 14,509
Colleges/Universities	2	\$ 2,894,637
Single Family	583	\$ 20,018,125
Manufactured Housing	8	\$ 46,503
Multi-Family - Small	95	\$ 9,495,080
Multi-Family - Medium	2	\$ 1,261,467
Multi-Family - Large	5	\$ 245,201
Lodging	4	\$ -
Nursing Homes	9	\$ 14,296,255
<b>Total</b>	<b>907</b>	<b>\$ 125,939,354</b>

“There were no essential facilities located within 900 feet of the modeled tornado path.” The study figures reference only Essential Facilities.

Utilizing the Georgia Mitigation Information System mapping; all Critical Facilities for a total of \$1,550,309,387.00. According to GIS for the Tax Assessor; all Bulloch County structures in total for \$4,543,008,101.00, and 79,866 citizens are located within a Bulloch County tornado hazard area as the County is located in Wind Zone III for winds up to 200mph. GMIS reports and 3a worksheets are in the Appendix A Data.

## E. Land Use & Developmental Trends

Bulloch County is located in Wind Zone III (as seen on the map below,) which is associated with 200 mph wind speeds. The county currently has no land use or development trends related to tornadoes. Existing building codes do not require structures to meet or exceed design wind speeds of 200 miles per hour.

In Georgia “Georgia International Building Code [Appendix N Disaster Resilient Construction](#) Chapter 4 High-Wind Resistive Construction Section Applications. Buildings, and parts thereof shall be designed to withstand

the minimum wind loads and meet the opening protection requirements of IBC Section 1609 as modified in this chapter.”

These Appendices have been adopted (See DCA website) and are used in conjunction with Bulloch County codes and ordinances.

Of all of the new construction anticipated (See Chapter 1, “Sections E, F, and G; Land Use”), the Plan Update Committee saw no need to change its assessment of each jurisdiction’s vulnerability. Only the number of structures and their values would change.

Wind retrofitting is already being implemented on many of the buildings on Georgia Southern University campus in Statesboro.

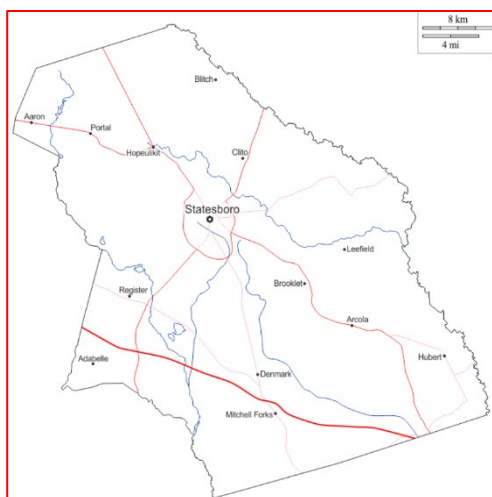


## F. Multi-Jurisdictional Concerns

All of Bulloch County has the same design wind speed of 200 mph as determined by the American Society of Civil Engineers (ASCE). As stated previously, the entire county could potentially be affected by a tornado. As a result, any mitigation steps taken related to tornados should be undertaken on a countywide basis and include the City of Statesboro and Towns of Brooklet, Portal and Register.

In Statesboro, the Georgia Southern University campus has begun wind retrofit projects (modifications to the elements of a building to reduce or eliminate the risk of future wind damage and to protect inhabitants.)

With a worst case scenario, *Bulloch County* could possibly lose \$4,543,008,101.00 in damages to properties, the City of *Statesboro* could lose ~ \$606,392,625.00, *Brooklet* - \$88,847,787.00, *Portal* - \$20,556,125.00, and the town of *Register* - \$6,087,670 .00. The towns of *Portal* and *Register* have not had new growth in recent years.



The towns of Brooklet, Nevils, and Mitchell Forks at the southern portion of the county form a slight valley with a lower elevation and may have lesser damages in a high-wind event. Overall, the land tends toward flat which does not have obstacles (e.g. High-rise buildings, tall hills) diminishing the winds. Statesboro, Portal, Register and unincorporated urban areas could see higher wind speeds than Brooklet and areas south.

## G. Hazard Summary

Due to the threat of a tornado occurrence during a hurricane, tropical storm/depression or thunderstorm event, Bulloch County has a fairly high potential for damage from tornadic winds. Bulloch County residents need to be prepared for a tornado event as much as is possible. Should a tornado strike certain portions of the county that are highly concentrated with homes, vulnerable populations, or any of the critical facilities identified, depending upon the strength and duration of the event, significant losses would occur. Due to the destructive nature of tornados, mitigation actions related to tornados and high winds should be implemented countywide as the funding becomes available. This is consistent with the original plan's goals and action items.

## SECTION II – *WIND continued*

### A. Hazard Identification: *Thunderstorm wind/ high winds*

**Note:** *The NCDC database separates these events, but for expediency, they will be addressed together here because of the similarities in how best to attempt to mitigate wind's destructiveness.*

**High Wind-** Sustained non-convective winds of 35 knots (40 mph) or greater lasting for 1 hour or longer or winds (sustained or gusts) of 50 knots (58 mph) for any duration (or otherwise locally/regionally defined), on a widespread or localized basis.



Strong Wind- Non-convective winds gusting less than 50 knots (58 mph), or sustained winds less than 35 knots (40 mph), which result in a fatality, injury, or damage.

Thunderstorm Wind- Winds, arising from convection (occurring within 30 minutes of lightning being observed or detected), with speeds of at least 50 knots (58 mph), or winds of any speed (non-severe thunderstorm winds below 50 knots) producing a fatality, injury, or damage.

## B. Hazard Profile

The Hazard frequency table (HFT) for *high wind/hurricane wind* lists four events in the last 10 years, and six days in the 20 year recorded history for Bulloch County. This, by extension, gives any given year a 25% - 30% chance of occurrence per year.

The table shows NCDC reports of 73 days of thunderstorm *wind* events in ten years, and 253 days in the past twenty years which gives a 1265% chance of occurrence in any given year. 72 of those listed storms reported \$550,600.00 in property damages and 3 of those collectively listed \$15,000.00 in crop damages. (See Appendix A. Data)

The reported wind damages were \$112.5K on 4/5/11 and were due to 50-65 knots windspeed in the town of *Portal* and at the Statesboro Municipal Airport (Northeast of Statesboro City Limits). An emergency manager reported that four structures received damage with multiple trees down near the intersection of Pecan Grove Road and CL Woods Road. One Church had steeple and porch damage. One mobile home was rolled over and destroyed. One tree fell on another home. One house had a front porch collapse. All damage was due to straight line winds.

The Hazard Frequency Table can be found in Appendix A-Data and is comprised of data from the [National Climatic Data Center](#), past Statesboro Herald newspaper articles, the Georgia Hazard Mitigation Strategy-Standard and Enhanced Plan 2019 found in Appendix C, historical facts from Bulloch County Citizens, and from [FEMA presidentially declared disasters](#) during its research on the effects of high wind in Bulloch County.



## C. Assets Exposed to the Hazard

Strong winds in a county with a varied elevation such as ours have no spatially defined constraints, and could cause destruction to any residents, livestock, crop and timber assets, and structures. With prior knowledge and proper and timely mitigation measures, the damages can be minimized. The 3a Worksheets in Appendix A Data estimate the potential losses per type of structure for this and other hazards.

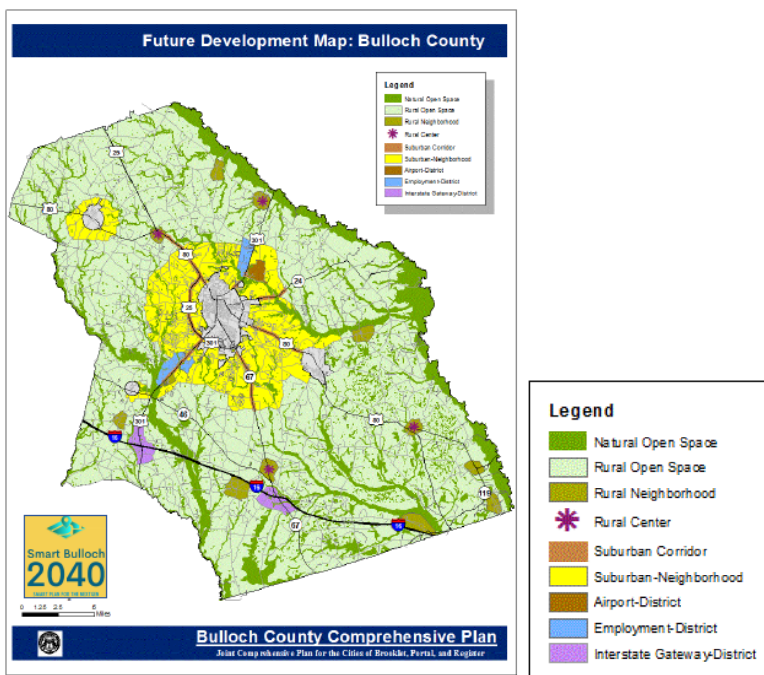
## D. Estimate of Potential Losses

In a worst case scenario, those structures not wind retrofitted to withstand winds to 50 knots would need repair or replacing at a price up to \$4,543,007,923.00. A possible 37,267 structures within Bulloch County could be damaged to some degree, while 79,866 citizens could be affected. Based on the GEMA Georgia Mitigation Information System, all critical facilities for a total of \$1,550,309,387.00 are located within the wind hazard area.

According to the 2019 Georgia State plan, all of the counties in Georgia show an 73% occurrence of wind events and damages secondary to those winds. Wind retrofitting needs to be done on a broad basis, especially to critical facilities and in vulnerable population locations. Wind retrofit is addressed in the next chapter for implementation countywide as funding becomes available.

## E. Land Use & Development Trends

Bulloch County, the City of Statesboro, and the towns of Brooklet, Portal, and Register are studying where wind damage losses have already occurred, and where historically older structures need to wind retrofit when



possible.

The Bulloch 2040 Comprehensive Plan illustration here indicates recommended land uses and development patterns for a 20-year planning horizon.

In evaluating damage potential from thunderstorm winds, the committee determined that all critical facilities, as well as all public, private and commercial property, are susceptible to thunderstorm winds on an equal basis in all areas within the county. As seen in Chapter 1 Section IV Land Use, keeping all helpful building permit/County ordinances, and enforcing them, will lessen damages to the properties of Bulloch County.

The 2019 statistics have shown the population growth in all areas of the County. The County is now up to 79,866 Citizens, the City of Statesboro now has a population of 32,954 (up from 28,422 in 2000 and only 7%

are aged 65 and older), Brooklet is up to 1815, Portal 692, and Register has grown to 195, with unincorporated areas accounting for the rest.

Future construction currently planned is addressed in Chapter 1, Section IV.

## **F. Multi-Jurisdictional Concerns**

In evaluating damage potential from thunderstorm winds, the committee determined that all critical facilities, as well as all public, private and commercial property, are susceptible to thunderstorm winds on an equal basis in all areas within the county.

The city of Statesboro, the County seat, was incorporated on December 19, 1803, with a population of less than 25 people. We know that many of the structures within it are quite old and thus more susceptible to high wind damage. The city council members are supporting utilizing tax income and SPLOST money to improve the sustainability of their infrastructure, and the main college, Georgia Southern University, has stated that they are currently wind retrofitting within their Statesboro campus.

The three towns (all under 2000 population), are far less densely populated and thus, their structures are not quite as capable of protecting each other as is the case of many areas of Statesboro where empty land is very limited. These towns are also either unfunded or extremely limited in funds for improvements.

Brooklet will approve their 2022 budget on June 17, 2021 and has allocated \$151,925.00 to the street department which will improve road and drainage integrity.

The 2.2 – square mile town of Portal was incorporated in 1914. As of the last census available, the per capita income for the town was \$14,514. What help it can get must come from the County for its older infrastructure and buildings.

Register is an even smaller town (0.79 square mile) of less than 200 residents has a per capita income of \$14,009.00 and Mayor Rushing is very proactive on keeping her town as modern as she is able. Past hurricane wind damage to the town made it mandatory to reinforce and/or rebuild older structures already.

## **G. Hazard Summary**

The Bulloch County Hazard Mitigation Plan Update Committee utilized data primarily from the National Climatic Data Center, the National Weather Service, and local narratives to research thunderstorm winds and their impact on Bulloch County.

With any electrical storm/thunderstorm, there is a risk for a wildfire to begin should lightning strike a tree or flammable object, which will be covered in the following sections for wildfire.

Thunderstorm winds are generally short in duration involving straight-line winds and/or gusts in excess of 50 mph. Thunderstorm winds tend to have a harmful effect on areas of the county with significant tree stands, tall or fragile crops, as well as areas with and above ground utility lines. Thunderstorm winds can cause power outages, transportation and economic disruptions, significant property damage and pose a high risk for injuries

and loss of life. The committee saw no reason to change the approach to wind taken in the original plan. Warning systems already in place are taken seriously, and the Bulloch County Public Safety Division closely monitors the closest National Weather Stations when conditions warrant.

## **SECTION III – WILDFIRE**

From 2008 through July of 2018, a 40 page [Community Wildfire Protection Plan](#) (CWPP) was written for Bulloch County by the leaders in our local Georgia Forestry Unit, Bulloch County Public Safety/EMA, the Bulloch County Fire Department, and the Statesboro Fire Department. Much of the information gathered for this section of the plan update has been taken from that CWPP as it is the best available information, & the most current. A copy of the CWPP can be found in Appendix C.

### **A. Hazard Identification**

A wildfire is an uncontained fire that spreads through an environment. Wildfires have the ability to consume large areas, (including infrastructure, property, and resources.) When massive fires, or conflagrations, develop near populated areas, evacuations could possibly ensue. Not only do the flames have a destructive impact on the environment, but the massive volumes of smoke spread by certain atmospheric conditions also have a detrimental impact the health of nearby populations.

Wildfires result from the interaction of three essential elements: fuel, ignition (heat), and oxygen. Natural and man-made forces cause these three crucial elements to coincide in a manner that produces wildfire events. Typically, fuel consists of natural vegetation. However, as the urban and suburban footprint expands, wildfires may utilize other means of fuel such as buildings. In terms of ignition or source of heat, the primary natural source is lightning. However, humans are responsible for more wildfires than lightning (causing around 80% of fires). Man-made sources vary from the unintentional (Fireworks, campfires, machinery) to the intentional (arson). With these elements provided, the wildfires may spread as long as oxygen and a fuel load are present.

A wildland fire is a wildfire in an area in which development is essentially nonexistent, except for roads, railroads, power lines and similar features.

An urban-wildland interface fire is a wildfire in a geographical area where structures and other human development meet or intermingle with wildland or vegetative fuels. A concern for Bulloch County is the increasing amount of residential “sprawl” that dilutes a definitive line between urban/rural areas.

There are three different classes of wildfires. A “surface fire” is the most common type and burns along the floor of a forest, moving slowly and killing or damaging trees. A “ground fire” is usually started by lightning and burns on or below the forest floor in the humus layer down to the mineral soil. “Crown fires” spread rapidly by wind and move quickly by jumping along the tops of trees.

### **B. Hazard Profile**

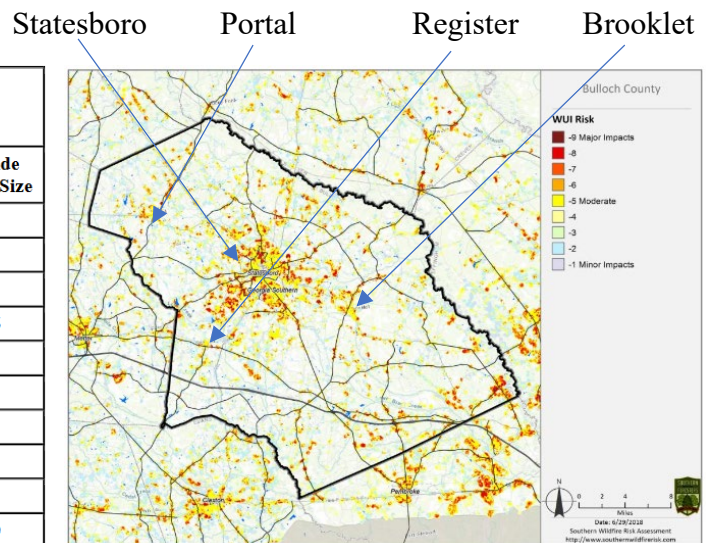
“Over the past fifty six years, Bulloch County has averaged 106 reported wildland fires per year, burning an average of 526 acres per years. Using more recent figures over the past 20 years, this number has declined somewhat to an average of 79 fires per year burning 451 acres annually. While there has been a decrease in numbers and acres in recent years, there has been about a 30% increase in the average size as the wildland fuel

loads have increased with the diminished use of prescribed burning. The occurrence of these fires during this period shows a pronounced peak during the months of January, February, March and April accounting for 63% of the annual fires and 68% of the average acreage burned. There is a significant decrease during the remainder of the year, particularly during the summer months. Over the 10-year period, FY 2008 thru FY2017, the leading causes of these fires, was debris burning causing 48% of the fires and 46% of the acres burned. The 2<sup>nd</sup> leading cause of wildfires was Machine Use causing 12% of the fires and 10% of the acres burned. Incendiary (arson) was also a significant cause accounting for 9% of the fires and 16% of the acreage burned. During this 10 year period the County averaged 54 wildfires and 260.06 acres burned annually.” (2019 CWPP)

With the 2018 fires added, the total becomes 603 Wildfires, yielding a 6030% historic frequency chance per year.

### Extent

Year	Acreage Burned	Number of Fires	Average Size	Statewide Average Size
2008	244.23	38	6.43	4.56
2009	307.34	55	5.59	3.90
2010	248.89	23	10.82	3.93
2011	512.30	133	3.85	17.56
2012	411.34	80	5.14	5.08
2013	254.38	61	4.17	4.53
2014	92.85	41	2.26	5.02
2015	155.65	29	5.37	4.42
2016	100.52	17	5.91	6.29
2017	273.11	70	3.90	11.60



The 2018 Wildland Urban Interface Risk Map above illustrates where, and to what degree wildfires are likely to occur.



Cause	Fires	Acres	Fires 5 Yr Avg	Acres 5 Yr Avg
Campfire	4	3.06	3.60	11.85
Children	1	0.10	1.60	1.65
Debris: Ag Fields, Pastures, Orchards, Etc	4	29.99	2.80	10.85
Debris: Construction Land Clearing	0	0.00	0.20	0.08
Debris: Escaped Prescribed Burn	9	20.14	5.00	22.18
Debris: Household Garbage	3	5.90	1.00	1.80
Debris: Other	1	0.50	0.40	0.20
Debris: Residential, Leafpiles, Yard, Etc	11	38.84	8.60	19.35
Debris: Site Prep - Forestry Related	3	30.40	2.60	10.84
Incendiary	9	74.60	4.80	55.59
Lightning	0	0.00	1.00	10.40
Machine Use	4	30.60	4.40	16.87
Miscellaneous: Other	1	4.60	0.40	1.14
Miscellaneous: Power lines/Electric fences	1	0.01	2.80	3.76
Miscellaneous: Structure/Vehicle Fires	1	2.40	1.20	2.03
Miscellaneous: Woodstove Ashes	0	0.00	0.60	1.44
Smoking	2	5.00	0.60	1.48
Undetermined	2	2.60	1.00	2.66
	56	248.74	42.60	174.17

2018 Bulloch County CWPP: current 5 year history

and leading causes of wildland fires.

### C. Assets Exposed to Hazard

Communities with a large amount of wooded brush and grassy areas are at highest risk of wildfires. Additionally, areas that have experienced prolonged droughts, or are excessively dry, are also at a higher risk of wildfires.

All areas of Bulloch County including the City of Statesboro, Towns of Brooklet, Portal, and Register can sustain damage from a wildfire. All jurisdictions have at least one Fire Department. As for the [County Fire resources](#): There are 13 Fire Departments in Bulloch County, Georgia, serving the population in an area of 673 square miles. There is 1 Fire Department per 6,123 people, and 1 Fire Department per 52 square miles.

Wildfire has not threatened the municipalities often, but fire has occurred there. In evaluating assets that are vulnerable to wildfire, the committee determined that a moderate number of critical facilities, as well as most public, private and commercial property, are at risk. The map at the top of the previous page indicated probability of occurrence for each jurisdiction. It shows Portal at a very mild risk, Brooklet and Register show a moderate risk, and Statesboro is a mixture of moderate and above categories.

The 3a Worksheets in Appendix A: Data, indicate what financial losses each jurisdiction could face in a worst case scenario.

## **D. Estimate of Potential Losses**

The three major economic forces in Bulloch County today are education, agriculture, and industry; all of which are vulnerable to the destructive forces of wildfire.

A wildfire event could potentially harm over 37,267 structures in Bulloch County, City of Statesboro, Towns of Brooklet, Portal, and Register at an estimated dollar value of \$4,543,008,101.00, and could impact 79,866 citizens. Based on the Georgia Mitigation Information System, a total of \$ 635,800,619.50 in assets for critical facilities are located within the wildfire hazard areas.

## **E. Land Use & Developmental Trends**

Bulloch County has large tracts of undeveloped land, much of it in private ownership. Of the undeveloped land in the county, over 90 percent is considered Agricultural-Forestry, dominated by cropland and forestry. Losses of assets such as these from fire can devastate families whose income is dependent upon their growth. The inclusion of fire buffer zones and controlled burns are being greatly encouraged as a result of lessons learned from the many Florida & South Georgia fires in the last three decades.

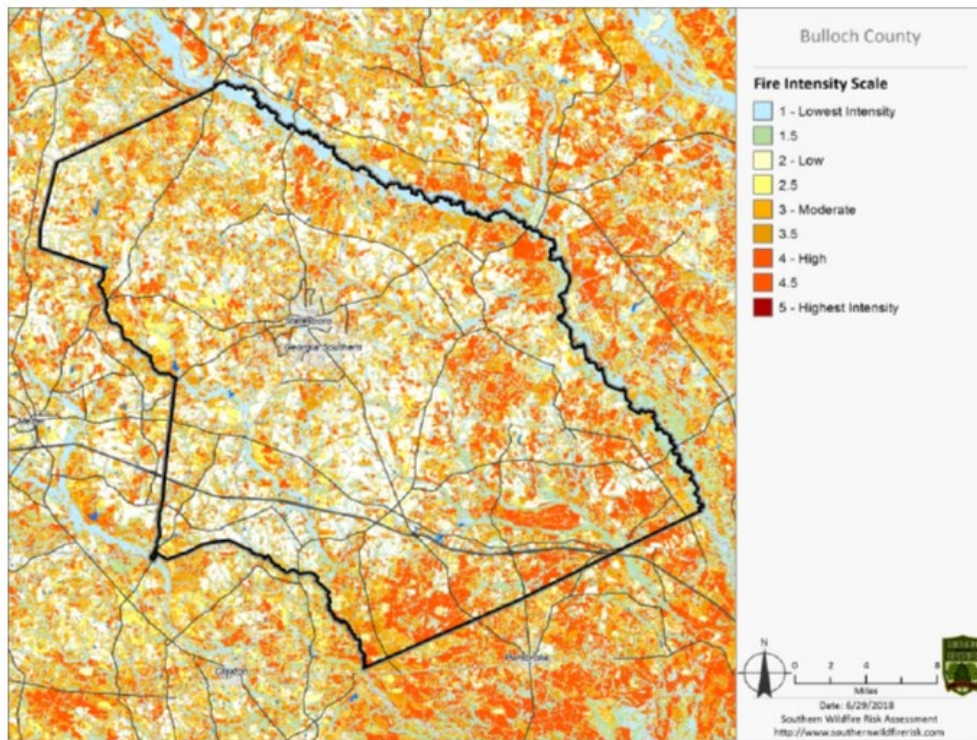
The 2019 statistics have shown the recent population growth in all areas of the County. The County is now up to 79,866 Citizens, the City of Statesboro now has a population of 32,954 (up from 28,422 in 2000, [GSU Students](#) and staff are included), Brooklet is up to 1815, Portal 692, and Register has grown to 195.

Bulloch County has a total area of 689 square miles. Many of its residents live in unincorporated areas.

The six fire department locations within Statesboro are well trained and able to reach those citizens quite well. Brooklet has stations in Brooklet, Leefield, and Stilson, Portal has its station on highway #80, and Register has its own Station on Main Street there. Their vulnerability remains low.

The future developments mentioned in Chapter 1, Section IV, and in the Comprehensive Plan in Appendix B show the building and development keeping pace with this population growth except for the towns of Portal and Register.

## **The F. Multi-Jurisdictional Concerns**



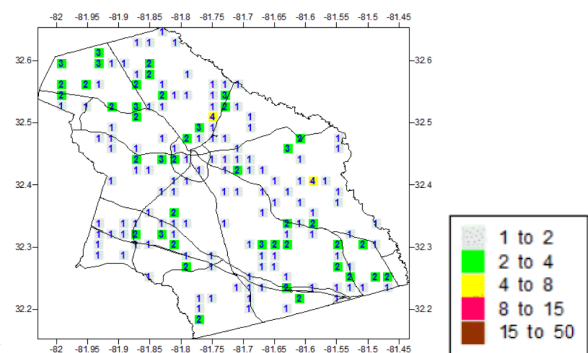
Fire Intensity Scale Map:

Most of the wildfire danger is in the unincorporated areas, but as lightning can cause a wildfire in any location, any mitigation steps taken related to wildfire should be undertaken on a countywide basis and include the unincorporated areas, the City of Statesboro, and Towns of Brooklet, Portal and Register.

The city of Statesboro is well covered with skilled firefighters and first responders. Brooklet has a high water table, and can keep most fire consequences to a minimum. Portal and Register could suffer harsh losses to their homes, businesses, and farm acreage, as would some urban unincorporated areas of Bulloch County.

Bulloch County is protected by organized fire departments within the city of Statesboro, along with 13 well spaced volunteer fire stations and sub-stations under the jurisdiction of the Bulloch County Fire Department. The Georgia Forestry Commission maintains a County protection unit located just north of Statesboro on Highway #301 to also respond to wildfires throughout the County.

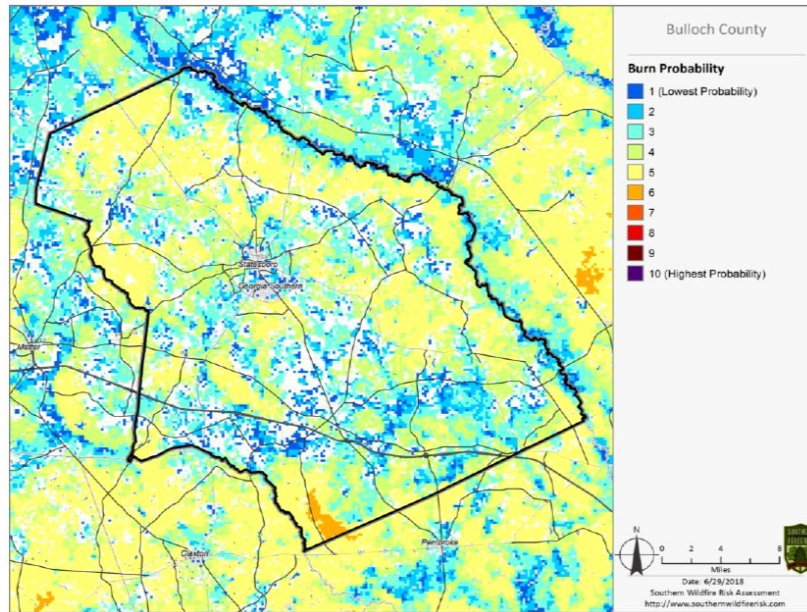
There are pressurized water systems with hydrants available servicing the city of Statesboro, towns of Brooklet, Portal, and Register and some adjacent areas.



### The Georgia Forestry Fire Occurrence Map for 2012-2016

shows mostly 1, and two 2 designations for Statesboro, 1 at Brooklet, Portal shows 2's, and Register a 1.

The Southern Wildfire Risk Assessment (SWRA) developed by the Southern Group of State Foresters was released in July of 2014 and generated this “Burn Probability” map which 0 to 50% probability overall in Bulloch County except for an area in the extreme Southwest area showing a small 60% probability area in light brown.



## G. Hazard Summary

As so much of Bulloch County is agriculture and forest, wildfire remains a critical threat. Due to the destructive nature of wildfires, the committee feels that mitigation strategies for reducing the likelihood of, or losses from, wildfire are critical to the health and safety of Bulloch County residents.

These steps and strategies can be found in the next chapter. They only changes in approach to Wildfires from the original PDM would be added emphasis due to the growing number of citizens, structures, and occurrences, and the added knowledge from the completed 2019 CWPP adding action item ideas.

## CHAPTER 3 – Natural Hazard Mitigation Goals & Action Steps

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Section I	Those Action Steps Which Are Applicable to All Listed Hazards
Section II	Water
Section III	Wind
Section IV	Fire

Chapter 3: Section	Updates to Section
<b>I. ALL:</b> Consolidation of hazard action steps <b>Pgs.</b> 1 to 8	. This update Section I addresses those action steps which apply to all hazards addressed within this plan update
<b>II. WATER:</b> Drought, Flooding, Severe Winter Storms, Ice storms & damage secondary to hurricanes <b>Pgs.</b> 8-16	<ul style="list-style-type: none"><li>• Updated data research: The update needed to address the completed, deleted, new, and unchanged steps</li><li>• Evaluated/updated action steps related to water damage events</li></ul>
<b>III. WIND:</b> Tornadoes, & Windstorms/ Thunderstorms <b>Pgs.</b> 16-19	<ul style="list-style-type: none"><li>• Updated data research</li><li>• Evaluated/updated: action steps related to wind damage events</li><li>• Data adjusted concerning the completed, deleted, new and ongoing steps</li></ul>
<b>IV. FIRE:</b> Wildfires <b>Pgs.</b> 19-27	<ul style="list-style-type: none"><li>• Updated data research: This update addresses the data from the revised 2018 CWPP</li><li>• Evaluated/updated: Action steps related to wildfire damage events</li></ul>



All datasets were updated to 2014-2019 statistics, and events (where applicable) and narrative sections were updated to reflect current evaluations. Public input was sought during these updates by invitations, e-mail notifications, word of mouth, and the information given in social media (Facebook, Twitter, and Instagram.) All four final draft Chapters were published on the Public Safety/EMA County website to solicit the public's input. At this time, the only comments were directed at a few of the dirt roads being impassable to school buses during recent flooding events, and the County Engineer is requesting provided petitions from those who wish to have their road paved in the future.

Due to public gathering restrictions relating to the COVID-19 Pandemic in 2020 and 2021, much of the later data sharing was collected via E-mail, Zoom Meetings, text communications, and phone calls from knowledgeable staff members as well as the public. Most of that data was historical recollections. And city and town leaders were personally visited to encourage them to speak freely.

Governance: The [Bulloch County Board of Commissioners](#) is comprised of a chairman and six additional county commissioners representing each of six districts, population in 2017: 76,149 (52% urban 48% rural). Its total land area: 682 square miles, & average earnings in 2018: \$31,037. The county seat of [Statesboro](#): (The city's government includes a mayor, mayor pro tem, and four city council members representing all five districts, population in 2017; [31,379](#) (99% urban 1% rural) , total land area 12.5 square miles, & estimated median household income in 2012: \$21,627). County municipalities include [Register](#) (a mayor and 5 council members, population 175, total land area is 0.78 square miles whose mayor; Barbara Rushing, personally contributed additional town input on 18 April, 2019. [Portal](#) (a mayor and 5 council members, population in 2017 668 (100% urban), total land area 1.74 square miles, & estimated per capita income in 2017: \$40.352), and [Brooklet](#) (a mayor and 5 council members, population in 2017 1,612, total land area is 3.06 square miles, & estimated per capita income in 2017: \$58,212); each of which were represented in this update development.

The following action steps were deleted:

**1:4** was deleted as the radio system was upgraded, **1:5** was deleted as the EOC obtain new fixed and mobile generators, **1:6** was deleted as new warning systems were incorporated into use, **1:13** was deleted as redundant, **1:15** and **1:16** were deleted as they directed the County to acquire updated FEMA FIRMS, & add or amend local land use plans. Both of those have since been accomplished. **1:17** was deleted as architects already incorporate these steps when they submit forms and fees for building permits.

This chapter is the plan update for natural hazards and was not expected to address man-made hazards. Those "other than natural" hazards are thoroughly covered in various emergency services' procedural plans in both countywide jurisdiction as well as each municipality's Police Departments.

The requirements for the hazard mitigation plan update evaluations have evolved over time to include elements that were not present in the previously approved plan. With regard to Chapter #3; (the areas for action steps the county and municipalities wish to take), the Hazard

Mitigation Plan 2020 Update Committee has gone over each step analyzing its feasibility ending with the last Zoom Meeting on 20 October 2020. This chapter addresses forming strategies to reduce the overall vulnerability to natural hazards, how we strive to maintain the maximum sustainability in business and governmental operations & our personal quality of life. In accordance with this current plan review's list of required elements; for each step, the committee lists a responsible party, the coordinating authority, estimated start and completion dates, an estimated cost for the goods and services to implement this action, and the funding source sought for this action. We also review each step's priority to reflect current conditions.

The Bulloch Hazard Mitigation 2020 Plan Update Committee analyzed the risk assessment data and developed appropriate goals and mitigation strategies through many phone and e-mail communications, and one informal (Zoom) committee meeting session devoted to only these action step strategies. Committee members identified many strategies and sought input from community, elected officials and staff from state and local agencies. They were asked what improvements they would incorporate as mitigation actions if grant monies were available. This helped form or refine the steps listed in this chapter.

Bulloch County has experienced the greatest amount of damage in the past from those hazard events that create flooding issues, causing road closures which limit emergency service personal access to homeowners; those events that create high winds, causing destruction of property; and from those events that create wildfire losses. The 2020 Plan Update Committee members chose not to expand the scope of the plan to address technical hazards in the Kickoff Meeting in September of 2018.

Goals were developed that would focus mitigation efforts on reducing personal, material, and productivity losses from these types of events. The goals and action steps developed by the Bulloch County Hazard Mitigation Planning Committee and subsequent Plan Update Committees are contained herein.

## **Goal:**

***To create a safer, less vulnerable community with a greater sustainability when coping with hazards and disasters and their aftermath.***

This primary list of action steps applies to all of the chosen natural hazards, and are listed first to reduce redundancy.

1:1 Continue to develop and distribute emergency management presentations, brochures, pamphlets, public service announcements and utilize other relevant information streams such as our Facebook, Twitter, & Instagram presence, for civic organizations, business, and the public concerning Code Red, Project Impact, Weather Radio, & Community Safe Shelter programs (Bulloch County (BC), City of Statesboro (CS), Town of Brooklet (TB), Town of Portal (TP), Town of Register (TR))						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Med	Bulloch County (BC) Public Safety/EMA	GA Forestry, DNR, etc.	2021	2025	Man Hours, & printing costs	Gen funds & grants

1:2 Continue to develop, coordinate, and conduct emergency management training/exercise events (BC, CS)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
High	B C Public Safety/EMA	GA Forestry, FEMA, GEMA, DNR, etc.	2021	Ongoing (as new staffing dictates)	Man hours, & training supplies	Gen funds & grants

1:3 Enforce existing ordinances aimed at protecting life and property from natural hazard damages (BC, CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
High	BC Planning & Zoning	EMA, FD's, GA Forestry	2021	Ongoing as new growth permit requests are evaluated	Man Hours	Local Govts

1:7 Provide current First Responder Training (CERT) for Bulloch County citizens on a regular basis in addition to the Citizen Corp. already in place in Statesboro (BC, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
High	BC EMA	County (Public Safety division)	2021	ongoing and will be scheduled when state pandemic restrictions are lifted	Staff Time	GEMA/FEMA

1:8 Review, update and add any necessary floodplain, zoning, and building regulations (BC)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
High	B County Comm. & City Councils	County Admin.	2021	Annually as Federal and State changes/updates occur	Staff time	General Funds

1:9 Increase public awareness of safety procedures, and other disaster plans by publishing articles in the local newspaper, holding public meetings & providing bulletins to churches & the schools (BC, CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
High	B County Public Safety	County EMA	2021	Ongoing as County grows	\$10,000	General Funds and man hours

1:10 Increase public awareness of all the assistance that the local Emergency Management/Public Safety Agency provides for its citizens, & act as the liaison for local, state (GEMA) and federal (FEMA) authorities (BC, CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
High	Bulloch County Public Safety	County EMA	2021	Ongoing as Bulloch County growth is dynamic	Man hours	General Fund

1:11 Update and coordinate all Emergency Response Plans on a regular basis (BC, CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
High	Bulloch County Public Safety	County EMA	2021	Annually review secondary to changes within the County	Staff hours	General Funds & Grants

1:12 Create an SOP for evacuation of threat areas utilizing several software programs, & the NWS resources for specific events with regard to hazardous materials spatial data (BC, CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
High	Fire Departments	City & County Admins	2021	Ongoing As NWS is not area spatially defined within the county	\$5,000	Staff hours, & General funds



1:13 Evaluate building codes & standards for resiliency for wind, water, and fire (BC)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Low	Bulloch County & all City Planning Depts.	City and County Admins	2021	Annually as County growth dictates	\$2,500	Local General Funding & staff hours

1:14 Augment the EMA staff with an Emergency Management Specialist to implement programs, plans, acquire grant funding, and advise & coordinate EMA current activities and new initiatives in response to the consistent population growth within Bulloch County. (BC)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Medium	BC EMA/Public Safety	EMA/County Admin	2021	2025	\$30,000.00	FEMA & General Funds

Action steps which carried over that did not complete when originally protracted were lacking in funding to do so, or funds needed to be allocated elsewhere for various reasons.

## SECTION II – Water

- **Goal:** Reduce drought and flood damage, (& damages secondary to hurricanes and storm surge) to citizens and existing & future structures, especially critical facilities, within Bulloch County. And to reduce economic losses incurred due to destroyed crops, livestock, fallen trees, businesses closing to implement repairs/replacements, and to sustain sanitary conditions while removing flood waters.

*(No changes in priorities were necessary for this 2020 Update.)*

**Priority Key:** High – Years 1 & 2; These are actionable steps that can occur due to staff and other funding sources prioritized to accommodate them

Medium – Years 2 & 3; Funding is actively sought

Low – ≥ 4 Years; Funding is being sought for these, but is unlikely to appear

Committee members developed action steps for each goal, and evaluated the steps using published state ([GEMA](#)) and federal ([FEMA](#)) guidance. GEMA states “It is estimated that for every dollar spent on mitigation, \$6 dollars in future damages can be avoided. Effective mitigation is taking action now - before the next disaster happens.”

**Key:**

Bulloch County – **BC**; City of Statesboro – **CS**; Town of Brooklet – **TB**; Town of Portal – **TP**; Town of Register – **TR**; Georgia Forestry Commission – **GFC**; Private Non-Profits – **PNP**; Board of Education – **BOE**; Environmental Protection Agency – **EPA**; Department of Agriculture - **DOA**

## **A. Mitigation Goals**

- **Goal: Reduce flood damage, (& damages secondary to hurricanes) to citizens and existing & future structures, especially critical facilities, within Bulloch County. And to reduce economic losses incurred due to destroyed crops, businesses closing to implement repairs/replacements, school closures, and to sustain sanitary conditions while removing flood waters.**

As indicated in Chapter 2, Section I, drought conditions can have a negative impact on the local economy by harming the agricultural industries.

#### Total and Per Farm Overview, 2017 and change since 2012

	2017	% change since 2012
Number of farms	478	-12
Land in farms (acres)	197,216	+9
Average size of farm (acres)	413	+25
<b>Total</b>	<b>(\$)</b>	
Market value of products sold	89,859,000	-15
Government payments	9,661,000	+168
Farm-related income	5,794,000	+149
Total farm production expenses	82,388,000	+5
Net cash farm income	22,926,000	-31
<b>Per farm average</b>	<b>(\$)</b>	
Market value of products sold	187,990	-3
Government payments		
(average per farm receiving)	43,129	+344
Farm-related income	28,265	+162
Total farm production expenses	172,360	+20
Net cash farm income	47,963	-21

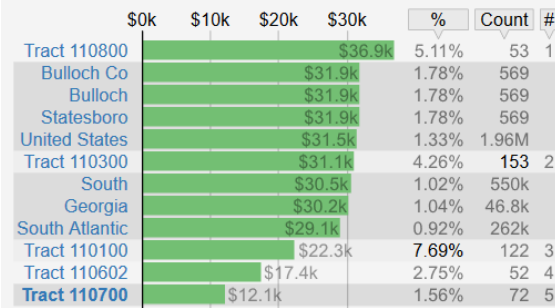
1),

#### Agriculture<sup>1</sup> Income by Tract

#26

Median income for the full-time year-round civilian employed population aged 16 and older.

Scope: population of Tract 110700, selected other tracts in Bulloch County, and entities that contain Tract 110700



% percent of the workforce employed in given industry  
 Count number of people employed in given industry  
 # rank of tract out of 5 by income in given industry  
<sup>1</sup> Agriculture, forestry, fishing, and hunting

2)

The greatest threat, however, posed by drought conditions is from potential wildfires. Much of the county is made up of forest and woodlands. Forest fires are generally the result of dry conditions combined with lightning or human carelessness. The Bulloch County Hazard Mitigation Plan 2020 Update Committee determined that drought conditions needed to be mitigated incorporating efforts to reduce the impact of wildfire.

Conversely, flooding has also caused considerable damage in Bulloch County over time. These difficulties arise from hazard events such as heavy rainfall in a small amount of time, storm surge coming from coastal storms or hurricanes, thunderstorms and some winter storms.

The first goal is directed at drought and states:

Reduce economic losses from drought in Bulloch County

The second goal is to:

Reduce economic losses from flood water in Bulloch County

The mitigation strategies presented here strive to lessen the damages from these events.

Those Action Steps that were to be deleted or deferred are as follows:

**2:2, & 2:3 Deferred due to lack of funds 2:6 deferred (cost was estimated at 1.5 – 2 million dollars) 2:7 Deleted as it is now standard practice 2:8 deleted (State Laws already in place control this) 2:9 & 2:10 were deferred (lack of funding), 2:11 – 2:12 Completed by Building & Zoning Department staff, 2:14 deferred (2020 again showed too many miles of dirt roads would make this cost prohibited at this time), and 2:17 & 2:18 were combined. Numbering adjusted.**

## B. Range of Mitigation Options

The Bulloch County Hazard Mitigation Plan Update Committee has identified the following mitigation measures in an effort to minimize the potentially destructive effects of drought-inflicted wildfires. The committee has identified both structural and non-structural mitigation measures to directly address flooding events within our community as well. The plan update committee's focus is on the preservation of life and property, with particular emphasis on vulnerable populations and critical facilities. Suggested measures may result in modifications to current policies and the implementation of local ordinances to ensure that these mitigation measures are initiated. The proposed strategies hold no inherent risk for historic sites, or special considerations within the community.

### C:1. Mitigation Strategy for Drought

**Goal:** Reduce economic losses (e.g. [crops](#) or [Cattle](#)) to assets from drought events in Bulloch County.

#### Action Step:

<b>2:1</b> Seek input from, and cooperation with, DOA / <a href="#">Extension Service</a> and agriculture industry to enact water conservation procedures with regard to drought. (BC, CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Medium	Georgia DOA	Bulloch County EMA, EPD, DOA, Extension office	2021	2025	Staff hours	Bulloch County (through staff)

### C:2. Mitigation strategies for flooding

**Action Steps:**

**2:2** Assess storm water runoff & watershed plans and evaluate efficiency of present culverts & drainage ditches (BC, CS, TB, TP, TR) deferred due to lack of funding

<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
High	BC & City Public Works Depts.	City & County Admin.	2021	Deferred due to lack of funds	\$3,500	Local Funds, DCA, & FMA

**2:3** Explore feasibility of cost sharing to move property owners who are in areas repetitively experiencing losses due to flood waters (BC, CS) was deferred due to lack of funding

<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Medium	City and County Planning	City & County Admin	2021	Deferred due to lack of funds	% of Property Value(s)	Federal, State, Local

**2:4** Seek funding to acquire flood prone properties & convert the land to low impact uses such as recreational areas (BC, CS, TB, TR) deferred due to lack of funds

<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Medium	City & County Planning & Zoning	County & City Admin	2021	Deferred due to lack of funds Brooklet has already completed this	Property Assessment	Grants & Local Funding



<b>2:5</b> Regulate building in areas prone to flooding & eliminate permits for building critical facilities in flood prone areas (BC, CS, TB, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Medium	City/County Planning Depts.	City & County Admin	2021	Ongoing as growth continues	Staff Hours	Local

<b>2:6</b> Seek funding to repair municipal sewer infrastructure due to flooding & I&I problems (CS) deferred (in 2016 Statesboro estimated this would cost 1.5 to 2 million dollars)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Low	City of Statesboro Water/Sewer	City Admin	2021	Deferred due to lack of funds	1.5 to 2 million dollars	Local

<b>2:7</b> Discourage large developments on unpaved roads without having done paving, & drainage improvements (BC, CS, TB, TP, TR) deferred – lack of funds						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
High	City & County Planning Depts.	City & County Admin	2021	Deferred	> \$7,500	Local & Staff Hours

<b>2:8</b> Develop cost study on paving roads vs. maintaining unpaved roads (BC, CS, TB, TP, TR) deferred – lack of funds						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
High	BC Public Works	BC Planning & Zoning	2021	As population and new construction continue to increase	≥ \$15,000 per year	Local & Staff Hours

<b>2:9</b> Educate property owners/prospective property owners on risks associated with residing in areas of recurrent flooding ( <b>BC, CS, TB, TR</b> )						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
High	BC Planning & Zoning	BC Public Safety	2021	Ongoing as population is dynamic	Staff hours	State, Local

<b>2:10</b> Seek funding to improve existing dirt roads in flood prone areas ( <b>BC, CS, TB, TR</b> ) deferred – no monies allocated						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
High	BC Public Works	BC Planning & Zoning	2021	Deferred	\$2,500 – 200K+	State & Local

<b>2:11</b> Evaluate increasing the sizes of retention basins & runoff canals as necessary ( <b>BC, CS</b> ) Blue Mile improvements are in-progress						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Low	BC Public Works	BC Planning & Zoning	2021	As County and City growth progresses	≥\$9,500	Local

<b>2:12</b> Conduct NFIP Community workshops to provide information, & incentives for property owners to acquire flood insurance ( <b>BC, CS, TB, TR</b> )						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Medium	City & County Bldg & Zoning Depts.	City & County Planning Depts.	2021	Ongoing as County growth progresses	Staff Hours	General Funds

<b>2:13</b> Use outreach programs to advise homeowners of risks to safety from excess water hazards (& mitigation techniques & assistance programs) (BC, CS, TB, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Medium	Fire Depts., County Extension, & Building & Zoning Depts.	City and County Planning Depts.	2021	2025	Staff Hours	General Funds

## D. Multi-Jurisdictional Considerations

Drought conditions affect all of Bulloch County. Critical facilities and vulnerable populations are located in the municipalities as well as in unincorporated areas of the county. As a result, any mitigation steps taken related to drought and drought inflicted wildfires should be undertaken on a countywide basis and will include the City of Statesboro, Town of Brooklet, and Town of Portal, and Town of Register.

Steps taken for flood are to be undertaken in ≤42% of Bulloch County & include the City of Statesboro, and the towns of Brooklet and Register. Portal has no known areas of flooding. Statesboro is in the process of evaluating its approach to repetitive flood areas, (These include structures with four or more losses each with a claim of at least \$5,000 and with the cumulative amount of such claims payments exceeding \$20,000; or for which at least 2 separate claims payments have been made with the cumulative amounts exceeding the market value of the structure.) and Register is discussing its need for NFIP participation.

There are 23 “Historical Places” in Bulloch County (according to the [Natural Register of Historical Places](#)) at this writing. No conflicts exist with regard to the mitigation action items and the integrity of these properties.

## E. Education & Awareness

The Bulloch County Hazard Mitigation Plan Update Committee has identified several methods of public education and awareness regarding hazard mitigation. All public information efforts are aimed at keeping the citizens of Bulloch County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and included the following: having implemented a countywide crisis alert or notification system (Code Red), distribution of informational brochures or pamphlets, and public and private sector briefings through newspaper articles and church bulletins. Another improvement in this area is the use of social media. Current information which Public Safety and/or Bulloch County EMA wish to impart on a timely basis is now offered on the “[Bulloch](#)

[County Public Safety/EMA](#)” Facebook page, and questions will be answered there, on Instagram, and on the Twitter feed as time permits.

## **F. Completed & Deleted Action Steps**

The City of Statesboro has updated their [floodplain ordinances](#), which were adopted in July of 2010. **Action Step #2:8 was deleted** since Georgia Law controls this, **2:11, 2:12 (Completed by Building and Zoning staff)**, and **2:17 & 2:18 were combined**.

Many of the Action steps **were deferred due to lack of funding** for them (**2:2, 2:3, 2:6, 2:9, 2:10, and 2:14**) Numbering was then adjusted.

## **G. Unchanged and New Action Steps**

Steps now numbered **2:1, 2:5, 2:7, 2:10, 2:12, and 2:14** are only updated, not changed as they are still appropriate to the Goals presented.

# **SECTION III – Wind**

## **A. Mitigation Goals**

- **Goal: Avoid or diminish damage caused by high winds from hurricanes, tornadoes, severe winter storms, windstorms and coastal storms in Bulloch County. Strengthen critical facilities and large or vulnerable population centers in that effort.**

Wind poses the threat of great danger to the life and property of residents in Bulloch County. Tremendous storms create damage from high winds, tornadoes, or thunderstorm wind/high wind. Some of these events can create unsafe conditions from these damages, as well as tremendous property loss.

The stated goal: Minimize losses to lives, health, and property from the destructive forces of high wind events.

Proposed mitigation measures reflect the efforts of the Bulloch Hazard Mitigation 2020 Plan Update Committee to reduce destruction from high winds, as well as a focus to protect the lives and property of Bulloch County citizens, area work forces, and other visitors.

**B. Range of Mitigation Options** - The 2020 Plan Update Committee identified both structural and non-structural mitigation measures to ensure that the community adequately addresses relevant issues which could possibly occur in high wind event. Structural measures include retrofitting critical facilities to better withstand tornadic winds (perhaps utilizing: structural bracing, straps & clips, anchor bolts, impact-resistant glass, reinforced doors, window shutters, and interlocking roofing shingles) and an example of a non-structural measure would be the development of a community safe shelter program for at risk citizens.

Several non-structural measures were identified to ensure that proper mitigation measures are undertaken. The proposed strategies hold no inherent risk for historic or special considerations in the community, but do take into consideration the needs and location of vulnerable populations, and are in harmony with other Bulloch County plans and procedures.

**Key:**

Bulloch County – **BC**; City of Statesboro – **CS**; Town of Brooklet – **TB**; Town of Portal – **TP**; Town of Register – **TR**; Georgia Forestry Commission – **GFC**; Private Non-Profits – **PNP**; Board of Education – **BOE**; Environmental Protection Agency – **EPA**; Department of Agriculture - **DOA**

**C: Mitigation Strategy for Tornadoes and other high wind events**

<b>3:1</b> Continue to inform the BC Citizens in tornado and high wind awareness, the use of storm shutters and window film, & discourage loose objects outside from becoming projectiles ( <b>BC</b> ) ( <b>CS</b> ) ( <b>TB</b> ) ( <b>TP</b> ) ( <b>TR</b> ) (this is disseminated regularly through tornado drills, <b>FB</b> and other social media sites)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Medium	BC Public Safety/EMA	BOE, and County Fire Departments	2021	Ongoing as growth occurs	\$3,500	Local, State



<b>3:2</b> Work with BOE to ensure that all new educational facilities are designed to also serve as approved public shelters for emergency purposes ( <b>BC, CS, TB, TP</b> )						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
High	BC BOE, & GEMA School Safety	Red Cross	2021	Ongoing as new schools apply for permits	> \$3,000, (less if in new structure designs)	BOE Budget, FEMA

<b>3:3</b> Seek funding for wind retrofitting of critical facilities ( <b>BC, CS, TB TP, TR</b> ) deferred/no funding assigned						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Low	BC Public Safety	City Administration	2021	Deferred due to budgetary restrictions	> \$3,000	Fed, St, & Local

<b>3:4</b> Review feasibility of making a subdivision requirement for underground utility line placement ( <b>BC</b> ) deferred/no funding allocated						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Low	BC Planning & Zoning	City & County Planning Depts.	2021	Deferred due to financial restrictions	\$4,500	Local (Staff Hours)

<b>3:5</b> Encourage and seek funding for the construction & use of safe rooms in homes, shelter areas, manufactured home parks, fairgrounds, shopping mall, and other vulnerable public structures ( <b>BC, CS, TB, TP, TR</b> ) deferred, no funding obtained						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Low	BC Public Safety/EMA	BC Admin	2021	Deferred due to lack of funds	Staff Hours	Local

#### **D. Multi-Jurisdictional Considerations**

Hurricane wind, tornadoes, and all other high wind conditions affect all of Bulloch County as does an ice storm (which has many of the same issues such as power outages from downed trees, et. al.). The County's critical facilities and vulnerable populations are located in the City of Statesboro as well as in unincorporated areas of the county. Alerting all residents of impending high winds or an ice storm event is a county-wide concern.

#### **E. Education & Awareness**

The Bulloch County Hazard Mitigation 2020 Plan Update Committee has identified several methods of public education and awareness regarding hazard mitigation. All public information efforts are aimed at keeping the citizens of Bulloch County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and include the following: implementing a countywide crisis alert or notification system, distribution of informative brochures or pamphlets, and public and private sector briefings through newspaper articles, and church bulletins concerning updated county emergency procedures. The Bulloch County Public Safety/EMA staff have effectively implemented the Code Red system and The Integrated Public Alert and Warning System (IPAWS) as well as engaging the public through Facebook Pages (the original page and a Facebook page devoted to information with regard to Covid 19) and Twitter.

At or about 3 PM daily, the current data sets were published for Covid cases, vaccine and other data as it became available from the CDC and local sources.

#### **F. Completed & Deleted Action Steps**

Steps numbered **3:2** and **3:6** have been completed. The following steps were deleted as redundant or not feasible: **3:7**, and **3:9**.

## G. Unchanged Action Steps

No new action steps were introduced at this revision of the county hazard mitigation plan. Steps numbered **3:3, 3:4, and 3:5** have been deferred due to lack of funding.

## SECTION IV – WILDFIRES

### A. Mitigation Goals

**Goal: Reduce damage caused by wildfire in Bulloch County through education, implementing safety measures, availability of firefighting training and assistance, safeguarding assets, and plentiful water resources**

Potential wildfire situations are a genuine threat in Bulloch County. Much of Bulloch County is forest and woodlands. Periodic drought conditions, human error, and lightning strikes from

Acreage Burned /Number of Fires For Bulloch County For FY 2008-2017				
Year	Acreage Burned	Number of Fires	Average Size	Statewide Average Size
2008	244.23	38	6.43	4.56
2009	307.34	55	5.59	3.90
2010	248.89	23	10.82	3.93
2011	512.30	133	3.85	17.56
2012	411.34	80	5.14	5.08
2013	254.38	61	4.17	4.53
2014	92.85	41	2.26	5.02
2015	155.65	29	5.37	4.42
2016	100.52	17	5.91	6.29
2017	273.11	70	3.90	11.60

thunderstorms have created a serious potential hazard to the lives and property (which includes agricultural assets and livestock) of Bulloch County residents. The Georgia Forestry table here indicates Bulloch County specific fire history, and the value of mitigation actions.

During this 10-year period the County averaged 54.7 wildfires and 260.06 acres burned annually.” (2018 CWPP in Appendix C) (Hazard Frequency Table Appendix D)

The efforts of the Bulloch County Hazard Mitigation 2020 Plan Update Committee have been focused on reducing wildfire threats, preventing the destruction of forests and structures, and protecting the life of residents, livestock, poultry, and other animals from threat of wildfire.

## **Mitigation Goal: Reduce damage caused by Wildfire in Bulloch County.**

Action Steps that were completed or **deleted** this update:

**Completed: 4:6** Protocols were established for consistent hydrant testing and maintenance, **eliminated 4:10** (the regulation and enforcement of burn permits is a function of Georgia Forestry), **deleted 4:11** Dry hydrants were added, **4:15** turnout gear acquired **4:16** Five additional tankers were acquired **4:19** “No burn permits issued during drought events” is a GFC function, **4:17-18, & 4:24** Modernize E-911 completed through Code Red & IPAWS, **4:19 deleted** as “Prescribed Burning” is a function of GFC, **4:21** was **deleted** as redundant, and **4:25 deleted** “Drawing water from private pools” as it was not feasible.

### **B. Range of Mitigation Options**

The Bulloch County Hazard Mitigation Plan Update Committee 2020 identified structural and non-structural mitigation measures to reduce the threat of a wildfire event, and minimize damages from such events. Non-structural measures may result in alterations to current land use policies and building codes, if necessary; to ensure that proper mitigation measures are undertaken. The proposed strategies hold no inherent risk for historic or otherwise special considerations within the community.

This set of action steps was enhanced by the vast amount of information within the recent [\(2018\) Community Wildfire Protection Plan \(CWPP\)](#) (Appendix C) which was a collaborative effort between the County and The Georgia Forestry Commission.

The compilation of current datasets was studied by Ted Wynn (Director of Public Safety & EMA), Chris Ivey (Chief Bulloch Co. FD), Tim Grams (Chief Statesboro FD), and Doug Chassereau (Chief Ranger, Bulloch County Forestry Unit), Will Fell, CWPP Specialist, (Initial plan 2013), and Beryl Budd, Wildfire Prevention Specialist (Revised plan 2018) all of whom mutually agreed upon the contents of the CWPP.

#### **Key:**

**Bulloch County – BC; City of Statesboro – CS; Town of Brooklet – TB; Town of Portal – TP; Town of Register – TR; Georgia Forestry Commission – GFC; Private Non-Profits – PNP; Board of Education – BOE; Environmental Protection Agency – EPA; Department of Agriculture - DOA**

## **Mitigation Strategy for Wildfires**

**Action Steps:**

<b>4:1</b> Publicize social media posts/articles about “Fire Awareness Week”, and “Daily Fire Safety Tips” for local churches and the schools. (BC,CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Medium	BC Public Safety/EMA	Statesboro FD, BCFD, & GA Forestry	2021	Ongoing as growth continues in the county	Staff and volunteer hours	State and Local funds

<b>4:2</b> Educate landowners on the benefits of creating and maintaining fire breaks (BC, CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Low	GA Forestry	BC Public Safety/EMA	2021	Ongoing as county growth continue	\$4,000	State & Local Funding

<b>4:3</b> Educate residents about providing (& maintaining) defensible space (30 ft minimum setbacks) between buildings and flammable brush and/or forested land (BC, CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Medium	GA Forestry	BC Public Safety, Statesboro FD	2021	Ongoing as county growth continues	>\$4,000	State & Local Funding



<b>4:4</b> Seek state and federal grants to improve older fire equipment (BC, CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding sources</b>
High	BC Public Safety/EMA	BCFD, & Statesboro FD	2021	Ongoing as some have already done so	Man hours	Fed & St grants & Gen Funds

<b>4:5</b> Seek input from DOA/Extension Service & Agriculture industry to enact water conservation procedures in relation to drought (BC, CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Medium	GA EPD, GA DOA, UGA Extension	BC Public Safety/EMA	2021	Ongoing new growth occurs	>\$3,500	GA EPD, GA DOA, UGA Extension

<b>4:6</b> Keep current with wildland fire training at the local FD level (BC, CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
High	BC, Statesboro and town FD's & GFC	BC Public Safety/EMA	2021	Ongoing due to volunteer and staff changes	Staff and volunteer hours	State & Local Funding

<b>4:7</b> Explore the Firewise Community initiative – interactive workshop engaging developers, planners, EMS, & Government Officials about Firewise concepts within the county (BC, CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Medium	BC Public Safety/EMA	GA Forestry	2021	Ongoing with staffing dynamics	\$1,000	State & Local Funding

<b>4:8</b> Strictly follow GFC guidelines for controlled burns & permits, publish any changes to keep the citizens informed concerning the guidelines (BC, CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Medium	GA Forestry	BC Public Safety	2021	Ongoing with growth	\$5,000	State funds

<b>4:9</b> Explore an ordinance which would enact fines for people throwing lighted cigarettes out of moving vehicles (BC, CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Low	BC Public Safety/EMA	City & County Managers	2021	2025	\$2,500	Local funding

<b>4:10</b> Continue to create, monitor, & maintain GFC firebreaks around forested areas and structures. (BC, CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Low	GA Forestry	Local FD's to monitor	2021	Ongoing as the population changes	>\$100 K	State funding

<b>4:11</b> Seek funding to purchase brush trucks, Class A pumpers, etc. (BC, CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Medium	BC Public Safety/EMA	Local FD's	2021	Ongoing as the population changes	≥\$300,000 per district	Fed, St., and local

<b>4:12</b> Increase public awareness of Wildfire dangers by periodically publishing informative articles, and continue to maintain an EMA/Public Safety presence on social media such as Facebook, Instagram, & Twitter. (BC,CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Low	BC Public Safety/EMA	City & County FD's, & BC BOE	2021	Ongoing as population changes	\$2,500	State & Local funding

<b>4:13</b> Educating the landowners concerning specific mitigation steps listed here which apply to, and can benefit them (BC, , CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Medium	GA Forestry	BC Public Safety/EMA	2021	Ongoing as population is dynamic	\$2,500	State & Local

<b>4:14</b> Seek funding to keep all firefighters current with tactical training and equipment (BC, CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
High	BC Public Safety/EMA	GA Forestry	2021	Ongoing with staff and volunteer changes	>\$1,000	Fed. State, & Local

<b>4:15</b> Enforce codes and ordinances to provide driveway access, increased visibility of house numbers, required Class A roofing materials, and skirting around raised structures (BC, CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
Medium	City/County Planning	City/County Admin	2021	Ongoing with growth	Staff hours	General Funds

<b>4:16</b> Promote preservation of open space or wildland-urban boundary zones to separate developed areas from high-hazard areas (BC, CS, TB, TP, TR)						
<b>Priority</b>	<b>Responsible party</b>	<b>Coordinating authority</b>	<b>Estimated start</b>	<b>Estimated completion</b>	<b>Estimated cost</b>	<b>Potential funding source(s)</b>
High	Zoning Depts.	Planning Depts.	2021	Ongoing with growth	Staff Hours	General Funds

## D. Multi-Jurisdictional Considerations

Wildfires/Wildland Fires happen due to many causes, and in many areas with Bulloch County. Critical facilities and vulnerable populations are located in the municipalities as well as in unincorporated areas of the county. As a result, any mitigation steps taken related to wildland fires and drought inflicted wildfires should be undertaken on a countywide basis and will include the City of Statesboro, Town of Brooklet, and Town of Portal, and Town of Register. It is important that future development be planned and constructed to provide for heightened public safety in a wildland fire emergency event. Seeking funding for the listed action steps remains quite high in priority.

There are 23 Historical Places in Bulloch County (according to the [Natural Register of Historical Places](#)) at this writing. No conflicts exist with regard to the mitigation action items and the integrity of these places.

## E. Education & Awareness

The Bulloch County Hazard Mitigation Plan 2020 Update Committee has identified several methods of public education and awareness regarding hazard mitigation. All public information efforts are aimed at keeping the citizens of Bulloch County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and include the following: continued (and popular) utilization of social media distribution of information via Facebook, Instagram and Twitter, brochures or pamphlets, and public and private sector briefings through newspaper articles, church bulletins, and televised Public Service Announcements (PSA's) concerning wildfire dangers, and how to minimize their occurrences on public and private property through mitigation actions to lower fuels and add defensible areas/spaces as well as stressing the judicious use of required burn permits as allowed.

## F. Completed & Deleted Action Steps

Action Steps that were completed or deleted:

**Completed: 4:6** Protocols were established for consistent hydrant testing and maintenance, **eliminated 4:10** (the regulation and enforcement of burn permits is a function of Georgia Forestry), **deleted 4:11** Dry hydrants added, **4:15** Turnout gear acquired **4:16** Five additional tankers were acquired **4:19** “No burn permits issued during drought events” is a GFC function, **4:17-18, & 4:24** Modernize E-911 was completed through Code Red & IPAWS, **deleted 4:19** deleted as “Prescribed Burning” is a function of GFC, **4:21** was deleted as redundant, **4:25** “Drawing water from private pools” was not feasible

### **G. Unchanged and New Action Steps**

Action Steps now numbered **4:1-6, 4:7-9, 4:12-14, 4:17, 4:18, & 4:20** were updated but retained as still advantageous.

## CHAPTER 4 – EXECUTING THE PLAN

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<b>Section I</b>	<b>Action Plan Implementation</b>
<b>Section II</b>	<b>Evaluation</b>
<b>Section III</b>	<b>Multi-Jurisdictional Strategy and Considerations</b>
<b>Section IV</b>	<b>Plan Update and Maintenance</b>

<b>Chapter 4 Section</b>	<b>Updates to Section</b>
Chapter 4: Plan Update Execution	This update sought to produce a more concise explanation of the process.
<i>I. Action Plan Implementation</i>	<ul style="list-style-type: none"><li>Added/Updated: information that the new template dictated, &amp; references to other plans</li></ul>
<i>II. Evaluation</i>	<ul style="list-style-type: none"><li>Added/Updated: addressed open sharing with County municipalities</li></ul>
<i>III. Multi-Jurisdictional Strategy and Considerations</i>	<ul style="list-style-type: none"><li>Added/Updated: Confirmed successes of action steps and the need to continue same</li></ul>
<i>IV. Plan Updates &amp; Maintenance</i>	<ul style="list-style-type: none"><li>In the last year and a half of the update, the COVID-19 Pandemic in 2020/21 reduced the public meetings to Zoom meetings and circulating data via e-mail, phone, and data sharing online</li></ul>

### SECTION I – ACTION PLAN IMPLEMENTATION



## Administrative Actions

The Hazard Mitigation Plan Update 2020 process was overseen by the Bulloch County Department of Public Safety/Emergency Management Agency. The Bulloch County Board of Commissioners has authorized the submission of this plan to both GEMA and FEMA for their respective approvals.

## Authority and Responsibility

As determined during the planning process, the committee has chosen an Implementation Team comprised of the EMA Director/Public Safety Director (Ted Wynn), the County Manager (Tom Couch), [City of Statesboro](#) Manager (Charles W Penny), and the Councils of [Brooklet](#), (Mayor Joe Grooms, III), [Portal](#) (Mike Arrieta), and [Register \(Mayor Barbara Rushing\)](#) to assign tasks appropriately and ensure the ongoing execution of the Plan's updated action steps through branches of each township, the city, and the county government. Bulloch County and the City of Statesboro will exchange and incorporate this Plan Update with the other Plans (Comprehensive, Future Development, Georgia Southern University Plans, etc.) within that jurisdiction. The towns of Brooklet, Portal and Register currently have ordinances, but no forward reaching plans.

**Statesboro:** City Council Meetings are update and evaluate Statesboro's changes, needs, and priorities and are conducted each Tuesday Morning starting at 9:00 am on the 2nd Floor of City Hall Council Chambers.

The Statesboro Planning Commission consists of 7 community members appointed by the Mayor and City Council.

"The Commission is vested with the duties to hear and make recommendations to the Mayor and City Council on matters requiring variation or changes to the Statesboro Zoning Map, Zoning Ordinance, or Subdivision Regulations."

The Planning Commission normally meets the first Tuesday each month at 5:00 P.M. in the City Council Chamber in City Hall.

**Brooklet:** "The Town of Brooklet Mayor & City Council will hold [two public hearings](#) on the Fiscal Year 2022 Budget at 8 a.m. on May 28<sup>th</sup>, 5 p.m. on June 10<sup>th</sup>, and 6 p.m. June 17<sup>th</sup> at Brooklet City Hall, 104 Church Street, Brooklet, Georgia." Infrastructure improvements relative to the Chapter #3 Action Steps pertaining to them will be addressed at this time.

The town of **Portal** (population 692): conducts monthly Town Council meetings (except for Covid Quarantine months) to address their infrastructure/improvement needs and assign respective priorities. Meeting dates are set by Mayor Billy Boggs and Councilman Clay Williams and are announced on their Facebook Page.

**Register** Town Council discusses these: "The Town of Register council meetings are held the second Thursday of each month at 5:30 pm. The meetings are held in the Community Center." As noted on [their website](#).

The Bulloch County Hazard Mitigation Plan Update Committee has developed a method to ensure that regular review and updating of the Plan occur. The Emergency Management Agency/Public Safety Director Ted Wynn will assemble a committee in January of each year. This will allow for ample time to begin the process well before the plan expiration date. Committee members will be responsible for monitoring and evaluating the progress of the mitigation strategies in the Plan. The committee will review each goal and action step to determine relevance to expected growth and changing situations in the County, as well as changes in state and federal policy, and to ensure that goals are addressing current and expected conditions. The committee will also review the plan as it applies to any substantial hazard event after its occurrence and After Action Report.

The parties responsible for the various implementation actions, as assigned by the Implementation Team, will evaluate which implementation processes worked well, any difficulties encountered, how coordination efforts were proceeding, and which strategies should be removed or revised.

All iterations of this plan have been formally adopted by each jurisdiction. Adoption Resolutions for the 2020 Update to this plan can be found in Appendix E. (Adoption Resolutions are historically sought-after plan update approval)

## **Prioritization**

Members of the Bulloch County Hazard Mitigation Plan Update Committee prioritized the identified mitigation actions based on what would be perceived as most beneficial to the community. A list of mitigation goals, and related action items was compiled from the input of the plan update committee, as well as from others within the community and the Georgia Forestry Commission for their input regarding wildfires. Several criteria were established to assist committee members in the prioritization of these suggested mitigation actions. Criteria included perceived cost benefit or cost effectiveness, availability of potential funding sources, overall feasibility, measurable milestones, multiple objectives, and both public and political support for the proposed actions. Through this prioritization process, several projects emerged as being a greater priority than others. Some of the projects will involve expending considerable amounts of subsidizing to initiate the required actions. The cost benefit analysis for each action is based on best available data, but subjective in nature until such time as the actual scope of work is determined. The determination of the actual cost benefit (such as the FEMA B/CA model) of a project will be implemented at time of application or funding request. Other projects allowed the community to pursue completion of the project using potential

grant funding. Still others required no significant financial commitment by the community other than staff hours contributed. Priority was determined by the update committee based upon its urgency, the time and cost it would incur, and the reasonable expectation of funding. There were no changes to priority status for this update.

Basic project, Priority, Leading and Supporting agencies, Estimated start, Estimated completion, Anticipated cost, and Potential funding source(s) are listed under each action statement in Chapter 3. Actions with no benefit ratio, which are deemed too subjective in nature, or no relevant data was available, were not listed.

### **Incorporation of Local Hazard Mitigation Plan into Other Plans**

Bulloch County had updated its Comprehensive Plan to the (Bulloch County [Smart Plan 2040](#)). At that time, evaluations of mitigation actions identified in the Hazard Mitigation Plan were conducted to determine what should be included in the Comprehensive Plan. Relevant sections of this Hazard Mitigation Plan should be included in the next revision of the Bulloch County Local Emergency Operations Plan (LEOP), as well as information from the “Flood Insurance Study”, “Community Wildfire Protection Plan”, “Local Emergency Operations Plan”, and “Georgia Hazard Mitigation Strategy Standard and Enhanced Plan 2019-2024” as listed in Appendices B and C.

The town of Brooklet is 3.3 mi.<sup>2</sup> and has a population of 1815 citizens, Portal has a population of 692 in its 2 mi.<sup>2</sup>, and Register is an unfunded town 0.8 mi.<sup>2</sup> and 195 citizens. As such, these 3 jurisdictions had no “plans” to contribute, and had signed Adoption Resolutions to all of the Bulloch County Hazard Mitigation Plans and updates. Their building permits and mitigation actions defer to County requirements.

The City of Statesboro (population 32,954), and the Georgia Southern University (~30,000 staff and students) have contributed their updated information at the Plan Update meetings (both public and private), and numerous email exchanges. They wish to stay informed of any changes affecting them, and the committee continues to welcome related suggestions from them.

Estimation of potential damages and their costs in the event of a natural hazard achieves two goals: it enables the identification of critical economic targets for hazard mitigation measures, as well as to enhance the ability to prioritize post-disaster response in aiding the community to recover.

The Bulloch County area is fairly contained, so their emergency services’ personnel sit in on, and contribute information for, many of the same Bulloch County Plans, SOPs, and EOP updates. This assists in making sure that plans and procedures do not conflict with one another. This very valuable and effective mutual assistance was successfully demonstrated in the mid-February 2014 Pax Ice Storm, and problems secondary to coastal storms/hurricanes Matthew (2016), Irma (2017), and Michael (2018). This was due to the incorporation of the 2015 Bulloch county plan being blended into the various

local planning documents, such as the CWPP and LEOP in the last five years. The 2015 Bulloch County plans goals and action steps were updated to reflect new data given in the CWPP. This process has been repeated for the 2020 Bulloch HMP update.

## **SECTION II – EVALUATION**

The Emergency Management Agency/Public Safety Administration will ensure that this plan is monitored at least annually or updated more often if deemed necessary.

The EMA /Public Safety Administration will ensure the results of the evaluation(s) are shared with the Bulloch County Board of Commissioners, the Mayor of the City of Statesboro, and Councils of the Towns of Brooklet, Portal and Register, Georgia Southern University, and to any agencies or organizations having an interest or role in the hazard mitigation activities identified in Chapter three of the plan. Copies of the GEMA and FEMA approved updated plans will be made available for public review at the Bulloch County Public Safety Department, County website, and the public library in Statesboro.

## **SECTION III – MULTI-JURISDICTIONAL STRATEGY AND CONSIDERATIONS**

The Emergency Management Agency/Public Safety Administration is the overall implementation agency for projects such as Hazard Mitigation. Bulloch County and the municipalities have authorized the Bulloch County EMA to act, in a prudent manner, in their behalf.

The municipalities and the unincorporated county areas were included in the planning process. Participation from each jurisdiction was solicited by notices and e-mail invitation, and received by the Bulloch County Emergency Management Agency (see Appendix E.) The ice storm Pax after action reviews reinforced the co-operative sharing of assets and communications. As a result, a multi-jurisdictional plan update was created for Bulloch County with the ideas and viewpoints of all participants included, and successful actions strengthened.

## **SECTION IV – PLAN UPDATE AND MAINTENANCE**

Per the requirements set forth in the Disaster Mitigation Act of 2000, Bulloch County is required to update and revise the plan every five years. At the direction of the EMA Director, a Bulloch County Hazard Mitigation Plan Update Committee will convene in order to accomplish this revision. This iteration of this plan is a product of the 2020 update, and it seeks to enhance hazard mitigation and lessen negative impacts for Bulloch County and its citizens.

All subsequent revision processes should include a firm schedule and timeline, and identify, and invite all agencies and organizations who wish to participate in the plan review. The Committee will review the mitigation goals, and action items to determine their relevance to dynamic situations within the county, as well as changes in State or Federal policy, and ensure they are addressing current and expected conditions. The Update Committee will also reconsider the risk assessment portion of the plan to determine if this information should be modified, incorporating any new available data.

Bulloch County is dedicated to involving the public directly in review and updates of the Hazard Mitigation Plan. During the plan revision process, the Committee will conduct, at a minimum, two public hearings. These public hearings will provide the public a forum for which they can express their concerns, opinions, or ideas about the plan. Additionally, any persons from the community who express interest in participation in the planning process will be provided the opportunity to suggest mitigation measures for the community, and, as was done with this update, changes and additions can be reviewed as they are posted onto the county's website. Drafts of each chapter will be made available for review and input at the County website to reach as many citizens as is possible.

Documentation will be maintained to indicate all efforts at continued public involvement. This documentation will include newspaper sections reflecting the advertised public hearing notice, sign-in sheets, meeting minutes, etc. (Appendix E). All relevant information will be forwarded to GEMA and FEMA as a product of the proposed plan revision. Some workarounds had to be implemented due to Covid-19 public distancing requirements after mid-March 2020, but all inclusion efforts were made.

The EMA/Public Safety Administration will ensure the revised plan is presented to the Bulloch County Board of Commissioners, and the mayors and councils of the city of Statesboro, and the towns of Brooklet, Portal, and Register for formal adoption. In addition, all holders of the county plan will be provided the updated plan data.

No later than the conclusion of the five-year period following initial approval of the plan updates, the EMA/Public Safety Director shall submit a revised (updated) Hazard Mitigation Plan to the Georgia Emergency Management Agency and the Federal Emergency Management Agency for their review, coordination, and approval.

**GEMA Worksheet #3a****Inventory of Assets 2020****Jurisdiction:** Brooklet**Hazard:** Wind and Fire**Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.**

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures			Number of People		
	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	669	669	100.000%	67,962,965	67,962,965	100.000%	1,659	1,659	100%
Commercial	93	93	100.000%	12,334,481	12,334,481	100.000%	0	0	#DIV/0!
Industrial	6	6	100.000%	1,951,653	1,951,653	100.000%	0	0	#DIV/0!
Agricultural	0	0	0.000%	0	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	11	11	100.000%	2,589,353	2,589,353	100.000%	0	0	#DIV/0!
Government	7	7	100.000%	826,735	826,735	100.000%	0	0	#DIV/0!
Education	4	4	100.000%	3,129,500	3,129,500	100.000%	0	0	#DIV/0!
Utilities	2	2	100.000%	53,100	53,100	0.000%	0	0	#DIV/0!
Total	792	792	100.000%	88,847,787	88,847,787	100.000%	1,659	1,659	100%

\* Fire and Wind damages being non-spatial, no structures could be eliminated.

**Task B. Determine whether (and where) you want to collect additional inventory data.**

- |   |          |          |
|---|----------|----------|
|   | <b>Y</b> | <b>N</b> |
| 1. Do you know where the greatest damages may occur in your area?   | X        |          |
| 2. Do you know whether your critical facilities will be operational after a hazard event?   | X        |          |
| 3. Is there enough data to determine which assets are subject to the greatest potential damages?  | X        |          |
| 4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?   | X        |          |
| 5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards? | X        |          |
| 6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?   |          | X        |
| 7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?   |          | X        |



**GEMA Worksheet #3a****Inventory of Assets 2020****Jurisdiction:** Brooklet**Hazard:** Flood

**Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.**

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures			Number of People		
	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	669	8	1.200%	67,962,965	902,560	1.328%	1,659	20	1%
Commercial	93		0.000%	12,334,481	0	0.000%	0	0	#DIV/0!
Industrial	6	0	0.000%	1,951,653	0	0.000%	0	0	#DIV/0!
Agricultural	0	0	0.000%	0	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	11	0	0.000%	2,589,353	0	0.000%	0	0	#DIV/0!
Government	7	1	14.286%	826,735	53,100	6.423%	0	0	#DIV/0!
Education	4	0	0.000%	3,129,500	0	0.000%	0	0	#DIV/0!
Utilities	2	0	0.000%	53,100	0	0.000%	0	0	#DIV/0!
Total	792	9	1.136%	88,847,787	955,660	1.076%	1,659	20	1%

**Task B. Determine whether (and where) you want to collect additional inventory data.**

- |   |          |          |
|---|----------|----------|
|   | <b>Y</b> | <b>N</b> |
| 1. Do you know where the greatest damages may occur in your area?   | X        |          |
| 2. Do you know whether your critical facilities will be operational after a hazard event?   | X        |          |
| 3. Is there enough data to determine which assets are subject to the greatest potential damages?  | X        |          |
| 4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?   | X        |          |
| 5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards? | X        |          |
| 6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?   |          | X        |
| 7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?   |          | X        |

**GEMA Worksheet #3**  
**Jurisdiction: Bulloch County**  
**Hazard: Fire and Wind**

**Inventory of Assets 2020**

**Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.**

#VALUE!	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	25,657	25,657	100.000%	2,433,756,998	2,433,756,998	100.000%	63,629	63,629	100%
Commercial	2,607	2,607	100.000%	883,106,349	883,106,349	100.000%	0	0	0%
Industrial	55	55	100.000%	82,603,491	82,603,491	100.000%	0	0	0%
Agricultural	7,293	7,293	100.000%	34,569,988	34,569,988	100.000%	0	0	0%
Religious/Non-profit	220	220	100.000%	62,315,224	62,315,224	100.000%	0	0	0%
Government	181	181	100.000%	42,071,953	42,071,953	100.000%	0	0	0%
Education	254	254	100.000%	837,255,858	837,255,858	100.000%	0	0	0%
Utilities	88	88	100.000%	167,328,240	167,328,240	100.000%	0	0	0%
Total	36,355	36,355	100.000%	4,543,008,101	4,543,008,101	100.000%	63,629	63,629	100%

\* As Fire and Wind are not spatially defined, no structure could be eliminated

**Task B. Determine whether (and where) you want to collect additional inventory data.**

- |   |          |          |
|---|----------|----------|
|   | <b>Y</b> | <b>N</b> |
| 1. Do you know where the greatest damages may occur in your area?   |          | X        |
| 2. Do you know whether your critical facilities will be operational after a hazard event?   |          | X        |
| 3. Is there enough data to determine which assets are subject to the greatest potential damages?  |          | X        |
| 4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?   | X        |          |
| 5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards? |          | X        |
| 6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?   | X        |          |
| 7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?   |          | X        |

\*NCDC reported \$550.6 K in damages from individual wind events for the county. From 2001 data to July of 2006, damages were not reported. That practice evolved after. The reports were from all areas of the County which made it a non-spatial hazard.

## GEMA Worksheet #3a

## Inventory of Assets 2020

**Jurisdiction:** Bulloch County

**Hazard:** Flood

**Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.**

#VALUE!	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	25,657	1,070	4.170%	2,433,756,998	101,497,447	4.170%	63,629	2,653	4%
Commercial	2,607	313	12.000%	883,106,349	105,972,762	0.000%	0	0	0%
Industrial	55	0	0.000%	82,603,491	0	0.000%	0	0	0%
Agricultural	7,293	947	24.000%	34,569,988	8,296,797	0.000%	0	0	0%
Religious/ Non-profit	220	6	2.727%	62,315,224	1,699,506	2.727%	0	0	0%
Government	181	1	0.552%	42,071,953	232,442	0.552%	0	0	0%
Education	254	72	28.346%	837,255,858	237,332,369	0.000%	0	0	0%
Utilities	88	0	4.000%	167,328,240	6,693,130	0.000%	0	0	0%
Total	36,355	2,409	9.475%	4,543,008,101	461,724,452	10.163%	63,629	2,653	4%

- This does not add financial losses due to roads being undermined into account.

**Task B. Determine whether (and where) you want to collect additional inventory data.**

- |   |          |          |
|---|----------|----------|
|   | <b>Y</b> | <b>N</b> |
| 1. Do you know where the greatest damages may occur in your area?   | X        |          |
| 2. Do you know whether your critical facilities will be operational after a hazard event?   |          | X        |
| 3. Is there enough data to determine which assets are subject to the greatest potential damages?  | X        |          |
| 4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?   |          | X        |
| 5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards? |          | X        |
| 6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?   | X        |          |
| 7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?   |          | X        |

# GEMA Worksheet #3a

# Inventory of Assets 2020

Jurisdiction: Portal

Hazard: Wind and Fire

**Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.**

#VALUE!	Number of Structures			Value of Structures			Number of People		
Type of Structure (Occupancy Class)	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	269	269	100.000%	12,708,571	12,708,571	100.000%	667	667	100%
Commercial	47	47	100.000%	2,684,022	2,684,022	100.000%	0	0	0%
Industrial	1	1	100.000%	16,251	16,251	100.000%	0	0	0%
Agricultural	0	0	100.000%	0	0	#DIV/0!	0	0	0%
Religious/Non-profit	7	7	100.000%	633,972	633,972	100.000%	0	0	0%
Government	2	2	100.000%	145,000	145,000	100.000%	0	0	0%
Education	3	3	100.000%	4,140,000	4,140,000	100.000%	0	0	0%
Utilities	3	3	100.000%	228,309	228,309	100.000%	0	0	0%
Total	332	332	100.000%	20,556,125	20,556,125	100.000%	667	667	100%

\* Fire and Wind damages being non-spatial, no structures could be eliminated

**Task B. Determine whether (and where) you want to collect additional inventory data.**

	<b>Y</b>	<b>N</b>
1. Do you know where the greatest damages may occur in your area?		X
2. Do you know whether your critical facilities will be operational after a hazard event?		X
3. Is there enough data to determine which assets are subject to the greatest potential damages?		X
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?		X
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?	X	
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	X	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?	X	

**GEMA Worksheet #3a****Inventory of Assets 2020****Jurisdiction:** Portal**Hazard:** Flood

**Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.**

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures			Number of People		
	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	269	0	0.000%	529,698	0	0.000%	667	0	0%
Commercial	47	0	0.000%	12,178,873	0	0.000%	0	0	0%
Industrial	1	0	0.000%	2,684,022	0	0.000%	0	0	0%
Agricultural	0	0	0.000%	0	0	0.000%	0	0	0%
Religious/ Non-profit	7	0	0.000%	633,972	0	0.000%	0	0	0%
Government	2	0	0.000%	145,000	0	0.000%	0	0	0%
Education	3	0	0.000%	4,140,000	0	0.000%	0	0	0%
Utilities	0	0	0.000%	0	0	0.000%	0	0	0%
Total	329	0	0.000%	20,311,565	0	0.000%	667	0	0%

**Task B. Determine whether (and where) you want to collect additional inventory data.**

- |   |          |          |
|---|----------|----------|
|   | <b>Y</b> | <b>N</b> |
| 1. Do you know where the greatest damages may occur in your area?   | X        |          |
| 2. Do you know whether your critical facilities will be operational after a hazard event?   | X        |          |
| 3. Is there enough data to determine which assets are subject to the greatest potential damages?  | X        |          |
| 4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?   | X        |          |
| 5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards? | X        |          |
| 6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?   | X        |          |
| 7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?   | X        |          |

## GEMA Worksheet #3a

## Inventory of Assets 2020

Jurisdiction: Register

Hazard: Flood

**Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.**

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures			Number of People		
	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	70	1	1.429%	4,697,622	112,820	2.402%	173	3	2%
Commercial	11	0	0.000%	1,026,600	0	0.000%	0	0	0%
Industrial	0	0	0.000%	0	0	0.000%	0	0	0%
Agricultural	0	0	0.000%	0	0	0.000%	0	0	0%
Religious/ Non-profit	5	0	0.000%	224,894	0	0.000%	0	0	0%
Government	3	0	0.000%	138,554	0	0.000%	0	0	0%
Education	0	0	0.000%	0	0	0.000%	0	0	0%
Utilities	0	0	0.000%	0	0	0.000%	0	0	0%
Total	89	1	1.429%	6,087,670	112,820	1.853%	173	3	2%

**Task B. Determine whether (and where) you want to collect additional inventory data.**

- |   |          |          |
|---|----------|----------|
|   | <b>Y</b> | <b>N</b> |
| 1. Do you know where the greatest damages may occur in your area?   | X        |          |
| 2. Do you know whether your critical facilities will be operational after a hazard event?   |          | X        |
| 3. Is there enough data to determine which assets are subject to the greatest potential damages?  |          | X        |
| 4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?   | X        |          |
| 5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards? | X        |          |
| 6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?   | X        |          |
| 7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?   | X        |          |



# GEMA Worksheet #3a

# Inventory of Assets 2020

Jurisdiction: Register

Hazard: Fire & Wind

**Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.**

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures			Number of People		
	# in Community or State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	70	70	100.000%	4,697,622	4,697,622	100.000%	173	173	100%
Commercial	11	11	100.000%	1,026,600	1,026,600	100.000%	0	0	0%
Industrial	0		100.000%	0	0	100.000%	0	0	0%
Agricultural	0	0	100.000%	0	0	100.000%	0	0	0%
Religious/Non-profit	5	5	100.000%	224,894	224,894	100.000%	0	0	0%
Government	3	3	100.000%	138,554	138,554	100.000%	0	0	0%
Education	0	0	100.000%	0	0	100.000%	0	0	0%
Utilities		0	100.000%	0	0	100.000%	0	0	0%
Total	89	89	100.000%	6,087,670	6,087,670	100.000%	173	173	100%

\* As fire and wind are non-spatial, no structures could be eliminated

**Task B. Determine whether (and where) you want to collect additional inventory data.**

	Y	N
1. Do you know where the greatest damages may occur in your area?		X
2. Do you know whether your critical facilities will be operational after a hazard event?		X
3. Is there enough data to determine which assets are subject to the greatest potential damages?		X
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?		X
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?		X
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?	X	
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?	X	

**GEMA Worksheet #3a****Inventory of Assets 2020****Jurisdiction:** Statesboro**Hazard:** Fire & Wind

**Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.**

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures			Number of People		
	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	5,540	5,540	100.000%	432,496,069	432,496,069	100.000%	13,738	13,738	100%
Commercial	1,510	1,510	100.000%	69,232,981	69,232,981	100.000%	0	0	#DIV/0!
Industrial	23	23	100.000%	3,650,202	3,650,202	100.000%	0	0	#DIV/0!
Agricultural	0	0	0.000%	0	0	0.000%	0	0	#DIV/0!
Religious/ Non-profit	59	59	100.000%	25,338,887	25,338,887	100.000%	0	0	#DIV/0!
Government	24	24	100.000%	11,124,700	11,124,700	100.000%	0	0	#DIV/0!
Education	7	7	100.000%	63,323,000	63,323,000	100.000%	0	0	#DIV/0!
Utilities	5	5	100.000%	1,226,786	1,226,786	100.000%	0	0	#DIV/0!
Total	7,168	7,168	100.000%	606,392,625	606,392,625	100.000%	13,738	13,738	100%

**Task B. Determine whether (and where) you want to collect additional inventory data.**

- |   |          |          |
|---|----------|----------|
|   | <b>Y</b> | <b>N</b> |
| 1. Do you know where the greatest damages may occur in your area?   | X        |          |
| 2. Do you know whether your critical facilities will be operational after a hazard event?   |          | X        |
| 3. Is there enough data to determine which assets are subject to the greatest potential damages?  |          | X        |
| 4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?   |          | X        |
| 5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards? |          | X        |
| 6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?   |          | X        |
| 7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?   |          | X        |

**GEMA Worksheet #3a****Inventory of Assets 2020****Jurisdiction:** Statesboro**Hazard:** Flood

**Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.**

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures			Number of People		
	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	5,540	242	4.368%	432,496,069	27,302,440	6.313%	13,738	600	4%
Commercial	1,510		0.000%	69,232,981	0	0.000%	0	0	0%
Industrial	23		0.000%	3,650,202	0	0.000%	0	0	0%
Agricultural	0	0	0.000%	0	0	0.000%	0	0	0%
Religious/ Non-profit	59	3	5.085%	25,338,887	400,000	1.579%	0	0	0%
Government	24	1	4.167%	11,124,700	200,000	1.798%	0	0	0%
Education	7	0	0.000%	63,323,000	0	0.000%	0	0	0%
Utilities	5	0	0.000%	1,226,786	0	0.000%	0	0	0%
Total	7,168	246	3.432%	606,392,625	27,902,440	4.601%	13,738	600	4%

**Task B. Determine whether (and where) you want to collect additional inventory data.**

- |   |          |          |
|---|----------|----------|
|   | <b>Y</b> | <b>N</b> |
| 1. Do you know where the greatest damages may occur in your area?   | X        |          |
| 2. Do you know whether your critical facilities will be operational after a hazard event?   | X        |          |
| 3. Is there enough data to determine which assets are subject to the greatest potential damages?  | X        |          |
| 4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?   | X        |          |
| 5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards? | X        |          |
| 6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?   | X        |          |
| 7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?   |          | X        |

## Storm Events Database

## Data Access

[Search](#)  
[Bulk Data Download \(CSV\)](#)  
[Storm Data Publication](#)

## Documentation

[Database Details](#)  
[Version History](#)  
[Storm Data FAQ](#)  
[NOAA's NWS Documentation](#)  
[Tornado EF Scale](#)

## External Resources

[NOAA's SPC Reports](#)  
[NOAA's SPC WCM Page](#)  
[NOAA's NWS Damage Assessment Toolkit](#)  
[NOAA's Tsunami Database](#)  
[ESRI/FEMA Civil Air Patrol Images](#)  
[SHELDUS](#)  
[USDA Cause of Loss Data](#)

## Storm Events Database

[Prev](#) / [Search Results](#) / [Next](#)

## Event Details:

Event	Flash Flood
State	GEORGIA
County/Area	BULLOCH
WFO	CHS
Report Source	LAW ENFORCEMENT
NCEI Data Source	PDS
Begin Date	2004-06-13 14:00 EST
End Date	2004-06-13 15:30 EST
End Location	REGISTER
Deaths Direct/Indirect	0/0 (fatality details below, when available...)
Injuries Direct/Indirect	0/0
Property Damage	
Crop Damage	
Event Narrative	Heavy rainfall flooded several roads including Routes 46 and 292.

## All events for this episode:

<a href="#">Location</a>	<a href="#">County/Zone</a>	<a href="#">St.</a>	<a href="#">Date</a>	<a href="#">Time</a>	<a href="#">T.Z.</a>	<a href="#">Type</a>	<a href="#">Mag</a>	<a href="#">Dth</a>	<a href="#">Inj</a>	<a href="#">PrD</a>	<a href="#">CrD</a>
<b>Totals:</b>								0	0	0.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	06/13/2004	14:00	EST	Flash Flood		0	0	0.00K	0.00K
<a href="#">BELLVILLE</a>	EVANS CO.	GA	06/13/2004	14:02	EST	Flash Flood		0	0	0.00K	0.00K
<a href="#">REIDSVILLE</a>	TATTNALL CO.	GA	06/13/2004	15:00	EST	Flash Flood		0	0	0.00K	0.00K
<b>Totals:</b>								0	0	0.00K	0.00K



## Bulloch County Presidentially Declared Disasters 2014-2020

Georgia SEVERE WINTER STORM (DR-4165-GA)

Incident Period: February 10, 2014 - February 14, 2014

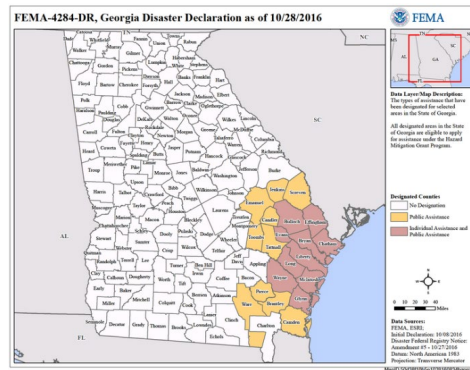
Major Disaster Declaration declared on March 6, 2014

## Georgia SEVERE WINTER STORM (EM-3368-GA)

Incident Period: February 10, 2014 - February 14, 2014

Emergency Declaration declared on February 11, 2014

**Georgia Hurricane [Matthew](#) (DR-4284-GA) and Georgia Hurricane Matthew (EM-3379-GA)**



Incident Period: October 4, 2016 - October 15, 2016

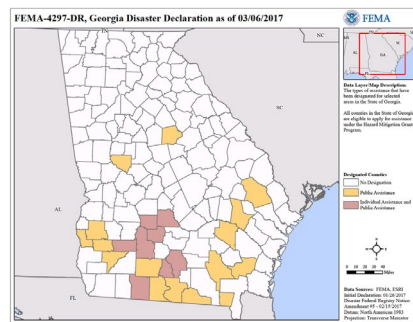
Declaration Date: October 8, 2016

**Georgia Hurricane Irma (DR-4338-GA) and (EM-3387-GA on 9/11/17)**

Incident Period: September 7, 2017 - September 20, 2017

Declaration Date: September 15, 2017

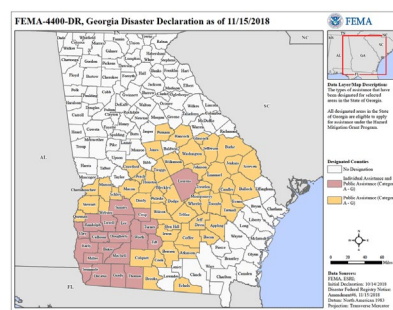
## Georgia Severe Storms, Tornadoes, And Straight-line Winds (DR-4297-GA)



Incident Period: January 21, 2017 - January 22, 2017

Declaration Date: January 26, 2017

### Georgia Hurricane Michael (DR-4400-GA) and (EM-3406-GA)



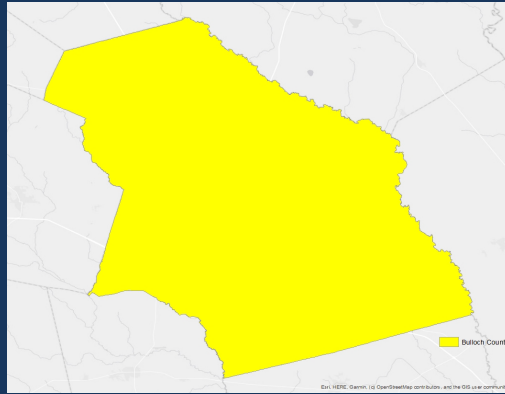
Incident Period: October 9, 2018 - October 23, 2018

Declaration Date: October 14, 2018

Bulloch Wildfire Per GA Forestry CWPP July 2018

<b>Acreage Burned /Number of Fires For Bulloch County For FY 2008-2017</b>				
<b>Year</b>	<b>Acreage Burned</b>	<b>Number of Fires</b>	<b>Average Size</b>	<b>Statewide Average Size</b>
2008	244.23	38	6.43	4.56
2009	307.34	55	5.59	3.90
2010	248.89	23	10.82	3.93
2011	512.30	133	3.85	17.56
2012	411.34	80	5.14	5.08
2013	254.38	61	4.17	4.53
2014	92.85	41	2.26	5.02
2015	155.65	29	5.37	4.42
2016	100.52	17	5.91	6.29
2017	273.11	70	3.90	11.60





# Hazard Risk Analyses Supplement to the Bulloch County Joint Hazard Mitigation Plan



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# Introduction

The Federal Disaster Mitigation Act of 2000 (DMA2K) requires state, local, and tribal governments to develop and maintain a mitigation plan to be eligible for certain federal disaster assistance and hazard mitigation funding programs.

Mitigation seeks to reduce a hazard's impacts, which may include loss of life, property damage, disruption to local and regional economies, and the expenditure of public and private funds for recovery. Sound mitigation must be based on a sound risk assessment that quantifies the potential losses of a disaster by assessing the vulnerability of buildings, infrastructure, and people.

In recognition of the importance of planning in mitigation activities, FEMA Hazus-MH, a powerful disaster risk assessment tool based on geographic information systems (GIS). This tool enables communities of all sizes to predict estimated losses from floods, hurricanes, earthquakes, and other related phenomena and to measure the impact of various mitigation practices that might help reduce those losses.

In 2021, the Georgia Department of Emergency Management partnered with The Coastal Regional Commission (CRC) to develop a detailed risk assessment focused on defining hurricane, riverine flood and tornado impacts for Georgia. This assessment identifies the characteristics and potential consequences of the disaster, how much of the community could be affected by the disaster, and the impact on community assets. In the following years, the Georgia Association of Regional Commissions (GARC) are utilizing this workflow to define impacts in other counties in Georgia. This document provides the results for Bulloch County.

## Risk Assessment Process Overview

Hazus-MH Version 2.2 SP1 was used to perform the analyses for Bulloch County. The Hazus-MH application includes default data for every county in the US. This Hazus-MH data was derived from a variety of national sources and in some cases the data are also several years old. Whenever possible, using local provided data is preferred. Bulloch County provided building inventory information from the county's property tax assessment system. This section describes the changes made to the default Hazus-MH inventory and the modeling parameters used for each scenario.

## County Inventory Changes

The default Hazus-MH site-specific point inventory was updated using data compiled from the Georgia Emergency Management Agency (GEMA). The default Hazus-MH aggregate inventory (General Building Stock) was also updated prior to running the scenarios. Reported losses reflect the updated data sets.

## General Building Stock Updates

General Building Stock (GBS) is an inventory category that consists of aggregated data (grouped by census geography — tract or block). Hazus-MH generates a combination of site-specific and aggregated loss estimates based on the given analysis and user input.

The GBS records for Bulloch County were replaced with data derived from parcel and property assessment data obtained from Bulloch County. The county provided property assessment data was current as of January 2020 and the parcel data current as of January 2020. Records without improvements were deleted. The parcel boundaries were converted to parcel points located in the centroids of each parcel boundary; then, each parcel point was linked to an assessor record based upon matching parcel numbers. The parcel assessor match-rate for Bulloch County is 100%. The

generated building inventory represents the approximate locations (within a parcel) of structures. The building inventory was aggregated by census block. Both the tract and block tables were updated. Table 1 shows the results of the changes to the GBS tables by occupancy class.

Table 1: GBS Building Exposure Updates by Occupancy Class\*

Occupancy Classification	Default Count	Updated Count	Default Exposure	Updated Exposure
Agricultural	145	6	\$ 32,617	\$ 16,530
Commercial	1,425	1,881	\$ 809,838	\$ 2,552,013
Education	58	28	\$ 113,813	\$ 26,321
Government	46	8	\$ 37,888	\$ 5,382
Industrial	380	157	\$ 143,583	\$ 409,685
Religious	172	20	\$ 99,762	\$ 12,098
Residential	22,736	20,851	\$ 4,428,682	\$ 4,269,841
<b>Total</b>	<b>24,962</b>	<b>22,951</b>	<b>\$ 5,666,183</b>	<b>\$ 7,291,870</b>

\*The exposure values represent the total number and replacement cost for all Bulloch County Buildings



For Bulloch County, the updated GBS was used to calculate hurricane wind losses. The flood losses and tornado losses were calculated from building inventory modeled in Hazus-MH as User-Defined Facility (UDF)<sup>1</sup>, or site-specific points. Figure 1 shows the distribution of buildings as points based on the county provided data.

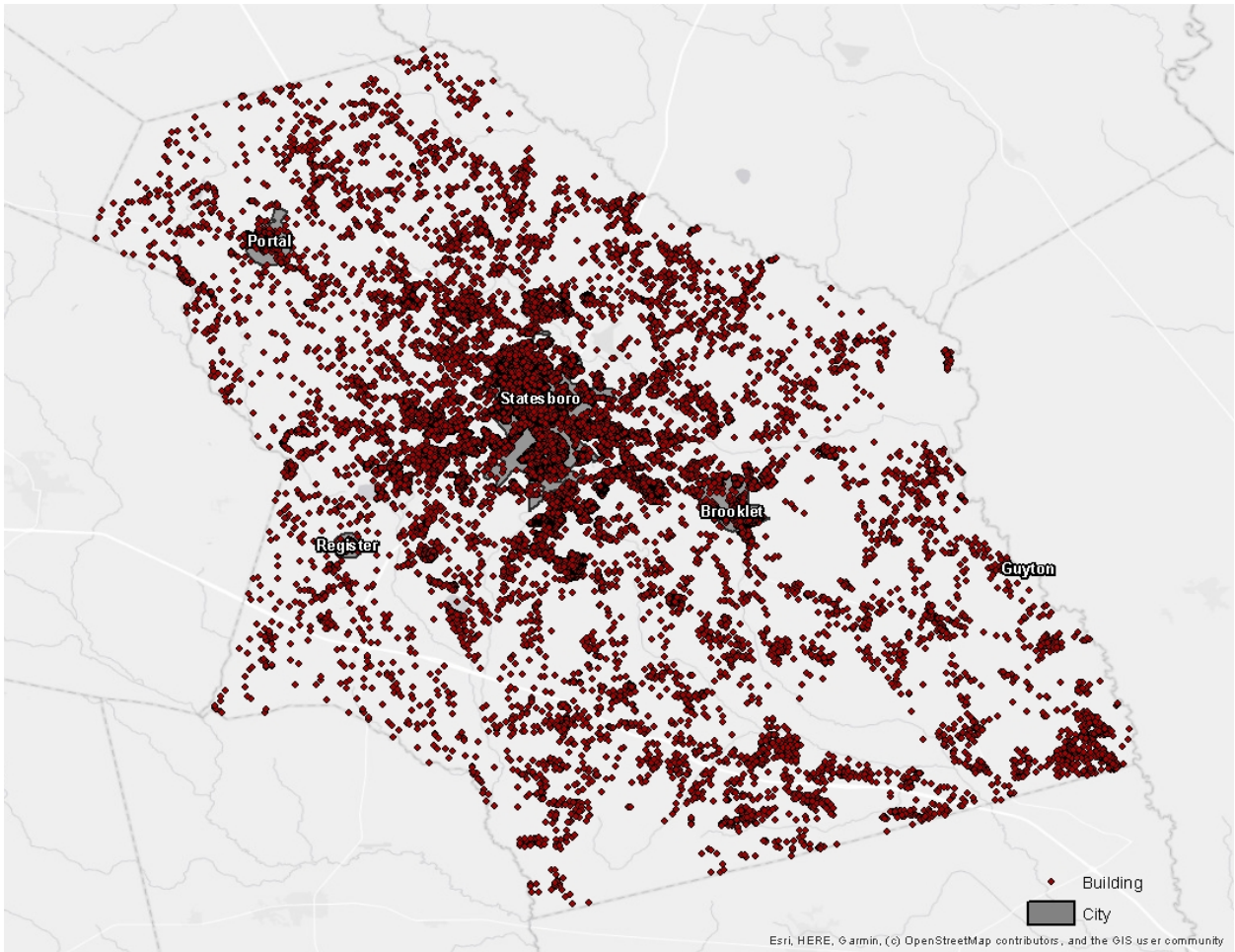


Figure 1: Bulloch County Overview

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<sup>1</sup> The UDF inventory category in Hazus-MH allows the user to enter site-specific data in place of GBS data.

## Essential Facility Updates

The default Hazus-MH essential facility data was updated to reflect improved information available in the Georgia Mitigation Information System (GMIS). For these risk analyses, only GMIS data for buildings that Hazus-MH classified as Essential Facilities was integrated into Hazus-MH because the application provides specialized reports for these five types of facilities. Essential Facility inventory was updated for the analysis conducted for this report. The following table summarizes the counts and exposures, where available, by Essential Facility classification of the updated data for the county.

### Essential facilities include:

- Care facilities
- EOCs
- Fire stations
- Police stations
- Schools

Table 2: Updated Essential Facilities

Classification	Updated Count	Updated Exposure
Bulloch Unincorporated		
EOC	1	\$ 202,000
Care	0	\$ -
Fire	11	\$ 2,923,317
Police	4	\$ 7,912,654
School	9	\$ 80,947,156
<b>Total</b>	<b>25</b>	<b>\$ 91,985,127</b>

Classification	Updated Count	Updated Exposure
Statesboro		
EOC	0	\$ -
Care	4	\$ 90,539,954
Fire	2	\$ 1,864,559
Police	1	\$ 5,000,000
School	49	\$ 1,105,419,761
<b>Total</b>	<b>56</b>	<b>\$ 1,202,824,274</b>

Classification	Updated Count	Updated Exposure
Register		
EOC	0	\$ -
Care	0	\$ -
Fire	1	\$ 659,017
Police	0	\$ -
School	0	\$ -
<b>Total</b>	<b>1</b>	<b>\$ 659,017</b>

Classification	Updated Count	Updated Exposure
Brooklet		
EOC	0	\$ -
Care	0	\$ -
Fire	1	\$ 135,402
Police	1	\$ 53,100
School	1	\$ 218,517
<b>Total</b>	<b>3</b>	<b>\$ 407,019</b>

Classification	Updated Count	Updated Exposure
Portal		
EOC	0	\$ -
Care	0	\$ -
Fire	0	\$ -
Police	1	\$ 142,639
School	2	\$ 4,293,877
<b>Total</b>	<b>3</b>	<b>\$ 4,436,516</b>

Classification	Updated Count	Updated Exposure

# Assumptions and Exceptions

Hazus-MH loss estimates may be impacted by certain assumptions and process variances made in this risk assessment.

- The Bulloch County analysis used Hazus-MH Version 2.2 SP1, which was released by FEMA in May 2015.
- County provided parcel and property assessment data may not fully reflect all buildings in the county. For example, some counties do not report not-for-profit buildings such as government buildings, schools and churches in their property assessment data. This data was used to update the General Building Stock as well as the User Defined Facilities applied in this risk assessment.
- GBS updates from assessor data will skew loss calculations. The following attributes were defaulted or calculated:
  - Foundation Type was set from Occupancy Class
  - First Floor Height was set from Foundation Type
  - Content Cost was calculated from Replacement Cost
- It is assumed that the buildings are located at the centroid of the parcel unless building footprints are used. For this analysis of Bulloch County, parcel centroids were used.
- The essential facilities extracted from the GMIS were only used in the portion of the analysis designated as essential facility damage. They were not used in the update of the General Building Stock or the User Defined Facility inventory.

The hazard models included in this risk assessment included:

- Hurricane assessment which was comprised of a wind only damage assessment
- Flood assessment based on the 1% annual chance event that includes riverine assessments
- Tornado assessment based on GIS modeling

# Hurricane Risk Assessment

## Hazard Definition

The National Hurricane Center describes a hurricane as a tropical cyclone in which the maximum sustained wind is, at minimum, 74 miles per hour (mph)<sup>2</sup>. The term hurricane is used for Northern Hemisphere tropical cyclones east of the International Dateline to the Greenwich Meridian. The term typhoon is used for Pacific tropical cyclones north of the Equator west of the International Dateline. Hurricanes in the Atlantic Ocean, Gulf of Mexico, and Caribbean form between June and November with the peak of hurricane season occurring in the middle of September. Figure 2 shows that many hurricanes have impacted the Atlantic and Gulf coasts of the United States.

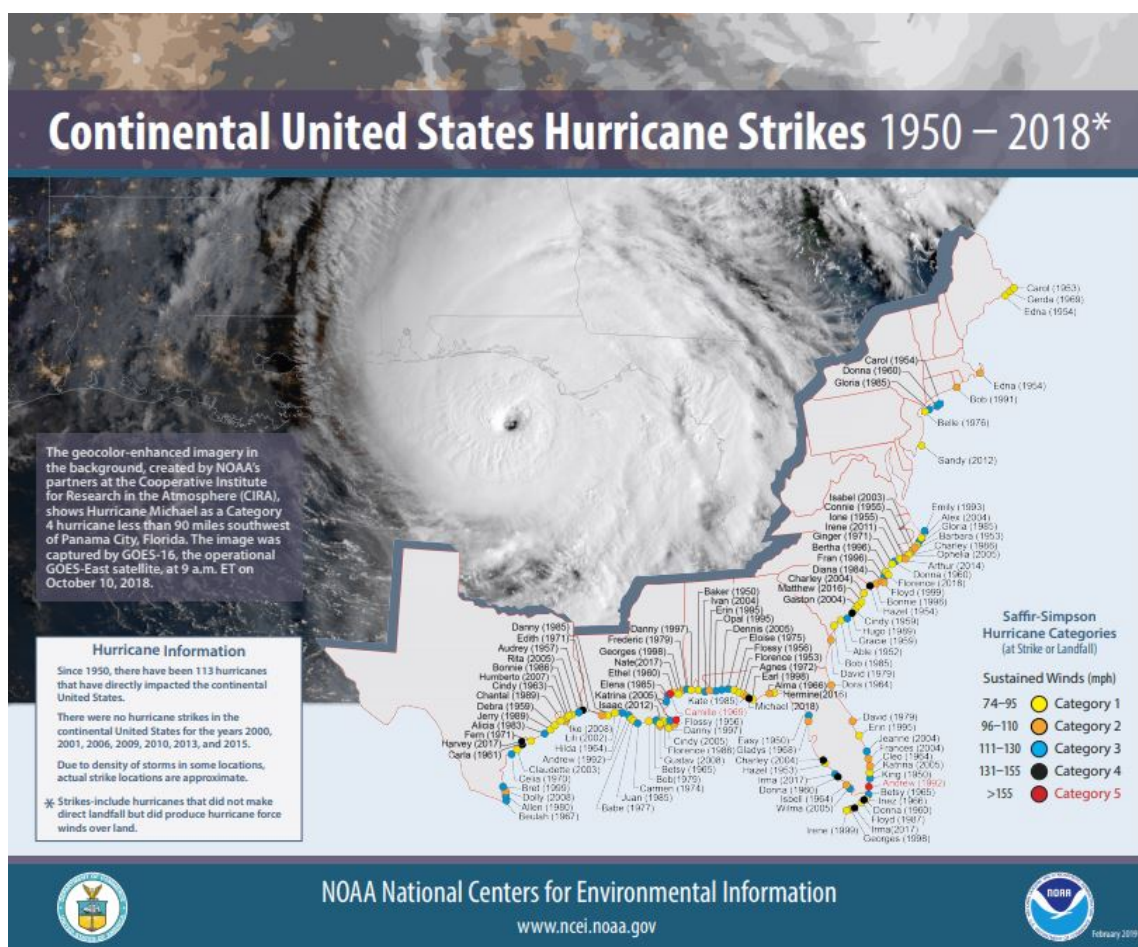


Figure 2: Continental United States Hurricane Strikes: 1950 to 2018<sup>3</sup>  
Hurricane intensities are measured using the Saffir-Simpson Hurricane Wind Scale (Table 3). This scale is a 1 to 5 categorization based on the hurricane's intensity at the indicated time.

<sup>2</sup> National Hurricane Center (2011). "Glossary of NHC Terms." National Oceanic and Atmospheric Administration. <http://www.nhc.noaa.gov/aboutgloss.shtml#h>. Retrieved 2-23-2012.

<sup>3</sup> Source: NOAA National Climatic Data Center

Table 3: Saffir-Simpson Hurricane Wind Scale

Category	Wind Speed (mph)	Damage
1	74 – 95	Very dangerous winds will produce some damage
2	96 – 110	Extremely dangerous winds will cause extensive damage
3	111 - 130	Devastating damage will occur
4	131 -155	Catastrophic damage will occur
5	> 155	Catastrophic damage will occur

Hurricanes bring a complex set of impacts. The winds from a hurricane produce a rise in the water level at landfall called storm surge. Storm surges produce coastal flooding effects that can be as damaging as the hurricane’s winds. Hurricanes bring very intense inland riverine flooding. Hurricanes can also produce tornadoes that can add to the wind damages inland. In this risk assessment, only hurricane winds, and coastal storm surge are considered.

The National Oceanic and Atmospheric Administration’s National Hurricane Center created the HURDAT database, which contains all of the tracks of tropical systems since the mid-1800s. This database was used to document the number of tropical systems that have affected Bulloch County by creating a 20-mile buffer around the county to include storms that didn’t make direct landfall in Bulloch County but impacted the county. Since 1851, Bulloch County has had 81 tropical systems within 20 miles of its county borders (Table 4).

Table 4: Tropical Systems affecting Bulloch County

Year	Month	Day	Name	Wind (Knots)	Category	Year	Month	Day	Name	Wind (Knots)	Category
1852	10	10	NOTNAMED	60	TS	1924	9	16	NOTNAMED	35	TS
1854	9	8	NOTNAMED	100	H3	1924	9	30	NOTNAMED	55	E
1854	9	9	NOTNAMED	80	H1	1929	10	1	NOTNAMED	40	TS
1854	9	9	NOTNAMED	70	H1	1935	9	5	NOTNAMED	60	TS
1856	8	31	NOTNAMED	60	TS	1940	8	11	NOTNAMED	65	H1
1860	8	13	NOTNAMED	40	TS	1940	8	12	NOTNAMED	60	TS
1860	8	14	NOTNAMED	40	TS	1940	8	12	NOTNAMED	55	TS
1871	8	28	NOTNAMED	30	TD	1941	10	8	NOTNAMED	55	TS
1871	8	28	NOTNAMED	30	TD	1941	10	8	NOTNAMED	55	TS
1871	10	6	NOTNAMED	40	TS	1946	10	8	NOTNAMED	35	TS
1873	9	19	NOTNAMED	60	TS	1947	9	24	NOTNAMED	45	TS
1877	10	3	NOTNAMED	50	TS	1953	9	1	NOTNAMED	30	TD
1877	10	4	NOTNAMED	40	TS	1953	9	1	NOTNAMED	25	TD
1881	8	28	NOTNAMED	90	H2	1953	9	27	FLORENCE	40	E
1881	8	28	NOTNAMED	70	H1	1956	9	25	FLOSSY	35	E
1884	9	11	NOTNAMED	40	TS	1956	9	26	FLOSSY	35	E
1884	9	11	NOTNAMED	30	TD	1957	6	9	NOTNAMED	35	TS
1885	10	12	NOTNAMED	50	TS	1964	8	29	CLEO	40	TS
1886	7	1	NOTNAMED	55	TS	1964	8	29	CLEO	35	TS
1888	9	9	NOTNAMED	40	TS	1964	8	29	CLEO	30	TD
1888	9	10	NOTNAMED	35	TS	1964	8	30	CLEO	30	TD
1893	8	28	NOTNAMED	100	H3	1964	9	12	DORA	35	TS
1893	8	28	NOTNAMED	90	H2	1964	9	13	DORA	35	TS
1894	10	9	NOTNAMED	70	H1	1968	6	7	ABBY	50	TS
1896	9	29	NOTNAMED	100	H3	1968	6	7	ABBY	45	TS
1896	9	29	NOTNAMED	85	H2	1968	6	7	ABBY	30	TD
1898	8	31	NOTNAMED	75	H1	1970	5	25	ALMA	25	TD
1898	8	31	NOTNAMED	60	TS	1985	11	22	KATE	65	H1
1898	8	31	NOTNAMED	50	TS	1985	11	22	KATE	50	TS
1901	9	18	NOTNAMED	35	TS	1986	8	14	CHARLEY	10	SD
1902	6	15	NOTNAMED	35	TS	1986	8	14	CHARLEY	10	SD
1904	11	4	NOTNAMED	30	TD	1986	8	15	CHARLEY	15	SD
1907	9	29	NOTNAMED	35	TS	1994	11	21	GORDON	20	TD
1909	7	2	NOTNAMED	25	TD	1995	6	6	ALLISON	30	TD
1909	7	3	NOTNAMED	25	TD	1995	6	6	ALLISON	35	E
1911	8	28	NOTNAMED	65	H1	1998	9	3	EARL	40	E
1911	8	28	NOTNAMED	50	TS	2000	9	18	GORDON	30	TD
1911	8	29	NOTNAMED	45	TS	2000	9	18	GORDON	25	E
1915	8	3	NOTNAMED	40	TS	2006	6	14	ALBERTO	35	TS
1923	6	27	NOTNAMED	30	TD	2006	6	14	ALBERTO	30	TD
1923	6	27	NOTNAMED	30	TD						

Category Definitions:

TS – Tropical storm

TD – Tropical depression

CAT\_1 – Category 1 (same format for 2, 3, 4 and 5)

E – Extra-tropical cyclone



# Probabilistic Hurricane Scenario

The following probabilistic wind damage risk assessment modeled a Category 1 storm with maximum winds of 93 mph.

## Wind Damage Assessment

Wind losses were determined from probabilistic models run for the Category 1 storm which equates to the 1% chance storm event. Figure 3 shows wind speeds for the modeled hurricane.

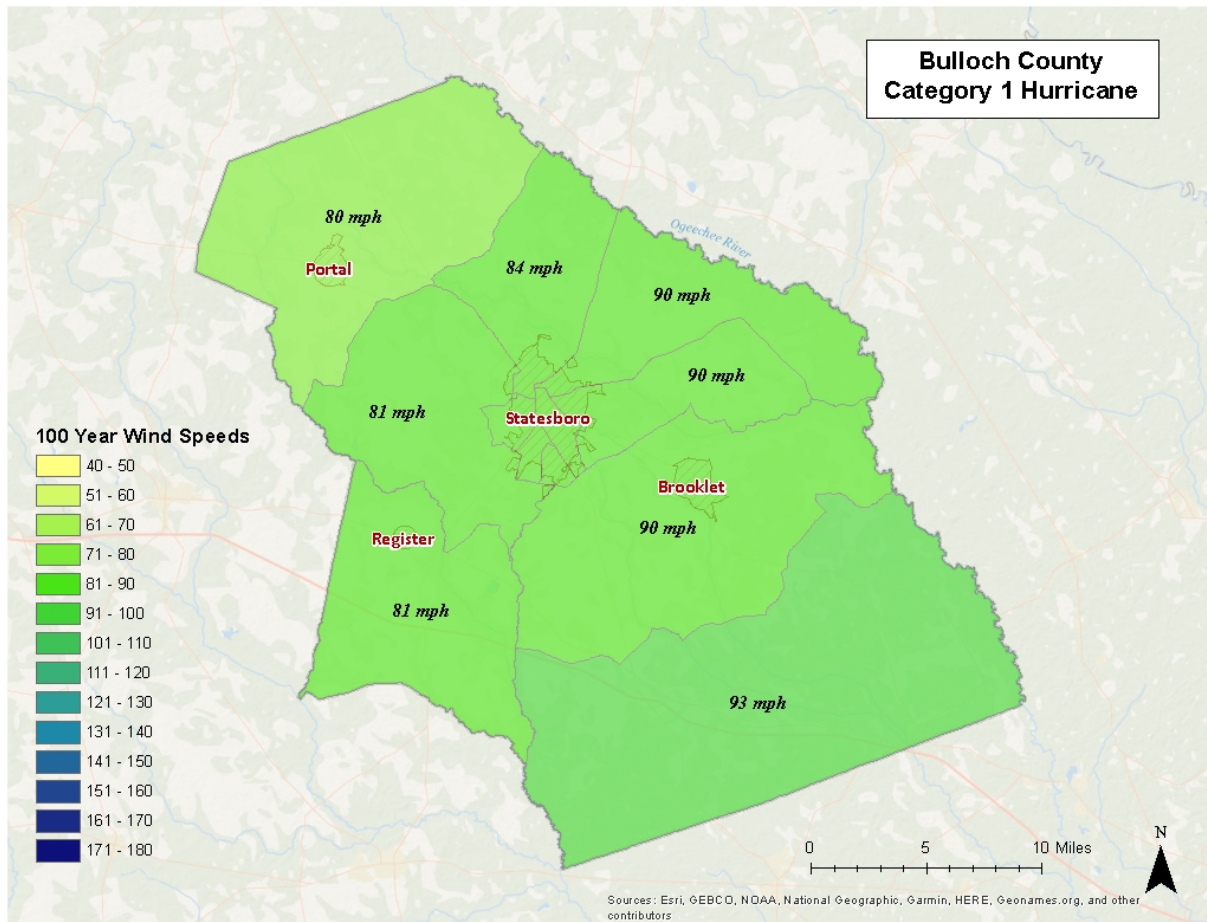


Figure 3: Wind Speeds by Storm Category

## Wind-Related Building Damages

Buildings in Bulloch County are vulnerable to storm events, and the cost to rebuild may have significant consequences to the community. The following table shows a summary of the results of wind-related building damage in Bulloch County for the Category 1 (100 Year Event) storm. The loss ratio expresses building losses as a percentage of total building replacement cost in the county. Figure 4 illustrates the building loss ratios of the modeled Category 1 storm.

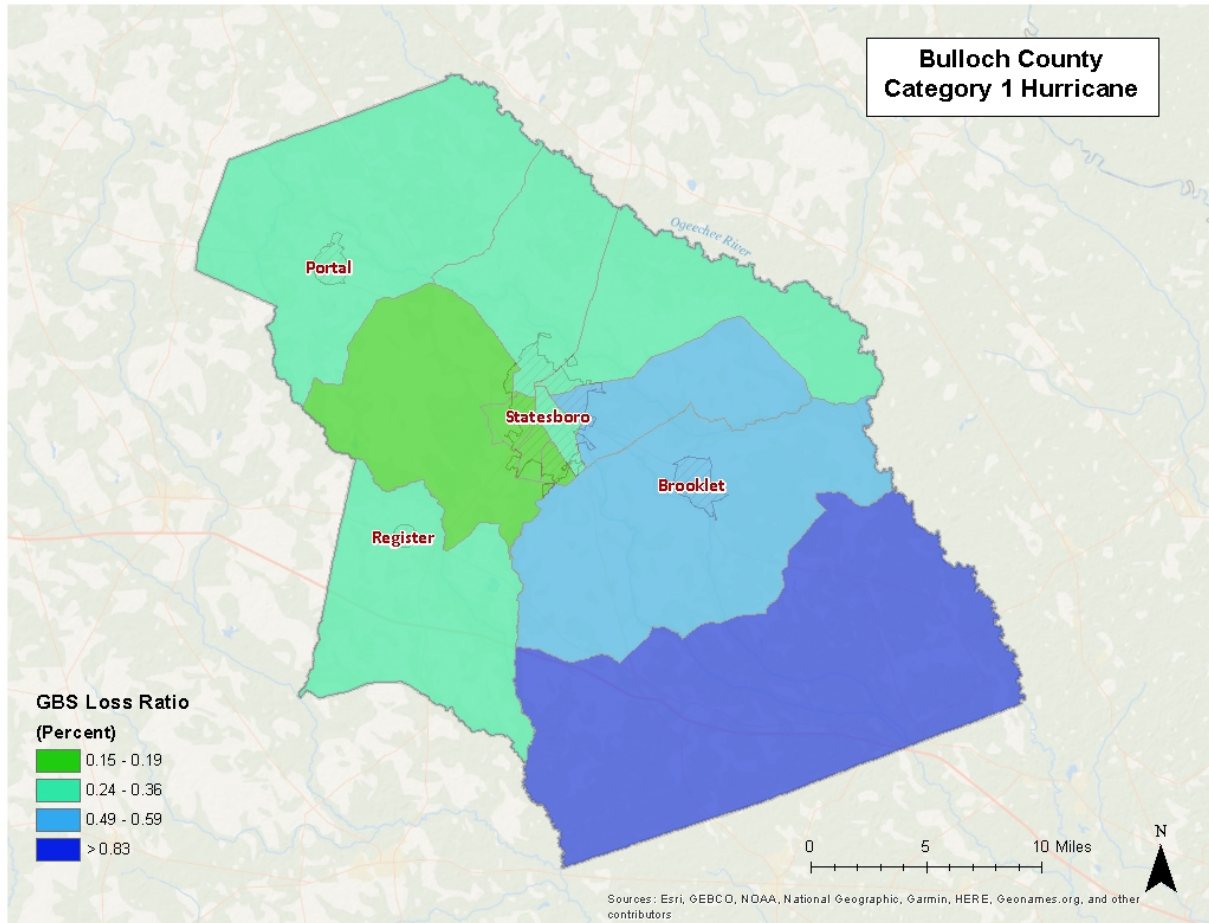


Figure 4: Hurricane Wind GBS Loss Ratios

Table 5 shows the Hurricane Wind Building Damage results including the number of buildings damaged, total building damage, and economic loss.

Table 5: Hurricane Wind Building Damage

Storm Classification	Number of Damaged Buildings	Building Damages	Total Economic Loss	Loss Ratio
Category 1	940	\$ 22,285,810	\$ 29,395,000.00	0.31

## Essential Facility Losses

Essential facilities are also vulnerable to storm events, and the potential loss of functionality may have significant consequences to the community. Hazus-MH identified the essential facilities that may be moderately or severely damaged by winds. The results are compiled in Table 6.

There are 88 essential facilities in Bulloch County.

Classification	Number
EOC	1
Care	4
Fire	15
Police	7
School	61
<b>Total</b>	<b>88</b>

Table 6: Wind-Damaged Essential Facility Losses

Storm Classification	Facilities Moderately Damaged (>50%)	Facilities Completely Damaged (>50%)	Facilities with expected loss (<1day)
Category 1	0	0	88

## Shelter Requirements

Hazus-MH estimates the number of households evacuated from buildings with severe damage from high velocity winds as well as the number of people who will require short-term sheltering. The results are listed in Table 7 and mapped in Figure 5.

Table 7: Displaced Households and People

Storm Classification	# of Displaced Households	# of People Needing Short-Term Shelter
Category 1	7	1

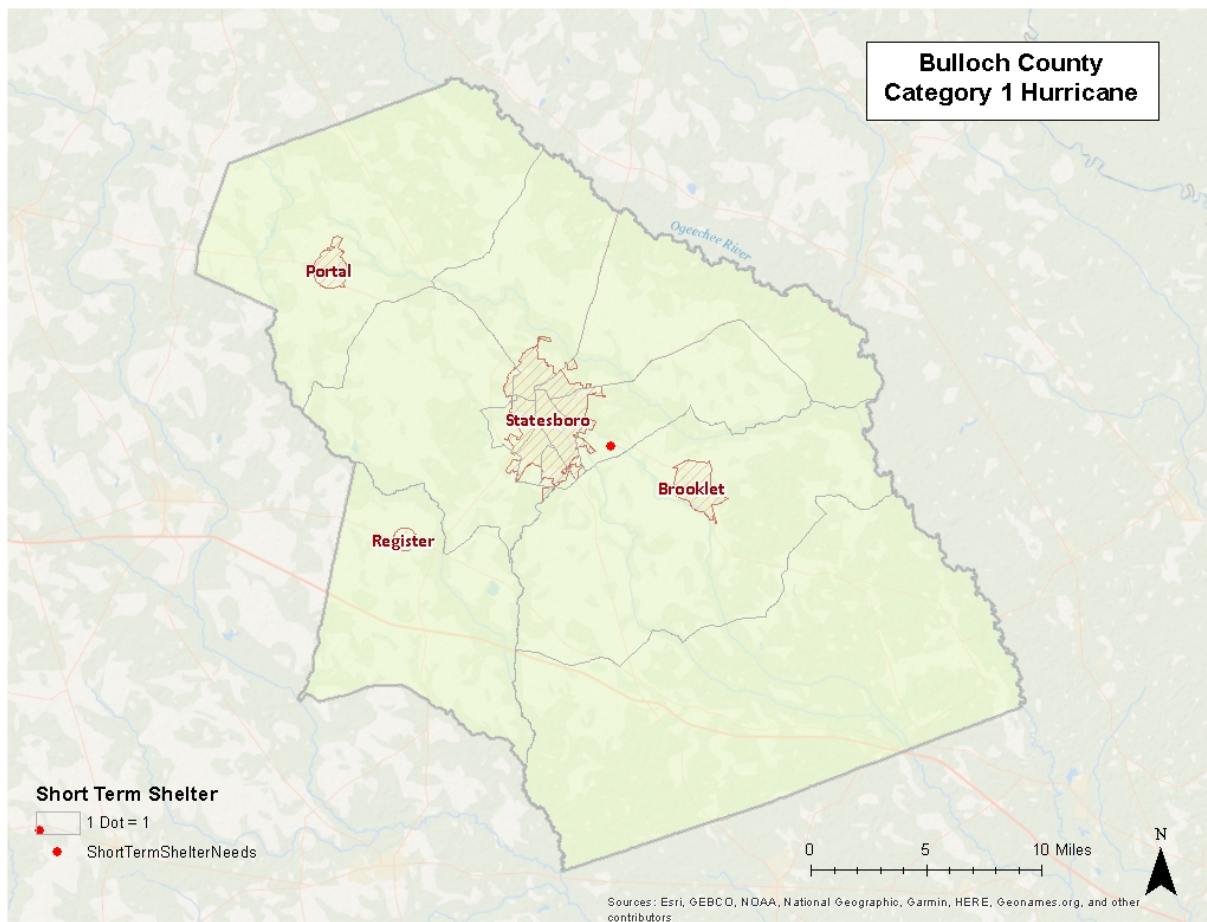


Figure 5: Hurricane Wind Shelter Requirements



## Debris Generated from Hurricane Wind

Hazus-MH estimates the amount of debris that will be generated by high velocity hurricane winds and quantifies it into three broad categories to determine the material handling equipment needed:

- Reinforced Concrete and Steel Debris
- Brick and Wood and Other Building Debris
- Tree Debris

Different material handling equipment is required for each category of debris. The estimates of debris for this scenario are listed in Table 8. The amount of hurricane wind related tree debris that is estimated to require pick up at the public's expense is listed in the eligible tree debris column.

Table 8: Wind-Related Debris Weight (Tons)

Storm Classification	Brick, Wood, and Other	Reinforced Concrete/Steel	Tree Debris	Other Tree Debris	Total
Category 1	3,541	2	12,892	198,745	215,181

Figure 6 shows the distribution of all wind related debris resulting from a Category 1 hurricane. Each dot represents 20 tons of debris within the census tract in which it is located. The dots are randomly distributed within each census tract and therefore do not represent the specific location of debris sites.

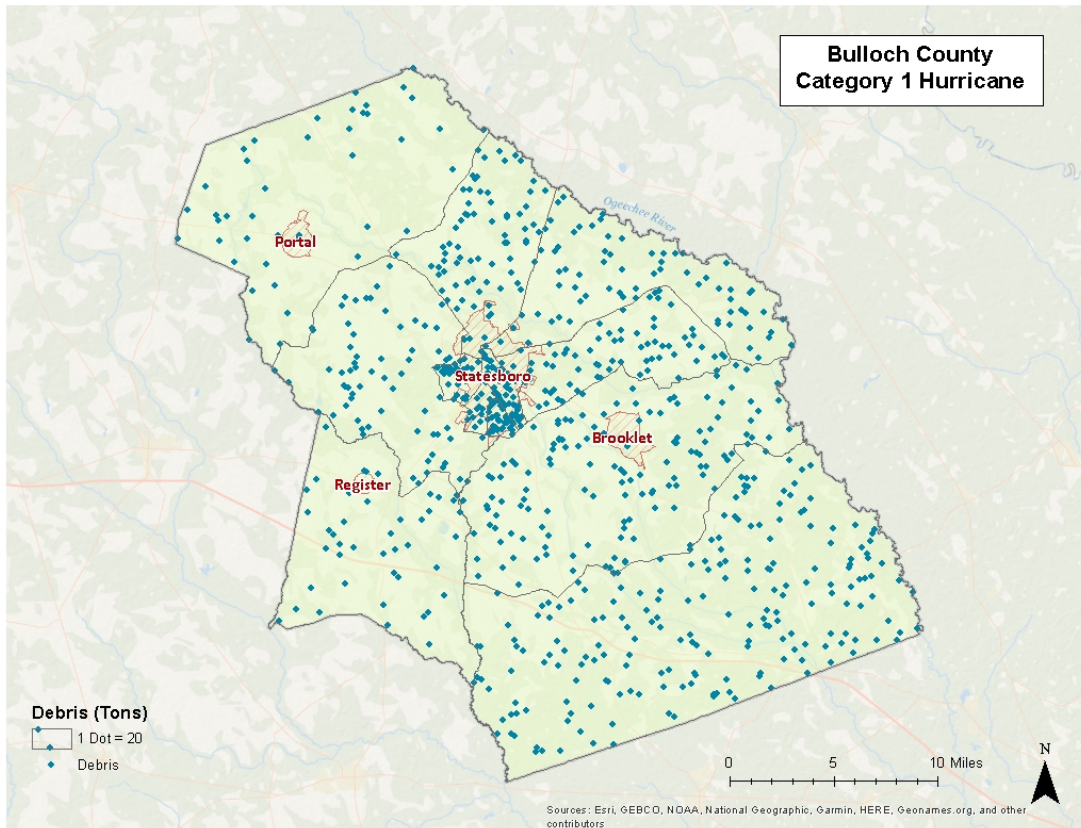


Figure 6: Wind-Related Debris Weight (Tons)

# Flood Risk Assessment

## Hazard Definition

Flooding is a significant natural hazard throughout the United States. The type, magnitude, and severity of flooding are functions of the amount and distribution of precipitation over a given area, the rate at which precipitation infiltrates the ground, the geometry and hydrology of the catchment, and flow dynamics and conditions in and along the river channel. Floods can be classified as one of three types: upstream floods, downstream floods, or coastal floods.

Upstream floods, also called flash floods, occur in the upper parts of drainage basins and are generally characterized by periods of intense rainfall over a short duration. These floods arise with very little warning and often result in locally intense damage, and sometimes loss of life, due to the high energy of the flowing water. Flood waters can snap trees, topple buildings, and easily move large boulders or other structures. Six inches of rushing water can upend a person; another 18 inches might carry off a car. Generally, upstream floods cause damage over relatively localized areas, but they can be quite severe in the local areas in which they occur. Urban flooding is a type of upstream flood. Urban flooding involves the overflow of storm drain systems and can be the result of inadequate drainage combined with heavy rainfall or rapid snowmelt. Upstream or flash floods can occur at any time of the year in Georgia, but they are most common in the spring and summer months.

Downstream floods, also called riverine floods, refer to floods on large rivers at locations with large upstream catchments. Downstream floods are typically associated with precipitation events that are of relatively long duration and occur over large areas. Flooding on small tributary streams may be limited, but the contribution of increased runoff may result in a large flood downstream. The lag time between precipitation and time of the flood peak is much longer for downstream floods than for upstream floods, generally providing ample warning for people to move to safe locations and, to some extent, secure some property against damage.

Coastal floods occurring on the Atlantic and Gulf coasts may be related to hurricanes or other combined offshore, nearshore, and shoreline processes. The effects of these complex interrelationships vary significantly across coastal settings, leading to challenges in the determination of the base (1-percent-annual-chance) flood for hazard mapping purposes. Land area covered by floodwaters of the base flood is identified as a Special Flood Hazard Area (SFHA). The Bulloch County flood risk assessment analyzed at risk structures in the SFHA.

The SFHA is the area where the National Flood Insurance Program's (NFIP) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. The owner of a structure in a high-risk area must carry flood insurance, if the owner carries a mortgage from a federally regulated or insured lender or servicer.

The following probabilistic risk assessment involves an analysis of a 1% annual chance riverine flood event.

## Riverine 1% Flood Scenario

Riverine losses were determined from the 1% flood boundaries downloaded from the FEMA Flood Map Service Center in January 2020. The flood boundaries were overlaid with the USGS 10-meter DEM using the Hazus-MH Enhanced Quick Look tool to generate riverine depth grids. The riverine flood depth grid was then imported into Hazus-MH to calculate the riverine flood loss estimates. Figure 7 illustrates the riverine inundation boundary associated with the 1% annual chance. Please note that the riverine flooding may not take into account elevated housing or raised Base Flood Elevation.

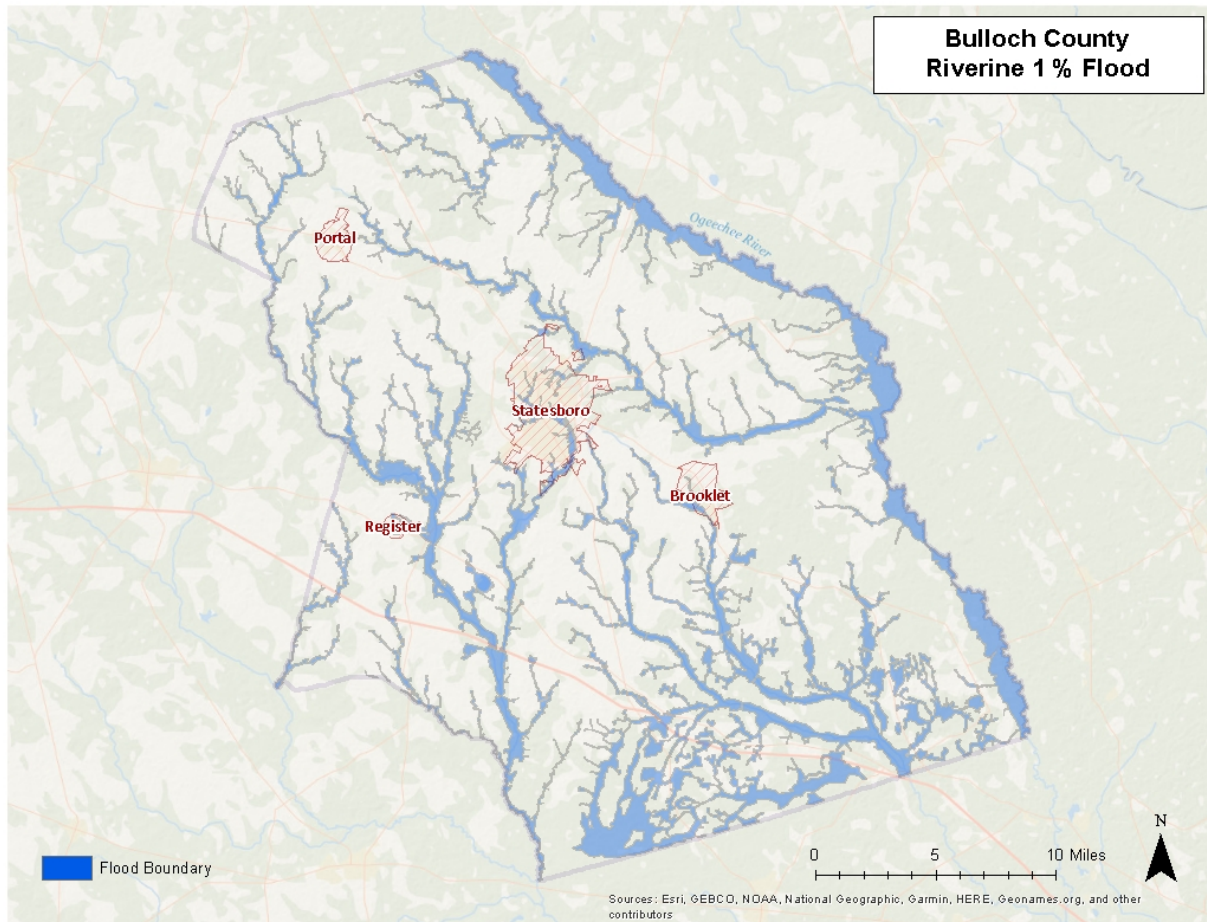


Figure 7: Riverine 1% Flood Inundation



## Riverine 1% Flood Building Damages

Buildings in Bulloch County are vulnerable to flooding from events equivalent to the 1% riverine flood. The economic and social impacts from a flood of this magnitude can be significant. Table 9 provides a summary of the potential flood-related building damage in Bulloch County by jurisdiction that might be experienced from the 1% flood. Figure 8 maps the potential loss ratios of total building exposure to losses sustained to buildings from the 1% flood by 2010 census block and Figure 9 illustrates the relationship of building locations to the 1% flood inundation boundary.

Table 9: Bulloch County Riverine 1% Building Losses

Occupancy Classification	Total Buildings	Total Buildings Damaged	Total Building Exposure	Total Losses to Buildings	Loss Ratio of Exposed to Damaged
<b>Brooklet</b>					
Residential	595	10	\$ 94,280,575	\$ 198,315	0.21%
<b>Statesboro</b>					
Residential	6,261	237	\$ 1,817,215,744	\$ 4,597,587	0.25%
Religious	12	3	\$ 5,189,268	\$ 23,921	0.46%
Industrial	76	6	\$ 107,203,274	\$ 25,594	0.02%
Commercial	1,229	31	\$ 1,431,099,805	\$ 387,625	0.03%
<b>Unincorporated</b>					
Commercial	502	8	\$ 1,032,067,739	\$ 91,364	0.01%
Government	4	4	\$ 1,101,349	\$ 11,886	1.08%
Residential	13709	790	\$ 2,321,109,407	\$ 10,792,370	0.46%
<b>Total</b>	<b>22,388</b>	<b>1,089</b>	<b>\$ 6,809,267,161</b>	<b>\$ 16,128,662</b>	

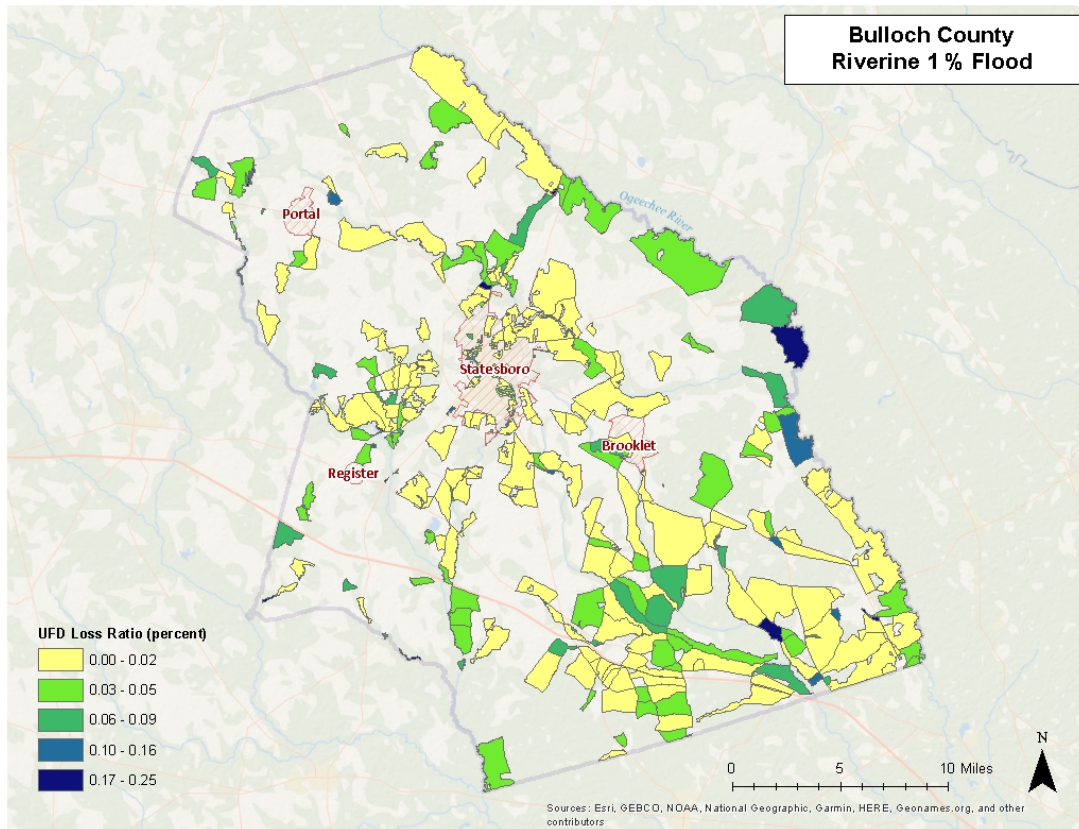


Figure 8: Potential UDF Loss Ratios from the 1% Riverine Flood

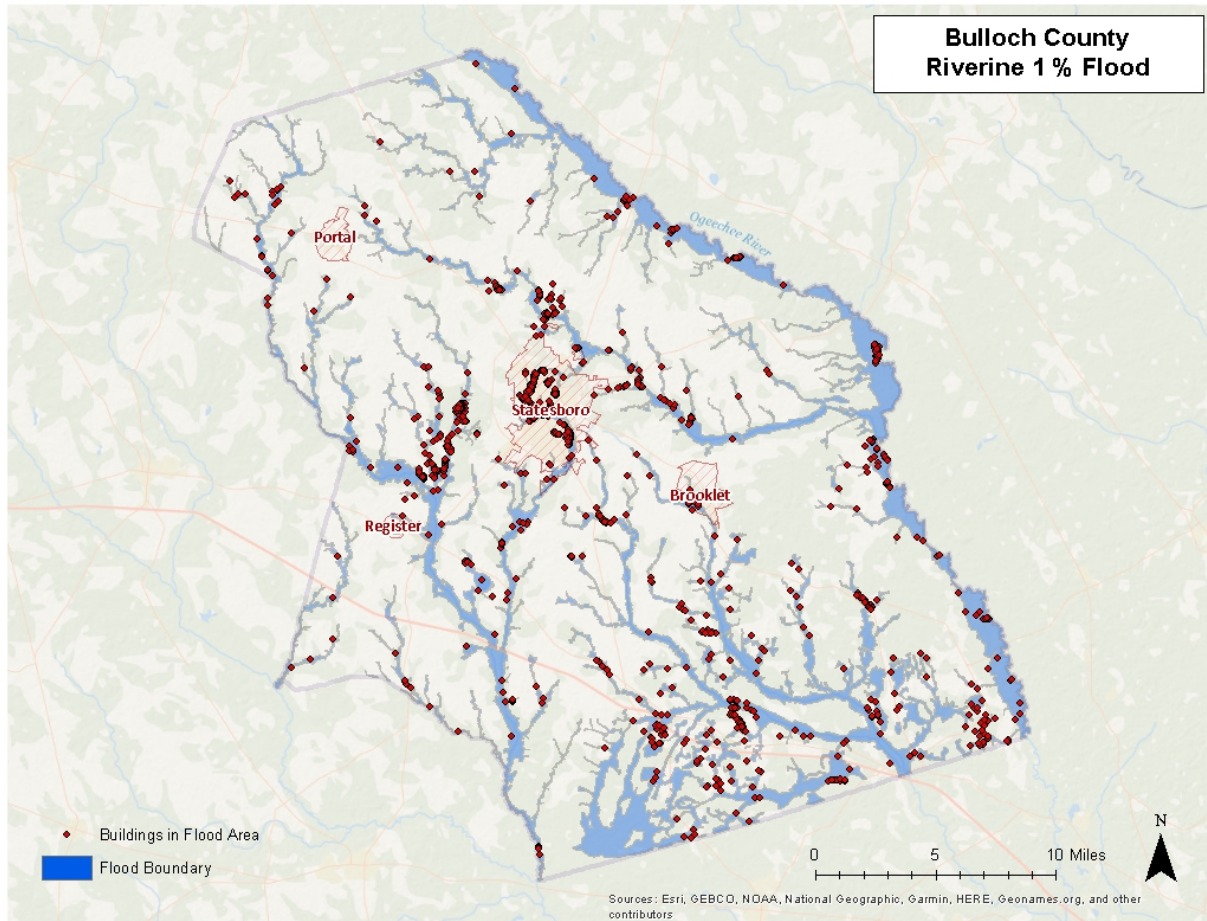


Figure 9: Damaged Buildings in 1% Riverine Flood

## Riverine 1% Flood Essential Facility Losses

An essential facility may encounter many of the same impacts as other buildings within the flood boundary. These impacts can include structural failure, extensive water damage to the facility and loss of facility functionality (e.g. a damaged police station will no longer be able to serve the community). The analysis has identified that were 0 Essential Facilities subject to damage in the Bulloch County riverine 1% probability floodplain.

Table 10: Expected Damage to Essential Facilities in 1% Riverine Flood

Classification	Total	Moderate	Substantial	Loss of Use
Fire Station	15	0	0	0
Hospitals	4	0	0	0
Police Stations	7	1	0	1
Schools	61	0	0	0
EOCs	1	0	0	0

## Riverine 1% Flood Shelter Requirements

Hazus-MH estimates that the number of households that are expected to be displaced from their homes due to riverine flooding and the associated potential evacuation. The model estimates 2,145 households might be displaced due to the flood. Displacement includes households evacuated within or very near to the inundated area. Displaced households represent 6,435 individuals, 3,811 may require short term publicly provided shelter. The results are mapped in Figure 10. These numbers may be overestimated for two reasons: elevated housing not taken into account and parcel centroids (not aligned exactly with actual structures).

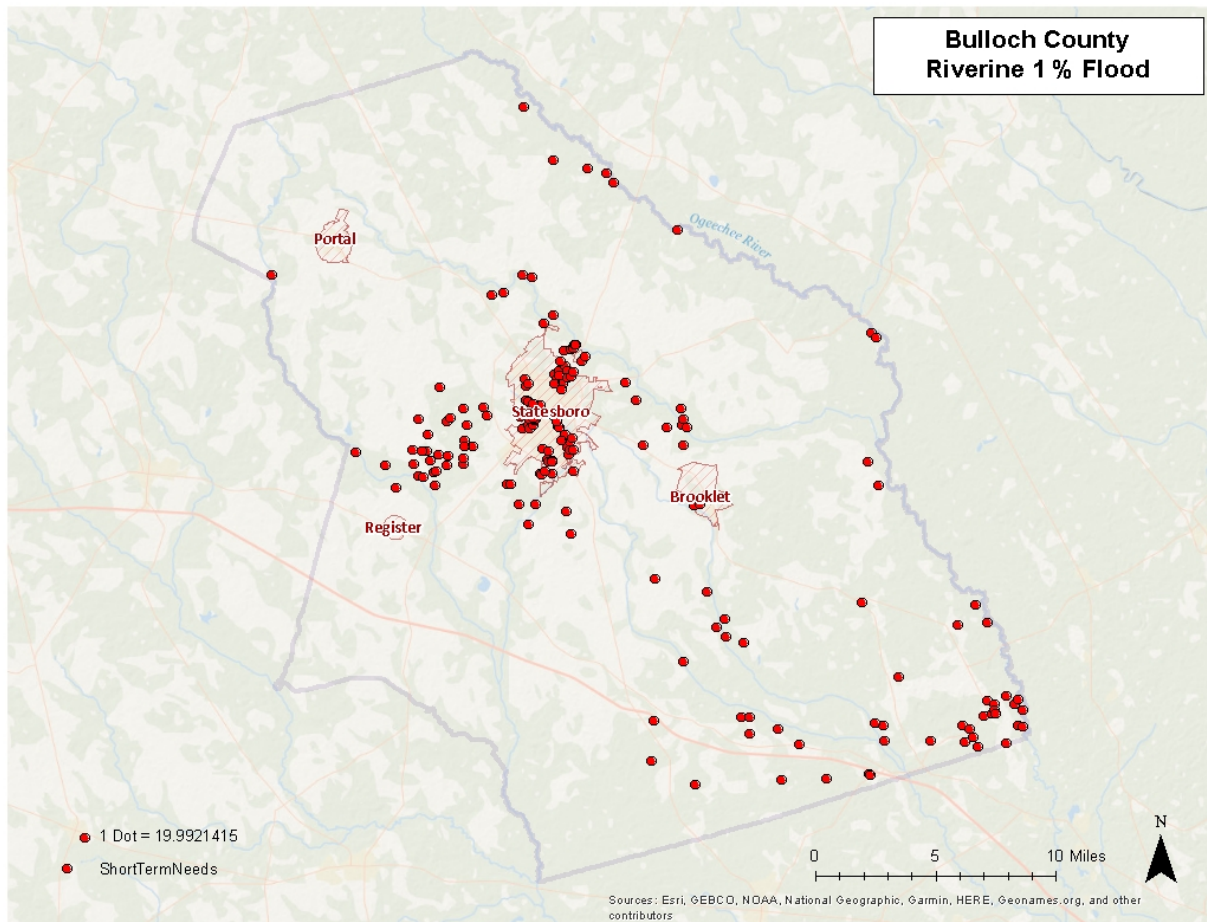


Figure 10: Estimated Flood Shelter Requirements in 1% Riverine Flood



## Riverine 1% Flood Debris

Hazus-MH estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories:

- Finishes (dry wall, insulation, etc.)
- Structural (wood, brick, etc.)
- Foundations (concrete slab, concrete block, rebar, etc.)

Different types of material handling equipment will be required for each category. Debris definitions applied in Hazus-MH are unique to the Hazus-MH model and so do not necessarily conform to other definitions that may be employed in other models or guidelines.

The analysis estimates that an approximate total of 1,561 tons of debris might be generated: 1) Finishes – 1,427 tons; 2) Structural – 39 tons; and 3) Foundations – 96 tons. The results are mapped in Figure 11.

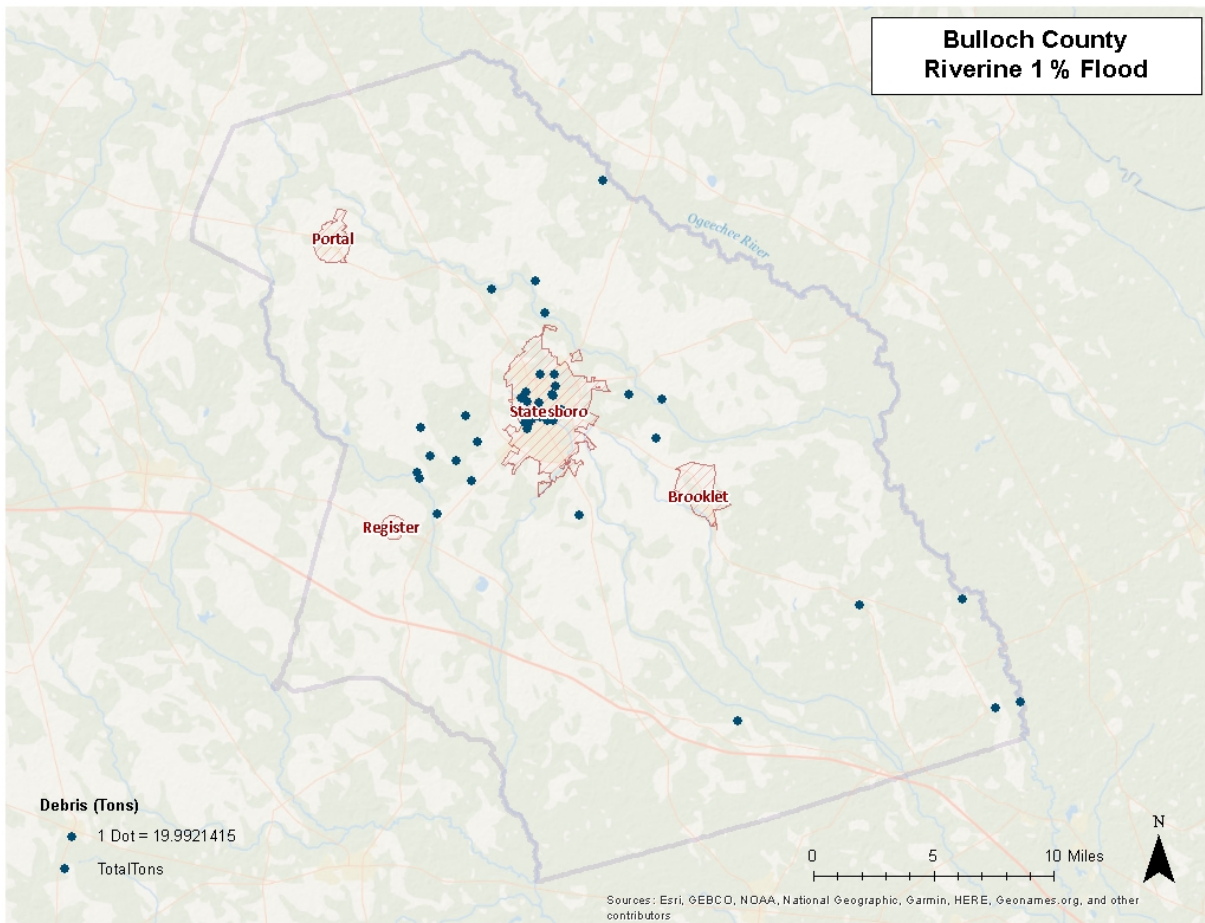


Figure 11: Flood Debris Weight (Tons) in 1% Riverine Flood

# Tornado Risk Assessment

## Hazard Definition

Tornadoes pose a great risk to the state of Georgia and its citizens. Tornadoes can occur at any time during the day or night. They can also happen during any month of the year. The unpredictability of tornadoes makes them one of Georgia's most dangerous hazards. Their extreme winds are violently destructive when they touch down in the region's developed and populated areas. Current estimates place the maximum velocity at about 300 miles per hour, but higher and lower values can occur. A wind velocity of 200 miles per hour will result in a wind pressure of 102.4 pounds per square foot of surface area—a load that exceeds the tolerance limits of most buildings. Considering these factors, it is easy to understand why tornadoes can be so devastating for the communities they hit.

Tornadoes are defined as violently rotating columns of air extending from thunderstorms and cyclonic events. Funnel clouds are rotating columns of air not in contact with the ground; however, the violently rotating column of air can reach the ground very quickly and become a tornado. If the funnel cloud picks up and blows debris, it has reached the ground and is a tornado.

Tornadoes are classified according to the Fujita tornado intensity scale. Originally introduced in 1971, the scale was modified in 2006 to better define the damage and estimated wind scale. The Enhanced Fujita Scale ranges from low intensity EF0 with effective wind speeds of 65 to 85 miles per hour, to EF5 tornadoes with effective wind speeds of over 200 miles per hour. The Enhanced Fujita intensity scale is included in Table 11.

Table 11: Enhanced Fujita Tornado Rating

Fujita Number	Estimated Wind Speed	Path Width	Path Length	Description of Destruction
EF0 <i>Gale</i>	65-85 mph	6-17 yards	0.3-0.9 miles	Light damage, some damage to chimneys, branches broken, sign boards damaged, shallow-rooted trees blown over.
EF1 <i>Moderate</i>	86-110 mph	18-55 yards	1.0-3.1 miles	Moderate damage, roof surfaces peeled off, mobile homes pushed off foundations, attached garages damaged.
EF2 <i>Significant</i>	111-135 mph	56-175 yards	3.2-9.9 miles	Considerable damage, entire roofs torn from frame houses, mobile homes demolished, boxcars pushed over, large trees snapped or uprooted.
EF3 <i>Severe</i>	136-165 mph	176-566 yards	10-31 miles	Severe damage, walls torn from well-constructed houses, trains overturned, most trees in forests uprooted, heavy cars thrown about.
EF4 <i>Devastating</i>	166-200 mph	0.3-0.9 miles	32-99 miles	Complete damage, well-constructed houses leveled, structures with weak foundations blown off for some distance, large missiles generated.
EF5 <i>Uncredible</i>	Over 200 mph	1.0-3.1 miles	100-315 miles	Foundations swept clean, automobiles become missiles and thrown for 100 yards or more, steel-reinforced concrete structures badly damaged.

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



## Hypothetical Tornado Scenario

For this report, an EF3 tornado was modeled to illustrate the potential impacts of tornadoes of this magnitude in the county. The analysis used a hypothetical path based upon an EF3 tornado event running along the predominant direction of historical tornadoes (southeast to northwest). The tornado path was placed to travel through Statesboro. The selected widths were modeled after a re-creation of the Fujita-Scale guidelines based on conceptual wind speeds, path widths, and path lengths. There is no guarantee that every tornado will fit exactly into one of these categories. Table 12 depicts tornado path widths and expected damage.

Table 12: Tornado Path Widths and Damage Curves

Enhanced Fujita Scale	Path Width (feet)	Maximum Expected Damage
EF5	2,400	100%
EF4	1,800	100%
EF3	1,200	80%
EF2	600	50%
EF1	300	10%

Within any given tornado path there are degrees of damage. The most intense damage occurs within the center of the damage path, with decreasing amounts of damage away from the center. After the hypothetical path is digitized on a map, the process is modeled in GIS by adding buffers (damage zones) around the tornado path. Figure 12 describes the zone analysis.

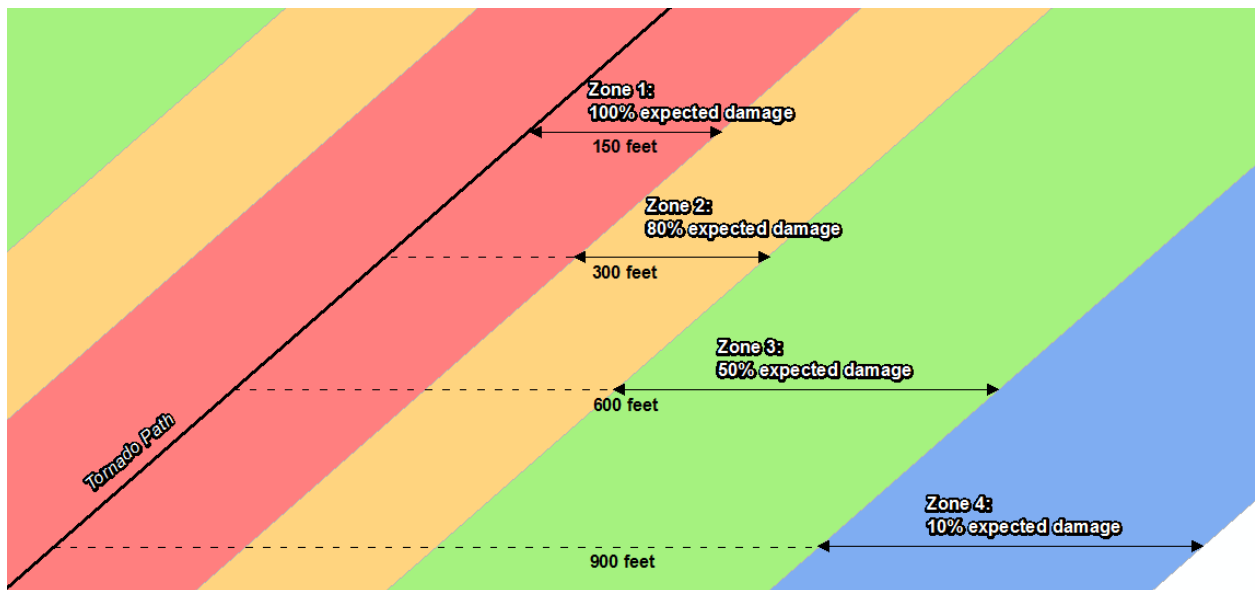


Figure 12: EF Scale Tornado Zones

An EF3 tornado has four damage zones, depicted in Table 13. Major damage is estimated within 150 feet of the tornado path. The outer buffer is 900 feet from the tornado path, within which buildings will not experience any damage. The selected hypothetical tornado path is depicted in Figure 13 and the damage curve buffer zones are shown in Figure 14.

Table 13: EF3 Tornado Zones and Damage Curves

Zone	Buffer (feet)	Damage Curve
1	0-150	80%
2	150-300	50%
3	300-600	10%
4	600-900	0%

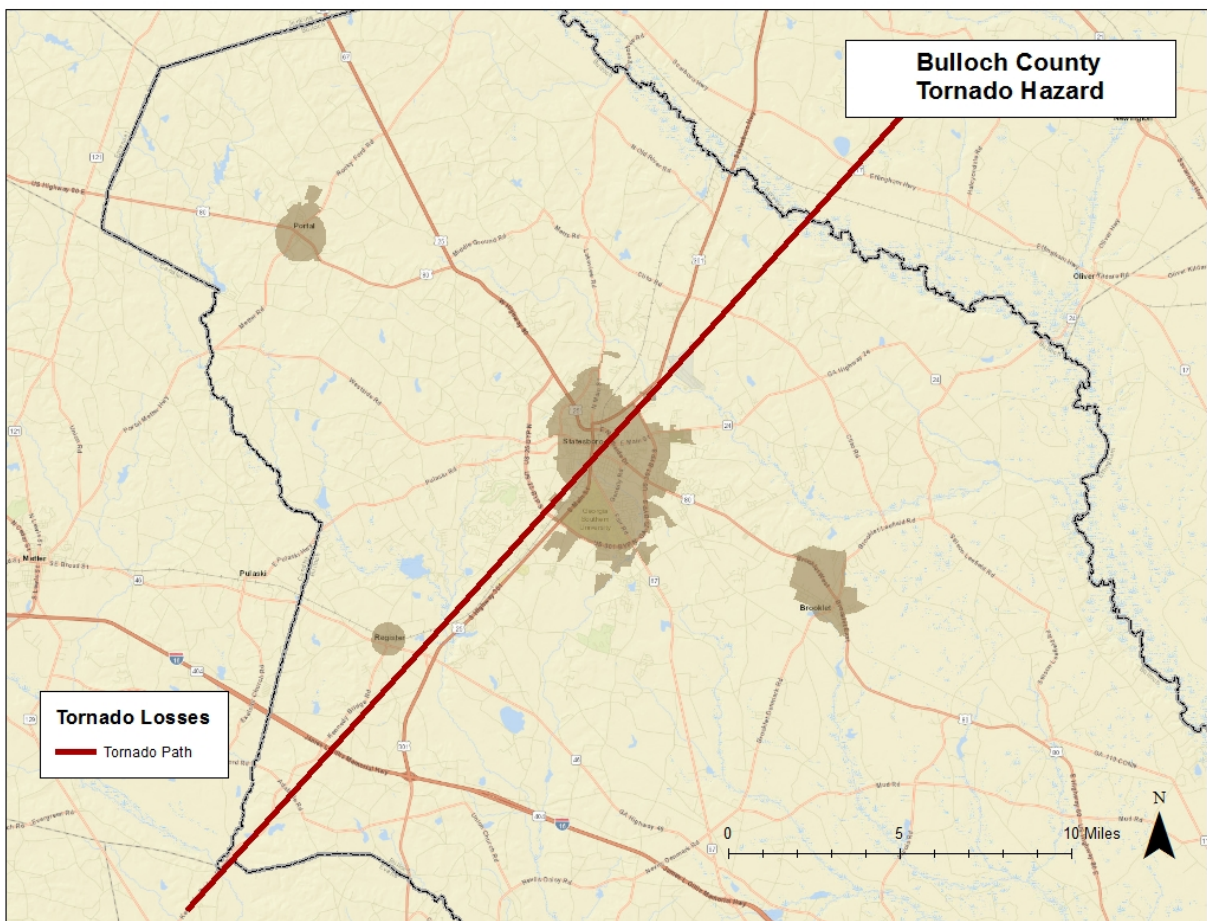


Figure 13: Hypothetical EF3 Tornado Path

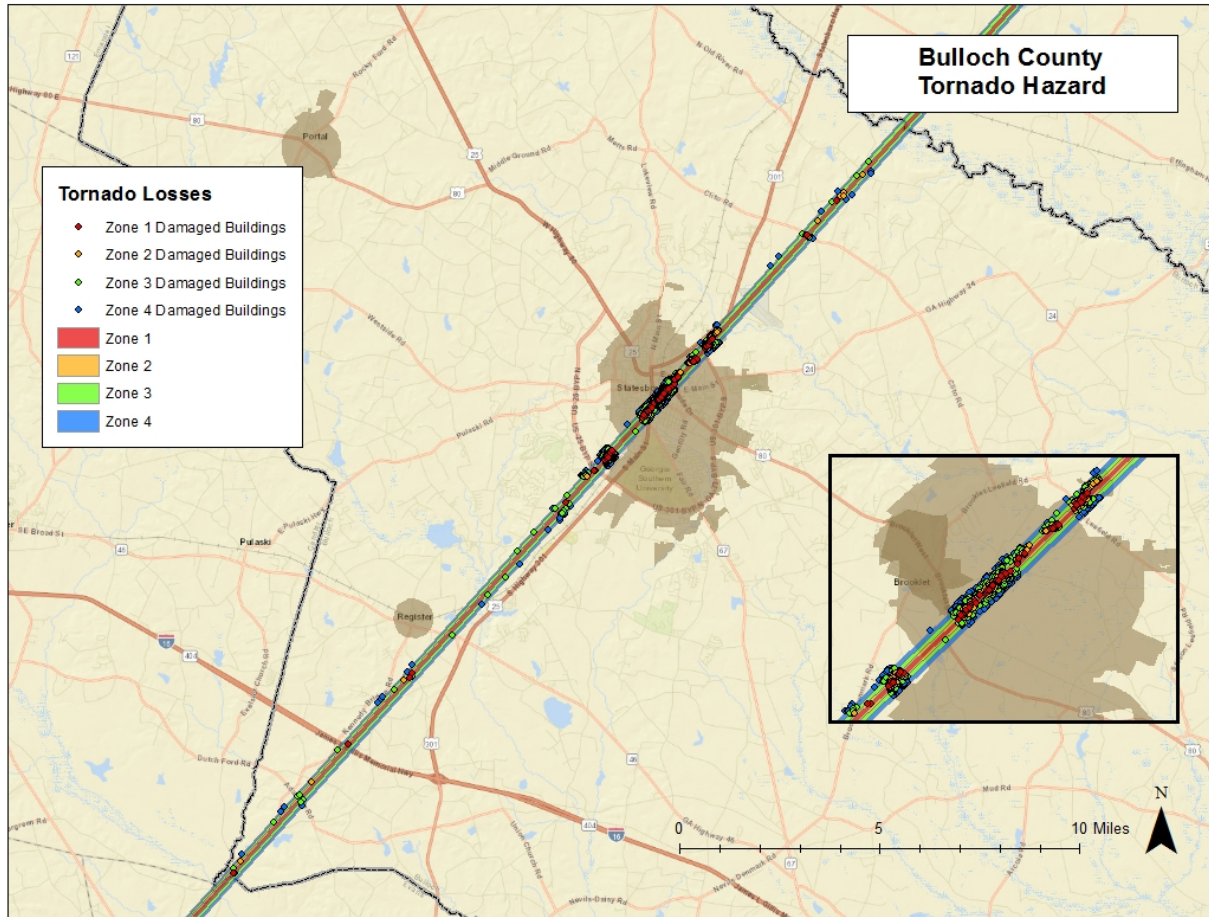


Figure 14: Modeled EF3 Tornado Damage Buffers

## EF3 Tornado Building Damages

The analysis estimated that approximately 907 buildings could be damaged, with estimated building losses of approximately \$145.9 million. The building losses are an estimate of building replacement costs multiplied by the percentages of damage. The overlay was performed against parcels provided by Bulloch County that were joined with Assessor records showing estimated property replacement costs. The Assessor records often do not distinguish parcels by occupancy class if the parcels are not taxable and thus the number of buildings and replacement costs may be underestimated. The results of the analysis are depicted in Table 14.

Table 14: Estimated Building Losses by Occupancy Type

Occupancy Classification	Buildings Damaged	Building Losses
Commercial Retail	80	\$ 23,779,190
Commercial Repair	10	\$ 2,500,754
Banks	10	\$ 982,278
Business Service	58	\$ 26,185,565
Medical Office/Clinic	3	\$ 92,572
Entertainment	14	\$ 5,401,717
Schools / Libraries	4	\$ 1,122,851
Government	1	\$ -
Industrial - Heavy	7	\$ 17,096,231
Industrial - Light	10	\$ 506,421
Church	2	\$ 14,509
Colleges/Universities	2	\$ 2,894,637
Single Family	583	\$ 20,018,125
Manufactured Housing	8	\$ 46,503
Multi-Family - Small	95	\$ 9,495,080
Multi-Family - Medium	2	\$ 1,261,467
Multi-Family - Large	5	\$ 245,201
Lodging	4	\$ -
Nursing Homes	9	\$ 14,296,255
<b>Total</b>	<b>907</b>	<b>\$ 125,939,354</b>

## EF3 Tornado Essential Facility Damage

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There were no essential facilities located within 900 feet of the modeled tornado path.

# Exceptions Report

Hazus Version 2.2 SP1 was used to perform the loss estimates for Bulloch County, Georgia. Changes made to the default Hazus-MH inventory and the modeling parameters used to setup the hazard scenarios are described within this document.

Reported losses reflect the updated data sets. Steps, algorithms and assumptions used during the data update process are documented in the project workflow developed by the Polis Center.

## Statewide Inventory Changes

The default Hazus-MH Essential Facility inventory was updated for the entire state prior to running the hazard scenarios for Bulloch County.

Statewide facility data were supplied by GEMA through the GMIS in June 2015. The Regional Commission updated the essential facilities in 2020. The updated data was used for this analysis. Table 15 summarizes the difference between the original Hazus-MH default data and the updated data for Bulloch County.

Table 15: Essential Facility Updates

Occupancy Classification	Default		Updated	
	Replacement Cost	Default Count	Replacement Cost	Updated Count
Care	\$ 37,408,000	2	\$90,539,954	4
EOC	\$ 880,000	1	\$202,000	1
Fire	\$ 4,689,000	9	\$5,582,297	15
Police	\$ 9,870,000	4	\$13,108,393	7
School	\$ 1,297,196,000	67	\$1,190,879,312	61

## County Inventory Changes

The GBS records for Bulloch County were replaced with data derived from parcel and property assessment data obtained from Bulloch County. The county provided property assessment data was current as of January 2020 and the parcel data current as of January 2020.

## General Building Stock Updates

The parcel boundaries and assessor records were obtained from Bulloch County. Records without improvements were deleted. The parcel boundaries were converted to parcel points located in the centroids of each parcel boundary unless there were building footprints. Each parcel point was linked to an assessor record based upon matching parcel numbers. The generated Building Inventory represents the approximate locations (within a parcel) of building exposure. The Building Inventory was aggregated by Census Block and imported into Hazus-MH using the Hazus-MH Comprehensive Data Management System (CDMS). Both the 2010 Census Tract and Census Block tables were updated.



The match between parcel records and assessor records was based upon a common Parcel ID. For this type of project, unless the hit rate is better than 85%, the records are not used to update the default aggregate inventory in Hazus-MH. The Parcel-Assessor hit rate for Bulloch County was 100%.

Adjustments were made to records when primary fields did not have a value. In these cases, default values were applied to the fields. Table 16 outlines the adjustments made to Bulloch County records.

Table 16: Building Inventory Default Adjustment Rates

Type of Adjustment	Building Count	Percentage
Area Unknown	587	4%
Construction Unknown	699	5%
Condition Unknown	539	4%
Foundation Unknown	702	5%
Year Built Unknown	6	0%

Portions of the CAMA values were either missing (<Null> or '0'), did not match CAMA domains or were unusable ('Unknown', 'Other', 'Pending'). These were replaced with 'best available' values. Missing Year Built values were populated from average values per Census Block. Missing Condition, Construction and Foundation values were populated with the highest-frequency CAMA values per Occupancy Class. Missing Area values were populated with the average CAMA values per Occupancy Class.

The resulting Building Inventory was used to populate the Hazus-MH General Building Stock and User Defined Facility tables. The updated General Building Stock was used to calculate flood and tornado losses. Changes to the building counts and exposure that were modeled in Bulloch County are sorted by General Occupancy in Table 1 at the beginning of this report. If replacements cost or building value were not present for a given record in the Assessor data, replacement costs were calculated from the Building Area (sqft) multiplied by the Hazus-MH RS Means (\$/sqft) values for each Occupancy Class.

Differences between the default and updated data are due to various factors. The Assessor records often do not distinguish parcels by occupancy class when the parcels are not taxable; therefore, the total number of buildings and the building replacement costs for government, religious/non-profit, and education may be underestimated.

## User Defined Facilities

---

Local parcel and CAMA data were used to develop points representing the locations of buildings in the county, referred to as User Defined Facilities (UDF) in the Hazus model. For the flood model, this includes only buildings located in the 1% Annual Chance Riverine Flood Area. Table 17 identifies the total building count & exposure for the county and the total building count & exposure for buildings located in the 1% Annual Chance Riverine Flood Area.

Table 17: Building Count and Exposure for County and Riverine Flood Area

Feature	Counts	Exposure
Total buildings in the County	22,951	\$7,291,951,840
Total buildings inside the 1% Annual Chance Riverine Flood Area	1,158	\$216,448,431
Total buildings inside the 1% Annual Chance Coastal Flood Area	0	\$0

It should be noted that UDFs are only used in the flood modeling process, due to the fact that it is important to identify if individual buildings are located within the flood area to obtain the depth of flood.

### Assumptions

- Flood analysis was performed on UDF. The point locations are parcel centroid accuracy.
- The analysis is restricted to the county boundary within the flood area. Events that occur near the county boundary do not contain loss estimates from adjacent counties.
- The following attributes were defaulted or calculated:
  - First Floor Height was set from Foundation Type
  - Content Cost was calculated from Building Cost

BULLOCH COUNTY  
HAZARD FREQUENCY TABLE  
2020 HMP Update

Hazard	Number of Events in Historic Record	Number of Years in Historic Record	Number of Events in Past 10 Years	Number of Events in Past 20 Years	Number of Events in Past 50 Years	Historic Recurrence Interval (years)	Historic Frequency % chance/year	Past 10 Year Record Frequency Per Year	Past 20 Year Record Frequency Per Year	50 Year Record Freque
Hurricane Wind/Tropical Storm	6	20	4	6		3.33	30.00	0.4	0.3	0
Floods	17	20	9	16		1.18	85.00	0.9	0.8	0
Wildfire	603	10	603			0.02	6030.00	60.3	0	0
Earthquake	0	20	0	0		0.00	0.00	0	0	0
Tornado	9	20	3	9		2.22	45.00	0.3	0.45	0
Thunderstorm Wind	253	20	73	253		0.08	1265.00	7.3	12.65	0
Hail	2	20	0	2		10.00	10.00	0	0.1	0
Drought	16	20	0	16		1.25	80.00	0	0.8	0
Snow & Ice	9	20	8	9		2.22	45.00	0.8	0.45	0
Landslide	0									
Dam Failure	0									
HazMat Release (fixed)										
HazMat Release (trans)										
Radiological Release										

Above Data Collected: [Most data end date 8.30.2020](#)

**NOTE:** The historic frequency of a hazard event over a given period of time determines the historic recurrence interval. For example: If there have been 20 HazMat Releases in the County in the past 5 years, statistically you could expect that there will be 4 releases a year.

Realize that from a statistical standpoint, there are several variables to consider. 1) Accurate hazard history data and collection are crucial to an accurate recurrence interval and frequency. 2) Data collection and accuracy has been much better in the past 10-20 years (NCDC weather records). 3) It is important to include all significant recorded hazard events which will include periodic updates to this table.

By updating and reviewing this table over time, it may be possible to see if certain types of hazard events are increasing in the past 10-20 years.

|

BULLOCH COUNTY  
HAZARD FREQUENCY TABLE  
2020 HMP Update

Hazard	Number of Events in Historic Record	Number of Years in Historic Record	Number of Events in Past 10 Years	Number of Events in Past 20 Years	Number of Events in Past 50 Years	Historic Recurrence Interval (years)	Historic Frequency % chance/year	Past 10 Year Record Frequency Per Year	Past 20 Year Record Frequency Per Year	50 Year Record Freque
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Floods	17	20	9	16		1.18	85.00	0.9	0.8	0
Wildfire	603	10	603			0.02	6030.00	60.3	0	0
Earthquake	0	20	0	0		0.00	0.00	0	0	0
Tornado	9	20	3	9		2.22	45.00	0.3	0.45	0
Thunderstorm Wind	253	20	73	253		0.08	1265.00	7.3	12.65	0
Hail	2	20	0	2		10.00	10.00	0	0.1	0
Drought	16	20	0	16		1.25	80.00	0	0.8	0
Snow & Ice	9	20	8	9		2.22	45.00	0.8	0.45	0
Landslide	0									
Dam Failure	0									
HazMat Release (fixed)										
HazMat Release (trans)										
Radiological Release										

Above Data Collected: [Most data end date 8.30.2020](#)

**NOTE:** The historic frequency of a hazard event over a given period of time determines the historic recurrence interval. For example: If there have been 20 HazMat Releases in the County in the past 5 years, statistically you could expect that there will be 4 releases a year.

Realize that from a statistical standpoint, there are several variables to consider. 1) Accurate hazard history data and collection are crucial to an accurate recurrence interval and frequency. 2) Data collection and accuracy has been much better in the past 10-20 years (NCDC weather records). 3) It is important to include all significant recorded hazard events which will include periodic updates to this table.

By updating and reviewing this table over time, it may be possible to see if certain types of hazard events are increasing in the past 10-20 years.

|



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Facility Flood Hazard All Hazard Scores

Jurisdiction	Name	Hazard Sco	Value	Replaceme
Brooklet town	Brooklet Police Department	0	53100	2019
Bulloch County	Brooklet City Hall	0	294450	2019
Bulloch County	Brooklet Elementary	0	2200000	2019
Bulloch County	Bulloch County Fire Department Sta #4	0	25000	2019
Bulloch County	Bulloch County Fire Department Sta #7	0	135402.58	2019
Bulloch County	Southeast Bulloch High	0	19115000	2019
Bulloch County	Southeast Bulloch Middle	0	5656000	2019
Bulloch County	Stilson Elementary School	0	2400000	2019
Bulloch County	Stilson Park Well	0	50000	2019
Bulloch County	Portal Well	0	92041	2019
Bulloch County	Portal Elementary	0	2366455	2019
Bulloch County	Portal Middle/High	0	1800000	2019
Bulloch County	Portal Well	0	92041	2019
Bulloch County	Bulloch County Fire Department Sta #3	0	35000	2019
Bulloch County	Briggs & Stratton	0	11003000	2019
Bulloch County	Bulloch Academy	0	3525000	2019
Bulloch County	Bulloch County Correctional Institution	0	3416370	2019
Bulloch County	Bulloch County Fire Department Sta #8	0	594828	2019
Bulloch County	Bulloch County Fire Department Sta #9	0	24000	2019
Bulloch County	BCCI	0	1696220	2019
Bulloch County	Bulloch County Juvenile Court	0	299610	2019
Bulloch County	Bulloch County Sheriff's Office	0	2250930	2019
Bulloch County	Electrical Switch House	0	308529	2019
Bulloch County	Georgia State Patrol	0	970000	2019
Bulloch County	Grounds Equipment Building	0	2619760	2018
Bulloch County	Julia P. Bryant	0	9653000	2019
Bulloch County	Mattie Lively Elementary School	0	12500000	2019
Bulloch County	Mill Creek Elementary School	0	2000000	2019
Bulloch County	Nevils Elementary School	0	7400000	2019
Bulloch County	Ogeechee Tech	0	30702200	2019
Bulloch County	Olliff Hall	0	22846826	2018
Bulloch County	Statesboro Fire Department Sta. #1	0	1257636	2019
Bulloch County	Statesboro/Bulloch County Landfill	0	2832512	2019
Bulloch County	Walmart Distribution	0	52356300	2019
Bulloch County	Well House 1	0	50000	2019
Bulloch County	William James Middle School	0	9336000	2020
Bulloch County	Willingway Hospital	0	7098807	2019
Bulloch County	GA National Guard	0	850000	2019
Bulloch County	GBI	0	377534	2019
Bulloch County	Great Dane	0	11511500	2019
Bulloch County	Animal Shelter Office	0	505634	2019
Bulloch County	Animal Shelter Office	0	505634	2019
Bulloch County	Bulloch Wellness Center	0	325764	2019
Bulloch County	GA Dept of Audits	0	4520000	2019
Bulloch County	Bulloch County EMS	0	170000	2019

Bulloch County	Nevils School Park Well	0	50000	2019
Bulloch County	Nevils Denmark Sub Fire Station	0	15934	2019
Bulloch County	Gateway Industrial Park Well	0	50000	2019
Bulloch County	Jef Rd Well	0	50000	2019
Bulloch County	Proctor St Well	3	50000	2019
Bulloch County	GA DMV	0	200000	2019
Bulloch County	Georgia Forestry Commission	0	125000	2019
Bulloch County	Sallie Zetterower Elementary School	0	9650000	2019
Bulloch County	Statesboro Municipal Airport	0	37532	2019
Bulloch County	Airport Security Office	0	41783	2019
Bulloch County	GA State (Civil) Defense Force 3 HQ	0	202000	2019
Bulloch County	Bay Fire Station Sta #5	0	28000	2019
Portal town	Fire Department Sta. #2	0	356739	2019
Portal town	Lift Station behind Elementary School	0	6268	2019
Portal town	Portal Police Department/City Hall	0	142639	2019
Portal town	Portal Water Tower #2	0	130000	2019
Register town	Register Town Hall	0	109339	2019
Register town	Register Well	0	50000	2019
Register town	Town of Register	0	43072.84	2019
Statesboro city	Bulloch County Health Department	0	640000	2019
Statesboro city	Bulloch County Judicial Annex	0	4300000	2019
Statesboro city	Bulloch County Magistrate Court	0	1007940	2019
Statesboro city	Bulloch County North Main Annex	0	180000	2019
Statesboro city	Crossroads Alternative	0	4520000	2019
Statesboro city	East Georgia Regional Medical Center	0	33299547	2019
Statesboro city	Federal Courthouse	0	4686746	2019
Statesboro city	First Baptist Church	0	1561423	2019
Statesboro city	First Presbyterian Church	0	2044720	2019
Statesboro city	First United Methodist Church	0	4337285	2019
Statesboro city	Housing Maint. Bldg. (Tom's Whse)	0	2201445	2018
Statesboro city	Institute of Arthropodology & Parasitology	0	1356328	2018
Statesboro city	Johnson Hall	0	30010125	2018
Statesboro city	Landrum Center	0	152051551	2018
Statesboro city	Langston Chapel Elementary School	0	10315573	2019
Statesboro city	Langston Chapel Middle School	0	8500000	2019
Statesboro city	Physical Plant FPD& C Building	0	1856246	2018
Statesboro city	Statesboro High School	0	2400000	2019
Statesboro city	Statesboro Police Department	0	2354172	2019
Statesboro city	Statesboro Regional Library	0	5257851	2019
Statesboro city	Statesboro WPCP	0	1026786	2019
Statesboro city	Winburn Hall	0	18504421	2018
Statesboro city	Senior Citizens Community Center	3	1200000	2019
Statesboro city	Viracon	0	4826800	2019
Statesboro city	The Warehouse	0	3058160	2019
Statesboro city	Brazwell St Well	0	50000	2019
Statesboro city	GA Southern Water Storage Tower	0	130000	2018
Statesboro city	Old Register Rd Well	0	50000	2019

Statesboro city	Paulson Stadium and Storage Tower	0	19085412	2018
Statesboro city	Statesboro City Hall	0	2516578	2019
Statesboro city	Statesboro Water Storage Tower	3	50000	2019
Statesboro city	Anderson Hall	0	3375949	2018
Statesboro city	Auxiliary Warehouse	0	4650000	2018
Statesboro city	Biological Sciences	0	38516140	2018
Statesboro city	Brannen Hall	0	7436641	2018
Statesboro city	Carrol Building	0	17668099	2018
Statesboro city	Centenial Hall	0	3000000	2018
Statesboro city	Central Receiving	0	8900000	2018
Statesboro city	Child Development Center	0	2080993	2018
Statesboro city	City Campus	0	500000	2018
Statesboro city	College of Education	0	32450000	2018
Statesboro city	College of Information Technology	0	36552792	2018
Statesboro city	Cone	0	8649559	2018
Statesboro city	Counseling Center	0	1467760	2018
Statesboro city	Deal Hall	0	3448521	2018
Statesboro city	Dining Commons	0	4000000	2018
Statesboro city	Eagle Village Building 1	0	54448758	2018
Statesboro city	Eagle Village Building 2	0	54752552	2018
Statesboro city	Facilities Services Administration	0	3350703	2018
Statesboro city	Facilities Services Landscape & Custodial Serv	0	2619760	2018
Statesboro city	Facilities Services Shops	0	5415850	2018
Statesboro city	Freedoms Landing	0	1336030	2018
Statesboro city	Georgia Southern University Public Safety	0	3514781	2018
Statesboro city	Hanner Complex	0	44066084	2018
Statesboro city	Hazardous Waste Storage Building	0	670388	2018
Statesboro city	Health Center	0	11315996	2018
Statesboro city	Henderson Library	0	80383349	2018
Statesboro city	Hendricks	0	9033482	2018
Statesboro city	Herty Building	0	11678200	2018
Statesboro city	Hollis Building	0	12484133	2018
Statesboro city	Interdisciplinary Academic Building	0	34806000	2018
Statesboro city	Kennedy 1	0	19718775	2018
Statesboro city	Kennedy 2	0	12108582	2018
Statesboro city	Lewis Hall	0	4440579	2018
Statesboro city	Math & Physics Building	0	29233840	2018
Statesboro city	Military Science/GEMA	0	9889670	2018
Statesboro city	Natural Sciences Building	0	11580861	2018
Statesboro city	Nessmith Lane Continuing Education	0	25712280	2018
Statesboro city	NOC 2	0	2180683	2018
Statesboro city	NOC 3	0	4341700	2018
Statesboro city	Nursing & Chemistry	0	30800000	2018
Statesboro city	Paulson Stadium	0	19085412	2018
Statesboro city	Pittman Administration Building	0	12095586	2018
Statesboro city	GS Public Safety	0	249070	2019
Statesboro city	RAC	0	76159056	2018

Statesboro city	Rosenwald	0	7981825	2018
Statesboro city	Russell Union	0	25061308	2018
Statesboro city	Sanford Hall	0	9889279	2018
Statesboro city	Shooting Sports	0	6414100	2018
Statesboro city	Southern Courtyard Building 1	0	12283799	2018
Statesboro city	Southern Courtyard Building 2	0	12349100	2018
Statesboro city	Southern Courtyard Building 3	0	20571424	2018
Statesboro city	Southern Courtyard Building 4	0	20571424	2018
Statesboro city	Southern Pine 1	0	17781910	2018
Statesboro city	Southern Pine 2	0	17781910	2018
Statesboro city	Southern Pine 3	0	17781910	2018
Statesboro city	Southern Pine 4	0	17781910	2018
Statesboro city	Southern Pine 5	0	8972937	2018
Statesboro city	Veazy	0	6783201	2018
Statesboro city	Watson Hall Commons	0	5275469	2018
Statesboro city	Watson Hall Pods	0	8988738	2018
Statesboro city	Well House Lewis	0	74000	2018
Statesboro city	Well House Nessmith	0	586642	2018
Statesboro city	GSU Hazardous Waste Storage Bldg	0	670388	2018
		2	1,550,309,387	

Building siz Con Func Facility typ Risk

1653	0 Law Enforcement, Police
1749	0 Government, Government Offices
94435	0 Education, Vulnerable Population
3072	0 Emergency Lifeline
3675	0 Emergency Services, Fire Fighters
196600	0 Education, Education, K - 12, K - 12
122656	0 Education, Education, Clinics, Clinics
79364	0 Education, Vulnerable Population
	0 Governme Essential
240	0 Government, Water/Sewer
80212	0 Education, Education, K - 12, K - 12
128981	0 Education, High Potential Loss
240	0 Government, Water/Sewer
3847	0 Emergency Essential
514968	0 Education, Education, Government Offices, Government Offices
99236	0 Education, Important
42822	0 Law Enforc Essential
3543	0 Emergency Services, Emergency Services, Fire Fighters, Fire Fighters
3522	0 Emergency Essential
21261	0 Law Enforcement, Law Enforcement, Jails, Jails
7575	0 Law Enforc Important
19443	0 Law Enforc Essential
805	0 Governme Essential
15032	0 NGO, NGO, Transportation, Transportation
2400	0 Education, Hazardous Materials
108092	0 Education, Vulnerable Population
78382	0 Education, Vulnerable Population
102864	0 Education, High Potential Loss
78605	0 Education, Education, Clinics, Clinics
248139	0 Education, Economic Assets
58740	0 Education, Important
7104	0 Emergency Essential
16000	0 Government, Government, Landfill, Landfill
2066792	0 NGO, NGO, High Potential Loss
240	0 Governme Essential
100660	0 Education, Education, K - 12, K - 12
40099	0 Medical, M Vulnerable Population
	0 Governme Important
8026	0 Law Enforc Essential
	0 NGO, Priva Economic Assets
	0 Governme Important
	0 Governme Important
	0 Medical, CI Vulnerable Population
	0 Governme Important
	0 Emergency Essential



	0 Government Important
	0 Emergency Important
0	0 Government Essential
400	0 Government Essential
400	0 Government Essential
10476	0 Government, Government, Government Offices, Government Offices
6716	0 Government Essential
109008	0 Education, High Potential Loss
5801	0 Government, Government, Transportation, Transportation
	0 Government Transportation
	0 Government Essential
3624	0 Emergency Services, Emergency Services, Fire Fighters, Fire Fighters
24829	0 Emergency Services, Fire Fighters
140	0 Government, Water/Sewer
24306	0 Emergency Services, Police
400	0 Government Lifeline
900	0 Government, Private
200	0 Government, Government, Water/Sewer, Water/Sewer
240	0 Government, Water/Sewer
14013	0 Government Important
19649	0 Law Enforcement, Law Enforcement, Court House, Court House
6738	0 Law Enforc Important
17267	0 Law Enforcement, Law Enforcement, Court House, Court House
65620	0 Education, Vulnerable Population
188099	0 Medical, M Essential
37820	0 Education, Education, Government Offices, Government Offices
126000	0 Education, Important
16500	0 Education, Important
35000	0 Education, Important
5848	0 Education, Important
3603	0 Education, Economic Assets
79720	0 Education, High Potential Loss
40582	0 Education, Important
86080	0 Education, High Potential Loss
226077	0 Education, High Potential Loss
4931	0 Education, Important
220201	0 Education, High Potential Loss
13298	0 Law Enforc Essential
29700	0 Education, Important
5800	0 Government Essential
49184	0 Education, Important
	0 Government Vulnerable Population
	0 NGO, Priva High Potential Loss
	0 NGO, Priva High Potential Loss
400	0 Government Essential
400	0 Government Essential
400	0 Government Essential

0	0 Education, Essential
21000	0 Governme Important
240	0 Governme Essential
18566	0 Education, University
34770	0 Education, University
135275	0 Education, University
29685	0 Education, University
78133	0 Education, University
377075	0 Education, University
57333	0 Education, University
10470	0 Education, University
9234	0 Education, University
131185	0 Education, University
138988	0 Education, University
43165	0 Education, University
8392	0 Education, University
18561	0 Education, University
73616	0 Education, University
153420	0 Education, University
154276	0 Education, University
23673	0 Education, University
10400	0 Education, University
21500	0 Education, University
461711	0 Education, University
7000	0 Emergency Essential
158163	0 Education, University
2525	0 Education, Hazardous Materials
37450	0 Education, University
245888	0 Education, University
40099	0 Education, University
49560	0 Education, University
48658	0 Education, University
109887	0 Education, University
94552	0 Education, University
58061	0 Education, University
24466	0 Education, University
112864	0 Education, University
51132	0 Governme Essential
51132	0 Education, University
116874	0 Education, University
1500	0 Education, University
3371	0 Education, University
123649	0 Education, University
41930	0 Education, University
42577	0 Education, University
4738	0 Emergency Services, Emergency Services, EMA, EMA
220668	0 Education, University

43977	0 Education, University
104032	0 Education, University
32197	0 Education, University
29479	0 Education, University
34612	0 Education, University
34796	0 Education, University
57964	0 Education, University
57964	0 Education, University
50104	0 Education, University
50104	0 Education, University
50104	0 Education, University
50104	0 Education, University
25283	0 Education, University
32494	0 Education, University
25296	0 Education, University
44871	0 Education, University
240	0 Education, University
600	0 Education, University
	0 Education, Hazardous Materials

Facility Flood Hazard All Hazard Scores

Jurisdiction Name	Hazard Score	Value	Replacement	Building size	Content value	Content value	Functional	Facility type
Bulloch Co Brooklet Ci	0	294450	2019	1749				0 Government
Bulloch Co Brooklet El	0	2200000	2019	94435				0 Education,
Brooklet to Brooklet Pc	3	53100	2019	1653				0 Law Enforc
Bulloch Co Bulloch Co	0	25000	2019	3072				0 Emergency
Bulloch Co Bulloch Co	0	135402.6	2019	3675				0 Emergency
Bulloch Co Southeast I	0	19115000	2019	196600				0 Education,
Bulloch Co Southeast I	0	5656000	2019	122656				0 Education,
Bulloch Co Stilson Eler	0	2400000	2019	79364				0 Education,
Bulloch Co Stilson Parl	0	50000	2019					0 Governmei
Portal tow Fire Depart	0	356739	2019	24829				0 Emergency
Portal tow Lift Station	0	6268	2019	140				0 Governmer
Bulloch Co Portal Wel	0	92041	2019	240				0 Governmer
Bulloch Co Portal Elerr	0	2366455	2019	80212				0 Education,
Bulloch Co Portal Mide	0	1800000	2019	128981				0 Education,
Portal tow Portal Polic	0	142639	2019	24306				0 Emergency
Portal tow Portal Wat	0	130000	2019	400				0 Governmei
Bulloch Co Portal Well	0	92041	2019	240				0 Governmer
Bulloch Co Bulloch Co	0	35000	2019	3847				0 Emergency
Register to Register To	0	109339	2019	900				0 Governmer
Register to Register W	0	50000	2019	200				0 Governmer
Register to Town of Re	0	43072.84	2019	240				0 Governmer
Bulloch Co Briggs & St	0	11003000	2019	514968				0 Education,
Bulloch Co Bulloch Ac	0	3525000	2019	99236				0 Education,
Bulloch Co Bulloch Co	0	3416370	2019	42822				0 Law Enforc
Bulloch Co Bulloch Co	0	594828	2019	3543				0 Emergency
Bulloch Co Bulloch Co	0	24000	2019	3522				0 Emergency
Statesboro Bulloch Co	0	640000	2019	14013				0 Governmei
Bulloch Co BCCI	0	1696220	2019	21261				0 Law Enforc
Statesboro Bulloch Co	0	4300000	2019	19649				0 Law Enforc
Bulloch Co Bulloch Co	0	299610	2019	7575				0 Law Enforc
Statesboro Bulloch Co	0	1007940	2019	6738				0 Law Enforc
Statesboro Bulloch Co	0	180000	2019	17267				0 Law Enforc
Bulloch Co Bulloch Co	0	2250930	2019	19443				0 Law Enforc
Statesboro Crossroads	0	4520000	2019	65620				0 Education,
Statesboro East Georg	0	33299547	2019	188099				0 Medical, M
Bulloch Co Electrical S	0	308529	2019	805				0 Governmei
Statesboro Federal Co	0	4686746	2019	37820				0 Education,
Statesboro First Baptis	0	1561423	2019	126000				0 Education,
Statesboro First Presby	0	2044720	2019	16500				0 Education,
Statesboro First Unitec	0	4337285	2019	35000				0 Education,
Bulloch Co Georgia Sta	0	970000	2019	15032				0 NGO, NGO,
Bulloch Co Grounds Ec	0	2619760	2018	2400				0 Education,
Statesboro Housing M	0	2201445	2018	5848				0 Education,
Statesboro Institute of	0	1356328	2018	3603				0 Education,
Statesboro Johnson Ha	0	30010125	2018	79720				0 Education,

Bulloch Co Julia P. Bry	0	9653000	2019	108092	0 Education,
Statesboro Landrum C	0	1.52E+08	2018	40582	0 Education,
Statesboro Langston C	0	10315573	2019	86080	0 Education,
Statesboro Langston C	0	8500000	2019	226077	0 Education,
Bulloch Co Mattie Live	0	12500000	2019	78382	0 Education,
Bulloch Co Mill Creek I	0	2000000	2019	102864	0 Education,
Bulloch Co Nevils Elerr	0	7400000	2019	78605	0 Education,
Bulloch Co Ogeechee "	0	30702200	2019	248139	0 Education,
Bulloch Co Olliff Hall	0	22846826	2018	58740	0 Education,
Statesboro Physical Pla	0	1856246	2018	4931	0 Education,
Bulloch Co Statesboro	0	1257636	2019	7104	0 Emergency
Statesboro Statesboro	0	2400000	2019	220201	0 Education,
Statesboro Statesboro	0	2354172	2019	13298	0 Law Enforc
Statesboro Statesboro	0	5257851	2019	29700	0 Education,
Statesboro Statesboro	0	1026786	2019	5800	0 Governmei
Bulloch Co Statesboro	0	2832512	2019	16000	0 Governmer
Bulloch Co Walmart D	0	52356300	2019	2066792	0 NGO, NGO,
Bulloch Co Well House	0	50000	2019	240	0 Governmei
Bulloch Co William Jar	0	9336000	2020	100660	0 Education,
Bulloch Co Willingway	0	7098807	2019	40099	0 Medical, M
Statesboro Winburn H	0	18504421	2018	49184	0 Education,
Bulloch Co GA Nationa	0	850000	2019		0 Governmei
Bulloch Co GBI	0	377534	2019	8026	0 Law Enforc
Bulloch Co Great Dane	0	11511500	2019		0 NGO, Priva
Bulloch Co Animal She	0	505634	2019		0 Governmei
Bulloch Co Animal She	0	505634	2019		0 Governmei
Statesboro Senior Citiz	3	1200000	2019		0 Governmei
Bulloch Co Bulloch We	0	325764	2019		0 Medical, Cl
Bulloch Co GA Dept of	0	4520000	2019		0 Governmei
Bulloch Co Bulloch Co	0	170000	2019		0 Emergency
Bulloch Co Nevils Schc	0	50000	2019		0 Governmei
Bulloch Co Nevils Deni	0	15934	2019		0 Emergency
Statesboro Viracon	0	4826800	2019		0 NGO, Priva
Statesboro The Wareh	0	3058160	2019		0 NGO, Priva
Statesboro Brazwell St	0	50000	2019	400	0 Governmei
Statesboro GA Souther	0	130000	2018	400	0 Governmei
Bulloch Co Gateway In	0	50000	2019	0	0 Governmei
Bulloch Co Jef Rd Well	0	50000	2019	400	0 Governmei
Statesboro Old Registe	0	50000	2019	400	0 Governmei
Statesboro Paulson Sta	0	19085412	2018	0	0 Education,
Bulloch Co Proctor St \	3	50000	2019	400	0 Governmei
Statesboro Statesboro	0	2516578	2019	21000	0 Governmei
Statesboro Statesboro	3	50000	2019	240	0 Governmei
Statesboro Anderson H	0	3375949	2018	18566	0 Education,
Statesboro Auxiliary W	0	4650000	2018	34770	0 Education,
Statesboro Biological S	0	38516140	2018	135275	0 Education,
Statesboro Brannen H	0	7436641	2018	29685	0 Education,

Statesboro Carrol Buil	0 17668099	2018	78133	0 Education,
Statesboro Centenial H	0 3000000	2018	377075	0 Education,
Statesboro Central Rec	0 8900000	2018	57333	0 Education,
Statesboro Child Devel	0 2080993	2018	10470	0 Education,
Statesboro City Campu	0 500000	2018	9234	0 Education,
Statesboro College of I	0 32450000	2018	131185	0 Education,
Statesboro College of I	0 36552792	2018	138988	0 Education,
Statesboro Cone	0 8649559	2018	43165	0 Education,
Statesboro Counseling	0 1467760	2018	8392	0 Education,
Statesboro Deal Hall	0 3448521	2018	18561	0 Education,
Statesboro Dining Cor	0 4000000	2018	73616	0 Education,
Statesboro Eagle Villag	0 54448758	2018	153420	0 Education,
Statesboro Eagle Villag	0 54752552	2018	154276	0 Education,
Statesboro Facilities Se	0 3350703	2018	23673	0 Education,
Statesboro Facilities Se	0 2619760	2018	10400	0 Education,
Statesboro Facilities Se	0 5415850	2018	21500	0 Education,
Statesboro Freedoms I	0 1336030	2018	461711	0 Education,
Statesboro Georgia So	0 3514781	2018	7000	0 Emergency
Statesboro Hanner Coi	0 44066084	2018	158163	0 Education,
Statesboro Hazardous	0 670388	2018	2525	0 Education,
Statesboro Health Cen	0 11315996	2018	37450	0 Education,
Statesboro Henderson	0 80383349	2018	245888	0 Education,
Statesboro Hendricks	0 9033482	2018	40099	0 Education,
Statesboro Herty Build	0 11678200	2018	49560	0 Education,
Statesboro Hollis Build	0 12484133	2018	48658	0 Education,
Statesboro Interdiscipl	0 34806000	2018	109887	0 Education,
Statesboro Kennedy 1	0 19718775	2018	94552	0 Education,
Statesboro Kennedy 2	0 12108582	2018	58061	0 Education,
Statesboro Lewis Hall	0 4440579	2018	24466	0 Education,
Statesboro Math & Ph	0 29233840	2018	112864	0 Education,
Statesboro Military Sci	0 9889670	2018	51132	0 Governmei
Statesboro Natural Sci	0 11580861	2018	51132	0 Education,
Statesboro Nessmith L	0 25712280	2018	116874	0 Education,
Statesboro NOC 2	0 2180683	2018	1500	0 Education,
Statesboro NOC 3	0 4341700	2018	3371	0 Education,
Statesboro Nursing & C	0 30800000	2018	123649	0 Education,
Statesboro Paulson Sta	0 19085412	2018	41930	0 Education,
Statesboro Pittman Ad	0 12095586	2018	42577	0 Education,
Statesboro GS Public S	0 249070	2019	4738	0 Emergency
Statesboro RAC	0 76159056	2018	220668	0 Education,
Statesboro Rosenwald	0 7981825	2018	43977	0 Education,
Statesboro Russell Uni	0 25061308	2018	104032	0 Education,
Statesboro Sanford Ha	0 9889279	2018	32197	0 Education,
Statesboro Shooting Sq	0 6414100	2018	29479	0 Education,
Statesboro Southern C	0 12283799	2018	34612	0 Education,
Statesboro Southern C	0 12349100	2018	34796	0 Education,
Statesboro Southern C	0 20571424	2018	57964	0 Education,

Statesboro Southern C	0 20571424	2018	57964	0 Education,
Statesboro Southern P	0 17781910	2018	50104	0 Education,
Statesboro Southern P	0 17781910	2018	50104	0 Education,
Statesboro Southern P	0 17781910	2018	50104	0 Education,
Statesboro Southern P	0 17781910	2018	50104	0 Education,
Statesboro Southern P	0 8972937	2018	25283	0 Education,
Statesboro Veazy	0 6783201	2018	32494	0 Education,
Statesboro Watson Ha	0 5275469	2018	25296	0 Education,
Statesboro Watson Ha	0 8988738	2018	44871	0 Education,
Statesboro Well House	0 74000	2018	240	0 Education,
Statesboro Well House	0 586642	2018	600	0 Education,
Statesboro GSU Hazar	0 670388	2018		0 Education,
Bulloch Co GA DMV	0 200000	2019	10476	0 Governmer
Bulloch Co Georgia Fo	0 125000	2019	6716	0 Governmei
Bulloch Co Sallie Zette	0 9650000	2019	109008	0 Education,
Bulloch Co Statesboro	0 37532	2019	5801	0 Governmer
Bulloch Co Airport Sec	0 41783	2019		0 Governmei
Bulloch Co GA State (I	0 202000	2019		0 Governmei
Bulloch Co Bay Fire Sta	0 28000	2019	3624	0 Emergency
	1.55E+09			



Risk

17, Government Offices

Vulnerable Population

ement, Police

Lifeline

Services, Fire Fighters

Education, K - 12, K - 12

Education, Clinics, Clinics

Vulnerable Population

Essential

Services, Fire Fighters

17, Water/Sewer

17, Water/Sewer

Education, K - 12, K - 12

High Potential Loss

Services, Police

Lifeline

17, Water/Sewer

Essential

17, Private

17, Government, Water/Sewer, Water/Sewer

17, Water/Sewer

Education, Government Offices, Government Offices

Important

Essential

Services, Emergency Services, Fire Fighters, Fire Fighters

Essential

Important

ement, Law Enforcement, Jails, Jails

ement, Law Enforcement, Court House, Court House

Important

Important

ement, Law Enforcement, Court House, Court House

Essential

Vulnerable Population

Essential

Essential

Education, Government Offices, Government Offices

Important

Important

Important

, Transportation, Transportation

Hazardous Materials

Important

Economic Assets

High Potential Loss

Vulnerable Population  
Important  
High Potential Loss  
High Potential Loss  
Vulnerable Population  
High Potential Loss  
Education, Clinics, Clinics  
Economic Assets  
Important  
Important  
Essential  
High Potential Loss  
Essential  
Important  
Essential  
at, Government, Landfill, Landfill  
High Potential Loss  
Essential  
Education, K - 12, K - 12  
Vulnerable Population  
Important  
Important  
Essential  
Economic Assets  
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Important  
Vulnerable Population  
Vulnerable Population  
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High Potential Loss  
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## Essential

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## Hazardous Materials

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## Essential

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Services, Emergency Services, EMA, EMA

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Hazardous Materials  
rt, Government, Government Offices, Government Offices  
Essential  
High Potential Loss  
rt, Government, Transportation, Transportation  
Transportation  
Essential  
Services, Emergency Services, Fire Fighters, Fire Fighters

Facility Wildfire Hazard All Hazards > 0

Jurisdiction Name	Hazard Sco	Value	Replaceme	Building siz	Content va	Content va	Functional
Bulloch Co Brooklet El	2	2200000	2019	94435			0
Bulloch Co Bulloch Acc	3	3525000	2019	99236			0
Bulloch Co Bay Fire Sta	1	28000	2019	3624			0
Bulloch Co Bulloch Co	1	135402.6	2019	3675			0
Bulloch Co Bulloch Co	1	594828	2019	3543			0
Statesboro Centennial H	4	3000000	2018	377075			0
Statesboro Dining Cor	4	4000000	2018	73616			0
Statesboro Eagle Villag	4	54448758	2018	153420			0
Statesboro Eagle Villag	4	54752552	2018	154276			0
Statesboro East Georg	2	33299547	2019	188099			0
Statesboro Facilities Se	4	3350703	2018	23673			0
Statesboro Facilities Se	4	2619760	2018	10400			0
Statesboro Facilities Se	4	5415850	2018	21500			0
Statesboro First Presby	2	2044720	2019	16500			0
Statesboro Freedoms I	2	1336030	2018	461711			0
Bulloch Co Georgia Fo	3	125000	2019	6716			0
Statesboro Hanner Cor	4	44066084	2018	158163			0
Statesboro Institute of	4	1356328	2018	3603			0
Bulloch Co Julia P. Bry	3	9653000	2019	108092			0
Statesboro Kennedy 1	3	19718775	2018	94552			0
Statesboro Kennedy 2	3	12108582	2018	58061			0
Statesboro Landrum C	4	1.52E+08	2018	40582			0
Statesboro Math & Ph	4	29233840	2018	112864			0
Bulloch Co Mill Creek I	2	2000000	2019	102864			0
Statesboro Natural Sci	4	11580861	2018	51132			0
Bulloch Co Olliff Hall	4	22846826	2018	58740			0
Statesboro Paulson Sta	3	19085412	2018	41930			0
Register to Register To	1	109339.1	2019	900			0
Register to Register W	1	50000	2019	200			0
Statesboro Russell Uni	4	25061308	2018	104032			0
Statesboro Shooting S	4	6414100	2018	29479			0
Statesboro Southern C	3	12283799	2018	34612			0
Statesboro Southern C	3	12349100	2018	34796			0
Statesboro Southern C	3	20571424	2018	57964			0
Statesboro Southern C	3	20571424	2018	57964			0
Statesboro Statesboro	3	2400000	2019	220201			0
Bulloch Co Statesboro	2	37532	2019	5801			0
Statesboro Statesboro	2	1026786	2019	5800			0
Bulloch Co Stilson Eler	1	2400000	2019	79364			0
Register to Town of Re	1	43072.84	2019	240			0
Bulloch Co Willingway	3	7098807	2019	40099			0
Statesboro Winburn H	4	18504421	2018	49184			0
Bulloch Co GA Nationa	1	850000	2019				0
Bulloch Co Airport Sec	2	41783	2019				0
Bulloch Co Animal She	2	505634	2019				0

Bulloch Co Animal She	2	505634	2019	0
Statesboro Senior Citiz	3	1200000	2019	0
Bulloch Co Bulloch We	3	325764	2019	0
Bulloch Co GA State (	2	202000	2019	0
Bulloch Co Nevils Schc	2	50000	2019	0
Bulloch Co Nevils Deni	3	15934	2019	0
Bulloch Co Stilson Parl	1	50000	2019	0
Statesboro Viracon	1	4826800	2019	0
Statesboro The Wareh	3	3058160	2019	0
Statesboro GSU Hazar	1	670388	2018	0
		6.36E+08		

Facility type Risk  
Education, Vulnerable Population  
Education, Important  
Emergency Services, Emergency Services, Fire Fighters, Fire Fighters  
Emergency Services, Fire Fighters  
Emergency Services, Emergency Services, Fire Fighters, Fire Fighters  
Education, University  
Education, University  
Education, University  
Education, University  
Medical, M Essential  
Education, University  
Education, University  
Education, University  
Education, Important  
Education, University  
Government Essential  
Education, University  
Education, Economic Assets  
Education, Vulnerable Population  
Education, University  
Education, University  
Education, Important  
Education, University  
Education, High Potential Loss  
Education, University  
Education, Important  
Education, University  
Government, Private  
Government, Government, Water/Sewer, Water/Sewer  
Education, University  
Education, University  
Education, University  
Education, University  
Education, University  
Education, University  
Education, High Potential Loss  
Government, Government, Transportation, Transportation  
Government Essential  
Education, Vulnerable Population  
Government, Water/Sewer  
Medical, M Vulnerable Population  
Education, Important  
Government Important  
Government Transportation  
Government Important



Governmer Important  
Governmer Vulnerable Population  
Medical, CI Vulnerable Population  
Governmer Essential  
Governmer Important  
Emergency Important  
Governmer Essential  
NGO, Priva High Potential Loss  
NGO, Priva High Potential Loss  
Education, Hazardous Materials

Facility Wind Hazard All Hazards > 0

Jurisdiction Name	Hazard Sco	Value	Replaceme	Building siz	Content va	Content va	Functional
Statesboro Anderson H	3	3375949	2018	18566			0
Statesboro Auxiliary W	3	4650000	2018	34770			0
Statesboro Biological S	3	38516140	2018	135275			0
Statesboro Brannen Ha	3	7436641	2018	29685			0
Statesboro Brazwell St	3	50000	2019	400			0
Bulloch Coi Briggs & St	3	11003000	2019	514968			0
Bulloch Coi Brooklet Ci	3	294449.7	2019	1749			0
Bulloch Coi Brooklet El	3	2200000	2019	94435			0
Brooklet to Brooklet Po	3	53100	2019	1653			0
Bulloch Coi Bulloch Acc	3	3525000	2019	99236			0
Bulloch Coi Bulloch Coi	3	3416370	2019	42822			0
Bulloch Coi Bulloch Coi	3	35000	2019	3847			0
Bulloch Coi Bulloch Coi	3	25000	2019	3072			0
Bulloch Coi Bay Fire Sta	3	28000	2019	3624			0
Bulloch Coi Bulloch Coi	3	135402.6	2019	3675			0
Bulloch Coi Bulloch Coi	3	594828	2019	3543			0
Bulloch Coi Bulloch Coi	3	24000	2019	3522			0
Statesboro Bulloch Coi	3	640000	2019	14013			0
Bulloch Coi BCCI	3	1696220	2019	21261			0
Statesboro Bulloch Coi	3	4300000	2019	19649			0
Bulloch Coi Bulloch Coi	3	299610	2019	7575			0
Statesboro Bulloch Coi	3	1007940	2019	6738			0
Statesboro Bulloch Coi	3	180000	2019	17267			0
Bulloch Coi Bulloch Coi	3	2250930	2019	19443			0
Statesboro Carrol Builc	3	17668099	2018	78133			0
Statesboro Centenial H	3	3000000	2018	377075			0
Statesboro Central Rec	3	8900000	2018	57333			0
Statesboro Child Devel	3	2080993	2018	10470			0
Statesboro City Campu	3	500000	2018	9234			0
Statesboro College of I	3	32450000	2018	131185			0
Statesboro College of I	3	36552792	2018	138988			0
Statesboro Cone	3	8649559	2018	43165			0
Statesboro Counseling	3	1467760	2018	8392			0
Statesboro Crossroads	3	4520000	2019	65620			0
Statesboro Deal Hall	3	3448521	2018	18561			0
Statesboro Dining Corr	3	4000000	2018	73616			0
Statesboro Eagle Villag	3	54448758	2018	153420			0
Statesboro Eagle Villag	3	54752552	2018	154276			0
Statesboro East Georg	3	33299547	2019	188099			0
Bulloch Coi Electrical S	3	308529	2019	805			0
Statesboro Facilities Se	3	3350703	2018	23673			0
Statesboro Facilities Se	3	2619760	2018	10400			0
Statesboro Facilities Se	3	5415850	2018	21500			0
Statesboro Federal Coi	3	4686746	2019	37820			0
Portal towr Fire Depart	3	356739	2019	24829			0

Statesboro First Baptis	3	1561423	2019	126000	0
Statesboro First Presby	3	2044720	2019	16500	0
Statesboro First Unitec	3	4337285	2019	35000	0
Statesboro Freedoms I	3	1336030	2018	461711	0
Statesboro GA Souther	3	130000	2018	400	0
Bulloch Co Gateway In	3	50000	2019	0	0
Bulloch Co GA DMV	3	200000	2019	10476	0
Statesboro Georgia So	3	3514781	2018	7000	0
Bulloch Co Georgia Sta	3	970000	2019	15032	0
Bulloch Co Georgia Fo	3	125000	2019	6716	0
Bulloch Co Grounds Ec	3	2619760	2018	2400	0
Statesboro Hanner Cor	3	44066084	2018	158163	0
Statesboro Hazardous	3	670388	2018	2525	0
Statesboro Health Cen	3	11315996	2018	37450	0
Statesboro Henderson	3	80383349	2018	245888	0
Statesboro Hendricks	3	9033482	2018	40099	0
Statesboro Herty Build	3	11678200	2018	49560	0
Statesboro Hollis Build	3	12484133	2018	48658	0
Statesboro Housing Mi	3	2201445	2018	5848	0
Statesboro Institute of	3	1356328	2018	3603	0
Statesboro Interdiscipl	3	34806000	2018	109887	0
Bulloch Co Jef Rd Well	3	50000	2019	400	0
Statesboro Johnson Ha	3	30010125	2018	79720	0
Bulloch Co Julia P. Bry	3	9653000	2019	108092	0
Statesboro Kennedy 1	3	19718775	2018	94552	0
Statesboro Kennedy 2	3	12108582	2018	58061	0
Statesboro Landrum C	3	1.52E+08	2018	40582	0
Statesboro Langston C	3	10315573	2019	86080	0
Statesboro Langston C	3	8500000	2019	226077	0
Statesboro Lewis Hall	3	4440579	2018	24466	0
Portal tower Lift Station	3	6268	2019	140	0
Statesboro Math & Ph	3	29233840	2018	112864	0
Bulloch Co Mattie Live	3	12500000	2019	78382	0
Statesboro Military Sci	3	9889670	2018	51132	0
Bulloch Co Mill Creek I	3	2000000	2019	102864	0
Statesboro Natural Sci	3	11580861	2018	51132	0
Statesboro Nessmith L	3	25712280	2018	116874	0
Bulloch Co Nevils Elerr	3	7400000	2019	78605	0
Statesboro NOC 2	3	2180683	2018	1500	0
Statesboro NOC 3	3	4341700	2018	3371	0
Statesboro Nursing & C	3	30800000	2018	123649	0
Bulloch Co Ogeechee "	3	30702200	2019	248139	0
Statesboro Old Registe	3	50000	2019	400	0
Bulloch Co Olliff Hall	3	22846826	2018	58740	0
Statesboro Paulson Sta	3	19085412	2018	41930	0
Statesboro Paulson Sta	3	19085412	2018	0	0
Statesboro Physical Pla	3	1856246	2018	4931	0

Statesboro Pittman Ad	3	12095586	2018	42577	0
Bulloch Co Portal Wel	3	92041	2019	240	0
Bulloch Co Portal Elerr	3	2366455	2019	80212	0
Bulloch Co Portal Midc	2	1800000	2019	128981	0
Portal towr Portal Polic	3	142639	2019	24306	0
Portal towr Portal Wat	3	130000	2019	400	0
Bulloch Co Portal Well	3	92041	2019	240	0
Bulloch Co Proctor St	3	50000	2019	400	0
Statesboro GS Public S	3	249070	2019	4738	0
Statesboro RAC	3	76159056	2018	220668	0
Register to Register To	3	109339.1	2019	900	0
Register to Register W	3	50000	2019	200	0
Statesboro Rosenwald	3	7981825	2018	43977	0
Statesboro Russell Uni	3	25061308	2018	104032	0
Bulloch Co Sallie Zette	3	9650000	2019	109008	0
Statesboro Sanford Ha	3	9889279	2018	32197	0
Statesboro Shooting S	3	6414100	2018	29479	0
Bulloch Co Southeast I	3	19115000	2019	196600	0
Bulloch Co Southeast I	3	5656000	2019	122656	0
Statesboro Southern C	3	12283799	2018	34612	0
Statesboro Southern C	3	12349100	2018	34796	0
Statesboro Southern C	3	20571424	2018	57964	0
Statesboro Southern C	3	20571424	2018	57964	0
Statesboro Southern P	3	17781910	2018	50104	0
Statesboro Southern P	3	17781910	2018	50104	0
Statesboro Southern P	3	17781910	2018	50104	0
Statesboro Southern P	3	17781910	2018	50104	0
Statesboro Southern P	3	8972937	2018	25283	0
Statesboro Statesboro	3	2516578	2019	21000	0
Bulloch Co Statesboro	3	1257636	2019	7104	0
Statesboro Statesboro	3	2400000	2019	220201	0
Bulloch Co Statesboro	3	37532	2019	5801	0
Statesboro Statesboro	3	2354172	2019	13298	0
Statesboro Statesboro	3	5257851	2019	29700	0
Statesboro Statesboro	3	50000	2019	240	0
Statesboro Statesboro	3	1026786	2019	5800	0
Bulloch Co Statesboro	3	2832512	2019	16000	0
Bulloch Co Stilson Eler	3	2400000	2019	79364	0
Register to Town of Re	3	43072.84	2019	240	0
Statesboro Veazy	3	6783201	2018	32494	0
Bulloch Co Walmart D	3	52356300	2019	2066792	0
Statesboro Watson Ha	3	5275469	2018	25296	0
Statesboro Watson Ha	3	8988738	2018	44871	0
Bulloch Co Well House	3	50000	2019	240	0
Statesboro Well House	3	74000	2018	240	0
Statesboro Well House	3	586642	2018	600	0
Bulloch Co William Jar	3	9336000	2020	100660	0

Bulloch Co  Willingway	3	7098807	2019	40099	0
Statesboro Winburn H	3	18504421	2018	49184	0
Bulloch Co  GA Nationa	3	850000	2019		0
Bulloch Co  GBI	3	377534	2019	8026	0
Bulloch Co  Great Dane	3	11511500	2019		0
Bulloch Co  Airport Sec	3	41783	2019		0
Bulloch Co  Animal She	3	505634	2019		0
Bulloch Co  Animal She	3	505634	2019		0
Statesboro Senior Citiz	3	1200000	2019		0
Bulloch Co  Bulloch We	3	325764	2019		0
Bulloch Co  GA Dept of	3	4520000	2019		0
Bulloch Co  GA State (	3	202000	2019		0
Bulloch Co  Bulloch Co	3	170000	2019		0
Bulloch Co  Nevils Schc	3	50000	2019		0
Bulloch Co  Nevils Deni	3	15934	2019		0
Bulloch Co  Stilson Parl	3	50000	2019		0
Statesboro Viracon	3	4826800	2019		0
Statesboro The Wareh	3	3058160	2019		0
Statesboro GSU Hazarc	3	670388	2018		0

Facility type Risk  
Education, University  
Education, University  
Education, University  
Education, University  
Government Essential  
Education, Education, Government Offices, Government Offices  
Government, Government Offices  
Education, Vulnerable Population  
Law Enforcement, Police  
Education, Important  
Law Enforcement Essential  
Emergency Essential  
Emergency Lifeline  
Emergency Services, Emergency Services, Fire Fighters, Fire Fighters  
Emergency Services, Fire Fighters  
Emergency Services, Emergency Services, Fire Fighters, Fire Fighters  
Emergency Essential  
Government Important  
Law Enforcement, Law Enforcement, Jails, Jails  
Law Enforcement, Law Enforcement, Court House, Court House  
Law Enforcement Important  
Law Enforcement Important  
Law Enforcement, Law Enforcement, Court House, Court House  
Law Enforcement Essential  
Education, University  
Education, University  
Education, University  
Education, University  
Education, University  
Education, University  
Education, University  
Education, University  
Education, University  
Education, University  
Education, Vulnerable Population  
Education, University  
Education, University  
Education, University  
Education, University  
Medical, Medical Essential  
Government Essential  
Education, University  
Education, University  
Education, University  
Education, Education, Government Offices, Government Offices  
Emergency Services, Fire Fighters

Education, Important  
Education, Important  
Education, Important  
Education, University  
Governmer Essential  
Governmer Essential  
Government, Government, Government Offices, Government Offices  
Emergency Essential  
NGO, NGO, Transportation, Transportation  
Governmer Essential  
Education, Hazardous Materials  
Education, University  
Education, Hazardous Materials  
Education, University  
Education, University  
Education, University  
Education, University  
Education, University  
Education, University  
Education, Important  
Education, Economic Assets  
Education, University  
Governmer Essential  
Education, High Potential Loss  
Education, Vulnerable Population  
Education, University  
Education, University  
Education, Important  
Education, High Potential Loss  
Education, High Potential Loss  
Education, University  
Government, Water/Sewer  
Education, University  
Education, Vulnerable Population  
Governmer Essential  
Education, High Potential Loss  
Education, University  
Education, University  
Education, Education, Clinics, Clinics  
Education, University  
Education, University  
Education, University  
Education, Economic Assets  
Governmer Essential  
Education, Important  
Education, University  
Education, Essential  
Education, Important



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Medical, M Vulnerable Population  
Education, Important  
Government Important  
Law Enforcement Essential  
NGO, Private Economic Assets  
Government Transportation  
Government Important  
Government Important  
Government Vulnerable Population  
Medical, Critical Vulnerable Population  
Government Important  
Government Essential  
Emergency Essential  
Government Important  
Emergency Important  
Government Essential  
NGO, Private High Potential Loss  
NGO, Private High Potential Loss  
Education, Hazardous Materials

## Updated 10 year NCDC Bulloch

Event Types: **Drought:** 'Bulloch' 0 events were reported between 08/30/2010 and 08/30/2020 (3654 days)

Event Types: **Flash Flood** 8 events were reported between 08/30/2010 and 08/30/2020 (3654 days)

### Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	5
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	3

Location	County/Zone	St.	Date	Time	I.Z.	Type	Mag	Dth	Inj	PrD	CrD
<b>Totals:</b>								0	0	72.50K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	08/06/2013	16:30	EST-5	Flash Flood		0	0	10.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/19/2013	16:56	EST-5	Flash Flood		0	0	50.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/10/2014	20:35	EST-5	Flash Flood		0	0	12.50K	0.00K
<a href="#">LEEFIELD</a>	BULLOCH CO.	GA	05/29/2016	09:45	EST-5	Flash Flood		0	0	0.00K	0.00K
<a href="#">LEEFIELD</a>	BULLOCH CO.	GA	05/29/2016	09:45	EST-5	Flash Flood		0	0	0.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	05/29/2016	11:20	EST-5	Flash Flood		0	0	0.00K	0.00K
<a href="#">LEEFIELD</a>	BULLOCH CO.	GA	05/29/2016	12:00	EST-5	Flash Flood		0	0	0.00K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	10/08/2016	01:00	EST-5	Flash Flood		0	0	0.00K	0.00K
<b>Totals:</b>								0	0	72.50K	0.00K

Event Types: **Tropical Storm:**

'Bulloch' 4 events were reported between 08/30/2010 and 08/30/2020 (3654 days)

### Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	1
Number of Days with Event and Death:	1

Location	County/Zone	St.	Date	Time	I.Z.	Type	Mag	Dth	Inj	PrD	CrD
<b>Totals:</b>								2	2	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	10/08/2016	04:30	EST-5	Tropical Storm		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	10/08/2016	06:07	EST-5	Tropical Storm		1	1	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	10/08/2016	07:07	EST-5	Tropical Storm		1	1	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	10/08/2016	08:00	EST-5	Tropical Storm		0	0	0.00K	0.00K
<b>Totals:</b>								2	2	0.00K	0.00K

Hurricane Matthew tracked parallel to the northern half of the Southeast Georgia coast as a Category 2 hurricane (110 mph) **An emergency manager reported a tree fell on a vehicle on Burkhalter Road during Hurricane Matthew, resulting in 1 fatality.**

Event Types: **Tornado** 3 events were reported between 08/30/2010 and 08/30/2020 (3654 days)

### Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	2
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	1
Number of Days with Event and Property Damage:	1
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

Location	County/Zone	St.	Date	Time	I.Z.	Type	Mag	Dth	Inj	PrD	CrD
<b>Totals:</b>								0	7	290.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	03/26/2011	18:40	EST-5	Tornado	EF0	0	0	40.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	03/26/2011	18:42	EST-5	Tornado	EF1	0	0	250.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	02/09/2017	03:51	EST-5	Tornado	EF2	0	7	0.00K	0.00K
<b>Totals:</b>								0	7	290.00K	0.00K

**Thunderstorm Wind** 145 events were reported between 08/30/2010 and 08/30/2020 (3654 days)

### Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	73
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	32
Number of Days with Event and Crop Damage:	2

Select: All Wind Speeds

Sort By: Date/Time (Oldest)

Location	County/Zone	St	Date	Time	I.Z.	Type	Mag	Dth	Inj	PrD	CrD
<b>Totals:</b>								0	0	276.50K	15.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	10/25/2010	16:13	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	04/05/2011	02:55	EST-5	Thunderstorm Wind	60 kts. EG	0	0	37.50K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	04/05/2011	02:58	EST-5	Thunderstorm Wind	65 kts. EG	0	0	75.00K	10.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	04/05/2011	03:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	2.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	04/05/2011	03:15	EST-5	Thunderstorm Wind	52 kts. MG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	05/13/2011	18:32	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	05/13/2011	18:45	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	05/13/2011	18:50	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	05/26/2011	21:54	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/15/2011	21:55	EST-5	Thunderstorm Wind	55 kts. EG	0	0	3.00K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	06/15/2011	22:02	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	06/15/2011	22:07	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.25K	0.00K
<a href="#">BROOKLET DAVIS ARPT</a>	BULLOCH CO.	GA	06/15/2011	22:11	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.25K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	06/15/2011	22:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.25K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	06/15/2011	22:25	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/18/2011	21:14	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	06/23/2011	16:35	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	06/23/2011	16:52	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/26/2011	15:41	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/10/2011	17:08	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	08/09/2011	17:45	EST-5	Thunderstorm Wind	60 kts. EG	0	0	6.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	08/19/2011	18:54	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/20/2011	14:23	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	08/22/2011	15:03	EST-5	Thunderstorm Wind	55 kts. EG	0	0	4.25K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	08/22/2011	18:37	EST-5	Thunderstorm Wind	55 kts. EG	0	0	6.00K	0.00K

<a href="#">HOPEULIKIT</a>	BULLOCH CO.	GA	09/25/2011	14:19	EST-5	Thunderstorm Wind	55 kts. EG	0	0	3.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	09/25/2011	14:25	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
<a href="#">MIDDLEGROUND</a>	BULLOCH CO.	GA	09/25/2011	14:26	EST-5	Thunderstorm Wind	60 kts. EG	0	0	20.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	09/25/2011	14:29	EST-5	Thunderstorm Wind	60 kts. EG	0	0	25.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	09/25/2011	14:34	EST-5	Thunderstorm Wind	60 kts. EG	0	0	10.00K	0.00K
<a href="#">BLITCH</a>	BULLOCH CO.	GA	09/27/2011	23:45	EST-5	Thunderstorm Wind	55 kts. EG	0	0	2.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	03/24/2012	20:41	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	03/24/2012	20:41	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">ADABELLE</a>	BULLOCH CO.	GA	04/05/2012	16:09	EST-5	Thunderstorm Wind	60 kts. EG	0	0	0.00K	3.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	05/17/2012	16:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	07/03/2012	17:10	EST-5	Thunderstorm Wind	55 kts. EG	0	0	2.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	07/05/2012	18:03	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	07/05/2012	18:04	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	07/05/2012	18:06	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	07/05/2012	18:07	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	07/05/2012	18:08	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	07/27/2012	14:07	EST-5	Thunderstorm Wind	55 kts. EG	0	0	8.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	07/29/2012	15:09	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	08/02/2012	13:47	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	08/11/2012	12:39	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	08/11/2012	12:57	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">ADABELLE</a>	BULLOCH CO.	GA	12/17/2012	14:45	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.25K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	12/17/2012	14:50	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	01/30/2013	21:03	EST-5	Thunderstorm Wind	55 kts. EG	0	0	2.00K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	03/18/2013	20:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	03/18/2013	20:31	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.25K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	03/18/2013	20:31	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	03/18/2013	20:31	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	04/19/2013	15:43	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	06/27/2013	15:33	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K

<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	06/27/2013	15:42	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	09/02/2013	16:39	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.25K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	05/15/2014	02:55	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	06/06/2014	18:00	EST-5	Thunderstorm Wind	65 kts. EG	0	0	0.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	06/06/2014	18:05	EST-5	Thunderstorm Wind	65 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	06/06/2014	18:17	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	06/06/2014	18:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/07/2014	19:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	06/07/2014	19:48	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">MIDDLEGROUND</a>	BULLOCH CO.	GA	07/15/2014	15:29	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	07/15/2014	15:38	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	08/20/2014	19:04	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	04/19/2015	14:50	EST-5	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
<a href="#">EMIT</a>	BULLOCH CO.	GA	04/25/2015	19:12	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	04/25/2015	19:14	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	04/25/2015	19:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">EMIT</a>	BULLOCH CO.	GA	04/25/2015	19:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	04/25/2015	19:33	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	04/25/2015	19:35	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	04/25/2015	19:40	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	06/30/2015	15:45	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">EMIT</a>	BULLOCH CO.	GA	06/30/2015	15:46	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	07/01/2015	20:58	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/01/2015	21:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	07/01/2015	21:16	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/01/2015	21:16	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">LEEFIELD</a>	BULLOCH CO.	GA	07/01/2015	21:33	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	07/02/2015	17:25	EST-5	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	07/02/2015	17:47	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	07/04/2015	15:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

<a href="#">MIDDLEGROUND</a>	BULLOCH CO.	GA	07/04/2015	15:22	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/04/2015	15:25	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	07/04/2015	15:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	07/13/2015	19:56	EST-5	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	07/15/2015	16:13	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">HOPEULIKIT</a>	BULLOCH CO.	GA	07/22/2015	18:27	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	08/06/2015	17:13	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/06/2015	17:37	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BLITCH</a>	BULLOCH CO.	GA	08/18/2015	20:05	EST-5	Thunderstorm Wind	65 kts. EG	0	0	0.00K	0.00K
<a href="#">MIDDLEGROUND</a>	BULLOCH CO.	GA	08/18/2015	20:05	EST-5	Thunderstorm Wind	65 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET DAVIS ARPT</a>	BULLOCH CO.	GA	08/18/2015	20:15	EST-5	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	08/18/2015	20:23	EST-5	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
<a href="#">BLITCH</a>	BULLOCH CO.	GA	11/02/2015	19:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	05/03/2016	18:52	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	06/17/2016	16:22	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">MIDDLEGROUND</a>	BULLOCH CO.	GA	06/17/2016	16:41	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	06/17/2016	16:50	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	06/17/2016	16:59	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	06/17/2016	17:09	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	07/06/2016	16:07	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	07/06/2016	16:29	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	07/09/2016	13:16	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	07/15/2016	18:33	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/15/2016	19:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/16/2016	19:38	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	07/20/2016	17:40	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	01/21/2017	14:44	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	04/05/2017	16:21	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	04/05/2017	16:23	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BLITCH</a>	BULLOCH CO.	GA	04/05/2017	16:24	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K



Location	County		Date	Time	Type	Dth	Inj	PrD	CrD		
<a href="#">CLITO</a>	BULLOCH CO.	GA	04/05/2017	16:34	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	04/05/2017	16:34	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	04/05/2017	16:43	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	05/13/2017	12:57	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	05/13/2017	13:07	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	05/24/2017	23:14	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/08/2017	18:51	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	04/15/2018	12:22	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	04/15/2018	12:22	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	06/25/2018	17:19	EST-5	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	06/25/2018	17:19	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/03/2018	14:52	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/02/2018	15:09	EST-5	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	04/19/2019	11:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET DAVIS ARPT</a>	BULLOCH CO.	GA	04/19/2019	11:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	05/12/2019	15:19	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	05/12/2019	15:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	06/04/2019	14:45	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	06/20/2019	17:45	EST-5	Thunderstorm Wind	45 kts. EG	0	0	1.25K	0.00K
<a href="#">EDNA</a>	BULLOCH CO.	GA	06/20/2019	18:44	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	06/22/2019	14:58	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	07/18/2019	18:01	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">LEEFIELD</a>	BULLOCH CO.	GA	07/18/2019	18:23	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	08/07/2019	15:57	EST-5	Thunderstorm Wind	40 kts. EG	0	0	0.50K	0.00K
<a href="#">HOPEULIKIT</a>	BULLOCH CO.	GA	09/09/2019	13:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">EDNA</a>	BULLOCH CO.	GA	09/09/2019	14:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">ADABELLE</a>	BULLOCH CO.	GA	09/09/2019	14:40	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET DAVIS ARPT</a>	BULLOCH CO.	GA	03/03/2020	18:35	EST-5	Thunderstorm Wind	40 kts. EG	0	0	2.00K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	04/13/2020	04:31	EST-5	Thunderstorm Wind	54 kts. MG	0	0	0.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	04/13/2020	05:35	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

Totals:

276.50K 15.00K



## Updated 20 year NCDC Bulloch

'Bulloch' Event Types: **Drought** 16 events were reported between 08/30/2000 and 08/30/2020 (7306 days)  
**Summary Info:**

Number of County/Zone areas affected:	1
Number of Days with Event:	16

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
<b>Totals:</b>								0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	09/01/2000	00:00	EST	Drought		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	04/01/2001	00:00	EST	Drought		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	05/01/2001	00:00	EST	Drought		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	06/01/2001	00:00	EST	Drought		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	10/01/2001	00:00	EST	Drought		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	11/01/2001	00:00	EST	Drought		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	12/01/2001	00:00	EST	Drought		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	01/01/2002	00:00	EST	Drought		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	02/01/2002	00:00	EST	Drought		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	03/01/2002	00:00	EST	Drought		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	04/01/2002	00:00	EST	Drought		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	05/01/2002	00:00	EST	Drought		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	06/01/2002	00:00	EST	Drought		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	07/01/2002	00:00	EST	Drought		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	08/01/2002	00:00	EST	Drought		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	09/01/2002	00:00	EST	Drought		0	0	0.00K	0.00K
<b>Totals:</b>								0	0	0.00K	0.00K

Event Types: **Flash Flood** 16 events were reported between 08/30/2000 and 08/30/2020 (7306 days)  
**Summary Info:**

Number of County/Zone areas affected:	1
Number of Days with Event:	12

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
<b>Totals:</b>								0	0	72.50K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	09/18/2002	17:49	EST	Flash Flood		0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	09/18/2002	18:10	EST	Flash Flood		0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	07/24/2003	17:05	EST	Flash Flood		0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/03/2003	20:25	EST	Flash Flood		0	0	0.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	06/13/2004	14:00	EST	Flash Flood		0	0	0.00K	0.00K
<a href="#">NORTH PORTION</a>	BULLOCH CO.	GA	03/27/2005	11:00	EST	Flash Flood		0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	06/03/2005	21:20	EST	Flash Flood		0	0	0.00K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	12/14/2009	23:00	EST-5	Flash Flood		0	0	0.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	08/06/2013	16:30	EST-5	Flash Flood		0	0	10.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/19/2013	16:56	EST-5	Flash Flood		0	0	50.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/10/2014	20:35	EST-5	Flash Flood		0	0	12.50K	0.00K
<a href="#">LEEFIELD</a>	BULLOCH CO.	GA	05/29/2016	09:45	EST-5	Flash Flood		0	0	0.00K	0.00K
<a href="#">LEEFIELD</a>	BULLOCH CO.	GA	05/29/2016	09:45	EST-5	Flash Flood		0	0	0.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	05/29/2016	11:20	EST-5	Flash Flood		0	0	0.00K	0.00K
<a href="#">LEEFIELD</a>	BULLOCH CO.	GA	05/29/2016	12:00	EST-5	Flash Flood		0	0	0.00K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	10/08/2016	01:00	EST-5	Flash Flood		0	0	0.00K	0.00K
<b>Totals:</b>								0	0	72.50K	0.00K

Event type: **Ice and Snow**

Bulloch

8 events were reported between 08/30/2000 and 11/30/2020 (7398 days)

**Summary Info:**

Number of County/Zone areas affected:	1
Number of Days with Event:	4
Number of Days with Event and Property Damage:	1

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
<b>Totals:</b>								0	0	97.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	01/02/2002	19:00	EST	Ice Storm		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	01/10/2011	05:30	EST-5	Ice Storm		0	0	15.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	01/10/2011	05:30	EST-5	Ice Storm		0	0	15.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	01/10/2011	05:30	EST-5	Ice Storm		0	0	50.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	01/10/2011	05:30	EST-5	Ice Storm		0	0	2.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	01/10/2011	05:30	EST-5	Ice Storm		0	0	15.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	01/28/2014	13:00	EST-5	Ice Storm		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	02/12/2014	02:30	EST-5	Ice Storm		0	0	0.00K	0.00K
<b>Totals:</b>								0	0	97.00K	0.00K

Event Types: **Tropical Storm**

'Bulloch' 6 events were reported between 08/30/2000 and 08/30/2020 (7306 days)

**Summary Info:**

Number of County/Zone areas affected:	1
Number of Days with Event:	3
Number of Days with Event and Death:	1
Number of Days with Event and Death or Injury:	1
Number of Days with Event and Property Damage:	0
Number of Days with Event and Crop Damage:	0
Number of Event Types reported:	1

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
<b>Totals:</b>								2	2	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	09/27/2004	02:00	EST	Tropical Storm		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	06/12/2006	16:00	EST	Tropical Storm		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	10/08/2016	04:30	EST-5	Tropical Storm		0	0	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	10/08/2016	06:07	EST-5	Tropical Storm		1	1	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	10/08/2016	07:07	EST-5	Tropical Storm		1	1	0.00K	0.00K
<a href="#">BULLOCH (ZONE)</a>	BULLOCH (ZONE)	GA	10/08/2016	08:00	EST-5	Tropical Storm		0	0	0.00K	0.00K
<b>Totals:</b>								2	2	0.00K	0.00K

9/2004 Tropical Storm Jeanne tracked well inland across Georgia but the strongest winds at the time were along the coast.

6/2006 Tropical Storm Alberto formed off the western tip of Cuba and moved north into the northeast Gulf of Mexico June 12th. Alberto made landfall in the Florida Big Bend on the 13th and the moved north into Southern Georgia.

10/2016 Tropical Storm Matthew tracked parallel to the northern half of the Southeast Georgia coast as a Category 2 hurricane (110 mph), before continuing to weaken to a Category 1 hurricane (85 mph) while passing much of the lower Southeast South Carolina coast. Storm total rainfall amounts generally ranged from 4.5 to 7 inches across western areas of Southeast Georgia. Wind damage produced numerous to widespread power outages and damage to homes and other structures throughout the area. **An emergency manager reported a tree fell on a vehicle on Burkhalter Road during Hurricane Matthew, resulting in 1 fatality.**

Event Types: **Tornado** 9 events were reported between 08/30/2000 and 08/30/2020 (7306 days)

**Summary Info:**

Number of County/Zone areas affected:	1
Number of Days with Event:	6
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	1
Number of Days with Event and Property Damage:	2

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
<b>Totals:</b>								0	7	415.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	07/01/2003	21:47	EST	Tornado	F2	0	0	0.00K	0.00K
<a href="#">BLITCH</a>	BULLOCH CO.	GA	07/01/2003	22:10	EST	Tornado	F1	0	0	0.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	09/06/2004	03:20	EST	Tornado	F0	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	09/27/2004	00:40	EST	Tornado	F0	0	0	0.00K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	09/27/2004	05:00	EST	Tornado	F0	0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	05/11/2008	07:10	EST-5	Tornado	EF1	0	0	125.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	03/26/2011	18:40	EST-5	Tornado	EF0	0	0	40.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	03/26/2011	18:42	EST-5	Tornado	EF1	0	0	250.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	02/09/2017	03:51	EST-5	Tornado	EF2	0	7	0.00K	0.00K
<b>Totals:</b>								0	7	415.00K	0.00K

A National Weather Service storm survey team confirmed a tornado that tracked from southeastern Bulloch County to southwest Effingham County in Georgia on 02/09/2017. The tornado tracked east-southeast approximately 9 miles southeast of Brooklet, GA to Pineora, GA.

The tornado began near Stillson Leefield Road, in Bulloch County, GA. Most of the damage within the first few miles of the event was due to many snapped and uprooted trees.

The most significant damage occurred near the center of the path, in an area just west of South Old River Road to near Terrell Road, in Bulloch County, GA. There were several mobile homes along this portion of the path that were either completely destroyed, or severely damaged. The extent of damage to the mobile homes was the reason for the high end EF2 rating with estimated maximum wind speeds up to 130 mph. Two mobile homes just north of Little Hagan Road were completely destroyed, being flipped and tossed 30 to 40 feet from their foundations. One of the mobile homes in this area was not occupied, but the other one had five people inside, plus pets. All five were injured, one seriously, with broken bones in their neck. Two pets in the same mobile home survived, but one died from its injuries. There was also a car pushed 20 to 30 feet and a large metal trucking container, weighing approximately 9,000 pounds, pushed about 50 feet.

Continuing about 200 yards southeast along the path, a single family home sustained moderate damage, mainly from projectiles and debris hitting it from the mobile homes upstream. A large carport/overhang was completely torn from the home, which then fell on and damaged 3 cars. A large hole was punched through the north wall of the home from debris hitting the window and pushing into the home. Otherwise, some minor shingle damage was observed, with 20-30% of the shingles missing.

Another 200 yards southeast of this home was another mobile home that was severely damaged. It was lifted and rolled 30 to 40 feet off of its foundation, crushing 2 cars before coming to rest on the edge of a bluff. There were 2 people severely injured in this home with one pet injured.

The tornado then continued across the Ogeechee River into Effingham County.

Event Types: **Thunderstorm Wind**

253 events were reported between 08/30/2000 and 08/30/2020 (7306 days)

#### Summary Info:

Number of County/Zone areas affected:	1
Number of Days with Event:	139
Number of Days with Event and Death:	0
Number of Days with Event and Death or Injury:	0
Number of Days with Event and Property Damage:	73
Number of Days with Event and Crop Damage:	2
Number of Event Types reported:	1

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
<b>Totals:</b>								0	0	550.60K	15.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	03/04/2001	00:20	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	03/04/2001	01:05	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	05/25/2001	17:50	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/03/2001	19:20	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/30/2002	16:15	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/06/2002	17:40	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	07/06/2002	18:25	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	07/21/2002	16:00	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	07/21/2002	16:10	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/31/2002	16:20	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	07/31/2002	16:50	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	11/11/2002	13:40	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">COUNTYWIDE</a>	BULLOCH CO.	GA	12/24/2002	11:15	EST	Thunderstorm Wind	52 kts. E	0	0	0.00K	0.00K
<a href="#">CENTRAL PORTION</a>	BULLOCH CO.	GA	02/22/2003	12:15	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	02/22/2003	12:40	EST	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	03/20/2003	15:05	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	05/11/2003	17:40	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	07/01/2003	11:35	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	07/01/2003	16:00	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/17/2003	15:30	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">HOPEULIKIT</a>	BULLOCH CO.	GA	07/23/2003	14:00	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	07/23/2003	14:25	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	02/26/2004	03:55	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	02/26/2004	04:15	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	06/23/2004	18:05	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	08/05/2004	15:10	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

<a href="#">LEEFIELD</a>	BULLOCH CO.	GA	09/27/2004	01:15	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	03/08/2005	08:29	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	04/30/2005	12:55	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	07/29/2005	14:10	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	07/29/2005	14:50	EST	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	07/29/2005	15:08	EST	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
<a href="#">ADABELLE</a>	BULLOCH CO.	GA	08/29/2005	18:35	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	12/28/2005	18:19	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	07/16/2006	15:55	EST	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/22/2006	16:05	EST	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/08/2006	16:25	EST	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	04/14/2007	17:47	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	05/05/2007	21:55	EST-5	Thunderstorm Wind	60 kts. EG	0	0	20.00K	0.00K
<a href="#">MIDDLEGROUND</a>	BULLOCH CO.	GA	05/05/2007	22:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	06/10/2007	17:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	06/11/2007	12:50	EST-5	Thunderstorm Wind	60 kts. EG	0	0	5.00K	0.00K
<a href="#">ADABELLE</a>	BULLOCH CO.	GA	06/11/2007	12:55	EST-5	Thunderstorm Wind	60 kts. EG	0	0	2.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	06/11/2007	12:55	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.50K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	06/11/2007	13:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
<a href="#">ADABELLE</a>	BULLOCH CO.	GA	06/11/2007	13:05	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.50K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/12/2007	23:24	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	06/13/2007	15:25	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/13/2007	15:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	07/01/2007	16:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	07/11/2007	15:35	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	07/11/2007	15:40	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	07/11/2007	16:08	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	07/20/2007	17:05	EST-5	Thunderstorm Wind	35 kts. EG	0	0	0.10K	0.00K
<a href="#">ADABELLE</a>	BULLOCH CO.	GA	07/20/2007	17:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K



<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/20/2007	17:15	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.50K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	07/28/2007	13:29	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	2.50K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	07/29/2007	19:30	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">EMIT</a>	BULLOCH CO.	GA	08/11/2007	15:30	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	10.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/13/2007	18:52	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	5.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/13/2007	18:53	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.50K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/13/2007	18:54	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.50K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	08/13/2007	21:00	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	5.00K	0.00K
<a href="#">EDNA</a>	BULLOCH CO.	GA	08/22/2007	16:08	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.50K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	08/22/2007	16:44	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.50K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	09/13/2007	14:55	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	2.00K	0.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	03/15/2008	20:10	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.50K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	05/11/2008	07:13	EST-5	Thunderstorm Wind	65 kts.	EG	0	0	10.00K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	05/11/2008	07:15	EST-5	Thunderstorm Wind	65 kts.	EG	0	0	5.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	06/01/2008	23:34	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.50K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	06/02/2008	20:20	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.50K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	07/05/2008	14:59	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.50K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	08/07/2008	13:43	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.25K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	12/11/2008	11:18	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.50K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	12/11/2008	11:25	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	2.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	02/18/2009	23:45	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	3.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	06/11/2009	18:40	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	5.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/12/2009	22:32	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	10.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	06/12/2009	22:50	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	15.00K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	06/18/2009	02:28	EST-5	Thunderstorm Wind	52 kts.	EG	0	0	0.25K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	06/18/2009	02:40	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	06/18/2009	03:13	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	3.00K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	06/18/2009	18:28	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.50K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/26/2009	13:59	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.50K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/12/2009	15:20	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	3.00K	0.00K

<a href="#">BLITCH</a>	BULLOCH CO.	GA	09/09/2009	13:50	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	09/09/2009	13:50	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	2.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	05/03/2010	21:39	EST-5	Thunderstorm Wind	60 kts.	EG	0	0	10.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	05/03/2010	21:41	EST-5	Thunderstorm Wind	60 kts.	EG	0	0	10.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	05/16/2010	18:38	EST-5	Thunderstorm Wind	60 kts.	EG	0	0	30.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	05/16/2010	18:40	EST-5	Thunderstorm Wind	60 kts.	EG	0	0	1.50K	0.00K
<a href="#">HOPEULIKIT</a>	BULLOCH CO.	GA	05/16/2010	19:07	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	10.00K	0.00K
<a href="#">MIDDLEGROUND</a>	BULLOCH CO.	GA	05/16/2010	19:07	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	1.50K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	05/23/2010	21:35	EST-5	Thunderstorm Wind	60 kts.	EG	0	0	20.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	06/05/2010	18:10	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	3.00K	0.00K
<a href="#">BROOKLET DAVIS ARPT</a>	BULLOCH CO.	GA	06/15/2010	15:53	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	2.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	06/15/2010	15:54	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	06/15/2010	17:15	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	06/15/2010	17:43	EST-5	Thunderstorm Wind	60 kts.	EG	0	0	7.00K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	06/27/2010	19:10	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">LEEFIELD</a>	BULLOCH CO.	GA	07/11/2010	14:38	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	07/11/2010	15:10	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	4.00K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	07/11/2010	15:10	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	8.00K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	07/11/2010	15:11	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	3.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	07/12/2010	13:54	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.50K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	07/20/2010	16:50	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.50K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	07/20/2010	17:10	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.50K	0.00K
<a href="#">LEEFIELD</a>	BULLOCH CO.	GA	07/26/2010	17:21	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.50K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	10/25/2010	16:13	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.50K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	04/05/2011	02:55	EST-5	Thunderstorm Wind	60 kts.	EG	0	0	37.50K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	04/05/2011	02:58	EST-5	Thunderstorm Wind	65 kts.	EG	0	0	75.00K	10.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	04/05/2011	03:15	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	2.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	04/05/2011	03:15	EST-5	Thunderstorm Wind	52 kts.	MG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	05/13/2011	18:32	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	5.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	05/13/2011	18:45	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	5.00K	0.00K

<a href="#">STATESBORO</a>	BULLOCH CO.	GA	05/13/2011	18:50	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	5.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	05/26/2011	21:54	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.50K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/15/2011	21:55	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	3.00K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	06/15/2011	22:02	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	2.00K	0.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	06/15/2011	22:07	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	3.25K	0.00K
<a href="#">BROOKLET DAVIS ARPT</a>	BULLOCH CO.	GA	06/15/2011	22:11	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.25K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	06/15/2011	22:20	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.25K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	06/15/2011	22:25	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	2.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/18/2011	21:14	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	06/23/2011	16:35	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	2.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	06/23/2011	16:52	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/26/2011	15:41	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/10/2011	17:08	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	08/09/2011	17:45	EST-5	Thunderstorm Wind	60 kts.	EG	0	0	6.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	08/19/2011	18:54	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	2.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/20/2011	14:23	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	08/22/2011	15:03	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	4.25K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	08/22/2011	18:37	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	6.00K	0.00K
<a href="#">HOPEULIKIT</a>	BULLOCH CO.	GA	09/25/2011	14:19	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	3.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	09/25/2011	14:25	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	5.00K	0.00K
<a href="#">MIDDLEGROUND</a>	BULLOCH CO.	GA	09/25/2011	14:26	EST-5	Thunderstorm Wind	60 kts.	EG	0	0	20.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	09/25/2011	14:29	EST-5	Thunderstorm Wind	60 kts.	EG	0	0	25.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	09/25/2011	14:34	EST-5	Thunderstorm Wind	60 kts.	EG	0	0	10.00K	0.00K
<a href="#">BLITCH</a>	BULLOCH CO.	GA	09/27/2011	23:45	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	2.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	03/24/2012	20:41	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	03/24/2012	20:41	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	2.00K	0.00K
<a href="#">ADABELLE</a>	BULLOCH CO.	GA	04/05/2012	16:09	EST-5	Thunderstorm Wind	60 kts.	EG	0	0	0.00K	3.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	05/17/2012	16:20	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.50K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	07/03/2012	17:10	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	2.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	07/05/2012	18:03	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
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<a href="#">BLAND</a>	BULLOCH CO.	GA	07/05/2012	18:04	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	07/05/2012	18:06	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	07/05/2012	18:07	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	07/05/2012	18:08	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	07/27/2012	14:07	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	8.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	07/29/2012	15:09	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	08/02/2012	13:47	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	08/11/2012	12:39	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.50K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	08/11/2012	12:57	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.50K	0.00K
<a href="#">ADABELLE</a>	BULLOCH CO.	GA	12/17/2012	14:45	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	2.25K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	12/17/2012	14:50	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	01/30/2013	21:03	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	2.00K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	03/18/2013	20:30	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	03/18/2013	20:31	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	5.25K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	03/18/2013	20:31	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	03/18/2013	20:31	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	04/19/2013	15:43	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	3.00K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	06/27/2013	15:33	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	06/27/2013	15:42	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	09/02/2013	16:39	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	1.25K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	05/15/2014	02:55	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	06/06/2014	18:00	EST-5	Thunderstorm Wind	65 kts.	EG	0	0	0.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	06/06/2014	18:05	EST-5	Thunderstorm Wind	65 kts.	EG	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	06/06/2014	18:17	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	06/06/2014	18:30	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/07/2014	19:30	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	06/07/2014	19:48	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">MIDDLEGROUND</a>	BULLOCH CO.	GA	07/15/2014	15:29	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	07/15/2014	15:38	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	08/20/2014	19:04	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K

<a href="#">STATESBORO</a>	BULLOCH CO.	GA	04/19/2015	14:50	EST-5	Thunderstorm Wind	60 kts.	EG	0	0	0.00K	0.00K
<a href="#">EMIT</a>	BULLOCH CO.	GA	04/25/2015	19:12	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	04/25/2015	19:14	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	04/25/2015	19:30	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">EMIT</a>	BULLOCH CO.	GA	04/25/2015	19:30	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	04/25/2015	19:33	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	04/25/2015	19:35	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	04/25/2015	19:40	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	06/30/2015	15:45	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">EMIT</a>	BULLOCH CO.	GA	06/30/2015	15:46	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	07/01/2015	20:58	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/01/2015	21:15	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	07/01/2015	21:16	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/01/2015	21:16	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">LEEFIELD</a>	BULLOCH CO.	GA	07/01/2015	21:33	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	07/02/2015	17:25	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	0.00K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	07/02/2015	17:47	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	07/04/2015	15:15	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">MIDDLEGROUND</a>	BULLOCH CO.	GA	07/04/2015	15:22	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/04/2015	15:25	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	07/04/2015	15:30	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	07/13/2015	19:56	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	07/15/2015	16:13	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">HOPEULIKIT</a>	BULLOCH CO.	GA	07/22/2015	18:27	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	08/06/2015	17:13	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/06/2015	17:37	EST-5	Thunderstorm Wind	50 kts.	EG	0	0	0.00K	0.00K
<a href="#">BLITCH</a>	BULLOCH CO.	GA	08/18/2015	20:05	EST-5	Thunderstorm Wind	65 kts.	EG	0	0	0.00K	0.00K
<a href="#">MIDDLEGROUND</a>	BULLOCH CO.	GA	08/18/2015	20:05	EST-5	Thunderstorm Wind	65 kts.	EG	0	0	0.00K	0.00K
<a href="#">BROOKLET DAVIS ARPT</a>	BULLOCH CO.	GA	08/18/2015	20:15	EST-5	Thunderstorm Wind	55 kts.	EG	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	08/18/2015	20:23	EST-5	Thunderstorm Wind	60 kts.	EG	0	0	0.00K	0.00K

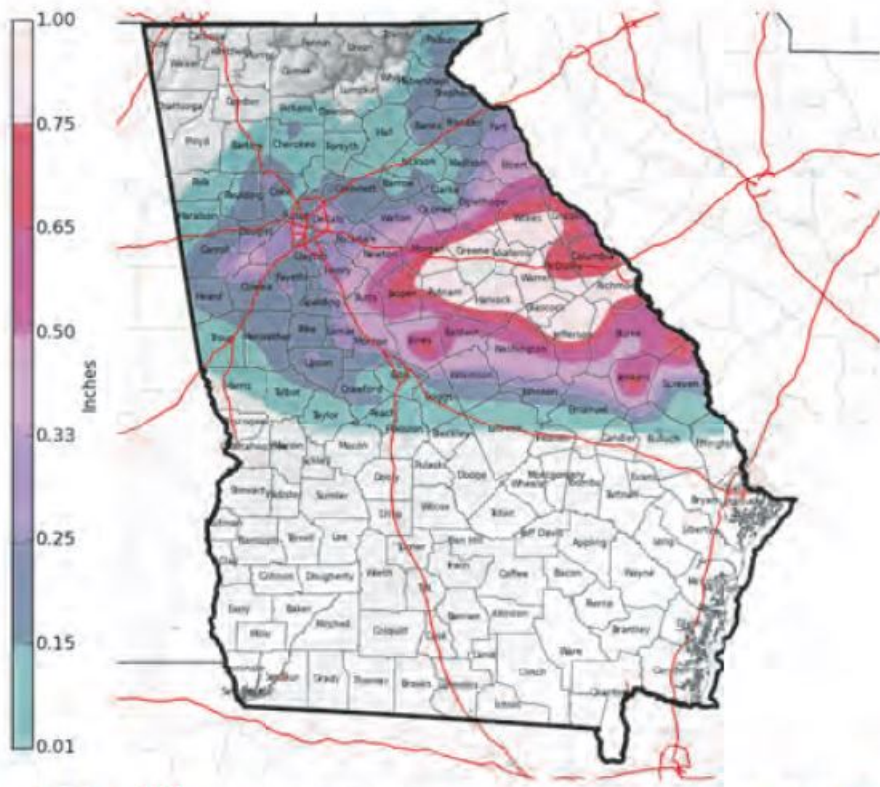
<a href="#">BLITCH</a>	BULLOCH CO.	GA	11/02/2015	19:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	05/03/2016	18:52	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	06/17/2016	16:22	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">MIDDLEGROUND</a>	BULLOCH CO.	GA	06/17/2016	16:41	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	06/17/2016	16:50	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	06/17/2016	16:59	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	06/17/2016	17:09	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	07/06/2016	16:07	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	07/06/2016	16:29	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	07/09/2016	13:16	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	07/15/2016	18:33	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/15/2016	19:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/16/2016	19:38	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	07/20/2016	17:40	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	01/21/2017	14:44	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	04/05/2017	16:21	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	04/05/2017	16:23	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BLITCH</a>	BULLOCH CO.	GA	04/05/2017	16:24	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	04/05/2017	16:34	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	04/05/2017	16:34	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	04/05/2017	16:43	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	05/13/2017	12:57	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	05/13/2017	13:07	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	05/24/2017	23:14	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/08/2017	18:51	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	04/15/2018	12:22	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	04/15/2018	12:22	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	06/25/2018	17:19	EST-5	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	06/25/2018	17:19	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/03/2018	14:52	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/02/2018	15:09	EST-5	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	04/19/2019	11:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET DAVIS ARPT</a>	BULLOCH CO.	GA	04/19/2019	11:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	05/12/2019	15:19	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	05/12/2019	15:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	06/04/2019	14:45	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	06/20/2019	17:45	EST-5	Thunderstorm Wind	45 kts. EG	0	0	1.25K	0.00K
<a href="#">EDNA</a>	BULLOCH CO.	GA	06/20/2019	18:44	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	06/22/2019	14:58	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	07/18/2019	18:01	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">LEEFIELD</a>	BULLOCH CO.	GA	07/18/2019	18:23	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	08/07/2019	15:57	EST-5	Thunderstorm Wind	40 kts. EG	0	0	0.50K	0.00K
<a href="#">HOPEULIKIT</a>	BULLOCH CO.	GA	09/09/2019	13:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">EDNA</a>	BULLOCH CO.	GA	09/09/2019	14:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">ADABELLE</a>	BULLOCH CO.	GA	09/09/2019	14:40	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET DAVIS ARPT</a>	BULLOCH CO.	GA	03/03/2020	18:35	EST-5	Thunderstorm Wind	40 kts. EG	0	0	2.00K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	04/13/2020	04:31	EST-5	Thunderstorm Wind	54 kts. MG	0	0	0.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	04/13/2020	05:35	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<b>Totals:</b>								0	0	550.60K	15.00K

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
----------	-------------	-----	------	------	------	------	-----	-----	-----	-----	-----

# FIGURE 2.35 2014 WINTER STORM ICE TOTALS

Preliminary Ice Totals ending Feb. 13, 2014



National Weather Service  
Peachtree City, GA  
03/03/2014 01:58 PM EST

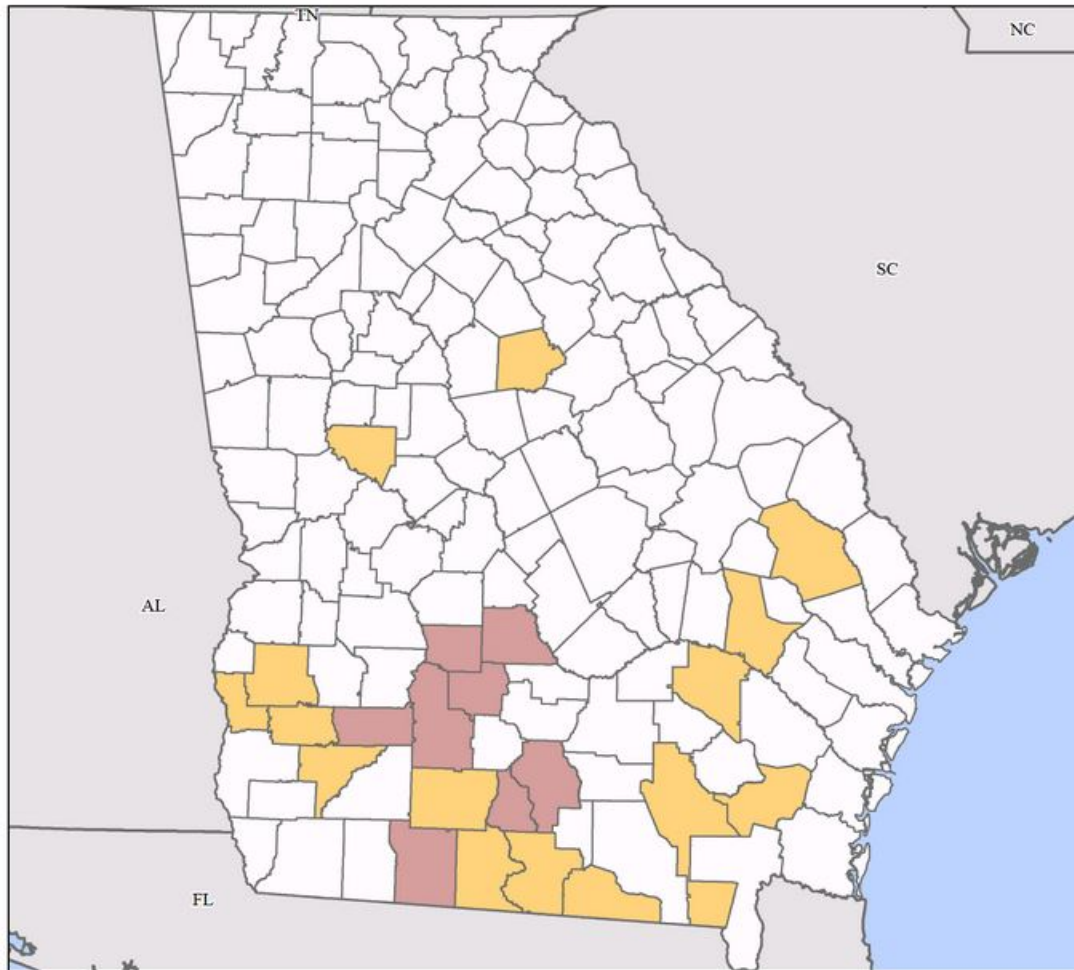
Follow Us:



[weather.gov/atlanta](http://weather.gov/atlanta)



# FEMA-4297-DR, Georgia Disaster Declaration as of 03/06/2017



## Data Layer/Map Description:

The types of assistance that have been designated for selected areas in the State of Georgia.

All counties in the State of Georgia are eligible to apply for assistance under the Hazard Mitigation Grant Program.

## Designated Counties

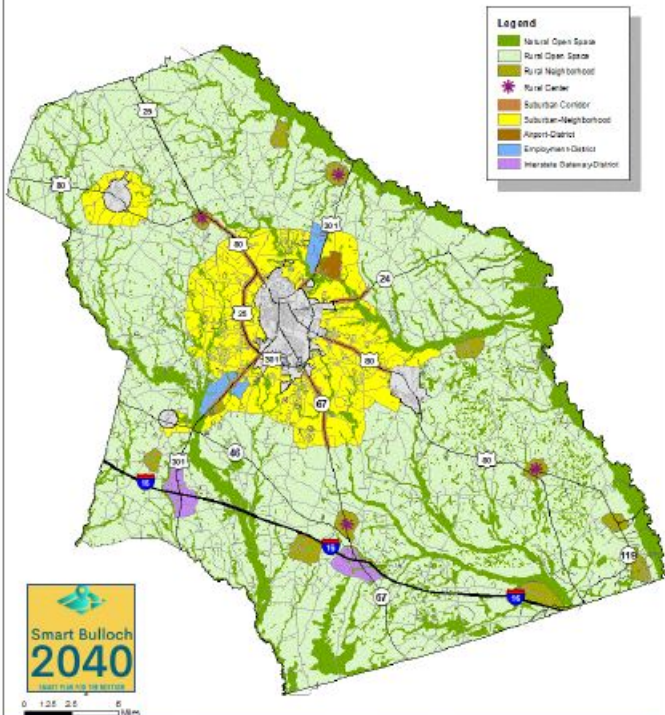
- No Designation
- Public Assistance
- Individual Assistance and Public Assistance



0 10 20 30 40  
Miles

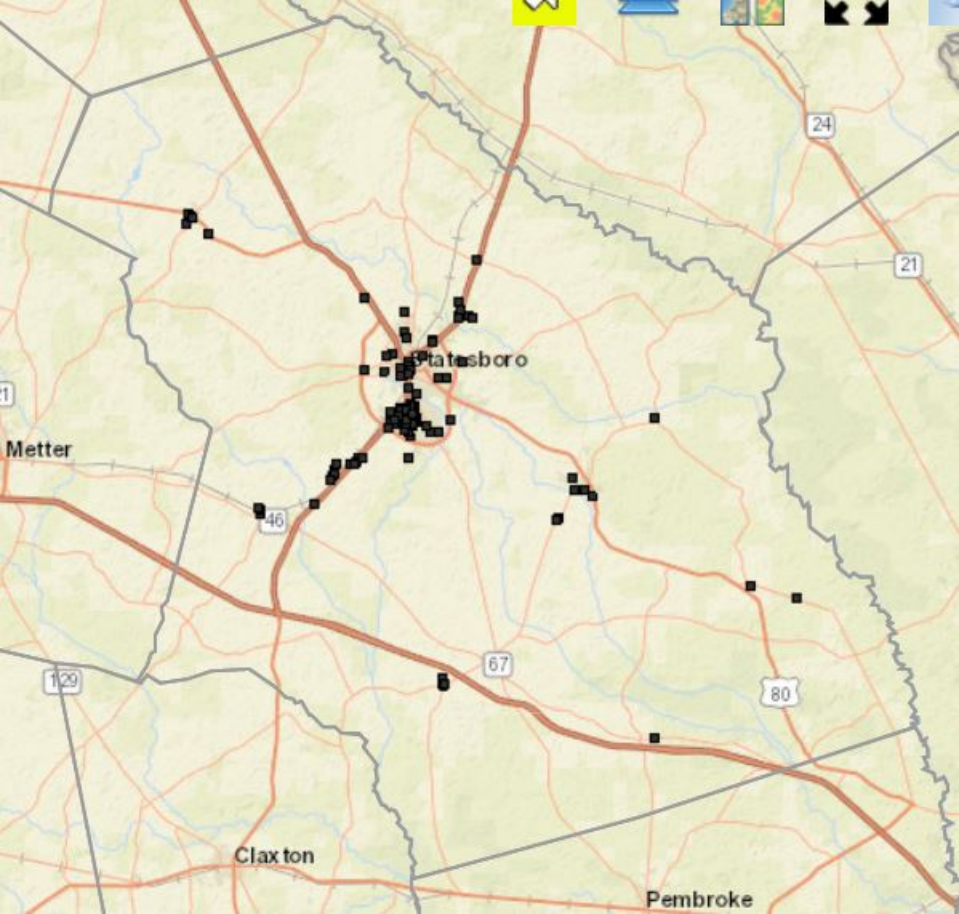
**Data Sources:** FEMA, ESRI  
Initial Declaration: 01/26/2017  
Disaster Federal Registry Notice:  
Amendment #5 - 02/15/2017  
Datum: North American 1983  
Projection: Transverse Mercator

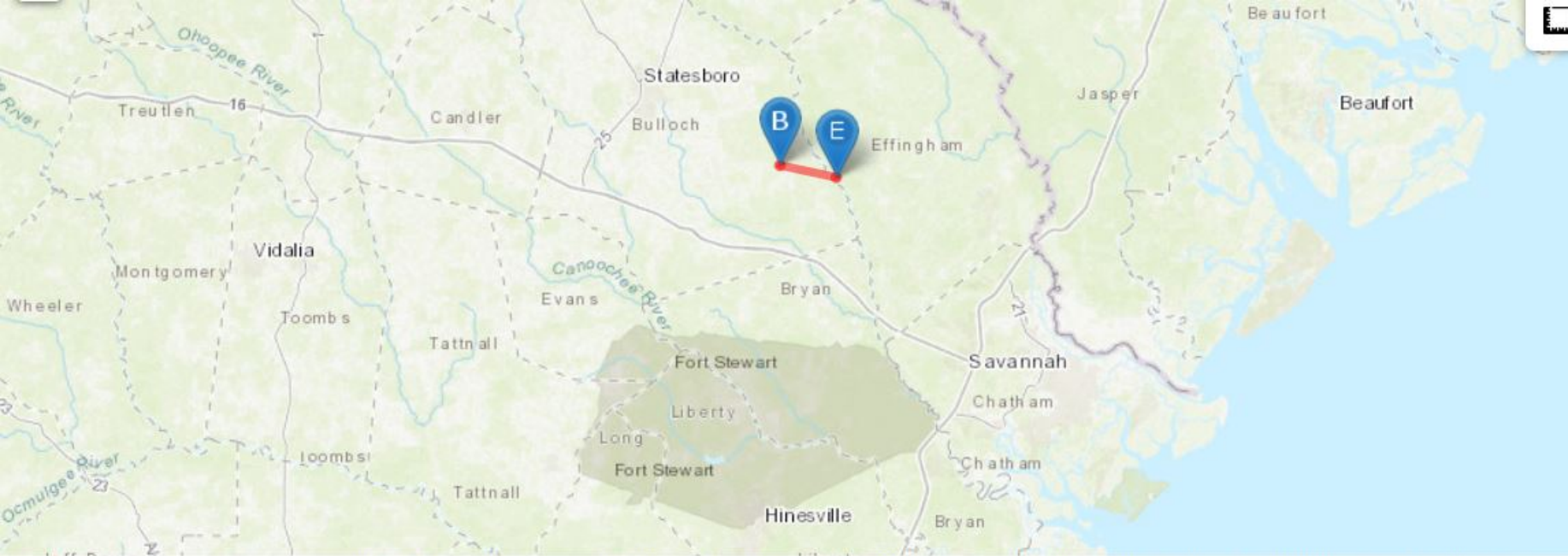
## Future Development Map: Bulloch County



## Bulloch County Comprehensive Plan

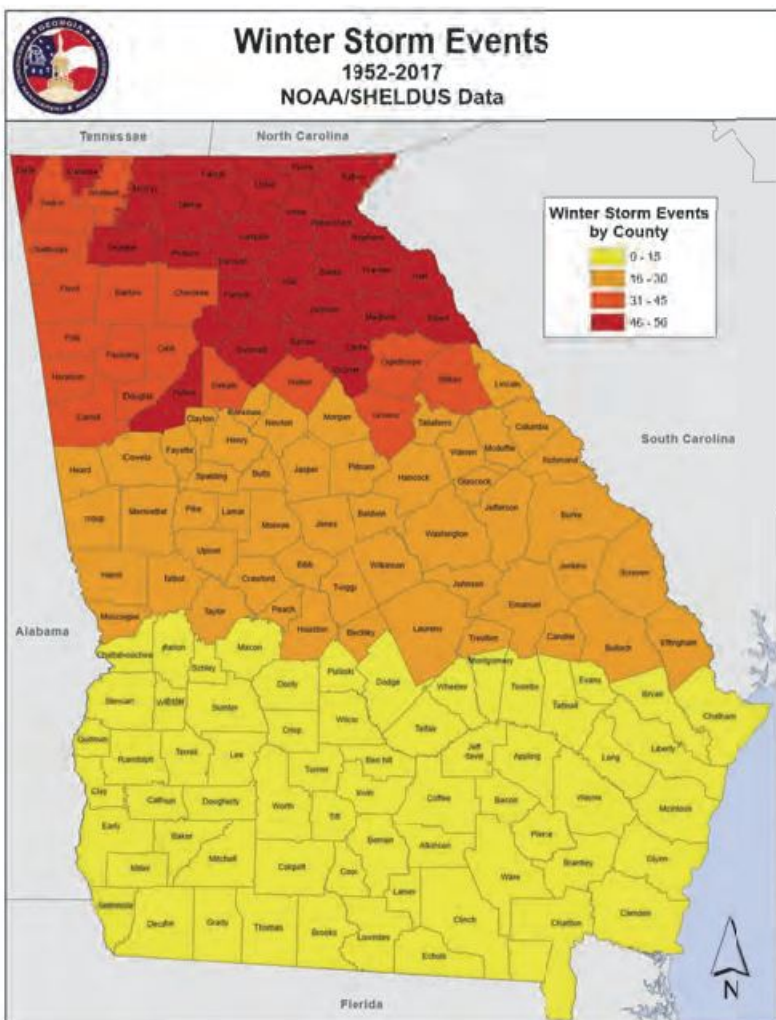
Joint Comprehensive Plan for the Cities of Brooklet, Portals, and Register







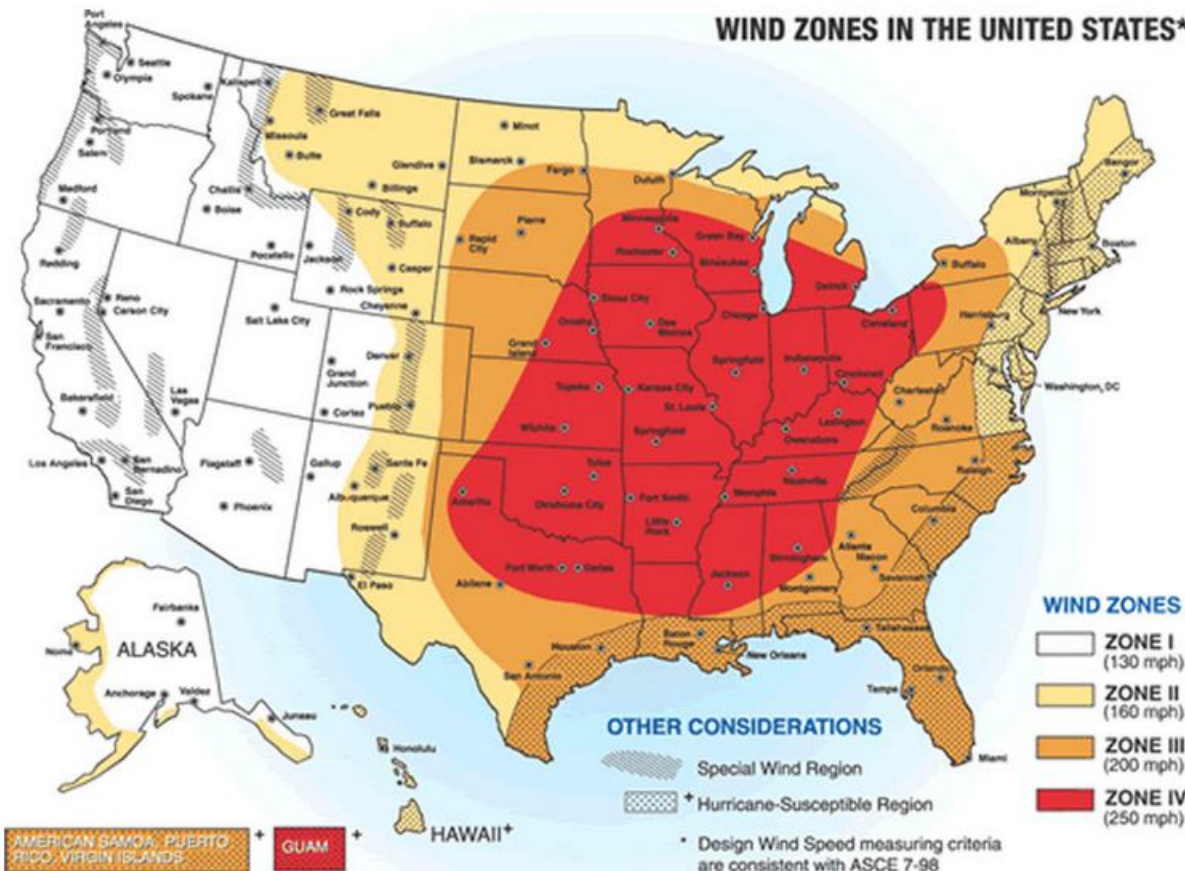
**FIGURE 2.36 WINTER STORM EVENTS  
IN GEORGIA, 1952–2017.**



### FIGURE 2.37 WINTER STORM LOSSES IN GEORGIA, 1952–2017



# WIND ZONES IN THE UNITED STATES\*



## Hail reported following afternoon thunderstorm

Intense cloudburst floods streets

By **HOLLI DEAL SAXON**

[hsaxon@statesboroherald.com](mailto:hsaxon@statesboroherald.com)

After about 30 minutes of intense rainfall Friday afternoon, several Statesboro streets and parking lots were flooded, a tree was uprooted, and some in the northeast side of the county reported nickel-sized hail.

Bulloch County 911 operator Kerri Borgman said local rainfall measured 2.73 inches at the Emergency Operations Center on Highway 301 North, but because strong winds caused the rainfall to blow sideways at times, the amount of rain may be even more.

There was no report from the National Weather Service regarding the squall, but residents in the Middleground community reported hail the size of a nickel, she said.

There were no reported wrecks, but one driver was stranded in an area near the intersection of Proctor Street and MLK Drive, entrapped by rapidly rising waters. Statesboro city workers temporarily closed that portion of the roadway.

Several other areas in Statesboro were flooded,

including the Sav-A-Lot and University Tire parking lots. A tree fell due to the weather in the area of Old Stilson and Joiner roads, and the trail head near Pretoria-Rushing and S&S Railroad roads were also underwater, Borgman said.

There were no reported injuries due to the storm.

*Herald reporter Holli Deal Saxon may be reached at (912) 489-9414.*



**With daughter Skylar**, 7, hanging on for dear life, Stan Akins makes his way across East Main Street through Friday's deluge to the Averitt Center for the Arts for 'The Little Mermaid' camp performance at the Emma Kelly Theater.

Photos by **SCOTT BRYANT**/staff



**A row of parked vehicles** near University Tire & Service on Northside Drive are swamped as drainage pipes fail to keep up with the volume of water during the rainstorm.





THE STATE OF GEORGIA  
EXECUTIVE ORDER

---

BY THE GOVERNOR:

STATE OF EMERGENCY DECLARATION

- WHEREAS:** In the first two months of 2020, the state of Georgia received more than eighteen inches of rain, not including recent storms which have caused extensive flooding in many Georgia counties; and
- WHEREAS:** The National Weather Service has issued flood watches and warnings along waterways, creeks, and tributaries in the state of Georgia; and
- WHEREAS:** Due to the extensive flooding, Georgia's network of roads and bridges may be rendered impassable in the affected counties, isolating residences and persons from access to essential public services; and
- WHEREAS:** Assistance from the state is necessary to provide public safety, protect private property, and restore social and economic welfare of affected counties; and
- WHEREAS:** Georgia law vests the Governor in O.C.G.A. § 38-3-51 with the authority to bring emergency situations under control by issuing orders, rules, and regulations to protect the safety and welfare of the public.

**NOW THEREFORE, PURSUANT TO THE AUTHORITY VESTED IN ME AS GOVERNOR OF THE STATE OF GEORGIA, IT IS HEREBY**

**ORDERED:** That a State of Emergency exists in the following Georgia counties: Appling, Atkinson, Bacon, Baker, Baldwin, Ben Hill, Berrien, Bibb, Bleckley, Brantley, Brooks, Bryan, Bulloch, Burke, Butts, Calhoun, Camden, Candler, Carroll, Charlton, Chatham, Chattahoochee, Clay, Clayton, Clinch, Cobb, Coffee, Colquitt, Columbia, Cook, Coweta, Crawford, Crisp, Decatur, DeKalb, Dodge, Dooly, Dougherty, Douglas, Early, Echols, Effingham, Emanuel, Evans, Fayette, Fulton, Glascock, Glynn, Grady, Greene, Hancock, Haralson, Harris, Heard, Henry, Houston, Irwin, Jasper, Jeff Davis, Jefferson, Jenkins, Johnson, Jones, Lamar, Lanier, Laurens, Lee, Liberty, Long, Lowndes, Macon, Marion, McDuffie, McIntosh, Meriwether, Miller, Mitchell, Monroe, Montgomery, Morgan, Muscogee, Newton, Peach, Pierce, Pike, Pulaski, Putnam, Quitman, Randolph, Richmond, Rockdale, Schley, Screven, Seminole, Spalding, Stewart, Sumter, Talbot, Taliaferro,

[Bulloch County Public Safety/EMA](#)

[March 4 at 11:18 AM](#) ·


Due to the excessive rainfall Bulloch County has experienced over the past 2 weeks, Public Works, Law Enforcement, and Emergency Services is asking that the public restrict/discontinue travel on all dirt roads with the exception of deliveries, residents living on these roads, law enforcement, and emergency services. Unnecessary travel on these roads continues to exacerbate a mounting problem. What stability is left on some of these roads must be maintained to facilitate emergency response. Rainfall totaling 3-5



inches is expected in areas of the county over the next couple of days. Please stay off all dirt roads unless it is necessary. Roads currently closed or compromised include but not necessarily limited to:

- Buie Driggers (Holloway to Bryant Still)
  - Cox Futch@Peppercorn
  - 1737 Bryant Still to Stilson Leefield
  - WD Peacock From Clarke Farms to Cedar Lawn
  - Honey Bowen Rd at Ben Grady Collins
  - Arcola Road
  - Sinkhole @ South Jodan
  - Macedonia
  - Miller Street Ext
  - Riverview @ Old River
  - Buie Driggers @ JR Cribbs to 80E
  - Old Portal Rd below Moore Rd
  - EC Hunnicut@Faith Deal to Metts Rd.
- 

Posted March 8<sup>th</sup>:



**Bulloch County Public Safety/EMA**  
Yesterday at 8:44 PM · 🌐

...

**Road Conditions Update**

The road conditions are about the same as they were Friday with a lot of repairs yet to be made as there is a lot of water that has got to move before full recovery can initiate. Road crews are inspecting conditions and making repairs where possible. EMA continues to communicate with the state SOC in hopes that a declaration may be forthcoming. The weather this week is better, but not perfect as rain is expected Wednesday and Thursday.....but only about a 40% chance. Better but we don't need any. Tomorrow expect partly cloudy conditions with a high of 70. The school system is appraised of existing road conditions. Below is the 5 day forecast.

**Tonight**  
Partly cloudy, with a low around 44. Light east wind.

**Monday**  
Mostly sunny, with a high near 73. Calm wind becoming south 5 to 7 mph in the afternoon.

**Monday Night**

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## [Bulloch County Public Safety/EMA](#)

[March 4 at 5:37 AM](#) ·

Flash Flood Watch

Flood Watch

National Weather Service Charleston SC

409 AM EST Wed Mar 4 2020

Jenkins-Screven-Candler-Bulloch-Tattnall-Evans-  
Including the cities of Millen, Sylvania, Metter, Statesboro,  
Reidsville, and Claxton  
409 AM EST Wed Mar 4 2020

...FLASH FLOOD WATCH REMAINS IN EFFECT THROUGH THURSDAY  
AFTERNOON...

The Flash Flood Watch continues for

- \* a portion of southeast Georgia, including the following areas,  
Bulloch, Candler, Evans, Jenkins, Screven, and Tattnall.

- \* through Thursday afternoon

- \* Rainfall totals of around 3 inches are expected through  
Thursday. Given wet grounds and existing road closures, the  
risk for flooding will be enhanced.

- \* Flooding could occur quickly, especially in low-lying and poor  
drainage areas. Be prepared for the possibility of widespread  
street flooding and flooded properties.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Be prepared to protect life and property, especially in areas  
prone to flooding. If flooding develops, move to higher ground  
immediately. If driving, be prepared for flooded roadways and  
possible road closures.

Be Safe  
Bulloch EMA



## Bulloch County Addl Fire Info

The County Commission assesses a fee on properties with viable residential and commercial structures that generate over \$500,000 annually to improve rural fire services and lower insurance rates for these property owners.

<https://www.statesboroherald.com/local/bulloch-upgrade-county-fire-service-2m-worth-trucks-and-tankers/>

<https://www.statesboroherald.com/local/county-hopeful-federal-help-roads/>

## Statesboro Herald

Updated: March 6, 2020, 8:44 p.m.

### County hopeful for federal help with roads

Dry spell enables roadwork to start



A pickup truck cautiously moves through water on Old River Road near Dyches Road after the rains begin to subside on Thursday, March 5. - photo by By SCOTT BRYANT/staff

HOLLI DEAL SAXON/staff

*Statesboro Herald*

Updated: March 6, 2020, 8:44 p.m.

Bulloch County officials are hopeful about the possibility of receiving federal funds for road repairs and are working on documents to send to the state following Gov. Kemp's declaration Thursday of 120 counties as being in a state of emergency.

Bulloch County Public Safety Director Ted Wynn said dry weather expected over the next few days should help dry the saturated dirt roads caused by excessive rainfall over the past two months, but like much of the rest of the state, a great deal of damage was caused by the seemingly non-stop flooding.

Bulloch County public works crews were able to begin some of the repairs Friday, but many of the roads that had been closed to traffic remained underwater in places, he said.

Whether counties in Georgia under the state of emergency will receive federal assistance for road repairs will depend on final damage reports. Across the state, rivers, creeks and other waterways escaped banks, flooding roads, homes and other property, and torrential rains resulted in washouts, potholes, erosion, and ruts on dirt roads, as well as damage to some paved roads, he said.

Wynn participated in a conference call Friday with the Georgia Emergency Management Agency, and Bulloch County EMA will continue to follow progress in the possibility of federal assistance, he said.

Bulloch and surrounding counties should expect warmer and drier weather for the next few days, with the possibility of some showers in the middle of next week, he said.

*Herald reporter Holli Deal Saxon may be reached at (912) 489-9414.*

Statesboro Herald 8 Oct 2016

## Hurricane Matthew

# Hurricane Matthew strikes Bulloch

Storm kills 2, downs trees, causes widespread power outages



A cyclist makes his way along Bobby Donaldson Avenue past a large fallen tree on Elm Street Saturday as Statesboro and Bulloch County continue to deal with the aftermath of Hurricane Matthew. - photo by SCOTT BRYANT/staff

Two men were killed early Saturday morning as tropical storm-force winds from Hurricane Matthew ripped through Bulloch County, leaving a tangle of downed trees, fallen power lines and property damage.

Thousands were without power for most of the night, and work crews from Georgia Power and Excelsior EMC could take several days before power is fully restored in the area. As of 6:30 p.m., Saturday, Georgia Power was reporting 151 outages, affecting 11,263 customers in the Bulloch County area, while Excelsior reported 9,681 customers affected in Bulloch.

The unprecedented storm in Bulloch County also brought tragedy. Matthew Ward, 28, was killed when a tree fell on his truck on Burkhalter Road, said Bulloch County Deputy Coroner Richard Pylant. "He had just got married two weeks ago."

James Altman was killed when two trees fell on his Clay Road home, Pylant said. The elderly man was wheelchair bound, he said.

Bulloch County Correctional Institute work crews, sheriff's deputies, police officers and people from all other public safety agencies worked in the face of the brutal storm until around 2 a.m., when the danger forced them to take a break, said Bulloch County Sheriff's Chief Deputy Jared Akins.

"Trees were falling in front of and behind patrol cars. Trees and power lines were coming down while crews were clearing roads," he said.

Everyone returned to clean-up efforts around daybreak.

"There are still a great deal of trees and power lines down," he said. "Deputies have been teamed up with the Bulloch County work camp (Correctional Institute) and those guys deserve all the credit in the world, as hard as they worked."

The worst of the storm rattled the area from 6 to 8 a.m., said Bulloch County Public Safety Director Ted Wynn.

"We had 55 to 60 miles per hour sustained winds, and 25 to 30 homes (significantly) damaged," he said.

Power outages affected most residents and businesses throughout the county.

"Please be patient as workers try to restore power," Wynn said.

The trees and fallen power lines will take time to clear, and while some had power restored Saturday, it could "take days" or longer before power is fully restored, he said

Bulloch County was drenched with more than five inches of rain, he said. In Brooklet, and southern areas of the county, eight inches or more fell in some places.

Statesboro police were busy as well, with extra shifts on duty, said Cpl. Jake Saxon.

In spite of the vicious storm, routine calls poured in, as well as emergency calls due to the storm.

"It blew my mind," he said.

Officers fielded complaint calls about fireworks and domestic disputes in addition to storm-related issues.

He asked residents to stay home, if possible, while clean-up efforts were done, and said to use caution at traffic lights that may not be working. Traffic laws require drivers to treat a non-functioning traffic light as a four-way stop.

"We have officers at the major intersections, but cannot man every one," he said.

Akins said the aftermath of Hurricane Matthew could take weeks to clear away.

"I have never seen (weather) like that," he said.

[HOLLI DEAL SAXON](#)

Updated: Oct 8, 2016, 9:40 PM

Published: Oct 8, 2016, 9:46 PM



[https://statesboroherald-ga.newsmemory.com/?token=MTU3NA%3A1jBTO6%3A\\_D5aFzdjmp\\_s9UUsl1ujl67Tel](https://statesboroherald-ga.newsmemory.com/?token=MTU3NA%3A1jBTO6%3A_D5aFzdjmp_s9UUsl1ujl67Tel)

9 March 2020

## **Culverts on county roads need lots of work**

### **Editor:**

I would have to disagree with Roy Thompson as I am sure his area is well taken care of by the county.

After the ditches are pulled, they quit coming out to clear the culverts and many landowners don't install culverts and aren't required to install them. Consequently, the water goes over the roads.

It would help if every 25 years, they would survey the creeks and clear the trees and blockages.

I have lived in Bulloch County 28 years. Our property taxes went up recently and our road service went down. I did request they clear the ditches last year, but no one ever showed up.

They do faithfully grade the roads before every rain storm.

**Richard Rayburn Brooklet**

## **Update infrastructure of Bulloch's dirt roads**

### **Editor:**



## Statesboro Herald

Translate to 



# RIVER STAGES

*Through 11am - Friday*

Station	Flood St (feet)	Stage (feet)	24HR change
<b>Ochoopee</b>			
Reidsville	11	18.50	+5.79
<b>Ogeechee</b>			
Rocky Ford	13	11.80	+1.17
Eden	9	13.77	+0.14
Midville	6	7.42	+1.55
<b>Savannah</b>			
Burton			
Ferry	15	18.35	+0.45
Clyo	11	17.42	+0.41

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Letters to the editor

Update infrastructure of Bulloch's dirt roads

Editor:

I am 63 years old and have lived in Bulloch County all my life. I have lived on a dirt road all my life.

When I was a boy, I can remember the bull dozier pushing up trees along side of the roads and the road scrapers would come after them and dig the ditches once a year. There was never water on the roads. We would catch fish out of ditches that would come out of overflowing ponds and streams.

The last couple of years for some reason the county has decided not to dig the ditches, but just to crown the dirt in the middle of the road for water to run from the middle to the side of the road. When it rains water has no place to go but to accumulate in the middle of the road or to wash out gullies across the road, causing taxpayers unnecessary burdens of trying to get to and from their homes.

The county dirt road infrastructure has not been updated in years. The culverts or sewer pipes are broken or clogged up, keeping water from flowing into creeks or branches.

I remember when prison labor would come by each year to dig out the dirt from the culverts/sewer pipes and dig out trenches for the water to run-off.

I am not a genius, but I do know that if water doesn't have a place to go it will eventually seep out and find an alternative route.

I am pleading to our county commissioners to re-evaluate your decision not to dig out the ditches anymore. Also, let's re-evaluate the culvert/ sewer infrastructure on our roads in Bulloch.

You can haul loads of dirt and dump it out in the wash out areas causing a bandage effect, but not solving the actual problem. I have read on various news outlets where folks are placing partial blame on mud bidders with their four wheelers.

If the infrastructure was better on our dirt roads, then temptation would not be there.

**John Page Brooklet**

*Statesboro Herald*

Updated: Feb. 25, 2020, 7:48 p.m.

River flooding worsens, county offers evacuation help  
Ogeechee expected to crest above 16 feet

With flood warnings for the Ogeechee River from Jenkins to Chatham counties, Bulloch County Emergency Management Agency is offering evacuation assistance for anyone trapped or endangered by rising waters.

In the video above, Ogeechee River waters flow over Riverview Road on Tuesday, cutting off Woodward's Landing from any main roads as flooding in Bulloch County worsens as rains continue.

As of Tuesday, only one resident – a man living at Hickory Bluff in the southern end of the county – had been evacuated. The Bulloch County Sheriff's Office and Georgia Department of Natural Resources assisted in relocating the man, trapped by the swiftly rising waters, and had to "put in" at the Steel Bridge landing, said Bulloch County Public Safety Director Ted Wynn.

The man, who was not identified, had an alternate location at which to go, and although he was surrounded by water, was all right except for not having fresh water available, he said. The swollen river and excessive rainfall over the past couple weeks has compromised wells and septic systems.

The Ogeechee, like other rivers in the area, has escaped its banks and is expected to continue to rise a few days before starting to ebb. This will likely be exacerbated by expected rainfall this week, Wynn said.

The National Weather Service issued flood warnings along the Ogeechee from Jenkins to Chatham counties. The warning for Jenkins, Screven and a portion of Bulloch at the northern end is expected to have expired Wednesday, but a warning issued for the rest of Bulloch, Bryan, Effingham and Chatham counties is listed as "until further notice."

The Ogeechee is expected to reach or surpass 16 feet in places. The flood stage at Eden is 11 feet. "Moderate flooding is occurring, and major flooding is forecast," Wynn said. "At 16 feet, water approaches portions of Old Jenks Turnpike (and) water enters a few homes near the river.

The National Weather Service also shows a flood warning issued Tuesday for the Canoochee River in Candler, Emanuel and Evans counties.

**The evacuation**

Bulloch County EMA issued an announcement of flood evacuation assistance for residents along the Ogeechee River Monday.

“Bulloch County EMA has received a couple of calls from residents along the Ogeechee River requesting assistance in evacuation,” Wynn said in the release.. “If you feel you may need assistance, don’t wait until an emergency arises.”

This is not a mandatory evacuation order, but he reminds people that “911/emergency assistance may be delayed due to flooding along the river.” With the river expected to rise even more should the area see a significant rainfall the rest of the week, “Take that into consideration when making plans as the river may continue to flood and rise for the foreseeable future,” he said.

The weather does not affect only those living along the rivers. The heavy rains and flooding of smaller creeks and branches, with ponds overflowing and dams breaking in some places, resulted in severe damage to some area dirt roads, with a number of roads closed due to water over the roadway of extensive damages. Bulloch County Public Works Director Dink Butler has said crews are working overtime, but with over 700 miles of dirt roads and the level of damage caused by constant rainfall, the repairs will take time.

Wynn said the following roads were closed as of Tuesday: Buie Driggers; Holloway at Bryant Still; Cox Futch at Pepercorn; Bryant Still Road at Stilson-Leefield; W. O. Peacock from Clark Farm to Cedar Lawn; Honey Bowen at Ben Grady Collins; Sinkhole at Jo Dan; Macedonia; a portion of Miller Street Extension; Riverview at Old River Road; Old Portal between Moore and Denver Lanier; E.C. Hunnicutt at Fate Deal all the way to Metts. The river was flowing over a large portion of Williams Landing road as well.

For assistance in evacuation, Wynn said residents should call the Bulloch County EMA Office at 912-489-1661 (choose option 1 for communications) or the Bulloch County Sheriff’s Office at 912-764-8888.

## GMIS Report all facilities 2/14/2021

### Facility Wind Hazard All Hazard Scores

Drag a column header and drop it here to group by that column

Jurisdiction	Name	Hazard	Value	Repl	Build	Content	Cont	Func	Facility type
Bulloch County	Brooklet City Hall	3	294449.67	2019	1749			0	Government, Government Offices
Bulloch County	Brooklet Elementary	3	2200000	2019	94435			0	Education, Education, K - 12, K - 12
Brooklet town	Brooklet Police Department	3	53100	2019	1653			0	Law Enforcement, Police
Bulloch County	Bulloch County Fire Department Sta #4	3	25000	2019	3072			0	Emergency Services, Emergency Services, Fire Fighters, Fire Fighters
Bulloch County	Bulloch County Fire Department Sta #7	3	135402.58	2019	3675			0	Emergency Services, Fire Fighters
Bulloch County	Southeast Bulloch High	3	19115000	2019	196600			0	Education, Education, K - 12, K - 12
Bulloch County	Southeast Bulloch Middle	3	5656000	2019	122656			0	Education, Education, Clinics, Clinics
Bulloch County	Stilson Elementary School	3	2400000	2019	79364			0	Education, Education, K - 12, K - 12
Bulloch County	Stilson Park Well	3	50000	2019				0	Government, Water/Sewer
Portal town	Fire Department Sta. #2	3	356739	2019	24829			0	Emergency Services, Fire Fighters

Portal town	Lift Station behind Elementary School	3	6268	2019	140		0	Government, Water/Sewer	
Bulloch County	Portal Well	3	92041	2019	240		0	Government, Water/Sewer	
Bulloch County	Portal Elementary	3	2366455	2019	80212		0	Education, Education, K - 12, K - 12	
Bulloch County	Portal Middle/High	2	1800000	2019	128981		0	Education, Education, K - 12, K - 12	High Potential Loss
Portal town	Portal Police Department/City Hall	3	142639	2019	24306		0	Emergency Services, Police	
Portal town	Portal Water Tower #2	3	130000	2019	400		0	Government, Water/Sewer	
Bulloch County	Portal Well	3	92041	2019	240		0	Government, Water/Sewer	
Bulloch County	Water Treatment Facility	2	0	0	0		0	Government, Water/Sewer	
Bulloch County	Bulloch County Fire Department Sta #3	3	35000	2019	3847		0	Emergency Services, Emergency Services, Fire Fighters, Fire Fighters	Essential
Register town	Register Town Hall	3	109339.1	2019	900		0	Government, Private	

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Register town	Register Well	3	50000	2019	200		0	Government, Government, Water/Sewer, Water/Sewer	
Register town	Town of Register	3	43072.84	2019	240		0	Government, Water/Sewer	
Bulloch County	Briggs & Stratton	3	11003000	2019	514968		0	Education, Education, Government Offices, Government Offices	
Bulloch County	Bulloch Academy	3	3525000	2019	99236		0	Education, Education, K - 12, K - 12	Important
Bulloch County	Bulloch County Correctional Institution	3	3416370	2019	42822		0	Law Enforcement, Law Enforcement, Jails, Jails	Essential
Bulloch County	Bulloch County Fire Department Sta #8	3	594828	2019	3543		0	Emergency Services, Emergency Services, Fire Fighters, Fire Fighters	
Bulloch County	Bulloch County Fire Department Sta #9	3	24000	2019	3522		0	Emergency Services, Emergency Services, Fire Fighters, Fire Fighters	Essential
Statesboro city	Bulloch County Health Department	3	640000	2019	14013		0	Government, Government, Clinics, Clinics	Important
Bulloch County	BCCI	3	1696220	2019	21261		0	Law Enforcement, Law Enforcement, Jails, Jails	
Statesboro city	Bulloch County Judicial Annex	3	4300000	2019	19649		0	Law Enforcement, Law Enforcement, Court House, Court House	

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Bulloch County	Bulloch County Juvenile Court	3	299610	2019	7575		0	Law Enforcement, Law Enforcement, Court House, Court House	Important
Statesboro city	Bulloch County Magistrate Court	3	1007940	2019	6738		0	Law Enforcement, Law Enforcement, Court House, Court House	Important
Statesboro city	Bulloch County North Main Annex	3	180000	2019	17267		0	Law Enforcement, Law Enforcement, Court House, Court House	
Bulloch County	Bulloch County Sheriff's Office	3	2250930	2019	19443		0	Law Enforcement, Law Enforcement, Sheriff, Sheriff	Essential
Statesboro city	Crossroads Alternative	3	4520000	2019	65620		0	Education, Education, K - 12, K - 12	Vulnerable Population
Statesboro city	East Georgia Regional Medical Center	3	33299547	2019	188099		0	Medical, Medical, Hospital, Hospital	Essential
Bulloch County	Electrical Switch House	3	308529	2019	805		0	Government, Government, Non-Profit, Non-Profit	Essential
Statesboro city	Federal Courthouse	3	4686746	2019	37820		0	Education, Education, Government Offices, Government Offices	
Statesboro city	First Baptist Church	3	1561423	2019	126000		0	Education, Education, Private, Private	Important
Statesboro city	First Presbyterian Church	3	2044720	2019	16500		0	Education, Education, Private, Private	Important

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Statesboro city	First United Methodist Church	3	4337285	2019	35000		0	Education, Education, Private, Private	Important
Bulloch County	Georgia State Patrol	3	970000	2019	15032		0	NGO, NGO, Transportation, Transportation	
Bulloch County	Grounds Equipment Building	3	496860	2014	2400		0	Education, Government Offices	
Bulloch County	Housing Maint. Bldg. (Tom's Whse)	3	2075455	2014	5848		0	Education, Government Offices	
Bulloch County	Institute of Arthropodology & Parasitology	3	1278705	2014	3603		0	Education, Government Offices	
Bulloch County	Johnson Hall	3	28292628	2014	79720		0	Education, Government Offices	
Bulloch County	Julia P. Bryant	3	9653000	2019	108092		0	Education, Education, K - 12, K - 12	Vulnerable Population
Bulloch County	Landrum Center	3	143349552	2014	40582		0	Education, Government Offices	
Statesboro city	Langston Chapel Elementary School	3	10315573	2019	86080		0	Education, Education, K - 12, K - 12	High Potential Loss
Statesboro city	Langston Chapel Middle School	3	8500000	2019	226077		0	Education, Education, K - 12, K - 12	High Potential Loss

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Bulloch County	Mattie Lively Elementary School	3	12500000	2019	78382		0	Education, Education, K - 12, K - 12	Vulnerable Population
Bulloch County	Mill Creek Elementary School	3	2000000	2019	102864		0	Education, Education, K - 12, K - 12	High Potential Loss
Bulloch County	Nevils Elementary School	3	7400000	2019	78605		0	Education, Education, Clinics, Clinics	
Bulloch County	Ogeechee Tech	3	30702200	2019	248139		0	Education, Education, VoTech, VoTech	Economic Assets
Bulloch County	Olliff Hall	3	20846826	2014	58740		0	Education, Government Offices	
Bulloch County	Physical Plant FPD& C Building	3	1750012	2014	4931		0	Education, Government Offices	
Bulloch County	Physical Plant Office	3	1034534	2014	2915		0	Education, Government Offices	
Bulloch County	Physical Plant Shop 1	3	4045150	2014	11395		0	Education, Government Offices	
Bulloch County	Physical Plant Shop II	3	767294	2014	2162		0	Education, Private	
Bulloch County	Statesboro Fire Department Sta. #1	3	1257636	2019	7104		0	Emergency Services, Emergency Services, Fire Fighters, Fire Fighters	Essential

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Statesboro city	Statesboro High School	3	2400000	2019	220201		0	Education, Education, K - 12, K - 12	High Potential Loss
Statesboro city	Statesboro Police Department	3	2354172	2019	13298		0	Law Enforcement, Law Enforcement, Police, Police	Essential
Statesboro city	Statesboro Regional Library	3	5257851	2019	29700		0	Education, Education, Library, Library	Important
Statesboro city	Statesboro WPCP	3	1026786	2019	5800		0	Government, Government, Water/Sewer, Water/Sewer	Essential
Bulloch County	Statesboro/Bulloch County Landfill	3	2832512	2019	16000		0	Government, Government, Landfill, Landfill	
Bulloch County	Walmart Distribution	3	52356300	2019	2066792		0	NGO, NGO, Private, Private	High Potential Loss
Bulloch County	Well House 1	3	50000	2019	240		0	Government, Government, Water/Sewer, Water/Sewer	Essential
Bulloch County	William James Middle School	3	9336000	2020	100660		0	Education, Education, K - 12, K - 12	
Bulloch County	Willingway Hospital	3	7098807	2019	40099		0	Medical, Medical, Hospital, Hospital	Special Consideration
Bulloch County	Winburn Hall	3	17445402	2014	49184		0	Education, Government Offices	

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Bulloch County	GA National Guard	3	850000	2019			0	Government, Government, Government Offices, Government Offices	Important
Bulloch County	GBI	3	377534	2019			0	Law Enforcement, Government Offices	Important
Bulloch County	GBI	3	377534	2019			0	Law Enforcement, Government Offices	Important
Bulloch County	Great Dane	3	11511500	2019			0	NGO, Private	Economic Assets
Bulloch County	Animal Shelter Office	3	505634	2019			0	Government, Government Offices	Important
Bulloch County	Animal Shelter Office	3	505634	2019			0	Government, Government Offices	Important
Statesboro city	Senior Citizens Community Center	3	1200000	2019			0	Government, Government Offices	Vulnerable Population
Bulloch County	Bulloch Wellness Center	3	325764	2019			0	Medical, Clinics	Vulnerable Population
Bulloch County	GA Dept of Audits	3	4520000	2019			0	Government, Government Offices	Important
Bulloch County	Bulloch County EMS	3	170000	2019			0	Emergency Services, EMS	Essential

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Abbeville city	Nevils School Park Well	3	50000	2019			0	Education, Water/Sewer	Lifeline
Bulloch County	Nevils Denmark Sub Fire Station	3	15934	2019			0	Emergency Services, Fire Fighters	Important
Statesboro city	Viracon	3	4826800	2019			0	NGO, Private	High Potential Loss
Statesboro city	The Warehouse	3	3058160	2019			0	NGO, Private	High Potential Loss
Statesboro city	Brazwell St Well	3	50000	2019	400		0	Government, Government, Water/Sewer, Water/Sewer	Essential
Statesboro city	GA Southern Water Storage Tower	3	0	2014	0		0	Government, Government, Water/Sewer, Water/Sewer	Essential
Bulloch County	Gateway Industrial Park Well	3	50000	2019	0		0	Government, Government, Water/Sewer, Water/Sewer	Essential
Bulloch County	Jef Rd Well	3	50000	2019	400		0	Government, Government, Water/Sewer, Water/Sewer	Essential
Statesboro city	Old Register Rd Well	3	50000	2019	400		0	Government, Government, Water/Sewer, Water/Sewer	Essential
Statesboro city	Paulson Stadium Storage Tower	3	0	2014	0		0	Government, Water/Sewer	

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Bulloch County	Proctor St Well	3	50000	2019	400			0	Government, Government, Water/Sewer, Water/Sewer	Essential
Statesboro city	Statesboro City Hall	3	2516578	2019	21000			0	Government, Government, City Hall, City Hall	Important
Statesboro city	Statesboro Water Storage Tower	3	50000	2019	240			0	Government, Government, Water/Sewer, Water/Sewer	Essential
Statesboro city	Anderson Hall	3	3375949	2018	18566			0	Education, University	
Statesboro city	Auxiliary Warehouse	3	4650000	2018	34770			0	Education, University	
Statesboro city	Biological Sciences	3	38516140	2018	135275			0	Education, University	
Statesboro city	Brannen Hall	3	7436641	2018	29685			0	Education, University	
Statesboro city	Carrol Building	3	17668099	2018	78133			0	Education, University	
Statesboro city	Centenial Hall	3	3000000	2018	377075			0	Education, University	
Statesboro city	Central Receiving	3	8900000	2018	57333			0	Education, University	

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Statesboro city	Child Development Center	3	2080993	2018	10470			0	Education, University	
Statesboro city	City Campus	3	500000	2018	9234			0	Education, University	
Statesboro city	College of Education	3	32450000	2018	131185			0	Education, University	
Statesboro city	College of Information Technology	3	36552792	2018	138988			0	Education, University	
Statesboro city	Cone	3	8649559	2018	43165			0	Education, University	
Statesboro city	Counseling Center	3	1467760	2018	8392			0	Education, University	
Statesboro city	Deal Hall	3	3448521	2018	18561			0	Education, University	
Statesboro city	Dining Commons	3	4000000	2018	73616			0	Education, University	
Statesboro city	Eagle Village Building 1	3	54448758	2018	153420			0	Education, University	
Statesboro city	Eagle Village Building 2	3	54752552	2018	154276			0	Education, University	

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Statesboro city	Facilities Services Administration	3	3350703	2018	23673		0	Education, University	
Statesboro city	Facilities Services Landscape & Custodial Services	3	2619760	2018	10400		0	Education, University	
Statesboro city	Facilities Services Shops	3	5415850	2018	21500		0	Education, University	
Statesboro city	Freedoms Landing	3	1336030	2018	461711		0	Education, University	
Statesboro city	Georgia Southern University Public Safety	3	2648100	2019	7000		0	Emergency Services, Emergency Services, Police, Police	Essential
Statesboro city	Hanner Complex	3	44066084	2018	158163		0	Education, University	
Statesboro city	Hazardous Waste Storage Building	3	670388	2018	2525		0	Education, University	
Statesboro city	Health Center	3	11315996	2018	37450		0	Education, University	
Statesboro city	Henderson Library	3	80383349	2018	245888		0	Education, University	
Statesboro city	Hendricks	3	9033482	2018	40099		0	Education, University	

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Statesboro city	Herty Building	3	11678200	2018	49560		0	Education, University	
Statesboro city	Hollis Building	3	12484133	2018	48658		0	Education, University	
Statesboro city	Interdisciplinary Academic Building	3	34806000	2018	109887		0	Education, University	
Statesboro city	Kennedy 1	3	19718775	2018	94552		0	Education, University	
Statesboro city	Kennedy 2	3	12108582	2018	58061		0	Education, University	
Statesboro city	Lewis Hall	3	4440579	2018	24466		0	Education, University	
Statesboro city	Math & Physics Building	3	29233840	2018	112864		0	Education, University	
Statesboro city	Military Science/GEMA	3	9889670	2018	51132		0	Government, Government, EMA, EMA	Essential
Statesboro city	Natural Sciences Building	3	11580861	2018	51132		0	Education, University	
Statesboro city	Nessmith Lane Continuing Education	3	25712280	2018	116874		0	Education, University	

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Statesboro city	NOC 2	3	2180683	2018	1500		0	Education, University
Statesboro city	NOC 3	3	4341700	2018	3371		0	Education, University
Statesboro city	Nursing & Chemistry	3	30800000	2018	123649		0	Education, University
Statesboro city	Paulson Stadium	3	19085412	2018	41930		0	Education, University
Statesboro city	Pittman Administration Building	3	12095586	2018	42577		0	Education, University
Statesboro city	GS Public Safety	3	249070	2019	4738		0	Emergency Services, Emergency Services, EMA, EMA
Statesboro city	RAC	3	76159056	2018	220668		0	Education, University
Statesboro city	Rosenwald	3	7981825	2018	43977		0	Education, University
Statesboro city	Russell Union	3	25061308	2018	104032		0	Education, University
Statesboro city	Sanford Hall	3	9889279	2018	32197		0	Education, University

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Statesboro city	Shooting Sports	3	6414100	2018	29479		0	Education, University
Statesboro city	Southern Courtyard Building 1	3	12283799	2018	34612		0	Education, University
Statesboro city	Southern Courtyard Building 2	3	12349100	2018	34796		0	Education, University
Statesboro city	Southern Courtyard Building 3	3	20571424	2018	57964		0	Education, University
Statesboro city	Southern Courtyard Building 4	3	20571424	2018	57964		0	Education, University
Statesboro city	Southern Pine 1	3	17781910	2018	50104		0	Education, University
Statesboro city	Southern Pine 2	3	17781910	2018	50104		0	Education, University
Statesboro city	Southern Pine 3	3	17781910	2018	50104		0	Education, University
Statesboro city	Southern Pine 4	3	17781910	2018	50104		0	Education, University
Statesboro city	Southern Pine 5	3	8972937	2018	25283		0	Education, University

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Statesboro city	Veazy	3	6783201	2018	32494		0	Education, University	
Statesboro city	Watson Hall Commons	3	5275469	2018	25296		0	Education, University	
Statesboro city	Watson Hall Pods	3	8988738	2018	44871		0	Education, University	
Statesboro city	Well House Lewis	3	74000	2018	240		0	Education, University	
Statesboro city	Well House Nessmith	3	586642	2018	600		0	Education, University	
Bulloch County	GA DMV	3	200000	2019	10476		0	Government, Government, Government Offices, Government Offices	
Bulloch County	Georgia Forestry Commission	3	125000	2019	6716		0	Government, Government, Fire Fighters, Fire Fighters	Essential
Bulloch County	Sallie Zetterower Elementary School	3	9650000	2019	109008		0	Education, Education, K - 12, K - 12	High Potential Loss
Bulloch County	Statesboro Municipal Airport	3	37532	2019	5801		0	Government, Government, Transportation, Transportation	
Bulloch County	Airport Security Office	3	41783	2019			0	Government, Transportation	Transportation

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Bulloch County	GA State (Civil) Defense Force 3 HQ	3	202000	2019			0	Government, Government Offices	Essential
Bulloch County	Bay Fire Station Sta #5	3	28000	2019	3624		0	Emergency Services, Emergency Services, Fire Fighters, Fire Fighters	

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## Previous Natural Hazard events in Bulloch County from the 2015 Update

### **Hail:**

The 25 Sept. 2011 hail event listed property damages. That hail was 1.75" in size and inflicted \$25K in property damage.

### **Drought:**

Year	Area Affected	Remarks
1903-05	Statewide	Severe
1924-27	North-central Georgia	One of the most severe of the century
1930-35	Mostly statewide	Affected most of US
1938-44	Statewide	Regional drought
1950-57	Statewide	Regional drought
1968-71	Southern and Central Georgia	Variable severity
1977	Statewide	Disaster 3044
1985-90	North and Central Georgia	Regional drought
1999-2009	Statewide	Severe

Table 2.18: Notable Drought Events in Georgia

At the records kept with US Drought Monitor we have events of severe or extreme drought occurring June of 2000 through November of 2000, June of 2001, Nov. 2001 – Nov 2002, May of 2007, June 2011 – June 2012, and Dec. of 2012 – Feb of 2013 (6 events in an almost 13-year period)

### **Flood:**

From October 1, 1994 to November 16, 1994, the Federally Declared flood disaster (DR 1042) where Bulloch, together with 12 neighboring counties, received disaster funding for flooding along with tornadoes and high winds, 11 March, 1998 (DR1209), when individual assistance was given within Bulloch County as one of 119 Georgia Counties with flood damages due to flooding from severe storms which included tornadoes. The NCDC Bulloch County database lists flooding in June of 2004, March and June of 2005, a flash flood on 12/14/2009, on 8/6/2013 a flash flood which incurred approximately \$10,000 in property damage, and 13 days later, Statesboro had a flash flood event with approximately \$50,000 in property damage.

### **Hurricane/Coastal Storm:**

In the fifty years from 1964 through most of 2014 (present), Bulloch County has been negatively affected by the following hurricanes as windstorm events only. None of the flash flood dates coincide with the dates listed below as they were separate occurrences.

- Hurricane Dora September 9, 1964
- Hurricane Bertha July 11, 1996
- Hurricane Fran September 3, 1996
- Hurricane Floyd September 14, 1999
- Tropical Storm Jeanne (DR 1567)
- Hurricane Katrina (EM 3218) -- signed September 5, 2005
- Tropical Storm Alberto in June of 2006



### Severe Winter Storm/Ice Storm:

In February of 2014, (Feb. 11–14, 2014) an Ice Storm (named Pax) was declared as a natural disaster by Federal authorities, Governor of the State of Georgia and Bulloch County declarations. (These declarations and news publications can be found in Appendix A.) Recent ice storms in Bulloch County have occurred in 2002, 2011, & 2014.

“March 6, 2014: Gov. Nathan Deal today announced that President Obama approved his request for a major disaster declaration for 39 counties that sustained damage the Feb. 10-14 winter storm. The declaration allows for the federal government to reimburse 75 percent of eligible expenditures and damage costs.

### Tornado Hazard Identification:

From the seven listed tornadoes from 1/05/1997 to 3/26/2011 there was a total of \$445K in damages and 4 reports of injuries during that period.

<b>Totals:</b>								0	4	445.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	01/05/1997	10:15	EST	Tornado	F0	0	4	25.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	04/15/1999	14:05	EST	Tornado	F0	0	0	5.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	07/01/2003	21:47	EST	Tornado	F2	0	0	0.00K	0.00K
<a href="#">BLITCH</a>	BULLOCH CO.	GA	07/01/2003	22:10	EST	Tornado	F1	0	0	0.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	09/06/2004	03:20	EST	Tornado	F0	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	09/27/2004	00:40	EST	Tornado	F0	0	0	0.00K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	09/27/2004	05:00	EST	Tornado	F0	0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	05/11/2008	07:10	EST-5	Tornado	EF1	0	0	125.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	03/26/2011	18:40	EST-5	Tornado	EF0	0	0	40.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	03/26/2011	18:42	EST-5	Tornado	EF1	0	0	250.00K	0.00K
<b>Totals:</b>								0	4	445.00K	0.00K

### Thunderstorm wind/ high winds:

The table shows 81 days of thunderstorm wind for ten years and 116 in the past twenty years, (74 of which reported \$565.85K in property damages and 3 of those collectively listed \$15K in crop damages.

<a href="#">Location</a>	<a href="#">County/Zone</a>	<a href="#">St.</a>	<a href="#">Date</a>	<a href="#">Time</a>	<a href="#">T.Z.</a>	<a href="#">Type</a>	<a href="#">Mag</a>	<a href="#">Dth</a>	<a href="#">Inj</a>	<a href="#">PrD</a>	<a href="#">CrD</a>
<b>Totals:</b>								0	1	565.85K	15.00K

<a href="#">Statesboro</a>	BULLOCH CO.	GA	06/24/1994	14:45	EST	Thunderstorm Wind	0 kts.	0	0	0.50K	0.00K
<a href="#">Nevils</a>	BULLOCH CO.	GA	06/26/1994	15:10	EST	Thunderstorm Wind	0 kts.	0	0	5.00K	0.00K
<a href="#">Statesboro</a>	BULLOCH CO.	GA	06/26/1994	15:20	EST	Thunderstorm Wind	0 kts.	0	0	5.00K	0.00K
<a href="#">BULLOCH CO.</a>	BULLOCH CO.	GA	05/15/1995	19:30	EST	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
<a href="#">Statesboro</a>	BULLOCH CO.	GA	06/09/1995	20:35	EST	Thunderstorm Wind	0 kts.	0	0	8.00K	0.00K
<a href="#">Statesboro</a>	BULLOCH CO.	GA	07/25/1995	18:00	EST	Thunderstorm Wind	0 kts.	0	0	0.50K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	04/23/1997	00:15	EST	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	05/03/1997	12:00	EST	Thunderstorm Wind	52 kts.	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/14/1997	13:05	EST	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	06/18/1997	13:58	EST	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
<a href="#">LEEFIELD</a>	BULLOCH CO.	GA	07/03/1997	21:40	EST	Thunderstorm Wind	55 kts.	0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	06/05/1998	21:00	EST	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	06/19/1998	16:20	EST	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
<a href="#">LEEFIELD</a>	BULLOCH CO.	GA	07/11/1998	17:00	EST	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	07/11/1998	17:14	EST	Thunderstorm Wind	50 kts.	0	1	0.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	07/31/1998	15:30	EST	Thunderstorm Wind	55 kts.	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	09/03/1998	10:15	EST	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K

<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/14/1999	16:10	EST	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/20/1999	17:45	EST	Thunderstorm Wind	50 kts.	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	06/22/2000	14:15	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	06/22/2000	14:28	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">HOPEULIKIT</a>	BULLOCH CO.	GA	07/14/2000	20:30	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	03/04/2001	00:20	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	03/04/2001	01:05	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	05/25/2001	17:50	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/03/2001	19:20	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/30/2002	16:15	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/06/2002	17:40	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	07/06/2002	18:25	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	07/21/2002	16:00	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	07/21/2002	16:10	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/31/2002	16:20	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	07/31/2002	16:50	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	11/11/2002	13:40	EST	Thunderstorm Wind	50 kts. E	0	0	0.00K	0.00K

<a href="#">COUNTYWIDE</a>	BULLOCH CO.	GA	12/24/2002	11:15	EST	Thunderstorm Wind	52 kts. E	0	0	0.00K	0.00K
<a href="#">CENTRAL PORTION</a>	BULLOCH CO.	GA	02/22/2003	12:15	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	02/22/2003	12:40	EST	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	03/20/2003	15:05	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	05/11/2003	17:40	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	07/01/2003	11:35	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	07/01/2003	16:00	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/17/2003	15:30	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">HOPEULIKIT</a>	BULLOCH CO.	GA	07/23/2003	14:00	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	07/23/2003	14:25	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	02/26/2004	03:55	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	02/26/2004	04:15	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	06/23/2004	18:05	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	08/05/2004	15:10	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">LEEFIELD</a>	BULLOCH CO.	GA	09/27/2004	01:15	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	03/08/2005	08:29	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	04/30/2005	12:55	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K

<a href="#">PORTAL</a>	BULLOCH CO.	GA	07/29/2005	14:10	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	07/29/2005	14:50	EST	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	07/29/2005	15:08	EST	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
<a href="#">ADABELLE</a>	BULLOCH CO.	GA	08/29/2005	18:35	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	12/28/2005	18:19	EST	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	07/16/2006	15:55	EST	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/22/2006	16:05	EST	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/08/2006	16:25	EST	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	04/14/2007	17:47	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	05/05/2007	21:55	EST-5	Thunderstorm Wind	60 kts. EG	0	0	20.00K	0.00K
<a href="#">MIDDLEGROUND</a>	BULLOCH CO.	GA	05/05/2007	22:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	06/10/2007	17:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	06/11/2007	12:50	EST-5	Thunderstorm Wind	60 kts. EG	0	0	5.00K	0.00K
<a href="#">ADABELLE</a>	BULLOCH CO.	GA	06/11/2007	12:55	EST-5	Thunderstorm Wind	60 kts. EG	0	0	2.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	06/11/2007	12:55	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.50K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	06/11/2007	13:00	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
<a href="#">ADABELLE</a>	BULLOCH CO.	GA	06/11/2007	13:05	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.50K	0.00K

<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/12/2007	23:24	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	06/13/2007	15:25	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/13/2007	15:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	07/01/2007	16:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	07/11/2007	15:35	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	07/11/2007	15:40	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	07/11/2007	16:08	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	07/20/2007	17:05	EST-5	Thunderstorm Wind	35 kts. EG	0	0	0.10K	0.00K
<a href="#">ADABELLE</a>	BULLOCH CO.	GA	07/20/2007	17:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/20/2007	17:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	07/28/2007	13:29	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.50K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	07/29/2007	19:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">EMIT</a>	BULLOCH CO.	GA	08/11/2007	15:30	EST-5	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/13/2007	18:52	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/13/2007	18:53	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/13/2007	18:54	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	08/13/2007	21:00	EST-5	Thunderstorm Wind	55 kts. EG	0	0	5.00K	0.00K

<a href="#">EDNA</a>	BULLOCH CO.	GA	08/22/2007	16:08	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.50K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	08/22/2007	16:44	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	09/13/2007	14:55	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	03/15/2008	20:10	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	05/11/2008	07:13	EST-5	Thunderstorm Wind	65 kts. EG	0	0	10.00K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	05/11/2008	07:15	EST-5	Thunderstorm Wind	65 kts. EG	0	0	5.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	06/01/2008	23:34	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	06/02/2008	20:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	07/05/2008	14:59	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	08/07/2008	13:43	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.25K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	12/11/2008	11:18	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.50K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	12/11/2008	11:25	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	02/18/2009	23:45	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	06/11/2009	18:40	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/12/2009	22:32	EST-5	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	06/12/2009	22:50	EST-5	Thunderstorm Wind	55 kts. EG	0	0	15.00K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	06/18/2009	02:28	EST-5	Thunderstorm Wind	52 kts. EG	0	0	0.25K	0.00K



<a href="#">PORTAL</a>	BULLOCH CO.	GA	06/18/2009	02:40	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	06/18/2009	03:13	EST-5	Thunderstorm Wind	55 kts. EG	0	0	3.00K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	06/18/2009	18:28	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/26/2009	13:59	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/12/2009	15:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
<a href="#">BLITCH</a>	BULLOCH CO.	GA	09/09/2009	13:50	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	09/09/2009	13:50	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	05/03/2010	21:39	EST-5	Thunderstorm Wind	60 kts. EG	0	0	10.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	05/03/2010	21:41	EST-5	Thunderstorm Wind	60 kts. EG	0	0	10.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	05/16/2010	18:38	EST-5	Thunderstorm Wind	60 kts. EG	0	0	30.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	05/16/2010	18:40	EST-5	Thunderstorm Wind	60 kts. EG	0	0	1.50K	0.00K
<a href="#">HOPEULIKIT</a>	BULLOCH CO.	GA	05/16/2010	19:07	EST-5	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
<a href="#">MIDDLEGROUND</a>	BULLOCH CO.	GA	05/16/2010	19:07	EST-5	Thunderstorm Wind	55 kts. EG	0	0	1.50K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	05/23/2010	21:35	EST-5	Thunderstorm Wind	60 kts. EG	0	0	20.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	06/05/2010	18:10	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
<a href="#">BROOKLET DAVIS ARPT</a>	BULLOCH CO.	GA	06/15/2010	15:53	EST-5	Thunderstorm Wind	55 kts. EG	0	0	2.00K	0.00K
<a href="#">BROOKLET</a>	BULLOCH CO.	GA	06/15/2010	15:54	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K

<a href="#">BLAND</a>	BULLOCH CO.	GA	06/15/2010	17:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	06/15/2010	17:43	EST-5	Thunderstorm Wind	60 kts. EG	0	0	7.00K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	06/27/2010	19:10	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">LEEFIELD</a>	BULLOCH CO.	GA	07/11/2010	14:38	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	07/11/2010	15:10	EST-5	Thunderstorm Wind	55 kts. EG	0	0	4.00K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	07/11/2010	15:10	EST-5	Thunderstorm Wind	55 kts. EG	0	0	8.00K	0.00K
<a href="#">HUBERT</a>	BULLOCH CO.	GA	07/11/2010	15:11	EST-5	Thunderstorm Wind	55 kts. EG	0	0	3.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	07/12/2010	13:54	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.50K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	07/20/2010	16:50	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">DENMARK</a>	BULLOCH CO.	GA	07/20/2010	17:10	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">LEEFIELD</a>	BULLOCH CO.	GA	07/26/2010	17:21	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	10/25/2010	16:13	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	04/05/2011	02:55	EST-5	Thunderstorm Wind	60 kts. EG	0	0	37.50K	0.00K
<a href="#">PORTAL</a>	BULLOCH CO.	GA	04/05/2011	02:58	EST-5	Thunderstorm Wind	65 kts. EG	0	0	75.00K	10.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	04/05/2011	03:15	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	2.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	04/05/2011	03:15	EST-5	Thunderstorm Wind	52 kts. MG	0	0	0.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	05/13/2011	18:32	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K

<a href="#">STATESBORO</a>	BULLOCH CO.	GA	05/13/2011	18:45	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	05/13/2011	18:50	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	05/26/2011	21:54	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/15/2011	21:55	EST-5	Thunderstorm Wind	55 kts. EG	0	0	3.00K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	06/15/2011	22:02	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	06/15/2011	22:07	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.25K	0.00K
<a href="#">BROOKLET DAVIS ARPT</a>	BULLOCH CO.	GA	06/15/2011	22:11	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.25K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	06/15/2011	22:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.25K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	06/15/2011	22:25	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/18/2011	21:14	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	06/23/2011	16:35	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	06/23/2011	16:52	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	06/26/2011	15:41	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	07/10/2011	17:08	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	08/09/2011	17:45	EST-5	Thunderstorm Wind	60 kts. EG	0	0	6.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	08/19/2011	18:54	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	08/20/2011	14:23	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K

<a href="#">BROOKLET</a>	BULLOCH CO.	GA	08/22/2011	15:03	EST-5	Thunderstorm Wind	55 kts. EG	0	0	4.25K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	08/22/2011	18:37	EST-5	Thunderstorm Wind	55 kts. EG	0	0	6.00K	0.00K
<a href="#">HOPEULIKIT</a>	BULLOCH CO.	GA	09/25/2011	14:19	EST-5	Thunderstorm Wind	55 kts. EG	0	0	3.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	09/25/2011	14:25	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
<a href="#">MIDDLEGROUND</a>	BULLOCH CO.	GA	09/25/2011	14:26	EST-5	Thunderstorm Wind	60 kts. EG	0	0	20.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	09/25/2011	14:29	EST-5	Thunderstorm Wind	60 kts. EG	0	0	25.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	09/25/2011	14:34	EST-5	Thunderstorm Wind	60 kts. EG	0	0	10.00K	0.00K
<a href="#">BLITCH</a>	BULLOCH CO.	GA	09/27/2011	23:45	EST-5	Thunderstorm Wind	55 kts. EG	0	0	2.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	03/24/2012	20:41	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">CLITO</a>	BULLOCH CO.	GA	03/24/2012	20:41	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
<a href="#">ADABELLE</a>	BULLOCH CO.	GA	04/05/2012	16:09	EST-5	Thunderstorm Wind	60 kts. EG	0	0	0.00K	3.00K
<a href="#">STATESBORO MUNI ARPT</a>	BULLOCH CO.	GA	05/17/2012	16:20	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	07/03/2012	17:10	EST-5	Thunderstorm Wind	55 kts. EG	0	0	2.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	07/05/2012	18:03	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	07/05/2012	18:04	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	07/05/2012	18:06	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	07/05/2012	18:07	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K

<a href="#">AARON</a>	BULLOCH CO.	GA	07/05/2012	18:08	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">NEVILS</a>	BULLOCH CO.	GA	07/27/2012	14:07	EST-5	Thunderstorm Wind	55 kts. EG	0	0	8.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	07/29/2012	15:09	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">ESLA</a>	BULLOCH CO.	GA	08/02/2012	13:47	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">REGISTER</a>	BULLOCH CO.	GA	08/11/2012	12:39	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	08/11/2012	12:57	EST-5	Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
<a href="#">ADABELLE</a>	BULLOCH CO.	GA	12/17/2012	14:45	EST-5	Thunderstorm Wind	50 kts. EG	0	0	2.25K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	12/17/2012	14:50	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	01/30/2013	21:03	EST-5	Thunderstorm Wind	55 kts. EG	0	0	2.00K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	03/18/2013	20:30	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">STATESBORO</a>	BULLOCH CO.	GA	03/18/2013	20:31	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.25K	0.00K
<a href="#">AARON</a>	BULLOCH CO.	GA	03/18/2013	20:31	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">BLAND</a>	BULLOCH CO.	GA	03/18/2013	20:31	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">STILSON</a>	BULLOCH CO.	GA	04/19/2013	15:43	EST-5	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
<a href="#">JIMPS</a>	BULLOCH CO.	GA	06/27/2013	15:33	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	06/27/2013	15:42	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
<a href="#">COLLEGEBORO</a>	BULLOCH CO.	GA	09/02/2013	16:39	EST-5	Thunderstorm Wind	50 kts. EG	0	0	1.25K	0.00K

<a href="#">PORTAL</a>	BULLOCH CO.	GA	05/15/2014	02:55	EST- 5	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
<b>Totals:</b>								0	1	565.85K	15.00K

### **Wildfire:**

“Over the past fifty six years, Bulloch County has averaged 106 reported wildland fires per year, burning an average of 526 acres per year. Using more recent figures over the past 20 years, this number has declined somewhat to an average of 79 fires per year burning 451 acres annually.”





# Smart Bulloch 2040

SMART PLAN FOR THE NEXT GEN

**Bulloch County**  
**City of Brooklet**  
**City of Portal**  
**City of Register**

**2019 Comprehensive  
Plan Update**



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# SMART BULLOCH 2040 PLAN

## ACKNOWLEDGEMENTS



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Bulloch County would like to give special thanks to the various stakeholders that have been committed to making our community a better place by sharing their gifts of time and talent in this process. We would also like to thank citizen participants who contributed through answering surveys, attending public meetings, or making inquiries, as well as the citizens of Brooklet, Portal, Register, and all of Bulloch County who supported this effort.

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## CHAPTER 1 EXECUTIVE SUMMARY

# OUR PLAN

Welcome to the **SMART BULLOCH 2040 PLAN**. This Comprehensive Plan update is both visionary and strategic, articulating our aspirations for the future of Bulloch County and the cities of Brooklet, Portal and Register. It is also a toolbox of ideas that guide policy and decision-making for community development and land use.

This Comprehensive Plan update is a progressive product of planning studies and technical reports built upon since the 1990's. These plans and reports provide a more in-depth understanding of the evolution of the community and how they relate back to the set of guiding principles articulated in this document. As such, this should be considered a living document, being regularly reviewed, modified, and supplemented as necessary to reflect changing circumstances, needs, and opportunities. Keeping this plan current enables Bulloch County's communities to utilize a range of implementation tools to advance the vision of the plan.

PLANNING IMPLEMENTATION TOOLS	
MANAGEMENT TOOLS	PLANNING AND DESIGN TOOLS
<ul style="list-style-type: none"><li>• Promote a strong, healthy community.</li><li>• Provide a common vision for the future of the community.</li><li>• Set priorities.</li><li>• Guide to amending policies and regulations.</li><li>• Assist in forming public budgets and capital improvements programs.</li><li>• Protect property rights while supporting and accommodating economic development.</li><li>• Promote orderly and rational development that is economically viable.</li><li>• Manage growth and development.</li></ul>	<ul style="list-style-type: none"><li>• Create certainty about where development will occur.</li><li>• Steer development in the right places.</li><li>• Achieve development patterns that are orderly, rational, physically attractive and economically viable.</li><li>• Preserve important natural, cultural and historic resources.</li><li>• Encourage infill and redevelopment.</li><li>• Create a sense of place.</li><li>• Provide transportation alternatives.</li><li>• Target planning for special districts or areas.</li></ul>

This Comprehensive Plan update serves the purpose of meeting the intent of the Georgia Department of Community Affairs' (DCA) *"Minimum Standards and Procedures for Local Comprehensive Planning"*. Preparation in accordance with these standards is an essential requirement in maintaining status as a Qualified Local Government (QLG). QLG status allows communities to remain eligible for state-aid

assistance programs. Bulloch County, Brooklet, Portal and Register are required to update their Comprehensive Plan every ten years, along with their Community Work Program in five-year increments. State law requires the update of the Comprehensive Plan to be completed by June 30, 2019. While the City of Statesboro updates its comprehensive plan independently, this joint comprehensive plan process considers Statesboro's presence and importance to the community, where appropriate. The **SMART BULLOCH 2040 PLAN** is designed to address the following required by the minimum planning standards.

GEORGIA DEPARTMENT OF COMMUNITY AFFAIRS MINIMUM PLANNING STANDARDS	
PLAN ELEMENTS	OTHER FACTORS
<ul style="list-style-type: none"> <li>Community Goals</li> <li>Needs and Opportunities</li> <li>Community Work Program</li> <li>Broadband Services</li> <li>Economic Development</li> <li>Land Use</li> <li>Transportation</li> </ul>	<ul style="list-style-type: none"> <li>Community Involvement</li> <li>Consideration of the Coastal Regional Water Plan</li> <li>Quality Community Objectives</li> <li>Procedures for Plan Review, Adoption and Maintenance</li> </ul>

The **SMART BULLOCH 2040 PLAN** represents a new way of thinking. The plan integrates three (3) primary **SMART** themes. **SMART GOALS** are meant to create attainable objectives and strategies that are notably reflected throughout the plan and the Community Work Program. We are a **SMART COMMUNITY** that educates, recreates and innovates. The participation process used to build this plan by some of Bulloch County's "super-smart" people has identified a vision for each jurisdiction. **SMART PLANNING** addresses both state mandated or recommended topic specific elements. For each jurisdiction, key needs and opportunities have been assigned a prioritized goal-oriented policy and implementation framework. This framework also addresses the Quality Community Objectives required by the minimum planning standards of the Georgia Department of Community Affairs.

THEME 1 - SMART GOALS
<ul style="list-style-type: none"> <li><b>Specific:</b> Target an area for improvement.</li> <li><b>Measurable:</b> Quantifiable, measurable or key performance indicators, where possible.</li> <li><b>Achievable:</b> Identify responsible parties.</li> <li><b>Relevant:</b> What results can feasibly be achieved?</li> <li><b>Time-Bound:</b> When will the results be achieved (fiscal/calendar year, or on-going)?</li> </ul>
THEME 2 - SMART COMMUNITY
<ul style="list-style-type: none"> <li>The plan brings our community closer to the next "wow-factor" with a broadband element for to improve access to the digital economy.</li> <li>The plan illustrates that Bulloch County is an education hub possessing some "super-smart" people.</li> <li>The plan promotes sustainability with scalable implementation resulting in an improved quality of life and "smart" local government services.</li> </ul>



### THEME 3 - SMART PLANNING

- SMART Business: Economic Development
- SMART Mobility: Transportation
- SMART Connections: Broadband
- SMART Growth: Land Use

## OUR COMMUNITY

### BULLOCH COUNTY

Bulloch County originated as a sparsely settled frontier. By the late 19<sup>th</sup> century, it began to grow as an agricultural community built on railroads shipping out timber, “Sea Island” cotton and other agricultural products. In 1903, the county seat of City of Statesboro was incorporated. By 1906, community leaders solicited the State of Georgia to allow Statesboro to host what grew into a small teacher’s college. Everything changed in 1982 when a man named Erskine (“Erk”) Russell arrived to town to coach football at what was then Georgia Southern College. After his arrival, Statesboro and Bulloch County were never the same. County residents are proud to be the home of Georgia Southern University, the flagship post-secondary institution of South Georgia with an enrollment of 20,500 students. The impact of Georgia Southern University cannot be underestimated for modern Statesboro, Bulloch County and the region. A study has estimated the regional impact of the University for Bulloch and surrounding counties to be nearly \$1 billion and is responsible for creating over 10,000 jobs above its direct employment base of over 1,800 workers.

Bulloch County, centered around its county seat of Statesboro, has positioned itself to provide an exceptional quality of life that includes ample cultural amenities, economic and educational opportunities to its citizens, southern charm to its visitors, and progressive, yet, fiscally conservative governance. It is also one of the largest counties geographically in the state comprised of 682 square miles, supporting a rich legacy of agriculture, forestry and natural resources.



Located on the fringe of the expanding Savannah metro area, Bulloch County is now home to 77,692 residents, more than doubling its population since 1980. Bulloch County is the Coastal Region’s third fastest growing county behind Bryan and Effingham and is the third most populous behind Chatham and Glynn. Its annual growth rate is twice as fast that of the region as a whole and outpaces the state’s overall growth rate. Bulloch County remains ranked in the top 20% of Georgia’s fastest growing counties. It is estimated that approximately 50,000 persons reside within five miles of the very center of the City of

Statesboro. According to current census data, Statesboro's population is now estimated at 31,149. This poses a possibility that Statesboro and adjoining areas may reach the status of a small metropolitan statistical area (MSA) after the 2020 census enumeration, bringing a mix of new opportunities and responsibilities.

Surface transportation and road improvements have always been a critical challenge in Bulloch County given its population growth, vast territory and 1,200-mile road system. Yet, the road network overall is very functional and well maintained. Interstate 16 has become a major economic and travel corridor since its construction in 1972. Both U.S. 301 and Georgia State Route 67/25 offer quick and convenient access to Statesboro. Veterans Memorial Parkway (Statesboro By-Pass), a four-lane perimeter road encircling most of Statesboro, opened in 1994. The Parkway extends south from Highway 80 West circling north to Highway 301 North. This has become Bulloch County's major traffic corridor providing not only a means to divert freight traffic from downtown Statesboro, allowing quick access to Georgia Southern University, the local airport and the city's emerging commercial and industrial areas. There is a five-mile segment of the Parkway north of Statesboro waiting to be programmed for construction.



While the county has among the most paved roads of any in the state, the county also has the most dirt road mileage of any other county in Georgia. Therefore, the county invests significant funds in road maintenance and construction. Since county forces can construct roads to pavement ready status, this brings substantial cost savings for local road improvement projects. However, insufficient transportation funding and less demand for dirt road paving now causes the county to consider other types of operational surface transportation improvements.

The Statesboro-Bulloch County Airport, located just north of Statesboro, has emerged as an important transportation and economic development asset. The airport handles over 18,000 aviation operations annually. It is progressively becoming one of Georgia's best Level III general aviation public airports. An aggressive expansion program began in the mid-1990's that includes modern navigation systems, several new hangars (including a corporate hanger), taxi-lanes and runway improvements, and on-going terminal improvements. During the last two decades, these multi-million-dollar investments have helped to make its operations self-funding through increased fuel sales, landing fees and hanger rentals.



Bulloch County has also progressively become a leader in southeast Georgia and statewide in environmental management and solid waste recycling. In addition to twenty manned convenience centers located county-wide, the county has a recycling processing center that diverts approximately 5,000 tons annually. To illustrate the success of the convenience centers, since 1970, the county now has only two

remaining “green box” dumpster site left serving the most remote areas, which is a far cry from the former 450 dumpsters serving the entire county at that time.



As a part of its master greenway plan, a major transportation project was the initial \$2 million, 3.1-mile phase, of the S & S Greenway, an eight-mile multi-use vehicle-pedestrian corridor between Statesboro and the City of Brooklet. Bulloch County and the City of Brooklet are teaming up on a federal grant opportunity to connect Phase II of the trail to Brooklet. This project also links to Statesboro’s multi-use pedestrian McTell Trail, and eventually a multi-use trail being developed by Georgia Southern University. As a result of an annexation

agreement with the City of Statesboro, the city expects future development of a planned area that surrounds Phase I of the greenway consisting of up to 2,200 new residences at build-out. The city and county are working together in an effort to develop a corridor protection ordinance that will preserve the integrity of the project. The annexation agreement also includes a land use plan.

Recreation and leisure opportunities are abundant in Bulloch County. The Bulloch County Parks and Recreation Department is one of the oldest and most prestigious recreation organizations in the state. The department maintains and operates eight recreation areas encompassing more than 200 acres, and also oversees a multitude of unique infrastructure and facilities at these parks. The department has a good relationship with both the Bulloch County Board of Education and Georgia Southern University, thus allowing the department to joint use of facilities at non peak times. Included in these parks are 38 athletic fields, 10 tennis courts, 2 swimming pools, 11 outdoor basketball courts, walking trails, picnic areas, playgrounds and picnic pavilions.

Mill Creek Regional Park operated by Bulloch County is a 223-acre state-of-the-art recreational complex. Mill Creek has played host to hundreds of field sport tournaments including multiple national tournaments. The facility has also hosted the Georgia State Special Olympics, and the annual GSU International Festival and Fourth of July Firecracker Festival. It is not uncommon for attendance to run as high as 20,000 daily for these events. In late 2011, Mill Creek added an ATA certified ten-court lighted tennis center that includes spectator seating and locker room facilities and concessions.





Mill Creek also features what has turned out to be its marquee attraction, the Splash in the 'Boro Family Aquatic Center. The facility originally consisted of an 800-foot long lazy river, a 7,000 square foot low-



depth play pool with spray features; a leisure pool six feet deep at the deepest; three water slides, concessions facilities and shade structures. There are also lap pools and a therapy pool that provide winter activities under a domed roof structure. A major expansion was undertaken in 2008 adding a new tot slide and spray ground in the existing island area of the leisure pool. The river area was expanded on the west side of the park to add a zero-beach entry and sunning area. Also, a new four-lane mat racer slide and a simulation "surf-rider" was installed which provide extreme thrill rides for the teen market. A second expansion was undertaken in 2016 that

added a million-gallon wave pool, new concession areas and an expanded admissions and car drop off area to accommodate increased attendance. These expansions were funded by debt service to be paid from generated revenues. Annual attendance exceeds 150,000 during a 12-week period in the summer.

Bulloch County's vast geography guarantees its place as a leader in agribusiness in Georgia, even if Statesboro and south Bulloch County evolve as a small metropolitan area. The County is ranked 3<sup>rd</sup> highest in the state in total farm acreage with over 206,000 acres and ranks 8<sup>th</sup> in farm gate value for timber and forestry products. The county's farms provide a venerable mix of row crops, livestock and poultry. New products have also been introduced in the last generation including sweet carrots and onions, and most recently south Bulloch County has become an established farm winery epicenter for increasingly popular wines and mead.

As horses have become a leading form of livestock in the county and the region, interest has been generated in proceeding with successive phase development for the Center for Agriculture located just south of Statesboro. Completion of the first of successive phases of a long-term development plan of the 50-acre tract provided a \$2 million, 30,000 square-foot office and professional center for local, state and federal agencies serving agribusiness in the area that includes county extension offices, USDA and the NRCS. The second phase of a \$6.5 million multi-purpose arena is nearing completion and will have multiple uses positioned to be a regional venue for statewide and regional equestrian events.



Manufacturing and commerce have grown significantly since 1990 particularly in proximity to Statesboro. The county has three planned industrial parks with two of them nearing capacity. Statesboro has become

a hub for retail, health care and hospitality and leisure which attracts many out-of-town visitors and a higher level of services for local residents.

## CITY OF BROOKLET



Source: BCDA Facebook

The Georgia General Assembly incorporated Brooklet as a City in 1906. Before 1899, the area was called Nellwood. It is located approximately eight miles southeast of Statesboro on U.S. Highway 80, and geographically consists of 3.1 square miles within its boundaries.

Brooklet, known for its avenues of oak trees, took shape at the end of the 19th century. Optimistic citizens built the new town beside the recently completed Savannah & Statesboro Railroad (now a planned multi-use trail route). An early resident asked the U.S. Post Office to accept the name of Brooklet for

the new town, since a brook ran through it. Brooklet has become a thriving community growing with a population of 1,612 residents (2017 Census Bureau estimate). Brooklet and its surrounding area have become a magnet for new residents, given its close proximity to Statesboro.

The City of Brooklet offers basic services including a police department, sanitation services, a municipal water utility, a municipal court and development and permitting. Fire, recreation and recycling services are offered by Bulloch County.

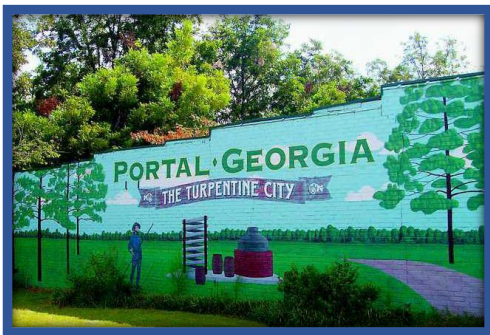
The Brooklet Peanut Festival is an annual festival that was established in 1990. It initially drew about 2,000 people and helped finance a town park lined with benches around a gazebo and fountain. The park was dedicated to the City of Brooklet at the 6th Annual Peanut Festival in 1995. The Brooklet Peanut Festival consists of an annual parade, a beauty pageant, a Peanut Run, booths, entertainment, and a tractor race. Each year, the festival has grown in attendance.



Source: georgiagrown.com

## CITY OF PORTAL

Portal was established as a settlement in 1819 but incorporated in 1914. The origin of the City's name is unknown. However, it is thought by residents that the naming references the City as the "portal" into Bulloch County, as it is located in the far northwest section of the county. It is located approximately twelve miles northwest of Statesboro on U.S. Highway 80, and geographically consists of 2.2 square miles within its boundaries. Portal also has a growing population of 668 residents (2017 Census Bureau estimate).



Like Brooklet, Portal's development took shape at the end of the 19th century with the growth of the timber and railroad industry in Bulloch County. Portal has a population of over 600 residents, though it has begun to decline over the last 20 years due to the closing of a manufacturing facility. However, it remains as a center of small commerce and attaches its identity as feeder system of public-school facilities for the northwest portion of the county.

The City of Portal offers basic services including a police department, sanitation services, a municipal water utility, a municipal court and zoning. Fire, recreation and recycling services are offered by Bulloch County.

In 1982, Portal established what is now a long running community event known as the Catface Turpentine Festival. The festival celebrates the history of turpentine at the historic E. C. Carter turpentine museum. Although turpentine has many uses, the commercial production of turpentine is now a dying industry and very few turpentine stills remain in the United States. The festivities include a parade, arts and crafts, entertainment and tours of a local turpentine museum where some stills and demonstrations are featured.

## CITY OF REGISTER

Register is located approximately eight miles southwest of Statesboro on Georgia State Route 46, and geographically consists of 0.8 square miles within its boundaries. Its current resident population is estimated at 183.

Originally a small turpentine community with a largely agricultural heritage, Register grew into fruition at the turn of the twentieth century. Register was settled in 1855, but was earlier known as Bengal, then Herschal. The settlement was later named for Franklin P. Register, who moved to the area in 1894 and became the City's postmaster. The City's population grew to 400 when the intersecting Register & Glenville Railroad and a Central Georgia Railroad branch were completed in 1901, jumpstarting the local economy. By this time cotton farming and products bolstered the City's growth further. By the 1950s the decline of the railroad spelled the end of most commercial growth in Register. However, local citizens sought and achieved official incorporation as a City in 1982, and in 1992, the City engaged in restoration efforts to preserve vital pieces of its local history.



Source: [City of Register Facebook](#)



The City of Register offers basic services including a police department, a municipal water utility, a municipal court and zoning. Fire, recreation and sanitation and recycling services are offered by Bulloch County. Because of its smaller size and other factors, its character is likened to other unincorporated rural neighborhoods and centers in Bulloch County included and described in the section below.

## RURAL CENTERS

Bulloch County also has several rural center communities located at crossroads that have influences or characteristics similar to Brooklet, Portal and Register, but they were never incorporated. Some of the more prominent centers include Clito, Denmark, Hopeulikit, Leefield, Nevils, New Hope and Stilson. Other crossroad communities exist like Bay, Middleground, Ogeechee, Westside and Willow Hill that have historical, cultural or familial significance as rural residents' settlements sometimes formed around churches or old schools. Most of these rural centers have been assigned as Character Areas.



# OUR PEOPLE

## POPULATION AND DEMOGRAPHICS

As previously stated, Bulloch County's population stood at 77,692 in 2018. Brooklet, Portal, Register and Statesboro have all benefitted from this continuing population growth. From statistics provided by the Census Bureau's American Community Survey, county-wide population characteristics are highlighted in the following boxes below.

### BULLOCH COUNTY POPULATION CHARACTERISTICS

#### AGE

##### **Median Age is 27.4**

Georgia Southern University is an influence. The median age in Bulloch County is increasing, but still lower than the state and nation.

#### CITIZENSHIP

##### **97.9% of Bulloch County residents are US citizens**

This was higher than the national average of 93%.

#### RACE AND ETHNICITY

##### **Hispanic/Latino and Asian residents are growing at a faster rate than other groups**

Since 2000, Hispanic/Latino and Asian races combined have increased in proportion from 2.7% of the county-wide population to 5.3% at an equivalent growth rate. 70% of the 3,452 persons in these two groups are Hispanic/Latino.



## BULLOCH COUNTY POPULATION CHARACTERISTICS

### NON-ENGLISH SPEAKING

**4.5%**  
**Speak a non-English language**

Lower than the national average of 21.1%. The most common non-English language spoken is Spanish, closely followed by Korean and Arabic. Uniquely, Native Gujarati is spoken 1.3 times higher than elsewhere in the United States.

### EDUCATION

**87.3% of residents 25 years or older have a high school degree or higher**

26.5% have a bachelor's degree or higher, and 12.7% have no degree. These rates are consistent with Georgia and the nation. Brooklet and Statesboro tend to have slightly higher educational attainment than the balance of the county.

### HOME OWNERSHIP

**47.1% of housing units are renter occupied**

65% of the county's 12,053 renter occupied units are in the City of Statesboro where 77% of Statesboro's housing units are renter occupied. Home ownership rates highest in the Register (76%), followed by the unincorporated areas (73%), Portal (67%) and Brooklet (64%)

### HOUSING VACANCIES

**Homeowner vacancy rate is 2.6%; while renter-occupied vacancy rate is 11.4%**

Rental vacancy rates have risen dramatically since the year 2000 signaling a market over-supply caused by speculation in student housing.

### VETERANS

**There are 3,941 veterans residing in Bulloch County**

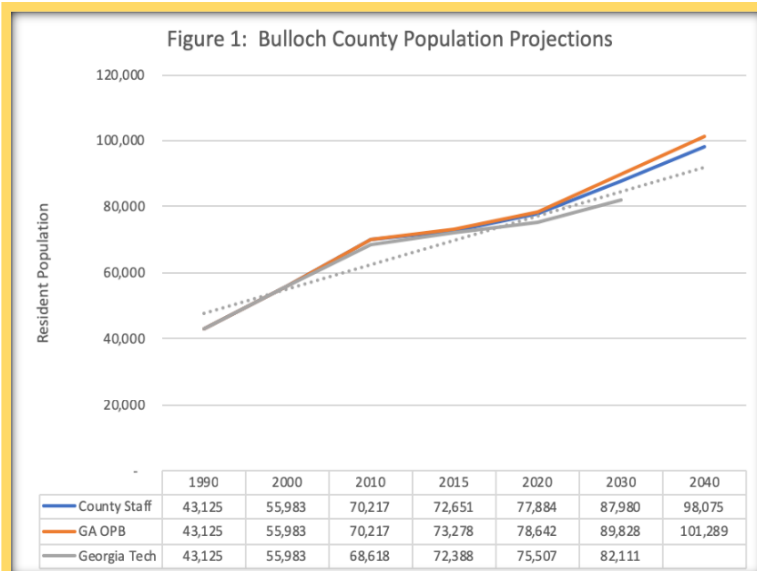
This represents more than 7.5% of the population, and there is a high rate of Vietnam veterans compared to the state and nation.

### HEALTH OUTCOMES

**Ranked #57 of 159 Georgia Counties**

According to the Robert Wood Foundation, Bulloch County ranks 57<sup>th</sup> out of 159 Georgia counties in measured population health outcomes, 35<sup>th</sup> in length of life, 99<sup>th</sup> in quality of life, 71<sup>st</sup> in clinical care and 112<sup>th</sup> in health behaviors.

Bulloch County's population growth has been obvious to its residents going back to the 1980's. Although the growth rate has slowed since 2010 due to "The Great Recession" of 2008-2009, a 10% growth rate county-wide in each decade forward to 2040 is projected. Most of the future population growth is expected to be concentrated in and around Brooklet and Statesboro, primarily within the cities Brooklet, Statesboro and Suburban Neighborhood Character areas (see chapter 6) that surround them. However, there is a chance for additional



Source: Bulloch County Planning Staff, 2019.

population growth in the more rural areas and centers of Nevils and Stilson. Bulloch County is expected to reach approximately 100,000 residents by 2040. Figure 1 represents three scenarios of low, moderate and high projections. A Georgia Tech study performed in 2006 for the Coastal Regional Commission represents low growth scenario, the Bulloch County planning staff model represents the moderate scenario, and the Georgia Office of Planning and Budget projections, represent the high model. While the statistical methodologies only varied slightly, it is practical to reject the Georgia Tech model since their projections have not been updated and surpassed.

It is most likely that Statesboro, Brooklet and the nearby unincorporated areas will experience more robust population growth than Register and Portal. Geographically, growth will be concentrated within a 5-8 mile radius of Statesboro, but to the south or southeast toward Brooklet. These assumptions align with the Future Development Map in Chapter 6 (Land Use) of this plan. However, as the planning period progresses Bulloch County will closely monitor potential population growth that may occur in lower southeastern Bulloch County and the Interstate Gateway District Character Area at Interstate 16 and U.S. 301 in southwest Bulloch County.

## OUR VISION

Bulloch County is a growing community with unique issues and opportunities related to its historical development and projected future growth. In order to manage the future growth and enhance the quality of life, the County has identified a vision for future development for unincorporated Bulloch County and the municipalities of Brooklet, Register and Portal. The community vision statements are built upon this plan's framework of carefully analyzing needs and opportunities. These needs and opportunities were then examined, and with community feedback have been formed into goals, policies and strategies to help define and achieve the vision statements below.

### BULLOCH COUNTY Incorporated and Unincorporated

Bulloch County is a **SMART COMMUNITY** that works to promote sustainability and self-sufficiency. We embrace our history while coming together to promote economic growth and development, protect our natural and cultural resources and build a successful future that includes the following missions:

- Guiding future development with informed land use plans.
- Preserving agricultural land and agriculture as a cornerstone of our economy.
- Providing a variety of walkable neighborhoods with scalable amenities and pedestrian infrastructure.
- Creating a variety of opportunities for our children, including recreational facilities, historical and educational-oriented resources.
- Offering public transportation facilities and services which are safe, efficient and improve mobility.
- Embracing our history with preservation of historic resources and neighborhoods.



- Embracing the future of the digital age and digital economy.
- Maintaining ourselves as a community that actively promotes and pursues innovative businesses that provide good-paying job opportunities and a balanced tax base.
- Supporting our regional university, technical college, and local public K-12 schools which all have attractive programs and an enriching educational environment.

## CITY OF BROOKLET

Brooklet shares with the Bulloch County community the collective vision for the area while also promoting some of its own uniqueness that includes the following missions:

- Smart growth policies that deliver efficient, sprawl-preventing growth patterns and that promote cooperation, coordination and efficient use and expansion of the City's public facilities and services.
- Establishing a variety of neighborhood connections such as sidewalks, greenway trails and bike lanes.
- Protecting and promoting downtown's historic resources and its traditional role as the business/civic center of the community.
- Preserving the character of established neighborhoods and supporting revitalization efforts to increase housing opportunities and neighborhood stability.
- Providing cultural activities and educational opportunities to both residents and tourists visiting the area.



## CITY OF PORTAL

Portal shares with the Bulloch County community the collective vision for the area while also promoting some of its own uniqueness that includes the following missions:

- Providing for a variety of opportunities to live and work in Portal.
- Preserving historic resources, neighborhoods and unique character.
- Requiring future development to support and preserve the rural and natural setting while also providing for traditional neighborhood development patterns.
- Creating manufacturing jobs while also creating new commercial opportunities.
- Providing cultural activities and educational opportunities to both residents and tourists visiting the area.

## CITY OF REGISTER

Register shares with the Bulloch County community the collective vision for the area while also promoting some of its own uniqueness that includes the following missions:

- Guiding development with land use plans that take into account existing and proposed utility infrastructure and the protection of watersheds.
- Offering a variety of neighborhood connections such as sidewalks, greenway trails and bike lanes.
- Maintaining a clean and aesthetically appealing community.
- Encouraging development to be tied to the historic and rural character of the area.



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## CHAPTER 2 COMMUNITY PARTICIPATION PLAN DEVELOPMENT

Creating a functional comprehensive plan begins with defining a common vision for the future development of the community. A community vision is the overall image of what the community aspires to be and how it should look in the future. The visioning process is the starting point for creating a plan to reach identified goals and requires meaningful participation from a wide range of community stakeholders. Bulloch County residents, property owners, business owners and other stakeholders contributed to the production of the **SMART BULLOCH 2040 PLAN**, generating pride and enthusiasm about the future of Bulloch County, thereby encouraging implementation of the plan.

# VISIONING PROCESS

The Visioning Process, or citizen participation process for the **SMART BULLOCH 2040 PLAN** began with a Kick-Off Public Hearing, followed by a series of Steering Committee meetings aimed at gathering feedback and recommendations that would frame the entire planning process. Community Visioning Workshops, a Countywide Stakeholders Workshop, and Public Hearings for the Board of Commissioners and municipal mayor and council meetings provided opportunities for input. Throughout the process, the Steering Committee added considerable input into the planning process and informed the content of the plan. Media strategies were employed to encourage participation such as social media postings, website utilization, newspaper advertisements, press releases, and informational flyers.

# COMMUNITY PARTICIPATION

The Countywide Kick-Off Meeting introduced the community involvement plan and took place in conjunction with the first public hearing on November 20, 2018. Surveys and flyers were made available in County Buildings and were also posted on the County's social media and website for wider distribution, which ultimately resulted in 62 responses. The combination of feedback guided the planning team to supplement and expand the list of preliminary needs and opportunities presented in our **SMART PLANNING** elements and Community Work Program.

Steering Committee SWOT Analysis





During the design of the *Community Involvement Plan* (See Appendix A), the planning team, along with the Board of Commissioners and Mayors and City Councils for each municipality, identified a group of 16 individuals that would guide the planning process. The members had various backgrounds and expertise including retirees, farmers, bankers, business owners, residents, volunteer boards and committees, county/city staff, and elected officials representing each municipality and county. The broad spectrum of committee members were essential as they provided valuable input and informed their constituencies about various opportunities to become involved, thereby encouraging greater engagement. The Steering Committee met four (4) times prior to the visioning workshops to set the stage for the focus of the workshops and the planning process. Each member was given a notebook with the existing Community Agenda to familiarize themselves with the plan and handouts at each meeting for them to interact and give feedback.

Visioning Workshops were held at three (3) locations in the County throughout February and March 2019. These meetings encouraged participation by providing convenience for residents in various parts of the County by providing shorter travel distances to participate. The workshops focused on subareas in or surrounding the municipalities, as well as unincorporated areas. The subarea workshop locations were advertised via press releases, newspaper ads, and social media. The workshop locations were as follows:

#### Brooklet Public Workshop



Portal/North Bulloch County Area: February 12

Statesboro/Central Bulloch County Area: February 19

Register/Southwest Bulloch Area: also covered on February 19

Brooklet/Southeast Bulloch County area – February 21

Participants were invited to drop in at their convenience and stay as long as they desired. The current *Community Agenda*, large-scale maps, and documents provided participants the opportunity to work interactively to provide their input on the future of Bulloch County during the workshops via community preference surveys, facilitated discussions, questionnaires, and one-on-one conversations with the planning team.

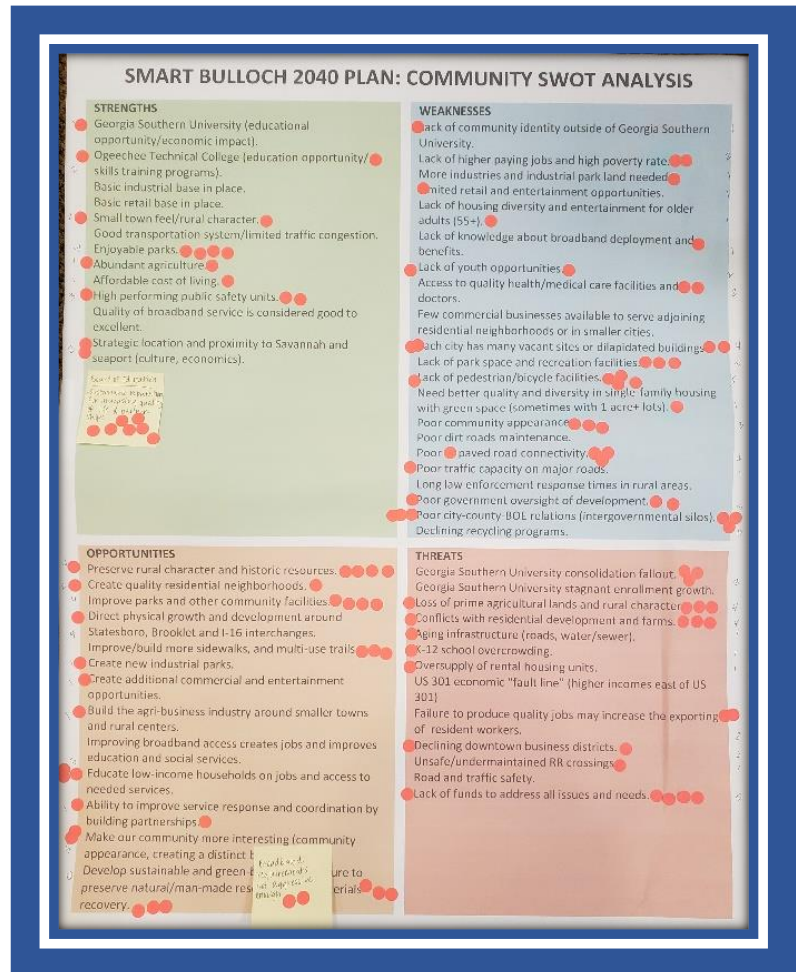
Participants were asked to prioritize and contribute to a list of preliminary needs and opportunities identified by the planning team during the data gathering process and gathered from discussions with the Steering Committee. Topics ranged from land use, transportation, housing, economic development, community facilities, intergovernmental coordination, natural and cultural resources, and broadband. Participants also provided input on the proposed character areas at these meetings in addition to addressing the questions, “Where are we? Where are we going? Where do we want to go? How do we get there?”.

The Countywide Stakeholders Workshop was held in Statesboro on March 12, 2019, which including the general public along with various community stakeholders identified by the Steering Committee and planning team. Participants had the opportunity to prioritize and give feedback on ways to address the needs of the topics identified by the visioning workshops and online surveys. A draft of the planning elements analysis was presented and made available for the public and stakeholders to critique and provide recommendations for improvement.



A needs and opportunities survey was designed for additional community input using multiple media strategies. The survey and flyers were heavily advertised and distributed via the County's social media pages and website, generating sixty-two (62) responses. This survey provided valuable information relating to the community vision, strengths, and problems related to a variety of topics such as transportation, land use, economic development, housing, community facilities and services, natural and cultural resources, and broadband. **Appendix A** provides illustrations of the survey results.

In addition to the kick-off public hearing, a final public hearing was held to present the final draft plan to the Board of Commissioners, as well as to provide opportunities for stakeholders to offer additional input. Each municipality presented the final draft of the plan to their Mayor and City Councils at regularly scheduled meetings in April 2019, while also opening the floor for input from the public.



## DECISION MAKING FRAMEWORK

In order to implement the community's vision of the future for unincorporated Bulloch County along with Brooklet, Portal, and Register, the Comprehensive Plan is guided by a decision-making framework related leading to **SMART GROWTH** and development. Significant analysis of existing conditions were considered to identify needs and opportunities. Through the interactive workshops, steering committee meetings, community surveys, and stakeholder input, the planning staff identified visions and prioritized **SMART GOALS** resulting in implementation strategies that are **SPECIFIC** in scope and priority, having **MEASURABLE** cost and financial impacts that are **ATTAINABLE**, responsible parties who are **RELEVANT**, and scheduled benchmarks that will ensure **TIMELINESS**. These goals were complimented by policies, priorities and quality community objectives to create the community vision. Ultimately, the **SMART GOALS** theme was incorporated into the new 2019-2023 Community Work Program in Chapter 7.



### SPECIFIC

- This plan is based on the community's vision for growth and development over the next 20 years. Developed with input from citizens, elected officials, and community stakeholders, the vision focuses attention on the future of the County and defines a **specific** strategies for the the next five year developed to provide guidance related to the long-term decision making of the community.

### MEASURABLE

- Because goals are related to the long-term view of development and growth, strategies are used to guide the execution of goals, turning the vision into reality. Strategies include the adoption of policies and standards while providing **measurable** actions. In the community surveys and community workshops, participants were given the opportunity to prioritize the strategies, although the local governing bodies are responsible for adoption and implementation.

### ATTAINABLE

- While strategies inform the decision making process, feasibility such as cost effectiveness, resources, and acceptability must be considered to ensure that the goals are **attainable** through the identification of funding resources. This plan weighs the likelihood that strategies will realistically lead to the goals and vision identified in order to maintain stable and practical predictions by contemplating its capability.

### RELEVANT

- With multiple goals, visions, and strategies in place, it is crucial to assign parties responsible for implementation. The responsible parties identified understand the specific strategies, the priorities, the estimated resources and the time-orientation for completion. priorities identified have been reflected in this plan to ensure that they are **relevant** to the community's needs, opportunities, and desires. Priorities and relevancy are reflected in the Community Work Program.

### TIMELY

- In order to maintain the spirit and intent of the plan, which is ultimately to create a vision and take proactive steps to achieve it, schedules or deadlines are crucial in guaranteeing accountability for completion. Schedules are identified and listed for each strategy to ensure **timeliness** in the Community Work Program.

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## CHAPTER 3 SMART BUSINESS ECONOMIC DEVELOPMENT

# INTRODUCTION

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Bulloch County's status as a Tier I community by the Georgia Department of Community Affairs makes addressing economic development a mandatory element in this planning document. Ultimately however, the purpose for the Economic Development Element of the Comprehensive Plan is to examine ways to improve economic opportunity in a community. If designed thoughtfully, processes and programs can be considered that can facilitate and stimulate jobs creation/retention, capital investment and business growth. In order to improve economic opportunity, it is important to analyze past trends and current conditions of the local economy. The following sections carefully consider these trends and conditions.

# GOALS

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**SMART BUSINESS** starts with having smart goals for economic development. The following represents the four primary goals for **SMART BUSINESS** throughout Bulloch County.

- **Diversification:** Achieve stability by balancing the economic base of the community.
- **Workforce:** Provide high quality employment that pays a living wage by building a skilled, flexible workforce, targeting training and education for the unemployed/underemployed.
- **Business Support:** Foster entrepreneurship, retain and expand existing businesses, and encourage the utilization of development ready commercial and industrial sites.
- **Quality of Life:** Maintain the character area framework of the Comprehensive Plan to support and foster quality development to make the community an attractive place to live, work and play.

# ANALYSIS

## ECONOMIC INDICATORS

Despite population growth, data in Table 1 below demonstrate that between 2012 and 2017 Bulloch County struggled to recover from The Great Recession of 2008-2009. These indicators suggest stagnation in local economic growth compared to the long boom period between 1990-2010.

However, there is reasonable growth resuming in population, residential construction, employment, tourism and retail and services. Current unemployment in 2019 mirrors state and national levels which is now below the frictional level and where labor shortages exist. Consumer spending is slowly increasing but it is congruent with inflation which means that real growth in sales taxes is stagnant. It is also thought that a major factor in sales tax trends is the effect of more local residents shopping in Chatham County – although, the State of Georgia continues to pass sales tax legislation that favor special interest tax exemptions.

Indicator	2012	2013	2014	2015	2016	2017
Population Estimates	73,167	71,873	72,734	73,233	74,721	76,169
Single Family Building Permits	143	149	130	170	208	232
Consumer Price Index – Urban South	4.6%	3.5%	-0.4%	2.5%	4.7%	5.3%
Annual Unemployment Rate	9.8%	8.7%	7.3%	6.1%	5.7%	5.0%
Total Civilian Labor Force	34,177	34,535	33,926	34,740	36,004	37,157
GSU Fall Enrollment	20,574	20,517	20,517	20,459	20,673	20,418
Hotel-Motel Tax Receipts*	526,503	805,918	876,296	660,890	727,015	840,647
Statesboro Natural Gas Output (MCF)	0.522	0.517	0.590	0.553	0.599	0.566
Statesboro Water Output (MG)	1.126	1.120	1.092	1.072	1.110	1.150
Sales Tax Receipts (Millions of \$)	10,428,461	10,109,201	10,208,253	10,412,700	10,213,347	10,613,909

Sources: U.S. Census. Bureau of Labor Statistics, University System of Georgia, City of Statesboro Budgets, Georgia Department of Revenue; \* Statesboro increased lodging tax rate from 5% to 6%; (MCF) means millions of cubic feet; MG means millions of gallons.

Meanwhile, state and national indicators show a continued recovery since the Great Recession. Gross Domestic Product and Gross State Product have maintained steady annual growth. Unemployment remains low, and wages and income are improving marginally. As some economic sectors show decline, they are buoyed by others that are accelerating. Inflation remains relatively low along with interest rates for borrowing and investments. However, housing, capital and equity markets remain robust.

Short-to-intermediate term economic forecast show a 20% probability of a national recession by 2020. While a low probability, the prediction ratio has been increasing since 2016. A recession is quite likely within the next three years which may influence plan assumptions and strategies.

## MEDIAN AND PER CAPITA INCOME

Figure 1: Bulloch County Median Household Income 2000-2017



Source: U.S. Census Bureau American Community Survey

The median household income (MHI) in Bulloch County increased by 6% rising to \$39,305 between 2010 and 2017. Bulloch County's MHI is still 26% below the State of Georgia, and 32% below the national level. Bulloch County MHI, along with the Brooklet and Portal's MHI is growing at a faster annual rate than the state and nation, though Register and Statesboro remain below the rest of the county. Per capita income (PCI) in Bulloch County increased by 15% rising to \$20,526 between 2010 and 2017. The gap between Bulloch County's PCI and

state and national levels improved but is still much lower. The PCI in the municipalities of Register and Statesboro also remain well below state and national levels, though Brooklet and Register's PCI is growing at a faster rate and volume than the rest of the county.

The disparity in median and per capita income throughout Bulloch County is largely influenced by low resident student income at Georgia Southern University, the City of Statesboro's high poverty rate, and a growing number of elderly households with reduced fixed incomes. The City of Brooklet compares favorably to the rest of the county where Portal and Register are lagging, but gaps are closing.

Figure 2: Bulloch County Per Capita Income 2000-2017



Source: U.S. Census Bureau American Community Survey

## AVERAGE WEEKLY WAGES

Bulloch County's Average Weekly Wages (AWW) have been consistently lower than state and national levels. The 2017 AWW in Bulloch County was \$681. The highest AWW economic sectors in Bulloch County in 2017 were in the federal and state government and wholesale trade, while the lowest average weekly wages were in agriculture, farming and fishing. From 2013 to 2017, Bulloch County's annualized growth in AWW has been more favorable than state and national rates, and labor market area rates. However, Bryan and Effingham Counties benefit from their presence in the Savannah metropolitan area. Jenkins County's AWW surged after a difficult period before and during The Great Recession. The eight-county labor market area includes the surrounding counties of Bryan, Candler, Effingham, Emanuel, Evans, Jenkins and Screven.

**Table 2: Comparative Average Weekly Wages (All Economic Sectors)**

	2013	2014	2015	2016	2017
<b>Bulloch</b>	<b>\$624</b>	<b>\$629</b>	<b>\$653</b>	<b>\$666</b>	<b>\$681</b>
Bryan	\$605	\$632	\$686	\$660	\$702
Candler	\$566	\$654	\$590	\$584	\$588
Effingham	\$747	\$762	\$812	\$785	\$835
Emanuel	\$568	\$605	\$623	\$617	\$659
Evans	\$651	\$752	\$771	\$694	\$767
Jenkins	\$545	\$548	\$568	\$578	\$625
Screven	\$619	\$641	\$666	\$633	\$655
Chatham	\$839	\$872	\$921	\$884	\$908
Georgia	\$923	\$958	\$1,002	\$993	\$1,028
U.S.	\$1,000	\$1,036	\$1,083	\$1,067	\$1,109
Eight-County Market Area	\$616	\$653	\$671	\$652	\$689

*Source: Georgia Department of Labor*

## POVERTY CHARACTERISTICS AND PUBLIC ASSISTANCE

Poverty status represents a lack of access to goods and services commonly taken for granted by members of mainstream society. Based on Census figures and thresholds, 30% of individuals in Bulloch County remain below the poverty line in the last decade and this ratio is increasing in areas throughout the county except for Brooklet and Register. The typical cause of individuals reaching poverty thresholds is unemployment, and the effect of The Great Recession is coincidental to the higher rates of unemployment in the county during that time period. However, the prevalence of other demographic changes, household income, and education levels are also influences.

**Table 3: Bulloch County Poverty Status**

	2000	2010	2012	2017	00-17
Countywide	24.5%	28.4%	31.3%	30.4%	28.7%
Brooklet	10.7%	5.2%	4.7%	12.3%	8.2%
Portal	14.4%	41.3%	39.8%	35.5%	32.8%
Register	10.1%	13.0%	8.3%	16.4%	12.0%
Statesboro	42.6%	46.6%	52.1%	48.4%	47.4%
Georgia	13.0%	15.7%	17.4%	16.9%	15.8%
U.S.	12.4%	13.8%	14.9%	14.6%	13.9%

*Source: Georgia Department of Labor*

Public assistance refers to programs that provide cash or in-kind benefits to individuals and families from any governmental entity. Two major types of public assistance programs include social welfare programs and social insurance programs. Bulloch County residents receiving certain kinds of public assistance is on the rise.

In 2017, 16.7% of county residents received Food Stamps/SNAP, while 8.2% received them in 2010 with the number of recipients more than doubling. This increase is more pronounced in Statesboro and in the



unincorporated areas while increasing less than at the statewide level in the smaller towns. A similar trend has occurred with cash assistance for recipients including both General Assistance and Temporary Aid to Needy Families increasing by 46.6% countywide in 2017 (compared to 26.6% statewide), though assisting far fewer individuals or families than either Food Stamps/SNAP. Meanwhile, the number of individuals receiving Supplemental Security Income is decreasing, while those receiving Social Security in 2017 has increased 27.4% since 2010, particularly in Portal and in the unincorporated areas. This trend is expected to continue as the local population ages.

## EMPLOYMENT BY INDUSTRY

Employment by industry analyzes what kinds of sectors employed people work in. Data examined is organized into thirteen high-level groups but can be distinguished between goods and services producing sectors. The service producing sector accounted for 82% of all jobs in 2017, up from 77% in 2000. Meanwhile, during the same period the goods producing sector (agriculture, construction and manufacturing) has decreased as a percentage of total jobs from 23% to 18% in 2017. The fastest growing sectors since 2010 are the public administration; finance, insurance and real estate; arts, entertainment, recreation and accommodation food services; and, manufacturing. The sector having the greatest numeric gains during the same period is educational services, and health care and social assistance, which consists of nearly one-third of the workforce (31.2%), while construction showed the greatest losses, and percentagewise (-5% annually).

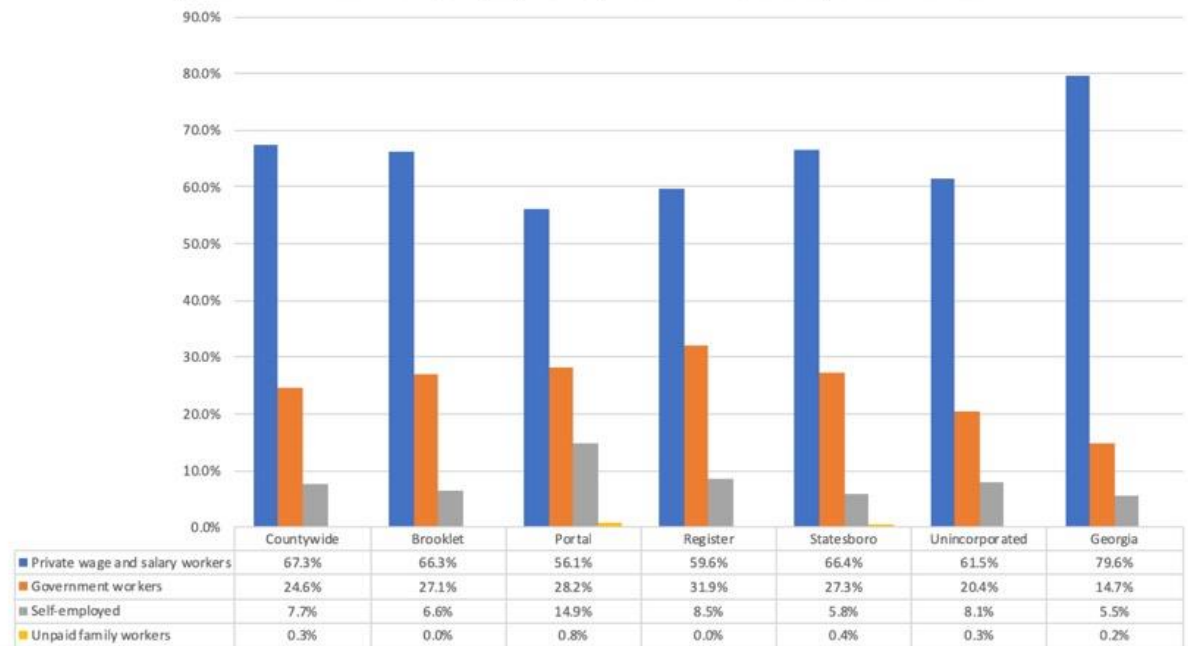
Bulloch County has a relatively diversified economy when compared with Georgia and the United States. While the goods producing sector in Bulloch County is very similar to Georgia and the United States, the service producing sector is influenced with the presence of major educational institutions, a regional private hospital with health care support businesses, and state and local government.



## EMPLOYMENT BY CLASS OF WORKER

Employment by class of worker categorizes resident workers according to the type of ownership of the employing organization independent of industry and occupation. Data examined is organized into four high-level groups distinguished between private wage and salary workers, government workers, self-employed workers, and unpaid family workers.

Figure 3: 2017 Bulloch County Employment by Class of Worker and by Percent Distribution



Source: U.S. Census Bureau American Community Survey

While private wage and salary workers consist of a majority of workers countywide, the proportion of government and self-employed workers is currently higher compared to the State of Georgia as a whole. Between 2010 and 2017, there were noticeable shifts from private wage and salary workers into the government and self-employed classes, particularly for workers residing in Portal or Register where there were significant declines in private workers that shifted primarily to the government class. This significance of this shift is greater than changes elsewhere in the county and contrary to statewide changes. Overall, between 2010 and 2017 government workers grew by 10% countywide, but self-employed workers increased by 32%, primarily in Brooklet and the unincorporated areas.

## EMPLOYMENT BY OCCUPATION

Employment by occupation measures the mix of skill levels in a community's workforce which is useful to companies interested in expanding or locating a new business. It is typically organized into five high level groups. Skill levels also indicate the relative need for vocational training programs.

During the 2010-2017 period, production, transportation, and material moving occupations; and, management, business, science, and arts occupations were the fastest growing. Meanwhile, sales and office occupations; and, natural resources, construction, and maintenance occupations were showing stagnation or a slight decline. Proportionately management, business, science, and arts occupations; and, service occupations were increasing to 55% of the work force in 2017 compared to 49% in 2000.

Bulloch County has similar occupation mixes compared to the State of Georgia, such as management, professional, and related; farm, fishing, and forestry; construction, extraction and maintenance; and production, transportation, and material moving. The County has a slightly higher percentage of jobs in service occupations (17% compared to 13% in Georgia and 15% in the U.S.) and a slightly lower percentage of jobs in sales and office (24% compared to 27% in Georgia and the U.S.).

## EMPLOYMENT AND COMMUTING

Examining Bulloch County's worker commuting patterns provides insight into economic development, housing, land use issues, and traffic patterns. In terms of means to work, 79% of employed Bulloch County residents drive alone in their own vehicle, increasing from 78% in 2010. While carpooling or walking to work has declined, use of public transportation and working at home has increased.

Data examined from the Census Bureau's American Community Survey (ACS) 2011-2015 measures work destinations of resident workers reveals that 23% of Bulloch County workers commute to other locations (9% work in Chatham County; the remaining 14% work in nearby communities). 83% of the jobs originating in Bulloch County are filled by Bulloch County residents. Of the remaining 17%, a sizeable majority commute from the eight-county labor market area, primarily from Screven, Candler and Evans Counties with others from outlying counties and outside the state.

The Census Bureau provides an alternative product called *"OnTheMap"* measuring employment commuting within a labor-shed (a user defined area such as Bulloch County). This tool reveals differences from the ACS data. Data for commuting patterns reflect labor force and employment efficiency shown by resident employee work locations being inside or outside of the County. Net job inflows to Bulloch County shifted from a positive 858, to a negative 450 between 2002-2015. During the same period, the percentage of employed persons living and working in in Bulloch declined from 63% to 52%, while the percentage of employed persons living in the county working in other counties increased from 36% to 48%. The percentage of workers coming to work in Bulloch County increased from 39% to 47%. Taken together, the labor market efficiency measures indicate the county is becoming less self-sufficient over time despite the local work force increasing. Increasing numbers of Bulloch County's resident workers commute to Bryan, Chatham, Effingham and Emanuel Counties, though resident commuters from Candler, Jenkins and Screven Counties offset the imbalance.

**Table 4: Bulloch County Commuter Inflow/Outflow (Primary Jobs)**

Attribute	2002		2005		2010		2015	
	Count	Share	Count	Share	Count	Share	Count	Share
<b>Area Labor Market Size</b>								
Employed and Living in Selection Area	19,367	100.0%	20,445	100.0%	20,786	100.0%	23,349	100.0%
Living in selection Area	18,509	95.6%	20,347	99.5%	1,086	101.4%	23,799	101.9%
Net Job Inflow (+) or Outflow (-)	858		98		(300)		(450)	
<b>In-Area Labor Force Efficiency</b>								
Living in Selection Area	18,509	100.0%	20,347	100.0%	21,086	100.0%	23,799	100.0%
Living and Employed in the Selection Area	11,794	62.7%	12,608	62.0%	11,205	53.1%	12,418	52.2%
Living in the Selection Area but Employed Outside	6,715	36.3%	7,739	38.0%	9,881	46.9%	11,381	47.8%
<b>In-Area Labor Employment Efficiency</b>								
Employed in the Selection Area	19,367	100.0%	20,445	100.0%	20,786	100.0%	23,349	100.0%
Employed and Living in the Selection Area	11,794	60.9%	12,607	61.7%	11,205	53.9%	12,418	53.2%
Employed in the Selection Area but Living Outside	7,573	39.1%	7,837	38.3%	9,581	46.1%	10,931	46.8%

Source: U.S. Census Bureau, OneTheMap/LEHD

## MAJOR ACTIVITY CENTER AND EMPLOYERS

Bulloch County has five major business activity centers represented in Table 5 showing traffic counts, the number of business establishments and estimated employment. Most of Bulloch County's major private employers, represented in Table 6 are located in one of these activity centers.

Table 5: Profile of Major Activity Centers			
Attribute	Average Daily Traffic Count	Business Establishments	Estimated Employment
Gateway Regional Park (Industrial)	18,000	8	2,400
Statesboro CBD – (Office-Public-Retail)	14,800	200	1,700
Georgia Southern University (Mid-Campus)	14,700	20	2,000
Market District-EGRMC (Office-Retail)	24,800	70	1,500
Statesboro Mall (School-Office-Retail)	24,900	100	3,200

Sources: Georgia Department of Transportation, Bulloch County Planning Staff, 2019

Table 6: Current Major Employers by Category		
Five Largest Private Employers – 2018 Bulloch County		
East Georgia Regional Medical Center	750	Health Care
Wal-Mart	563	Distribution
Viracon	415	Manufacturing
Great Dane	415	Manufacturing
Briggs & Stratton Corp.	350	Manufacturing
H.A. Sack	300	Construction
Five Largest Public Employers – 2008 Bulloch County		
Georgia Southern University	1,836	Education
Bulloch County Board of Education	1,493	Education
Bulloch County Board of Commissioners	435	General Local Government
City of Statesboro	314	General Local Government

Source: Georgia Department of Labor Area Profiles.

## MAJOR INDUSTRIAL PARKS

Table 7 profiles Bulloch County's major industrial parks strategically located on the U.S. 301 corridor. All three parks have sufficient infrastructure and access. The most marketable industrial land is at Southern Gateway Commerce Park located at Interstate 16 and U.S. 301. Bulloch County has invested \$16 million for land acquisition, roads, utilities and site work which has helped to generate interest in the site.

Meanwhile, there is still available land for development at Gateway Industrial Park developed in 1993 and is located on U.S. 301 South between Statesboro and Interstate 16. However, land availability is expected to be absorbed within the next ten years. The Airport-Holland Industrial Area is nearly absorbed. Gateway and Airport-Holland both have rail access where Southern-Gateway does not.

It would be desirable to perform studies to determine acquisition and development of new industrial sites, along with reviewing the Gateway and Airport-Holland parks for future improvement needs to existing users.

Table 7: Industrial Parks Profile for Bulloch County			
Attribute	Gateway	Airport-Holland	Southern Gateway
Location	US 301 South, 2.0 miles from Statesboro city limits	US 301 North, 0.7 miles from Statesboro city limits	US 301 South, 8.0 miles from Statesboro city limits
Ownership	Public	Public	Public
Total Acres	972	214	220
Undeveloped	301	34	220
Prime Free Tract	118	5	220
Water	12" line and on-site storage; 2.0 mgd excess capacity	12" line and on-site storage; 2.0 mgd excess capacity	12" line and on-site storage; 2.0 mgd excess capacity
Sewer	8" main; 5.0 mgd excess capacity	12" main; 5.0 mgd excess capacity	12" main; 5.0 mgd excess capacity
Natural Gas	4" line; sufficient capacity and uninterrupted.	6" line; sufficient capacity and uninterrupted.	6" line; sufficient capacity and uninterrupted.
Power	Georgia Power and Excelsior EMC	Georgia Power	Excelsior EMC
Telecom Provider	Frontier	Frontier	Bulloch Telephone
Rail Available	Georgia Midland	No	No
ISO Rating	3	3	3

Source: Development Authority of Bulloch County. MGD – Million Gallons Daily

## IMPORTANT RECENT DEVELOPMENTS

Despite Bulloch County's slow recovery from The Great Recession, the community has benefitted from many public and private investments since the last Comprehensive Plan update.

- **Industrial:** New industries including Great Dane, GAF Materials and WL Plastics creating over 500 jobs and over \$50 million in capital investment.
- **Commercial:** Expansion of the Statesboro Market District, Mall Area, several hotels and private apartment complexes along major state highways surrounding Statesboro.
- **Institutional:** Georgia Southern University, Ogeechee Technical College and East Georgia State College have received millions of dollars in state funding to construct academic and recreational complexes.
- **Public:** Bulloch County has made multi-million-dollar investments in tourism related recreational facilities including two expansions of Splash in the 'Boro, and a Mixed-Use Agricultural Arena.

Briggs & Stratton Statesboro Expansion



Source: Statesboro Herald



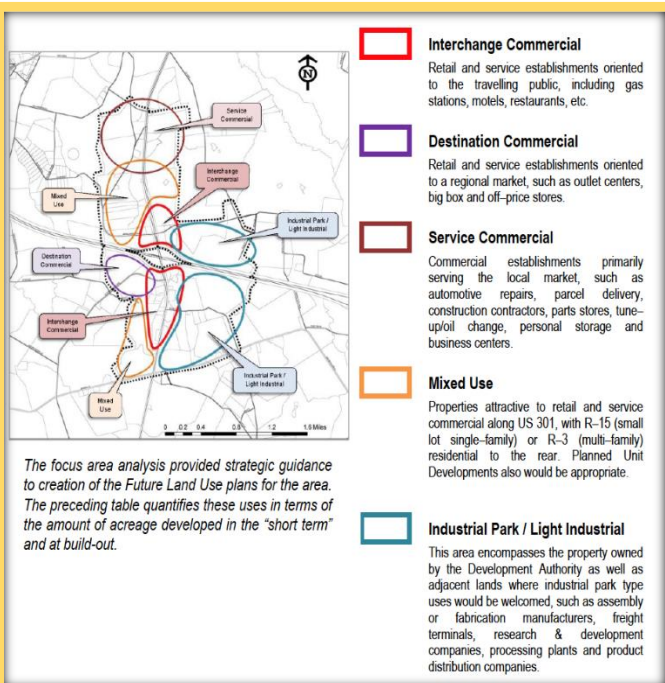


Source: Maxwell-Reddick & Associates

Future investment is being augmented by the following key projects:

**Bulloch County Tax Allocation District #1 Interstate Gateway Redevelopment Plan:** Created in 2011, this 1,800 acre planned district (shown in Figure 5) already has \$16 million in local and state investment to create a mixed-use area supporting up to \$800 million in future private investment. At build-out the plan projects up to 8 million square feet of retail and commercial space and up to 1,700 workforce housing units. Phase I of the \$40 million infrastructure plan is nearly complete.

Figure 5: Illustration of Bulloch County TAD #1



**Georgia Southern University South Campus Development:** Purchased in 2014, this 208-acre parcel of land showing in Figure 6 is located south of Veterans Memorial Parkway and will be linked to the main campus by looping Akins Boulevard across the Bypass to Lanier Drive. This extension will become the primary connection between the two sides of the campus. A variety of buildings are being considered for this site, creating academic, student housing, research, support, and special use sectors. An \$8 million warehouse project has been completed serving as a storage unit for the university, along with a primary gateway

entrance along Lanier Drive. There are no other immediate projects being planned until the Campus-wide Master Plan is updated.

**Figure 6: Illustration of GSU South Campus Concept**



*City of Statesboro Tax Allocation District #1 South Main Redevelopment Plan:* Created in 2014, this 899-acre district shown in Figure 7 is intended to upgrade and enhance the South Main Street Corridor, now affectionately called the Blue Mile. At build-out the plan projects up to \$150 million of private investment, 300,000 square feet of office, retail and commercial space and up to 1,700 housing units. The city and a Blue Mile oversight committee has received over \$20 million in state funding and \$1.25 million in corporate funding.

**Figure 7: Illustration of Blue Mile Creek and Statesboro TAD #1**

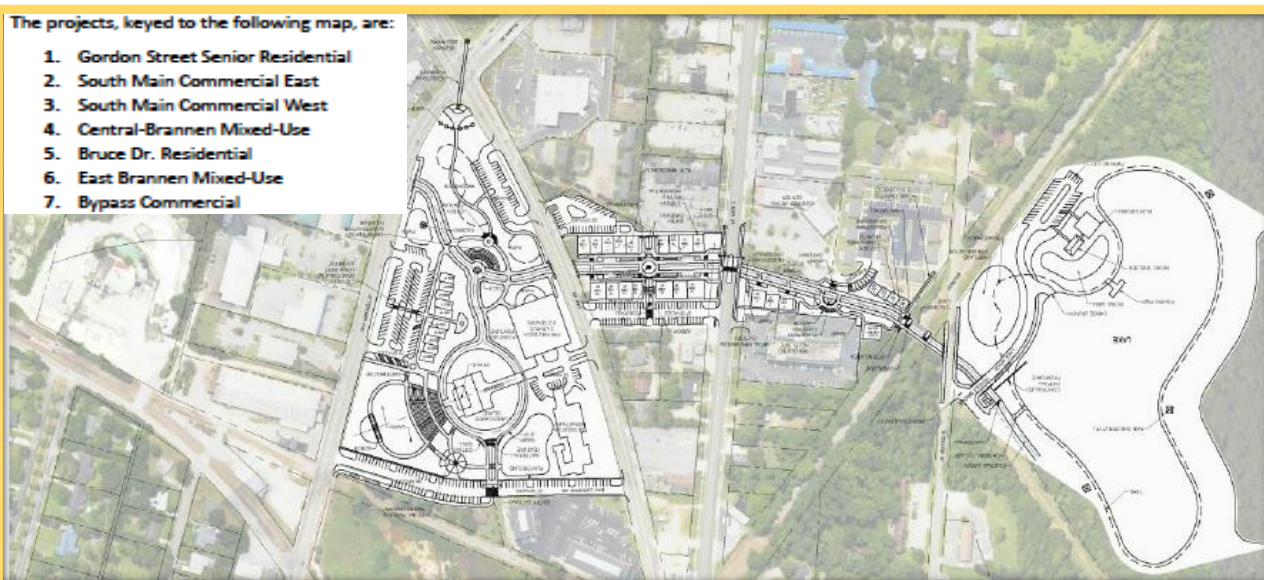
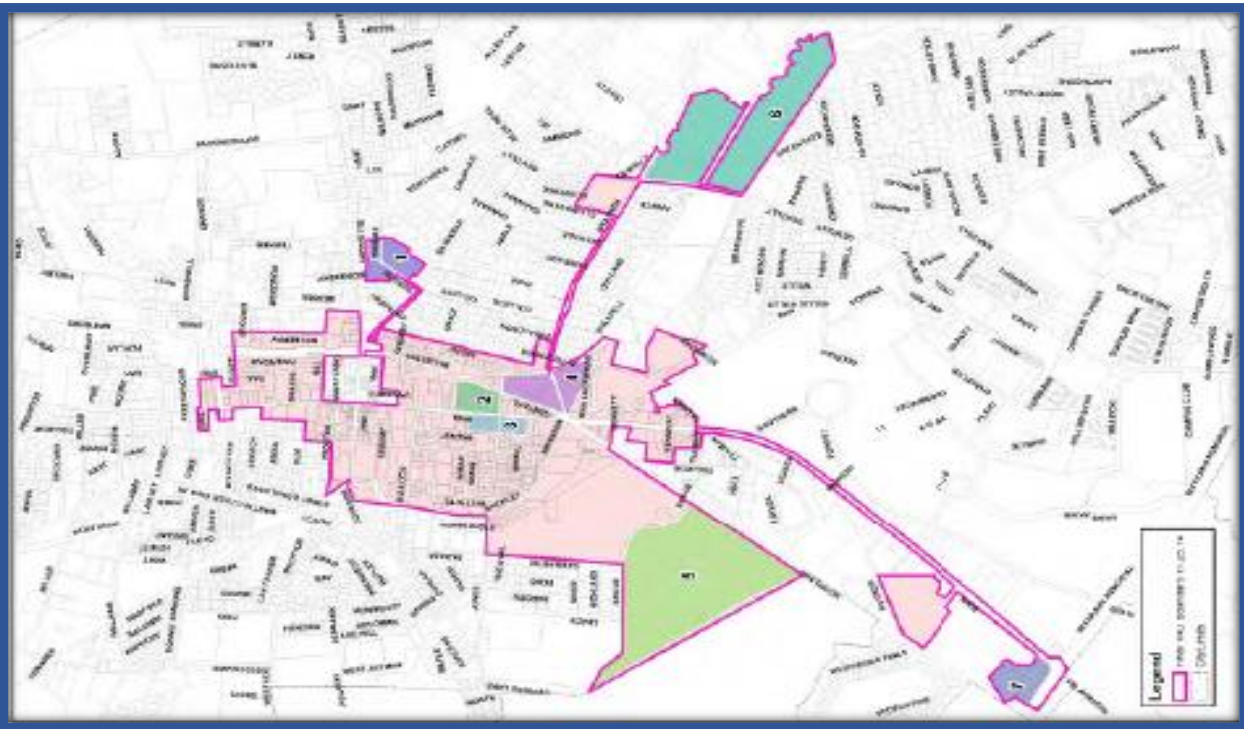




Figure 7 Cont.: Illustration of Blue Mile Creek and Statesboro TAD #1



*City of Statesboro Tax Allocation District #2 Old Register Road Redevelopment Plan:* Created in 2018, this 290-acre district shown in Figure 8 is intended for project-specific development anchored by a 5,000-seat soccer stadium and grocery store shopping complex, and retail, office and commercial development in later phases. This will represent \$165 in private investment. The anchor projects are anticipated for development in 2019.

Figure 8: Illustration of Project Concept Statesboro TAD #2



## ADVANTAGES/DISADVANTAGES OF GEOGRAPHIC LOCATION FOR FUTURE ECONOMIC GROWTH

*Advantages:* Geographic factors can affect economic activities. Superior location provides higher consumption utility, higher productivity and the attraction of human capital leading to higher growth. Bulloch County offers advantages due to its high investment in physical capital and infrastructure. A good and accessible transportation system exists which lowers transport costs, offering close proximity to the Savannah metropolitan area and the Port of Savannah. The county also has a good utility grid for water and sewer, natural gas, telecommunications and electricity. Along with a diverse economic base, the county also offers human capital with higher education and skill levels than comparable communities.

*Disadvantages:* The County also has location challenges. The City of Statesboro is the only sewer utility provider for existing industrial parks and major business centers in the County and there is no county-wide provision of such services. While water and gas utilities have now been expanded to US 301 and Interstate 16 from Statesboro's municipal system, the smaller communities of Brooklet and Register have no sewer service. During the last decade, Portal has invested in a sewer system which may be capable of supplying smaller industries. Though there are industries that exist that benefit from local assets such as infrastructure and educational institutions, the county is still behind in attracting higher-wage technology-based jobs. The retail and commercial sectors are also limited because lower income and wage rates deter higher-end shopping and commercial services.

## SUMMARY

- Bulloch County has recovered more slowly than other communities from The Great Recession.
- An economic “fault line” may exist along the US 301 corridor within the county, as reflected in income and workforce disparities.
- Georgia Southern University is a key economic driver, but stagnant enrollment growth and consolidation with Armstrong State may signal that the growth of the Statesboro campus is hitting a ceiling.
- Income and wage rates are influenced by the presence of resident students and a very high poverty rate centered in Statesboro, and to a lesser degree in Portal.
- Despite growth in most industries and occupations, the county's workforce is shifting from goods producing to service producing – though the local trend mirrors state and national trends.
- There has been a shift from private wage workers to government jobs and self-employment with more occupations working from home.
- The county is exporting resident workers to other bordering communities, where two decades ago it was importing resident workers from these communities.
- Major economic activity centers have shown growth in physical and workforce presence.
- The county has been able to maintain its largest private employers during The Great Recession and the following economic recovery.
- Key educational institutions continue to make investments and develop programs in physical plant and infrastructure to facilitate economic stability and future growth.

# OUTLOOK

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From a long-term perspective, the nation's economy may be affected by many factors, including a growing national debt and trade deficit, increased demands on Social Security as baby-boomers near retirement, and geo-political events. However, the long-term local outlook is favorable.

- Bulloch County's infrastructure and base of large employers will create sustainability.
- Local banking institutions and the housing and construction markets are more stable locally than they are elsewhere.
- Population growth continues allowing Statesboro and Bulloch County to become a secondary economic hub to metropolitan Savannah and the Coastal Region.
- Coastal Georgia is poised to be the state's fastest growing region now and in the immediate future in terms of population and job growth.
- The expanding activity at the Port of Savannah has spurred opportunities for the logistics industry and the construction of new facilities to expand import-export distribution.
- Growth of retail sales is essential to the County's overall economic well-being.
- Preserving existing jobs and industries while developing strategies for attracting new economic opportunities will be critical to adapting to the changing macro-economy.
- A significant challenge in attracting new industrial growth is the intense competition by other communities in the region for new economic development projects.
- Bulloch County must also continue its commitment to nurture existing industries and businesses, while also planning for strategies for attracting new businesses.
- As the County continues to grow in population, it also faces a shift in its tax base. Windfall tax revenues from the 1990's boom of commercial and industrial development have declined from its peak, creating a heavier reliance on residential property taxpayers to support operations demanded from the community.
- It will also be important for all the municipalities to focus on redevelopment and revitalization of their downtown areas and existing commercial centers in order to spur new business activity and tax revenues.

# ALIGNMENT MATRIX

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The following pages present tabular descriptions that advance this baseline analysis for the purpose of identifying needs, opportunities, goals, policies and quality community objectives addressed by priority for each community. By identifying these attributes, this matrix allows decision-makers to develop implementation strategies for the Community Work Program element.

**SMART BUSINESS: ECONOMIC DEVELOPMENT ELEMENT ALIGNMENT MATRIX**

<b>Needs</b>	Slower economic recovery than state and nation.	Create quality jobs with higher income and wages and lower poverty rates.	Address geographic economic disparities along the US 301 "fault line."	More from goods producing jobs and industries.	Maintain a proper import-export balance of resident workers.	Nurture existing industries and businesses.
<b>Opportunities</b>	Local economic base reasonably diversified; major employers remain in place.	Target new industries that match labor supply with higher wage rates.	Strategic character area locations; OTC training programs.	Create local job opportunities that have competitive wages.	Create local job opportunities that have competitive wages.	Maintain local job opportunities that have competitive wages.
<b>Goals</b>	Diversification support.	Workforce support.	Diversification, workforce, business and quality of life support.	Workforce support.	Diversification, workforce, business and quality of life support.	Business support.
<b>Policies</b>	Seek a balance of import and export-based businesses in community.	Provide business incentives for higher paying jobs based on cost-benefit.	Support the availability of skilled labor for local jobs at reasonable wages.	Provide business incentives for higher paying jobs based on cost-benefit.	Support the availability of skilled labor for local jobs at reasonable wages.	Provide business incentives for higher paying jobs based on cost-benefit.
<b>Quality Community Objectives</b>	Economic prosperity, local preparedness, educational opportunities, community health.	Economic prosperity, local preparedness, sense of place, educational opportunities, community health.	Economic prosperity, local preparedness, sense of place, housing options, transportation options, educational opportunities, community health.	Economic prosperity, local preparedness, sense of place, housing options, transportation options, educational opportunities, community health.	Economic prosperity, resource management, efficient land use, local preparedness, sense of place, housing options, transportation options, educational opportunities, community health.	Economic prosperity, resource management, efficient land use, local preparedness, sense of place, housing options, transportation options, educational opportunities, community health.

# SMART BUSINESS: ECONOMIC DEVELOPMENT ELEMENT ALIGNMENT MATRIX

<b>Needs</b>	Redevelopment and revitalization of business districts.	Stagnant retail sales growth due to the "Pooler" effect and state tax exemptions.	Higher-end shopping, dining and entertainment sources.	Increase enrollment at Georgia Southern University Statesboro campus.	Additional land for planned industrial areas.	Better partnerships.
<b>Opportunities</b>	Improved tax base; new and small business growth.	Good locations and infrastructure; use tax allocation districts to incent.	Good locations and infrastructure; use tax allocation districts to incent.	Local economic and population growth correlated to on-campus enrollment.	Publicly owned land in planned districts is a recruiting tool for goods producing jobs.	Public-private; public non-profit; public-public.
<b>Goals</b>	Diversification, workforce, business and quality of life support.	Diversification, quality of life support.	Diversification, quality of life support.	Diversification, workforce, business and quality of life support.	Diversification, workforce, business and quality of life support.	Diversification, workforce, business and quality of life support.
<b>Policies</b>	Enhance or create programs for support based on best practices.	Target suitable businesses for prime accessible locations.	Target suitable businesses for prime accessible locations.	Collaborate with post-secondary institutions to make community interesting and appealing to students, faculty and administration.	Target suitable locations and develop resources for land acquisition.	Foster communication and coordination among a variety of groups serving the local area.
<b>Quality Community Objectives</b>	Economic prosperity, resource management, efficient land use, local preparedness, sense of place, housing options, transportation options, community health.	Economic prosperity, resource management, efficient land use, local preparedness, sense of place, transportation options, community health.	Economic prosperity, resource management, efficient land use, local preparedness, sense of place, transportation options, community health.	Economic prosperity, resource management, efficient land use, local preparedness, sense of place, transportation options, community health.	Economic prosperity, efficient land use, local preparedness, sense of place, regional cooperation, transportation options, community health.	Economic prosperity, resource management, efficient land use, local preparedness, sense of place, regional, cooperation, transportation options, community health.

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## CHAPTER 4 SMART MOBILITY TRANSPORTATION

# INTRODUCTION

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While transportation is an optional Comprehensive Plan element for Bulloch County and all of its municipalities, it is an essential element for the Comprehensive Plan.

Statesboro and Bulloch County do not yet have territory within in a Metropolitan Planning Organization (MPO). However, because the greater Statesboro area has been forming an urbanized cluster that could create a metropolitan statistical area after the next Census enumeration, the formation of an MPO is within reach. Given Bulloch County's rate of population growth, and even without an MPO, transportation planning has been a staple of the overall community planning framework for the past two decades.

Traffic congestion is not yet a major concern because the planning and scalable implementation for multi-modal transportation improvements is approached pro-actively, rather than reactively. Furthermore, adverse traffic issues that do occur at peak periods is more of a result of a lag in local regulatory standards for design and access that has fallen behind the growth curve, rather than traffic volumes or level of service capacity.

# GOALS

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**SMART MOBILITY** starts with having smart goals for transportation. The following represents the five major goals for **SMART MOBILITY** county-wide.

- **Safety and Quality:** Provide access to a safe, efficient, and well-maintained transportation system
- **Mobility and Connectivity:** Improve mobility through enhanced connectivity and reduced congestion.
- **Alternative Modes:** Improve access to jobs, homes, and services through a multi-modal transportation system.
- **Land Use Compatibility:** Create a sustainable environment through the coordination of land use and transportation plans.
- **Economic Benefit:** Maintain a reliable transportation system which will sustain economic activity and promote economic development.



# ANALYSIS

## SURFACE TRANSPORTATION

Roadways are grouped into classes according to the character of traffic they are intended to serve. The Georgia Department of Transportation (GDOT) has developed a functional classification system mapped for all roadways within the state. Urban classifications are those places within boundaries, which have a population of 5,000 or more. Roadways within these established urban areas carry urban roadway functional classification categories. Areas outside these urban areas utilize rural functional classification categories.

Broadly, the functional classification system groups the streets and highways according to the service they are intended to provide.

- *Interstate and freeways* are limited access highways meant for longer distance connections with higher travel speeds and which do not abut land uses that serve them.
- *Arterial* roadways provide direct service between cities and provide a network of continuous routes for moderate lengths and often link to interstates.
- *Collector* roadways collect traffic from the local roads and streets that are accessing land uses and distributing them onto the arterials with speeds lower than arterials and have fewer signalized intersections. They are often a connection between residential neighborhoods and small commercial centers and community facilities.
- *Local* roadways account for the largest percentage of all roadways in terms of mileage. They are not intended for use in long distance travel due to their provision of direct access to abutting land. They are often designed to discourage through traffic. The origin is typical from rural or residential uses.

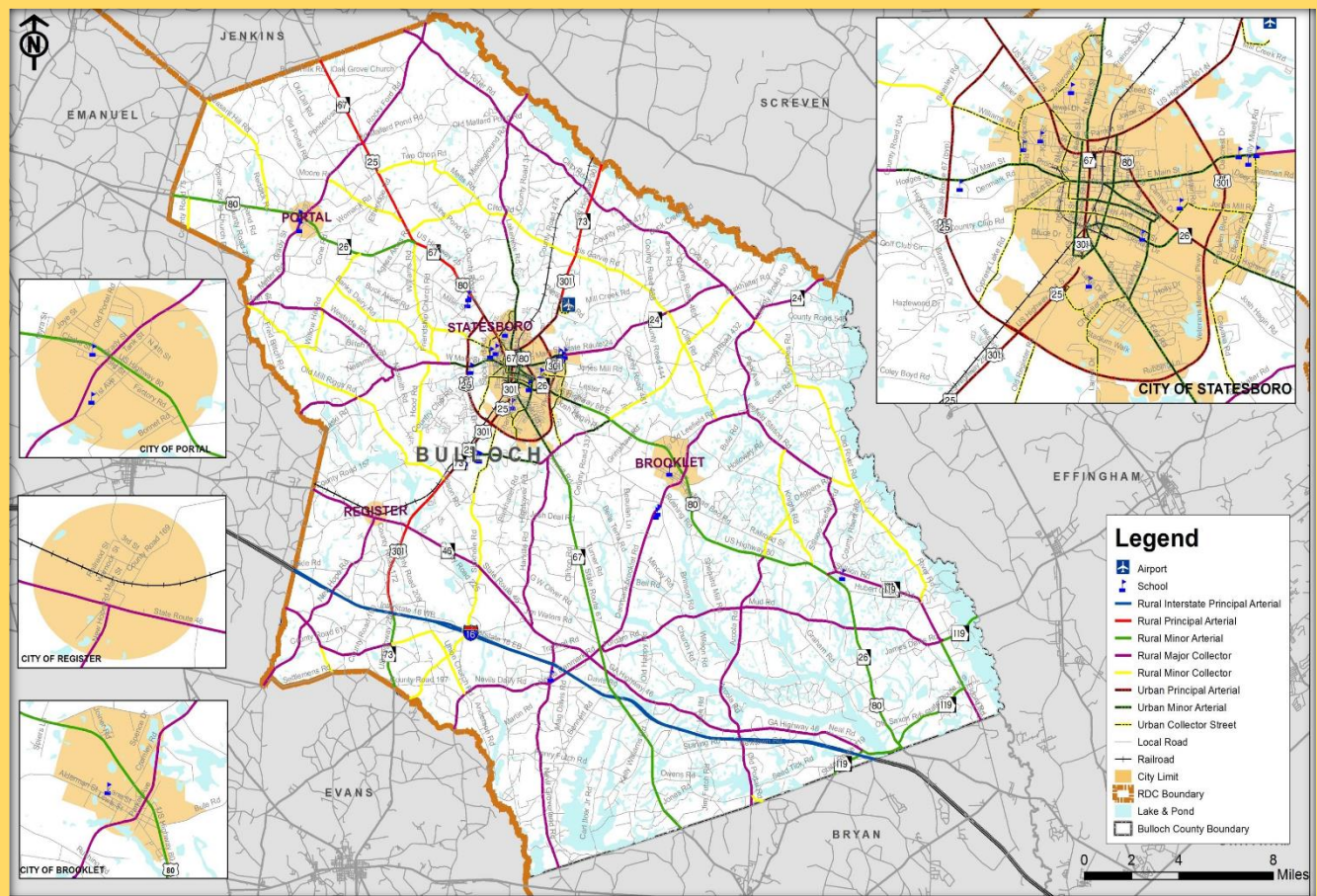
For economic development purposes, most businesses centers in the county have good access to roads, and to some degree by rail and aviation facilities.

There is a significant burden to construct and maintain existing roads in Bulloch County. Bulloch County's road system is the fourth largest in the state behind Cobb, Gwinnett and Laurens Counties with approximately 1,606 miles of local, state and federal routes. The county ranks 24<sup>th</sup> in the state in the amount of paved local (city and county) roads and 33<sup>rd</sup> in the amount of total vehicle miles traveled for all routes. Bulloch County has a large network of rural unpaved roads which is the most of any county in Georgia. However, with minor exceptions, the paved road system provides good connections and radial access to the municipal centers and cross-county connections between rural communities.

Table 8 profiles the Bulloch County Road System with regard to size, demand and pavement characteristics. Table 9 indicates that 42% of local roadways in Bulloch County are unpaved. Most of these unpaved roads are concentrated in rural areas and classified as local roads. It may be appropriate to upgrade and pave some of these roadways to provide better connectivity throughout the county, and which would elevate them to collector status. Most of the vehicle miles traveled is concentrated along I-16, and the major and minor arterials leading to and from Statesboro. However, the vehicle miles traveled

on the local road system is evenly split between rural and urban sections illustrating that such travel is widely dispersed.

**Figure 9: Bulloch County Functional Classification of**



*Source: 2035 Long Range Transportation Plan*

**Table 8: Profile of the Bulloch County Road System**

Jurisdiction	Local Road Network Size				Local Road Network Demand			
	CM	% Dist.	LM	% Dist.	VMT	% Dist.	VMT /PLM	% Dist.
Statesboro	122	8.8%	243	8.8%	174,888	24.3%	720	54.6%
Brooklet	18	1.3%	35	1.3%	9,536	1.3%	272	11.5%
Register	2	0.1%	5	0.2%	1,335	0.2%	267	11.5%
Portal	11	0.8%	21	0.8%	5,149	0.7%	245	11.3%
Unincorporated	1,233	89.0%	2,470	89.0%	527,822	73.4%	214	11.1%
<b>Total</b>	<b>1,386</b>	<b>100.0%</b>	<b>2,774</b>	<b>100.0%</b>	<b>718,730</b>	<b>100.0%</b>	<b>NA</b>	<b>100.0%</b>

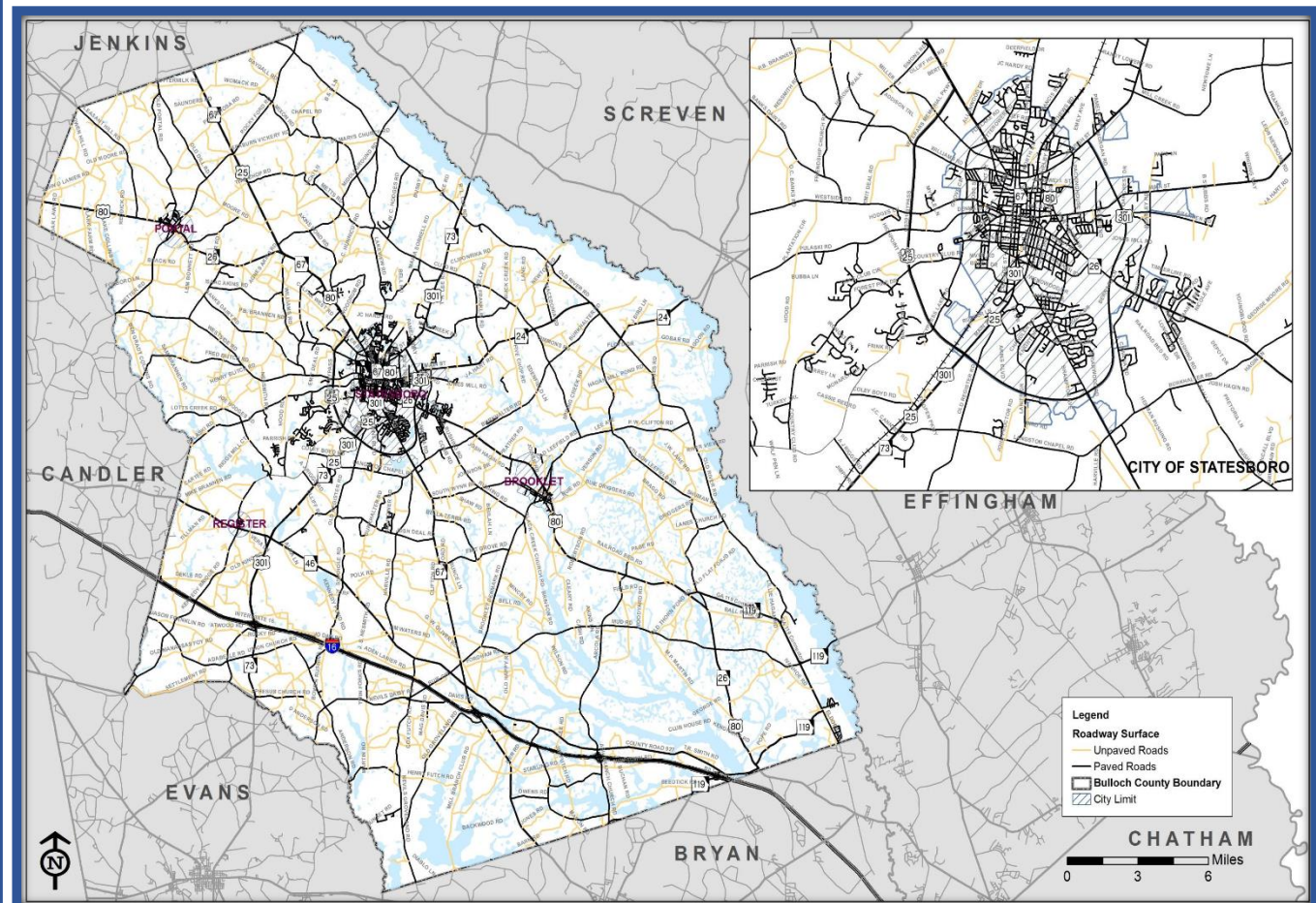
*Source: Georgia Department of Transportation 400 Series Reports, 2017; centerline mileage (CM), lane mileage (LM), vehicle miles traveled, and vehicle miles traveled per lane mile (VMT/PLM)*



Table 9: Roadway Surface Types					
Route Type	Total Mileage	Unpaved	Paved	% Paved by Route	% Dist.
Interstate	25.87	0.00	25.87	100.0%	1.7%
State Routes	191.33	0.00	191.33	100.0%	10.2%
County Roads	1,238.24	723.49	514.74	43.5%	81.2%
City Streets	150.79	5.47	144.98	94.7%	6.7%
<b>TOTAL</b>	<b>1,606.23</b>	<b>728.96</b>	<b>876.92</b>	<b>53.7%</b>	<b>100.0%</b>

Source: Georgia Department of Transportation 400 Series Reports, 2017.







Figure 10: Bulloch County Roadway Surface Types



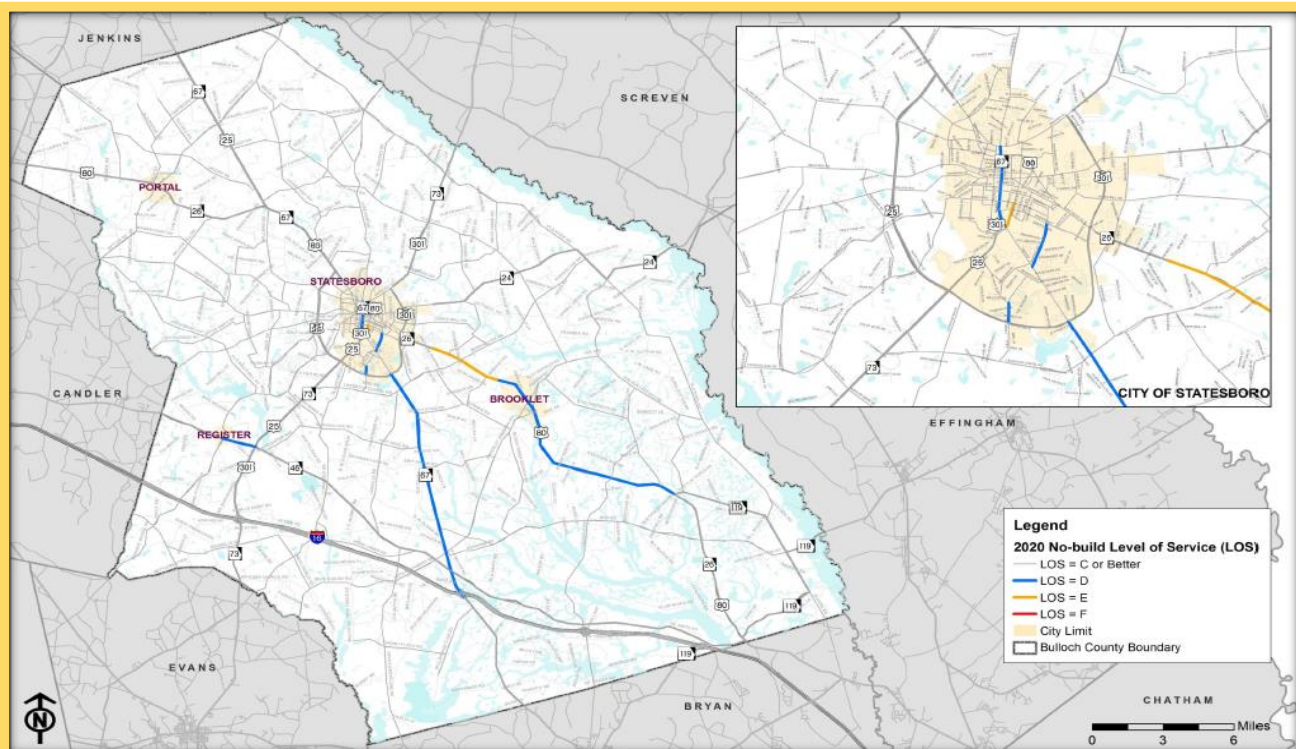
Source: 2035 Long Range Transportation Plan

Travel demand models assist in the evaluation of existing and future travel conditions throughout Bulloch County. The key outputs from the travel demand models are the daily volume to capacity ratio for each roadway segment that helps identify the level of service (LOS). LOS is a qualitative measure of traffic flow and describing roadway operating conditions. Each level is given letter designations from A to F, with LOS A representing the best operating conditions and F the worst. A facility may operate within a range of levels of service depending upon time of day, day of week or period of the year. A qualitative description of the different levels of service is provided below.

Bulloch County has a travel model that identifies deficient segments projected for 2020 and 2035. For daily operating conditions, any segment identified as LOS D or worse is considered deficient. The vast majority of roadways in Bulloch County currently operate at an acceptable LOS C. There are ten road segments that current operate at or below LOS D.

Levels of Service		
<b>FREE FLOW</b> Low volumes and no delays.	LOS <b>A</b>	
<b>STABLE FLOW</b> Speeds restricted by travel conditions, minor delays.	LOS <b>B</b>	
<b>STABLE FLOW</b> Speeds and maneuverability closely controlled because of higher volumes.	LOS <b>C</b>	
<b>STABLE FLOW</b> Speeds considerably affected by change in operation conditions. High density traffic restricts maneuverability, volume near capacity.	LOS <b>D</b>	
<b>UNSTABLE FLOW</b> Low speeds; considerable delay; volume at or slightly over capacity.	LOS <b>E</b>	
<b>FORCED FLOW</b> Very low speeds; volumes exceed capacity; long delays with stop-and-go traffic.	LOS <b>F</b>	

**Figure 11: 2020 LOS Deficient Segments**

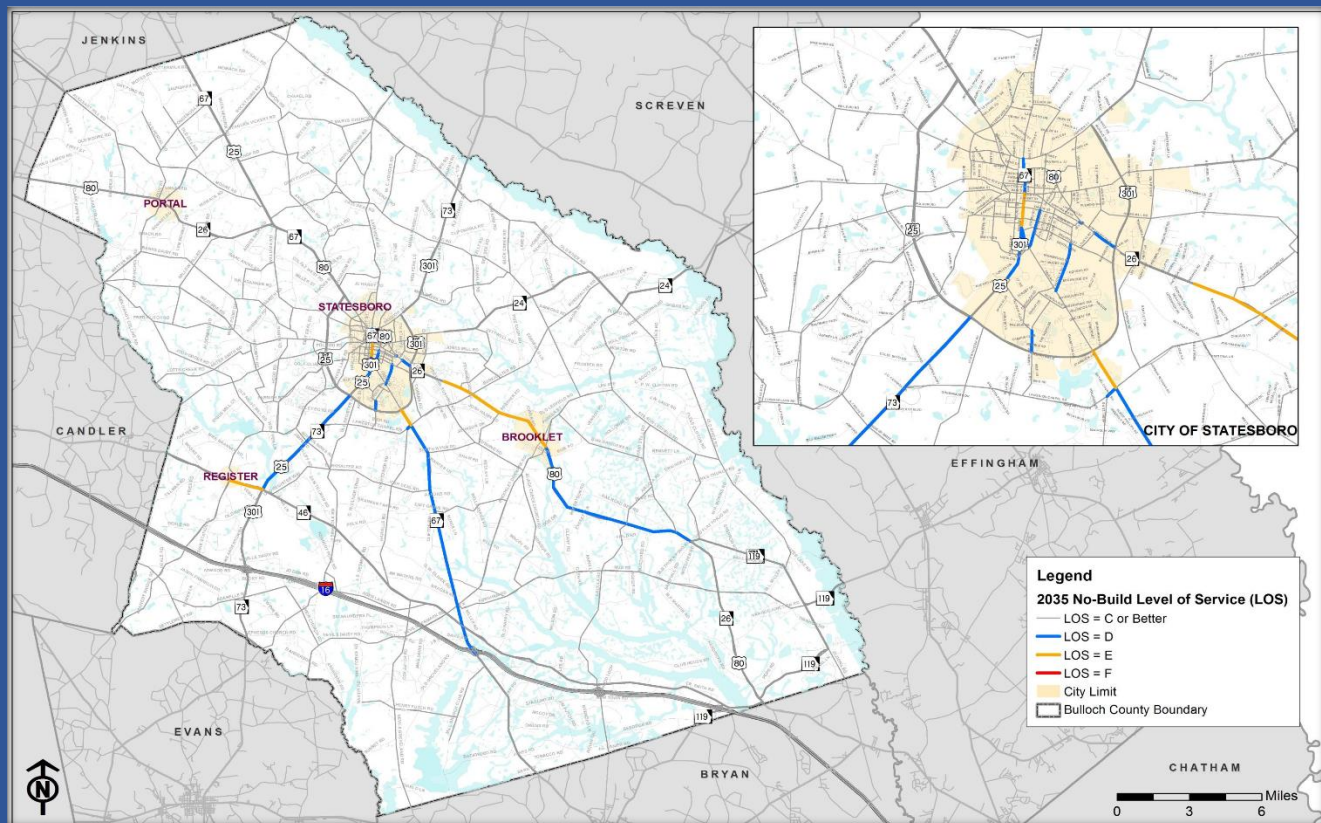


Source: 2035 Long Range Transportation Plan



By 2035, with expected population and employment growth, there is projected to be an additional five segments that will operate at or below LOS D without improvements. However, two desirable projects are the completion of passing lane extensions on two Rural Minor Arterials including U.S. 80 East between Statesboro and Brooklet, and the two-to-four-lane expansion of State Route 67 South to I-16, both of which would improve the level of service. These projects are currently underway.

**Figure 12: 2035 LOS Deficient Segments**



*Source: 2035 Long Range Transportation Plan*

### **Bridges**

Deficient bridges can pose problems for a fully functional road network due to load limits or condition. The GDOT provides bridge condition reports every three years to measure sufficiency ratings to determine a bridge's structural condition and maintenance needs.

Based on current sufficiency ratings, only three out of 138 bridges countywide are in poor or deficient condition that could be candidates for federal funding assistance. Meanwhile, there are 48 bridges that are in need of maintenance or rehabilitation which should be scheduled within the next 10-15 years.

## ALTERNATIVE MODES

### **Public Transit**

Coastal Regional Coaches is the only public transit system in Bulloch County, part of a regional system serving 10 counties and 35 municipalities within the coastal region. Counties serviced by the regional program include Bryan, Bulloch, Camden, Chatham, Effingham, Glynn, Liberty, Long, McIntosh, and Screven counties and the respective municipalities. The system operates a system of 62 buses and covers a service area of over 5,100 square miles. Passengers can travel regionally to accommodate their trip purpose. The system is a demand-response, advance-reservation regional rural public transit program that coordinates human services transportation and private contract service on one fleet of vehicles option. The fare for public transit ridership on Coastal Regional Coaches is \$3 one-way (\$6 round-trip) within the passenger's county of residence or point of origin. For travel outside the county of residence, the fare will vary based on the number of counties traveled.



Georgia Southern University's Statesboro campus has a bus system for its students called Southern Express. According to their Parking and Transportation Office, buses serve the campus and immediate areas weekdays from 7:00 AM to 9:00 PM, with reduced service after 4:00 PM, Monday through Thursday and Friday service ending at 5:00 PM. During peak service on weekdays, the bus stops every 3-4 minutes. During off-peak hours, buses stop every 15 minutes. The route begins at Paulson Stadium and serves various apartments on Lanier Drive before entering campus. Fares are not charged but are covered through student enrollment fees. Parking for students is free at Paulson Stadium and the Recreation Activities Center.

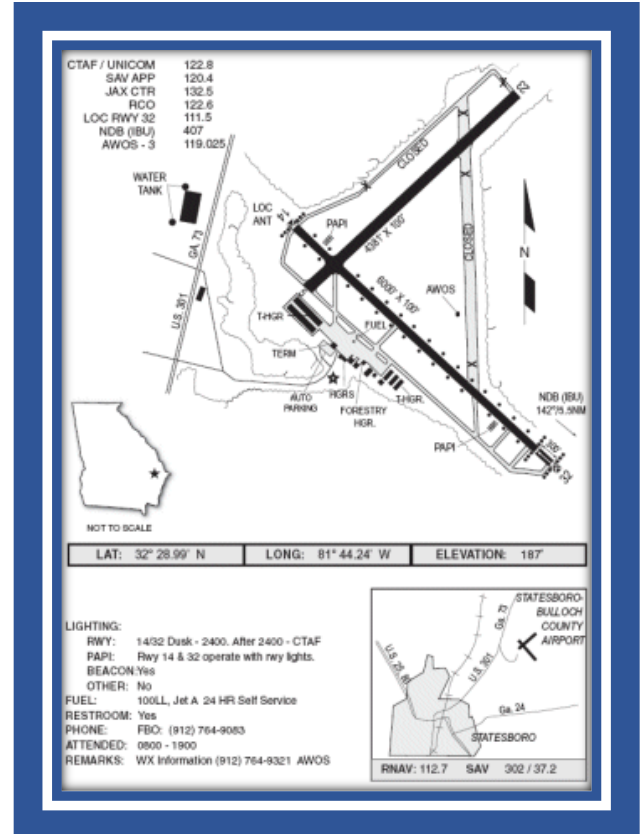


In 2008, the *Statesboro-Bulloch County Transit Development Plan* concluded that public transportation was needed in Statesboro and Bulloch County, although the plan was only partially implemented with the Coastal Regional Coaches demand-response service funded by Bulloch County. Opportunities exist to allow the City, County and GSU to work together as a consortium in providing a fixed route system in greater Statesboro. The availability to tie a fixed-route service into the Coastal Regional Coaches variable route transit system also exists. Finally, funding options may increase should the area become an MPO after the 2020 census, which would enhance federal support.

In 2018, the City of Statesboro engaged a consultant to study the feasibility of fixed-route public transit for the city, and limited areas outside of the city. The results of the study are not yet complete.

## Aviation

The Statesboro-Bulloch County Airport is a County operated Level III general aviation public airport located three miles northeast of the central business district of Statesboro. It is jointly owned by the City of Statesboro and Bulloch County, but operated by Bulloch County. Currently, there is no commercial service to the airport. The airport annually updates its five-year capital improvements program, while updating its airport layout plan every ten years, both of which are filed with the Georgia Department of Transportation and Federal Aviation Administration. The airport is financially self-supporting thanks to high-volume fuel sales and hangar rentals and is also an active community asset providing an annual "Airport Day" open to the public, a local Civil Air Patrol unit, and offering educational tours to K-12 students and the general public. Fifty miles to the east, the Savannah-Hilton Head International Airport provides the region with access to commercial passenger and cargo air service. The airport is located strategically near the junction of Interstates 95 and 16, and the Savannah Ports.





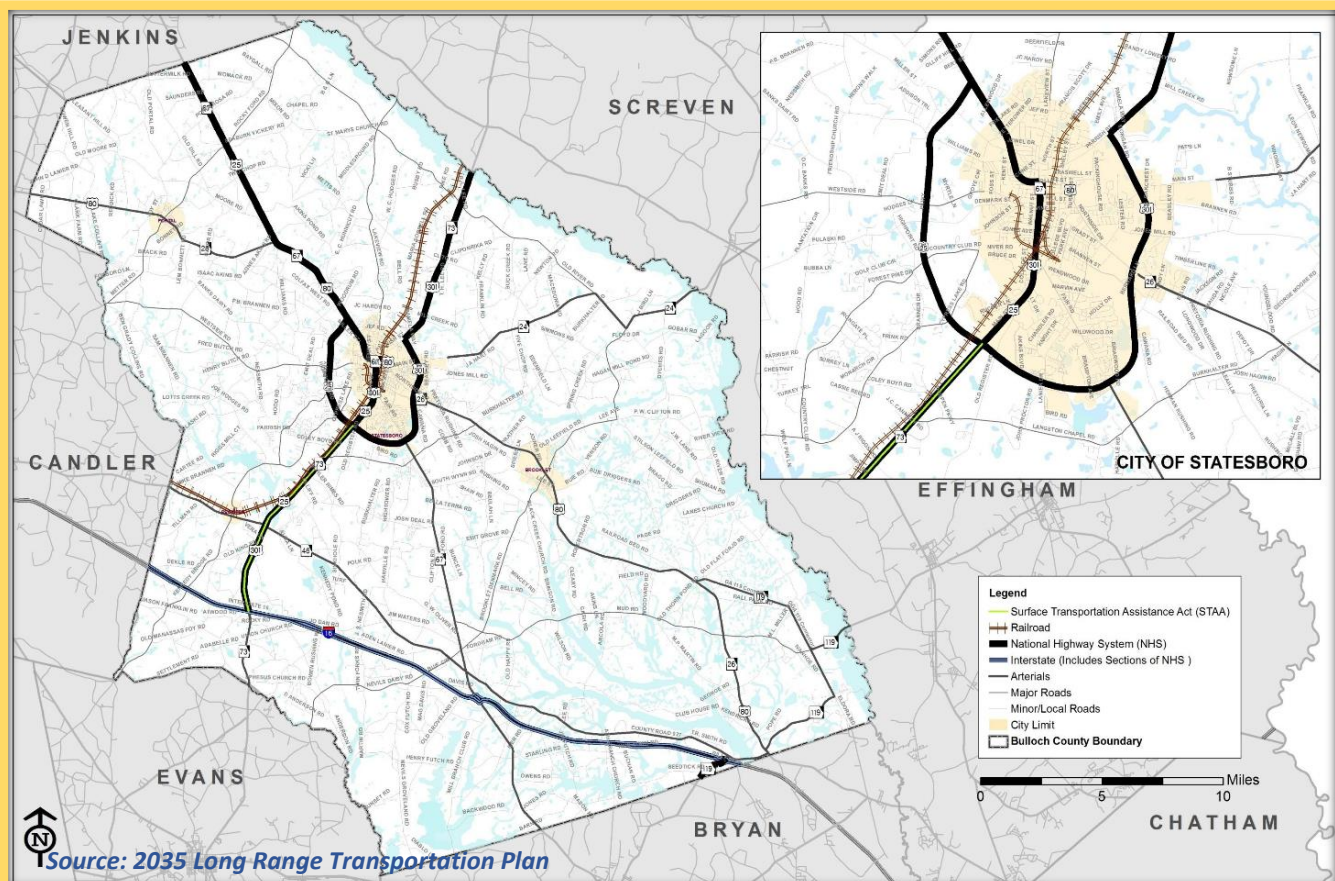
Industrial Park is located adjacent to the municipal airport, on 214 acres on US 301. Key manufacturing and distribution centers in Statesboro or Bulloch County include:

- Wal-Mart distribution center (retail)
- Briggs and Stratton manufacturing facility (engines)
- Viracon fabrication facility (high-performance glass products)
- WL Plastics (pipe)
- GAF Materials (construction products)
- Brodie Meter Co. (flow meters, valves)
- Braswell Foods (toppings, syrups, sauces, etc.)
- Claude Howard Lumber Co. (softwood lumber)



Seaport and truck freight: Statesboro and Bulloch County are located approximately 50 miles from the Savannah Port and roughly 110 miles to the port of Brunswick and 160 miles from the ports of Charleston and Jacksonville. Truck access is available primarily from I-16, State Route 67, State Route 80 and US 301.

**Figure 13: Major Countywide Surface Transportation Freight**



Bicycle and pedestrian facilities are an important part of a multimodal transportation system to efficiently move people. It is important to consider that everyone is a pedestrian at one point in almost every trip, even if the primary mode of travel for a trip involves a personal vehicle or transit. Sidewalks are an important element along roadways near local activity centers such as schools, libraries, commercial centers, and public recreation areas which attract significant pedestrian and vehicular traffic.

**Figure 14: Major Countywide Surface Transportation Freight**



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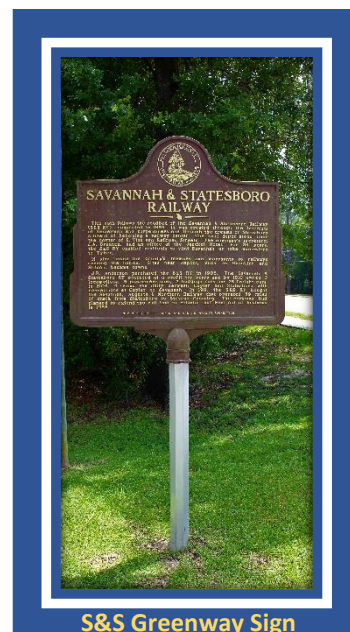
The McTell Greenway Trail was constructed by the City of Statesboro, beginning at Fair Road Park and runs north to North Main Street linking Georgia Southern University to downtown. The University also has a well-developed internal system of facilities for walking and biking.

Phase I and II of the 3.1 mile S&S Greenway Trail was constructed by Bulloch County, starting in the City of Statesboro at Gentilly Road running southeast to Burkhalter Road. The County has received a FHWA Transportation Alternatives Program grant to extend the Greenway an additional four miles into the municipal limits of Brooklet.

Short walking trails are available at city neighborhood parks in Statesboro and Portal, and county parks including Mill Creek Regional Park and Stilson Park. A new project is being considered by the County for a walking trail inside Fletcher Road Park inside the City of Statesboro.

The Georgia Department of Transportation (GDOT) has designated a State Bicycle Route network consisting of fourteen routes throughout the state.

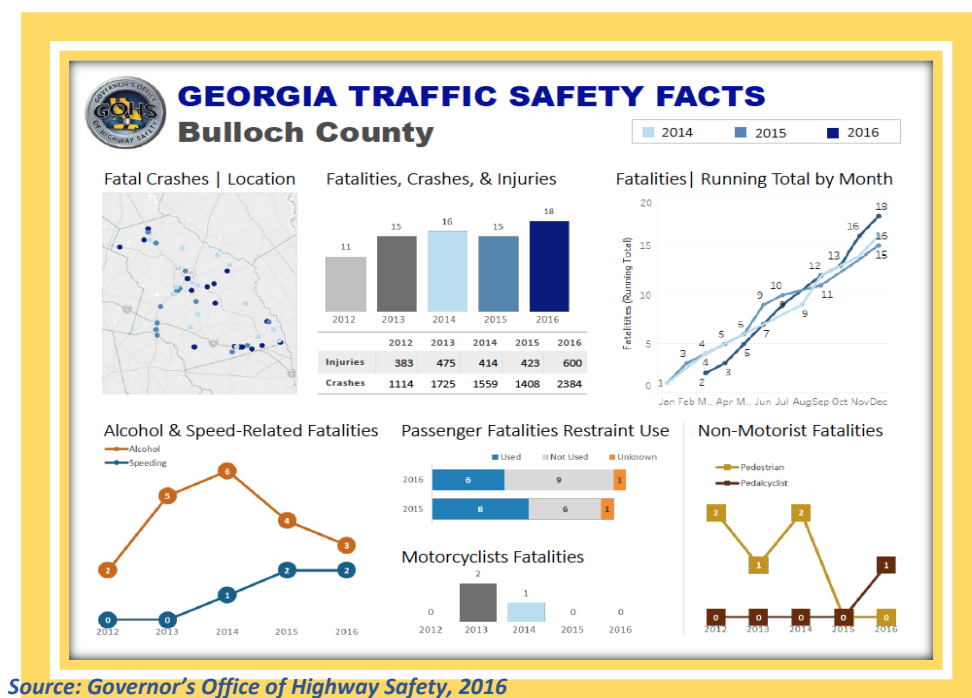
Two of those identified routes, *March to the Sea* and *TransGeorgia*, traverse Bulloch County. The Bulloch County portion of the *March to the Sea* route is approximately 44 miles long running northwest to southeast. The *TransGeorgia* route runs west to east across southern Bulloch County for approximately 29 miles. As part of the implementation strategy of the State Bicycle Routes Network Plan, GDOT has been signing the routes as state bicycle routes, while also adding paved shoulders or bike lanes to these routes during regularly scheduled road widening or major reconstruction. The two identified routes in Bulloch have not been signed by GDOT to date.



S&S Greenway Sign

## TRAFFIC SAFETY

Traffic safety has become an increasing concern. Traffic volumes are increasing with population growth. The Governor's Office of Highway Safety reports that fatalities, crashes and injuries are dramatically rising in both urban and rural areas. While human error and traffic enforcement are influences, physical interventions such as speed zone reviews, striping and signage improvements, installing bike lanes, and improving intersections crossings offer additional tools.



While traffic calming techniques are being considered for designing new road improvement projects, only the City of Statesboro and Bulloch County have policies for the installation of vertical deflection device (speed humps, bumps, tables, chicanes, etc.) installation in appropriate locations. Such devices are installed by petition and are typically paid for by special assessments for the neighborhoods or districts considered.

## PARKING

Bulloch County and its municipalities do not currently have parking issues, except at infrequent times of the year when various special events occur. Public parking is usually on-street or in modest amount offered for government buildings or facilities. However, as the County's population continues to grow, it is likely that demand for additional public parking facilities may arise.

## TRANSPORTATION PLANNING

Bulloch County has actively been involved in short, intermediate and long-range planning since the year 2000. The following plans have addressed transportation related matters.

2000 Bulloch County Transportation Plan  
2002 Bulloch County Greenways Master Plan  
2005 Coastal Georgia Regional Bicycle and Pedestrian Plan  
2006 Bulloch County Land Use Plan  
2008 Bulloch County Transit Development Plan  
2008 Statesboro-Bulloch County Airport Improvement Plan  
2009-2029 Bulloch County Comprehensive Plan  
2009-2029 City of Statesboro Comprehensive Plan  
2009-2035 Statesboro Bulloch County Long Range Transportation Plan  
2018-2021 Georgia Department of Transportation; State Transportation Improvement Program  
2019-2025 Bulloch County Capital Improvements Program

The *2035 Statesboro-Bulloch County Long-Range Transportation Plan* document has recommended various road, bridge and bike-pedestrian projects subject to programming and available funding. Subject to a pending update, it is structured to accommodate federal designation for Statesboro and parts of Bulloch County as small metropolitan statistical area status after the 2020 Census. Such a designation would trigger the need to form a Metropolitan Planning Organization responsible for transportation planning and allocating federal funds for eligible projects within the urbanized area.

## TRANSPORTATION – LAND USE CONNECTION

Investments in transportation affect land use patterns, density, and housing prices especially in more urban environments. Built environment characteristics such as the size and diversity of neighborhoods

and the siting of jobs and housing significantly influence travel demand. Policies expanding travel choices can be important to expanding housing and job choices. Land use decisions directly impact the transportation system and facilities generating vehicle trips leading to traffic congestion and costly, expansive roadway capacity improvements.

The design of transportation facilities also impacts the rural character of a community. Conventional street design has tended to create roads with the motorist in mind, forgetting the needs of pedestrians and bicyclists. This has contributed to safety issues and some loss of rural “small town” character.



Langston Chapel Roundabout

Source: EMC Engineering

To achieve sustainable development, this plan addresses land use and transportation policies and implementation strategies that promote development approaches, walkable communities, and access management. In practice, Bulloch County, Brooklet, Portal and Register implements these policies and strategies through a combination of development regulations including zoning, subdivision controls and right-of-way encroachment permitting.

## SUMMARY

- Traffic congestion on the surface transportation system is not yet a concern except during peak periods and special community events.
- Traffic safety is an increasing concern.
- The size of the overall surface transportation system coupled with population growth and the diversity of road profiles create significant challenges and burdens for maintenance and construction.
- There is a need for public transit, but demand to support a fixed-route system is uncertain.
- General aviation is well served by the Statesboro-Bulloch County Airport with access to commercial airline service accessible in Savannah.
- The arterial road and railroad system are adequate to serving freight to and from other destinations.
- The bicycle and pedestrian system are deficient in terms of quality, quantity and connections, although there is demand and emerging support to expand multi-use trail systems and facilities.
- Public parking facilities are limited, especially on the Georgia Southern University campus in Statesboro, and future options should be studied in the future.
- Transportation planning and connections with land use are important to the community, but greater implementation efforts are desirable.

# OUTLOOK

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- Bulloch County and the municipalities of Brooklet, Portal, Register and Statesboro will continue to share a vested interest in long-term transportation planning.
- The 2035 Statesboro-Bulloch County Long Term Transportation Plan remains relevant today, though an update is tentatively scheduled in 2022-2024 period with anticipation of an MPO being established.
- Past and current transportation planning efforts focus on mobility, connectivity and safety for primary and alternative modes of transportation.
- In 2018, Bulloch County voters passed a 1% single-county Transportation Special Local Option Sales Tax (TSPLOST) that will remain in effect until late 2023, providing a meaningful funding source.

# ALIGNMENT MATRIX

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The following pages present tabular descriptions that advance this baseline analysis for the purpose of identifying needs, opportunities, goals, policies and quality community objectives addressed by priority for each community. By identifying these attributes, this matrix allows decision-makers to develop implementation strategies for the Community Work Program element.

SMART MOBILITY: TRANSPORTATION ELEMENT						
<b>Needs</b>	Increase the level of service for dirt road maintenance and drainage.	Dirt road construction that enhances paved network connections.	Improve asphalt pavement quality.	Improve paved collector roads to a higher standard (wider shoulders; bike-pedestrian facilities).	Reduce vehicle and pedestrian crashes with injuries and fatalities.	Absence of traffic signals/control devices and poor signal timing at needed intersections.
<b>Opportunities</b>	New equipment technology and increasing the frequency of service.	The 2035 Long Range Transportation Plan identifies potential projects.	Pavement preservation and improvement programs with condition indices reviewed every 5 years.	The 2035 Long Range Transportation Plan identifies potential projects.	Identify high risk locations for safety counter measures and establish educational programs.	Identification of specific locations to pursue traffic studies and determine warrants.
<b>Goals</b>	Safety and quality.	Safety and quality.	Safety and quality.	Safety and quality. Alternative modes.	Safety and quality.	Safety and quality. Mobility and connectivity.
<b>Policies</b>	Develop a standard and amend the appropriate local government policy manual.	Schedule candidate projects into the Capital Improvements Program.	Schedule candidate projects into the Capital Improvements Program.	Schedule candidate projects into the Capital Improvements Program.	Schedule candidate projects into the Capital Improvements Program.	Schedule candidate projects into the Capital Improvements Program.
<b>Quality Community Objectives</b>	Resource management, sense of place, transportation options, educational opportunities, community health.	Resource management, sense of place, transportation options, educational opportunities, community health.	Resource management, local preparedness, sense of place, transportation options, educational opportunities, community health.	Resource management, sense of place, transportation options, educational opportunities, community health.	Local preparedness, transportation options, community health.	Local preparedness, transportation options, community health.



SMART MOBILITY: TRANSPORTATION ELEMENT						
<b>Needs</b>	Intersection safety (geometric improvement, signalization, alignment).	Cut through traffic is and speeding in residential neighborhoods.	Additional carpool/vanpool programs.	Event traffic and parking for the community and visitors.	Truck freight traffic use on non-arterial roads.	Congestion at school locations at peak times of pick-up, drop off and special events.
<b>Opportunities</b>	The 2035 Long Range Transportation Plan identifies potential projects; upgrade bike-ped where warranted.	Adopt policies with Complete Streets criteria for new development or traffic calming measures for existing development.	Identify new sites for GDOT Ride Share lots.	Work with partners to examine feasibility of remote parking and shuttle services for event parking issues.	Certain routes can prohibit truck traffic by ordinance. Direct truck freight traffic to arterials.	Stagger drop-off/pick up times; work with public education on better site planning and design for future school facilities.
<b>Goals</b>	Safety and quality, mobility and connectivity. Alternative modes.	Safety and quality.	Alternative modes.	Alternative modes.	Safety and quality; land use compatibility. Economic benefit.	Safety and quality, mobility and connectivity, land use compatibility.
<b>Policies</b>	Schedule candidate projects into the Capital Improvements Program.	Consider establishing special assessment districts to fund improvements.	Schedule candidate projects into the Capital Improvements Program.	Schedule candidate projects into the Capital Improvements Program/annual budgets.	Create/amend ordinances when necessary; work with law enforcement to identify candidate roads.	Schedule candidate projects into the Capital Improvements Program.
<b>Quality Community Objectives</b>	Local preparedness, transportation options, community health.	Local preparedness, transportation options, community health.	Local preparedness, transportation options, community health.	Economic prosperity, efficient land use, local preparedness, sense of place, transportation options, community health.	Local preparedness, transportation options, community health.	Local preparedness, transportation options, community health.

### SMART MOBILITY: TRANSPORTATION ELEMENT

<b>Needs</b>	Bridge maintenance.	Lack of new sidewalks.	Connecting greenspace areas (schools, parks, etc.) to a defined network.	Limited bike/pedestrian amenities (bike racks, benches, trash receptacles, restrooms, multi-use trail buffers).	Additional boat launches on the Ogeechee River.	Future airport improvements.
<b>Opportunities</b>	The 2035 Long Range Transportation Plan identifies potential projects.	Add sidewalks where necessary in the U-N, U-CTR and U-C character areas and at school sites.	The 2035 Long Range Transportation Plan; 2002 Bulloch County Greenways Plan identifies potential projects.	Reduce need for vehicle parking.	Utilize previous 2006 internal study by County staff.	Continue to leverage assets and state and federal funding with SPLOST/TSPLOST.
<b>Goals</b>	Safety and quality, mobility and connectivity, economic benefit.	Safety and quality, mobility and connectivity, alternative modes.	Alternative modes.	Alternative modes, economic benefit.	Alternative modes.	Alternative modes, economic benefit.
<b>Policies</b>	Use the GDOT bridge inventory to prioritize projects.	Develop level of service standards. Schedule candidate projects into Capital Improvements Program.	Schedule candidate projects into the Capital Improvements Program.	Identify locations and select sites that are best suited.	Schedule candidate projects into the Capital Improvements Program.	Schedule candidate projects into the Capital Improvements Program.
<b>Quality Community Objectives</b>	Local preparedness, transportation options, community health.	Economic prosperity, efficient land use, local preparedness, sense of place, transportation options, community health.	Resource management, efficient land use, local preparedness, sense of place, transportation options, educational opportunities, community health.	Resource management, efficient land use, local preparedness, sense of place, transportation options, educational opportunities, community health.	Economic prosperity, resource management, local preparedness, transportation options, community health.	Economic prosperity, resource management, local preparedness, transportation options, community health.

# SMART MOBILITY: TRANSPORTATION ELEMENT

<b>Needs</b>	Update 2035 Long Range Transportation Plan.	Public Transit	Accommodating future autonomous vehicles.	Funding	New development creates traffic adverse impacts.
<b>Opportunities</b>	Maintain consistency with other plans.	County-wide demand response system in place. Feasibility being study for Statesboro fixed-route system.	Development of ROW for small cell use.	Local (TSPLOST); State (LMIG, GTIB, REBC, GOHS); Federal (TAP, HR3, Build America, FAA, SRS).	Shift costs to developers for site related improvement; or consider impact fees.
<b>Goals</b>	Safety and quality. Mobility and connectivity, alternative modes, economic benefit.	Alternative modes, economic benefit.	Alternative modes, economic benefit.	Safety and quality, mobility and connectivity, alternative modes. Economic benefit.	Safety and quality, mobility and connectivity, alternative modes, economic benefit.
<b>Policies</b>	Follow plan recommendations with available funding.	Funding support must be feasible and cost-effective.	Consider as a study element in a Long-range Transportation Update.	Leverage additional state and federal funding when available.	Require developers to perform traffic impact studies.
<b>Quality Community Objectives</b>	Economic prosperity, efficient land use, local preparedness, sense of place, regional cooperation, transportation options, educational opportunities, community health.	Economic prosperity, efficient land use, local preparedness, regional cooperation, transportation options, educational opportunities, community health.	Economic prosperity, efficient land use, local preparedness, regional cooperation, transportation options, educational opportunities, community health.	Economic prosperity, efficient land use, local preparedness, regional cooperation, transportation options, educational opportunities, community health.	Efficient land use, local preparedness, transportation options.

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## CHAPTER 5 SMART CONNECTIONS BROADBAND

# INTRODUCTION

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Technology plays a large part in developing a **SMART COMMUNITY**. Smart communities have broadband connectivity that is readily available and affordable for its residents, usually with some type of government involvement. Though Bulloch County is much better off than most rural communities in this regard, to stay ahead of the curve, a planning framework to facilitate emerging state policy is needed.

On May 7, 2018, Governor Nathan Deal signed into law Senate Bill 402, the “Achieving Connectivity Everywhere (ACE) Act.” This legislation outlines a multi-agency strategy to provide for planning, incentives and deployment of broadband services to unserved areas throughout the state. One provision of the ACE Act required the incorporation of a Broadband Services Element in the Local Comprehensive Plan of each local government in the state, effective on October 1, 2018. Specifically, each local government must include an action plan for the promotion of the deployment of broadband services by providers into under-served areas within its jurisdiction.

# GOALS

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**SMART CONNECTIONS** start with having smart goals for broadband deployment. The following represents the six major goals for **SMART CONNECTIONS** county-wide.

- **Availability:** Every address in the county should have at least two provider choices for landline and cellular service.
- **Abundance:** Every address in the county should have broadband service that offers the FCC minimum definition.
- **Affordability:** Monthly prices and value should be equitable with national averages with consideration for low-income households.
- **Readiness:** Learning how to achieve operational preparation and readiness for broadband deployment by developing a coherent community plan.
- **Reliability:** All service providers in the region should have redundant connections.
- **Sustainability:** Leverage funding sources without putting significant local public assets or funds at risk.

# ANALYSIS

## IMPORTANCE OF BROADBAND SERVICES

Broadband planning is relatively new to public sector planning. Unlike other forms of infrastructure such as roads, water, sewer and stormwater systems, broadband services are more likely to be owned by private sector enterprises. Therefore, local government officials must now become actively involved to advocate for community interests, yet, support coordinated broadband deployment with private interests. Community interests may broadly include economic development, appropriate use of public right of ways, neighborhood revitalization, or providing access to low-income or underserved households. Broadband initiatives will require communities to reconsider business models and infrastructure planning.

The House Rural Development Council was created by House Resolution 389 during the 2017 Legislative Session of the Georgia General Assembly. The two-year charge for the Council was to address issues that have caused economic lags occurring in rural areas of Georgia with a focus on education, health care, infrastructure and utilities.

The Council found that a lack of broadband connectivity, particularly in rural Georgia, has influenced population loss. It is reported that 16% of Georgians have no access to broadband services. Expanding broadband statewide is thought to be vital for attracting and retaining people in parts of rural Georgia, especially for those communities who are losing population. This type of infrastructure build-out is also thought to be important to education, health care and general business growth. It has become a key policy initiative for the State of Georgia.

Further, the Council proposed modernizing the state and local tax structure and expanding the ability of rural utilities to provide broadband services. The combined effect would create state funding for grants available for broadband deployment to underserved areas.

The Council also issued recommendations to ensure both rural and urban areas are prepared for future 5G cellphone technology. Further, the Council found the need for a streamlined application and permitting process for attaching or co-locating small cell technology on power-line poles or other infrastructure in the right-of-way. Small cells, which are wireless antennas, will help increase telecommunication companies' network capacities and speeds. These technologies are essential to present and future technologies, such as smart cars and smart cities.

Legislative action in the 2019 Georgia General Assembly has advanced some seed funding and has enabled new providers to enter the market. The Georgia Department of Community Affairs continues to work with federal, state, local and private partners to implement the ACE Act.

## ASSESSMENT OF UNDERSERVED AREAS OF BULLOCH COUNTY

The Federal Communications Commission (FCC) defines broadband as data transmission technologies that are always on and capable of simultaneously transporting multiple signals and traffic types between the

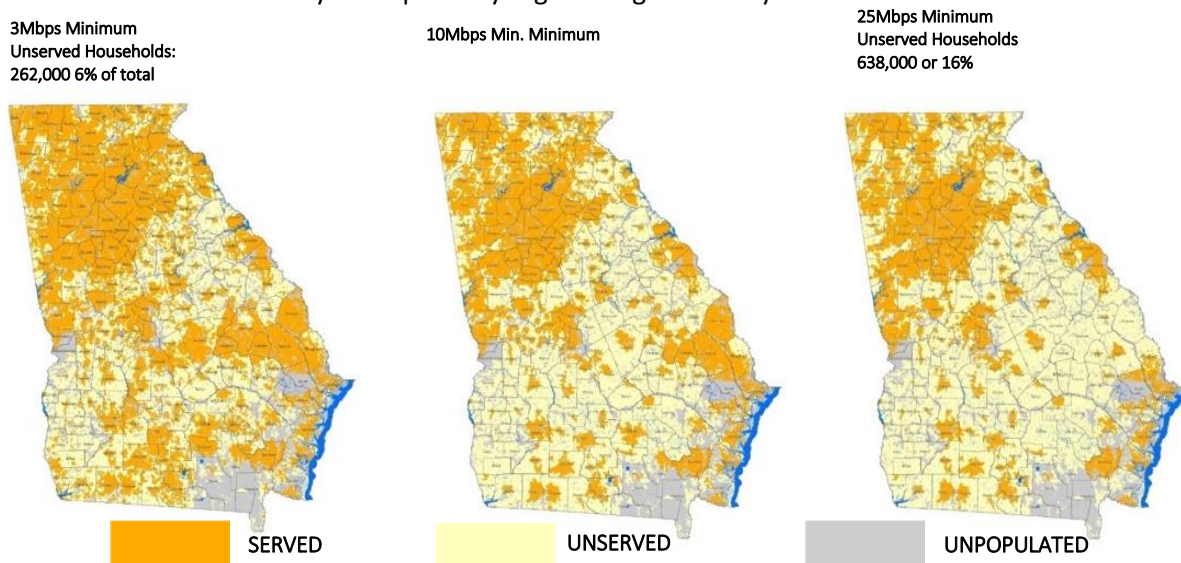


Internet and end users. In January 2015, the FCC upgraded the definition of broadband speeds for downloading content from 4 Mbps (Mega-bytes per second) to 25 Mbps and for uploading content from the previous rate of 1 Mbps to a new standard of 3 Mbps. The FCC notes that with the revised standard, 13% of households nationwide do not have access to broadband. There are no known formal public studies performed specifically for Bulloch County or its municipalities on broadband services. Downloaded zip code datasets for fixed and mobile broadband deployment were examined from June 2017 provider submissions to the Federal Communications Commission (FCC) Form 477. The maps and data below were arranged broadband coverage for the State of Georgia, but particularly Bulloch County.

Georgia is the 21<sup>st</sup> most connected state in the U.S. with 224 internet providers. Almost 92% of consumers in Georgia have access to a wired connection with true broadband speeds faster than 25 Mbps, while 88% of Georgians have access to 100 Mbps or faster broadband. The average internet download speed in Georgia is 42 Mbps. In Bulloch County, there is virtually 100% access to broadband services. It is estimated that approximately 300 people do not have access to 25 Mbps wired broadband. Approximately 100 people in Bulloch County do not have access to any wired internet. The fastest service within Bulloch County as of June 2017 is located in zip code 30461. There are differences in provider access, choices, and speed. Generally, the areas around Statesboro and Brooklet have advantages over Portal and Register. It is apparent that Bulloch Telephone Cooperative has been the most aggressive entity to expand service countywide, focusing on fiber optic installation that provides robust speeds and coverage. The map below, along with Tables 11 and 12 illustrate the strengths and weaknesses of broadband service available in Bulloch County.

## ORDINANCES

Bulloch County, and the municipalities of Brooklet, Portal and Register all have some form of ordinances, policies or agreements with telecommunications providers for either compensation, use or encroachment permitting for local rights-of-way. However, there is nothing specific addressing wireless small-cell broadband technologies that are emerging. It is uncertain when 5G technology will arrive in Bulloch County. There is great concern among cities and counties about any state legislation which preempts or otherwise diminishes local ability to responsibly regulate rights-of-way.



Source: The University of Georgia; The Carl Vinson Institute of Government

**Table 11: Internet/Broadband Coverage by Provider, Zip Code and Speed**

Provider	Type	Statesboro Coverage 30458	Statesboro Coverage 30461	Brooklet Coverage 30415	Portal Coverage 30452	Register Coverage 30450	Speed (Mbps)
Bulloch Telephone Cooperative	Fiber	99.1%	98.4%	100.0%	100.0%	97.8%	1,000
Frontier Communications	DSL	85.4%	55.1%			36.3%	24
Northland Communications	Cable	78.5%	59.1%	19.9%		4.6%	100
Campus Communications Group	Fiber	23.2%					1,000
Hargray Communications	Fiber	1.8%					50
Pineland Telephone Company	Fiber				8.3%	6.1%	1,000
Windstream	DSL			1.3%			10
Windstream Business	DSL			1.7%			10
Pembroke Telephone Company	Fiber			1.3%			100
ViaSat Internet (formerly Exede)	Satellite	100.0%		100.0%		100.0%	12
HughesNet	Satellite	100.0%		100.0%		100.0%	25
Frontier Business	DSL	38.4%	19.9%			21.2%	24
Campus Communications Group	Fiber	2.8%					1,000
Uniti Fiber	Fiber	0.6%					1,000
Hargray Communications	Fiber	0.4%					50
Georgia Public Web	Copper	0.2%					1.5
Verizon Business	Copper	0.1%					1.5
AT&T	Wireless	100.0%	100.0%	100.0%			10
Verizon	Wireless	100.0%	100.0%	100.0%			10
Sprint	Wireless	98.9%	95.7%	86.1%			6
Cricket	Wireless	98.7%	83.0%	83.6%			0.768

Source: Federal Communications Commission Form 477 Report.

**Table 12: Performance Analysis**

	Statesboro Coverage 30458	Statesboro Coverage 30461	Brooklet Coverage 30415	Portal Coverage 30452	Register Coverage 30450
Internet Providers	15	15	10	7	10
Residential Internet Providers	7	5	6	4	6
Business Internet Providers	6	1	1	4	6
Average Download Speed (Mbps)	42.07	42.07	43.18	26.06	33.44
Faster (+) / Slower (-) v. Georgia	(-1.5%)	(-1.5%)	+1.1%	(-39.0%)	(-21.7%)
Faster (+) / Slower (-) v. U.S.	+1.0%	+1.0%	+3.6%	(-59.0%)	(-24.5%)
Severely Limited Choices	17.0%	17.0%	NA	92.0%	53%
Most Connected City Rank (GA)	319	319	517	504	438
Fiber Optic Service Availability (Residential)	99.0%	99.0%	100.0%	NA	NA
Multiple Wired Providers (Residential)	83.0%	83.0%	23.0%	NA	NA

Source: Federal Communications Commission Form 477 Report.

## PUBLIC SAFETY



Bulloch County is home to several local public safety agencies and state and federal response agencies. Because local, state, and federal response agencies are not required to coordinate these systems, inefficiencies, and operational challenges are inherent and plentiful. As the “Internet of Things” develops and becomes more pervasive it will be imperative for public safety audio and video communication systems to be interoperable and dependable. Historically, public safety connectivity was either voice radio communications to a Public Safety Answering Point (for example, an E-911 center) or to a specific dispatch center.

The commercial standard for mobile data transfer is to use cellular data, but it has limitations as it is not designed with public safety needs in mind. For example, public safety centers typically have generators at radio sites, whereas commercial cellular carriers typically do not. In addition, when using commercial cellular carriers, public safety needs cannot be sufficiently prioritized in emergencies or during large events like festivals, races, or concerts. Events like this cause congestion through extraordinary loading of the commercial cellular service and limit the effectiveness and utility of commercial service.

Finally, most problematic for many public safety broadband users in sparsely populated areas is coverage. Cellular carriers build where the business case is clearly demonstrated. The business case for saving lives is a different calculation than typically made by stockholders. However, as technology advances in the wireless spectrum, the next decade is expected to see a boost in assisting public safety agencies in communications and data access. In a key initiative in this planning period, Bulloch County intends to install a \$7.2 million P-25 interoperable communications system. This IP-based system will enable broadband radio communications that is reliable and encrypted for sending digital voice and data. The new system will also provide 98% coverage county-wide.

# SUMMARY

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- State government is taking a clear lead role in broadband deployment for local communities and especially rural Georgia.
- Local governments will need to learn how to plan and coordinate broadband deployment with non-traditional stakeholders such as rural utilities.
- Local and state government will need to work out differences on tax/revenue structure and right-of-way-management.
- While broadband coverage is favorable countywide compared to most rural communities, areas outside of Statesboro and perhaps Brooklet would benefit from higher internet speeds and competitive choices of providers.

# OUTLOOK

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- State policy and funding is still forming at this time.
- Broadband availability is favorable county-wide for buried fiber optic networks, but spotty for wireless availability outside of the central part of the county and along I-16.
- There is a need to ensure that any existing gaps are filled, especially for disadvantaged populations.

# ALIGNMENT MATRIX

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The following pages present tabular descriptions that advance this baseline analysis for the purpose of identifying needs, opportunities, goals, policies and quality community objectives addressed by priority for each community. By identifying these attributes, this matrix allows decision-makers to develop implementation strategies for the Community Work Program element.

SMART CONNECTIONS: BROADBAND ELEMENT						
<b>Needs</b>	Lack of knowledge or role by local government in planning deployment.	Underserved households and businesses remain.	Access by low-income households to adequate services, computers or other devices.	No coordinated public-private partnerships for deployment.	Public safety interoperability and coordination.	Funding uncertainties.
<b>Opportunities</b>	Utilize National Telecommunications and Information Administration toolkit as a guide.	Create jobs, improve education and social services.	Educate low-income households and community leaders on options.	Plan a community broadband roadmap.	Improve service response and coordination.	Work with the State of Georgia to introduce innovative programs.
<b>Goals</b>	Readiness.	Availability, affordability, reliability, sustainability.	Availability, affordability, readiness, reliability, sustainability.	Readiness, sustainability.	Availability, affordability, readiness, reliability, sustainability.	Readiness, sustainability.
<b>Policies</b>	Develop a knowledge base to create a community broadband plan.	Support infrastructure projects to expand broadband access to underserved areas and key institutions.	Identify vulnerable populations without access or resources.	Identify broadband champions to engage the community and form support for planning and deployment.	Incorporate public safety as a key institution with education, libraries and health care.	Identify and use leveraged funding according to business case, to build partnerships.
<b>Quality Community Objectives</b>	Local preparedness, regional cooperation.	Economic prosperity, local preparedness, regional cooperation, educational opportunities, community health.	Economic prosperity, local preparedness, regional cooperation, educational opportunities, community health.	Economic prosperity, local preparedness, regional cooperation, educational opportunities, community health.	Economic prosperity, local preparedness, regional cooperation, educational opportunities, community health.	Economic prosperity, local preparedness, regional cooperation, educational opportunities, community health.

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## CHAPTER 6 SMART GROWTH LAND USE

# INTRODUCTION

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Bulloch County, Brooklet, Portal and Register have land development regulations that are subject to the *Georgia Zoning Procedures Act* in which they routinely consider updates to their land development regulations. This Comprehensive Plan also considers quality community objectives and character area planning to provide guidance to decision-makers in shaping development activity and evaluating new projects in each community.

# GOALS

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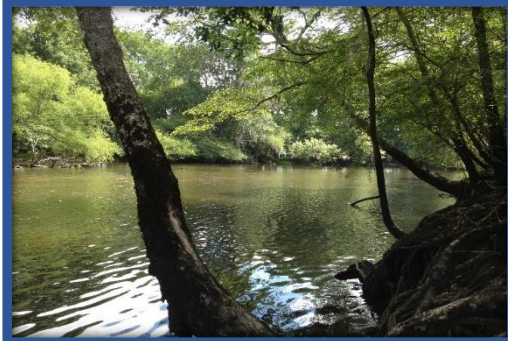
**SMART GROWTH** starts with having smart goals for land use. The following represents the six major goals for **SMART GROWTH** county-wide.

- **Mixed Land Uses:** Encourage building homes, offices, schools, parks, shops, restaurants, and other types of development near one another for access, economies of scale and walkability.
- **Compact Design:** Encourage compact design and infill development to make more efficient use of developable land.
- **Diverse Housing Choices:** Build quality housing for people at all stages of life and income levels and in appropriate character areas.
- **Walkability:** Create safe and convenient walkability with mixed land uses, compact design, context sensitive street design and multi-use trail connections.
- **Sense of Place:** Create unique character areas reflecting community values, culture, and heritage of the people living or visiting them, and direct development to them accordingly.
- **Preserve Open Space:** Protect sensitive environmental resources and rural character while building resilience, creating passive recreation opportunities and supporting agricultural and eco-tourism.

## REGIONAL WATER PLAN AND ENVIRONMENTAL PLANNING CRITERIA

Bulloch County is part of the Coastal Regional Water Planning Council. The adopted Coastal Regional Water Plan (2011), was considered by the Bulloch County Local Plan Coordination Committee and the local governments in preparation of this plan. The water plan goals ensure management practices balance economic, recreational and environmental interests while maintaining consistency with this comprehensive plan. The comprehensive plan's community goals and long-term policies are supportive of and consistent with the regional water plan. The vision of the regional water plan, "to manage water as a critical resource vital to our health, economic, social, and environmental well-being," is inherent in this comprehensive plan's community vision and goals. In the Regional Water Planning Council's 2017 update, Bulloch County's agricultural groundwater withdrawals were considered to be significant and should be monitored. There are currently no anticipated regional groundwater resource gaps expected over the 40-year planning horizon for Bulloch County. However, localized gaps could occur if well densities and/or withdrawal rates result in exceedance of sustainable yield metrics.

Similarly, the Environmental Planning Criteria were also considered in the development of this comprehensive plan. All local governments including Bulloch County, the cities of Brooklet, Portal, and Register, have long been in compliance with the Environmental Planning Criteria, having adopted implemented policies and/or ordinances consistent with Rules of Georgia Department of Natural Resources Environmental Protection Division, Chapter 391-3-16, Rules for Environmental Planning Criteria.



## ANALYSIS

In order to develop sound implementation strategies for future land use in Bulloch County, it is important to understand the existing conditions of the physical setting. A key element in this process is an inventory of existing land use described below. Nine land use classifications were used to represent the data recorded using Bulloch County's Geographic Information System.

**Table 13: Bulloch County Existing Land Use**

Classification	Acres	% Dist.	% Change 2009-2019
Vacant Land-Undeveloped	95,893	21.8%	0.0%
Agriculture-Forestry	320,058	72.8%	-0.7%
Parks/Recreation/Conservation	248	0.1%	18.1%
Residential	18,906	4.3%	9.9%
Commercial	1,754	0.4%	8.7%
Industrial	1,467	0.3%	17.6%
Institutional	350	0.1%	2.9%
Transportation-Communications-Utilities	979	0.2%	1.5%
<b>Total</b>	<b>439,655</b>	<b>100.0%</b>	<b>0.00%</b>

**Vacant Land-Undeveloped:** Nearly 22% of the land in Bulloch County is vacant or undeveloped. The large quantity of undeveloped land allows potential opportunities for protection or preservation. Otherwise, there is ample acreage in the County to accommodate a varying degree of development, where if planned properly will result in a higher quality environment than unplanned, uncontrolled development.

**Agriculture-Forestry:** Because Bulloch County is largely rural, the amount of land occupied by agricultural uses accounts for nearly 73% of the total land in Bulloch County. Agricultural land makes up much of this land use category, though forestry is also prominent. As physical development continues with projected population growth, this class of land will gradually decline. Many properties are classified as prime agricultural land, representing a great natural resource that should be preserved.

**Parks/Recreation/Conservation:** Bulloch County's Parks and Recreation Department is recognized as having high quality recreation facilities and programs. Georgia Southern University also provides significant recreational facilities and programs to students and the public. Despite having high quality facilities, there is a deficiency of public parkland in the county of 218 acres. Future public parkland for passive recreation activities and environmental preservation purposes is needed and is addressed in the County's current Master Recreation Plan. There are also opportunities to address dedication of private open space or green space in private developments, though some uses may be restricted.



**Residential:** Single-family residences are located throughout rural Bulloch County, dispersed along both major and minor roads. Dense concentrations of subdivisions and individually built homes can be found in and near municipal areas, historic areas and in more modern subdivisions. There has been consistent growth in Bulloch County of small-scale residential developments. Outside of the immediate surroundings of Georgia Southern University, unincorporated Bulloch County contains few multifamily residences, but they are increasing. Subdivision development is taking place in areas outside of the Veterans Memorial Parkway (Statesboro By-Pass) and in areas south of Brooklet, within reach of Interstate 16. Also, there is a significant number of manufactured homes dispersed throughout the county on individual lots and clustered parks, though their prominence has declined since the 2000.

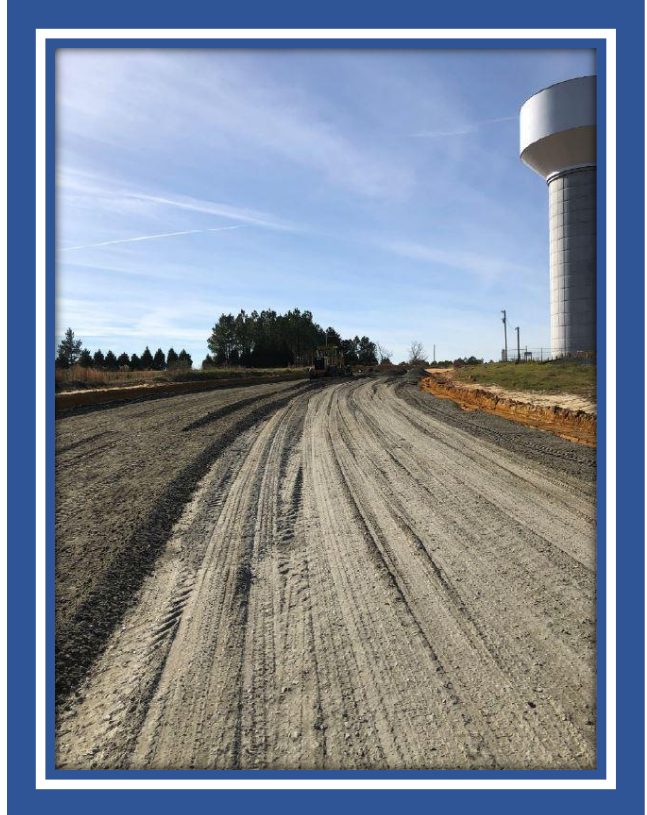
**Commercial:** Commercial land uses are found throughout Bulloch County, but more intensive commercial areas are concentrated in and around Statesboro. Outside of the City of Statesboro, significant commercial areas are located along U.S. Highways 301 and U.S. 80, and State Routes 24 and 25. The access created by the Statesboro By-Pass contributes to increased commercial development. The U.S. 301 corridor between State Route 46 and Statesboro is increasingly being developed as commercial along the corridor with a mix of newer and older commercial properties, and portions of the corridor have aged to the point of needing redevelopment. The municipalities of Brooklet, Portal and Register each have traditional central business districts with a mixture of retail, industry and office uses, and have similar

redevelopment needs. Additionally, some Bulloch County unincorporated crossroad communities include quaint, village-like retail shops, antique stores and convenience stores.

**Industrial:** The largest amount of industrial land use in Bulloch County is located along U.S. Highway 301, both north and south of Statesboro. Industries in both of these areas also have rail access. Smaller industries are located in various parts of Bulloch County. A new 220 acre industrial park is being developed at I-16 and U.S. 301 with the aid of \$16 million in public infrastructure investment and is part of a planned 1,800 acre Tax Allocation District where most of the remaining development is expected to be commercial in nature. Brooklet, Portal and Register do not currently have active industries that employ residents.

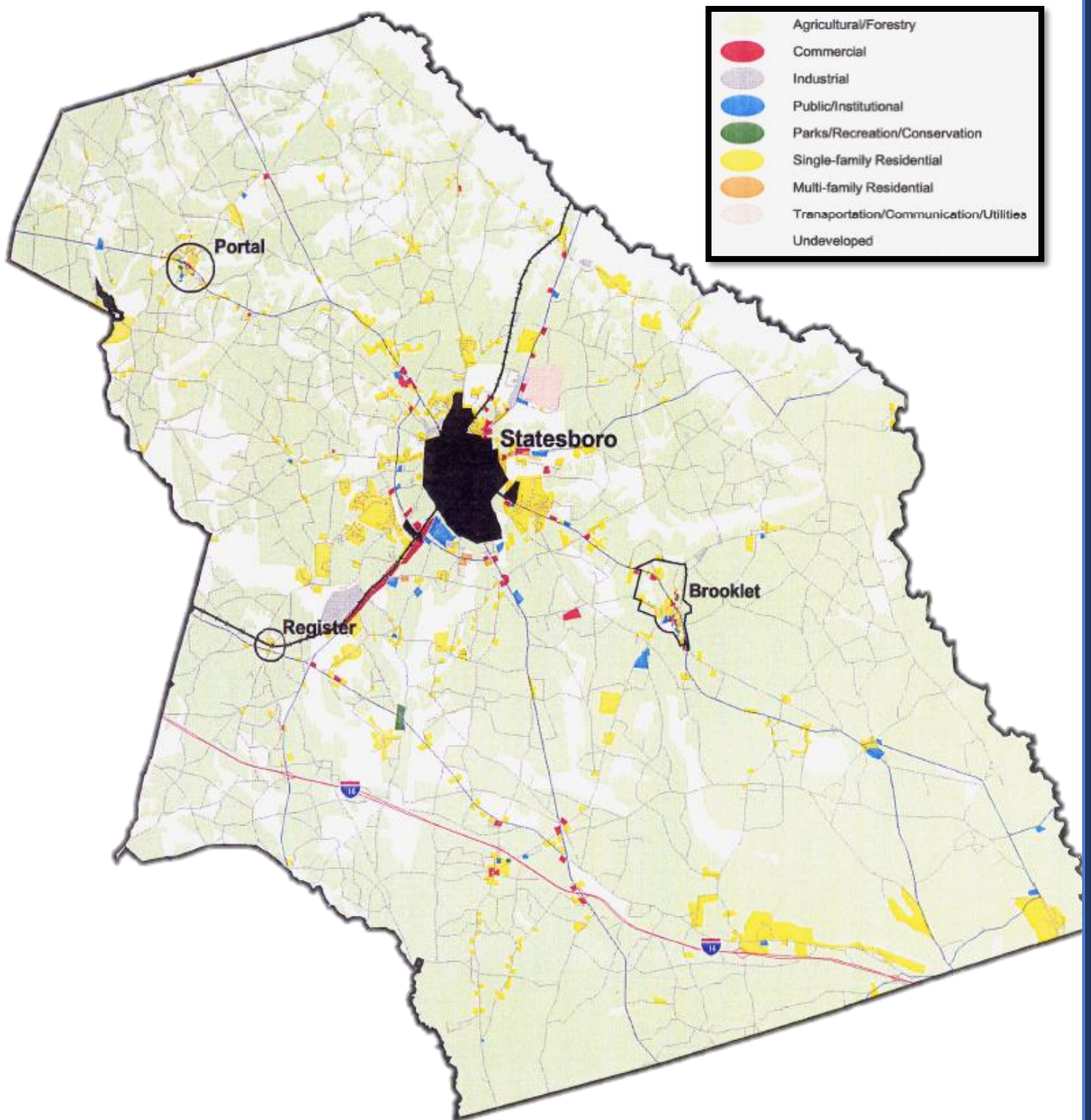
**Public-Institutional:** Churches and education facilities are the primary institutional uses. Government facilities and schools are located in Statesboro, Brooklet, Portal and Register. Because of the size of and growing population of Bulloch County, additional government and school sites should be identified to insure adequate delivery of facilities and services. Due to the importance of municipalities, new public and institutional buildings should be located at urban centers and corridors, when possible.

**Transportation-Communication-Utilities:** This classification is differentiated from industrial including only airports, water and sewer facilities, power stations, substations, water storage tanks, radio and television stations, limited access highways, and utility corridors. Created in a network fashion, most of these facilities follow existing road and rail networks. However, in rural settings, the networks will intersect from road and rail right of ways using private land easements.





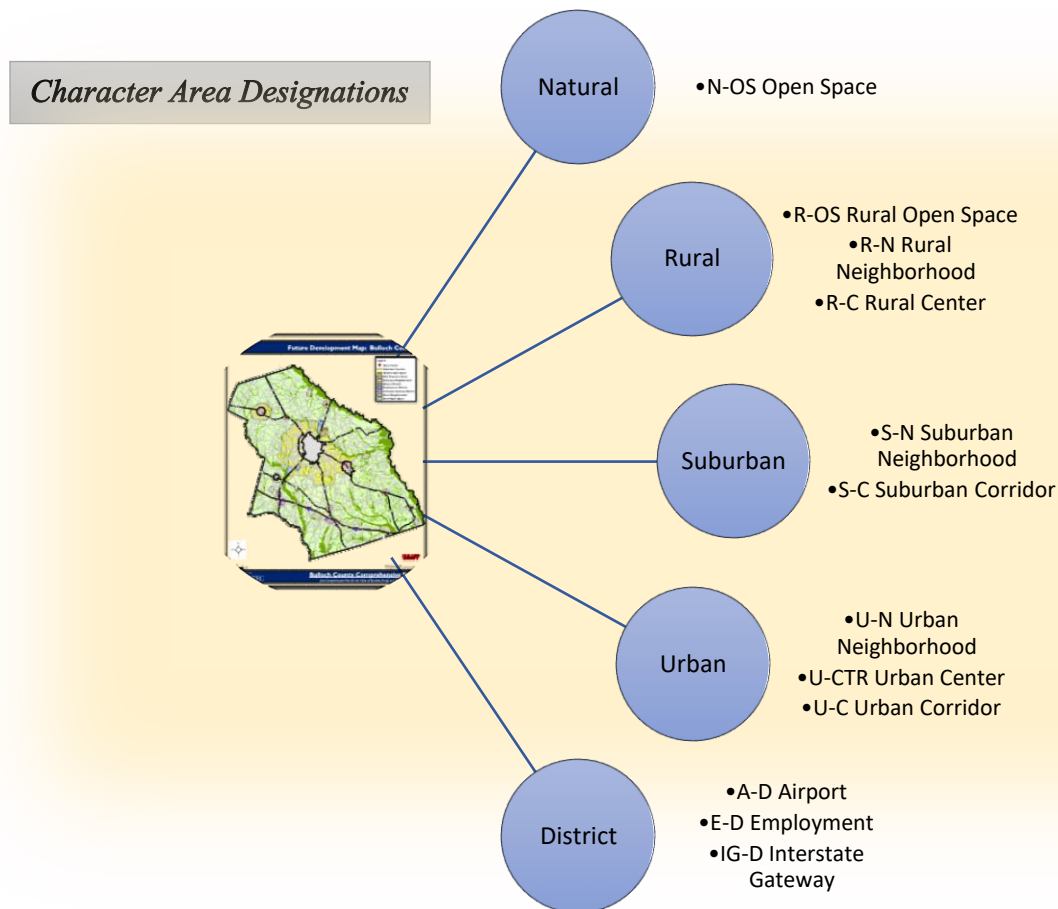
## Bulloch County Existing Land Use



# CHARACTER AREAS

The Great Recession of 2008 and 2009 slowed the unusually high rate of population growth and physical development throughout Bulloch County, although by 2016 such growth began to resume. Because of this pause in growth, it is felt that the Bulloch County Character Areas created in the 2009 Comprehensive Plan Update remain relevant and sufficient to continue guiding future development and land use with minor modifications.

Five major development categories in the illustration below describe general development patterns ranging from natural areas to urban and district areas. The thirteen-character areas within each category describe community elements of scale, and intensity of development. The Future Development Maps for unincorporated Bulloch County, Brooklet, Portal and Register align with the character area narratives, and lay out the vision and implementation strategies for future land uses.





### **Character Area Framework**

The Character Area Framework is presented in narrative form in this section and is illustrated in the Future Development Maps. The framework describes policies, development patterns and design strategies to help achieve the community vision for future land uses. The framework for each Character Area more specifically incorporates the following components:

- *Intent* describes the goal and policy aims of each Character Area, specifically to preserve, maintain, enhance or create a desired atmosphere.
- *General Characteristics* provide an overview of desired development pattern in relation to the Design Principles.
- *Application* provides a general description of tools or approaches that can be applied based on characteristics of the land and infrastructure.
- *Primary Land Uses* lists appropriate land uses that support the desired mix and or/type of land uses in a Character Area.
- *Applicable Zoning Districts* identifies appropriate zoning districts to use within the character area. Zoning districts in this policy component represent both currently adopted zoning districts, and where necessary, proposed districts (*in italics*) designed specifically to implement the intent of the Character Area.
- *Design Principles* describes the form and character of physical elements of the Character Area. This includes scale, which is presented in terms of low, medium and high (relative to other Character Areas in the County), site design, density/intensity, green space, transportation and infrastructure/utilities.
- *Visual Character Description* provides illustrations of the desired development character specifically for development patterns, transportation and green space.
- *Implementation Strategies* are used to link the desired physical development patterns identified in each character area with further planning studies, and/or appropriate modifications to existing development regulations, or the addition of new regulations needed to meet policy intent.

## **DEVELOPMENT CATEGORIES**

### **NATURAL**

This category applies to areas that are important to preserve and maintain in a natural state for environmental functionality, and to provide areas where residents can enjoy nature. Examples of this category include geographic features natural wildlife habitat, water bodies, and public preserves and parks.

There is only one character area described as Natural Open Space. Preserved areas can be both public and private. Public natural areas can be in the form of passive parks or government-



owned land with low impact recreational activities such as boating, hiking, fishing, camping and picnicking. Privately-owned natural areas can be in the form of conservation easements or undesirable areas for development because of sensitive natural features. Opportunities to connect and enjoy nature are an important part of a community.

Emphasis should be placed on connecting natural features to support a healthy environment without interruption or segregation by the built environment. Building and development is rare in this category. Where development does occur, every effort should be made to minimize its physical impact on the surrounding natural environment.

## RURAL

Rural character areas include Rural Open Space, Rural Neighborhoods and Rural Centers. These are areas defined by agricultural activities, low density residential uses, and limited low intensity non-residential uses where appropriate. The intent of this category is to preserve and enhance the rural character. The development pattern is defined by sparsely scattered buildings connected by a more limited road network than found in other development categories. Buildings are usually a combination of residential homes and structures for agricultural activities. Spacing between buildings is usually wide and they are separated by large tracts of land. Some rural areas may have clusters of residential buildings that are closer to one another and the street to create rural “hamlets.”

Pasture land and crop fields are appropriate. Limited commercial activity can be found at Rural Center crossroads. Non-residential uses should be limited to those that provide essential services to the rural community. Civic uses such as schools and post offices or commercial uses such as small grocery stores or farm equipment and supply stores are examples of non-residential uses. These buildings should be located on smaller lots, oriented close to the street, and clustered together to minimize the development of the surrounding rural landscape.



Green space is an important part of the rural character. Farm land and natural features are the main types of green space and are mostly located on private land. Public access to green space is limited to available community parks, though privately-owned land is in abundance.

Roads typically follow contours and other natural features. Typical rural road cross sections consist of the roadway, shoulders, and ditch and swales with no curbs or sidewalks. Generally, distances between intersections is greater. The nature of the road network and low frequency of intersections limits mobility options to motorized vehicles and increases trip distance and time.

Public and utility services are limited in rural areas. Public safety services such as police, fire, and medical response are influenced by greater distances to travel and limited road connections. Civic services such as schools, community centers and post offices should be located at important crossroads. Electricity and

landline telecommunications are the main private utilities service for rural areas along with expanding wireless telecommunications access. Water service is limited and sewerage treatment is generally limited to septic tanks, both on site. Water and sewer should be handled on site with best management practices to limit negative environmental impacts.

## SUBURBAN

This category which includes Suburban Neighborhood and Suburban Corridor areas represent a transition between natural and rural settings and urban environments. The intent of this category is to preserve the accommodation of natural features into the built environment, but also to enhance the access to urban amenities such as jobs, commercial goods and services and public services. These character areas are typically adjacent to the municipalities, or on arterial corridors leading to municipalities.

The development pattern of traditional suburban neighborhoods is generally characterized by the separation of land uses into residential and non-residential areas, though mixed uses can be accommodated. Residential areas typically have clusters of similar one and two story residential buildings, lots surrounded by landscaping on all sides, and a moderate to degree of building separation. Non-residential areas are typically located along major roads or in nodes at major crossroads. Commercial uses are typically clustered together and are designed largely to accommodate vehicular access. Civic buildings such as schools or government offices are usually located in isolation from other uses and along major roads.



Transportation is centered on the automobile but pedestrian facilities should be included. Road networks have a moderate degree of connectivity and frequency of intersections. Because trip distances are typically too long for walking, transportation mobility is largely dependent on motor vehicles. Streets are typically curvilinear with residential streets often ending in cul-de-sacs. A typical cross section of a street should include the roadway, curb and gutter, and in some cases sidewalks.

Green space in suburban areas is largely located on private properties and associated with the yard area surrounding buildings, though in more affluent subdivisions there is green space, community buildings or passive recreation available through homeowners' associations. Public green space is typically in the form of parks with recreation facilities such as ball parks or small neighborhood parks, and private common interest elements in some neighborhoods, where available.

While the traditional model of suburban development is prominent, a desire for a more complete and integrated physical form is desired. New suburban development should integrate land uses (mixed-use) or mixed density where appropriate and increase the connections between land uses, reducing the influence of design around automobiles. Examples of this type of development pattern include connecting residential developments to other residential developments or commercial areas. Within commercial areas, buildings should be located closer to the street and separated from the roadway by landscaping rather than parking lots. Parking and additional commercial buildings should be located behind buildings

that front the street. Civic buildings and uses such as schools and parks should be located where commercial and residential uses connect to create suburban centers or corridors with a cluster of services and activities for a community.

## URBAN



This category consisting of Urban Neighborhoods, Urban Centers and Urban Corridors in Brooklet, Portal and Register is defined by the highest intensity of development. The intent of this category is to enhance and create quality, walkable communities with residential and nonresidential uses in close proximity. Additionally, this category intends to preserve historic buildings and street patterns associated with traditional City centers.

The development pattern of urban areas is defined by higher intensity of street connection, buildings, and land uses. Commercial areas are defined by

buildings that consume most of the lot and have little to no setbacks from the street. The building uses are typically a mixture of retail, office, and residential uses. The scale of buildings varies but is intended to frame the site with two or more stories. Residential neighborhoods are defined by shallower lots and yard setbacks than found in suburban character areas.

Green space in urban areas is made up of street trees or other plantings that lines sidewalks, small urban parks, and small yards in urban neighborhoods.

The transportation network of urban areas has a network of linear streets, smaller walkable blocks, and frequent intersections. Mobility opportunities are greater in urban areas with walkable distances between land uses, integrating motor vehicle traffic and pedestrians. A typical cross section of an urban street includes the roadway, curb and gutter, street trees or other street furniture, and a sidewalk. On-street parking is also a part of urban areas. The network is capable of providing activity along the street and a buffer between moving traffic and the pedestrian walkways.

Urban areas also provide higher degrees of public and utility services. Water, electricity, and other utilities are all provided, though sewer is only available in Portal. Additionally, the full range of public safety services are available and can access the quicker response times in urban areas. Civic services such as government buildings and community parks and centers are also typically located in urban areas.

## DISTRICT

This category includes an area surrounding the Statesboro-Bulloch County Airport, three planned industrial parks and two interstate interchanges on I-16 accommodate activities not offered with traditional community elements of open space, neighborhoods, centers, and corridors. The intent of this category is to create and enhance areas with special services and high intensity uses for the community, create community gateways, and to limit negative impacts they may have on surrounding areas.

The development patterns for districts are typically large land developments. Examples include airports or industrial sites that require a large geographic area. Large buffers are required to limit the impacts of the land use on adjacent areas. To help limit the district's impact on the surrounding character areas, efforts should be made to mirror the character of the surrounding areas at the district edge. Similar street types and landscaping buffers are an example of this type of character mirroring.

Transportation in and around districts can vary greatly. For heavy land uses such as industrial uses, the transportation system should be designed to accommodate large, heavy vehicles. Access to loading or heavy service areas should be accommodated on site and away from major road access points.



Green space is variable in districts. Most green space is associated with landscape buffers or large open areas such as an airport runway, though there is limited to no public use for pedestrian or recreation purposes.

Utility services are an important component of district areas. Where heavy uses are located, such as industrial uses or airports, it is important that water, sewer, telecommunications and electrical services are provided. Noxious water uses, smoke, glare and noise need to be mitigated to limit negative impacts on the environment.

## ALIGNMENT MATRIX

The following pages present tabular descriptions that advance this baseline analysis for the purpose of identifying needs, opportunities, goals, policies and quality community objectives addressed by priority for each community. By identifying these attributes, this matrix allows decision-makers to develop implementation strategies for the Community Work Program element.



SMART GROWTH: LAND USE ELEMENT						
<b>Needs</b>	Major corridors and neighborhood streets lack character and discourage biking and walking.	Development pressures threaten agricultural areas and natural and rural open space.	Limited housing choices.	Lack of pedestrian circulation and networks.	There are many undeveloped vacant sites in each City.	There are not enough neighborhood centers to serve adjacent neighborhoods.
<b>Opportunities</b>	Traditional neighborhood development; mixed use development.	Encourage higher density/intensity growth into suitable areas for development.	Allow a mixture of housing types in developing areas and concentrating new, higher density housing types into mixed use developments.	Enhancements to downtown areas will encourage more livable, pedestrian friendly commercial areas.	Infill development can enhance established neighborhoods and help revitalize economically distressed neighborhoods and business districts.	Encourage mixed land uses or direct development to appropriate places.
<b>Goals</b>	Sense of place, preserve open space.	Sense of place, preserve open space.	Mixed use, diverse housing choices, sense of place, preserve open space.	Mixed use, sense of place, preserve open space.	Compact design, diverse housing choices, walkability, open space.	Mixed land uses, compact design, walkability, sense of place.
<b>Policies</b>	Refer to character areas.	Refer to character areas.	Refer to character areas.	Refer to character areas.	Refer to character areas.	Refer to character areas.
<b>Quality Community Objectives</b>	Efficient land use, local preparedness, sense of place, transportation options, community health.	Resource management, efficient land use, sense of place, community health.	Sense of place, housing options, community health.	Efficient land use, local preparedness, sense of place, transportation options, community health.	Efficient land use, sense of place, community health.	Economic prosperity, efficient land use, sense of place, community health.



SMART GROWTH: LAND USE ELEMENT						
<b>Needs</b>	There is no clear boundary where City stops and countryside begins.	The Greenway system needs to be expanded.	New development remains dependent upon the use of septic systems outside of Portal.	New development within the cities of Brooklet, Portal, and Register is limited because of insufficient water capacity and aging distribution systems.	Brooklet, Portal and Register have a core of historic and cultural resources that could be preserved.	Recreation facilities are needed to the north and southwest of Statesboro.
<b>Opportunities</b>	Use corridor character areas to define and establish community or business district gateways.	The existing S&S Greenway has completed two phases and there is a Master Greenway Plan to follow.	Develop municipal sewer capacity, consider requirements to install package systems.	Build a business case or model to justify and fund needed improvements.	Retaining the individual identity of each city, which are largely shaped by local historic resources.	Work with public schools to create joint use facilities, follow Recreation Master Plan.
<b>Goals</b>	Sense of place.	Sense of place, preserve open space.	Mixed land uses, compact design, sense of place, preserve open space.	Compact design.	Sense of place.	Walkability, Sense of place, preserve open space.
<b>Policies</b>	Refer to character areas.	Refer to character areas.	Refer to character areas.	Refer to character areas.	Refer to character areas.	Refer to character areas.
<b>Quality Community Objectives</b>	Efficient land use, sense of place, transportation options.	Resource management, local preparedness, sense of place, transportation options, educational opportunities, community health.	Resource management, efficient land use, local preparedness, community health.	Resource management, efficient land use, local preparedness, community health.	Resource management, efficient land use, sense of place, local preparedness, community health.	Resource management, efficient land use, local preparedness, sense of place, community health.

## NATURAL OPEN SPACE (N-OS)

### POLICIES

#### Intent

- Preserve existing undisturbed natural areas and open space unsuitable for development and protect areas that have already developed or have development potential due to existing zoning.

#### General Characteristics

- Floodplain areas, wetlands, river corridor, publicly owned parkland, and privately-owned land in its natural state.
- Primarily privately-owned rural land with no development or limited residential or recreational homes with variable setbacks.

#### Application

- Limit man-made disturbances.
- Provide residents opportunities to connect with nature.
- Seek opportunities to acquire land for open space for passive recreation and protection.

#### Primary Land Uses

- Civic uses such as cemeteries and burial grounds, and passive recreation (hunting, fishing, boating, nature preserves).
- Undeveloped areas in their natural state.
- Very low-density single-family residences.

#### Zoning Classifications

- AG-5, Conservation Preservation
- A-1, AG, CD, AGR

### DESIGN PRINCIPLES

#### Site Design

- Preserve scenic views, existing tree cover and vegetation, natural habitats and rural character.
- Place buildings and choose exterior materials to blend with surrounding landscape and to reduce visual impacts.

#### Density/Intensity

- Natural landscape.
- Limited civic uses (community education).
- Limited residential development.
- 1 dwelling unit per 5 acres, or more.

#### Green Space

- Natural and informal landscape.
- Maintain connections between natural features.

#### Transportation

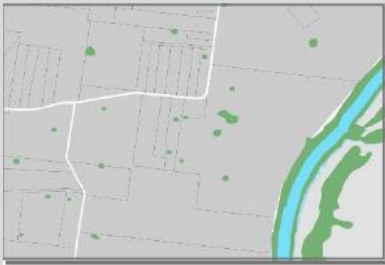
- Low pedestrian connectivity.
- Limited access with informal roadways such as unpaved roads.

#### Infrastructure

- Not applicable.

### Visual Character Description

#### *Development Pattern*



#### *Transportation*

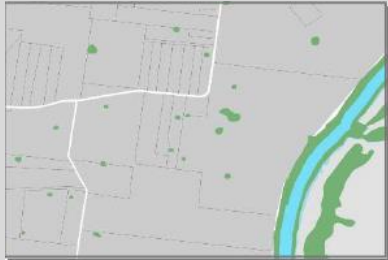




#### *Green Space*



### IMPLEMENTATION STRATEGIES

- Pursue public-private partnerships to purchase environmentally sensitive lands for the creation of wildlife areas, nature preserves, and public parks.
- Establish a land conservation program to create and promote conservation easements or similar tools that preserve important natural areas.
- Enforce flood hazard and river corridor protection ordinances.
- Adopt design standards for rural roads and alterations to minimize scenic and environmental impacts.

RURAL OPEN SPACE (R-OS)		
POLICIES		DESIGN PRINCIPLES
<p><b><u>Intent</u></b></p> <ul style="list-style-type: none"> <li>Preserve and sustain rural character, lifestyle and the agricultural economy.</li> </ul>		<p><b><u>Site Design</u></b></p> <ul style="list-style-type: none"> <li>Moderate-to-deep building setbacks with green space.</li> <li>Small building footprints in relation to lot size.</li> </ul>
<p><b><u>General Characteristics</u></b></p> <ul style="list-style-type: none"> <li>Scattered low density residential development and agricultural activities.</li> <li>Buildings have variable setbacks and an informal orientation to the roadway.</li> </ul>		<p><b><u>Density/Intensity</u></b></p> <ul style="list-style-type: none"> <li>Limited civic buildings.</li> <li>1 dwelling units per 2-5 acres, or more.</li> <li>1-2 story buildings.</li> </ul>
<p><b><u>Application</u></b></p> <ul style="list-style-type: none"> <li>Provide opportunities for residents to connect with nature.</li> <li>Seek opportunities to secure and protect land for open space.</li> <li>Protect prime agricultural lands.</li> </ul>		<p><b><u>Green Space</u></b></p> <ul style="list-style-type: none"> <li>Natural and informal landscape.</li> <li>Maintain connections between natural features.</li> <li>Require landscape buffers to reduce land use conflicts.</li> <li>Encourage conservation subdivisions.</li> </ul>
<p><b><u>Primary Land Uses</u></b></p> <ul style="list-style-type: none"> <li>Civic uses such as places of worship, cemeteries and burial grounds, passive recreation (including greenways and trails).</li> <li>Agricultural uses, low density single family residential and accessory uses such as barns, stables, or cottage industries.</li> </ul>		<p><b><u>Transportation</u></b></p> <ul style="list-style-type: none"> <li>Low pedestrian connectivity with greenways, trails.</li> <li>Low vehicular connectivity with generous distance between intersections and driveways.</li> <li>Rural paved and unpaved roadways with narrow shoulders, ditches or swales.</li> </ul>
<p><b><u>Zoning Classifications</u></b></p> <ul style="list-style-type: none"> <li>AG-5, R-80, Conservation-Preservation</li> </ul>		<p><b><u>Infrastructure</u></b></p> <ul style="list-style-type: none"> <li>On-site water (private wells or small systems) and sewer (septic or package systems).</li> <li>Variable private utilities.</li> </ul>
Visual Character Description		
Development Pattern	Transportation	Green Space
		
IMPLEMENTATION STRATEGIES		
<ul style="list-style-type: none"> <li>Pursue government purchase of environmentally sensitive lands to create wildlife areas, nature preserves, and public parks.</li> <li>Adopt a Conservation Subdivision Ordinance for clustered development to preserve rural character, sensitive natural resources and large tracts of permanent green space.</li> <li>Incorporate and incent design principles into development ordinances or zoning conditions.</li> <li>Implement the Countywide Greenways Master Plan and define priorities for development.</li> </ul>		

## RURAL NEIGHBORHOOD (R-N)

### POLICIES

#### Intent

- Preserve and sustain rural character, lifestyle and the agricultural economy.

#### General Characteristics

- Scattered low density residential development with large distances between buildings or historical clusters of rural homes.
- Buildings have variable setbacks with an informal orientation to the roadway.

#### Application

- Provide a transition area between rural open space and a rural center while protecting prime agricultural land.
- Accommodate hamlet-style clustered homes compatible with surrounding agricultural uses benefitting from the scenic rural landscape.

#### Primary Land Uses

- Civic uses such as places of worship, cemeteries and burial grounds, passive recreation (including greenways and trails).
- Small-scale agricultural uses, low density single family residential and accessory uses such as barns or stables.

#### Zoning Classifications

- R-40, R-80, *Conservation Subdivision*

### DESIGN PRINCIPLES

#### Site Design

- Moderate building setbacks with green space.
- Small building footprints in relation to lot size.
- Architectural diversity and controlled aesthetics giving a sense of place with attractive facades and streetscape where practical.

#### Density/Intensity

- Scaled civic buildings.
- 1-2 dwelling units per acre.
- 1-3 story buildings.

#### Green Space

- Natural, formal and informal landscape.
- Maintain connections between natural features.
- Use landscape buffer to reduce land use conflicts.
- Encourage conservation subdivisions.

#### Transportation

- Low pedestrian connectivity with greenways or trails.
- Low vehicular connectivity with large blocks between intersections and driveways.
- Rural paved and unpaved roadways with narrow shoulders, ditches or swales; informal landscaping or farm fences lining the edges.

#### Infrastructure

- On-site water (private wells or small systems) and sewer (septic or package systems).
- Variable private utilities.

### Visual Character Description

#### *Development Pattern*



#### *Transportation*



#### *Green Space*



### IMPLEMENTATION STRATEGIES

- Adopt a Conservation Subdivision Ordinance to ensure to preserve rural character, sensitive natural resources and large tracts of permanent green space.
- Incorporate and incent design principles into development ordinances, or by zoning conditions.
- Implement the Countywide Greenways Master Plan and define priorities for development.

## RURAL CENTER (R-C)

### POLICIES

#### Intent

- Preserve and sustain rural character, lifestyle and the agricultural economy by providing compatible commercial goods and services concentrated at important cross roads that serve nearby areas.

#### General Characteristics

- Clustered commercial and residential development patterns with moderate to short distances between buildings.
- Buildings are located close to the street with parking either in front, beside or behind the building.

#### Application

- Compact small-scale development with compatible rural architecture.

#### Primary Land Uses

- Civic uses such as places of worship, cemeteries and burial grounds, passive recreation (including greenways and trails).
- Commercial uses such as retail stores, farm equipment and supply stores.

#### Zoning Classifications

- R-40, R-80, GC, NC, *Rural Center Overlay*

### DESIGN PRINCIPLES

#### Site Design

- Shallow to moderate building setbacks with green space.
- Moderate building footprints related to lot size.
- Architectural diversity giving a sense of place and character with attractive non-corporate facades, landscaping, streetscapes and unobtrusive lighting.

#### Density/Intensity

- Limited civic buildings.
- 1-3 story buildings clustered around or in close proximity to major intersections.

#### Green Space

- Natural, formal and informal landscape.
- Maintain connections between natural features.

#### Transportation

- Low pedestrian connectivity with greenways, trails, and sidewalks.
- Low-to-moderate vehicular connectivity with managed access, adequate distance between intersections and efficient and safe circulation patterns.
- Paved roadways and parking, curb and gutter and formal landscaping at the edge of public right of way and private property.

#### Infrastructure

- On-site water (private wells or small systems) and sewer (septic or package systems).
- Accessible private utilities.
- Controlled stormwater as needed.

### Visual Character Description

**Development Pattern**



**Transportation**



**Green Space**



### IMPLEMENTATION STRATEGIES

- Incorporate and incent design principles into development ordinances, or by zoning conditions.
- Implement the Countywide Greenways Master Plan and define priorities for development.
- Adopt Rural Center Overlay District that defines desired standards for commercial uses and site design.



## SUBURBAN NEIGHBORHOOD (S-N)

POLICIES	DESIGN PRINCIPLES
<p><b><u>Intent</u></b></p> <ul style="list-style-type: none"> <li>Enhance existing suburban neighborhoods and create new suburban neighborhoods with a sense of place and community.</li> </ul>	<p><b><u>Site Design</u></b></p> <ul style="list-style-type: none"> <li>Shallow-to-moderate building setbacks with green space.</li> <li>Moderate building footprints related to lot size.</li> <li>Master planned projects that consider quality architectural building design with attractive facades, controlled aesthetics, amenities and context sensitive infrastructure.</li> </ul>
<p><b><u>General Characteristics</u></b></p> <ul style="list-style-type: none"> <li>Clustered buildings located close to the street with parking beside or behind the building.</li> </ul>	<p><b><u>Density/Intensity</u></b></p> <ul style="list-style-type: none"> <li>Scaled civic uses.</li> <li>2-4 dwelling units per acre.</li> </ul>
<p><b><u>Application</u></b></p> <ul style="list-style-type: none"> <li>Compact and walkable residential development and neighborhood commercial development.</li> <li>Housing diversity and connectivity with nodal concentrations near key crossroads.</li> <li>Connect to public water and sewer if available.</li> </ul>	<p><b><u>Green Space</u></b></p> <ul style="list-style-type: none"> <li>Informal landscaping for passive use areas.</li> <li>Formal landscaping and appropriate buffers within built areas.</li> <li>Maintain connections between natural features.</li> <li>Neighborhood and community park facilities.</li> </ul>
<p><b><u>Primary Land Uses</u></b></p> <ul style="list-style-type: none"> <li>Civic uses such as places of worship, cemeteries and burial grounds, health facilities, school's passive recreation (including greenways and trails), public parks and community centers.</li> <li>Single family and multi-family residential uses.</li> <li>Neighborhood-scale commercial and office uses.</li> <li>Neighborhood-scale mixed use development.</li> </ul>	<p><b><u>Transportation</u></b></p> <ul style="list-style-type: none"> <li>Pedestrian facilities (sidewalks/multi-use trails) connected to civic and commercial uses.</li> <li>Moderate vehicular connectivity with managed access, adequate distance between intersections and efficient and safe circulation patterns.</li> <li>Paved roadways and parking, curb and gutter, sidewalks, streetscaping and streetlights.</li> </ul>
<p><b><u>Zoning Classifications</u></b></p> <ul style="list-style-type: none"> <li>R-2, R-3, R-25, GC, NC, PUD</li> </ul>	<p><b><u>Infrastructure</u></b></p> <ul style="list-style-type: none"> <li>Municipal water (or sewer) proximity.</li> <li>On-site water (private wells or small systems) and sewer (septic or package systems).</li> <li>Abundant private utilities.</li> <li>Low impact development.</li> </ul>

### Visual Character Description

Development Pattern	Transportation	Green Space
		

### IMPLEMENTATION STRATEGIES

- Incorporate and incent design principles into development ordinances, or by zoning conditions.
- Encourage the use of planned unit developments (PUD's).
- Develop and promote incentives for amenities, aesthetics, and infill.
- Implement the Countywide Greenways Master Plan and define priorities for development.



## SUBURBAN CORRIDOR (S-C)

POLICIES	DESIGN PRINCIPLES
<p><b><u>Intent</u></b></p> <ul style="list-style-type: none"> <li>Enhance existing suburban corridors with an increased sense of place and community.</li> </ul>	<p><b><u>Site Design</u></b></p> <ul style="list-style-type: none"> <li>Moderate-to-deep building setbacks with green space using building structures to frame the site.</li> <li>Moderate-to-large building footprints related to lot size.</li> <li>Master planned projects that consider quality architectural building design with attractive facades, controlled aesthetics, amenities and context sensitive infrastructure.</li> </ul>
<p><b><u>General Characteristics</u></b></p> <ul style="list-style-type: none"> <li>Mixed use or single use commercial, office and residential development along major linear transportation corridors.</li> <li>Clustered buildings located close to the street with shared parking to the side and rear.</li> </ul>	<p><b><u>Density/Intensity</u></b></p> <ul style="list-style-type: none"> <li>Scaled civic uses.</li> <li>2-8 dwelling units per acre.</li> <li>1-4 story buildings clustered with proximity to major intersections.</li> <li>Moderate floor area and impervious surface ratios.</li> </ul>
<p><b><u>Application</u></b></p> <ul style="list-style-type: none"> <li>Locate on principal arterials near areas where public water and sewer exists or is proposed.</li> <li>Housing diversity and connectivity with nodal concentrations at major intersections.</li> </ul>	<p><b><u>Green Space</u></b></p> <ul style="list-style-type: none"> <li>Formal landscaping and appropriate buffers within built areas.</li> <li>Community and regional park facilities.</li> </ul>
<p><b><u>Primary Land Uses</u></b></p> <ul style="list-style-type: none"> <li>Civic uses such as places of worship, cemeteries and burial grounds, schools, health care facilities, active and passive recreation and municipal services.</li> <li>Single family and multi-family residential uses.</li> <li>Highway commercial and office uses.</li> <li>Larger scale mixed use development clustered at key crossroads.</li> </ul>	<p><b><u>Transportation</u></b></p> <ul style="list-style-type: none"> <li>Pedestrian facilities (sidewalks/bicycles/multi-use trails) with high connectivity between uses.</li> <li>High vehicular connectivity with managed access, adequate distance between intersections and efficient and safe circulation patterns.</li> <li>Paved roadways and parking, curb and gutter, sidewalks, streetscaping and streetlights.</li> </ul>
<p><b><u>Zoning Classifications</u></b></p> <ul style="list-style-type: none"> <li>R-2, R-3, R-25, HC, GC, PUD, Corridor Overlay District</li> </ul>	<p><b><u>Infrastructure</u></b></p> <ul style="list-style-type: none"> <li>Municipal water (or sewer) proximity.</li> <li>On-site water (private wells or small systems) and sewer (septic or package systems).</li> <li>Abundant private utilities.</li> <li>Low impact development.</li> </ul>

### Visual Character Description

**Development Pattern**



**Transportation**



**Green Space**



### IMPLEMENTATION STRATEGIES

- Incorporate and incent design principles into development ordinances, or by zoning conditions.
- Encourage the use of planned unit developments (PUD's).
- Develop and promote incentives for amenities, aesthetics, and infill.
- Implement the Countywide Greenways Master Plan and define priorities for development.
- Prepare and adopt a Suburban-Corridor Overlay District to regulate building placement, and materials, design and size, sign placement, landscaping, access management, inter-parcel access, and other elements that contribute to the look and function of the corridor.

## URBAN NEIGHBORHOOD (U-N)

### POLICIES

#### Intent

- Enhance and maintain existing urban neighborhood character by accommodating infill development that respects the scale, setback and style of adjacent homes, protects and stabilizes existing dwellings, including those with historic value.
- Create new urban neighborhoods to improve the quality of life and create a sense of place and community.

#### General Characteristics

- Buildings are clustered and located close to the street with parking either in front, beside or behind the building on private property.
- Green Space is reduced due to smaller lot sizes.

#### Application

- Compact, walkable development linking the City center.
- Mixed use or single use neighborhood scale commercial, office and residential development.
- Housing diversity of types and sizes with redevelopment, including live/work units.

#### Primary Land Uses

- Civic uses such as places of worship, schools, health facilities, passive recreation (including greenways and trails).
- Single family and multi-family residential uses with home occupations.

#### Zoning Classifications

- R-1, R-2, R-3, R-4, PUD
- SFR, MFR, MHP, PUD
- DR, RMD, SR, PUD

### DESIGN PRINCIPLES

#### Site Design

- Shallow to moderate building setbacks with green space using building structures or landscaping to frame the site.
- Moderate to high lot coverage and building footprints related to lot size.
- Master planned projects that consider quality architectural building design with attractive facades, controlled aesthetics, amenities and context sensitive infrastructure.

#### Density/Intensity

- Scaled civic buildings.
- 2-8 dwelling units per acre.
- 1-3 story buildings.
- Infill vacant lots.

#### Green Space

- Informal landscaping with passive use areas.
- Formal landscaping and appropriate buffers within built areas.
- Moderately dense street trees, bushes, and planting strips.
- Neighborhood and community parks.

#### Transportation

- Pedestrian facilities (sidewalks/multi-use trails) with high connectivity between uses and access to nearby corridors.
- High vehicular connectivity, linear street patterns, managed access, short-to-moderate distance between intersections and alleys, and efficient and safe circulation patterns.
- Paved roadways and parking (on-site/street), curb and gutter, sidewalks, streetscapes and streetlights.

#### Infrastructure

- Municipal water (and/or sewer).
- Abundant private utilities.
- Low impact development.

### Visual Character Description

**Development Pattern**



**Transportation**



**Green Space**



### IMPLEMENTATION STRATEGIES

- Incorporate and incent design principles into development ordinances, or by zoning conditions.
- Amend the zoning ordinance to include planned unit developments (PUD's) for innovative site design.
- Implement the Countywide Greenways Master Plan and define priorities for development.
- Prepare a City-wide inventory for vacant sites and identify those that are suitable for infill development.
- Prepare a City-wide inventory of buildings suitable for redevelopment.

## URBAN CENTER (U-CTR)

### POLICIES

#### Intent

- Encourage mixed uses that can create vitality, reinforce the area's role as a central business district and local activity center, and respect and promote the established development pattern of the City center.
- Enhance existing urban centers to create a sense of place, culture, history and community.

#### General Characteristics

- Mixed use or single use commercial, office and residential development in a central business district.
- Clustered buildings located close to the street with parking either in front, side or rear of the buildings.

#### Application

- Compact, walkable development.
- Connectivity between uses that generate a high level of pedestrian oriented activity.
- Retain and enhance existing building stock with appropriate maintenance and rehabilitation.
- Use buildings with underutilized upper floors for infill opportunities (residential above ground-floor retail).
- Major business/municipal functions in a City center.

#### Primary Land Uses

- Civic uses such as places of worship, municipal offices, health facilities.
- Multi-family residential uses with home occupations.
- Mixed uses (single use commercial and residential above ground-floor retail).

#### Zoning Classifications

- R-Multi Family; C-1, C-2; Urban Overlay District
- R-3, NC, HC; Urban Overlay District

### DESIGN PRINCIPLES

#### Site Design

- Shallow building setbacks using building structures to frame the site.
- Moderate-to-high lot coverage and building footprints related to lot size.
- Master planned projects that consider quality architectural building design with attractive facades, controlled aesthetics, and context sensitive infrastructure.

#### Density/Intensity

- Scaled civic buildings.
- 2-8 dwelling unit/acre for single family
- 10-20 dwelling unit/acre for multi-family
- 1-3 story buildings

#### Green Space

- Formal landscaping and appropriate buffers within built areas.
- Moderately dense street trees, planters, and planting strips.
- Pocket parks or parklets.

#### Transportation

- Well-defined pedestrian environment and facilities (sidewalks/multi-use trails) with access to nearby corridors.
- High vehicular connectivity, linear street patterns, managed access, short distance between intersections and alleys, and efficient and safe circulation patterns.
- Paved roadways and parking (on-site/street), curb and gutter, sidewalks, streetscaping and streetlights.

#### Infrastructure

- Municipal water (or sewer).
- Abundant private utilities.

### Visual Character Description

#### Development Pattern



#### Transportation



#### Green Space



### IMPLEMENTATION STRATEGIES

- Incorporate and incent design principles into development ordinances, or by zoning conditions.
- Amend the zoning ordinance to include planned unit developments (PUD's) for innovative site design.
- Develop and promote incentives for amenities, aesthetics, and infill.
- Implement the Countywide Greenways Master Plan and define priorities for development.
- Prepare and adopt a Downtown Master Plan to guide design and regulation of future development in the character area.
- Prepare and adopt an Urban Overlay District zoning category to encourage future development to enhance the character area.

URBAN CORRIDOR (U-C)		
POLICIES		DESIGN PRINCIPLES
<p><b><u>Intent</u></b></p> <ul style="list-style-type: none"> <li>Enhance existing urban corridors to improve the quality of life in Brooklet, Portal and Register with a sense of place and community.</li> <li>Encourage mixed uses that create vitality, reinforce local activity centers while respecting and promote the established development pattern of the City center.</li> </ul>		<p><b><u>Site Design</u></b></p> <ul style="list-style-type: none"> <li>Moderate to deep building setbacks with green space using building structures to frame the site.</li> <li>Moderate to high lot coverage and building footprints related to lot size.</li> <li>Master planned projects that consider quality architectural building design with attractive facades, controlled aesthetics, amenities and context sensitive infrastructure.</li> </ul>
<p><b><u>General Characteristics</u></b></p> <ul style="list-style-type: none"> <li>Mixed use or single use commercial, office and residential development along major linear transportation corridors.</li> <li>Clustered buildings located close to the street with shared parking to the front, side and rear.</li> </ul>		<p><b><u>Density/Intensity</u></b></p> <ul style="list-style-type: none"> <li>Limited civic buildings.</li> <li>2-8 dwelling unit/acre for single family.</li> <li>10-20 dwelling unit/acre for multi-family.</li> <li>Moderate floor area and impervious surface ratios.</li> </ul>
<p><b><u>Application</u></b></p> <ul style="list-style-type: none"> <li>Retain and enhance existing building stock with maintenance and rehabilitation.</li> <li>Locate at key intersections on principal arterials where full services, public facilities and potential public transit.</li> <li>Connectivity to uses generating a high level of activity and pedestrian scaled development patterns, including building placement, lighting, site features, sidewalk use, amenities, etc.</li> </ul>		<p><b><u>Green Space</u></b></p> <ul style="list-style-type: none"> <li>Formal landscaping and appropriate buffers within built areas.</li> <li>Moderately dense street trees, and planting strips.</li> <li>Neighborhood and community park facilities.</li> </ul>
<p><b><u>Primary Land Uses</u></b></p> <ul style="list-style-type: none"> <li>Civic benefit such as places of worship, cemeteries and burial grounds, schools, health facilities, passive recreation (including greenways and trails), municipal services, parks and community centers.</li> <li>Single family and multi-family residential uses.</li> <li>Commercial and office uses.</li> <li>Moderate to high scale mixed use development clustered at key intersections.</li> </ul>		<p><b><u>Transportation</u></b></p> <ul style="list-style-type: none"> <li>High vehicular connectivity, linear street patterns, managed access, short distance between intersections and efficient and safe circulation patterns.</li> <li>Well-defined pedestrian environment and facilities (sidewalks/bicycles/multi-use trails) with high connectivity between uses and access to City center.</li> <li>Paved roadways and parking (on-site/street), curb and gutter, sidewalks, streetscapes and street lighting.</li> </ul>
<p><b><u>Zoning Classifications</u></b></p> <ul style="list-style-type: none"> <li>R-Multifamily; C-1, C-2; I-1; <i>Corridor Overlay District</i></li> <li>MFR; HC, NC; <i>Corridor Overlay District</i></li> <li>RMD; NC, HC; <i>Corridor Overlay District</i></li> </ul>		<p><b><u>Infrastructure</u></b></p> <ul style="list-style-type: none"> <li>Municipal water (and/or sewer).</li> <li>Abundant private utilities.</li> <li>Low impact development.</li> </ul>
Visual Character Description		
Development Pattern	Transportation	Green Space
		
IMPLEMENTATION STRATEGIES		
<ul style="list-style-type: none"> <li>Incorporate and incent design principles into development ordinances, or by zoning conditions.</li> <li>Encourage the use of planned unit developments (PUD's) for innovative site design.</li> <li>Implement the Countywide Greenways Master Plan and define priorities for development.</li> <li>Prepare and adopt a Streetscape Corridor Plan to guide design and regulation of future development in the character area.</li> <li>Prepare and adopt an Urban Corridor Overlay District zoning category to encourage future development to enhance the character area.</li> </ul>		



## AIRPORT DISTRICT (A-D)

### POLICIES

#### Intent

- Enhance and maintain the existing airport facility to accommodate air travel activity and related business facilities, while discouraging land uses and development patterns that could present conflicts.

#### General Characteristics

- Single or mixed use commercial and industrial uses.
- Variable building development to promote the specific needs of industrial activities or businesses.
- Managed land use, height, sound and buffering.

#### Application

- Locate on principal arterial where full services, public facilities and routes of potential public transportation are available.

#### Primary Land Uses

- Air travel facilities and related businesses.
- Industrial uses such as low-to-high intensity manufacturing and assembly, distribution, processing, wholesale trades.
- Planned business or industrial parks.

#### Zoning Classifications

- LI, HI, GC, HC, PUD

### DESIGN PRINCIPLES

#### Site Design

- Deep to moderate building setbacks using building structures to frame the site.
- Moderate to high lot coverage and building footprints related to lot size.
- Master planned projects that consider quality architectural building design with attractive facades, controlled aesthetics, and context sensitive infrastructure.

#### Density/Intensity

- Limited civic buildings.
- 1-2 story buildings.
- Moderate to high floor area and impervious surface ratios.

#### Green Space

- Formal landscaping and appropriate buffers between the airport and built areas to limit negative noise and visual impacts to surrounding areas.
- Moderately dense street trees, bushes and planting strips.
- Passive open space or recreational uses.

#### Transportation

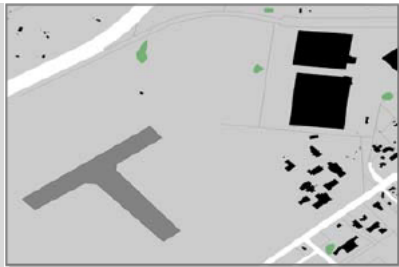
- Moderate to high vehicular connectivity with managed access, accommodation for heavy vehicles, limited connections to surrounding development and efficient and safe circulation patterns.
- Limited pedestrian environment and facilities due to nature of vehicular traffic.
- Paved roadways and parking (on-site), curb and gutter, streetscapes and streetlights.

#### Infrastructure

- Municipal water (and/or sewer).
- Abundant private utilities.
- Low impact development.

### Visual Character Description

#### *Development Pattern*



#### *Transportation*



#### *Green Space*



### IMPLEMENTATION STRATEGIES

- Incorporate and incent design principles into development ordinances, or by zoning conditions.
- Encourage the use of planned unit developments (PUD's) for innovative site design.
- Promote development in surrounding areas that is compatible with airport uses.
- Review rezoning requests to ensure compatibility with airport district character area and Federal Aviation Administration requirements.

## EMPLOYMENT DISTRICT (E-D)

### POLICIES

#### Intent

- Enhance and maintain existing industrial and business facilities and create new facilities to expand economic opportunities for Bulloch County in appropriate planned areas while discouraging land uses and development patterns that could present conflicts with future district development.

#### General Characteristics

- Accommodate large industrial and business development in appropriate areas.
- Variable building development to promote the specific needs of industrial activities or businesses.
- Appropriate landscaping and open space between buildings and adjacent land uses to help limit negative visual and noise impacts of activity within the district to surrounding areas.

#### Application

- Planned development including industrial, commercial and service uses to serve workers and patrons of these businesses.
- Locate on principal arterial where full services, public facilities and routes of potential public transportation are available.

#### Primary Land Uses

- Industrial uses such as low-to-high intensity manufacturing and assembly, distribution, processing, wholesale trades.
- Planned business or industrial parks.
- General commercial businesses and services for workforce.

#### Zoning Classifications

- LI, HI, GC, HC, PUD

### DESIGN PRINCIPLES

#### Site Design

- Deep to moderate building setbacks using building structures to frame the street.
- Moderate to high lot coverage and building footprints related to lot size.
- Master planned projects that consider quality architectural building design with attractive facades, controlled aesthetics, and context sensitive infrastructure.

#### Density/Intensity

- Limited civic buildings.
- 1-3 story buildings.

#### Green Space

- Formal landscaping and appropriate buffers between built areas to limit negative noise and visual impacts to surrounding areas.
- Moderately dense street trees, bushes and planting strips.

#### Transportation

- Moderate to high vehicular connectivity with managed access, accommodation for heavy vehicles, landscaped parking, limited connections to surrounding development and efficient and safe circulation patterns.
- Limited pedestrian environment and facilities.
- Paved roadways and parking (on-site), curb and gutter, streetscapes and streetlights.

#### Infrastructure

- Municipal water (and/or sewer).
- Adequate telecommunications.
- Low impact development.

### Visual Character Description

#### Development Pattern



#### Transportation





#### Green Space



### IMPLEMENTATION STRATEGIES

- Incorporate and incent design principles into development ordinances, or by zoning conditions.
- Prepare a revitalization or redevelopment study in advance of physical decline in existing employment districts.

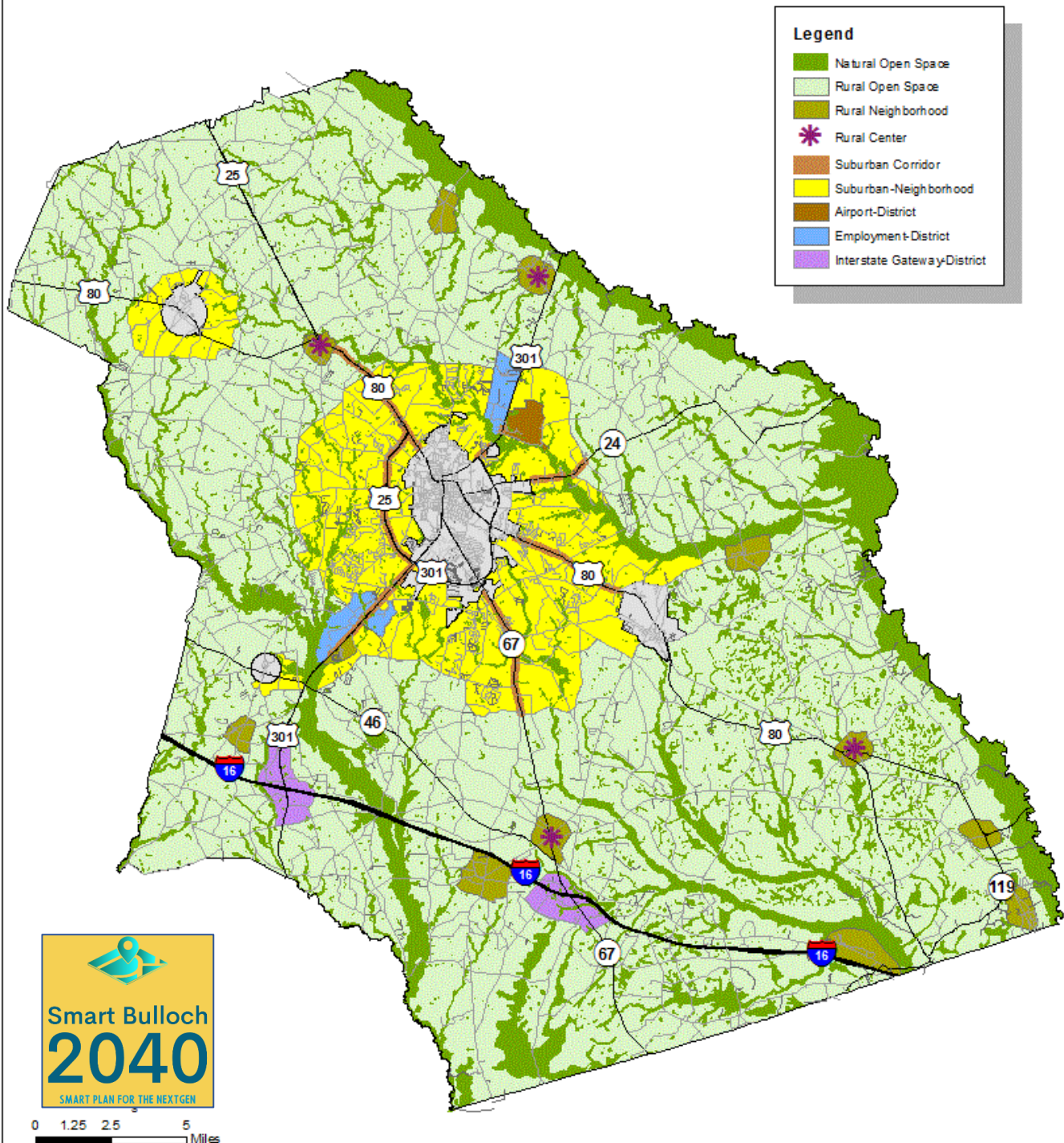


INTERSTATE GATEWAY DISTRICT (IG-D)		
POLICIES		DESIGN PRINCIPLES
<p><b><u>Intent</u></b></p> <ul style="list-style-type: none"> <li>Enhance and maintain existing highway commercial businesses associated with interstate interchanges to define a visual gateway to Bulloch County, and create industrial or large business facilities to take advantage of the I-16 access and proximity to Savannah's port and shipping facilities.</li> </ul>		<p><b><u>Site Design</u></b></p> <ul style="list-style-type: none"> <li>Deep to moderate building setbacks using building structures to frame the site.</li> <li>Moderate to high lot coverage and building footprints related to lot size.</li> <li>Master planned projects that consider quality architectural building design with attractive facades, controlled aesthetics, and context sensitive infrastructure.</li> </ul>
<p><b><u>General Characteristics</u></b></p> <ul style="list-style-type: none"> <li>Potential to accommodate large auto oriented commercial and industrial uses catering to I-16 traffic and nearby workforce.</li> </ul>		<p><b><u>Density/Intensity</u></b></p> <ul style="list-style-type: none"> <li>Limited civic buildings.</li> <li>1-8 dwelling units per acre.</li> <li>1-4 story buildings.</li> </ul>
<p><b><u>Application</u></b></p> <ul style="list-style-type: none"> <li>Planned development for industrial, commercial and residential uses for workers and travelers.</li> <li>Locate on principal arterial where full services, public facilities and routes of potential public transportation are available.</li> </ul>		<p><b><u>Green Space</u></b></p> <ul style="list-style-type: none"> <li>Formal landscaping and appropriate buffers between built areas to limit negative noise and visual impacts to surrounding areas.</li> <li>Moderately dense street trees, bushes and planting strips.</li> </ul>
<p><b><u>Primary Land Uses</u></b></p> <ul style="list-style-type: none"> <li>Single or multi-family residential (PUD only).</li> <li>Interstate oriented commercial uses.</li> <li>Industrial uses such as low or high intensity manufacturing, assembly, distribution, processing, wholesale trade, etc.</li> <li>Planned business or industrial parks.</li> </ul>		<p><b><u>Transportation</u></b></p> <ul style="list-style-type: none"> <li>High vehicular connectivity with managed access with frontage roads, accommodation for heavy vehicles, landscaped parking, limited connections to surrounding development and efficient and safe circulation patterns.</li> <li>Moderate pedestrian environment and facilities (sidewalks/bicycles/multi-use trails).</li> <li>Paved roadways and parking (on-site), curb and gutter, sidewalks, streetscapes and street lighting.</li> </ul>
<p><b><u>Zoning Classifications</u></b></p> <ul style="list-style-type: none"> <li>HC, LI, HI, PUD, Interstate Overlay</li> </ul>		<p><b><u>Infrastructure</u></b></p> <ul style="list-style-type: none"> <li>Municipal water (and/or sewer).</li> <li>Abundant public utilities.</li> <li>Low impact development.</li> </ul>
Visual Character Description		
<p><b><i>Development Pattern</i></b></p> 	<p><b><i>Transportation</i></b></p> 	<p><b><i>Green Space</i></b></p> 
IMPLEMENTATION STRATEGIES		
<ul style="list-style-type: none"> <li>Continue to implement the redevelopment plan for the I-16/U.S. 301 Interstate Gateway District.</li> <li>Prepare a redevelopment plan to establish a similar district at I-16 and State Route 67.</li> </ul>		

# FUTURE DEVELOPMENT MAPS

The Future Development Maps on the following pages are used to identify the geographic location of the Character Areas within Bulloch County. The maps are intended to help guide decision making related to the physical location of development and where the most appropriate scale and intensity of development should occur. Specifically, the Future Development Maps are used to guide and review consistency for future zone change requests. While the Future Development Maps recommend land uses and development patterns for a 20-year planning horizon, it is important that they be reviewed on a regular basis to determine if amendments are needed based on changing market and demographic trends.

## Future Development Map: Bulloch County

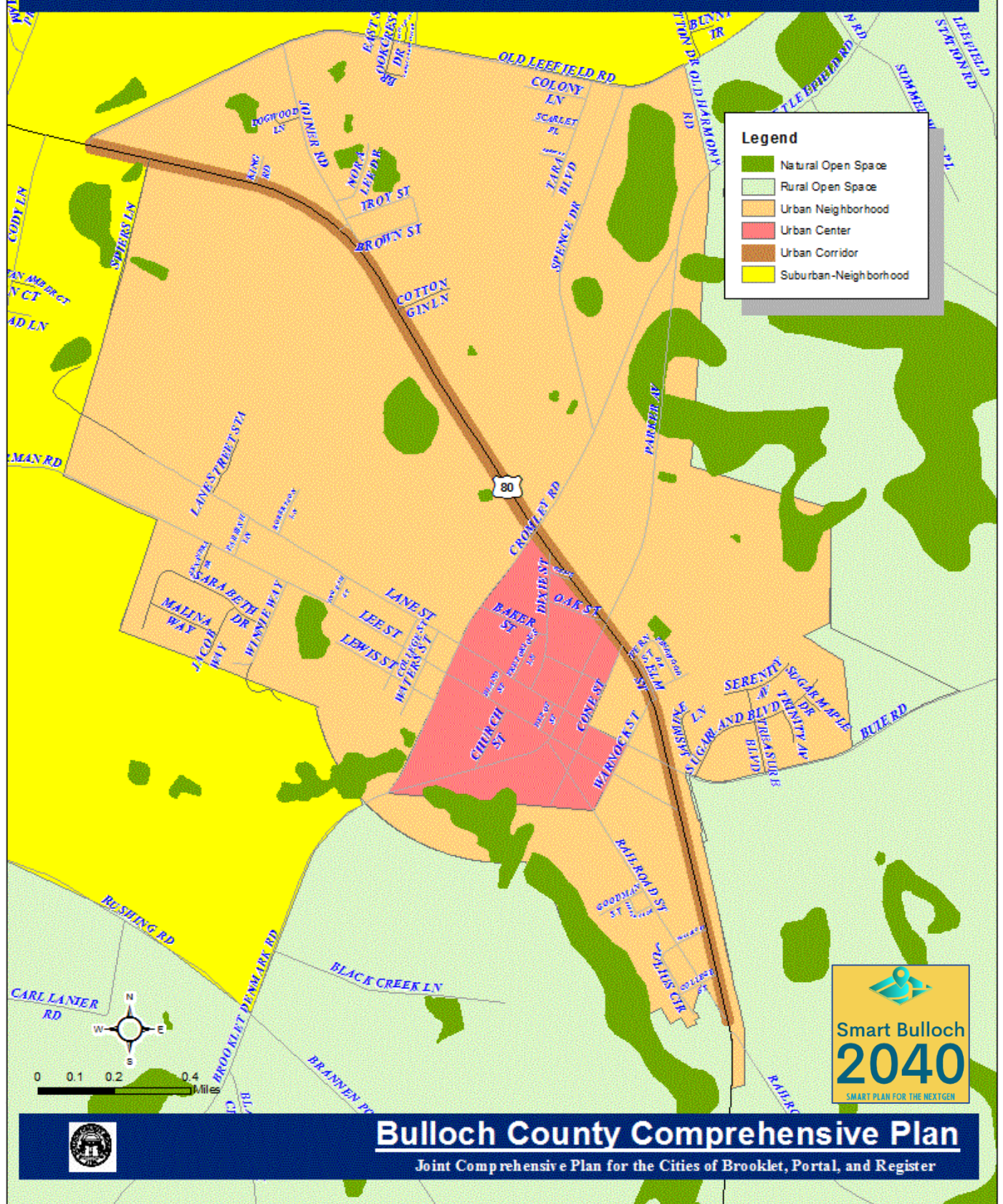


## Bulloch County Comprehensive Plan

Joint Comprehensive Plan for the Cities of Brooklet, Portal, and Register



# Future Development Map: Town of Brooklet



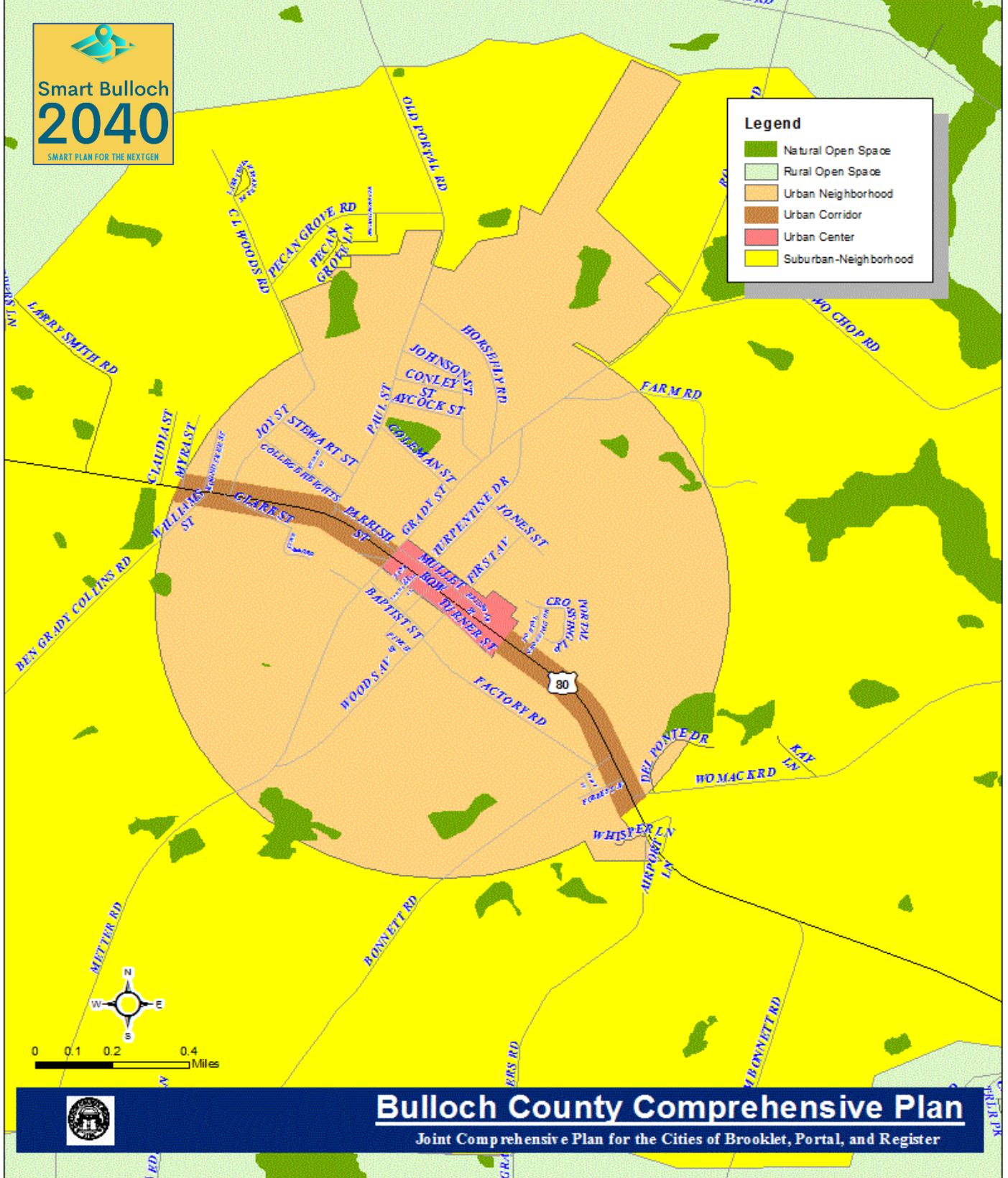


# Future Development Map: Town of Portal



## Legend

- Natural Open Space
- Rural Open Space
- Urban Neighborhood
- Urban Corridor
- Urban Center
- Suburban-Neighborhood



## Bulloch County Comprehensive Plan

Joint Comprehensive Plan for the Cities of Brooklet, Portal, and Register

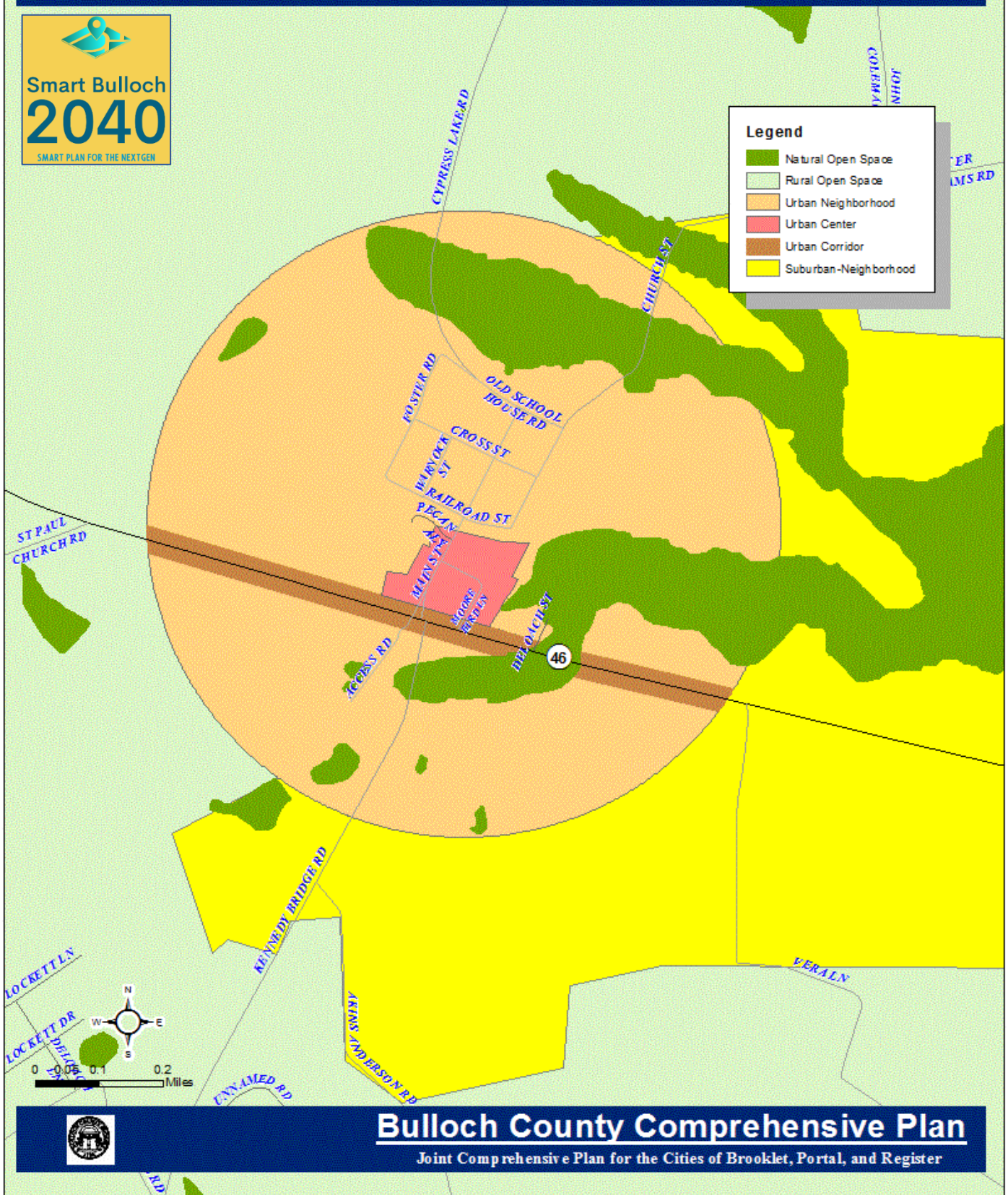


# Future Development Map: Town of Register



## Legend

- Natural Open Space
- Rural Open Space
- Urban Neighborhood
- Urban Center
- Urban Corridor
- Suburban-Neighborhood



## Bulloch County Comprehensive Plan

Joint Comprehensive Plan for the Cities of Brooklet, Portal, and Register





## CHAPTER 7 IMPLEMENTATION PROGRAM

# COMMUNITY WORK PROGRAM —

The 2019-2023 Community Work Program for the **SMART BULLOCH 2040 PLAN** represents what action strategies will be implemented over the next five years by Bulloch County, Brooklet, Portal and Register to address the needs and opportunities revealed during the planning process, and to then realize the goals and objectives of the plan and its elements. This includes programs, ordinances, administrative systems, community improvements, and investments or financing arrangements or other programs/initiatives to be put in place to implement the plan. The Community Work Program outlines the following information according to the **SMART GOALS** theme which remains consistent with Minimum Standards and Procedures for Local Comprehensive Planning:

- **Specific** (description of implementation strategy)
- **Measurable** (description of priority order – high, moderate, low)
- **Attainable** (description of the measures of cost and funding sources)
- **Relevant** (description of responsible party or parties who will be held accountable)
- **Time-Bound** (description of the timeframe for undertaking the activity (2019, 2020, 2021, 2022 or 2023) as indicated either as a:

✓ Specific Completion Date

↻ Ongoing Task

It should be noted that the framework and context of implementation strategies have changed since the 2009 plan update (and the subsequent transformation of the Short-Term Work Program to the Community Work Program in 2014). The 2009 plan update, and the 2014 Community Work Program update previously consisted of five schedules for the Community Work Program, and it will now consist of six. The differences are noted in Table 14, on the following page.

While evaluating the structure of the 2009-2014 Community Work Program, there were many redundancies with the implementation strategies from schedule to schedule. The analysis of data and information within this plan update signaled changing conditions of the community where the needs, opportunities, trends and capacity to implement strategies for each jurisdiction. As reflected in the Report of Accomplishments there are many strategies that have been completed, ongoing or canceled for each jurisdiction according to the rearrangement of schedules. Except in rare circumstances, project or task specific strategies are the exception rather than the rule. Completing higher level projects or task specific strategies such as improving economic opportunity or adjusting regulatory systems are longer-term and on-going. Some strategies require the formation of sub-sets of stakeholders, further studies or planning processes, and funding streams resulting in variable costs. The funding sources identified are not exclusive.

**TABLE 14: CHANGES IN THE STRUCTURE OF THE COMMUNITY WORK PROGRAM**

2009-2029 UPDATE CWP CATEGORIES	SMART BULLOCH 2040 CWP CATEGORIES	PURPOSE FOR CHANGE
Development Patterns	Transportation	Transportation is a new (and, optional) separate element. However, it significantly influences development patterns in a community.
Social and Economic Development	Economic Development Broadband	Broadband is new required element. However, it is aligned with economic development, and both elements influence the quality of life for people in a community.
Character Areas Resource Conservation	Land Use	Character areas are reflected in the Land Use element. Many of the former strategies for Resource Conservation have been incorporated into the land use element.
Governmental Relations	Intergovernmental Coordination	The purpose of Governmental Relations strategies remains the same, though it is not a specific planning element. However, many of the strategies have been re-stated to reflect changes in needs and relationships.
	Community Facilities	While Community Facilities is not a specific planning element, establishing strategies or frameworks for assessing future needs is a by-product of comprehensive planning.

**TABLE 15: ACRONYMS USED IN SCHEDULES**

FUNDING SOURCES		RESPONSIBLE PARTIES	
CDBG	Community Development Block Grant	BOC	Board of Commissioners
EDA	Economic Development Administration	BOE	Board of Education
FHWA	Federal Highway Administration	COB	City of Brooklet
GDNR	Georgia Department of Natural Resources	COP	City of Register
GDOT	Georgia Department of Transportation	COR	City of Portal
GEFA	Georgia Environmental Facilities Authority	COS	City of Statesboro
GF	General Fund	DABC	Development Authority of Bulloch County
GOHS	Governor's Office of Highway Safety	GSU	Georgia Southern University
IK	In-Kind (a/k/a staff time)	COC	Chamber of Commerce
NSC	National Safety Council	CWIB	Coastal Workforce Investment Board
OGA	One Georgia Authority	GDOL	Georgia Department of Labor
P3	Public Private Partnership	OTC	Ogeechee Technical College
SAD	Special Assessment District		
SPLOST	Special Purpose Local Option Sales Tax		
SRTA	State Road and Tollway Authority		
TADF	Tax Allocation District Fund		
TSPLOST	Transportation Special Purpose Local Option Sales Tax		
VC	Variable Cost		

## BULLOCH COUNTY

BULLOCH COUNTY COMMUNITY WORK PROGRAM SCHEDULE: ECONOMIC DEVELOPMENT									
SMART BUSINESS GOALS – Diversification, Workforce Support, Business Support, Quality of Life									
Activity #	Specific Strategy	Measurable Priority	Attainable Cost (Funding Source)	Relevant Responsible Party	Time-bound				
					2019	2020	2021	2022	2023
ED-01	Develop and implement a targeting and recruitment plan for goods producing industries and clusters.	High	\$90,000 (IK, GF)	BOC, DABC		✓			
ED-02	Conduct a business retention and expansion survey and implement results.	High	(IK, GF)	DABC		✓			✓
ED-03	Develop and implement plans to acquire land and expand infrastructure for new or existing industrial or commerce parks.	High	\$5,000,000 (SPLOST)	BOC, DABC		✓			
ED-04	Develop and implement a targeting and recruitment plan for retail and commercial businesses that meet local consumer demand.	High	\$90,000 (IK, GF)	BOC, DABC		✓			
ED-05	Develop a survey instrument to determine how to make the community more appealing and interesting to students, faculty and administration at Georgia Southern University.	Moderate	\$30,000 (IK, GF)	BOC, DABC, GSU		✓			
ED-06	Examine feasibility of creating an economic development corporation that will be a public/private partnership engaging the municipalities, county, private sector and other key stakeholders to leverage business recruitment.	Low	Variable Cost (IK, P3)	BOC, DABC, COC				✓	
ED-07	Review and update the existing local business incentives program.	Low	\$25,000 (IK, GF)	DABC					✓
ED-08	Provide incentives to businesses for higher paying jobs and capital investment based on positive cost-benefit analysis.	High	VC (GF)	BOC, DABC	↻	↻	↻	↻	↻
ED-09	Encourage the location of small-to-moderate scale business development near existing or future neighborhoods, small rural	High	VC (IK, GF)	BOC	↻	↻	↻	↻	↻

<b>BULLOCH COUNTY COMMUNITY WORK PROGRAM SCHEDULE: ECONOMIC DEVELOPMENT</b>									
<b>SMART BUSINESS GOALS – Diversification, Workforce Support, Business Support, Quality of Life</b>									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
<b>Activity #</b>	<b>Strategy</b>	<b>Priority</b>	<b>Cost (Funding Source)</b>	<b>Responsible Party</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
	centers or future mixed-use developments.								
<b>ED-10</b>	Encourage the location of major commercial activity along suburban corridors or interstate-gateway character areas.	High	VC (IK, GF)	BOC	☺	☺	☺	☺	☺
<b>ED-11</b>	Encourage the location of large businesses and industrial facilities at the employment, interstate-gateway or airport character areas.	High	VC (IK, GF)	BOC, DABC	☺	☺	☺	☺	☺
<b>ED-12</b>	Encourage mixed-use development at appropriate scales and in appropriate character areas.	High	VC (IK, GF)		☺	☺	☺	☺	☺
<b>ED-13</b>	Leverage and promote resources available from local workforce organizations to improve resident workers skills training.	Moderate	VC (IK, GF)	CWIB, DABC, GDOL, OTC	☺	☺	☺	☺	☺
<b>ED-14</b>	Leverage and promote resources from local workforce organizations to improve resident workers access to finding higher paying local jobs.	Moderate	VC (IK, GF)	BOE, COC, CWIB, DABC, GDOL, OTC	☺	☺	☺	☺	☺
<b>ED-15</b>	Leverage and promote resources available from local technical assistance organizations to establish and sustain small businesses.	Moderate	VC (IK, GF)	GSU-SBDC	☺	☺	☺	☺	☺
<b>ED-16</b>	Aggressively pursue leveraged funding opportunities that support infrastructure to expand economic development opportunities.	Moderate	VC (IK, SPLOST, TSPLOST, CDBG, OGA, GEFA, EDA, GDOT, FHWA, TADF)	BOC, DABC	☺	☺	☺	☺	☺

<b>BULLOCH COUNTY COMMUNITY WORK PROGRAM: TRANSPORTATION PLANNING ELEMENT</b>									
<b>SMART MOBILITY GOALS – Safety and Quality, Mobility and Connectivity, Alternative Modes, Land Use Compatibility, Economic Benefit</b>									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
<b>Activity #</b>	<b>Strategy</b>	<b>Priority</b>	<b>Cost (Funding Source)</b>	<b>Responsible Party</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
<b>TR-01</b>	Phase IV of the S&S Greenway to complete the connection to from Statesboro to Brooklet.	High	\$3,100,000 (FHWA, TSPOST, GDNR)	BOC, COB				✓	
<b>TR-02</b>	Conduct a feasibility analysis to identify truck freight traffic on local roads and bridges and amend commercial truck traffic ordinance to restrict or prohibit accordingly.	High	\$75,000 (GF)	BOC, DABC		✓			
<b>TR-03</b>	Update the 2035 Long-Range Transportation Plan under MAP-21 guidelines should Statesboro-Bulloch County become a Metropolitan Planning Organization.	Moderate	\$400,000 (GF)	COB, COP, COR, COS, BOC				✓	
<b>TR-04</b>	Utilize technology and increased frequency of service to improve dirt road drainage and maintenance.	High	\$3,750,000 (IK, GF, SPLOST, T-SPLOST)	BOC	↻	↻	↻	↻	↻
<b>TR-05</b>	Develop qualifying criteria for new dirt road construction to maximize resources to construct 3.0 miles of roads annually.	High	\$5,000,000 (FHWA, GDOT, TSPLOST)	BOC	↻	↻	↻	↻	↻
<b>TR-06</b>	Improve existing dirt roads with asphalt resurfacing and pavement preservation techniques to maximize resources treating 20.0 miles of roads annually.	High	\$5,000,000 (TSPLOST, GDOT)	BOC	↻	↻	↻	↻	↻
<b>TR-07</b>	Maintain all bridges to a good or excellent standard according to the state bridge inventory report.	High	\$1,750,000 (TSPLOST, GDOT)	BOC	↻	↻	↻	↻	↻
<b>TR-08</b>	Continue to expand road infrastructure at the I-16 Tax Allocation District as development occurs according to the 2011 Redevelopment Plan.	High	\$5,000,000 (SRTA, TADF)	BOC	↻	↻	↻	↻	↻
<b>TR-09</b>	Develop programs or acquire specialized traffic devices to improve roadway safety and to reduce vehicle and pedestrian safety crashes, injuries and fatalities.	High	\$1,000,000, IK (GOHS, GDOT, NSC, TSPLOST)	BOC	↻	↻	↻	↻	↻
<b>TR-10</b>	Improve intersection safety with enhanced geometrics, signalization or with	High	\$5,000,000 (FHWA, GDOT,	BOC	↻	↻	↻	↻	↻

<b>BULLOCH COUNTY COMMUNITY WORK PROGRAM: TRANSPORTATION PLANNING ELEMENT</b>									
<b>SMART MOBILITY GOALS – Safety and Quality, Mobility and Connectivity, Alternative Modes, Land Use Compatibility, Economic Benefit</b>									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
<b>Activity #</b>	<b>Strategy</b>	<b>Priority</b>	<b>Cost (Funding Source)</b>	<b>Responsible Party</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
	innovative designs such as roundabouts or RCUTS.		SRTA, TSPLOST)						
<b>TR-11</b>	Use traffic calming designs in new and existing subdivisions to reduce speeding in residential neighborhoods.	High	VC (SAD)	BOC, DABC	↻	↻	↻	↻	↻
<b>TR-12</b>	Coordinate with local educational institutions on existing and future site development to minimize traffic congestion and pedestrian conflicts during peak periods.	Moderate	VC (IK, GF)	BOC, BOE	↻	↻	↻	↻	↻
<b>TR-13</b>	Develop a program to link the greenway system while providing bike and pedestrian amenities.	Moderate	VC (IK, GF)	BOC	↻	↻	↻	↻	↻
<b>TR-14</b>	Continue to provide leveraged funding support for the Airport to maintain its status as a Level III general aviation facility.	Moderate	\$3,062,000, IK (TSPLOST, SPLOST, GDOT, FAA)	GSU	↻	↻	↻	↻	↻
<b>TR-15</b>	Continue to support Coastal Regional Coaches demand-response paratransit service that can be coordinated with a future fixed-route/flex-route transit system serving the City of Statesboro.	Moderate	\$90,000 (GF, TSPLOST)	BOC	↻	↻	↻	↻	↻
<b>TR-16</b>	Continue to support existing policies requiring real estate developers to provide traffic impact studies when warranted and to install required improvements to serve such sites.	Moderate	IK (GF)	BOC	↻	↻	↻	↻	↻
<b>TR-17</b>	Assess safety countermeasures at railroad crossings on local roads and implement measures.	Moderate	IK, \$50,000 (SPLOST, TSPLOST, GDOT)	BOC, DABC	↻	↻	↻	↻	↻
<b>TR-18</b>	Utilize the Transportation Special Local Option Sales Tax for transportation maintenance and enhancements.	Moderate	\$720,000 (GF, TSPLOST)	BOC	↻	↻	↻	↻	↻



BULLOCH COUNTY COMMUNITY WORK PROGRAM: BROADBAND ELEMENT									
SMART CONNECTIONS GOALS – Availability, Abundance, Affordability, Readiness, Reliable									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy	Priority	Cost-Funding Source	Responsible Party	2019	2020	2021	2022	2023
BB-01	Perform a study of underserved households and businesses to determine strategies for accessibility and affordability.	High	\$50,000 (IK, GF, P3)	COB, COP, COR, COS, BOC, DABC			✓		
BB-02	Establish a stakeholder committee of public-private entities to plan and maintain a Community Broadband Road Map or Strategic Plan.	High	VC (IK, GF, P3)	COB, COP, COR, COS, BOC, DABC			✓		
BB-03	Apply for Broadband Ready Community Designation with DCA upon adopting a model broadband ordinance.	High	VC (IK, GF)	COB, COP, COR, COS, BOC		✓			
BB-04	Assesses public safety interoperability and coordination.	High	VC (IK, GF)	COB, COP, COR, COS, BOC, GSU, OTC	↻	↻	↻	↻	↻
BB-05	Construct and operate a P-25 public safety radio communication system county-wide.	High	\$7,200,000 (SPLOST, GF)	COB, COP, COR, COS, BOC, GSU, OTC	↻	↻	↻	↻	↻
BB-06	Monitor policy developments and legislation to align state goals with local initiatives.	High	VC (IK, GF)	COB, COP, COR, COS, BOC, DABC	↻	↻	↻	↻	↻

BULLOCH COUNTY COMMUNITY WORK PROGRAM: LAND USE ELEMENT									
SMART GROWTH GOALS – Mixed Land Uses, Compact Design, Diverse Housing Choices, Walkability, Sense of Place, Preserve Open Space									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy (Character Areas Where Applied)	Priority	Cost (Funding Source)	Responsible Party	2019	2020	2021	2022	2023
LU-01	Adopt Rural Center Overlay District. <b>R-C</b>	Moderate	IK (GF)	BOC			✓		
LU-02	Prepare and adopt a Suburban-Corridor Overlay District. <b>S-C</b>	Moderate		BOC			✓		
LU-03	Adopt a Conservation Subdivision Ordinance for clustered development to preserve rural character, sensitive natural resources and large tracts of permanent green space. <b>N-OS, R-OS, R-N</b>	Moderate	IK, \$25,000 (GF)	BOC			✓		
LU-04	Prepare a redevelopment plan to establish an	Moderate	\$50,000 (GF, TADF)	BOC			✓		

BULLOCH COUNTY COMMUNITY WORK PROGRAM: LAND USE ELEMENT									
SMART GROWTH GOALS – Mixed Land Uses, Compact Design, Diverse Housing Choices, Walkability, Sense of Place, Preserve Open Space									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy (Character Areas Where Applied)	Priority	Cost (Funding Source)	Responsible Party	2019	2020	2021	2022	2023
	Interstate Gateway Overlay District at I-16 and State Route 67. <b>IG-D</b>								
LU-05	Prepare a revitalization or redevelopment study in advance of physical decline in existing employment districts <b>E-D</b>	Low	\$50,000 (GF)	BOC					✓
LU-06	Prepare a plan to expand or establish water and sewer service to include all IG-D areas currently underserved. <b>IG-D</b>	Low	VC, IK (SPLOST, OGA, EDA)	BOC					✓
LU-07	Enforce flood hazard, river corridor protection and groundwater recharge protection ordinances. <b>N-OS</b>	High	IK (GF)	BOC	↻	↻	↻	↻	↻
LU-08	Pursue government purchase of environmentally sensitive lands to create of wildlife areas, nature preserves, and public parks. <b>N-OS, R-OS</b>	High	VC, IK (GF, SPLOST)	BOC	↻	↻	↻	↻	↻
LU-09	Establish a land conservation program to create and promote conservation easements or similar tools that preserve important natural areas. <b>N-OS, R-N</b>	Moderate	VC, IK (GF)	BOC	↻	↻	↻	↻	↻
LU-10	Update the Countywide Greenways Master Plan and define priorities for development. <b>N-OS, R-OS, R-N, R-C, S-N, S-C</b>	High	VC, IK (GF, SPLOST, GDNr, P3)	BOC	↻	↻	↻	↻	↻
LU-11	Incorporate design principles into development ordinances or by zoning conditions. <b>R-OS, R-N, R-C, S-N, S-C, A-D, E-D, IG-D</b>	High	IK (GF)	BOC	↻	↻	↻	↻	↻
LU-12	Encourage the use of planned unit developments (PUD's). <b>S-N, S-C, A-D, E-D, IG-D</b>	High	IK (GF)	BOC	↻	↻	↻	↻	↻
LU-13	Develop and promote incentives for amenities, aesthetics, and infill. <b>S-N, S-C</b>	High	IK (GF)	BOC	↻	↻	↻	↻	↻
LU-14	Promote development in surrounding areas that is	High	IK (GF)	BOC	↻	↻	↻	↻	↻

BULLOCH COUNTY COMMUNITY WORK PROGRAM: LAND USE ELEMENT									
SMART GROWTH GOALS – Mixed Land Uses, Compact Design, Diverse Housing Choices, Walkability, Sense of Place, Preserve Open Space									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy (Character Areas Where Applied)	Priority	Cost (Funding Source)	Responsible Party	2019	2020	2021	2022	2023
	compatible with airport uses. <b>A-D</b>								
LU-15	Review rezoning requests to ensure compatibility with airport district character area and Federal Aviation Administration requirements. <b>A-D</b>	High	IK (GF)	BOC	↻	↻	↻	↻	↻

BULLOCH COUNTY COMMUNITY WORK PROGRAM: INTERGOVERNMENTAL COORDINATION									
SMART RELATIONSHIPS GOALS – Improved Communication, Coordination, Service Delivery, Transparency									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy	Priority	Cost-Funding Source	Responsible Party	2019	2020	2021	2022	2023
IG-01	Update the Service Delivery Strategy with all municipalities with every Comprehensive Plan update, or when needed.	High	VC (IK, GF)	BOC	↻	↻	↻	↻	↻
IG-02	Coordinate planning and development efforts in the region with the Coastal Regional Commission.	High	\$250,000 (IK, GF)	BOC	↻	↻	↻	↻	↻
IG-03	Coordinate and refer information on key land use proposals and impacts with appropriate units of local government, school districts and the Coastal Regional Commission, when appropriate.	High	VC (IK, GF)	BOC	↻	↻	↻	↻	↻
IG-04	Coordinate the planning, development and siting of schools with the Bulloch County Board of Education.	High	VC (IK, GF)	BOC	↻	↻	↻	↻	↻
IG-05	Coordinate the planning, development and construction of municipal utilities when appropriate.	High	VC (IK, GF)	BOC	↻	↻	↻	↻	↻
IG-06	Coordinate with state agencies regarding legislation and regulatory issues, and also to identify funding sources for	High	VC (IK, GF)	BOC	↻	↻	↻	↻	↻

BULLOCH COUNTY COMMUNITY WORK PROGRAM: INTERGOVERNMENTAL COORDINATION									
SMART RELATIONSHIPS GOALS – Improved Communication, Coordination, Service Delivery, Transparency									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy	Priority	Cost-Funding Source	Responsible Party	2019	2020	2021	2022	2023
	operating and capital projects.								
IG-07	Coordinate with federal agencies regarding legislation and regulatory issues and identify funding sources for operating and capital projects.	High	VC (IK, GF)	BOC	↻	↻	↻	↻	↻
IG-08	Utilize Community Development Block Grant (CDBG) and related HUD funding for infrastructure, economic development, housing, and innovative projects.	High	VC (CDBG, IK, GF, SPLOST, TSPLOST, GDOT, TAD)	BOC	↻	↻	↻	↻	↻

BULLOCH COUNTY COMMUNITY WORK PROGRAM: COMMUNITY FACILITIES									
SMART INVESTMENTS GOALS – High Quality and Cost-Effective Public Facilities, Sustainability, Optimize Public Benefit and Levels of Service									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy	Priority	Cost (Funding Source)	Responsible Party	2019	2020	2021	2022	2023
CF-01	Annually update the six-year capital improvements program and budget.	High	VC (IK, GF)	BOC	↻	↻	↻	↻	↻
CF-02	Update specific master plans affecting community facilities including, but not limited to transportation, recreation, public safety, solid waste, redevelopment, land use, when needed.	High	\$50,000-\$400,000 per plan (IK, GF, SPLOST, TSPLOST)	BOC	↻	↻	↻	↻	↻
CF-03	Optimize the use and availability of SPLOST and TSPLOST as a capital funding source for community facilities projects.	High	\$95,000,000 (IK, SPLOST, TSPLOST, GF)	BOC	↻	↻	↻	↻	↻
CF-04	Optimize the use and availability of private, state and federal funding sources to leverage local funding sources for	High	20% of Capital Improvements Program (Variable sources, as available with local match)	BOC	↻	↻	↻	↻	↻

BULLOCH COUNTY COMMUNITY WORK PROGRAM: COMMUNITY FACILITIES									
SMART INVESTMENTS GOALS – High Quality and Cost-Effective Public Facilities, Sustainability, Optimize Public Benefit and Levels of Service									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy	Priority	Cost (Funding Source)	Responsible Party	2019	2020	2021	2022	2023
	community facilities projects.								
CF-05	Utilize existing Enterprise Resource Planning software to annually evaluate the need to restore, replenish, or add community facility assets.	High	VC (IK, GF)	BOC	↻	↻	↻	↻	↻

## CITY OF BROOKLET

CITY OF BROOKLET COMMUNITY WORK PROGRAM SCHEDULE: ECONOMIC DEVELOPMENT									
SMART BUSINESS GOALS – Diversification, Workforce Support, Business Support, Quality of Life									
Activity #	Specific	Measurable	Attainable	Relevant	Time-bound				
	Strategy	Priority	Cost (Funding Source)	Responsible Party	2019	2020	2021	2022	2023
ED-16	Conduct a business retention and expansion survey and address results.	High	VC (IK, GF)	COB, SB-COC		✓			✓
ED-17	Develop and implement a targeting and recruitment plan for retail and commercial businesses that meet local consumer demand.	High	\$5,000 (IK, GF)	COB		✓			
ED-18	Establish an existing local business incentives program.	Low	\$25,000 (IK, GF)	COB					✓
ED-19	Encourage the location of small-to-moderate scale business development near existing or future neighborhoods, urban centers or future mixed-use developments.	High	VC (IK, GF)	COB	↻	↻	↻	↻	↻
ED-20	Encourage the location of major commercial, industrial or mixed-use activity urban corridors.	High	VC (IK, GF)	COB	↻	↻	↻	↻	↻
ED-21	Encourage mixed-use development at appropriate scales and in appropriate character areas.	High	VC (IK, GF)	COB	↻	↻	↻	↻	↻
ED-22	Leverage and promote resources available from local technical assistance organizations to establish and sustain small businesses.	Moderate	VC (IK, GF)	COB, GSU	↻	↻	↻	↻	↻
ED-23	Aggressively pursue leveraged funding opportunities that support infrastructure to expand economic development opportunities.	Moderate	VC (IK, SPLOST, TSPLOST, CDBG, OGA, GEFA, EDA, GDOT, FHWA)	COB	↻	↻	↻	↻	↻



CITY OF BROOKLET COMMUNITY WORK PROGRAM: TRANSPORTATION									
SMART MOBILITY GOALS – Safety and Quality, Mobility and Connectivity, Alternative Modes, Land Use Compatibility, Economic Benefit									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy	Priority	Cost (Funding Source)	Responsible Party	2019	2020	2021	2022	2023
TR-19	Phase IV the S&S Greenway to complete the connection to from Statesboro to Brooklet.	High	\$90,000 (FHWA, TSPOT, GDNR)	COB, BOC				✓	
TR-20	Participate in the update of the 2035 Long-Range Transportation Plan under MAP-21 guidelines should Statesboro-Bulloch County become a Metropolitan Planning Organization, and should Brooklet become part of the urbanized area.	Moderate	\$12,000 (GF)	COB, COP, COR, COS, BOC				✓	
TR-21	Coordinate with local educational institutions on existing and future site development to minimize traffic congestion and pedestrian conflicts during peak periods.	Moderate	VC (IK, GF)	COB	↻	↻	↻	↻	↻
TR-22	Develop a program to link the greenway system while at the same time providing bike and pedestrian amenities.	Moderate	VC (IK, GF)	COB, BOC	↻	↻	↻	↻	↻
TR-23	Utilize the Transportation Special Local Option Sales Tax for transportation maintenance and enhancements.	Moderate	\$720,000 (GF, TSPLOT)	COB	↻	↻	↻	↻	↻

CITY OF BROOKLET COMMUNITY WORK PROGRAM: BROADBAND									
SMART CONNECTIONS GOALS – Availability, Abundance, Affordability, Readiness, Reliable									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy	Priority	Cost-Funding Source	Responsible Party	2019	2020	2021	2022	2023
BB-07	Participate in a stakeholder committee of public-private entities to plan and maintain a Community Broadband Road Map or Strategic Plan.	High	VC (IK, GF, P3)	COB, COP, COR, COS, BOC, DABC			✓		
BB-08	Apply for Broadband Ready Community Designation with DCA upon adopting a model broadband ordinance.	High	VC (IK, GF)	COB, COP, COR, COS, BOC		✓			
BB-09	Monitor policy developments and legislation to align state goals with local initiatives.	High	VC (IK, GF)	COB, COP, COR, COS, BOC, DABC	↻	↻	↻	↻	↻

CITY OF BROOKLET COMMUNITY WORK PROGRAM: LAND USE									
SMART GROWTH GOALS – Mixed Land Uses, Compact Design, Diverse Housing Choices, Walkability, Sense of Place, Preserve Open Space									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy (Character Areas Where Applied)	Priority	Cost (Funding Source)	Responsible Party	2019	2020	2021	2022	2023
LU-16	Prepare a city-wide inventory of vacant sites to target for infill development. <b>U-N</b>	Moderate	VC (IK, GF)	COB		✓			
LU-17	Prepare a city-wide inventory of buildings to target for redevelopment. <b>U-N</b>	Moderate	VC (IK, GF)	COB		✓			
LU-18	Prepare and adopt a Downtown Master Plan to guide design and regulations. <b>U-CTR</b>	Moderate	\$15,000 (IK, GF)	COB			✓		
LU-19	Prepare and adopt an Urban-Center Overlay District. <b>U-CTR</b>	Moderate	VC (IK, GF)	COB				✓	
LU-20	Prepare and adopt an Urban-Corridor Overlay District. <b>U-C</b>	Moderate	VC (IK, GF)	COB				✓	
LU-21	Participate in updating the Countywide Greenways Master Plan and define priorities for development. <b>U-N, U-CTR, U-C</b>	High	VC, (IK, GF)	BOC	↻	↻	↻	↻	↻
LU-22	Incorporate design principles into development ordinances or by zoning conditions. <b>U-N, U-CTR, U-C</b>	High	VC (IK, GF)	COB	↻	↻	↻	↻	↻
LU-23	Amend the zoning ordinance to include the use of planned unit developments for innovative site design (PUD's). <b>U-N, U-C</b>	High	VC (IK, GF)	COB	↻	↻	↻	↻	↻
LU-24	Develop and promote incentives for amenities, aesthetics, and infill. <b>U-N</b>	High	VC (IK, GF)	COB	↻	↻	↻	↻	↻

CITY OF BROOKLET COMMUNITY WORK PROGRAM: INTERGOVERNMENTAL COORDINATION									
SMART RELATIONSHIPS GOALS – Improved Communication, Coordination, Service Delivery, Transparency									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy	Priority	Cost-Funding Source	Responsible Party	2019	2020	2021	2022	2023
IG-09	Update the Service Delivery Strategy with Bulloch County and other municipalities with every Comprehensive Plan update, or when needed.	High	VC (IK, GF)	COB, BOC	↻	↻	↻	↻	↻
IG-10	Coordinate planning and development efforts in the	High	\$10,000 (IK, GF)	COB, CRC	↻	↻	↻	↻	↻

	region with the Coastal Regional Commission.								
<b>IG-11</b>	Coordinate and refer information on key land use proposals and impacts with appropriate units of local government, school district and the Coastal Regional Commission, when appropriate.	High	VC (IK, GF)	COB	↻	↻	↻	↻	↻
<b>IG-12</b>	Coordinate the planning, development and siting of schools with the Bulloch County Board of Education.	High	VC (IK, GF)	COB, BOE	↻	↻	↻	↻	↻
<b>IG-13</b>	Coordinate the planning, development and construction of municipal utilities with Bulloch County when appropriate.	High	VC (IK, GF)	COB, BOC	↻	↻	↻	↻	↻
<b>IG-14</b>	Coordinate with state agencies regarding legislation and regulatory issues and identify funding sources for operating and capital projects.	High	VC (IK, GF)	COB	↻	↻	↻	↻	↻
<b>IG-15</b>	Coordinate with federal agencies regarding legislation and regulatory issues and identify funding sources for operating and capital projects.	High	VC (IK, GF)	COB	↻	↻	↻	↻	↻
<b>IG-16</b>	Utilize Community Development Block Grant (CDBG) and related HUD funding for infrastructure, economic development, housing, and innovative projects.	High	VC (CDBG, IK, GF, SPLOST, TSPLOST, GDOT, TAD)	BOC	↻	↻	↻	↻	↻

<b>CITY OF BROOKLET COMMUNITY WORK PROGRAM: COMMUNITY FACILITIES</b>									
<b>SMART INVESTMENTS GOALS – High Quality and Cost-Effective Public Facilities, Sustainability, Optimize Public Benefit and Levels of Service</b>									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
<b>Activity #</b>	<b>Strategy</b>	<b>Priority</b>	<b>Cost (Funding Source)</b>	<b>Responsible Party</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
<b>CF-06</b>	Establish and annually update a six-year capital improvements program and budget.	High	VC (IK, GF)	COB	↻	↻	↻	↻	↻
<b>CF-07</b>	Update specific master plans affecting community facilities including, but not limited to	High	\$15,000-\$32,000,000 per plan (IK, GF, SPLOST, TSPLOST)	COB	↻	↻	↻	↻	↻

CITY OF BROOKLET COMMUNITY WORK PROGRAM: COMMUNITY FACILITIES									
SMART INVESTMENTS GOALS – High Quality and Cost-Effective Public Facilities, Sustainability, Optimize Public Benefit and Levels of Service									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy	Priority	Cost (Funding Source)	Responsible Party	2019	2020	2021	2022	2023
	transportation, public safety, solid waste, redevelopment, land use, when needed.								
CF-08	Optimize the use and availability of SPLOST and TSPLOST as a capital funding source for community facilities projects.	High	\$3,600,000 (IK, SPLOST, TSPLOST, GF)	COB	↻	↻	↻	↻	↻
CF-09	Optimize the use and availability of private, state and federal funding sources to leverage local funding sources for community facilities projects.	High	10-20% of Capital Improvements Program (Variable sources, as available with local match)	COB	↻	↻	↻	↻	↻

## CITY OF PORTAL

CITY OF PORTAL COMMUNITY WORK PROGRAM SCHEDULE: ECONOMIC DEVELOPMENT									
SMART BUSINESS GOALS – Diversification, Workforce Support, Business Support, Quality of Life									
Activity #	Specific Strategy	Measurable Priority	Attainable Cost (Funding Source)	Relevant Responsible Party	Time-bound				
					2019	2020	2021	2022	2023
ED-24	Conduct a business retention and expansion survey and address results.	High	VC (IK, GF)	COP, COC		✓			✓
ED-25	Develop and implement a targeting and recruitment plan for retail and commercial businesses that meet local consumer demand.	High	\$5,000 (IK, GF)	COB		✓			
ED-26	Establish an existing local business incentives program.	Low	\$25,000 (IK, GF)	COP					✓
ED-27	Encourage the location of small-to-moderate scale business development near existing or future neighborhoods, urban centers or future mixed-use developments.	High	VC (IK, GF)	COP	↻	↻	↻	↻	↻
ED-28	Encourage the location of major commercial, industrial or mixed-use activity urban corridors.	High	VC (IK, GF)	COP	↻	↻	↻	↻	↻
ED-29	Encourage mixed-use development at appropriate scales and in appropriate character areas.	High	VC (IK, GF)	COP	↻	↻	↻	↻	↻
ED-30	Leverage and promote resources available from local technical assistance organizations to establish and sustain small businesses.	Moderate	VC (IK, GF)	COP, GSU-SBDC	↻	↻	↻	↻	↻
ED-31	Aggressively pursue leveraged funding opportunities that support infrastructure to expand economic development opportunities.	Moderate	VC (IK, SPLOST, TSPLOST, CDBG, OGA, GEFA, EDA, GDOT, FHWA)	COP	↻	↻	↻	↻	↻

CITY OF PORTAL COMMUNITY WORK PROGRAM: TRANSPORTATION									
SMART MOBILITY GOALS – Safety and Quality, Mobility and Connectivity, Alternative Modes, Land Use Compatibility, Economic Benefit									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy	Priority	Cost (Funding Source)	Responsible Party	2019	2020	2021	2022	2023
TR-24	Participate in the update of the 2035 Long-Range Transportation Plan under MAP-21 guidelines should Statesboro-Bulloch County become a Metropolitan Planning Organization, and should Brooklet become part of the urbanized area.	Moderate	\$12,000 (GF)	COB, COP, COR, COS, BOC				✓	
TR-25	Coordinate with local educational institutions on existing and future site development to minimize traffic congestion and pedestrian conflicts during peak periods.	Moderate	VC (IK, GF)	COP	↻	↻	↻	↻	↻
TR-26	Develop a program to link the greenway system while at the same time providing bike and pedestrian amenities.	Moderate	VC (IK, GF)	COP, BOC	↻	↻	↻	↻	↻
TR-27	Utilize the Transportation Special Local Option Sales Tax for transportation maintenance and enhancements.	Moderate	\$496,000 (GF, TSPLOST)	COP	↻	↻	↻	↻	↻

CITY OF PORTAL COMMUNITY WORK PROGRAM: BROADBAND									
SMART CONNECTIONS GOALS – Availability, Abundance, Affordability, Readiness, Reliable									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy	Priority	Cost-Funding Source	Responsible Party	2019	2020	2021	2022	2023
BB-10	Participate in a stakeholder committee of public-private entities to plan and maintain a Community Broadband Road Map or Strategic Plan.	High	VC (IK, GF, P3)	COB, COP, COR, COS, BOC, DABC			✓		
BB-11	Apply for Broadband Ready Community Designation with DCA upon adopting a model broadband ordinance.	High	VC (IK, GF)	COB, COP, COR, COS, BOC		✓			
BB-12	Monitor policy developments and legislation to align state goals with local initiatives.	High	VC (IK, GF)	COB, COP, COR, COS, BOC, DABC	↻	↻	↻	↻	↻



CITY OF PORTAL COMMUNITY WORK PROGRAM: LAND USE									
SMART GROWTH GOALS – Mixed Land Uses, Compact Design, Diverse Housing Choices, Walkability, Sense of Place, Preserve Open Space									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy (Character Areas Where Applied)	Priority	Cost (Funding Source)	Responsible Party	2019	2020	2021	2022	2023
LU-25	Prepare a city-wide inventory of vacant sites to target for infill development. <b>U-N</b>	Moderate	VC (IK, GF)	COP		✓			
LU-26	Prepare a city-wide inventory of buildings to target for redevelopment. <b>U-N</b>	Moderate	VC (IK, GF)	COP		✓			
LU-27	Prepare and adopt a Downtown Master Plan to guide design and regulations. <b>U-CTR</b>	Moderate	\$15,000 (IK, GF)	COP				✓	
LU-28	Prepare and adopt an Urban-Center Overlay District. <b>U-CTR</b>	Moderate	VC (IK, GF)	COP					✓
LU-29	Prepare and adopt an Urban-Corridor Overlay District. <b>U-C</b>	Moderate	VC (IK, GF)	COP					✓
LU-30	Participate in updating the Countywide Greenways Master Plan and define priorities for development. <b>U-N, U-CTR, U-C</b>	High	VC, (IK, GF)	COP, BOC	↻	↻	↻	↻	↻
LU-31	Incorporate design principles into development ordinances or by zoning conditions. <b>U-N, U-CTR, U-C</b>	High	VC (IK, GF)	COP	↻	↻	↻	↻	↻
LU-32	Amend the zoning ordinance to include the use of planned unit developments for innovative site design (PUD's). <b>U-N, U-C</b>	High	VC (IK, GF)	COP	↻	↻	↻	↻	↻
LU-33	Develop and promote incentives for amenities, aesthetics, and infill. <b>U-N</b>	High	VC (IK, GF)	COP	↻	↻	↻	↻	↻

CITY OF PORTAL COMMUNITY WORK PROGRAM: INTERGOVERNMENTAL COORDINATION									
SMART RELATIONSHIPS GOALS – Improved Communication, Coordination, Service Delivery, Transparency									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy	Priority	Cost-Funding Source	Responsible Party	2019	2020	2021	2022	2023
IG-17	Update the Service Delivery Strategy with Bulloch County and other municipalities with every Comprehensive Plan update, or when needed.	High	VC (IK, GF)	COP, BOC	↻	↻	↻	↻	↻
IG-18	Coordinate planning and development efforts in the region with the Coastal Regional Commission.	High	\$10,000 (IK, GF)	COP, CRC	↻	↻	↻	↻	↻

<b>IG-19</b>	Coordinate and refer information on key land use proposals and impacts with appropriate units of local government, school district and the Coastal Regional Commission, when appropriate.	High	VC (IK, GF)	COP	↻	↻	↻	↻	↻
<b>IG-20</b>	Coordinate the planning, development and siting of schools with the Board of Education.	High	VC (IK, GF)	COP, BOE	↻	↻	↻	↻	↻
<b>IG-21</b>	Coordinate the planning, development and construction of municipal utilities with Bulloch County when appropriate.	High	VC (IK, GF)	COP, BOC	↻	↻	↻	↻	↻
<b>IG-22</b>	Coordinate with state agencies regarding legislation and regulatory issues, and also to identify funding sources for operating and capital projects.	High	VC (IK, GF)	COP	↻	↻	↻	↻	↻
<b>IG-23</b>	Coordinate with federal agencies regarding legislation and regulatory issues, and also to identify funding sources for operating and capital projects.	High	VC (IK, GF)	COP	↻	↻	↻	↻	↻
<b>IG-24</b>	Utilize Community Development Block Grant (CDBG) and related HUD funding for infrastructure, economic development, housing, and innovative projects.	High	VC (CDBG, IK, GF, SPLOST, TSPLOST, GDOT, TAD)	BOC	↻	↻	↻	↻	↻

<b>CITY OF PORTAL COMMUNITY WORK PROGRAM: COMMUNITY FACILITIES</b>									
<b>SMART INVESTMENTS GOALS – High Quality and Cost-Effective Public Facilities, Sustainability, Optimize Public Benefit and Levels of Service</b>									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
<b>Activity #</b>	<b>Strategy</b>	<b>Priority</b>	<b>Cost (Funding Source)</b>	<b>Responsible Party</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
<b>CF-10</b>	Establish and annually update a six-year capital improvements program and budget.	High	VC (IK, GF)	COP	↻	↻	↻	↻	↻
<b>CF-11</b>	Update specific master plans affecting community facilities including, but not limited to transportation, recreation, public	High	\$15,000-\$32,000,000 per plan (IK, GF, SPLOST, TSPLOST)	COP	↻	↻	↻	↻	↻

CITY OF PORTAL COMMUNITY WORK PROGRAM: COMMUNITY FACILITIES									
SMART INVESTMENTS GOALS – High Quality and Cost-Effective Public Facilities, Sustainability, Optimize Public Benefit and Levels of Service									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy	Priority	Cost (Funding Source)	Responsible Party	2019	2020	2021	2022	2023
	safety, solid waste, redevelopment, land use, when needed.								
CF-12	Optimize the use and availability of SPLOST and TSPLOST as a capital funding source for community facilities projects.	High	\$638,000 (IK, SPLOST, TSPLOST, GF)	COP	↻	↻	↻	↻	↻
CF-13	Optimize the use and availability of private, state and federal funding sources to leverage local funding sources for community facilities projects.	High	10-20% of Capital Improvements Program (Variable sources, as available with local match)	COP	↻	↻	↻	↻	↻

## CITY OF REGISTER

CITY OF REGISTER COMMUNITY WORK PROGRAM SCHEDULE: ECONOMIC DEVELOPMENT									
SMART BUSINESS GOALS – Diversification, Workforce Support, Business Support, Quality of Life									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy	Priority	Cost (Funding Source)	Responsible Party	2019	2020	2021	2022	2023
ED-32	Encourage the location of small-to-moderate scale business development near existing or future neighborhoods, urban centers or future mixed-use developments.	High	VC (IK, GF)	COR	☺	☺	☺	☺	☺
ED-33	Encourage the location of major commercial, industrial or mixed-use activity urban corridors.	High	VC (IK, GF)	COR	☺	☺	☺	☺	☺
ED-34	Encourage mixed-use development at appropriate scales and in appropriate character areas.	High	VC (IK, GF)	COR	☺	☺	☺	☺	☺
ED-35	Leverage and promote resources available from local technical assistance organizations to establish and sustain small businesses.	Moderate	VC (IK, GF)	COR, GSU-SBDC	☺	☺	☺	☺	☺
ED-36	Aggressively pursue leveraged funding opportunities that support infrastructure to expand economic development opportunities.	Moderate	VC (IK, SPLOST, TSPLOST, CDBG, OGA, GEFA, EDA, GDOT, FHWA)	COR	☺	☺	☺	☺	☺

CITY OF REGISTER COMMUNITY WORK PROGRAM: TRANSPORTATION									
SMART MOBILITY GOALS – Safety and Quality, Mobility and Connectivity, Alternative Modes, Land Use Compatibility, Economic Benefit									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy	Priority	Cost (Funding Source)	Responsible Party	2019	2020	2021	2022	2023
TR-28	Participate in the update of the 2035 Long-Range Transportation Plan under MAP-21 guidelines should Statesboro-Bulloch County become a Metropolitan Planning Organization, and should Brooklet become part of the urbanized area.	Moderate	\$12,000 (GF)	COB, COP, COR, COS, BOC				✓	
TR-29	Coordinate with local educational institutions on	Moderate	VC (IK, GF)	COR	☺	☺	☺	☺	☺

CITY OF REGISTER COMMUNITY WORK PROGRAM: TRANSPORTATION									
SMART MOBILITY GOALS – Safety and Quality, Mobility and Connectivity, Alternative Modes, Land Use Compatibility, Economic Benefit									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy	Priority	Cost (Funding Source)	Responsible Party	2019	2020	2021	2022	2023
	existing and future site development to minimize traffic congestion and pedestrian conflicts during peak periods.								
TR-30	Develop a program to link the greenway system while at the same time providing bike and pedestrian amenities.	Moderate	VC (IK, GF)	COR, BOC	↻	↻	↻	↻	↻
TR-31	Utilize the Transportation Special Local Option Sales Tax for transportation maintenance and enhancements.	Moderate	\$300,000 (GF, TSPLOST)	COR	↻	↻	↻	↻	↻

CITY OF REGISTER COMMUNITY WORK PROGRAM: BROADBAND									
SMART CONNECTIONS GOALS – Availability, Abundance, Affordability, Readiness, Reliable									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy	Priority	Cost-Funding Source	Responsible Party	2019	2020	2021	2022	2023
BB-13	Participate in a stakeholder committee of public-private entities to plan and maintain a Community Broadband Road Map or Strategic Plan.	High	VC (IK, GF, P3)	COB, COP, COR, COS, BOC, DABC			✓		
BB-14	Apply for Broadband Ready Community Designation with DCA upon adopting a model broadband ordinance.	High	VC (IK, GF)	COB, COP, COR, COS, BOC		✓			
BB-15	Monitor policy developments and legislation to align state goals with local initiatives.	High	VC (IK, GF)	COB, COP, COR, COS, BOC, DABC	↻	↻	↻	↻	↻

CITY OF REGISTER COMMUNITY WORK PROGRAM: LAND USE									
SMART GROWTH GOALS – Mixed Land Uses, Compact Design, Diverse Housing Choices, Walkability, Sense of Place, Preserve Open Space									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy (Character Areas Where Applied)	Priority	Cost (Funding Source)	Responsible Party	2019	2020	2021	2022	2023
LU-34	Prepare a city-wide inventory of vacant sites to target for infill development. <b>U-N</b>	Moderate	VC (IK, GF)	COR		✓			
LU-35	Prepare a city-wide inventory of buildings to target for redevelopment. <b>U-N</b>	Moderate	VC (IK, GF)	COR		✓			
LU-36	Prepare and adopt a Downtown Master Plan to guide design and regulations. <b>U-CTR</b>	Moderate	\$15,000 (IK, GF)	COR				✓	
LU-37	Prepare and adopt an Urban-Center Overlay District. <b>U-CTR</b>	Moderate	VC (IK, GF)	COR					✓
LU-38	Prepare and adopt an Urban-Corridor Overlay District. <b>U-C</b>	Moderate	VC (IK, GF)	COR					✓
LU-39	Participate in updating the Countywide Greenways Master Plan and define priorities for development. <b>U-N, U-CTR, U-C</b>	High	VC, (IK, GF)	COR, BOC	↻	↻	↻	↻	↻
LU-40	Incorporate design principles into development ordinances or by zoning conditions. <b>U-N, U-CTR, U-C</b>	High	VC (IK, GF)	COR	↻	↻	↻	↻	↻
LU-41	Amend the zoning ordinance to include the use of planned unit developments for innovative site design (PUD's). <b>U-N, U-C</b>	High	VC (IK, GF)	COR	↻	↻	↻	↻	↻
LU-42	Develop and promote incentives for amenities, aesthetics, and infill. <b>U-N</b>	High	VC (IK, GF)	COR	↻	↻	↻	↻	↻

CITY OF REGISTER COMMUNITY WORK PROGRAM: INTERGOVERNMENTAL COORDINATION									
SMART RELATIONSHIPS GOALS – Improved Communication, Coordination, Service Delivery, Transparency									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy	Priority	Cost-Funding Source	Responsible Party	2019	2020	2021	2022	2023
IG-25	Update the Service Delivery Strategy with Bulloch County and other municipalities with every Comprehensive Plan update, or when needed.	High	VC (IK, GF)	COR, BOC	↻	↻	↻	↻	↻
IG-26	Coordinate planning and development efforts in the region with the Coastal Regional Commission.	High	\$10,000 (IK, GF)	COR, CRC	↻	↻	↻	↻	↻
IG-27	Coordinate and refer information on key land use	High	VC (IK, GF)	COR	↻	↻	↻	↻	↻



	proposals and impacts with appropriate units of local government, school district and the Coastal Regional Commission, when appropriate.								
<b>IG-28</b>	Coordinate the planning, development and siting of schools with the Board of Education.	High	VC (IK, GF)	COR, BOE	↻	↻	↻	↻	↻
<b>IG-29</b>	Coordinate the planning, development and construction of municipal utilities with Bulloch County when appropriate.	High	VC (IK, GF)	COR, BOC	↻	↻	↻	↻	↻
<b>IG-30</b>	Coordinate with state agencies regarding legislation and regulatory issues, and also to identify funding sources for operating and capital projects.	High	VC (IK, GF)	COR	↻	↻	↻	↻	↻
<b>IG-31</b>	Coordinate with federal agencies regarding legislation and regulatory issues, and also to identify funding sources for operating and capital projects.	High	VC (IK, GF)	COR	↻	↻	↻	↻	↻
<b>IG-32</b>	Utilize Community Development Block Grant (CDBG) and related HUD funding for infrastructure, economic development, housing, and innovative projects.	High	VC (CDBG, IK, GF, SPLOST, TSPLOST, GDOT, TAD)	BOC	↻	↻	↻	↻	↻

<b>CITY OF REGISTER COMMUNITY WORK PROGRAM: COMMUNITY FACILITIES</b>									
<b>SMART INVESTMENTS GOALS – High Quality and Cost-Effective Public Facilities, Sustainability, Optimize Public Benefit and Levels of Service</b>									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
<b>Activity #</b>	<b>Strategy</b>	<b>Priority</b>	<b>Cost (Funding Source)</b>	<b>Responsible Party</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
<b>CF-14</b>	Establish and annually update a six-year capital improvements program and budget.	High	VC (IK, GF)	COR	↻	↻	↻	↻	↻
<b>CF-15</b>	Update specific master plans affecting community facilities including, but not limited to transportation, public safety, solid waste, redevelopment,	High	\$15,000-\$32,000,000 per plan (IK, GF, SPLOST, TSPLOST)	COR	↻	↻	↻	↻	↻

CITY OF REGISTER COMMUNITY WORK PROGRAM: COMMUNITY FACILITIES									
SMART INVESTMENTS GOALS – High Quality and Cost-Effective Public Facilities, Sustainability, Optimize Public Benefit and Levels of Service									
	<i>Specific</i>	<i>Measurable</i>	<i>Attainable</i>	<i>Relevant</i>	<i>Time-bound</i>				
Activity #	Strategy	Priority	Cost (Funding Source)	Responsible Party	2019	2020	2021	2022	2023
	land use, when needed.								
CF-16	Optimize the use and availability of SPLOST and TSPLOST as a capital funding source for community facilities projects.	High	\$238,000 (IK, SPLOST, TSPLOST, GF)	COR	↻	↻	↻	↻	↻
CF-17	Optimize the use and availability of private, state and federal funding sources to leverage local funding sources for community facilities projects.	High	10-20% of Capital Improvements Program (Variable sources, as available with local match)	COR	↻	↻	↻	↻	↻

# REPORT OF ACCOMPLISHMENTS

The Report of Accomplishments provides a status of implementation Strategy identified in the 2014-2018 Community Work Programs for Bulloch County and the cities of Brooklet, Portal and Register. For each activity the Report of Accomplishments identifies whether it is ongoing, or if was completed, ongoing, or canceled. Reasons are provided for an ongoing or canceled activity.

Again, as explained previously in the preamble of the Community Work Program in Chapter 7, Section 1, it should be noted that the framework and context of implementation strategies have changed since the 2009 plan update (and the subsequent transformation of the Short-Term Work Program to the Community Work Program in 2014). There are many strategies that have been canceled for each jurisdiction according to the rearrangement of schedules in the Community Work Program.

## BULLOCH COUNTY

BULLOCH COUNTY REPORT OF ACCOMPLISHMENTS 2014-2018		
Action/Implementation Strategy	Status	Explanation
<b>Development Patterns</b>		
<b>DP Strategy 1.1.1:</b> Amend zoning ordinance to accommodate infill housing at setbacks and minimum lots sizes that are compatible with surrounding homes but are less than what is required by code	Completed	Administrative variance available by ordinance.
<b>DP Strategy 1.2.1:</b> Coordinate school site selection between planning officials, neighborhoods, and the school board to identify school locations within or near existing neighborhoods	Ongoing	Restated in TR-12, IG-03 and IG-04 of CWP.
<b>DP Strategy 1.2.2:</b> Implement Bulloch County Recreation Master Plan recommendations to expand existing parks to offer a broader range of service and to construct new parks to serve most residents within a five-mile radius	Ongoing	Restated in LU-10 of CWP.
<b>DP Strategy 1.2.3:</b> Construct sidewalks, trails, and bike lanes that connect neighborhoods to schools and that create safe opportunities for children to reach school	Ongoing	Restated in TR-03 of CWP.
<b>DP Strategy 2.1.1:</b> Follow Future Development Map to guide appropriate locations for new residential development and to preserve areas desired to remain agricultural in use	Completed	The Future Development Map creates this as a fixed assumption.
<b>DP Strategy 2.1.2:</b> Adopt conservation subdivision ordinance to preserves natural features and rural character with new residential development	Ongoing	Restated in LU-03 of CWP. Projected completion in 2021.
<b>DP Strategy 2.1.3:</b> Limit water/sewer expansion into rural areas	Ongoing	The Future Development Map creates this as a fixed assumption. Restated in LU-06.
<b>DP Strategy 2.1.4:</b> Permit higher density zoning districts in close proximity to major activity centers such as City centers, major crossroads, commercial centers, and schools	Ongoing	Expressed as a design principle and consistently implemented in several Character Areas and is restated in LU-1, LU-2, LU-3 and LU 11-13 of CWP.
<b>RC Strategy 2.1.5:</b> Promote state's Conservation Use Program, which allows a favorable tax assessment for up to ten years on properties used for agricultural purposes	Completed	Existing policy/practice in place with the County Tax Assessors Office.
<b>DP Strategy 2.2.1:</b> Establish partnerships with land trusts or create financial instruments such as tax incentives that support and preserve agricultural activities and rural open space	Canceled	No longer a priority by the County. Implementation difficulties due to complexity and lack of understanding by landowners and policy makers.
<b>DP Strategy 2.2.2:</b> Promote the use of conservation easements and conservation tax credits by landowners	Ongoing	Restated in LU-9.
<b>DP Strategy 2.2.3:</b> Promote the use of Purchase of Development Rights (PDRs), and Transfer of Development Rights (TDRs)	Canceled	No longer a priority by the County.

BULLOCH COUNTY REPORT OF ACCOMPLISHMENTS 2014-2018		
Action/Implementation Strategy	Status	Explanation
		Implementation difficulties due to lack of understanding by land owners and policy makers.
<b>DP Strategy 3.1.1:</b> Amend existing zoning regulations to include provisions that support Traditional Neighborhood Design principles (e.g. amend Planned Unit Development district or adopt new TND ordinance; See Community Design Section)	Completed	
<b>DP Strategy 3.1.2:</b> Direct residential growth to Suburban Neighborhood areas	Canceled	The Future Development Map and Character Areas construct nullifies the use of this strategy since it is already a fixed assumption.
<b>DP Strategy 3.2.2:</b> Promote the Planned Unit Development District Three (3) as a mixed-use zoning alternative that allows for the mixing of different residential, commercial, and office uses that promote compact, interconnected development	Ongoing	Restated in LU-12.
<b>DP Strategy 4.1.1:</b> Coordinate transportation planning with the Bulloch County Greenways System Master Plan and Bulloch County Transit Development Plan	Canceled	No longer a priority by the County. The absence of fixed or flex-route transit and/or coordinated transit planning makes implementation of this strategy unrealistic.
<b>DP Strategy 4.1.2:</b> Adopt Bulloch County Comprehensive Transportation Plan	Completed	
<b>DP Strategy 4.2.1:</b> Implement Bulloch County Greenway Master Plan	Ongoing	Restated in TR-01 and LU-10 of the CWP.
<b>DP Strategy 4.2.2:</b> Strengthen street design requirements in the County subdivision regulations and development regulations for each city pertaining to street continuation between existing and new developments	Completed (Bulloch County only)	Existing practice by policy.
<b>DP Strategy 4.2.3:</b> Require sidewalks in the Planning Unit Development (PUD) district rather than making them an optional amenity	Completed	Existing practice by ordinance.
<b>DP Strategy 4.2.4:</b> Prepare an existing conditions analysis of the sidewalks to identify substandard facilities and prioritize repair/replacement projects	Completed	
<b>DP Strategy 5.1.1:</b> Coordinate utilities infrastructure improvements with infill redevelopment and new development efforts to minimize energy use and maximize investment in existing infrastructure	Completed	Existing practice by ordinance/policy.
<b>DP Strategy 5.2.1:</b> Limit water/sewer expansion into rural areas	Canceled	Restated in LU-6 to be started in 2023.
<b>DP Strategy 5.2.2:</b> Ensure capital improvements needed to accommodate future development are provided concurrent with new development	Completed	Existing development review practices in place; checked for consistency with Six-Year Capital Improvements Program.

**BULLOCH COUNTY REPORT OF ACCOMPLISHMENTS 2014-2018**

<i>Action/Implementation Strategy</i>	<i>Status</i>	<i>Explanation</i>
<b>DP Strategy 5.2.3:</b> Create a development review process that coordinates development approval with existing school capacity and planned facilities	Completed	Existing practice by policy.
<b>DP Strategy 5.2.4:</b> Conduct and carry out appropriate plans and measures for effective stormwater management	Completed	Existing practice by ordinance/policy.
<b>DP Strategy 6.1.1:</b> Implement Bulloch County Recreation Master Plan	Completed	This plan is considered annually as a part of updating the Six-Year Capital Improvements Plan.
<b>DP Strategy 6.2.1:</b> Create incentives to encourage developers to create neighborhood parks as part of their development projects	Completed	10% bonus density is offered for this type of amenity.
<b>DP Strategy 7.1.1:</b> Bulloch County and Statesboro should coordinate to establish an annexation policy to clearly articulate the conditions and requirements for annexation into the City of Statesboro	Completed	There is an existing intergovernmental agreement for a municipal growth district which can be templated to other areas proximate to the city limits that are candidates for annexation.
<b>Resource Conservation</b>		
<b>RC Strategy 1.1.1:</b> Adopt a historic preservation ordinance to establish a county-wide historic preservation commission tasked with preservation-focused activities, such as historic resource surveys and designation of local historic districts	Canceled	No longer a priority by the County. Implementation difficulties due to complexity and lack of understanding by landowners and policy makers.
<b>RC Strategy 1.1.2:</b> Apply to the Certified Local Government (CLG) Program to become eligible for federal historic preservation funds	Canceled	No longer a priority by the County. Implementation difficulties due to complexity and lack of understanding by landowners and policy makers.
<b>RC Strategy 1.1.3:</b> Update historic resources survey	Canceled	No longer a priority by the County. Implementation difficulties due to complexity and lack of understanding by landowners and policy makers.
<b>RC Strategy 1.1.4:</b> Coordinate with Bulloch County Historical Society to nominate eligible properties to the National Register of Historic Places and to generally promote the County's history	Completed	This is an existing practice and is performed on an ongoing basis.
<b>RC Strategy 1.1.5:</b> Seek local designation of existing National Register properties to ensure long-term preservation of the resources, and/or	Canceled	No longer a priority by the County.



<b>BULLOCH COUNTY REPORT OF ACCOMPLISHMENTS 2014-2018</b>		
<i>Action/Implementation Strategy</i>	<i>Status</i>	<i>Explanation</i>
identify incentives for their preservation (e.g. building façade easements)		Implementation difficulties due to complexity and lack of understanding by landowners and policy makers.
<b>RC Strategy 2.1.1:</b> Implement the Bulloch County Greenway Master Plan	Ongoing	Restated in LU-10 of CWP.
<b>RC Strategy 2.2.1:</b> Discourage development in environmentally sensitive areas, as delineated in the Natural development category (see Future Development Guide and Map)	Canceled	Expressed as a design principle and is consistently implemented in appropriate Character Areas.
<b>RC Strategy 2.2.2:</b> Utilize conservation easements and other land preservation tools to preserve important natural areas on either public or private lands	Ongoing	Restated in LU-08 and LU-09 of the CWP.
<b>RC Strategy 2.3.1:</b> Incorporate minimum open space and tree protection requirements into development standards	Canceled	Open Space is expressed as a design principle and is consistently implemented in appropriate Character Areas. Tree protection is no longer a priority by the County. Implementation of a tree ordinance/policy has been found to be impractical due to its complexity and lack of understanding by land owners and policy makers.
<b>RC Strategy 2.3.2:</b> Adopt a Conservation Subdivision Ordinance to maximize open space/natural vegetation	Ongoing	Insufficient staff or resources. Restated in LU-03 of the CWP. Projected completion 2021.
<b>RC Strategy 2.4.1:</b> Continue to enforce the River Corridor Protection Ordinance with appropriate vegetation buffers and other pollution mitigation requirements	Completed	Existing practice by ordinance.
<b>RC Strategy 2.4.2:</b> Continue to enforce sediment and erosion control requirements to mitigate negative impacts of construction site runoff on Bulloch County's waterways	Completed	Existing practice by ordinance.
<b>RC Strategy 2.4.3:</b> Continue to enforce Groundwater Recharge Area Protection Ordinance to protect groundwater	Completed	Existing practice by ordinance.
<b>RC Strategy 2.4.4:</b> Conduct and carryout appropriate plans and measures necessary for effective stormwater management	Completed	Existing practice by ordinance.
<b>RC Strategy 2.4.5:</b> Conduct and carryout appropriate plans and measures necessary for effective groundwater protection	Completed	Existing practice by ordinance.
<b>Social and Economic Development</b>		
<b>SED Strategy 1.1.1:</b> Encourage PUDs to incorporate Traditional Neighborhood Design principles in new development (See Community	Completed	Existing practice by ordinance.

**BULLOCH COUNTY REPORT OF ACCOMPLISHMENTS 2014-2018**

<i>Action/Implementation Strategy</i>	<i>Status</i>	<i>Explanation</i>
Design Section)		
<b>SED Strategy 1.1.2:</b> Reduce the PUD acreage requirement for residential development to allow for smaller developments that are context sensitive within existing neighborhoods and that provide for creative site design that can incorporate Traditional Neighborhood Design principles (See Community Design Section)	Completed	Existing practice by ordinance.
<b>SED Strategy 1.2.1:</b> Conduct housing study to identify affordable housing needs	Canceled	No longer a priority by the County. Insufficient staff and resources. No Housing Element warranted because there are no affordable housing issues in the unincorporated areas.
<b>SED Strategy 1.2.2:</b> Create incentives such as density bonuses or expedited permit processing for affordable housing development	Canceled	No longer a priority by the County. Unable to establish such an incentive due to market forces that make implementation impractical.
<b>SED Strategy 1.2.3:</b> Consider a Senior Living Overlay District that would allow elderly housing within existing neighborhoods and in close proximity to important services such as medical facilities, churches, or community centers	Canceled	No longer a priority by the County. Unable to establish such an incentive due to market forces that make implementation impractical.
<b>SED Strategy 1.2.4:</b> Permit development of accessory dwelling units or elderly cottage housing (i.e. granny flats) by-right in all residential areas	Canceled	No longer a priority by the County. Unable to establish such an incentive due to market forces that make implementation impractical.
<b>SED Strategy 1.3.1:</b> Develop financing tools for landowners that facilitate investment in struggling neighborhoods. Tax rebates, small low interest loan programs, or federal Community Development Block Grant (CDBG) funds for interior and exterior renovations or home energy improvements can improve the visual character and quality of life of neighborhoods.	Canceled	Restated in IG-08, IG-16, IG-24, and IG-32 in the CWP.
<b>SED Strategy 1.3.2:</b> Increase code enforcement efforts to address dilapidated housing or poorly maintained vacant lots in order to stabilize the surrounding area	Completed	Existing practice by ordinance.
<b>SED Strategy 2.1.1:</b> Encourage location of large business and industrial facilities within the special districts identified in the Future Development Guide and Map	Ongoing	Expressed as a Character Area design principle and is consistently implemented. Restated in LU-14, LU-15, ED-03, and ED 10 through 12.
<b>SED Strategy 2.1.2:</b> Encourage location of small business development near existing neighborhoods in rural centers identified in the Future Development Guide and Map	Ongoing	Restated in ED-09 of the CWP.

**BULLOCH COUNTY REPORT OF ACCOMPLISHMENTS 2014-2018**

<i>Action/Implementation Strategy</i>	<i>Status</i>	<i>Explanation</i>
<b>SED Strategy 2.1.3:</b> Locate major commercial activity along the suburban corridors identified in the Future Development Guide and Map	Ongoing	Restated in ED-10 of the CWP.
<b>SED Strategy 2.1.4:</b> Locate small to moderate scale commercial activity at nodes within the Suburban Neighborhood-character area provided that sufficient surface transportation capacity exists	Ongoing	Restated in ED-09 of the CWP.
<b>SED Strategy 3.1.1:</b> Continue to coordinate adult education opportunities that enhance the job skills of Bulloch County's workforce and that meet the needs of existing or desired businesses	Ongoing	Restated in ED-14 and ED-15 of the CWP.
<b>SED Strategy 3.2.1:</b> Promote mixed-use development that creates opportunities to live in close proximity to job opportunities	Ongoing	Restated in ED-12 of the CWP.
<b>SED Strategy 4.1.1:</b> Coordinate working relationships with planning staff, the Statesboro-Bulloch County Chamber of Commerce, educational institutions, and local businesses to ensure new and existing business developments are in line with the principles of the Future Development Guide	Completed	Existing practice by policy.
<b>SED Strategy 4.1.2:</b> Promote economic growth by utilizing existing business park facilities as well as expanding business opportunities in the special districts around the I-16 interstate interchanges (See Future Development Guide)	Canceled	This is a goal and not a strategy. Expressed as a Character Area design principle and is consistently implemented. Restated in LU-14, LU-15, ED-03, and ED 10 through 12.
<b>SED Strategy 4.1.3:</b> Continue to promote commercial services that meet the regional needs of Bulloch County and its surrounding counties	Canceled	This is a goal and not a strategy.
<b>SED Strategy 4.1.4:</b> Improve current development incentive policies and procedures to encourage big business to locate in Special Districts identified in the Future Development Guide	Completed	
<b>SED Strategy 4.1.5:</b> Concentrate industrial and big business development within Special Districts along US-301 and at I-16 interstate interchanges (See Future Development Guide)	Ongoing	This is a goal and not a strategy. Expressed as a Character Area design principle and is consistently implemented. Restated in LU-14, LU-15, ED-03, and ED 10 through 12.
<b>SED Strategy 5.1.1:</b> Annually update and re-adopt the six-year capital improvements plan that encourages investment in existing services and facilities. Emphasize infrastructure expansion only to areas identified to accommodate growth and that enhances the quality of life in already developed areas	Completed	Existing practice by policy.
<b>Government Relations</b>		
<b>GR Strategy 1.1.1:</b> Refine communication and coordination efforts regarding development activity to ensure orderly and efficient development patterns	Canceled	This is a goal and not a strategy.
<b>GR Strategy 1.1.2:</b> Coordinate school site selection between the school board and planning officials	Ongoing	Restated in IG-02 of the CWP.
<b>GR Strategy 2.1.1:</b> Continue to work with the Coastal Regional Commission to coordinate planning and development efforts in the region	Ongoing	Restated in IG-03 of the CWP.
<b>GR Strategy 2.2.1:</b> Continue to work with surrounding counties to coordinate planning and development efforts at the borders of Bulloch	Canceled	This is a goal and not a strategy. Existing

**BULLOCH COUNTY REPORT OF ACCOMPLISHMENTS 2014-2018**

<i>Action/Implementation Strategy</i>	<i>Status</i>	<i>Explanation</i>
County		practice exists with the Coastal Regional Commissions via Development of Regional Impact process. Restated in IG-03 of the CWP.
<b>GR Strategy 3.1.1:</b> Continue to work with state agencies to identify funding sources related to transportation, utilities, community facilities and services, housing, economic development, and environmental and historic resource protection	Ongoing	Restated in IG-06 and CF-04 of the CWP.
<b>GR Strategy 3.2.1:</b> Continue to work with federal agencies to identify funding sources related to transportation, utilities, community facilities and services, housing, economic development, and environmental and historic resource protection	Ongoing	Restated in IG-06 and CF-04 of the CWP.
<b>Character Areas</b>		
<b>N-OS Strategy 1.</b> Pursue government purchase of environmentally sensitive lands for the creation of wildlife areas, nature preserves, and public parks	Ongoing	Transferred to LU-08 of the CWP.
<b>N-OS Strategy 2.</b> Develop a land conservation program with Georgia Conservancy to create conservation easements or other similar conservation tools that preserve important natural areas.	Ongoing	Transferred and restated to LU-09 of the CWP. The Georgia Conservancy was removed to open potential partnerships with multiple parties.
<b>N-OS Strategy 3.</b> Review Floodplain Protection Ordinance to ensure compliance with state and federal regulations	Canceled	Existing practice by ordinance, and in consultation with FEMA.
<b>N-OS Strategy 4.</b> Review development regulations to ensure stormwater and erosion controls mitigate construction and development impacts on natural areas	Canceled	Existing practice by ordinance/policy.
<b>N-OS Strategy 5.</b> Promote the use of Purchase of Development Rights (PDRs), and Transfer of Development Rights (TDRs)	Canceled	No longer a priority by the County. Implementation difficulties due to complexity and lack of understanding by landowners and policy makers.
<b>N-OS Strategy 6.</b> Adopt specific cross sections for roads that cross N-OS character area	Completed	Existing practice by policy.
<b>N-OS Strategy 7.</b> Develop a Countywide Greenways Master Plan that outlines a system of interconnected greenway/trail corridors, addresses greenway trail crossings of all roads, and defines specific priorities for property acquisition to develop the system	Ongoing	Restated in LU-10 of the CWP.
<b>N-OS Strategy 8.</b> Follow BMPs for erosion and sedimentation control, as defined in the Georgia Erosion and Sedimentation Act	Complete	Existing practice by ordinance.
<b>N-OS Strategy 9.</b> Promote the use of conservation easements and conservation tax credits by landowners	Ongoing	Restated in LU-9.
<b>R-OS Strategy 1 and R-N Strategy 1.</b> Adopt a Conservation Subdivision Ordinance to ensure the preservation of rural character, sensitive natural resources and large tracts of permanent green space by allowing for	Ongoing	Insufficient staff or resources. Restated in LU-03 of the CWP.

<b>BULLOCH COUNTY REPORT OF ACCOMPLISHMENTS 2014-2018</b>		
<i>Action/Implementation Strategy</i>	<i>Status</i>	<i>Explanation</i>
cluster development		Projected completion 2021.
<b>R-OS Strategy 2.</b> Maintain AG-5 development regulations	Completed	Existing practice by ordinance.
<b>R-OS Strategy 3, R-N Strategy 4 and S-N Strategy 3.</b> Adopt typical street cross-sections and/or development standards for Rural Development Category Character Areas that identify appropriate width and configuration and that require paved roads to use drainage swales in lieu of curb, gutter and sidewalk	Completed	Existing practice by ordinance/policy.
<b>R-OS Strategy 4.</b> Carefully design roadway alterations to minimize scenic and environmental impacts	Completed	Existing practice by ordinance/policy.
<b>R-OS Strategy 5.</b> Adopt a policy that discourages extension of public utilities into R-OS Character Area	Canceled	Expressed as a Character Area design principle and is consistently implemented.
<b>R-OS Strategy 6.</b> Promote the use of Purchase of Development Rights (PDRs), and Transfer of Development Rights (TDRs)	Canceled	No longer a priority by the County. Implementation difficulties due to lack of understanding by land owners and policy makers.
<b>R-N Strategy 2.</b> Maintain R-40 development regulations	Completed	Existing practice by ordinance.
<b>R-C Strategy 1.</b> Adopt Rural Center Overlay District that defines desired standards for commercial uses and site design	Ongoing	Insufficient staff or resources. Restated in LU-02. Projected completion 2021.
<b>S-N Strategy 1.</b> Prepare and adopt a Traditional Neighborhood Development (TND) ordinance	Canceled	No longer a priority by the County. Implementation difficulties due to lack of understanding by land owners and policy makers.
<b>S-N Strategy 2.</b> Prepare and adopt street connectivity requirements that require a connected system of streets within new subdivisions and connections to existing subdivisions, including requiring multiple stub out streets to allow for future connectivity when adjacent properties develop	Completed	Existing practice by ordinance.
<b>S-N Strategy 4.</b> Adopt a Tree Protection/Replacement Ordinance that limits clearing and grading to maintain the natural tree canopy as much as possible	Canceled	No longer a priority by the County. Implementation difficulties due to complexity and lack of understanding by landowners and policy makers. However, trees and other landscaping requirements for new development are in place by ordinance.
<b>S-N Strategy 5.</b> Reduce PUD minimum area requirements to encourage smaller developments and innovative infill development	Complete	

**BULLOCH COUNTY REPORT OF ACCOMPLISHMENTS 2014-2018**

<i>Action/Implementation Strategy</i>	<i>Status</i>	<i>Explanation</i>
<b>S-N Strategy 6.</b> Prepare and adopt a connector street plan	Canceled	This is more appropriately addressed through the adoption and pending update of a Long-Range Transportation Plan.
<b>S-N Strategy 7.</b> Develop residential infill guidelines applicable in Suburban Neighborhood areas in order to ensure that the scale and character of new development on vacant lots is compatible with existing development	Canceled	No longer a priority by the County. A field survey in 2017-2018 revealed that this is not an issue that requires further examination or is a problem.
<b>S-C Strategy 1.</b> Prepare and adopt a Corridor Overlay District to regulate building placement, design, and size, sign placement, size, and materials, landscaping, access management, intercartel access, and other elements that contribute to the look and function of the corridor	Ongoing	Insufficient staff or resources. Restated in LU-03 of the CWP. Projected completion 2021.
<b>A-D Strategy 1.</b> Enforce existing height requirements	Completed	This is an existing practice by ordinance/policy.
<b>A-D Strategy 2.</b> Review rezoning requests to ensure compatibility with airport district character area	Completed	Expressed as a Character Area design principle and is consistently implemented.
<b>A-D Strategy 3, E-D Strategy 1 and IG-D Strategy 1.</b> Review and modify industrial zoning category standards to accommodate desired business development to guide desired building and site aesthetics/design	Canceled	This is an existing practice by ordinance/policy.
<b>A-D Strategy 4.</b> Determine and administer appropriate buffers for noise and safety to accommodate the long-range needs of the airport	Canceled	Expressed as a Character Area design principle and is consistently implemented. Restated in LU-15.
<b>A-D Strategy 5.</b> Evaluate the need for other requirements for new development to address land use compatibility and the mitigation of any impacts that may adversely affect existing or future aviation operations or aviation-related land uses at the airport.	Completed	Expressed as a Character Area design principle and is consistently implemented.
<b>IG-D Strategy 2.</b> Prepare and adopt an Interchange Overlay District to regulate building placement, design, and size, sign placement, size, and materials, landscaping, access management, intercartel access, and other elements that contribute to the look and function of the district	Ongoing	Restated in LU-04 LU-06 for IG-D at I-16 and S.R. 67.
<b>IG-D Strategy 3.</b> Expand sewer service to include all IG-D areas currently underserved	Underway	Restated in LU-06. Sewer service is established at the IG-D at I-16 and U.S. 301



## CITY OF BROOKLET

CITY OF BROOKLET REPORT OF ACCOMPLISHMENTS 2014-2018		
Action/Implementation Strategy	Status	Explanation
<b>Development Patterns</b>		
<b>DP Strategy 1.1.1:</b> Amend zoning ordinance to accommodate infill housing at setbacks and minimum lots sizes that are compatible with surrounding homes but are less than what is required by code	Canceled	No longer a priority for the City. Existing zoning regulations are determined to be sufficient.
<b>DP Strategy 1.1.2:</b> Develop a vacant site inventory and identify those that are suitable for infill development	Ongoing	Restated in LU-16 of the CWP. Projected Completion in 2021.
<b>DP Strategy 1.1.3:</b> Create an inventory of buildings suitable for redevelopment	Ongoing	Restated in LU-17 of the CWP. Projected Completion in 2021.
<b>DP Strategy 1.2.1:</b> Coordinate school site selection between planning officials, neighborhoods, and the school board to identify school locations within or near existing neighborhoods	Ongoing	Restated in IG-11 of the CWP.
<b>DP Strategy 1.2.2:</b> Implement Bulloch County Recreation Master Plan recommendations to expand existing parks to offer a broader range of service and to construct new parks to serve most residents within a five-mile radius	Canceled	County responsibility with municipal and citizen input.
<b>DP Strategy 1.2.3:</b> Construct sidewalks, trails, and bike lanes that connect neighborhoods to schools and that create safe opportunities for children to reach school	Canceled	Expressed in various Character Area design principles and is consistently implemented. Restated in TR-19, TR-22 and in LU-19, LU-21 and LU-22 of the CWP.
<b>DP Strategy 3.1.1:</b> Amend existing zoning regulations to include provisions that support Traditional Neighborhood Design principles (e.g. amend Planned Unit Development district or adopt new TND ordinance; See Community Design Section)	Canceled	No longer a priority by the City. Existing zoning regulations are determined to be sufficient. Restated in LU-22 and LU-23 of the CWP.
<b>DP Strategy 3.1.2:</b> Direct residential growth to Suburban Neighborhood areas	Canceled	No longer a priority by the City. There are no Suburban Neighborhood areas in the City.
<b>DP Strategy 3.2.1:</b> Adopt a mixed-use zoning district or develop a mixed use overlay zoning district that allows for a vertical mix of higher density residential, office, and commercial uses, that promotes compact, interconnected development, and that continues traditional "Main Street" development patterns	Ongoing	Restated in LU-23 to occur before or after completion of LU-19, LU-20, LU-21 of the CWP.
<b>DP Strategy 4.1.1:</b> Coordinate transportation planning with the Bulloch County Greenways System Master Plan and Bulloch County Transit Development Plan	Canceled	No longer a priority by the City. The absence of fixed or flex-route transit and/or coordinated transit planning makes

CITY OF BROOKLET REPORT OF ACCOMPLISHMENTS 2014-2018		
Action/Implementation Strategy	Status	Explanation
		implementation of this strategy unrealistic.
<b>DP Strategy 4.1.2:</b> Adopt Bulloch County Comprehensive Transportation Plan	Ongoing	Restated in TR-20 of the CWP. Projected completion date in 2022.
<b>DP Strategy 4.2.1:</b> Implement Bulloch County Greenway Master Plan	Canceled	County responsibility with municipal and citizen input. Restated in LU-19 of the CWP.
<b>DP Strategy 4.2.2:</b> Strengthen street design requirements in the County subdivision regulations and development regulations for each city pertaining to street continuation between existing and new developments	Canceled	Will be revisited upon completion or utilization of strategies LU-18, LU-19, LU-20, LU-22, and LU-23 in the CWP.
<b>DP Strategy 4.2.3:</b> Require sidewalks in all new development	Canceled	Will be revisited upon completion or utilization of strategies LU-18, LU-19, LU-20, LU-22, and LU-23 in the CWP.
<b>DP Strategy 4.2.4:</b> Prepare an existing conditions analysis of the sidewalks to identify substandard facilities and prioritize repair/replacement projects	Completed	
<b>DP Strategy 5.1.1:</b> Coordinate utilities infrastructure improvements with infill redevelopment and new development efforts to minimize energy use and maximize investment in existing infrastructure	Completed	Existing practice by ordinance/policy.
<b>DP Strategy 5.2.1:</b> Limit water/sewer expansion into rural areas	Canceled	No longer a priority for the City. The City only expands in to Suburban-Neighborhood areas, or by annexation.
<b>DP Strategy 5.2.2:</b> Ensure capital improvements needed to accommodate future development are provided concurrent with new development	Completed	Existing development review practices in place; checked for consistency with Six-Year Capital Improvements Program.
<b>DP Strategy 5.2.3:</b> Create a development review process that coordinates development approval with existing school capacity and planned facilities	Completed	Existing practice by policy.
<b>DP Strategy 6.1.1:</b> Implement Bulloch County Recreation Master Plan	Canceled	No longer a priority by the City. County responsibility with municipal and citizen input.
<b>DP Strategy 6.2.1:</b> Create incentives to encourage developers to create neighborhood parks as part of their development projects	Ongoing	Insufficient staff and resources. Restated in LU-24 of the CWP.
<b>Resource Conservation</b>		
<b>RC Strategy 2.2.1:</b> Discourage development in environmentally sensitive areas, as delineated in the Natural development category (see Future Development Guide and Map)	Canceled	Expressed as a design principle and is consistently

CITY OF BROOKLET REPORT OF ACCOMPLISHMENTS 2014-2018		
Action/Implementation Strategy	Status	Explanation
		implemented in appropriate Character Areas.
<b>RC Strategy 2.4.1:</b> Continue to enforce the River Corridor Protection Ordinance with appropriate vegetation buffers and other pollution mitigation requirements	Canceled	This ordinance does not apply to the City as no river flows through it.
<b>RC Strategy 2.4.2:</b> Continue to enforce sediment and erosion control requirements to mitigate negative impacts of construction site runoff on Bulloch County's waterways	Completed	Existing practice by ordinance.
<b>RC Strategy 2.4.3:</b> Continue to enforce Groundwater Recharge Area Protection Ordinance to protect groundwater	Completed	Existing practice by ordinance.
Social and Economic Development		
<b>SED Strategy 1.2.4:</b> Permit development of accessory dwelling units or elderly cottage housing (i.e. granny flats) by-right in all residential areas	Canceled	No longer a priority by the City. Unable to establish such an incentive due to market forces that make implementation impractical.
<b>SED Strategy 1.3.1:</b> Develop financing tools for landowners that facilitate investment in struggling neighborhoods. Tax rebates, small low interest loan programs, or federal Community Development Block Grant (CDBG) funds for interior and exterior renovations or home energy improvements can improve the visual character and quality of life of neighborhoods	Canceled	No longer a priority by the City. Unable to establish such an incentive due to market forces that make implementation impractical.
<b>SED Strategy 1.3.2:</b> Increase code enforcement efforts to address dilapidated housing or poorly maintained vacant lots in order to stabilize the surrounding area	Completed	Existing practice by ordinance.
<b>SED Strategy 3.1.1:</b> Continue to coordinate adult education opportunities that enhance the job skills of Bulloch County's workforce and that meet the needs of existing or desired businesses	Canceled	No longer a priority by the City. Bulloch County assumes responsibility in ED-13, ED-14 and ED-15 of the CWP.
<b>SED Strategy 3.2.1:</b> Promote mixed-use development that creates opportunities to live in close proximity to job opportunities	Ongoing	Restated in ED-21 of the CWP. Expressed in various Character Area design principle and is consistently implemented.
<b>SED Strategy 4.1.1:</b> Coordinate working relationships with planning staff, the Statesboro-Bulloch County Chamber of Commerce, educational institutions, and local businesses to ensure new and existing business developments are in line with the principles of the Future Development Guide	Completed	Existing practice by policy.
<b>SED Strategy 4.1.3:</b> Continue to promote commercial services that meet the regional needs of Bulloch County and its surrounding counties	Canceled	This is a goal and not a strategy.
<b>SED Strategy 5.1.1:</b> Develop capital improvements plan that encourages investment in existing services and facilities. Emphasize infrastructure expansion only to areas identified to accommodate growth and that enhances the quality of life in already developed areas	Ongoing	Restated in IG-06
Government Relations		

CITY OF BROOKLET REPORT OF ACCOMPLISHMENTS 2014-2018		
Action/Implementation Strategy	Status	Explanation
<b>GR Strategy 1.1.1:</b> Refine communication and coordination efforts regarding development activity to ensure orderly and efficient development patterns	Canceled	This is a goal and not a strategy.
<b>GR Strategy 1.1.2:</b> Coordinate school site selection between the school board and planning officials	Ongoing	Restated in IG-10 and IG-11 of the CWP.
<b>GR Strategy 2.1.1:</b> Continue to work with the Coastal Regional Commission to coordinate planning and development efforts in the region	Ongoing	Restated in IG-09 of the CWP.
<b>GR Strategy 2.2.1:</b> Continue to work with surrounding counties to coordinate planning and development efforts at the borders of Bulloch County	Canceled	This is a goal and not a strategy. Existing practice among Regional Commissions via Development of Regional Impact process, though restated in IG-03 of the CWP.
<b>GR Strategy 3.1.1:</b> Continue to work with state agencies to identify funding sources related to transportation, utilities, community facilities and services, housing, economic development, and environmental and historic resource protection	Ongoing	Restated in IG-13 and CF-09 of the CWP.
<b>GR Strategy 3.2.1:</b> Continue to work with federal agencies to identify funding sources related to transportation, utilities, community facilities and services, housing, economic development, and environmental and historic resource protection	Ongoing	Restated in IG-13 and CF-09 of the CWP.
Character Areas		
<b>N-OS Strategy 1.</b> Pursue government purchase of environmentally sensitive lands for the creation of wildlife areas, nature preserves, and public parks	Canceled	This is no longer a priority of the City. County responsibility with municipal and citizen input.
<b>N-OS Strategy 2.</b> Develop a land conservation program with Georgia Conservancy to create conservation easements or other similar conservation tools that preserve important natural areas.	Canceled	This is no longer a priority of the City as there is no threat of development encroaching in such areas.
<b>N-OS Strategy 3.</b> Review Floodplain Protection Ordinance to ensure compliance with state and federal regulations	Canceled	Existing practice by ordinance, and in consultation with FEMA.
<b>N-OS Strategy 4.</b> Review development regulations to ensure stormwater and erosion controls mitigate construction and development impacts on natural areas	Canceled	Existing practice by ordinance.
<b>N-OS Strategy 5.</b> Promote the use of Purchase of Development Rights (PDRs), and Transfer of Development Rights (TDRs)	Canceled	No longer a priority by the City. Implementation difficulties due to complexity and lack of understanding by landowners and policy makers.

CITY OF BROOKLET REPORT OF ACCOMPLISHMENTS 2014-2018		
Action/Implementation Strategy	Status	Explanation
<b>N-OS Strategy 6.</b> Adopt specific cross sections for roads that cross NOS character area	Completed	Existing practice by policy.
<b>N-OS Strategy 7.</b> Develop a Countywide Greenways Master Plan that outlines a countywide system of interconnected greenway/trail corridors, addresses greenway trail crossings of all roads, and defines specific priorities for property acquisition to develop the system	Ongoing	Restated in LU-21 of the CWP.
<b>N-OS Strategy 8.</b> Follow BMPs for erosion and sedimentation control, as defined in the Georgia Erosion and Sedimentation Act	Complete	Existing practice by Ordinance.
<b>N-OS Strategy 9.</b> Promote the use of conservation easements and conservation tax credits by landowners	Ongoing	
<b>U-N Strategy 1.</b> Prepare and adopt a Traditional Neighborhood Development (TND) ordinance to create walkable, compact residential development	Canceled	No longer a priority by the City. Implementation difficulties due to lack of understanding by land owners and policy makers.
<b>U-N Strategy 2.</b> Prepare and adopt PUD zoning category to encourage innovative site design and development	Ongoing	Restated in LU-23 of the CWP.
<b>U-N Strategy 3.</b> Reduce minimum lot dimensions to encourage compact, walkable development patterns	Ongoing	Will be revisited upon completion or utilization of strategies LU-18, LU-19, LU-20, LU-22, and LU-23 in the CWP.
<b>U-N Strategy 4.</b> Prepare an existing conditions analysis of the City's sidewalks to identify substandard facilities and prioritize repair/replacement projects	Completed	
<b>U-N Strategy 5.</b> Amend the zoning ordinance to support appropriate infill standards, including flexible setback provisions that ensure new construction is compatible with existing development patterns	Ongoing	Will be revisited upon completion or utilization of strategies LU-18, LU-19, LU-20, LU-22, and LU-23 in the CWP.
<b>U-N Strategy 6.</b> Develop a City-wide vacant site inventory and identify those that are suitable for infill development	Ongoing	Insufficient staff and resources. Restated in LU-22 of the CWP. Projected completion 2020.
<b>U-N Strategy 7.</b> Create a City-wide inventory of buildings suitable for redevelopment	Ongoing	Insufficient staff and resources. Restated in LU-22 of the CWP. Projected completion 2020.
<b>U-CTR Strategy 1.</b> Prepare and adopt an Urban-Center Overlay District to regulate building placement, design, and size, sign placement, size, and materials, landscaping, access management, inter-parcel access, and other elements that contribute to the look and function of the character area	Ongoing	Insufficient staff and resources. Restated in LU-18, LU-19, LU-20 and LU-22 of the CWP. Projected completion 2020.
<b>U-CTR Strategy 2.</b> Prepare and adopt Corridor/Streetscape Master Plans to guide enhancements	Ongoing	Insufficient staff and resources. Restated in LU-18, LU-19, LU-20 and LU-22 of the CWP.

CITY OF BROOKLET REPORT OF ACCOMPLISHMENTS 2014-2018		
Action/Implementation Strategy	Status	Explanation
		Projected completion 2020.
<b>U-COR Strategy 1.</b> Prepare and adopt an Urban-Corridor Overlay District to regulate building placement, design and size; sign placement; size and materials; landscaping; access management; inter-parcel access and other elements that contribute to the look and function of the corridor	Ongoing	Insufficient staff and resources. Restated in LU-18, LU-19, LU-20 and LU-22 of the CWP. Projected completion 2020.
<b>U-COR Strategy 2.</b> Prepare and adopt Corridor/Streetscape Master Plans for Commercial Corridor character areas to guide enhancements	Ongoing	Insufficient staff and resources. Restated in LU-18, LU-19, LU-20 and LU-22 of the CWP. Projected completion 2020.
<b>U-COR Strategy 3.</b> Prepare and adopt necessary regulatory amendments to require inter-parcel access, limit curb cuts, and require sidewalks with new commercial and mixed-use development	Ongoing	Insufficient staff and resources. Restated in LU-18, LU-19, LU-20 and LU-22 of the CWP. Projected completion 2020.



## CITY OF PORTAL

CITY OF PORTAL REPORT OF ACCOMPLISHMENTS 2014-2018		
Action/Implementation Strategy	Status	Explanation
<b>Development Patterns</b>		
<b>DP Strategy 1.1.1:</b> Amend zoning ordinance to accommodate infill housing at setbacks and minimum lots sizes that are compatible with surrounding homes but are less than what is required by code.	Canceled	No longer a priority by the City. Existing zoning regulations are determined to be sufficient.
<b>DP Strategy 1.1.2:</b> Develop a vacant site inventory and identify those that are suitable for infill development	Ongoing	Restated in LU-25 of the CWP. Projected Completion in 2021.
<b>DP Strategy 1.1.3:</b> Create an inventory of buildings suitable for redevelopment	Ongoing	Restated in LU-17 of the CWP. Projected Completion in 2022.
<b>DP Strategy 1.2.1:</b> Coordinate school site selection between planning officials, neighborhoods, and the school board to identify school locations within or near existing neighborhoods	Ongoing	Restated in IG-18 of the CWP.
<b>DP Strategy 1.2.2:</b> Implement Bulloch County Recreation Master Plan recommendations to expand existing parks to offer a broader range of service and to construct new parks to serve most residents within a five-mile radius	Canceled	County responsibility with municipal and citizen input.
<b>DP Strategy 1.2.3:</b> Construct sidewalks, trails, and bike lanes that connect neighborhoods to schools and that create safe opportunities for children to reach school	Canceled	Expressed in various Character Area design principles and is consistently implemented. Restated in TR-26, and in LU-27, LU-28 and LU-29 of the CWP.
<b>DP Strategy 3.1.1:</b> Amend existing zoning regulations to include provisions that support Traditional Neighborhood Design principles (e.g. amend Planned Unit Development district or adopt new TND ordinance; See Community Design Section)	Canceled	No longer a priority by the City. Existing zoning regulations are determined to be sufficient. Restated in LU-32 of the CWP.
<b>DP Strategy 3.1.2:</b> Direct residential growth to Suburban Neighborhood areas	Canceled	No longer a priority by the City. There are no Suburban Neighborhood areas in the City.
<b>DP Strategy 3.2.1:</b> Adopt a mixed-use zoning district or develop a mixed use overlay zoning district that allows for a vertical mix of higher density residential, office, and commercial uses, that promotes compact, interconnected development, and that continues traditional "Main Street" development patterns	Ongoing	Restated in LU-32 to occur before or after completion of LU-27, LU-28, LU-29 of the CWP.
<b>DP Strategy 4.1.1:</b> Coordinate transportation planning with the Bulloch County Greenways System Master Plan and Bulloch County Transit Development Plan	Canceled	No longer a priority by the County. The absence of fixed or flex-route transit and/or coordinated transit planning makes implementation of this strategy unrealistic.

CITY OF PORTAL REPORT OF ACCOMPLISHMENTS 2014-2018		
Action/Implementation Strategy	Status	Explanation
<b>DP Strategy 4.1.2:</b> Adopt the Bulloch County Comprehensive Transportation Plan	Ongoing	Restated in TR-20 of the CWP. Projected completion date in 2022.
<b>DP Strategy 4.2.1:</b> Implement Bulloch County Greenway Master Plan	Canceled	County responsibility with municipal and citizen input. Restated in LU-19 of the CWP.
<b>DP Strategy 4.2.2:</b> Strengthen street design requirements in the County subdivision regulations and development regulations for each city pertaining to street continuation between existing and new developments	Canceled	Will be revisited upon completion or utilization of strategies LU-18, LU-19, LU-20, LU-22, and LU-23 in the CWP.
<b>DP Strategy 4.2.3:</b> Require sidewalks in all new development	Canceled	Will be revisited upon completion or utilization of strategies LU-18, LU-19, LU-20, LU-22, and LU-23 in the CWP.
<b>DP Strategy 4.2.4:</b> Prepare an existing conditions analysis of the sidewalks to identify substandard facilities and prioritize repair/replacement projects	Completed	
<b>DP Strategy 5.1.1:</b> Coordinate utilities infrastructure improvements with infill redevelopment and new development efforts to minimize energy use and maximize investment in existing infrastructure	Completed	Existing practice by ordinance/policy.
<b>DP Strategy 5.2.1:</b> Limit water/sewer expansion into rural areas	Canceled	No longer a priority for the City. The City only expands in to Suburban-Neighborhood areas, or by annexation.
<b>DP Strategy 5.2.2:</b> Ensure capital improvements needed to accommodate future development are provided concurrent with new development	Completed	Existing development review practices in place; checked for consistency with Six-Year Capital Improvements Program.
<b>DP Strategy 5.2.3:</b> Create a development review process that coordinates development approval with existing school capacity and planned facilities	Completed	Existing practice by policy.
<b>DP Strategy 6.1.1:</b> Implement Bulloch County Recreation Master Plan	Canceled	No longer a priority by the City. County responsibility with municipal and citizen input.
<b>DP Strategy 6.2.1:</b> Create incentives to encourage developers to create neighborhood parks as part of their development projects	Ongoing	Insufficient staff and resources. Restated in LU-24 of the CWP.
<b>Resource Conservation</b>		
<b>RC Strategy 2.2.1:</b> Discourage development in environmentally sensitive areas, as delineated in the Natural development category (see Future Development Guide and Map)	Canceled	Expressed as a design principle and is consistently implemented in

CITY OF PORTAL REPORT OF ACCOMPLISHMENTS 2014-2018		
Action/Implementation Strategy	Status	Explanation
		appropriate Character Areas.
<b>RC Strategy 2.4.1:</b> Continue to enforce the River Corridor Protection Ordinance with appropriate vegetation buffers and other pollution mitigation requirements	Canceled	This ordinance does not apply to the City as no river flows through it.
<b>RC Strategy 2.4.2:</b> Continue to enforce sediment and erosion control requirements to mitigate negative impacts of construction site runoff on Bulloch County's waterways	Completed	Existing practice by ordinance.
<b>RC Strategy 2.4.3:</b> Continue to enforce Groundwater Recharge Area Protection Ordinance to protect groundwater	Completed	Existing practice by ordinance.
Social and Economic Development		
<b>SED Strategy 1.2.4:</b> Permit development of accessory dwelling units or elderly cottage housing (i.e. granny flats) by-right in all residential areas	Canceled	No longer a priority by the County. Unable to establish such an incentive due to market forces that make implementation impractical.
<b>SED Strategy 1.3.1:</b> Develop financing tools for landowners that facilitate investment in struggling neighborhoods. Tax rebates, small low interest loan programs, or federal Community Development Block Grant (CDBG) funds for interior and exterior renovations or home energy improvements can improve the visual character and quality of life of neighborhoods.	Canceled	No longer a priority by the County. Unable to establish such an incentive due to market forces that make implementation impractical.
<b>SED Strategy 1.3.2:</b> Increase code enforcement efforts to address dilapidated housing or poorly maintained vacant lots in order to stabilize the surrounding area	Completed	Existing practice by ordinance.
<b>SED Strategy 3.1.1:</b> Continue to coordinate adult education opportunities that enhance the job skills of Bulloch County's workforce and that meet the needs of existing or desired businesses	Canceled	This is no longer a priority of the City. Bulloch County assumes responsibility in ED-13, ED-14 and ED-15 of the CWP.
<b>SED Strategy 3.2.1:</b> Promote mixed-use development that creates opportunities to live in close proximity to job opportunities	Ongoing	Restated in ED-21 of the CWP. Expressed in various Character Area design principle and is consistently implemented.
<b>SED Strategy 4.1.1:</b> Coordinate working relationships with planning staff, educational institutions, the Statesboro-Bulloch County Chamber of Commerce, and local businesses to ensure new and existing business developments are in line with the principles of the Future Development Guide	Completed	Existing practice by policy.
<b>SED Strategy 4.1.3:</b> Continue to promote commercial services that meet the regional needs of Bulloch County and its surrounding counties	Canceled	This is an esoteric goal and not a strategy.
<b>SED Strategy 5.1.1:</b> Develop capital improvements plan that encourages investment in existing services and facilities. Emphasize infrastructure expansion only to areas identified to accommodate growth and that enhances the quality of life in already developed areas	Ongoing	Restated in IG-06
Government Relations		

CITY OF PORTAL REPORT OF ACCOMPLISHMENTS 2014-2018		
Action/Implementation Strategy	Status	Explanation
<b>GR Strategy 1.1.1:</b> Refine communication and coordination efforts regarding development activity to ensure orderly and efficient development patterns	Canceled	This is a goal and not a strategy.
<b>GR Strategy 1.1.2:</b> Coordinate school site selection between the school board and planning officials	Ongoing	Restated in IG-10 and IG-11 of the CWP.
<b>GR Strategy 2.1.1:</b> Continue to work with the Coastal Regional Commission to coordinate planning and development efforts in the region	Ongoing	Restated in IG-09 of the CWP.
<b>GR Strategy 2.2.1:</b> Continue to work with surrounding counties to coordinate planning and development efforts at the borders of Bulloch County	Canceled	This is a goal and not a strategy. Existing practice among Regional Commissions via Development of Regional Impact process, though restated in IG-03 of the CWP.
<b>GR Strategy 3.1.1:</b> Continue to work with state agencies to identify funding sources related to transportation, utilities, community facilities and services, housing, economic development, and environmental and historic resource protection	Ongoing	Restated in IG-13 and CF-09 of the CWP.
<b>GR Strategy 3.2.1:</b> Continue to work with federal agencies to identify funding sources related to transportation, utilities, community facilities and services, housing, economic development, and environmental and historic resource protection	Ongoing	Restated in IG-13 and CF-09 of the CWP.
Character Areas		
<b>N-OS Strategy 1.</b> Pursue government purchase of environmentally sensitive lands for the creation of wildlife areas, nature preserves, and public parks	Canceled	This is no longer a priority of the City. County responsibility with municipal and citizen input.
<b>N-OS Strategy 2.</b> Develop a land conservation program with Georgia Conservancy to create conservation easements or other similar conservation tools that preserve important natural areas	Canceled	This is no longer a priority of the City as there is no threat of development encroaching in such areas.
<b>N-OS Strategy 3.</b> Review Floodplain protection ordinance to ensure compliance with state and federal regulations	Canceled	Existing practice by ordinance, and in consultation with FEMA.
<b>N-OS Strategy 4.</b> Review development regulations to ensure stormwater and erosion controls mitigate construction and development impacts on natural areas	Canceled	Existing practice by ordinance.
<b>N-OS Strategy 5.</b> Promote the use of Purchase of Development Rights (PDRs), and Transfer of Development Rights (TDRs)	Canceled	No longer a priority by the City. Implementation difficulties due to complexity and lack of understanding by landowners and policy makers.

CITY OF PORTAL REPORT OF ACCOMPLISHMENTS 2014-2018		
Action/Implementation Strategy	Status	Explanation
<b>N-OS Strategy 6.</b> Adopt specific cross sections for roads that cross N-OS character area	Completed	Existing practice by policy.
<b>N-OS Strategy 7.</b> Develop a Countywide Greenways Master Plan that outlines a countywide system of interconnected greenway/trail corridors, addresses greenway trail crossings of all roads, and defines specific priorities for property acquisition to develop the system	Ongoing	Restated in LU-21 of the CWP.
<b>N-OS Strategy 8.</b> Follow BMPs for erosion and sedimentation control, as defined in the Georgia Erosion and Sedimentation Act	Complete	Existing practice by Ordinance.
<b>N-OS Strategy 9.</b> Promote the use of conservation easements and conservation tax credits by landowners	Ongoing	
<b>U-N Strategy 1.</b> Prepare and adopt a Traditional Neighborhood Development (TND) ordinance to create walkable, compact residential development	Canceled	No longer a priority by the City. Implementation difficulties due to lack of understanding by land owners and policy makers.
<b>U-N Strategy 2.</b> Prepare and adopt PUD zoning category to encourage innovative site design and development	Ongoing	Restated in LU-23 of the CWP.
<b>U-N Strategy 3.</b> Reduce minimum lot dimensions to encourage compact, walkable development patterns	Ongoing	Will be revisited upon completion or utilization of strategies LU-18, LU-19, LU-20, LU-22, and LU-23 in the CWP.
<b>U-N Strategy 4.</b> Prepare an existing conditions analysis of the City's sidewalks to identify substandard facilities and prioritize repair/replacement projects	Completed	
<b>U-N Strategy 5.</b> Amend the zoning ordinance to support appropriate infill standards, including flexible setback provisions that ensure new construction is compatible with existing development patterns	Ongoing	Will be revisited upon completion or utilization of strategies LU-18, LU-19, LU-20, LU-22, and LU-23 in the CWP.
<b>U-N Strategy 6.</b> Develop a City-wide vacant site inventory and identify those that are suitable for infill development	Ongoing	Insufficient staff and resources. Restated in LU-22 of the CWP. Projected completion 2020.
<b>U-N Strategy 7.</b> Create a City-wide inventory of buildings suitable for redevelopment	Ongoing	Insufficient staff and resources. Restated in LU-22 of the CWP. Projected completion 2020.
<b>U-CTR Strategy 1.</b> Prepare and adopt an Urban-Center Overlay District to regulate building placement, design, and size, sign placement, size, and materials, landscaping, access management, inter-parcel access, and other elements that contribute to the look and function of the character area	Ongoing	Insufficient staff and resources. Restated in LU-18, LU-19, LU-20 and LU-22 of the CWP. Projected completion 2020.
<b>U-CTR Strategy 2.</b> Prepare and adopt Corridor/Streetscape Master Plans to guide enhancements	Ongoing	Insufficient staff and resources. Restated in LU-18, LU-19, LU-20 and LU-22 of the CWP. Projected completion 2020.

CITY OF PORTAL REPORT OF ACCOMPLISHMENTS 2014-2018		
<i>Action/Implementation Strategy</i>	<i>Status</i>	<i>Explanation</i>
<b>U-COR Strategy 1.</b> Prepare and adopt an Urban-Corridor Overlay District to regulate building placement, design and size; sign placement; size and materials; landscaping; access management; inter-parcel access and other elements that contribute to the look and function of the corridor	Ongoing	Insufficient staff and resources. Restated in LU-18, LU-19, LU-20 and LU-22 of the CWP. Projected completion 2020.
<b>U-COR Strategy 2.</b> Prepare and adopt Corridor/Streetscape Master Plans for Commercial Corridor character areas to guide enhancements	Ongoing	Insufficient staff and resources. Restated in LU-18, LU-19, LU-20 and LU-22 of the CWP. Projected completion 2020.
<b>U-COR Strategy 3.</b> Prepare and adopt necessary regulatory amendments to require inter-parcel access, limit curb cuts, and require sidewalks with new commercial and mixed-use development	Ongoing	Insufficient staff and resources. Restated in LU-18, LU-19, LU-20 and LU-22 of the CWP. Projected completion 2020.



## CITY OF REGISTER

CITY OF REGISTER REPORT OF ACCOMPLISHMENTS 2014-2018		
Action/Implementation Strategy	Status	Explanation
<b>Development Patterns</b>		
<b>DP Strategy 1.1.1:</b> Amend zoning ordinance to accommodate infill housing at setbacks and minimum lots sizes that are compatible with surrounding homes but are less than what is required by code.	Canceled	No longer a priority by the City. Existing zoning regulations are determined to be sufficient.
<b>DP Strategy 1.1.2:</b> Develop a vacant site inventory and identify those that are suitable for infill development	Ongoing	Restated in LU-34 of the CWP. Projected Completion in 2021.
<b>DP Strategy 1.1.3:</b> Create an inventory of buildings suitable for redevelopment	Ongoing	Restated in LU-35 of the CWP. Projected Completion in 2021.
<b>DP Strategy 1.2.1:</b> Coordinate school site selection between planning officials, neighborhoods, and the school board to identify school locations within or near existing neighborhoods	Ongoing	Restated in IG-25 of the CWP.
<b>DP Strategy 1.2.2:</b> Implement Bulloch County Recreation Master Plan recommendations to expand existing parks to offer a broader range of service and to construct new parks to serve most residents within a five-mile radius	Canceled	County responsibility with municipal and citizen input.
<b>DP Strategy 1.2.3:</b> Construct sidewalks, trails, and bike lanes that connect neighborhoods to schools and that create safe opportunities for children to reach school	Canceled	Expressed in various Character Area design principles and is consistently implemented. Restated in TR-30, and in LU-37, LU-38 and LU-40 of the CWP.
<b>DP Strategy 3.1.1:</b> Amend existing zoning regulations to include provisions that support Traditional Neighborhood Design principles (e.g. amend Planned Unit Development district or adopt new TND ordinance; See Community Design Section)	Canceled	No longer a priority by the City. Existing zoning regulations are determined to be sufficient. Restated in LU-40 and LU-41 of the CWP.
<b>DP Strategy 3.1.2:</b> Direct residential growth to Suburban Neighborhood areas	Canceled	No longer a priority by the City. There are no Suburban Neighborhood areas in the City.
<b>DP Strategy 3.2.1:</b> Adopt a mixed-use zoning district or develop a mixed use overlay zoning district that allows for a vertical mix of higher density residential, office, and commercial uses, that promotes compact, interconnected development, and that continues traditional "Main Street" development patterns	Ongoing	Restated in LU-32 to occur before or after completion of LU-36, LU-37, LU-38 of the CWP.
<b>DP Strategy 4.1.1:</b> Coordinate transportation planning with the Bulloch County Greenways System Master Plan and Bulloch County Transit Development Plan	Canceled	No longer a priority by the County. The absence of fixed or flex-route transit and/or coordinated transit planning makes

CITY OF REGISTER REPORT OF ACCOMPLISHMENTS 2014-2018		
Action/Implementation Strategy	Status	Explanation
		implementation of this strategy unrealistic.
<b>DP Strategy 4.1.2:</b> Adopt the Bulloch County Comprehensive Transportation Plan	Ongoing	Restated in TR-28 of the CWP. Projected completion date in 2022.
<b>DP Strategy 4.2.1:</b> Implement Bulloch County Greenway Master Plan	Canceled	County responsibility with municipal and citizen input. Restated in LU-19 of the CWP.
<b>DP Strategy 4.2.2:</b> Strengthen street design requirements in the County subdivision regulations and development regulations for each city pertaining to street continuation between existing and new developments	Canceled	Will be revisited upon completion or utilization of strategies LU-18, LU-19, LU-20, LU-22, and LU-23 in the CWP.
<b>DP Strategy 4.2.3:</b> Require sidewalks in all new development	Canceled	Will be revisited upon completion or utilization of strategies LU-36, LU-37, LU-38, LU-40, and LU-41 in the CWP.
<b>DP Strategy 4.2.4:</b> Prepare an existing conditions analysis of the sidewalks to identify substandard facilities and prioritize repair/replacement projects	Completed	
<b>DP Strategy 5.1.1:</b> Coordinate utilities infrastructure improvements with infill redevelopment and new development efforts to minimize energy use and maximize investment in existing infrastructure	Completed	Existing practice by ordinance/policy.
<b>DP Strategy 5.2.1:</b> Limit water/sewer expansion into rural areas	Canceled	No longer a priority for the City. The City only expands in to Suburban-Neighborhood areas, or by annexation.
<b>DP Strategy 5.2.2:</b> Ensure capital improvements needed to accommodate future development are provided concurrent with new development	Completed	Existing development review practices in place; checked for consistency with Six-Year Capital Improvements Program.
<b>DP Strategy 5.2.3:</b> Create a development review process that coordinates development approval with existing school capacity and planned facilities	Completed	Existing practice by policy.
<b>DP Strategy 6.1.1:</b> Implement Bulloch County Recreation Master Plan	Canceled	No longer a priority by the City. County responsibility with municipal and citizen input.
<b>DP Strategy 6.2.1:</b> Create incentives to encourage developers to create neighborhood parks as part of their development projects	Ongoing	Insufficient staff and resources. Restated in LU-42 of the CWP.
Resource Conservation		
<b>RC Strategy 2.2.1:</b> Discourage development in environmentally sensitive areas, as delineated in the Natural development category (see Future	Canceled	Expressed as a design principle and is

CITY OF REGISTER REPORT OF ACCOMPLISHMENTS 2014-2018		
Action/Implementation Strategy	Status	Explanation
Development Guide and Map)		consistently implemented in appropriate Character Areas.
<b>RC Strategy 2.4.1:</b> Continue to enforce the River Corridor Protection Ordinance with appropriate vegetation buffers and other pollution mitigation requirements	Canceled	This ordinance does not apply to the City as no river flows through it.
<b>RC Strategy 2.4.2:</b> Continue to enforce sediment and erosion control requirements to mitigate negative impacts of construction site runoff on Bulloch County's waterways	Completed	Existing practice by ordinance.
<b>RC Strategy 2.4.3:</b> Continue to enforce Groundwater Recharge Area Protection Ordinance to protect groundwater	Completed	Existing practice by ordinance.
Social and Economic Development		
<b>SED Strategy 1.2.4:</b> Permit development of accessory dwelling units or elderly cottage housing (i.e. granny flats) by-right in all residential areas	Canceled	No longer a priority by the County. Unable to establish such an incentive due to market forces that make implementation impractical.
<b>SED Strategy 1.3.1:</b> Develop financing tools for landowners that facilitate investment in struggling neighborhoods. Tax rebates, small low interest loan programs, or federal Community Development Block Grant (CDBG) funds for interior and exterior renovations or home energy improvements can improve the visual character and quality of life of neighborhoods.	Canceled	No longer a priority by the County. Unable to establish such an incentive due to market forces that make implementation impractical.
<b>SED Strategy 1.3.2:</b> Increase code enforcement efforts to address dilapidated housing or poorly maintained vacant lots in order to stabilize the surrounding area	Completed	Existing practice by ordinance.
<b>SED Strategy 3.1.1:</b> Continue to coordinate adult education opportunities that enhance the job skills of Bulloch County's workforce and that meet the needs of existing or desired businesses	Canceled	This is no longer a priority of the City. Bulloch County assumes responsibility in ED-13, ED-14 and ED-15 of the CWP.
<b>SED Strategy 3.2.1:</b> Promote mixed-use development that creates opportunities to live in close proximity to job opportunities	Ongoing	Restated in ED-32 and ED-33 of the CWP. Expressed in various Character Area design principle and is consistently implemented.
<b>SED Strategy 4.1.1:</b> Coordinate working relationships with planning staff, educational institutions, the Statesboro-Bulloch County Chamber of Commerce, and local businesses to ensure new and existing business developments are in line with the principles of the Future Development Guide	Completed	Existing practice by policy.
<b>SED Strategy 4.1.3:</b> Continue to promote commercial services that meet the regional needs of Bulloch County and its surrounding counties	Canceled	This is an esoteric goal and not a strategy.
<b>SED Strategy 5.1.1:</b> Develop capital improvements plan that encourages investment in existing services and facilities. Emphasize infrastructure expansion only to areas identified to accommodate growth and that	Ongoing	Restated in CF-14

CITY OF REGISTER REPORT OF ACCOMPLISHMENTS 2014-2018		
Action/Implementation Strategy	Status	Explanation
enhances the quality of life in already developed areas		
Government Relations		
<b>GR Strategy 1.1.1:</b> Refine communication and coordination efforts regarding development activity to ensure orderly and efficient development patterns	Canceled	This is a goal and not a strategy.
<b>GR Strategy 1.1.2:</b> Coordinate school site selection between the school board and planning officials	Ongoing	Restated in IG-24 and IG-25 of the CWP.
<b>GR Strategy 2.1.1:</b> Continue to work with the Coastal Regional Commission to coordinate planning and development efforts in the region	Ongoing	Restated in IG-23 of the CWP.
<b>GR Strategy 2.2.1:</b> Continue to work with surrounding counties to coordinate planning and development efforts at the borders of Bulloch County	Canceled	This is a goal and not a strategy. Existing practice among Regional Commissions via Development of Regional Impact process, though restated in IG-03 of the CWP.
<b>GR Strategy 3.1.1:</b> Continue to work with state agencies to identify funding sources related to transportation, utilities, community facilities and services, housing, economic development, and environmental and historic resource protection	Ongoing	Restated in IG-27 and CF-17 of the CWP.
<b>GR Strategy 3.2.1:</b> Continue to work with federal agencies to identify funding sources related to transportation, utilities, community facilities and services, housing, economic development, and environmental and historic resource protection	Ongoing	Restated in IG-28 and CF-17 of the CWP.
Character Areas		
<b>N-OS Strategy 1.</b> Pursue government purchase of environmentally sensitive lands for the creation of wildlife areas, nature preserves, and public parks	Canceled	This is no longer a priority of the City. County responsibility with municipal and citizen input.
<b>N-OS Strategy 2.</b> Develop a land conservation program with Georgia Conservancy to create conservation easements or other similar conservation tools that preserve important natural areas	Canceled	This is no longer a priority of the City as there is no threat of development encroaching in such areas.
<b>N-OS Strategy 3.</b> Review Floodplain protection ordinance to ensure compliance with state and federal regulations	Canceled	Existing practice by ordinance, and in consultation with FEMA.
<b>N-OS Strategy 4.</b> Review development regulations to ensure stormwater and erosion controls mitigate construction and development impacts on natural areas	Canceled	Existing practice by ordinance.
<b>N-OS Strategy 5.</b> Promote the use of Purchase of Development Rights (PDRs), and Transfer of Development Rights (TDRs)	Canceled	No longer a priority by the City. Implementation difficulties due to complexity and lack of understanding by

CITY OF REGISTER REPORT OF ACCOMPLISHMENTS 2014-2018		
Action/Implementation Strategy	Status	Explanation
		landowners and policy makers.
<b>N-OS Strategy 6.</b> Adopt specific cross sections for roads that cross N-OS character area	Completed	Existing practice by policy.
<b>N-OS Strategy 7.</b> Develop a Countywide Greenways Master Plan that outlines a countywide system of interconnected greenway/trail corridors, addresses greenway trail crossings of all roads, and defines specific priorities for property acquisition to develop the system	Ongoing	Restated in LU-39 of the CWP.
<b>N-OS Strategy 8.</b> Follow BMPs for erosion and sedimentation control, as defined in the Georgia Erosion and Sedimentation Act	Complete	Existing practice by Ordinance.
<b>N-OS Strategy 9.</b> Promote the use of conservation easements and conservation tax credits by landowners	Ongoing	
<b>U-N Strategy 1.</b> Prepare and adopt a Traditional Neighborhood Development (TND) ordinance to create walkable, compact residential development	Canceled	No longer a priority by the City. Implementation difficulties due to lack of understanding by land owners and policy makers.
<b>U-N Strategy 2.</b> Prepare and adopt PUD zoning category to encourage innovative site design and development	Ongoing	Restated in LU-41 of the CWP.
<b>U-N Strategy 3.</b> Reduce minimum lot dimensions to encourage compact, walkable development patterns	Ongoing	Will be revisited upon completion or utilization of strategies LU-36, LU-37, LU-38, LU-41, and LU-42 in the CWP.
<b>U-N Strategy 4.</b> Prepare an existing conditions analysis of the City's sidewalks to identify substandard facilities and prioritize repair/replacement projects	Completed	
<b>U-N Strategy 5.</b> Amend the zoning ordinance to support appropriate infill standards, including flexible setback provisions that ensure new construction is compatible with existing development patterns	Ongoing	Will be revisited upon completion or utilization of strategies LU-36, LU-37, LU-38, LU-40, and LU-41, LU-42 in the CWP.
<b>U-N Strategy 6.</b> Develop a City-wide vacant site inventory and identify those that are suitable for infill development	Ongoing	Insufficient staff and resources. Restated in LU-35 of the CWP. Projected completion 2020.
<b>U-N Strategy 7.</b> Create a City-wide inventory of buildings suitable for redevelopment	Ongoing	Insufficient staff and resources. Restated in LU-36 of the CWP. Projected completion 2020.
<b>U-CTR Strategy 1.</b> Prepare and adopt an Urban-Center Overlay District to regulate building placement, design, and size, sign placement, size, and materials, landscaping, access management, inter-parcel access, and other elements that contribute to the look and function of the character area	Ongoing	Insufficient staff and resources. Restated in LU-37 of the CWP. Projected completion 2020.
<b>U-CTR Strategy 2.</b> Prepare and adopt Corridor/Streetscape Master Plans to guide enhancements	Ongoing	Insufficient staff and resources. Restated in LU-36, LU-37 and LU-38 of the CWP. Projected completion 2020.

CITY OF REGISTER REPORT OF ACCOMPLISHMENTS 2014-2018		
Action/Implementation Strategy	Status	Explanation
<b>U-COR Strategy 1.</b> Prepare and adopt an Urban-Corridor Overlay District to regulate building placement, design and size; sign placement; size and materials; landscaping; access management; inter-parcel access and other elements that contribute to the look and function of the corridor	Ongoing	Insufficient staff and resources. Restated in LU-38 of the CWP. Projected completion 2020.
<b>U-COR Strategy 2.</b> Prepare and adopt Corridor/Streetscape Master Plans for Commercial Corridor character areas to guide enhancements	Ongoing	Insufficient staff and resources. Restated in LU-38 of the CWP. Projected completion 2020.
<b>U-COR Strategy 3.</b> Prepare and adopt necessary regulatory amendments to require inter-parcel access, limit curb cuts, and require sidewalks with new commercial and mixed-use development	Ongoing	Insufficient staff and resources. Restated in LU-18, LU-19, LU-20 and LU-22 of the CWP. Projected completion 2020.



# PLAN MAINTENANCE

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The Bulloch County Board of Commissioners and city councils for the municipalities of Brooklet, Portal and Register are responsible for maintaining the **SMART BULLOCH 2040 PLAN** to accurately reflect current community conditions and the community's vision and priorities for the future. Maintenance of the plan includes major and minor plan amendments, updates of the plan, or required periodic updates of the Community Agenda. Each is discussed in below.

*Plan Amendments:* The Georgia Department of Community Affairs (DCA) defines plan amendments as those changes to an adopted comprehensive plan that alter the basic tenets of the overall plan or a significant portion of the plan when necessary to address changing circumstances that may make the plan less useful in local decision-making. Plan amendments must be submitted for review in the same manner as the ten-year Update to the Comprehensive Plan (see below).

*Updates to the Community Work Program:* The Board of Commissioners and city councils may prepare and submit either annual updates or five-year updates to the Community Work Program (CWP). These updates must be submitted to Coastal Regional Commission (CRC) in conjunction with DCA for review in order to maintain Quality Local Government status.

*Updates to the Comprehensive Plan:* At a minimum, a plan update must be completed every 10 years, in accordance with the Local Comprehensive Plan Recertification Schedule maintained by DCA. The update of the **SMART BULLOCH 2040 PLAN** serves as the basis for a ten-year update of the Bulloch County Service Delivery Strategy agreement between Bulloch County and Brooklet, Portal, Register and Statesboro. While this agreement can be renegotiated or changed at any time, this ten-year time frame establishes a mandatory review period, but is complimentary to Comprehensive Plan Updates. The Service Delivery Strategy agreement will be submitted within a proximate time frame of submittal of this plan.

# APPENDIX A

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## DCA AND CRC REVIEW DOCUMENTATION

- A-1:** Public Meeting Schedule Brochure
- A-2:** Publicity – WTOC News Article
- A-3:** Steering Committee Meeting #1 Sign in Sheet
- A-4:** Steering Committee Meeting #2 Sign in Sheet
- A-5:** Steering Committee Meeting #3 Sign in Sheet
- A-6:** Steering Committee Meeting #4 Sign in Sheet
- A-7:** Portal Public Workshop Sign in Sheet
- A-8:** Register and Unincorporated Bulloch Sign in Sheet
- A-9:** Brooklet Sign in Sheet
- A-10:** Countywide Stakeholders Meeting
- A-11:** Public Survey
- A-12:** Survey Results
- A-13:** Kick-Off Public Hearing Notice
- A-14:** Kick Off Public Hearing Sign in Sheet
- A-15:** Final Public Hearing Notice
- A-16:** Final Public Hearing Sign in Sheet
- A-17:** Adoption Resolutions

**A-1: PUBLIC MEETING SCHEDULE BROCHURE**  
(placed on the website, newspaper, and in County buildings)

You are invited to create the vision for future growth and  
development in Bulloch County!

**Public Meeting Schedule**

Portal/North Bulloch Co Area  
Tuesday Feb 12, 2019  
5:30 PM  
Portal Town Hall

Central/Southwest Bulloch Co Area  
Tuesday Feb 19, 2019  
5:30 PM  
North Main Annex

Brooklet/Southeast Bulloch Co Area  
Thursday Feb 21, 2019  
5:30 PM  
Brooklet Town Hall

Countywide  
Tuesday Mar 12, 2019  
6:00 PM  
North Main Annex

**Contact Information**

Cindy Steinmann (912)764-6245  
csteinmann@bullochcounty.net  
Olympia Gaines  
ogaines@bullochcounty.net

**Survey**

Please help us by participating at  
<http://www.bullochcounty.net/>

Bulloch County along with the cities of Brooklet, Portal, and Register are updating the comprehensive plan. Public events are planned to help stakeholders envision the future.

***What is a Comprehensive Plan?***

The comprehensive plan establishes a clear vision of the kind of places a community wants to be in the future, and provides a course of action to build what stakeholders envision. A comprehensive plan shapes decisions such as...

- Location of commercial, office, or residential land uses
- Necessity of infrastructure expansion
- Areas of environmental or historical significance that should be protected
- Identify needs and appropriate land use controls such as zoning and development standards

***How can I prepare for the meetings?***

- Take time to think about what you want the community to be like in the future  
- Invite neighbors and friends  
- Prepare ideas, questions, and concerns to be expressed at the meeting. Download an Issues & Opportunities guide or consider:

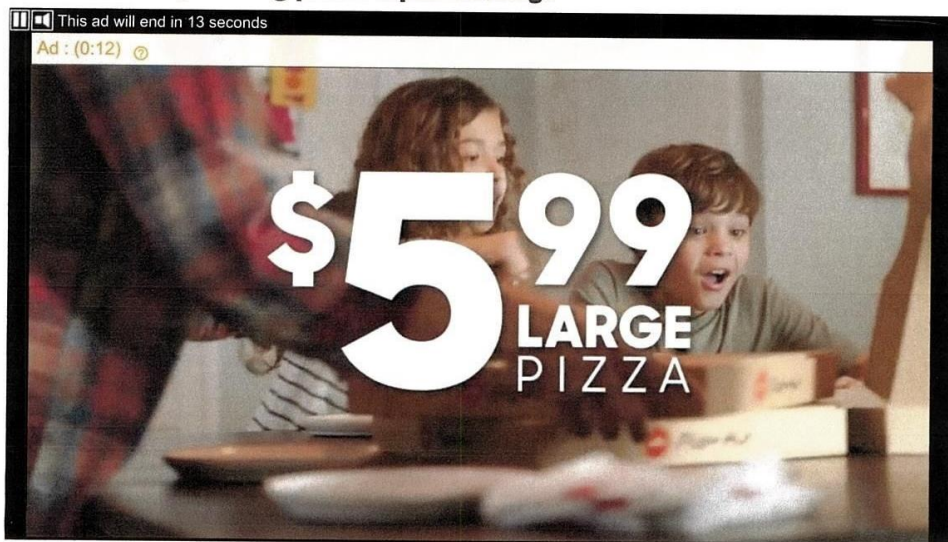
- What areas are experiencing change?
- Are there areas, streets, or corridors that need special attention?
- What are some specific uses or opportunities you would like to have?

Any interested resident, property owner, or business owner is welcome to attend one of the workshops. Each workshop will follow a similar agenda, focused in a particular area of the county.

Stakeholders are encouraged to attend workshops at locations nearest to them. The Countywide Workshop will bring together these areas in one meeting.

## A-2: PUBLICITY – WTOC NEWS ARTICLE

### Bulloch County holding public input meetings



Bulloch County holding public input meetings

By **Dal Cannady** | February 8, 2019 at 6:38 PM EST - Updated February 12 at 4:49 PM

BULLOCH COUNTY, GA (WTOC) - If you live or work in Bulloch County, you now have the chance to offer your input on how you want the community to develop over the next decade.

County leaders must prepare a long-term plan and want to know what people think.

Bulloch County's comprehensive plan isn't necessarily set in stone, but it serves as a road map for what the community wants to be in the future. The plan covers everything from roads and transportation to industry and land use. Citizens will be able to give input at any of three meetings over the next few weeks.

County leaders say they want to hear from people who live there, own homes or land, or own a business. Hearing from the public helps them anticipate future growth and prevent different aspects - from agriculture, to industry, to housing - from conflicting with each other.

<http://www.wtoc.com/2019/02/08/bulloch-county-holding-public-input-meetings/>

1/7

2/13/2019

Bulloch County holding public input meetings

"It's very important. We don't want to just have residential areas next to a pig farm or heavy industry next to single family residences," said analyst, Cindy Steinmann, Bulloch County.

"When I talk land use plan, I'm talking residential, commercial, farmland...to help us decide what we want Bulloch County to look like over the next 10-plus years," said Roy Thompson, County Commission Chair.

The meetings will start Tuesday in Portal and continue into March. You can attend as many of them as you want, [or fill out a survey on the county's website.](#)

They say it's important to have multiple meetings in different parts of the country to give people a chance to attend and give their opinions.

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### A-3: STEERING COMMITTEE MEETING #1 SIGN IN SHEET

Sign In Sheet  
Stakeholder Committee Meeting  
November 29, 2018

Name	Address
William Layford	9788 Old River Rd S. Brooklet GA
Chris Q	316 REDBIRSTONE TRAIL
Jerry Lanigan	P.O. Box 42 Portal, Ga.
HUDY WELCH	115 N. Main St.
Jeanne Anne Marsh	105 Half Moon Rising lane 30461
Jed Williams	1128 Harville Road
Jason Lapp	PO BOX 89 Portal GA 30450
Brad Deal	BOC
Benj Thompson	Des. Anthony of Bullock County, 12 S. Main
Ryne Brannen	100 Wedgfield Way Statesboro, GA 30458

## A-4: STEERING COMMITTEE MEETING #2 SIGN IN SHEET

### Sign In Sheet

#### Steering Committee Meeting #2

(Community Goals, Needs/Opportunities, Community Work Program)

December 13, 2018

Name	Email Address
Ryne Brannan	<del>ryne</del> rjbranner@gmail.com
Billy Bogg	Boggs2016@bulloch.net
Jenny Lamigan	
Brad Deal	bdeal@bullochcounty.net
CURT DEAL	
Ted Williams	tedwms@yahoo.com
Jeanne Anne Marsh	jamarsh@bulloch.net
Berjy D	berjy.thompson@adventistbulloch.com
Sandy Newnan	snewnan@bullochcounty.net
Mika Annette	cityofportland@bulloch.net
DEREK DUKE	duke30458@yahoo.com
Olympia Gaus	



**Sign In Sheet**  
**Steering Committee Meeting #3**  
**(Land Use, Transportation, Housing)**  
**January 10, 2019**

160

**Sign In Sheet**  
**Steering Committee Meeting #4**  
**(Broadband, Economic Development, Capital Improvements)**  
**January 31, 2019**

161

## A-7: PORTAL PUBLIC WORKSHOP SIGN IN SHEET



**Sign In Sheet**  
**Comprehensive Plan Workshop**  
**Portal**  
**February 12, 2019 – 5:30 PM**

Name	Address
Cindy Steinmann	Staff
Tim Cook	2346 Oak Grove Church Rd Portal
Mike Anneta	Town of Portal Clerk
Olympia Gaines	staff
Bruce Deal	County Staff
Jellia Moody	Banks Creek Church Rd
Bruce Moody	Banks Creek Church Rd
Anthony A. Simmon	Commissioner
Andy Welch	Staff
Curt Deal	Commissioner
Jappy Stringer	Commissioner

**A-8: REGISTER AND UNINCORPORATED BULLOCH PUBLIC WORKSHOP  
SIGN IN SHEET**



**Sign In Sheet  
Comprehensive Plan Workshop  
Register & Unincorporated Bulloch County  
February 19, 2019 – 5:30 PM**

<b>Name</b>	<b>Address</b>
Becky Thompson	5000 Highway Road, Statesboro GA 30461
Brook Deal	BOC Staff
Cindy Steinmann	BOC Staff
Terri Couch	BOC Staff
Andy Welch	BOC Staff
Curt Deal	Commissioner
Jay Stringer	Commissioner
Olympia Gaines	Staff



## A-9: BROOKLET PUBLIC WORKSHOP SIGN IN SHEET



**Sign In Sheet**  
**Comprehensive Plan Workshop**  
**Brooklet**  
**February 21, 2019 – 5:30 PM**

Name	Address
Cindy Mallett	254 Sara Beth Dr, Brooklet 31415
Robert Mallett	254 Sara Beth Dr, Brooklet
Becky Kelly	705 W. hawes St, Brooklet
Brad Dean	Box
Cindy Steinmann	BOC Staff
April Newkirk	
Nick Newkirk	8533 Stilson Lee field Rd
Olympia Glines	Staff
Angela T. Worth	150 Sugarland BLVD.
Beverly Lanin	497 Rushing Rd
Jeremy Lanin	" "

## A-10: COUNTYWIDE STAKEHOLDERS MEETING



**Sign In Sheet**  
**Comprehensive Plan**  
**Countywide Stakeholders Workshop**  
**March 12, 2019 – 6:00 PM**

Name	Organization
Cindy Steinmann	Bulloch County
Tom Couch	Bulloch County
Olympia Gaines	Bulloch County
Andy Welch	Bulloch County
Ted Wynn	Bulloch County
RANDY NEWMAN	" "
Charles Wilson	Bulloch County Schools
Roy Thompson	Bulloch County
Justin Williams	City of Statesboro
Jason Boyles	CITY OF STATESBORO
Travis Bozeman	Bulloch tel Coop
Alissa Sasser	Bulloch County Schools
Bill Tyson	Bulloch Co. Extension
Cur Deal	Bulloch County
Mike Rouns	Bulloch County
Bry Thompson	Development Authority of Bulloch Co.





**Sign In Sheet**  
**Comprehensive Plan**  
**Countywide Stakeholders Workshop**  
**March 12, 2019 – 6:00 PM**

<b>Name</b>	<b>Organization</b>
Walter Gibson	Bulloch County Commissioner
Jeanne Anne Marsh	Planning & Zoning Commission
Kendrick Lee	Georgia Southern University
Walter Gibson	Bulloch County

**A-11: PUBLIC SURVEY**  
**(placed on website, social media, and in County buildings)**



**Bulloch County Joint Comprehensive Plan Public Survey**  
***(Unincorporated Bulloch, Portal, Register, and Brooklet)***

**Thank you for taking the time to complete this survey! Your answers will help to  
create a vision for growth and development of Bulloch County, Portal, and  
Register.**

- 1. Where do you live?**
  - a. Portal
  - b. Brooklet
  - c. Register
  - d. Unincorporated Bulloch
  - e. City of Statesboro
  - f. Outside of Bulloch County
  
- 2. Which best describes where you currently live?**
  - a. Single Family House on less than ½ an acre
  - b. Single Family House on ½ to 1 acre
  - c. Single Family House on more than 1 acre
  - d. Duplex
  - e. Townhouse
  - f. Apartment
  - g. Manufactured Home
  
- 3. What describes where you, your family, or extended family will want to live in 10 years?**
  - a. Single Family House on less than ½ acre
  - b. Single Family House on ½ to 1 acre
  - c. Single Family House on more than 1 acre
  - d. Duplex
  - e. Townhouse
  - f. Apartment
  - g. Manufactured Home
  
- 4. What do you most like about Bulloch County's quality of life? (Choose top 3):**
  - a. Small town feel
  - b. Agriculture
  - c. Cost of living/affordability
  - d. Good parks, recreation, schools, and other community facilities
  - e. Less traffic congestion than surrounding communities
  - f. Proximity to Savannah and other employment centers
  - g. Medical care
  - h. Community appearance (architecture, landscaping, appearance, etc.)

**Return to 115 North Main Street Statesboro, GA 30458**  
**Attn: Cindy Steinmann**

5. **What do you like least about Bulloch County's quality of life?** (Choose top 3):
- a. Lack of shopping, dining, and entertainment options
  - b. Limited transportation options for pedestrians and bicyclists
  - c. Dirt roads???
  - d. Job Opportunities
  - e. Medical care
  - f. Community appearance (architecture, landscaping, etc.)
6. **What are Bulloch County's best physical assets** (Choose top 3)?
- a. Public recreation facilities (Millcreek Park, Splash in the Boro, S&S Greenway)
  - b. Water Resources (Ogeechee River, Cypress Lake)
  - c. Historic property districts
  - d. Georgia Southern University
  - e. Rural character of the surrounding community
  - f. Prime farmland
7. **Rank the importance of focusing on issues or opportunities related to economic development and land use in Comprehensive Plan include** (1 being most important; 5 being least):
- \_\_\_\_\_ Preserving rural character
  - \_\_\_\_\_ Attracting more higher paying jobs to the area
  - \_\_\_\_\_ Creating additional opportunities for entertainment and commercial
  - \_\_\_\_\_ Creating quality residential neighborhoods (sidewalks, lighting, etc)
  - \_\_\_\_\_ Creating new industrial parks
8. **Rank the importance of focusing on issues or opportunities related to transportation and community facilities issues or opportunities in the Comprehensive Plan include** (1 being most important; 7 being least):
- \_\_\_\_\_ Increasing road connectivity
  - \_\_\_\_\_ Improving or enhancing existing parks, recreation, and other community facilities
  - \_\_\_\_\_ Increasing traffic capacity on main roadways
  - \_\_\_\_\_ Improving options for other modes of transportation (pedestrians, bicyclists, transit, etc.)
  - \_\_\_\_\_ Improving response times from Law Enforcement, Fire, EMS
  - \_\_\_\_\_ Improving aging infrastructure (bridges, roads, drainage)
  - \_\_\_\_\_ Paving dirt roads
9. **Other issues or opportunities that the Comprehensive Plan should address include** (Choose top 3):
- a. Providing guidance on the design and aesthetics of new development
  - b. Promoting more sustainable, or environmentally friendly, development practices
  - c. Improving government oversight of development
  - d. Improving health and wellness of the community
  - e. Better relationship with the City of Statesboro and other surrounding counties

**Return to 115 North Main Street Statesboro, GA 30458  
Attn: Cindy Steinmann**

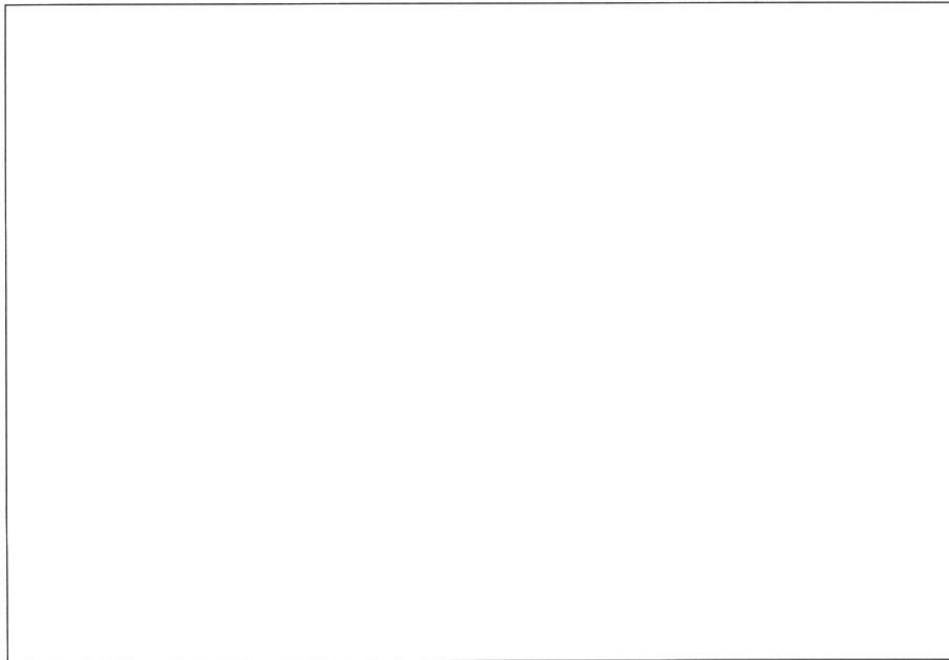
**10. If growth is to occur in Bulloch County in the future, should it be located (in and around) (Choose top 3):**

- a. Brooklet
- b. Portal
- c. Register
- d. Statesboro
- e. Stilson
- f. Denmark
- g. Clito
- h. Hopeulikit
- i. Nevils
- j. I-16 Exits

**11. How would you rate your quality and access to wired/wireless internet service?**

- a. Excellent
- b. Good
- c. Fair
- d. Poor

**12. Tell us any other information that you believe should be considered for Bulloch County's growth.**



**Return to 115 North Main Street Statesboro, GA 30458  
Attn: Cindy Steinmann**

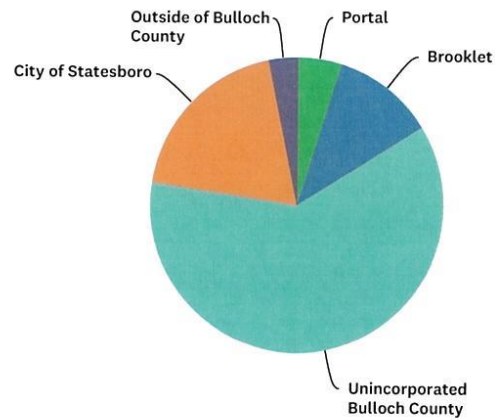
## A-12: SURVEY RESULTS

Bulloch County Joint Comprehensive Plan Public Survey (Unincorporated Bulloch, Portal, Register, and Brooklet)

SurveyMonkey

### Q1 Where do you live?

Answered: 62 Skipped: 0



#### ANSWER CHOICES

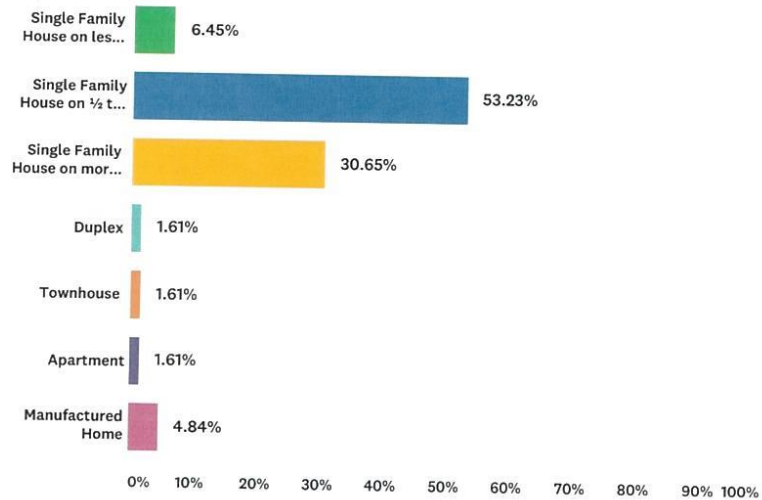
Portal  
Brooklet  
Register  
Unincorporated Bulloch County  
City of Statesboro  
Outside of Bulloch County  
TOTAL

#### RESPONSES

4.84%	3
11.29%	7
0.00%	0
61.29%	38
19.35%	12
3.23%	2
	62

## Q2 Which best describes where you currently live?

Answered: 62 Skipped: 0



### ANSWER CHOICES

Single Family House on less than 1/2 an acre  
 Single Family House on 1/2 to 1 acre  
 Single Family House on more than 1 acre  
 Duplex  
 Townhouse  
 Apartment  
 Manufactured Home  
 TOTAL

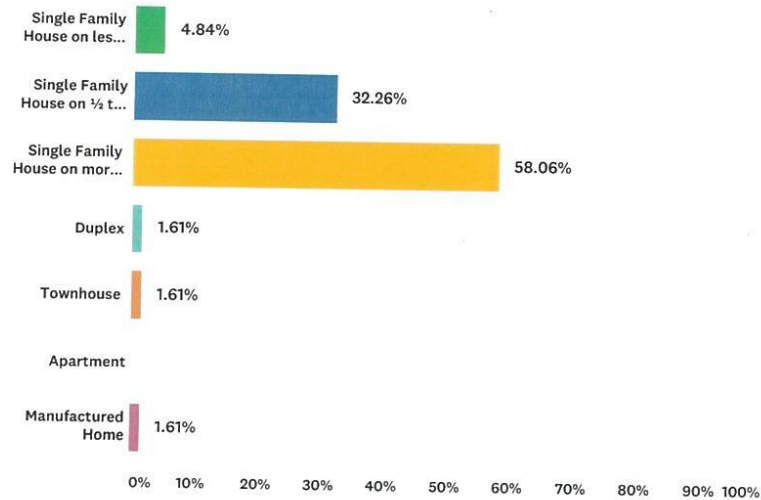
### RESPONSES

6.45%	4
53.23%	33
30.65%	19
1.61%	1
1.61%	1
1.61%	1
4.84%	3
	62



### Q3 What describes where you, your family, or extended family will want to live in 10 years?

Answered: 62 Skipped: 0



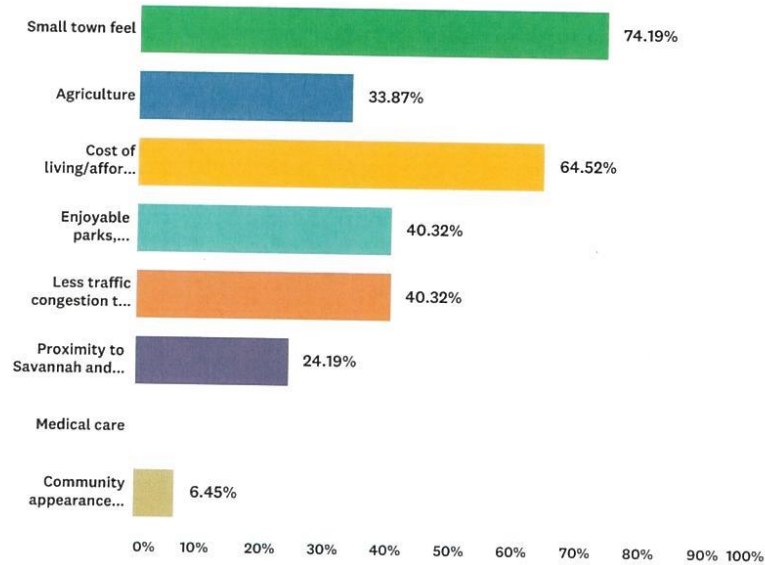
#### ANSWER CHOICES

#### RESPONSES

Single Family House on less than 1/2 acre	4.84%	3
Single Family House on 1/2 to 1 acre	32.26%	20
Single Family House on more than 1 acre	58.06%	36
Duplex	1.61%	1
Townhouse	1.61%	1
Apartment	0.00%	0
Manufactured Home	1.61%	1
<b>TOTAL</b>		<b>62</b>

## Q4 What do you most like about Bulloch County's quality of life? (Choose top 3):

Answered: 62 Skipped: 0



### ANSWER CHOICES

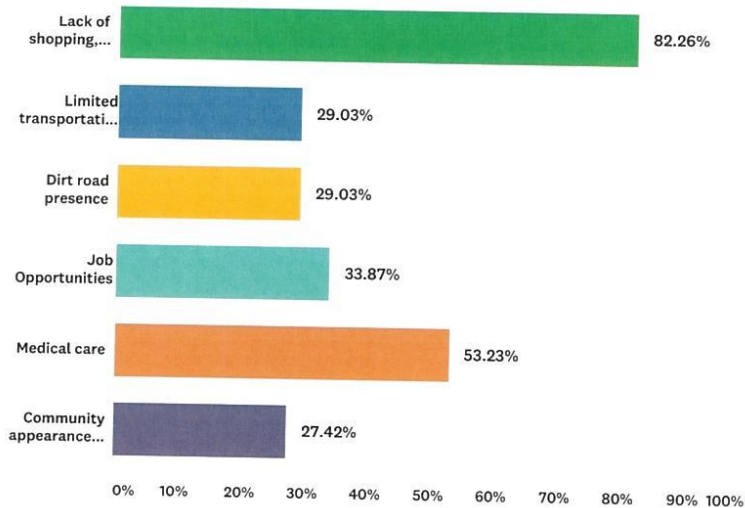
Small town feel  
 Agriculture  
 Cost of living/affordability  
 Enjoyable parks, recreation, schools, and other community facilities  
 Less traffic congestion than surrounding communities  
 Proximity to Savannah and other employment centers  
 Medical care  
 Community appearance (architecture, landscaping, etc.)  
 Total Respondents: 62

### RESPONSES

74.19% 46  
 33.87% 21  
 64.52% 40  
 40.32% 25  
 40.32% 25  
 24.19% 15  
 0.00% 0  
 6.45% 4

## Q5 What do you like least about Bulloch County's quality of life? (Choose top 3):

Answered: 62 Skipped: 0



### ANSWER CHOICES

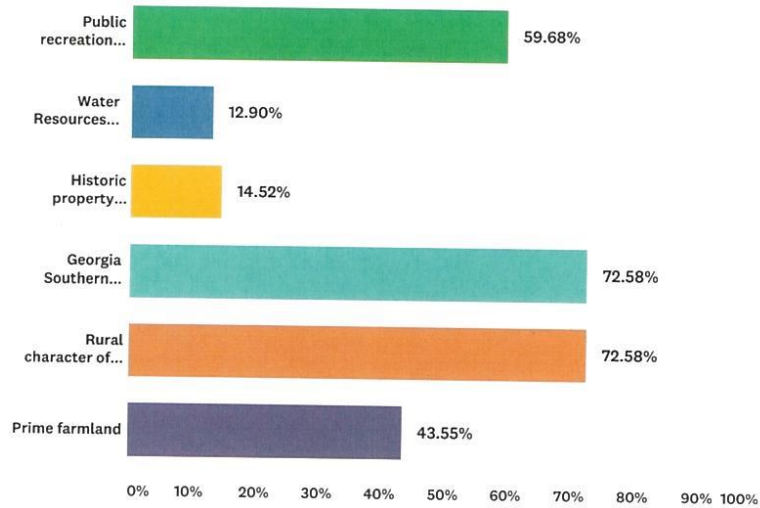
Lack of shopping, dining, and entertainment options  
 Limited transportation options for pedestrians and bicyclists  
 Dirt road presence  
 Job Opportunities  
 Medical care  
 Community appearance (architecture, landscaping, etc.)  
 Total Respondents: 62

### RESPONSES

82.26% 51  
 29.03% 18  
 29.03% 18  
 33.87% 21  
 53.23% 33  
 27.42% 17

## Q6 What are Bulloch County's best physical assets? (Choose top 3)

Answered: 62 Skipped: 0



### ANSWER CHOICES

Public recreation facilities (Millcreek Park, Splash in the Boro, S&S Greenway)

Water Resources (Ogeechee River, Cypress Lake)

Historic property districts

Georgia Southern University

Rural character of the surrounding community

Prime farmland

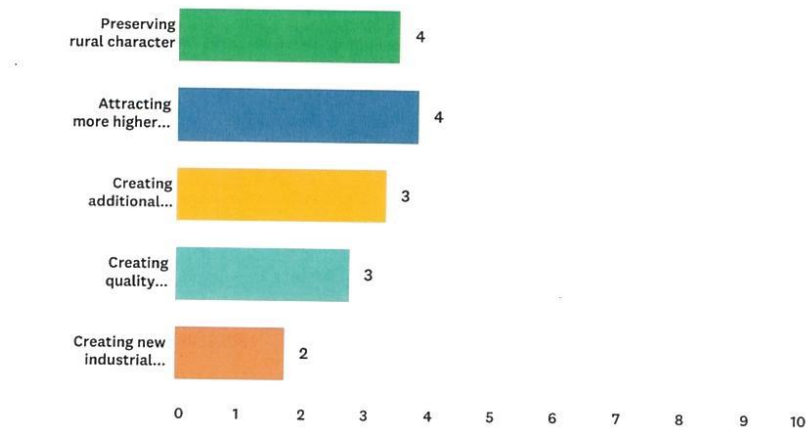
Total Respondents: 62

### RESPONSES

59.68%	37
12.90%	8
14.52%	9
72.58%	45
72.58%	45
43.55%	27

**Q7 Rank the importance of focusing on issues or opportunities related to economic development and land use in the Comprehensive Plan (Rank with 1 being most important; 5 being least):**

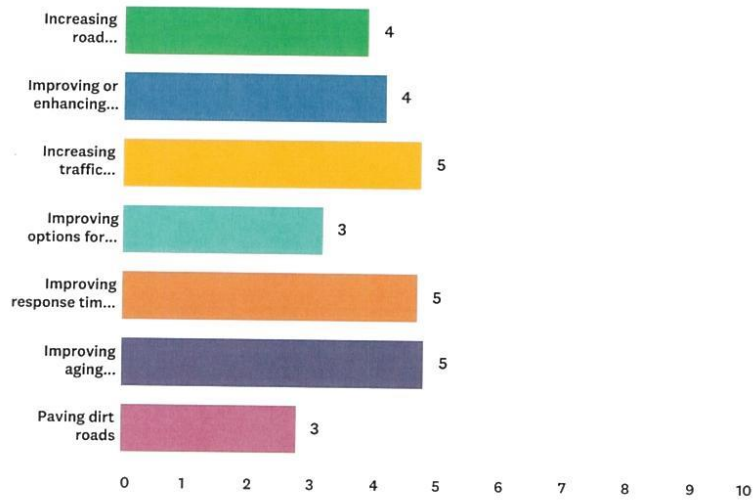
Answered: 62 Skipped: 0



	1	2	3	4	5	TOTAL	SCORE
Preserving rural character	42.37% 25	10.17% 6	18.64% 11	13.56% 8	15.25% 9	59	3.51
Attracting more higher paying jobs to the area	26.67% 16	41.67% 25	21.67% 13	6.67% 4	3.33% 2	60	3.82
Creating additional opportunities for entertainment and commercial	20.00% 12	26.67% 16	26.67% 16	20.00% 12	6.67% 4	60	3.33
Creating quality residential neighborhoods (sidewalks, lighting, etc.)	12.90% 8	16.13% 10	24.19% 15	29.03% 18	17.74% 11	62	2.77
Creating new industrial parks	1.64% 1	6.56% 4	9.84% 6	27.87% 17	54.10% 33	61	1.74

**Q8 Rank the importance of focusing on issues or opportunities related to transportation and community facilities in the Comprehensive Plan (Rank with 1 being most important; 7 being least):**

Answered: 62 Skipped: 0

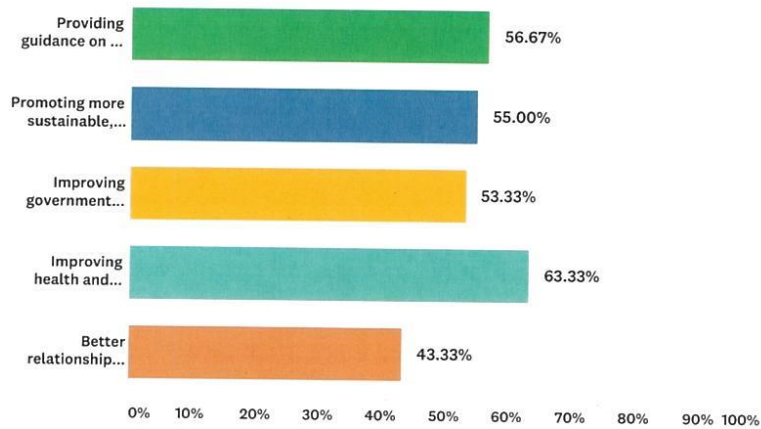


	1	2	3	4	5	6	7	TOTAL	SCORE
Increasing road connectivity	13.56% 8	11.86% 7	13.56% 8	13.56% 8	15.25% 9	22.03% 13	10.17% 6	59	3.88
Improving or enhancing existing parks, recreation, and other community facilities	15.25% 9	15.25% 9	16.95% 10	11.86% 7	11.86% 7	22.03% 13	6.78% 4	59	4.17
Increasing traffic capacity on main roadways	22.95% 14	14.75% 9	18.03% 11	18.03% 11	14.75% 9	4.92% 3	6.56% 4	61	4.72
Improving options for other modes of transportation (pedestrians, bicyclists, transit, etc.)	8.77% 5	7.02% 4	7.02% 4	17.54% 10	19.30% 11	12.28% 7	28.07% 16	57	3.19
Improving response times from Law Enforcement, Fire, EMS	11.86% 7	28.81% 17	16.95% 10	15.25% 9	15.25% 9	10.17% 6	1.69% 1	59	4.69
Improving aging infrastructure (bridges, roads, drainage)	19.30% 11	21.05% 12	21.05% 12	12.28% 7	12.28% 7	12.28% 7	1.75% 1	57	4.79
Paving dirt roads	10.53% 6	1.75% 1	8.77% 5	10.53% 6	14.04% 8	12.28% 7	42.11% 24	57	2.79



### Q9 Other issues or opportunities that the Comprehensive Plan should address include (Choose top 3):

Answered: 60 Skipped: 2



#### ANSWER CHOICES

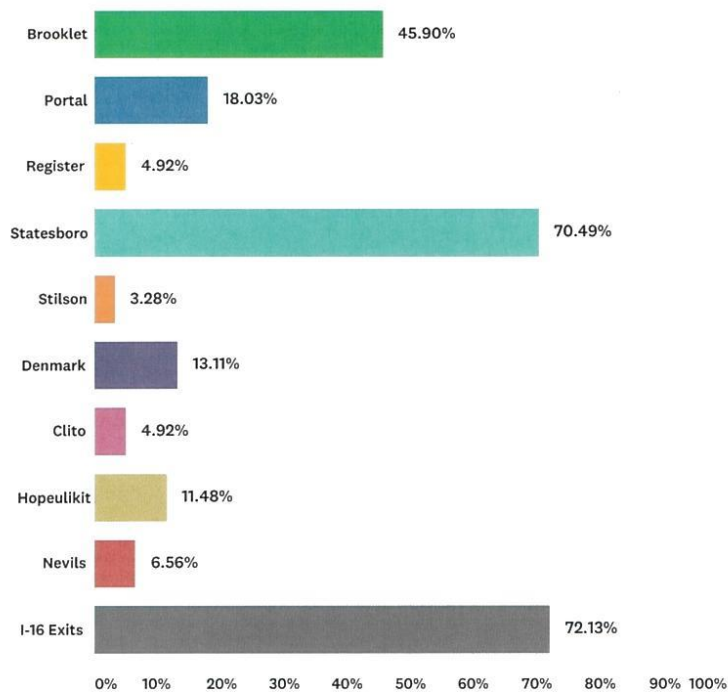
Providing guidance on the design and aesthetics of new development  
Promoting more sustainable, or environmentally friendly, development practices  
Improving government oversight of development  
Improving health and wellness of the community  
Better relationship with the City of Statesboro and other surrounding counties  
Total Respondents: 60

#### RESPONSES

56.67% 34  
55.00% 33  
53.33% 32  
63.33% 38  
43.33% 26

### Q10 If growth is to occur in Bulloch County in the future, should it be located (in and around) (Choose top 3):

Answered: 61 Skipped: 1



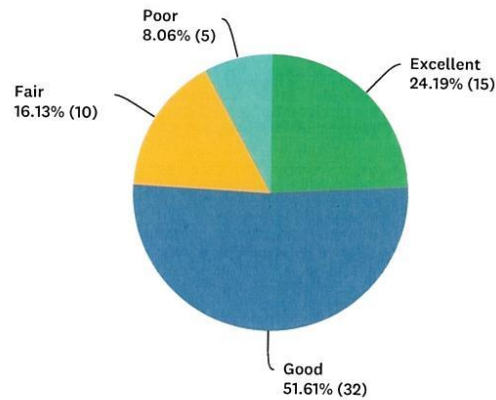
#### ANSWER CHOICES

#### RESPONSES

Brooklet	45.90%	28
Portal	18.03%	11
Register	4.92%	3
Statesboro	70.49%	43
Stilson	3.28%	2
Denmark	13.11%	8
Clito	4.92%	3
Hopeulikit	11.48%	7
Nevils	6.56%	4
I-16 Exits	72.13%	44

### Q11 How would you rate your quality and access to wired/wireless internet service?

Answered: 62 Skipped: 0



#### ANSWER CHOICES

Excellent  
Good  
Fair  
Poor  
TOTAL

#### RESPONSES

Excellent	24.19%	15
Good	51.61%	32
Fair	16.13%	10
Poor	8.06%	5
TOTAL		62

## A-13: KICK-OFF PUBLIC HEARING NOTICE

### Classifieds

statesboroherald.com | STATESBORO HI



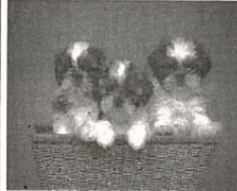
**GARY'S PAINTING**

Pressure Washing  
We now clean your gravestones  
for your loved ones!  
35 years experience  
912-587-5189  
912-243-7857  
John 3:16



Sasha is maybe a year old, litter trained, and spayed. Sasha is loving and playful, but does not like dogs. Sasha is a Tortoiseshell cat. 912-863-6718. Giving up my animals is not easy for me and I truly wish I could keep them, but my allergy to cats won't let me. I'm hoping to find Sasha a loving home.

### Simply Southern



#### Kennel

has Yorkies, tiny Chihuahuas, Shihtzus Poodles, miniature Dachshunds, and other breeds available  
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R & S P.

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#### Pets

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### Cail Tree Service

Thu(2-4). 489-5204.

gpn16  
**PUBLIC HEARING NOTICE**  
The Bulloch County Board of Commissioners will hold a public hearing on Tuesday, November 20th at 8:30 a.m. to kick-off the Joint Comprehensive Plan update for Bulloch County and the City of Brooklet, Town of Portal, and Town of Register. The purpose of the kick-off meeting is to announce the beginning of the planning process and to provide an opportunity to receive public input. The hearing will be held in the Community Room of the County Annex Building located at 115 North Main Street, Statesboro, Georgia. Persons with special needs relating to handicapped accessibility or foreign language shall contact the Clerk of the Board at (912) 764-6245 prior to the date above.  
sw46972 10/27/2018

#### Pets & Animals

##### Lost and Found Pets

#### Found

small white long hair dog in vicinity of Marvin Ave wearing collar and leash attached. Please call 912-202-0283 or 912-424-8607

for feline leukemia and Aids. Samson is sweet boy who is very smart and affectionate, but he is not a dog fan. 912-863-6718. Giving up my animals is not easy for me and I truly wish I could keep them, but my allergy to cats won't let me. I'm hoping to find Samson a loving home.

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experience. Excele  
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Attn: Ja Stephen  
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Claxton, Ga 3041

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**Sign In Sheet  
Comprehensive Plan Update  
Kick-Off Public Hearing  
November 20, 2019**

[illegible]



## A-15: FINAL PUBLIC HEARING NOTICE

statesboroherald.com | STATESBORO HERALD — Sunday, March 31, 2019 — 17A

# Destroyed as ban takes effect

required.

Anyone in possession of a bump stock from now on can be charged with a federal offense punishable by up to 10 years in prison.

The Bureau of Alcohol, Tobacco, Firearms and Explosives outlawed the attachments at President Donald Trump's direction after the Las Vegas gunman rained fire from his high-rise hotel suite on concertgoers, killing 58 people in the deadliest mass shooting in modern U.S. history.

On Thursday, the Supreme Court declined to put the ban on hold.

As the prohibition drew near, RW Arms in Fort Worth, Texas, featured a countdown clock on its website and heavily promoted last chances to buy the accessories. By the time

the ban took effect, RW Arms was left with 60,000, probably worth millions, since they sell for around \$150 to \$250 each.

The company turned over crates of them to the ATF, and a video showed boxes being loaded onto a conveyor belt and fed into an industrial grinder.

Washington state set aside \$150,000 to offer owners \$150 for each device they turned in to police. Within weeks, the money had been used up.

The ATF declined to say how many people brought their bump stocks to an ATF office.

T.J. Kirgin, owner of a firearms tactical gear company in St. Peters, Missouri, said that in the weeks before the measure went into effect, he made one

last sweep through his warehouse to make sure he didn't have any more devices left.

And then he took his very last one and with some friends held a mock funeral for it, reducing it to a hunk of melted plastic embedded in a rock.

While gun control activists welcomed the end of the line for a device blamed for horrifying carnage, Kirgin called it not just the day bump stocks died but the day freedom died.

"If they can do this with a piece of plastic, then they'll be able to do it with another piece of plastic and another piece of metal, another piece of plastic," he said. "And it's just systematically taking away Second Amendment rights."

# t down the US/Mexican border

and commercial vehicles.

"If we have to close ports to take care of all of the numbers who are coming, we will do that," Nielsen said. "So it's on the table, but what we're doing is a very structured process based on operational needs."

The White House did not immediately respond to questions about whether Trump's possible action would apply to air travel.

Trump's latest declaration came after Mexican President Andres Manuel Lopez Obrador said his

country was doing its part to fight migrant smuggling. Criminal networks charge thousands of dollars a person to move migrants through Mexico, increasingly in large groups toward remote sections of the border.

## PUBLIC HEARING NOTICE - COMPREHENSIVE PLAN UPDATE

Bulloch County will hold a final public hearing to receive community comments regarding an update to the 2009 Comprehensive Plan. The hearing will be on April 16, 2019 at 8:30 AM in the North Main Annex (Community Room).

A copy of the update can be viewed at the North Main Annex (115 North Main St) or at [www.bullochcounty.net](http://www.bullochcounty.net).



## A-16: FINAL PUBLIC HEARING SIGN IN SHEET

**Sign In Sheet  
Comprehensive Plan Update  
Final Public Hearing  
April 16, 2019**

[illegible]

## A-17: ADOPTION RESOLUTIONS

### BULLOCH COUNTY BOARD OF COMMISSIONERS RESOLUTION # 14

#### TO ADOPT THE SMART BULLOCH 2040 JOINT COMPREHESIVE PLAN

**WHEREAS**, the Bulloch County Board of Commissioners and the incorporated cities of Brooklet, Portal and Register have enjoined in a comprehensive planning process and desires to implement the vision, goals, policies and community work programs as presented herein; and,

**WHEREAS**, the Bulloch County Board of Commissioners believes the implementation of such vision, goals, policies and community work programs herein possess prudent guidelines in managing the future growth and development of the community; and,

**WHEREAS**, the Bulloch County Board of Commissioners finds that state and federal funding opportunities will become more accessible with the adoption of this comprehensive plan; and,

**WHEREAS**, the Bulloch County Board of Commissioners finds that it shall be able to guide decisions related to economic development, transportation, broadband expansion and land use more effectively upon the adoption of this comprehensive plan; and,

**WHEREAS**, the Bulloch County Board of Commissioners has duly and diligently followed the *Rules of The Georgia Department Of Community Affairs, Chapter 110-12-1, Minimum Standards And Procedures For Local Comprehensive Planning* with regard to the preparation, intergovernmental review and adoption of this comprehensive plan; and,

**WHEREAS**, the Bulloch County Board of Commissioners has determined that out of public necessity and for the good of the citizens of Bulloch County, the adoption of this resolution is warranted; and,

**WHEREAS**, the Bulloch County Board of Commissioners constitutes the governing body of the Bulloch County whereby this resolution has been considered at a public meeting in which a quorum was present and acting throughout;

**NOW, THEREFORE IT BE RESOLVED**, that the Bulloch County Board of Commissioners hereby adopts the Smart Bulloch 2040 Joint Comprehensive Plan, to become effective immediately, and for submittal to the Coastal Regional Commission and the Georgia Department of Community Affairs.

**SO BE IT RESOLVED**, this 4 day of June, 2019.

Roy Thompson  
Roy Thompson, Chairman

Olympia Gaines  
Olympia Gaines, Clerk of the Board

GIVEN under the seal of the County, this 4 day of June 2019



CITY OF BROOKLET  
RESOLUTION # \_\_\_\_\_

**TO ADOPT THE SMART BULLOCH 2040 JOINT COMPREHESIVE PLAN**

**WHEREAS**, the Bulloch County Board of Commissioners and the incorporated cities of Brooklet, Portal and Register have enjoined in a comprehensive planning process and desires to implement the vision, goals, policies and community work programs as presented herein; and,

**WHEREAS**, the City of Brooklet believes the implementation of such vision, goals, policies and community work programs herein possess prudent guidelines in managing the future growth and development of the community; and,

**WHEREAS**, the City of Brooklet finds that state and federal funding opportunities will become more accessible with the adoption of this comprehensive plan; and,

**WHEREAS**, the City of Brooklet finds that it shall be able to guide decisions related to economic development, transportation, broadband expansion and land use more effectively upon the adoption of this comprehensive plan; and,


**WHEREAS**, the City of Brooklet has duly and diligently followed the *Rules of The Georgia Department Of Community Affairs, Chapter 110-12-1, Minimum Standards And Procedures For Local Comprehensive Planning* with regard to the preparation, intergovernmental review and adoption of this comprehensive plan; and,

**WHEREAS**, the City of Brooklet has determined that out of public necessity and for the good of the citizens of Bulloch County, the adoption of this resolution is warranted; and,

**WHEREAS**, the Mayor and City Council constitutes the governing body of the City of Brooklet whereby this resolution has been considered at a public meeting in which a quorum was present and acting throughout;

**NOW, THEREFORE IT BE RESOLVED**, that the Bulloch County Board of Commissioners hereby adopts the Smart Bulloch 2040 Joint Comprehensive Plan, to become effective immediately, and for submittal to the Coastal Regional Commission and the Georgia Department of Community Affairs.

**SO BE IT RESOLVED**, this 20 day of June, 2019.

  
William Hendrix, Mayor

  
Angela Wirth, City Clerk

GIVEN Under the seal of the City, this 20 day of June 2019





CITY OF PORTAL  
RESOLUTION # 06-11-19

**TO ADOPT THE SMART BULLOCH 2040 JOINT COMPREHESIVE PLAN**

**WHEREAS**, the Bulloch County Board of Commissioners and the incorporated cities of Brooklet, Portal and Register have enjoined in a comprehensive planning process and desires to implement the vision, goals, policies and community work programs as presented herein; and,

**WHEREAS**, the City of Portal believes the implementation of such vision, goals, policies and community work programs herein possess prudent guidelines in managing the future growth and development of the community; and,

**WHEREAS**, the City of Portal finds that state and federal funding opportunities will become more accessible with the adoption of this comprehensive plan; and,

**WHEREAS**, the City of Portal finds that it shall be able to guide decisions related to economic development, transportation, broadband expansion and land use more effectively upon the adoption of this comprehensive plan; and,

**WHEREAS**, the City of Portal has duly and diligently followed the *Rules of The Georgia Department Of Community Affairs, Chapter 110-12-1, Minimum Standards And Procedures For Local Comprehensive Planning* with regard to the preparation, intergovernmental review and adoption of this comprehensive plan; and,

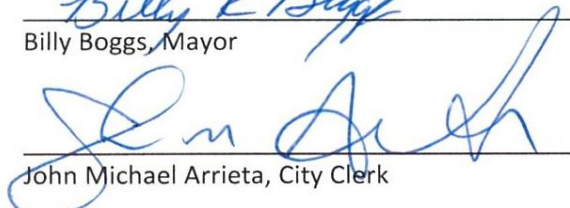
**WHEREAS**, the City of Portal has determined that out of public necessity and for the good of the citizens of Bulloch County, the adoption of this resolution is warranted; and,

**WHEREAS**, the Mayor and City Council constitutes the governing body of the City of Portal whereby this resolution has been considered at a public meeting in which a quorum was present and acting throughout;

**NOW, THEREFORE IT BE RESOLVED**, that the City of Portal hereby adopts the Smart Bulloch 2040 Joint Comprehensive Plan, to become effective immediately, and for submittal to the Coastal Regional Commission and the Georgia Department of Community Affairs.

**SO BE IT RESOLVED**, this 6 day of 11, 2019

  
\_\_\_\_\_  
Billy Boggs, Mayor

  
\_\_\_\_\_  
John Michael Arrieta, City Clerk

GIVEN under the seal of the City, this 11 day of June 2019

(SEAL)

CITY OF REGISTER  
RESOLUTION # 2019-02

**TO ADOPT THE SMART BULLOCH 2040 JOINT COMPREHESIVE PLAN**

**WHEREAS**, the Bulloch County Board of Commissioners and the incorporated cities of Brooklet, Portal and Register have enjoined in a comprehensive planning process and desires to implement the vision, goals, policies and community work programs as presented herein; and,

**WHEREAS**, the City of Register believes the implementation of such vision, goals, policies and community work programs herein possess prudent guidelines in managing the future growth and development of the community; and,

**WHEREAS**, the City of Register finds that state and federal funding opportunities will become more accessible with the adoption of this comprehensive plan; and,

**WHEREAS**, the City of Register finds that it shall be able to guide decisions related to economic development, transportation, broadband expansion and land use more effectively upon the adoption of this comprehensive plan; and,

**WHEREAS**, the City of Register has duly and diligently followed the *Rules of The Georgia Department Of Community Affairs, Chapter 110-12-1, Minimum Standards And Procedures For Local Comprehensive Planning* with regard to the preparation, intergovernmental review and adoption of this comprehensive plan; and,

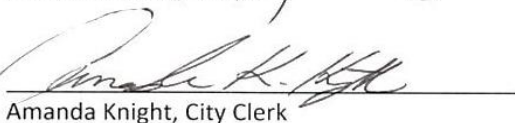
**WHEREAS**, the City of Register has determined that out of public necessity and for the good of the citizens of Bulloch County, the adoption of this resolution is warranted; and,

**WHEREAS**, the Mayor and City Council constitutes the governing body of the City of Register whereby this resolution has been considered at a public meeting in which a quorum was present and acting throughout;

**NOW, THEREFORE IT BE RESOLVED**, that the City of Register hereby adopts the Smart Bulloch 2040 Joint Comprehensive Plan, to become effective immediately, and for submittal to the Coastal Regional Commission and the Georgia Department of Community Affairs.

**SO BE IT RESOLVED**, this 20<sup>th</sup> day of June, 2019.

  
Barbara Rushing, Mayor

  
Amanda Knight, City Clerk



Given under the seal of the City, this 20 day of June 2019



#### Maximize economic development opportunities

The city needs to be involved with economic development and the effort should be a collaborative one with the county and other stakeholders. As the competitive environment evolves, more companies are evaluating regions over specific cities or counties when deciding where to locate a new office or facility. Statesboro and Bulloch County are well-positioned to be the center of this region, working with Evans, Candler, Jenkins and Screven Counties. This collaborative approach can pool resources and assets in order to improve the region as a whole.

#### Coordinate growth

As the City of Statesboro and Bulloch County continue to grow, the line between city and county can become increasingly blurred. The city and county should work together to coordinate long-range planning activities, particularly for land use and transportation, that will enhance the character of both jurisdictions. Planning tools such as urban service areas can provide clear guidance to the community and decision-makers about the intended nature of future growth. The city and county should also work together to establish an annexation policy to clearly articulate the conditions and requirements for annexation into the city limits. The City should be proactive in fostering a strong relationship with both the County and the Board of Education. These three entities are the leaders in shaping the community and should work collaboratively in coordinating growth for the benefit of all.

#### Strengthen neighborhoods

As the university student population grows, neighborhoods can be impacted as homes transition from owner-occupied to student rentals. Other neighborhoods face issues of substandard maintenance and slow economic decline. Historic neighborhoods can struggle with how to maintain the integrity of their urban fabric as homeowners work to renovate and restore homes, sometimes without the awareness how to make improvements that are historically accurate. While different issues will require different approaches, there are some general strategies to consider for the overall strengthening of neighborhoods.

#### Establish formal dialogue with GSU

Due to the significant impact of Georgia Southern University on the City of Statesboro, a formal dialogue should be established between the two entities to foster a continual dialogue. Informal and 'as needed' conversations will remain important, but regularly scheduled meetings which include diverse representation of both the city and the university can help to address long-range and chronic issues as well as those that are issue-specific and more acute.

#### Strengthen community involvement

Successful implementation of the comprehensive plan takes strong leadership from elected officials and an active and engaged citizenry. Advocacy groups can play a strong role in providing support for specific issues in the plan. The city has limited staff and resources and the involvement of the community can help bridge the gap between the desired state and the status quo. Similarly, public/private partnerships can be very instrumental in the success of the plan.

#### Foster collaboration & efficient services

The city and the county already collaborate on a number of community services. Opportunities to continue and expand collaborative efforts can provide services more effectively and efficiently. However, the city should remain vigilant in maintaining the appropriate facilities and services for their residents. In addition to working with the county, the city should also be proactive in working with the school board and universities in meeting community needs as well as ensuring that community services keep pace with new growth.

#### Focus on the vitality of downtown

Downtown should continue to be the heart of the greater Statesboro community. The establishment of the Averitt Arts Center in 2004 introduced a significant anchor for performing and fine arts in downtown Statesboro. Maintaining and increasing a viable cultural arts program is important for quality of life and fostering economic development. A vibrant downtown offers diverse assets, including arts, retail, office, entertainment, restaurants, and residential opportunities.

#### Diversify transportation options

Walking and cycling should be viable alternatives to driving in the City of Statesboro. Equal attention should be given to these facilities as to roads. Facilities should be safe, maintained, and in the proper locations. Multi-use trails should serve as a key element of the off-street bicycle and pedestrian network and should link into (and not compete against) the on-street network.

#### Promote infill & redevelopment

There are numerous key redevelopment sites located in the city limits of Statesboro, including three former warehouse sites, the former hospital site, the old Darby Lumber site, the Packinghouse Road property and more. The city should actively encourage redevelopment of these sites. Redevelopment of these properties invigorates neighborhoods, brings vitality into currently underutilized areas, and contributes positively to the tax base. Infill development, which consists of developing vacant lots dispersed in developed areas, strengthens neighborhoods and reinvests money into infrastructure which is already in place.

#### Protect community character

The character of a community is largely defined by the combination of the natural and built environments. In Statesboro, the character of downtown Statesboro and the surrounding in town neighborhoods is in jeopardy due to the lack of inventory of historic resources and lack of protection from demolition and inappropriate restoration. Protecting the historic fabric and architectural integrity of downtown is a critical component of downtown's continued success.



# ENVISIONING STATESBORO'S FUTURE



## CITY OF STATESBORO COMPREHENSIVE MASTER PLAN EXECUTIVE SUMMARY

### VISION

Our community's neighborhood-oriented atmosphere will continue to evolve into an increasingly attractive destination for new residents, businesses, and commerce. Our community will preserve its history and environment, and will become a regional leader in quality growth and development. To achieve this, our community will:

- Be the hub of economic development for the region, and will proactively and strategically initiate business attraction, retention and expansion activities designed to strengthen and diversify our economy while advancing the quality of life for all. We will work together to market the community to appropriate industries and small businesses, appropriate service sector employers, and a mix of grocers, restaurants, and other entertainment establishments. Our educated workforce will attract clean industries and quality jobs, and our home grown businesses and entrepreneurs will continue to flourish.

- Embrace collaboration to promote sustainable, quality growth and stewardship, including wise management of our infrastructure, natural resources, education, recreation, and economic development.

- Promote the idea that all residents have a right to quality housing regardless of socio-economic standing. We will monitor housing needs, and will continue to emphasize walkability and interconnectedness in our neighborhoods. Our community will value the integrity of our historic neighborhoods and embrace innovation in providing diverse housing options to meet the needs of the community.

- Lead collaborative efforts with the county, universities, and other entities and agencies to present a unified front in the face of economic and resource protection challenges. Our city and countywide agencies will work closely together and with other stakeholders, forming a seamless approach to local government management.

- Develop and implement a balanced and forward thinking land use policy that provides for a sustainable community of thriving neighborhoods, business areas, and civic places that comprise an outstanding quality of life and physical environment. The City will expand in a manner which conserves the natural land resources and integrates new development in ways which minimize negative impacts and

provides for a healthy ecosystem. Walkable, neighborhood commercial areas will be supported; pedestrian and bike connections will be emphasized; office and industrial development will be a priority. Citizen participation and informed decision-making will be a hallmark of our community's land use planning.

- Value preservation of natural habitat and historical features, and will carefully evaluate land use decisions and plan the transportation network with regard to natural, cultural and historic preservation. New or infill development will be designed to have minimal impact on natural, cultural and historic resources. Our community will provide diverse open space and park amenities to protect our natural resources and provide human access to nature. Trees and landscaping will soften urban development, providing shade, comfort, health benefits, and beauty.

- Have a comprehensive transportation network which places equal importance on all modes of transportation. The interconnected transportation network will serve to minimize traffic congestion and provide safe, well-maintained facilities for bikes and pedestrians. Public transportation will be integrated and provided for all users.

- Be a regional education center, from K-12 through university. Our excellent educational system will attract newcomers who seek opportunities to engage with the community, thus perpetuating the high quality of life in Statesboro.

- Value and promote our thriving downtown as the cultural, business, and lifestyle leader in the region. A variety of retail, dining, and entertainment venues will enhance an active daytime office and business community, providing a day and evening destination, with activities for young adults, retirees, families, residents, and visitors.

The City of Statesboro will continue to maintain a strong voice as the area's education, business, healthcare, and economic leader and promote a spirit of cooperation, collaboration, and unity.



# FUTURE DEVELOPMENT MAP

## URBAN CORE

Downtown is the historic core of city and should remain the activity and cultural hub of the region. In the *Urban Core*, traditional development patterns of buildings along the sidewalk and a lively streetscape should be respected and promoted. Historic buildings should be protected from demolition or inappropriate restoration which can degrade the architectural details of the structures. Additional residential opportunities, especially in the form of lofts or other residential over retail, should be promoted. Street-level uses should be reserved for retail, entertainment, or similar high-activity uses.

## ESTABLISHED

The traditional residential neighborhoods in the *Established* area were developed from the late 19th to mid 20th century, and feature connected street grids linked with downtown. Sidewalks should be located on both sides of major streets; lesser streets may have limited facilities. Major corridors in this area may support a mix of residential and commercial uses. As corridors transition from residential to commercial, the original structures should be maintained and renovated whenever possible. Any new structures should respect the existing fabric of the neighborhood, through similar front, side, and rear setbacks.

## DEVELOPING

The *Developing* area is primarily residential consisting largely of single-family homes, although nodal commercial development should also be included to serve the needs of residents. Although the current street network has limited connectivity, new development should strive to increase connectivity within developments, to existing streets, and to adjacent undeveloped properties. Sidewalk facilities should be located along major roadways and along neighborhood streets. Commercial development in this area may range from small-scale neighborhood stores to larger retailers. Regardless of the size, pedestrian access should remain a priority.

## GREEN SPACE

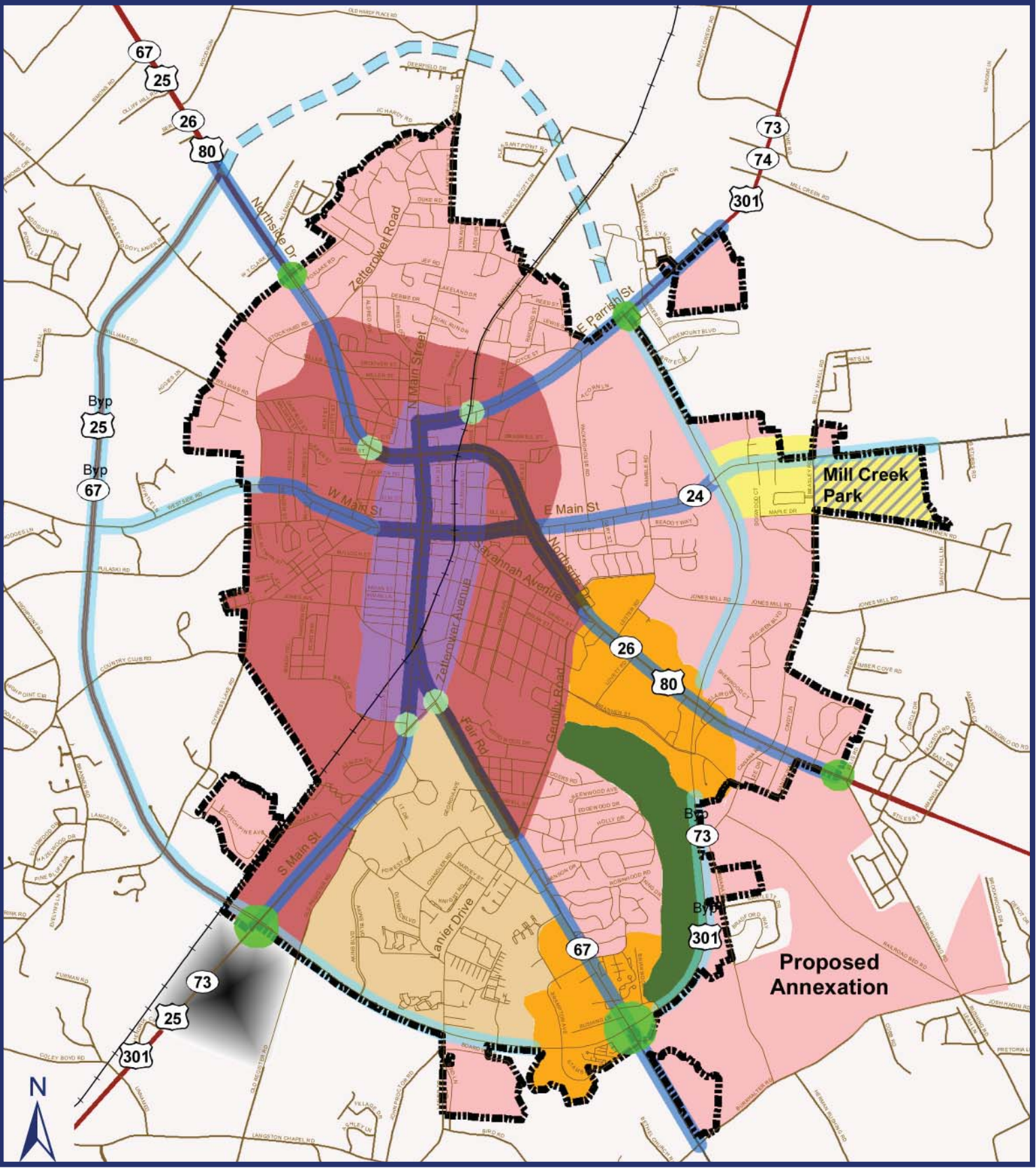
Large areas of *Green Space* will be conserved for active and passive recreation, as well protection of environmental sensitive areas, such as wetlands and floodplains.

## ACTIVITY CENTERS

Currently dominated by auto-oriented design and large surface parking lots, the *Activity Centers* will evolve into pedestrian-oriented shopping, office, and entertainment places that may also accommodate high-density residential development. Where excess parking is located, infill development can break up large surface lots. Tree plantings and landscaping will be generous to soften the development intensity in these areas. Access to these activity centers will be easily achieved for pedestrians, cyclists, and drivers alike.

## EMERGING ACTIVITY CENTERS

The *Emerging Activity Center* around Mill Creek Park and Splash in the 'Boro will be a family-oriented area, to include additional opportunities for restaurants, retail, and family entertainment. The area will evolve into a pedestrian-oriented environment to facilitate safety and accessibility for all ages. Future transportation alternatives will allow visitors to arrive by other options than just automobile.



## UNIVERSITY DISTRICT

The *University District* is anchored by Georgia Southern University, a traditional four-year college campus. Academic and administrative buildings, residence halls and dorms, student activity centers, cafeterias, performing arts venues, and ancillary buildings are found in the campus core, which is organized around an internal pedestrian circulation system. Pedestrian and bicycle connectivity within the campus is excellent. Parking lots are found along the periphery, allowing students, faculty and staff to park and walk to buildings and facilities in the core.

## EMERGING BUSINESS

The *Emerging Business* area will support the creation of an industrial park to also support office and business development opportunities. This area is ideally situated adjacent to the Veteran's Memorial By-pass, Highway 301, the rail line, and near Georgia Southern, Ogeechee Technical College, and the AgriBusiness Center. This business incubator center is well-positioned to coordinate with the College of Information Technology at Georgia Southern University.

## URBAN CORE GATEWAY

*Gateways* into the Urban Core should make it clear to residents and visitors that they are entering into the heart of the City and the central business district. Changes in the street design, streetscape elements, building types, and paving materials can all serve as gateway elements.

## CITY LIMIT GATEWAY

*Gateways* into Statesboro, which are primarily located on major arterials at their intersections with the by-pass, should make it clear to residents and visitors that they are entering into the incorporated area of the City through careful attention to development standards, signage, landscaping, and similar elements.

## URBAN CORRIDOR

*Urban Corridors* provide highly visible access to the most intensely developed properties in Statesboro. As connectors through and between downtown and the major activity centers, these corridors should place a high priority on pedestrian and bicycle accommodations. Transitions to Urban Corridors should serve as a gateway into the Statesboro Urban Core.

## TRANSITIONAL CORRIDOR

*Transitional Corridors* provide a gradient from the urban corridors into suburban commercial and predominately residential areas. Pedestrian and bicycle facilities remain important, but may be accommodated in less urban settings.

## ACCESS CORRIDOR

The primary purpose of the *Access Corridors* is to move traffic efficiently. In order to achieve this goal, access will be limited and properties will be served primarily through frontage roads and inter-parcel connectivity.

## [Hurricane Matthew strikes Bulloch - Statesboro Herald](#)

Storm kills 2, downs trees, causes widespread power outages



A cyclist makes his way along Bobby Donaldson Avenue past a large fallen tree on Elm Street Saturday as Statesboro and Bulloch County continue to deal with the aftermath of Hurricane Matthew. - photo by SCOTT BRYANT/staff

HOLLI DEAL SAXON

Updated: Oct 8, 2016, 9:40 PM

Two men were killed early Saturday morning as tropical storm-force winds from Hurricane Matthew ripped through Bulloch County, leaving a tangle of downed trees, fallen power lines and property damage.

Thousands were without power for most of the night, and work crews from Georgia Power and Excelsior EMC could take several days before power is fully restored in the area. As of 6:30 p.m., Saturday, Georgia Power was reporting 151 outages, affecting 11,263 customers in the Bulloch County area, while Excelsior reported 9,681 customers affected in Bulloch.

The unprecedented storm in Bulloch County also brought tragedy. Matthew Ward, 28, was killed when a tree fell on his truck on Burkhalter Road, said Bulloch County Deputy Coroner Richard Pylant. "He had just gotten married two weeks ago."

James Altman was killed when two trees fell on his Clay Road home, Pylant said. The elderly man was wheelchair bound, he said.

Bulloch County Correctional Institute work crews, sheriff's deputies, police officers and people from all other public safety agencies worked in the face of the brutal storm until around 2 a.m., when the danger forced them to take a break, said Bulloch County Sheriff's Chief Deputy Jared Akins.

"Trees were falling in front of and behind patrol cars. Trees and power lines were coming down while crews were c  
Everyone returned to clean-up efforts around daybreak clearing roads," he said.

"There are still a great deal of trees and power lines down," he said. "Deputies have been teamed up with the Bulloch County work camp (Correctional Institute) and those guys deserve all the credit in the world, as hard as they worked."

The worst of the storm rattled the area from 6 to 8 a.m., said Bulloch County Public Safety Director Ted Wynn.

"We had 55 to 60 miles per hour sustained winds, and 25 to 30 homes (significantly) damaged," he said.

Power outages affected most residents and businesses throughout the county. "Please be patient as workers try to restore power," Wynn said. The trees and fallen power lines will take time to clear, and while some had power restored Saturday, it could "take days" or longer before power is fully restored, he said



Bulloch County was drenched with more than five inches of rain, he said. In Brooklet, and southern areas of the county, eight inches or more fell in some places.

Statesboro police were busy as well, with extra shifts on duty, said Cpl. Jake Saxon. In spite of the vicious storm, routine calls poured in, as well as emergency calls due to the storm. "It blew my mind," he said.

Officers fielded complaint calls about fireworks and domestic disputes in addition to storm-related issues.

He asked residents to stay home, if possible, while clean-up efforts were done, and said to use caution at traffic lights that may not be working. Traffic laws require drivers to treat a non-functioning traffic light as a four-way stop.

"We have officers at the major intersections, but cannot man every one," he said.

Akins said the aftermath of Hurricane Matthew could take weeks to clear away.

"I have never seen (weather) like that," he said.

[Hurricane Matthew strikes Bulloch \(statesboroherald.com\)](http://statesboroherald.com)

Updated Oct. 8, 2016, 9:40 PM

City, county, BOE back stadium-centered TAD  
But agreements hinge on grocery store decision by Dec. 31



This rendering from the Old Register Road Redevelopment Plan shows the planned Tormenta soccer stadium complex from The Clubhouse parking lot. The "grocery store" shopping center would be beyond the stadium near Veterans Memorial Parkway.

Three local governing boards unanimously approved the Old Register TAD last week to fund road construction and other infrastructure projects required for the planned Tormenta FC soccer stadium and surrounding commercial development, including foremost a grocery store.

In fact, the intergovernmental agreement makes the whole thing contingent on the grocery store.

Statesboro City Council's vote the morning of Aug. 7 was key because the city is the "redevelopment agency" creating the TAD, or tax allocation district. But the Bulloch County Board of Commissioners later that day and the Board of Education on Thursday joined an intergovernmental agreement that also commits their property tax revenue gains in the district after Dec. 31 to public infrastructure for the project.

Centered on The Clubhouse family entertainment center and an area between it and Veterans Memorial Parkway where Tormenta's 5,000-seat pro soccer stadium complex is planned, the district will encompass almost 290 acres. Also envisioning businesses along the outside of the parkway from the Old Register Road intersection to a proposed extension of Akins Boulevard, the plan was presented as \$160.5 million in potential private investment in search of an estimated \$4.75 million in public spending, mostly for roads.

"We've got the support of the three taxing entities," South Georgia Tormenta FC President Darin Van Tassell said Thursday evening. "This sends a pretty clear signal to the grocery store group,

so there's that piece, as well as we now start preparing to develop the Old Register Road area. It's an exciting day for Statesboro."

He had just watched the Board of Education vote its 8-0 approval for the agreement.

Van Tassell and his wife, who own The Clubhouse, and at least eight other investors own the Tormenta franchise. This is the core of a larger group that owns the investment area proposed for the TAD, and which proposes most of the commercial development, including at least one and potentially two 110-bed hotels, some restaurants, a bank, a movie theater and some professional office spaces and loft apartments.



Darin Van Tassell

### **Regional grocer**

But an exception to the direct if partly visionary planning by the Tormenta group is the 41,000-square-foot grocery store and some smaller businesses in a shopping center proposed for the field south of Veterans Memorial Parkway and east of Old Register Road at their intersection. A "regional grocery store chain," as Van Tassell describes it, has contracted to buy the corner tract.

"I can tell you they have until the end of the year, but I think it will be sooner rather than later," he said Thursday when asked when there will be an announcement about the grocery store.

In fact, after Van Tassell described TAD-funded development of public roads as a necessary condition for the grocery store being built, the three elected boards made a decision by a grocery store company a requirement for the TAD's existence.

The intergovernmental agreement requires "commencement" of the grocery store project by Dec. 31 and defines this as the grocery store operator issuing "an approval letter indicating its intention to locate such grocery store within the Old Register TAD."

A further passage states that if that doesn't happen, the inclusion of county and school system property taxes in the TAD "shall automatically terminate and the City shall be obligated to dissolve, by resolution of the City, the Old Register TAD as of December 31, 2018."

Otherwise, that is the date the TAD increment funding would be established, based on property values at the end of 2018. Beginning Jan. 1, revenue gained from any new construction and rising appraisals in the district would be directed to the infrastructure projects there. But revenue from tax on the previously existing values would continue to go to the city, county and school board for their regular budgets.

Both Bulloch County Attorney Jeff Akins and Statesboro City Attorney Cain Smith confirmed Monday that the intergovernmental agreements make the TAD's existence dependent on the grocery store decision.

"We discussed it and everybody was agreeable to that provision," Akins said.

Smith said the county and the BOE would not have been on board without this provision but that he didn't recall there being any resistance to it from city officials, either.

### **Mostly for roads**

The TAD funding could be used for other public infrastructure needed for the project, such as water or sewer mains. But Van Tassell has estimated that 90 to 95 percent of the proposed public funding will be for road work. Some widening along Old Register Road is proposed. A new connector road, paralleling Veterans Memorial Parkway on the other side of the grocery store shopping center, is proposed to run from Old Register Road to an extension of Akins Boulevard.

Right now, Akins Boulevard is the main entrance to Georgia Southern University inside the parkway. The extension, to be funded by the university, would be on the other side of the parkway, where it would also lead to the university's proposed South Campus, currently accessed from Lanier Drive. The university has purchased property for the Akins extension and has recently been developing a connecting street in the style of the boulevard in the Aruba Avenue area.

The "bottom line is that public infrastructure improvement eventually has to be done anyway in order to conform with GSU's existing and ongoing extension of Aruba Avenue regardless of the funding source," Smith said Monday. "However, the issuance of TAD revenue bonds made possible by the inclusion of county and board increments allows the improvements to proceed much more quickly than they would have otherwise."

The TAD plan authorizes the city to issue tax allocation bonds or obtain loans to be repaid with the TAD funds, but limits the bond funds to public infrastructure spending in the defined district.

As added security, the agreements also provide that if TAD revenues fell short, the property owners within the same area could be assessed a "special service district" tax to repay the bonds. This would be a tax on the owners proposing the new development.



## **Wagner reassured**

When Van Tassell first presented the plan to the Board of Education, District 1 BOE member Cheri Wagner said she had researched the use of tax allocation districts elsewhere in Georgia and had concerns. She particularly questioned wording that appeared to allow any “additional revenue” to be used for other infrastructure projects.

But the agreements restrict the projects to those needed to support the proposed development in the district and call for the TAD to end as soon as the revenue it produces repays any debt for the infrastructure. After the school board’s attorneys helped draw up the agreement, Wagner supported the TAD.

“Mr. Van Tassell did a great job in showing how the money is going to come back, and taxpayer money is being utilized just to put in roads and infrastructure, and then the long-term return on it clearly will be a benefit,” Wagner said after Thursday’s meeting.

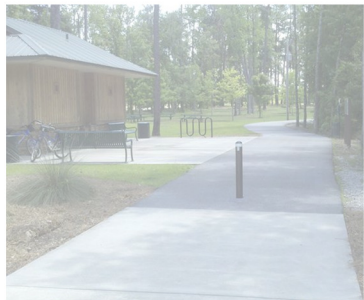
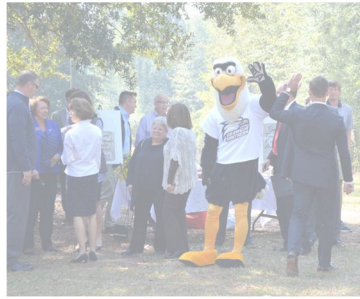
Van Tassell also told the board that, since the school system receives two cents in local sales tax on every dollar, it stands to gain more from the increased retail trade than it would temporarily give up in property taxes.

*Herald reporter Al Hackle may be reached at (912) 489-9458.*



# City of Statesboro Strategic Plan (5-Year)

2018 - 2023



## Acknowledgements

Statesboro City Council	Jan Moore, Mayor Phil Boyum, 1st District Sam Lee Jones, 2nd District Jeff Yawn, 3 <sup>rd</sup> District John Riggs, 4 <sup>th</sup> District Travis Chance, 5 <sup>th</sup> District
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Consultant Team	Amec Foster Wheeler Ross + Associates

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## Chapter 1. Introduction

### ■ What is a Strategic Plan?

A strategic plan is a tool used by community leaders to identify goals and supporting strategies that address local needs in the near term. The Statesboro Strategic Plan is intended to guide how elected officials and staff allocate financial and personnel resources over the next 5 years to meet the City's mission:



The provision of public services requires local investment in physical infrastructure and city personnel. This plan assesses the City's financial ability to make these investments and provides recommendations to augment current funding sources.

The Strategic Plan is intended to be used in developing annual updates to the six-year Capital Improvements Program (CIP). The CIP is included in the annual budget document and lists projects that cost a minimum of \$5,000 and have a useful life of at least two years. The first year of a project is included in the CIP for the given fiscal year, and the other five years are included for planning purposes. In addition, this plan recommends additional potential revenue sources for the General Fund, which is the principal fund

of the City and accounts for its normal recurring activities (i.e. public safety, general government, engineering, community development, finance, and public works).

### ■ Planning Process

This plan was developed with input from the public as well as Statesboro officials and staff. A community survey received 569 responses (see Chapter 3 for summary findings), and four public meetings provided opportunities for residents to share their opinions about public service delivery. Interviews with city staff and officials provided detailed information about existing departmental projects and needs as well as available funding sources. A review of existing plans provided additional understanding of local goals and initiatives (see Chapter 2).

Input from these varied sources helped identify the most pressing needs with respect to providing public services and was used to craft a set of goals and strategies Analysis of the city's budget and tax structure, as well as research of financing mechanisms, resulted in a set of funding alternatives that potentially provide additional sources of revenue to fund city services and capital projects. (See Chapter 5).

**Citywide Strategic Plan Public Input Meetings And Survey**

**We Want to Hear From YOU!**

The City of Statesboro will conduct four (4) public-input meetings. We want to hear your opinion! The Public Input Meetings will be held on the following dates and times:

Date	Time	Location	Address
April 24, 2017	1:30 P.M. – 3:30 P.M.	Pittman Park United Methodist Church	1102 Fair Road, Statesboro, GA 30458
April 24, 2017	5:30 P.M. – 7:30 P.M.	Bulloch County Board of Education	150 Williams Road, Statesboro, GA 30458
April 27, 2017	11:00 A.M. – 1:00 P.M.	GSU Campus Russell Union Ballroom	85 Georgia Ave., Statesboro, GA 30458
May 13, 2017	10:00 A.M. – 1:00 P.M.	Joe Brannen Hall	58-A East Main Street, Statesboro, GA 30458

Please participate in the City's Strategic Plan public input meetings and survey. Go to [www.statesboroga.gov](http://www.statesboroga.gov) to complete the survey online or call 764-0630 for more information.

**City of Statesboro**  
 Department of Planning & Development  
 50 East Main Street  
 Statesboro, GA 30458

Phone: 912-764-0630  
 Fax: 912-764-0664  
 E-mail: [planning.development@statesboroga.gov](mailto:planning.development@statesboroga.gov)



## Chapter 2. Existing Conditions

For strategic planning purposes, the existing conditions, or status quo, refers to the present circumstances that are significant for strategic purposes. In a broad sense, with respect to the City of Statesboro present conditions and outlook, this is described in terms of relative present economic/financial circumstances and the status of City plans and programs for progress and investment.

### ■ Economic Snapshot

An economic snapshot, as the term suggests, is a 'quick look' at the present economic picture. Just as a snapshot photo captures some detail about everything in the view frame but does not zoom in on any particular feature to the exclusion of others, this economic snapshot provides an overview of many key economic and financial factors, but does not portend to be a comprehensive analysis of any one of them.

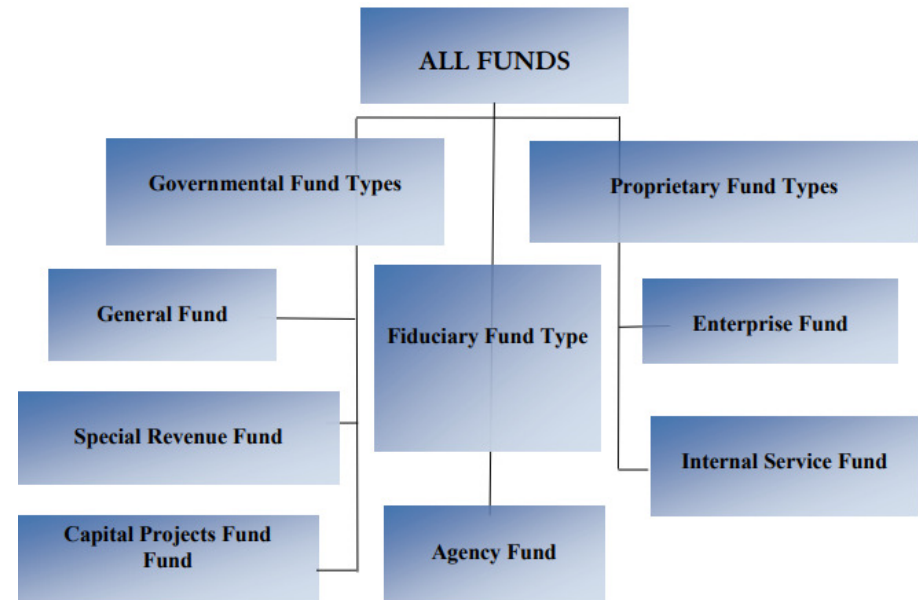
Included information specific to City of Statesboro public finances are summary overviews of revenue sources and the tax base structure; this includes a comparative analysis involving selected similar communities.

### Revenue Sources & Tax Base Structure

There are a variety of sources that make up the full picture of City of Statesboro public finance revenues. Each source has associated limitations and opportunities. The following revenue sources snapshot provides summary analysis and description of the status of

primary revenue sources that contribute to public service delivery, with indication of associated impacts.

Specifically, discussion in this section will focus on revenue sources for the General Fund, as shown in Statesboro's fund structure below<sup>1</sup>, and for the Capital Improvements Program (CIP).



The General Fund is used to account for all city activities not included in other specified funds. It is the primary fund for day-to-day operations, as listed in Chapter 1. The CIP includes infrastructure improvements and is largely financed by either of two methods, or a combination thereof: 1) "pay as you go" with existing operating funds (e.g. general obligation bonds, revenue bonds, capital outlay notes, Georgia Environmental Finance Authority

<sup>1</sup> The Capital Projects Fund represents financial resources available for the acquisition or construction of major capital facilities other than those financed by enterprise operations (i.e. the six Enterprise Funds: Water and Sewer Fund, Reclaimed Water Fund, Stormwater Fund, Natural Gas Fund, Solid Waste Collection Fund, and

the Solid Waste Disposal Fund). It is comprised of funds transferred from the General Fund, federal and state grants, and the Georgia Municipal Association (GMA) lease pool loans. The Capital Projects Fund represents approximately 4% of the CIP's FY2018 revenue sources.

[GEFA] loans, the Georgia Municipal Association [GMA] Equipment Lease Pool, or lease/purchase agreement) or 2) Special Purpose Local Option Sales Taxes (SPLOST).

## Property Taxes

Property taxes are the revenue source most commonly associated with local government. The City anticipates a total of \$4.833 million to be collected in property taxes, which is the single largest source of tax revenue and equates to approximately 50% of all taxes anticipated (\$9.75 million) for the General Fund.

What is referred to as the Maintenance and Operations (M&O) tax base is comprised of the various types of capital assets (land, buildings, vehicles and equipment). A city's property taxes are levied on the value of this tax base each year. With few exceptions, the values against which a property tax is levied represents 40% of the actual market value of the assets. In many cases, the assessment on a particular property may be reduced by one or more exemptions the locality has adopted, such as for an owner-occupant of a residence (a homestead exemption); the types of exemptions and the amounts vary from locality to another.

Inflation has taken its toll on City tax revenues over the past decade. In summary:

- Prior to September 2017, the City had not raised the property tax millage rate since 2007<sup>2</sup>. (Note: the recession began with the housing collapse in late 2007-early 2008.)
- When inflation is considered, the potential property tax revenue in 2017 is less than \$400,000 more than in 2007 (in 2017 dollars).
- For most years during the past decade, in order for the City to have produced the same potential tax revenue as in 2007 (\$4,438,734 in 2017 dollars), the required millage rate

would have exceeded 7 mills (compared to actual 6.358 mills during the decade).

- Inflation has eaten away at the City's property tax revenue, as the cost of materials, equipment and personal support services has risen. This suggests that salaries have also fallen behind.

## Effect of Inflation on Property Tax Revenue

City of Statesboro

	M&O Tax Base			Effect of Inflation		
	Assessed Value*	Millage Rate	Potential Revenue	CPI Multiplier	Value in 2017 \$	Millage to = 2007 PV
2000	\$ 324,315,934	9.200	\$ 2,983,707	1.42	\$ 4,236,863	
2001	\$ 388,630,837	7.750	\$ 3,011,889	1.38	\$ 4,156,407	
2002	\$ 395,363,758	7.750	\$ 3,064,069	1.36	\$ 4,167,134	
2003	\$ 415,775,715	7.741	\$ 3,218,520	1.33	\$ 4,280,631	
2004	\$ 473,247,527	6.921	\$ 3,275,346	1.30	\$ 4,257,950	
2005	\$ 477,790,114	6.921	\$ 3,306,785	1.24	\$ 4,100,414	
2006	\$ 497,826,303	6.921	\$ 3,445,456	1.22	\$ 4,203,456	
2007	\$ 591,638,676	6.358	\$ 3,761,639	1.18	\$ 4,438,734	7.502
2008	\$ 617,691,073	6.358	\$ 3,927,280	1.13	\$ 4,437,826	7.187
2009	\$ 628,697,081	6.358	\$ 3,997,256	1.14	\$ 4,556,872	7.060
2010	\$ 613,263,797	6.358	\$ 3,899,131	1.13	\$ 4,406,018	7.238
2011	\$ 606,125,908	6.358	\$ 3,853,749	1.09	\$ 4,200,586	7.323
2012	\$ 590,029,278	6.358	\$ 3,751,406	1.07	\$ 4,014,004	7.523
2013	\$ 617,896,797	6.358	\$ 3,928,587	1.05	\$ 4,125,016	7.184
2014	\$ 646,382,000	6.358	\$ 4,109,697	1.04	\$ 4,274,085	6.867
2015	\$ 644,115,908	6.358	\$ 4,095,543	1.04	\$ 4,259,365	6.891
2016	\$ 653,201,157	6.358	\$ 4,153,052	1.02	\$ 4,236,113	6.795
2017	\$ 661,372,254	7.308	\$ 4,833,308	1.00	\$ 4,833,308	6.711
* 40% of fair market value.						

Comparisons to other cities provide some perspective. The following three cities were selected for comparison to Statesboro: Dublin, Carrollton and Pooler.

consistent with the City's operating budget policies, which state a property tax increase should be used only for the purchase of additional capital improvements or to increase needed personnel.

<sup>2</sup> A 1-mil increase, from 6.358 to 7.308 mills, was approved on September 5, 2017 to provide the ability to increase police salaries for recruitment/retention purposes. There are currently several vacancies in the Police Department. This increase is

## Millage Rate Comparison with Other Cities

	Population	Tax Base (2016)	2016 Millage	2017 Millage
Statesboro	31,419	\$653,201,157	6.358	7.308
Dublin	16,104	\$459,635,887	6.540	6.540
Carrollton	26,562	\$881,467,588	4.620	4.600
Pooler	23,744	\$1,194,554,989	3.909	3.909*

Dublin and Pooler are both accessible directly from I-16, but located well to the west and east from Statesboro, respectively. Dublin is the smallest of the four cities and has a property tax rate similar to Statesboro, which is applied against a smaller tax base.

Pooler is a bit closer in population to Statesboro than Dublin but, being within the economic activity zone of Savannah and Chatham County, has a considerably higher tax base value which keeps its millage rate much lower than in the other three cities.

Carrollton is somewhat similar to Statesboro in that it is an economic center to its surrounding counties, it is host to several State educational institutions (University of West Georgia and West Central Tech) and is located about 13 miles from I-20 via SR 166 (compared to Statesboro's 12 miles via US 301).

Carrollton is the closest of the examples to Statesboro in population, but has a lower millage rate against its tax base (which is a third larger than Statesboro).

Further comparison between Statesboro and Carrollton underscores the impact of not having a **Local Option Sales Tax (LOST)** at the municipal level. The LOST is an optional 1% sales tax activated by a local referendum and imposed on the purchase, sale, rental, storage, use, or consumption of tangible personal property and related services. State law creates 159 special districts in Georgia for the purpose of levying a LOST. The boundaries of the special districts are the same as the boundaries of the 159 counties in Georgia. Five counties (Cobb, Cherokee, DeKalb, Gwinnett, and Rockdale) do not have a LOST. Bulloch County is one of seven counties (the others are Chattooga, Colquitt, Habersham, Houston,

Mitchell, and Rabun) that have a constitutional LOST designated for educational purposes. LOST distributions go directly to the boards of education in each county and are not subject to renegotiation.

The following table shows the benefit of the LOST in Carrollton. Total LOST collections are nearly equal the amount of ad valorem tax revenue for the city. Removing LOST proceeds would therefore nearly double Carrollton's millage rate. This "effective millage rate" is approximately 20% higher than Statesboro's 2017 millage rate.

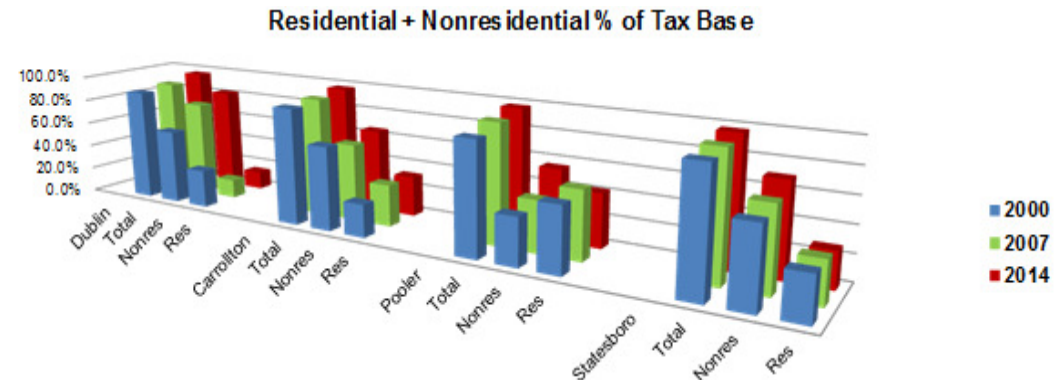
## Effect of LOST on Millage Rate

2017 Estimated:	Statesboro	Carrollton*
Annual Ad Valorem Tax	\$4,833,308	\$4,350,000
Annual LOST	\$0	\$3,935,000
Annual Property Tax + LOST	\$4,833,308	\$8,285,000
Actual Millage Rate	7.308	4.620
Effective Millage Rate	7.308	8.761

\*Based on City of Carrollton FY 2017-2018 Operating Budget

## Tax Base Comparison with Other Cities

In 2016, residential and nonresidential properties accounted for 97% to 98% of the total M&O tax base in all of the four cities. The split between these use categories, however, varied considerably (primarily reflecting the differing economies of each city). The following chart provides an illustration of those differences.



As can be seen on the chart above, in every city except Carrollton, the residential property tax base makes up an ever decreasing share of the total tax base, with growth in the nonresidential sector making up the difference as each city's tax base has increased overall. In Carrollton, the residential tax base doubled between 2000 and 2016 (up 104%) and increased its proportion of the total tax base. Nonresidential uses maintained a steady proportion of the total tax base while actually growing by 65% in value.

In Statesboro, the proportion of potential tax revenue by land use has shifted notably. The M&O Tax Base table on this page summarizes the M&O tax base by general use category for 2000, 2007 (when the tax rate became "fixed") and 2016 (the latest year for which information is available from the Georgia Department of Revenue).

The Change in Residential Tax Base table and chart on the next page illustrate how the residential tax base has diminished over the years, decreasing from 33.2% of the total in 2000 to 27.4% in 2016. At the same time, the nonresidential tax base has increased from 59.0% to 70.1% over the same period.

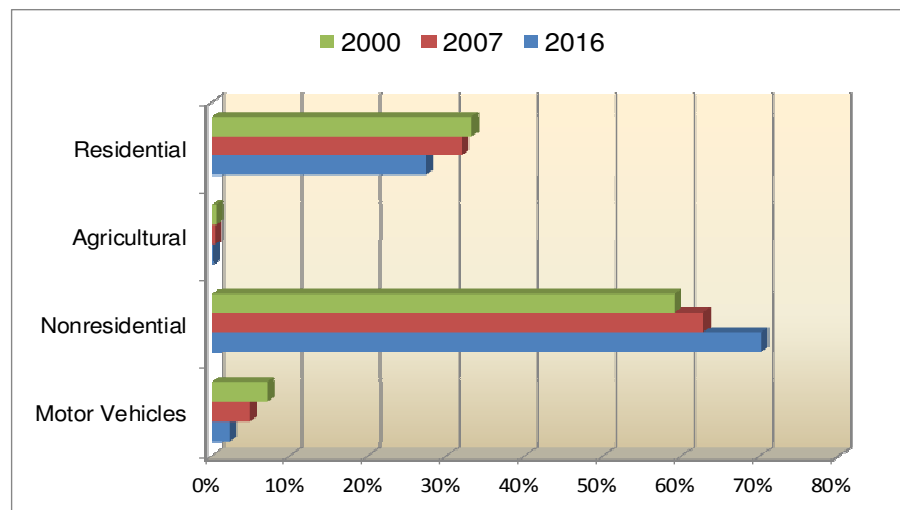
Nonetheless, the property tax returns have been eroding in value because of inflation. Put another way, a dollar in revenue in 2007 is worth only 84¢ today. The status quo of property taxes is a significant challenge for Statesboro.

## Statesboro M&O Tax Base

Type of Property	M&O Tax Base		
	2000	2007	2016
Residential	\$ 133,676,762	\$ 192,623,437	\$ 173,257,587
Residential Transitiona	\$ 124,270	\$ 120,480	\$ -
Historical	\$ 213,320	\$ -	\$ -
Mobile Home	\$ 692,430	\$ 643,051	\$ 315,487
Less: Exemptions	\$ (5,733,874)	\$ (4,484,116)	\$ (7,034,831)
Residential Uses	\$ 128,972,908	\$ 188,902,852	\$ 166,538,243
Agricultural	\$ 1,244,400	\$ 879,840	\$ 790,186
Conservation Use	\$ 1,314,600	\$ 1,688,920	\$ 546,033
Agricultural Uses	\$ 2,559,000	\$ 2,568,760	\$ 1,336,219
Commercial	\$ 206,049,148	\$ 349,207,061	\$ 395,342,144
Industrial	\$ 9,359,213	\$ 5,998,633	\$ 16,756,554
Utility	\$ 13,981,230	\$ 15,879,960	\$ 14,782,713
Heavy Equipment	\$ 3,448	\$ -	\$ 11,031
Nonresidential Uses	\$ 229,393,039	\$ 371,085,654	\$ 426,892,442
Motor Vehicles	\$ 27,705,890	\$ 29,081,410	\$ 14,082,510
Total M&O Digest	\$ 388,630,837	\$ 591,638,676	\$ 608,849,414

## Change in Statesboro Residential Tax Base

	Percent of M&O Tax Base			
	Residential	Agricultural	Nonresidential	Motor Vehicles
2000	33.2%	0.7%	59.0%	7.1%
2007	31.9%	0.4%	62.7%	4.9%
2016	27.4%	0.2%	70.1%	2.3%



## SPLOST

The 1% Special Purpose Local Option Sales Tax (SPLOST) is an important funding source for capital projects. Additionally, SPLOST alleviates some of the burden on the General Fund, keeping more General Fund revenues available to address the many city services that SPLOST cannot fund in accordance with state law.

The current City/County 2013 SPLOST is being used by Statesboro to fund the following project types: street and drainage projects, public safety facilities and equipment, facility improvements, water

and wastewater projects, natural gas projects, solid waste handling equipment, economic development, and joint city/county solid waste disposal.

The current SPLOST is scheduled to expire by November 2019, requiring a public referendum in November 2018 to approve a continuation of the 1% tax. In the event that a TSPLOST is also up for consideration (discussed in Chapter 5), any transportation projects can be reduced or moved out of the SPLOST project listing for the next authorization, increasing the focus on other project categories.

Fifty-two percent (52%) of funding for the City's full 2018-2023 CIP is protected to come from SPLOST proceeds, based on the 2013 SPLOST (\$8,809,800) and possible 2019 SPLOST proceeds (\$10,417,830). SPLOST is primarily identified as a funding source for transportation improvements (street maintenance, intersection improvements, sidewalks, streetscape improvements), fire and police apparatus/equipment, and sewer upgrades.

For FY 2018, the City's budget anticipates SPLOST proceeds of \$4.6 million, while the County has budgeted \$4.9 million. An analysis of the State's point of sale reports should be examined to consider an equitable distribution between the City, the County and other eligible cities in the county.

## ■ Previous Plans & Studies

The following section highlights previous plans that have been undertaken to address a variety of community needs, ranging from transportation infrastructure to parks. The plans' recommendations should continue to inform the annual budgeting process, although changing local conditions or priorities, or the age of the plans, may warrant updates. In addition, funding constraints have limited the City's ability to fully implement these plans. This section describes the intent of each plan and, where available, provides the estimated costs associated with recommended projects.



## Capital Improvements Program (FY2018-FY2023)

As described in the City's annual budget (and the previous section), the "City adopts a Capital Improvements Program (CIP) for six years. The first year's project is included in the FY 2018 Budget. The other five years are included for planning purposes. Their priorities can be changed in future updates of this program. The CIP is updated on an annual basis, so that the benefits of long-range planning can be obtained while having the flexibility to adjust to unforeseen circumstances or opportunities."

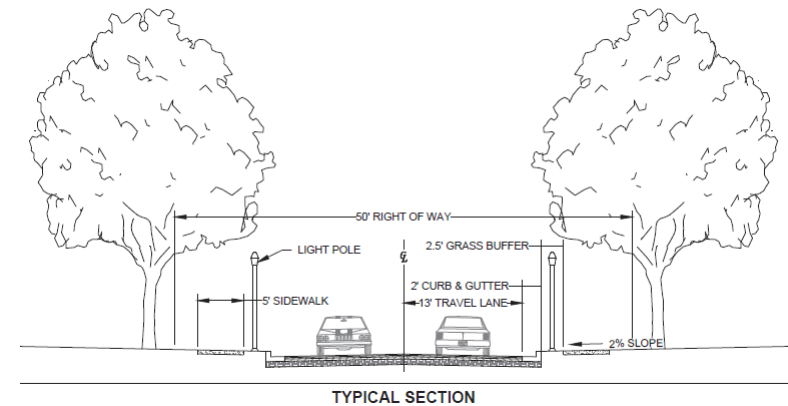
The CIP includes capital projects (defined as having a service life of at least two years and a minimum cost of \$5,000) for the following departments: Engineering, Fire, Police, Public Works (Fleet Management, Parks & Trees, and Solid Waste), Solid Waste, Water and Wastewater, and Natural Gas.

Funding sources in the FY2018-FY2023 CIP are listed as: Operating Income (27% of total funds over the six years), Aid to Construction (ATC) Fees for Wastewater Treatment Plant (5%), 2013 SPLOST Proceeds (24%), Possible 2019 SPLOST Proceeds (28%), General Fund Capital Improvements Program (2%), Contributed Capital: GDOT/GSU (7%), Private Capital (1%), and GMA Lease Pool (7%).

SPLOST proceeds combined (assuming approval of a continuation of SPLOST beginning in 2019) total over half of the six-year CIP, with a focus on funding transportation and sewer infrastructure and police/fire equipment needs.

The CIP includes South Main Street (Blue Mile) infrastructure improvements (\$350,000 for water/sewer, \$450,000 from DOT, \$150,000 local match and \$1million from the ABC Award), and the **West Main Streetscape** (\$760,000); a typical section is shown at right. Park and recreation projects are limited to Edgewood Park Improvements (\$35,000), Marvin Avenue Park Renovations (\$35,000) and McTell Trail Addition (\$50,000), with funding for the parks coming from the General Fund.

### Concept for West Main Streetscape



## Comprehensive Plan (2014 update)

The City of Statesboro Comprehensive Master Plan is a 2014 update to the 2009 plan that addresses long-term growth and development needs. The plan includes community goals and a five-year implementation program that address the following topics: Economic Development, Infrastructure and Community Facilities, Land Use, Population Growth, Housing, Public Safety, Intergovernmental Coordination, Fiscal Stewardship and Government Administration., and Quality of Life.

Recommended projects include infrastructure projects (transportation, water/sewer, natural gas, stormwater management) estimated at a cost of \$17 million, to be funded by SPLOST. Another \$8.2 million in economic development and infrastructure (including fiber optics) projects are recommended, with the City identified as the funding source.



### Goals from 2014 Comprehensive Plan Update



### Parks and Recreation Master Plan (2010 update)

The Statesboro-Bulloch County Comprehensive Parks and Recreation Master Plan updates the 2000 plan. Project recommendations include \$17.7 million in improvement projects for Fletcher, Grady Mill, Luetta Moore, Memorial, and Mill Creek Parks, as well as \$6.5

million to complete the S&S Greenway. SPLOST is identified as the primary funding source.

The Statesboro Parks Division is responsible for maintenance of the Eastside Cemetery, McTell Trail, Rev. Julius Abraham Trail, Triangle Park, Renaissance Park, Edgewood Park, City owned green-spaces, City facility grounds, and trees and other plantings in traffic islands. Cemetery lot sales are handled by the City Engineer's Office. The Parks Division operating budget is within the General Fund. Capital projects are in the CIP and potentially the SPLOST Fund, however parks and recreation is not listed in the project categories to receive 2013 SPLOST allocations. As mentioned on the previous page, the current CIP identifies \$120,000 in improvements for Edgewood Park, Marvin Avenue Park and McTell Trail. Another \$25,000 is listed for cemetery improvements.

### Long Range Transportation Plan (2009 update)

The Statesboro/Bulloch County 2035 Long Range Transportation Plan (LRTP) identifies existing and future transportation challenges for the multi-modal transportation system (roadways, bridges, bicycle and pedestrian facilities, freight, rail, and airports), followed by a list of prioritized projects for implementation.

Recommended projects in Statesboro include bridge improvements (estimated cost of \$400,000), intersection improvements (\$5 million total), railroad crossing improvements (\$466,000), and bike/pedestrian facility improvements (\$15.5 million). 'Bike/ped' recommendations include sidewalks, bike lanes/shoulders/sharrows, and multi-use trails (including the S&S Greenway, at \$2.8 million).

The LRTP indicates funding for most transportation projects in the County has historically come in part through GDOT, with SPLOST referenda increasingly being used to fund projects, including matching federal and/or state transportation funds.

Each year, GDOT develops its State Transportation Improvement Program (STIP), a listing of all projects and project phases anticipated to be funded with federal and state funds within the current three-year period. The FY 2015-2018 STIP includes one specific project in Statesboro: \$265,000 in federal funds for a railroad crossing warning device at Zetterower Avenue.

### **The Blue Mile America's Best Communities Application (2015)**

In April 2017, the Averitt Center was awarded \$1,000,000 in the America's Best Communities competition, which will be used to implement recommended streetscape improvements along the Blue Mile corridor. The Blue Mile Foundation, Inc. will manage the funds for implementation of Blue Mile initiatives.

## Chapter 3. Community Priorities

Public input into the strategic planning process was derived from several opportunities for direct public involvement as well as via an extensive web-based public opinion questionnaire and through a related youth outreach/involvement effort. Strategic planning public meetings were held on April 24, April 27, and May 13 in different locations around Statesboro. At each meeting, participants were informed about current/ongoing City improvement initiatives and the purpose of strategic planning. Each participant was encouraged to complete an opinion questionnaire, and participant responses were compiled along with all other questionnaire responses. In all, 569 respondents completed questionnaires, and all results have been tabulated together. Additionally, the results from the recent YOUTH Say it Loud Statesboro effort (April 26, 2017), facilitated by the UGA Carl Vinson Institute of Government, have been factored into public input.

These recent community involvement and input efforts are complementary to the many public involvement efforts from recent years associated with City of Statesboro planning initiatives (see also Chapter 2). There is value in all prior community planning efforts, and their results and recommendations should be repeatedly reviewed in the ongoing process of identifying and addressing community priorities.

### ■ Survey Summary

#### General Statesboro Community

The 569 respondents who participated in the Strategic Plan Opinion Questionnaire were not chosen based on a random sample of Statesboro residents, but rather were those who responded to the process either through attending a public meeting, finding the questionnaire as a result of local news advertisement, or otherwise

became aware of the questionnaire (e.g. through City website, email distribution, etc.). They represent a broad range in terms of age, location of residence and family status. Age ranges by percentages of respondents are as follows (in descending order of magnitude):

Aged 35-44: 23%

Aged 45-54: 23%

Aged 25-34: 21%

Aged 55-64: 19%

Aged 65-69: 5%

Aged 18-24: 4%

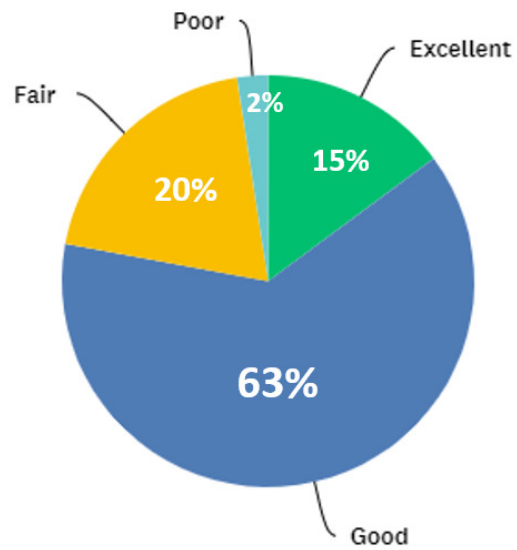
Aged 70-99: 3%

Aged 01-18: 2%

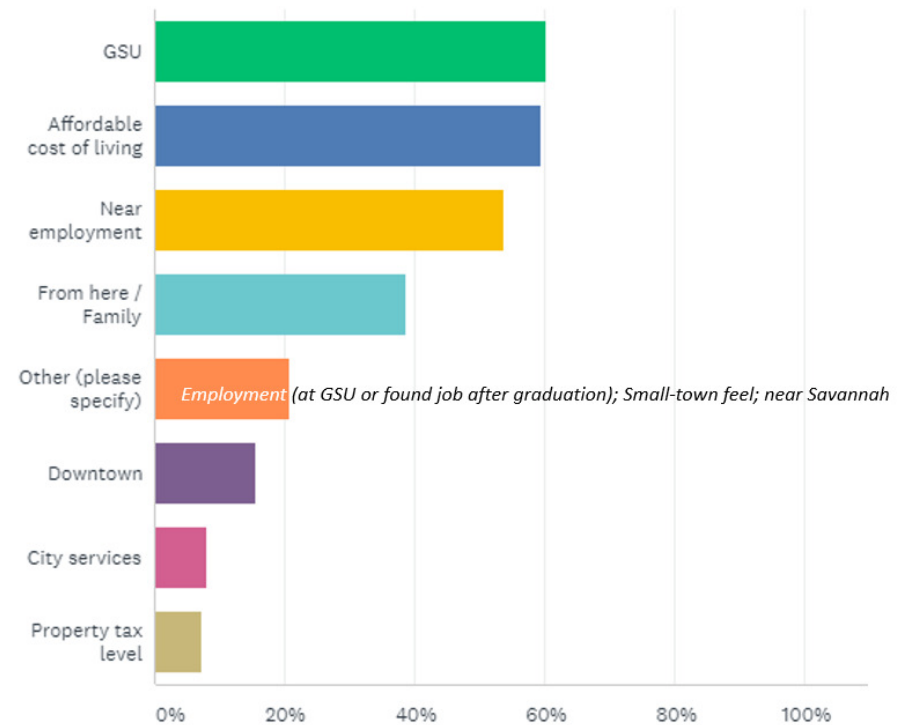
Though not a representation that is consistent with the overall age categories in the population, the results do have a relatively even balance of opinion from the entire (traditionally-considered) working age population, age range 25-64, which crosses multiple generations. Additionally, 37% of respondents indicated they live in households with children living in the home. Geographically, 55% indicate they are year-round city residents, 39% indicate they live in unincorporated Bulloch County, 4% live elsewhere and 2% attend Georgia Southern University.

In broad consideration, responses suggest that respondents feel good about the **general quality of life in Statesboro**, are attracted by the **community's small town feel**, and strongly value the **higher education assets in the community**. On the flip side, respondents express **public safety concerns** to a significant degree, and **desires for community development and growth that is well planned and contributing to better balance, diversity and more options** (e.g. for employment, retail, cultural offerings). Additional details about overall community summary findings are described in the following charts and tables.

General quality of life is....



I choose to live or work here because...



## The one thing I like best\*...

<ul style="list-style-type: none"> <li>• Small town feel</li> </ul>	16%
<ul style="list-style-type: none"> <li>• GSU/College sports</li> <li>• The community/people</li> <li>• Cultural activities and opportunities/community events</li> <li>• Stores/restaurants</li> <li>• Little traffic</li> <li>• Location</li> <li>• Safe/low crime</li> <li>• Size</li> </ul>	5%-9%
<ul style="list-style-type: none"> <li>• Easy to get around</li> <li>• Not too small but not too big</li> <li>• Cost of living</li> <li>• Rate of growth</li> <li>• Downtown area</li> <li>• Great place to raise a family</li> <li>• Farmers Market</li> <li>• It's home</li> <li>• Public services (Police, Fire, Public Works, Parks and Rec, etc.)</li> <li>• Weather</li> <li>• The environment</li> <li>• Partnership between community and GSU</li> <li>• Quiet</li> <li>• Diversity</li> <li>• My job</li> <li>• Clean</li> <li>• Mill Creek Park</li> </ul>	1%-4%

\*Open-ended responses

The greatest asset is\*...

• GSU/Higher levels of education	48%
• The people	15%
• The community	5%
<ul style="list-style-type: none"> <li>• Small town feel with amenities</li> <li>• Public Works /Police/Fire/Parks and Rec/City Council</li> <li>• Location</li> <li>• Mill Creek Park</li> <li>• The Averitt Center</li> <li>• Diverse activities/community events</li> <li>• Shopping/Restaurants</li> <li>• Parks/greenspace/trails</li> <li>• Downtown</li> <li>• Growth/growth potential</li> <li>• Diversity</li> <li>• Farmers Market</li> <li>• Splash in the Boro</li> <li>• Safe</li> <li>• Size</li> <li>• Weather</li> <li>• Quality of Life</li> <li>• Cost of living</li> </ul>	1%-4%

\* Open-ended responses



I am most concerned about\* ...

<ul style="list-style-type: none"> <li>• Crime/drugs</li> </ul>	20%
<ul style="list-style-type: none"> <li>• Blight, overgrown grass and empty businesses</li> <li>• Insufficient diversity/inclusiveness</li> <li>• Need for retail and entertainment options, shops and restaurants (not only chains)</li> <li>• No quality grocery store</li> <li>• Poorly managed growth</li> <li>• The appearance of a disconnect between City priorities and residents' priorities</li> <li>• Walkability and pedestrian safety (lack of sidewalks, bike paths, trails, etc.)</li> </ul>	5%-7%
<ul style="list-style-type: none"> <li>• Traffic</li> <li>• Need for higher wages</li> <li>• Not enough public parks and/or greenspace</li> <li>• Downtown needs to be more family friendly/vibrant</li> <li>• Poverty</li> <li>• Lack of communication between community and GSU</li> <li>• Road/traffic infrastructure maintenance</li> <li>• Lack of sustainability initiatives and incentives (no recycling)</li> <li>• Lack of quality jobs</li> <li>• Quick turnover on businesses</li> <li>• Code enforcement/zoning violations</li> <li>• Driving safety (people speeding, running red lights, etc.)</li> <li>• No public transportation</li> <li>• Public schools</li> <li>• Alcohol sales restrictions</li> <li>• Poor money management</li> <li>• Lack of affordable housing</li> <li>• Crowded</li> <li>• Lack of funding for improvements</li> <li>• Cost of living rising</li> </ul>	1%-4%

\* Open-ended responses

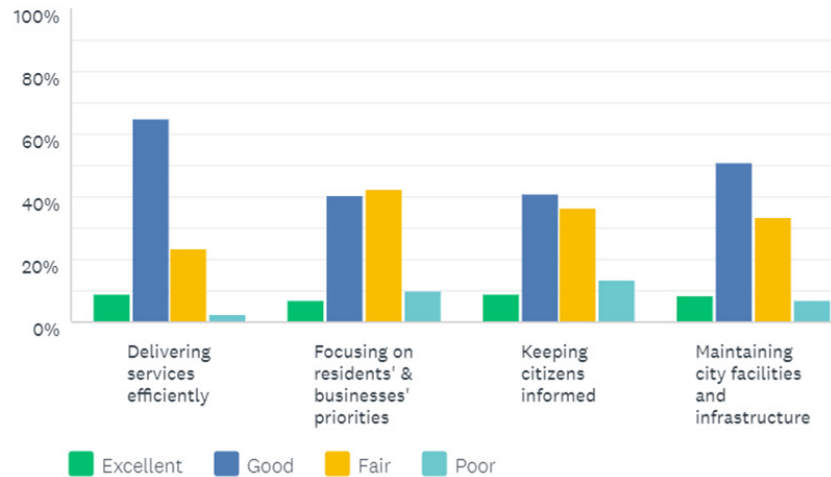
The greatest challenge is\*...

• Crime/drugs	11%
• Growth rate/growth management (small town feel while still growing)	10%
• Finding a balance between college life and family friendly (vibrant community for all)	9%
<ul style="list-style-type: none"> <li>• Lack of diverse shopping (grocery, restaurants, business)</li> <li>• Lack of diversity and culture/not progressive</li> <li>• Keeping/attracting businesses</li> <li>• Traffic</li> <li>• Lack of quality jobs</li> <li>• Need for responsive and visionary leadership</li> </ul>	5%-7%
<ul style="list-style-type: none"> <li>• Revitalization of downtown</li> <li>• Lack of investment/infrastructure</li> <li>• Poverty</li> <li>• Improving blighted areas</li> <li>• Affordable housing for all</li> <li>• Increase in wages</li> <li>• Funding for infrastructure and projects</li> <li>• Retaining police officers</li> <li>• Pedestrian safety</li> <li>• How to get GSU students to stay after graduation</li> <li>• Lack of sustainability practices</li> <li>• Lack of parks, greenspace and trails</li> <li>• Revitalizing Blue Mile project</li> <li>• Communication between GSU and community</li> <li>• Public transportation</li> <li>• Proximity to larger metro areas</li> <li>• Cost of living</li> <li>• Poor healthcare</li> <li>• Outdated alcohol restrictions</li> <li>• Public schools</li> </ul>	1%-4%

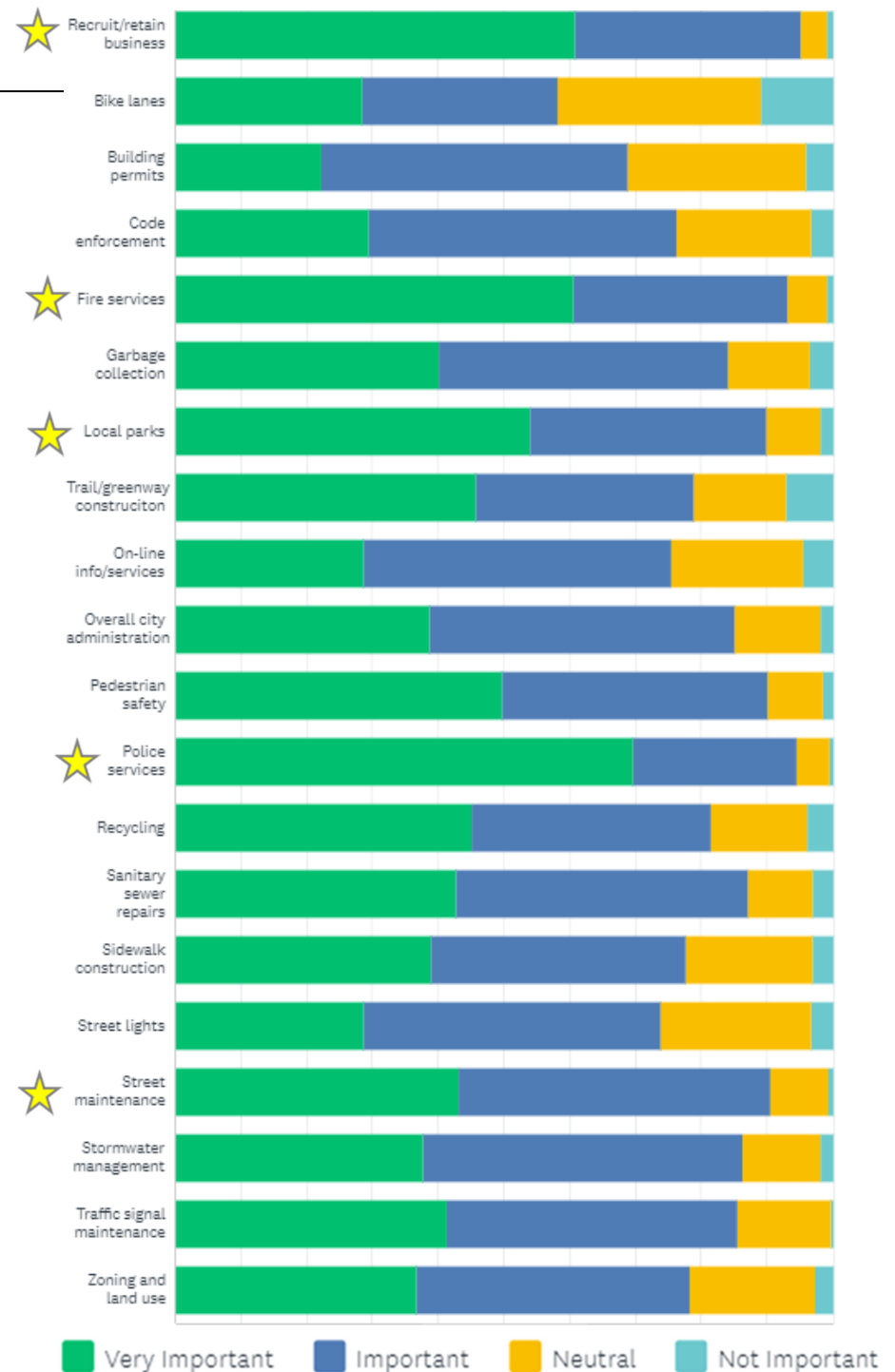
\* Open-ended responses

## City of Statesboro Services and Priorities

Beyond general community opinion, the questionnaire posed questions focused specifically on City of Statesboro services and priorities. In broad overview, respondents indicated that the **City is doing a "good" job delivering services efficiently**. The **response is more "good" to "fair"** to the questions of **how well the City is addressing the priorities of residents and businesses, how well citizens are being kept informed, and how well infrastructure and facilities are being maintained**. In none of these areas did a high percentage of respondents indicate that the City was doing either an "excellent" job or a "poor" job.

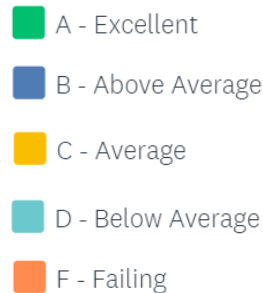


Opinions about specific City services were explored through a pairing of questions that explored the relative importance of most City services, then the grade (A through F) that respondents would assign to each of the same City services. **The top five most important services (or functions, in some cases) are Police, Fire, Business Recruitment/Retention, Local Parks and Street Maintenance.**



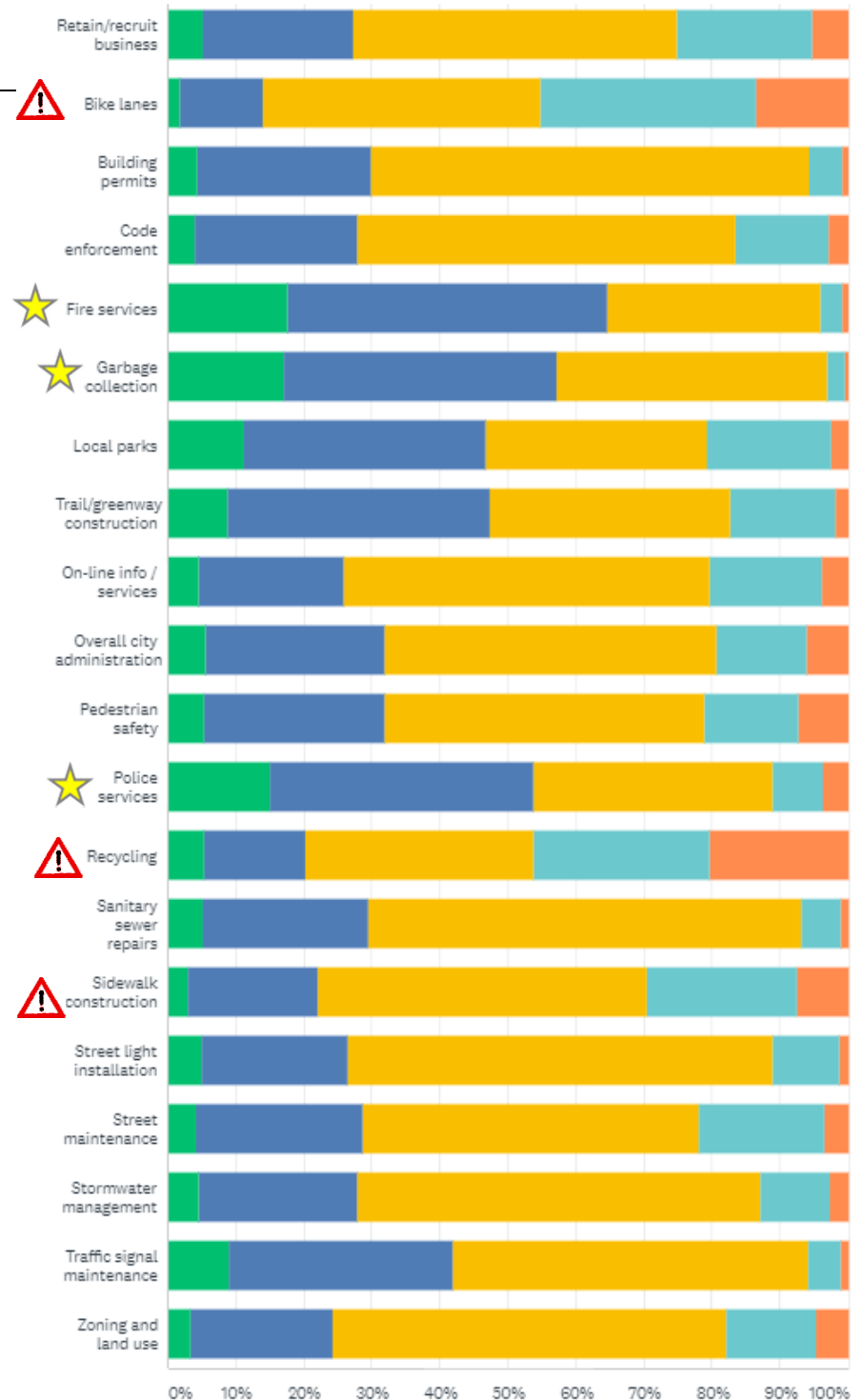
Several additional services follow close behind, including Pedestrian Safety, Garbage Collection (and Recycling), Traffic Signal Maintenance, Sanitary Sewer, Stormwater Management, and Overall City Administration. That said, there were no listed services/functions that were considered to be “not important” or “neutral” by a majority of respondents; all fall in the “very important” to “important” range by the majority.

When it comes to the grades assigned to different City services by respondents, there is a strong correlation between some of the most important services and those that respondents feel strongly about. A majority indicated grades of **“above average” or “excellent” for Police and Fire services**, which were also generally considered to be the two most important. In the case of other services/functions however, such as Business Recruitment/Retention and Recycling, respondents indicated relatively low levels of satisfaction for services considered to be among the most important. Overall, indication is an “average” grade for most services/functions included in the question.



⚠️ = Lowest Level Satisfaction

★ = Highest Level Satisfaction



Transitioning from opinions about specific City services/functions, respondents were asked to indicate their opinions about what the City of Statesboro does well using open-ended responses. A wide variety of functions, initiatives and attributes were provided, with the following being the top three answers:

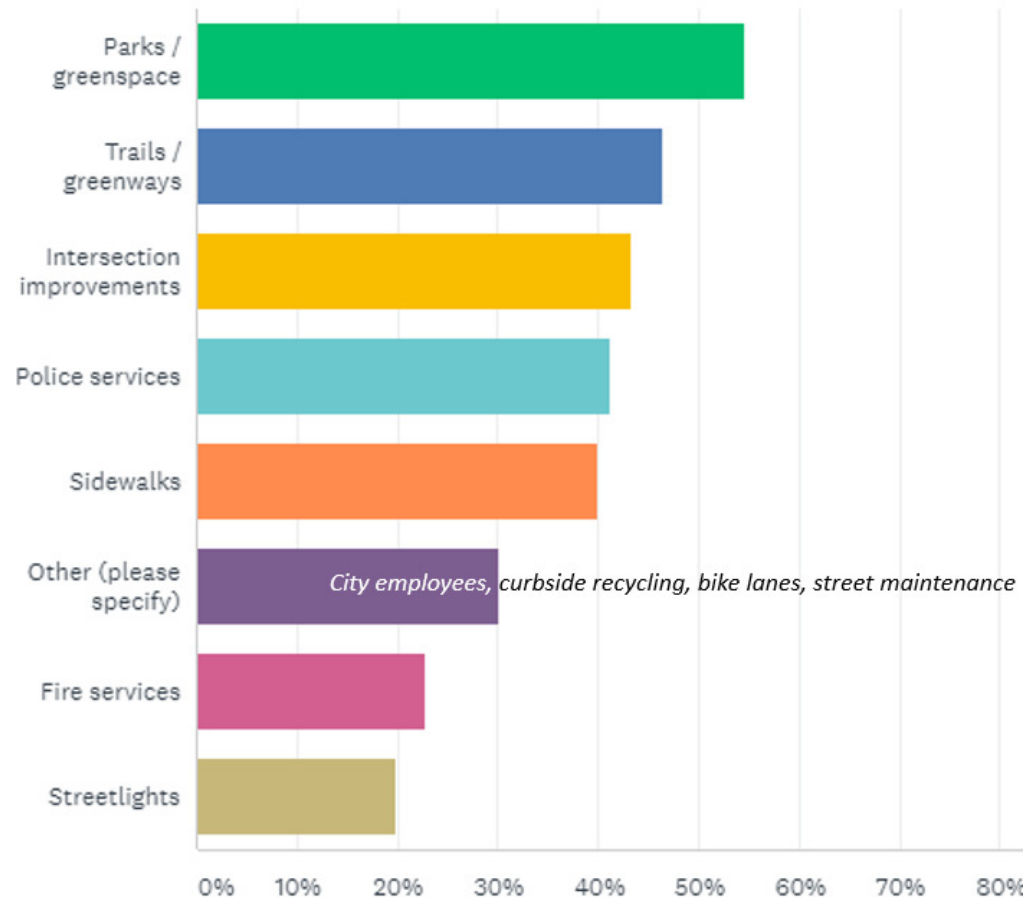
- **Maintains Community Appearance** (trash pick-up, yard waste clean-up, landscaping)
- **Provides Community Festivals, Events and Art** (for all ages)
- **Provides Police, Fire and Other Essential City Services**

### Future Investment in City Services

To gauge opinions about the connection between public finance and City services/functions, a pair of questions sought opinions on where additional public funds should be invested and whether respondents would be willing to pay more for additional/improved City services. To the former, **priority for additional investment ranged from Parks/Greenspace/Trails at the highest level** (approximately 50% of respondents); **Intersection Improvements, Police Services and Sidewalks followed close behind** in the mid-range (approximately 40% of respondents); with a variety of Other Services, Fire and Streetlights in lowest range (between 20% and 30%).

Though the majority did not overwhelmingly agree on increased spending for a specific service/function, **a strong majority of respondents did express willingness to pay more** (by means of increased fees, property taxes or other) **for additional/improved City services**. Nearly 60% responded "Yes" to this question, and fewer than 15% responded "No" (with over 25% responding "Not Sure"). Overall, respondents express the opinion that there is a need for additional public investment, and a willingness to pay more, as individuals/families/households, to make additional public investment possible.

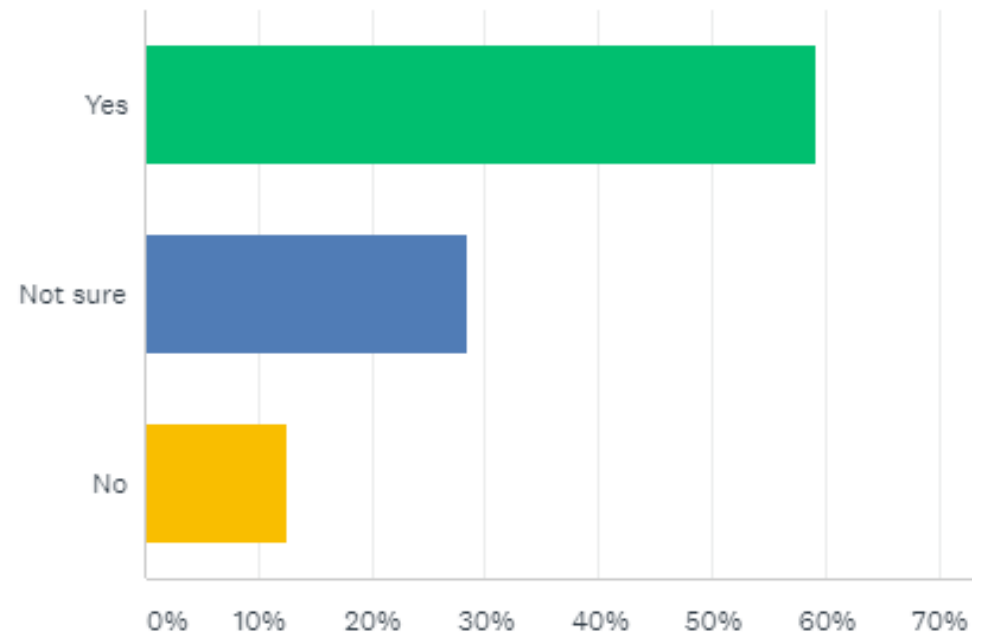
### Where should additional money be spent?



## Communications

A final finding from responses is particularly significant to a City “service” that is important to the way the City of Statesboro is perceived and understood in the community: Communications. In response to the question “How do you hear about (get news about) the City of Statesboro,” the most prominent information sources are indicated to be the Statesboro Herald (approximately 75%) and the City’s website (approximately 65%). There are several other significant sources, as indicated below, but the importance of the Statesboro Herald and City website should not be overlooked.

Would you be willing to pay more\* for additional / improved services?



\* Increase in user fees or charges, property tax or other revenue source



## Chapter 4. SWOT Analysis

SWOT analysis is one method of evaluating key factors and developing a better understanding of relative issues, contributing to formulation of effective strategies. The obvious objectives are to maximize **s**trengths, minimize **w**eaknesses, take advantage of **o**pportunities and limit **t**hreats.

Several key themes arise from analysis of the local economy, public finance, respondent information and other sources. These themes and the associated issues (and opportunities) are not unique to Statesboro, but understanding their applicability is helpful. The following are not presented in a particular order, and are not exclusive of any other potential theme or factor, but are useful to organize thoughts that lead to strategies.

- Resources (Human, Education, Community, etc.)
- Public Safety
- Quality of Life
- Public Finance Stability
- Economic Success
- Communications
- Collaboration/Partnership

Identification and breakdown of these themes contributes to classification of strengths, weaknesses, opportunities and threats that are worthy of consideration. The following table presents the primary identified factors for this high-level SWOT analysis.

<b><u>Strengths</u></b>	<b><u>Weaknesses</u></b>
<p>Experienced City staff</p> <p>Established Plans and Planning Processes</p> <p>Community Trust (in Public Safety personnel)</p> <p>Success Track Record (e.g. downtown revitalized)</p> <p>City Communications Infrastructure</p> <p>Existing Infrastructure, Parks</p>	<p>Finance Options Limitations (LOST, etc.)</p> <p>Stagnant Property Tax Revenues</p> <p>Expiring SPLOST</p> <p>Limited Supporting Entities (e.g. non-profits)</p> <p>Aged Facilities and Infrastructure (expensive maintenance requirements)</p>
<b><u>Opportunities</u></b>	<b><u>Threats</u></b>
<p>Higher Education Institutions (partnerships)</p> <p>College Graduates (potential to retain)</p> <p>Positive Employment Trends</p> <p>Low Cost of Living</p> <p>Growing Arts/Cultural Opportunities (+ diversity)</p> <p>Grant Successes (Blue Mile)</p> <p>TSPLOST Opportunity</p>	<p>Loss of Trained City Staff to Other Communities</p> <p>Outside Influences on Public Safety</p> <p>Transience in Population (Student)</p> <p>Negative Perceptions of Local Gov't</p> <p>Some Neighborhood Property Conditions</p> <p>High Percentage of Rental vs. Owner-occupied Housing</p>

### **Summary of Strengths, Weaknesses, Opportunities, Threats**

The following elaborates on the SWOT analysis chart:

#### **Strengths:**

*Experienced City Staff* – Many staff members have served Statesboro and provided leadership for many years; institutional knowledge and consistency is a great asset.

*Established Plans and Planning Processes* – As referenced in this document, plans have been prepared recently for to address specific needs and opportunities, and funding for implementation is lining up in some cases.

*Community Trust* – Survey results and anecdotal input suggests a strong level of community trust in public safety officials serving Statesboro. This is a critical strength; the community and police partnership in particular is paramount to address public safety issues.

*Success Track Record* – There are many stories to tell of successful implementation of projects and initiatives, and visible results include revitalization in downtown Statesboro, attractive parks, greenways and a growing business community.

*City Communications Infrastructure* – As shown through survey results, residents use and benefit from City communications tools like the City website; also through local media outlets. Having effective communications tools in place makes it easier to expand and enhance communications.

*Existing Infrastructure and Parks* – The availability of public owned land, in particular, is a strength that supports the City's ability to provide enhanced services and amenities to residents.

#### **Weaknesses:**

*Finance Options Limitations* – As described in Chapter 2, the impact of the inability of Statesboro to use Local Option Sales Tax (LOST) revenues to support its general fund is significant.

*Stagnant Property Tax Revenues* – As described in Chapter 2, property tax revenues have been eroding over the past decade or more.

*Expiring SPLOST* – SPLOST is a critical revenue source for Statesboro to fund infrastructure projects. Without SPLOST funding, projects would not be accomplished and the City General Fund would bear a much heavier burden. The fast approaching expiration date of the current SPLOST is a challenge that can be overcome by SPLOST reauthorization.

*Limited Supporting Entities* – Statesboro has a relatively (or very) small number of non-profit entities that can work alongside the local government to address issues like vacant housing, property deterioration and parks/greenspace maintenance. Those existing organizations need to expand, and new ones need to be fostered.

*Aged Facilities and Infrastructure* – Though the needs for investment in public facilities and infrastructure are understood to some degree, there are certainly unknown needs and liabilities, as is typical of most older cities in the South. Frequent assessment and action is required to address issues and maintain effective services through public facilities and infrastructure.

#### **Opportunities:**

*Higher Education Institutions* – Having Georgia Southern University, Ogeechee Technical College and East Georgia State College facilities in Statesboro provides opportunities for Statesboro residents to conveniently access higher education, and also brings thousands of students to Statesboro each year from different parts of Georgia and beyond. This is an educational and economic development resource in every sense, with potential for greater benefit to the community.

*College Graduates* – There are thousands of graduates from Statesboro each year; increasing the percentage who remain in Statesboro to start careers is a key opportunity for the City to pursue.

*Positive Employment Trends* – After many years of struggle on the jobs front, trends are positive in Statesboro and many communities around the region, promising benefits of business growth and expansion on the local economy and City budget.

*Low Cost of Living* – In the increasingly mobile and connected society, where individuals and families have a wide range of choices about where to live and work, the cost of living in a community can make the difference. Statesboro's relatively low cost of living, combined with other community and environmental assets, can help to fuel growth of population and economy.

*Growing Arts/Cultural Opportunities* – A solid trend of arts and culture development is in place in Statesboro, linked to historic preservation and enhancement of the community's sense of place. This is a highly attractive factor to the generation that is starting careers and families, and can be a key to community growth and development in coming decades.

*Grant Successes* – With the recent success of the Blue Mile project in a highly competitive environment for grant funds, Statesboro has proved the ability to play on the big stage of community development. There is opportunity to build on the momentum of this win, and others.

*TSPLOST Opportunity* – Though a regional TSPLOST failed in the past, the new authorization by the State Legislature to conduct a local (county level) TSPLOST referendum presents a much needed opportunity for Statesboro to add a funding source for transportation projects. Additionally, it is very advantageous that TSPLOST-funded transportation projects can be implemented quickly, relative to federally funded projects, due to streamlined processes for environmental and engineering approvals.

### **Threats:**

*Loss of Trained City Staff to Other Communities* – Staff training is expensive, and trained staff members are of great value to a community, whether public safety or management and opera-

tions personnel. As Statesboro is in a growing region and proximate to larger communities that may offer higher salaries to trained personnel, there is a consistent threat that trained staff will choose to relocate for higher pay rather than remain in Statesboro.

*Outside Influences on Public Safety* – Two key factors involving outside influences seem to have a significant impact on public safety in Statesboro, both involving transience: the large student population associated primarily with GSU, and traffic/transience associated with the I-16 corridor. As GSU and I-16 both also offer incredible benefits to Statesboro, the requirement is to address the public safety threats while embracing the associated benefits.

*Transience in Population* – Beyond public safety factors, the high level of turnover in the local population due to student transience has an impact on the community, and in particular on neighborhoods where high numbers of students rent housing. This is one factor that impacts the level of owner-occupied housing, for example.

*Negative Perceptions of Local Government* – Survey results indicate a relatively high level of concern about local government and its effectiveness in Statesboro. Addressing issues in a strategic and responsive manner would be expected to alleviate concerns, as would improved communications that ensure citizens are informed about successes and the value that local government leadership and services provide.

*Neighborhood Property Conditions* – As common to most municipalities in Georgia, some neighborhoods suffer more from property maintenance neglect, code violations and vacancy. Instances of property neglect, in neighborhoods as well as commercial districts, threaten to worsened conditions across an entire neighborhood or district if not quickly and effectively addressed.

*High Rate of Rental vs. Owner-Occupied Housing* – In 2015 the housing vacancy rate in Statesboro was 13.7%. Of the Occupied housing units, 21% were owner-occupied and 79% were renter-occupied. Comparatively, the rates in 2011 were 27.2% owner-

occupied and 72.8% renter-occupied. Related to neighborhood conditions, it is frequently (but not always) the case that higher levels of rental housing in a neighborhood can be associated with declining property values and maintenance levels. Conversely, it is generally accepted that higher levels of owner-occupancy will result in growing property values and improved maintenance. These generalities would seem to apply to Statesboro, thus a long term trend of decreasing levels of owner-occupancy in neighborhoods is a threat to stability.

To interpret for use in strategic planning, by addressing the internal factors through building upon identified Strengths (and other City strengths related or yet to be identified), and by taking actions to address Weaknesses, the City of Statesboro can positively impact the external factors, Opportunities and Threats. For example, by building on the community's trust relative to SPLOST (two decades of continuous SPLOST, voter approved) and addressing the upcoming SPLOST expiration through proactive steps towards reauthorization, the City can see a near-term future where SPLOST is approved again and, infrastructure needs (Threat) are met, and there is potential for additional infrastructure funding through TSPLOST (Opportunity). Conversely, if the weakness in the outlook for the City's General Fund (due to limitations on revenue sources and stagnant property tax revenues) remains, the likelihood of underfunding City services and losing experienced personnel (Threat) for economic reasons remains serious.

### **Potential Tools to Address Identified Weaknesses, Threats**

There are a number of tools (or means, methods) readily available to the City of Statesboro to address identified Weaknesses and Threats. Examples are described below.

#### **Tools to Address Weaknesses:**

***Finance Options Limitations (LOST)*** – Address by maximizing use of other potentially available finance options, including T-SPLOST, MOST, Impact Fees, etc. Also, CIDs and Public-Private

Partnership approached can be used to finance unique areas and/or projects, taking burden off of local government General Fund.

***Stagnant Property Tax Revenues*** – Address through milage adjustment in the short term; for medium and longer term, bolster and increase the tax base through expansion of commercial/industrial development and revitalization of residential neighborhoods. Additionally, emphasize tax collections to ensure a consistently high rate of collections.

***Expiring SPLOST*** – Use staff expertise and public information outlets to promote SPLOST reauthorization, with advanced planning and a public information campaign. Ensure that projects proposed for funding are strongly supportive of public interests (as expressed in survey responses). And use public information and promotional communications to illustrate the history of successful and responsible use of SPLOST funds to date. In other words, broadcast the story of good stewardship leading to critical accomplishments and creating value for taxpayers.

***Limited Supporting Entities (non-profits, etc.)*** – Collaborate with existing non-profits and agencies to support and expand their contributions. And leverage existing partnerships with higher education institutions in the community to help foster new supporting entities in the subject areas where needed (e.g. housing, community revitalization, job training/re-training, etc.).

***Aged Facilities and Infrastructure*** – Use available technical expertise (internal and external) to conduct a comprehensive City-owned facilities condition assessment, and build a straightforward, engineering-based decision support system to guide plans and budgeting for facilities and infrastructure maintenance, including repairs, upgrades and replacement. And take advantage of opportunities, particularly those involving land use planning and economic development, to accomplish infrastructure fixes.

### Tools to Address Threats:

***Loss of Trained City Staff to Other Jurisdictions*** – Use options for pay incentives as well as intangible factors to promote retention. For example, maximize opportunities for community support partnerships that express/reinforce community appreciation for City staff. Additionally, maximize potential benefits to City staff from participation in relevant larger organizations such as Georgia Municipal Association.

***Outside Influences on Public Safety*** – Use established partnerships with Georgia Southern University police/safety officials to expand Community Policing in all areas where students reside. Also expand partnerships with the Georgia State Patrol, GBI and similar agencies to address public safety issues related to I-16.

***Transience in Population (students)*** – Use partnerships with higher education institutions and other community institutions (e.g. churches) to promote options for graduating students to stay in Statesboro. Work to expand local industry, housing options and cultural/recreational offerings to make Statesboro more attractive to graduating students.

***Negative Perceptions of Local Government*** – Use local media partners (Statesboro Herald, etc.) to expand coverage of City activities and initiatives to ‘tell the whole story’ and tout successes and accomplishments that bring value to residents. Also, to provide robust two-way communication, more fully engage City staff in receiving and responding to public comments about concerns (potentially adding technology tools to facilitate public comment).

***Neighborhood Property Conditions and High Rate of Rental vs. Owner Occupied Housing*** – Linked to neighborhood revitalization, use existing staff and partnerships to establish programs to promote and facilitate home ownership. Engage with local lending institutions to promote local loan options for first time homebuyers. Strictly enforce housing/property maintenance codes to eliminate negative factors in neighborhoods that discourage investment. Leverage the partnership with University police/safety officials to address concerns associated with students who are

renters in the community. And coordinate efforts of property maintenance, code enforcement and policing to address multi-family residential properties that have declined.

The following chapter transitions from an understanding of key themes, strengths, weaknesses, opportunities and threats to identification of appropriate high-level strategies and opportunities for implementation.

## Chapter 5. Implementation

### ■ Key Strategies

Strategies are intended to guide City of Statesboro implementation actions in a manner that will lead to desired results. Strategies should be responsive to the issues and themes that are drawn out from public input, and should also be consistent with the overall mission, vision and goals of the City. The following six key strategies can be methodically implemented to achieve desired results such as improved services, community enhancement, balance, sustainability, and consistently advancing quality of life.

- **CAPITALIZE** on great assets (people, education, downtown, neighborhoods)
- **EXPAND** financial capacity to provide high quality services and execute high priority projects
- **IMPLEMENT** high priority projects with quality of life benefits (paths, parks, etc.)
- **IMPROVE** communications to community members (share information, report accomplishments, involve citizens)
- **RETAIN and ATTRACT** value-generating businesses (provide jobs, build wealth and serve community needs)
- **ORGANIZE** public-private partnerships for community enhancement (public safety/code enforcement, education/training, historic preservation/revitalization, parks/greenspace)

### Capitalize on Great Assets

Public opinion and reality show that Statesboro (the City and community) has a wide variety of great assets to build upon. Its people, education institutions, neighborhoods, historic downtown are key assets to develop and leverage.

#### ***People***

The community overall is significantly defined by the people who comprise it, and great benefits can come from all efforts to respect and promote all members of the community. Of specific importance is the talented City staff that is critical to maintaining and enhancing the level of service the City provides to residents. Adequately funding and promoting City staff retention and professional development is critical to Statesboro's success.

#### ***Education***

Statesboro has a strong base of University, Technical College and State College higher education assets, institutions that are consistently developing an educated and prepared workforce. City leadership and collaborative efforts to strengthen the partnerships between higher education and local government can increase the long-term positive impacts of local higher education on the Statesboro community.

#### ***Places***

Historic downtown and the many city neighborhoods have character, uniqueness, quality and, in many cases, new vibrancy. Efforts to preserve, revitalize and reinvent these places must continue, and must be planned and implemented in a manner that is sensitive to physical structures and the people that make the places special.



### Expand Financial Capacity

The ability of local government to provide services and execute projects is inextricably linked to financial capacity. And while it is not always true that more funds solve problems, there is a critical connection between financial capacity and the ability to sustain services and infrastructure. For Statesboro to enhance services and execute high priority projects, the City's financial outlook must be improved. Existing revenue sources must be expanded and/or extended, and the most advantageous new potential revenue sources pursued.

#### **Property Tax Revenues**

The long-term decline of property tax revenues is a significant challenge for the City. Property taxes contribute greatly to the City's General Fund, which is relied on heavily, especially for City staff salaries and benefits. While there are several options for funding infrastructure projects, the General Fund is the only option for funding many City services. A relatively unique challenge for Statesboro's General Fund is the fact that the City does not draw any revenue from the Local Option Sales Tax (LOST) in Bulloch County. In all but a very few Georgia communities, a portion of the 1% LOST is available to support the General Fund, but this is not an option for Statesboro (or Bulloch County) as all LOST revenues are directed to the School Board. Therefore, Statesboro's General Fund is significantly more reliant on Property Taxes than the typical municipality in Georgia.

Due to the combined effects of inflation, limited/marginal increase in the overall assessed value of property, and a property tax millage rate that has remained flat for a decade, the City of Statesboro's real revenue from property taxes has effectively decreased from 2007 to 2016. The property tax millage rate increase approved in September 2017 is required in order to address this problem in the short term. This is the first millage rate increase in ten years, and the impact of tax increase will be borne more by owners of non-residential property than by residential property owners due to the fact that approximately 70% of the tax base

today is non-residential. An increase from 6.358 to 7.308 mills will bring property tax revenues up to approximately \$400,000 (less than 10%) above the 2007 revenue level measured in 2017 dollars (recognizing that \$1 in 2007 dollars is equal to \$0.84 in 2017 dollars).

#### **SPLOST**

Special Purpose Local Option Sales Tax (SPLOST) revenues have consistently contributed to Statesboro's ability to fund critical projects for two decades. Though restricted to uses consistent with the SPLOST referendum and variable due to changing sales volumes, SPLOST is the critical revenue source to accomplish critical infrastructure projects. Without SPLOST, the General Fund would be stressed further, as SPLOST reduces the need to use General Fund revenues for capital improvements. Reauthorization of SPLOST is a time-sensitive and critical objective to accomplish.

#### **New Revenue Options**

Of several potential options for new major public revenue sources, the recently established (by State of Georgia) potential for Statesboro and Bulloch County to establish a Transportation SPLOST (TSPLOST) in addition to the traditional SPLOST warrants serious consideration. Though a TSPLOST referendum previously failed at the regional level, there are success stories from other regions that passed TSPLOST (ex. Augusta region). If passed, a Statesboro/Bulloch TSPLOST would complement SPLOST, making more funding available for quality of life projects such as parks, trails and greenways. As an additional benefit, transportation projects funded by TSPLOST (and not involving federal transportation funding) can typically be executed quicker and more efficiently.

Other potential new revenue options, including MOST, CIDs and Development Impact Fees, should be explored as well. Impact fees, in particular, provide a flexible option to raise revenue specifically tied to new growth and development. Many Georgia communities use impact fees to keep up with the pace of growth and

demands on parks, transportations, public safety and other factors. (See also **Financing Alternatives**.)

### Implement High Priority Projects

Project prioritization through the CIP and other planning tools is an ongoing process. Some required infrastructure requirements simply address unseen functional needs and have no real potential for additional quality of life benefits. However many projects, if not most, have the potential for visible associated quality of life benefits. By assessing each infrastructure project in the pre-design and design stages, opportunities for multiple benefits can be identified. For example, the need to fix a deteriorated stormwater pipe could lead to daylighting a previously hidden stream and incorporating portions of a greenway trail. Key means to enhance quality of life benefits from infrastructure projects include coordinating early stage project planning, actively seeking multiple benefit opportunities, involving expert managers and establishing sound funding strategies.

Once the prioritization and maximum benefit analyses have been completed, it is critical for projects to proceed to implementation as quickly as possible. The longer a project waits for construction, the more likely to experience cost increases, complaints, and complications. Effective management is most important for the critical stage of moving a project from paper to built reality.

### Improve Communications

Effective two-way communications with community stakeholders is critical. As the highest percentage of questionnaire respondents indicated the Statesboro Herald as their primary information source, enhancing the partnership between the City and local media outlets including the Herald is of strategic importance. This should include close coordination to get new information broadcast to the community quickly, and also identifying opportunities for more in-depth feature stories.

The City website and associated/linked social media platforms are also critical for communications. Web-based communications is a fast changing environment, and Statesboro needs to regularly review and update City web and social media platforms to remain current and effective.

Technology also facilitates effective citizen reporting, and there are increasing options for effective citizen reporting systems that can empower citizens to assist the City. To gain the greatest benefit from a new investment, explore options for a coordinated system that will allow citizens to report issues using multiple forms of technology.

### Retain and Attract Value Generating Businesses

Economic development often focuses on new business recruitment, which is important in most communities, but equally or more important is retention of existing businesses. By placing emphasis on both retention and recruitment, and by performing adequate due diligence to accurately understand the value of individual businesses to the community, investments in economic development can pay off at a higher level. As a starting point, there are recommendations from many previous plans/studies to carry through (Blue Mile, TAD/Redevelopment Plan, Downtown Master Plan, etc.). Related and additionally, partnerships for economic development are critical, and great benefits can come from expanded partnerships with Georgia Southern University, Ogeechee Technical College, East Georgia State College, the local business community and other governmental entities. Smart investment in economic development is the key.

### Organize Public-Private Partnerships

Many effective partnerships are already in place and bearing fruit. The example of the partnerships forming around the Blue Mile can give rise to additional partnerships to address a wide range of com-

munity issues, including public safety, code enforcement, education/workforce development, historic preservation, neighborhood revitalization, parks/greenspace/trails and business expansion.

### ■ Strategic Initiatives

Analysis comparing strategies to identified needs, including those brought forth through community survey results, leads to definition of initiatives that Statesboro leadership can rally around and push forward in a coordinated manner. By definition, an initiative is “an introductory act or step; a leading action.” City leadership is required to start (or in many cases continue to lead) efforts that will result in accomplishment of objectives that are consistent with strategy. Each initiative described below is rooted in the work that the City of Statesboro has been engaged in for some time, or a long time. The purpose of defining these distinct and recognizable initiatives is to rally support and encourage the allocation of appropriate resources to push forward. These initiatives are generally achievable in a five year timeframe, with most starting immediately. Cost estimates reflect spending anticipated for 2018-2023. Initiatives will change over time as objectives are accomplished and projects are constructed, while the underlying strategies will remain relevant and useful to inform future initiatives.

#### **1. Bike/Ped Improvements Initiative: \$3 million**

Implement connected bicycle and pedestrian improvement projects citywide in accordance with established plans (e.g. Long Range Transportation Plan) and consistently engage with residents to identify additional needs to provide a comprehensive network of sidewalks, paths and greenways.

- Secure funding for bike/ped projects through SPLOST, TSPLOST and other appropriate sources.
- Ensure the quick and complete repair of sidewalks and paths when necessary (e.g. due to road projects, utilities projects, etc.).

#### **2. Business Recruitment & Retention Initiative: \$100,000**

Proactively and strategically reach out to existing businesses to encourage retention and expansion in concert with efforts to identify and recruit desirable new businesses for the community. Staff efforts and partnerships

- Prepare a joint Economic Development Strategy to inform and foster frequent and ongoing collaboration on economic development efforts by the Bulloch County Development Authority, Statesboro-Bulloch Chamber of Commerce and City of Statesboro Planning & Development Department.
- Explore innovative and creative economic development options in partnership with higher education institutions in Statesboro.
- Pursue the potential opportunity to participate in the UGA Archway Partnership.

#### **3. Clean and Beautiful Community Initiative: \$500,000**

Improve community attractiveness and property maintenance through a combination of City staff efforts, incentive-based and enforcement-based methods.

- Continue to support the Keep Statesboro-Bulloch Beautiful Commission.
- Clearly identify key aspects of property maintenance codes along with the roles and responsibilities of City code enforcement personnel.
- Use a public information campaign to communicate code enforcement-related information to residents and encourage compliance.
- Conduct a study for establishment of a recycling program.

## 4. **Community Communications Initiative: \$250,000**

Update City communications tools and manage relationships with key partners that allow effective communications with the widest range of residents and employees in Statesboro.

- Enhance existing City communications tools (e.g. website update, wide distribution email contact, social media outlets use, etc.)
- Add a resident response system to allow residents to easily communicate concerns, questions or requests to City officials (dedicated phone system, smartphone app, website-based mechanism or combination of all three)
- Assign and empower staff to manage partnership with local media outlets (e.g. Statesboro Herald)
- Assign and empower staff to manage partnership with University media/communications (GSU as well as Ogeechee Tech, etc.)

## 5. **Essential Infrastructure & Facilities Maintenance Initiative: \$12 million**

Accomplish maintenance and enhancement of essential City infrastructure and facilities in a manner that is sustainable, proactive and prioritized based on objective technical analysis. Include consideration of "soft indebtedness", meaning yet to be quantified infrastructure costs. The extent of soft indebtedness should be understood through completion of infrastructure and facilities condition assessment.

- Complete a comprehensive public infrastructure and facilities condition assessment to provide an accurate baseline for prioritization and investment decisions.
- Maintain a Capital Improvements Plan that is based on assessment and updated annually.

- Prepare a long-range essential infrastructure and facilities plan that is coordinated with planning for land use, transportation, economic development and historic preservation.

## 6. **Greenspace Improvements & Maintenance Initiative: \$1.1 million/\$220,000 per year**

Maintain and improve all public greenspaces in the City (in partnership with Bulloch County, as appropriate) to a high level of quality, attractiveness, functionality and environmental sustainability. Cost estimate does not include maintenance for County-maintained parks (whether City-owned or County-owned).

- Ensure adequate staffing and funding of greenspace maintenance operations.
- Promote opportunities for community/business partnerships in greenspace maintenance and beautification.
- Engage an arborist in the greenspace maintenance process to provide technical assessment of existing trees for proper maintenance, and to identify opportunities for urban forestry enhancement.

## 7. **Neighborhood Development Initiative \$250,000**

Establish a broad community and multi-agency partnership to accomplish revitalization and enhancement of city neighborhoods, including repair/renovation to existing homes as well as infill development and redevelopment, where required, to add new homes to existing neighborhoods.

- Maximize beneficial use of tools available to the Housing Authority, Land Bank, and other local agencies.
- Foster and support non-profit community development corporations.
- Engage with lending institutions and State and Federal entities/programs (e.g. the Georgia Department of Community Affairs Georgia Dream Homeownership Program) to promote and facilitate home ownership.

- Track the status/statistics of owner-occupancy, renter-occupancy and vacancy across the community on an annual basis; target increase in the rate of owner-occupied housing.

### **8. Optimize City Department Staffing Levels and Competitiveness Initiative: \$750,000**

Complete a Staffing and Salary Study (to be updated regularly) to serve as a guide for efforts to appropriately staff City departments and retain experienced City personnel.

- Engage a qualified human resources consultant to complete a Staffing and Salary Study, including evaluation of the competitive position of Statesboro relative to the region.
- Partner with community businesses and institutions (e.g. churches) to regularly express appreciation for City personnel and welcome new employees into the community.

### **9. Optimize Public Safety Staffing Levels and Competitiveness Initiative: \$2 million**

Complete a Staffing and Salary Study (to be updated regularly) to serve as a guide for efforts to appropriately staff Police and Fire departments and retain experienced public safety personnel. Funding provided through millage increase approved September 2017.

- Engage a qualified human resources consultant to complete a Staffing and Salary Study, including evaluation of the competitive position of Statesboro relative to the region.
- Partner with community businesses and institutions (e.g. churches) to regularly express appreciation for first responders and welcome new employees into the community.

### **10. South Main Street (Blue Mile area) Implementation Initiative: \$4.4 million**

Implement the improvements to South Main Street between Fair Road and Tillman Road consistent with the Blue Mile plan through

effective use of grant funds awarded; pursue additional funding to accomplish planned objectives for the Blue Mile.

- Cultivate the partnerships that are required to realize successful Blue Mile implementation.
- Expedite construction of planned improvements to maintain momentum created by America's Best Community program recognition.
- Use the Blue Mile Tax Allocation District strategically to support the highest impact opportunities.
- Coordinate design and construction of infrastructure improvements/enhancements associated with Blue Mile with all entities involved in infrastructure maintenance to ensure effective use of limited funds to accomplish multiple purposes.

### **11. Traffic Safety Implementation Initiative: \$14.4 million**

Design and construct/install high priority traffic safety improvements quickly and in accordance with established plans/engineering studies.

- Implement LRTP traffic safety improvement recommendations as highest priority investments.
- Proactively coordinate with GDOT to identify and accomplish traffic safety improvements on State Routes in the city limits.
- Complete priority local roadway improvements.

### **12. West Main Street Initiative: \$2.5 million**

Fund, design and construct enhancements to the West Main Street corridor in accordance with plans and objectives.

- Include West Main Street funding in SPLOST and/or TSPLOST initiatives.
- Coordinate and connect West Main Street improvements with the broader bike/ped facilities network.

## ■ Financing Alternatives

### TSPLOST

Bulloch County and Statesboro are authorized to jointly adopt a sales tax for transportation purposes (Transportation Special Purpose Local Option Sales Tax, or TSPLOST) pursuant to Title 48, Chapter 8, Article 5A, Part 1 of the State Code.

#### **History**

Senate Bill 369 was passed by the Georgia General Assembly in the 2015-2016 legislative session to authorize the City of Atlanta and Fulton County to hold referendums for the levy of TSPLOST sales taxes within each jurisdiction. Under the title “Special District Mass Transportation<sup>3</sup> Sales and Use Tax”, the law authorized sales taxes to be collected for road projects as well as mass transit systems. As amended by HB 323 in 2017, all counties in which SPLOST taxes were being collected were authorized to also adopt transportation sales taxes for transportation purposes.

#### **Authorized Use of Revenues**

The following is drawn from O.C.G.A. § 48-8-260 through 269.6:

- A TSPLOST tax may be authorized under this law for “road, street and bridge” projects for a period of five years by referendum approval and meeting other requirements of the law.
- Eligible “road, street and bridge” projects include sidewalks and bicycle paths. Improvement costs include maintenance and renovations as well as new construction, and run the full gamut from land acquisition and construction/improvement costs, to debt financing. The retirement of existing debt related to these types of transportation projects is also allowed.

<sup>3</sup> “Mass transportation” is defined in the Act to include “any mode of transportation serving the general public which is appropriate to transport people by highways or rail.”

### **Process**

To establish a TSPLOST for Statesboro and Bulloch County, the following process would be required:

1. County convenes a joint meeting of the Board of Commissioners and the City Council to discuss possible projects and the tax rate.
2. After the meeting, an intergovernmental agreement may be prepared establishing their agreement to levy the TSPLOST tax and the tax rate. With an intergovernmental agreement, the tax may be at a rate of up to 1 percent. Without an agreement, the tax is limited to .75% (or less, as determined by the County). Any tax rate less than the maximum must be in an increment of 0.05%.
3. The intergovernmental agreement must include:
  - A list of the projects to be undertaken, the estimated costs to be funded by the tax, and the priority or order in which the projects will be funded. At least 30 percent of the estimated revenue must be spent on projects consistent with DOT’s Statewide Strategic Transportation Plan.
  - The procedures and a schedule for distributing the tax proceeds to Statesboro must be described.
  - Relevant accounting, record-keeping and audit procedures.
4. Based on the list of transportation projects to be funded and the estimated cost (including debt service if applicable), as well as the proposed period of time in years and the tax rate, a referendum is then called by the County, to be held during the next scheduled election.



Upon approval by referendum, the T-SPLOST tax may start on the first day of the next succeeding calendar quarter which begins more than 80 days later.

The tax collections will stop when the stated time period is reached (up to 5 years) or at the end of the calendar quarter within which net collections will have generated the stated amount to be raised by the tax. [Note that 1% of the taxes collected are to be remitted to the State “to defray the cost of administration”.]

A new TSPLOST tax can be authorized by referendum while an existing TSPLOST tax is being collected, but cannot begin until the existing tax is terminated. The new tax must follow the same process as that required for the initial tax (summarized above).

The tax is limited to those items subject to State sales tax, except for certain specified items (such as gasoline and the purchase or lease of a motor vehicle), but can be levied on food and food ingredients.

### ***Estimated Revenue***

The table on the following page provides a rough preliminary estimate of potential TSPLOST tax returns **countywide**, assuming a start date by the beginning of 2019. For the five-year TSPLOST program, possibly a bit more than \$41 million would be collected.

Based on the current 2013 SPLOST City/County program, the City is receiving about 60% of the countywide sales tax collections. Assuming that rate represents a fair share of sales tax generated within the city, for the TSPLOST the City may expect to receive \$24.6 million over the five-year program period. At a lower rate of 30%, the City may receive half that (\$12.3 million).

## **MOST**

Though not a current or previous revenue source for Statesboro, the City is authorized to adopt a sales tax for water and sewer projects (Municipal Option Sales Tax, or MOST) pursuant to Title 48, Chapter 8, Article 4 entitled “Water and Sewer Projects and Costs Tax” of the State Code.

### ***Criteria / Authorized Use of Revenue***

The following is drawn from O.C.G.A. § 48-8-200 through 212:

- To qualify, the City must have an average wastewater flow of 85 mgd or more.
- Costs can include water, stormwater and sewer system capital improvements, maintenance and operations.

There are various arcane limitations in the State law that should be carefully studied by the water and sewer administration, but do not appear to be serious or unsurmountable. Legal advice and interpretation may be required.

### ***Process***

To initiate a MOST, the City must forward a resolution to the County calling for a referendum for the imposition of the tax. If the County decides to not be involved, the City can take appropriate action, subject to the requirement of referendum approval, to seek to impose within the city a special sales and use tax for the purpose of funding water and sewer projects and costs.

The allowed tax rate is 1%, for a period of up to 4 years, up to a stated maximum cost of the project and maintenance and operation costs, including the principal and interest on any General Obligation bond to be issued for the project.

In addition to the items subject to the State sales tax (but not including the sale of motor vehicles), the following are also taxable:

1. Sales of motor fuels as prepaid local tax as that term is defined in the State Code (Section 48-8-2);
2. The sale of food, food ingredients and alcoholic beverages;
3. The sale of natural or artificial gas used directly in the production of electricity which is subsequently sold; and
4. The furnishing of any room or rooms, lodgings, or accommodations which is subject to taxation under Article 3 of Chapter 13 (Excise Tax on Rooms, Lodgings, and Accommodations) of Title 48.

There is a cap on taxes: the aggregate amount of all excise taxes and all sales and use taxes shall not exceed 14 percent. If the tax is approved by referendum, it may start on the first day of the next succeeding calendar quarter which begins more than 80 days later.

## Projected Retail Sales in Bulloch County

	2019	2020	2021	2022	2023
<b>Total Retail Sales</b>	\$ 979,591,000	\$ 1,003,997,000	\$ 1,028,290,000	\$ 1,052,544,000	\$ 1,076,950,000
Motor vehicles and parts dealers	178,060,000	181,999,000	185,989,000	189,680,000	193,198,000
Furniture and home furnishing stores	19,762,000	20,610,000	21,364,000	22,045,000	22,670,000
Electronics and appliance stores	9,005,000	9,289,000	9,528,000	9,738,000	9,930,000
Building materials, garden equipment and supplies	120,476,000	123,186,000	125,922,000	128,605,000	131,298,000
Food and beverage stores	76,619,000	77,818,000	78,831,000	79,911,000	81,016,000
Health and personal care	72,043,000	74,292,000	76,356,000	78,373,000	80,393,000
Gasoline stations	97,765,000	100,179,000	102,675,000	105,267,000	107,958,000
Clothing and clothing accessories stores	37,048,000	37,797,000	38,553,000	39,326,000	40,105,000
Sporting goods, hobby, book, and music stores	14,339,000	14,484,000	14,655,000	14,848,000	15,050,000
General merchandise stores	179,355,000	185,049,000	190,725,000	196,420,000	202,145,000
Miscellaneous store	25,298,000	25,888,000	26,485,000	27,096,000	27,719,000
Nonstore retailers	26,070,000	26,845,000	27,636,000	28,451,000	29,286,000
Eating and drinking places	123,751,000	126,561,000	129,571,000	132,784,000	136,182,000
TSPLOST taxable	\$ 703,766,000	\$ 721,819,000	\$ 739,626,000	\$ 757,597,000	\$ 775,794,000
Potential Countywide Return at 1% maximum tax	\$ 7,037,660	\$ 7,218,190	\$ 7,396,260	\$ 7,575,970	\$ 7,757,940
Five-Year Total					<b>\$ 41,044,880</b>
MOST taxable	\$ 801,531,000	\$ 821,998,000	\$ 842,301,000	\$ 862,864,000	
Potential Countywide Return at 1% maximum tax	\$ 8,015,310	\$ 8,219,980	\$ 8,423,010	\$ 8,628,640	
Four-Year Total				<b>\$ 33,286,940</b>	

Source: US Department of Commerce retail sales data for 2002, 2007 & 2012; interpolated and projected by Woods & Poole Economics, 2017.

## Estimated Revenue

The table below provides a rough preliminary estimate of potential sales tax returns countywide, assuming a start date by the beginning of 2019. For the four-year period, possibly a bit more than \$29 million could be collected countywide (assuming 60% of sales would occur in the City). Actual collections within the city would be less, although the majority of businesses collecting the tax would be located within the city.

The tax collections would stop when the stated time period is reached (up to 4 years) or at the end of the calendar quarter within which the City would have received the stated amount to be raised by the tax.

The City may receive approval through referendum to re-impose a MOST tax when the current tax ends, but for no more than three times.

### Community Improvement Districts (CIDs)

Community Improvement Districts are, in essence, geographic areas where the owners of business properties come together to tax themselves for improvements or services beyond those provided by the City. While this does not represent “tax relief” for the City—it still must provide city services to the area as available citywide—it addresses the desire of a particular business community for a higher level of service than the City provides citywide and therefore in their particular area.

There are presently no CIDs in Statesboro or Bulloch County. Creation of a CID requires a local enabling act of the General Assembly, which would apply countywide without application to a specific area. Once enabled, the creation of a particular CID requires the written consent of the owners within the proposed CID who collectively own at least 75% by value of all nonresidential real property that would be subject to the CID taxes, consent by a majority of all owners of real property within the CID, and a resolution of the City consenting to the creation of the CID.

#### **Process**

Owners of property used for residential, agricultural or forestry purposes do not pay the CID millage assessment, but can be included geographically within the boundaries of a CID for continuity.

Upon creation, a Board of Directors is elected by and from among the nonresidential property owners to tend to the affairs of the district, to receive and budget the CID taxes collected by the County, and to control the expenditures of those funds on behalf of the district. City representation is required on the Board for coordination purposes.

Through a CID, a special taxing district is created to pay for the exceptional infrastructure or service needs of the CID. The taxes are collected by the County Tax Commissioner and rebated directly to the CID Board of Directors. CIDs in Georgia have particularly focused on transportation and mobility improvements and public

safety services, but can otherwise focus on a wide range of “public” services and facilities to which the City agrees.

Assessments are established by the CID Board, but cannot exceed 2.5% of the assessed value of the real property, i.e. 25 mills. Most CIDs have adopted millage rates around 5 mills at most.

Bonded debt is permitted but rarely used because such debt may not be considered an obligation of the State or any other government other than the CID.

### Development Impact Fees

Communities provide public facilities, such as parks and recreation facilities, fire stations and fire engines, police facilities, etc., at a certain level of service. For instance, the number of park acres available for each household or the number of fire trucks to serve the city’s residents and businesses. As a community grows, however, there are typically two basic choices—should the facilities remain the same and thus serve the larger population at a lower/deteriorated level of service, or should the facilities be increased so that the level of service, enjoyed by the existing population, is not allowed to deteriorate in the face of new growth? In other words, should new growth contribute in a specified way in order to be served equally to today’s population?

The Georgia Development Impact Fee law was enacted to address this specific dilemma. When property taxes are relied upon to fund expansions of the capital infrastructure serving all residents and businesses, the slowly growing tax contributions from new growth and development are miniscule compared to the tax contributions from the existing tax base. An impact fee program seeks to level this playing field by charging a fee as new growth occurs (i.e., new building permits are issued) so that new growth contributes its fair share of the cost of providing the facilities needed to serve the new residents and businesses at the same level of service as existing development.

### **Process**

To enact an impact fee, the City would need to determine the “fair share” contribution from new growth needed to maintain or achieve the City’s preferred level of service that would apply to all residents and businesses. The facilities needed to achieve that level of service would be included in a Capital Improvements Element, which would be reviewed and approved by the Georgia Department of Community Affairs and, upon approval, be adopted by the City as part of its Comprehensive Plan. Additionally, the City would adopt an Impact Fee Ordinance creating the fee and providing for its administration.

If the City felt that the impact fees would be too high and detrimental to the desired growth of the city, it could share the burden between new growth and existing taxpayers by adopting an impact fee at a level less than the maximum allowed.

The City has a wide range of public facility categories from which to choose to consider, including:

- Water supply production, treatment, and distribution facilities;
- Wastewater collection, treatment, and disposal facilities;
- Roads, streets, and bridges, including rights of way, traffic signals, landscaping, and any local components of state or federal highways;
- Storm-water collection, retention, detention, treatment, and disposal facilities, flood control facilities, and bank and shore protection and enhancement improvements;
- Parks, open space, and recreation areas and related facilities;
- Public safety facilities, including police, fire, emergency medical, and rescue facilities; and
- Libraries and related facilities.

Importantly, impact fees can work in conjunction with sales tax programs, such as TSPLOST, MOST and SPLOST, in providing a full court press for funding future needs.

It is not possible to estimate the potential income that could be generated by impact fees until a detailed analysis of public facility categories selected by the City, level of service standards, and potential new growth demands can be assessed and calculated. As noted, however, impact fees shift the cost of the construction of new public facilities from the City (and its property tax base) to new growth as it occurs. Interim financing solutions, however, may be required as the need for the new facilities occurs in anticipation of new growth’s financial contributions.





## 2017 ANNUAL REPORT: BULLOCH COUNTY

***University of Georgia Cooperative Extension is working hard for its constituents. The following are examples of Extension's impact in the county over the past year.***

### AGRICULTURE AND NATURAL RESOURCES

Bulloch County farmers planted 48,073 acres of cotton in 2017, and the county had a cotton farm gate value of \$34,839,146 in 2016. In order for growers to make budgets work, they must achieve high yields. Currently, UGA fertilizer recommendations by yield goal peak at three-bale cotton. The agent collaborated with Glendon Harris, UGA Extension agronomist, Cromley Farms and Bulloch Gin to conduct a large, on-farm, irrigated cotton fertility trial. The objective of this research was to determine whether higher rates of nitrogen and potassium plus foliar fertilization could increase cotton yields and return on investment (ROI). The most economical treatment and highest ROI — \$24.08 — was the UGA recommendation of nitrogen for three-bale cotton and UGA-recommended, soil-applied potassium plus foliar potassium, the UGA recommendation for high yield goals. This increase in yield applied to the acres of cotton planted in 2017 produced a \$1,157,598 increase in profits for Bulloch County cotton producers.

In Bulloch and surrounding counties, beef cattle and forage production accounts for a major part of annual farm gate income. To expand the knowledge of area beef producers, educational programs are held in conjunction with semimonthly Ogeechee Cattlemen's Association dinner meetings. The multicounty Ogeechee Cattlemen's Association consists of members from Bulloch, Screven, Effingham and Candler counties. A partnership between Bulloch County Extension and the Ogeechee Cattlemen's Association provides producers with opportunities to enhance their profitability. In 2017, 250 beef cattle and forage producers attended educational opportunities meant to enhance their production practices and profitability. Program participants gained knowledge and discovered new ways to improve their individual operations. Individualized observation and verbal contacts show that producers have implemented new management practices based on information they received during educational meetings.

### 4-H YOUTH DEVELOPMENT

More than 500 Bulloch County students enrolled in the Move on When Ready program to encourage college readiness. Bulloch County 4-H developed a College and Career Readiness Day for seventh- through 12th-grade 4-H'ers that provided the opportunity for students to



learn more about different career paths, postsecondary options and admission requirements, and professional development. In June 2017, Bulloch County

4-H'ers participated in College and Career Readiness Day. They met with career development specialists and discussed and explored individual postsecondary and career interests. Stan Lee, a local veterinarian, and his assistant spoke with the students about their job duties. Club members also toured Georgia Southern University and Ogeechee Technical College, where they learned about numerous accredited programs, admission requirements and financial aid options and toured state-of-the-art laboratories. The 4-H'ers gained hands-on knowledge about resume building, entrance exam scores, business etiquette and professionalism from staff members and department heads.

### FAMILY AND CONSUMER SCIENCES

Although Bulloch County does not have a Family and Consumer Sciences (FACS) agent based in the county Extension office, we strive to assist local residents with their questions. Common questions cover food safety, food preservation, dealing with mold and mildew, healthy meal planning, nutrition, family budgeting, and more. Neighboring FACS agents conduct programming that our county residents are welcome to attend.



## COUNTY AT A GLANCE

**Population:** 75,343

2017 Georgia County Guide, Georgia Public Library Service

**Georgia Health Factors Ranking:** 57/159

2016 County Health Rankings and Roadmaps, University of Wisconsin Population Health Institute and the Robert Wood Johnson Foundation

**Georgia 4-H Enrollment:** 2,380

Georgia 4-H enrollment system, FY17

**Agriculture, Food, Fiber, Horticulture and Related Total Economic Contribution:**

**Jobs:** 2,820

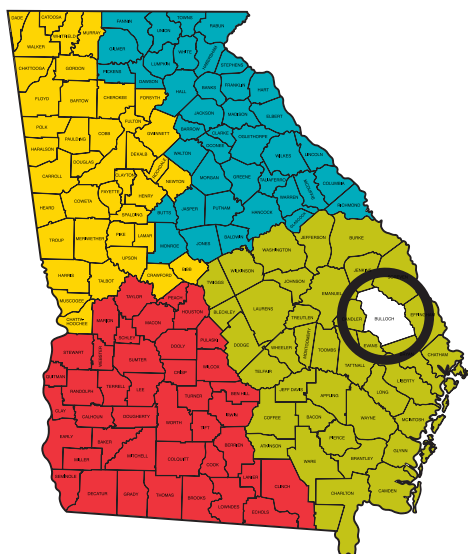
**Output:** \$378,013,022

2018 Ag Snapshots, UGA Center for Agribusiness and Economic Development

**Farm Gate Value:** \$158,948,280

**Top Commodities:** Cotton, Peanuts, Poultry (broilers)

2016 Georgia Farm Gate Value Report, UGA Center for Agribusiness and Economic Development



## UNIVERSITY OF GEORGIA COOPERATIVE EXTENSION

was founded in 1914 by the federal Smith-Lever Act. It's a unique partnership between UGA, county governments and the U.S. Department of Agriculture's Cooperative Extension System of land-grant universities. Today, UGA Extension serves more than 2.1 million Georgians annually through a network of specialists, agents and staff who provide unbiased, research-based information driven by local needs and clientele input. From publications to in-person workshops and events, UGA Extension is ready to meet the needs of the state and its communities.

**Learn more at:**  
[extension.uga.edu](http://extension.uga.edu)

The University of Georgia is committed to principles of equal opportunity and affirmative action.

## Agriculture & Natural Resources

Goods and services related to Georgia's agriculture and natural resources affect each of the state's communities every day. Agriculture is Georgia's largest industry, and its direct and indirect economic impact totals \$73.3 billion. More than 383,600 Georgia jobs are directly involved in commodity or food- and fiber-related industries.

UGA Extension faculty and staff play a key role in the success of this industry by sharing university-based research for Georgians to use on the farm and at home. Recommendations in areas including soil fertility, pest management, plant and crop varieties, water quality, and herd health and management focus on maximizing production and profits while minimizing environmental impacts.

Agriculture and Natural Resources Extension agents also provide homeowners and communities with information on lawn care, landscaping, gardening and water conservation through a variety of workshops. Some agents also work with schools on projects like community gardens and farm-to-school programs. Georgia Master Gardener Extension Volunteers give thousands of hours of service to their communities by answering questions in county offices and creating educational opportunities.

## 4-H Youth Development



As the youth development program of UGA Extension, 4-H is also part of a national network. Georgia 4-H reaches more than 170,000 fourth- through 12th-grade students across the state and helps students develop the knowledge, life skills and attitudes that will enable them to become self-directing, productive and contributing members of society. This mission is fulfilled through hands-on learning experiences in agricultural and environmental awareness, leadership, communication skills, citizenship, energy conservation, health, and food and nutrition.

Georgia 4-H'ers are well-known for sharing their knowledge and volunteering throughout their communities. At the school and county levels, students participate in club meetings organized by 4-H Youth Development Extension agents. At the state level, students participate in competitions, summer camps and conferences. Some 4-H competitions and events are also offered at the regional and national levels.

Research indicates that, as a result of participating in 4-H, members are more engaged in their academic studies, less likely to be involved in risky behavior, and more likely to graduate from high school and continue their education.

## Family & Consumer Sciences

Family and Consumer Sciences Extension specialists, agents and staff assist in addressing real-life issues faced by Georgians of all ages. They provide programs and the latest information on obesity, chronic disease, food and financial insecurity, family stresses, unhealthy housing, food safety and preservation, nutrition and more.

To help promote the positive development and safety of preschool, school-aged and adolescent youth, UGA Extension offers resources for parents, caregivers and others. Extension professionals in this program area lead consumer economics trainings and programs such as ServSafe®, Relationship Smarts, and PRIDE, a parent and teen driving education course.

Extension also promotes healthy lifestyles through statewide programs. Walk Georgia is a virtual, fitness-tracking resource that encourages physical fitness and healthy lifestyles to better the lives of Georgians. Other health programs managed by UGA include the Expanded Food and Nutrition Education Program (EFNEP) and Supplemental Nutrition Assistance Program Education (SNAP-Ed). These classes teach families how to stretch their food dollars, eat healthier meals and snacks, and reduce the risk of foodborne illnesses.



GEORGIA FORESTRY  
COMMISSION



# **Community Wildfire Protection Plan**

## ***An Action Plan for Wildfire Mitigation and Conservation of Natural Resources***

### **Bulloch County, Georgia**

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A Program of the Georgia Forestry Commission  
with support from the U.S. Forest Service



JULY 2018

Prepared by;  
Doug Chassereau, Chief Ranger, Bulloch County  
Will Fell, CWPP Specialist, (Initial plan 2013)  
Beryl Budd, Wildfire Prevention Specialist (Revised plan 2018)

Georgia Forestry Commission  
47 Mill Creek Rd  
Statesboro GA 30461

The following report is a collaborative effort among various entities; the representatives listed below comprise the core decision-making team responsible for this report and mutually agree on the plan's contents:

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### Appended Documents:

Bulloch County Southern Wildfire Risk Assessment Summary Report

Bulloch County Wildfire Pre-suppression Plan

NFPA 1141 Standard for Fire Protection Infrastructure for Land Development in Suburban and Rural Areas.

## Preface

The extreme weather conditions that are conducive to wildfire disasters (usually a combination of extended drought, low relative humidity and high winds) can occur in this area of Georgia as infrequently as every 10-15 years. This is not a regular event, but as the number of homes that have been built in or adjacent to forested or wildland areas increases, it can turn a wildfire under these weather conditions into a major disaster. Wildfires move fast and can quickly overwhelm the resources of even the best equipped fire department. Advance planning can save lives, homes and businesses.

This Community Wildfire Protection Plan (CWPP) includes a locally assessed evaluation of the wildland urban interface areas of the county, looking at the critical issues regarding access to these areas, risk to properties from general issues such as building characteristics and “fire wise” practices and response from local fire fighting resources. It further incorporates a locally devised action plan to mitigate these risks and hazards through planning, education and other avenues that may become available to address the increasing threat of wildland fire. The CWPP does not obligate the county financially in any way, but instead lays a foundation for improved emergency response if and when grant funding is available to the county.

The Plan is provided at no cost to the county and can be very important for county applications for hazard mitigation grant funds through the National Fire Plan, FEMA mitigation grants and Homeland Security. Under the Healthy Forest Restoration Act (HFRA) of 2003, communities (counties) that seek grants from the federal government for hazardous fuels reduction work are required to prepare a Community Wildfire Protection Plan.

This plan will:

- Enhance public safety
- Raise public awareness of wildfire hazards and risks
- Educate homeowners on how to reduce home ignitability
- Build and improve collaboration at multiple levels

The public does not have to fall victim to this type of disaster. Homes (and communities) can be designed, built and maintained to withstand a wildfire even in the absence of fire equipment and firefighters on the scene. It takes planning and commitment at the local level before the wildfire disaster occurs and that is what the Community Wildfire Protection Plan is all about.

## I. OBJECTIVES

The mission of the following report is to set clear priorities for the implementation of wildfire mitigation in Bulloch County. The plan includes prioritized recommendations for the appropriate types and methods of fuel reduction and structure ignitability reduction that will protect this community and its essential infrastructure. It also includes a plan for wildfire suppression. Specifically, the plan includes community-centered actions that will:

- Educate citizens on wildfire, its risks, and ways to protect lives and properties,
- Support fire rescue and suppression entities,
- Focus on collaborative decision-making and citizen participation,
- Develop and implement effective mitigation strategies, and
- Develop and implement effective community ordinances and codes.

## II. COMMUNITY COLLABORATION

The core team convened on March 28<sup>th</sup>, 2012 to assess risks and develop the Community Wildfire Protection Plan. The group is comprised of representatives from local government, local fire authorities, and the state agency responsible for forest management. Below are the groups included in the task force:

Bulloch County Government  
*Bulloch County Fire Department*  
*Public Safety / Emergency Management*  
City of Statesboro  
*Statesboro Fire Department,*  
Georgia Forestry Commission

It was decided to conduct community assessments on the basis selected communities in the county. The chiefs of the fire departments in the county assessed their districts and reconvened on March 27<sup>th</sup>, 2013 for the purpose of completing the following:

Risk Assessment	Assessed wildfire hazard risks and prioritized mitigation actions.
Fuels Reduction	Identified strategies for coordinating fuels treatment projects.
Structure Ignitability	Identified strategies for reducing the ignitability of structures within the Wildland interface.
Emergency Management	Forged relationships among local government and fire districts and developed/refined a pre-suppression plan.
Education and Outreach	Developed strategies for increasing citizen awareness and action and to conduct homeowner and community leader workshops.

### III. COMMUNITY & WILDFIRE HISTORY

#### Bulloch County



When it was formed in 1796 as Georgia's twenty-first county, Bulloch County consisted of more than 500,000 acres of pine trees and fields of sandy soil. The county gave up some of its territory when Georgia's legislature created the neighboring counties of Candler, Emanuel, Evans, and Jenkins. Today the county covers an area of 682 square miles.

#### Early Settlement

Bounded on the east by the Ogeechee River and on the west by the Canoochee River, nineteenth-century Bulloch attracted planters, timbermen, and turpentine distillers. Many of these settlers' ancestors had lived in Northern Ireland and England.

Others traced their heritage to France, Germany, Scotland, Wales, and West Africa. They converted Indian paths into wagon trails and cleared land for farms and plantations.

The county's pioneers sometimes called it the "State of Bulloch." They named their county seat "Statesborough" when the Georgia legislature created it in 1803. The county's name honors Archibald Bulloch, who was president and commander in chief of Georgia in 1776.

After surveying the county in 1849, George White wrote in *Statistics of the State of Georgia*, "The county is inhabited by an industrious and kind people. Although the lands which most of the citizens cultivate are poor, yet, by dint of industry and economy, they manage to supply their wants, which, however, are very few. Many rely, in a great degree, upon game, with which the county abounds, and the productions of their orchards. The Bulloch county farmer would get rich, while others would starve."

Although White makes no mention of it, cotton production and slavery were also major components of Bulloch County's antebellum economy. In 1850 slaves made up about a third of the county's population; by 1860 their proportion of the populace had risen to nearly half, due both to a decline in the white population and to a substantial rise in the number of slaves. Most slaves were engaged in raising cotton, the production of which also increased markedly over the same decade. Though not nearly as much a part of the Cotton Belt as other counties in the region, Bulloch County planters and their slaves produced 594 bales of cotton in 1850 and more than twice that amount, 1,378 bales, in 1860.

Incoming settlers located their farms near the Old River Road that parallels the Ogeechee. Others found ideal homesteads near the western border. A handful chose to live in the county seat. The 1880 census is revealing: the population of the county was 8,053, while only 1,036 lived in what had become known as "Statesboro." At that time no railroads existed in the county, and farmers transported their crops to distant markets in Savannah and Augusta.

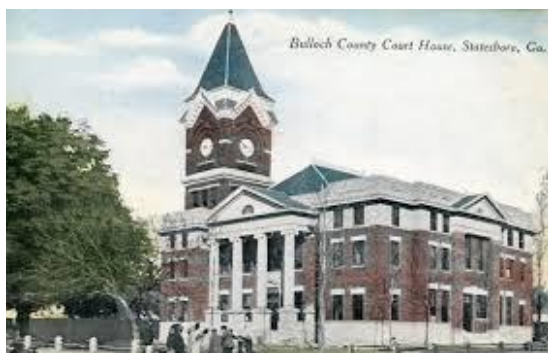


## Commercial Growth

Between 1890 and 1910, Bulloch County transformed itself into a major agricultural and commercial center, led by aggressive leaders who were new transplants to the county. These newcomers built links to railroads and developed an infrastructure of services. The once sleepy county seat became a regional hub. Enterprising businessmen, including more than a dozen Jewish merchants, developed a strong retail market that served the needs of farmers who brought their cotton and, later, tobacco to the markets in Statesboro.

In 1906 the county and city collected \$125,000 in donations to support a new state-sponsored Agricultural and Mechanical School in Statesboro. Originally designed to advance the interests of the region's farmers, the school evolved into a teachers college and later Georgia Southern University.

## Bulloch County Today



The three major economic forces in Bulloch County today are education, agriculture, and industry. During the last decade of the twentieth century, several national industries located plants in the county. Since 1990 Ogeechee Technical College has provided instruction for the regional workforce.

While most major religious denominations are represented in the county, Bulloch has a large number of churches known as Primitive Baptist. The congregation in Statesboro, locals say, is the largest of this denomination in the world. Because these predominantly rural churches refused to deviate from tradition in the 1800s, they called themselves "primitive," that is, "original." Their beliefs tend to mirror the teachings of the Scottish reformer John Calvin. Primitive Baptist congregations in rural Bulloch County typically sing psalms and *Sacred Harp* hymns a cappella.

Natural areas abound in Bulloch County, and many residents participate in outdoor activities. Fields, streams, and ponds beckon the hunter and angler. Golf is a year-round sport, and Mill Creek Regional Park offers 155 acres of softball and soccer fields, as well as scenic paths for walkers and runners. The Statesboro–Bulloch County Parks and Recreation Department organizes programs throughout the year for adults and children.

Bulloch County is governed by a diverse body of seven elected commissioners and an appointed county manager. According to the 2010 U.S. census, the population of Bulloch County is 70,217, an increase from the 2000 population of 55,983. Besides Statesboro, the county's other municipalities are Brooklet, Portal, and Register.

(Courtesy Delma Presley, *New Georgia Encyclopedia*)

## **Wildfire History**

Bulloch County located in south east Georgia, despite its large agricultural presence, is still over 70% forested. Perhaps with the exception of the large blocks of woodlands adjacent the Ogeechee River and in southern Bulloch County, there are homes and communities scattered throughout the county. The risks and hazards from the wildland urban interface are fairly general and substantial throughout the county even on the edges of the incorporated cities. Conventional wisdom would indicate that the threat to these homes would decrease with the counties rapid growth, just the opposite is occurring. Homes are increasingly being built out in the wildland interface particularly in the southeast section of the county closest to Savannah. Additionally many acres of previously cultivated land have reverted and still are to wildland, much of it through the replanting of pine plantations under a number of conservation programs. As these plantations come out from the program, a number are being converted to home sites exposed to potential high risk to wildfire.

Bulloch County is protected by organized fire departments within the city of Statesboro, along with 18 well spaced volunteer fire departments under the jurisdiction of the Bulloch County Fire Department. The Georgia Forestry Commission maintains a county protection unit located just north of Statesboro on Hwy 301 to respond to wildfires throughout the county. The cities of Statesboro, Brooklet, Portal, Register and some adjacent areas of the county are serviced by pressurized water systems with hydrants available.

Over the past fifty six years, Bulloch County has averaged 106 reported wildland fires per year, burning an average of 526 acres per years. Using more recent figures over the past 20 years, this number has declined somewhat to an average of 79 fires per year burning 451 acres annually. While there has been a decrease in numbers and acres in recent years, there has been about a 30% increase in the average size as the wildland fuel loads have increased with the diminished use of prescribed burning. The occurrence of these fires during this period shows a pronounced peak during the months of January, February, March and April accounting for 63% of the annual fires and 68% of the average acreage burned. There is a significant decrease during the remainder of the year, particularly during the summer months.

Over the past 10 years, FY 2008 thru FY2017, the leading causes of these fires, was debris burning causing 48% of the fires and 46% of the acres burned. The 2<sup>nd</sup> leading cause of wildfires was Machine Use causing 12% of the fires and 10% of the acres burned. Incendiary (arson) was also a significant cause accounting for 9% of the fires and 16% of the acreage burned. During this 10 year period the County averaged 54 wildfires and 260.06 acres burned annually.

Wildfire data from the most recent fiscal year and from the preceding 10 year period, 2008 – 2017, can be found on the following pages, 9 thru 14.

County = Bulloch	Cause	Fires		Acres	Fires 5 Yr Avg	Acres 5 Yr Avg
<a href="#">Campfire</a>	Campfire	4		3.06	3.60	11.85
<a href="#">Children</a>	Children	1		0.10	1.60	1.65
<a href="#">Debris: Ag Fields, Pastures, Orchards, Etc</a>	Debris: Ag Fields, Pastures, Orchards, Etc	4		29.99	2.80	10.85
<a href="#">Debris: Construction Land Clearing</a>	Debris: Construction Land Clearing	0		0.00	0.20	0.08
<a href="#">Debris: Escaped Prescribed Burn</a>	Debris: Escaped Prescribed Burn	9		20.14	5.00	22.18
<a href="#">Debris: Household Garbage</a>	Debris: Household Garbage	3		5.90	1.00	1.80
<a href="#">Debris: Other</a>	Debris: Other	1		0.50	0.40	0.20
<a href="#">Debris: Residential, Leafpiles, Yard, Etc</a>	Debris: Residential, Leafpiles, Yard, Etc	11		38.84	8.60	19.35
<a href="#">Debris: Site Prep - Forestry Related</a>	Debris: Site Prep - Forestry Related	3		30.40	2.60	10.84
<a href="#">Incendiary</a>	Incendiary	9		74.60	4.80	55.59
<a href="#">Lightning</a>	Lightning	0		0.00	1.00	10.40
<a href="#">Machine Use</a>	Machine Use	4		30.60	4.40	16.87
<a href="#">Miscellaneous: Other</a>	Miscellaneous: Other	1		4.60	0.40	1.14
<a href="#">Miscellaneous: Power lines/Electric fences</a>	Miscellaneous: Power lines/Electric fences	1		0.01	2.80	3.76
<a href="#">Miscellaneous: Structure/Vehicle Fires</a>	Miscellaneous: Structure/Vehicle Fires	1		2.40	1.20	2.03
<a href="#">Miscellaneous: Woodstove Ashes</a>	Miscellaneous: Woodstove Ashes	0		0.00	0.60	1.44
<a href="#">Smoking</a>	Smoking	2		5.00	0.60	1.48
<a href="#">Undetermined</a>	Undetermined	2		2.60	1.00	2.66
<b>Totals for County: Bulloch Year: 2018</b>		56		248.74	42.60	174.17

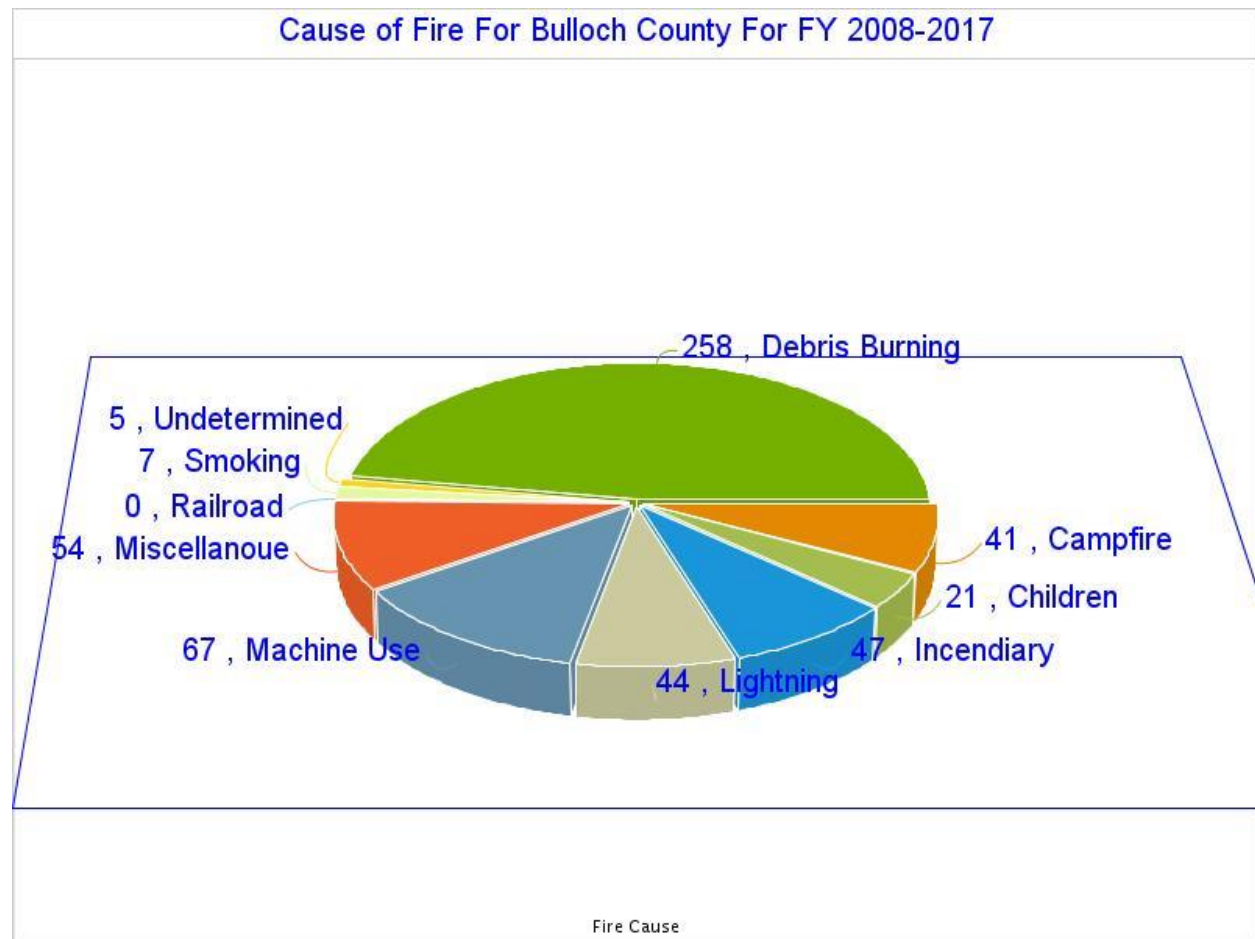
<b>Acreage Burned /Number of Fires For Bulloch County For FY 2008-2017</b>				
<b>Year</b>	<b>Acreage Burned</b>	<b>Number of Fires</b>	<b>Average Size</b>	<b>Statewide Average Size</b>
2008	244.23	38	6.43	4.56
2009	307.34	55	5.59	3.90
2010	248.89	23	10.82	3.93
2011	512.30	133	3.85	17.56
2012	411.34	80	5.14	5.08
2013	254.38	61	4.17	4.53
2014	92.85	41	2.26	5.02
2015	155.65	29	5.37	4.42
2016	100.52	17	5.91	6.29
2017	273.11	70	3.90	11.60

<b>Acreage Burned /Number of Fires by Fire Cause For Bulloch County For FY 2008-2017</b>		
<b>Fire Cause</b>	<b>Acreage Burned</b>	<b>Number of Fires</b>
Campfire	153.86	41
Children	52.26	21
Debris Burning	1,195.96	258
Incendiary	425.31	47
Lightning	342.41	44
Machine Use	245.65	67
Miscellaneous	126.51	54
Railroad	0.00	0
Smoking	41.15	7
Undetermined	13.20	5
<b>Total</b>	<b>2,596.31</b>	<b>544</b>

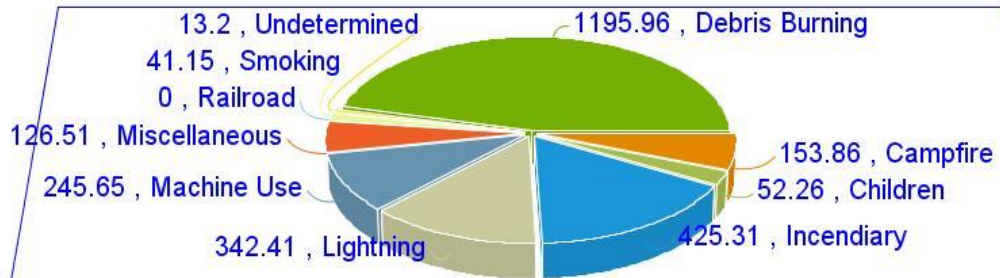
### Number of Fires by Cause for Bulloch County for FY 2008 to 2017

Year	Campfire	Children	Debris Burning	Incendiary	Lightning	Machine Use	Miscellaneous	Railroad	Smoking
2008	0	1	14	1	11	7	4	0	0
2009	2	5	27	4	4	3	9	0	1
2010	0	1	12	2	3	1	3	0	1
2011	14	6	63	10	8	23	6	0	3
2012	6	1	37	9	9	11	3	3	1
2013	5	0	33	6	4	4	9	0	0
2014	5	2	18	3	0	4	8	0	1
2015	3	0	11	4	3	5	3	0	0
2016	1	1	8	2	1	2	2	0	0
2017	5	4	35	6	1	7	12	0	0

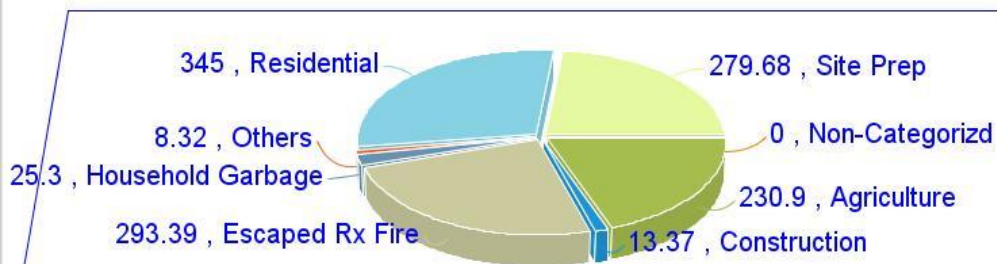
### Cause of Fire For Bulloch County For FY 2008-2017



Acreage Burned by Cause of Fire For Bulloch County For FY 2008-2017



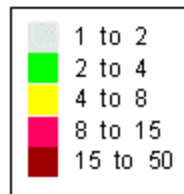
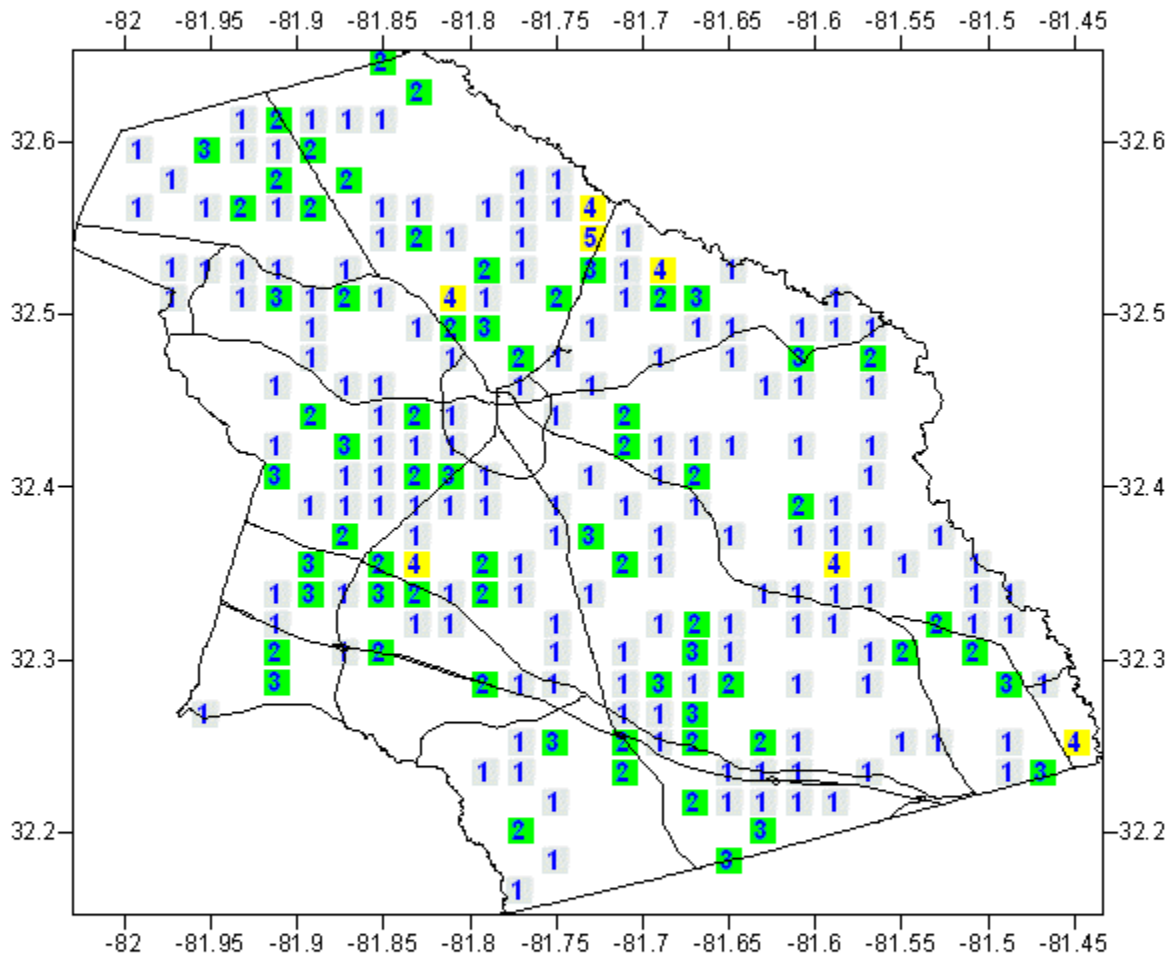
Acreage Burned By Debris Burning Sub Cause For Bulloch County For FY 2008-2017



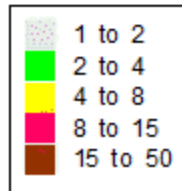
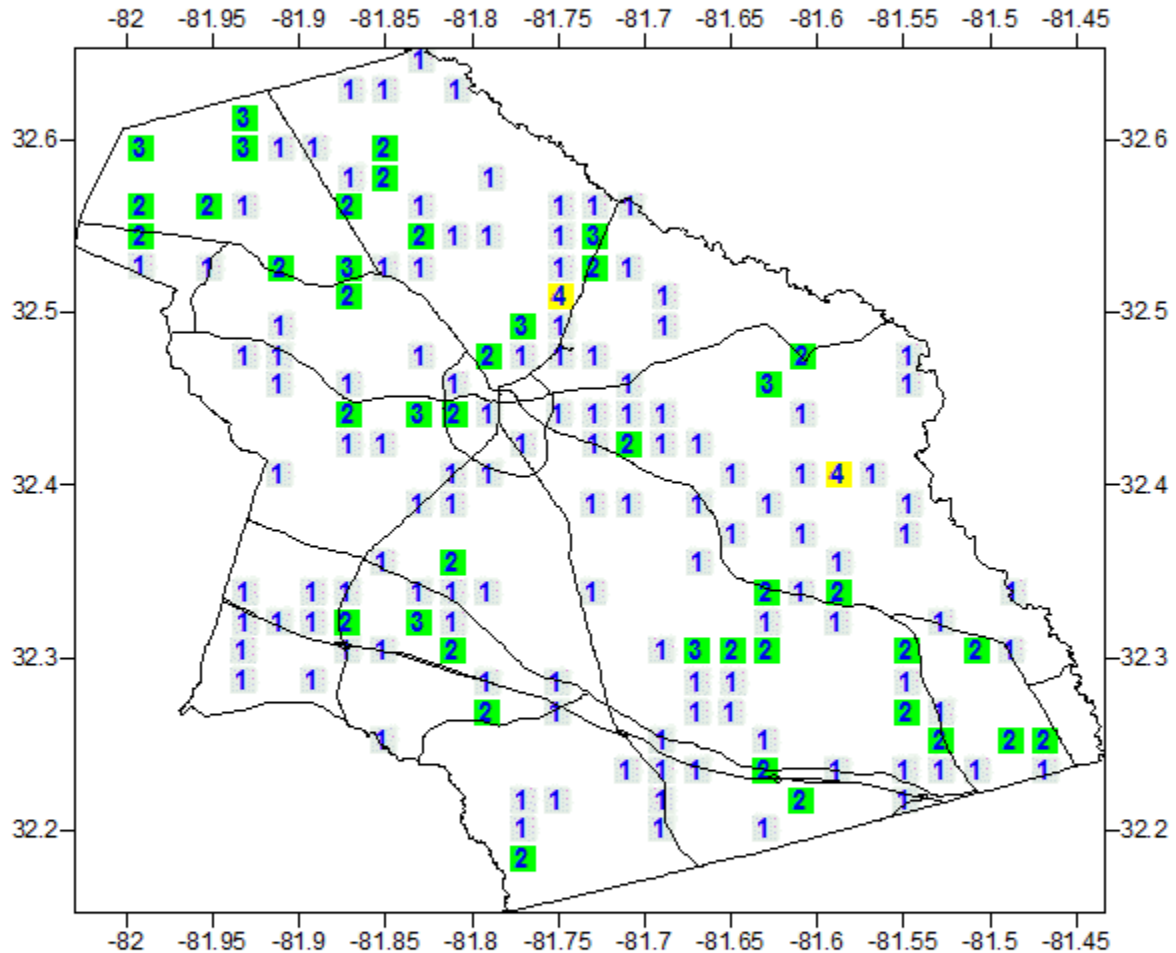
Fire Cause



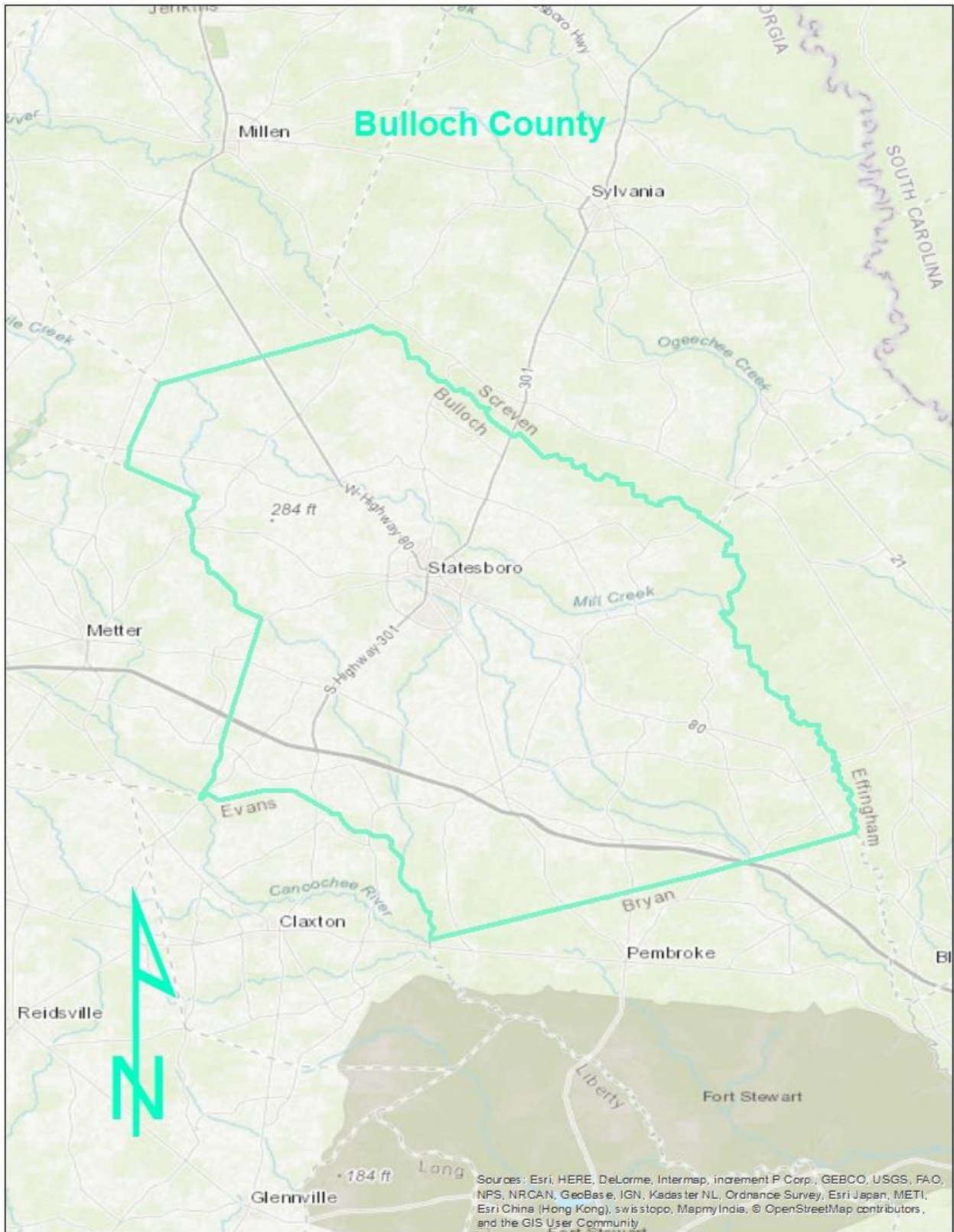
# Fire Occurrence Map for Bulloch County for Fiscal Year 2007-2011



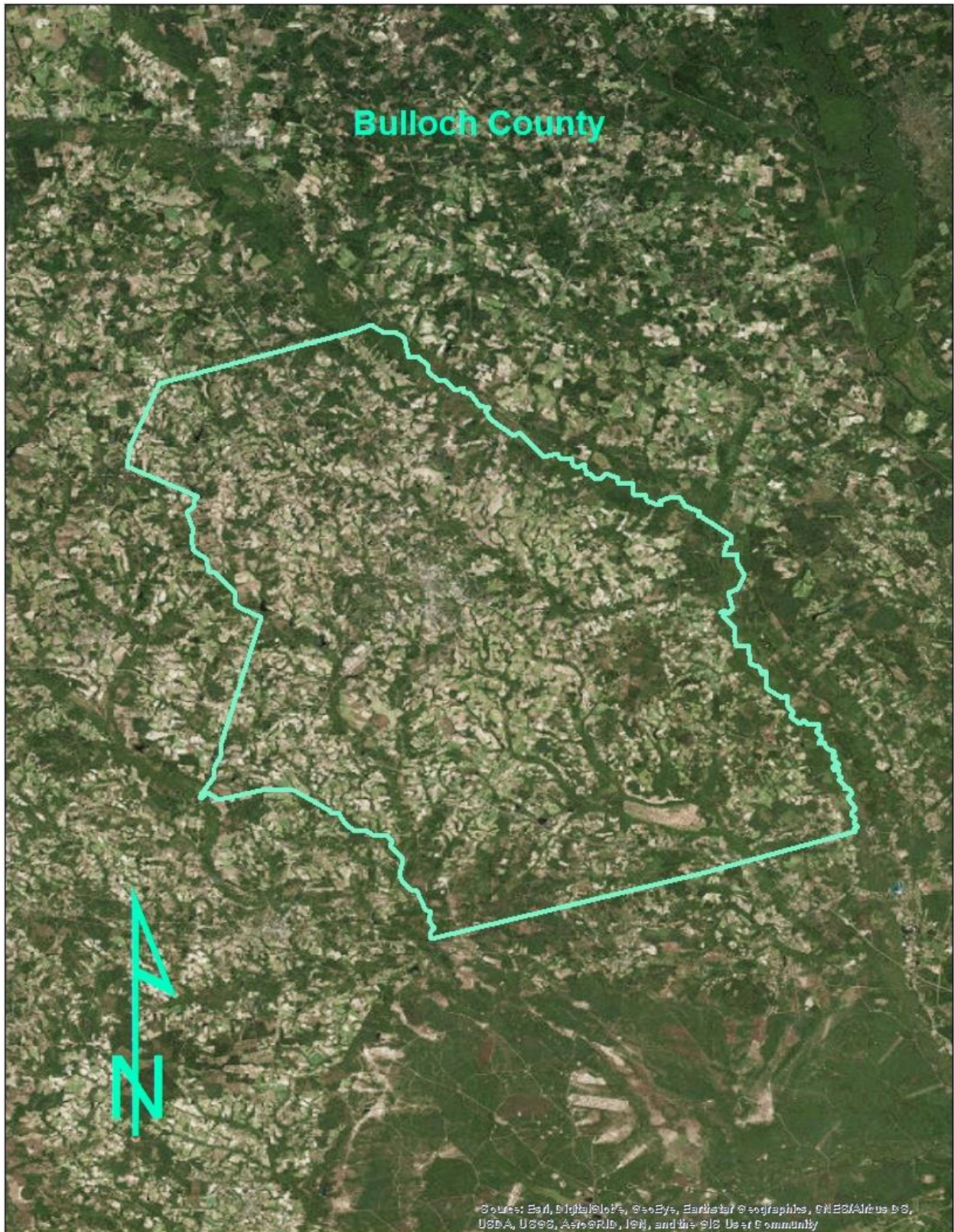
# Fire Occurrence Map for Bulloch County for Fiscal Year 2012-2016



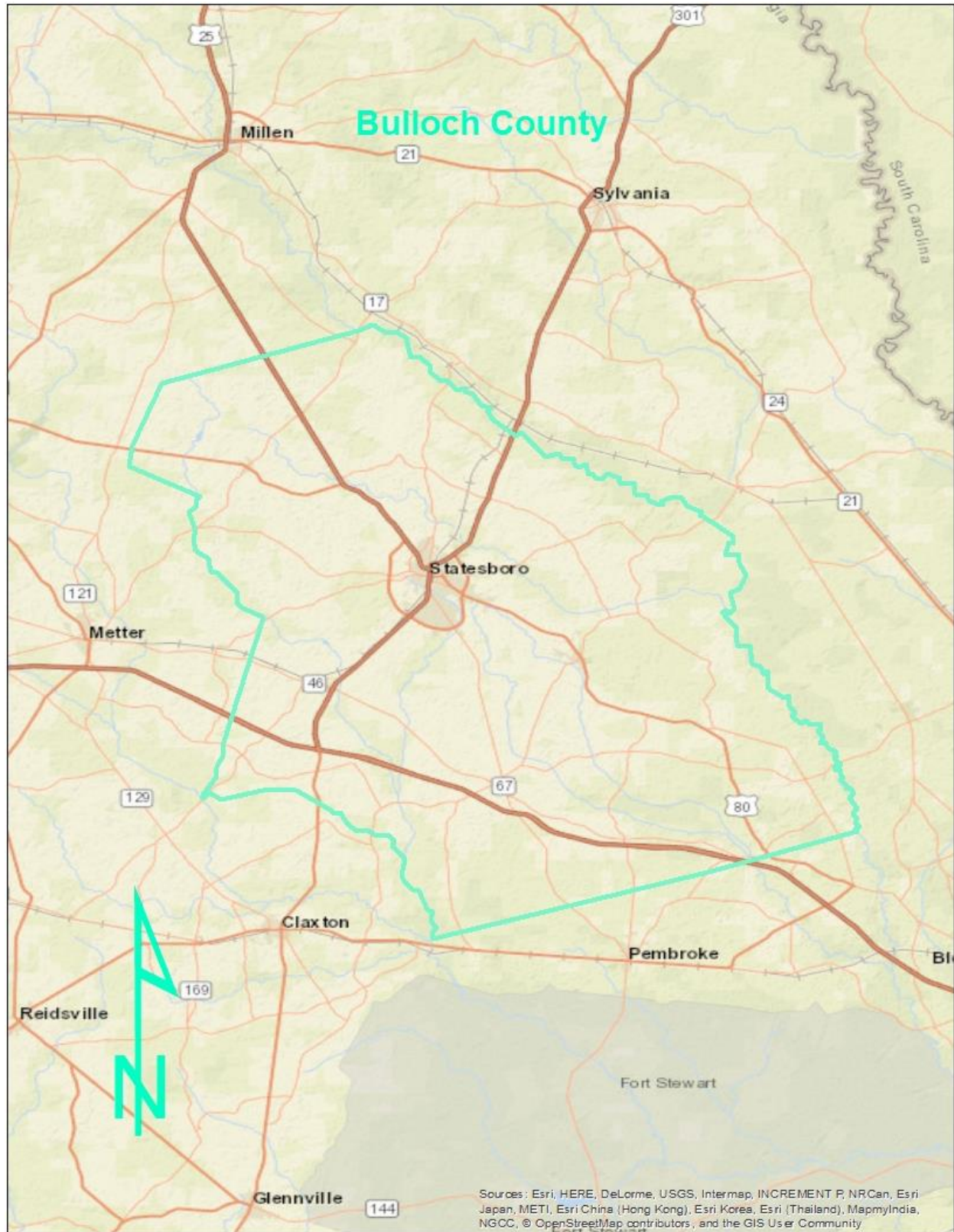
## IV. COUNTY BASE MAPS











## V. COMMUNITY WILDFIRE RISK ASSESSMENT

### The Wildland-Urban Interface

There are many definitions of the Wildland-Urban Interface (WUI), however from a fire management perspective it is commonly defined as an area where structures and other human development meet or intermingles with undeveloped wildland or vegetative fuels. As fire is dependent on a certain set of conditions, the National Wildfire Coordinating Group has defined the wildland-urban interface as a set of conditions that exists in or near areas of wildland fuels, regardless of ownership. This set of conditions includes type of vegetation, building construction, accessibility, lot size, topography and other factors such as weather and humidity. When these conditions are present in certain combinations, they make some communities more vulnerable to wildfire damage than others. This “set of conditions” method is perhaps the best way to define wildland-urban interface areas when planning for wildfire prevention, mitigation, and protection activities.

There are three major categories of wildland-urban interface. Depending on the set of conditions present, any of these areas may be at risk from wildfire. A wildfire risk assessment can determine the level of risk.

**1. “Boundary” wildland-urban interface** is characterized by areas of development where homes, especially new subdivisions, press against public and private wildlands, such as private or commercial forest land or public forests or parks. This is the classic type of wildland-urban interface, with a clearly defined boundary between the suburban fringe and the rural countryside.

**2. “Intermix” wildland-urban interface** areas are places where improved property and/or structures are scattered and interspersed in wildland areas. These may be isolated rural homes or an area that is just beginning to go through the transition from rural to urban land use.

**3. “Island” wildland-urban interface**, also called occluded interface, are areas of wildland within predominately urban or suburban areas. As cities or subdivisions grow, islands of undeveloped land may remain, creating remnant forests. Sometimes these remnants exist as parks, or as land that cannot be developed due to site limitations, such as wetlands.

(courtesy *Fire Ecology and Wildfire Mitigation in Florida* 2004)



## **Wildland Urban Interface Hazards**

Firefighters in the wildland urban interface may encounter hazards other than the fire itself, such as hazardous materials, utility lines and poor access.

### **Hazardous Materials**

- Common chemicals used around the home may be a direct hazard to firefighters from a flammability, explosion potential and/or vapors or off gassing. Such chemicals include paint, varnish and other flammable liquids, fertilizer, pesticides, cleansers, aerosol cans, fireworks, batteries and ammunition. In addition, some common household products such as plastics may give off very toxic fumes when they burn. Stay out of smoke from burning structures and any unknown sources such as trash piles.

### **Illicit Activities**

- Marijuana plantations or drug production labs may be found in the wildland urban interface areas. Extremely hazardous materials such as propane tanks and flammable/toxic chemicals may be encountered.

### **Propane Tanks**

- Both large (household size) and small (gas grill size) liquefied propane gas (LPG) tanks can present hazards to firefighters, including explosion. See the “LPG Tank Hazards” discussion for details

### **Utility Lines**

- Utility Lines may be located above and below ground and may be cut or damaged by tools or equipment. Don’t spray water on utility lines or boxes.

### **Septic Tanks and Fields**

- Below ground structures may not be readily apparent and may not support the weight of engines or other equipment.

### **New Construction Materials**

- Many new construction materials have comparatively low melting points and may “off-gas” extremely hazardous vapors. Plastic decking materials that resemble wood are becoming more common and may begin softening and losing structural strength at 180 degrees F, though they normally do not sustain combustion once direct flame is removed. However after continuing to burn they exhibit the characteristics of flammable liquids.

### **Pets and Livestock**

- Pets and livestock may be left when residents evacuate and will likely be highly stressed making them more inclined to bite and kick. Firefighters should not put themselves at risk to rescue pets or livestock.

### **Evacuation Occurring**

- Firefighters may be taking structural protect actions while evacuations of residents are occurring. Be very cautious of people driving erratically. Distraught residents may refuse to leave their property and firefighters may need to disengage from fighting fire to contact law enforcement officers for assistance. In most jurisdictions firefighters do not have the authority to force evacuations. Firefighters should not put themselves at risk trying to protect someone who will not evacuate!

### **Limited Access**

- Narrow one-lane roads with no turn around room, inadequate or poorly maintained bridges and culverts are frequently found in wildland urban interface areas. Access should be sized up and an evacuation plan for all emergency personnel should be developed.



**Wildland Urban Interface (WUI) is described as the area where structures and other human improvements meet and intermingle with undeveloped wildland or vegetative fuels.**

The wildland fire risk assessments were conducted in 2013 by the Statesboro and Bulloch County Fire Departments. The risk assessment instrument used was the Hazard and Wildfire Risk Assessment Checklist which was developed looking at six areas of concern;

- (1) Community Access looks at the number of entrances to the community, road width and condition, dead end roads, turn around areas along with road signs and address visibility.
- (2) Surrounding Vegetation looks at the wildland fuels adjacent to and its closeness to structures.
- (3) Building Construction looks at the flammability of roofing and siding materials and skirting or underpinning of structures.
- (4) Fire Protection looks at the distance from staffed departments and the availability of supplemental water sources from pressurized hydrants, dry hydrants and drafting places.
- (5) Utilities looks at hazards to fire suppression equipment, both engines and forestry plow units from electrical service lines, propane tanks and unmarked septic tanks.
- (6) Additional Factors consider large adjacent areas of wildlands, canal or ditch presence, closeness of structures, presence of undeveloped unmaintained lots, wildfire history in the area and the availability of homeowner associations to remediate issues.

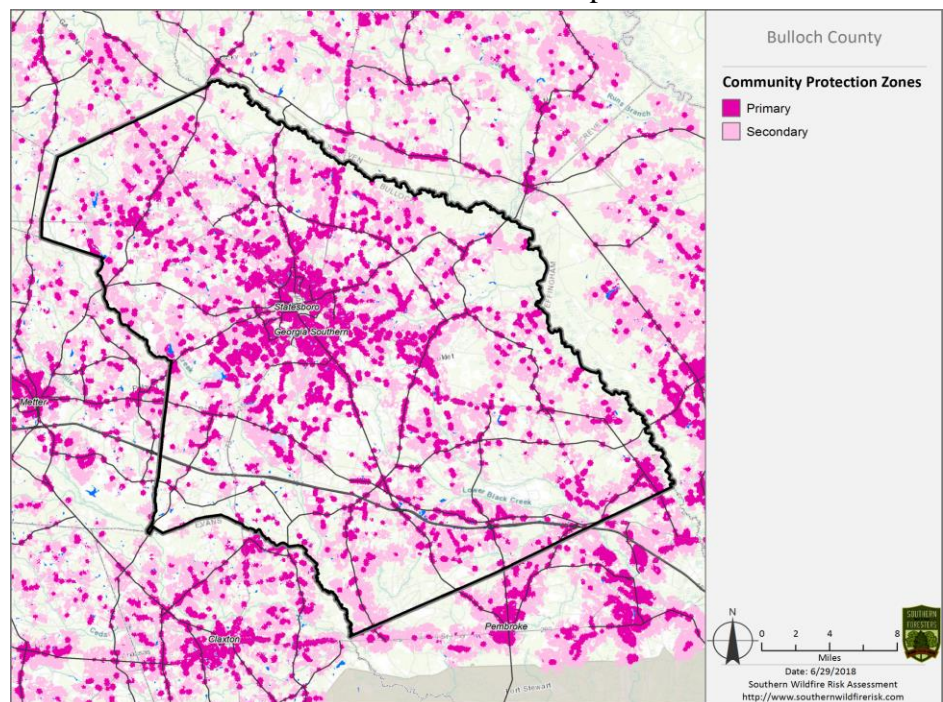
The following factors contributed to the wildfire hazard score for Bulloch County:

- Narrow roads without drivable shoulders
- Inadequate driveway access
- Minimal defensible space around structures
- Homes with wooden siding
- Unmarked septic tanks in yards
- Lack of pressurized or non-pressurized water systems available
- Large, adjacent areas of forest or wildlands
- Heavy fuel buildup in adjacent wildlands
- Lack of prescribed burning in many areas of the county
- Undeveloped lots comprising half the total lots in many rural communities.
- High occurrence of wildfires in the several locations
- Lack of homeowner or community organizations

## VI. SOUTHERN WILDFIRE RISK ASSESSMENT & RISK HAZARD MAPS

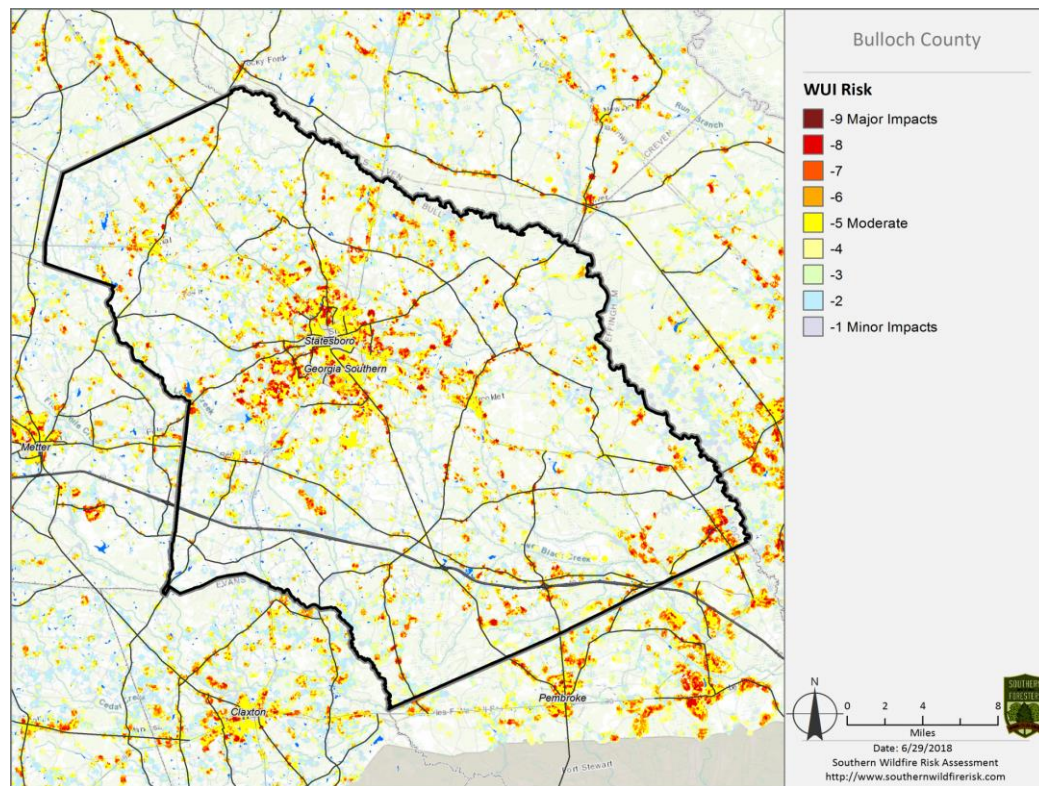
The Southern Wildfire Risk Assessment tool, developed by the Southern Group of State Foresters, was released to the public in July 2014. This tool allows users of the Professional Viewer application of the Southern Wildfire Risk Assessment (SWRA) web Portal (SouthWRAP) to define a specific project area and summarize wildfire related information for this area. A detailed risk summary report is generated using a set of predefined map products developed by the Southern Wildfire Risk Assessment project which have been summarized explicitly for the user defined project area. A risk assessment summary was generated for Bulloch County. The SouthWRAP (SWRA) products included in this report are designed to provide the information needed to support the following key priorities:

- Identify areas that are most prone to wildfire.
- Identify areas that may require additional tactical planning, specifically related to mitigation projects and Community Wildfire Protection Planning.
- Provide the information necessary to justify resource, budget and funding requests.
- Allow agencies to work together to better define priorities and improve emergency response, particularly across jurisdictional boundaries.
- Define wildland communities and identify the risk to those communities.
- Increase communication and outreach with local residents and the public to create awareness and address community priorities and needs.
- Plan for response and suppression resource needs.
- Plan and prioritize hazardous fuel treatment.

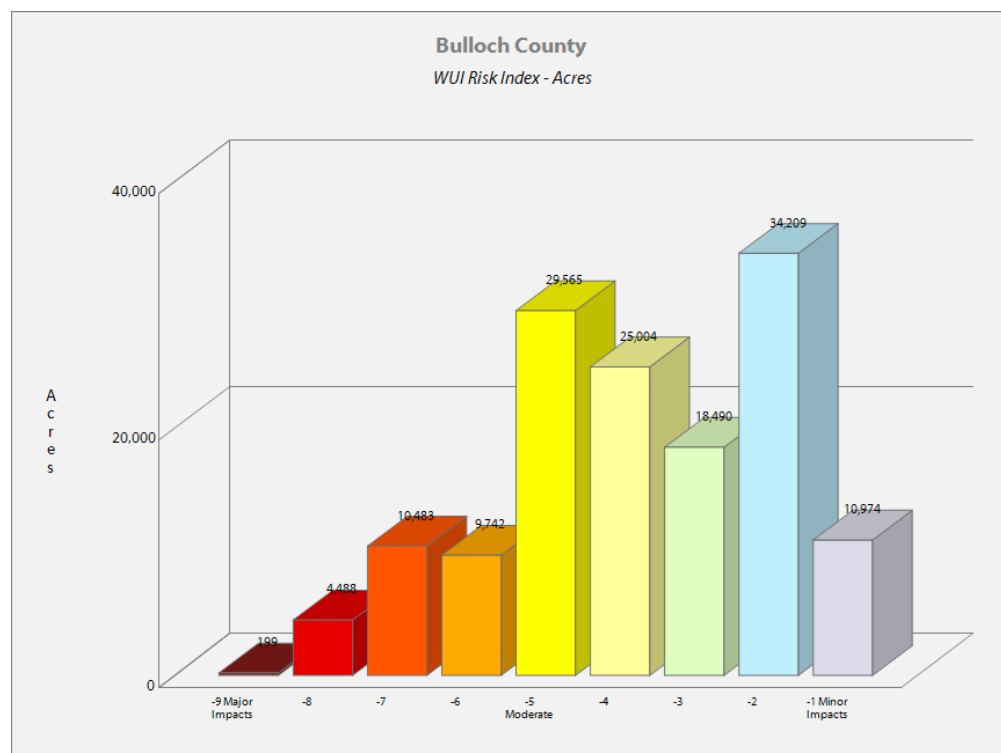


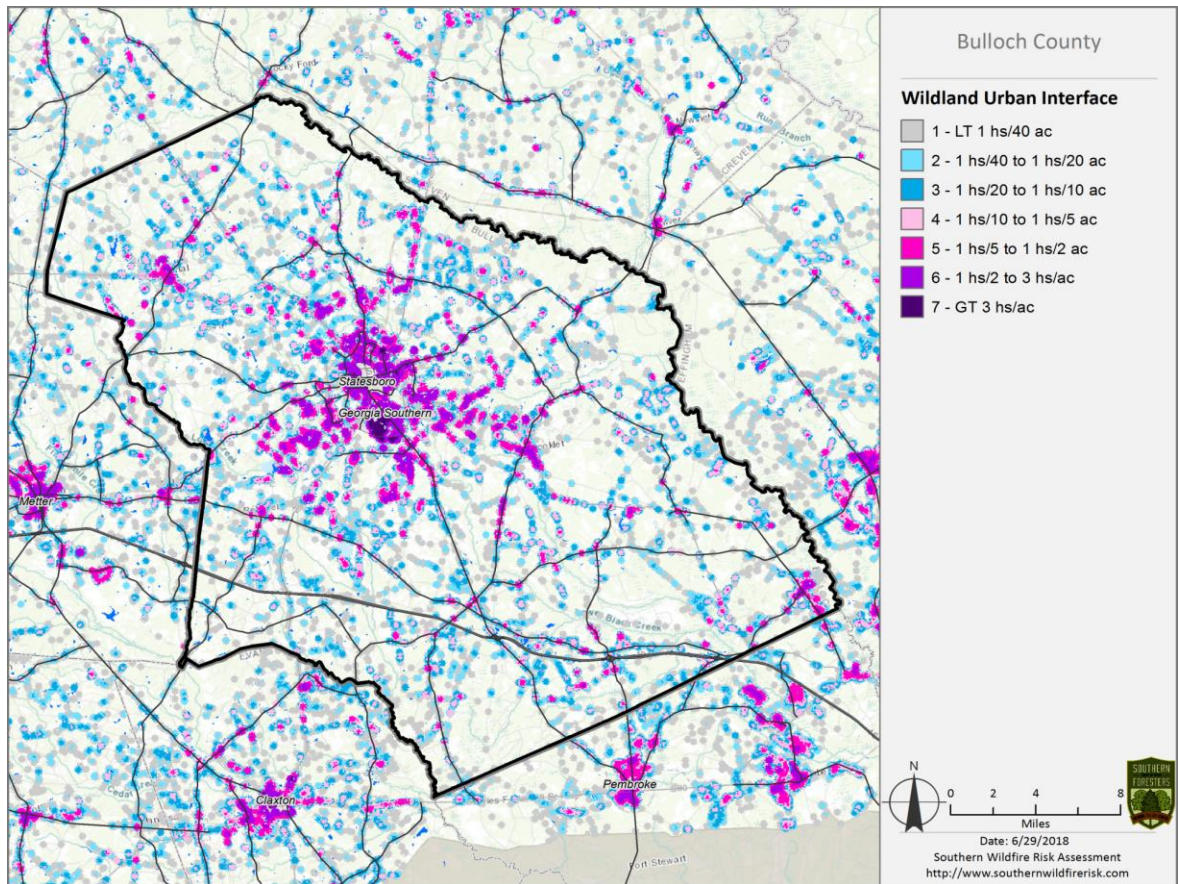
Community Protection Zones map from the Bulloch County SWRA



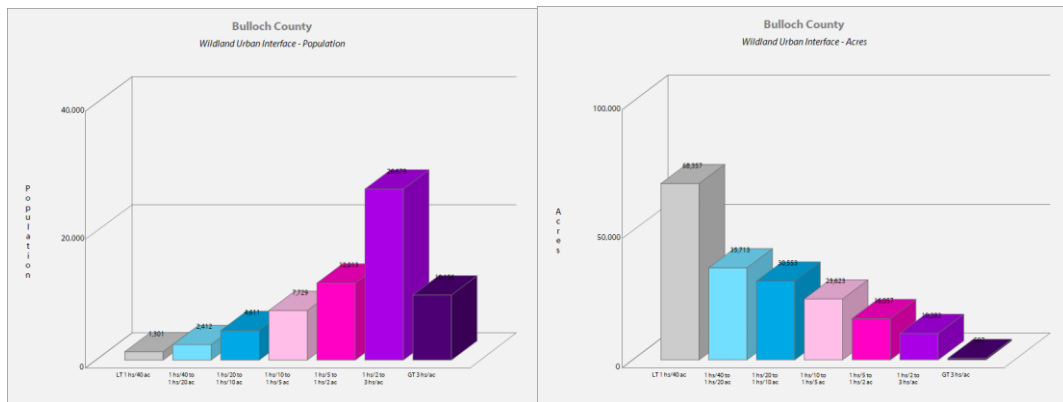


Above: Wildland Urban Interface (WUI) Risk map    Below: WUI Risk Index Acres

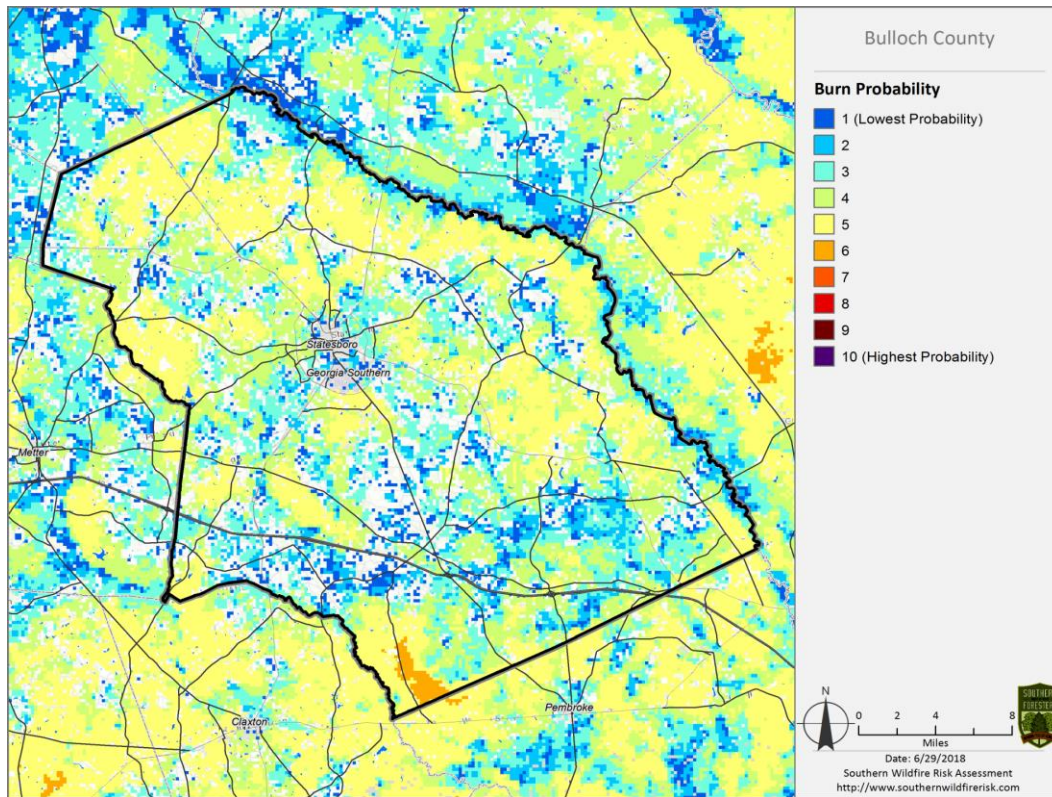




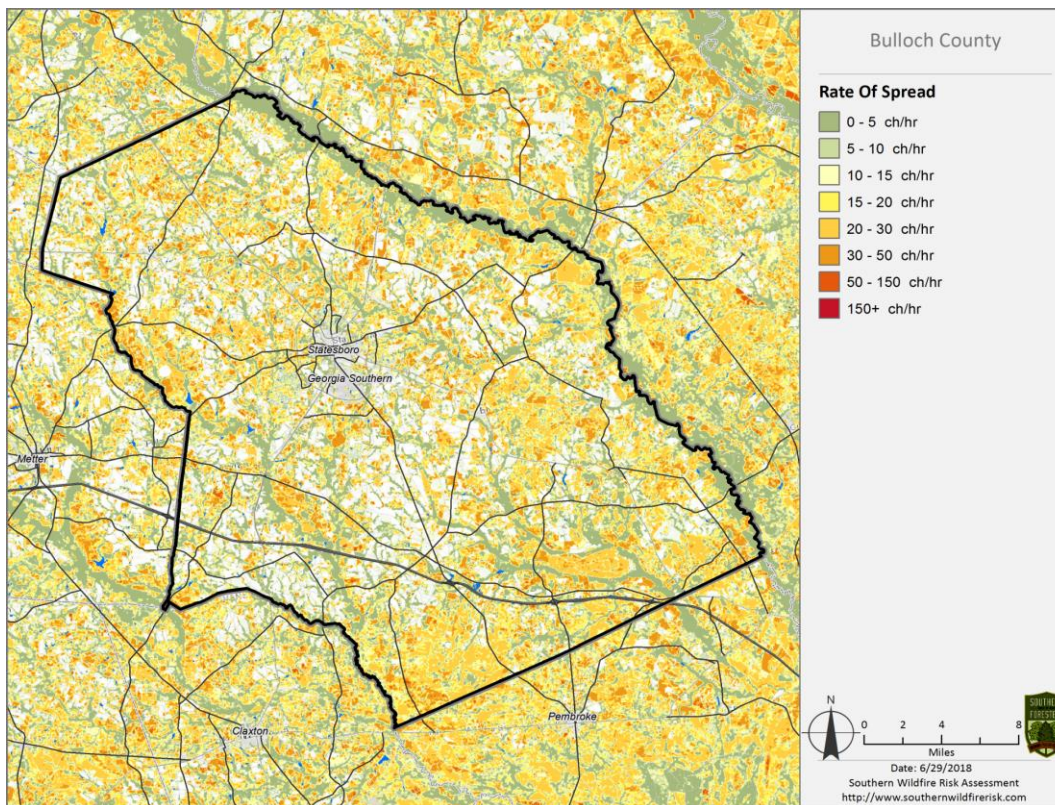
Above: Wildland Urban Interface (WUI) map Below: WUI population (left) WUI acres (right)



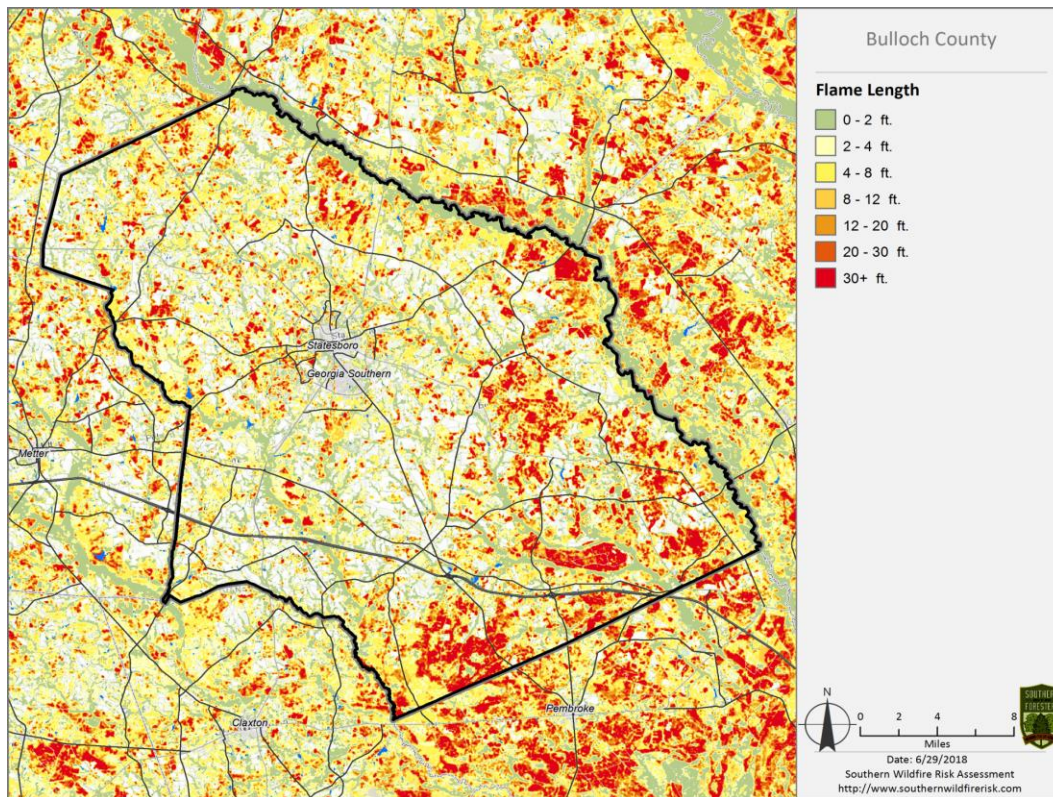




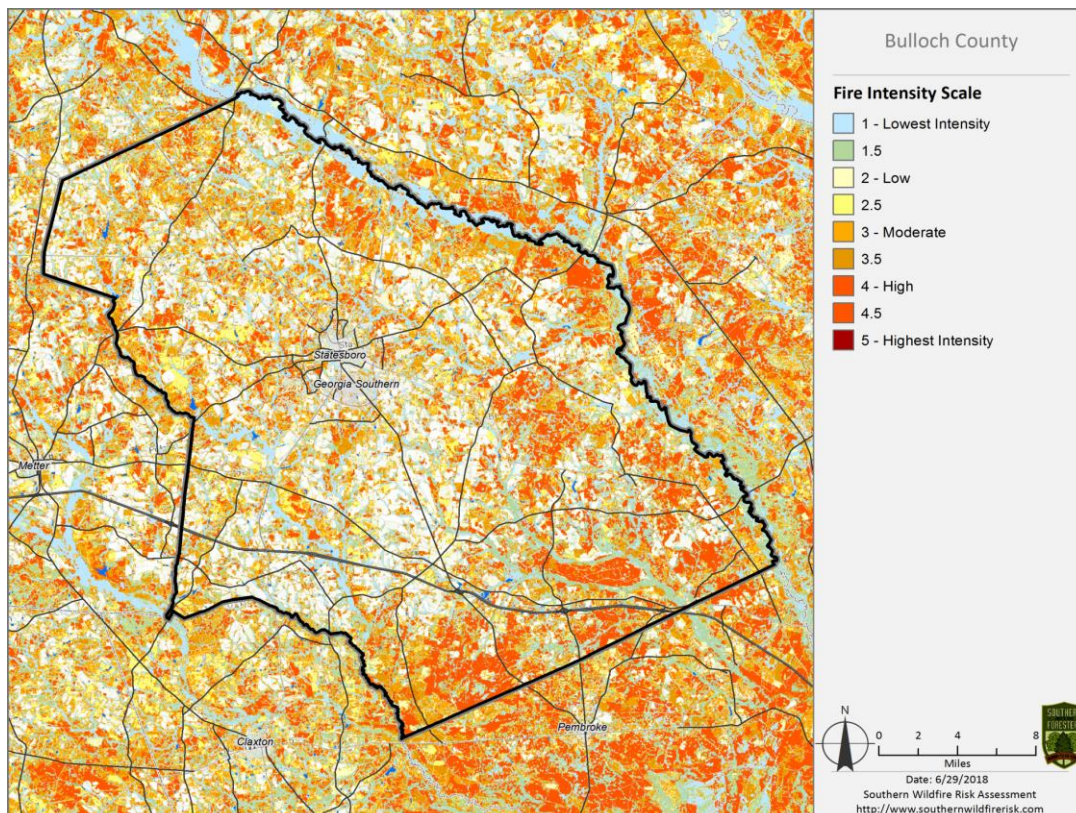
Above: Burn Probability map    Below: Rate of Spread map



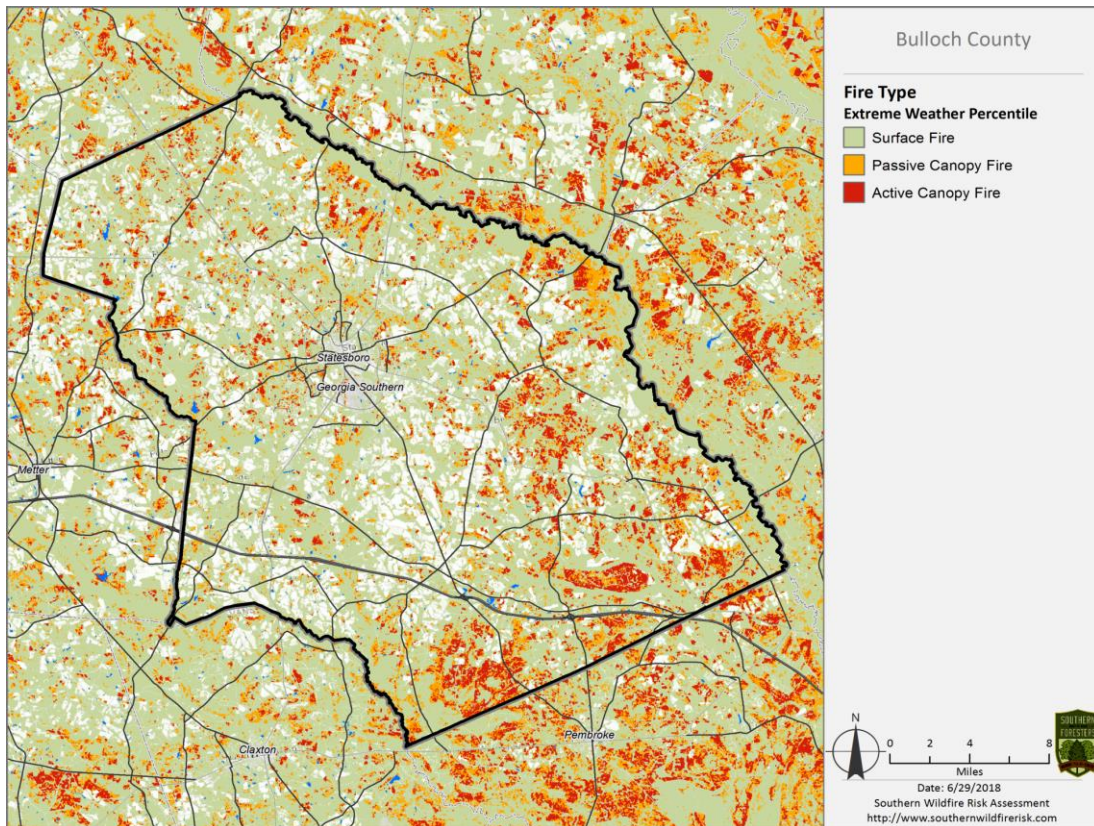




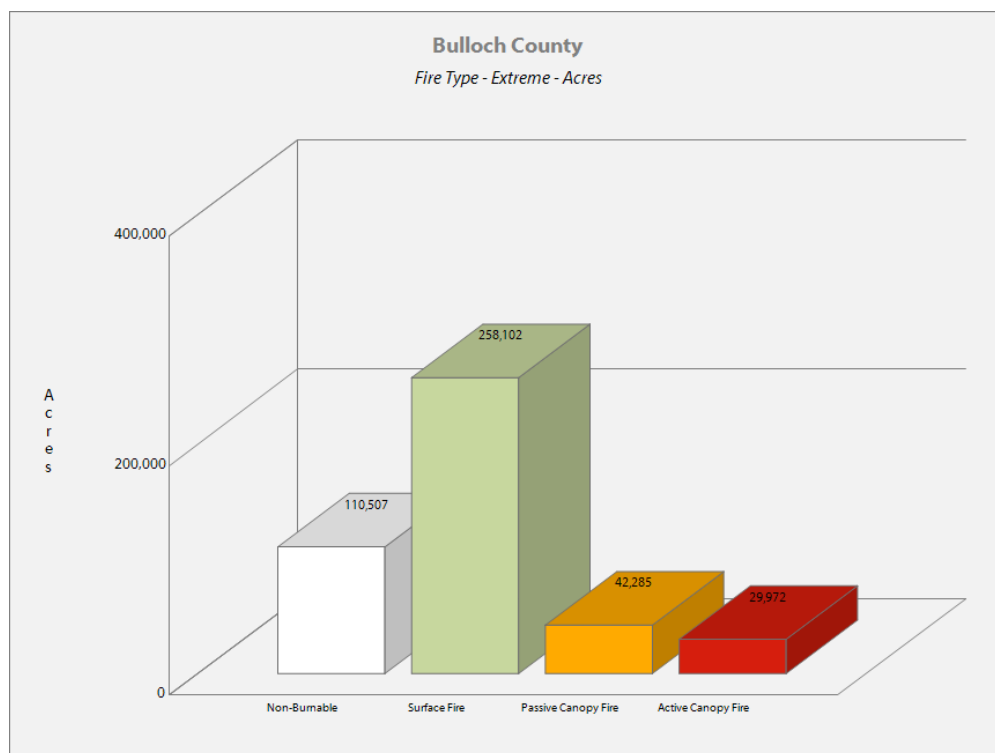
Above: Flame Length map    Below: Fire Intensity Scale map







Above: Fire Type map    Below: Fire Type acres



## VII. PRIORITIZED MITIGATION RECOMMENDATIONS

### Executive Summary

As Southeast Georgia continues to see increased growth from other areas seeking less crowded and warmer climates, new development will occur more frequently on forest and wildland areas. Bulloch County will have an opportunity to significantly influence the wildland fire safety of new developments. It is important that new development be planned and constructed to provide for public safety in the event of a wildland fire emergency.

Over the past 20 years, much has been learned about how and why homes burn during wildland fire emergencies. Perhaps most importantly, case histories and research have shown that even in the most severe circumstances, wildland fire disasters can be avoided. Homes can be designed, built and maintained to withstand a wildfire even in the absence of fire services on the scene. The National Firewise Communities program is a national awareness initiative to help people understand that they don't have to be victims in a wildfire emergency. The National Fire Protection Association has produced two standards for reference: NFPA 1144 Standard for Reducing Structure Ignition Hazards from Wildland Fire. 2008 Edition and NFPA 1141 Standard for Fire Protection Infrastructure for Land Development in Suburban and Rural Areas.

When new developments are built in the Wildland/Urban Interface, a number of public safety challenges may be created for the local fire services: (1) the water supply in the immediate areas may be inadequate for fire suppression; (2) if the Development is in an outlying area, there may be a longer response time for emergency services; (3) in a wildfire emergency, the access road(s) may need to simultaneously support evacuation of residents and the arrival of emergency vehicles; and (4) when wildland fire disasters strike, many structures may be involved simultaneously, quickly exceeding the capability of even the best equipped fire departments.

In 2012 the International Code Council developed the International Wildland Urban Interface Code (IWUIC). This code was adopted by the Georgia Legislature in 2014 for use in Georgia. Counties can adopt the code or parts of the code locally to aid in reducing risk in high risk areas. Building codes and zoning regulations in the WUI areas can help to reduce the potential for structure loss.

The following recommendations were developed by the Bulloch County CWPP Core team as a result of surveying and assessing fuels and structures and by conducting meetings and interviews with county and city officials. A priority order was determined based on which mitigation projects would best reduce the hazard of wildfire in the assessment area.

## Proposed Community Hazard and Structural Ignitability Reduction Priorities

Primary Protection for Community and Its Essential Infrastructure		
Treatment Area	Treatment Types	Treatment Method(s)
1. All Structures	Create minimum of 30-foot of defensible space**	Trim shrubs and vines to 30 feet from structures, trim overhanging limbs, replace flammable plants near homes with less flammable varieties, remove vegetation around chimneys.
2. Applicable Structures	Reduce structural ignitability**	Clean flammable vegetative material from roofs and gutters, store firewood appropriately, install skirting around raised structures, store water hoses for ready access, and replace pine straw and mulch around plantings with less flammable landscaping materials.
3. Community Clean-up Day National Wildfire Preparedness Day 1 <sup>st</sup> Saturday in May	Cutting, mowing, pruning**	Cut, prune, and mow vegetation in shared community spaces.
4. Driveway Access	Right of Way Clearance	Maintain vertical and horizontal clearance for emergency equipment. See that adequate lengths of culverts are installed to allow emergency vehicle access.
5. Road Access	Identify needed road improvements	As roads are upgraded, widen to minimum standards with at least 50 foot diameter cul de sacs or turn arounds.
6. Codes and Ordinances	Examine existing codes and ordinances.  Utilize the International Wildland Urban Interface Code (IWUIC)	Amend and enforce existing building codes as they relate to skirting, propane tank locations, public nuisances (trash/debris on property), Property address marking standards and other relevant concerns  Review Subdivision and development ordinances for public safety concerns. Enforce uniform addressing ordinance.
7. Burn Permits	Education and Enforcement	Greater Burn Permit enforcement and education from the Georgia Forestry Commission.

**Proposed Community Wildland Fuel Reduction Priorities**

Treatment Area	Treatment Types	Treatment Method(s)
1. Adjacent WUI Lands	Reduce hazardous fuels	Encourage prescribed burning for private landowners and industrial timberlands particularly adjacent to residential areas.  Seek grant for prescribed burning in WUI areas.  Seek grant for WUI mitigation team.
2. Railroad Corridors	Reduce hazardous fuels	Encourage railroads to better maintain their ROW eliminating brush and grass through herbicide and mowing. Maintain firebreaks along ROW adjacent to residential areas.
3. Existing Fire Lines	Reduce hazardous fuels	Clean and re-harrow existing lines.

**Proposed Improved Community Wildland Fire Response Priorities**

1. Water Sources	Dry Hydrants	Inspect, maintain and improve access to existing dry hydrants. Add signage along road to mark the hydrants.  Locate additional dry hydrants as needed.  Locate and pre-clear helicopter dip sites
2. Fire Stations	Equipment	Wildland hand tools. Lightweight Wildland PPE Gear.
3. Mapping	GIS	Up to date mapping of roads and water sources.
4. Road Names	Road Signage	Improved Road Signage at Crossroads. "Dead End" or "No Outlet" Tags on Road Signs
5. Personnel	Training	Obtain Wildland Fire Suppression training for Fire Personnel.  Ready Set go training

**\*\*Actions to be taken by homeowners and community stakeholders**



## Proposed Education and Outreach Priorities

1. Conduct “How to Have a Firewise Home” Workshop for Bulloch County Residents
<p>Set up and conduct a workshop for homeowners that teach the principles of making homes and properties safe from wildfire. Topics for discussion include defensible space, landscaping, building construction, etc. Workshop will be scheduled for evenings or weekends when most homeowners are available and advertised through local media outlets. Target local schools, community groups and local senior centers.</p> <p>Distribute materials promoting firewise practices and planning through local community and governmental meetings.</p>
2. Conduct “Firewise” Workshop for Community Leaders
<p>Arrange for GFC Firewise program to work with local community leaders and governmental officials on the importance of “Firewise Planning” in developing ordinances and codes as the county as the need arises. Identify “Communities at Risk” within the county for possible firewise community recognition.</p>
3. Spring Clean-up Event (National Wildfire Preparedness Day – 1st Saturday in May annually)
<p>Consider conducting an annual clean-up event in a selected high risk community involving the Georgia Forestry Commission, Bulloch County Fire Departments and community residents. Set up information table with educational materials and refreshments. Initiate the event with a morning briefing by GFC Firewise coordinator and local fire officials detailing plans for the day and safety precautions. Activities to include the following:</p> <ul style="list-style-type: none"> <li>• Clean flammable vegetative material from roofs and gutters</li> <li>• Trim shrubs and vines to 30 feet away from structures</li> <li>• Trim overhanging limbs</li> <li>• Clean hazardous or flammable debris from adjacent properties</li> </ul> <p>Celebrate the work with a community cookout, with Community officials, GFC and Bulloch County Fire Departments discussing and commending the work accomplished.</p>
4. Informational Packets
<p>Develop and distribute informational packets to be distributed by realtors and insurance agents. Included in the packets are the following:</p> <ul style="list-style-type: none"> <li>• Be Firewise Around Your Home</li> <li>• Firewise Guide to Landscape and Construction</li> <li>• Firewise Communities USA materials</li> <li>• Ready Set Go materials</li> <li>• Fire Adapted Community information</li> </ul>

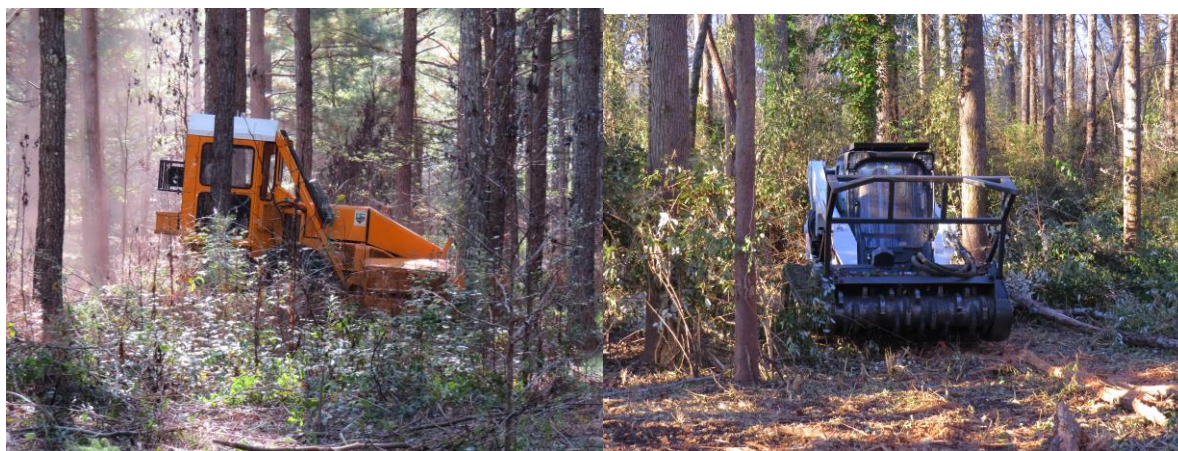
## 5. Wildfire Protection Display

Create and exhibit a display for the general public at Ogeechee Fair, Brooklet Peanut Festival, Portal Catface Festival and other local events. Display can be independent or combined with the Georgia Forestry Commission display.

Hold Open House at individual Fire Stations to promote Community Firewise Safety and develop community support and understanding of local fire departments and current issues.

## 6. Media

Invite the local news media to community “Firewise” functions for news coverage and regularly submit press releases documenting wildfire risk improvements in Bulloch County. Utilize radio and social media to reach new audiences.



**Pictured above:**

**Left: A Georgia Forestry Commission masticator/brushcutter**

**Right: A drum type forestry mulcher/mowing machine**

**This type of equipment is effective in reducing flammable understory fuels near developed areas where prescribed fire may not be practical or possible.**



**Prescribed burning is the best management to reduce wildfire risk. The Georgia Forestry Commission can assist with developing a prescribed burning plan, installation of firebreaks, and can provide equipment standby and burning assistance when personnel are available. Private forestry contractors can also provide this service.**

## VIII. ACTION PLAN

### Roles and Responsibilities

The following roles and responsibilities have been developed to implement the action plan:

Role	Responsibility
Hazardous Fuels and Structural Ignitability Reduction	
Bulloch County WUI Fire Council	Create this informal team or council comprised of residents, GFC officials, Bulloch County and Statesboro Fire Department officials, a representative from the city and county governments along with the EMA Director for Bulloch County. Meet periodically to review progress towards mitigation goals, appoint and delegate special activities, work with state, and local officials to assess progress and develop future goals and action plans. Work with residents to implement projects and firewise activities.
Key Messages to focus on	<ol style="list-style-type: none"> <li>1 Defensible Space and Firewise Landscaping</li> <li>2 Debris Burning Safety</li> <li>3 Firewise information for homeowners</li> <li>4 Prescribed burning benefits</li> </ol>
Communications objectives	<ol style="list-style-type: none"> <li>1 Create public awareness for fire danger and defensible space issues</li> <li>2 Identify most significant human cause fire issues</li> <li>3 Enlist public support to help prevent these causes</li> <li>4 Encourage people to employ fire prevention and defensible spaces in their communities.</li> </ol>
Target Audiences	<ol style="list-style-type: none"> <li>1 Homeowners</li> <li>2 Forest Landowners and users</li> <li>3 Civic Groups</li> <li>4 School Groups</li> </ol>
Methods	<ol style="list-style-type: none"> <li>1 News Releases</li> <li>2 Radio and TV PSA's for area stations and cable access channels</li> <li>3 Personal Contacts</li> <li>4 Key messages and prevention tips</li> <li>5 Visuals such as signs, brochures and posters</li> </ol>

Spring Clean-up Day (National Wildfire Preparedness Day – 1 <sup>st</sup> Saturday in May)	
Event Coordinator	Coordinate day's events and schedule, catering for cookout, guest attendance, and moderate activities the day of the day of the event.
Event Treasurer	Collect funds from residents to cover food, equipment rentals, and supplies.
Publicity Coordinator	Advertise event through neighborhood newsletter, letters to officials, and public service announcements (PSAs) for local media outlets. Publicize post-event through local paper and radio PSAs.
Work Supervisor	Develop volunteer labor force of community residents; develop labor/advisory force from Georgia Forestry Commission, Statesboro and Bulloch County Fire Departments and Emergency Management Agency. Procure needed equipment and supplies. In cooperation with local city and county officials, develop safety protocol. Supervise work and monitor activities for safety the day of the event.

### Funding Needs

The following funding is needed to implement the action plan:

Project	Estimated Cost	Potential Funding Source(s)
1. Create a minimum of 30 feet of defensible space around structures	Varies	Residents will supply labor and fund required work on their own properties.
2. Reduce structural ignitability by cleaning flammable vegetation from roofs and gutters; appropriately storing firewood, installing skirting around raised structures, storing water hoses for ready access, replacing pine needles and mulch around plantings with less flammable material.	Varies	Residents will supply labor and fund required work on their own properties.
3. Amend codes and ordinances to provide better driveway access, increased visibility of house numbers, properly stored firewood, minimum defensible space brush clearance, required Class A roofing materials and skirting around raised structures, planned maintenance of community lots.	No Cost	To be adopted by city and county governments.  Utilize IWUIC for developing codes in the WUI.
4. Spring Cleanup Day	Varies	Community Business Donations.
5. Fuel Reduction Activities	\$35/acre	FEMA & USFS Grants

## Assessment Strategy

To accurately assess progress and effectiveness for the action plan, the Bulloch County WUI Fire Council will implement the following:

- Annual wildfire risk assessment will be conducted to re-assess wildfire hazards and prioritize needed actions.
- Mitigation efforts that are recurring (such as mowing, burning, and clearing of defensible space) will be incorporated into an annual renewal of the original action plan.
- Mitigation efforts that could not be funded in the requested year will be incorporated into the annual renewal of the original action plan.
- Continuing educational and outreach programs will be conducted and assessed for effectiveness. Workshops will be evaluated based on attendance and post surveys that are distributed by mail one month and six months following workshop date.
- The Bulloch County WUI Council will publish an annual report detailing mitigation projects initiated and completed, progress for ongoing actions, funds received, funds spent, and in-kind services utilized. The report will include a “state of the community” section that critically evaluates mitigation progress and identifies areas for improvement. Recommendations will be incorporated into the annual renewal of the action plan.
- An annual survey will be distributed to residents soliciting information on individual mitigation efforts on their own property (e.g., defensible space). Responses will be tallied and reviewed at the next Bulloch County WUI Council meeting. Needed actions will be discussed and delegated.

This plan should become a working document that is shared by local, state, and federal agencies that will use it to accomplish common goals. An agreed-upon schedule for meeting to review accomplishments, solve problems, and plan for the future should extend beyond the scope of this plan. Without this follow up this plan will have limited value.

## **IX. MITIGATION ASSISTANCE & GRANT FUNDING**

Community Protection Grant: US Forest Service sponsored prescribed fire program. Communities with “at-risk” properties that lie within ten miles of a National Forest, National Park Service or Bureau of Land Management tracts may apply with the Georgia Forestry Commission to have their land prescribe burned free-of-charge. Forest mastication, where it is practical with Georgia Forestry Commission equipment, is also available under this grant program.

FEMA Mitigation Policy MRR-2-08-01: through GEMA – Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Program (PDM).

1. To provide technical and financial assistance to local governments to assist in the implementation of long term, cost effective hazard mitigation accomplishments.
2. This policy addresses wildfire mitigation for the purpose of reducing the threat to all-risk structures through creating defensible space, structural protection through the application of ignition resistant construction and limited hazardous fuel reduction to protect life and property.
3. With a completed registered plan (addendum to the State Plan) counties can apply for pre-mitigation funding. They will also be eligible for HMGP funding if the county is declared under a wildfire disaster.

Georgia Forestry Commission: Plowing and prescribed burning assistance, as well as forest mastication, can be obtained from the GFC as a low-cost option for mitigation efforts.

The Georgia Forestry Commission Firewise Community Mitigation Assistance Grants – Nationally recognized Firewise Communities can receive up to \$5000 grants to help address potential wildfire risk reduction projects. Grant submission can be made through local Georgia Forestry Commission offices or your Regional Wildfire Prevention Specialist.

The International Association of Fire Chiefs (IAFC) and American International Group, Inc. (AIG) offer grants to assist local fire departments in establishing or enhancing their community fuels mitigation programs while educating members of the community about community wildfire readiness and encouraging personal action.



## **X. GLOSSARY**

*Community-At-Risk – A group of two or more structures whose proximity to forested or wildland areas places homes and residents at some degree of risk.*

*Critical Facilities – Buildings, structures or other parts of the community infrastructure that require special protection from an approaching wildfire.*

*CWPP – The Community Wildfire Protection Plan.*

*Defensible Space – The immediate landscaped area around a structure (usually a minimum of 30 ft.) kept “lean, clean and green” to prevent an approaching wildfire from igniting the structure.*

*Dry Hydrant - A non-pressurized pipe system permanently installed in existing lakes, ponds and streams that provides a suction supply of water to a fire department tank truck.*

*FEMA – The Federal Emergency Management Agency whose mission is to support our citizens and first responders to ensure that as a nation we work together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards.*

*Fire Adapted Community – A community fully prepared for its wildfire risk by taking actions to address safety, homes, neighborhoods, businesses and infrastructure, forest, parks, open spaces, and other community assets.*

*Firewise Program – A national initiative with a purpose to reduce structural losses from wildland fires.*

*Firewise Community/USA – A national recognition program for communities that take action to protect themselves from wildland fire. To qualify a community must have a wildfire risk assessment by the Georgia Forestry Commission, develop a mitigation action plan, have an annual firewise mitigation/education event, have dedicated firewise leadership, and complete the certification application.*

*Fuels – All combustible materials within the wildland/urban interface or intermix including, but not limited to, vegetation and structures.*

*Fuel Modification – Any manipulation or removal of fuels to reduce the likelihood of ignition or the resistance to fire control.*

*Hazard & Wildfire Risk Assessment – An evaluation to determine an area’s (community’s) potential to be impacted by an approaching wildland fire.*

*Healthy Forests Initiative - Launched in August 2002 by President Bush (following passage of the Healthy Forests Restoration Act by Congress) with the intent to reduce the risks severe wildfires pose to people, communities, and the environment.*

*Home Ignition Zone (Structure Ignition Zone) - Treatment area for wildfire protection. The “zone” includes the structure(s) and their immediate surroundings from 0-200 ft.*

*International Wildland Urban Interface Code (IWUIC) – A code developed by the International Code Council in 2012 to help reduce structural losses in wildfire hazard areas. This code can be adopted for use with building codes and zoning regulations.*

*Mitigation – An action that moderates the severity of a fire hazard or risk.*

*National Fire Plan – National initiative, passed by Congress in the year 2000, following a landmark wildland fire season, with the intent of actively responding to severe wildland fires and their impacts to communities while ensuring sufficient firefighting capacity for the future.*

*National Fire Protection Association (NFPA) - An international nonprofit organization established in 1896, whose mission is to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating consensus codes and standards, research, training, and education.*

*National Wildfire Preparedness Day – Started in 2014 by the National Fire Protection Association as a day for communities to work together to prepare for the approaching wildfire season. It is held annually on the first Saturday in May.*

*Prescribed Burning (prescribed fire) –The use of planned fire that is deliberately set under specific fuel and weather condition to accomplish a variety of management objectives and is under control until it burns out or is extinguished.*

*Ready, Set, Go - A program fire services use to help homeowners understand wildfire preparedness, awareness, and planning procedures for evacuation.*

*Southern Group of State Foresters – Organization whose members are the agency heads of the forestry agencies of the 13 southern states, Puerto Rico and the Virgin Islands.*

*Stakeholders– Individuals, groups, organizations, businesses or others who have an interest in wildland fire protection and may wish to review and/or contribute to the CWPP content.*

*Wildfire or Wildland Fire – An unplanned and uncontrolled fire spreading through vegetative fuels.*

*Wildland/Urban Interface - The presence of structures in locations in which the authority having jurisdiction (AHJ) determines that topographical features, vegetation, fuel types, local weather conditions and prevailing winds result in the potential for ignition of the structures within the area from flames and firebrands from a wildland fire (NFPA 1144, 2008).*

## **XI. SOURCES OF INFORMATION**

### **Publications/Brochures/Websites:**

- FIREWISE materials can be ordered at [www.firewise.org](http://www.firewise.org)
- Georgia Forestry Commission [www.georgiafirewise.org](http://www.georgiafirewise.org)
- Examples of successful wildfire mitigation programs can be viewed at the website for National Database of State and Local wildfire Hazard Mitigation Programs sponsored by the U.S. Forest Service and the Southern Group of State Foresters [www.wildfireprograms.com](http://www.wildfireprograms.com)
- Information about a variety of interface issues (including wildfire) can be found at the USFS website for Interface South: [www.interfacesouth.org](http://www.interfacesouth.org)
- Information on codes and standards for emergency services including wildfire can be found at [www.nfpa.org](http://www.nfpa.org)
- Information on FEMA Assistance to Firefighters Grants (AFG) can be found at [www.firegrantsupport.com](http://www.firegrantsupport.com)
- Information on National Fire Plan grants can be found at <http://www.federalgrantswire.com/national-fire-plan--rural-fire-assistance.html>
- Southern Wildfire Risk Assessment website SouthWRAP [www.SouthernWildfireRisk.com](http://www.SouthernWildfireRisk.com)
- Fire Adapted Communities [www.fireadapted.org](http://www.fireadapted.org)
- Ready, Set, Go [www.wildlandfirersg.org](http://www.wildlandfirersg.org)
- National Wildfire Preparedness Day [www.wildfireprepdlay.org](http://www.wildfireprepdlay.org)

### **Appended Documents:**

Bulloch County Southern Wildfire Risk Assessment Summary Report (SWRA)

All files that make up this plan are available in an electronic format from the Georgia Forestry Commission.



**Georgia Forestry Commission**  
**5645 Riggins Mill Rd.**  
**Dry Branch, GA 31020**

**1-800-GA-TREES**  
**GaTrees.org**

*The Georgia Forestry Commission provides leadership,  
service, and education in the protection and  
conservation of Georgia's forest resources.*

*An Equal Opportunity Employer and Service Provider*

# Bulloch County Emergency Management Agency Emergency Operations Plan

Plan Approved:  
28-MAY-13

Revised:  
29-MAY-13

## RECORD OF REVISIONS

Date	Author	Section	Detail
05-29-2013 08:46:55	Bulloch	Agencies	
05-29-2013 08:43:27	Bulloch	Agencies	
05-29-2013 08:42:24	Bulloch	Agencies	
05-29-2013 08:20:51	Bulloch	Agencies	
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05-29-2013 08:13:46	Bulloch	Agencies	
05-28-2013 09:26:17	Glowe	Plan Approved	
05-21-2013 11:13:55	Bulloch	State Contacts	
05-21-2013 11:13:21	Bulloch	State Contacts	
05-21-2013 11:13:03	Bulloch	State Contacts	
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05-21-2013 11:06:49	Bulloch	Government Officials	



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05-21-2013 11:04:48	Bulloch	Local Government	
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05-13-2013 01:35:08	Bulloch	ESF 11	
05-13-2013 01:30:51	Bulloch	ESF 8	
05-13-2013 01:27:45	Bulloch	ESF 7	
05-13-2013 01:24:12	Bulloch	ESF 6	
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Bulloch County  
EMERGENCY OPERATIONS PLAN

Local Resolution

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## **PREFACE**

This Emergency Operations Plan (EOP) describes the management and coordination of resources and personnel during periods of major emergency. This comprehensive local emergency operations plan is developed to ensure mitigation and preparedness, appropriate response and timely recovery from natural and man made hazards which may affect residents of Bulloch County.

This plan supersedes the Emergency Operations Plan dated from old eLEOP. It incorporates guidance from the Georgia Emergency Management Agency (GEMA) as well as lessons learned from disasters and emergencies that have threatened Bulloch County. The Plan will be updated at the latest, every four years. The plan:

- Defines emergency response in compliance with the State-mandated Emergency Operations Plan process.
- Establishes emergency response policies that provide Departments and Agencies with guidance for the coordination and direction of municipal plans and procedures.
- Provides a basis for unified training and response exercises.

### **The plan consists of the following components:**

- The Basic Plan describes the structure and processes comprising a county approach to incident management designed to integrate the efforts of municipal governments, the private sector, and non-governmental organizations. The Basic Plan includes the: purpose, situation, assumptions, concept of operations, organization, assignment of responsibilities, administration, logistics, planning and operational activities.
- Appendices provide other relevant supporting information, including terms, definitions, and authorities.
- Emergency Support Function Annexes detail the missions, policies, structures, and responsibilities of County agencies for coordinating resource and programmatic support to municipalities during Incidents of Critical Significance.
- Support Annexes prescribe guidance and describe functional processes and administrative requirements necessary to ensure efficient and effective implementation of incident management objectives.
- Incident Annexes address contingency or hazard situations requiring specialized application of the EOP. The Incident Annexes describe the missions, policies, responsibilities, and coordination processes that govern the interaction of public and private entities engaged in incident management and emergency response operations across a spectrum of potential hazards. Due to security precautions and changing nature of their operational procedures, these Annexes, their supporting plans, and operational supplements are published separately.



**The following is a summary of the 15 Emergency Support Functions:**

1. *Transportation*: Support and assist municipal, county, private sector, and voluntary organizations requiring transportation for an actual or potential Incident of Critical Significance.
2. *Communications*: Ensures the provision of communications support to municipal, county, and private-sector response efforts during an Incident of Critical Significance.
3. *Public Works and Engineering*: Coordinates and organizes the capabilities and resources of the municipal and county governments to facilitate the delivery of services, technical assistance, engineering expertise, construction management, and other support to prevent, prepare for, respond to, and/or recover from an Incident of Critical Significance.
4. *Firefighting*: Enable the detection and suppression of wild-land, rural, and urban fires resulting from, or occurring coincidentally with an Incident of Critical Significance.
5. *Emergency Management Services*: Responsible for supporting overall activities of the County Government for County incident management.
6. *Mass Care, Housing and Human Services*: Supports County-wide, municipal, and non-governmental organization efforts to address non-medical mass care, housing, and human services needs of individuals and/or families impacted by Incidents of Critical Significance.
7. *Resource Support*: Supports volunteer services, County agencies, and municipal governments tracking, providing, and/or requiring resource support before, during, and/or after Incidents of Critical Significance.
8. *Public Health and Medical Services*: Provide the mechanism for coordinated County assistance to supplement municipal resources in response to public health and medical care needs (to include veterinary and/or animal health issues when appropriate) for potential or actual Incidents of Critical Significance and/or during a developing potential health and medical situation.
9. *Search and Rescue*: Rapidly deploy components of the National US Response System to provide specialized life-saving assistance to municipal authorities during an Incident of Critical Significance.
10. *Hazardous Materials*: Coordinate County support in response to an actual or potential discharge and/or uncontrolled release of oil or hazardous materials during Incidents of Critical Significance.
11. *Agriculture and Natural Resources*: supports County and authorities and other agency efforts to address: Provision of nutrition assistance; control and eradication of an outbreak of a highly contagious or economically devastating animal/zoonotic

disease; assurance of food safety and food security and; protection of natural and cultural resources and historic properties.

12. *Energy*: Restore damaged energy systems and components during a potential of actual Incident of Critical Significance.
13. *Public Safety and Security Services*: Integrates County public safety and security capabilities and resources to support the full range of incident management activities associated with potential or actual Incidents of Critical Significance.
14. *Long Term Recovery and Mitigation*: Provides a framework for County Government support to municipal governments, nongovernmental organizations, and the private sector designed to enable community recovery from the long-term consequences of an Incident of Critical Significance.
15. *External Affairs*: Ensures that sufficient County assets are deployed to the field during a potential or actual Incident of Critical Significance to provide accurate, coordinated, and timely information to affected audiences, including governments, media, the private sector, and the populace.

# BASIC PLAN

## I. INTRODUCTION

---

### Summary

This plan establishes a framework for emergency management planning and response to: prevent emergency situations; reduce vulnerability during disasters; establish capabilities to protect residents from effects of crisis; respond effectively and efficiently to actual emergencies; and provide for rapid recovery from any emergency or disaster affecting the local jurisdiction and Bulloch County.

This Emergency Operations Plan (EOP) is predicated on the National Incident Management System (NIMS) which integrates the capabilities and resources of various municipal jurisdictions, incident management and emergency response disciplines, nongovernmental organizations (NGOs), and the private sector into a cohesive, coordinated, and seamless framework for incident management. The EOP, using the NIMS, is an all-hazards plan that provides the structure and mechanisms for policy and operational coordination for incident management. Consistent with the model provided in the NIMS, the EOP can be partially or fully implemented in the context of a threat, anticipation of a significant event, or the response to a significant event. Selective implementation through the activation of one or more of the systems components allows maximum flexibility in meeting the unique operational and information-sharing requirements of the situation at hand and enabling effective interaction between various entities. The EOP, as the core operational plan for incident management, establishes county-level coordinating structures, processes, and protocols that will be incorporated into certain existing interagency incident- or hazard-specific plans (such as the Hurricane Plan) that is designed to implement specific statutory authorities and responsibilities of various departments and agencies in particular contingency.

### Purpose

The purpose of the EOP is to establish a comprehensive, countywide, all-hazards approach to incident management across a spectrum of activities including prevention, preparedness, response, and recovery. The EOP incorporates best practices and procedures from various incident management disciplines - homeland security, emergency management, law enforcement, firefighting, hazardous materials response, public works, public health, emergency medical services, and responder and recovery worker health and safety - and integrates them into a unified coordinating structure. The EOP provides the framework for interaction with municipal governments; the private sector; and NGOs in the context of incident prevention, preparedness, response, and recovery activities. It describes capabilities and resources and establishes responsibilities, operational processes, and protocols to help protect from natural and manmade hazards; save lives; protect public health, safety, property, and the environment; and reduce adverse psychological consequences and disruptions. Finally, the EOP serves as the foundation for the development of detailed supplemental plans and procedures to effectively and efficiently implement incident management activities and assistance in the context of specific types of incidents.

**The EOP, using the NIMS, establishes mechanisms to:**

- Maximize the integration of incident-related prevention, preparedness, response, and recovery activities;
- Improve coordination and integration of County, municipal, private-sector, and nongovernmental organization partners;
- Maximize efficient utilization of resources needed for effective incident management and Critical Infrastructure/Key Resources protection and restoration;
- Improve incident management communications and increase situational awareness across jurisdictions and between the public and private sectors;
- Facilitate emergency mutual aid and emergency support to municipal governments;
- Provide a proactive and integrated response to catastrophic events; and
- Address linkages to other incident management and emergency response plans developed for specific types of incidents or hazards.

A number of plans are linked to the EOP in the context of disasters or emergencies, but remain as stand-alone documents in that they also provide detailed protocols for responding to routine incidents that normally are managed by County agencies without the need for supplemental coordination. The EOP also incorporates other existing emergency response and incident management plans (with appropriate modifications and revisions) as integrated components, operational supplements, or supporting tactical plans.

### **This plan consists of the following components:**

#### **Scope and Applicability**

The EOP covers the full range of complex and constantly changing requirements in anticipation of or in response to threats or acts of terrorism, major disasters, and other emergencies. The EOP also provides the basis to initiate long-term community recovery and mitigation activities.

The EOP establishes interagency and multi-jurisdictional mechanisms for involvement in and coordination of, incident management operations.

This plan distinguishes between incidents that require County coordination, termed disasters or emergencies, and the majority of incidents that are handled by responsible jurisdictions or agencies through other established authorities and existing plans.

#### **In addition, the EOP:**

- Recognizes and incorporates the various jurisdictional and functional authorities of departments and agencies; municipal governments; and private-sector organizations in incident management.

- Details the specific incident management roles and responsibilities of the departments and agencies involved in incident management as defined in relevant statutes and directives.
- Establishes the multi-agency organizational structures and processes required to implement the authorities, roles, and responsibilities for incident management.

This plan is applicable to all departments and agencies that may be requested to provide assistance or conduct operations in the context of actual or potential disasters or emergencies.

Disasters or emergencies are high-impact events that require a coordinated and effective response by an appropriate combination of County, municipal, private-sector, and nongovernmental entities in order to save lives, minimize damage, and provide the basis for long-term community recovery and mitigation activities.

## **Key Concepts**

This section summarizes key concepts that are reflected throughout the EOP.

- Systematic and coordinated incident management, including protocols for:
  - Coordinated action;
  - Alert and notification;
  - Mobilization of County resources to augment existing municipal capabilities;
  - Operating under differing threats or threat levels; and
  - Integration of crisis and consequence management functions.
- Proactive notification and deployment of resources in anticipation of or in response to catastrophic events in coordination and collaboration with municipal governments and private entities when possible.
- Organizing interagency efforts to minimize damage, restore impacted areas to pre-incident conditions if feasible, and/or implement programs to mitigate vulnerability to future events.
- Coordinating worker safety and health, private-sector involvement, and other activities that are common to the majority of incidents (see Support Annexes).
- Organizing ESFs to facilitate the delivery of critical resources, assets, and assistance. Departments and agencies are assigned to lead or support ESFs based on authorities, resources, and capabilities.
- Providing mechanisms for vertical and horizontal coordination, communications, and information sharing in response to threats or incidents. These mechanisms

facilitate coordination among municipal entities and the County Government, as well as between the public and private sectors.

- Facilitating support to County departments and agencies acting under the requesting department or agency's own authorities.
- Developing detailed supplemental operations, tactical, and hazard-specific contingency plans and procedures.
- Providing the basis for coordination of interdepartmental and municipal planning, training, exercising, assessment, coordination, and information exchange.



## **II. PLANNING ASSUMPTIONS AND CONSIDERATIONS**

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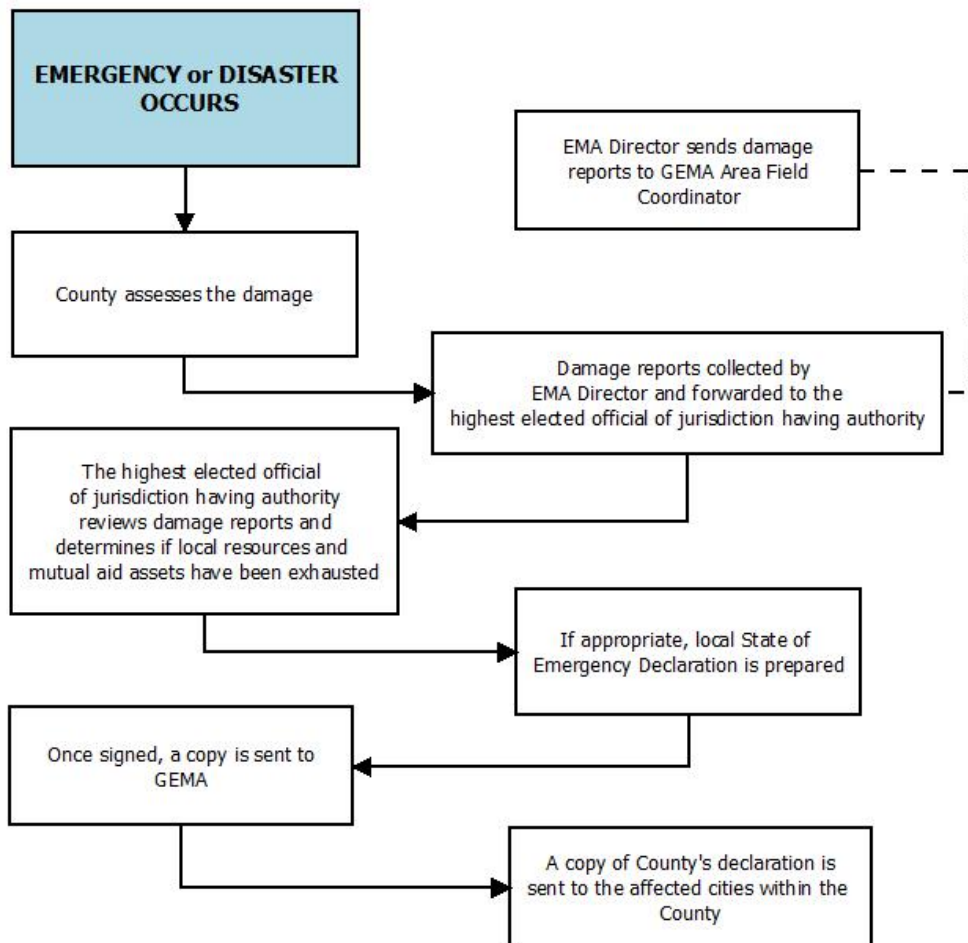
The EOP is based on the planning assumptions and considerations presented in this section.

- Incidents are typically managed at the lowest possible organizational and jurisdictional level.
- Incident management activities will be initiated and conducted using the principles contained in the NIMS and the ICS.
- The combined expertise and capabilities of government at all levels, the private sector, and nongovernmental organizations will be required to prevent, prepare for, respond to, and recover from disasters and emergencies.
- Disasters and emergencies require the Bulloch County Emergency Management Agency to coordinate operations and/or resources, and may:
  - Occur at any time with little or no warning in the context of a general or specific threat or hazard;
  - Require significant information-sharing at the unclassified and classified levels across multiple jurisdictions and between the public and private sectors;
  - Involve single or multiple jurisdictions;
  - Have significant regional impact and/or require significant regional information sharing, resource coordination, and/or assistance;
  - Span the spectrum of incident management to include prevention, preparedness, response, and recovery;
  - Involve multiple, highly varied hazards or threats on a regional scale;
  - Result in numerous casualties; fatalities; displaced people; property loss; disruption of normal life support systems, essential public services, and basic infrastructure; and significant damage to the environment;
  - Impact critical infrastructures across sectors;
  - Overwhelm capabilities of municipal governments, and private-sector infrastructure owners and operators;
  - Attract a sizeable influx of independent, spontaneous volunteers and supplies;
  - Require extremely short-notice asset coordination and response timelines; and
  - Require prolonged, sustained incident management operations and support activities.

- Top priorities for incident management are to:
  - Save lives and protect the health and safety of the public, responders, and recovery workers;
  - Ensure security of the county;
  - Prevent an imminent incident, including acts of terrorism, from occurring;
  - Protect and restore critical infrastructure and key resources;
  - Conduct law enforcement investigations to resolve the incident, apprehend the perpetrators, and collect and preserve evidence for prosecution and/or attribution;
  - Protect property and mitigate the damage and impact to individuals, communities, and the environment; and
  - Facilitate recovery of individuals, families, businesses, governments, and the environment.
- Deployment of resources and incident management actions during an actual or potential terrorist incident are conducted in coordination with the Federal Bureau of Investigation (FBI).
- Departments and agencies at all levels of government and certain NGOs, such as the American Red Cross, may be required to deploy to disaster areas or emergency events on short notice to provide timely and effective mutual aid and/or intergovernmental assistance.
- The degree of County involvement in incident operations depends largely upon the specific authority or jurisdiction. Other factors that may be considered include:
  - The municipal needs and/or requests for external support, or ability to manage the incident;
  - The economic ability of the affected entity to recover from the incident;
  - The type or location of the incident;
  - The severity and magnitude of the incident; and
  - The need to protect the public health or welfare or the environment.
- Departments and agencies support these mission in accordance with authorities and guidance and are expected to provide:
  - Initial and/or ongoing response, when warranted, under their own authorities and funding;

- Alert, notification, pre-positioning, and timely delivery of resources to enable the management of potential and actual disasters or emergencies; and
  - Proactive support for catastrophic or potentially catastrophic incidents using protocols for expedited delivery of resources.
- 
- For disasters or emergencies that are Presidentially declared, state and/or Federal support is delivered in accordance with relevant provisions of the Stafford Act. (Note that while all Presidentially declared disasters and emergencies under the Stafford Act are considered incidents of critical significance, not all incidents necessarily result in disaster or emergency declarations under the Stafford Act.)

## Emergency Declaration Process



It is anticipated and expected that if the emergency or disaster is obviously widespread and all local resources mutual aid assets have already been exhausted, the highest elected official of jurisdiction having authority can make a declaration without waiting for a report regarding damages.

### **III. ROLES AND RESPONSIBILITIES**

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#### **Local Government Responsibilities**

Police, fire, public health and medical, emergency management, public works, environmental response, and other personnel are often the first to arrive and the last to leave an incident site. In some instances, a County agency in the area may act as a first responder, and the assets of County agencies may be used to advise or assist municipal officials in accordance with agency authorities and procedures. Mutual aid agreements provide mechanisms to mobilize and employ resources from neighboring jurisdictions to support the incident command. When resources and capabilities are overwhelmed, the County may request State assistance under a Governors disaster or emergency declaration. Summarized below are the responsibilities of the Chief Executive Officer.

A municipal mayor or city or County Chairman or their designee, as a jurisdictions chief executive, is responsible for the public safety and welfare of the people of that jurisdiction. The Chief Executive Officer:

- Is responsible for coordinating resources to address the full spectrum of actions to prevent, prepare for, respond to, and recover from incidents involving all hazards including terrorism, natural disasters, accidents, and other contingencies;
- Dependent upon law, has extraordinary powers to suspend laws and ordinances, such as to establish a curfew, direct evacuations, and, in coordination with the health authority, to order a quarantine;
- Provides leadership and plays a key role in communicating to the public, and in helping people, businesses, and organizations cope with the consequences of any type of incident within the jurisdiction;
- Negotiates and enters into mutual aid agreements with other jurisdictions to facilitate resource-sharing; and
- Requests State and, if necessary, Federal assistance through the Governor of the State when the jurisdictions capabilities have been exceeded or exhausted.

#### **Emergency Support Functions**

The EOP applies a functional approach that groups the capabilities of municipal and county departments and some volunteer and non-government organizations into ESFs to provide the planning, support, resources, program implementation, and emergency services that are most likely to be needed during disaster or emergency incidents. The County response to actual or potential disasters or emergencies is typically provided through the full or partial activation of the ESF structure as necessary. The ESFs serve as the coordination mechanism to provide assistance to municipal governments or to County departments and agencies conducting missions of primary County responsibility.

Each ESF is comprised of primary and support agencies. The EOP identifies primary agencies on the basis of authorities, resources, and capabilities. Support agencies are assigned based on resources and capabilities in a given functional area. The resources provided by the ESFs reflect categories identified in the NIMS. ESFs are expected to support one another in carrying out their respective roles and responsibilities. Additional discussion on roles and responsibilities of ESF primary agencies, and support agencies can be found in the introduction to the ESF Annexes.

Note that not all disaster or emergency incidents result in the activation of all ESFs. It is possible that an incident can be adequately addressed by agencies through activation of certain EOP elements without the activation of ESFs. Similarly, operational security considerations may dictate that activation of EOP elements be kept to a minimum, particularly in the context of certain terrorism prevention activities.

### **Nongovernmental and Volunteer Organizations**

Nongovernmental and volunteer organizations collaborate with first responders, governments at all levels, and other agencies and organizations providing relief services to sustain life, reduce physical and emotional distress, and promote recovery of disaster victims when assistance is not available from other sources. For example, the American Red Cross is an NGO that provides relief at the local level and also supports the Mass Care element of ESF 6. Community-based organizations receive government funding to provide essential public health services.

The Voluntary Organizations Active in Disaster (VOAD) is a consortium of approximately 30 recognized organizations of volunteers active in disaster relief. Such entities provide significant capabilities to incident management and response efforts at all levels. For example, the wildlife rescue and rehabilitation activities conducted during a pollution emergency are often carried out by private, nonprofit organizations working with natural resource trustee agencies.

### **Private Sector**

EOP primary and support agencies coordinate with the private sector to effectively share information, form courses of action, and incorporate available resources to prevent, prepare for, respond to, and recover from disasters and emergencies.

### **Roles**

The roles, responsibilities, and participation of the private sector during a disaster or emergency incident vary based on the nature of the organization and the type and impact of the incident. The roles of private-sector organizations are summarized below.

- **Impacted Organization or Infrastructure**  
Private-sector organizations may be affected by direct or indirect consequences of the incident, including privately owned critical infrastructure, key resources, and those main private-sector organizations that are significant to regional economic recovery from the incident. Examples of privately owned infrastructure include transportation, telecommunications, private utilities, financial institutions, and hospitals.



- **Response Resource**  
Private-sector organizations provide response resources (donated or compensated) during an incident - including specialized teams, equipment, and advanced technologies - through public-private emergency plans, mutual aid agreements, or incident specific requests from government and private-sector-volunteer initiatives.
- **Regulated and/or Responsible Party**  
Owners/operators of certain regulated facilities or hazardous operations may bear responsibilities under the law for preparing for and preventing incidents from occurring, and responding to an incident once it occurs. For example, some activities are required by law or regulation to maintain emergency (incident) preparedness plans, procedures, and facilities and to perform assessments, prompt notifications, and training for a response to an incident.
- **State/Emergency Organization Member**
- Private-sector organizations may serve as active partners in emergency preparedness and response organizations and activities.

## **Responsibilities**

Private-sector organizations support the EOP (voluntarily or to comply with applicable laws and regulations) by sharing information with the government, identifying risks, performing vulnerability assessments, developing emergency response and business continuity plans, enhancing their overall readiness, implementing appropriate prevention and protection programs, and donating or otherwise providing goods and services through contractual arrangement or government purchases to assist in response to and recovery from an incident.

Certain organizations are required by existing law and regulation to bear the cost of planning and response to incidents, regardless of cause. In the case of an Incident of Critical Significance, these private-sector organizations are expected to mobilize and employ the resources necessary and available in accordance with their plans to address the consequences of incidents at their own facilities or incidents for which they are otherwise responsible.

## **Response Resources**

Unless the response role is inherently governmental (e.g., law enforcement, etc.), private-sector organizations are encouraged to develop and maintain capabilities to respond to and manage a complete spectrum of incidents and emergencies. The County Government maintains ongoing interaction with the critical infrastructure and key resource industries to provide coordination for prevention, preparedness, response, and recovery activities. When practical, or when required under law, private-sector representatives should be included in planning and exercises. In some cases, the government may direct private-sector response resources when they have contractual relationships, using government funds.

## **Functional Coordination**

The primary agency/agencies for each ESF maintain(s) working relations with its associated private-sector counterparts through partnership committees or other means (e.g., ESF 2, Communications - telecommunications industry; ESF 10, Hazardous Materials - oil and hazardous materials industries; etc.).

## **Citizen Involvement**

Strong partnerships with citizen groups and organizations provide support for incident management prevention, preparedness, response, recovery, and mitigation.

The US Citizen Corps brings these groups together and focuses efforts of individuals through education, training, and volunteer service to help make communities safer, stronger, and better prepared to address the threats of terrorism, crime, public health issues, and disasters of all kinds.

Citizen Corps Councils implement Citizen Corps programs, which include Community Emergency Response Teams (CERTs), Medical Reserve Corps, Neighborhood Watch, Volunteers in Police Service, and the affiliate programs; provide opportunities for special skills and interests; develop targeted outreach for special-needs groups; and organize special projects and community events.

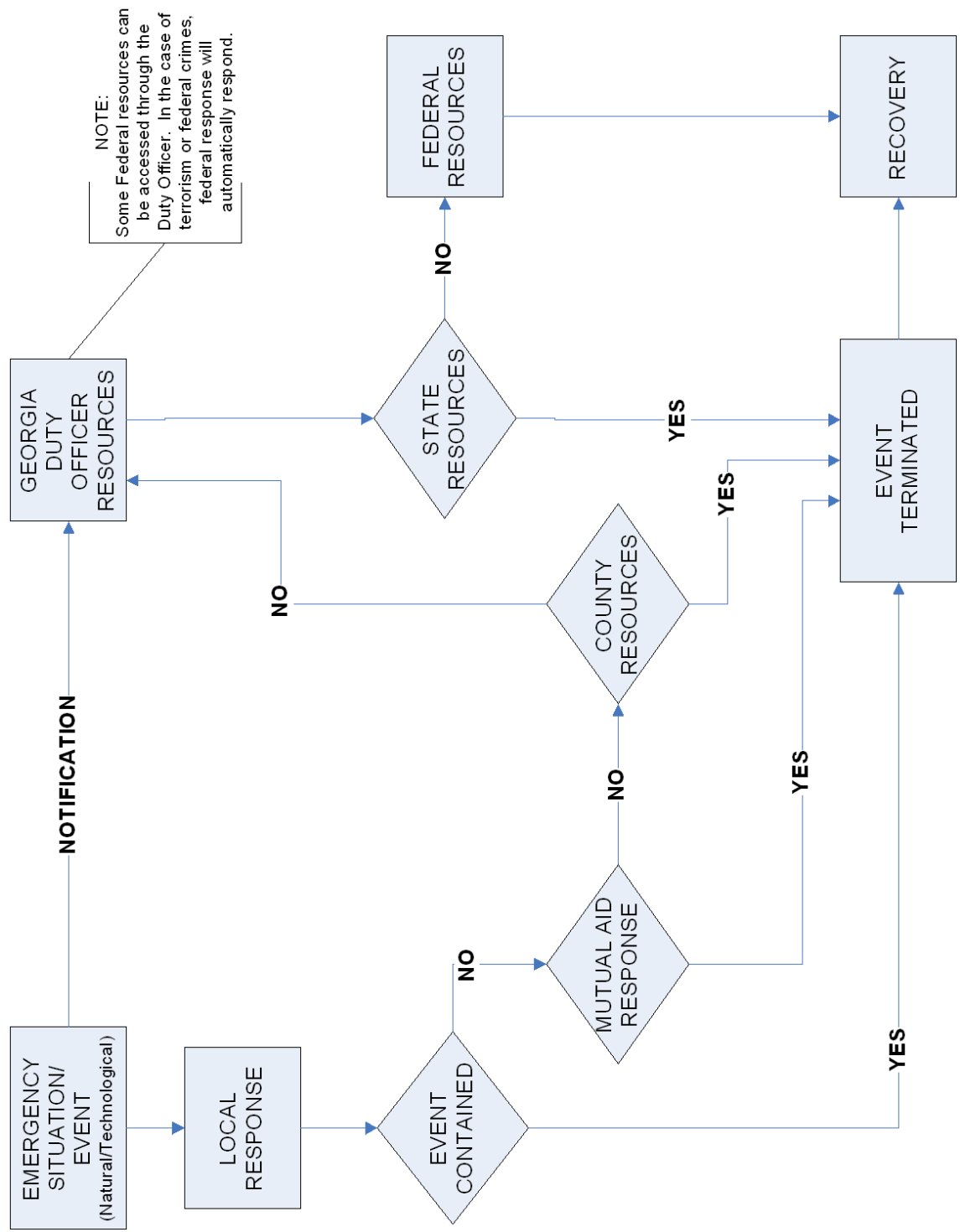
Citizen Corps Affiliate Programs expand the resources and materials available to communities through partnerships with programs and organizations that offer resources for public education, outreach, and training; represent volunteers interested in helping to make their communities safer; or offer volunteer service opportunities to support first responders, disaster relief activities, and community safety efforts.

Other programs unaffiliated with Citizen Corps also provide organized citizen involvement opportunities in support of response to major disasters and events of Critical Significance.

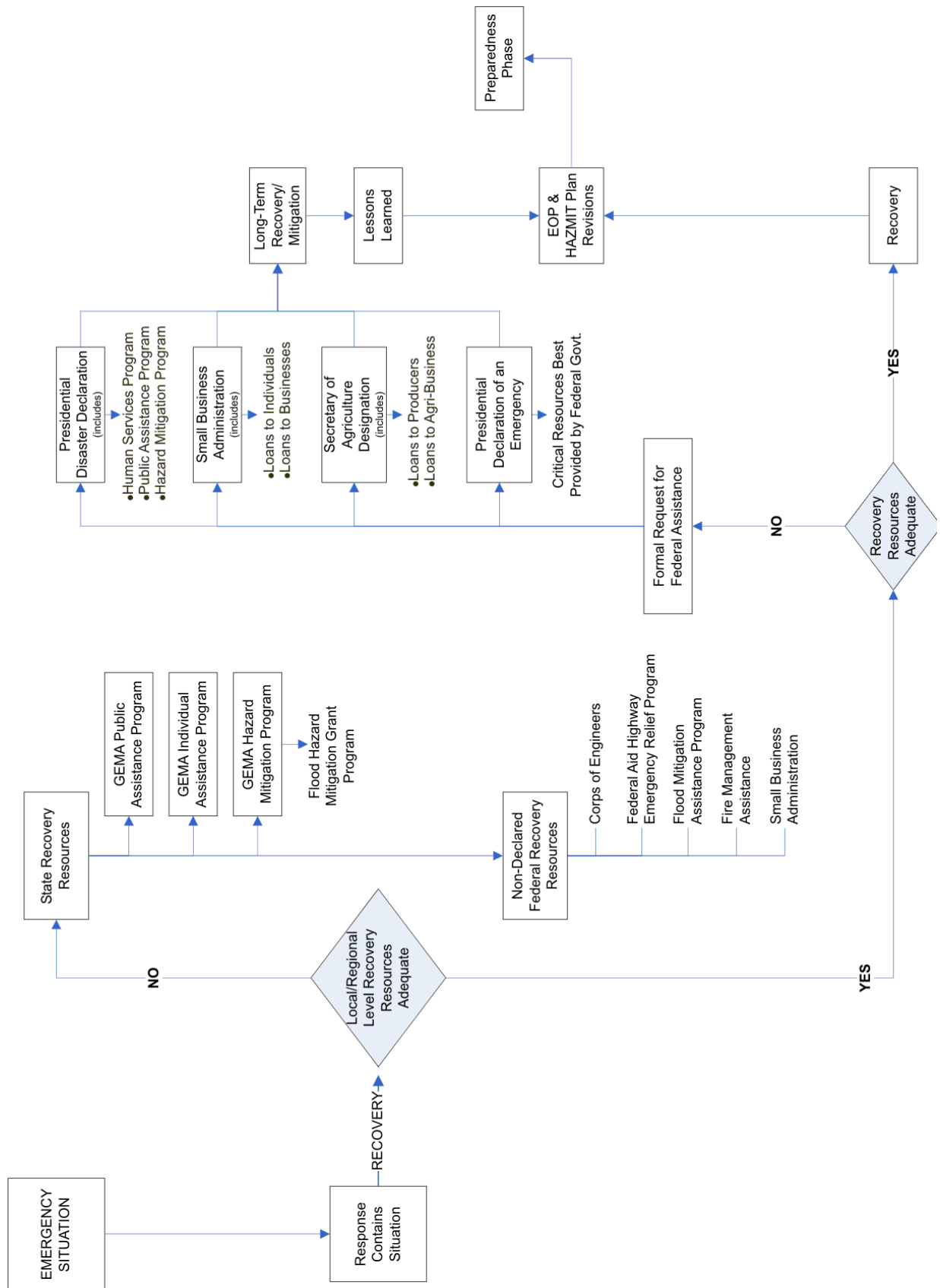
## **Citizen Corps**

The Citizen Corps works through a Citizen Corps Council that brings together leaders from law enforcement, fire, emergency medical and other emergency management, volunteer organizations, elected officials, the private sector, and other community stakeholders.

# Response Flow Chart



# Recovery Flow Chart



## **IV. CONCEPT OF OPERATIONS**

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### **Phases of Emergency Management**

#### **Mitigation**

Activities designed to reduce or eliminate risks to persons or property or to lessen the actual or potential effects or consequences of an incident. Mitigation measures implemented prior to, during, or after an incident are intended to prevent the occurrence of an emergency, reduce the community's vulnerability and/or minimize the adverse impact of disasters or emergencies. A preventable measure, for instance, is the enforcement of building codes to minimize such situations.

#### **Preparedness**

Actions taken to avoid an incident or to intervene to stop an incident from occurring. Preparedness involves actions taken prior to an emergency to protect lives and property and to support and enhance disaster response. Planning, training, exercises, community awareness and education are among such activities.

#### **Response**

Activities that address the short-term, direct effects of an incident. These activities include immediate actions to preserve life, property, and the environment; meet basic human needs; and maintain the social, economic, and political structure of the affected community. Also included are direction and coordination, warning, evacuation, and similar operations that help reduce casualties and damage, and speed recovery.

#### **Recovery**

The development, coordination, and execution of service- and site-restoration plans and the reconstitution of government operations and services through individual, private-sector, nongovernmental, and public assistance programs. Short-term recovery includes damage assessment and the return of vital functions, such as utilities and emergency services, to minimum operating standards. When rebuilding and re-locating is due to damaged property, long-term recovery activities may continue for years.

#### **General**

- A basic premise of the EOP is that incidents are generally handled at the lowest jurisdictional level possible. Police, fire, public health, medical, emergency management, and other personnel are responsible for incident management at that level. Accordingly, in order to protect life and property from the effects of emergencies, government is responsible for all emergency management activities. When operating under such conditions, Georgia Emergency Management Agency will utilize all available resources from within the County, including voluntary and private assets, before requesting other assistance. After an emergency exceeds local capacity to respond, assistance will be requested from other jurisdictions and the state through GEMA. Upon a Presidential declaration, assistance as requested by the state may be provided through Federal ESFs and/or other resources.

- Consistent with the commitment to comprehensive emergency management, this plan addresses major emergency situations that may develop in the county. It outlines activities that address mitigation, preparedness, response and recovery. The plan emphasizes the capacity of Georgia Emergency Management Agency to respond and accomplish short-term recovery.
- In coordination with the county and municipal governments, Georgia Emergency Management Agency will implement interagency coordination for emergency operations.
- In coordination with the county and municipal governments and Georgia Emergency Management Agency the public information designee will release all emergency information.
- If an agency requests functional support from another agency or organization, assigned personnel and resources will be coordinated by the agency responsible for the ESF.
- All agencies will inform Georgia Emergency Management Agency of personnel assigned to work in the Emergency Operations Center (EOC.)



## **V. DIRECTION AND CONTROL**

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### **Continuity of Government/Continuity of Operations (COG/COOP)**

Local governments and jurisdictions must be prepared to continue their minimum essential functions throughout the spectrum of possible threats from natural disasters through acts of terrorism. COG/COOP planning facilitates the performance of State and local government and services during an emergency that may disrupt normal operations.

- Government continuity planning facilitates the performance government and services during an emergency that may disrupt normal operations. Contingency plans for the continuity of operations of vital government functions and jurisdictions will allow agencies to continue their minimum essential operations and maintain authority. These plans include the spectrum of possible threats from natural disasters through acts of terrorism.
- Continuity of Government (COG) and Continuity of Operations (COOP) measures will establish lines of personnel succession, ensuring that authority is delegated to appropriate personnel prior to an emergency. Executive office personnel and agency managers will identify, notify, and train the individuals next in line. In addition, personnel will be familiar with alert, notification and deployment procedures to provide for command and control of response and recovery operations.
- Preservation of Records addresses the protection of essential records (e.g., vital statistics, deeds, corporation papers, operational plans, resource data, personnel and payroll records, inventory lists, laws, charters, and financial documents) by the appropriate agency following an emergency or disaster. Governments will plan for preservation of succession and delegation of authority and records necessary for carrying out governments legal and financial functions and the protection of legal and financial rights of citizens.
- The EMA director, under the direction of the local government, is responsible for the following, but not limited to:
  - Determine who is responsible for direction and control at the executive level;
  - Describe the decision process for implementing COG/COOP plans and procedures, including reliable, effective, and timely notification;
  - Establish measures for the protection of vital records;
  - Identify the agencies and personnel (including lines of succession) responsible for providing water, electricity, natural gas, sewer, and sanitation services in affected areas;
  - Identify the location of and contact points for Emergency Management Assistance Compacts (EMACs), Memoranda of Understanding (MOU), and other cooperative agreements

- Standard Operating Procedures (SOPs) for each local agency that provide specific authorities of designated successors to direct their agencies;
- COG/COOP succession of authority plans are outlined in the Bulloch County Emergency Management Agency Emergency Operations Plan Annex.

## **VI. INCIDENT MANAGEMENT ACTIONS**

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### **Services and Resources**

An emergency or disaster may place great demands on services and resources. Priority will be based on essential needs, such as food, water, and medical assistance. Other services and resources will be acquired after establishing the need.

### **Commitment of Services and Resources**

- Local governments will commit services and resources in order to save lives and protect property. Response agencies will first utilize services and resources available through their agency or organization. Additional needs may be met from other governments, agencies and/or organizations through mutual-aid or Memorandums of Understanding (MOU). After these sources have been exhausted, additional state resources may be requested from GEMA through the EOC. Bulloch County Emergency Management Agency maintains an extensive service and resource directory that is maintained by ESF 7.
- Detailed records of expenditures are required by all agencies and organizations responding to a disaster for possible reimbursement, such as through an authorized Federal disaster declaration.

### **Local Involvement**

Bulloch County Emergency Management Agency will coordinate the efforts of agencies and organizations responsible for plan development of ESFs and major revisions. It is strongly recommended that the agencies involved in an ESF conduct coordination meetings and develop an ESF plan for their response to each level of activation. The plan will be reviewed annually and major revisions completed, as necessary. An updated plan shall be submitted for approval to GEMA every four years through the eLEOP system. Minor revisions to the plan should be logged in on the designated form at the beginning of this plan and updated on the eLEOP system.

### **State Involvement**

Coordination of emergency management planning and operations and service and resource sharing across jurisdictional boundaries is necessary. Consequently, the state may be able to assist in the planning process (e.g., radiological, hurricane planning). Bulloch County Emergency Management Agency will coordinate the type and level of assistance. Agencies and organizations with ESF responsibilities will be involved in such planning. This assistance should be interpreted as supporting agencies with ESF responsibilities and enhancing emergency capabilities.

### **Standard Operating Procedures**

Most agencies and organizations within Bulloch County and its municipalities have emergency functions to perform in addition to their other duties. Each agency and/or

organization with primary ESF responsibilities, in conjunction with support agencies and organizations, will develop and maintain Standard Operating Procedures (SOPs). These procedures provide detailed direction and coordination of ESF responsibilities and critical emergency tasks.

## **Emergency Operations**

Organizational responsibilities are included in each ESF.

## **Local Responsibilities**

Bulloch County Emergency Management Agency is responsible for the following:

- Assist and advise all agencies and/or organizations in the development and coordination of ESFs to ensure necessary planning;
- Brief and train EOC personnel and volunteers as well as conduct periodic exercises to evaluate support function responsibilities;
- Manage the EOC for operational readiness;
- Coordinate with other emergency management agencies, GEMA, and other emergency response organizations;
- Maintain a list of all agency contacts including telephone, fax, and pager numbers (Refer to Bulloch County Emergency Management Agency EOC Telephone Directory);
- Obtain copies of SOPs for all ESFs;
- Update, maintain and distribute the plan and all major revisions to agencies and organizations contained on the distribution list;
- Advise Bulloch County Emergency Management Agency officials, municipalities and agencies with ESF responsibilities on the nature, magnitude, and effects of an emergency; and
- Coordinate with public information officials to provide emergency information for the public.

## **Agencies and organizations with ESF responsibilities will:**

- Develop and maintain the ESF and SOPs, in conjunction with Bulloch County Emergency Management Agency and other supporting agencies;
- Designate agency and organization personnel with emergency authority to work on planning, mitigation, preparedness and response issues and commit resources. Staff assignments should include personnel who are trained to work in the EOC;

- Maintain an internal emergency management personnel list with telephone, fax and pager numbers;
- Provide for procurement and management of resources for emergency operations and maintain a list of such resources;
- Participate in training and exercises to evaluate and enhance ESF capabilities;
- Negotiate and prepare MOUs that impact the specific ESF, in conjunction with Bulloch County Emergency Management Agency ; and
- Establish procedures for the maintenance of records, including personnel, travel, operations and maintenance expenditures and receipts.

## **VII. PLAN DEVELOPMENT AND MAINTENANCE**

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### **Plan Maintenance**

Bulloch County Emergency Management Agency is the executive agent for EOP management and maintenance. The EOP will be updated periodically as required to incorporate new directives and changes based on lessons learned from exercises and actual events. This section establishes procedures for interim changes and full updates of the EOP.

#### **• Types of Changes**

Changes include additions of new or supplementary material and deletions. No proposed change should contradict or SIGN authorities or other plans contained in statute, order, or regulation.

#### **• Coordination and Approval**

Any department or agency with assigned responsibilities under the EOP may propose a change to the plan. Bulloch County Emergency Management Agency is responsible for coordinating all proposed modifications to the EOP with primary and support agencies and other stakeholders, as required. Bulloch County Emergency Management Agency will coordinate review and approval for proposed modifications as required.

#### **• Notice of Change**

After coordination has been accomplished, including receipt of the necessary signed approval supporting the final change language, Bulloch County Emergency Management Agency will issue an official Notice of Change. The notice will specify the date, number, subject, purpose, background, and action required, and provide the change language on one or more numbered and dated insert pages that will replace the modified pages in the EOP in addition to manually logged record of changes on the form at the beginning of this plan titled: Record of Revisions. Once published, the modifications will be considered part of the EOP for operational purposes pending a formal revision and redistribution of the entire document. Interim changes can be further modified or updated using the above process and through eLEOP system tools.

#### **• Distribution**

Bulloch County Emergency Management Agency will distribute Notices of Change to all participating agencies. Notices of Change to other organizations will be provided upon request.

#### **• Redistribution of the EOP**



Working toward continuous improvement, Bulloch County Emergency Management Agency is responsible for an annual review and updates of the EOP and a complete revision every four years, or more frequently if the County Commission or the Georgia Emergency Management Agency deems necessary. The review and update will consider lessons learned and best practices identified during exercises and responses to actual events, and incorporate new information technologies. Bulloch County Emergency Management Agency will distribute revised EOP documents for the purpose of interagency review and concurrence.

## **EOP-Supporting Documents and Standards for Other Emergency Plans**

As the core plan for domestic incident management, the EOP provides the structures and processes for coordinating incident management activities for terrorist attacks, natural disasters, and other emergencies. Following the guidance provided, the EOP incorporates existing emergency and incident management plans (with appropriate modifications and revisions) as integrated components of the EOP, as supplements, or as supporting operational plans. Accordingly, departments and agencies must incorporate key EOP concepts and procedures for working with EOP organizational elements when developing or updating incident management and emergency response plans. When an agency develops an interagency plan that involves events within the scope of disaster and emergency incidents, these plans are coordinated with Bulloch County Emergency Management Agency to ensure consistency with the EOP, and are incorporated into the EOP, either by reference or as a whole. Bulloch County Emergency Management Agency will maintain a complete set of current local interagency plans. Incident management and emergency response plans must include, to the extent authorized by law:

- Principles and terminology of the NIMS;
- Reporting requirements of the EOP;
- Linkages to key EOP organizational elements such as the EOC; and
- Procedures for transitioning from localized incidents to incidents that require state or federal assistance. The broader range of EOP-supporting documents includes strategic, operational, tactical, and incident specific or hazard-specific contingency plans and procedures. Strategic plans are developed based on long-range goals, objectives, and priorities. Operational-level plans merge the on-scene tactical concerns with overall strategic objectives. Tactical plans include detailed, specific actions and descriptions of resources required to manage an actual or potential incident. Contingency plans are based on specific scenarios and planning assumptions related to a geographic area or the projected impacts of an individual hazard. The following is a brief description of EOP-related documents.

## **National Incident Management System**

The NIMS provides a core set of doctrine, concepts, terminology, and organizational processes to enable effective, efficient, and collaborative incident management at all

levels.

## **State and Local Emergency Operations Plans**

State and local emergency operations plans are created to address a variety of hazards. Examples include:

- State emergency operations plans designed to support State emergency management functions.
- Emergency operations plans created at the municipal level to complement State emergency operations plans.

## **Hazard Mitigation Plans**

Hazard mitigation plans are developed by States and communities to provide a framework for understanding vulnerability to and risk from hazards, and identifying the pre-disaster and post-disaster mitigation measures to reduce the risk from those hazards. Multihazard mitigation planning requirements were established by Congress through the Stafford Act, as amended by the Disaster Mitigation Act of 2000.

## **Private Sector Plans**

Private sector plans are developed by privately owned companies/corporations. Some planning efforts are mandated by statute (e.g., nuclear power plant operations), while others are developed to ensure business continuity.

## **Nongovernmental and Volunteer Organization Plans**

Volunteer and nongovernmental organization plans are plans created to support State and Federal emergency preparedness, response, and recovery operations. Plans include a continuous process of assessment, evaluation, and preparation to ensure that the necessary authorities, organization, resources, coordination, and operation procedures exist to provide effective delivery of services to disaster clients as well as provide integration into planning efforts at all government levels.

## **Planning and Operations Procedures**

Procedures provide operational guidance for use by emergency teams and other personnel involved in conducting or supporting incident management operations.

These documents fall into five basic categories:

- Overviews that provide a brief concept summary of an incident management function, team, or capability;
- Standard operating procedures (SOPs) or operations manuals that provide a complete reference document, detailing the procedures for performing a single function (i.e., SOP) or a number of interdependent functions (i.e., operations

manual);

- Field operations guides or handbooks that are produced as a durable pocket or desk guide, containing essential tactical information needed to perform specific assignments or functions;
- Point of contact lists; and
- Job aids such as checklists or other tools for job performance or job training.

# EMERGENCY SUPPORT FUNCTION 1 TRANSPORTATION

**Primary Agency**

Bulloch County Schools

**Support Agencies**

Bulloch County Public Safety/EMA

## I. INTRODUCTION

The emergency support function of transportation services involves direction and coordination, operations, and follow-through during an emergency or disaster.

### A. Purpose

1. To support and assist municipal, county, private sector, and voluntary organizations requiring transportation for an actual or potential disaster or emergency.
2. To assist city and county agencies and other ESFs with the emergency efforts to transport people. The priorities for allocation of these assets will be:
  - a. Evacuating persons from immediate peril.
  - b. Transporting personnel for the support of emergency activities.
  - c. Transporting relief personnel necessary for recovery from the emergency.

### B. Scope

The emergency operations necessary for the performance of this function include but are not limited to:

#### 1. Preparedness

- a. Maintain current inventories of local government transportation facilities, supplies, and equipment by mode.
- b. Maintain current resource directories of all commercial and industrial transportation assets, facilities, and supplies within the County, to include maintaining points of contact, their geographic locations, territories, and operating areas.
- c. Establish and maintain liaison with the state and adjacent county transportation officials.
- d. Plan for supporting all types of evacuation(s) to include lock down of

- draw bridges, suspension of highway construction and maintenance, lane reversal on evacuation routes, and state traffic management plans and operations.
- e. Estimate logistical requirements (e.g., personnel, supplies and equipment, facilities, and communications) during the planning process and through exercises. Develop appropriate transportation packages to support likely scenarios.
- f. Participate in exercises and training to validate this annex and supporting SOPs.
- g. Ensure all ESF 1 personnel integrate NIMS and ICS principles in all planning and preparedness initiatives.

## 2. Response

- a. Identify transportation needs required to respond to the emergency.
- b. Coordinate with GEMA for use of state transportation assets.
- c. Identify, obtain, prioritize and allocate available transportation resources.
- d. Report the locations of damage to transportation infrastructure, degree of damage, and other available information to ESF 5.
- e. Assist local governments in determining the most viable, available transportation networks to, from, and within the disaster area, and regulate the use of such networks as appropriate.
- f. Coordinate emergency information for public release through ESF 15.
- g. Plan for transportation support of mobilization sites, staging areas, and distribution points.

## 3. Recovery

- a. Continue to render transportation support when and where required as long as emergency conditions exist.
- b. Coordinate the repair and restoration of transportation infrastructure with the assistance of ESF 3.
- c. Evaluate and task the transportation support requests for impacted areas.
- d. Anticipate, plan for, and ready the necessary notification systems to support damage assessment teams, establishment of staging areas, distribution sites, and other local, state, and federal recovery facilities in the impacted area.
- e. Anticipate, plan for, and ready the necessary notification systems to support the deployment of mutual aid teams, and work teams and activities in the impacted area.
- f. Ensure that ESF 1 team members or their agencies maintain appropriate records of costs incurred during the event.

## 4. Mitigation

- a. Support and plan for mitigation measures.
- b. Support requests and directives resulting from the County

- Commission concerning mitigation and/or redevelopment activities.
- c. Document matters that may be needed for inclusion in briefings, situation reports and action plans.

## **II. CONCEPT OF OPERATIONS**

### **A. Strategy**

Standard Operating Procedures (SOPs) will be developed and maintained by the agency or organization that has primary responsibility for this ESF, in cooperation with the EMA. This function will be coordinated with and involve other support agencies and organizations.

The emergency transportation function is the primary responsibility of Bulloch County Schools and support for this function is the responsibility of Bulloch County Public Safety/EMA.

### **B. Actions**

#### **1. Mitigation/Preparedness**

- a. Plan and coordinate with support agencies and organizations.
- b. Maintain a current inventory of transportation resources.
- c. Establish policies, procedures, plans, and programs to effectively address transportation needs.
- d. Recruit, designate, and maintain a list of emergency personnel.
- e. Participate in drills and exercises to evaluate transportation capabilities.

#### **2. Response/Recovery**

- a. Staff the EOC when notified by the EMA director.
- b. Establish and maintain a working relationship with support agencies, transportation industries, and private transportation providers.
- c. Provide transportation resources, equipment, and vehicles, upon request.
- d. Channel transportation information for public release, through the EOC and continue providing information and support upon re-entry.
- e. Maintain records of expenditures and document resources utilized during recovery.

## **III. RESPONSIBILITIES**

### **A. Bulloch County Schools**



Bulloch County Schools has the largest fleet of transportation vehicles/buses available to transport large numbers of evacuees.

B. Bulloch County Public Safety/EMA

Bulloch County EMA will work with private transportation companies to fill any gaps in transportation Issues

**IV. COUNTY-SPECIFIC INFORMATION**

*none*

## EMERGENCY SUPPORT FUNCTION 2 COMMUNICATIONS

**Primary Agency**

Bulloch County 911

**Support Agencies**

Bulloch County Sheriff's Office

### I. INTRODUCTION

The emergency support function of communications and warning involves direction and coordination, operations and follow-through during an emergency or disaster.

#### A. Purpose

This ESF has been established to assure the provision of communications support to municipal, county, and private-sector response efforts during a disaster or emergency.

1. ESF 2 will identify communications facilities, equipment and personnel that could be made available to support disaster recovery efforts.
2. ESF 2 will identify planned actions of telecommunications companies to restore services.
3. ESF 2 will coordinate the acquisition and deployment of communications equipment, personnel and resources to establish temporary communications capabilities following a disaster.

#### B. Scope

1. Communications is information transfer and involves the technology associated with the representation, transfer, interpretation, and processing of data among persons, places, and machines. It includes transmission, emission, or reception of signs, signals, writing, images, and sounds or intelligence of any nature by wire, radio, optical, or other electromagnetic systems.
2. ESF 2 plans, coordinates and assists with the provision of communications support to county disaster response elements. This ESF will coordinate emergency warnings and communications equipment and services from local, county and state agencies, voluntary groups, the telecommunications industry and the military.
3. ESF 2 will serve as the focal point of contingency response communications activity in Bulloch County before, during and after activation of the EOC.
4. Operations necessary for the performance of this function include but are

not limited to:

a. Preparedness

- i. Identify public and private communications facilities, equipment, and personnel located throughout Bulloch County including emergency communications vehicles or mobile command posts.
- ii. Identify actual and planned actions of commercial telecommunications companies to restore services.
- iii. Coordinate the acquisition and deployment of communications equipment, personnel, and resources to establish temporary communications capabilities.
- iv. Develop and coordinate frequency management plans, including talk groups and trunked radio for use in disaster areas.
- v. Develop a long distance communications strategy for implementation during disasters.
- vi. Assess pre-event needs and develop plans to pre-stage assets for rapid deployment into disaster areas.
- vii. Develop plans to prioritize the deployment of services based on available resources and critical needs.
- viii. Plan for operations involving coordination with the state to coordinate communications assets beyond County capability.
- ix. Provide reliable links and maintain available support services for disaster communications with local, county, and state, agencies.
- x. Ensure all ESF 2 personnel integrate NIMS and ICS principles in all planning and preparedness initiatives.
- xi. Participate in tests and exercises to evaluate the county emergency response capability.

b. Response

- i. Conduct communications needs assessments (to include determining status of all communications systems), prioritize requirements, and make recommendations to deploy equipment and personnel to affected area, as required.
- ii. Identify actual actions of commercial telecommunications companies to restore services.
- iii. Maintain constant two-way communication with all appropriate emergency-operating services of county and local governments.
- iv. Implement frequency management plan in the disaster area, including talk groups and trunked radio, as required.
- v. Provide capability for responsible officials to receive emergency information and communicate decisions.
- vi. Establish communications with GEMA SOC to coordinate communications assets, personnel, and resources and mobile command vehicles as needed.

c. Recovery

- i. Arrange for alternate communication systems to replace systems that are inoperative due to damage from disasters.
- ii. Maintain or restore contact with the other EOCs (state, cities, and county emergency management/preparedness organizations), as capabilities allow.
- iii. Make communications channels available to provide appropriate information to the public concerning safety and resources required for disaster recovery.
- iv. Maintain or restore contact with all appropriate emergency operations services of county government.
- v. Gather communications damage assessment information from public and private organizations (including telephone outages) and report to ESF 5.
- vi. Assess the need for and obtain telecommunications industry support as needed.
- vii. Prioritize the deployment of services based on available resources and critical needs.
- viii. Anticipate and plan for arrival of, and coordination with, GEMA ESF 2 personnel in the SOC and other established facilities.
- ix. Ensure ESF 2 team members or their agencies, maintain appropriate records of costs incurred during the event.

#### d. Mitigation

- i. Support and plan for mitigation measures.
- ii. Document matters that may be needed for inclusion in agency or state/federal briefings, situation reports and action plans.

## II. CONCEPT OF OPERATIONS

### A. Strategy

Standard Operating Procedures (SOPs) will be developed and maintained by the agency or organization that has primary responsibility for this ESF, in cooperation with the EMA. This function will be coordinated with and involve other support agencies and organizations.

The emergency communications and warning function is the primary responsibility of Bulloch County 911 and support for this function is the responsibility of Bulloch County Sheriff's Office.

### B. Actions

#### 1. Mitigation/Preparedness

- a. Establish methods of communications and warning for probable situations including type of emergency, projected time, area to be

- affected, anticipate severity, forthcoming warnings, and actions necessary.
- b. Ensure that primary and alternate communications systems are operational.
- c. Recruit, train, and designate communications and warning operators for the EOC.
- d. Establish warning systems for critical facilities;
- e. Provide communications systems for the affected emergency or disaster area.
- f. Develop maintenance and protection arrangements for disabled communications equipment.
- g. Participate in drills and exercises to evaluate local communications and warning response capabilities.

## 2. Response/Recovery

- a. Verify information with proper officials.
- b. Establish communication capability, between and among EOC, agencies and organizations with ESF responsibilities, other jurisdictions, and SOC.
- c. Coordinate communications with response operations, shelters, lodging, and food facilities.
- d. Provide a system for designated officials to communicate with the public including people with special needs, such as hearing impairments and non-English speaking.
- e. Warn critical facilities.
- f. Continue coordinated communications to achieve rapid recovery and contact with the SOC.
- g. Maintain records of expenditures and document resources utilized during recovery.

## III. RESPONSIBILITIES

### A. Bulloch County 911

Bulloch County 911 is a 3 county 911 system. The radio system is a 700mhz system tied to SEGARRN. Bulloch county 911 will develop alternatives for regional communications as necessary

### B. Bulloch County Sheriff's Office

Bulloch SO will provide support to Bulloch 911 as necessary.

#### **IV. COUNTY-SPECIFIC INFORMATION**

*Both agencies are located at 17245 highway 301 north.*



# EMERGENCY SUPPORT FUNCTION 3

## PUBLIC WORKS AND ENGINEERING

**Primary Agency**

Bulloch County Transportation

**Support Agencies**

City of Statesboro Public Works Department

### I. INTRODUCTION

The emergency support function of public works and engineering involves direction and coordination, operations and follow-through during an emergency or disaster.

#### A. Purpose

This ESF provides operational guidance to those who are assigned to work in public works and engineering services. The mission of this ESF is to remove debris from streets, eliminate hazards, manage storm damage, provide rapid restoration of water/sewer services, repair essential services, immediately provide damage assessment information and cooperate with other emergency agencies.

#### B. Scope

This ESF is structured to provide public works and engineering related support for the changing requirements of incident management to include preparedness, prevention, response, recovery, and mitigation actions. Functions include but are not limited to:

##### 1. Preparedness

###### a. General

- i. Participate in exercises and training to validate this annex and supporting SOPs.
- ii. Ensure all ESF 3 personnel integrate NIMS and ICS principles in all planning and preparedness initiatives.

###### b. Public Works and Engineering

- i. Assist with the provision of water (potable and nonpotable) and ice into the disaster area if local supplies become inadequate.
- ii. In coordination with local emergency management officials, develop policy for conservation, distribution and use of potable and firefighting water.

- iii. Identify and locate chemicals to maintain a potable water supply.
  - iv. Include in ESF 3 Standard Operating Procedures an alerting list, to include points-of-contact and telephone numbers, of agencies, counties, municipalities and organizations supporting public works and engineering functions.
  - v. Maintain a current inventory of equipment and supplies, to include points-of-contact and telephone numbers, required to sustain emergency operations, including emergency power generators.
  - vi. Establish operational needs for restoration of public works service during the emergency.
  - vii. Develop and maintain listings of commercial and industrial suppliers of services and products, to include points-of-contact and telephone numbers associated with public works and engineering functions.
  - viii. Plan engineering, contracting, and procurement assistance for emergency debris, snow or ice clearance, demolition, public works repair, and water supply, and sewer missions.
  - ix. In conjunction with GEMA, plan for use of state resources to support ESF 3 operations.
- c. Damage Assessment: Coordinate the deployment of state damage assessment teams and other engineer teams into any area of the state.

## 2. Response

### a. Public Works and Engineering

- i. Identify water and sewer service restoration, debris management, potable water supply, and engineering requirements as soon as possible.
- ii. Evaluate status of current resources to support ESF 3 operations.
- iii. Establish priorities to clear roads, repair damaged water/sewer systems and coordinate the provision of temporary, alternate or interim sources of emergency power and water/sewer services.
- iv. As needed, recommend priorities for water and other resource allocations.
- v. Procure equipment, specialized labor, and transportation to repair or restore public works systems.
- vi. Coordinate with GEMA for use of state assets.
- vii. Coordinate with ESF 6 for shelter support requirements.
- viii. Coordinate with ESF 8 and ESF 11 for advice and assistance regarding disposal of debris containing or consisting of animal carcasses.
- ix. Coordinate with ESF 10 for advice and assistance regarding disposal of hazardous materials.
- x. Coordinate with ESF 4 for advice and assistance regarding

firefighting water supply.

b. Damage Assessment

- i. At the onset of an emergency or disaster, notify department/agency heads and local governments and volunteer organizations to have damage assessment and safety evaluation personnel available to deploy to affected area(s) and pre-position as appropriate.
- ii. Provide damage assessment coordinators and support for joint state/federal teams into the affected area, as required.
- iii. Coordinate with ESF 12 for public utility damage assessment information.
- iv. Collect, evaluate, and send damage assessment reports to ESF 5 and other appropriate agencies.
- v. Coordinate state and local damage assessment operations with related state and federal activities.
- vi. Prepare damage assessment documents in conjunction with GEMA where appropriate for a presidential emergency or major disaster declaration when necessary.

3. Recovery

a. General

- i. Anticipate and plan for arrival of and coordination with state and federal ESF 3 personnel in the EOC and/or the Joint Field Office (JFO).
- ii. Ensure that ESF 3 team members, their agencies, or other tasked organizations, maintain appropriate records of time and costs incurred during the event.

b. Public Works and Engineering

- i. Maintain coordination with all supporting agencies and organizations on operational priorities for emergency repair and restoration. Coordinate, as needed, for debris management operations on public and private property.
- ii. Continue to monitor restoration operations when and where needed as long as necessary and until all services have been restored.

c. Damage Assessment: In conjunction with GEMA, develop disaster project worksheets as required.

4. Mitigation

- a. Support and plan for mitigation measures.
- b. Support requests and directives from GEMA concerning mitigation and/or re-development activities.
- c. Document matters that may be needed for inclusion in agency or state/federal briefings, situation reports and action plans.

## II. CONCEPT OF OPERATIONS

### A. Strategy

Standard Operating Procedures (SOPs) will be developed and maintained by the agency or organization that has primary responsibility for this section of the ESF, in cooperation with the EMA. This function will be coordinated with and involve other support agencies and organizations.

Public works and engineering services is the primary responsibility of Bulloch County Transportation and support for this function is the responsibility of City of Statesboro Public Works Department.

### 1. Actions

#### a. Mitigation/Preparedness

- i. Recruit, train, and designate public works and engineering personnel to serve in the EOC.
- ii. Develop and maintain an inventory of equipment, supplies, and suppliers required to sustain emergency operations.
- iii. Prioritize service restoration for emergencies.
- iv. Establish liaison with support agencies, organizations, and the private sector to ensure responsiveness.
- v. Participate in drills and exercises to evaluate public works and engineering response capability.

#### b. Response/Recovery

- i. Alert emergency personnel of the situation and obtain necessary resources.
- ii. Establish response operations and support personnel working in the EOC.
- iii. Maintain coordination and support among applicable agencies and organizations and the private sector.
- iv. Channel all pertinent emergency information through the EOC.
- v. Assist in evaluating losses, recommending measures for conservation of resources, and responding to needs on a priority basis.
- vi. Conduct restoration and maintenance operations until completion of repair services.
- vii. Maintain records of expenditures and document resources

utilized during recovery.

### **III. RESPONSIBILITIES**

#### **A. Bulloch County Transportation**

Bulloch County Transportation will take the lead on all transportation issues during a disaster.

#### **B. City of Statesboro Public Works Department**

The City of Statesboro Public Works Department will be charged with transportation issues during a disaster within the city of Statesboro and support the County Transportation department out side of city.

### **IV. COUNTY-SPECIFIC INFORMATION**

*none*

## EMERGENCY SUPPORT FUNCTION 4 FIREFIGHTING

**Primary Agency**

Bulloch County Fire Department

**Support Agencies**

Statesboro Fire Department

### I. INTRODUCTION

The emergency support function of firefighting services involves direction and coordination, operations and follow-through during an emergency or disaster.

#### A. Purpose

This ESF provides a comprehensive mechanism to ensure appropriate utilization of local fire resources before and after the impact of a disaster. This will include but is not limited to the detection and suppression of urban, rural, and wildland fires resulting from, or occurring coincidentally with a significant natural or man-made disaster.

#### B. Scope

ESF 4 involves the management and coordination of firefighting resources in the detection and suppression of fires, during rescue situations, and when mobilizing and coordinating personnel, equipment, and supplies in support of local entities.

ESF 9, Search and Rescue and ESF10, Hazardous Materials, will be collocated with ESF 4 and are integral components of the function of ESF 4 support agencies. In preparation for and execution of its fire protection mission, ESF 4 will:

#### 1. Preparedness

- a. Maintain current inventories of fire service facilities, equipment, and personnel throughout the County.
- b. Organize and train fire service emergency teams to rapidly respond to requests for assistance.
- c. Monitor weather and hazardous conditions that contribute to increased fire danger.
- d. Maintain personnel and equipment in a state of readiness appropriate to existing and anticipated emergency conditions to include mobilizing resources and staging them at various locations.
- e. Based on hazardous conditions, conduct fire prevention and education activities for the public.



- f. Participate in exercises and training to validate this annex and supporting SOPs.
- g. Ensure all ESF 4 personnel integrate NIMS and ICS principles in all planning and preparedness initiatives.

## 2. Response

- a. Support local fire departments and the Forestry Commission with appropriate resources to include mobilizing and deploying firefighting teams and resources as needed.
- b. Coordinate with GEMA for use of state assets to support firefighting operations.
- c. Monitor status of firefighting resources committed to an incident.
- d. Maintain staging area locations.
- e. Plan for and establish relief resources to replace or rotate with committed resources for extended operations.
- f. Support fire investigations, as requested.
- g. Obtain and submit fire situation and damage assessment reports and provide information to EOC.
- h. Establish communications with the State Regional Fire Coordinator, when activated, to coordinate fire service response beyond the capability of County.
- i. When the situation dictates, coordinate with GEMA and/or SOC to invoke mutual aid agreements.
- j. Once resources are requested, provide for direct liaison with fire chiefs in affected areas to coordinate requests for specific assistance.
- k. Require supporting agencies maintain appropriate records of cost incurred during an event.
- l. Document any lost or damaged equipment, any personnel or equipment accidents.

## 3. Recovery

- a. Maintain adequate resources to support local operations and plan for a reduction of resources.
- b. Conduct reviews of incident actions with teams involved to improve future operations.
- c. Inventory lost or damaged equipment and record any personnel injuries or equipment accidents.
- d. Anticipate and plan for arrival of and coordination with state ESF 4 personnel in the EOC and the Joint Field Office (JFO).
- e. Inform agencies that provided resources where to send records for costs incurred during an event.

## 4. Mitigation

- a. Support and plan for mitigation measures.
- b. Support requests and directives from the state concerning mitigation and/or re-development activities.

- c. Document matters that may be needed for inclusion in agency or state/federal briefings, situation reports and action plans.

## II. CONCEPT OF OPERATIONS

### A. Fire Fighting Services

#### 1. Strategy

Standard Operating Procedures (SOPs) will be developed and maintained by the agency or organization that has primary responsibility for this section of the ESF, in cooperation with the EMA. This function will be coordinated with and involve other support agencies and organizations.

The firefighting services function is the primary responsibility of Bulloch County Fire Department and support for this function is the responsibility of Statesboro Fire Department.

#### 2. Actions

##### a. Mitigation/Preparedness

- i. Keep abreast of fire and weather forecasting information and maintain a state of readiness.
- ii. Implement efficient and effective MOUs among local fire agencies.
- iii. Establish reliable communications and incident command systems between support agencies, for an emergency site and EOC.
- iv. Recruit, train, and designate fire service personnel to serve in the EOC.
- v. Participate in drills and exercises to evaluate fire service response capability.

##### b. Response/Recovery

- i. Maintain a list of current fire service agencies and resource capabilities.
- ii. Coordinate fire services support among and between the EOC, functional support agencies, organizations, and SOC.
- iii. Obtain, maintain, and provide fire situation and damage assessment information.
- iv. Channel fire service information for public release through EOC.
- v. Conduct fire fighting operations.
- vi. Provide technical assistance and advice in the event of fires that involve hazardous materials.
- vii. Continue fire service operations through reentry.

- viii. Maintain records of expenditures and document resources utilized during recovery.

### **III. RESPONSIBILITIES**

#### **A. Bulloch County Fire Department**

Bulloch County Fire Department shall serve as lead fire department on all major fires and disaster response outside the city limits of Statesboro. This will include all other municipalities.

#### **B. Statesboro Fire Department**

*Statesboro Fire Department shall serve as lead fire department on all major fires and fire department response to disasters within the city limits of Statesboro and support outside of the city limits of Statesboro.*

### **IV. COUNTY-SPECIFIC INFORMATION**

*No County-specific information provided.*

## **EMERGENCY SUPPORT FUNCTION 5 EMERGENCY MANAGEMENT SERVICES**

### **Primary Agency**

Bulloch County Public Safety/EMA

### **Support Agencies**

Bulloch County Fire Department

Statesboro Fire Department

## **I. INTRODUCTION**

The emergency support function of emergency management services involves direction and coordination, operations and follow-through during an emergency or disaster.

### **A. Purpose**

This ESF provides operational guidance to those who are assigned to work in this ESF. The mission of this ESF is to collect, process, and disseminate information about an actual or potential disaster situation, and facilitate the overall activities of response and recovery. It also is used to make appropriate notifications and interface with other local and state entities.

1. Provide technical information on plans, SOPs, research and support.
2. Collect, process and disseminate essential information to the EOC staff.
3. Develop briefings, displays, and plans.
4. Consolidate key information into reports and other materials; describe and document overall response activities and inform appropriate authorities of the status of the overall response operations.
5. Maintain displays of key information such as maps, charts and status boards, and computer bulletin boards or electronic mail, as available.
6. Establish a pattern of information flow and support of the action planning process initiated by the Command Staff.
7. Provide logistical support for EOC staffing and facility needs.
8. Establish historical records collection process and event reconstruction.
9. Generate various reports and releases to support operations.
10. Coordinate Incident Action Planning to support operations.
11. Support the implementation of mutual aid agreements to ensure a seamless resource response to affected jurisdictions.
12. Maintain an on-call workforce of trained and skilled reserve employees to provide the capability to perform essential emergency management functions on short notice and for varied duration.
13. May follow established protocol to request additional state or federal assistance under the Stafford Act; communication made through the

county emergency manager and GEMA based on need and scope of the emergency.

## B. Scope

1. This ESF is structured to coordinate overall information and planning activities from the EOC in support of response and recovery operations. The ESF assimilates incident information when the EOC is activated from municipal representatives and activated ESFs.
2. Activities within the scope of this function include:

- a. Supporting ESFs across the spectrum of incident management from prevention to response and recovery.
- b. Facilitating information flow in the preparedness phase in order to place assets on alert or to preposition assets for quick response.
- c. Coordinating those functions that are critical to support and facilitate multi-agency planning and coordination for operations involving potential and actual disasters and emergencies.
- d. Utilizing alert and notification measures to assist in incident action planning, coordination of operations, logistics and material, direction and control, information management, facilitation of requests for State assistance, resource acquisition and management (to include allocation and tracking), worker safety and health, facilities management, financial management, and other support as required.

## 3. Preparedness

- a. Develop procedures and formats for information gathering and reporting to include procedures for SITREP format and submission.
- b. Train support agencies on roles and responsibilities.
- c. Develop information displays within the EOC.
- d. Ensure weather products are up to date and available for use in the SITREP.
- e. Participate in exercises and training to ensure planning functions are carried out to support this ESF and related SOPs.
- f. Ensure all ESF 5 personnel integrate NIMS and ICS principles in all planning and preparedness initiatives.

## 4. Response

- a. Notify all ESF 5 supporting agencies upon activation.
- b. Assign duties to support agency personnel and provide training as required.
- c. Coordinate EOC effort in collecting, processing, reporting and displaying essential information to include development of the SITREP.
- d. Conduct planning to identify priorities, develop approaches, and devise recommended solutions for future response operations.
- e. Provide weather information and briefings to the EOC and others as

- required.
- f. Plan for support of mobilization sites, staging areas, and distribution points.
- g. Coordinate the reception of state personnel.
- h. Plan for transition to JFO and recovery operations.

## 5. Recovery

- a. Continue information gathering and processing.
- b. Collect and process information concerning recovery activities to include anticipating types of recovery information the EOC and other government agencies will require.
- c. Assist in the transition of direction and control from the EOC to the JFO.
- d. Anticipate and plan for the support and establishment of staging areas, distribution sites in coordination with ESF 7, and other local, state and/or federal emergency work teams and activities in the impacted area.
- e. Operate ESF 5 cells in both the EOC and JFO, as required.
- f. Perform ESF 14 planning functions in the EOC until ESF 14 is established at the JFO.
- g. Ensure that ESF 5 team members or their agencies maintain appropriate records of costs incurred during the event.

## 6. Mitigation

- a. Support and plan for mitigation measures.
- b. Support requests and directives from the state concerning mitigation and/or re-development activities.
- c. Document matters that may be needed for inclusion in agency or state/federal briefings, situation reports and action plans.

# II. CONCEPT OF OPERATIONS

## A. Strategy

EMA will coordinate with appropriate agencies and organizations to ensure operational readiness and will develop and maintain Standard Operating Procedures (SOPs).

## B. Actions

### 1. Mitigation/Preparedness

- a. Monitor potential or developing incidents and support the efforts of operations.
- b. Support the implementation of mutual aid agreements.
- c. Maintains schedule for staffing and operating the Emergency



- Operations Center (EOC) from activation to stand-down.
- d. Coordinate with agencies to establish evacuation procedures, to include personnel and resources needed.
  - e. Coordinate damage assessment teams; collect, record, and report information to the SOC.
  - f. Plan for and coordinate the basic needs of emergency medical and social services required during and after evacuation.
  - g. Identify a staging area for personnel and equipment in conjunction with ESF 6 and ESF 8.
  - h. Establish, organize, train, equip and provide for the deployment of damage assessment teams into affected area.
  - i. Establish procedures for agencies, organizations and local governments to maintain expenditures.
  - j. Plan and/or attend meetings to ensure planning functions are carried out to support this ESF.
  - k. Participate in and/or conduct exercises and tests to evaluate local capability.
  - l. Identify Points of Distribution (POD) locations in the county to serve the public; coordinate designation of these areas with GEMA.

## 2. Response/Recovery

- a. Alert support agencies and other jurisdictions regarding potential emergency or disaster.
- b. Activate and staff EOC according to event magnitude.
- c. Coordinate operations and situational reporting to the State Operations Center.
- d. Request logistical assistance from supporting agencies and MOUs partners, as necessary.
- e. Anticipate and plan for the support of staging areas, distribution sites, opening of shelters (to include neighboring jurisdictions), in conjunction with ESF 6 and ESF 8.
- f. Work with ESF 6 and ESF 8 to provide support for movement of people, including individuals with special needs, through coordination with appropriate agencies/organizations.
- g. Assign Damage Assessment Teams to survey impact to county.
- h. Compile initial damage assessments reports and forward to the SOC.
- i. Assist in coordination of state damage assessment activities.
- j. Maintain records of expenditures and document resources utilized during recovery.
- k. Collect and process information regarding recovery activities to include anticipating types of recovery information the EOC and other state agencies will require.
- l. Coordinate and/or participate in briefings, conference calls, etc. to maintain and provide situational awareness.
- m. Provide updated information for ESF 15 to distribute to the public and media.
- n. Resume day-to-day operations.

### **III. RESPONSIBILITIES**

#### **A. Bulloch County Public Safety/EMA**

All duties detailed above and others as mandated related to Emergency Management Functions will be handled by the Bulloch County Emergency management office.

#### **B. Bulloch County Fire Department**

*Primary support for functions detailed above.*

#### **C. Statesboro Fire Department**

*Secondary Support for Functions detailed above.*

### **IV. COUNTY-SPECIFIC INFORMATION**

*none*

## **EMERGENCY SUPPORT FUNCTION 6 MASS CARE, HOUSING, AND HUMAN SERVICES**

### **Primary Agency**

Department of Family Children Services

### **Support Agencies**

American Red Cross

## **I. INTRODUCTION**

The emergency support function of mass care, housing and human services involves direction and coordination, operations and follow-through during an emergency or disaster.

### **A. Purpose**

This ESF provides operational guidance to those who are assigned to work in this ESF. The mission of this ESF is to coordinate activities involved with the emergency provision of temporary non-medical shelters, housing, and human services to include emergency mass feeding and disaster welfare information of individuals and/or families impacted by a disaster or emergency.

1. Coordinate the tasking of all sheltering activities during a disaster.
2. Coordinate with ESF 8 to establish and operate of mass feeding facilities in areas affected by disasters.
3. Coordinate with relief efforts provided by volunteer organizations performing mass care functions.
4. Coordinate the establishment of a system to provide shelter registration data to appropriate authorities.
5. Work with ESF 8 to coordinate provision of emergency first aid in shelters and fixed feeding sites.
6. Coordinate provision of medical support exceeding that required for standard first aid, for the prevention of communicable diseases, to include epidemiological and environmental health activities, as related to sheltering and feeding disaster victims.
7. Coordinate with ESF 12 to ensure each shelter has power generation capabilities.

### **B. Scope**

1. This ESF is structured to promote the delivery of services and the implementation of programs to assist individuals, households and families impacted by potential or actual disaster or emergency. This includes economic assistance and other services for individuals impacted by the

incident.

2. Activities within the scope of this function include:

a. Preparedness

- i. The primary agency will prepare for disasters by coordinating with support agencies for their participation in exercises.
- ii. ESF 8 will provide ESF 6 with regularly updated lists of planned special needs shelters or other special needs units in existence in each county.
- iii. ESF 6 will maintain a roster of primary contact ESF personnel.
- iv. ESF 6 will coordinate with the American Red Cross (ARC), Bulloch County Emergency Management Agency, and GEMA to ensure an up-to-date shelter list is available.
- v. ESF 6 will procure and regularly update a list of all agencies (public and private) that have a mission and capability to provide mass feeding in times of disaster.
- vi. ESF 6 agencies will participate in exercises and training to validate this annex and supporting SOPs.
- vii. Ensure all ESF 6 personnel integrate NIMS and ICS principles in all planning and preparedness initiatives.

b. Response

- i. Lead and support agencies will have and maintain appropriate listings of agency staff to notify for response activities.
- ii. ESF 6 will coordinate with ESF 5 and ESF 11 regarding mass feeding sites established by responding emergency management agencies.
- iii. Shelters will be opened and closed in accordance with public need as assessed by the appropriate volunteer organization, state and county emergency management agencies.
- iv. ESF 6 will monitor occupancy levels and ongoing victims needs, and will provide ESF 5 with an updated list of operational shelters.
- v. ESF 6 will coordinate with Bulloch County Emergency Management Agency, ARC, VOAD, and ESF 8 to update lists of available shelters including special needs shelters.
- vi. ESF 6 will coordinate with ESF 8 for the provision of medical services and mental health services in shelters with the appropriate agencies.
- vii. ESF 6 will coordinate with appropriate agencies to ensure that each shelter has a working communications system and has contact with the County EOC and the managing agency. This may include radio, telephone, computer, or cellular telephone communication devices.
- viii. ESF 6 will provide a list of mass care sites requiring restoration of services to EOC Operations.
- ix. ESF 6 will coordinate with ESF 13 regarding additional security

resources, if needed, at mass care shelters.

c. Recovery

- i. ESF 6 will coordinate with ESF 5, ESF 11, and ESF 8 to establish or support existing mass feeding sites operated by the American Red Cross, Salvation Army, and other volunteer agencies. The first priority of mass feeding activities will be disaster victims. Emergency workers will be encouraged to utilize established mass feeding sites in lieu of individual site distribution.
- ii. ESF 6 will coordinate mass feeding locations to ensure optimal access for public service based on emergency needs.
- iii. ESF 6 will coordinate with ESF 3 for garbage removal and ESF 8 for sanitation requirements and inspections at mass feeding sites in conjunction with county agencies.
- iv. ESF 6 will coordinate with ESF 11 and other responsible agencies for the provision of food and water to mass feeding sites, if needed. Liaison will be established with ESF 11 and 8 to ensure continued coordination for mass feeding.
- v. Anticipate and plan for arrival of and coordination with state ESF 6 personnel in the EOC and Joint Field Office (JFO).

d. Mitigation

- i. ESF 6 agencies will work to educate citizens on disaster preparedness and disaster mitigation activities.
- ii. Support requests and directives resulting from GEMA concerning mitigation and/or re-development activities.
- iii. Document matters that may be needed for inclusion in agency or state/federal briefings, situation reports, and action plans.

## II. CONCEPT OF OPERATIONS

### A. Mass Care Services

#### 1. Strategy

Standard Operating Procedures (SOPs) will be developed and maintained by the agency or organization that has primary responsibility for this section of the ESF. This function will be coordinated with and involve other support agencies and organizations.

The mass care function is the primary responsibility of Department of Family Children Services and support for this function is the responsibility of American Red Cross.

## 2. Actions

### a. Mitigation/Preparedness

- i. Coordinate MOUs with appropriate agencies and organizations for the provision of services to or on behalf of affected individuals and families.
- ii. Maintain, through the County Department of Family and Children Services, in coordination with the EMA, American Red Cross, Public Health Department, and Rehabilitation Services Office, an updated list of shelters with all relevant information (e.g., location, capacity, health inspection status, accessibility level, pet space, contact telephone numbers, and pager numbers).
- iii. Request that the American Red Cross assume responsibility for securing shelter and feeding arrangements, train shelter workers, provide shelter management, prepare first-aid kits, prepare media releases of shelter locations, operate shelters, and maintain shelter records.
- iv. Coordinate with the American Red Cross and EMA to establish a communication system between the EOC and shelters.
- v. Prepare for evacuation and care of protective service recipients during an emergency or disaster.
- vi. Participate in drills and exercises to evaluate mass care and shelter response capability.

### b. Response/Recovery

- i. Support opening and operating American Red Cross shelter(s), at the request of the EMA.
- ii. Assist with the staffing of the American Red Cross shelters, in coordination with ESF 8 and other applicable agencies, as requested upon opening.
- iii. Provide staffing support for American Red Cross Services Centers and local Disaster Recovery Centers (DRCs), upon request.
- iv. Ensure evacuation and care of protective service recipients and arranging for re-entry.
- v. Maintain records of expenditures and document resources utilized during recovery.

## B. Food Services

### 1. Strategy

Standard Operating Procedures (SOPs) will be developed and maintained by the agency or organization that has primary responsibility for this section of the ESF, in cooperation with the EMA. This function will be coordinated with ESF 11 and involve other support agencies and



organizations.

Food services is the primary responsibility of Department of Family Children Services and support for this function is the responsibility of American Red Cross.

## 2. Actions

### a. Mitigation/Preparedness

- i. Identify agencies and organizations with food preparation and distribution capabilities and coordinate MOUs with appropriate entities.
- ii. Maintain procedures and responsibilities for food service, issuance, and distribution, in coordination with the EMA and/or other agencies.
- iii. Establish a system for county implementation of Expedited and/or Emergency Food Stamps.
- iv. Develop a system for mobile and on-site feeding of emergency workers and shelter residents.
- v. Participate in tests and exercises to evaluate food distribution and service response capability.

### b. Response/Recovery

- i. Work with the EMA to determine food and water needs.
- ii. Begin plan implementation as expeditiously as possible.
- iii. Coordinate community resources and personnel to assist with food and water services and/or distribution.
- iv. Establish sites for food and water service, distribution, and issuance.
- v. Implement the Expedited and/or Emergency Food Stamp Programs at the request of the local government, in coordination with the EMA director.
- vi. Work with ESF 8 and ESF 11 to monitor food and/or water for contamination and issuance of health-related public service announcements, as necessary.
- vii. Continue the provision of food and/or water throughout reentry and recovery.
- viii. Maintain records, expenditures, and document resources utilized during recovery.

## III. RESPONSIBILITIES

### A. Department of Family Children Services

As mandated by State, DEFACS is lead agency on staffing shelters

B. American Red Cross

*Secondary support for above responsibilities*

#### **IV. COUNTY-SPECIFIC INFORMATION**

*No County-specific information provided.*

# EMERGENCY SUPPORT FUNCTION 7

## RESOURCE SUPPORT

**Primary Agency**

Bulloch County Public Safety/EMA

**Support Agencies**

City Manager's Office

County Manager's Office

### I. INTRODUCTION

The emergency support function of resource support services involves direction and coordination of volunteers, operations and follow-through during an emergency or disaster.

#### A. Purpose

This ESF provides operational guidance to those who are assigned to work in this ESF. This ESF has been established to provide logistical and resource support to local entities in supporting emergency response and recovery efforts during an emergency or disaster.

1. ESF 7 shall plan, coordinate and managing resource support and delivery in response to and recovery from a major disaster or catastrophe.
2. ESF 7 shall provide supplies and equipment from county and municipal stocks, commercial sources and donated goods.
3. ESF 7 support agencies will furnish resources as required.
4. Procurement will be made in accordance with current local, state and federal laws and regulations that include emergency procedures under Georgia Statute and Bulloch County policies and ordinances.

#### B. Scope

##### 1. Preparedness

- a. Develop methods and procedures for responding to and complying with requests for resources.
- b. Develop procedures for reimbursing private vendors for services rendered.
- c. Develop lists of private vendors and suppliers and their available resources.
- d. Establish pre-planned contracts where necessary to ensure prompt support from vendors during emergencies.
- e. Develop and train ESF 7 personnel on County emergency

- procurement procedures for acquiring supplies, resources, and equipment.
- f. Develop resource inventories based on hazard specific studies and corresponding likely resource requests by ESF.
- g. Participate in exercises and training to validate this annex and supporting SOPs.
- h. Develop a Countywide logistics plan and coordinate with ESF 1 to support logistics operations.
- i. Ensure all ESF 7 personnel integrate NIMS and ICS principles in all planning and preparedness initiatives.

## 2. Response

- a. Alert those agencies whose personnel, equipment, or other resources may be used.
- b. Establish a resource tracking and accounting system, including management reports.
- c. Assess initial reports to identify potential resource needs.
- d. Identify procurement resources and potential facility locations in the disaster area of operations.
- e. Provide data to the Public Information Office for dissemination to the public.
- f. Locate, procure, and issue to county agencies the resources necessary to support emergency operations to include coordination with General Services Real Property Management to identify prospective staging area warehouses available for lease to replace damaged or destroyed facilities.
- g. Execute countywide logistics plan and coordinate with ESF 1 to support logistics operations.
- h. Coordinate with the state to develop procedures for deploying state resources and personnel in support of emergency operations at warehousing facilities, staging areas, and other areas where the need exists.
- i. Coordinate with ESF 13 to evaluate warehouse security requirements.

## 3. Recovery

- a. Continue to conduct procurement activities as long as necessary and until procurement needs have been met.
- b. Anticipate and plan for arrival of and coordination with state ESF 7 personnel in the EOC and the Joint Field Office (JFO).

## 4. Mitigation

- a. Support and plan for mitigation measures.
- b. Support requests and directives resulting from the state concerning mitigation and/or re-development activities.
- c. Document matters that may be needed for inclusion in agency or

state/federal briefings, situation reports and action plans.

## **II. CONCEPT OF OPERATIONS**

### **A. Strategy**

Standard Operating Procedures (SOPs) will be developed and maintained by the agency or organization that has primary responsibility for this ESF, in cooperation with the EMA. This function will be coordinated with and involve other support agencies and organizations.

The volunteer services function is the primary responsibility of Bulloch County Public Safety/EMA and support for this function is the responsibility of City Manager's Office and County Manager's Office.

### **B. Actions**

#### **1. Mitigation/Preparedness**

- a. Maintain a list of volunteers and private organizations, local businesses, and individuals available to provide services, resources, and donated goods.
- b. Execute MOUs between county EMA and support agencies/organizations.
- c. Notify volunteer organizations when an emergency or disaster is threatening or underway.
- d. Alert and request assistance, as appropriate.
- e. Participate in and/or conduct exercises and tests.

#### **2. Response/Recovery**

- a. Support delivery of services to victims.
- b. Coordinate staging areas for volunteers to unload, store, or disperse donated goods.
- c. Assess the continuing volunteer service needs of the disaster victims.
- d. Resume day-to-day operations.

## **III. RESPONSIBILITIES**

### **A. Bulloch County Public Safety/EMA**

Bulloch County EMA will take the lead role in all duties above.

B. City Manager's Office

*Support for above Duties*

C. County Manager's Office

TOgether with the City managers office (depending on where disaster is located) the two managers will work together to support resource support

**IV. COUNTY-SPECIFIC INFORMATION**

*All other municipalities EMA will work with Mayors towards resource support*



# EMERGENCY SUPPORT FUNCTION 8

## PUBLIC HEALTH AND MEDICAL SERVICES

### Primary Agency

Bulloch County Health Department

### Support Agencies

Bulloch County EMS

Jake A. Futch - Coroner

## I. INTRODUCTION

The emergency support function of health and medical services involves direction and coordination, operations and follow-through during an emergency or disaster.

### A. Purpose

This ESF provides operational guidance to those who are assigned to work in this ESF. The mission of this ESF is to provide the mechanism for coordinated County assistance to supplement municipal resources in response to public health and medical care needs for potential or actual disasters and emergencies and/or during a developing potential health and medical situation. Additionally, to delineate procedures for the identification, recording, transportation, sheltering and care of persons requiring special needs in anticipation of, or during an emergency or disaster.

1. ESF 8 will coordinate all resources related to health and medical issues and shall monitor field deployment of medical personnel and resources.
2. ESF 8 will not release medical information on individual patients to the general public to ensure patient confidentiality protection.
3. ESF 8 will prepare reports on casualties/patients to be provided to the American Red Cross for inclusion in the Disaster Welfare Information System and to ESF 15 for informational releases.
4. ESF 8 will establish clear lines of communication and integration of expectations will be established on a routine basis with the EOC.

### B. Scope

This ESF is structured to oversee in identifying and meeting the public health and medical needs, to include emergency medical personnel, facilities, vehicles, equipment and supplies for victims, including people with special needs. The emergency operations necessary for the performance of this function include but are not limited to:

1. Preparedness

a. General

- i. Develop mutual support relationships with professional associations and other private services and volunteer organizations that may assist during an emergency or disaster.
- ii. Participate in exercises and training to validate this annex and supporting SOPs.
- iii. Ensure all ESF 8 personnel integrate NIMS and ICS principles in all planning and preparedness initiatives.

b. Medical Care

- i. Coordinate the provision of medical and dental care.
- ii. Identify and coordinate the deployment of doctors, nurses, technicians and other medical personnel to disaster areas.
- iii. Maintain inventory lists of medical supplies, equipment, ambulance services, hospitals, clinics and first aid units.
- iv. Plan for establishment of staging areas for medical personnel, equipment, and supplies.
- v. When emergency facilities are not available, plan for establishment of emergency medical care centers.
- vi. Plan for requesting medical assistance teams and coordinate for their support while operating within the county.
- vii. Assure that health care facilities (i.e. hospitals, nursing homes, youth and adult medical care facilities) develop patient reduction, evacuation, and relocation procedures.

c. Persons with Special Needs

- i. Identify and contact special needs populous and assisted living facilities to coordinate assistance and conduct needs assessments.
- ii. Consider all needs such as persons with physical disabilities, special medical needs, communication disabilities, elderly persons, and non-English speakers in the planning process.
- iii. Develop evacuation and relocation procedures for persons with special needs.
- iv. Develop procedures to monitor health information and records of persons being evacuated or relocated.
- v. Plan for deployment of food services or medical services to persons that may be mobility impaired.
- vi. Establish plans for evacuation and care of special needs in conjunction with state partners.

d. Public Health and Sanitation

- i. Develop procedures to protect the public from communicable diseases and contamination of food, water, and drug supplies (including veterinary drugs).

- ii. Develop procedures to monitor public health information.
- iii. Develop sanitation inspection procedures and protocols to control unsanitary conditions.
- iv. Develop procedures for inspection of individual water supplies.
- v. Develop procedures for identification of disease, vector, and epidemic control.
- vi. Develop emergency immunization procedures.
- vii. Identify laboratory testing facilities.

#### e. Crisis Counseling

- i. Develop procedures for rapidly providing crisis counseling and mental health/substance abuse assistance to individuals and families, to include organizing and training crisis counseling teams.
- ii. Develop support relationships with government agencies, professional associations, private services, and volunteer organizations to provide mental health and substance abuse assistance during disasters.

## 2. Response

#### a. General

- i. Coordinate information releases to the public with the public information officer in the EOC Public Information Group.
- ii. Coordinate with State and Federal agencies as required.
- iii. Maintain records of expenditures and resources used for possible later reimbursement.

#### b. Medical Care

- i. Coordinate the delivery of health and medical services.
- ii. Arrange for the provision of medical personnel, equipment, pharmaceuticals, and supplies.
- iii. Assist the coordination of patient evacuation and relocation.
- iv. Assist with hazardous materials response.

#### c. Public Health and Sanitation

- i. Manage public health and sanitation services.
- ii. Determine need for health surveillance programs throughout County.
- iii. Issue Public Health notice for clean-up on private property.
- iv. Arrange for the provision of medical personnel, equipment, and supplies as well as special dietary and housing needs.
- v. Notify state of planning limitations regarding evacuation and core individuals with special needs.

- d. Crisis Counseling: Coordinate for the provision of mental health and recovery services to individuals, families, and communities.

### 3. Recovery

#### a. General

- i. Anticipate and plan for arrival of, and coordination with state ESF 8 personnel in the EOC and the Joint Field Office (JFO).
- ii. Ensure ESF 8 members or their agencies maintain appropriate records of activities and costs incurred during the event.

#### b. Medical Care

- i. Assist with restoration of essential health and medical care systems.
- ii. Assist with restoration of permanent medical facilities to operational status.
- iii. Assist with restoration of pharmacy services to operational status.
- iv. Assist with emergency pharmacy and laboratory services.

#### c. Persons with Special Needs

- i. Continue coordination with agencies and organizations caring for people with special needs for return to assisted living facilities or relocation.
- ii. Encourage and assist vulnerable populations to create and keep emergency preparedness and response plans.

#### d. Public Health and Sanitation

- i. Monitor environmental and epidemiological surveillance.
- ii. Continue long-term emergency environmental activities.

- e. Crisis Counseling: Coordinate the management of continuous mental health and substance abuse assistance to individuals and families.

### 4. Mitigation

- a. Support and plan for mitigation measures.
- b. Support requests and directives resulting from the state concerning mitigation and/or re-development activities.
- c. Document matters that may be needed for inclusion in agency or state/federal briefings, situation reports and action plans.

## II. CONCEPT OF OPERATIONS

### A. Strategy

Standard Operating Procedures (SOPs) will be developed and maintained by the agency or organization that has primary responsibility for this ESF, in cooperation with the EMA. This function will be coordinated with and involve other support agencies and organizations.

The health and medical services function is the primary responsibility of Bulloch County Health Department and support for this function is the responsibility of Bulloch County EMS and Jake A. Futch - Coroner.

### B. Actions

#### 1. Mitigation/Preparedness

- a. Coordinate MOUs with all appropriate agencies and organizations for the provision of services to or on behalf of affected individuals and families.
- b. Plan for the continuity of health and medical services, in conjunction with the EMA, American Red Cross, Community Mental Health agency and Rehabilitation Services office.
- c. Establish a directory of health and medical resources.
- d. Work with the American Red Cross on the identification of volunteers and provision of training.
- e. Maintain a coordinated approach with state public health.
- f. Participate in drills and exercises to evaluate health and medical services response capability.

#### 2. Response/Recovery

- a. Assist the EMA with health and medical resources, services, and personnel upon notification of an emergency or disaster.
- b. Support the American Red Cross with health and medical services during shelter operations, as requested upon opening.
- c. Secure, in conjunction with the EMA, American Red Cross, other agencies and organizations, and the private sector, mental health, rehabilitation assistance, and other services, when necessary.
- d. Assist EMA, American Red Cross, other community agencies and organizations, and the private sector with issues affecting people who have special needs.
- e. Provide informational support to emergency medical services;
- f. Channel all relevant health and medical information for public release through the EMA and state public health.
- g. Continue service assistance throughout reentry and until all health and medical issues are resolved.
- h. Maintain records of expenditures and document resources utilized during recovery.

### **III. RESPONSIBILITIES**

#### **A. Bulloch County Health Department**

Bulloch County Health Department will serve as lead agency on all public health emergencies and perform duties as per above.

#### **B. Bulloch County EMS**

Bulloch County EMS will assist as necessary on the duties above.

#### **C. Jake A. Futch - Coroner**

Support above agencies as necessary to assure response to public health disasters.

### **IV. COUNTY-SPECIFIC INFORMATION**

*none*



# EMERGENCY SUPPORT FUNCTION 9

## SEARCH AND RESCUE

**Primary Agency**

Bulloch County Fire Department

**Support Agencies**

Statesboro Fire Department

### I. INTRODUCTION

The emergency support function of search and rescue involves direction and coordination, operations and follow-through during an emergency or disaster.

#### A. Purpose

Rapidly deploy local search and rescue components to provide specialized life-saving assistance to municipal authorities during an emergency or disaster.

1. EMA will assist in coordinating county assets and augment agencies having SAR responsibilities and may request state and Federal SAR assistance.
2. ESF 9 will interface with ESFs 1 and 8 to assist with medical assistance and the transportation of victims beyond initial collection points.

#### B. Scope

Urban SAR activities include, but are not limited to, locating, extricating, and providing immediate medical assistance to victims trapped in collapsed structures. Non-urban SAR activities include, but are not limited to, emergency incidents that involve locating missing persons, boats which are lost at sea, locating downed aircraft, extrication if necessary, and treating any victims upon their rescue.

The emergency operations necessary for the performance of this function include, but are not limited to:

#### 1. Preparedness

- a. Maintain a current inventory of resources, including trained personnel, which could support search and rescue operations. Maintain records reflecting local capability.
- b. Participate in exercises and training to validate this annex and supporting SOPs.
- c. Maintain liaison with State urban search and rescue assets and plan for reception of external assets.

- d. Maintain personnel and equipment in a state of readiness appropriate to existing and anticipated emergency conditions to include mobilizing resources and staging them at various locations.
- e. Assist local governments in training of personnel and rescue organizations for search and rescue operations.
- f. Ensure all ESF 9 personnel integrate NIMS and ICS principles in all planning and preparedness initiatives.

## 2. Response

- a. Support local agencies with appropriate resources, to include mobilizing and deploying teams and equipment as needed.
- b. Using the ICS, assume responsibility for coordinating and tracking all resources committed to an incident. This may include placing personnel at a forward command post. Establish staging areas with the requesting group.
- c. Deploy liaison teams to county EOC or incident base of operations, as needed.
- d. Plan for and establish relief resources to replace or rotate with committed resources for extended operations.
- e. Coordinate other State and Federal support for search and rescue operations to include planning for reception and deployment to area of operations.
- f. Coordinate with ESF 1 for use of buses to transport rescue teams or rescued victims or persons evacuated from an emergency area to a safe location or emergency shelter.

## 3. Recovery

- a. Continue to support local operations and plan for a reduction of operations.
- b. Inventory any lost or damaged equipment and record any personnel injuries or equipment accidents.
- c. Anticipate and plan for arrival of and coordinate with state ESF 9 personnel in the EOC and the Joint Field Office (JFO).
- d. Require ESF 9 team members and their agencies maintain appropriate records of costs incurred during the event.

## 4. Mitigation

- a. Support and plan for mitigation measures.
- b. Support requests and directives resulting from the Governor and/or GEMA concerning mitigation and/or re-development activities.
- c. Document matters that may be needed for inclusion in county or state/federal briefings, situation reports and action plans.

# II. CONCEPT OF OPERATIONS

#### A. Strategy

Standard Operating Procedures (SOPs) will be developed and maintained by the agency or organization that has primary responsibility for this section of the ESF, in cooperation with the EMA. This function will be coordinated with and involve other support agencies and organizations.

The search and rescue function is the primary responsibility of Bulloch County Fire Department and support for this function is the responsibility of Statesboro Fire Department.

#### 1. Actions

##### a. Mitigation/Preparedness

- i. Establish and maintain uniform search and rescue procedures.
- ii. Recruit, train, and certify search and rescue personnel.
- iii. Develop an inventory of resources, equipment, and personnel.
- iv. Enter MOUs for additional assistance and/or logistical support.
- v. Conduct and/or support community education programs on survival.
- vi. Establish a record keeping system.
- vii. Participate in drills and exercises to evaluate search and rescue response capability.

##### b. Response/Recovery

- i. Respond to requests by the EMA.
- ii. Monitor response efforts.
- iii. Channel emergency search and rescue information to the EMA-EOC.
- iv. Support request from other community agencies and/or jurisdictions.
- v. Maintain records, expenditures, and document resources utilized during recovery.

### III. RESPONSIBILITIES

#### A. Bulloch County Fire Department

No responsibilities have been provided.

#### B. Statesboro Fire Department

No responsibilities have been provided.

#### **IV. COUNTY-SPECIFIC INFORMATION**

No County-specific information provided.

# EMERGENCY SUPPORT FUNCTION 10

## HAZARDOUS MATERIALS

**Primary Agency**

Statesboro Fire Department

**Support Agencies**

Bulloch County Fire Department

### I. INTRODUCTION

The emergency support function of hazardous materials involves direction and coordination, operations and follow-through during an emergency or disaster.

#### A. Purpose

This ESF coordinates County support in response to an actual or potential discharge and/or uncontrolled release of oil or hazardous materials during disasters or emergencies.

#### B. Scope

This ESF will provide a coordinated response by local resources and initiate requests for state and federal resources when necessary to minimize adverse effects on the population and environment resulting from the release of or exposure to hazardous or radiological materials.

1. The emergency operations necessary for the performance of both radiological and non-radiological components of this function include but are not limited to:

- a. Preparedness

- i. Prepare an inventory of existing threats using SARA Title III, Tier II information.
- ii. Plan for response to hazardous materials incidents.
- iii. Develop plans for communications, warning, and public information.
- iv. Develop procedures for identification, control, and clean-up of hazardous materials.
- v. Provide, obtain, or recommend training for response personnel using courses made available by FEMA, Department of Energy (DOE), Nuclear Regulatory Commission (NRC), the Georgia Public Safety Training Center, EPA, and manufacturers and transporters of hazardous materials, as well as training based on OSHA requirements for each duty position.

- vi. Maintain a listing of private contractors capable of performing emergency and/or remedial actions associated with a hazardous materials incident.
- vii. Maintain an inventory of local assets capable of responding to a hazardous materials incident.
- viii. Develop plans and/or mutual aid agreements regarding hazardous materials incidents with local agencies, other county agencies, contiguous states, federal agencies, and private organizations as required.
- ix. Collect and utilize licensing, permitting, monitoring, and/or transportation information from the appropriate local, county, state, or federal agencies and/or private organizations to facilitate emergency response.
- x. Participate in exercises and training to validate this annex and supporting SOPs.
- xi. Ensure all ESF 10 personnel integrate NIMS and ICS principles in all planning and preparedness initiatives.

#### b. Response

- i. ESF 10 will coordinate, with the Unified/Incident Command, all hazardous substance response specific efforts and provide information to the EOC for coordination of all other municipal efforts.
- ii. Provide 24-hour response capability and dispatch personnel to an incident scene as necessary.
- iii. ESF 10 will assess the situation to include: the nature, amount and location of real or potential releases of hazardous materials; pathways to human and environmental exposure; probable direction and time of travel of the materials; potential impact on human health, welfare, safety, and the environment; types, availability, and location of response resources, technical support, and cleanup services; and priorities for protecting human health, welfare and the environment.
- iv. After reviewing reports, gathering and analyzing information and consulting with appropriate agencies, determine and provide, as available, the necessary level of assistance.
- v. Provide protective action recommendations, as the incident requires.
- vi. Provide for monitoring to determine the extent of the contaminated area and consult with appropriate support agencies to provide access and egress control to contaminated areas.
- vii. Consult with appropriate local, state, or federal agencies and/or private organizations with regard to the need for decontamination. Coordinate with ESF 8 regarding decontamination of injured or deceased personnel.
- viii. Coordinate decontamination activities with appropriate local, state, and federal agencies.
- ix. Coordinate with appropriate local, state, and federal agencies to



ensure the proper disposal of wastes associated with hazardous materials incidents; and assist in monitoring or tracking such shipments to appropriate disposal facilities.

- x. Coordinate with ESF 1 for the use of staging areas and air assets, and technical advice and assistance on regulated rail.
- xi. Coordinate with ESF 3 for technical assistance on water, wastewater, solid waste, and disposal.
- xii. Coordinate with ESF 12 for technical advice and assistance on intra-County pipelines.
- xiii. Coordinate with GEMA for use of state assets.

c. Recovery

- i. Terminate operations when the emergency phase is over and when the area has been stabilized by responsible personnel.
- ii. Request and maintain documented records of all expenditures, money, and physical resources of the various governmental department/agencies involved in emergency operations. Ensure that ESF 10 team members or their agencies maintain appropriate records of costs incurred during the event.
- iii. Anticipate and plan for arrival of, and coordination with, state ESF 10 personnel in the EOC and the Joint Field Office (JFO).

d. Mitigation

- i. Support and plan for mitigation measures.
- ii. Support requests and directives resulting from the Governor and/or GEMA concerning mitigation and/or re-development activities.
- iii. Document matters that may be needed for inclusion in agency or state/federal briefings, situation reports and action plans.

## II. CONCEPT OF OPERATIONS

### A. Strategy

Standard Operating Procedures (SOPs) will be developed and maintained by the agency or organization that has primary responsibility for this section of the ESF, in cooperation with the EMA. This function will be coordinated with and involve other support agencies and organizations.

The hazardous materials services function is the primary responsibility of Statesboro Fire Department and support for this function is the responsibility of Bulloch County Fire Department.

### B. Actions

## 1. Mitigation/Preparedness

- a. Prepare a facility profile and inventory of potential hazardous materials.
- b. Identify potential contacts and resources in order to conduct a community vulnerability analysis to determine potential hazardous materials threats and on-site inspections.
- c. Plan for response to hazardous materials incidents and coordinate with the EMA and other first responders.
- d. Develop procedures for identification, communications, warning, public information, evacuation, control, and monitoring and/or supervising cleanup of hazardous materials.
- e. Obtain training for response personnel available through GEMA, Georgia Fire Academy, manufacturers and shippers of hazardous materials, and/or other sources.
- f. Participate in drills and exercises to evaluate hazardous materials response capabilities.

## 2. Response/Recovery

- a. Verify incident information and notify the EMA and other applicable agencies.
- b. Establish a command post at a safe distance near the scene or staff the EOC, if the situation becomes excessive.
- c. Provide further information on the situation to the EMA and convey warnings for dissemination to the public.
- d. Request assistance for emergency health and medical, as well as mass care, if the situation warrants.
- e. Ensure availability of expertise and equipment to manage the incident.
- f. Utilize proper procedures for containment to prevent additional dangers.
- g. Support response teams, owner, shipper, state, and/or federal environmental personnel during cleanup.
- h. Establish area security and prohibit all unauthorized personnel from entering the containment area.
- i. Terminate cleanup operations after dangerous situation subsides.
- j. Maintain records, expenditures, and document resources utilized during recovery.

## III. RESPONSIBILITIES

### A. Statesboro Fire Department

No responsibilities have been provided.

B. Bulloch County Fire Department

No responsibilities have been provided.

**IV. COUNTY-SPECIFIC INFORMATION**

No County-specific information provided.

# EMERGENCY SUPPORT FUNCTION 11

## AGRICULTURE AND NATURAL RESOURCES

**Primary Agency**

Cooperative Extension Services

**Support Agencies**

Bulloch County Animal Services

### I. INTRODUCTION

The emergency support function of agriculture and natural resources involves direction and coordination, operations and follow-through during an emergency or disaster.

#### A. Purpose

This ESF provides operational guidance to those who are assigned to work this ESF. This ESF has been established to support provision of nutrition assistance, management of diseases, food safety, and to protect significant properties.

1. Actions undertaken through ESF 11 are coordinated with and conducted cooperatively with state and local incident management officials and with private entities.
2. Each supporting agency is responsible for managing its respective assets and resources after receiving direction from the primary agency for the incident.
3. Food Safety and Inspections are activated upon notification of the occurrence of a potential or actual disaster or emergency by the Department of Public Health.
4. Actions undertaken are guided by and coordinated with County and local emergency preparedness and response officials and State and Federal officials and include existing USDA internal policies and procedures.
5. Actions undertaken under ESF 11 to protect, conserve, rehabilitate, recover and restore resources are guided by the existing internal policies and procedures of the primary agency for each incident.
6. The primary agency for each incident coordinates with appropriate ESFs and other annexes to ensure appropriate use of volunteers and their health and safety and to ensure appropriate measures are in place to protect the health and safety of all workers.
7. Control and eradication of an outbreak of a highly contagious or economically devastating animal/zoonotic disease, highly infective exotic plant disease, or economically devastating plant pest infestation.
8. Assurance of food safety and food security.

9. Protection of natural and cultural resources and historic property resources before, during, and/or after a disaster or emergency.

## B. Scope

To provide for the following functional responsibilities:

Identify, secure and distribute food, bottled beverages, and supplies, and support the provision for sanitary food storage, distribution, and preparation during an emergency or disaster; Provide for mitigation, response and recovery to natural disasters, and/or acts of terrorism affecting animals, agriculture production, and the food sector; Assist agriculture in an outbreak of a highly infectious/contagious or economically devastating animal/zoonotic disease, or a highly ineffective or economically devastating plant pest disease or infestation; Assist with agriculture production, animal industry, and wildlife adversely affected by a disaster, either natural or man-made; and, Conserve, rehabilitate, recover and restore natural, cultural, and historic properties prior to, during, and after a man-made or natural disaster.

### 1. Preparedness

- a. Maintain an accurate roster of personnel assigned to perform ESF 11 duties during a disaster.
- b. Identify and schedule disaster response training for ESF 11 personnel.
- c. Maintain current food resource directories to include maintaining points of contact.
- d. Identify likely transportation needs and coordinate with ESF 1.
- e. Ensure all ESF 11 personnel integrate NIMS and ICS principles in all planning and preparedness initiatives.

### 2. Response

- a. Lead support agencies will maintain a roster of personnel assigned to perform ESF 11 duties during a disaster.
- b. Coordinate with ESF 6 and ESF 5, regarding mass feeding sites established by responding emergency management agencies.
- c. ESF 11 will coordinate with EMA and Public Health to update lists of all available provision of medical services with appropriate agencies.
- d. ESF 6 will provide a list of mass care sites requiring restoration of services to EOC Operations.
- e. ESF 6 will coordinate with ESF 13 regarding additional security resources, if needed, at mass care shelters.

### 3. Recovery

- a. ESF 11 will coordinate with ESFs 5, 6, and 8 to establish or support existing mass feeding sites operated to ensure optimal access for public service based on emergency needs.
- b. ESF 11 will coordinate with State agencies for the provision of food

and water to mass feeding sites, if necessary.

#### 4. Mitigation

- a. Support and plan for mitigation measures.
- b. Support requests and directives resulting from GEMA and/or other state agencies and federal partners concerning mitigation and/or re-development activities.
- c. Document matters that may be needed for inclusion in agency, county, or state/federal briefings, situation reports and action plans.
- d. Work to educate citizens on disaster preparedness and disaster mitigation activities.

## II. CONCEPT OF OPERATIONS

### A. Natural Disaster and Animals, Animal Industry and Wildlife

#### 1. Strategy

The agency assigned primary responsibility for ESF 11 will coordinate with appropriate agencies and organizations to ensure operational readiness. Agencies with responsibilities for this section of ESF 11 will coordinate with the Georgia Department of Agriculture (GDA) and the Georgia Department of Natural Resources (DNR), and the lead state agencies for ESF 11. The GDA will develop and maintain Standard Operating Procedures to include, but not limited to poultry, cattle, swine, dairy, equine, goats, sheep, and companion animal industries for a natural disaster. DNR will develop and maintain Standard Operating Procedures regarding aquaculture, seafood, wildlife, and exotic animals for natural disasters and the preservation of natural, cultural, and historic resources.

#### 2. Actions

##### a. Mitigation/Preparedness

- i. Develop mutual aid agreements with professional associations and private agencies/organizations.
- ii. Coordinate with ESF 6 in identifying potential pet friendly shelters near approved emergency American Red Cross shelters.
- iii. Participate in and/or conduct exercises or tests regularly, to validate this ESF and related SOPs.
- iv. Prepare, in conjunction with GEMA, public service announcements (PSAs) to increase public awareness regarding pet options and animal directives.
- v. Participate in drills and exercises to evaluate animal and animal industry response capability.



## b. Response/Recovery

- i. Support the EMA-EOC with all available resources.
- ii. Coordinate local emergency response with regional and state systems.
- iii. Request additional personnel and equipment for triage and shelter facilities, when necessary.
- iv. Manage and direct evacuation of animals from risk areas and provide technical assistance to prevent animal injury and disease dissemination.
- v. Obtain additional supplies, equipment, personnel, and technical assistance from support agencies and the private sector.
- vi. Provide assistance and care for livestock and other animals impacted by the disaster. If this assistance and care cannot be provided locally, request assistance from ESF 11 through the SOC.
- vii. Provide information to state ESF 11 on all available animal shelter facilities and confinement areas identified, before, during and after the disaster.
- viii. Assist with the evacuation of animals from risk areas and provide technical assistance to prevent animal injury and disease dissemination. Request additional assistance from state ESF 11 as needed.
- ix. Support GA-SART(s) as necessary.
- x. Coordinate with supporting agencies and Volunteer Agencies Active in Disaster (VOAD) for additional animal emergency sheltering and stabling for both large and small animals.
- xi. Restore equipment and supplies to a normal state of operational readiness.
- xii. Maintain financial records on personnel, supplies, and other resources utilized. Report to EMA upon request.
- xiii. Resume day-to-day operations.

## B. Nutrition Assistance and Food Safety

### 1. Strategy

The agency assigned primary responsibility for ESF 11 will coordinate with appropriate agencies and organizations to ensure operational readiness. Agencies with responsibilities for this section of the ESF, will coordinate with the EMA, GDA, and DNR. This function will be coordinated with and involve other support agencies and organizations.

### 2. Actions

#### a. Mitigation/Preparedness

- i. Identify agencies and organizations responsible for food safety inspections and monitoring and coordinate MOUs with appropriate entities.
- ii. Maintain procedures and responsibilities for food inspection and response to threatened food supplies.
- iii. Establish a system for the notification process of suspected or adulterated food supplies.
- iv. Participate in tests and exercises to evaluate communication with other agencies with food safety and security duties.
- v. Coordinate with ESF 6, the response to mass food distribution from secured sources.
- vi. Coordinate the development of an operational plan that will ensure timely distribution of food and drinking water.
- vii. Assess the availability of food supplies and storage facilities capable of storing dry, chilled, or frozen food.
- viii. Assess the availability of handling equipment and personnel for support.
- ix. Develop notification procedures for mobilizing food services, personnel, and resources.

#### b. Response/Recovery

- i. Coordinate with state and local agencies and authorities for requested support if county agencies are overwhelmed.
- ii. Identify proper state and federal agencies to contact in the event of suspicious activity contributing to adulterated food supplies.
- iii. Provide guidance for immediate local protective actions and reports, and establish communication with GDA and the Department of Human Resources (DHR).
- iv. Work with local EMA to determine critical food needs of the affected population in terms of numbers of people and their location.
- v. Coordinate community resources and personnel to assist with delivery services and/or distribution as necessary for secured food supplies.
- vi. Provide assistance in support of ESF 6 Mass Care, establishing distribution sites and requirements for distribution.
- vii. Establish linkages with volunteer and private agencies/organizations involved in congregate meal services.
- viii. Secure food, transportation, equipment, storage, and distribution facilities.
- ix. Initiate procurement of essential food and supplies not available from existing inventories.
- x. Refer victims needing additional food to volunteer and private agencies/organizations.
- xi. Coordinate with appropriate law enforcement in events where contamination of the food supply with a chemical or biological agent may have been suspicious or intentional.
- xii. Designate certain individuals to serve as expert points of contact for law enforcement.

- xiii. Provide for communication, surveillance, and response with all appropriate agencies in response to an act of agro-terrorism.
- xiv. Coordinate public information and provide updates for ESF 15 to distribute to the public and media.
- xv. Maintain financial records on personnel, supplies, and resources utilized, and report expenditures to local EMA and GEMA upon request.
- xvi. Resume day-to-day operations.

## C. Animal and Plant Diseases and Pests

### 1. Strategy

The agency assigned primary responsibility for ESF 11 will coordinate with appropriate agencies and organizations to ensure operational readiness. Agencies with responsibilities for this section of the ESF, will coordinate with the EMA, GDA, and DNR. This function will be coordinated with and involve other support agencies and organizations.

### 2. Actions

#### a. Mitigation/Preparedness

- i. Develop mutual aid agreements with government agencies, professional associations, and private agencies/organizations.
- ii. Work with GDA and DNR to train first responders, community leaders, and the agricultural industry at the awareness level in agro-security and agro-terrorism.
- iii. Work with GDA and DNR to provide for surveillance of foreign animal diseases or an animal disease, syndrome, chemical, poison, or toxin that may pose a substantial threat to the animal industries, aquaculture or seafood industries, the economy, or public health of the state.
- iv. Provide for surveillance of pests which may pose a potential or substantial threat to agriculture, horticulture, the economy, or the public health of the state.
- v. Develop local plans and resources to enhance awareness of surveillance for early detection of animal health emergencies and agro-terrorism.
- vi. Conduct and/or participate in exercises, training sessions, and workshops to assist local communities and support agencies/organizations.
- vii. Encourage support agencies to develop emergency operations plans that detail their support functions for ESF 11.

#### b. Response/Recovery

- i. Work with GDA and other appropriate state agencies to

- coordinate the collection of samples, ensure proper packaging and handling, and deliver them to designated laboratories for testing.
- ii. Coordinate the crisis response and the resulting consequences, as well as cooperate with law enforcement officials and the State of Georgia in criminal investigations, if a terrorist act is suspected in connection with an agriculture, animal, or food incident.
  - iii. Work with GDA to coordinate the decontamination and/or destruction of animals, plants, cultured aquatic products, food, and their associated facilities as determined necessary.
  - iv. Support GDA's efforts to quarantine, stop sale, stop movement, and place other restrictions under GDA authority of animals, plants, equipment, and products as necessary to control and eradicate diseases and pests.
  - v. Secure supplies, equipment, personnel and technical assistance from support agencies/organizations, and other resources to carry out the response plans associated with animal health emergency management or any act of agro-terrorism that may pose a substantial threat to the state.
  - vi. Manage and direct evacuation of animals from risk areas and provide technical assistance to prevent animal injury and disease dissemination.
  - vii. Support any identified County Agriculture Response Teams (CARTs) and other local emergency response teams with the statewide support network and the State Agriculture Response Teams (GA-SARTs).
  - viii. Determine need for mutual aid assistance and implement requests for assistance through local mutual aid agreements or through GEMA for state assistance, or mutual aid assistance through agreements such as the Emergency Management Assistance Compact (EMAC).
  - ix. Request Veterinary Medical Assistance Team (VMAT) assistance through the SOC if needed.
  - x. Coordinate operations to assure occupational safety measures are followed.
  - xi. Coordinate damage assessment as necessary.
  - xii. Restore equipment and supplies to a normal state of operational readiness.
  - xiii. Coordinate public information to provide updates to ESF 15.
  - xiv. Maintain financial records on personnel, supplies, and other resources utilized and report to local EMA and GEMA upon request.
  - xv. Resume day-to-day operations.

#### D. Resource Protection

## 1. Strategy

The agency assigned primary responsibility for ESF 11 will coordinate with appropriate agencies and organizations to ensure operational readiness. Agencies with responsibilities for this section of the ESF, will coordinate with the EMA, GDA, and DNR. This function will be coordinated with and involve other support agencies and organizations. ESF 11 agencies will coordinate with public natural, cultural, and historic properties and state agencies to develop Standard Operating Procedures(SOPs) for disaster prevention, preparedness, and recovery. On the state level, the Georgia Archives will manage, monitor, and assist in or conduct response and recovery actions to minimize damage to natural, cultural, or historic property resources, including essential government and historical records. ESF 11 agencies will request assistance for this resource through the SOC.

## 2. Actions

### a. Mitigation/Preparedness

- i. Participate in mutual aid agreements with government agencies, professional organizations, private agencies, and organizations.
- ii. Develop inventory of natural, cultural, and historic resources that will be covered by this plan.
- iii. Participate in a and/or conduct workshops for historical and cultural properties to encourage developmental plans for disaster prevention, preparedness, and recovery.

### b. Response/Recovery

- i. Support the disaster recovery with all available resources.
- ii. If criminal activity is suspected, cooperate with the criminal investigation jointly with appropriate state and federal law enforcement agencies.
- iii. Coordinate public information and provide updates for ESF 15 to distribute to the public and media.
- iv. Provide technical assistance to public natural, historic and cultural properties in damage assessment; request needed technical assistance and damage assessment support from the state or federal government through the SOC.
- v. Work with the state to reopen public natural, historic, and cultural properties as soon as safely possible, to the public.
- vi. Request assistance from the state for preservation, scientific/technical, and records and archival management advice and information for stabilization, security, logistics, and contracting for recovery services of damaged natural, historic or cultural resources pertaining to documentary and archival records and historic documents.
- vii. Maintain financial records on personnel, supplies, and other resources utilized and report to local EMA and GEMA upon request.

viii. Resume day-to-day operations.

### **III. RESPONSIBILITIES**

#### **A. Cooperative Extension Services**

The Department of Agriculture's primary community liaison in the local community is the Cooperative Extension Service. This agency will take the lead for response to all agriculture and Natural resource emergencies/disasters.

#### **B. Bulloch County Animal Services**

Assists above as necessary with guidance from local EMA and local Cooperative Extension Service.

### **IV. COUNTY-SPECIFIC INFORMATION**

*none*



# EMERGENCY SUPPORT FUNCTION 12

## ENERGY

**Primary Agency**

City of Statesboro Public Works Department

**Support Agencies**

Bulloch County Transportation

### I. INTRODUCTION

The emergency support function of energy services direction and coordination, operations and follow-through during an emergency or disaster.

#### A. Purpose

This ESF provides operational guidance to those who are assigned to work in this ESF. The mission of this ESF is to coordinate response activities of energy and utility organizations in responding to and recovering from fuel shortages, power outages, and capacity shortages which impact or threaten to impact Bulloch County citizens and visitors during and after a potential of actual disaster or emergency.

1. This ESF will coordinate providing sufficient fuel supplies to emergency response organizations and areas along evacuation routes.
2. Coordinate the provision of materials, supplies, and personnel for the support of emergency activities being conducted.
3. Maintain communication with utility representatives to determine emergency response and recovery needs.
4. Coordinate with schools and other critical facilities within the county to identify emergency shelter power generation status/needs; and coordinate with other ESFs with assistance in providing resources for emergency power generation.
5. Maintain lists of energy-centric critical assets and infrastructures, and continuously monitors those resources to identify and correct vulnerabilities to energy facilities.
6. Addresses significant disruptions in energy supplies for any reason, whether caused by physical disruption of energy transmission and distribution systems, unexpected operational failure of such systems, or unusual economic or political events.

#### B. Scope

This ESF is structured to coordinate the provision of emergency supply and transportation of fuel and the provision of emergency power to support immediate response operations as well as restoring the normal supply of

power to normalize community functioning. This ESF will work closely with local and state agencies, energy offices, energy suppliers and distributors.

The emergency operations necessary for the performance of this function include but are not limited to:

### 1. Preparedness

- a. Develop and maintain current directories of suppliers of services and products associated with this function.
- b. Establish liaison with support agencies and energy-related organizations.
- c. In coordination with public and private utilities, ensure plans for restoring and repairing damaged energy systems are updated.
- d. In coordination with public and private utilities, establish priorities to repair damaged energy systems and coordinate the provision of temporary, alternate, or interim sources of natural gas supply, petroleum fuels, and electric power.
- e. Promote and assist in developing mutual assistance compacts with the suppliers of all power resources.
- f. Develop energy conservation protocols.
- g. Ensure all ESF 12 personnel integrate NIMS and ICS principles in all planning and preparedness initiatives.

### 2. Response

- a. Analyze affected areas to determine operational priorities and emergency repair procedures with utility field personnel. Provide status of energy resources to the EOC Operations Group as required and, when possible, provide data by county.
- b. In coordination with public and private utilities, prioritize rebuilding processes, if necessary, to restore power to affected areas.
- c. Locate fuel for emergency operations.
- d. Administer, as needed, statutory authorities for energy priorities and allocations.
- e. Apply necessary County resources, to include debris removal, in accordance with established priorities in response to an emergency.
- f. Provide energy emergency information, education and conservation guidance to the public in coordination with the EOC Public Information Group.
- g. Coordinate with ESF 1 for information regarding transport of critical energy supplies.
- h. Plan for and coordinate security for vital energy supplies with ESF 13.
- i. Maintain continual status of energy systems and the progress of restoration.
- j. Utility repair and restoration activities to include collecting and providing energy damage assessment data to ESF 3.
- k. Recommend energy conservation measures.

### 3. Recovery

- a. Maintain coordination with all supporting agencies and organizations on operational priorities and emergency repair and restoration.
- b. Continue to provide energy emergency information, education and conservation guidance to the public in coordination with ESF15.
- c. Anticipate and plan for arrival of and coordinate with state ESF12 personnel in the EOC and the Joint Field Office.
- d. Continue to conduct restoration operations until all services have been restored.
- e. Ensure that ESF12 team members or their support agencies maintain appropriate records of costs incurred during the event.

#### 4. Mitigation

- a. Anticipate and plan for mitigation measures.
- b. Support requests and directives resulting from the Governor and/or the state concerning mitigation and/or redevelopment activities.
- c. Document matters that may be needed for inclusion in agency or state/federal briefings, situation reports and action plans.

## II. CONCEPT OF OPERATIONS

### A. Strategy

Standard Operating Procedures (SOPs) will be developed and maintained by the agency or organization that has primary responsibility for this section of the ESF, in cooperation with the EMA. This function will be coordinated with and involve other support agencies and organizations.

Energy services is the primary responsibility of City of Statesboro Public Works Department and support for this function is the responsibility of Bulloch County Transportation.

### 1. Actions

#### a. Mitigation/Preparedness

- i. Establish liaison support to ensure responsiveness, in conjunction with EMA and the private sector.
- ii. Identify additional resources and assistance teams;
- iii. Develop emergency response support plans.
- iv. Prepare damage assessment, repair and restoration procedures, and reporting mechanisms.
- v. Recommend actions to conserve energy and conservation guidance.
- vi. Participate in drills and exercises to evaluate energy response capabilities.

b. Response/Recovery

- i. Determine critical energy supply needs of priority populations (e.g., infants, elderly, and other people with special needs).
- ii. Gather, assess, and share information on energy system damage, as well as estimate repair and restoration time.
- iii. Activate assistance teams and obtain necessary resources to assist in recovery.
- iv. Serve as the focal point for the EMA and EOC in order to protect the health and safety of affected persons.
- v. Work with the EMA to provide public service announcements on energy conservation, mitigation impacts, and restoration forecasts.
- vi. Coordinate with other affected areas to maximize resources and information exchange.
- vii. Conduct repair and maintenance operations until restoration of all services.
- viii. Maintain records, expenditures, and document resources utilized during recovery.

**III. RESPONSIBILITIES**

A. City of Statesboro Public Works Department

No responsibilities have been provided.

B. Bulloch County Transportation

No responsibilities have been provided.

**IV. COUNTY-SPECIFIC INFORMATION**

No County-specific information provided.

## **EMERGENCY SUPPORT FUNCTION 13 PUBLIC SAFETY AND SECURITY SERVICES**

### **Primary Agency**

Bulloch County Sheriff's Office

### **Support Agencies**

Bulloch County Public Safety/EMA

Jake A. Futch - Coroner

Statesboro Police Department

## **I. INTRODUCTION**

The emergency support function of public safety and security services involves direction and coordination, operations and follow-through during an emergency or disaster.

### **A. Purpose**

This ESF integrates countywide public safety and security capabilities and resources to support the full range of incident management activities associated with potential or actual disaster or emergency.

1. Local, private sector, and specific State and Federal authorities have primary responsibility for public safety and security, and typically are the first line of response and support in these functional areas.
2. In most incident situations, local jurisdictions have primary authority and responsibility for law enforcement activities, utilizing the Incident Command System on-scene. In larger-scale incidents, additional resources should first be obtained through the activation of mutual aid agreements with neighboring localities and/or State authorities, with incident operations managed through a Unified Command structure.
3. Through ESF 13, State and/or Federal resources could supplement County and local resources when requested or required, as appropriate, and are integrated into the incident command structure using NIMS principals and protocols.
4. ESF 13 primary agencies facilitate coordination among supporting agencies to ensure that communication and coordination processes are consistent with stated incident management missions and objectives.
5. When activated, ESF 13 coordinates the implementation of authorities that are appropriated for the situation and may provide protection and security resources, planning assistance, technology support, and other technical assistance to support incident operations, consistent with agency authorities and resource availability.

## B. Scope

This ESF is structured to oversee public safety to include law enforcement, victim recovery, and deceased identification and mortuary services. The emergency operations necessary for the performance of this function include but are not limited to:

### 1. Preparedness

- a. ESF 13 capabilities support incident management requirements including force and critical infrastructure protection, security, planning and technical assistance, technology support, and public safety in both pre-incident and post-incident situations.
- b. ESF 13 is generally activated in situations requiring extensive assistance to provide public safety and security and where local government resources are overwhelmed or are inadequate, or in pre-incident or post-incident situations that require protective solutions or capabilities unique to the county.
- c. ESF 13 will procure and regularly update a list of all agencies (public and private) that have the capability to provide law enforcement and security services and victim recovery and mortuary services.

### 2. Response

- a. Provide warning and communications in support of the communications and warning plans.
- b. Staff the EOC as directed.
- c. Provide security to the EOC.
- d. Secure evacuated areas, including safeguarding critical facilities, and controlling entry and exit points to the disaster area as requested.
- e. ESF 13 will coordinate with ESF 5 to request additional resources, if needed.
- f. ESF 13 will activate existing MOUs with appropriate entities.

### 3. Recovery

- a. Continue those operations necessary to protect people and property.
- b. Assist in return of evacuees.
- c. Assist with reconstitution of law enforcement agencies as necessary.
- d. Require ESF 13 team members or their agencies maintain appropriate records of costs incurred during the event.
- e. Phase down operations as directed by the EOC.

### 4. Mitigation

- a. ESF 13 agencies will conduct and/or support community education programs on survival and safety.
- b. Support requests and directives resulting from GEMA and/or other state agencies and federal partners concerning mitigation and/or redevelopment activities.



- c. Document matters that may be needed for inclusion in agency, county, state/federal briefings, situation reports and action plans.

## **II. CONCEPT OF OPERATIONS**

### **A. Law Enforcement and Security**

#### **1. Strategy**

Standard Operating Procedures (SOPs) will be developed and maintained by the agency or organization that has primary responsibility for this ESF, in cooperation with the EMA. This function will be coordinated with and involve other support agencies and organizations.

#### **2. Actions**

##### **a. Mitigation/Preparedness**

- i. Analyze hazards and determine law enforcement requirements.
- ii. Identify agencies, organizations and individuals capable of providing support services.
- iii. Develop MOUs with adjacent and support law enforcement agencies.
- iv. Analyze hazards, critical facilities, determine law enforcement requirements, and develop plans to preposition assets.
- v. Train regular and support personnel in emergency duties.
- vi. Develop plans to conduct initial damage assessment.
- vii. Establish and maintain liaison with federal, state and local agencies.
- viii. Develop and maintain standard operating procedures and plans, to include alerting lists of personnel and agencies.
- ix. Participate in and/or conduct exercises and training to validate this ESF and supporting SOPs.
- x. Ensure all ESF 13 personnel integrate NIMS and ICS principles in all planning and preparedness initiatives.

##### **b. Response/Recovery**

- i. Provide warning and communications assistance in support of ESF 2.
- ii. Staff the EOC as directed.
- iii. Coordinate security for critical facilities, as needed.
- iv. Support evacuation plans with traffic control, communications, area patrols and security for shelters.
- v. Control entry and exit to the emergency or disaster area.
- vi. Control vehicle and individual access to restricted areas.
- vii. Continue operations necessary to protect people and property.
- viii. Coordinate public information and provide updates for ESF 15.

- ix. Assist in return of evacuees.
- x. Maintain records of expenditures and document resources utilized during recovery.
- xi. Resume day-to-day operations.

## B. Victim Recovery Services

### 1. Strategy

Standard Operating Procedures (SOPs) will be developed and maintained by the agency or organization that has primary responsibility for this ESF, in cooperation with the EMA. This function will be coordinated with and involve other support agencies and organizations.

### 2. Actions

#### a. Mitigation/Preparedness

- i. This function will be coordinated with and involve other agencies/organizations.
- ii. Develop and maintain standard operating procedures and plans, to include alerting lists of personnel and agencies.
- iii. Establish and maintain standards for human remains recovery operations.
- iv. Establish and maintain human remains recovery support and reporting procedures.
- v. Recruit, train, and certify recovery personnel.
- vi. Develop an inventory of resources and establish a record keeping system.
- vii. Conduct or participate in exercises to evaluate recovery response capability.
- viii. Conduct and/or support community education programs on survival.

#### b. Response/Recovery

- i. Respond to requests by local EMA; monitor response efforts.
- ii. Support requests from neighboring counties and MOU/EMAC agreements.
- iii. Maintain records, expenditures, and document resources utilized during response and recovery.

## C. Deceased Identification and Mortuary Services

### 1. Strategy

Standard Operating Procedures (SOPs) will be developed and

maintained by the agency or organization that has primary responsibility for this ESF, in cooperation with the EMA. This function will be coordinated with ESF 5 and involve other support agencies and organizations.

## 2. Actions

### a. Mitigation/Preparedness

- i. Develop plans for location, identification, removal and disposition of the deceased.
- ii. Establish a system for collecting and disseminating information regarding victims and have the operational capability to deliver the information in a field environment in coordination with the EOC Public Information Group.
- iii. Develop protocols and maintain liaison with Disaster Mortuary Operational Response Teams (DMORT).
- iv. Identify agencies, organizations and individuals capable of providing support services for deceased identification including the county coroner.
- v. Maintain a description of capabilities and procedures for alert, assembly and deployment of mortuary assistance assets.
- vi. Identify public and private agencies and organizations capable of providing support to victims families.

### b. Response/Recovery

- i. Initiate the notification of deceased identification teams.
- ii. Retain victim identification records.
- iii. Support evacuation plans with traffic control, communications, area patrols and security for shelters.
- iv. Coordinate DMORT teams and services through existing MOUs and EMAC agreements.
- v. Coordinate county assistance for next-of-kin notification.
- vi. Maintain records of expenditures and document resources utilized during response and recovery.

## III. RESPONSIBILITIES

### A. Bulloch County Sheriff's Office

No responsibilities have been provided.

B. Bulloch County Public Safety/EMA

No responsibilities have been provided.

C. Jake A. Futch - Coroner

No responsibilities have been provided.

D. Statesboro Police Department

No responsibilities have been provided.

**IV. COUNTY-SPECIFIC INFORMATION**

No County-specific information provided.

# EMERGENCY SUPPORT FUNCTION 14

## LONG TERM RECOVERY AND MITIGATION

**Primary Agency**

Bulloch County Public Safety/EMA

**Support Agencies**

City Manager's Office

County Manager's Office

### I. INTRODUCTION

#### A. Purpose

This ESF provides operational guidance to those who are assigned to work in this ESF. The mission of this ESF is to provide a framework for Bulloch County Emergency Management Agency support to municipal governments, nongovernmental organizations, and the private sector designed to enable community recovery from the long-term consequences of a disaster or emergency.

1. ESF 14 recognizes the primacy of affected governments and the private sector in defining and addressing risk reduction and long-term community recovery priorities.
2. Agencies continue to provide recovery assistance under independent authorities to municipal governments; the private sector; and individuals, while coordinating activities and assessments of need for additional assistance through the ESF 14 coordinator.
3. Support is tailored based on the type, extent, and duration of the event and long-term recovery period, and on the availability of state and federal resources.
4. Long-term community recovery and mitigation efforts are forward-looking and market-based, focusing on permanent restoration of infrastructure, housing, and the economy, with attention to mitigation of future impacts of a similar nature, when feasible.
5. The Federal Government uses the post-incident environment as an opportunity to measure the effectiveness of previous community recovery and mitigation efforts.
6. ESF 14 facilitates the application of loss reduction building science expertise to the rebuilding of critical infrastructure (e.g., in repairing hospitals or emergency operation centers to mitigate for future risk).

#### B. Scope

Structure: This ESF will provide coordination during large-scale or catastrophic incidents that require assistance to address significant long-term impacts in

the affected area (e.g., impacts on housing, businesses and employment, community infrastructure, and social services). Activities within the scope of this function include:

#### 1. Preparedness

- a. Develop systems to use predictive modeling to determine vulnerable critical facilities as a basis for identifying recovery activities.
- b. Review County Hazard Mitigation Plan to identify vulnerable facilities.
- c. Analyze and evaluate long-term damage assessment data.
- d. Ensure all ESF 14 personnel integrate NIMS and ICS principles in all planning and preparedness initiatives.

#### 2. Response

Use predictive modeling to determine vulnerable critical facilities as a basis for identifying recovery activities.

#### 3. Recovery

- a. Analyze evaluate long-term damage assessment data.
- b. In coordination with the state government, assign staff to identify and document economic impact and losses avoided due to previous mitigation and new priorities for mitigation in affected areas.
- c. Review the County Hazard Mitigation Plan for affected areas to identify potential mitigation projects.

#### 4. Mitigation

- a. Support requests and directives resulting from the state and/or federal government concerning mitigation and/or re-development activities.
- b. Document matters that may be needed for inclusion in agency or state/federal briefings, situation reports and action plans.

## II. CONCEPT OF OPERATIONS

- A. This ESF will assess the social and economic consequences in the impacted area and coordinate efforts to address long-term community recovery issues resulting from a disaster or emergency.
- B. Advise on the long-term recovery implications of response activities and coordinate the transition from response to recovery in field operations.
- C. Work with municipal governments; non-governmental organizations; and private-sector organizations to conduct comprehensive market disruption and loss analysis and develop a comprehensive long-term recovery plan for the community.
- D. Identify appropriate State and Federal programs and agencies to support implementation of the long-term community recovery plan, ensure

- coordination, and identify gaps in resources available.
- E. Determine/identify responsibilities for recovery activities, and provide a vehicle to maintain continuity in program delivery among departments and agencies, and with municipal governments and other involved parties, to ensure follow-through of recovery and hazard mitigation efforts.
- F. Develops coordination mechanisms and requirements for post-incident assessments, plans, and activities that can be scaled to incidents of varying types and magnitudes.
- G. Establishes procedures for integration of pre-incident planning and risk assessment with post-incident recovery and mitigation efforts.
- H. Facilitates recovery decision making across ESFs. Also facilitates awareness of post incident digital mapping and pre-incident County and municipal hazard mitigation and recovery planning across ESFs

### **III. RESPONSIBILITIES**

Supporting information and hazard analyses are contained in the appendix section of this plan.

#### **A. Bulloch County Public Safety/EMA**

*The local EMA/Public Safety will coordinate with local county and city CEOs to assure plan in place as per above for long term recovery and mitigation efforts.*

#### **B. City Manager's Office**

*See above*

#### **C. County Manager's Office**

*See above*

### **IV. COUNTY-SPECIFIC INFORMATION**

*No County-specific information provided.*



## **EMERGENCY SUPPORT FUNCTION 15 EXTERNAL AFFAIRS**

### **Primary Agency**

Bulloch County Public Safety/EMA

### **Support Agencies**

County Clerks/ Manager

## **I. INTRODUCTION**

The emergency support function of external affairs includes direction, policies, responsibilities, and procedures for disseminating timely, accurate, and easily understood information to the public before, during, and after a disaster or emergency situation. Hazard-specific appendices to this plan contain additional information for such specific emergencies.

### **A. Purpose**

1. Ensures that sufficient County assets are deployed to the field during a potential or actual a disaster or emergency to provide accurate, coordinated, and timely information to affected audiences, including governments, media, the private sector, and the populace.
2. This ESF includes a provision for providing information in a clear, concise and accurate manner on actions to be taken by local agencies and governments and actions to be taken by the public. Every effort shall be made to prevent and counter rumors and inaccurate information.

### **B. Scope**

The emergency operations necessary for the performance of this function include, but are not limited to:

#### **1. Preparedness**

- a. Develop a public information program to educate the public regarding the effects of common, emergency, and disaster situations.
- b. Develop plans to coordinate with international, national, state and local news media for emergency operations, before, during and after emergency situations.
- c. Develop plans to conduct a multi-agency/jurisdiction coordinated public information program during emergencies and disasters; this includes the establishment of a Joint Information Center (JIC).
- d. Develop plans and programs to educate news media that ESF 15 is the primary information center during emergency situations.

- e. Develop procedures to organize and operate a media briefing area and/or a JIC.
- f. Develop and maintain pre-scripted EAS messages, news releases, and public service announcements, for all hazards to include hurricane and coastal storm, rainwater flooding, storm surge and tornado.
- g. Encourage development of disaster plans and kits for the public.
- h. Provide evacuation information to the affected public.
- i. Participate in exercises and training to validate this annex and supporting SOPs.
- j. Update public information responder listing, as necessary.
- k. Develop and implement training programs for all ESF members.
- l. Develop and maintain a roster with contact information of all ESF personnel.
- m. Ensure all ESF 15 personnel integrate NIMS and ICS principles in all planning and preparedness initiatives.

## 2. Response

- a. Alert agencies whose personnel, equipment, or other resources may be used.
- b. Provide timely and accurate EAS messages and news releases in common language and terminology to inform the public.
- c. Provide emergency public information to special needs populations.
- d. Coordinate with news media regarding emergency operations.
- e. Provide mass notification to urban and rural populations and provide periodic media updates.
- f. Execute a multi-agency/jurisdiction coordinated public information program.
- g. Organize and operate a press briefing area and a JIC, as appropriate.
- h. Supplement local emergency management public information operations, as necessary, and when resources are available.

## 3. Recovery

- a. Continue public information activities to include updating the public on recovery efforts.
- b. Anticipate and plan for arrival of and coordinate with state ESF 15 personnel in the EOC, and the Joint Field Office (JFO).
- c. Process and disseminate disaster welfare and family reunification information.

## 4. Mitigation

- a. Support and plan for mitigation measures.
- b. Support requests and directives resulting from the Governor and/or GEMA concerning mitigation and/or re-development activities.
- c. Document matters that may be needed for inclusion in agency or state/federal briefings, situation reports and action plans.

## II. CONCEPT OF OPERATIONS

### A. Strategy

EMA will coordinate overall information and planning activities for state agencies and organizations.

EMA will coordinate with appropriate agencies to ensure operational readiness of the Intel Function for the Emergency Operations Center (EOC).

Bulloch County Public Safety/EMA provides primary responsibility of this ESF and support for this function is the responsibility of County Clerks/ Manager.

### B. Response Actions

#### 1. Mitigation/Preparedness

- a. Develop a briefing and reporting system to include an EOC briefing, situation report, public information and federal request format for the EOC Intel Function;
- b. Share Intel formats with agencies and organizations that have primary functional responsibilities;
- c. Update the information and planning system as required; and
- d. Participate in and/or conduct exercises.

#### 2. Response/Recovery

- a. Begin Intel Function upon activation of the EOC;
- b. Collect and process information from state agencies and organizations with primary Emergency Support Function responsibilities;
- c. Prepare EOC briefings, situation reports and geographic data for mapping to keep state and federal agencies and organizations, officials, local governments and local Emergency Management Agencies (EMAs) abreast of the severity and magnitude and provide updates to Public Affairs for media release;
- d. Provide technical assistance information and analysis to the EMA Director and EOC Chief, upon request;
- e. Coordinate needs and damage assessment of affected areas for dissemination to appropriate agencies and organizations;
- f. Track and record data necessary for federal declaration;
- g. Prepare information for after-action reports; and
- h. Resume day-to-day operations.

### C. Public Information Services

#### 1. Strategy

Standard Operating Procedures (SOPs) will be developed and maintained by the agency or organization that has primary responsibility for this section of the ESF. This function will be coordinated with and involve other support agencies and organizations.

The public information services function is the primary responsibility of Bulloch County Public Safety/EMA and support for this function is the responsibility of County Clerks/ Manager.

## 2. Actions

### a. Mitigation/Preparedness

- i. Designate an individual to serve as a public information officer or coordinator.
- ii. Develop protocol and designate a liaison for communication with local, state, and federal governments and to handle legislative inquiries.
- iii. Assist agencies and organizations with ESF responsibilities in development of uniform procedures for media releases (refer to Appendix I, Public Information Procedures).
- iv. Maintain a media directory (refer to Appendix J, Media Contact List).
- v. Support disaster public awareness initiatives through dissemination of information, news articles, PSAs, and presentation of audio-visual materials.
- vi. Establish communication resources to provide people with sensory disability (e.g., visual and hearing impaired) and non-English speaking persons with emergency management information regarding emergencies or disasters.
- vii. Educate the public on alert messages such as watches and warnings through media such as radio, television, and newspaper.
- viii. Develop protocols for agencies and organizations with functional support responsibilities (e.g., American Red Cross ? opening of shelters, Department of Transportation ? evacuation routing) to inform the media about emergency and/or disaster plans.
- ix. Participate in drills and exercises to evaluate public information capacity.

### b. Response/Recovery

- i. Define public notification timeframe regarding an emergency or disaster and disseminate information to the media.
- ii. Maintain a system to ensure accurate dissemination of emergency information such as location, type of hazard, extent of damage, casualties, shelters open, evacuation routes, and other protective actions.
- iii. Provide a designated area for media briefings and/or press conferences and conduct briefings in a timely manner.

- iv. Provide updates (e.g., response to inquiries about missing relatives, restricted areas of access and reentry) regarding the emergency or disaster.
- v. Establish media responsibilities and appropriate spokespersons from local government, agencies, and organizations with ESF responsibilities.
- vi. Continue provision of public safety and other necessary assistance information throughout the recovery phase.
- vii. Provide advanced media releases to the GEMA-SOC.
- viii. Coordinate with other jurisdictions that share the media market.
- ix. Maintain records of expenditures and document resources utilized during recovery.

### **III. RESPONSIBILITIES**

#### **A. Bulloch County Public Safety/EMA**

Bulloch County EMA/Public Safety will work with county and city clerks and city and county managers to assure all external affairs responsibilities are carried out.

#### **B. County Clerks/ Manager**

*See Above*

### **IV. COUNTY-SPECIFIC INFORMATION**

*none*

## ACRONYM

<b>ARC</b>	American Red Cross
<b>BOE</b>	Board of Education
<b>CERT</b>	Community Emergency Response Team
<b>DFACS</b>	Department of Family and Children's Services
<b>DFO</b>	Disaster Field Office
<b>DRC</b>	Disaster Recovery Center
<b>EAS</b>	Emergency Alert System
<b>EOC</b>	Emergency Operations Center
<b>EOP</b>	Emergency Operations Plan
<b>ESF</b>	Emergency Support Function
<b>FCO</b>	Federal Coordinating Officer
<b>FEMA</b>	Federal Emergency Management Agency
<b>GANG</b>	Georgia National Guard
<b>GEMA</b>	Georgia Emergency Management Agency
<b>IC</b>	Incident Commander
<b>ICP</b>	Incident Command Post
<b>ICS</b>	Incident Command System
<b>JFO</b>	Joint Field Office
<b>JIC</b>	Joint Information Center
<b>JOC</b>	Joint Operations Center
<b>MOU</b>	Memorandum of Understanding
<b>NIMS</b>	National Incident Management System
<b>NRP</b>	National Response Plan
<b>OHS</b>	Office of Homeland Security
<b>PDAT</b>	Preliminary Damage Assessment Team
<b>PIO</b>	Public Information Officer
<b>POC</b>	Point of Contact
<b>SA</b>	Salvation Army
<b>SAR</b>	Search and Rescue
<b>SCO</b>	State Coordinating Officer
<b>SITREP</b>	Situation Report
<b>SNPS</b>	Special Needs Population Shelters
<b>SOC</b>	State Operations Center
<b>SOP</b>	Standard Operating Procedure
<b>USACE</b>	US Army Corps of Engineers
<b>VOAD</b>	Volunteer Organizations Active in Disasters
<b>WMD</b>	Weapons of Mass Destruction

## **AUTHORITIES AND REFERENCES**

- Georgia Emergency Management Act of 1981, as amended.
- Georgia Emergency Operations Plan, revised January 2008.
- Local Resolution for Emergency Management.
- The Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended. (<http://www.fema.gov/library/stafact.shtm>)



## **EMERGENCY SUPPORT FUNCTION ACTIVATION CHECKLIST**

- ☐ 1. Receive notification of ESF Activation from Bulloch County Emergency Management Agency.
- ☐ 2. Notify all ESF supporting agencies.
- ☐ 3. Verify status of Activation of the EOC.
- ☐ 4. Send Representative to the EOC at designated times.
- ☐ 5. Sign in at EOC Security Station to receive badge and log hours.
- ☐ 6. Report arrival to Operations Chief and EOC Manager.
- ☐ 7. Obtain situation briefing from EOC staff.
- ☐ 8. Ensure adequate staffing for 24-hour coverage. Confirm names and hours of liaison staff with appropriate agencies.
- ☐ 9. Inventory go kits and work area. Check supplies, phone, and computer. Report any deficiencies to the EOC Manager.
- ☐ 10. Establish filing system (may include, but not limited to, status reports, situation reports, briefing papers, assignments, mission tasking, telephone rosters, daily reports, etc).
- ☐ 11. Establish contact with forward deployed teams or other agencies, as required. Exchange point of contact information and establish reporting times for all elements.
- ☐ 12. Begin gathering information and provide operational report to Operations Chief.

## GLOSSARY

**Alternate Emergency Operations Center** - A site located away from the primary Emergency Operations Center where officials exercise direction and coordination in an emergency or disaster.

**Area Command** - An organization established to oversee the management of multiple incidents that are each being handled by an Incident Command System organization or to oversee the management of large or multiple incidents to which several Incident Management Teams have been assigned.

**Catastrophic Incident** - A natural or manmade incident, which results in extraordinary levels of mass casualties, damage, or disruption severely affecting the population, infrastructure, environment, economy, and/or government functions

**Command Post** - A designated location to communicate and exercise direction and coordination over an emergency or disaster.

**Continuity of Government** - Measures taken to ensure coordination of essential functions of government in the event of an emergency or disaster.

**Critical Facilities** - Schools, libraries, hospitals, public roads, water and sanitation systems, public safety buildings and other essential infrastructure.

**Cyber** - Pertaining to computers and their support systems, such as servers, routers, and switches that support critical infrastructure.

**Damage Assessment** - An appraisal or determination of the number of injuries or deaths, damage to public or private property, status of critical facilities, services, communication networks, public works and utilities, and transportation resulting from a man-made or natural disaster.

**Decontamination** - Reduction or removal of chemical, biological or radioactive material from a structure, area, object, or person.

**Direction and Coordination** - Determining and understanding responsibilities so as to respond appropriately and expeditiously at a centralized center and/or on-scene location during emergency operations.

**Disaster** - A man-made or natural disaster resulting in severe property damage, injuries and/or death within a community or multi-jurisdictional area that requires local, state, and federal assistance to alleviate damage, loss, hardship, or suffering.

**Disaster Recovery Center (DRC)** - A facility established in a centralized location within or near the disaster area at which disaster victims (individuals, families, or businesses) apply for disaster aid.

**Drill** - A practical approach or procedure that involves elements of a preparedness plan or the use of specific equipment to evaluate a plan prepared response.

**Emergency** - As defined by the Stafford Act, an emergency is “any occasion or instance for which, in the determination of the President, Federal assistance is needed to supplement State and local efforts and capabilities to save lives and to protect property and public health and safety, or to lessen or avert the threat of a catastrophe in any part of the United States.”

**Emergency Alert System (EAS)** - A digital voice/text technology communications system consisting of broadcast stations and interconnecting facilities authorized by the Federal Communications Commission to provide public information before, during, and after disasters.

**Emergency Management** - An organized analysis, planning, direction, and coordination of resources to mitigate, prepare, respond, and assist with recovery from an emergency or disaster.

**Emergency Management Agency (EMA)** - Local government agency, established by local resolution(s), charged with the responsibility for local emergency management mitigation, preparedness, response, and recovery activities within the jurisdiction.

**Emergency Management Agency Director** - An individual with primary responsibility for emergency management mitigation, preparedness, response, and recovery within the jurisdiction.

**Emergency Operations Center (EOC)** - Physical location at which local government officials and designated agencies and/or organization representatives coordinate information and resources to support domestic management activities.

**Emergency Operations Plan (EOP)** - A document describing mitigation, preparedness, response, and recovery actions necessary by local government and designated and supporting agencies or organizations in preparation of an anticipated emergency or disaster.

**Emergency Support Function (ESF)** - 15 identified government and private-sector capabilities organized into a structure to facilitate assistance required during mitigation, preparedness, response, and recovery to save lives, protect health and property, and maintain public safety.

**Evacuation** - Organized, phased, and supervised withdrawal, dispersal, or removal of civilians from dangerous or potentially dangerous areas, and their reception and care in safe areas.

**Evacuees** - Persons moving from areas threatened or struck by an emergency or disaster.

**Exercise** - A simulated occurrence of a man-made or natural emergency or disaster involving planning, preparation, operations, practice and evaluation.

**Federal Disaster Assistance** - Aid to disaster victims and state and local governments by the Federal Emergency Management Agency and other federal agencies available once a Presidential Declaration has been made.

**First Responder** - Local and nongovernmental police, fire, and emergency personnel who in the early stages of an incident are responsible for the protection and preservation of life, property, evidence, and the environment.

**Georgia Emergency Management Agency (GEMA)** - A state agency established by state law, responsible for statewide emergency management mitigation, preparedness, response and recovery activities within the State of Georgia.

**Hazard** - A dangerous situation or occurrence that may result in an emergency or disaster.

**Hazard Mitigation** - Any measure that will reduce potential damage to property, persons or life from a disaster or emergency from a predetermined possible hazard.

**Hazardous Material** - Substance or material that has been determined to be capable of posing an unreasonable risk to health, safety, and property including pollutants and contaminants when released into the environment.

**Hazardous Materials Incident** - An occurrence resulting in the uncontrolled release of hazardous materials accident capable of posing a risk to health, safety, and property.

**In-Kind Donations** - Donations given in the form of goods, commodities, or services rather than money.

**Incident** - An occurrence or event, natural manmade caused, that requires an emergency response to protect life or property.

**Incident Command Post (ICP)** - Field location at which the primary tactical-level, on-scene incident command functions are performed. The ICP may be collocated with the incident base or other incident facilities.

**Incident Command System (ICS)** - A management tool consisting of procedures for organizing personnel, facilities, equipment and communications at the scene of an emergency.

**Incident Commander** - The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and release of resources. The IC has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident

operations at the incident site.

**Incident of Critical Significance** - An actual or potential high-impact event that requires a coordinated and effective response by and appropriate combination of County, local, nongovernmental, and/or private-sector entities in order to save lives and minimize damage, and provide the basis for long-term community recovery and mitigation activities.

**Infrastructure** - The manmade physical systems, assets, projects, and structures, publicly and/or privately owned, that are used by or provide benefit to the public. Examples of infrastructure include utilities, bridges, levees, drinking water systems, electrical systems, communications systems, dams, sewage systems, and roads.

**Joint Information Center (JIC)** - A facility established to coordinate all incident-related public information activities. It is the central point of contact for all news media at the scene of the incident. Public information officials from all participating agencies should collocate at the JIC.

**Joint Operations Center (JOC)** - The JOC is the focal point for all Federal investigative law enforcement activities during a terrorist or potential terrorist incident or any other significant criminal incident.

**Jurisdiction** - A range or sphere of authority. Public agencies have jurisdiction at an incident related to their legal responsibilities and authorities. Jurisdictional authority at an incident can be political or geographical. (e.g., city, county, State, or Federal boundary lines) or functional (e.g., law enforcement, public health).

**Liaison Officer** - A member of the Command Staff responsible for coordinating with representatives from cooperating and assisting agencies.

**Local Government** - County, municipality, city, town, township, local public authority, school district, special district, intrastate district, council of governments, regional or interstate government entity, or agency or instrumentality of a local government; or a rural community, unincorporated town or village, or other public entity.

**Major Disaster** - As defined by the Stafford Act, any natural catastrophe (including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought) or, regardless of cause, any fire, flood, or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under this act to supplement the efforts and available resources of States, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby.

**Memorandum of Understanding (MOU)** - A written memorandum of understanding between agencies and organizations to share resources and assistance during an emergency or disaster.

**Mitigation** - Activities designed to reduce or eliminate risks to persons or property or life, to lessen the actual or potential effects or consequences of an emergency or disaster.

**Mobile Command Post (MCP)** - A vehicle having the capability to communicate and exercise direction and coordination over an emergency or disaster.

**Mutual Aid Agreement** - Written agreement between agencies, organizations, and/or jurisdictions that they will assist one another on request by furnishing personnel, equipment, and/or expertise in a specified manner.

**National Incident Management System (NIMS)** - A system that provides a consistent, nationwide approach for Federal, State, and local governments; the private sector; and NGOs to work effectively and efficiently together to prepare for, respond to, and recover from domestic incidents, regardless of cause, size, or complexity.

**Natural Resources** - Natural resources include agriculture, biota, fish, livestock, wildlife, domesticated animals, plants, and water.

**Nongovernmental Organization** - A nonprofit or private-sector entity that is based on interests of its members, individuals, or institutions and that is not created by a government, but may work cooperatively with government.

**Occupational Safety and Health Administration (OSHA)** - Branch of the U.S. Department of Labor responsible for establishing and enforcing safety and health standards in the workplace.

**Operating Condition (OPCON)** - Scale with increasing levels of preparedness from five to one requiring performance of predetermined actions in response to a perceived or real threat.

**Power Outage** - An interruption or loss of electrical service due to disruption of power generation or transmission caused by accident, sabotage, natural hazards, equipment failure, or fuel shortage.

**Preparedness** - Maintaining emergency management capabilities in readiness, preventing capabilities from failing, and augmenting the jurisdiction's capability including training, developing, conducting and evaluating exercises, identifying, and correcting deficiencies, and planning to safeguard personnel, equipment, facilities, and resources from effects of a hazard.

**Presidential Declaration** - When disaster exceeds local and state government's capacity to respond, or provide sufficient resources for response, the state's Governor may request federal assistance, which is then approved by the President in the form of a Presidential Declaration which then increases federal aid to the affected areas.

**Primary Responsibility** - An agency or organization designated leadership and coordination of a specific emergency support function so as to mitigate, prepare, respond, and assist with recovery of an emergency or disaster.

**Private Sector** - Organizations and entities that are not part of any governmental structure. Includes for-profit and not-for-profit organizations, formal and informal structures, commerce and industry, private emergency response organizations, and private voluntary organizations.

**Public Health** - Protection, safety, improvement, and interconnections of health and disease prevention among people, domestic animals and wildlife.

**Public Information** - Dissemination of information in anticipation of an emergency or disaster and timely actions, updates, and instructions regarding an actual occurrence.

**Public Information Officer** - A designated individual responsible for preparing and coordinating the dissemination of emergency public information.

**Public Works** - Work, construction, physical facilities, and services provided by governments for the benefit and use of the public.

**Recovery** - Long-term activities beyond damage assessment necessary to satisfy immediate life support needs, maintain logistical support, begin restoration of the infrastructure, identify individuals and communities eligible for disaster assistance, and implement post-disaster mitigation.

**Resources** - Personnel and major items of equipment, supplies, and facilities available or potentially available for assignment to incident operations and for which status is maintained. Resources are described by kind and type and may be used in operational support or supervisory capacities at an incident or at an Emergency Operations Center.

**Response** - Time sensitive actions to save lives and/or protect property, stabilize emergency or disaster situations, and initiate actions to notify emergency management representatives of the crisis, evacuate and/or shelter the population, inform the public about the situation, assess the damage, and request additional assistance, as needed.

**SARA** - Superfund Amendments and Reauthorization Act of 1986.

**Shelter** - A designated facility that provides temporary congregate care for individuals and families who have been forced from their homes by an emergency or disaster.

**Shelter Management** - The internal organization, administration, and operation of a shelter facility by the American Red Cross.

**Staging Area** - A location pre-selected for emergency management equipment, vehicles, and personnel to begin coordinated operations, deployment of personnel to host jurisdictions and other assistance to affected communities.

**Standard Operating Procedures (SOP)** - Directions, detailing task assignments, and a step-by-step process of responsibilities relating to each Emergency Support Function or in relation to organizational response.

**State Operations Center (SOC)** - Permanent facility designated by the State Emergency Management Agency as the central location for information gathering, disaster analysis, and response coordination before, after and during a disaster.

**Strategic Plan** - A plan that addresses long-term issues such as impact of weather forecasts, time-phased resource requirements, and problems such as permanent housing for displaced disaster victims, environmental pollution, and infrastructure restoration.

**Support Agencies** - An agency or organization which provides assistance to the primary agency or organization with designated Emergency Support Function responsibility.

**Terrorism** - The unlawful use or threatened use of force or violence by a person or an organized group against people or property with the intention of intimidating or coercing societies or governments, often for ideological or political reasons.

**Unaffiliated Volunteer** - An individual who is not formally associated with a recognized voluntary disaster relief organization; also known as a "spontaneous" or "emergent" volunteer.

**Unified Command** - An application of Incident Command System (ICP) used when there is more than one agency with incident jurisdiction or when incidents cross-political jurisdictions. Agencies work together through the designated members of the Unified Command to establish their designated Incident Commanders at a single ICP and to establish a common set of objectives and strategies and a single Incident Action Plan.

**Unsolicited Goods** - Donated items offered by and/or sent to the incident area by the public, the private sector, or other source, that have not been requested by government or nonprofit disaster relief coordinators.

**Urban Search and Rescue** - Operational activities that include locating, extricating, and providing on-site medical treatment to victims trapped in collapsed or damaged structures.

**Volunteer** - Any individual accepted to perform services by an agency that has authority to accept volunteer services when the individual performs services without promise, expectation, or receipt of compensation for services performed.

**Volunteer and Donations Coordination Center** - Facility from which the Volunteer and Donations Coordination Team operates to review and process offers.

**Warning** - Alerting local government, agencies and organizations with emergency support function responsibilities, and the public regarding the threat of extraordinary danger (e.g., tornado warning, hurricane warning, severe storm warning) and that such occurrence has been sighted or observed specifying related effects that may occur due to this hazard.

**Watch** - Indications by the National Weather Service that, in a defined area, conditions are possible or favorable for the specific types of severe weather (e.g., flashflood watch, tropical storm watch).

**Weapon of Mass Destruction** - Any weapon that is designed or intended to cause widespread destruction resulting in serious bodily injury or death through the release, dissemination, or impact of toxic substance at a level dangerous to human life.

## ESF MATRIX OF PRIMARY AND SUPPORT AGENCIES

Bulloch County	ESF														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
American Red Cross						s									
Angela Disaster Relief															
Bulloch County 911		P													
Bulloch County Animal Services											s				
Bulloch County EMS								s							
Bulloch County Fire Department				P	s				P	s					
Bulloch County Health Department								P							
Bulloch County Public Safety/EMA	s				P		P						s	P	P
Bulloch County Rescue															
Bulloch County Schools	P														
Bulloch County Sheriff's Office		s											P		
Bulloch County Transportation			P									s			
City Manager's Office							s							s	
City of Statesboro Public Works Department			s									P			
Cooperative Extension Services											P				
County Clerks/ Manager															s
County Manager's Office							s							s	
Department of Family Children Services						P									
East Georgia Regional Medical Center															
Georgia Southern Environmental Safety															
Georgia Southern University Police Department															
Jake A. Futch - Coroner								s					s		
Statesboro Fire Department				s	s				s	P					
Statesboro Police Department													s		
Willingway Hospital															

**P = PRIMARY AGENCY:**

Responsible for Management of the ESF; Devise, coordinate, and implement disaster recovery plans for the ESF.

**S = SUPPORT AGENCY:**

Responsible to provide expertise, experience, and assts to the ESF as needed or requested by the Primary Agency.

**ESF's:**

1 = TRANSPORTATION

2 = COMMUNICATIONS



- 3 = PUBLIC WORKS / ENGINEERING
- 4 = FIREFIGHTING
- 5 = EMERGENCY MANAGEMENT
- 6 = MASS CARE
- 7 = RESOURCE SUPPORT
- 8 = PUBLIC HEALTH / MEDICAL
- 9 = SEARCH AND RESCUE
- 10 = HAZARDOUS MATERIALS
- 11 = AG / NATURAL RESOURCES
- 12 = ENERGY
- 13 = PUBLIC SAFETY
- 14 = LONG TERM RECOVERY
- 15 = EXTERNAL AFFAIRS

## **ESF SUMMARY OF RESPONSIBILITIES**

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### **American Red Cross**

ESF 6: Mass Care (Support)

*Secondary support for above responsibilities*

### **Angela Disaster Relief**

No responsibilities have been provided.

### **Bulloch County 911**

ESF 2: Communications (Primary)

Bulloch County 911 is a 3 county 911 system. The radio system is a 700mhz system tied to SEGARRN. Bulloch county 911 will develop alternatives for regional communications as necessary

### **Bulloch County Animal Services**

ESF 11: Ag / Natural Resources (Support)

Assists above as necessary with guidance from local EMA and local Cooperative Extension Service.

### **Bulloch County EMS**

ESF 8: Public Health / Medical (Support)

Bulloch County EMS will assist as necessary on the duties above.

### **Bulloch County Fire Department**

ESF 4: Firefighting (Primary)

Bulloch County Fire Department shall serve as lead fire department on all major fires and disaster response outside the city limits of Statesboro. This will include all other municipalities.

ESF 5: Emergency Management (Support)

*Primary support for functions detailed above.*

ESF 9: Search and Rescue (Primary)

No responsibilities have been provided.

ESF 10: Hazardous Materials (Support)

No responsibilities have been provided.

**Bulloch County Health Department**

ESF 8: Public Health / Medical (Primary)

Bulloch County Health Department will serve as lead agency on all public health emergencies and perform duties as per above.

**Bulloch County Public Safety/EMA**

ESF 1: Transportation (Support)

Bulloch County EMA will work with private transportation companies to fill any gaps in transportation Issues

ESF 5: Emergency Management (Primary)

All duties detailed above and others as mandated related to Emergency Management Functions will be handled by the Bulloch County Emergency management office.

ESF 7: Resource Support (Primary)

Bulloch County EMA will take the lead role in all duties above.

ESF 13: Public Safety (Support)

No responsibilities have been provided.

ESF 14: Long Term Recovery (Primary)

*The local EMA/Public Safety will coordinate with local county and city CEOs to assure plan in place as per above for long term recovery and mitigation efforts.*

ESF 15: External Affairs (Primary)

Bulloch County EMA/Public Safety will work with county and city clerks and city and county managers to assure all external affairs responsibilities are carried out.

## **Bulloch County Rescue**

No responsibilities have been provided.

## **Bulloch County Schools**

ESF 1: Transportation (Primary)

Bulloch County Schools has the largest fleet of transportation vehicles/buses available to transport large numbers of evacuees.

## **Bulloch County Sheriff's Office**

ESF 2: Communications (Support)

Bulloch SO will provide support to Bulloch 911 as necessary.

ESF 13: Public Safety (Primary)

No responsibilities have been provided.

## **Bulloch County Transportation**

ESF 3: Public Works / Engineering (Primary)

Bulloch County Transportation will take the lead on all transportation issues during a disaster.

ESF 12: Energy (Support)

No responsibilities have been provided.

## **City Manager's Office**

ESF 7: Resource Support (Support)

*Support for above Duties*

ESF 14: Long Term Recovery (Support)

*See above*

## **City of Statesboro Public Works Department**

ESF 3: Public Works / Engineering (Support)

The City of Statesboro Public Works Department will be charged with

transportation issues during a disaster within the city of Statesboro and support the County Transportation department out side of city.

ESF 12: Energy (Primary)

No responsibilities have been provided.

**Cooperative Extension Services**

ESF 11: Ag / Natural Resources (Primary)

The Department of Agriculture's primary community liaison in the local community is the Cooperative Extension Service. This agency will take the lead for response to all agriculture and Natural resource emergencies/disasters.

**County Clerks/ Manager**

ESF 15: External Affairs (Support)

*See Above*

**County Manager's Office**

ESF 7: Resource Support (Support)

Together with the City managers office (depending on where disaster is located) the two managers will work together to support resource support

ESF 14: Long Term Recovery (Support)

*See above*

**Department of Family Children Services**

ESF 6: Mass Care (Primary)

As mandated by State, DEFACS is lead agency on staffing shelters

**East Georgia Regional Medical Center**

No responsibilities have been provided.

**Georgia Southern Environmental Safety**

No responsibilities have been provided.

## **Georgia Southern University Police Department**

No responsibilities have been provided.

### **Jake A. Futch - Coroner**

ESF 8: Public Health / Medical (Support)

Support above agencies as necessary to assure response to public health disasters.

ESF 13: Public Safety (Support)

No responsibilities have been provided.

## **Statesboro Fire Department**

ESF 4: Firefighting (Support)

*Statesboro Fire Department shall serve as lead fire department on all major fires and fire department response to disasters within the city limits of Statesboro and support outside of the city limits of Statesboro.*

ESF 5: Emergency Management (Support)

*Secondary Support for Functions detailed above.*

ESF 9: Search and Rescue (Support)

No responsibilities have been provided.

ESF 10: Hazardous Materials (Primary)

No responsibilities have been provided.

## **Statesboro Police Department**

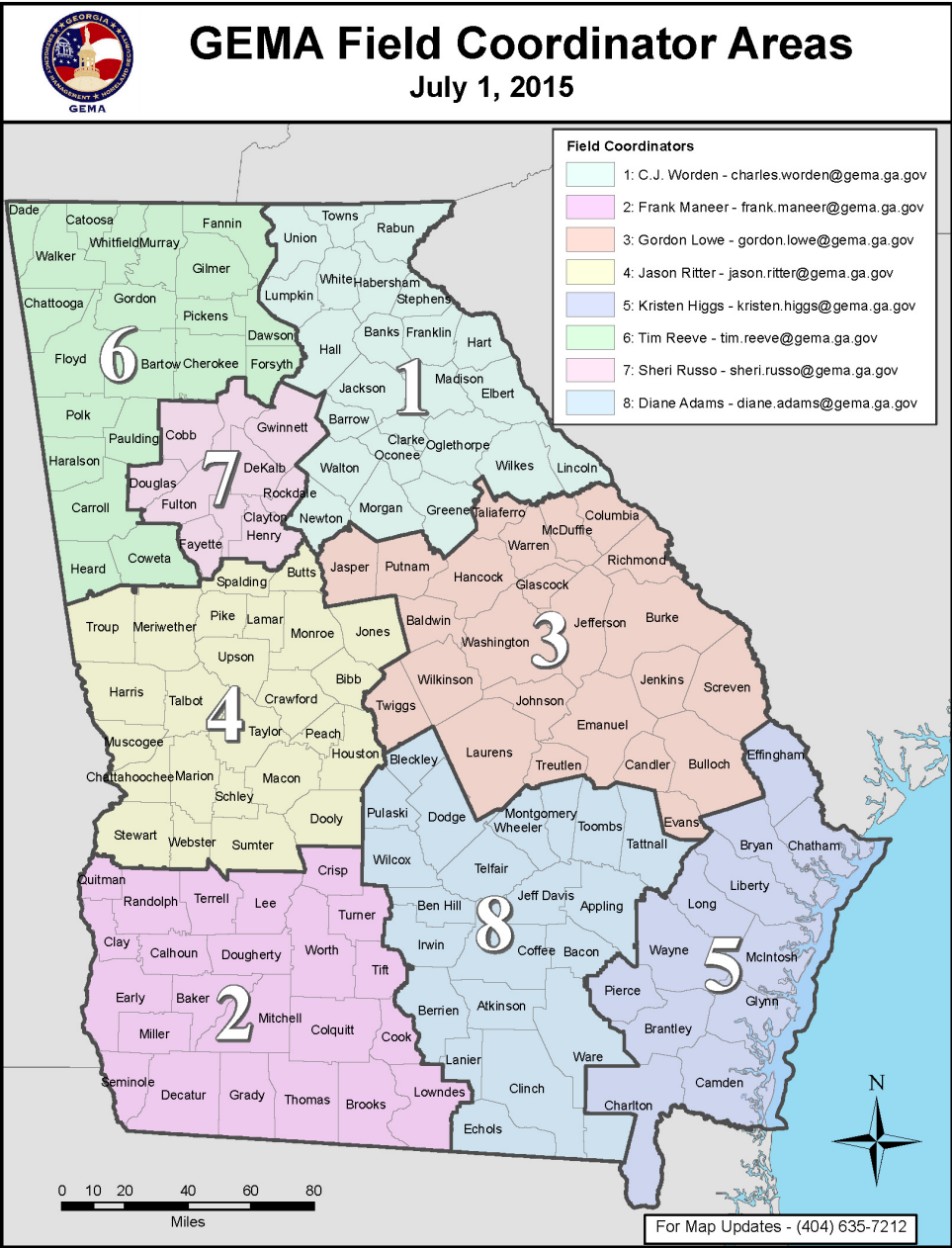
ESF 13: Public Safety (Support)

No responsibilities have been provided.

## **Willingway Hospital**

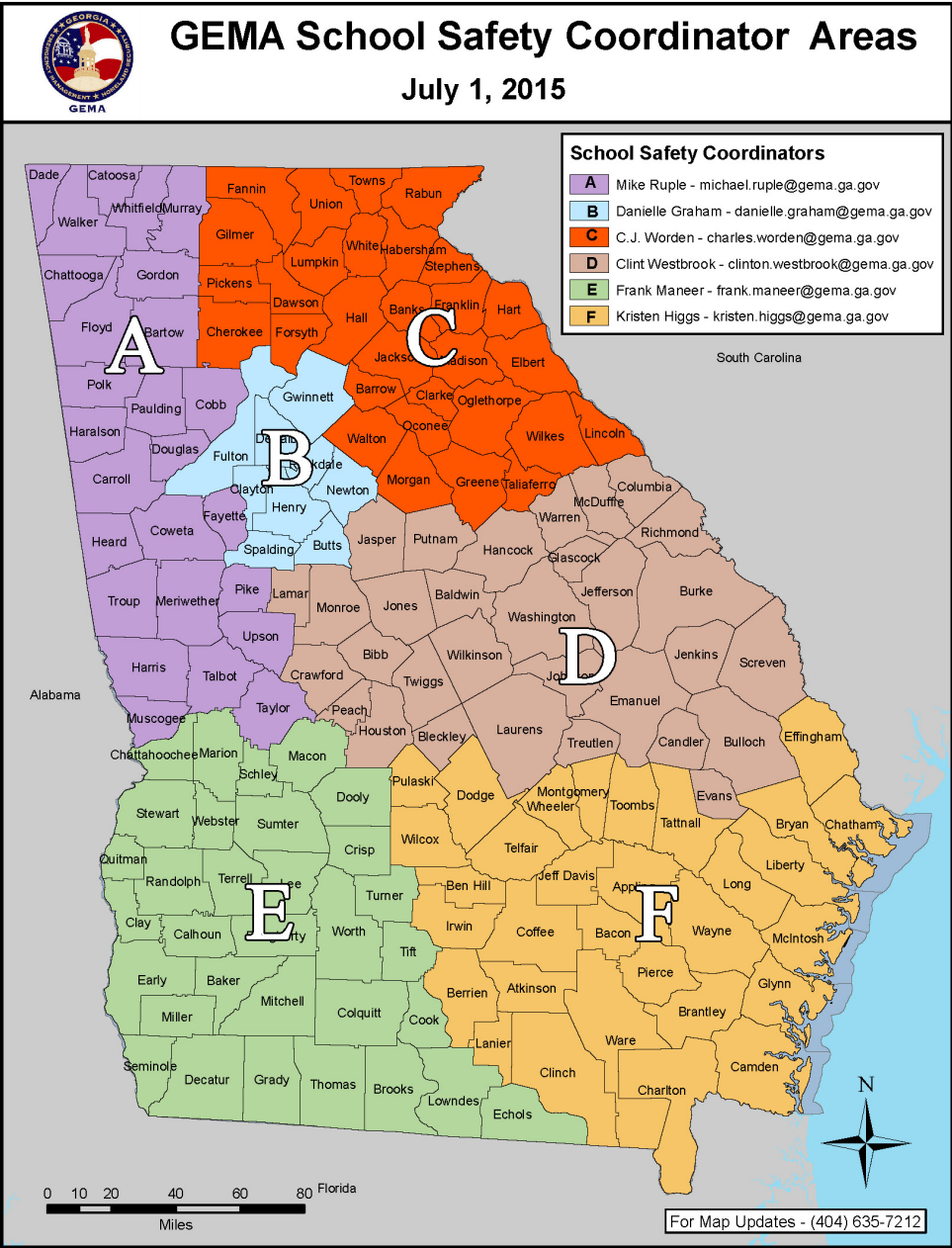
No responsibilities have been provided.

Map of GEMA Areas





# Map of School Safety Coordinator Areas



**Hazmat Facility Details**

## Emergency Shelter Details

### **First Baptist Church**

Address: 108 North Main Street

City: Statesboro

Zip: 30458

Contact: Jon Owens

Phone: 9127645627

Max Capacity: 169

Size:

Shower:

Bathroom: Y

Cook: Y

Handicap: Y

Animals:

24 Hour:

### **First Presbyterian Church**

Address: 1215 Fair Road

City: Statesboro

Zip: 30458

Contact: Edwin Presley

Phone: 9127642664

Max Capacity: 119

Size:

Shower:

Bathroom: Y

Cook:

Handicap: Y

Animals:

24 Hour:

### **First United Methodist**

Address: 101 South Main Street

City: Statesboro

Zip: 30458

Contact: Ken Morgan

Phone: 9127641874

Max Capacity: 300

Size:

Shower:

Bathroom: Y

Cook:

Handicap:

Animals:

24 Hour:

### **Pittman Park United Methodist Church**

Address: 1102 Fair Road

City: Statesboro

Zip: 30458

Contact: Mike Huling

Phone: 9126813213

Max Capacity: 262

Size:

Shower:  
Bathroom: Y  
Cook: Y  
Handicap: Y  
Animals:  
24 Hour:

**Statesboro Church of Christ**

Address: 23607 Hwy. 80 East  
City: Statesboro  
Zip: 30458  
Contact: James Whitworth  
Phone: 9124895396  
Max Capacity: 80  
Size:  
Shower:  
Bathroom: Y  
Cook:  
Handicap:  
Animals:  
24 Hour:

**Statesboro Primitive Baptist Church**

Address: 4 South Zetterower Avenue  
City: Statesboro  
Zip: 30458  
Contact: Dean Robbins  
Phone: 9124895396  
Max Capacity: 192  
Size:  
Shower:  
Bathroom: Y  
Cook: Y  
Handicap: Y  
Animals:  
24 Hour:

**Whitesville Full Gospel**

Address: 306 Shelby Street  
City: Statesboro  
Zip: 30458  
Contact: Larry Jones  
Phone: 9124894428  
Max Capacity: 60  
Size:  
Shower:  
Bathroom:  
Cook:  
Handicap:  
Animals:  
24 Hour:

**Statesboro High School**

Address: 10 Lester Road  
City: Statesboro  
Zip: 30458  
Contact: Charles Wilson  
Phone: 9127641525  
Max Capacity: 400  
Size:  
Shower: Y  
Bathroom: Y  
Cook: Y  
Handicap: Y  
Animals:  
24 Hour:

**William James Middle School**

Address: 18809 Hwy. 80 West  
City: Statesboro  
Zip: 30458  
Contact: Charles Wilson  
Phone: 9127641525  
Max Capacity: 300  
Size:  
Shower: Y  
Bathroom: Y  
Cook: Y  
Handicap: Y  
Animals:  
24 Hour:

**Julia P. Bryant**

Address: 400 Williams Street  
City: Statesboro  
Zip: 30458  
Contact: Charles Wilson  
Phone: 9127641525  
Max Capacity: 160  
Size:  
Shower:  
Bathroom: Y  
Cook: Y  
Handicap: Y  
Animals:  
24 Hour:

**Mattie Lively**

Address: 204 Debbie Drive  
City: Statesboro  
Zip: 30458  
Contact: Charles Wilson  
Phone: 9127641525  
Max Capacity: 120  
Size:  
Shower:  
Bathroom: Y

Cook: Y  
Handicap: Y  
Animals:  
24 Hour:

**Portal Middle/High**

Address: 27245 Hwy. 80 West  
City: Portal  
Zip: 30450  
Contact: Charles Wilson  
Phone: 9127641525  
Max Capacity: 130  
Size:  
Shower: Y  
Bathroom: Y  
Cook: Y  
Handicap: Y  
Animals:  
24 Hour:

**Southeast Bulloch High**

Address: 9184 Brooklet-Denmark Road  
City: Brooklet  
Zip: 30415  
Contact: Charles Wilson  
Phone: 9127641525  
Max Capacity: 135  
Size:  
Shower: Y  
Bathroom: Y  
Cook: Y  
Handicap: Y  
Animals:  
24 Hour:

**Stilson Elementary**

Address: 155689 Hwy. 119  
City: Brooklet  
Zip: 30415  
Contact: Charles Wilson  
Phone: 9127641525  
Max Capacity: 160  
Size:  
Shower:  
Bathroom: Y  
Cook: Y  
Handicap: Y  
Animals:  
24 Hour:

**Langston Chapel Middle**

Address: 156 Langston Chapel Road  
City: Statesboro  
Zip: 30458  
Contact: Charles Wilson  
Phone: 9127641525

Max Capacity: 275

Size:

Shower:

Bathroom: Y

Cook: Y

Handicap: Y

Animals:

24 Hour:

**Nevils Elementary**

Address: 8438 Nevils-Groveland Road

City: Statesboro

Zip: 30458

Contact: Charles Wilson

Phone: 9127641525

Max Capacity: 35

Size:

Shower:

Bathroom: Y

Cook: Y

Handicap: Y

Animals:

24 Hour:

**Sallie Zetterower**

Address: 900 East Jones Street

City: Statesboro

Zip: 30458

Contact: Charles Wilson

Phone: 9127641525

Max Capacity: 180

Size:

Shower:

Bathroom: Y

Cook: Y

Handicap: Y

Animals:

24 Hour:



## Local Agencies

### **American Red Cross**

Address: 515 Denmark Street Suite 1000

City: Statesboro

Zip: 30458

Phone: 912-764-4468

Fax: 912-489-1328

Radio Input Frequency:

Radio Output Frequency:

Website: [www.bullochredcross.org](http://www.bullochredcross.org)

#### Primary Contact

Contact Name: Lynn Bowen

Position: Executive Director

Phone - Office: 912-764-4468

Phone - Mobile: 912-531-0556

Phone - Home:

Pager:

Fax: 912-489-1328

Radio Call Number:

Email Address: [bullochredcross@yahoo.com](mailto:bullochredcross@yahoo.com)

2-Way Phone Number:

#### Support Contact

Contact Name: Donna Lee

Position: Emergency Services Coordinator

Phone - Office: 912-526-3150

Phone - Mobile: 912-326-1800

Phone - Home:

Pager:

Fax: 912-526-3150

Radio Call Number:

Email Address: [toombsrc@yahoo.com](mailto:toombsrc@yahoo.com)

2-Way Phone Number:

### **Angela Disaster Relief**

Address: 1042 Love Drive

City: Andersonville

Zip: 30875

Phone: 404-635-7512

Fax:

Radio Input Frequency:

Radio Output Frequency:

Website:

#### Primary Contact

Contact Name: Angela Below

Position: supporter

Phone - Office: 658-234-6585

Phone - Mobile:

Phone - Home:

Pager:

Fax:

Radio Call Number:

Email Address:  
2-Way Phone Number:

**Bulloch County 911**

Address: 115 North Main Street  
City: Statesboro  
Zip: 30458  
Phone: 9124891661  
Fax: 9124896020  
Radio Input Frequency: 851-866 MHz  
Radio Output Frequency: 806-821 MHz  
Website:

Primary Contact

Contact Name: Kelly Barnard  
Position: 911 Director  
Phone - Office: 9124891661  
Phone - Mobile: 9126904219  
Phone - Home:  
Pager:  
Fax: 9124896020  
Radio Call Number: 1102  
Email Address: kbarnard@frontiernet.net  
2-Way Phone Number:

Support Contact

Contact Name: Edwin L. Wynn, Jr.  
Position: Public Safety Director/EMA  
Phone - Office: 9124891661  
Phone - Mobile: 9126901988  
Phone - Home:  
Pager:  
Fax: 9124893453  
Radio Call Number: 1101  
Email Address: bcpsd@bulloch.net  
2-Way Phone Number:

**Bulloch County Animal Services**

Address: 81 Mill Creek Road  
City: Statesboro  
Zip: 30458  
Phone: 9127644529  
Fax: 9127642827  
Radio Input Frequency: 851-866 MHz  
Radio Output Frequency: 806-821 MHz  
Website:

Primary Contact

Contact Name: Wendy Ivey  
Position: Shelter Manager  
Phone - Office: 912-764-4529  
Phone - Mobile:  
Phone - Home:  
Pager:  
Fax: 912-764-2827

Radio Call Number: 1122  
Email Address:  
2-Way Phone Number:

Support Contact

Contact Name: Joey Sanders  
Position: Animal Control Officer  
Phone - Office: 9127644529  
Phone - Mobile: 9126901866  
Phone - Home:  
Pager:  
Fax: 9127642827  
Radio Call Number: 1120  
Email Address:  
2-Way Phone Number:

**Bulloch County EMS**

Address: 26 West Grady Street  
City: Statesboro  
Zip: 30458  
Phone: 9127646188  
Fax: 9124898917  
Radio Input Frequency: 851-866 MHz  
Radio Output Frequency: 806-821 MHz  
Website:

Primary Contact

Contact Name: Doug Vickers  
Position: EMS Director  
Phone - Office: 9127646188  
Phone - Mobile: 9126829103  
Phone - Home:  
Pager:  
Fax: 9124893453  
Radio Call Number: EMS 605  
Email Address:  
2-Way Phone Number:

Support Contact

Contact Name: Randy Turner  
Position: Deputy Director EMS/Rescue  
Phone - Office: 9127646188  
Phone - Mobile:  
Phone - Home:  
Pager:  
Fax: 9124898917  
Radio Call Number: EMS 602  
Email Address:  
2-Way Phone Number:

**Bulloch County Fire Department**

Address: 17245 Hwy 301 North

City: Statesboro

Zip: 30458

Phone: 912-764-0151

Fax: 912-489-3453

Radio Input Frequency: 851-866 MHz

Radio Output Frequency: 806-821 MHz

Website:

Primary Contact

Contact Name: Christopher Ivey

Position: Bulloch Co. Fire Chief

Phone - Office: 912-764-0151

Phone - Mobile: 912-690-5149

Phone - Home:

Pager:

Fax: 912-489-3453

Radio Call Number: 1103

Email Address: firechief@bullochcounty.net

2-Way Phone Number:

Support Contact

Contact Name: Ben Tapley

Position: Assistant Chief

Phone - Office: 912-489-1661

Phone - Mobile:

Phone - Home:

Pager:

Fax:

Radio Call Number:

Email Address:

2-Way Phone Number:

**Bulloch County Health Department**

Address: 1 Altman Street

City: Statesboro

Zip: 30458

Phone: 9127643800

Fax:

Radio Input Frequency:

Radio Output Frequency:

Website:

Primary Contact

Contact Name: Toni Flatman

Position: Head Nurse

Phone - Office: 9127643800

Phone - Mobile:

Phone - Home:

Pager:

Fax:

Radio Call Number:

Email Address:  
2-Way Phone Number:

**Bulloch County Public Safety/EMA**

Address: 115 North Main Street  
City: Statesboro  
Zip: 30458  
Phone: 9124891661  
Fax: 9124893453  
Radio Input Frequency: 851-866 MHz  
Radio Output Frequency: 806-821 MHz  
Website:

Primary Contact

Contact Name: Edwin L. Wynn, Jr.  
Position: Public Safety Director/EMA  
Phone - Office: 9124891661  
Phone - Mobile: 9126901988  
Phone - Home:  
Pager: 9122120033  
Fax: 9124893453  
Radio Call Number: 1101  
Email Address: bcpsd@bulloch.net  
2-Way Phone Number:

Support Contact

Contact Name: Kelly Barnard  
Position: 911 Director  
Phone - Office: 912-489-1661  
Phone - Mobile:  
Phone - Home:  
Pager:  
Fax:  
Radio Call Number:  
Email Address:  
2-Way Phone Number:

Support Contact

Contact Name: Lee Eckles  
Position: Assistant Director EMA/PSD  
Phone - Office: 912-489-1661  
Phone - Mobile:  
Phone - Home:  
Pager:  
Fax:  
Radio Call Number:  
Email Address:  
2-Way Phone Number:

Support Contact

Contact Name: Christopher Ivey  
Position: Fire Chief  
Phone - Office: 912-489-1661  
Phone - Mobile:  
Phone - Home:

Pager:  
Fax:  
Radio Call Number:  
Email Address:  
2-Way Phone Number:

### **Bulloch County Rescue**

Address: 26 West Grady Street  
City: Statesboro  
Zip: 30458  
Phone: 9127646188  
Fax:  
Radio Input Frequency:  
Radio Output Frequency:  
Website:

#### Primary Contact

Contact Name: Christopher Ivey  
Position: Fire Chief  
Phone - Office: 912-489-1661  
Phone - Mobile:  
Phone - Home:  
Pager:  
Fax:  
Radio Call Number:  
Email Address:  
2-Way Phone Number:

#### Support Contact

Contact Name: Ben Tapley  
Position: Assistant Chief  
Phone - Office: 912-489-1661  
Phone - Mobile:  
Phone - Home:  
Pager:  
Fax:  
Radio Call Number:  
Email Address:  
2-Way Phone Number:

### **Bulloch County Schools**

Address: 150 Williams Road  
City: Statesboro  
Zip: 30458  
Phone: 9127646201  
Fax: 9127648436  
Radio Input Frequency:  
Radio Output Frequency:  
Website:

#### Primary Contact

Contact Name: Charles Wilson  
Position: Superintendent  
Phone - Office: 912-764-6201  
Phone - Mobile:

Phone - Home:  
Pager:  
Fax:  
Radio Call Number:  
Email Address:  
2-Way Phone Number:

**Bulloch County Sheriff's Office**

Address: 17257 Hwy. 301 North  
City: Statesboro  
Zip: 30458  
Phone: 9127648888  
Fax: 9127642917  
Radio Input Frequency:  
Radio Output Frequency:  
Website: [www.bullochsheriff.com](http://www.bullochsheriff.com)

Primary Contact

Contact Name: Lynn Anderson  
Position: Sheriff  
Phone - Office: 9127648888  
Phone - Mobile: 9125318201  
Phone - Home:  
Pager:  
Fax: 9127642917  
Radio Call Number: Bulloch 1  
Email Address: [LYNN@BULLOCHSHERIFF.COM](mailto:LYNN@BULLOCHSHERIFF.COM)  
2-Way Phone Number:

Support Contact

Contact Name: Jared Akins  
Position: Chief Deputy  
Phone - Office: 9127648888  
Phone - Mobile:  
Phone - Home:  
Pager:  
Fax: 9127642917  
Radio Call Number: Bulloch 2  
Email Address: [GENE@BULLOCHSHERIFF.COM](mailto:GENE@BULLOCHSHERIFF.COM)  
2-Way Phone Number:

**Bulloch County Transportation**

Address: 115 North Main Street  
City: Statesboro  
Zip: 30458  
Phone: 9127646369  
Fax:  
Radio Input Frequency: 851-866 MHz  
Radio Output Frequency: 806-821 MHz  
Website:

Primary Contact

Contact Name: Kirk Tatum  
Position: County Engineer  
Phone - Office: 9127640127



Phone - Mobile:  
Phone - Home:  
Pager: 9122120067  
Fax:  
Radio Call Number:  
Email Address:  
2-Way Phone Number:

Support Contact

Contact Name: Dink Butler  
Position: Transportation Director  
Phone - Office: 9127640130  
Phone - Mobile:  
Phone - Home:  
Pager: 9122120070  
Fax:  
Radio Call Number:  
Email Address:  
2-Way Phone Number:

**City Manager's Office**

Address: 50 East Main Street  
City: Statesboro  
Zip: 30458  
Phone: 9127645468  
Fax:  
Radio Input Frequency:  
Radio Output Frequency:  
Website:

Primary Contact

Contact Name: Frank Parker  
Position: City Manager  
Phone - Office: 912-764-5468  
Phone - Mobile:  
Phone - Home:  
Pager:  
Fax:  
Radio Call Number:  
Email Address:  
2-Way Phone Number:

**City of Statesboro Public Works Department**

Address: 50 East Main Street  
City: Statesboro  
Zip: 30458  
Phone: 9127645468  
Fax:  
Radio Input Frequency:  
Radio Output Frequency:  
Website:

Primary Contact

Contact Name: Robert Cheshire  
Position: Director/Engineer

Phone - Office: 912-764-5468  
Phone - Mobile:  
Phone - Home:  
Pager:  
Fax:  
Radio Call Number:  
Email Address:  
2-Way Phone Number:

**Cooperative Extension Services**

Address: 151 Langston Chapel Road  
City: Statesboro  
Zip: 30458  
Phone: 9128716130  
Fax:  
Radio Input Frequency:  
Radio Output Frequency:  
Website:

Primary Contact

Contact Name: Wes Harris  
Position: County Extension Agent  
Phone - Office: 9128716130  
Phone - Mobile:  
Phone - Home:  
Pager:  
Fax:  
Radio Call Number:  
Email Address:  
2-Way Phone Number:

**County Clerks/ Manager**

Address: 115 North Main Street P.O. Box 347  
City: Statesboro  
Zip: 30458  
Phone: 912-764- 6245  
Fax: 912-764-8634  
Radio Input Frequency:  
Radio Output Frequency:  
Website: mfitzgerald@bullochcounty.net

Primary Contact

Contact Name: Maggie Fitzgerald  
Position: Executive Assistant  
Phone - Office: 912-764-0158  
Phone - Mobile: 1-912-658-5021  
Phone - Home:  
Pager:  
Fax: 912-764-8634  
Radio Call Number:  
Email Address: mfitzgeral@bullochcounty.net  
2-Way Phone Number:

Support Contact

Contact Name: Tom Couch

Position: County Manager  
Phone - Office: 912-764-0101  
Phone - Mobile:  
Phone - Home:  
Pager:  
Fax:  
Radio Call Number:  
Email Address: [tmcouch@bullochcounty.net](mailto:tmcouch@bullochcounty.net)  
2-Way Phone Number:

### **County Manager's Office**

Address: 115 North Main Street  
City: Statesboro  
Zip: 30458  
Phone: 9127646245  
Fax:  
Radio Input Frequency:  
Radio Output Frequency:  
Website:

#### Primary Contact

Contact Name: Thomas Couch  
Position: County Manager  
Phone - Office: 9127646245  
Phone - Mobile: 9126824201  
Phone - Home: 9124899510  
Pager:  
Fax:  
Radio Call Number:  
Email Address:  
2-Way Phone Number:

#### Support Contact

Contact Name: Edwin L. Wynn, Jr.  
Position: Public Safety Director/EMA  
Phone - Office: 9124891661  
Phone - Mobile: 9126901988  
Phone - Home:  
Pager:  
Fax: 9124893453  
Radio Call Number: 1100  
Email Address:  
2-Way Phone Number:

### **Department of Family Children Services**

Address: 40 Pulaski Hwy.  
City: Statesboro  
Zip: 30458  
Phone: 9128711333  
Fax:  
Radio Input Frequency:  
Radio Output Frequency:  
Website:

#### Primary Contact

Contact Name: Diane Hardy  
Position: Director  
Phone - Office: 9128711333  
Phone - Mobile:  
Phone - Home:  
Pager:  
Fax:  
Radio Call Number:  
Email Address:  
2-Way Phone Number:

**East Georgia Regional Medical Center**

Address: 1499 Fair Road  
City: Statesboro  
Zip: 30458  
Phone: 9124861000  
Fax:  
Radio Input Frequency: 851-866 MHz  
Radio Output Frequency: 806-821 MHz8  
Website:

Primary Contact

Contact Name: Bob Bigley  
Position: Director  
Phone - Office: 912-486-1500  
Phone - Mobile:  
Phone - Home:  
Pager:  
Fax:  
Radio Call Number:  
Email Address:  
2-Way Phone Number:

**Georgia Southern Environmental Safety**

Address: Bldg 807  
City: Statesboro  
Zip: 30460  
Phone: 9124867161  
Fax: 9124867169  
Radio Input Frequency:  
Radio Output Frequency:  
Website:

Primary Contact

Contact Name: Francois Song  
Position: Environmental Safety Director  
Phone - Office: 9124867161  
Phone - Mobile:  
Phone - Home: 9127644388  
Pager:  
Fax:  
Radio Call Number:  
Email Address:  
2-Way Phone Number:

**Georgia Southern University Police Department**

Address: 110 Forest Drive

City: Statesboro

Zip: 30460

Phone: 9126815234

Fax: 9126810806

Radio Input Frequency: 851-866 MHz

Radio Output Frequency: 806-821 MHz

Website: welcome.georgiasouthern.edu/publicsafety

**Primary Contact**

Contact Name: Mike Russell

Position: Chief of Police

Phone - Office: 9126815234

Phone - Mobile:

Phone - Home:

Pager:

Fax: 9126810806

Radio Call Number: GSU1

Email Address:

2-Way Phone Number:

**Support Contact**

Contact Name: Laura McCullough

Position: Major

Phone - Office: 9126815234

Phone - Mobile:

Phone - Home:

Pager:

Fax: 9126810806

Radio Call Number: GSU02

Email Address:

2-Way Phone Number:

**Support Contact**

Contact Name: Debbie Rowe

Position: Administrative Supervisor

Phone - Office: 9126815234

Phone - Mobile:

Phone - Home:

Pager:

Fax: 9126810806

Radio Call Number: GSU44

Email Address:

2-Way Phone Number:

**Jake A. Futch - Coroner**

Address: 414 Northside Drive East

City: Statesboro

Zip: 30458

Phone: 9124892580

Fax: 9124892727

Radio Input Frequency:

Radio Output Frequency:

Website:

Primary Contact

Contact Name: Jake Futch  
Position: County Coroner  
Phone - Office: 9124892580  
Phone - Mobile:  
Phone - Home:  
Pager:  
Fax:  
Radio Call Number: C-1  
Email Address:  
2-Way Phone Number:

**Statesboro Fire Department**

Address: 400 East Grady Street  
City: Statesboro  
Zip: 30459  
Phone: 9127646155  
Fax: 9124894636  
Radio Input Frequency:  
Radio Output Frequency:  
Website:

Primary Contact

Contact Name: Tim Grams  
Position: Fire Chief  
Phone - Office: 9127646155  
Phone - Mobile:  
Phone - Home:  
Pager:  
Fax: 9124894636  
Radio Call Number:  
Email Address:  
2-Way Phone Number:

**Statesboro Police Department**

Address: 22 West Grady Street  
City: Statesboro  
Zip: 30458  
Phone: 9127649911  
Fax: 9124895050  
Radio Input Frequency: 851-866 MHz  
Radio Output Frequency: 806-821 MHz  
Website: statpd@frontiernet.net

Primary Contact

Contact Name: Wendell Turner  
Position: Public Safety Director  
Phone - Office: 9127649911  
Phone - Mobile:  
Phone - Home:  
Pager:  
Fax: 9124895050  
Radio Call Number: 200  
Email Address: wendell.turner@statesboroga.net

2-Way Phone Number:

Support Contact

Contact Name: Scott Brunson

Position: Major

Phone - Office: 9127649911

Phone - Mobile:

Phone - Home:

Pager:

Fax: 9124895050

Radio Call Number: 201

Email Address:

2-Way Phone Number:

**Willingway Hospital**

Address: 311 Jones Mill Road

City: Statesboro

Zip: 30458

Phone: 9127646236

Fax:

Radio Input Frequency:

Radio Output Frequency:

Website:

Primary Contact

Contact Name: Dr. Al Mooney

Position: Executive Director

Phone - Office: 912-764-6236

Phone - Mobile:

Phone - Home:

Pager:

Fax:

Radio Call Number:

Email Address:

2-Way Phone Number:

**Local Government**

Government Official Name: Jeff Akins

Title: City/County Attorney

Jurisdiction: Bulloch County

Office Phone: 9127640106

Cell Phone:

Home Phone:

Pager Phone:

Fax Phone:

Email:

Government Official Name: Lynn Anderson

Title: Sheriff

Jurisdiction: Bulloch County

Office Phone: 9127648888

Cell Phone:

Home Phone:

Pager Phone:

Fax Phone:

Email:



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Government Official Name: Kelly Barnard  
Title: Communications Director  
Jurisdiction: Bulloch County 911  
Office Phone: 9124891661  
Cell Phone:  
Home Phone:  
Pager Phone:  
Fax Phone: 9126904219  
Email:

Government Official Name: Joe R. Brannen  
Title: Mayor  
Jurisdiction: City of Statesboro  
Office Phone: 9124892803  
Cell Phone:  
Home Phone:  
Pager Phone:  
Fax Phone:  
Email:

Government Official Name: mike Buchan  
Title: Police Chief  
Jurisdiction: City of Brooklet  
Office Phone: 9128422137  
Cell Phone:  
Home Phone:  
Pager Phone:  
Fax Phone:  
Email:

Government Official Name: Thomas Couch  
Title: City/County Manager  
Jurisdiction: Bulloch County  
Office Phone: 9127646245  
Cell Phone:  
Home Phone:  
Pager Phone:  
Fax Phone:  
Email:

Government Official Name: James Deal  
Title: Tax Commissioner  
Jurisdiction: Bulloch County  
Office Phone: 9127646285  
Cell Phone:  
Home Phone:  
Pager Phone:  
Fax Phone:  
Email:

Government Official Name: Lee Deloach  
Title: Probate Judge  
Jurisdiction: Bulloch County  
Office Phone: 9127648749  
Cell Phone:  
Home Phone:  
Pager Phone:  
Fax Phone:  
Email:

Government Official Name: Jake Futch  
Title: Coroner  
Jurisdiction: Bulloch County  
Office Phone: 9124892580  
Cell Phone:  
Home Phone:  
Pager Phone:  
Fax Phone:  
Email:

Government Official Name: Christopher Ivey  
Title: County Fire Chief  
Jurisdiction: Bulloch  
Office Phone: 9124891661  
Cell Phone: 9126905149  
Home Phone:  
Pager Phone:  
Fax Phone: 9124893453  
Email: fire@bullochcounty.net

Government Official Name: Larry Motes  
Title: Mayor  
Jurisdiction: City of Portal  
Office Phone: 9128655330  
Cell Phone:  
Home Phone:  
Pager Phone:  
Fax Phone:  
Email:

Government Official Name: Garrett Nevil  
Title: Commission Chairperson  
Jurisdiction: Bulloch County  
Office Phone: 9127646245  
Cell Phone:  
Home Phone:  
Pager Phone:  
Fax Phone:  
Email:

Government Official Name: Jason Sapp  
Title: Police Chief  
Jurisdiction: City of Portal  
Office Phone: 9128655330  
Cell Phone:  
Home Phone:

Pager Phone:  
Fax Phone:  
Email:

Government Official Name: John Scott  
Title: Tax Assessor  
Jurisdiction: Bulloch County  
Office Phone: 9127642181  
Cell Phone:  
Home Phone:  
Pager Phone:  
Fax Phone:  
Email:

Government Official Name: Teresa Tucker  
Title: Clerk of Court  
Jurisdiction: Bulloch County  
Office Phone: 9127649009  
Cell Phone:  
Home Phone:  
Pager Phone:  
Fax Phone:  
Email:

Government Official Name: Wendell Turner  
Title: Statesboro Public Safety Director  
Jurisdiction: City of Statesboro  
Office Phone: 9127649911  
Cell Phone:  
Home Phone:  
Pager Phone:  
Fax Phone:  
Email:

Government Official Name: Edwin L. Wynn  
Title: Emergency Management Director  
Jurisdiction: Bulloch County  
Office Phone: 9124891661  
Cell Phone:  
Home Phone:  
Pager Phone: 9122120033  
Fax Phone: 9124893453  
Email:

### **State-Wide Contacts**

Agency Name: Chemtrec  
Contact Name: Dispatch  
Office Phone: 2024837616  
Cell Phone:  
Home Phone:  
Pager Phone:  
Radio Model:  
Radio Number:

Agency Name: Department of Natural Resources  
Contact Name:  
Office Phone: 9126852146  
Cell Phone:  
Home Phone:  
Pager Phone:  
Radio Model:  
Radio Number:

Agency Name: Department of Transportation  
Contact Name: Matt McKenzie  
Office Phone: 9128711108  
Cell Phone:  
Home Phone:  
Pager Phone:  
Radio Model:  
Radio Number:

Agency Name: EPD  
Contact Name: No Contact Person  
Office Phone: 4046564300  
Cell Phone:  
Home Phone:  
Pager Phone:  
Radio Model:  
Radio Number:

Agency Name: Forestry Commission  
Contact Name: Doug Chaserau  
Office Phone: 9126815347  
Cell Phone:  
Home Phone:  
Pager Phone:  
Radio Model:  
Radio Number:

Agency Name: GEMA  
Contact Name: Charles English  
Office Phone: 4046357000  
Cell Phone:  
Home Phone:  
Pager Phone:  
Radio Model:  
Radio Number:

Agency Name: GSP  
Contact Name: Brad Mosher  
Office Phone: 9128711100  
Cell Phone:  
Home Phone:  
Pager Phone:

Radio Model:  
Radio Number:

### **Media Contacts**

Media Name: Savannah Morning News  
Media Type: Newspapers  
Contact Name:  
Office Phone:  
Cell Phone:  
Fax:  
Email:

Media Name: Statesboro Herald  
Media Type: Newspapers  
Contact Name:  
Office Phone:  
Cell Phone:  
Fax:  
Email:

Media Name: WJCL 22  
Media Type: Television  
Contact Name:  
Office Phone:  
Cell Phone:  
Fax:  
Email:

Media Name: WMCD FM-100  
Media Type: Radio  
Contact Name:  
Office Phone:  
Cell Phone:  
Fax:  
Email:

Media Name: WPMX-Eagle 102.9 FM  
Media Type: Radio  
Contact Name:  
Office Phone:  
Cell Phone:  
Fax:  
Email:

Media Name: WPTB 850 AM  
Media Type: Radio  
Contact Name:  
Office Phone:  
Cell Phone:  
Fax:  
Email:

Media Name: WSAV 3  
Media Type: Television  
Contact Name:  
Office Phone:  
Cell Phone:  
Fax:  
Email:

Media Name: WTOG 11  
Media Type: Television  
Contact Name:  
Office Phone:  
Cell Phone:  
Fax:  
Email:

Media Name: WWNS (AM)  
Media Type: Radio  
Contact Name:  
Office Phone:  
Cell Phone:  
Fax:  
Email:

**Other Contacts**

# **Georgia Hazard Mitigation Strategy**

## **Standard and Enhanced Plan**

Effective March 18, 2019 – March 17, 2024



Prepared by the Georgia Emergency Management and Homeland Security  
Agency  
(GEMA/HS)





## **2019 EXECUTIVE SUMMARY**

The State of Georgia is committed to reducing the devastating impacts of natural hazard events to the citizens of this state. Because of Georgia's potential to experience a wide range of natural disasters, the Georgia Emergency Management and Homeland Security Agency (GEMA/HS) promotes the concept of hazard mitigation planning. In response to this potential for disaster and in response to federal requirements, the State of Georgia uses a combination of applicable state and federal agencies and county and local public officials to pursue solutions to reducing or eliminating Georgia's future losses to hazard events.

Georgia's Hazard Mitigation Strategy (GHMS) is a result of the State of Georgia's continued efforts to reduce the State's exposure to losses from natural hazards and to maintain eligibility for the full range of disaster assistance available under the Robert T. Stafford Disaster Relief and Emergency Assistance Act as amended by the Disaster Mitigation Act of 2000 (DMA2K). Georgia's initial Hazard Mitigation Strategy under DMA2K, which met approval in April of 2005, chronicled the original state planning efforts as well as presented a statewide hazard risk assessment and mitigation strategy.

Previously FEMA required that the plan be updated every three years. Recent legislation has extended the update cycle to five years including this plan update. This 2019 edition of the standard plan represents its fifth update, and fourth update of the enhanced plan.

The Enhanced State Mitigation Plan documents the State's commitment to the objectives of hazard mitigation. This designation recognizes Georgia as a proactive leader in implementing a comprehensive statewide program. The enhanced status acknowledges the extra effort a State has made to reduce losses, protect its resources, and create safer communities. The Enhanced status makes Georgia eligible to receive a 33% increase in Hazard Mitigation Grant Program funds in the aftermath of a presidentially declared disaster. Strong State and local mitigation planning processes and comprehensive mitigation program management at the state level are important elements in reducing vulnerability to future disaster losses.

The GHMS has been updated with a detailed account of the current state planning process; a more concise assessment of Georgia's hazard history, hazard risk, and social vulnerability; and an updated version of specific mitigation goals and actions as well as a progress report of previously proposed actions. The updated GHMS continues to provide more information derived from multiple sources, including local mitigation plans, State agencies, and partnering non-governmental agencies. The updated plan also includes both a State and local capability assessment. Also, the plan updates information regarding the maintenance of the strategy throughout the eligible years and regarding the next five-year update process.

As demonstrated through this and previous plan updates, the State of Georgia is committed to the promotion of hazard mitigation. By reviewing its previous efforts of hazard mitigation through the plan development process, the state recognizes that effective mitigation begins with local participation and eventually leads to the modification of the hazard event and/or to the reduction of human vulnerability, which ultimately leads to the reduction of losses. By developing this document as a structure for implementing hazard mitigation efforts, the State of Georgia has been given the opportunity to adjust and adapt the strategy to remain relevant. In essence, Georgia's Hazard Mitigation Strategy remains a living document that evolves throughout each update cycle to protect Georgia from natural hazard events.

# Chapter 1: Introduction to Planning Process

## 1.1 OVERVIEW AND PURPOSE

Each chapter contains an overview and a table that lists the sections as well as the changes that have occurred within each section since the last approval in 2014. Table 1.1 describes the updates and changes that have occurred in Chapter 1.

**TABLE 1.1 SUMMARY OF CHANGES TO CHAPTER 1**

Chapter 1 Section	Updates to Section
1.1 Overview and Purpose	<ul style="list-style-type: none"><li>• Data and Figures updated</li></ul>
1.2 State Adoption and Federal Statute Compliance	<ul style="list-style-type: none"><li>• Text Updated</li></ul>
1.3 Planning Process	<ul style="list-style-type: none"><li>• Updated to reflect current process.</li></ul>
1.4 Coordination among Agencies	<ul style="list-style-type: none"><li>• Updated to reflect current list of agencies participating</li><li>• Removed Section 1.4.2 due to no changes in participant coordination</li></ul>
1.5 Program Integration	<ul style="list-style-type: none"><li>• No changes</li></ul>

*Hazard Mitigation* is sustained action taken to reduce or eliminate long-term risk to people and their property from hazards and their effects. Mitigation focuses on breaking the cycle of disaster damage, reconstruction, and repeated damage. Mitigation efforts provide value to people and society by creating safer communities and reducing loss of life and property.

*Hazard mitigation planning* is the process state, tribal, and local governments use to identify risks and vulnerabilities associated with natural disasters and to develop long-term strategies for protecting people and property from future hazard events.

This document, referred to as the Georgia Hazard Mitigation Strategy (GHMS), is an official update to the State of Georgia Hazard Mitigation Plan submitted to and approved by the Federal Emergency Management Agency (FEMA) Region IV on March 31, 2014. The Georgia Emergency Management and Homeland Security Agency (GEMA/HS) is the state agency responsible for presenting this planning document on behalf of the State of Georgia.

The primary purpose for this plan is to eliminate or reduce risk and vulnerability to natural hazards in the State of Georgia. This is achieved through a comprehensive range of activities, including education, outreach and coordination, hazard identification, risk and vulnerability assessment, and the development of mitigation strategies. The contents of this document provide the framework for hazard mitigation strategies and actions undertaken by local and state governments within the State of Georgia.

The U.S. Census Bureau estimates that the population of Georgia was 10,429,379 on July 1, 2017, a 7.6% increase since the 2010 U.S. Census. This was an increase of 330,059 from the previous year, and an increase of 740,689 since 2010. According to 2015 Census estimates, Georgia is the eighth most populous state in the United States and ranks 17th in population density, with 177 people per square mile.

As of 2010, 87.35% (7,666,663) of Georgia residents age 5 and older spoke English at home as a primary language, while 7.42% (651,583) spoke Spanish, 0.51% (44,702) Korean, 0.44% (38,244) Vietnamese, 0.42% (36,679) French, 0.38% (33,009) Chinese (which includes Mandarin), and 0.29% German. In total, 12.65% (1,109,888) of Georgia's population age 5 and older spoke a mother language other than English.

Georgia's 2010 total gross state product was \$403.1 billion, and the per capita personal income for 2014 puts it 37th in the nation at \$25,615. There are 15 Fortune 500 companies and 26 Fortune 1000 companies with headquarters in Georgia. Atlanta has a very large effect on the State of Georgia and the southeastern United States. The city's communications, industry, transportation, tourism, and government are continually evolving.

Widespread farms produce peanuts, corn, and soybeans across Middle and South Georgia. The state is the number one producer of pecans in the world, with production centered in the region around Albany in Southwest Georgia. Gainesville in Northeast Georgia touts itself as the Poultry Capital of the World. Other important agricultural outputs include peaches, cotton, peanuts, rye, cattle, hogs, dairy products, turf grass, timber (particularly pine trees), tobacco, and vegetables.

The timber industry is also a substantial economic engine for the State of Georgia. Georgia has more privately owned timberland than any other state, with 22 million acres. The state also is the number one producer in the nation in timber, wood fuel and wood pellets with the largest wood pellet plant in the world located in Waycross. Finally, Georgia is the number 1 exporter of pulp, paper and paperboard mill products in the nation. The timber industry has a greater than \$30 billion impact on the state's economy.

Industrial output includes textiles and apparel, transportation equipment, food processing, paper products, chemical products, and electric equipment. The Georgia Ports Authority owns and operates four ports in the state: the Port of Savannah, the Port of Brunswick, the Port of Bainbridge and the Port of Columbus. The Port of Savannah is the fourth largest seaport in the United States, importing and exporting a total of 2.3 million TEUs per year. Other important contributions to Georgia's economy include tourism, film, and military installations.

With a low-lying coastal area, a middle piedmont area, and a mountainous northern area, Georgia is exposed to a range of natural hazards, from hurricanes to drought and wildfire to severe winter weather. These threats, coupled with the expanding sprawl of Metro Atlanta, increasing coastal and mountainous area development, and increasing impoverishment in agricultural communities throughout the state, lead to an increased "hazardousness of place."

Exposure to the coastal weather patterns from the Atlantic Ocean and Gulf of Mexico and the continental weather patterns driven by the jet stream means severe weather can originate from any direction and can occur during any season.

Because of the wide exposure to natural hazards and the growing population, it is critically important to identify both local and statewide hazards, risks, and vulnerabilities in order to mitigate the threat and protect human life and property.

## **1.2 STATE ADOPTION AND FEDERAL STATUTE COMPLIANCE**

### **1.2.1 State Adoption**

As evidence of the State of Georgia's intent to fully comply with applicable federal statutes and regulations in effect with respect to the periods in which it receives grant funding, in compliance with 44 CFR 13.11(c), a copy of the formal state adoption resolution and a copy of FEMA's approval, once received, of Georgia's Standard and Enhanced Hazard Mitigation Plans is provided in Appendix A.

The State of Georgia assures that it will comply with all applicable federal statutes and regulations in effect with respect to the periods for which it receives grant funding, in compliance with 44 CFR 13.11(c). The GHMS will be amended according to the process and procedures listed and described in the plan maintenance section in Chapter 5, wherever necessary to reflect appropriate changes in state and federal statutes as required in 44 CFR 13.11(c) and 44 CFR 13.11(d) and as described by the State of Georgia.

### **1.2.2 Federal Statute Compliance**

The GHMS has met the requirements of the Disaster Mitigation Act of 2000 Public Law 106-390, October 30, 2000, as stipulated in the Interim Final Rule 44 CFR 201.4 Standard State Plan criteria, published on February 26, 2002. Meeting the regulations will allow Georgia to maintain eligibility and qualify to secure all federally declared disaster assistance, including certain types of public assistance and hazard mitigation grants available through the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288, as amended).

## **1.3 PLANNING PROCESS**

### **1.3.1 Plan Update Narrative**

Chapter 1 of the Georgia Hazard Mitigation Plan was reviewed and updated by GEMA/HS's Hazard Mitigation Planners. As a group, the planning staff revised each section as necessary following the current update process for this plan, including the methodology, the timeline, and the participating federal and state agencies.

Since the creation of the 2005 Georgia Hazard Mitigation Strategy, the State of Georgia has conducted a series of regular meetings (quarterly through 2013, then annually since) of state agencies called the State Hazard Mitigation Planning Team (SHMPT). The purpose of these meetings is to establish and maintain relationships among state agencies with a focus on hazard mitigation within the State of Georgia. These regular meetings provide a means for the State Hazard Mitigation staff to update other state agencies and receive feedback on mitigation activities throughout the state, including the GHMS.

In addition to the annual meetings, the SHMPT meets in the aftermath of major disasters. The purpose of these post-disaster meetings is to review and, if necessary, update the plan with any information related to the disaster. In addition, the meetings allow the State Mitigation staff to learn about any disaster or damage information from the other agencies, which helps them determine possibilities for mitigation assistance to the affected agencies. The SHMPT conducted seven post-disaster reviews of the 2014 GHMS in the aftermath of the two winter storms (DRs 4165 and 4215), a flood (DR 4259), two hurricanes (DRs 4284 and 4338) and two severe weather / tornado outbreaks (DRs 4294 and 4297). The details of these post-disaster review meetings are described in Section 1.3.4.

Beginning in the Summer 2017, the GEMA/HS Hazard Mitigation Planning staff began a more active update phase by conducting a summary review of the 2014 plan and update process. After examining each chapter, it was determined that the overall format did not need significant changes. Nevertheless, the following list of suggested changes and areas to update was compiled:

- Update the risk assessment to reflect new hazard data, including maps and occurrences of hazard

events since the previous state plan update.

- Update the mitigation strategy to reflect the current status of mitigation actions and add new actions as applicable.
- Add climate change information to the risk assessment, as per FEMA guidance.
- Maintain the change to the mitigation actions from the 2016 annual update, re-ordering the mitigation actions by lead agency.

Three workshops were utilized: Understanding Risks, Understanding Vulnerabilities, and Developing Georgia's Mitigation Strategy. The workshops allowed staff to present information from the previous plan, such as the risk assessment and goals, for comment and review. A risk-ranking method was used for the workshops to help reinforce risk information and capture risk perceptions of the participants. This risk-ranking method is explained in greater detail in Chapter 2. Breakout sessions, presentations, and handouts were used in each workshop to engage the participants and facilitate discussions and activities. GEMA/HS staff facilitated each of the breakout sessions and led the presentations and group discussions.

The first workshop, Understanding Risks, was held on January 5, 2018 and included almost 28 participants from federal and state agencies, nongovernmental/nonprofit organizations, and the private sector. The definition of risk as a combination of hazard and vulnerability was presented to the participants. This workshop focused on identifying and profiling the natural hazards Georgia is exposed to. Handouts listed the 12 hazards identified in the 2014 GHMS along with characteristics of these hazards in Georgia such as history, frequency, extent, and locations at risk. GEMA/HS staff presented an overview of the planning process, which included these three workshops. A presentation was also given providing specifics on each of the 12 hazards. After these presentations, the participants were divided into four breakout groups. The breakouts involved discussion of hazard information and hazard scoring and ranking. After the breakout sessions, each group presented a summary of comments from the discussion and hazard rankings. Based on the results of the workshop and analysis of local plan information, described in Chapter 2, 1 hazard (Extreme Heat) was added to the list of hazards to be profiled.

**TABLE 1.2 STATE PLAN UPDATE WORKSHOPS**

Workshop	Date	Information Presented	Results
1: Understanding Risks	January 25, 2018	12 hazards in 2014 GHMS and profiles; Hazard risk ranking methodology	Breakout group discussion on hazards; hazards scored and ranked based on profile
2: Understanding Vulnerability	March 15, 2018	Vulnerability definition; historical and potential impacts of 13 hazards	Breakout group discussion on hazard vulnerabilities; hazards scored and ranked based on vulnerability and total risk
3: Developing Georgia's Mitigation Strategy	April 26, 2018	Risk summary from first 2 workshops; types of mitigation actions	Lists of potential mitigation actions for each hazard with prioritization

The second workshop, Understanding Vulnerability, was held on March 15, 2018 and included 28 participants. GEMA/HS staff gave the definition of vulnerability and presented information on impacts from the 13 natural hazards identified in the previous workshop. Handouts provided information on the historical and potential impacts of each hazard, including adjusted losses, injuries and deaths, property damage, critical facilities, economic disruption, and natural and cultural resources. The participants were divided into breakout groups, where they scored and ranked each of the hazards with respect to vulnerability. Each of the participants was

given a score sheet to rank the vulnerability of each hazard. Participants then added these scores to the average hazard scores from Workshop 1 to calculate the total risk score and rankings for all 13 hazards. After the breakout sessions, each group presented a summary of comments from the discussion as well as vulnerability and total risk rankings. Chapter 2 presents the results of the hazard scores and ranking.

The third workshop, Developing Georgia's Mitigation Strategy, was held on April 26, 2018 and included 30 participants. Risk summaries and findings from the previous two workshops were presented to the participants, including the total risk scores and rankings for all the hazards. GEMA/HS staff defined mitigation and presented the four categories of mitigation actions, along with examples. The participants were divided into breakout groups, with each assigned a different set of hazards. Each group developed a list of possible mitigation actions for their assigned hazards. These lists were compiled and presented to the entire group. Afterwards, the participants prioritized these actions by placing sticker dots on the actions they believed are most important in reducing long-term risks. Some of the results from this workshop are presented in Chapter 3.

In addition, the Mitigation Planning staff proactively reached out, individually by email, to state agencies to discuss hazard mitigation and find out what type of relevant activities each agency was doing, or had plans to do. These identified mitigation activities and priorities were reviewed by GEMA/HS Hazard Mitigation Planning staff for inclusion in the state mitigation strategy.

### **1.3.2 State Plan Update Participants**

As noted above, the State of Georgia has historically involved multiple other state and federal agencies in the development of and subsequent updates to the GHMS, primarily through the planning staff and the SHMPT meetings. One of the goals for the 2019 update was to broaden participation by involving more federal and state agencies and nongovernmental organizations.

The development of the 2019 GHMS involved three core groups:

1. GEMA/HS Hazard Mitigation Planning staff
2. University of Georgia, Carl Vinson Institute of Government, Information Technology Outreach Services (ITOS)
3. Other agencies and partners

The planning process for the 2019 update to the GHMS was led by the GEMA/HS Hazard Mitigation Planning staff, which consists of four planners and a supervisor. This team developed the process for updating the plan, facilitated the update process, and drafted the planning document.

ITOS, a division of the Carl Vinson Institute of Government at the University of Georgia, updated and developed data that was integrated into the risk assessment. This process included collection of hazard history from the Spatial Hazard Event and Loss Database for the United States (SHELDUS) and the National Center for Environmental Information (NCEI), maps used in risk analysis, and other hazard information.

Other agencies and partner organizations were invited and contributed to the development of the risk assessment and mitigation strategies. These organizations included federal, state, and local representatives; nongovernment organizations; and the private sector. Three mechanisms were used to coordinate among these organizations: SHMPT, planning workshops, and individual emails / interviews with state agencies. Section 1.4 provides details on participants and how they participated in the state planning process.

As described above, the previous planning process utilized a group called the SHMPT. The SHMPT has evolved with each plan update and largely includes state agencies that meet annually. The annual meetings provide an opportunity for participants to receive updates on GEMA/HS hazard mitigation activities as well as mitigation-related activities from other agencies. During the State Plan Update, the SHMPT is informed of progress and



given the opportunity to provide feedback on the planning process and completed sections. For more information on the SHMPT's history and the agencies actively participating, please see Appendix B.

For the 2014 plan update, the GEMA/HS Hazard Mitigation Planning staff developed a new mechanism to expand participation to other agencies and organizations to reflect a broader representation of state interests. The result was a series of three workshops designed to inform and hear from participants about hazard risks, vulnerabilities, and mitigation strategies. GEMA/HS staff coordinated participation in these workshops with federal and state agencies, nongovernment organizations, and the private sector. GEMA/HS staff used this same process for the 2019 update. In addition, Staff emailed all State agencies requesting updates to their mitigation actions. The results of this process are incorporated into the Mitigation Actions tables in Chapter 3.

### **1.3.3 Plan Review and Revisions**

Since the adoption of the 2014 GHMS, the document has been publicly available on the GEMA/HS website. During local plan update meetings, communities are informed about the availability of the GHMS as a resource and are encouraged to provide feedback on how the document could be improved to assist their needs. Feedback received indicates the GHMS is difficult to read and that it is difficult to find useful information. The 2014 GHMS represented a significant streamlining of the document, adding maps and tables to depict the information being described. Since the completion of the 2014 document, the planning staff has created a handout summarizing basic risk information and the mitigation strategies from the State Plan. This handout is available to counties and provides basic information from the State Plan counties can use in the update of their plans.

As described in Section 1.3.1, the active update process began with a summary review of each section of the plan to determine items that needed updating as well as identifying any changes to the planning process needed to accomplish the staff's goals for the 2019 plan. While the review did not reveal the need for significant changes to the formatting of the document nor the planning process, it did reveal the following needs:

- The hazard history needed to be updated. This was done, including the most recent events, Presidential Declarations, etc.
- While the plan did describe the State's process of compiling and analyzing local plan data, it did not include a clear description of whether the local plan data influenced the State Plan. The 2019 plan now includes a clear description of how the local plan data did influence the risk assessment section.
- FEMA guidance now requires the plan to specifically address the impacts of climate change on the identified hazards. While the 2014 plan did not do this, information has been added to each hazard profile discussing how future climate change could impact the hazards.
- Some of the map data was out of date. Out-of-date maps have been replaced with maps based on the best and most recent data available.
- The 2014 plan did not clearly describe how the mitigation actions workshop influenced the plan. With the 2019 update, staff compared the actions from the workshop to the actions in the mitigation strategy. Many of the actions from the workshop were already being done in some way. A mitigation action has been added to the mitigation strategy to analyze other high priority actions identified in the workshop for future inclusion in the plan.

The GEMA/HS staff reviewed the information on state assistance to local communities. The review did not result in any changes other than updating and streamlining the presented information.

The completed draft plan was emailed to the State Hazard Mitigation Planning Team, ESF leads and local EMA directors for review and comment prior to adoption. Participants from the SHMPT and the workshops were also contacted via email informing them the draft plan was available on the GEMA/HS website. GEMA/HS staff

members in other divisions were also given the opportunity to review the draft plan, and submitted comments were incorporated into the plan update as applicable.

### 1.3.4 Post-Disaster Review

Since the approval of Georgia's Hazard Mitigation Strategy update in 2014, seven major hazard events have resulted in disaster declarations in the State of Georgia. DRs 4165, 4215, 4259, 4284, 4294, 4297 and 4338 have produced winter storms, flooding, hurricanes, severe storms and tornadoes throughout the State of Georgia.

In conjunction with ITOS, the GEMA/HS Hazard Mitigation Division and the planning team staff have updated the Standard Plan's hazard, risk, and vulnerability assessment (found in Chapter 2) to include the most recent disaster information and to reflect the new risks associated with the occurrence of the new disaster events.

A post-disaster meeting was held following each disaster, which occurred after the 2014 update. During this meeting, information on disaster impacts to communities and available mitigation funding programs was provided to the attendees. A separate portion of this meeting was held to specifically discuss the damages incurred by state agencies, lessons learned, and any changes to local hazard mitigation plans, the state plan, and state agency annexes. The Department of Agriculture, Georgia Ports Authority and Department of Public Health each reported damages to state facilities from these events.

During the disaster, many of the agencies involved with the hazard mitigation program were also involved with the state's response and took active roles in the State Operations Center by participating in Emergency Support Functions (ESFs). Support agencies worked on improving their response and coordination with other state and federal agencies as well as several private nonprofit organizations.

## 1.4 COORDINATION AMONG AGENCIES

### 1.4.1 State and Federal Agency Participation

As described in the above sections, the State of Georgia used methods to involve federal and state agencies and other interested organizations. These included the annual and post-disaster review meetings of the SHMPT, three plan update workshops held between January 2018 and April 2018, and individual agency emails and interviews held between April and September 2018. Tables 1.3 through 1.5 identify and describe the participation of state and federal agencies and Non-Governmental Organizations (NGO) in the 2019 plan update. Tables 1.3 – 1.5 further identifies how the State coordinated with other agencies responsible for various sectors, including but not limited to emergency management, economic development, land use and development, housing, health and social services, infrastructure, and natural and cultural resources. Notably, the update process was led by GEMA/HS, whose primary function is emergency management for the State of Georgia. The 2019 plan update also involved coordination with other organizations such as local communities, nonprofit organizations, and the private sector.

**TABLE 1.3 STATE, AGENCY PARTICIPATION IN 2019 GHMS UPDATE**

Agency	Related Sector	Participation
Administrative Office of the Courts	Judicial	SHMPT, Workshops
Georgia Building Authority	Infrastructure	Workshops
Georgia Bureau of Investigation	Law Enforcement	Workshops
Georgia Criminal Justice Coordinating Council	Law Enforcement	Workshops

Agency	Related Sector	Participation
Georgia Department of Administrative Services	General Government	SHMPT, Workshops
Georgia Department of Agriculture	Agriculture	SHMPT, Workshops
Georgia Department of Banking and Finance	Financial	Workshops
Georgia Department of Community Affairs	Housing, Land Use and Development, Economic Development	SHMPT, Email
Georgia Department of Community Supervision	Law Enforcement	Email
Georgia Department of Corrections	Law Enforcement	Workshops
Georgia Department of Economic Development	Economic Development	Workshops
Georgia Department of Education	Education	SHMPT, Workshops
Georgia Department of Labor	Health and Social Services	Workshops
Georgia Department of Natural Resources	Natural and Cultural Resources	SHMPT, Workshops
Georgia Department of Natural Resources – Coastal Resources Divisions	Natural and Cultural Resources	SHMPT
Georgia Department of Natural Resources – Environmental Protection Division	Natural and Cultural Resources	SHMPT, Workshops, Email
Georgia Department of Natural Resources – Environmental Protection Division – Safe Dams	Natural and Cultural Resources	Workshops
Georgia Department of Natural Resources – Floodplain Unit	Natural and Cultural Resources	SHMPT, Workshops, Email
Georgia Department of Public Health	Health and Social Services	SHMPT, Workshops
Georgia Department of Public Safety	Law Enforcement	Email
Georgia Department of Revenue	General Government	SHMPT
Georgia Department of Transportation	Infrastructure	SHMPT
Georgia Economic Financing Authority	Economic Development	SHMPT, Workshops
Georgia Forestry Commission	Natural and Cultural Resources	SHMPT, Workshops, Email
Georgia National Fairgrounds and Agricenter		Workshops
Georgia Office of Highway Safety	Public Safety	SHMPT
Georgia Office of Planning and Budget	General Government	SHMPT
Georgia Ports Authority	Infrastructure	SHMPT, Email
Georgia Soil and Water Conservation Commission	Natural and Cultural Resources	SHMPT, Workshops
Georgia Technology Authority	Infrastructure	SHMPT
Georgia Office of the Governor	General Government	SHMPT

Agency	Related Sector	Participation
Jekyll Island Authority	Emergency Management, Land Use and Development, Infrastructure, etc.	SHMPT
Technical College System of Georgia	Education	SHMPT, Workshops, Email
University System of Georgia Board of Regents	Education	SHMPT, Workshops

**TABLE 1.4 FEDERAL AGENCY PARTICIPATION IN 2019 GHMS UPDATE**

Federal Agency	Participation
FEMA Mitigation Division - Risk Analysis	SHMPT, Workshops
US Army Corps of Engineers	SHMPT, Silver Jackets Team meetings*
USGS	Silver Jackets Team Meetings*
NWS	Silver Jackets Team Meetings*
NRCS	Silver Jackets Team Meetings*

\*Information provided related to flooding and dam safety

**TABLE 1.5 OTHER ORGANIZATIONS PARTICIPATION IN THE 2019 GHMS UPDATE**

Other Organization	Participation
American Red Cross	Workshops
Association of County Commissioners of Georgia	Workshops
Atlanta Gas and Light	Workshops
Georgia Municipal Association	SHMPT, Workshops
Georgia Transmission Corporation	Workshops

## **1.5 PROGRAM INTEGRATION**

### **1.5.1 State Planning Programs**

GEMA/HS Hazard Mitigation Planning staff has identified 15 programs and initiatives that are relevant to hazard mitigation. These were reviewed for their effectiveness and incorporated into this plan update where appropriate. All of the programs and initiatives align with the overall goals of Georgia's Hazard Mitigation Strategy: reducing human vulnerability to hazard events, reducing the losses associated with hazard events, and reducing the number of people and properties exposed to hazard events in Georgia. Specific programs and initiatives represented in the state mitigation strategy include Safe Dams, Community Wildfire Protection Plans,

and Risk MAP. In addition, DNR conducted a study of potential sea level rise along the coast, which was incorporated into the risk assessment portion of the GHMS. GEMA/HS Hazard Mitigation Planning staff will continue to review other state programs and initiatives for possible inclusion in the GHMS. Additional information on these programs is provided in Section 3.3.

### 1.5.2 FEMA Mitigation Programs

The 2019 GHMS is integrated with FEMA programs such as Hazard Mitigation Assistance (HMA), the National Flood Insurance Program (NFIP), the Community Rating System (CRS), and Risk MAP. Chapters 3 and 4 discuss the mitigation actions and provide details on the State's efforts to increase NFIP and CRS participation, implementation and support of the Risk MAP program, and use of the HMA and Flood Mitigation Assistance grant programs. Additional information on these programs is found in Sections 3.3, 3.4, and 4.2.

**TABLE 1.6 INTEGRATION OF STATE PROGRAMS INTO THE 2019 GHMS**

State Planning Efforts	GHMS Integration
Georgia StormReady	State capability assessment, mitigation strategy
GA Planning Act	State capability assessment, mitigation strategy
Safe Dams	State capability assessment, mitigation strategy
Coastal Management	State capability assessment
Coastal Marshland Protection	State capability assessment
Erosion and Sedimentation Control	State capability assessment
River Corridor Protection	State capability assessment
Shore Protection	State capability assessment
Emergency Watershed Protection	State capability assessment
EMAP Accreditation	State capability assessment
Southern Wildfire Risk Assessment	Data added into wildfire risk assessment and hazard maps, State capability assessment
Community Wildfire Protection Plans	State capability assessment, mitigation strategy
Silver Jackets	State capability assessment, mitigation strategy
Risk MAP	State capability assessment
CRD Sea Level Rise Study	Risk Assessment

**TABLE 1.7 INTEGRATION OF FEMA MITIGATION PROGRAMS INTO THE 2019 GHMS**

<b>FEMA Program</b>	<b>GHMS Integration</b>
HMA	Funding sources for Mitigation Grants
NFIP	State risk assessment, mitigation strategy, Local capability assessment
CRS	State risk assessment, mitigation strategy, Local capability assessment
FMA	Funding Source for Mitigation Grants
Risk MAP	Activity being conducted in the State of Georgia.

# Chapter 2: Risk Assessment

## 2.1 OVERVIEW

The Hazard, Risk, and Vulnerability Assessment of the Georgia Hazard Mitigation Strategy provides a scientifically sound foundation for the goals, objectives, tasks, and action steps proposed in the plan. This chapter consists of the following sections: Overview, Definition of Terms, Methodology, Overview of Natural Hazards in Georgia, Hazard-Specific Assessments, Social Vulnerability Assessment, Composite Assessment, and Loss Potential.

The Definition of Terms section defines the terms *hazard*, *risk*, *risk assessment*, *vulnerability*, and *mitigation* utilized in this plan.

The Methodology section outlines the processes used in developing the risk assessment, including data manipulation and analyses that led to the presented conclusions.

The Overview of Natural Hazards section discusses the overall hazard event and loss history for the State of Georgia, without regard to specific hazard types. This section includes analysis of losses associated with all hazard events and claims associated with Presidential Disaster Declarations (PDDs).

The Hazard-Specific Assessments section identifies the 13 specific hazards affecting Georgia by recounting each hazard's event, loss, and PDD history. Also, this section includes hazard-specific occurrence probabilities (risk).

The Social Vulnerability Assessment section addresses both social and environmental vulnerability to hazard events at a state level. This section also includes an analysis of vulnerable state buildings and critical facilities.

The Composite Assessment section attempts to address the overall hazard vulnerability of specific areas by combining the social vulnerability and composite hazard scores in order to highlight areas of concern.

The last section, which relates to Loss Potential, presents the state assets and locally defined critical facilities in conjunction with the composite hazard scores in order to determine the areas with the highest potential for loss.

The summary of changes to the updated mitigation strategy from the 2014 plan is recorded in Table 2.1.

Chapter 2 of the Georgia Hazard Mitigation Plan was updated with assistance by the Carl Vinson Institute of Government's Information Technology Outreach Service at the University of Georgia. The risk assessment is based on the best available risk and vulnerability statistics and data available as of September 30, 2017.

## 2.2 DEFINITION OF TERMS

Risk, for the purpose of hazard mitigation planning, is the potential for damage, loss, or other impacts created by the interaction of natural hazards with community assets. Hazards are natural occurrences, such as tornadoes and earthquakes. The exposure of people, property, and other community assets to natural



**TABLE 2.1: OVERVIEW OF UPDATES TO CHAPTER 2: HAZARD, RISK, AND VULNERABILITY ASSESSMENT**

Chapter 2 Section	Updates to Section
2.1 Overview	<ul style="list-style-type: none"> <li>• Changed dates to reflect new plan</li> </ul>
2.2 Definition of Terms	<ul style="list-style-type: none"> <li>• No change</li> </ul>
2.3 Methodology	<ul style="list-style-type: none"> <li>• Updated text to reflect hazards analyzed and new profiled hazard.</li> </ul>
2.4 Overview of Natural Hazards in Georgia	<ul style="list-style-type: none"> <li>• Updated dates to section to reflect the dates as they pertain to the plan update</li> </ul>
2.5 Hazard-Specific Assessments	<ul style="list-style-type: none"> <li>• Added text to each section noting impacts of climate change on the individual hazards</li> <li>• Added maps and figures</li> <li>• Updated tables, text, and maps to reflect the current available data for hazards</li> <li>• Incorporated information related to climate change for each hazard assessment</li> <li>• Added “Extreme Heat” hazard</li> </ul>
2.6 Social Vulnerability Assessment	<ul style="list-style-type: none"> <li>• Updated data, tables and maps</li> </ul>
2.7 Composite Assessment	<ul style="list-style-type: none"> <li>• Updated tables, text, and maps to reflect the current available data for composite assessment</li> </ul>
2.8 Loss Potential	<ul style="list-style-type: none"> <li>• Updated tables, text, and maps to reflect the current available data for hazard risk</li> </ul>

hazards can result in disasters depending on the impacts. Impacts are the consequences or effects of the hazard on the community and its assets. The type and severity of impacts are based on the extent of the hazard and the vulnerability of the asset as well as the community’s capabilities to mitigate, prepare for, respond to, and recover from events. The following are FEMA definitions of terms used in risk assessments.

**Hazard:** A source of potential danger or adverse condition. Natural hazards are created by a meteorological, environmental, or geological event.

**Risk:** The estimated impact that a hazard would have on people, services, facilities, and structures in a community; the likelihood of a hazard event resulting in an adverse condition that causes injury or damage. Risk is often expressed in relative terms such as a high, moderate, or low likelihood of sustaining damage above a particular threshold due to a specific type of hazard event. It also can be expressed in terms of potential monetary losses associated with the intensity of the hazard. As Figure 2.1 illustrates, risk exists when natural hazards interact with community assets.

**Risk Assessment:** The product or process that collects information and assigns values to risks for the purpose of informing priorities, developing or comparing courses of action, and informing decision-making.

**Vulnerability:** Describes how exposed or susceptible to damage an asset is. Vulnerability depends on an asset's construction and contents as well as the economic value of its functions. Like indirect damages, the vulnerability of one element of the community is often related to the vulnerability of another. For example, many businesses depend on uninterrupted electrical power—if an electric substation is flooded, it will affect not only the substation itself, but a number of businesses as well. Often, indirect effects can be much more widespread and damaging than direct ones.

**Mitigation:** Hazard mitigation is sustained action taken to reduce or eliminate long-term risk to people and their property from hazards.

**FIGURE 2.1 ASSESSING EXISTING AND FUTURE VULNERABILITY.**



Note: Modified from U.S. Geological Survey and Oregon Partnership for Disaster Resilience Models.

## 2.3 METHODOLOGY

The focus of this risk assessment is to identify and describe the hazards affecting the State of Georgia and their impacts. This methodology section outlines the steps taken to analyze risk to Georgia from natural hazards. Methods pertaining to specific hazard and risk assessments are outlined in Section 2.5 under the relevant hazard-specific assessment.

### 2.3.1 2019 Risk Assessment

Updating the risk assessment began with a review of the 12 natural hazards identified in the 2014 GHMS. Identifying natural hazards in Georgia is a process involving local plan inputs, comments from state stakeholders, and hazard history. GEMA/HS staff started this process by examining local hazard mitigation plans to determine if additional locally identified hazards warrant consideration in this risk assessment.

During the State Plan Update workshops, participants were given the opportunity to review the hazards identified in the 2014 GHMS. Several comments were given on additional hazards to consider, including pandemic flu, extreme heat, extreme cold, pollution, fuel shortage, communications failure, technology failure, Hazardous Materials, active shooters, transportation accidents, agricultural diseases, solar flares, tsunamis, nuclear facilities, chemical release, agricultural security, sea level rise, magnetic pulse and biological terrorism. After the workshops, GEMA/HS staff analyzed each of these hazards to determine if the definition and data were sufficient to meet natural hazard profile requirements.

It was determined tsunami, extreme heat, extreme cold and sea level rise are natural in nature and warranted further review. It was determined tsunami and extreme cold fit logically within the previously identified coastal hazards and winter storm sections. Sea level rise, while not a profilable hazard by itself, was incorporated into the updated analysis of the flooding and coastal hazards sections. Finally, based on the results from the workshops and a review of the local mitigation plan assessment, described above, extreme heat was added as a new hazard in Section 2.5.13. The other suggested hazards were determined to either not meet the definition of natural hazard, or insufficient data was available to objectively document specific risk to life and property.

Historic data from the Spatial Hazard Events and Losses Database for the United States (SHELDUS) and the National Centers for Environmental Information (NCEI) and other records were reviewed to identify any additional hazards. This did not produce any additional hazards for the risk assessment. More information on SHELDUS and NCEI is provided in Section 2.4.2.

After the hazard identification process, the assessments for all 12 previously identified hazards, along with the newly identified Extreme Heat hazard, were reviewed to identify new sources of information and updated data. This included hazard events that have occurred since the 2014 GHMS adoption, hazard maps, potential risk areas, and potential vulnerability. All hazard assessments have been updated to reflect the best available descriptions and data.

A new assessment tool for the 2019 GHMS is the incorporation of climate change in the analysis of each hazard. This was based on multiple sources, including the following:

- 2014 National Climate Assessment (<https://nca2014.globalchange.gov/highlights/report-findings/extreme-weather>)

- The Environmental Protection Agency (<https://www.epa.gov/climate-indicators/climate-change-indicators-wildfires>),
- a sea level rise HAZUS-MH study conducted by the Coastal Resources Division of the Georgia Department of Natural Resources
- a HAZUS-MH analysis of the impacts of sea level rise on state owned properties done by the Carl Vinson Institute of the University of Georgia.

Reports and maps from both sea level rise studies are included in Appendix D. Information on how climate change impacts the individual hazards is included in each separate hazard profile section.

### 2.3.2 Hazard Risk Ranking

To gain a better understanding of the state's risk to hazards, GEMA/HS staff developed a tool to comparatively assess and prioritize each of the hazards identified in the GHMS. GEMA/HS staff surveyed hazard ranking tools that have been used in various state and local hazard mitigation plans around the nation. While many of these ranking tools have useful components or methods, GEMA/HS staff created its own methodology incorporating best practices from other examples.

Among the problems this methodology attempts to resolve is developing a priority ranking based on total risk, factoring vulnerability into risk, and the potential for events to have occurred that are not recorded in data sources. An example of the latter is hurricanes. While some major hurricanes have made impact in the past, no hurricane has made a direct landfall on the Georgia coast in the past century; therefore, data event and impact sources such as SHELDUS and NCEI do not have information on this hazard since those records begin in the 1950s.

The basic definition that GEMA/HS staff operated from to create this methodology is that Risk = Hazard + Vulnerability. Specific categories were identified based on common definitions of hazard and vulnerability. Where possible, objective datasets were utilized such as events per year and annualized losses. Only data from 1996–2017 were incorporated because older records are often incomplete. This methodology is not intended to be a scientific process, but rather an additional tool for understanding natural hazards in Georgia.

#### **HAZARD:**

Historical Frequency	Duration	Area Impacted
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#### **VULNERABILITY:**

Annualized Losses	Injuries & Deaths per Year	Human Loss	Property Damage & Effect	Critical Facilities Impacted	Economy Disruption	Natural & Cultural Resources (Environment)
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**Blue:** Historical Impact (SHELDUS and NOAA data)

**Green:** Potential Hazard

**Red:** Potential Vulnerability

This ranking methodology was presented at the State Plan Update workshops, and participants were given the opportunity to present their perspectives of these hazards based on their understanding of the hazards and the scoring criteria presented. Worksheets used in this ranking are included in Appendix C. The hazard-specific assessments in Section 2.5 include the priority as well as the total rank out of the 13 hazards. Tables 2.2, 2.3, and 2.4 show the Hazard, Vulnerability, and Total Risk Rankings, respectively, from the workshops. Notably, Hurricane Wind's ranking increased significantly since the 2014 GHMS. This is likely due to the impacts of Hurricanes Matthew and Irma in 2016 and 2017. Further information on these events is included in Section 2.5.1.

**TABLE 2.2 WORKSHOP 1 HAZARD RANKING**

Hazard	Historical Impact					Potential Hazard	
	Annualized Losses	Injuries and Deaths	Historical Frequency	Historical Score		Duration and Area Impacted Table Rankings	Total Hazard Score (H+P)
Dam Failure	1	1	1	3		3	6
Drought	4	1	1	6		8	14
Inland Flooding	4	1	2	7		6	13
Seismic Hazards				0		4	4
Severe Weather	5	2	3	10		6	16
Severe Winter Weather	5	1	3	9		7	16
Geologic Hazards				0		3	3
Coastal Hazards	1	1	1	3		5	8
Tornadoes	5	3	2	10		4	14
Hurricane Wind	2	1	1	4		6	10
Wildfire	1	1	1	3		6	9
Wind	2	1	3	6		4	10
Extreme Heat	2	1	1	4		8	12

**TABLE 2.3 WORKSHOP 2 VULNERABILITY RANKING**

Hazard	Potential Vulnerability Impact					Impact Score
	Human	Property	Critical Facilities	Economy	Environment	
Dam Failure	3	4	2	3	2	14
Drought	0	1	1	3	2	7
Inland Flooding	2	4	3	3	3	15
Seismic Hazards	1	2	1	1	1	6
Severe Weather	2	3	1	2	1	9
Severe Winter Weather	2	2	1	2	1	8
Geologic Hazards	0	1	1	1	0	3
Coastal Hazards	3	4	3	4	3	17
Tornadoes	3	4	3	3	2	15
Hurricane Wind	3	4	3	4	3	17
Wildfire	1	3	2	2	3	11
Wind	1	2	1	1	1	6
Extreme Heat	2	0	0	2	1	5

**TABLE 2.4 WORKSHOP 2 TOTAL RISK RANKING**

Vulnerability Ranking			
Rank	Hazard	Score	Priority
1	Tornado	34	High
2	Inland Flooding	32	High
3	Hurricane Wind	30	High
4	Severe Weather	28	High
5	Coastal Hazards	27	High
6	Drought	26	Medium
7	Severe Winter Weather	26	Medium
8	Wildfire	24	Medium
9	Wind	17	Medium
10	Extreme Heat	17	Medium
11	Dam Failure	17	Medium
12	Seismic Hazards	10	Low
13	Geologic Hazards	6	Low

**Priority Level**

High = >26

Medium = 16–26

Low = <16

## **2.4 OVERVIEW OF NATURAL HAZARDS IN GEORGIA**

### **2.4.1 Introduction**

The 2019 GHMS contains 13 natural hazards. The plan retains the 12 natural hazards profiled in the 2014 GHMS and adds Extreme Heat as a hazard. Table 2.5 shows the hazards identified in the 2014 and 2019 GHMS.

Table 2.6 is based upon a review of all 159 county hazard mitigation plans. GEMA/HS staff extracted information about hazards that the county plans included in each risk assessment. The table includes hazard type and the percentage of local plans that identify that hazard. The percentage of counties identifying each hazard did not change significantly from the 2014 GHMS.



**TABLE 2.5 CHANGES IN HAZARDS FROM 2014 TO 2019 STATE PLAN**

2014 Hazards	2019 Hazards
Hurricane Wind	Hurricane Wind
Coastal Hazards	Coastal Hazards
Wind	Wind
Severe Weather	Severe Weather
Tornadoes	Tornadoes
Inland Flooding	Inland Flooding
Severe Winter Weather	Severe Winter Weather
Drought	Drought
Wildfire	Wildfire
Earthquake	Earthquake
Geologic Hazards	Geologic Hazards
Dam Failures	Dam Failures
	Extreme Heat

**TABLE 2.6 HAZARDS IN LOCAL PLANS**

Hazard Type	% of Counties Identifying in 2013	% of Counties Identifying in 2017
Inland Flooding	98%	99%
Tornadoes	98%	99%
Drought	90%	90%
Severe Winter Storms	81%	79%
Wind	80%	73%
Wildfire	79%	82%
Tropical Cyclonic Events (Hurricane Wind)	60%	55%
Severe Weather	68%	73%
Hailstorm (Severe Weather)	64%	61%
Lightning (Severe Weather)	63%	58%
Dam Failure	32%	36%
Heat	22%	28%
Earthquake	21%	27%
Coastal Flooding	6%	6%
Sinkhole	3%	3%
Landslide	1%	4%

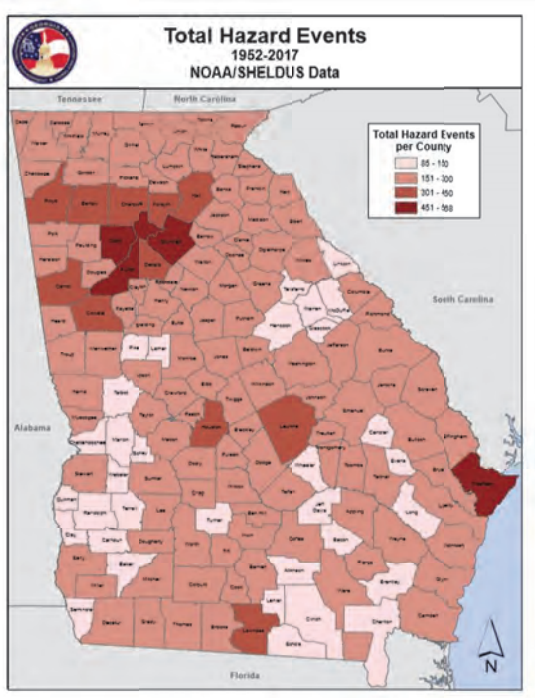
### 2.4.2 Hazard Profiling and Characteristics

The primary characteristics used in profiling hazards are event history, extent (magnitude), probability, and location. *History* involves describing previous events and impacts to the affected areas. *Extent* or *magnitude* is the greatest severity likely to occur. *Probability* is the likelihood an event will occur in the future. *Location* is the areas that are susceptible to being impacted by the event.

The primary sources for historical events and impacts are the Spatial Hazard Event and Loss Database for the United States (SHELDUS), produced by the Hazards & Vulnerability Research Institute at the University of South Carolina, and NOAA's National Centers for Environmental Information (NCEI) Storm Events Database. These searchable databases contain hazard-specific data with each event having the location (county), beginning date, property losses, crop losses, injuries, and fatalities. The SHELDUS database is derived from many national data sources including the NCEI and the National Geophysical Data Center. The data covers hazard events and losses from 1952 to 1995 for tornado events and from 1960 to 1995 for all other events, with updates for additional years forthcoming. The version of SHELDUS used for this plan update is 10.1, released in August of 2013. This version includes a greater number of events than previous versions. In older versions, a hazard event was included only if it exceeded \$50,000 in losses or led to one or more fatalities. In SHELDUS 10.1, every loss-causing event from 1960 - 1989 and from 1995 to current

was included. Events occurring between 1990 and 1995 were still subject to the loss threshold of one fatality or \$50,000 in damages. Therefore, this version of SHELDUS still

**FIGURE 2.2 TOTAL HAZARD EVENTS BY COUNTY**



undercounts some events but overall provides an improved tabulation of hazard events. The NCEI database covers events from 1996 to September 30, 2017. Prior to 1996 weather events were only published in a monthly report. Starting in 1996 NOAA began using a database to store all the events in addition to issuing the monthly report. Since the primary source of the SHELDUS data is the NCEI weather reports they share all the same attributes used for the hazard analysis. Other sources of hazard events and loss are presented as best available data in instances where SHELDUS and NCEI were incomplete. This includes coastal flooding and wildfire.

The data gathered from SHELDUS and NCEI are visually represented in maps located in the Hazard-Specific Assessments. Figure 2.2 illustrates the total of all hazard events that occurred within the state from 1952 to 2017, based on SHELDUS data. Areas around Metro Atlanta and Savannah experienced the greatest number of total hazard events during this timeframe.

**FIGURE 2.3 TOTAL HAZARD LOSSES BY COUNTY, 1952-2017**

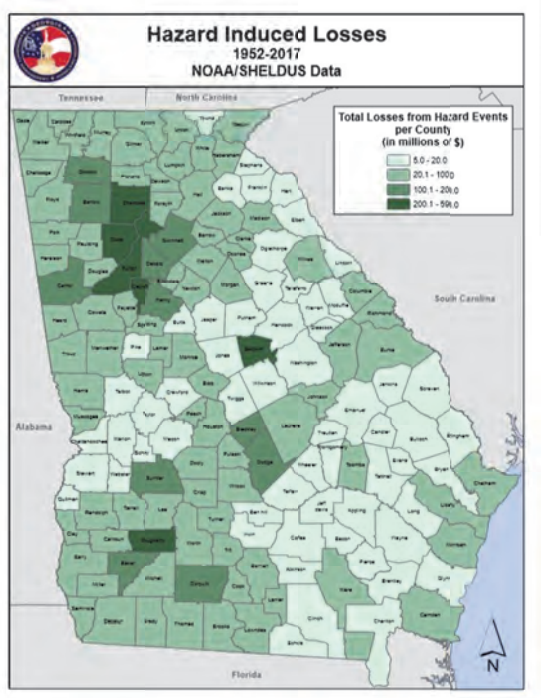


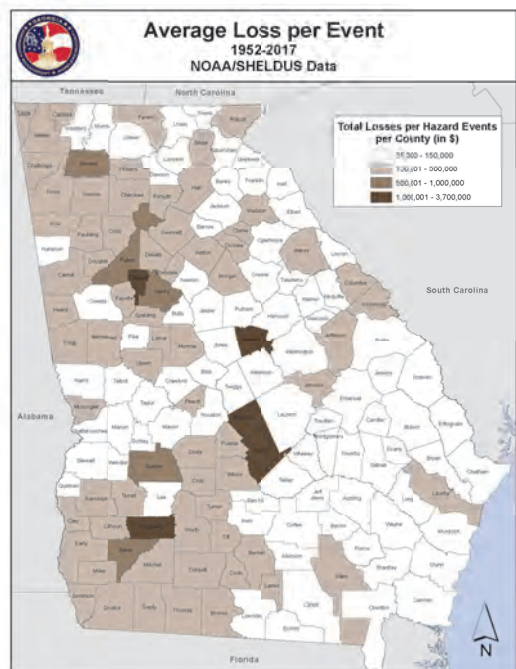
Figure 2.3 illustrates the total losses resulting from all hazard events by county from 1952 to 2017. These totals take inflation into account; therefore, all amounts are in 2016 dollars. Counties in the Metro Atlanta area experienced the greatest total losses during this timeframe.

Figure 2.4 depicts the average loss per hazard event for each county. Five counties (Baldwin, Bleckley, Clayton, Dodge and Dougherty) represent the highest loss per event category with totals between \$1 million and \$3.7 million per event.

The extent or magnitude of a hazard event is defined by a scientific scale or objective data that describe how severe the event could be. Examples include the Enhanced Fujita Tornado Scale and the Saffir-Simpson Hurricane Scale. A review of historical events provides a reasonable expectation for the potential extent of future events. With tornadoes, the greatest severity

experienced in Georgia is an EF4; therefore, while the potential for an EF5 tornado does exist, the most likely potential extent of a future tornado event in Georgia is an EF4. Each of the hazard-specific assessments describes potential extent.

**FIGURE 2.4 AVERAGE LOSS PER EVENT BY COUNTY, 1952–2017**



The best source of information for determining future probability is to review the historic occurrence or frequency of a type of hazard event. This is limited depending on the quality of

historical records and the availability of data. For example, no major hurricane has made landfall in Georgia since 1898; however, there were three between 1854 and 1898. There is not enough scientific data to determine the exact probability of a future event.

**FIGURE 2.5 NOAA HAZARD EVENTS PERCENTAGE, 1957–2016**

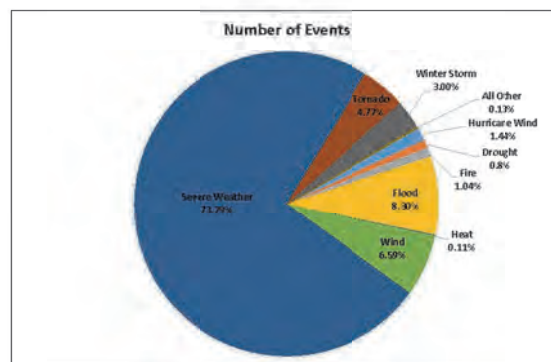
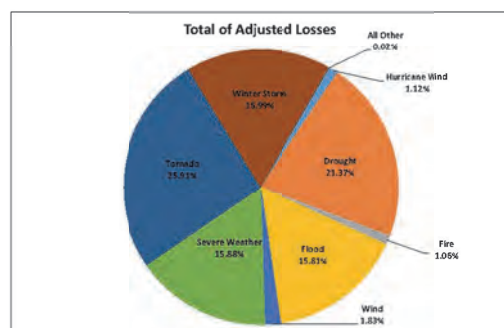


Figure 2.5 illustrates the distributions and the number of events of each hazard type, based on data from NCEI between 1997 and 2016. By far, Severe Weather (thunderstorm, lightning, hail) is the most frequent hazard event that occurs in Georgia. Figure 2.6 illustrates total losses by hazard. Tornadoes and Severe Weather created the highest dollar amount loss in Georgia.

Figure 2.7 illustrates the distribution of total injuries and fatalities from each type of hazard. NCEI data did not have any recorded injuries or fatalities from Coastal Flooding, Drought, or Landslide; therefore, these hazards are not included in this diagram. Tornado events produced more injuries and fatalities than all the other hazards combined.

**FIGURE 2.6 SHELDUS ADJUSTED LOSS  
PERCENTAGE BY HAZARD, 1992–2012.**



**FIGURE 2.7 SHELDUS TOTAL INJURIES  
AND FATALITIES PERCENTAGE  
BYHAZARD.**



### 2.4.3 Presidential Declared Disasters

Seven Presidentially Declared Disasters (PDD) have occurred since the 2014 GHMS was adopted. In that time, all of Georgia's 159 counties have been declared as part of at least one disaster. In February, 2014 and February, 2015, Georgia experienced two severe winter storm events, resulting in DRs 4165 and 4215, respectively. In December 2015, Georgia experienced severe flooding along the Chattahoochee, Flint, Ocmulgee and Oconee Rivers, resulting in DR 4259. The following year, in October 2016, Hurricane Matthew impacted the Georgia coast, as well as several inland counties in Southeast Georgia. This event was the first time in almost 20 years the state ordered the evacuation of the entire coast. The following January, 2017, Southwest Georgia experienced two severe weather and tornado events, resulting in DRs 4294 and 4297. These disasters are notable due to being only two weeks apart. Also, while DR 4297 covered a much larger area, a significant portion of the damages was in the same communities damaged by DR 4294 two weeks earlier. Finally, in September, 2017, Hurricane Irma entered Southwest Georgia from the Gulf of Mexico with tropical storm force winds impacting the entire state and coastal flooding impacting the entire coastline. For the first time in Georgia's history, all 159 counties were declared as part of DR 4338. Also, notably, Hurricane Matthew (2016) and Hurricane Irma (2017) are the only instances the state has ordered the evacuation of the entire coast since Hurricane Floyd in 1999. In addition, in 2016 and 2017, the State of Georgia experienced two Fire Management disasters, Georgia Tatum Gulf Fire FM-5181 affecting Dade County and Georgia West Mims Fire FM-5163 affecting Charlton, Clinch and Ware Counties. However, these events did not get declared for HMGP funding until June, 2018. Therefore, information on these disasters is limited as of the writing of this plan. Tables 2.7 and 2.8 below provide additional details for these disasters. Information on all declarations can be found in Appendix D. Notable hazard events that were also PDDs are identified in the hazard-specific assessments in Section 2.5.

**TABLE 2.7 PRESIDENTIAL DECLARATIONS SINCE 2014**

Federal Declaration	# Counties by Declaration Type	
	Public Assistance	Individual and Public Assistance
DR 4165	45	
DR 4215	15	
DR 4259	34	
DR 4284	20	10
DR 4294	7	1
DR 4297	22	8
DR 4338	159	7

\*HMGP funding available statewide after all declarations

**TABLE 2.8 FIRE MANAGEMENT DECLARATIONS SINCE 2014**

Federal Declaration	Number of Counties
FM 5163	3
FM 5181	1

## **2.5 HAZARD-SPECIFIC ASSESSMENTS**

Hazard-specific assessments are presented in the following order:

2.5.1 Hurricane Wind

2.5.2 Coastal Hazards (includes storm surge and coastal flooding)

2.5.3 Wind

2.5.4 Severe Weather (includes lightning and hail)

2.5.5 Tornado

2.5.6 Inland Flooding

2.5.7 Severe Winter Weather

2.5.8 Drought

2.5.9 Wildfire

2.5.10 Earthquake

2.5.11 Geologic Hazards (includes sinkhole and landslide)

2.5.12 Dam Failure

2.5.13 Extreme Heat

Each hazard assessment contains a description of the event and a hazard profile. The description defines what the hazard is and provides its general characteristics. The hazard profile describes the history of the hazard in Georgia, locations susceptible to the hazard, the likelihood of occurrence, and the probable extent. Hazard history includes SHELATUS/NCEI data when available. Maps, tables, and other figures enhance the description and profile of each hazard.



## 2.5.1 Hurricane Wind

### Associated Hazards:

Tropical cyclones, hurricanes, tropical storms, tropical depressions, coastal storms

Priority	Rank
High	3

### **Hazard Description**

Tropical cyclones are referred to in a multitude of ways around the globe from hurricanes in the Atlantic Ocean to typhoons in the Pacific Ocean to the more generic tropical cyclones in the southwestern Indian Ocean. According to the Atlantic Oceanographic and Meteorological Laboratory (AOML), a tropical cyclone “is the generic term for a non-frontal synoptic scale low-pressure system over tropical or subtropical waters with organized convection (i.e. thunderstorm activity) and definite cyclonic surface wind circulation.” The National Oceanic and Atmospheric Administration’s (NOAA) National Hurricane Center (NHC) categorizes tropical cyclones in the Atlantic Basin (Atlantic Ocean, Caribbean Sea, and Gulf of Mexico) into four types based on intensity.

**Tropical Disturbance:** A discrete tropical weather system of apparently organized thunderstorms, generally 100–300 nautical miles in diameter, originating in the tropics or subtropics, and maintaining its identity for 24 hours or more.

**Tropical Depression:** An organized system of clouds and thunderstorms with a defined circulation and maximum sustained winds of 38 mph (33 knots) or less.

**Tropical Storm:** An organized system of strong thunderstorms with a defined circulation and maximum sustained winds of 39 mph to 73 mph (34–63 knots).

**Hurricane:** An intense tropical weather system with a well-defined circulation, producing maximum sustained winds of 74 mph (64 knots) or greater. Hurricane intensity is classified into five categories using the Saffir-Simpson Hurricane Scale (presented in Figure 2.10: Saffir-Simpson Hurricane Scale). Winds in a hurricane range from 74 to 95 mph for a Category 1 hurricane to greater than 156 mph for a Category 5 hurricane. Hurricane Camille (1969) and Hurricane Allen (1980) epitomize the destructive potential of hurricanes as both had sustained winds of 190 mph and gusts well over 200 mph.

Hurricanes can cause catastrophic damage to coastlines and areas several hundred miles inland. Hurricanes can produce winds exceeding 155 miles per hour as well as tornadoes and microbursts. Additionally, hurricanes can create storm surges along the coast and cause extensive damage from heavy rainfall. Floods and flying debris from the excessive winds are often the deadly and destructive results of these weather events. Slow moving hurricanes traveling into mountainous regions tend to produce especially heavy rain. Excessive rain can trigger landslides or mud slides. Flash flooding can occur due to intense rainfall (<http://www.ready.gov/hurricanes>).

Each of these hazards presents unique characteristics and challenges; therefore, the following have been separated and analyzed as individual hazards: Hurricane Wind, Coastal Hazards (including storm surge), Tornado, Flooding (inland and coastal), Wind, and Severe Weather. This section focuses on the hurricane wind hazard.

## Hazard Profile

Throughout history, tropical cyclones have plagued Georgia. The NHC has accumulated records of all of the tropical cyclones that have affected the state since 1851. The National Weather Service (NWS) and NOAA's Atlantic Oceanic and Meteorological Laboratory (AOML) have records of tropical cyclone activity affecting the Georgia Coast since 1565. Table 2.9 presents the total number of hurricanes, by intensity, that have affected any portion of Georgia from 1851 through the present. Table 2.10 presents all of the tropical cyclones that have made landfall on the Georgia Coast from 1800 through the present.

**TABLE 2.9 TOTAL NUMBER OF HURRICANES THAT HAVE TRACKED OVER GEORGIA, 1851 TO PRESENT**

Hurricane Intensity	Number of Hurricanes
Category 1	15
Category 2	5
Category 3	2
Category 4	1
Category 5	0

**TABLE 2.10 TROPICAL CYCLONES THAT HAVE MADE LANDFALL ON THE GEORGIA COAST, 1800 TO PRESENT**

Tropical Cyclone Intensity	Number of Named Storms	Recurrence Interval (years per storm)
Tropical Storm & Category 1–2	25	9
Major Hurricane: Category 3–5	6	36

Between 1800 and 1850, three major hurricanes made landfall on the Georgia Coast—in 1804, 1813, and 1824—causing a combined total of more than 600 fatalities. Between 1851 and 1899, 14 named storms and three major hurricanes (in 1854, 1893, and 1898) made landfall on the Georgia Coast, with the number of fatalities nearing 2,700. From 1900 to 1949, four named storms (1911, 1928, 1940, and 1947) made landfall on the Georgia Coast. From 1950 to the present, three hurricanes (Category 2 Hurricane David, 1979, Hurricane Matthew, 2016 and Hurricane Irma, 2017) have impacted the Georgia Coast.

Table 2.11 details the more notable events in Georgia's tropical cyclone history. The table does not include all events affecting the state, but it highlights those that had a substantial impact. Damage values are given in historic dollars.

Although all of Georgia's counties can be affected by tropical cyclonic activity, two regions stand apart when analyzed using SHELDUS data. Figure 2.8 shows the tropical cyclonic events per county from 1952 to 2017 and highlights the regions of Southwest Georgia and Coastal Georgia. Counties in Southwest Georgia are more adversely affected by tropical cyclones that enter from the Gulf of Mexico than by tropical cyclones from the Atlantic Ocean.

**TABLE 2.11 NOTABLE AND HISTORIC TROPICAL CYCLONIC EVENTS AFFECTING GEORGIA**

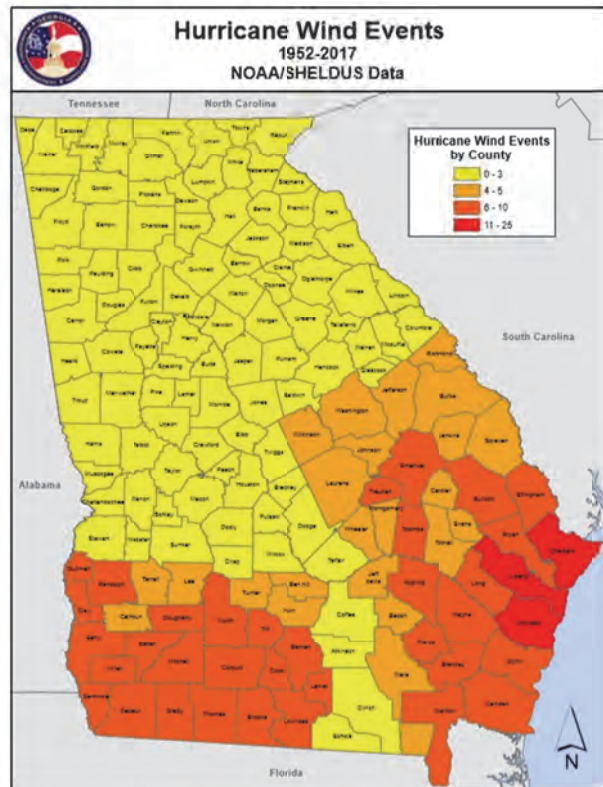
Year	Name (if applicable)	Area Affected	Remarks
1804		Savannah Area	Hutchison Island inundated; 3 deaths
1813		Coastal Georgia	28 deaths
1881		Savannah Area	\$1.5 million in damages; 335 deaths
1893		Savannah Area	\$10 million in damages; 1,000 deaths
1898		Coastal Georgia	Category 4; 120 deaths
1911		Coastal Georgia	18" of rain in 24 hours
1916		Southwest Georgia	\$2.5 million in damages
1928		Savannah Area	11" of rain
1940		Coastal Georgia	>\$1 million in damages
1947		Savannah Area	>\$2 million in damages
1959	Gracie	Coastal Georgia	\$5 million in damages
1964*	Dora	Coastal Georgia	DR177; \$8 million in damages
1979	David	Coastal Georgia	2 deaths
1990*	Klaus/Marco	Central Georgia	FEMA DR880; *\$6 million in damages
1994*	Alberto	Statewide	FEMA DR1033; Extreme flooding on Flint and Ocmulgee Rivers; >\$400 million in damages
1995*	Opal	Western Georgia	FEMA DR1071; Widespread wind damages
2004*	Frances, Ivan, and Jeanne	Statewide	FEMA DR1554 and DR1560; Wind/ rain damage in 107 counties
2005	Dennis	Statewide	Wind/ rain damage; Flooding
2016*	Matthew	Coastal Georgia	FEMA 4284; Wind/rain/coastal flooding in 20 Southeast GA counties; \$175 million in damages
2017*	Irma	Statewide	FEMA 4338; Wind/rain/coastal flooding affecting all 159 GA counties; 1.5 million out of power; 5 fatalities; est. \$150 million in uninsured damages.
2018*	Michael	Southwest, Central and East Georgia	FEMA 4400; Wind/rain in Southwest and Central Georgia with Category 3 in Southwest GA; 3 fatalities; \$350 million in uninsured losses; \$2.3 – \$2.8 billion in ag and timber losses

\*Presidential Declared Disasters

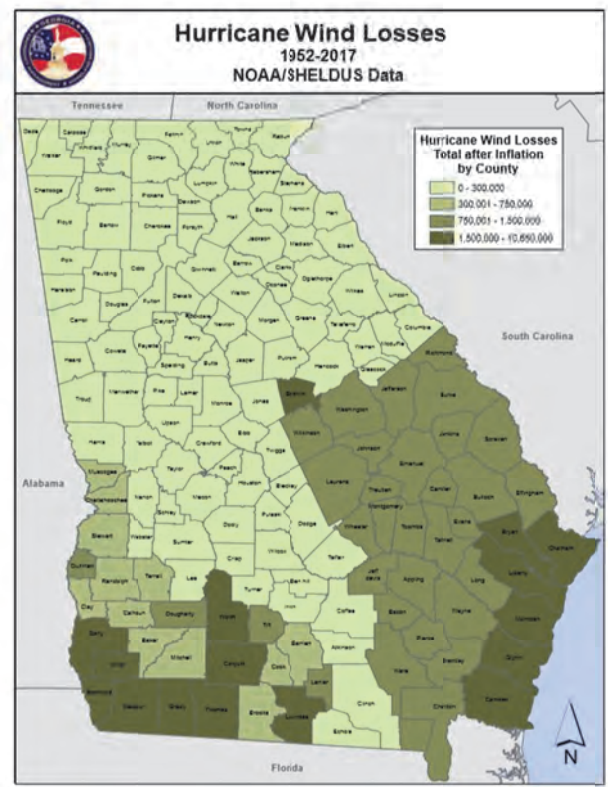
The hazard event risk analyses take into account the recurrence interval of the hazards. Because the historical record of tropical cyclonic events is limited and subject to seasonality, a true recurrence interval is unknown and changes yearly (as demonstrated by NWS forecasting). However, using various sources for Georgia's tropical cyclone history (NOAA, SHELDUS), one can estimate that over a 200-year period, around 36 tropical cyclones affected the state (not necessarily a direct hit). This translates to about an 18% chance of a tropical cyclone affecting Georgia per year or approximately one storm every 5.5 years.

Figure 2.9 illustrates the cumulative estimated losses from hurricane wind events in Georgia. Losses from associated hurricane hazards such as flooding, storm surge, and tornadoes are not included in these numbers.

**FIGURE 2.8 HURRICANE WIND EVENTS IN GEORGIA, 1952-2017.**



**FIGURE 2.9 HURRICANE WIND LOSSES IN GEORGIA, 1952-2017.**



**TABLE 2.12 HURRICANE WIND INTENSITY SCALE**

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
<b>1</b>	74-95 mph 64-82 kt 119-153 km/h	<b>Very dangerous winds will produce some damage:</b> 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.
<b>2</b>	96-110 mph 83-95 kt 154-177 km/h	<b>Extremely dangerous winds will cause extensive damage:</b> 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.
<b>3</b> (major)	111-129 mph 96-112 kt 178-208 km/h	<b>Devastating damage will occur:</b> 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.
<b>4</b> (major)	130-156 mph 113-136 kt 209-251 km/h	<b>Catastrophic damage will occur:</b> 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.
<b>5</b> (major)	157 mph or higher 137 kt or higher 252 km/h or higher	<b>Catastrophic damage will occur:</b> A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. 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.

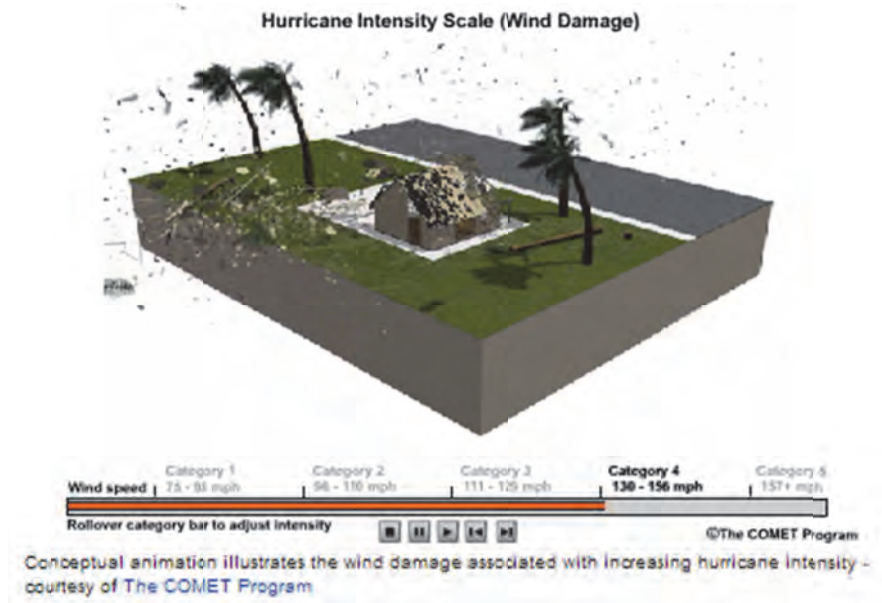
Saffir-Simpson Hurricane Scale.

Source: NOAA National Hurricane Center, <http://www.nhc.noaa.gov/aboutsshws.php>



**FIGURE 2.10 HURRICANE INTENSITY SCALE**

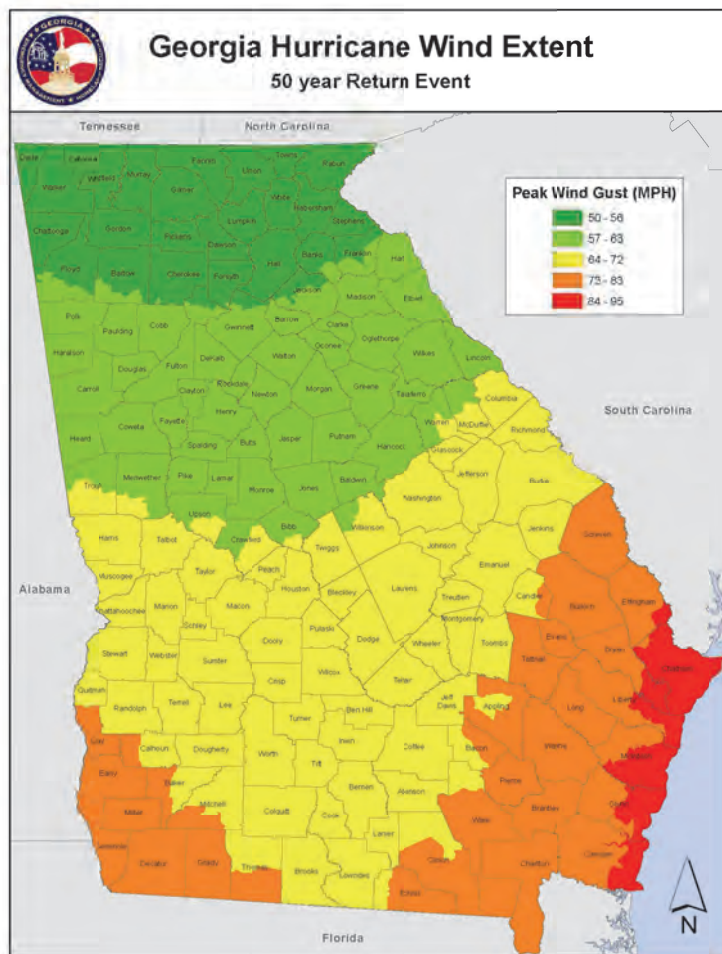
Source:



[http://www.nhc.noaa.gov/pdf/sshws\\_table.pdf](http://www.nhc.noaa.gov/pdf/sshws_table.pdf).

[https://www.nhc.noaa.gov/animations/images/hurricane\\_winddamage.swf](https://www.nhc.noaa.gov/animations/images/hurricane_winddamage.swf)

**FIGURE 2.11 GEORGIA HURRICANE WIND EXTENT**



The best available method for determining potential extent or magnitude of a future hurricane wind event is to review historical records. Based on the hazard history for Georgia, the potential extent for a future hurricane wind event in Georgia is a Category 4 Hurricane producing maximum sustained winds of up to 156 miles per hour. The graphic in Figure 2.10 provides a simulation of damages to a wood-frame structure from winds that are approximately 130 mph (Category 4 Hurricane). The animated graphic and additional information on the Hurricane Intensity Wind Scale can be viewed at

[https://www.nhc.noaa.gov/animations/images/hurricane\\_winddamage.swf](https://www.nhc.noaa.gov/animations/images/hurricane_winddamage.swf)

[http://www.nhc.noaa.gov/pdf/sshws\\_table.pdf](http://www.nhc.noaa.gov/pdf/sshws_table.pdf).

The map in Figure 2.11 is based on data available from HAZUS-MH. It provides estimates of hurricane peak wind gust that have a 2% chance of occurring in any given

year or, statistically, once every 50 years. Peak wind gusts are hurricane winds which maintain a specific velocity for 3 seconds. HAZUS uses peak wind gust in its loss estimation because these higher velocity winds can produce the greatest amount of damage. There is no direct correlation between maximum sustained winds (which determines Category) and peak wind gusts.

### **Impact from Climate Change**

It is anticipated that climate change could impact multiple characteristics of hurricanes. As the global temperature warms, the overall intensity of hurricane winds may increase by approximately 3% by the year 2100. However, this may be offset by an anticipated moderate decrease (~25%) in the overall number of storms. Hurricanes may form farther away from North America, and curve northeast slightly more often, resulting in fewer land-falling events along the North American coastline. The impacts on the storm surge and flooding components of hurricanes are discussed in later sections.



## 2.5.2 Coastal Hazards

### Associated Hazards:

Tropical cyclones, hurricanes, tropical storms, tropical depressions, coastal storms, coastal winter storms, storm surge, coastal flooding

Priority	Rank
High	5

This section includes a broad discussion of coastal hazards, including storm surge, coastal flooding, high surf, and abnormal tides.

### **Hazard Description**

The NHC defines *storm surge* as “an abnormal rise in sea level accompanying a hurricane or other intense storm, and whose height is the difference between the observed sea surface and the level that would have occurred in the absence of the cyclone.” Storm surge that is produced by a tropical cyclone is a function of both geography and the cyclone’s characteristics. Tropical cyclone characteristics affecting storm surge values include the intensity of the hurricane (strength of the winds and central pressure), angle of approach, and forward speed. Geographic characteristics that affect the extent of storm surge include bathymetry (underwater terrain), slope of the continental shelf, roughness of the continental shelf, shape of the coastal region, and existence of natural or man-made barriers.

The overall observed height of water that will impact a region from a tropical cyclone is referred to as the storm tide. *Storm tide* is the actual level of the sea water resulting from the astronomical tide combined with the storm surge. The value of a storm tide includes the storm surge created by the tropical cyclone and the tidal variations that exist in a region. Along the Georgia Coast, the tidal variation or total height difference between low tide and high tide can be as much as 10 feet (5 feet above sea level during high tide, and 4.5 feet below sea level during low tide) during spring tides. Compounding the destructive potential of a storm tide is the occurrence of wind-driven waves. These large waves can reach heights of 10 feet and exist on top of the rising waters as hurricane force winds blow across the surface of the ocean.

Hurricanes primarily occur during hurricane season, which spans June 1 through November 30, although hurricanes have been known to form outside of the official hurricane season. The official hurricane season accounts for 95% of observed activity; therefore, on average, only 5% of hurricanes form outside of hurricane season.

While a tropical cyclone may show signs of approach up to days before the storm peaks, the storm surge will often appear somewhat suddenly. Depending on the size and strength of the storm, the surge can reach inland for miles along a vast span of coastline. This rapid rate of onset is the major contributor to the many deaths associated with storm surge. The duration of the surge event depends on the depth of the surge and other environmental factors such as drainage capability. The waters from the surge may remain for days in certain areas. The frequency of storm surges of a particular magnitude greatly depends on the frequency of tropical cyclones with the ability to produce the surge.

It should be noted that tropical cyclones are not the only type of storms that can cause destructive storm surge. Although less common in Georgia, nor’easters and strong winter storms can result in elevated water

levels. While not as high at their peak, surges from these events can be more destructive over a sustained period of time.

*Coastal flooding* is defined as flooding of coastal areas not caused by tropical cyclone events. Coastal flooding is caused by strong, persistent onshore wind, high astronomical tide, and/or low atmospheric pressure, and it results in damage, erosion, flooding, fatalities, or injuries. *Coastal areas* are defined as those portions of coastal land zones adjacent to the waters and bays of the oceans.

*High surf* is defined as large waves breaking on or near shore, resulting from swell spawned by a distant storm or from strong onshore winds, causing a fatality, injury, or damage. In addition, if accompanied by anomalous astronomical high tides, high surf can produce beach erosion and possible damage to beachfront structures. High surf conditions are usually accompanied by rip currents and near-shore breaks.

## Profile

No major hurricanes have made landfall along the Georgia Coast since 1898; therefore, the historical data that can be used for comprehensive risk analysis of storm surge are limited. Table 2.13 describes notable storm surge events that have affected Georgia since the early 1800s. This list only includes hurricanes with recorded storm tide elevations. Other hurricanes during this period may have produced storm surge or coastal flooding, but no storm tide records are available. The greatest extent of storm surge was associated with a Category 4 hurricane in September 1813. According to Table 2.9 in Section 2.5.1, the recurrence interval for a major hurricane making landfall in Georgia is approximately once every 36 years.

**TABLE 2.13 NOTABLE STORM SURGE EVENTS IN GEORGIA FROM TROPICAL CYCLONES**

Date	Event	Description of Impact on Georgia
September 7-8, 1804	"Great Gale of 1804"	St. Simons Island was flooded with water 7' above normal. The tide rose 10' above MSL on the Savannah waterfront. Severely flooded Pablo Creek (currently the intracoastal waterway). More than 500 persons drowned.
September 16-17, 1813	Category 3-4 Hurricane	Storm surge of at least 19 feet above Mean Low Water (MLW)
September 14-15, 1824	Major Hurricane	Exceeded 1804 storm in flooding and damage. St. Simons Island completely overflowed.
September 8, 1854	Category 3 Hurricane	Fort Pulaski- storm tide elevation 10.50 feet above normal.
August 27, 1881	Hurricane	Fort Pulaski- storm tide level 11.57 feet above normal. Isle of Hope- 11.82 feet above normal
August 27, 1893	Category 3 Hurricane	Fort Pulaski- storm tide elevation between 12-13 feet above normal. Heavy storm surge of approximately 16 feet in other areas.
October 2, 1898	Category 4 Hurricane	Hutchinsons Island, opposite Savannah, was completely inundated to a depth of 4 to 8 feet. Campbell Island, near Darien, GA, was inundated, while Darien reported a tidal wave about 13 feet above mean high water mark and Sapelo Island, GA, reported about 18 feet. This hurricane caused 179 deaths and damage was estimated at around \$2.5 million. 16 foot storm surge in downtown Brunswick.

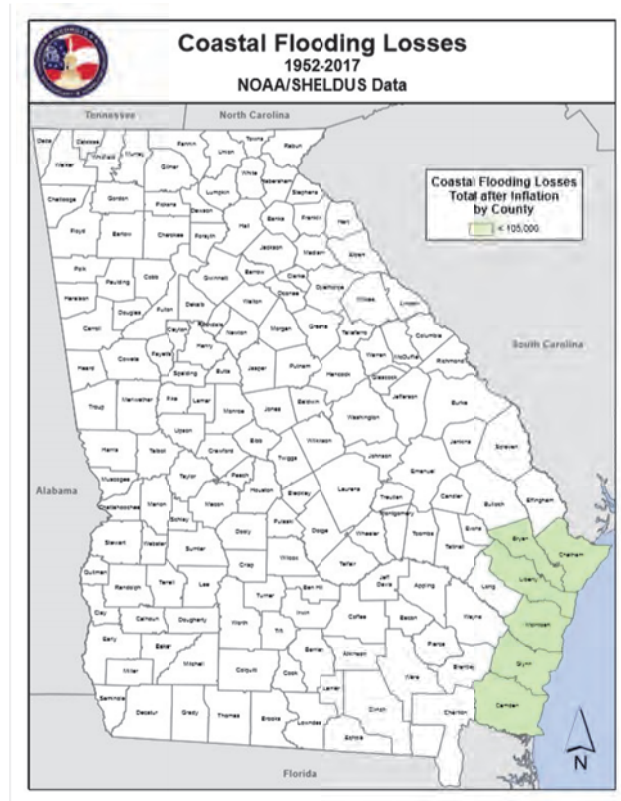
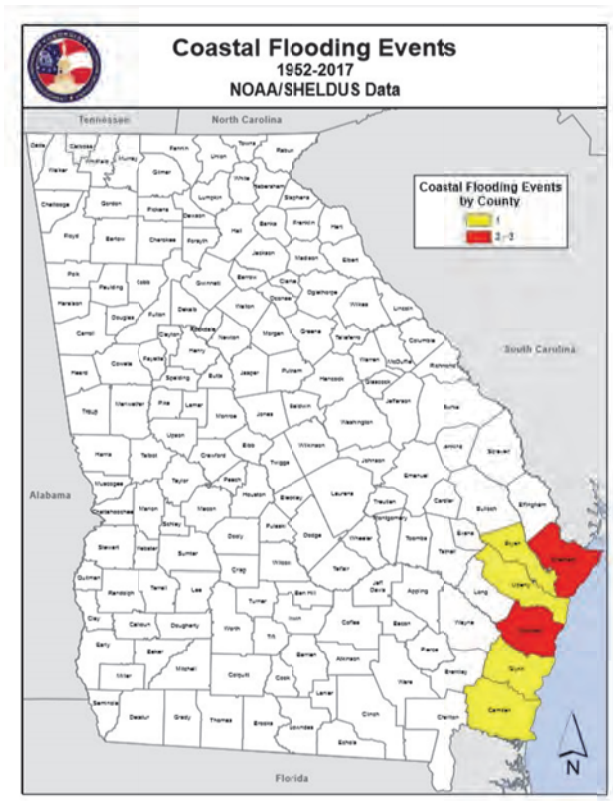
October 14, 1947	Hurricane	High tides along the Georgia and South Carolina coasts ranged from 12 feet above mean low tide at Savannah Beach, GA, and 9.6 feet at St. Simons Island near Brunswick, GA.
September 4, 1979	Hurricane David	Storm surge of 3-5 feet and heavy surf
October 8-9, 2016	Hurricane Matthew	DR 4284; Storm surge of 2-8 feet along the entire Georgia coast, including surge of 7.5 feet at Fort Pulaski.
September 11-13, 2017	Hurricane Irma	DR 4338; Storm surge of 4-8 feet along the entire Georgia coast, including surge of 5 feet at Fort Pulaski, compounded by a rising tide resulting in the second highest water level on record.

SHELDUS and NCEI data include information on some coastal flooding events. Four counties have experienced one coastal flooding incident, while two counties reported more than one event between 1952 and 2017. The NCEI narratives describe these events as not associated with storms but rather attribute them to unusual tidal events. Coastal flooding was minor, and beach erosion was the most substantial impact.

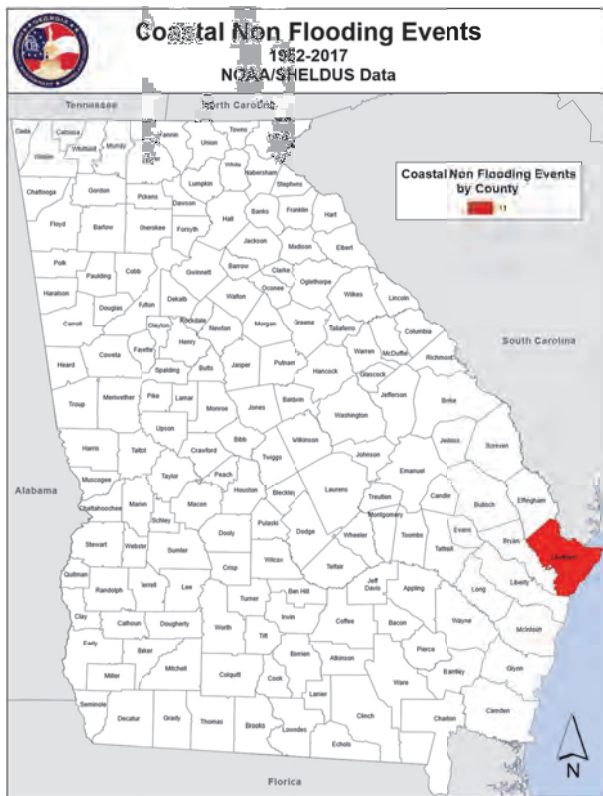
Figures 2.12 and 2.13 show the location of these coastal flooding events and the losses associated with them, respectively.

**FIGURE 2.12 COASTAL FLOODING EVENTS  
IN GEORGIA, 1952 - 2017**

**FIGURE 2.13 COASTAL FLOODING LOSSES  
IN GEORGIA, 1952-2017**



**FIGURE 2.14 COASTAL NON-FLOODING EVENTS IN GEORGIA, 1952-2017**



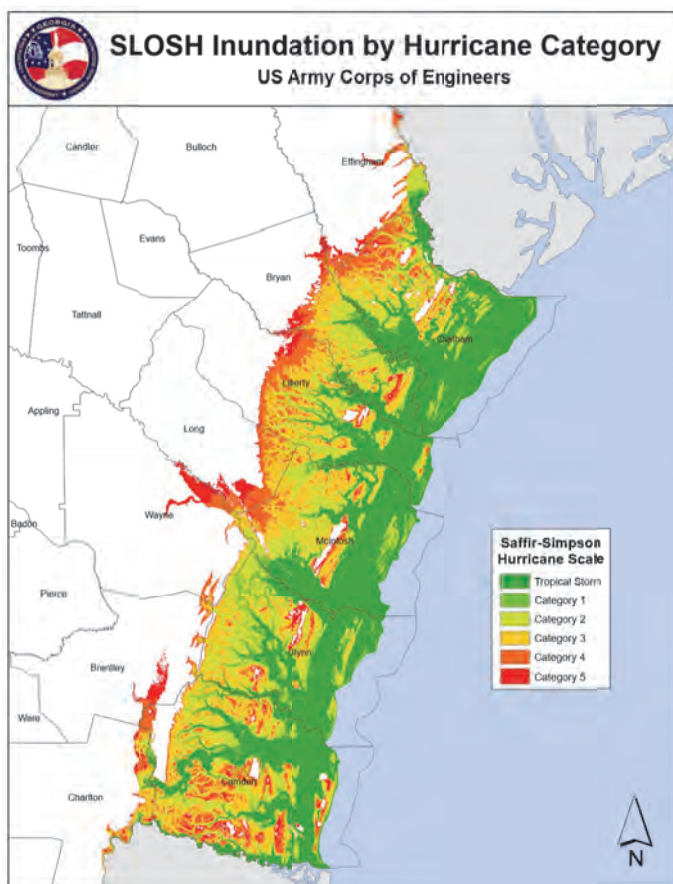
Figures 2.14 and 2.15 reflect rip current and high tide events that have occurred in Chatham County. Between 2005 and 2016, there were 11 occurrences, resulting in 12 injuries and 5 deaths. While these were not flood events, the State did incur some costs in repairing beach erosion.

**FIGURE 2.15 COASTAL NON-FLOODING LOSSES IN GEORGIA, 1952-2017**





**FIGURE 2.16 MODEL OF POTENTIAL STORM SURGE INUNDATION BY HURRICANE CATEGORY**



The Sea, Lake, and Overland Surges from Hurricanes (SLOSH) is a deterministic model based on historical, hypothetical, or predicted hurricane data (pressure, size, forward speed, track, and wind speed) that estimates storm surge heights at particular locations when impacted by a certain magnitude storm. The surge levels are defined by the corresponding category of hurricane on the Saffir-Simpson Scale. The areas inundated by a Category 4 or 5 hurricane are combined due to their decreased probability of occurrence. Figure 2.16 shows approximate SLOSH inundation areas along the Georgia coastline for Category 1–5 hurricanes and tropical storms. The exact heights of the surge are not noted because horizontal positional accuracy is unknown due to a lack of reliable surge data in Georgia.

Although the SLOSH-based hazard scores stop at the inland borders of the six coastal counties, strong hurricanes can drive storm surge farther inland to other noncoastal counties. This is not represented on the maps because the underlying data does not include information related to counties beyond the coast. Also, the SLOSH model does not account for any barriers to the storm surge such as Interstate 95 acting as a berm. Figure 2.16, however, offers the best available information.

### Impact from Climate Change

It is anticipated that climate change could impact multiple characteristics of hurricanes. As the global temperature warms, the overall intensity of hurricane winds may increase by approximately 3% by the year 2100. However, this may be offset by an anticipated moderate decrease (~25%) in the overall number of storms. Hurricanes may form farther away from North America, and curve northeast slightly more often, resulting in fewer land-falling events along the North American coastline.

As climate change continues and sea level rise occurs, coastal areas of Georgia will be more at risk. Tidal cycles will not grow more or less intense, but with a higher mean sea level, the same strength of tide could result in higher than historically normal tide levels.

The state of Georgia has scientific data that demonstrates the need to plan for an increase in Sea Level Rise at a minimum rate of 1 meter for the next 100 years. This historical data comes from NOAA's tidal gage at Fort Pulaski, GA. The mean sea level trend is 3.23 millimeters/year with a 95% confidence interval of +/- 0.28 mm/yr based on monthly mean sea level data from 1935 to 2016 which is equivalent to a change of 1.06 feet in the past 100 years

The Department of Natural Resources Coastal Resources Division conducted an analysis of coastal flooding, using HAZUS-MH, with a one meter sea level rise for the 11 counties closest to the coast, those

being the six coastal counties and five counties one county inland from the coast, based on the following hurricane scenarios:

- A category 1 hurricane coming ashore near Brunswick, and St Simons Island with typical storm surge and no sea level rise.
- A category 1 hurricane coming ashore near Brunswick, and St Simons Island with typical storm surge after 1 meter sea level rise.
- A category 4 hurricane traveling along the coast, skirting the entire coast, with no sea level rise.
- A category 4 hurricane traveling along the coast, skirting the entire coast, after 1 meter sea level rise.
- Category 5 hurricane coming ashore near Sapelo Island with worst case winds and storm surge with no sea level rise.
- Category 5 hurricane coming ashore near Sapelo Island with worst case winds and storm surge after 1 meter sea level rise.

While there are no projected dates or timeframes for the different scenarios, the 1 meter sea level rise is based on studies projecting a 1 meter rise in sea level by the year 2100. The study used existing development for all scenarios. Notably, the study also includes a category 1 hurricane similar to the 2<sup>nd</sup> scenario, but with “worst case” storm surge and wind, but there was no “worst case” category 1 scenario with no sea level rise, so no comparison can be made.

Table 2.14 shows the increased economic impacts from a 1 meter (3.3') rise in sea levels according to the study. The full report from the study is located in Appendix D.

**TABLE 2.14 SEA LEVEL RISE COMPARISON OF ECONOMIC IMPACTS**

Scenario	Building Loss	Content Loss	Inventory Loss	Total Loss
Category 1-no sea level rise	\$299,662,000	\$149,372,000	\$445,000	\$449,479,000
Category 1 with sea level rise	\$2,073,733,000	\$1,353,473,000	\$9,376,000	\$3,436,582,000
<b>Difference</b>	<b>\$1,774,071,000</b>	<b>\$1,204,101,000</b>	<b>\$8,931,000</b>	<b>\$2,987,103,000</b>
<b>Percent Change</b>	<b>592%</b>	<b>806%</b>	<b>2007%</b>	<b>665%</b>
Category 4-no sea level rise	\$20,522,737,000	\$10,771,808,000	\$151,524,000	\$31,446,070,000
Category 4 with sea level rise	\$22,930,984,000	\$13,076,474,000	\$213,430,000	\$36,220,888,000
<b>Difference</b>	<b>\$2,408,247,000</b>	<b>\$2,304,666,000</b>	<b>\$61,906,000</b>	<b>\$4,774,818,000</b>
<b>Percent Change</b>	<b>12%</b>	<b>21%</b>	<b>41%</b>	<b>15%</b>
Category 5-no sea level rise	\$854,855,000	\$405,460,000	\$3,986,000	\$1,264,301,000
Category 5 with sea level rise	\$2,319,754,000	\$1,373,858,000	\$8,848,000	\$3,701,960,000
<b>Difference</b>	<b>\$1,464,899,000</b>	<b>\$968,398,000</b>	<b>\$4,862,000</b>	<b>\$2,437,659,000</b>
<b>Percent Change</b>	<b>171%</b>	<b>239%</b>	<b>122%</b>	<b>193%</b>

In addition to the above, the Information Technology Outreach Service of the University of Georgia conducted a HAZUS-MH analysis of State owned and operated facilities in the six coastal counties comparing the potential losses to those facilities with current sea levels to the projected 1-meter sea level

rise. Table 2.15 below shows the results of those analyses. According to the analysis, there is no change in the exposure, but there are slightly higher building and content losses from a 1 meter sea level rise.

**TABLE 2.15 SEA LEVEL RISE IMPACTS ON STATE FACILITIES**

<b>Study Name</b>	<b>Exposure at Risk</b>	<b>Building Losses</b>	<b>Combined Building and Content Losses</b>	<b>Building Loss Ratio</b>
Bryan - No Sea Level Rise	\$12,745,000	\$818,000	\$3,084,000	6.4
Bryan - Sea Level Rise	\$12,745,000	\$840,000	\$3,127,000	6.6
Camden - No Sea Level Rise	\$7,918,000	\$281,000	\$811,000	3.5
Camden - Sea Level Rise	\$7,918,000	\$266,000	\$804,000	3.4
Chatham - No Sea Level Rise	\$431,163,000	\$21,134,000	\$27,552,000	4.9
Chatham - Sea Level Rise	\$431,163,000	\$22,327,000	\$29,090,000	5.2
Glynn - No Sea Level Rise	\$155,230,000	\$9,478,000	\$22,866,000	6.1
Glynn - Sea Level Rise	\$155,230,000	\$10,460,000	\$25,011,000	6.7
Liberty - No Sea Level Rise	\$1,759,000	\$109,000	\$250,000	6.2
Liberty - Sea Level Rise	\$1,759,000	\$117,000	\$264,000	6.7
McIntosh - No Sea Level Rise	\$44,818,000	\$2,024,000	\$3,962,000	4.5
McIntosh - Sea Level Rise	\$44,818,000	\$2,129,000	\$4,151,000	4.8
Total all Counties - No Sea Level Rise	\$653,633,000	\$33,844,000	\$58,525,000	5.2
Total all Counties - Sea Level Rise	\$653,633,000	\$36,139,000	\$62,447,000	5.5
Difference	\$0	\$2,295,000	\$3,922,000	.3



## 2.5.3 Wind

### Associated Hazards:

Thunderstorms, downbursts,  
gustnadoes

Priority	Rank
Medium	9

### **Hazard Description**

The National Centers for Environmental Information NCEI divides wind events into several types, including High Wind, Strong Wind, Thunderstorm Wind, Tornado, and Tropical Cyclone. For the purpose of this risk assessment, the Wind Hazard includes data related to high wind, strong wind, and thunderstorm wind events. Tropical cyclone wind is covered under the Hurricane Wind section. Wind hazards related to tornadoes and winter storms are addressed as individual hazards separately in this risk assessment under the relevant subsections. The following definitions come from the NCEI Storm Data Preparation document.

**High Wind:** Sustained non-convective winds of 35 knots (40 mph) or greater lasting for one hour or longer, or winds (sustained or gusts) of 50 knots (58 mph) for any duration (or otherwise locally/regionally defined), on a widespread or localized basis.

**Strong Wind:** Non-convective winds gusting less than 50 knots (58 mph), or sustained winds less than 35 knots (40 mph) resulting in a fatality, injury, or damage.

**Thunderstorm Wind:** Winds, arising from convection (occurring within 30 minutes of lightning being observed or detected), with speeds of at least 50 knots (58 mph), or winds of any speed (non-severe thunderstorm winds below 50 knots) producing a fatality, injury, or damage.

*Downbursts*, including dry or wet microbursts or macrobursts, are classified as Thunderstorm Wind events. In some cases, the downburst may travel several miles away from the parent thunderstorm, or the parent thunderstorm may have dissipated.

A *gustnado* is a small and usually weak whirlwind that forms as an eddy in thunderstorm outflows. It does not connect with any cloud-base rotation and is not a tornado. Since their origin is associated with cumuliform clouds, gustnadoes are classified as Thunderstorm Wind events.

### **Profile**

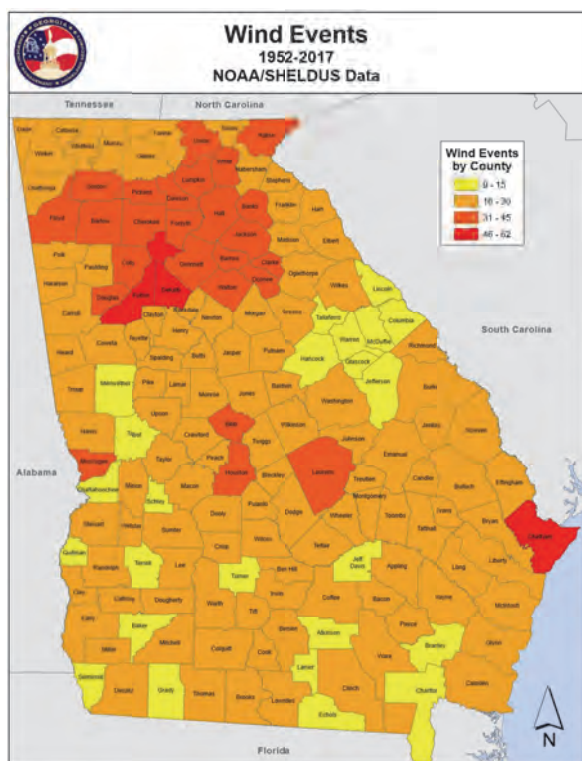
Figure 2.17 shows historical wind events in Georgia from 1952 to 2017 based on SHELDUS/NCEI data. The majority of events have taken place in the northern portion of the state. Not surprisingly, the historical losses map based on SHELDUS/NCEI data in Figure 2.18 mirrors that of Figure 2.16: the majority of losses have occurred in the areas with the most wind events.

To determine the potential extent, or strength, of the hazard, the planning staff looked at two factors: the average wind speeds and the potential wind gusts. Figure 2.19 shows the average hazard score by county for wind risk. The hazard scores, which range from 1 to 5, correspond to wind speeds, as shown in Table 2.16. The highest risk areas are located along the Atlantic Coast and the southern portion of the state. The wind risk map, Figure 2.20, illustrates the wind gust speeds that have a return interval of 50 years for the counties in Georgia.

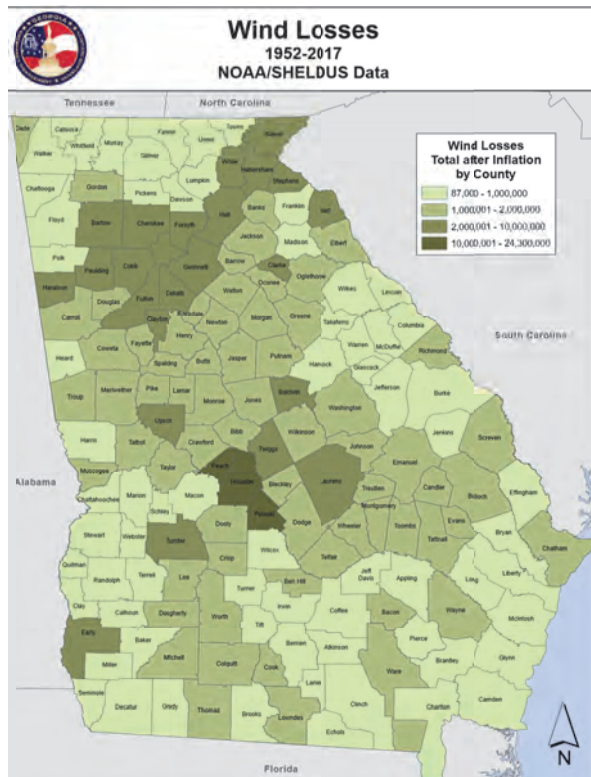
Figure 2.20 also partially addresses the potential for future events by identifying the wind gusts that occur approximately every 50 years. Based on the 20 year record from SHELDUS and NOAA, the State of

Georgia has experienced approximately 45 wind events per year, which equates to a greater than 100% chance of an event occurring each year.

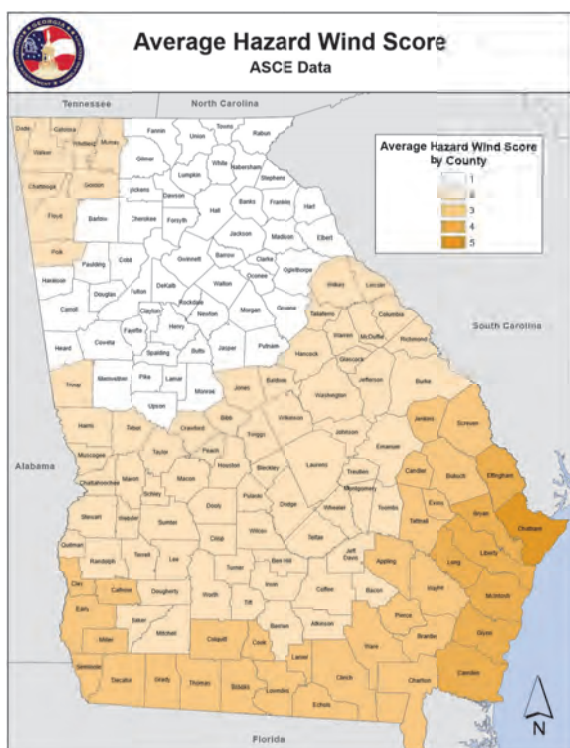
**FIGURE 2.17 WIND EVENTS IN GEORGIA, 1952–2017**



**FIGURE 2.18 WIND LOSSES IN GEORGIA, 1952–2017**



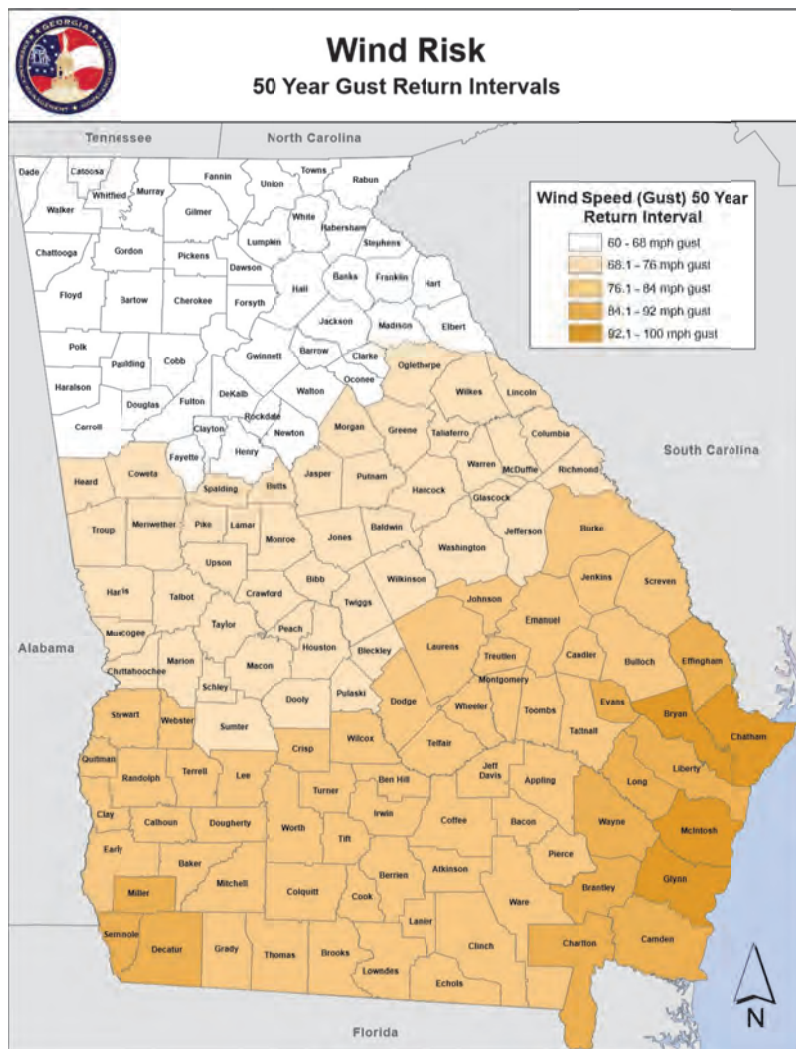
**FIGURE 2.19 AVERAGE HAZARD WIND SCORE IN GEORGIA, BY COUNTY**



**TABLE 2.16 ASSOCIATION BETWEEN WIND SPEED AND HAZARD SCORES**

Hazard Score	Wind Speeds
1	<90 mph gust
2	91 – 100 mph gust
3	101 – 110 mph gust
4	111 – 120 mph gust
5	>120 mph gust

**FIGURE 2.20 WIND RISK IN GEORGIA, 50 YEAR GUST RETURN INTERVALS**



### **Impacts from Climate Change**

How climate change affects the intensity and frequency of thunderstorm winds is uncertain and is being studied intensively. There has been a sizable upward trend in the number of storms causing large financial and other losses. However, there are societal contributions to this trend, such as increases in population and wealth. For Georgia, until the impacts of climate change upon severe weather are better understood, the anticipated frequency and intensity of them will likely remain close to historical averages. However, damage to life and property will likely increase due to population and financial growth.

## 2.5.4 Severe Weather

### Associated Hazards:

Thunderstorms, hail, lightning

Priority	Rank
High	4

### **Hazard Description**

This section provides general and historical information about the main elements of severe weather: thunderstorms, lightning, and hail. Other elements of severe weather such as tornadoes and wind are addressed in other sections of this chapter.

Thunderstorms are formed when moist air near the earth's surface is forced upward through some catalyst (convection or frontal system). As the moist air rises, the air condenses to form clouds. Because condensation is a warming process, the cloud continues to expand upward. When the initial updraft is halted by the upper troposphere both an anvil shape and a downdraft form. This system of up-drafting and down-drafting air columns is termed a "cell."

As the process of updrafts and downdrafts feeds the cell, the interior particulates of the cloud collide and combine to form rain and hail, which falls when the formations are heavy enough to push through the updraft. The collision of the water and ice particles within the cloud creates a large electrical field that must discharge to reduce charge separation. This discharge is the lightning that occurs from cloud to ground or cloud to cloud in the thunderstorm cell. In the final stage of development, the updraft weakens as the downdraft-driven precipitation continues until the cell dies.

Each thunderstorm cell has the ability to extend several miles across its base and to reach 40,000 feet in altitude. Thunderstorm cells can compound and move abreast to form a squall line of cells, extending farther than any individual cell's potential.

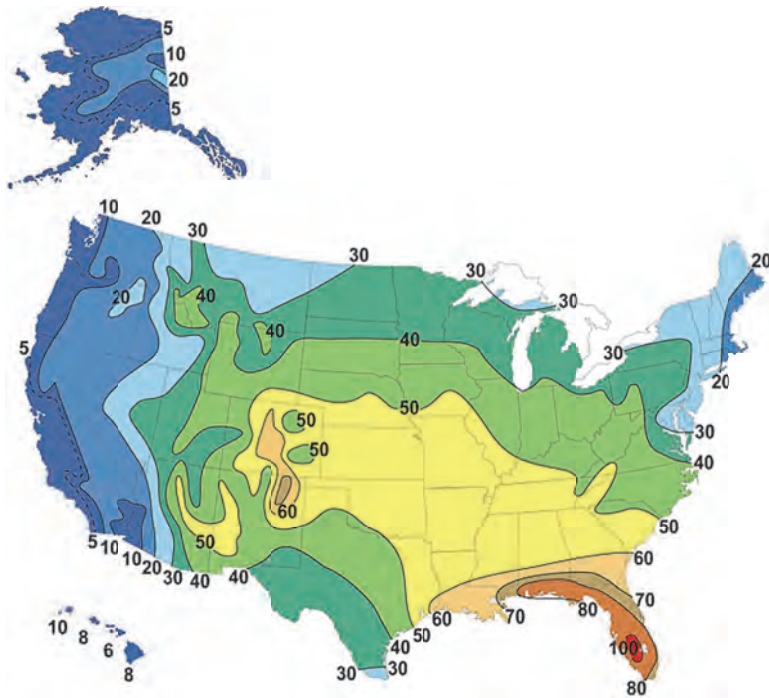
Thunderstorms exhibit no true seasonality and can occur throughout the year. Convectively driven systems dominate in the summer, and frontal driven systems dominate during the other seasons. The rate of onset is rapid in that a single cell endures only 20 minutes. However, various cells in different stages of development can form a thunderstorm that lasts up to a few hours as it moves across the surface. Georgia experiences thunderstorms an average of 50 to 80 days per year.

The NWS defines thunderstorms in terms of severity. A severe thunderstorm produces winds greater than 57 miles per hour and/or hail greater than 1 inch in diameter and/or a tornado. The NWS chose these measures of severity as parameters for storms capable of producing considerable damage. Therefore, these are measures of magnitude that may project intensity.

Lightning occurs when the difference between the positive and negative charges of the upper layers of the cloud and the earth's surface becomes great enough to overcome the resistance of the insulating air. The current flows along the forced conductive path to the surface (in cloud to ground lightning) and reaches up to 100 million volts of electrical potential. The Vaisala U.S. National Lightning Detection Network, from 2008 to 2017, recorded 3-20 lightning flashes per square mile per year throughout the State of Georgia. (Source: [https://www.weather.gov/images/safety/NLDN\\_CGFlash08-17-miles.png](https://www.weather.gov/images/safety/NLDN_CGFlash08-17-miles.png)) In Georgia, lightning strikes peak in July, with June and August experiencing the next highest numbers of strikes.



**FIGURE 2.21 AVERAGE NUMBER OF DAYS WITH THUNDERSTORMS, EASTERN UNITED STATES.** Source: NOAA.



Hail is a type of precipitation that forms during the updraft- and downdraft-driven turbulence within the cloud. The hailstones are formed by layers of accumulated ice (with more layers creating larger hailstones) that can range from the size of a pea to the size of a grapefruit. Hailstones span a variety of shapes but usually are spherical. Hail storms mostly endanger crops but have been known to damage automobiles, aircraft, and structures. Hail stones can vary in diameter, and in Georgia hail of up to 2.75 inches has been recorded.

### Profile

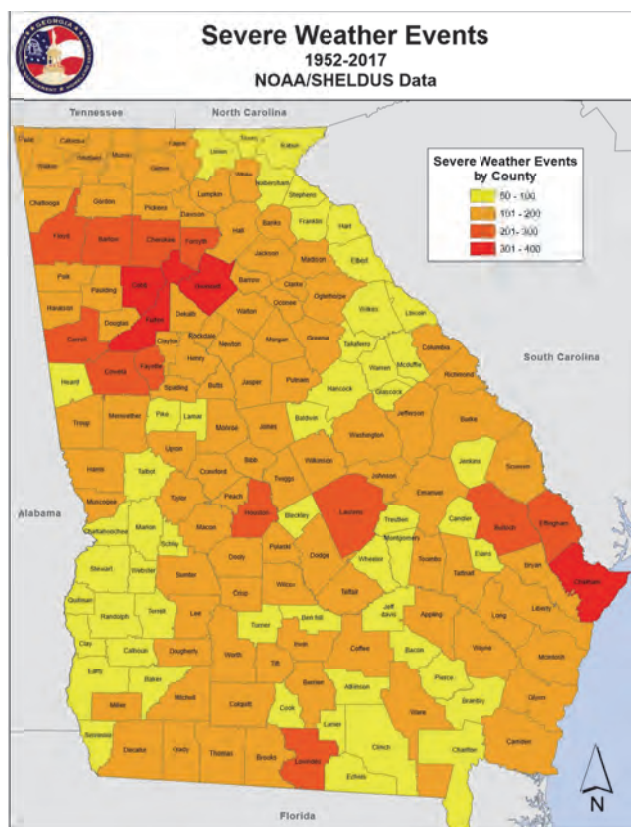
Figures 2.22 and 2.23, respectively, present severe weather (thunderstorms, lightning, and hail) event and loss history based on SHEL DUS/NCEI data. Figure 2.22 shows that from 1952 to 2017 the area around Metro Atlanta experienced the most identified severe weather events. This could be due to urban areas having more valuables to damage and, thus, SHEL DUS/NCEI is more likely to recognize the occurrence as an event. As Figure 2.23 illustrates, the losses stemming from severe weather events can affect rural farm communities to an extent similar to that of urban areas.

While most events related to severe weather are limited in terms of their impact, duration, and spatial extent, the hazard remains one of the most common in the State of Georgia. According to SHEL DUS/NCEI data, an average of 331 severe weather events per year occurred between 1952 and 2017. These events in total have caused 990 injuries, 168 fatalities, and more than \$1.2 billion in damages. Over the period from 1997 to 2017, the historic occurrence jumps to 499 severe weather events per year, which equals a greater than 100% chance of occurrence in any given year.

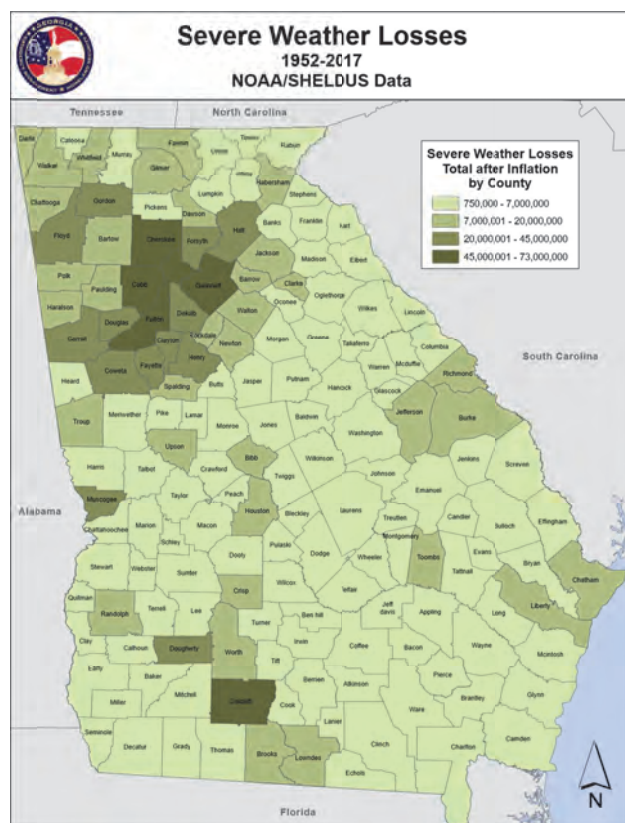
According to the Vaisala U.S. National Lightning Detection Network, from 2008 to 2017 Georgia averaged approximately 641,790 cloud-to-ground lightning flashes per year. While lightning frequently occurs, only 8 deaths were reported in 2008–2017 as a result of lightning, placing Georgia in the top 10 in the United States. However, Georgia is in the top 30 states when comparing lightning deaths to the state's population. (sources: [https://www.weather.gov/media/safety/08-17Fatality\\_Map\\_state.pdf](https://www.weather.gov/media/safety/08-17Fatality_Map_state.pdf), [https://www.weather.gov/media/safety/08-17Flash\\_Density\\_State.pdf](https://www.weather.gov/media/safety/08-17Flash_Density_State.pdf)).

Severe weather is not spatially confined to any particular location in Georgia; therefore, the entire state is equally at risk of severe weather.

**FIGURE 2.22 THUNDERSTORMS/  
LIGHTNING/ HAIL EVENTS IN GEORGIA,  
1952–2017**



**FIGURE 2.23 THUNDERSTORMS/  
LIGHTNING/ HAIL LOSSES IN GEORGIA,  
1952–2017**



### **Impacts from Climate Change**

How climate change affects the intensity and frequency of severe weather, including lightning and hail, is uncertain and is being studied intensively. There has been a sizable upward trend in the number of storms causing large financial, property and other losses. However, there are societal contributions to this trend, such as increases in population and wealth. For Georgia, until the impacts of climate change upon severe weather are better understood, the anticipated frequency and intensity of them will likely remain close to historical averages. However, damage to life and property will likely increase due to population and financial growth.

## 2.5.5 Tornado

### Associated Hazards:

Thunderstorms, tropical cyclones

Priority	Rank
High	1

### **Hazard Description**

A tornado is a violently rotating column of air (seen only when containing condensation, dust, or debris) in contact with the surface of the ground. Exceptionally large tornadoes may not exhibit the classic “funnel” shape but can appear as a large, turbulent cloud near the ground or a large rain shaft. Destructive because of strong winds and windborne debris, tornadoes can topple buildings, roll mobile homes, uproot vegetation, and launch objects hundreds of yards.

Most significant tornadoes (excluding some weak tornadoes and coastal waterspouts) stem from the right, rear quadrant of large thunderstorm systems where the circulation develops between 15,000 and 30,000 feet. As circulation develops, a funnel cloud (rotating air column aloft) or tornado descends to the surface. These tornadoes are typically stronger and longer-lived. The weaker, shorter-lived tornadoes can develop along the leading edge of a singular thunderstorm.

### **FIGURE 2.24 TORNADO CHARACTERISTICS BY STRENGTH.**

**Source: NOAA National Weather Service**



Chuck Doswell III

#### **Weak Tornadoes**

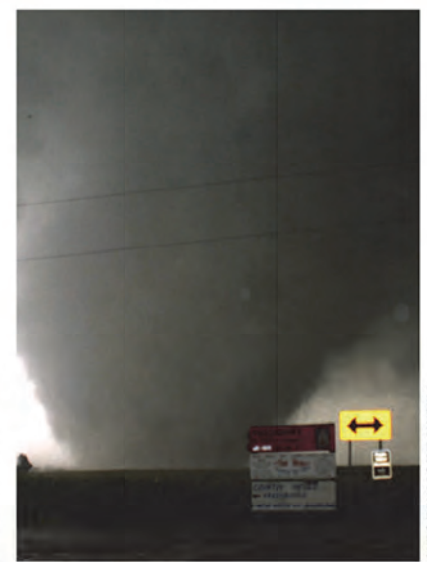
- 88% of all tornadoes
- Less than 5% of tornado deaths
- Lifetime 1 – 10+ minutes
- Winds less than 110 mph
- Produces EF0 or EF1 damage



Wikimedia/Justin Hobson

#### **Strong Tornadoes**

- 11% of all tornadoes
- Nearly 30% of all tornado deaths
- May last 20 minutes or longer
- Winds 111-165 mph
- Produces EF2 or EF3 damage



Wikimedia/Joshua Jane

#### **Violent Tornadoes**

- Less than 1% of all tornadoes
- 70% of all tornado deaths
- Can exceed 1 hour
- Winds greater than 166 mph
- Produces EF4 or EF5 damage



Although tornadoes can occur in most locations, the majority of tornado activity in the United States takes place in the Midwest and Southeast. Within the State of Georgia, tornadoes can occur anywhere. In terms of the continuum of area of impact for hazard events, tornadoes are fairly isolated. Typically ranging from a few hundred feet to one or two miles across, tornadoes affect far less area than larger meteorological events such as hurricanes, winter storms, and severe weather.

An exact season does not exist for tornadoes; however, most occur in early spring to midsummer (February–June). The rate of onset of tornado events is rapid. Typically, the first sign of the tornado is a descending funnel cloud. This sign may be only minutes from the peak of the event, giving those in danger minimal sheltering time. However, meteorological warning systems attempt to afford those in danger more time to shelter. The frequency of specific tornado intensities is undetermined because no pattern seems to exist in occurrence. Finally, the duration of tornado events ranges from the few minutes of impact at a particular location to the actual tornado lasting up to a few hours.

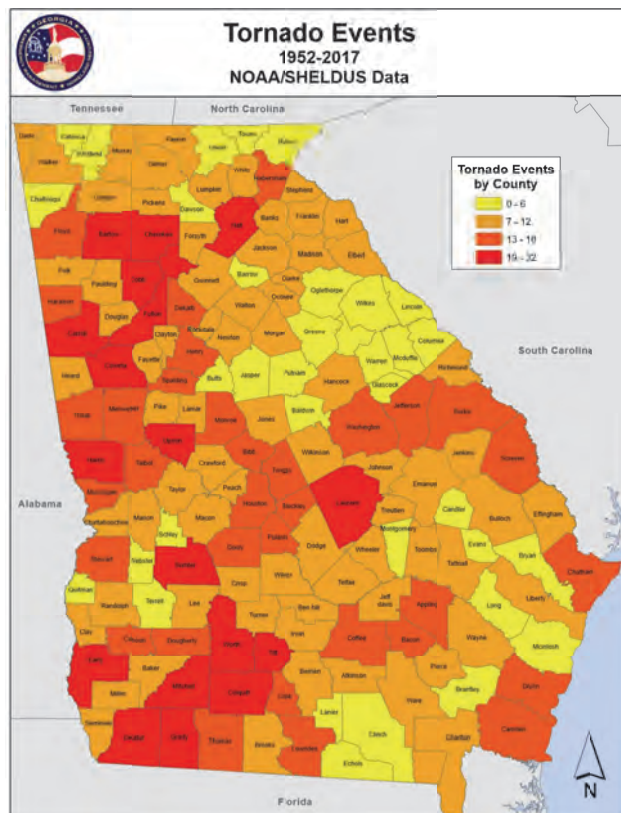
Tornadoes are measured after the occurrence using subjective intensity measures. The Enhanced Fujita Scale (Fujita-Pearson Tornado Classification) describes the damage and then gives estimates of the magnitude of peak 3-second gusts in miles per hour. Table 2.17 lists the rankings on the Enhanced Fujita Scale and the corresponding magnitude and intensity measures.

**TABLE 2.17 ENHANCED FUJITA SCALE**

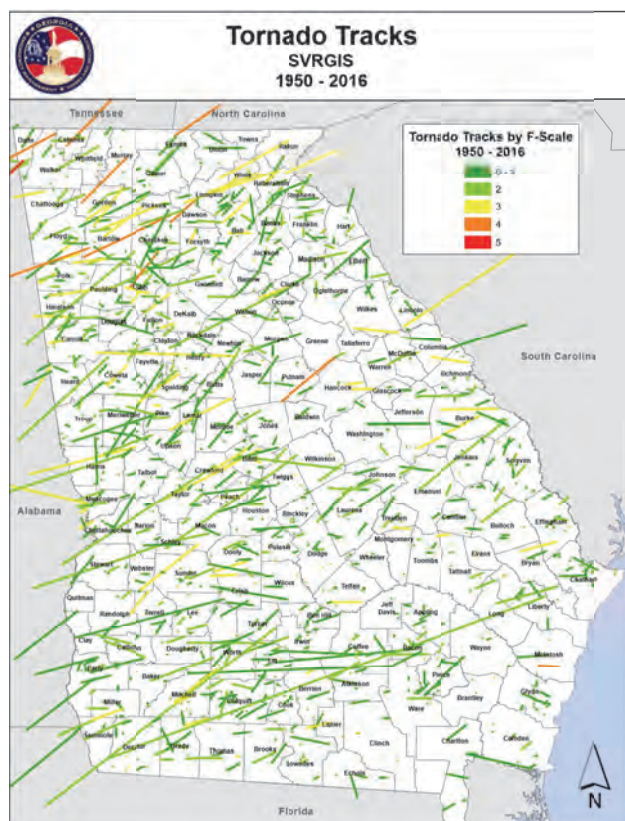
EF Number	3 Second Gust (mph)	Damage
0	65–85	<b>Light damage.</b> Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
1	86–110	<b>Moderate damage.</b> Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
2	111–135	<b>Considerable damage.</b> 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.
3	136–165	<b>Severe damage.</b> 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 blown away some distance.
4	166–200	<b>Devastating damage.</b> Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
5	More than 200	<b>Incredible damage.</b> Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (109 yd); high-rise buildings have significant structural deformation; incredible phenomena occur.

Source: NOAA.

**FIGURE 2.25 TORNADO EVENTS IN GEORGIA, 1952–2017**



**FIGURE 2.27 TORNADO TRACKS IN GEORGIA, 1950–2016**



**FIGURE 2.26 TORNADO LOSSES IN GEORGIA, 1952–2017**

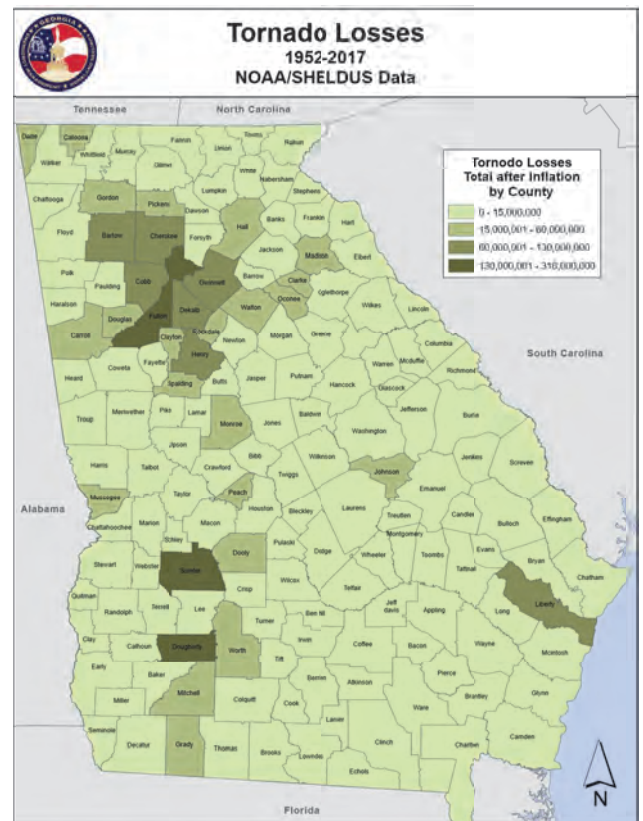


Figure 2.25 illustrates the tornado events per county from 1952 to 2017. Based on this map, counties in Northwest and Southwest Georgia have experienced a higher number of tornado events. However, tornadoes can occur anywhere within the state. In terms of losses associated with these events, Figure 2.26 illustrates that the areas with the most losses from tornadoes exist around the City of Atlanta. This phenomenon is most likely due to the fact urban areas have more potential for loss in terms of property (not necessarily including crop damage).

Table 2.18 details the more notable tornado events that have affected the State of Georgia. The data spans from the early 1900s to the present and includes storms that appear in the historical

record with numerous fatalities or vast damage. The events listed in the table are not a complete history of tornado activity in Georgia, but are a sample meant to demonstrate the ability of tornadoes to impact the State.

The best available information to determine future probability of a tornado event is to review historic frequency. In total, 1,743 tornado events occurred between 1952 and 2017 in Georgia according to SHELDS/NCEI data. This equates to a historic average of approximately 27 events per year. These events have caused a total of 3,189 injuries, 175 fatalities, and more than \$2.4 billion in damages. Moreover, in the most recent 20 year record, there have been 646 events (average 32/year), 1,220 injuries, 83 fatalities and more than \$1.2 billion in damages. Statistically, this equates to a greater than 100% probability of a tornado occurring in any given year. Notably, many tornadoes occur as a part of a larger outbreak of separate tornado events. For example, a weekend long tornado outbreak in January, 2017 included over 40 separate events in one weekend. On the other hand, other years have recorded as few as three occurrences.

NOAA's Severe Weather GIS (SVRGIS) data contain several spatial datasets for tornado events covering the years 1950–2016. Figure 2.27 shows tornado tracks from SVRGIS data. These tracks suggest that tornadoes seem to predominantly travel in a northeasterly direction in the state. These datasets indicate that the highest recorded magnitude tornado event in Georgia is an EF4.

**TABLE 2.18 NOTABLE TORNADO EVENTS IN GEORGIA**

Year	Area Affected	Description
1903	Gainesville Area	200 deaths; 400 injuries; 1,500 homeless
1936	Gainesville Area	203 deaths; >1,000 injuries; 800 homes destroyed
1944	Hall and Franklin Counties	18 deaths
1974	Dawsonville Area	4 deaths
1992*	Lumpkin County	FEMA DR969; F4 tornado; 6 deaths; 170 injuries; >1,000 homes damaged; \$2 million in damages
1993*	Hall County	FEMA DR980; 44 homes damaged; \$2.5 million in damages
1994*	Northwestern Georgia	FEMA DR1020; 19 deaths; >200 injuries; \$67.5 million in damages
1994*	Camden County	FEMA DR1042; F2 intensity

Year	Area Affected	Description
1995*	Albany Area	FEMA DR1076; 36 injuries; 250 buildings damaged
1998*	Hall County & Metro Atlanta	FEMA DR1209; tornadoes causing extensive damage to homes and critical facilities
1999*	Dooly and Candler Counties	FEMA DR1271; tornadoes causing damage to homes, especially in Vienna
2000*	Southwest Georgia	FEMA DR1315; 18 deaths; >100 injuries; \$5 million in damages
2007*	Southwest Georgia	FEMA DR1686; 2 deaths; numerous injuries; hospital destroyed in Sumter County
2008*	Metro Atlanta Area, Including Downtown	FEMA DR1750; 3 deaths; 39 injuries; \$38 million in damages
2008*	Macon and Surrounding Areas and Southeast Georgia	FEMA DR1761; 2 deaths; 25 injuries; \$71.2 million in damages
2011*	North and Central Georgia	FEMA DR1973; 15 tornadoes including one EF4 and four EF3; 15 deaths; 143 injuries; \$167 million in damages
2017*	Southwest Georgia	FEMA DR 4294; Straight line winds/10 tornadoes in SW Georgia; 5 deaths; estimated \$15 million in uninsured losses
2017*	Central and South Georgia	FEMA DR 4297; >30 tornadoes; 16 deaths; estimated \$30 million in uninsured losses

\*Presidential declared disaster

### **Impacts from Climate Change**

How climate change affects the intensity and frequency of severe thunderstorms, causing tornadoes, is being studied intensively. There has been a sizable upward trend in the number of storms causing large financial and other losses. However, there are societal contributions to this trend, such as increases in population and wealth. For Georgia, until the impacts of climate change upon severe weather are better understood, the frequency and intensity of them will likely remain close to historical averages. However, damage to life and property will likely increase due to population and financial growth.

## 2.5.6 Inland Flooding

### Associated Hazards:

Thunderstorms, tropical cyclones,  
dam failure

Priority	Rank
High	2

### **Hazard Description**

According to 44CFR59.1, flooding is a general and temporary condition of partial or complete inundation of normally dry land areas. This can be from the overflow of inland or tidal waters or the unusual and rapid accumulation or runoff of surface waters from any source and any resulting mudslides or mudflows. The causes of flooding include mass sources of precipitation such as tropical cyclonic systems, frontal systems, and isolated thunderstorms combined with other environmental variables such as changes to the physical environment, topography, ground saturation, soil types, basin size, drainage patterns, and vegetative cover. Adverse impacts can include structural damage, temporary backwater effects in sewers and drainage systems, death of livestock, agricultural crop loss, loss of access to critical facilities due to roads being washed-out or overtopped, and unsanitary conditions resulting from materials being deposited during recession.

Floods are loosely classified as either coastal or riverine. Coastal flooding is addressed in Section 2.5.2 Coastal Hazards. Riverine flooding occurs from inland water bodies such as streams and rivers. Riverine flooding is often classified as either typical or flash based on the rate of onset. The former is slow to build, peak, and recede, often allowing sufficient time for evacuations. The latter type of riverine flooding is referred to as a “flash” flood, which rapidly peaks and recedes, giving insufficient time for evacuations. The more dangerous flash floods are common to the mountainous, impermeable surfaces of northern Georgia. Urban flash flooding can also present dangerous conditions, especially with roads washing out.

On a broad scale, flooding can occur around any body of water or low-lying surface given enough precipitation or snow melt. The spatial extent of the flooding event depends on the amount of water overflow but can usually be mapped because of existing floodplains (areas already prone to flooding).

In Georgia, flooding is highly dependent on precipitation amounts and is highly variable within the state. Georgia’s climate is primarily affected by latitude, proximity to the Atlantic Ocean and Gulf of Mexico, and topography. Certain seasons are more prone to flooding based on the likelihood of excessive precipitation. Typically, the wet seasons are winter, early spring, and midsummer, and the drier seasons are fall and late spring. However, this varies across the state with the northern portion receiving maximum precipitation amounts during the winter as a result of frontal systems, whereas Central and Coastal Georgia receive maximums in the mid to late summer as a result of tropical cyclones and convective thunderstorm activity.

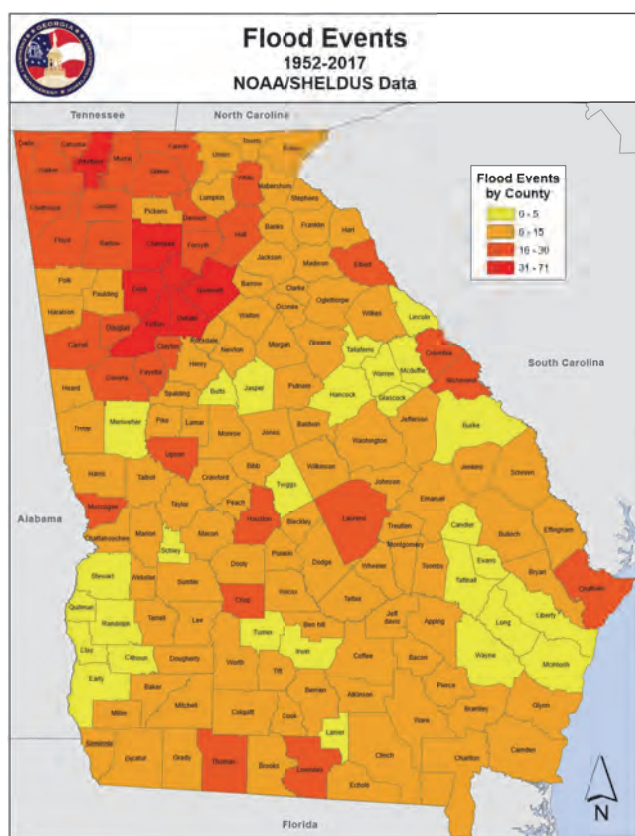
### **Profile**

The rate of onset and duration of flooding events depends on the type of flooding (typical flood or flash flood). The frequency measure for flooding events typically refers to the 1% annual chance flood, often called the 100 year flood. This means every year there is a 1% chance of occurrence of this magnitude of flood. This magnitude of flood is often mapped as 100 year floodplains, which usually shows those areas at substantial risk to some severe flooding. The Atlanta area likely has a higher number of events due to growth and development within floodplains in the region prior to floodplain mapping efforts that began in the 1970s. As a result, land and structures in this region are more likely to experience flood events.

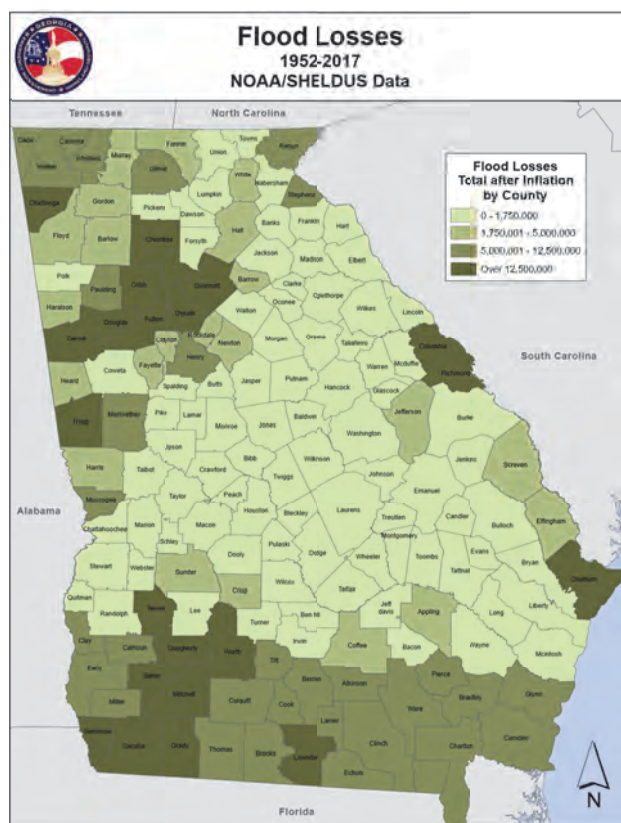


Figure 2.28 maps the flooding hazard event history in the State of Georgia from 1952 to 2017. Figure 2.29 maps the associated losses by county. Although the event totals pale compared to more frequent events such as severe weather, the total losses speak to the impact of flooding on Georgia. The regions with major losses from flooding include the Atlanta area, the Augusta area, and southwestern Georgia. However, the entire State of Georgia has experienced loss from flooding.

**FIGURE 2.28 FLOOD EVENTS IN GEORGIA, 1952–2017**



**FIGURE 2.29 FLOOD LOSSES IN GEORGIA, 1952–2017**



In total, 1,919 inland flooding events occurred between 1952 and 2017 in Georgia according to the SHELDUS/NCEI data. This equates to a historic average of approximately 30 events per year. These storms in total have caused 48 injuries, 80 fatalities, and more than \$1 billion in damages. In the past 20 years, (1997-2016) there have been 1,123 flood events, causing 13 injuries, 18 fatalities, and \$764 million in damages. In the past 20 years, Georgia has seen an average of 56 flood events per year. This equates to a greater than 100% chance of a flood occurring somewhere in the state in any given year.

Table 2.19 lists notable flooding events in Georgia since the late 1800s along with an estimate of the magnitude of the flood and recurrence interval. Although the majority of floods are minor in their impact, the risk analysis demonstrates the susceptibility of Georgia to experiencing significant flooding events. Note the 1994 Tropical Storm Alberto and 2009 Metro Atlanta flood events were extreme events with damages almost 10 times the amount of any other recorded flood event.

The worst flooding event in Georgia since stemmed from a decaying tropical system, previously known as Tropical Storm Alberto. The system produced torrential rainfall and resulted in some of the worst flooding ever observed across portions of Georgia, Alabama, and Florida during July 1994 (see Figure 2.30). By far, the worst flooding occurred along Georgia's Flint and Ocmulgee Rivers and their tributaries. Some of the hardest hit cities along these rivers included Albany, Macon, and Montezuma. Across the entire three-state area affected by the flooding, 17 NWS river forecast locations set new record flood stages, some breaking the old record by 5–7 feet. In all, 47 NWS river forecast locations exceeded flood stage. Crests of 5–15 feet above flood stage were common, while portions of some rivers observed crests that exceeded flood stage by more than 20 feet.

**TABLE 2.19 NOTABLE FLOOD EVENTS IN GEORGIA, 1881–2009**

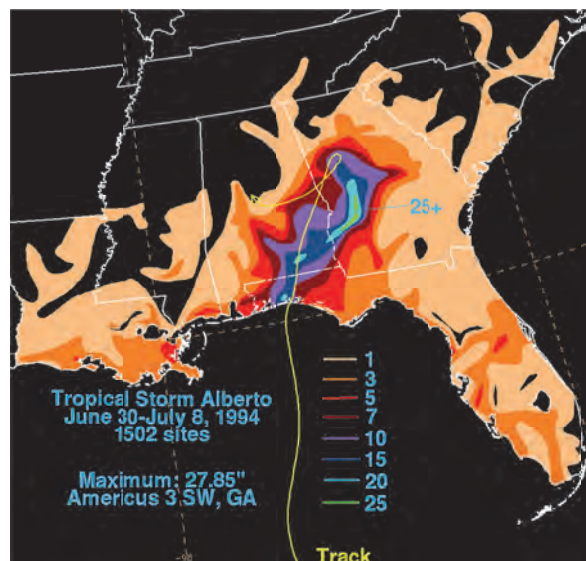
Year	Area Affected	Recurrence Interval	Remarks
1881	Savannah Area	>100 years	335 deaths; \$1.5 million in damages
1893	Savannah Area	>100 years	2,500 deaths; \$10 million in damages
1916	Chattahoochee, Coosa, and Flint Rivers	25 to >100 years	8-21 inches of rain; \$2.3 million in damages
1925	Central / South Georgia	25 to >100 years	8-11 inches of rain; 2 deaths
1929	Savannah, Ogeechee, and Altamaha Rivers	25 to >100 years	6-10 inches of rain; \$3 million in damages
1940	Ogeechee and Savannah Rivers	10 to 75 years	25 deaths; \$850,000 in damages; hurricane
1977*	Toccoa Creek	Unknown	DR541; Dam failure; 39 deaths; \$2.8 million in damages
1990*	Conasauga, Chattooga, Toccoa and Oconee Rivers	50 to >100 years	FEMA DR857; 9 deaths; \$13.9 million in damages
1990*	Savannah, Ogeechee and Ohoopsee Rivers	>100 years	FEMA DR880; \$7.6 million in damages, tropical storm
1991*	Altamaha, Apalachicola, Ochlockonee, Ogeechee, Satilla, and Savannah Rivers	25 to 50 years	FEMA DR897; \$3.4 million in damages
1994*	Flint, Chattahoochee, and Altamaha Rivers	>100 years	FEMA DR1033; 31 deaths; >20 inches of rain; \$400 million in damages; Tropical Storm Alberto
1994*	Savannah area	25 to >100 years	FEMA DR1042; 15 inches of rain; \$10.5 million in damages
1995*	Western Georgia	25 to 50 years	FEMA DR1209; 5-9 inches of rain; \$20 million in damages; hurricane
2004*	Middle and South Georgia	10 to 50 years	FEMA DR1560; 4-9 inches of rain; \$20 million in damages; hurricane
2004*	Northern and Southwestern Georgia	10 to 50 years	FEMA DR1554; 4-9 inches of rain; \$30 million in damages; hurricane
2009*	Southwestern Georgia	10 to >500 years	FEMA DR1833; 5-10 inches of rain; \$36.5 million in damages
2009*	Northwest Georgia, Atlanta Area	> 500 years (Epic)	FEMA DR1858; 9-12 inches of rain; \$225 million in damages



2015*	North and West Georgia	10-50 Years	FEMA DR4259; 7-15 inches of rain; \$30 million in damages.
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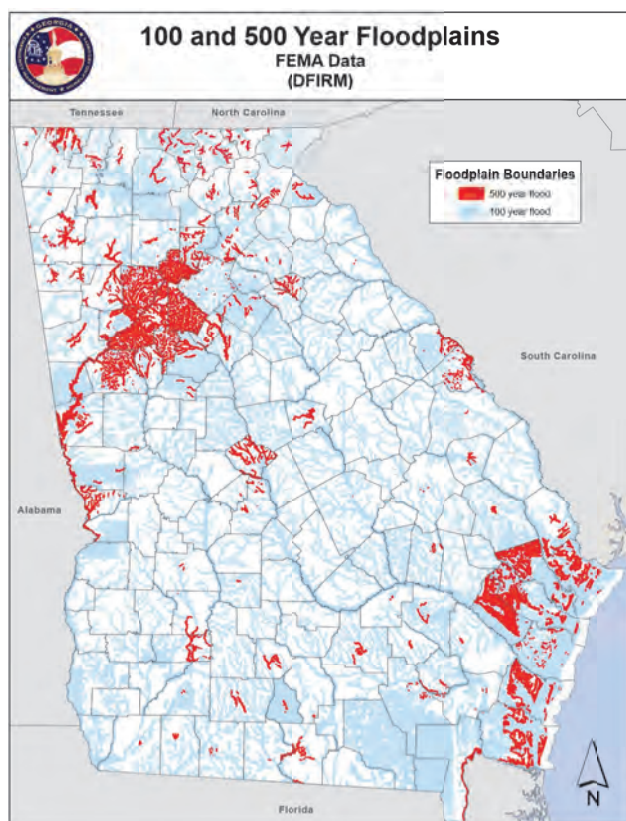
\*Presidential declared disasters

**FIGURE 2.30 TROPICAL STORM ALBERTO  
RAINFALL TOTALS, IN INCHES**



The flooding from Tropical Storm Alberto took a significant toll on human life, killing 33 people. Of that total, 31 deaths occurred in Georgia and the other two in Alabama. Many of the fatalities, as is typical with flood events, occurred as a result of flash flooding, and most occurred in vehicles. In addition, approximately 50,000 people were forced from their homes by the flooding. More than 18,000 dwellings were damaged or destroyed, and nearly 12,000 people applied for emergency housing. In Macon, Georgia, the fresh water supply to nearly 160,000 people was disrupted when the water treatment plant, located along the banks of the Ocmulgee River, was flooded. Some residences were without fresh water for as long as 19 days. In addition, thousands of people and pieces of equipment were engaged in various flood-fighting efforts throughout the three-state area impacted by the flooding. Dozens of federal, state, and local government agencies and private organizations as well as various volunteer groups were heavily involved in the massive mobilization of resources.

**FIGURE 2.31 100 AND 500 YEAR  
FLOODPLAINS IN GEORGIA**



Flooding related to Tropical Storm Alberto, estimated to have caused nearly \$750 million in property damages across Georgia, Alabama, and Florida. In addition to the more than 18,000 dwellings damaged or destroyed, hundreds of bridges and well over 1,000 roads sustained damages. Also, 218 dams (most of them small dams located in Georgia) were damaged, and many failed altogether. Agricultural losses totaled approximately \$100 million. In Georgia, Alabama, and Florida combined, more than 900,000 acres of crops were affected by the flooding. Georgia and Alabama suffered the greatest crop losses with more than 400,000 acres in each state impacted. In all three states, peanuts and cotton were the commodities most severely affected. Livestock losses were also significant, especially to poultry, with as many as 250,000 chickens reportedly lost to the flooding.

Similar to storm surge models, flood models are statistically based on historical flooding events that estimate the areas inundated by certain magnitudes of floods (typically the 1% annual chance flood often referred to as the 100 year flood). Figure 2.31 maps the 1% (100 year) and 0.2% (500-year) floodplains for the State of Georgia based on the FEMA Digital Flood Insurance Rate Map (DFIRM) floodplain layer. This activity was initially funded up to Federal Fiscal Year (FY) 2008, through the map modernization program, followed by the Risk Mapping Assessment and Planning (M.A.P) efforts funded from fiscal year 2009. As of this plan update, all counties in Georgia have available DFIRM data. It should be noted that during the map modernization updates, not all 500 year floodplains were mapped, and, for many counties, only 100 year floodplains were mapped during the map modernization process.

With the adoption of the Risk M.A.P. program since fiscal year 2009, the Georgia Department of Natural Resources is developing Risk M.A.P products by watershed, with the goal of eventually developing updated flood products for the entire State. These include updated regulatory 1% annual chance flood boundaries, delineation of the 0.2% annual chance flood boundaries, as well as flood risk products such as Changes since the Last Flood Insurance Risk Map, Areas of Mitigation Interest and Water Surface Depth and Probability Grids for specified storms including the 10%, 4%, 2%, 1% and 0.2% annual chance flood frequencies. Because of this mapping effort, local officials will have access to more accurate flood risk information to help make more informed decisions about reducing the community's flood risk, thereby resulting in safer, more resilient communities.

Currently, there is no concise resource for estimating the potential extent of a flood event. Many resources, such as recorded flood gauge data and flood insurance studies, are available and often adequate for local plan use, but are inconsistent at best when viewed on a statewide basis. As noted above, the Georgia Department of Natural Resources is in the process of developing Risk M.A.P studies, including depth grids, in various areas of the State, but the data is only available in limited areas at the time of this update.

### **Impacts from Climate Change:**

The State of Georgia has experienced a 3-6% decrease in flood magnitude over the past decade. However, major weather factors that contribute to flooding include heavy or prolonged precipitation, snowmelt, thunderstorms, storm surges from hurricanes, and ice or debris jams. Human factors that contribute to flooding include structural failures of dams and levees, altered drainage, and land-cover alterations (such as pavement). Increasingly, temperature warming increases heavy downpours, causes more extensive storm surges due to sea level rise, and leads to more rapid spring snowmelt. The risks from future floods are significant, given expanded development in coastal areas and floodplains, unabated urbanization, land-use changes, and climate change. Because of this, flooding may intensify in many U.S. regions, even in areas where total precipitation is projected to decline.

For Georgia, the risk for all flooding types – flash floods, river floods, and urban floods, all potentially leading to dam failure – will theoretically increase if precipitation occurs more frequently or falls more efficiently.

Specifically, the Department of Natural Resources Coastal Resources Division conducted a study of riverine flooding with a 1 meter sea level rise for the 12 counties closest to the coast, those being the 6 coastal counties and 6 counties one county inland from the coast, based on a 1% annual chance flood. Table 2.20 shows the increased losses from a 1 meter (3.3') rise in sea levels according to the study. The full report from the study is located in Appendix D.

**Table 2.20 Increased Riverine Flooding from Sea Level Rise**

<b>Loss Type</b>	<b>No Sea Level Rise</b>	<b>1 meter Sea Level Rise</b>	<b>Difference</b>
Total Buildings Damaged	2,698	6,451	3,753
Building Loss	\$44,334,051	\$74,313,589	\$29,979,538
Content Loss	\$38,211,156	\$71,550,022	\$33,338,866
Inventory Loss	\$9,611,802	\$21,432,433	\$11,820,632
Displaced People	5,000	14,000	9,000
Debris	5,500 tons	8,500 tons	3,000 tons

## 2.5.7 Severe Winter Weather

### Associated Hazards:

Snowfall, ice, high winds, extreme cold temperatures, winter coastal storms

Priority	Rank
Medium	7

### **Hazard Description**

Severe winter storms bring the threat of ice. Freezing rain consists of super-cooled falling liquid precipitation that freezes on contact with the surface when temperatures are below freezing. This results in an ice glazing on exposed surfaces including buildings, roads, and power lines. Sleet is easily discernable from freezing rain in that the precipitation freezes before hitting the surface. Often sleet bounces when hitting a surface and does not adhere. However, sleet can compound into sufficient depths to pose some threat to motorists and pedestrians.

A heavy accumulation of ice, which is often accompanied by high winds, has the ability to devastate infrastructure and vegetation. Often, sidewalks and streets become extremely dangerous to pedestrians and motorists. Primary industries such as farming and fishing suffer losses associated with winters of extreme temperatures and precipitation. In the southern states, this destructiveness is often amplified due to the lack of preparedness and response measures. Also, the infrastructure is not designed to withstand certain severe weather conditions such as weight build-up from snow and ice.

Within Georgia, the impacts of winter storms are often contained within the northern part of the State. However, events like the 1993 “storm of the century” illustrated the vast impacts that one storm can have on the entire state. The winter storms with the greatest impacts on Georgia are the result of coastal storms coming up from the Gulf of Mexico, including the winter storms in 1973 and 1993. The 1973 storm produced snowfalls of up to 19 inches in parts of Central Georgia including the City of Thomaston in Upson County. Also, a major ice storm occurred in 2014, bringing up to 1 inch of ice to the eastern portion of the State near Augusta.

Severe winter weather is seasonal, with most storms occurring between January and March, with the highest probability of occurrence in February. The rate of onset and duration varies, depending on the weather system driving the storm. Georgia rarely experiences severe winter weather; however, the impacts of the storms substantiate severe winter weather’s inclusion in risk assessments for most southern states.

### **Profile**

The best measures for describing the magnitude and intensity of severe winter weather include average amounts of precipitation (snow fall), inches of accumulated ice, low and high temperatures, and wind gust speeds. Historic amounts are reflected in Figures 2.32 – 2.35 (Snow and Ice total maps) below.

NOAA's National Centers for Environmental Information (NCEI) is now producing the Regional Snowfall Index (RSI) for significant snowstorms that affect the eastern two-thirds of the United States. The RSI ranks snowstorm impacts on a scale from 1 to 5, similar to the Fujita scale for tornadoes or the Saffir-Simpson Scale for hurricanes. (Source: <https://www.ncdc.noaa.gov/snow-and-ice/rsi/>)

**TABLE 2.21 NOAA RSI CATEGORIES FOR SOUTHEAST**

Category	RSI Value	Description
1	1–3	Notable
2	3–6	Significant
3	6–10	Major
4	10–18	Crippling
5	18.0+	Extreme

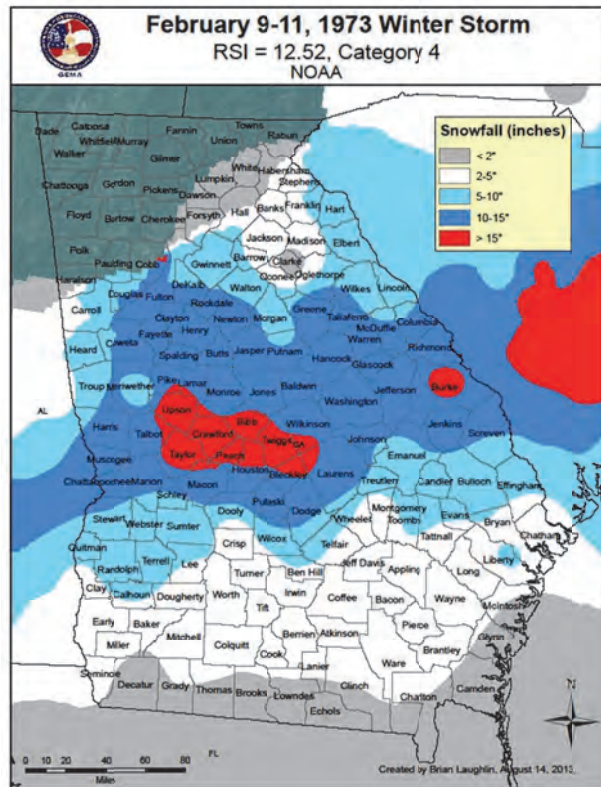
The RSI differs from these other indices because it includes population. RSI is based on the spatial extent of the storm, the amount of snowfall, and the juxtaposition of these elements with population. Including population information ties the index to societal impacts. Currently, the index uses population based on the 2000 Census.

The RSI is an evolution of the Northeast Snowfall Impact Scale (NESIS), which NCEI began producing operationally in 2005. While NESIS was developed for storms that had a major impact in the Northeast, it includes the impact of snow on other regions as well. It can be thought of as a quasi-national index that is calibrated to Northeast snowstorms. By contrast, the RSI is a regional index; a separate index is produced for each of the six NCEI climate regions in the eastern two-thirds of the nation. Georgia is in the Southeast climate region.

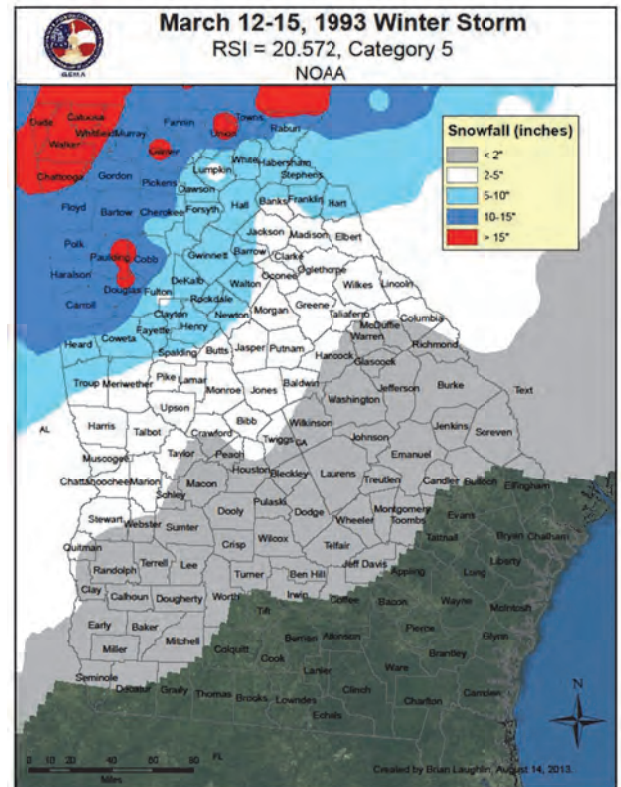
The RSI is important because of the need to place snowstorms and their societal impacts into a historical perspective on a regional scale. For example, in February 1973 (Figure 2.32), a major snowstorm hit the Southeast, affecting areas not prone to snow. The storm stretched from the Louisiana and Mississippi Gulf Coasts northeastward to the Carolinas. More than 11 million people received more than 5 inches of snow, and 750,000 people in Georgia and South Carolina experienced more than 15 inches of snow. This is currently the 10th highest ranked storm for the Southeast region. More information on RSI is available at <https://www.ncdc.noaa.gov/snow-and-ice/rsi/>. Figure 2.33 shows a similar map for the winter storm that hit the Southeast in March of 1993.



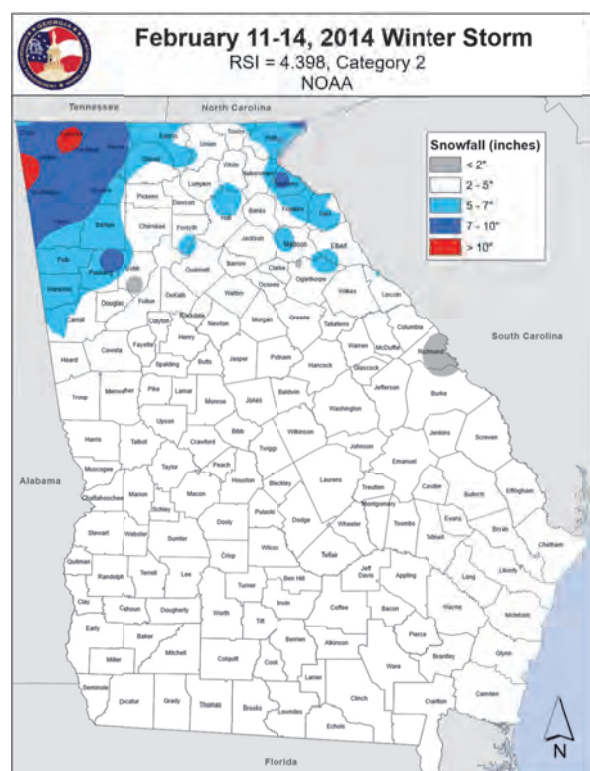
**FIGURE 2.32 MAP OF THE EFFECTS OF  
A 1973 WINTER STORM WITH RSI OF  
12.52**



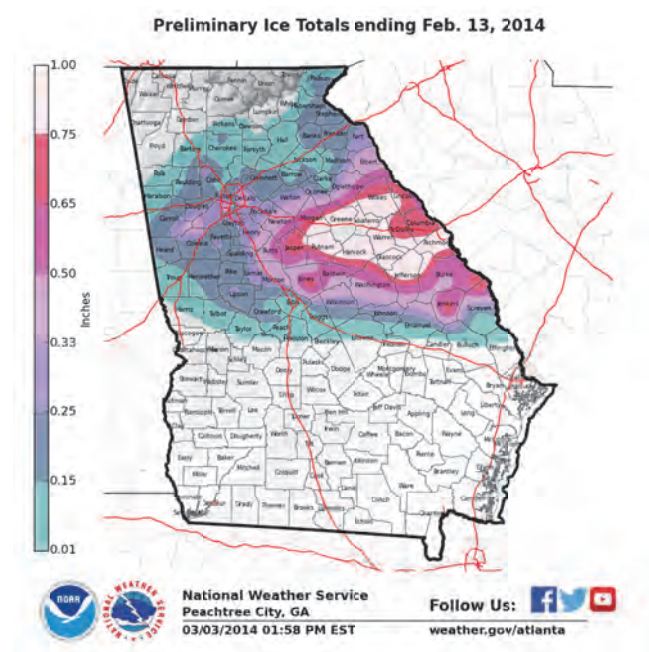
**FIGURE 2.33 MAP OF THE EFFECTS OF  
A 1993 WINTER STORM WITH RSI OF  
20.57**



**FIGURE 2.34 MAP OF THE EFFECTS OF A 2014 WINTER STORM WITH RSI OF 4.398**



**FIGURE 2.35 2014 WINTER STORM ICE TOTALS**

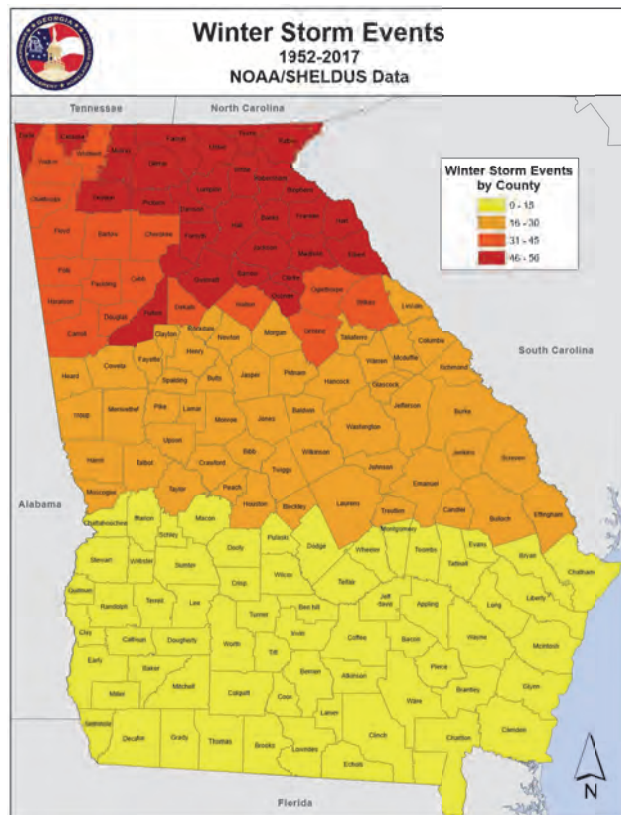


The severe winter weather historical events map, Figure 2.36, illustrates the relationship with latitude. Areas that typically have cooler temperatures are more likely to experience more extreme temperatures. The map roughly corresponds to the southern, piedmont, and mountainous regions of Georgia. The losses incurred from severe winter weather shown in Figure 2.37 do not mirror the event distribution. The areas with the highest losses do not always correspond with the areas with the most events; however, all are located in North Georgia. North Georgia counties are not the only ones at risk, however. Figure 2.32 shows that snowfall from the winter storm of 1973 had greater impacts on Central and South Georgia. Figures 2.34 and 2.35 show snow and ice totals from a February 2014 severe winter storm with snow focused on northern Georgia and the highest ice totals in the eastern portion of the state.

Figures 2.32, 2.33, 2.34 and 2.35 also help in defining the potential extent of winter storms in the State. While these are extreme cases, they indicate the possibility of over a foot of snow and up to an inch of ice. The impacts of these amounts depend on where they occur. With the vast majority of winter weather events, the higher amounts of snow and ice tend to occur in the more northern portions of the State. However, as noted in the above examples, the higher amounts of snow and ice in the 1973 and 2014 events were not in the northern portions of the State.



**FIGURE 2.36 WINTER STORM EVENTS  
IN GEORGIA, 1952–2017.**



**FIGURE 2.37 WINTER STORM LOSSES  
IN GEORGIA, 1952–2017**

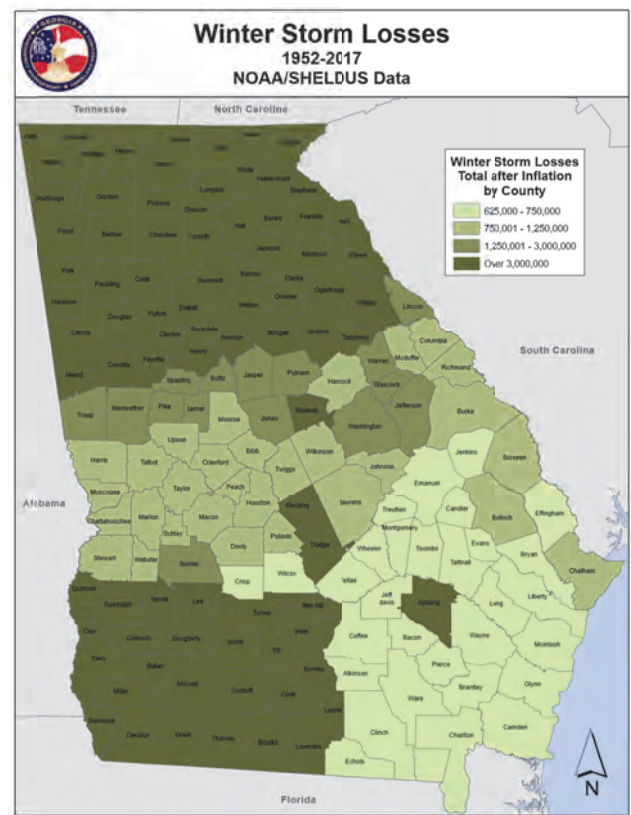


Table 2.22 lists major winter storms that have occurred in Georgia. The most notable of these events occurred in March of 1993. On the morning of March 12, 1993, the collision of a low-pressure system from the Gulf of Mexico, an arctic high pressure system from the Great Plains, and a steep southward jet stream brought high winds, heavy rain and snow, tornadoes, record low temperatures, and blizzard conditions to the State of Georgia. The entire Southeast region, including Georgia, shut down for three days. As a result of the incident, FEMA declared Georgia counties eligible for federal assistance to cover expenses associated with debris removal and emergency protective measures. This storm also was rated a Category 5 by the NOAA RSI. Also, in January 2014, a significant winter storm impacted the state. This storm is notable for its serious impacts on the transportation system around the Metro-Atlanta area and resulted in major changes in the State's preparation and response planning for winter storms. Two weeks later, the State was impacted once again by a major winter storm, this time bringing heavy snow to Northwest Georgia and up to 1 inch of ice to parts of eastern Georgia.

In total, 3,957 severe winter weather events occurred from 1952 to 2017 in Georgia according to SHELDUS/NCEI data. This equates to a historic average of approximately 64 events per year. These storms in total have caused 471 injuries, 50 fatalities, and more than \$1 billion in damages. In the more recent 20 years (1997 – 2016) there were 406 occurrences, 62 injuries, 11 fatalities and more \$820 million in damages. This equates to approximately 20 events per year.

**TABLE 2.22 NOTABLE WINTER STORM EVENTS IN GEORGIA**

Date	Areas Affected	Description
1/21-24/1940	North and Central GA	Up to 14.5 inches of snow in North GA; Central GA reported up to 10 inches
2/9-11/1973	Central and South GA	More than 15 inches reported in Upson, Taylor, Bibb, Twiggs, Wilkinson and Burke counties;
2/17-20/1979	North GA	10 inches in Toccoa, GA
1/21-24/1987	North and Central GA	11.5 inches in Dallas and Helen
3/12-15/1993	North and Central GA	Several locations in North GA and Metro Atlanta area reporting 13-21 inches
1/22-2/1/2000*	North and Central GA	FEMA DR1311; Severe ice storms, freezing rain, damaging wind, severely cold temperatures; 51 declared counties
1/9-11/2011	North and Central GA	Several locations in North and Central GA reporting 7-13 inches; RSI = 4.158, Category 2
1/28/2014	North and Central Georgia	Several locations in North and Central Georgia reporting 3-5 inches of snow and sleet.
2/11-12/2014*	Central and East Georgia	FEMA DR 4165; Severe winter storm in North, Central and East Georgia with locations reporting 0.25 – 0.75 inches of sleet, 0.1 - 0.25 inches of freezing rain and 1 - 2 inches of snow with ice accumulations up to 1 inch in some places.
2/15-17/2015*	Northeast Georgia	FEMA DR 4215; Severe Winter Storm in Northeast Georgia, with locations receiving locations receiving up to .65 inches of ice.

\*Presidential declared disaster

**Impacts from Climate Change:**

Winter storms have increased in frequency and intensity since the 1950s, and their tracks have shifted northward over the United States. This trend will likely continue over the United States, but given the northward shift in the tracks of these systems, impacts to Georgia may remain unchanged. In other words, the increase in intensity may be offset in Georgia by the northward shift of the storm tracks.

## 2.5.8 Drought

Priority	Rank
Medium	6

### Hazard Description

Drought is a normal, recurrent feature of climate consisting of a deficiency of precipitation over an extended period of time (usually a season or more). This deficiency results in a water shortage for some social or environmental sector. Drought should be judged relative to some long-term average condition of balance between precipitation and evapotranspiration in a particular area that is considered “normal.” Drought should not be viewed as only a natural hazard because the demand people place on the water supply affects perceptions of drought conditions. The impacts of drought are vast, including limited water supplies in urban areas and insufficient water for farmland.

Droughts occur in virtually every climatic zone (on every continent). Because the impacts of drought conditions are largely dependent on the human activity in the area, the spatial extent of droughts can span a few counties to an entire country.

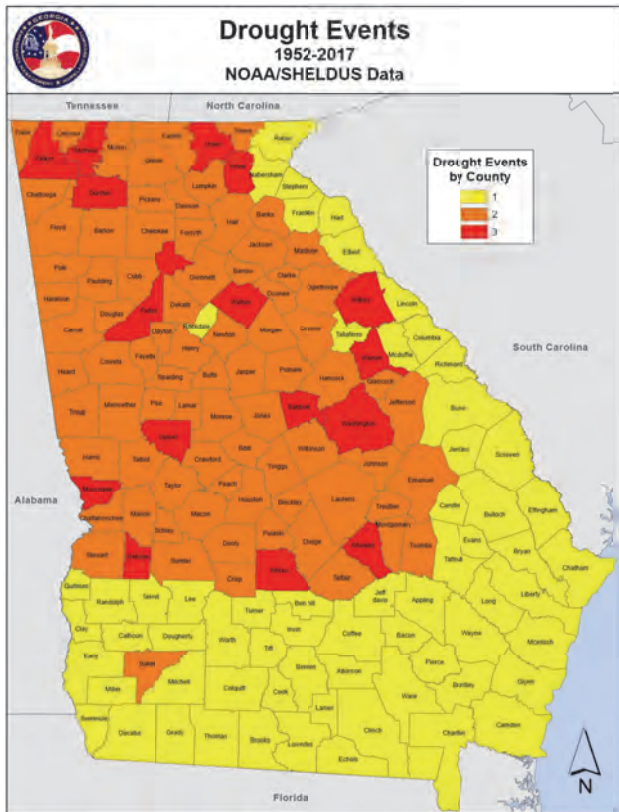
Temporal characteristics of droughts are drastically different from other hazards due to the possibility of extremely lengthy durations as well as a sluggish rate of onset. Drought conditions may endure for years to decades and therefore have a high potential to cause devastation in a given area. The duration characteristic of droughts is so important that droughts are classified in terms of length of impact. Droughts lasting one to three months are considered short term; droughts lasting four to six months are considered intermediate; and droughts lasting longer than six months are long term. With the slow rate of onset, most populations have some inkling that drought conditions are increasingly present. However, barring drastic response measures, most only have to adapt to the changing environment.

Seasonality has no general impact on droughts in terms of calendar seasons. However, “wet” and “dry” seasons obviously determine the severity of drought conditions. In other words, an area is less susceptible to drought conditions during its wet season. The frequency of droughts is undetermined due to the fact that the hazard spans such a long period of time. However, climatologists track periods of high and low moisture content similarly to the tracking of cooling and warming periods.

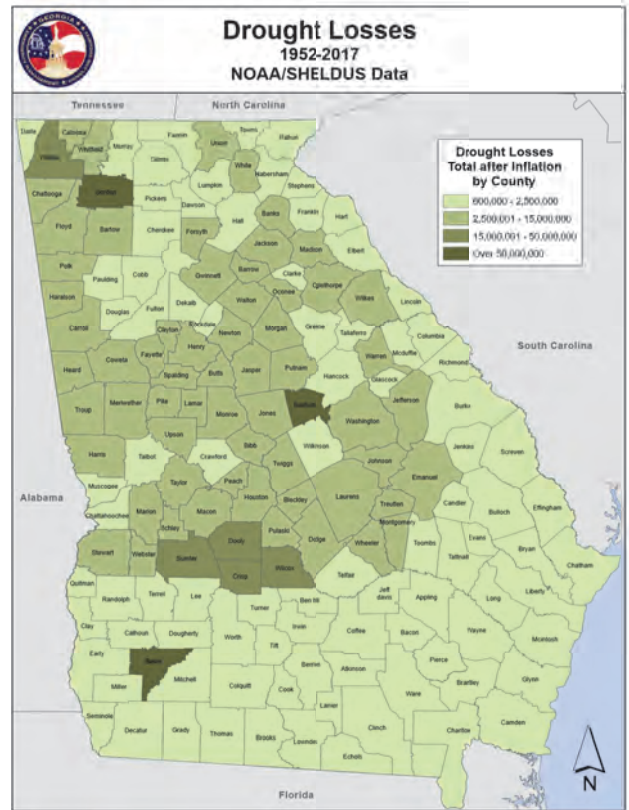
Measures of drought magnitude and intensity can be found in some of the drought indices. Dr. Michael Hays with the National Drought Mitigation Center (NDMC) lists six drought indices currently being used: the Percent of Normal Precipitation, Standardized Precipitation Index, Palmer Drought Severity Index, Crop Moisture Index, Surface Water Supply Index, and Reclamation Drought Index. Basically, all of these indices are comparable and not absolute measures of magnitude or intensity. In other words, the indices highlight areas that are wetter or drier using statistical calculations based on a limited climatic history.

The historical events and losses maps for drought (Figures 2.38 and 2.39) indicate the heart and northern portion of Georgia have experienced the most drought events. This is perhaps due to South and Coastal Georgia’s preexisting proneness to aridity. As the loss map illustrates, drought causes a drain totaling more than 50 million dollars in some counties. Most of these losses are probably crop losses since agriculture is often greatly affected by drought.

**FIGURE 2.38 DROUGHT EVENTS IN  
GEORGIA, 1952–2017**



**FIGURE 2.39 DROUGHT LOSSES IN  
GEORGIA, 1952–2017**



Because droughts are “creeping” disasters, only large-scale events are considered notable. One of the most severe drought events in Georgia occurred in 1977 and resulted in a federal disaster declaration. The drought spanned most of the Midwestern and Southeastern United States and doomed many harvests of hay, corn, soybean, cotton, and peanut. The declaration included 130 of Georgia’s 159 counties, with costs to farmers topping \$300 million (figure not inflation-adjusted).

Other notable droughts have severely affected municipal and industrial water supplies, stream-water quality, recreation, hydropower generation, navigation along waterways, and agricultural production. Table 2.23 lists the more notable droughts to hit Georgia since the beginning of the 20th century.

Typically, the risk analysis of hazard events takes into account the recurrence interval of the hazard. Droughts, however, are not measured in terms of recurrence intervals. Instead, drought prediction and indication models utilize historical and current meteorological and geological data to determine the current and possible extent of drought conditions. These models, which can be found at the NDMC website, are dynamic and, therefore, are not useful in the composite score. Also, drought does not seem to affect particular portions of Georgia more than other areas and, thus, is not a spatially defined hazard.

The nature of drought events, along with the limited data on previous occurrences, makes estimating a future probability difficult at best. Nevertheless, Table 2.23 shows eleven drought events occurring within 113 years. Looking at the 100-year record from 1903 to 2016, 41 of those 100 years were affected by drought. This yields a probability of a 36% chance of a drought occurring in any given year.

**TABLE 2.23 NOTABLE DROUGHT EVENTS IN GEORGIA**

Year	Area Affected	Remarks
1903–1905	Statewide	Severe
1924–1927	North-central Georgia	One of the most severe of the century
1930–1935	Mostly statewide	Affected most of US
1938–1944	Statewide	Regional drought
1950–1957	Statewide	Regional drought
1968–1971	Southern and Central Georgia	Variable severity
1977	Statewide	Disaster 3044
1985–1990	North and Central Georgia	Regional drought
1999–2009	Statewide	Severe
2011 - 2013	Statewide	Variable severity
2016	Northwest Georgia	Severe drought, associated with North Georgia wildfires

One index of drought, also an effective measure of extent or magnitude, is the Standardized Precipitation Index (SPI), which is based on the probability of precipitation for any time scale. This index is used by many drought planners because of the versatility of computing for different time scales and the ability to provide early warning of drought and to assess drought severity. The SPI includes the impacts of precipitation deficits on groundwater, reservoir storage, soil moisture, snowpack, and stream flow. Monthly maps of the SPI are downloadable from the NDMC. Figure 2.40 is an example of an SPI map of the continental United States. This map shows that drought conditions can range from a score of +2.00, which is exceptionally wet, to an SPI score of –2.0 or less, indicating exceptionally dry conditions. Notably, Georgia has experienced -2



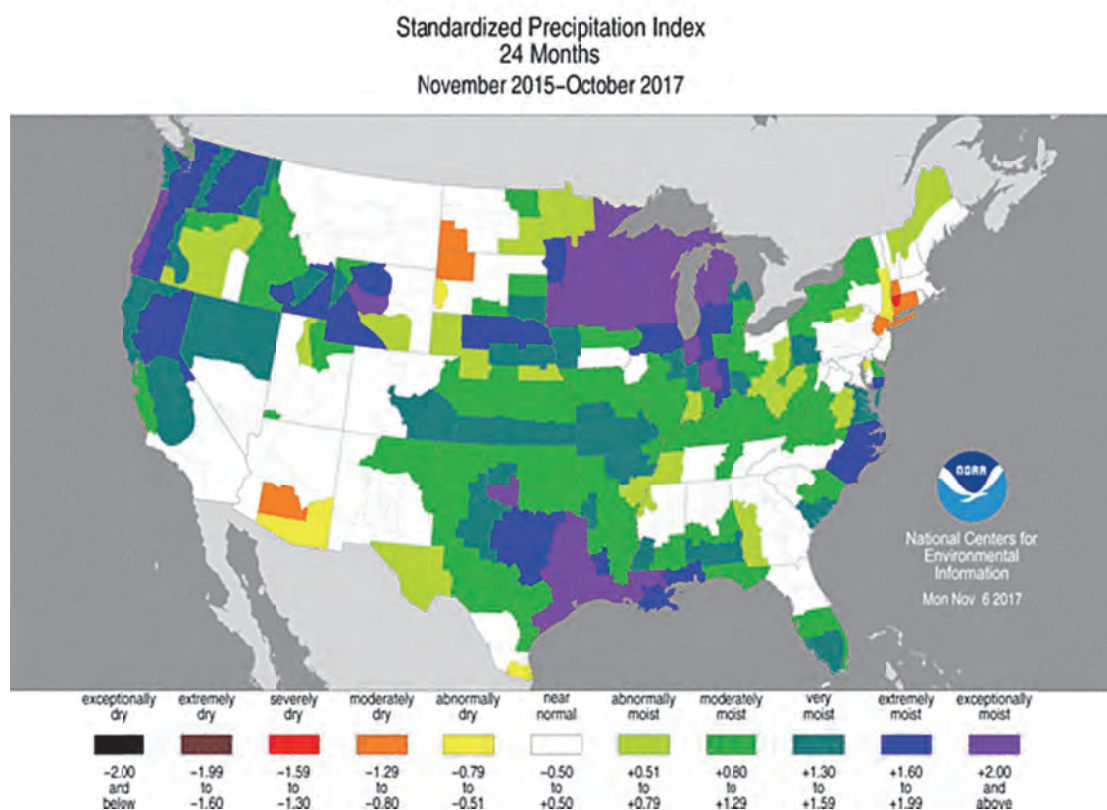
conditions on the SPI index. Between August 2007 and March 2008 and again between February 2012 and February 2013, much of the State experienced -2 (Extremely dry) conditions.

**TABLE 2.24 STANDARDIZED PRECIPITATION INDEX SCORES AND CORRESPONDING CONDITIONS**

SPI Score	Condition
+2 and above	Extremely wet
+1.5 to +1.99	Very wet
+1.0 to +1.49	Moderately wet
-0.99 to +0.99	Near normal
-1.0 to -1.49	Moderately dry
-1.5 to -1.99	Severely dry
-2.0 and less	Extremely dry

Because of the slow rate of onset and the long duration of droughts in Georgia, long-term management and mitigation measures are appropriate. The Environmental Protection Division (EPD) of Georgia's Department of Natural Resources (DNR) publishes the Georgia Drought Management Rules, which address both pre-drought mitigation strategies and drought response strategies. Refer to the Drought Management Rules for more details on drought assessments for the State of Georgia.

**FIGURE 2.40 STANDARDIZED PRECIPITATION INDEX, NOVEMBER 2015–OCTOBER 2017**





**Impacts from Climate Change:**

Georgia could experience more frequent and/or more severe droughts, but not by a significant margin. Higher temperatures lead to increased rates of evaporation, including more loss of moisture through plant leaves. As soil dries out, a larger proportion of the incoming heat from the sun goes into heating the soil and adjacent air rather than evaporating its moisture, resulting in hotter summers under drier climatic conditions.

## 2.5.9 Wildfire

Priority	Rank
Medium	8

### Hazard Description

A wildfire is an uncontained fire that spreads through the environment. Wildfires have the ability to consume large areas, including infrastructure, property, and resources. When massive fires, or conflagrations, develop near populated areas, evacuations can take place. Not only do the flames harm the environment, but the massive volumes of smoke spread by certain atmospheric conditions also affect the health of nearby populations.

Wildfires result from the interaction of three crucial elements: fuel, ignition (heat), and oxygen. Natural and man-made forces cause the three crucial elements to coincide in a manner that produces wildfire events. Typically, fuel consists of natural vegetation. However, as the urban and suburban footprint expands, wildfires can use other types of fuel such as buildings. In terms of ignition or source of heat, the primary natural source is lightning. However, humans are more responsible for wildfires than lightning (causing around 80% of fires). Man-made sources vary from the unintentional (fireworks, campfires, machinery) to the intentional (arson). With these two elements provided, the wildfires can spread as long as oxygen is present.

Weather is the most variable factor affecting wildfire behavior. Strong winds propel wildfires quickly across most landscapes (unless fire breaks are present). Shifting winds create erratic wildfires, complicating fire management. Dry conditions provide faster burning fuels, either making the area more vulnerable to wildfire or increasing the mobility of preexisting wildfires.

Wildfires are notorious for spawning secondary hazards, such as flash flooding and landslides, long after the original fire is extinguished. Both flash flooding and landslides result from fire consuming the vegetation that provides precipitation interception and infiltration as well as slope stability.

All of Georgia is prone to wildfire due to presence of wildland fuels associated with wildfires. Land cover associated with wildland fuels include:

- Coniferous, deciduous, and mixed forest
- Shrub-land
- Grasslands/herbaceous
- Woody and emergent wetlands.

The spatial extent of wildfire events greatly depends on both the factors driving the fire and efforts of fire management and containment. Within the State of Georgia, fires in 2007 engulfed more than 400,000 acres and even reached into Florida. However, these fires occurred in largely isolated regions with limited exposure to human development. While these fires posed minimal impact to development, air quality and visibility were greatly reduced throughout large areas of Southeast Georgia due to smoke.

Wildfires can occur during any season of the year. However, drier seasons, which vary within the State of Georgia, are more vulnerable to severe wildfires because of the abundance of quick-burning fuels. In terms of rate of onset and duration, wildfires vary depending on the available fuels and weather patterns. Some wildfires can engulf an area in a matter of minutes from the first signs, whereas others may be slower

burning and moving. The frequency of wildfires is not typically measured because the high probability of human ignition is statistically unpredictable.

Magnitude and intensity are typically only measured by the size of the wildfire and the locations of burning. Fires are classified in three ways: understory fires, crown fires, and ground fires. Naturally occurring wildfires burn at relatively low intensities, consuming grasses, woody shrubs, and dead trees. These understory fires often play an important role in plant reproduction and wildlife habitat renewal, and they self-extinguish due to low fuel loads or precipitation. Crown fires, which consist of fires consuming whole living trees, are low probability but high consequence events due to the creation of embers that can spread by wind. Crown fires typically match perceptions of wildfires. In areas with high concentrations of organic materials in the soil, ground fires can burn, sometimes persisting undetected for long periods until the surface is ignited.

### Profile

Data on historical occurrence and extent of wildfires varies depending on the source. Table 2.25 provides the National Interagency Fire Center figures for wildland fire and burn acreage totals from 2002 to 2017 in Georgia. The data indicates wildland fires in Georgia can vary substantially in size, with the vast majority being small. Higher totals in 2007 coincide with several swamp fires in Southeast Georgia that year. Even with the 2007 figures, the average extent of wildland fires is approximately 21 acres. Based on this data, Georgia can expect to experience approximately 4,793 wildland fires in any given year.

**TABLE 2.25 GEORGIA WILDFIRES AND ACRES (NIFC)**

Year	Fires	Acres
2002	7,185	160,041
2003	3,430	9,908
2004	6,257	27,500
2005	5,573	19,263
2006	8,352	40,202
2007	8,726	837,895
2008	5,454	23,081
2009	3,732	13,714
2010	3,489	14,534
2011	8,387	149,222
2012	3,331	19,136
2013	2,942	6,736
2014	3,562	19,199
2015	2,331	10,556
2016	5,086	52,119
2017	3,929	200,785
<b>Total</b>	<b>76,685</b>	<b>1,603,891</b>
<b>Average</b>	<b>4,793</b>	<b>100,243</b>

The most notable wildfire events are most likely the 2007 fires that affected the southeast quadrant of Georgia. These massive fires, the largest in Georgia's history, burned more than 400,000 acres and destroyed 9 homes. Initial estimates of Georgia Forestry Commission's (GFC) expenditures for fire control efforts totaled more than \$62 million. Georgia has received 12 Fire Management Assistance Declarations, which are reflected in Table 2.26 below. Notably, the majority of these declarations are for 2 major wildfire events (2007 and 2011 – See Table 2.26) in the Southeastern portion of the State.

In 2014, the Southern Wildfire Risk Assessment produced updated reports and information based on the best available data and models. Figure 2.41 shows the model and the factors that go into it. One of the updated products of this model is a Wildland Urban Interface risk layer that shows the potential risk of a wildfire on people and their homes. This dataset takes into account both housing density and modeled flame length to produce a risk index showing the areas that would be most impacted. Figure 2.43 shows the Wildfire Risk map for Georgia.

**TABLE 2.26 FIRE MANAGEMENT ASSISTANCE DECLARATIONS**

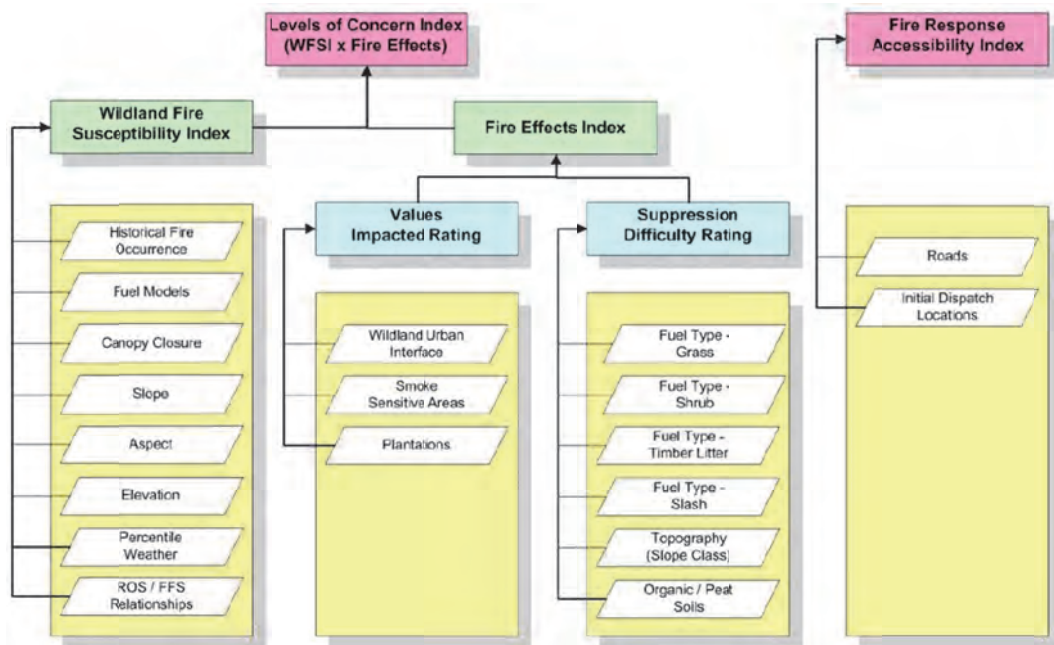
Fire Management Assistance Declarations		
Number	Date	Incident Description
2362	5/23/2001	Blounts Pasture Fire
2685	4/17/2007	Sweat Farm Road Fire
2686	4/26/2007	Kneeknocker Swamp Fire
2688	5/5/2007	Roundabout Fire
2693	5/9/2007	Bugaboo Scrub Fire
2697	5/31/2007	Harveytown Fire
2875	3/25/2011	Elan Church Road Fire
2876	3/25/2011	Mosley Road Fire
2920	6/15/2011	Racepond Fire
2921	6/16/2011	Sweat Farm Again Fire
5163	11/11/2016	Tatum Gulf Fire
5181	5/8/2017	West Mims Fire

The Fire Intensity Scale (Figure 2.44) is another layer that was produced in the 2014 update. This data shows areas where fires would be the most intense when available fuel and potential fire behavior are factored together. As Figure 2.39 shows, areas such as Atlanta with its urban development, have less impact potential than the more forested areas in Northwest Georgia or Southeast Georgia.

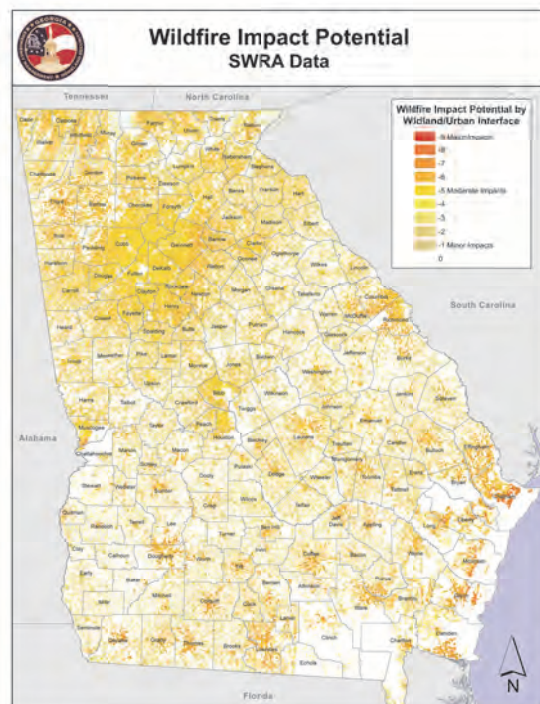
The Burn Probability data (Figure 2.45) is the result of modeling different scenarios with parameters that include the available fuel, terrain, weather conditions and historical fires. This map uses the parameters reflected in Figure 2.41 to show the likelihood of an area to burn.

**FIGURE 2.41 SOUTHERN WILDFIRE RISK ASSESSMENT MODEL.**

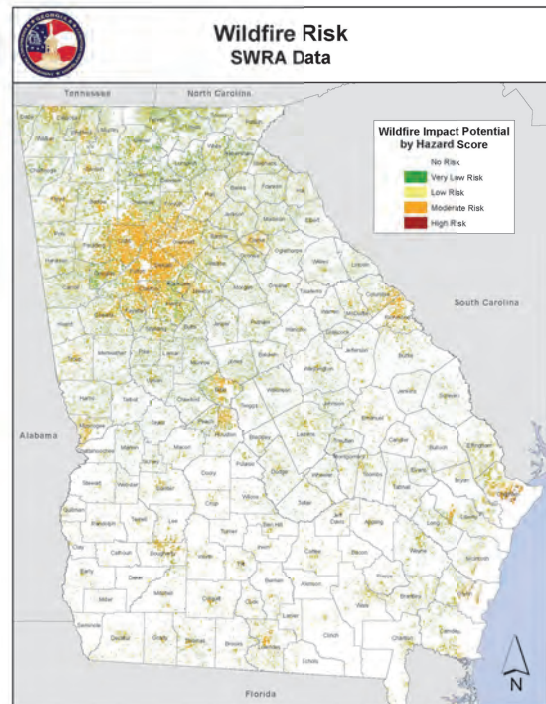
Source: SWRA Final Report (2006).



**FIGURE 2.42 WILDFIRE IMPACT POTENTIAL.**

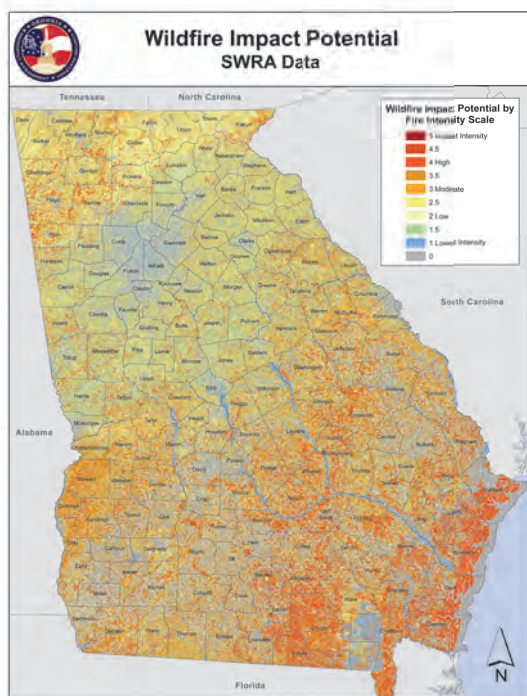


**FIGURE 2.43 WILDFIRE RISK LEVEL, GEORGIA.**

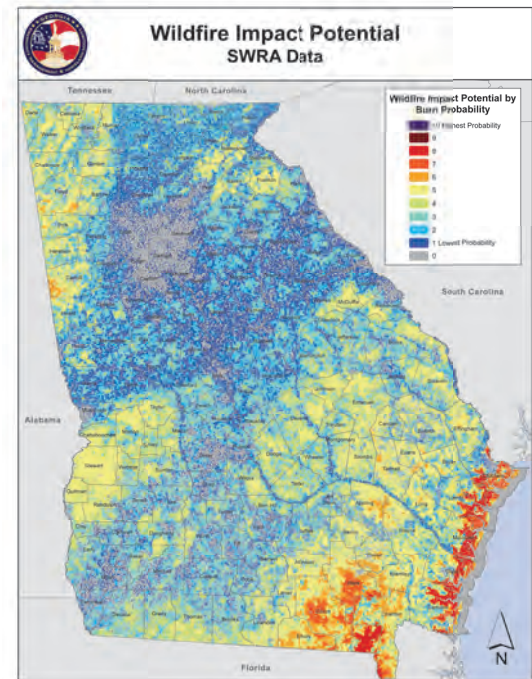




**FIGURE 2.44 FIRE INTENSITY SCALE**



**FIGURE 2.45 WILDFIRE BURN PROBABILITY**



The wildfires that cause the greatest loss of life and property are those located in the Wildland-Urban Interface (WUI). WUI has been defined in many ways, but from a fire management perspective, it is commonly considered an area where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Wildfires are dependent on a certain set of conditions, including type of vegetation, building construction, accessibility, lot size, topography, and other factors such as weather and humidity. When these conditions are present in certain combinations, they make some communities more vulnerable to wildfire damage than others. This “set of conditions” method is perhaps the best way to define wildland-urban interface areas when planning for wildfire prevention, mitigation, and protection activities.

There are three major categories of WUI: boundary, intermix, and island. Depending on the set of conditions present, any of these areas may be at risk from wildfire.

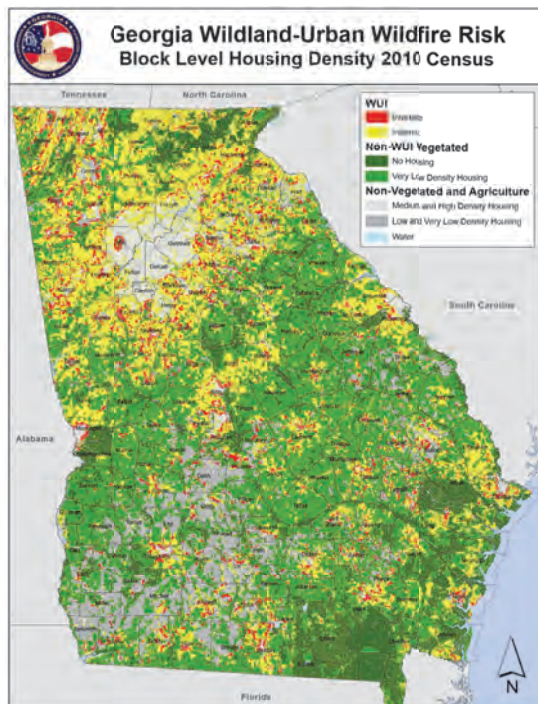
**Boundary WUI** is characterized by areas of development where homes, especially new subdivisions, press against public and private wildlands, such as private or commercial forest land or public forests or parks. This is the classic type of WUI, with a clearly defined boundary between the suburban fringe and the rural countryside. Due to the higher concentration of development that abuts the wildland areas, Boundary or Interface as it is commonly called, presents the highest level of risk of the three categories.

**Intermix WUI** areas are places where improved property and/or structures are scattered and interspersed in wildland areas. These may be isolated rural homes or an area that is just beginning to go through the transition from rural to urban land use.

**Island WUI**, also called occluded interface, are areas of wildland within predominately urban or suburban areas. As cities or subdivisions grow, islands of undeveloped land may remain, creating remnant forests. Sometimes these remnants exist as parks or as land that cannot be developed due to site limitations, such as wetlands.

A more in-depth local wildfire risk assessment can help determine the specific level of risk to a community. A great source for local wildfire risk assessment is the Community Wildfire Protection Plans (CWPP). Copies of completed CWPPs and more information on the program can be found at <http://www.gfc.state.ga.us/forest-fire/CWPP/index.cfm>.

**FIGURE 2.46 EXAMPLE OF WUI BOUNDARY.** (GFC).



**FIGURE 2.47 LOCATION OF WUI AREAS IN GEORGIA.**

Figure 2.47 illustrates areas within Georgia that most likely fall under boundary (interface) or intermix categories. The WUI areas were created by identifying census blocks that



contained both at least 6.17 housing units/km<sup>2</sup> (or 1 house/40 acres) and substantial amounts of vegetation prone to wildfires (Radeloff et al. 2005). The map indicates that all counties in Georgia contain WUI areas. Table 2.27 provides the size and percentage increase of WUI areas in the state.

**TABLE 2.27 WILDLAND-URBAN INTERFACE AREAS IN GEORGIA, 1990–2010**

	Total Area (mi <sup>2</sup> )	Intermix Area	Intermix %	Interface Area	Interface %	WUI Total	WUI %
<b>1990</b>	59,131,458,950	9,668,026,927	16.35%	2,110,058,205	3.57%	11,778,085,132	19.92%
<b>2000</b>	59,131,458,950	11,881,950,792	20.09%	2,487,979,653	4.21%	14,369,930,445	24.30%
<b>2010</b>	59,425,174,404	13,443,969,176	22.62%	2,787,403,529	4.69%	16,231,372,705	27.31%

Source: <http://silvis.forest.wisc.edu/maps/wui/2010/download>.

### **Impacts from Climate Change**

Since 1983, the National Interagency Fire Center has documented an average of 72,000 wildfires per year. Compiled data from the U.S. Forest Service suggest that the actual total may be even higher for the first few years of nationwide data collection that can be compared. The data does not show an obvious trend during this time. However, ongoing changes in temperature, drought, and snowmelt may contribute to warmer, drier conditions that fuel wildfires in parts of the United States. Any increase in wildfire activity would be much more likely in the western United States, as fires burn more land in the western United States than in the East.

## 2.5.10 Earthquake

### Associated Hazards:

Ground shaking, liquefaction, landslides, tsunamis

Priority	Rank
Low	12

### **Hazard Description**

Earthquakes are generally defined as the sudden motion or trembling of the earth's surface caused by an abrupt release of slowly accumulated strain. This release typically manifests on the surface as ground shaking, surface faulting, tectonic uplift and subsidence, ground failures, and tsunamis. In the United States, earthquake activity east of the Rocky Mountains is relatively low compared to the West because it is away from active plate boundaries and the plate interior strain rates are known to be very low.

The physical property of earthquakes that causes the majority of damage within the United States is ground shaking. The vibrations from the seismic waves that propagate outward from the epicenter can cause failure in structures not adequately designed to withstand earthquakes. Because the seismic waves have different frequencies of vibration, they disseminate differently through subsurface materials. For example, high frequency compression and shear waves arrive first, whereas lower frequency Rayleigh and Love waves arrive later. Seismic waves can also move in a variety of ways. The surface vibration can be horizontal, vertical, or a combination of the two, which causes a wider array of structures to collapse.

Another manifestation of earthquakes is surface faulting. This phenomenon is defined as the offset or tearing of the earth's surface by a differential movement across a fault. Structures built across active faults tend to sustain damage regularly. There are no active faults within or near Georgia. Distinct inactive faults are known within the state north of the Columbus, Macon, and Augusta fall line and run generally northeast-southwest. One of these is the Brevard Fault Line, which last moved 185 million years ago and is not associated with ongoing seismic activity in Georgia.

The third earthquake phenomenon that causes damage is tectonic uplift and subsidence. Tectonic uplift can cause the shallowing of harbors and waterways, and tectonic subsidence can cause permanent or intermittent inundation similar to what happened as a result of the 1964 Alaskan earthquake. Due to the association of tectonic uplift and subsidence with active faults, Georgia is not at risk to this phenomenon.

The fourth earthquake damage-causing phenomena are earthquake-induced ground failures, including liquefaction and landslides. During an earthquake, the areas that are rich in sand and silt and have groundwater within 30 feet of the surface temporarily behave as viscous fluids during strong ground shaking. Structures built on these materials can settle, topple, or collapse as the ground "liquefies" beneath them. Landslides can also form when earthquake shaking or seismic activity dislodges rock and debris on steep slopes triggering rock falls, avalanches, and slides. Also, unstable or nearly unstable slopes consisting of clay soils can lose shear strength when disturbed by ground shaking and fail, resulting in a landslide. Georgia is at very low risk of seismic-induced liquefaction or landslides.

The final earthquake-induced phenomena are tsunamis, large gravity-driven waves triggered by the sudden displacement of a large volume of water (by an underwater earthquake, landslide, or volcanic eruption). The waves produced travel in all directions from the origin at speeds of up to 600 miles per hour. In deep water, tsunamis normally have small wave heights; however, as the waves reach shallower water near land, the wave speed diminishes and the amplitude drastically increases. Upon impact with a shoreline, the waves can inundate land, rapidly engulfing everything in its path. Successive wave crests follow, typically arriving

minutes to hours later, frequently with later arrivals being more dominant. Frequently, the first tsunami waves are downward, causing dramatic exposure of beach. Because of this, people are often killed trying to collect newly exposed seashells when the water returns.

Although large tsunamis rarely hit the East Coast of the United States, the possibility of such events occurring anywhere along the Atlantic and Gulf Coasts exists. For example, a severe earthquake in the Grand Banks of Newfoundland on November 18, 1929 generated tsunami waves that caused considerable damage in coastal Newfoundland and reached as far south as Charleston, South Carolina. Similarly, a large earthquake on November 18, 1867 caused tsunami waves larger than 20 feet in the Virgin Islands and Puerto Rico.

## Profile

Earthquakes with a magnitude of less than 5.0 are not known to produce significant damage. Georgia's greatest risks for earthquakes of magnitude 5.0 or greater are from three different seismic areas:

- **New Madrid Fault Zone:** centered on the Mississippi River north of Memphis
- **Southern Appalachian Seismic Zone:** running west of the Appalachians between Knoxville and northeastern Alabama
- **Charleston, South Carolina**

Modest earthquakes distributed throughout the Georgia Piedmont also occur; however, the risk level remains low due to the much lower magnitude and intensity associated with these events. The spatial extent of specific earthquakes largely depends on its magnitude (discussed below). For example, the New Madrid earthquakes of 1811 and 1812, centered between St. Louis and Memphis on the Mississippi River, caused damage as far away as Cincinnati and Richmond and were felt as far as Boston.

The temporal characteristics of earthquakes include rate of onset, duration, and the frequency of recurrence. Earthquakes rarely give warning of their impending occurrence and are therefore currently considered unpredictable by many in the scientific community. When one occurs, ground failure can follow within a few seconds, and strong shaking can last from a few seconds to several minutes, depending on the severity of the event and the distance an individual is from its occurrence. Earthquake recurrence is based primarily on historical activity. Since earthquakes are infrequent within the eastern United States, future earthquake probability remains low.

Earthquake magnitude and intensity are measured via the moment magnitude and the Mercalli scales, respectively. The moment magnitude scale (abbreviated as MMS; denoted as MW or M) is used by seismologists to measure the size of earthquakes in terms of the energy released. The magnitude is based on the seismic moment of the earthquake, which is equal to the rigidity of the Earth multiplied by the average amount of slip on the fault and the size of the area that slipped. The scale was developed in the 1970s to succeed the 1930s-era Richter magnitude scale (denoted as ML). Even though the formulae are different, the new scale retains the familiar continuum of magnitude values (See Table 2.28). The MMS is the scale now used to estimate magnitudes for all modern large earthquakes by the U.S. Geological Survey (USGS).

Because accounts of earthquakes occurring before the 1960s relied predominantly upon those experiencing the event rather than seismographs, the Modified Mercalli Intensity Scale is used to evaluate and compare earlier events to modern ones. The Modified Mercalli Scale is a qualitative measure of the degree of shaking that an earthquake incurs on people, structures, and the ground at a particular location. Due to this reliance on subjectivity, Mercalli values of intensity vary for each event and by distance from the event (as opposed

to the MMS scale). Table 2.29 explains the Modified Mercalli Scale of Intensity. Figure 2.48 shows an example of historical earthquake intensity from the 1886 Charleston, South Carolina earthquake.

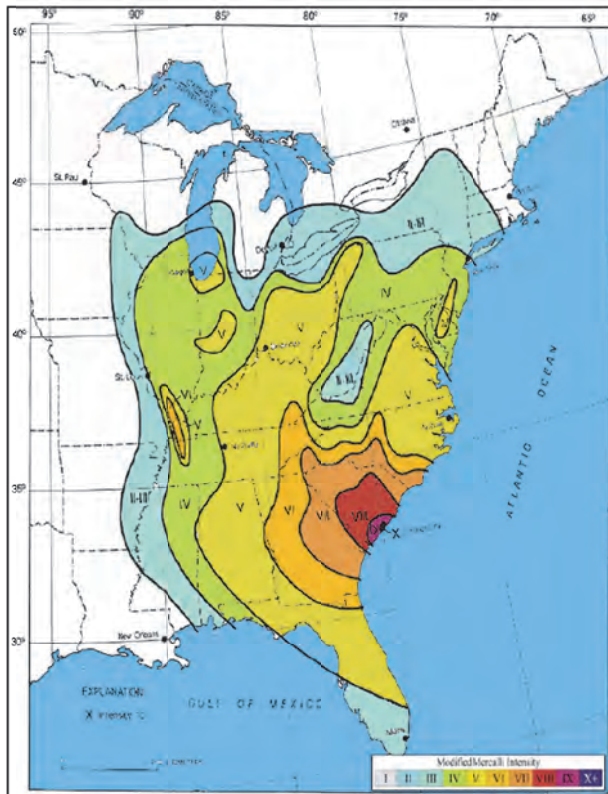
**TABLE 2.28 EARTHQUAKE MAGNITUDES**

Magnitude	Description	Effects
<2	Micro	Not felt; infrequently recorded in the Eastern US
2.0 – 2.9	Minor	Not felt by most; frequently Recorded
3.0 – 3.9	Minor	Often felt; Rarely causes damage
4.0 – 4.9	Light	Noticeable shaking of indoor items; Significant damage unlikely
5.0 – 5.9	Moderate	Damage to poorly constructed buildings near epicenter; Possible slight damage to well-constructed
6.0 – 6.9	Strong	Destructive in area up to 200 miles across
7.0 – 7.9	Major	Serious damage over large area
8.0 – 8.9	Great	Serious damage in areas several hundred miles across
9.0 – 9.9	Great	Devastating in areas several thousand miles across
>10	Great	Never recorded

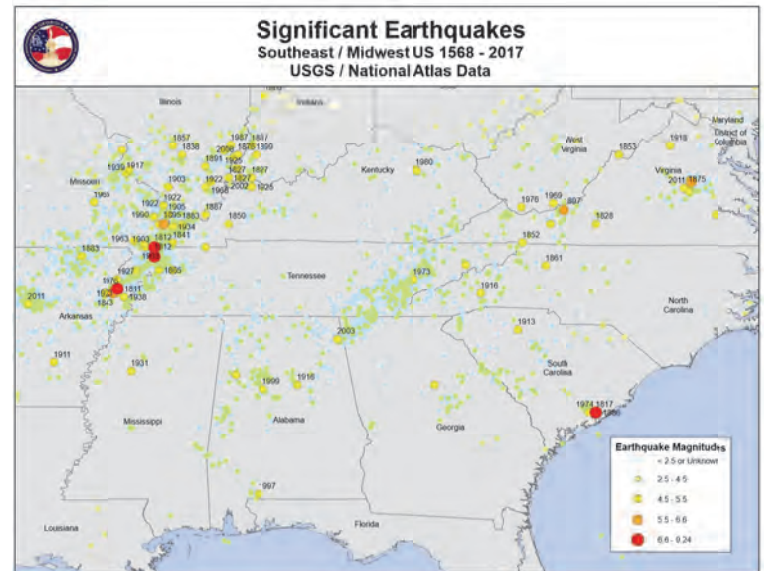
**TABLE 2.29 MODIFIED MERCALLI SCALE OF INTENSITY**

Mercalli Intensity	Description	Effects
I	Instrumental	Detected only by sensitive instruments
II	Feeble	Felt by few persons (upper floors)
III	Slight	Felt noticeably indoors; Similar to passing truck
IV	Moderate	May awaken sleeping; Household items possibly disturbed
V	Rather Strong	Felt by nearly all; Broken household items
VI	Strong	Felt by all; Chimney damage; Slight other damage
VII	Very Strong	Difficult to stand; Considerable damage in poorly constructed buildings
VIII	Destructive	Considerable damage in average buildings with partial collapse; Chimneys, stacks, columns fall
IX	Ruinous	General panic; Damage to all structures
X	Disastrous	Rails bent; More collapse and damage to all types of structures
XI	Very Disastrous	Few masonry structures standing; Bridges destroyed
XII	Catastrophic	Total damage; Ground moves in waves or ripples; Objects airborne

**FIGURE 2.48 MERCALLI EARTHQUAKE INTENSITY FROM 1886 CHARLESTON, SC EARTHQUAKE** Source: USGS.



**FIGURE 2.49 SIGNIFICANT EARTHQUAKES IN THE U.S. SOUTHEAST AND MIDWEST, 1568–2017**



While SHELDUS/NCEI reports no earthquake events between 1952 and 2017, Georgia has been seismically active throughout that time period with minor to light earthquakes. No disasters have been declared for the State of Georgia related to earthquake events because of little to no losses associated with seismic activity during this timeframe.

Georgia's earthquake history, however, demonstrates the state's potential for experiencing damaging seismic activity, even from events occurring outside of the state lines. Table 2.30 lists notable events that have affected Georgia since the late 19th century. Note the magnitude value is estimated based on the historical record or Mercalli Scale of Intensity rating. Figure 2.49 maps notable earthquakes from 1568 through 2017 for parts of the U.S. Southeast and Midwest (possibly affecting Georgia).

Frequency, and thus risk, is difficult to determine with earthquakes. However, recent estimates suggest that an earthquake of 6.0 magnitude or greater is likely to occur every 80 years within the New Madrid Seismic

Zone. Though the last such event occurred back in 1895, this does not mean one is overdue because earthquake recurrence is highly variable (sometimes with recurrences longer than twice their expected average). Similar earthquake recurrence intervals apply to regions in northwestern Georgia.

**TABLE 2.30 NOTABLE EARTHQUAKE EVENTS AFFECTING GEORGIA**

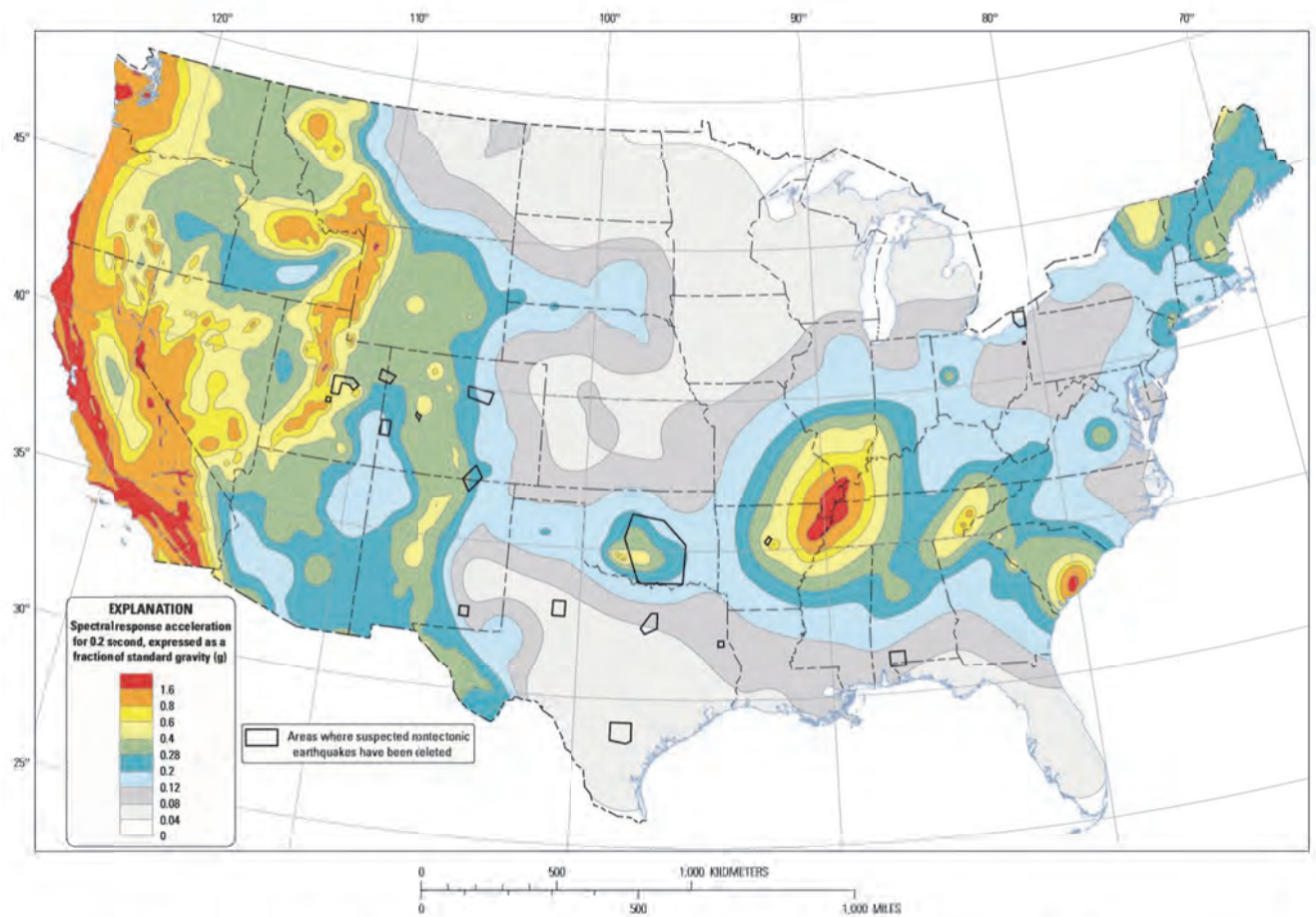
Year	Magnitude	Area Affected	Remarks
1811–1812	7.3–7.8	New Madrid	XI intensity; Rerouted Miss. River; Damage in Richmond; Felt in Boston
1886	6.9	Charleston, SC	V–VIII intensity
1914	5	North Georgia	Caused little damage
1964	4.5	Lake Sinclair	Tremors every 2-3 years
1972	4.5	Clarks Hill Reservoir	Quakes felt every 20 seconds
1976		Toombs County	Intensity V
1985	3.0-3.5	Columbus	
1996	2.4	DeKalb County	Norris Lake area
2003	4.9	North Georgia / Alabama border	Some power outages; Felled trees; Minor household damage
2010	2.8	Northwestern Georgia	Dalton area
2013	2.5–2.8	Georgia / South Carolina border	Thurmond Lake area

Figure 2.47 is a USGS seismic map that portrays the estimated probability of spectral acceleration for a 0.2 second period with the probability of exceedance at 10% in 50 years for the conterminous United States. This map illustrates the various regions of potential seismic activity that could affect the State of Georgia: the New Madrid fault, Southern Appalachian, and Charleston, South Carolina.

The Georgia-specific earthquake hazard risk map, Figure 2.51, uses the data from the previous figure. This map, like Figure 2.50, presents the 0.2 second spectral acceleration as a percentage of gravity. In other words, the seismic contour lines delineate areas of higher risk of exceeding a certain intensity of earthquake. The areas of greatest risk are shown to be the mountainous counties of Northwest Georgia, which have a 2% chance of exceeding 30% of gravity over a 50 year period.



**FIGURE 2.50 SEISMIC HAZARD MAP FOR THE CONTERMINOUS UNITED STATES.**



**Two-percent probability of exceedance in 50 years map of 0.2 second spectral response acceleration**



**Seismic Risk**  
USGS Seismic Contours

Seismic Risk  
Peak ground acceleration  
with a 2% probability of exceedance  
in 50 years

Contour*	County*
4% g	< 4% g
10% g	4-10% g
20% g	10-20% g
30% g	20-30% g
40% g	30-40% g

\*acceleration represented as a % of gravity

### **Impacts from Climate Change**

There are theories that climate change will increase the frequency and intensity of earthquakes and seismic activity, but nothing definitive has been found since technically earthquakes are not a climate response but rather a tectonic event.

## 2.5.11 Geologic Hazards

### Associated Hazards:

Sinkholes, landslides, debris flow, mudslides, flooding, tropical cyclones, wildfire

Priority	Rank
Low	13

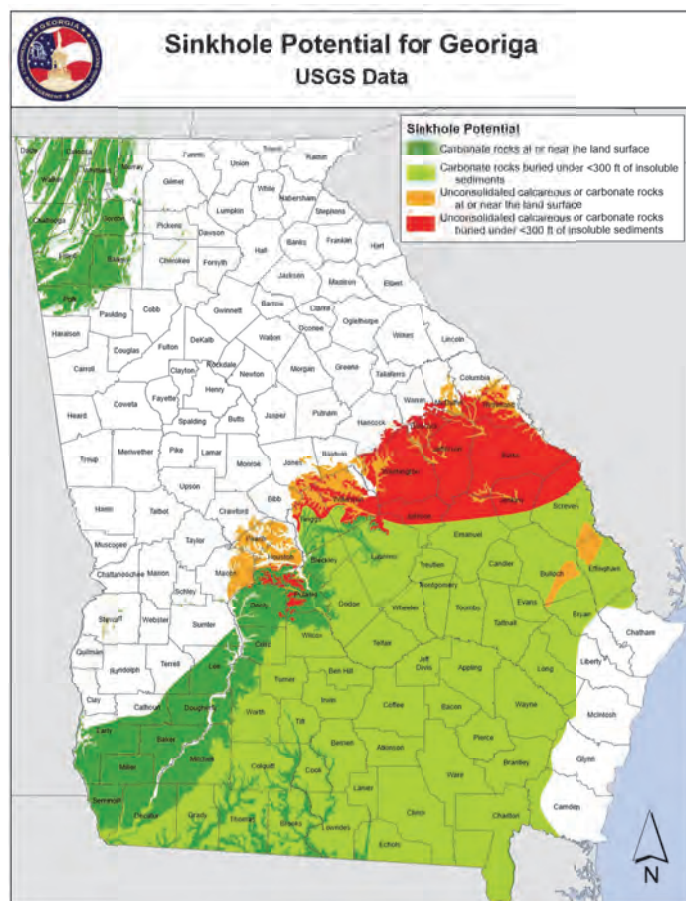
This section is intended to cover a broad spectrum of geologic hazards, including sinkholes, landslides, debris flow and mudslides.

### Sinkhole

Sinkholes are generally defined as a natural depression or hole in the surface topography formed by mechanisms such as the gradual removal of soluble bedrock by percolating water, the collapse of cave roofs (due to some seismic activity), or the lowering of the water table. These natural phenomena occur in areas where the subsurface rock consists of evaporites (salt, gypsum, and anhydrite) and carbonates (limestone and dolomite). However, the correlation between sinkholes and land-use practices indicate that sinkholes are often human-induced through overpumping groundwater and through altering natural water drainage patterns.

In the State of Georgia, sinkholes occur due to the underlying carbonate rock beneath the area running along the fall line (border between the coastal plain and Piedmont region of Georgia) and the southern Appalachian Mountains. The spatial dispersion of sinkhole-susceptible soils in Georgia is found in Figure 2.52. In terms of spatial extent, sinkholes can affect areas from less than one meter to several hundred meters in diameter and depth.

**FIGURE 2.52 GEOLOGY ASSOCIATED WITH SINKHOLE POTENTIAL IN GEORGIA.**



Temporal characteristics greatly depend on the underlying bedrock, and seasonality is not a factor. In other words, seasonality has no effect on sinkholes because the hazard is not meteorological. The rate of onset and duration of the event greatly depend on the type of sinkhole forming. Subsidence and solution sinkholes typically form gradually in areas of thin overburden or exposed carbonate rock, respectively. Collapse sinkholes occur rapidly in areas with thick overburden after the confining layer is breached. Therefore, the rate of onset is slow for subsidence and solution sinkholes but rapid for collapse sinkholes, and the duration of the event is longer for subsidence and solution sinkholes and shorter for collapse sinkholes. No frequency estimates

exist for sinkholes except that they are more likely to develop in areas with soluble bedrock, which are depicted in Figure 2.52.

### **Profile**

Official measures and scales of magnitude and intensity do not exist for sinkholes. However, the magnitude can be measured by the areal extent of the sinkhole, and intensity can be estimated by the losses involved with the hazard event.

The databases used for hazard and risk assessment based on historic events and losses (SHELDUS, PDD) do not include information on sinkhole events. This relates to the fact that no sinkholes have caused significant losses in the State of Georgia at least since 1960. However, one notable sinkhole event took place during the 1994 flooding of Albany, Georgia, in Dougherty County in the wake of Tropical Storm Alberto. Numerous sinkholes formed under the floodwaters, with notable events occurring in Riverside and Oakview Cemeteries in downtown Albany, where a combination of flood waters and subsiding terrain released disturbed gravesites. Although the gravesites were affected by both floodwaters and sinkholes, the federal and state declarations and subsequently administered grants for Dougherty County for this event only pointed to flooding as the hazard event.

Sinkholes are identified as hazards in four local hazard mitigation plans as of June 5, 2018. Sinkholes are prevalent primarily in Lowndes County, particularly in the southern part of the county. Historically, some sinkholes in Lowndes County are quite large, measuring hundreds of yards across. Others are small with diameters of 30 to 40 feet. However, the degree of the threat of potential sinkholes in Lowndes County is unknown. Based on limited data, there is a 25% chance of a sinkhole event occurring in Lowndes County each year. There is, however, no data available at this time to predict when or where such a sinkhole might occur in Lowndes County.

To assess the risk or probability of future sinkhole events, a detailed history of sinkholes through some period of time must be known. Currently, Georgia does not have a detailed history of sinkhole events for the entire state. With no recorded losses from sinkhole events except those compounded by other hazards (such as the Albany floods), the sinkhole hazard threat in the State of Georgia is not significant enough to warrant further analysis or inclusion in the composite assessment at the end of this chapter.

### **Landslides and Debris Flow**

Landslides occur in all U.S. states and territories and can be caused by a variety of factors including earthquakes, storms, volcanic eruptions, and fire as well as by human modification of land. Landslides can occur quickly, often with little notice, and the best way to prepare is to stay informed about changes in and around a home that could signal that a landslide is likely to occur.

In a landslide, masses of rock, earth, or debris move down a slope. Debris and mud flows are rivers of rock, earth, and other debris saturated with water. They develop when water rapidly accumulates in the ground during heavy rainfall or rapid snowmelt, changing the earth into a flowing river of mud or “slurry.” The materials can flow rapidly, striking with little or no warning at avalanche speeds. They also can travel several miles from their source, growing in size as they pick up trees, boulders, cars, and other materials.

Landslide problems can be caused by land mismanagement, particularly in mountain, canyon, and coastal regions. In areas burned by forest and brush fires, a lower threshold of precipitation can initiate landslides. Land-use zoning, professional inspections, and proper design can minimize many landslide, mudflow, and debris flow problems.



## Profile

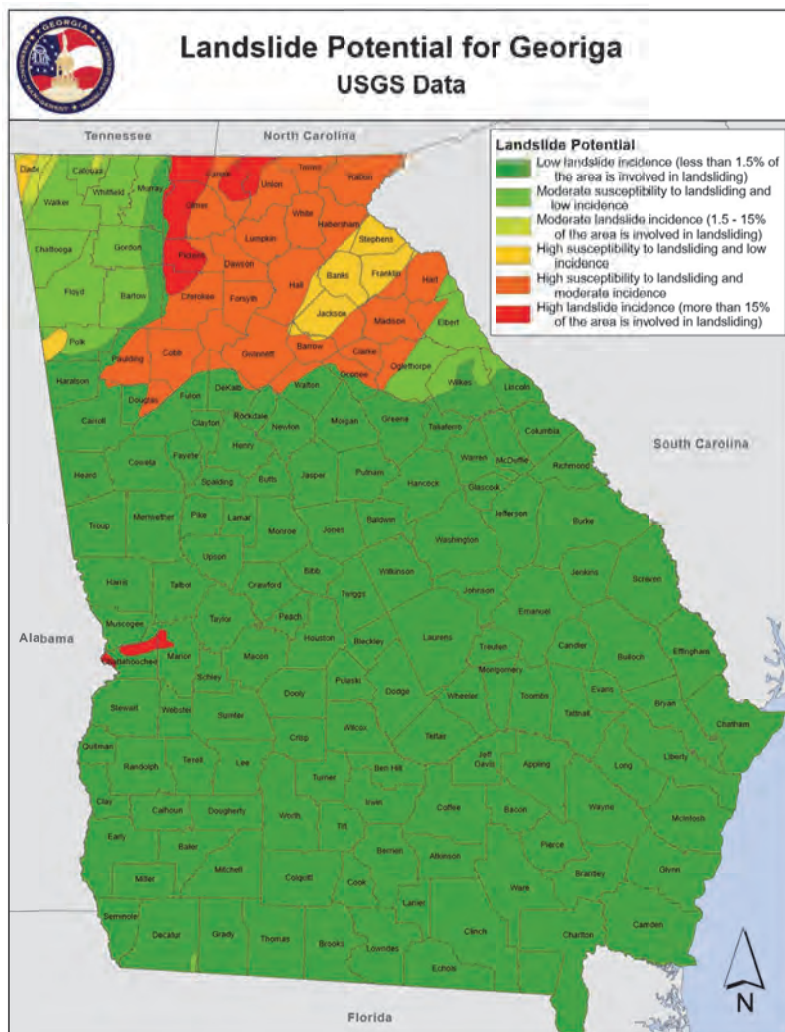
A comprehensive historical record is difficult to compile because many landslide and debris flow events are minor, do not cause significant damage, or go unreported. For 1952 to 2017, SHELDUS/NCEI lists only three events, two of which occurred in Rabun County. In 2004 a landslide was triggered in Rabun County by excessive rainfall from Hurricane Ivan as it passed through the state. Property losses from this event were estimated at \$100,000. In 2006, Rabun County experienced another landslide as a result of heavy rains, causing no significant damages. In 2015, Gilmer County experienced multiple landslides as a result of heavy rains. Damages were estimated at \$200,000.

In August 2013, heavy rains created a mudslide in Sandy Springs, Georgia, that closed a local road. The road was closed for several months while a retaining wall was constructed at a cost of approximately \$1 million. Residents have reported eight other mudslides in the area.

The most vulnerable locations in Georgia are identified in Figure 2.53. Higher risk areas are mostly located in North Georgia, where steeper slopes exist in mountain and hill terrain.

Given the variety of events that could cause landslides or debris flows and the incomplete records of previous occurrences, it is not currently possible to determine the future probability, nor any measure of magnitude or severity, of an event in Georgia.

**FIGURE 2.53 LANDSLIDE POTENTIAL FOR GEORGIA**



### **Impacts from Climate Change**

Heavier downpours and greater precipitation amounts, which are anticipated with climate change, would increase the frequency and intensity of landslides and sinkholes, but these events have been too historically infrequent to speculate on how much worse they could become.

## 2.5.12 Dam Failure

### Associated Hazards:

Flooding, technological (man-made) hazards

Priority	Rank
Medium	11

### **Hazard Description**

A dam is a constructed barrier across flowing water that obstructs, directs, or slows the velocity of the water, creating a reservoir, lake, or impoundment. The structure is created to retain water for a variety of purposes such as generating power, providing water for irrigation or water supply, or controlling flooding.

The threat of dam failures is triggered by carelessness of design, construction, and maintenance. The integrity of older dams, often affected by weathering, mechanical changes, and the influence of chemical agents, is deteriorating. Not only is dam failure risk increasing (with aging infrastructure) but the population vulnerable to this hazard is also increasing due to downstream development. Even structures outside of the known 100 year floodplain could be affected by dam failures because of the water's often sudden release and velocity.

Dam failures are generally grouped into three classifications: hydraulic, seepage, and structural. The three types of failure sometimes compound upon one another to create complex and interrelated hazard events.

Hydraulic failures are a result of the uncontrolled flow of water over and around the dam structure as well as the erosive action on the dam and its foundation. The uncontrolled flow causing the failure is often classified as wave action, toe erosion, or gulying. Earthen dams are particularly susceptible to hydraulic failure because earthen materials erode more easily than other materials, such as concrete and steel. This type of failure constitutes approximately 40% of all dam failures.

While all dams exhibit some seepage, the velocity and amount of water are controlled to prevent failure. Seepage occurs through the structure and its foundation and erodes the structure from within. Seepage accounts for approximately 4% of all dam failures.

Structural failure involves the rupture of the dam or the foundation by water movement, earthquake, or sabotage. Large earthen dams and dams constructed with weak materials (such as silt) are especially susceptible to structural failure. This type of failure accounts for approximately 30% of all dam failures.

In Georgia, all of the major rivers are dammed at least once before leaving the state's boundaries. Also, numerous smaller dams, including agricultural dams, exist throughout the state. Therefore, the possibility of dam failure hazards exists throughout the state. The spatial extent of a dam failure event depends on the amount of water within the dammed reservoir and the downstream topography. Because of the high velocity of the water, flooding can strike beyond known floodplains.

Dam failures often have a rapid rate of onset, leaving little time for evacuation. The first signs of the failure may go unnoticed upon visual inspection of the dam structure. However, continual maintenance and inspection of dams often provides knowledge on the possibility of failure with certain precipitation amounts. The duration of the flooding event caused by the failure also depends on the amount of water and downstream topography. Given smaller volumes of water and a topography suited for transporting the water rapidly downstream, the event may only last hours. Because of the lack of seasonality and other predictive factors, the frequency of dam failures cannot be determined.



In terms of magnitude and intensity of the flooding event caused by dam failures, no measures exist. However, the National Dam Safety Program (NDSP) produces rankings and definitions of dam structures based on potential impact. Table 2.31 lists the dam categories and potential impact of dam failure.

**TABLE 2.31 DAM CLASSIFICATION FROM NDSP**

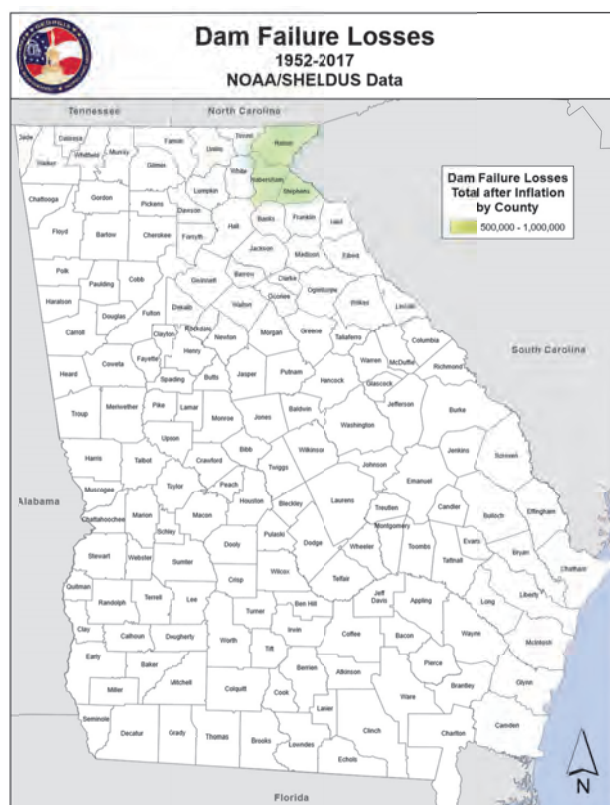
Classification	Loss of Human Life	Economic, Environmental, or Lifeline Loss
High	Probable, >1	Yes (not necessary for classification)
Significant	None expected	Yes
Low	None expected	Low and generally limited to owner

The maps of historical dam failure events and associated losses in the State of Georgia, Figures 2.54 and 2.55, only show one event from 1952 to 2017.

**FIGURE 2.54 DAM FAILURE EVENTS IN GEORGIA, 1952–2017**



**FIGURE 2.55 DAM FAILURE LOSSES IN GEORGIA, 1952–2017**



In 1977, the Kelly Barnes Dam in Toccoa failed. The original structure consisted of a rock crib dam built in 1899 in order to create a small reservoir for a hydroelectric plant. The Toccoa Falls Bible Institute built an earthen dam over the original rock crib dam in 1937 to develop a more stable electric power source. The dam structure was raised several times, reaching 42 feet above the rock foundation by 1957, when power production was halted and the reservoir was solely utilized for recreation. At around 1:30 am on Sunday, November 6, 1977, the Kelly Barnes Dam failed. This collapse resulted in a flash flood that swept downstream causing 39 fatalities and \$2.3 million in property damage. The cause of the failure is undetermined but probably stemmed from a local slide on the steep downstream slope most likely associated with piping (a form of seepage) and a localized breach in the crest followed by progressive erosion, saturation of the downstream embankment, and the subsequent total collapse of the structure.

**TABLE 2.32 DAM FAILURE NOTABLE EVENTS**

Date	Name	Description
11/6/1977*	Kelly Barnes Dam	DR541; Dam Collapse, Flooding

\*Presidential declared disaster.

From 1992 to 2017, SHELDUS/NCEI reports a total of 3 events, including the Kelly Barnes event described above. This equates to a statistical 5% chance the State could experience a dam failure event in any given year.

Other dam failures have occurred in Georgia, some related to the spring of 1990 flooding and the July 1994 flooding associated with Tropical Storm Alberto. However, these dam failures were not documented as significantly contributing to already flooded conditions.

To complete a risk assessment for dam failures in the State of Georgia, the location of all the potential sources of the hazard (the dams) must be located and evaluated using some categorization of failure potential (risk). In an attempt to meet this criterion, the Georgia Safe Dams Act of 1978 established Georgia's Safe Dams Program. The Environmental Protection Division (EPD) within the Georgia Department of Natural Resources (DNR) is responsible for administering the program. The purpose of the program is "to provide for the inspection and permitting of certain dams in order to protect the health, safety, and welfare of all citizens of the state by reducing the risk of failure of such dams." The program is responsible for inventorying and classifying dams and regulating and permitting high hazard dams.

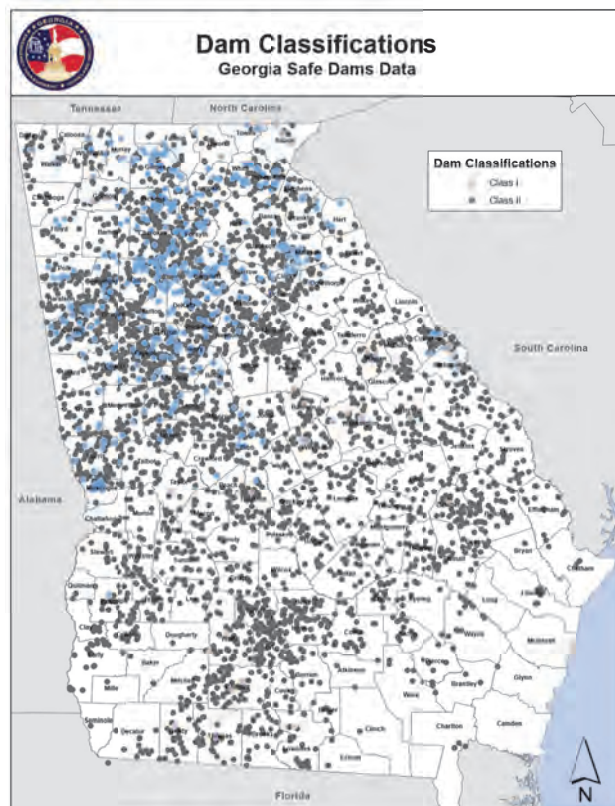
For this plan update, Georgia EPD provided safe dams data for Category I and Category II dams. The definitions of these dams are different from the NDSP definitions.

**Category I** includes dams for which improper operation or dam failure would result in probable loss of human life. Situations constituting "probable loss of life" involve frequently occupied structures or facilities, including, but not limited to, residences, commercial and manufacturing facilities, schools, and churches.

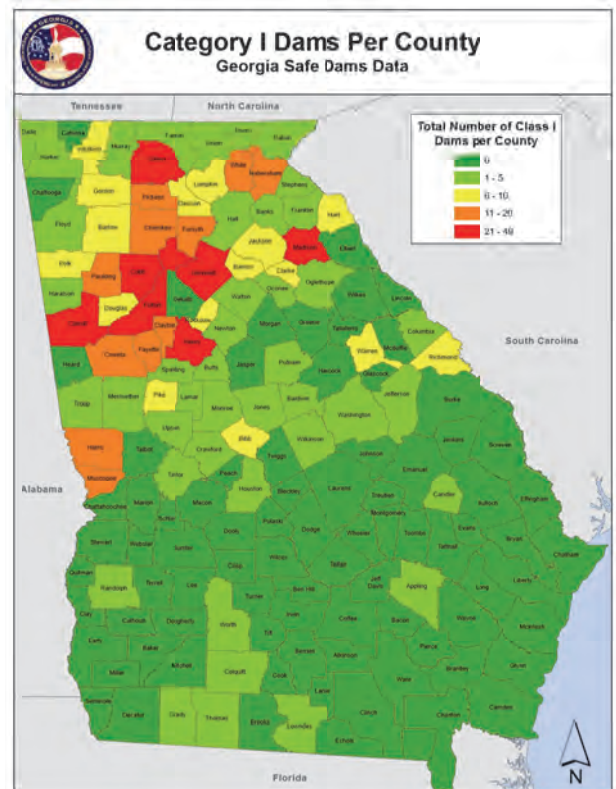
**Category II** is the classification in which improper operation or dam failure is not expected to result in probable loss of human life. (Georgia Department of Natural Resources, Environmental Protection Division Rules Chapter 391-3-8)

The map in Figure 2.56 shows the location of all Category I and Category II dams in the state. Figure 2.57 depicts the total number of Category I dams by county. This data illustrates that the most populous area of the state, the Atlanta Metro region, also has the greatest amount of risk due to dam failure as this area has the highest number of Category I dams.

**FIGURE 2.56 CLASSIFICATION OF DAMS IN GEORGIA.**

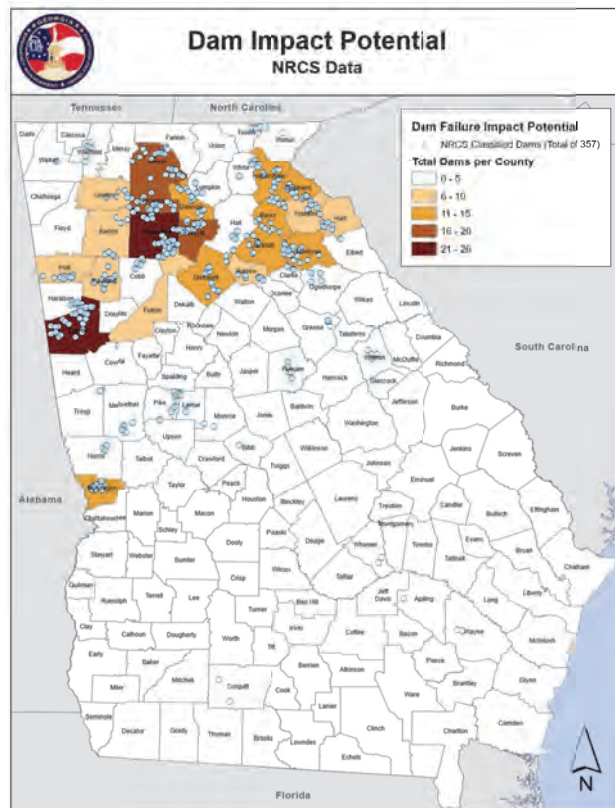


**FIGURE 2.57 CATEGORY 1 DAMS PER COUNTY IN GEORGIA.**

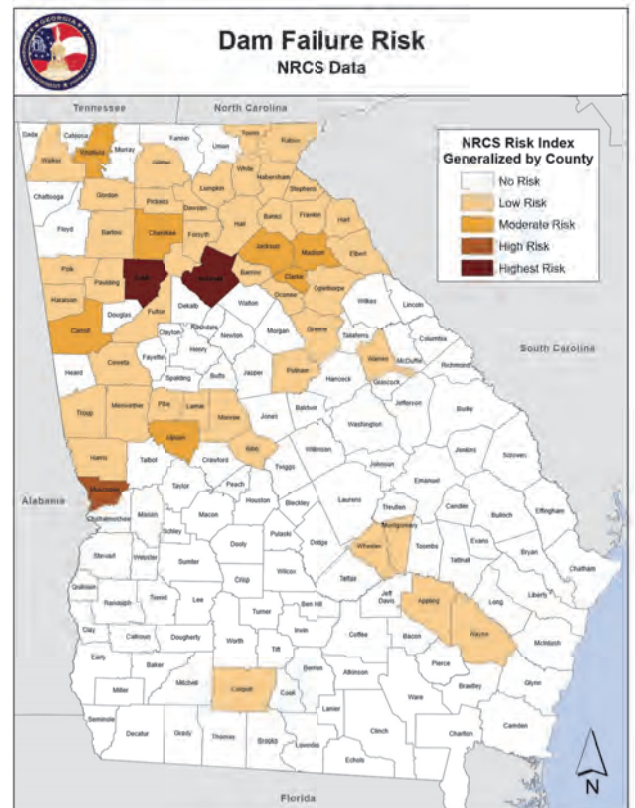


The dams presented in Figures 2.55 and 2.56 are considered watershed dams in that they meet Georgia's definition of a dam (any structure 25 feet or more in height or one impounding a 100-acre area of water at the top of the dam) that was built with 100% federal money on private land through the coordination of the USDA Natural Resources Conservation Service (NRCS) and local Soil and Water Conservation districts. This data, provided by NRCS and representing a small portion of dams that exist within the State of Georgia, allow for analysis to determine the counties with the most impact potential (based on the mere existence of dams). The dam impact potential map, Figure 2.58, illustrates the NRCS-classified watershed dam locations within Georgia coupled with a summary of total dams per county. The highest concentration of watershed dams within Georgia counties is in Cherokee and Carroll Counties, and most of the watershed dams are in the northern portion of the state. The dam failure risk map, Figure 2.59, utilizes a NRCS risk analysis that includes an indicator of failure potential, population at risk, structures at risk, and interstates and secondary roads at risk to calculate an overall risk index for each of the 357 watershed dams shown in Figure 2.58. All of the dams' risk values within each county were combined to calculate each county's overall dam failure risk. The counties with the highest risk are Gwinnett, Cobb, and Muscogee. This map also illustrates that the northern portion of Georgia has the highest risk for dam failure.

**FIGURE 2.58 IMPACT POTENTIAL FOR DAMS IN GEORGIA.**



**FIGURE 2.59 FAILURE RISK FOR DAMS IN GEORGIA.**





### **Impacts from Climate Change**

The trend in flood magnitude for Georgia is actually a 3-6% decrease over the past decade. However, flooding may intensify in many U.S. regions, even in areas where total precipitation is projected to decline. Major weather factors that contribute to flooding include heavy or prolonged precipitation, snowmelt, thunderstorms, storm surges from hurricanes, and ice or debris jams. Human factors that contribute to flooding include structural failures of dams and levees, altered drainage, and land-cover alterations (such as pavement).

As warming increases, this causes heavy downpours and leads to more rapid spring snowmelt. These heavier, more intense rains could potentially result in more dam failures, though, as noted above, the impacts from many of those failures may be indistinguishable from larger ongoing events.

## 2.5.13 Extreme Heat

### Associated Hazards:

High Heat, Heat Waves, Excessive Heat

Priority	Rank
Medium	10

This section is intended to cover times of dangerously high temperatures which endanger peoples' life, health and safety.

### **Hazard Description**

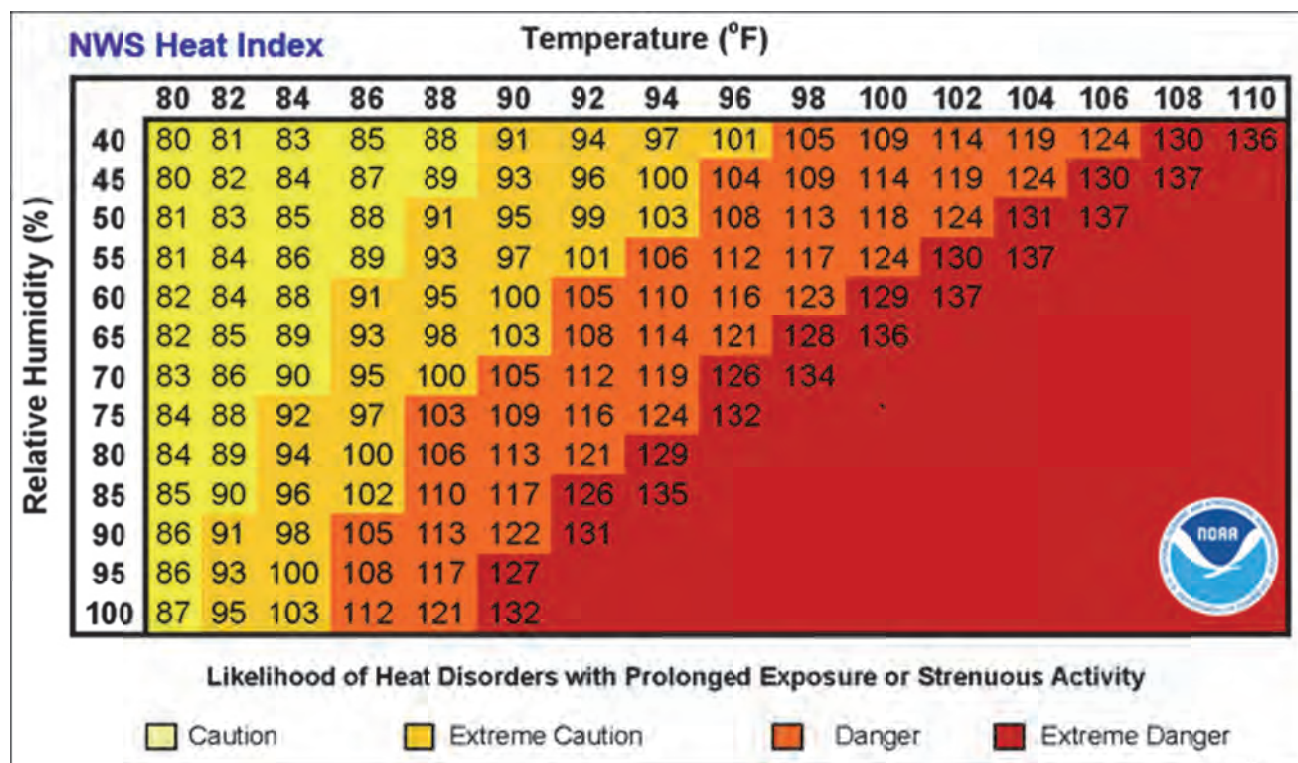
The term extreme heat can be subjective to a degree. FEMA, in their "Mitigation Ideas" publication defines extreme heat as "the condition where temperatures consistently stay ten degrees or more above a region's average high temperature for an extended period." The key to this definition is, extreme heat is relative to the average temperature, regardless of the time of year. For example, the National Center for Environmental Information (NCEI) records heat events in Georgia with 60 and 70 degree temperatures in December and January, simply because they are significantly higher than the average temperature for that time of year. According to [www.ready.gov/heat](http://www.ready.gov/heat), FEMA also offers another definition of extreme heat: "In most of the United States, extreme heat is defined as a long period (2 to 3 days) of high heat and humidity with temperatures above 90 degrees." This definition can also lead to some subjectivity in the term "extreme." For example, people that live in the southern parts of the country are more adapted to temperatures in the 90s and 100s than people that live in the more northern tiers. This is not to say those temperatures are not still dangerous. Notably, in recent years, more heat related deaths have occurred in the southern tier states than the northern tiers. The National Weather Service, however, focuses on "Excessive Heat," defining it as heat indices of 105 degrees or more using a combination of temperature and humidity as a "real feel."

### **Profile**

NOAA and SHELDUS together document 359 Extreme Heat type events from 1952 - 2017. NCEI, alone, documents 318 separate Excessive heat events between 2002 and 2015. Establishing a realistic statistical probability, however, is difficult at best. Notably, many of these "separate" occurrences in the NCEI records occurred on the same day, which, for the purpose of statistical modeling, artificially inflates the number of events. In the record, there are 13 days with recorded events in the 2002 – 2015 timeframe. Based on that, 13 days in 13 years leads to a 100% statistical chance of an occurrence in any given year. This, however, is also questionable based on the records because many of these days are consecutive. Based on the FEMA definition of Extreme Heat (2-3 days), recorded events on consecutive days could be considered one occurrence due to the "regional" nature of extreme heat / excessive heat / heat wave events. Notably, in the NCEI record, there are many years with no documented "Heat" or "Excessive Heat" events.

Official measures and scales of magnitude and intensity do not exist for extreme heat. The best way to determine a realistic magnitude for extreme heat would be based on temperatures and heat indices. According to the National Weather Service, the heat index is a measure of how hot it really feels when relative humidity is factored in with the actual air temperature. Figure 2.60 below shows how the heat index is determined based on temperature and humidity. Establishing a statistical magnitude, or extent, is difficult at best. The NCEI records mentioned above are inconsistent in whether they describe the temperature of the event, the heat index of the event, or neither. Nevertheless, in August 2011, Chatham County recorded a heat index of 118 degrees. In June 2012, The City of Macon recorded a high temperature of 108 degrees. While these temperatures are extreme for Georgia, the record shows they can occur.

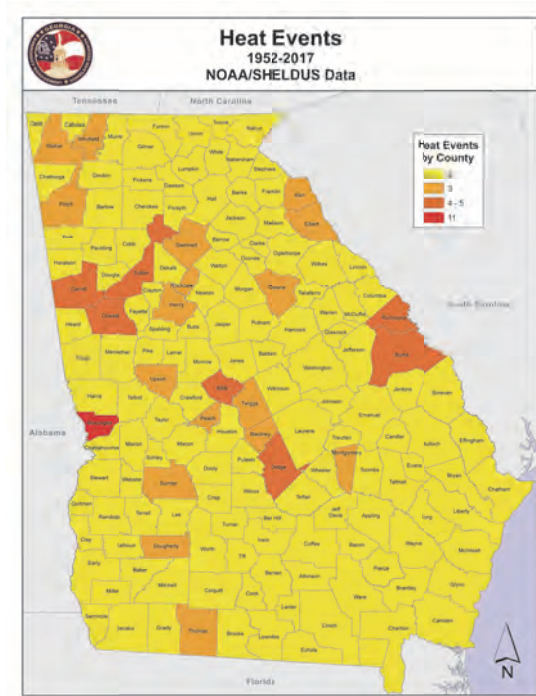
**FIGURE 2.60 NATIONAL WEATHER SERVICE HEAT INDEX**



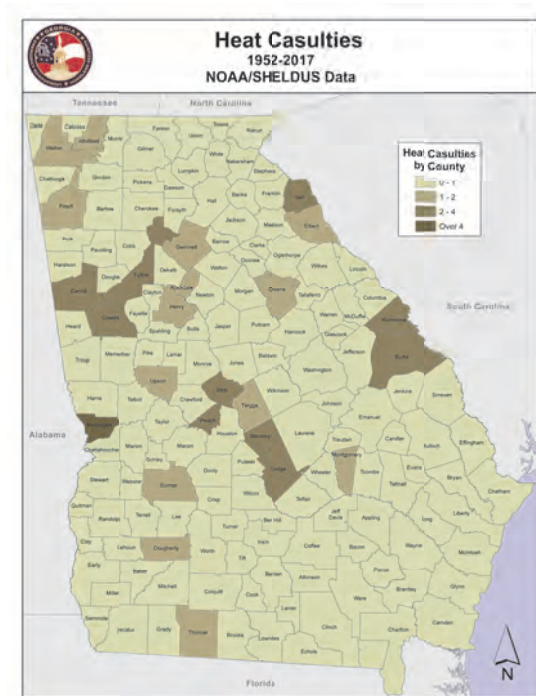
In terms of impacts, aside from taxing power systems, the primary losses from extreme heat events are deaths and injuries. Figure 2.61 depicts the number of heat events that occurred between 1952 and 2017. Figure 2.62 depicts the number of casualties that have occurred in that timeframe. Georgia recorded 4 injuries and 143 deaths. This equates to 2-3 deaths/injuries per year. One recorded event in September 2015 showed temperatures in the low 90s, which is not abnormal for that time of year; however, a child did perish after being left in a vehicle where temperatures reached 130-170 degrees, well within the extreme danger zone indicated by the Heat index chart above.



**Figure 2.61 Heat Events 1952 – 2017**



**Figure 2.62 Heat Casualties 1952 - 2017**



### **Impacts from Climate Change**

As temperatures rise, Georgia could become susceptible to more frequent and/or intense heat waves. Heat waves are periods of abnormally hot weather lasting days to weeks. The number of heat waves has been increasing in recent years, with the number of intense heat waves being almost triple the long-term average. Analyses show that climate change has generally increased the probability of heat waves, and prolonged (multi-month) extreme heat has been unprecedented since the start of reliable instrumental records in 1895.

## 2.6 SOCIAL VULNERABILITY ASSESSMENT

While vulnerability can include a range of assets that can be impacted by hazards, the data in this vulnerability assessment is limited to social vulnerability. Social vulnerability comprises the social, economic, demographic, and housing characteristics that influence a community's ability to respond to, cope with, recover from, and adapt to environmental hazards.

The tool used to determine the social vulnerability of each county is the Social Vulnerability Index (SoVI®). SoVI® 2010-14 measures the social vulnerability of U.S. counties to environmental hazards. The index is a comparative metric that facilitates the examination of the differences in social vulnerability among counties and graphically illustrates these differences. It shows where there is uneven capacity for preparedness and response and where resources might be used most effectively to reduce vulnerability. SoVI® also is useful as an indicator in determining each county's different capabilities to recover from disasters.

### 2.6.1 Methods

The index synthesizes 29 socioeconomic variables, listed in Table 2.33, that research literature suggests contribute to a reduction in a community's ability to prepare for, respond to, and recover from hazards. SoVI® data sources are based solely on the U. S. Census Bureau estimates.

**TABLE 2.33 VARIABLES INCLUDED IN THE SOCIAL VULNERABILITY INDEX (SOVI) ANALYSIS**

SOVI Variables	
Hospitals per capita	Percent Civilians Unemployed
Median age	Per capita income
Service industry employment	People per household
Percent Households on Social security	Percent Households earning over 200,000
Extractive industry employment	Percent Poverty
Percent Native American population	Median House Value
Percent Asian	Percent Renters
Percent Black	Median Gross Rent
Percent Hispanic	Percent Female headed households
Percent population under 5 or over 65	Percent Mobile homes
Percent population over 65	Percent population less than 12 <sup>th</sup> grade education
Nursing Home Residents per capita	Female labor force participation
Percent population without health insurance	Population Speaking English as Second Language with limited Proficiency
Percent Female population	Population Housing with No Car
	Percent Unoccupied Housing Units

The data is compiled and processed by the Hazards and Vulnerability Research Institute at the University of South Carolina. The variables in Table 2.33 are grouped together into 8 similar components. Each component is assigned a positive or negative cardinality, based on its anticipated impact on the social vulnerability of the area. The lower the SOVi score, the more capable the community is to recover from disasters. Therefore, the components that research suggests would improve a community's capability to recover are given a negative cardinality. For example, the research suggests more affluent communities tend to be more resilient, or better able to recover. Therefore, the wealth component is given a negative cardinality because it would lower the SOVi score meaning the community is more resilient to disasters. Table 2.34 below shows the components and their cardinality (i.e. whether they have a positive or negative effect on the SOVi score.) The SoVI variables listed in Table 2.33 explain 78% of the variance in the data. A complete list of the variables within each component is included in Appendix D.

**TABLE 2.34 COMPONENT IMPACT ON SOCIAL VULNERABILITY INDEX (SOVI) ANALYSIS**

Component	Score Impact
Wealth	-
Race (Black) and Social Status	+
Age (Elderly)	+
Ethnicity (Hispanic) and lack of Health Insurance	+
Special Needs Populations	+
Service Sector Employment	+
Race (Native American)	+
Gender (Female)	+

## 2.6.2 Assessing Social Vulnerability by Jurisdiction

After completing the SoVI methodology, the results are tabulated and mapped in GIS. Tables 2.35 and 2.36 list the counties with the highest and lowest SoVI scores, respectively, for the State of Georgia.

**TABLE 2.35 MOST VULNERABLE COUNTIES IN GEORGIA**

Highest Vulnerability	SoVI Score
Taliaferro County	6.44
Clay County	6.44
Randolph County	5.44
Towns County	5.40
Union County	4.39
Terrell County	4.07
Jefferson County	3.81
Dougherty County	3.77
Wilkes County	3.68
Pulaski County	3.52

**TABLE 2.36 LEAST VULNERABLE COUNTIES IN GEORGIA**

Lowest Vulnerability	SoVI Score
Chattahoochee County	-9.70
Wheeler County	-7.57
Forsyth County	-6.96
Oconee County	-5.78
Lee County	-5.59
Fayette County	-5.42
Effingham County	-4.99
Harris County	-4.96
Columbia County	-4.88
Bryan County	-4.47

The map of relative SoVI scores, Figure 2.63, shows the social vulnerability of all counties in the state. Table 2.37 gives the number of counties that fall under each SoVI score. The scores are categorized based on standard deviations from the average score for the entire state. Table 2.38 provides the standard deviation for each of the hazard scores.

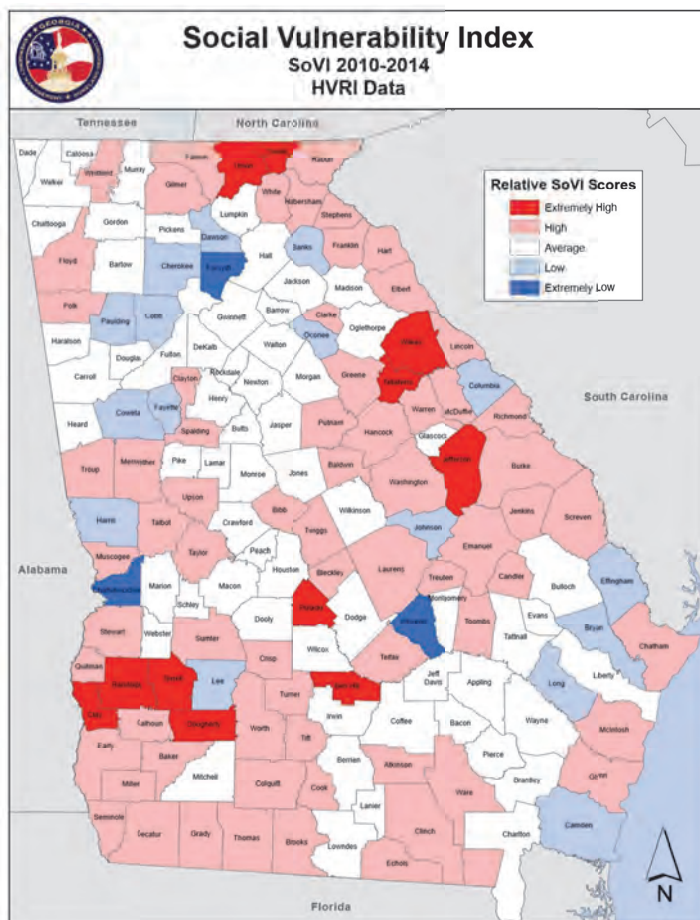
**TABLE 2.37 NUMBER OF COUNTIES BY SOVI SCORE**

SoVI Score	Number of Counties
Extremely High	11
High	67
Average	62
Low	16
Extremely Low	3

**TABLE 2.38 STANDARD DEVIATION FROM STATE AVERAGE, SOVI SCORES**

SoVI Score	Number of Counties
Extremely High	6.44 to 3.22
High	3.21 to -0.01
Average	-0.02 to -3.23
Low	-3.24 to -6.46
Extremely Low	-6.47 to -9.70

**FIGURE 2.63 SOCIAL VULNERABILITY INDEX BY COUNTY.**



## **2.7 COMPOSITE ASSESSMENT**

The composite assessment is a compilation of the Social Vulnerability Index scores in Section 2.6 and hazard risk scores for storm surge (SLOSH), wind, flood, wildfire, and earthquake. These are the only hazards included in the composite risk because they are the only ones that are spatially constricted or exhibit a strong spatial pattern. The hazard scores are different from those used in the risk ranking in that they only factor in location and potential extent. The scores for each of these five hazards are described in the Tables 2.39 to 2.43.

**TABLE 2.39 SLOSH HAZARD SCORES**

Hazard Score	Description
5	Inundated by a Category 1 hurricane
4	Inundated by a Category 2 hurricane
3	Inundated by a Category 3 hurricane
2	Inundated by a Category 4 hurricane Inundated by a Category 5 hurricane

**TABLE 2.40 WIND HAZARD SCORES**

Hazard Score	Description
5	>120 mph gust
4	111–120 mph gust
3	101–110 mph gust
2	91–100 mph gust
1	<90 mph gust

**TABLE 2.41 FLOOD HAZARD SCORES**

Hazard Score	DFIRM Zone	Description
4	Floodway / AE / FW	Floodway (within AE)
4	VE	1% Annual Chance of Flood with velocity, BFE
3	A	1% Annual Chance of Flood no BFE
3	AE	1% Annual Chance of Flood with BFE
3	AH	1% Annual Chance of Flood Ponding has BFE
3	AO	1% Annual Chance of Flood Sheet flow has depths
3	1 PCT FUTURE	1% Annual Chance of Flood Future Conditions
2	0.2 PCT ANNUAL CHANCE	0.2% Annual Chance of Flood
1	AREA NOT INCLUDED	Area not included in survey
1	D	Undetermined but possible

**TABLE 2.42 WILDFIRE HAZARD SCORES**

Hazard Score	Description
4	High Risk
3	Moderate Risk
2	Low Risk
1	Very Low Risk
0	No Houses
	Agriculture
	Bodies of Water
	Dense Urban Development

**TABLE 2.43 EARTHQUAKE HAZARD SCORES**

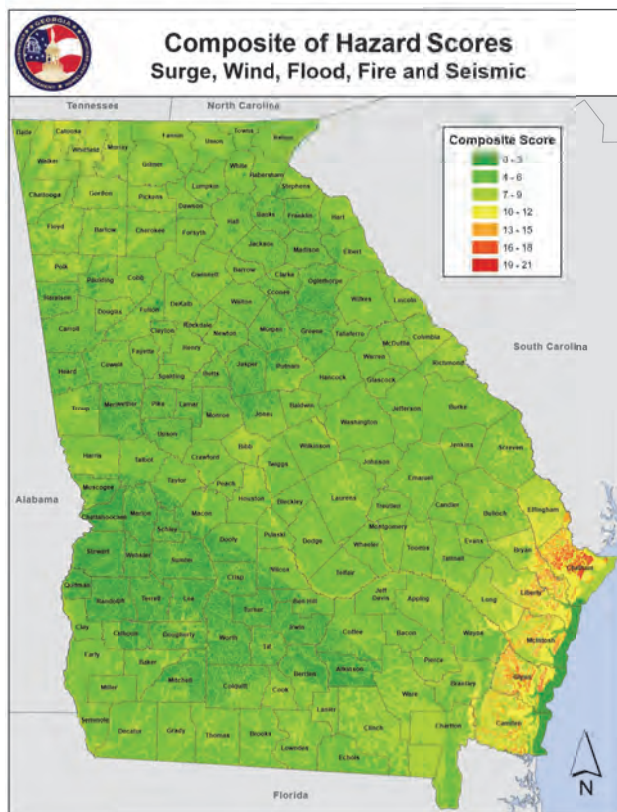
Hazard Score	Description
4	50–83% g value
3	33–50% g value
2	17–33% g value
1	0–17% g value



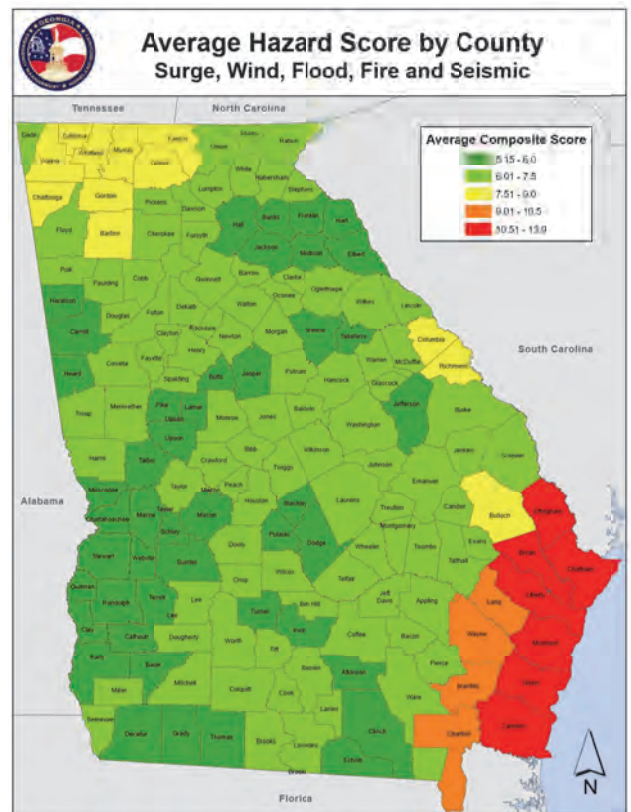
Figure 2.64 illustrates the composite of the hazard scores. The values, ranging from 0 to 21, represent the least to the most hazardous areas in the state, respectively. The areas highlighted in red have the highest composite hazard scores, indicating greater hazard potential. This map proves useful in sub county assessments because the scores provide somewhat continuous hazard data that is not confined by jurisdictional or other unrelated boundaries.

Figure 2.65 illustrates the average hazard score by county and includes the same hazards listed above. This map identifies the counties that have substantially more risk of hazard events than other counties. For example, the coastal region of Georgia and the mountainous northern portion of the state are at more risk than the interior. Because the hazards are not weighted in terms of impact (storm surge being more hazardous than wind, for example), these similarities in risk are caused by different hazards. For example, the coast is mainly at risk to flooding events (storm surge and inland flooding), while the mountainous north is more at risk to seismic events along with inland flooding. The most at-risk counties (based on average) and their respective scores are found in Table 2.44.

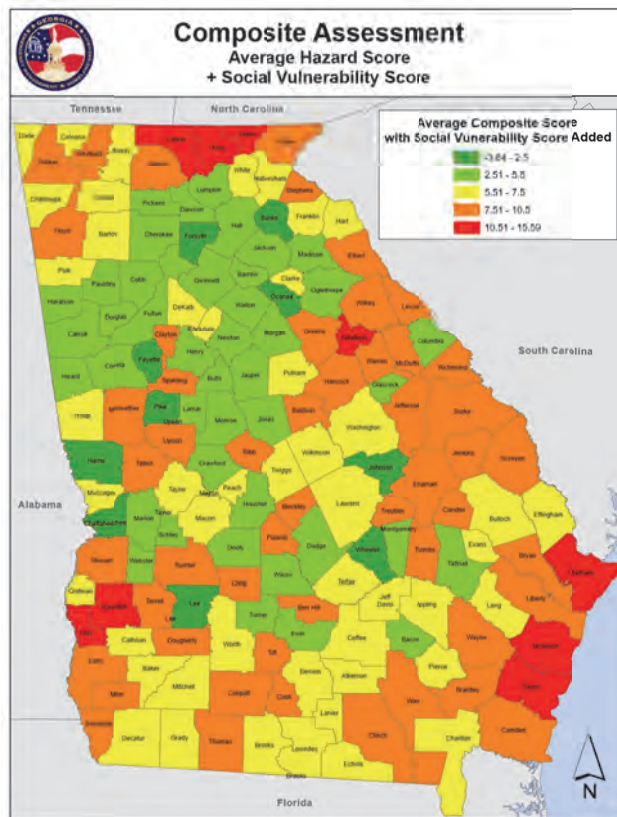
**FIGURE 2.64 COMPOSITE HAZARD SCORES FOR GEORGIA.**



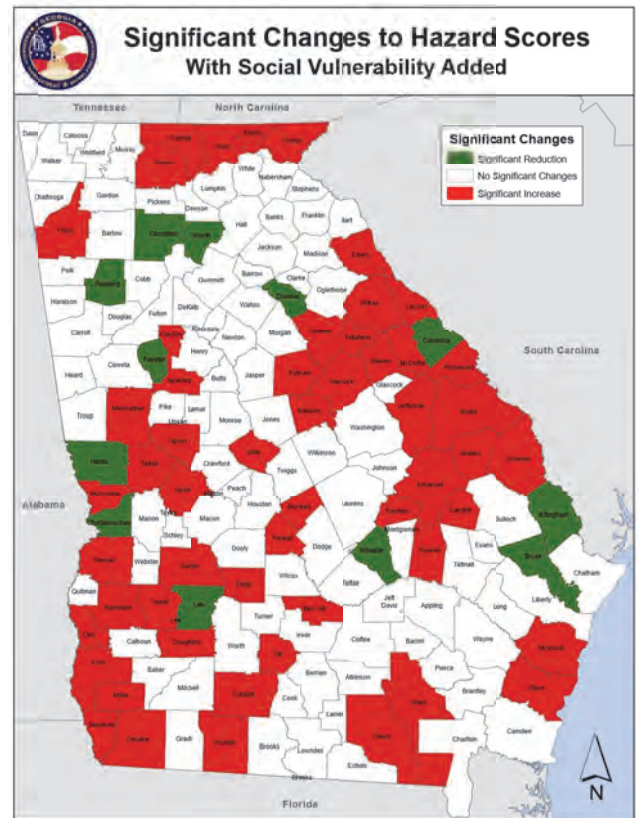
**FIGURE 2.65 AVERAGE HAZARD SCORE BY COUNTY.**



**FIGURE 2.66 COMBINED HAZARD SCORE  
AND SOCIAL VULNERABILITY INDEX  
SCORE**



**FIGURE 2.67 COMBINED HAZARD RISK  
AND SOCIAL VULNERABILITY INDEX  
SCORE, CHANGES TO TOTAL SCORE**



**TABLE 2.44 COUNTIES WITH HIGHEST AVERAGE HAZARD SCORES**

County	Average Hazard Score
Chatham County	13.9
McIntosh County	13.0
Glynn County	12.8
Liberty County	12.5
Bryan County	12.4
Camden County	11.6
Effingham County	11.1
Wayne County	10.2
Long County	10.1
Brantley County	9.9

**TABLE 2.45 COUNTIES WITH HIGHEST COMPOSITE SCORE**

County	Composite Score (Hazard+SoVI)
Glynn County	15.6
McIntosh County	14.1
Chatham County	14.1
Taliaferro County	12.3
Towns County	12.2
Clay County	11.8
Union County	11.0
Randolph County	10.9
Fannin County	10.9
Wilkes County	10.5

By combining the hazard scores with social vulnerability scores from Section 2.6, an estimate of total risk can be calculated for each county. Figure 2.66 combines the average hazard score with the SoVI score for each county. These scores are categorized into five groups. The red and orange shading indicates the most at-risk and vulnerable counties within the State of Georgia, and the green counties are the least at-risk and vulnerable. The counties with the highest combined scores are listed in Table 2.45.

Adding social vulnerability to the hazard scores changes the risk for several counties, and Figure 2.67 highlights those counties with significant changes. Some counties with less risk have a higher combined score due to high SoVI scores. A comparison of Figures 2.63 and 2.67 shows the relationship between the Social Vulnerability (SoVi) scores and the changes to the hazard score when SoVi is added in as reflected in Table 2.67. Specifically, counties in Figure 2.67 showing an increase in vulnerability after Social Vulnerability is added in are many of the same counties shown in Figure 2.63 to have a high or extremely high SoVi scores. In contrast, counties in Figure 2.67 showing a significant reduction after SoVi is added in, are many of the same counties in Figure 2.63 with a low SoVi score. This leads to the conclusion that counties with lower social vulnerability are better able to recover from disasters than counties with higher social vulnerability, thereby reducing their overall vulnerability to the hazards. On the other hand, counties with higher social vulnerability are considered to be less capable of recovering, thereby increasing their overall vulnerability to disasters. An explanation of the variables used in the SoVi, including how each variable impacts the overall SoVi score, is provided in Section 2.6.1. As Section 2.6 explained, these are the counties where the population has comparatively less capacity than other counties to prepare for, respond to, and recover from a hazard event. In contrast, the total risk to some counties decreases when social vulnerability is factored in because the population of these counties exhibits greater potential for preparation, response, and recovery.

Development can also affect a community's risk. The data indicates, for example, that growing suburban communities surrounding larger metropolitan statistical areas have lower SoVI scores, which when added to the composite scores lowered the overall assessed vulnerability of those communities. Examples of this

include Columbia, Harris, Lee, and Fayette Counties, which surround Augusta, Columbia, Albany, and Atlanta, respectively. This would seem to suggest that population increases due to suburban development tend to lower a community's overall vulnerability. In scoring the different variables, the index assigns those related to wealth a low score, thereby reducing the social vulnerability of wealthy areas. These suburban areas noted above tend to be more affluent, having a higher per capita income than their surrounding areas, thereby lowering their vulnerability in the Social Vulnerability Index score. If these changes in development continue, they could affect future risk and vulnerability assessments. Note that variables related to growth and development are included in SoVI and, therefore, are incorporated into the composite assessment. Thus, the ranking of the most vulnerable and most at-risk counties has been updated to reflect these factors.

## **2.8 LOSS POTENTIAL**

At present, the best available method to estimate potential losses is in relation to two types of facilities: state-owned or leased facilities, and locally reported critical facilities. The analysis derives critical facility data from the Georgia Mitigation Information System (GMIS). This system allows authorized users to add local critical facility data to a database and generate reports against hazard datasets. Since completion of the last hazard mitigation plan, GMIS has continued to be enhanced to make the tools and data as useful as possible. GEMA/HS requires each county to enter its critical facility data as part of the local planning process. This section discusses the critical facility loss potential of local jurisdictions and state facilities. Information on repetitive loss properties is also presented.

Changes in development can increase or decrease biophysical vulnerability. Therefore, as vulnerability changes due to development, the estimates of loss change as well. With increases in development in the higher hazard areas, the estimates of loss will increase accordingly. This GHMS update includes the monetary potential for loss for both state facilities and critical facilities. Completed mitigation projects such as acquisitions are a minor change in development that may have decreased loss estimates for those areas. Since the 2014 GHMS, 70 properties have been acquired by 12 local governments using 16 projects. GEMA/HS Hazard Mitigation staff members are in the process of developing additional methods for tracking development changes that could affect loss potential.

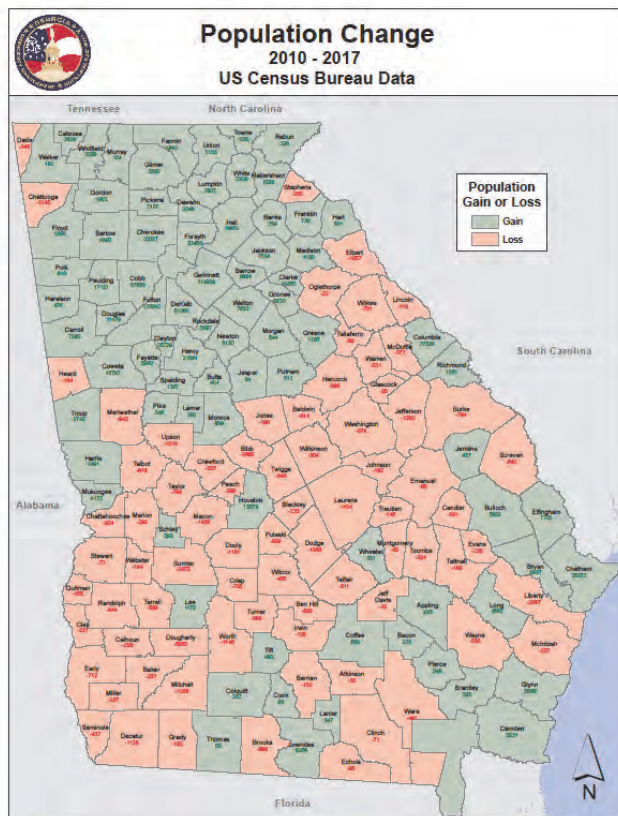
Future updates may address the impacts of development on these numbers by calculating the changes in value at risk and standardizing the difference using an indicator of development such as population change. Additional data and time would be necessary for such an analysis. For this update, however, the Planning staff looked at overall population changes throughout the State between 2010 - 2017 and increased urbanization from 1998 – 2015. Figure 2.68 below shows population changes from 2010 to 2017. Figure 2.69 shows areas of increased urbanization from 1998 to 2015. While the date ranges are slightly different for the two datasets, a comparison of the two maps shows a correlation between the areas of population increases and increased urbanization. On the other hand, areas with population decreases on figure 2.68 generally correlate to areas of less new urbanization shown on Figure 2.69. Additional data would be necessary to show how the various elements of the population (race, gender, age, income, etc.) changed and how that impacted the area's overall vulnerability. Nevertheless, adding people to a community means more people are at risk to the hazards that community is exposed to. Likewise, adding to urbanized areas, means more structures are vulnerable to the hazards in the area. While additional analysis is necessary to determine actual impact, it can be inferred that population, at least to a degree, drives urbanization, thereby placing more people and more structures and infrastructure at risk to the hazards the area faces. On a local level, these types of changes can have significant impacts on the local risk assessments, especially in newly suburbanized areas surrounding larger communities. However, on a statewide level, this analysis only confirms these areas are ones that have historically been growing communities. Therefore, these population and urbanization changes did not have a significant impact on the state's updated overall risk assessment.

### **2.8.1 Estimating Potential Losses by Jurisdiction**

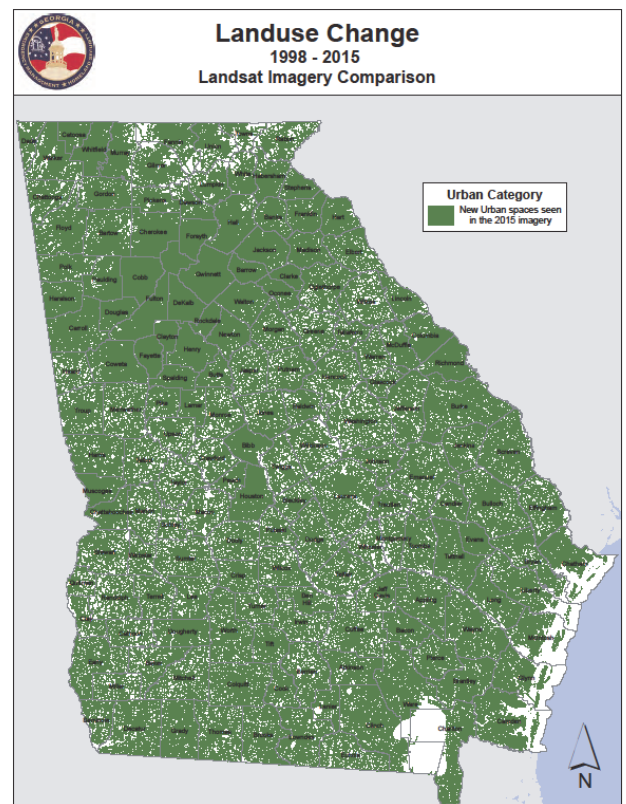
Critical facility data for this analysis include structures that should be able to continue to function and provide services in some capacity (not necessarily in accordance with their normal purpose) to surrounding populations during and after a hazard event. Typical critical facilities include hospitals, fire stations, police stations, critical record storage, schools, and similar facilities. As of September 30, 2017, the GMIS database contains 18,528 locally reported critical facilities. This total represents an increase of 385 critical facility records in the database since the last plan was produced.



**FIGURE 2.68 POPULATION CHANGES  
BETWEEN 2010 AND 2017**



**FIGURE 2.69 LAND USE CHANGES FROM  
INCREASED URBANIZATION**



The GMIS database is also designed to include numerous attributes of each locally reported critical facility (See Table 2.46). The accuracy and completeness of the facility information depends on the local officials using the GMIS. Therefore, as more and more local jurisdictions add to the database, the data continues to improve. For a record to be considered complete in the GMIS system, all of the attributes must be reported by the local officials. However, to produce the most comprehensive results possible, the analyses conducted for this report include incomplete records as well. The information presented below focuses on the two attributes in the GMIS system with the least missing data: estimated value and occupancy type.

**TABLE 2.46 GMIS CRITICAL FACILITY ATTRIBUTES**

Attribute Name	
ID	Is it Critical?
Latitude	Longitude
Jurisdiction	Building Name
Facility Type	Address 1
Address 2	City
Zip	County FIPS
Risk Types	Occupancy
Area	Structure Type Description
Year Constructed	Building Value
Valuation Type	Valuation Year
Content Description	Content Replacement Value
Contents Value Year	Structure Function Value
Quarter Loss	Half Loss
Three Quarter Loss	Full Loss
Daytime Occupancy	Nighttime Occupancy

Incorporating the locally provided GMIS data into the GIS hazard maps allows the spatial joining of the critical facility data with the composite hazard assessment. Also, the GMIS data is used to determine the percentages of critical facilities located in specific hazard categories (high to low composite hazard scores) and the estimated value of the critical facilities at varied risk to hazards. These results are found in Tables 2.47 and 2.48.

**TABLE 2.47 LOCAL CRITICAL FACILITIES BY HAZARD CATEGORY**

Hazard Category	Hazard Score Range	2014 Total Facilities	2019 Total Facilities	2014 % Total Facilities	2019 %Total Facilities
High	18-25	59	206	0.3%	1.11%
Moderate	9-17	1,395	2,162	19.9%	11.68%
Low	0-8	16,681	16,150	80.1%	87.21%



**TABLE 2.48 LOCAL CRITICAL FACILITY VALUE AT RISK, BY HAZARD CATEGORY**

Hazard Category	Hazard Score Range	2014 Estimated Value at Risk	2019 Estimated Value at Risk	2014 % Total Value	2019 % Total Value
High	18-25	\$16,725,605	\$258,446,191.48	0.02%	0.01%
Moderate	9-17	\$16,469,725,013	\$519,299,192,844.00	19.9%	17.33%
Low	0-8	\$66,171,116,486	\$2,476,568,618,040.00	80.1%	82.66%

As the tables illustrate, the majority of critical facilities and the facilities facing the greatest amount of estimated value at risk are located in low hazard areas. In terms of the estimated value of critical facilities at risk, 99% of the facilities are represented.

Table 2.49 identifies the critical facility types most commonly found in GMIS. These percentages reveal the types of critical facilities that counties are reporting into GMIS. All of these facilities fit the definition of critical facility: structures that should continue to function and provide services in some capacity to surrounding populations during and after a hazard event.

To evaluate the monetary potential for loss by jurisdiction, the locally reported critical facility data was combined with the average composite hazard scores. Table 2.50 presents the results of this evaluation and ranks the jurisdictions based on the highest value per facility, the highest average risk score per facility, and a combination of the two (the average value standardized by the average risk). As the table illustrates, these jurisdictions have potential for higher losses to the self-reported critical facilities due to these factors. Table 2.51 lists the jurisdictions with the highest total value in critical facilities, as reported in GMIS. One notable limitation to the tables, as noted earlier, the local critical facility is locally driven, including what is considered to be a critical facility. For the purposes of local critical facilities, as opposed to using a standard definition, each community defines what they consider to be critical based on the anticipated needs of their community during and after a disaster. For example, some communities only include the standard essential facility types of EOCs, police, fire, care facilities and schools. Other communities have determined things like banks and grocery stores are critical to the community's ability to recover, particularly in smaller communities with only one grocery store or few banks.

**TABLE 2.49 CRITICAL FACILITY TYPES: PERCENTAGE OF TOTAL REPORTED**

Building Type	Number of Buildings	% of Total	Building Type	Number of Buildings	% of Total
Government, Water/Sewer	5203	28.10%	Education, Government Offices	86	0.46%
Emergency Services, Fire Fighters	2132	11.51%	Law Enforcement, Court House	76	0.41%
Education, Government Offices	1447	7.81%	Law Enforcement, Police	71	0.38%
Education, K – 12	1210	6.53%	Education, Clinics	67	0.36%
Government, Private	718	3.88%	NGO, Transportation	56	0.30%
Education, Private	594	3.21%	NGO, Communications	50	0.27%
Law Enforcement, Police	521	2.81%	Medical, NH	47	0.25%
Education, Library	448	2.42%	Emergency Services, Government, Fire Fighters	43	0.23%
Law Enforcement, Court House	443	2.39%	Medical, Private	40	0.22%
Medical, Hospital	390	2.11%	Education, Government, K - 12	39	0.21%
Emergency Services, Emergency Services, Fire Fighters	305	1.65%	Government, Transportation	38	0.21%
Government, Water/Sewer	290	1.57%	Education, Library	36	0.19%
Medical, EMS	270	1.46%	Law Enforcement, Sheriff	33	0.18%
NGO, Transportation	227	1.23%	NGO, EMA	32	0.17%
Government, Non-Profit	213	1.15%	Government, City Hall	30	0.16%
Law Enforcement, Sheriff	187	1.01%	Law Enforcement, Prisons	30	0.16%
Education, Jr Colleges	183	0.99%	Government, Transportation	29	0.16%
Education, K – 12	181	0.98%	Medical Offices	28	0.15%
NGO, Water/Sewer	181	0.98%	Education, Jr Colleges	25	0.14%
Government, Offices	160	0.86%	Law Enforcement, Jails	25	0.14%
Law Enforcement, Jails	158	0.85%	Law Enforcement, Marshalls	25	0.14%
Education, University	150	0.81%	Medical, EMS	25	0.14%
Emergency Services, EMS	147	0.79%	NGO, ALF	23	0.12%
Education, VoTech	133	0.72%	Education, University	22	0.12%
Government Offices	130	0.70%	Government, Landfill	22	0.12%
Law Enforcement, State Patrol	130	0.70%	Medical, Hospital	22	0.12%
Government, EMA	121	0.65%	Medical, Clinics	21	0.11%
Law Enforcement, Prisons	111	0.60%	Government, City Hall	20	0.11%
NGO, Private	107	0.58%	Medical Offices	20	0.11%
Government, Private	106	0.57%	Emergency Services, NGO, EMA	18	0.10%
NGO, Private	98	0.53%	Government, Library	18	0.10%
NGO, Non-Profit	93	0.50%	NGO, Communications	18	0.10%

**TABLE 2.50 RANKINGS OF POTENTIAL FOR LOSS BY JURISDICTION**

Rank	High Avg. Value / Facility	High Avg. Risk / Facility	High Avg. Standardized
1	City of Warner Robins	City of Tybee Island	City of Warner Robins
2	Bryan County	Chatham County	Bryan County
3	Habersham County	Town of Thunderbolt	Habersham County
4	City of Marietta	City of Garden City	City of Marietta
5	Heard County	Glynn County	Heard County
6	Bulloch County	City of Brunswick	Columbus-Muscogee County
7	Cobb County	City of St. Marys	Cobb County
8	City of Canton	City of Midway	City of Austell
9	Effingham County	City of Port Wentworth	City of Perry
10	Cherokee County	City of Savannah	City of Fitzgerald

**TABLE 2.51 RANKINGS OF TOTAL VALUE OF CRITICAL FACILITIES BY JURISDICTION**

Rank	High Value/ Facility
1	City of Warner Robins
2	Bryan County
3	Habersham County
4	City of Marietta
5	City of Savannah
6	Cobb County
7	Columbus-Muscogee County
8	City of Atlanta
9	City of Rome
10	Heard County

### 2.8.2 Assessing Vulnerability of State Facilities

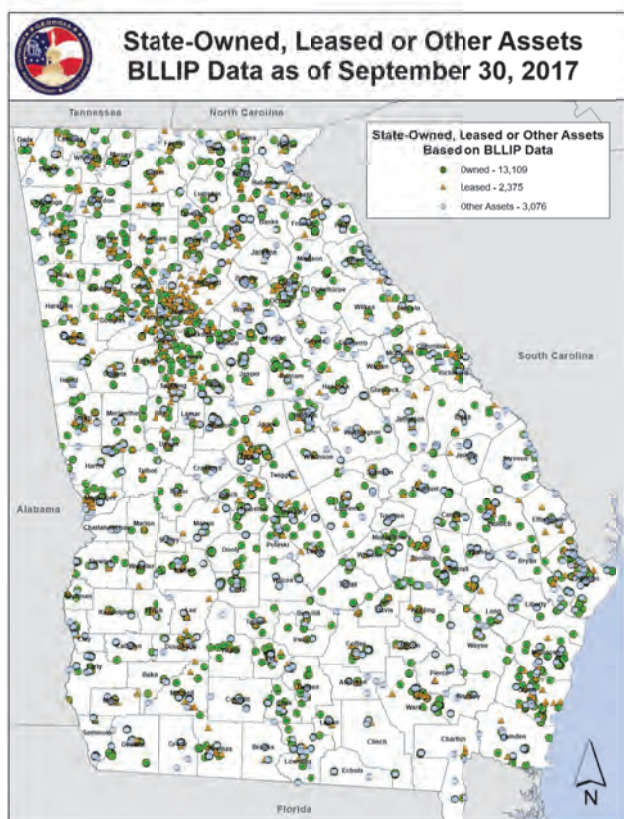
The Building, Land & Lease Inventory of Property (BLLIP) database provides information on state-owned and leased properties as well as other assets such as radio and fire towers. This data is provided and sponsored by the Georgia Building Authority, Georgia State Financing and Investment Commission, State Properties Commission, and Commission for a New Georgia in collaboration with the Information Technology Outreach Services division of the Carl Vinson Institute of Government at the University of Georgia.

Currently, the database contains information on 18,560 structures, of which 13,109 are state-owned, 2,375 are state-leased structures, and 3,076 are other assets. (See Table 2.52) Figure 2.70 shows the location of these state facilities. The greatest liability to the state is from state-owned facilities. Figure 2.71 provides the average composite hazard risk for state-owned properties by county. The state-owned facilities located in coastal counties are at the highest risk to hazard events.

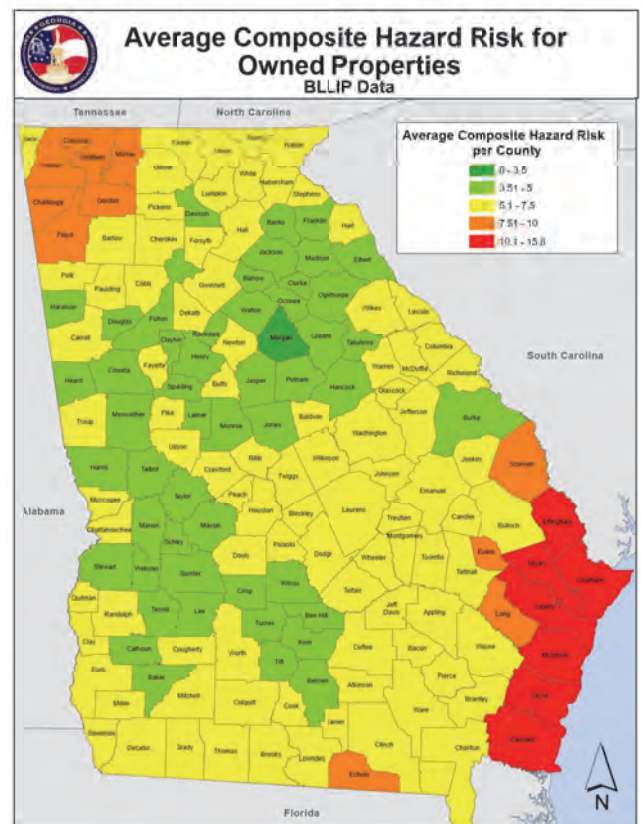
**TABLE 2.52 STATE ASSET TOTALS ACCORDING TO BLLIP DATA BY YEAR OF DATA**

State Asset Type	2007	2010	2013	2017
Owned	13,222	20,574	14,360	13,109
Leased	1,665	2,391	2,367	2,375
Other	N/A	1,800	2,899	3,076
Total	14,887	24,765	19,626	18,560

**FIGURE 2.70 LOCATION OF STATE ASSETS, AS OF SEPTEMBER 2017**



**FIGURE 2.71 RISK TO STATE-OWNED PROPERTY**



The BLLIP database is designed to include a plethora of information regarding state-owned and leased facilities (See Table 2.53). The authorities listed above continue to improve the database so that all the attribute data are complete.

**TABLE 2.53 BLLIP FACILITY ATTRIBUTES**

Location information	Insured value
Occupying entity	Estimated value
Owning entity	Fire code compliance
Total floors	Historic value
Square footage	Contents value
Percentage occupied	Contact information
Construction year	

Some state-owned and leased facilities qualify as critical (such as state hospitals or prisons); however, all state-owned and leased facilities are included in the BLLIP database. The most consistently complete attribute is the estimated value. Table 2.54 shows the percentage of state-owned and leased properties broken down by hazard category. Table 2.55 shows the estimated value at risk by hazard category.

**TABLE 2.54 STATE FACILITY PERCENTAGES IN HAZARD CATEGORIES**

Hazard Category	Hazard Score Range	% Owned	% Leased	2014 % Total Facilities	2019 % Total Facilities
High	18-25	0.78%	0.17%	0.5%	0.71%
Moderate	9-17	8.98%	4.80%	6.2%	9.85%
Low	0-8	82.99%	58.36%	80.2%	72.58%
None	Undetermined	7.25%	36.67%	13.1%	16.86%

**TABLE 2.55 STATE FACILITY VALUE AT RISK ACCORDING TO HAZARD CATEGORIES**

Hazard Category	Hazard Score Range	2014 Estimated Value at Risk	2019 Estimated Value at Risk	2014 % Total Value	2019 % Total Value
High	18-25	\$15,870,561	\$89,527,056	0.1%	0.40%
Moderate	9-17	\$1,178,706,274	\$1,373,269,954	6.1%	6.11%
Low	0-8	\$17,010,654,127	\$19,735,105,056	87.8%	87.85%
None	Undetermined	\$1,158,429,485	\$1,265,633,231	6.0%	5.63%

Including the BLLIP data in GMIS allows for the spatial joining of the structure data with the composite hazard assessment. In other words, each point spatial feature (BLLIP structure) is assigned the attribute information of the raster cell (composite hazard score) in which the point falls. For example, the spatial joining assigns GEMA/HS's Building 5 a hazard score of 6 (on a scale of 1–25).

As Table 2.53 illustrates, the majority of structures in BLLIP are located in the low hazard areas. Likewise, Table 2.54 shows that more than 85% of the estimated value at risk comes from state-owned structures located in the low hazard areas of the state. Some records had invalid coordinates, and these structures were labeled “undetermined.” Most likely, the facilities that are located in the highest hazard areas are located in the counties with the highest average composite risk: the coastal counties in eastern Georgia and the mountainous counties in northern Georgia.

**TABLE 2.56 STATE FACILITY EXPOSURE TO 100 YEAR FLOOD AND WIND EVENTS BY AGENCY**

Agency	Flooding		Wind	
	Facilities exposed	\$ Losses	Facilities exposed	\$ Losses
BOR	160	\$180,593,038	52	\$4,984,944
DBHDD	16	\$51,140,205	11	\$349,317
DNR	549	\$146,922,204	73	\$468,141
DOAg	2	\$734,554	1	\$37,453
DOC	28	\$8,350,718	37	\$1,183,339
DOD	13	\$107,843,394	5	\$150,222
DOE	1	\$143,850	0	\$7,645
DOJJ	1	\$4,844,840	10	\$135,601
DPS	2	\$4,794,715	1	\$17,313
GDOT	28	\$10,399,737	13	\$122,283
GFC	16	\$2,648,513	8	\$42,771
GPA	27	\$35,558,938	2	\$130,700
TCSGA	1	\$3,649,194	10	\$1,265,081
Other	7	\$5,717,865	9	\$480,518
<b>Total</b>	<b>851</b>	<b>\$563,341,765</b>	<b>232</b>	<b>\$9,375,328</b>

Note that the value and facility totals are based on the BLLIP data, which are not complete. In terms of the state facility percentages in the various hazard categories, 7.3% of the state-owned structures and 36.7% of the state-leased structures are not represented due to invalid coordinate information. In terms of the estimated value of structures at risk, 11.8% of the structures are not represented due to incomplete value information. Therefore, one may assume that the estimated value at risk in each category is substantially underrepresented.



**TABLE 2.57 STATE FACILITY EXPOSURE TO 100 YEAR FLOOD AND WIND EVENTS BY GEMA/HS AREA**

GEMA/HS Area	Description	Flooding		Wind	
		Facilities exposed	\$ Losses	Facilities exposed	\$ Losses
1	Northeast GA	91	\$13,444,232	0	\$0
2	Southwest GA	100	\$103,579,808	0	\$0
3	East Central GA	46	\$9,070,368	1	\$79,249
4	West Central GA	32	\$4,516,386	0	\$0
5	Coastal GA	491	\$302,253,405	243	\$9,673,788
6	Northwest GA	45	\$20,552,609	0	\$0
7	Metro Atlanta	12	\$4,232,355	0	\$0
8	South Central GA	34	\$8,633,603	2	\$21,238
<b>Total</b>		<b>851</b>	<b>\$466,282,765</b>	<b>246</b>	<b>\$9,774,275</b>

In addition to the current analysis of the BLLIP data, HAZUS-MH was used to estimate the buildings that could be damaged during a 100YR storm event with winds and a 1% annual chance flood, as well as the losses potentially seen from those events. Tables 2.56 and 2.57 show the results of the Hazus analysis by agency and by GEMA/HS area.

### 2.8.3 Repetitive Loss Properties

The State of Georgia utilizes several federal hazard mitigation programs to mitigate repetitive and severe repetitive loss properties. Repetitive Loss Properties are properties that have two or more claims greater than \$1,000 each for flood losses paid by National Flood Insurance Program (NFIP). Severe Repetitive Loss Properties are properties that have at least 4 claims greater than \$5,000 each paid through the NFIP or two or more claims where the cumulative total is greater than the current market value. These programs include the Hazard Mitigation Grant Program (HMGP), the Flood Mitigation Assistance (FMA), and the Pre-Disaster Mitigation Competitive (PDM-C) program. The various federal programs have the ability to provide funds to assist states and communities in reducing flood damages to insured properties that have multiple claims paid by the National Flood Insurance Fund. Eligible mitigation activities include property acquisition (includes either demolition or relocation, where the property is deed-restricted for open space in perpetuity), structural elevation, dry flood proofing of nonresidential structures, and minor localized flood control projects.

In order for this strategy to target repetitive loss properties, including severe repetitive loss properties, those properties must be documented and mapped for further analysis. In 2012, the Federal Register was updated with new definitions for repetitive loss (RL) and severe repetitive loss (SRL) properties. For the purposes of comparison to 2014 data, the figures presented in this section are based on the definition used in the 2012 Federal Register.

To assess the risk associated with repetitive loss properties, the point location of every property was aligned with the inland flood hazard score previously discussed in Section 2.7. The results are provided in Table 2.56. The numbers include both mitigated and non-mitigated repetitive loss properties. The significant increases in RLPs between 2004 - 2007, 2007 – 2010, and 2013 - 2017 are a result of major flood events during those timeframes. Between 2010 and 2013, there were no major flood events in Georgia; therefore, the change in property totals was negligible. Analyzing location of RLPs in relation to special flood hazard



areas did not begin until 2007; therefore, the 2004 data does not have the number of properties located within each flood hazard category.

**TABLE 2.58 TOTAL REPETITIVE LOSS PROPERTIES IN FLOOD HAZARD ZONES BY YEAR OF DATA WITH HAZARD SCORES**

Flood Hazard Category	Hazard Score	2004	2007	2010	2013	2017
Floodway / 1% Annual Chance of Flood with Velocity	4	N/A	168	135	157	155
1% Annual Chance of Flood	3	N/A	450	688	739	794
0.2% Annual Chance of Flood	2	N/A	82	106	126	160
Undetermined/Possible	1	N/A	518	701	604	684
<b>Total</b>		<b>811</b>	<b>1218</b>	<b>1610</b>	<b>1626</b>	<b>1793</b>

The first column in Table 2.58 corresponds with the “Descriptions” column in Table 2.41 in Section 2.7, which details the flood hazard scores. Table 2.58 reveals that between 2013 and 2017 there was an increase in RLPs in identified flood hazard areas and an increase in RLPs whose location in relation to a flood hazard area was not known or is beyond the boundaries of the 500yr floodplain. Figure 2.72 shows the general location of mitigated and non-mitigated RLPs.

Figures 2.72 through 2.76 illustrate various aspects of the RLPs in Georgia and are helpful in identifying opportunities to reduce risk. Figure 2.73 shows the total number of losses per property using graduated symbols. Clusters of RLPs are located in Metro Atlanta, Augusta–Richmond County, Lee and Dougherty counties, and Savannah–Chatham County. Properties with frequent flood claim losses are possible locations for mitigation actions.

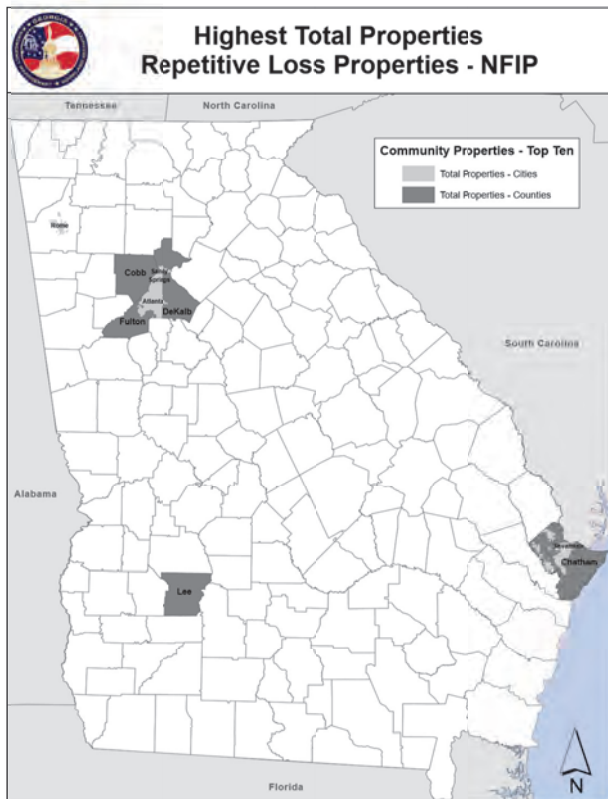
Figure 2.74 illustrates the municipalities with the highest totals of RLPs. Figure 2.75 shows the communities with the highest sums of insurance claim payments to the RLPs. Communities with high numbers of RLPs or high total losses from flood claims are ideal targets for outreach to reduce risk and implement mitigation actions. More information on the number of RLPs and total losses by community can be found in Chapter 4, Section 4.4.3.

Table 2.59 lists the number of validated SRLPs by jurisdiction, and Figure 2.76 visually illustrates this data. The number of validated SRLPs decreased from 62 to 51 between 2010 and 2013. As the number of validated SRLPs varies from month to month, most of this decrease is likely due to changes in flood insurance on the properties. Additional information on RL and SRLPs by jurisdiction can be found in Chapter 4, Section 4.4.3.

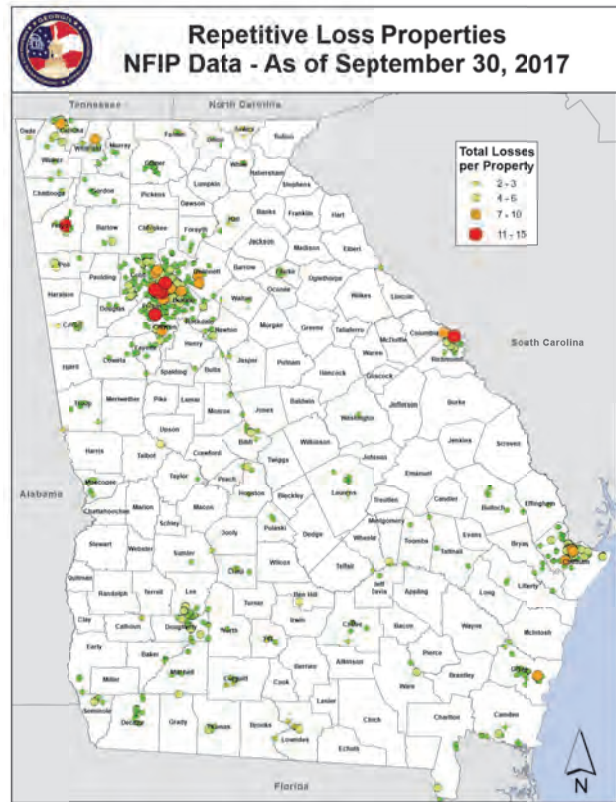
**FIGURE 2.72 REPETITIVE LOSS PROPERTIES IN GEORGIA**



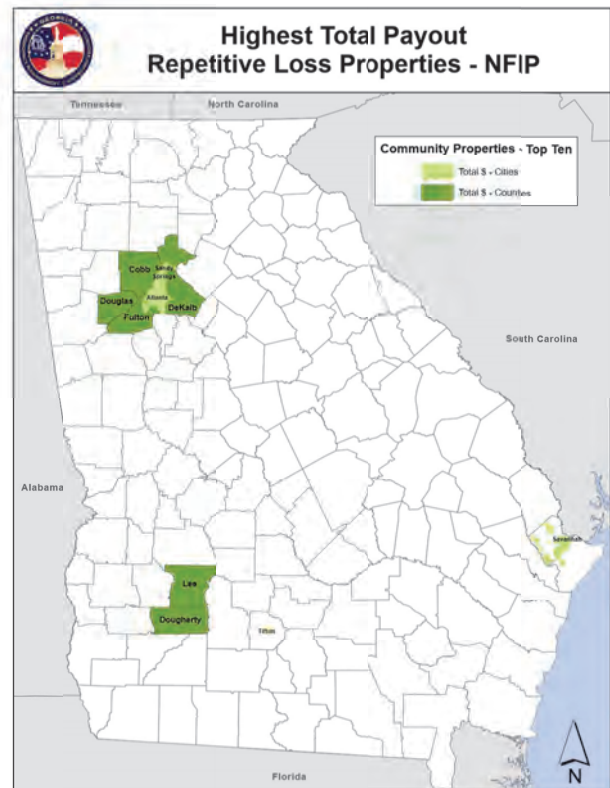
**FIGURE 2.74 TOP 10 COMMUNITIES BY TOTAL RL PROPERTIES**



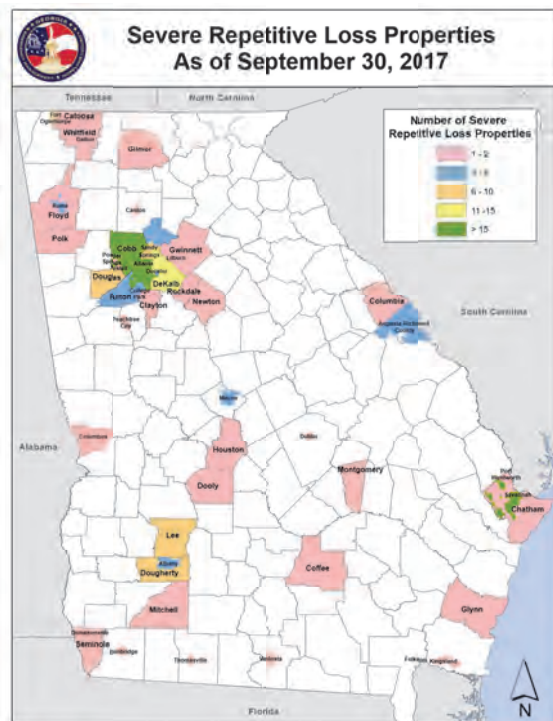
**FIGURE 2.73 NUMBER OF LOSSES PER REPETITIVE LOSS PROPERTY**



**FIGURE 2.75 TOP 10 COMMUNITIES BY TOTAL RLP LOSSES**



**FIGURE 2.76 COMMUNITIES WITH SRL PROPERTIES, AS OF SEPTEMBER 30, 2017**



**TABLE 2.59 VALIDATED SEVERE REPETITIVE LOSS (SRL), PROPERTIES BY JURISDICTION**

<b>Jurisdiction</b>	<b>2007</b>	<b>2010</b>	<b>2013</b>	<b>2017</b>
Albany, City of	5	3	2	5
Atlanta, City of	14	21	14	36
Augusta-Richmond County, City of	0	0	0	4
Austell, City of	2	0	0	2
Bainbridge, City of	0	0	0	1
Canton, City of	0	0	0	1
Catoosa County	1	1	0	1
Chatham County	0	0	0	1
Clayton County	1	0	0	1
Cobb County	4	5	3	16
Coffee County	0	0	0	1
College Park, City of	0	2	2	3
Columbia County	0	1	1	1
Columbus, City of	0	0	0	1
Dalton, City of	1	0	0	1
Decatur County	2	0	0	0
Decatur, City of	3	2	2	3
DeKalb County	5	5	6	13
Donalsonville, City of	0	0	0	1
Dooly County	0	0	0	1
Dougherty County	3	3	1	6
Douglas County	1	2	1	9
Dublin, City of	0	0	0	1
Floyd County	0	0	0	1
Folkston, City of	0	0	0	1
Fort Oglethorpe, City of	1	2	6	7
Fulton County	1	0	1	4
Gilmer County	0	0	0	2
Glynn County	1	1	1	1
Gwinnett County	1	0	0	2
Houston County	1	0	0	1
Kingsland, City of	0	0	0	1

<b>Jurisdiction</b>	<b>2007</b>	<b>2010</b>	<b>2013</b>	<b>2017</b>
Lee County	2	2	1	8
Lilburn, City of	0	1	1	2
Macon, City of	2	2	2	3
Mitchell County	0	0	0	1
Montgomery County	0	0	0	1
Newton County	0	0	0	1
Peachtree City, City of	0	0	0	1
Polk County	0	0	0	1
Port Wentworth, City of	0	0	0	1
Powder Springs, City of	0	1	0	1
Rockdale County	0	1	0	1
Rome, City of	1	0	0	4
Sandy Springs, City of	0	2	3	8
Savannah, City of	6	3	3	16
Seminole County	0	1	0	2
Thomasville, City of	0	0	0	1
Troup County	1	0	0	0
Valdosta, City of	0	0	0	1
Whitfield County	0	1	1	1
<b>Total</b>	<b>59</b>	<b>62</b>	<b>51</b>	<b>183</b>

# Chapter 3: State Mitigation Strategy

## 3.1 OVERVIEW

The summary of changes to Chapter 3 of Georgia's Hazard Mitigation Strategy (GHMS) since the 2014 approval is provided in Table 3.1.

**Table 3.1 Summary of Changes to Chapter 3**

Chapter 3 Section	Updates to Section
3.1 Overview	<ul style="list-style-type: none"><li>• Updated table of changes.</li><li>• Updated text</li></ul>
3.2 Georgia Mitigation Strategy	<ul style="list-style-type: none"><li>• Updated text and tables</li><li>• Added details describing additional status details and contribution to mitigation for each action item.</li></ul>
3.3 State Capability Assessment	<ul style="list-style-type: none"><li>• Updated text and tables</li></ul>
3.4 Local Capability Assessment	<ul style="list-style-type: none"><li>• Updated text and tables</li></ul>
3.5 State and Local Funding Sources	<ul style="list-style-type: none"><li>• Updated text and tables</li></ul>

Chapter 3 of the plan was reviewed and updated by GEMA/HS's Hazard Mitigation Planners. The planning staff revised each section based on accomplishments, current activities, and the integration of current local multi-jurisdictional hazard mitigation plans and state agency inputs.

This chapter provides the State of Georgia's strategy toward resilience. Based on the findings of the risk assessment and a state-level capability assessment, the goals and actions that follow are intended to guide state agencies, counties, cities, towns, and nongovernmental organizations toward resilience in regard to the many hazards that plague the state. This section is separated into the following components:

- Goals and Actions
- State Capability Assessment
- Local Capability Assessment
- State and Local Funding Sources

This chapter discusses the concept of and approaches to mitigation in order to clarify the state's mitigation strategy. Mitigation is a combination of sustained measures and actions that attempt to reduce or eliminate the long-term risk to people and property from hazards. The main methods of mitigation are (1) modifying the hazard event, (2) reducing human vulnerability, and (3) reducing losses.

The State of Georgia's mitigation strategy is an ongoing effort to identify the goals and actions that will reduce or eliminate losses from natural hazard events.

## **3.2 GEORGIA MITIGATION STRATEGY**

### **3.2.1 Overview**

The GHMS serves as the blueprint for how Georgia will reduce vulnerability to and risk from the hazards identified in Chapter 2. The mitigation strategy is made up of three main components: mitigation goals, mitigation actions, and an action plan for implementation. These provide the framework for identifying, prioritizing, and implementing actions to reduce risk to hazards. For the purposes of this mitigation strategy, the following FEMA definitions were used.

**Mitigation goals** are general guidelines that explain what the state wants to achieve with the plan (see Figure 3.1). They are usually broad policy-type statements that are long-term, and they represent visions for reducing or avoiding losses from the identified hazards.

**Mitigation actions** are specific projects and activities that help achieve the goals.

The **Action Plan** describes how the mitigation actions will be implemented, including how those actions will be prioritized, administered, and incorporated into the state's existing planning mechanisms, policies, and programs.

Mitigation actions fall into four categories: planning and regulation, structure and infrastructure protection, natural resources system protection, and public awareness and education. Table 3.2 provides descriptions and examples of each category.



**Figure 3.1 Mitigation Strategy.**



### 3.2.2 Review and Assessment of 2014 GHMS Goals

The 2014 GHMS included the following three goals:

1. Reduce human vulnerability to hazard events.
2. Reduce the losses associated with hazard events.
3. Reduce overall exposure to hazard events for Georgia citizens and their property.

A review of these goals determined that they are consistent with state priorities and remain valid. The state's priorities have not changed since the completion of the 2014 GHMS. Thus, the goals remain unchanged.

### 3.2.3 Updating the Mitigation Action Plan

The State of Georgia used a combination of tools and processes to create the updated mitigation action plan. These include the updated risk assessment, review of the mitigation actions from the 2014 plan, review of mitigation actions from local plans, review of practices from other state plans, and input from multiple state and nongovernmental agencies throughout Georgia.

For a mitigation plan to be effective, the mitigation goals and actions must address the hazards identified in the risk assessment. Once the State had completed updating the risk assessment, this information was used to ensure that the updated goals and actions addressed the updated risks and vulnerabilities posed by the identified hazards. One tool used to do this was a workshop held in April 2018 that included representatives from various state agencies and nongovernmental partnering agencies. The participants reviewed the updated risk assessment and determined the types of projects and actions they would like to see within four mitigation action categories: planning and regulations, structure and infrastructure projects, natural resource protection, and education and awareness programs. Multiple agencies participated in the workshop, including but not limited to the Georgia Department of Natural Resources (DNR), Georgia Forestry Commission (GFC), Technical College System of Georgia (TCSG), DNR Environmental Protection Division Safe Dams, the University System of Georgia Board of Regents, the Georgia Transmission Corporation and the University of Georgia Information Technology Outreach Service. For a full list of participants, see Appendix B. One key finding of the workshop was that the majority (63%) of the chosen actions fall within the “planning and regulation” and “education and awareness” categories. Notably, the top action chosen, receiving 12% of the votes was related to building and development regulations. While this is a slight decrease from the 2014 plan, it remains the top choice among the agencies participating in the update workshops. For details on the chosen categories, please see Figure 3.2.

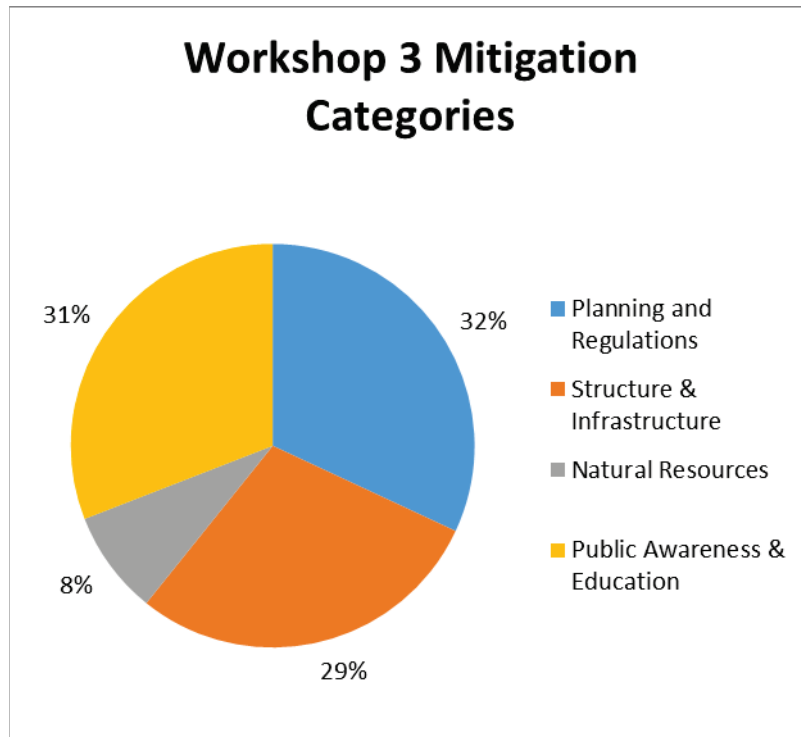
**Table 3.2 Categories of Mitigation Actions**

Mitigation Category	Description	Examples
Local Plans and Regulations	These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.	<ul style="list-style-type: none"><li>• Comprehensive plans</li><li>• Land use ordinances</li><li>• Subdivision regulations</li><li>• Development review</li><li>• Building codes and enforcement</li><li>• NFIP Community Rating System</li><li>• Capital improvement programs</li><li>• Open space preservation</li><li>• Stormwater management regulations and master plans</li></ul>
Structure and Infrastructure Projects	These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct man-made structures to reduce the impact of hazards. Many of these types of actions are projects eligible for funding through the FEMA Hazard Mitigation Assistance program. <i>Task 9 – Create a Safe and Resilient Community</i> provides more information on these programs.	<ul style="list-style-type: none"><li>• Acquisition and elevation of structures in flood-prone areas, including Repetitive Loss Properties</li><li>• Utility undergrounding</li><li>• Structural retrofits</li><li>• Floodwalls and retaining walls</li><li>• Detention and retention structures</li><li>• Culverts</li><li>• Safe rooms</li></ul>
Natural Systems Protection	These are actions that minimize damage and losses and also preserve or restore the functions of natural systems.	<ul style="list-style-type: none"><li>• Sediment and erosion control</li><li>• Stream corridor restoration</li><li>• Forest management</li><li>• Conservation easements</li><li>• Wetland restoration and preservation</li></ul>

Mitigation Category	Description	Examples
Education and Awareness Programs	These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs such as StormReady or Firewise Communities. Although this type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. A greater understanding and awareness of hazards and risk among local officials, stakeholders, and the public is more likely to lead to direct actions.	<ul style="list-style-type: none"> <li>• Radio or television spots</li> <li>• Websites with maps and information</li> <li>• Real estate disclosure</li> <li>• Presentations to school groups or neighborhood organizations</li> <li>• Mailings to residents in hazard prone areas</li> <li>• StormReady</li> <li>• Firewise Communities</li> </ul>

Source: FEMA Local Mitigation Planning Handbook.

**Figure 3.2 Mitigation Actions Chosen by the Georgia State Hazard Mitigation Planning Team Meeting Held in April 2018, by Mitigation Type**



While the majority of workshop participants favored “planning and regulation” and “education and awareness,” there are two notable exceptions. While the top chosen action fits within the planning and regulation category, the 2<sup>nd</sup> and 3<sup>rd</sup> most chosen actions fall within the Natural Resources Protection and Structure and Infrastructure categories. Tree and vegetation trimming and maintenance programs received 8% of votes while generators for critical facilities received 6%. The Georgia Forestry Commission manages the “Tree City USA” program for the State of Georgia, which encourages the preservation and proper maintenance of trees and recognizes those communities that do so. “Generators for critical facilities” is a recent addition to the list of projects fundable through hazard mitigation grants. Beginning with the 2014 ice

storm event, the State has applied for and passed HMGP funds through to numerous local communities for emergency power supplies for their critical facilities. For full details on the workshop tallies, please see Appendix E.

Another tool used for updating the mitigation actions was surveys sent to multiple state agencies requesting status updates on existing mitigation actions, as well as information on any mitigation related activities they are doing that were not in the 2014 strategy. The purpose was to identify specific projects and activities other agencies in the state are planning or conducting. This process identified many new planned actions as well as many that are currently in progress and were not included in the 2014 strategy. Thus, they are “new” to the updated mitigation action plan.

During the update process for the 2014 GHMS, the state noted several gaps and obstacles. Since that time, the State has made significant progress in overcoming these issues:

1. The 2011 and 2014 versions of the GHMS noted that Georgia would benefit from incorporating more GIS and other technical information into the hazard mitigation planning process. One major area the State has worked to improve upon is the quality and amount of technical and GIS data available and used in both local and state mitigation planning. The previous strategy specified multiple actions to address this issue, including the following:
  - a. Action item 9 included development of Community Wildfire Protection Plans (CWPP), which provide greater detail than previously available on local risks of wildfire hazards. These CWPPs are now complete. The State now requires local plans to include relevant data and maps from these CWPPs in risk assessments. The GIS data developed from this project are also included in the state risk assessment for wildfires. Notably, the Georgia Forestry Commission is currently in the process of updating all of these plans. When that process is complete the updated plans will be available for incorporation into each community's local hazard mitigation plan.
  - b. Action item 22 related to Risk MAP studies the Georgia Department of Natural Resources (DNR) has initiated in various locations in Georgia. Since the 2014 strategy was completed, the State completed the pilot phase in Metro Atlanta and has made progress along the entire coast of Georgia, as well as the following 8 watersheds:
    - Upper Savannah
    - Middle Savannah
    - Lower Savannah
    - Withlacoochee/Little
    - Lower Flint
    - Upper Oconee
    - Upper Chattahoochee
    - Etowah

Each watershed is in a different stage of the process, with some at the very beginning and others at the end, having received their updated data. This information includes site-specific flood studies with GIS and technical data that will be available for inclusion in the next updates of the studied counties' local mitigation plans.

One additional gap that has been identified since the 2014 strategy was completed is the data being provided to the communities is in GIS format. However, many of Georgia's more rural communities do not have GIS capabilities. GEMA/HS and DNR staffs have been

working recently on ways to overcome this issue by making the data more accessible to all communities throughout the State.

- c. The 2014 strategy noted The State of Georgia was in the process of upgrading the GMIS system to make it more user-friendly, as well as making it possible to include future datasets as they become available. This process is complete and the State continues to use this system to provide basic hazard mapping and risk assessment services to each community to use as part of the local hazard mitigation plan updates.
  - d. Both the 2011 and 2014 strategies had actions related to including and updating data on NFIP repetitive loss properties in GMIS. This helps local planners meet a specific requirement in their local mitigation plans. The State continues to update this data as it becomes available.
2. Many state residents did not realize hazard mitigation planning activities were occurring in their communities. This part of the process is primarily up to local planners as they update their local mitigation plans. GEMA/HS's Mitigation Planning staff, however, works closely with local planners and encourages multiple forms of public participation. GEMA/HS continues to encourage local communities to use the FEMA template for news releases and public notices during the planning process.
3. The 2011 and 2014 versions of the GHMS both noted Local communities in the state were unaware of the types of assistance available to them for hazard mitigation planning. Both plans included actions and strategies to address this, such as the following:
  - a. Staff deploying to affected areas in the aftermath of disasters to discuss potential funding for planning and projects,
  - b. Hosting training for new emergency managers
  - c. Reaching out to counties before their plans expire to let them know of the need to update their plans and the potential for funding assistance.

In addition, as a result of partnerships with other state agencies, GEMA/HS Hazard Mitigation staff has had many other opportunities to discuss hazard mitigation program funding sources for both planning and projects with state agencies and local communities. As a result of these activities, more and more communities and agencies are becoming aware of hazard mitigation and the funding opportunities available. However, the state recognizes the need to continue to pursue these strategies, as well as seek out new opportunities going forward.

4. The 2014 GHMS noted the plan would benefit from improved methods of incorporating state and local mitigation actions. The State Mitigation Planning staff has done several things to address this issue. The workshops described in Chapter 1 were developed during the 2014 State Plan update process. They provided a way to better capture input from multiple state agencies and nongovernmental organizations. Second, the staff reached out to each state agency that was invited to the workshop, asking them to provide updates on the mitigation actions assigned to them in the 2014 plan and provide information on new actions to include in the 2019 plan. Through these two processes, the Mitigation Planning staff was able to incorporate the types of mitigation actions the workshop participants perceived as a high priority into the GHMS as well as projects various state agencies have planned or have in progress that have a mitigation effect. Finally, the revision process

included an effort to ensure that the mitigation actions noted in the local plans were adequately included in the State's Action Plan.

During the 2019 update process, the State realized there was no clear description or record of how the potential mitigation actions gathered during the workshops for the 2014 update translated into mitigation actions in the 2014 strategy. The workshops did not provide a method for gathering the details necessary for including the new action items into the mitigation strategy. One way the staff sought to address this is to compare the action items identified in the workshops to, both the existing mitigation actions and the new ones identified by specific state agencies in the review and update process described above. For high priority items that do not match either an existing action step or one provided specifically by a State agency, the planning staff developed an action step to research the feasibility and practicality of the higher priority action items identified in the workshop for future inclusion in the mitigation strategy.

The State of Georgia first reviewed the 2014 Action Plan to ensure that the goals continued to address the updated risk assessment. The next step was to review the action steps according to the following criteria:

1. Assess their progress.
2. Determine their validity based on the State's capabilities and the current risk assessment.
3. Ensure they contribute to the identified goals.
4. Ensure the actions are cost-effective, technically feasible, and environmentally sound.
5. Identify actions that could be refined, expanded, or deleted.
6. Ensure that the updated Action Plan accurately and completely describes what the State of Georgia, including all agencies, is currently doing or plans to do over the coming years.
7. Ensure that the updated Action Plan addresses all relevant needs as identified by state agencies and local mitigation plans.
8. Determine whether the Action Plan is presented in the most effective, concise manner.

The majority of the actions from the 2014 GHMS were listed as ongoing. Upon review, the State found that these actions were still ongoing. One key finding with the 2014 strategy was the mitigation actions could be improved by re-ordering them based on the responsible lead agency. This would allow specific state agencies to locate their assigned mitigation actions much easier. This change was made internally in 2015 and made it much simpler to reach out to each state agency for updates to their mitigation actions.

### **3.2.4 Local Plan Review**

GEMA/HS staff reviewed all local hazard mitigation plans to identify mitigation actions proposed by communities to reduce their identified risks and vulnerabilities to natural hazards. Results of this analysis are provided in Tables 3.3 and 3.4. This information was considered in the development of the updated 2019 Action Plan. The two tables are color coded such that the mitigation types in Table 3.3 are colored to match the FEMA mitigation categories they apply to in Table 3.4. Mitigation types that have no color do not fall within the FEMA mitigation categories and are response and preparedness actions that have consistently been included in local mitigation plans. Examples of state mitigation actions related to local plans include, but are not limited to, the following:

- Continue supporting the use of state-of-the-art warning technology and local warning projects with available initiative funds.
- Support local government cost-effective requests through available grant opportunities to mitigate

repetitive loss properties, with priority given to severe repetitive loss properties and removal of repetitive loss properties from the regulatory floodway.

- Support cost effective mitigation activities that minimize damages and or provide uninterrupted operational capabilities to critical facilities, utilities and property.

Table 3.3 shows changes from the 2014 to 2019 GHMS in the percentage of counties identifying each action. During the 2014 update, staff observed significant decreases from the 2011 plan in counties identifying “planning and zoning” and “additional analysis” as mitigation actions, going from 88% and 64% to 76% and 47%, respectively. In addition, the percentage of counties identifying “Emergency Response Operations” actions had increased from 62% to 75%. Staff noted at the time further analysis was necessary to determine whether these trends are indicative of concerns that will require modification to the Action Plan. Notably, this trend appears to have ended. Likely, the changes leading up to 2014 were a reflection of counties updating their plans to more accurately reflect their needs and capabilities.



**Table 3.3 Local Identification by Mitigation Type**

Mitigation Type	Percentage of counties identifying Action		Change from 2014
	2019 GHMS	2014 GHMS	
Warning / Communications	94%	93%	1%
Public Outreach	93%	94%	-1%
Flood Programs	92%	92%	0%
Preparedness Efforts	88%	87%	1%
Flood Control / Drainage	84%	82%	2%
Planning / Codes	79%	75%	4%
Emergency Response Operations	77%	77%	0%
Structural Retrofit	76%	75%	1%
Equipment Acquisition	75%	71%	4%
Fire Programs (Firewise, etc.)	64%	62%	2%
Drought Management	64%	62%	2%
Broad Cooperation	59%	62%	-3%
Additional Analysis	51%	48%	3%
Property Acquisition	36%	35%	1%
Dam Management	30%	30%	0%
Property Relocation / Elevation	29%	26%	3%
Wetland Protection	22%	23%	-1%
Greenspace Preservation	14%	14%	0%

**Table 3.4 Mitigation Categories from Local Plans**

Mitigation Categories	% of counties identifying Action		Change from 2014
	2019 GHMS	2014 GHMS	
Planning and Regulation	98%	98%	0%
Natural Resources	22%	23%	-1%
Structure and Infrastructure Projects	100%	100%	0%
Education and Awareness	98%	99%	-1%
Non-Mitigation Categories	94%	94%	0%

### 3.2.5 Action Plan

As described in the previous sections, the State of Georgia undertook a robust process to update the Action Plan from the 2014 GHMS, incorporating input from several state agencies and outside organizations, as well as data from the local hazard mitigation plans of all 159 Georgia counties. The current Action Plan was updated to provide a comprehensive, achievable set of actions for the State of Georgia to pursue over the coming years in order to reduce losses, both human and property, due to natural hazards. All actions either directly reduce losses to the identified hazards or obtain better, more current information for understanding the risks and vulnerabilities Georgia faces from all natural hazards.

During the Plan maintenance process, between the 2014 adoption and the beginning of the update process, Staff noted the mitigation actions were ordered in such a way that it was both tedious and time consuming to add or update mitigation actions for participating agencies. In 2016, the Planning Staff re-ordered the mitigation actions by lead agency. This allowed the list of actions to be more easily searched by agency. This also streamlined the update process by allowing the Planning Staff to easily create separate lists of mitigation actions for each agency in order to obtain updated information.

Table 3.5 shows the updated 2014 State of Georgia Action Plan. Each action item includes the following details:

- A. A statement describing the action item.
- B. The timeline within which the action is proposed to be completed.
- C. The current status of the action, whether new, ongoing, or deferred. Those activities that have not reached *Complete* status are not fully implemented due to a variety of reasons. *Ongoing* indicates that continued small actions have been implemented that leave room for more mitigation activity under that objective or action step. Where possible, *ongoing* is further described by details regarding funding resources, times when the item is done, etc. Several, however are listed as *ongoing continually*. This refers to mitigation actions that are continually worked on, whether it be part of daily activities, as the opportunity arises, the need demands, etc. A *New* activity has been recently included by the planning team in the updated Standard Plan. *Deferred* actions mean no activity has occurred, due to limited funding or staff resources, but the action was reviewed and continues to be valid. *Deleted* and *Completed* actions are listed separately in Tables 3.7 and 3.8, respectively. *Deleted* means no action was taken or the action was not completed and was deemed no longer valid.
- D. The priority of the action. Part of the prioritization includes a general assessment according to the STAPLEE criteria, which stands for social, technical, administrative, political, legal, economic, and environmental. Also, most items that require grant funding must undergo a full benefit-cost analysis, described in Section 4.4.2, to determine cost-effectiveness prior to funding.
- E. The applicable state goal. The Goals identified in Section 3.2.2 are broad, high level statements of what the State is attempting to accomplish. The goals, stated simply, are to protect life (Goals 1 & 3), protect property (Goals 2&3) and reduce exposure to the hazards (Goal 3). Every mitigation action in Table 3.6 below is a step toward meeting all 3 goals.
- F. The specific hazard being addressed, if applicable. Many of the actions are applicable to all hazards, though some are directly applicable to specific hazards. For example, technical

assistance for local mitigation plans is applicable to all hazards, whereas acquisition of flood-prone properties is applicable to the flood hazard.

- G. The lead agency. The lead agency is the agency responsible for accomplishing the action.
- H. Supporting agencies. Supporting agencies are agencies that are not responsible for the completion of the action but that provide assistance in various ways.
- I. The applicable resources (staffing, funding, etc.) necessary to complete the action. The State of Georgia currently uses several funding sources to implement hazard mitigation activities. Primarily, these funds stem from federal, state, and local sources, which include the programs discussed in Section 3.3's assessment of state mitigation policies, programs, and funding and Section 3.5's description of funding sources. The State of Georgia is interested in continuing to pursue these federal, state, and local funding sources throughout the implementation of the mitigation strategy as well as seeking additional private sources.
- J. The item number, if applicable, from the 2014 GHMS.
- K. Contribution to Mitigation. Each mitigation action includes a description of how it contributes to the goals of reducing losses of life, limiting or preventing damages and reducing the State's overall vulnerability to disasters.
- L. The applicable FEMA mitigation category (See Table 3.4).

**TABLE 3.5 MITIGATION ACTION TABLE**

2019 MITIGATION ACTIONS												
2019 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	Contribution to Mitigation	FEMA Category
1	Formulate policy to have saferooms placed in all new university buildings	2019 - 2024	Ongoing as applicable	High	1 - 3	Severe Weather, Tornadoes	BOR	GBA	Agency Budget	84	Protects People during tornadoes	Structure & Infrastructure
2	The Board of Regents will establish a policy to not develop high profile buildings due to wind hazards	2019 - 2024	Ongoing as applicable	High	1 - 3	Severe Weather, Wind, Hurricane Winds, Tornadoes	BOR	BOR	Agency Budget	85	Creates more wind resistant structures	Structure & Infrastructure
5	Backup all IT systems in multiple locations throughout the state	2019 - 2024	Ongoing Continually	High	1 - 3	All Hazards	BOR	TBA	Agency Budget	88	Provides redundancy in IT systems	Structure & Infrastructure
6	Increase hazard vulnerability identification training throughout the university system	2019 - 2024	Ongoing as applicable	High	1 - 3	All Hazards	BOR	GEMA/HS	Agency Budget	89	Improves risk analysis	Structure & Infrastructure
7	Complete DRU plans for remaining 12 universities	2019 - 2024	Ongoing as funding and other resources allow	High	1 - 3	All Hazards	BOR	GEMA/HS	Agency Budget	90	Expands mitigation planning	Structure & Infrastructure
8	Plot all financial institution locations on a map to determine the probability and impact of various hazards that they may face	2019 - 2024	Ongoing as applicable	Medium	1 - 3	All Hazards	DBF	DBF	FDIC	67	Improves understanding of vulnerability	Planning & Regulation
9	Explore the possibility of establishing some sort of protocol/credentialing system with GEMA/HS to allow our Commissioner or Senior Deputy Commissioner to be able to quickly get a re-entry pass in the event that the Department or a financial institution needs to get to their data center and/or critical documents	2019 - 2024	Ongoing as staff and time resources allow	Medium	1 - 3	All Hazards	DBF	DBF	FDIC	68	Improves access to critical data and information after a disaster	Planning & Regulation
10	Provide training, webinars, workshops on integration of local mitigation plans into local Comprehensive Plans	2019 - 2024	Ongoing as plans are created/updated	High	1 - 3	All Hazards	DCA	GEMA/HS	Agency Budget	14	Improves integration of local mitigation plans	Planning & Regulation

2019 MITIGATION ACTIONS												
2019 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	Contribution to Mitigation	FEMA Category
11	DCA will continue to pursue its vision of helping to build strong and vibrant communities through administration of the programs that mitigate future natural and man-made disasters.	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	DCA	DCA	Agency Budget	25	Improves resiliency of communities	Planning & Regulation
12	As a part of DCA's ongoing Disaster Recovery/Business Continuity planning efforts, a cloud storage system is used to back up all critical data and business processes.	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	DCA	DCA	Agency Budget	100	Provides redundancy in IT systems	Structure & Infrastructure
13	Review DCS disaster plans for securing sensitive files during disasters	2019 - 2024	New	High	1 - 3	All Hazards	DCS	DCS	Agency Budget	New	Protects critical data and files	Planning & Regulation
14	DCS will conduct annual reviews of disaster plans and participate in GEMA/HS exercises.	2019 - 2024	New	High	1 - 3	All Hazards	DCS	DCS	Agency Budget	New	Improves disaster preparedness	Planning & Regulation
15	DCS has a Memorandum of Understanding with Savannah/Chatham to assist in evacuation and re-entry during disaster situations	2019 - 2024	New	High	1 - 3	All Hazards	DCS	DCS	Agency Budget	New	Assists with evacuation of Chatham County	Planning & Regulation
16	Disaster response and preparedness through agency Matrix that correlates with GEMA/HS timeline Matrix.	2019 - 2024	New	High	1 - 3	All Hazards	DCS	DCS	Agency Budget	New	Improves disaster preparedness	Planning & Regulation
17	Assess the current plan to track sex offenders during the evacuation and re-entry process.	2019 - 2024	New	High	1 - 3	All Hazards	DCS	DCS	Agency Budget	New	Improves the ability to keep track of registered sex-offenders	Planning & Regulation
18	Improve radio communications with other law enforcement agencies.	2019 - 2024	New	High	1 - 3	All Hazards	DCS	DCS	Agency Budget	New	Improves emergency communications	Planning & Regulation
19	Identify offices/buildings that may be vulnerable to natural hazards (State owned and leased)	2019 - 2024	New	High	1 - 3	All Hazards	DCS	DCS	Agency Budget	New	Improves understanding of agency vulnerability	Planning & Regulation
20	Develop a plan to provide saferooms for all Department of Human Services offices throughout the state	2019 - 2024	Ongoing as funding resources and opportunities allow.	High	1 - 3	Tornadoes	DHS	GEMA/HS	Agency Budget	51	Protects people during tornadoes	Planning & Regulation

2019 MITIGATION ACTIONS												
2019 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	Contribution to Mitigation	FEMA Category
21	Develop plan to backup all computer files for the Department of Human Services in the event of a hazard event.  Develop and adopt a strategy to encourage participation in the NFIP by the 86 communities with Special Flood Hazard Areas that are not currently participating. This will add to the 561 communities that are already participating.	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	DHS	GEMA/HS	Agency Budget	52	Improves redundancy of IT systems.	Planning & Regulation
22	Develop and conduct Risk MAP meetings in various watersheds throughout Georgia, including Discovery and Resilience meetings.	2019 - 2024	Ongoing as opportunities allow	High	1 - 3	Flood	DNR Floodplain Mgt	GEMA/HS	Agency Budget	21	Improves the communities' resiliency to flooding	Planning & Regulation
23	Develop flood risk products, including Changes Since Last FIRM, flood depth and probability grids for selected flood frequencies, Areas of Mitigation Interest and HAZUS loss estimates for watersheds funded by FEMA for Risk MAP projects	2019 - 2024	Ongoing as funding allows	High	1 - 3	Flood	DNR Floodplain Mgt	GEMA/HS, FEMA	Agency Budget	22	Improves understanding of risks	Planning & Regulation
24	Review state definition of loss categories in dam failure	2019 - 2024	Ongoing as funding allows	Medium	1 - 3	Flood & Dam Failure	DNR Safe Dams	GEMA/HS, DCA	HMA & Agency Budget	34	Improves understanding of risks	Planning & Regulation
25	Adopt applicable recommendations from the publication Emergency Action Planning for High Hazard Potential Dams: Findings, Recommendations, and Strategies (FEMA 608) into the State Plan	2019 - 2024	Ongoing continually	Low	1 - 3	Flood & Dam Failure	DNR Safe Dams	DNR	Agency Budget	46	Improves the assessment of dams	Planning & Regulation
26	Minimize damage to natural resources through the use of and compliance with greenspace, stream buffers, zoning ordinances as actions to protect Georgia communities	2019 - 2024	Ongoing as State Plan is updated	Low	1 - 3	Flood & Dam Failure	DNR Safe Dams	GEMA/HS	Agency Budget	48	Improves awareness, preparedness and resiliency to dam failures	Planning & Regulation
27		2019 - 2024	Ongoing continually	Low	1 - 3	All Hazards	DNR Floodplain Mgt, Coastal Resources Division	GEMA/HS	HMA & Agency Budget	104	Protects development from flooding and provides natural storage areas for flood waters.	Natural & Cultural Protection

2019 MITIGATION ACTIONS												
2019 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	Contribution to Mitigation	FEMA Category
28	Create and maintain state wide map layer that identifies important natural and cultural resources	2019 - 2024	Ongoing continually	Medium	1 - 3	All Hazards	DNR GIS	GEMA/HS	Agency Budget	105	Helps protect natural and cultural resources	Natural & Cultural Protection
29	Develop flood information outreach resources, such as fact sheets and web pages that summarize flood hydrology for emergency managers and planners	2019 - 2024	Ongoing as resources allow	High	1 - 3	Flood	DNR Floodplain Mgt, Coastal Resources Division	FEMA	Agency Budget	117	Helps improve preparedness by improving awareness of flood related issues.	Public Awareness
30	Provide technical assistance to local governments in order to improve the enforcement of floodplain management requirements	2019 - 2024	Ongoing as needed	High	1 - 3	Flood	DNR Floodplain Mgt	GEMA/HS	Agency Budget	134	Helps reduce vulnerability of development in the floodplain	Public Awareness
31	Develop and maintain map inundation zones for dam failure	2019 - 2024	Ongoing continually	Low	1 - 3	Flood & Dam Failure	DNR Safe Dams & USACE	GEMA/HS	HMA	24	Helps improve awareness of vulnerability to dam failures.	Planning & Regulation
32	EPD will conduct periodic reviews of all their natural disaster plans and participate in disaster exercises	2019 - 2024	New	Medium	1 - 3	All Hazards	DNR EPD	GEMA/HS	Agency Budget	New	Improves planning and preparedness for disaster events.	Planning & Regulation
33	Continue to provide technical assistance to facilities submitting Tier1 reports	2019 - 2024	New	Medium	1 - 3	All Hazards	DNR EPD	GEMA/HS	Agency Budget	New	Improves awareness and understanding of risks.	Planning and Regulation
34	Continue to provide Georgia counties with assistance in predetermination of temporary storm debris staging areas	2019 - 2024	New	Medium	1 - 3	All Hazards	DNR EPD	GEMA/HS	Agency Budget	New	Improves preparedness for future disasters.	Planning and Regulation
35	On EPD website, provide link to GEMA/HS website for hurricane and severe weather emergency preparedness data.	2019 - 2024	New	Low	1 - 3	All Hazards	DNR EPD	GEMA/HS	Agency Budget	New	Helps prevent losses and damages by increasing public awareness	Public Awareness
36	Review and updating annually the Department of Transportation Hurricane Plans, Snow and Ice Plans and ensuring that emergency response personnel are properly trained to ensure the Department is NIMS compliant	2019 - 2024	Ongoing annually	High	1 - 3	All Hazards	DOT	DOT	FDOT	69	Improves training and preparedness for such events.	Planning & Regulation



2019 MITIGATION ACTIONS												
2019 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	Contribution to Mitigation	FEMA Category
37	Schedule and conduct dry run exercises on contra-flow and snow and ice operations annually	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	DOT	DOT	FDOT	70	Improves training and preparedness for such events.	Planning & Regulation
38	Evaluate and update current plans and continues to research any additional resources that may be available to improve DOT's role and response to any hazard that may arise	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	DOT	DOT	FDOT	71	Improves training and preparedness for such events.	Planning & Regulation
39	DPS will conduct annual reviews of all their natural disaster plans and participation in disaster exercises	2019 - 2024	Ongoing annually	Medium	1 - 3	All Hazards	DPS	GEMA/HS	Agency Budget	26	Improves training and preparedness for such events.	Planning & Regulation
40	Provide a link to the GEMA/HS website for hurricane and severe weather emergency preparedness data on the DPS website	2019 - 2024	Ongoing continually	Medium	1 - 3	All Hazards	DPS	GEMA/HS	Agency Budget	29	Helps prevent losses and damages by increasing public awareness	Planning & Regulation
41	Strengthen and add support to Radio Towers at DPS buildings to prevent wind damage to a critical structure	2019 - 2024	Ongoing as funding and opportunities allow	Medium	1 - 3	All Hazards	DPS	GEMA/HS	Agency Budget	30	Reduces damages to critical equipment	Planning & Regulation
42	Purchase and install storm shutters for coastal DPS facilities	2019 - 2024	Ongoing as funding and opportunities allow	Medium	1 - 3	All Hazards	DPS	GEMA/HS	Agency Budget	New	Reduces damages to agency facilities	Planning & Regulation
43	The Department of Agriculture will conduct an annual review of all its natural disaster plans and participate in fully functional food emergency exercises annually	2019 - 2024	Ongoing annually	High	1 - 3	All Hazards	GDag	GDag	Ag Grant	39	Improves training and preparedness for such events.	Planning & Regulation
44	To activate the Agricultural Information Sharing and Analysis Center (AGISAC) to serve as a clearinghouse for information impacting agriculture	2019 - 2024	Ongoing as needed	High	1 - 3	All Hazards	GDag	GDag	Ag Grant	40	Helps make critical information available during disaster.	Planning & Regulation
45	To establish a system of pet friendly shelters in times of disaster	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	GDag	GDag	Ag Grant	41	Provides families with pets a place to go during evacuations.	Planning & Regulation

2019 MITIGATION ACTIONS												
2019 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	Contribution to Mitigation	FEMA Category
46	To continue strengthening the foundation of the All Hazards State Agriculture Response Team	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	GDag	GDag	Ag Grant	43	Improves training and preparedness for such events.	Planning & Regulation
47	To set up an electronic, web-based Reportable Animal Diseases System to incorporate into AGISAC; to train veterinarians and agricultural specialists to be a part of the reporting and response networks, and to plan additional animal and food safety response training exercises	2019 - 2024	Ongoing continually	Medium	1 - 3	All Hazards	GDag	GDag	Ag Grant	50	Helps make critical information available during disaster.	Planning & Regulation
48	Identify new funding sources to update local mitigation plans	2019 - 2024	Ongoing as funding opportunities allow.	High	1 - 3	All Hazards	GEMA/HS	FEMA	HMA	1	Helps improve mitigation planning	Planning & Regulation
49	Provide assistance to Georgia counties in obtaining grant funding to update local mitigation plans	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	GEMA/HS	FEMA,	HMA	2	Helps improve mitigation planning	Planning & Regulation
50	Conduct plan kickoff meetings with local mitigation planning committees to provide overview of the mitigation planning process	2019 - 2024	Ongoing as needed	High	1 - 3	All Hazards	GEMA/HS	Local Communities	Local Budget	3	Helps improve mitigation planning	Planning & Regulation
51	Provide tools, such as fillable charts and templates to assist local planners with data collection for the completion of local mitigation plan documents	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA	4	Helps improve mitigation planning Risk Assessments	Planning & Regulation
52	Provide updated mapping to local communities through GMIS for the Flood, Wildfire, Landslide, Seismic, SLOSH and Wind hazards	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA	5	Helps improve mitigation planning Risk Assessments	Planning & Regulation
53	Provide and encourage the use of the best available historic, risk and vulnerability data and resources to counties for use in local mitigation plans.	2019 - 2024	New	High	1 - 3	All Hazards	GEMA/HS	GEMA/HS, GFC, DNR, NWC, USGS, Other applicable	HMA, Agency and Local budgets	New	Helps improve mitigation planning Risk Assessments	Planning & Regulation

2019 MITIGATION ACTIONS												
2019 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	Contribution to Mitigation	FEMA Category
54	Provide training to local county EMA Directors, planners and state users on entering data into the Georgia Mitigation Information System (GMIS)	2019 - 2024	Ongoing as needed	High	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA	6	Helps improve mitigation planning Risk Assessments	Planning & Regulation
55	Collect, quantify and integrate the local data, such as risk assessment, vulnerability, loss estimates, capability assessment, and mitigation actions, from mitigation plans as they are developed into a standardize matrix for use in the State plan	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA	7	Helps improve integration of local plans into the State Plan	Planning & Regulation
56	Review local mitigation plans for compliance with Federal regulations prior to submittal to FEMA	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	GEMA/HS	FEMA	HMA	8	Helps improve mitigation planning	Planning & Regulation
57	Georgia will maintain Enhanced State Mitigation Plan status throughout SYF 2024	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA	10	Encourages continued high quality program management and allows additional funding for mitigation projects.	Planning & Regulation
58	Identify potential funding assistance to implement mitigation measures for state agencies and local governments	2019 - 2024	Ongoing continually and as funding opportunities allow	High	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA	11	Helps improve Hazard Mitigation throughout the State.	Planning & Regulation
59	During disaster operations, deploy staff to ensure continued working relationships with local, state and federal agencies in the implementation of all available hazard mitigation programs	2019 - 2024	Ongoing after every major disaster.	High	1 - 3	All Hazards	GEMA/HS	FEMA	HMA	12	Helps improve Hazard Mitigation throughout the State.	Planning & Regulation
60	Provide State Plan risk assessment data on GEMA/HS's Hazard Mitigation Website for local communities to utilize in their local mitigation planning processes	2019 - 2024	Ongoing continually	Medium	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA	15	Helps improve integration of State and local plan data	Planning & Regulation

2019 MITIGATION ACTIONS												
2019 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	Contribution to Mitigation	FEMA Category
61	Georgia will achieve 80% federal approval for the second update of all 159 local mitigation plans by SFY 2024	2019 - 2024	New	High	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA	New	Helps increase awareness of risk to natural hazards and benefits of mitigation and helps ensure continued eligibility for mitigation funding	Planning & Regulation
62	Georgia will achieve 25% federal approval for the third update of all 159 local mitigation plans by SFY 2024	2019 - 2024	New	High	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA	New	Helps increase awareness of risk to natural hazards and benefits of mitigation and helps ensure continued eligibility for mitigation funding	Planning & Regulation
63	Update GMIS with the most current flood maps available from FEMA	2019 - 2024	Ongoing continually	High	1 - 3	Flooding	GEMA/HS	DNR & FEMA	HMA	17	Helps improve awareness of risk to flood hazards.	Planning & Regulation
64	Add and maintain tax parcel data to GMIS	2019 - 2024	Ongoing continually as parcel data is updated	Medium	1 - 3	All Hazards	GEMA/HS	DCA	HMA	18	Provide access to better data for better risk analysis	Planning & Regulation
65	Update GMIS with the most current Wildfire maps available from the Georgia Forestry Commission	2019 - 2024	Ongoing as maps are updated	High	1 - 3	Wildfire	GEMA/HS	GFC	HMA	19	Provide access to better data for better risk analysis	Planning & Regulation
66	Determine effectiveness of mitigation programs through loss avoidance studies	2019 - 2024	Ongoing after major disasters	High	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA & Agency Budget	32	Helps ensure the most effective use of mitigation funding.	Planning & Regulation
67	Reduce flood loss claims against NFIP through the mitigation of repetitive loss properties	2019 - 2024	Ongoing as funding opportunities allow	High	1 - 3	Flood	GEMA/HS	DNR & FEMA	Agency Budget	37	Reduce damages to flood prone structures.	Planning & Regulation
68	Update repetitive loss data in GMIS and maintain database to track mitigation activities including mitigated properties and repetitive loss structures	2019 - 2024	Ongoing continually	High	1 - 3	Flood	GEMA/HS	GEMA/HS	HMA & Agency Budget	38	Helps provide the best information available for flood risk assessment.	Planning & Regulation

2019 MITIGATION ACTIONS												
2019 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	Contribution to Mitigation	FEMA Category
69	Conduct post disaster review of state and local hazard mitigation plans for evaluation and updating as appropriate	2019 - 2024	Ongoing after major disasters	High	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA & Agency Budget	42	Helps ensure risk assessments remain relevant as times change.	Planning & Regulation
70	Collect category one and two data from the Safe Dams Program	2019 - 2024	Ongoing continually	Low	1 - 3	Flood & Dam Failure	GEMA/HS	DNR	Agency Budget	44	Ensure the use of the most up to date data in risk assessments.	Planning & Regulation
71	Develop update a map for dams in the risk evaluation portion of the state hazard mitigation plan	2019 - 2024	Ongoing continually	Low	1 - 3	Flood & Dam Failure	GEMA/HS	DNR	Agency Budget	45	Ensure the use of the most up to date data in risk assessments.	Planning & Regulation
72	Determine non-human loss from dam failures	2019 - 2024	Deferred due to staffing and time constraints	Low	1 - 3	Flood & Dam Failure	GEMA/HS	DNR	Agency Budget	47	Helps improve understanding of risks to dam failures.	Planning & Regulation
73	Provide technical assistance to local communities in identifying and developing hazard mitigation projects	2019 - 2024	Ongoing continually	High	1-3	All Hazards	GEMA/HS	GEMA/HS	HMA	55	Helps improve Hazard Mitigation throughout the State.	Planning & Regulation
74	Support cost effective mitigation activities that minimize damages and or provide uninterrupted operational capabilities to critical facilities, utilities and property	2019 - 2024	Ongoing as funding opportunities allow	High	1-3	All Hazards	GEMA/HS	GEMA/HS	HMA	56	Reduces damages and ensures continued operability of essential services.	Planning & Regulation
75	Support local government cost-effective requests through available grant opportunities to mitigate repetitive loss properties with priority given to severe repetitive loss properties and removal of repetitive loss properties from regulatory floodway	2019 - 2024	Ongoing as funding opportunities allow	Medium	1-3	Inland Flooding	GEMA/HS	Local Communities, DNR	HMA	57	Reduces damages and losses to flood prone properties and helps restore floodplains to a natural state.	Planning & Regulation
76	Utilize and share information on lessons learned from analysis of the mitigated properties database	2019 - 2024	Ongoing continually	Medium	1-3	All Hazards	GEMA/HS	GEMA/HS	HMA	58	Helps ensure the effective use of future mitigation funding.	Planning & Regulation
77	Investigate mitigation grant opportunities with Department of Agriculture	2019 - 2024	Ongoing as staff and funding resources allow	High	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA & Agency Budget	61	Help reduce losses to agricultural areas.	Planning & Regulation

2019 MITIGATION ACTIONS												
2019 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	Contribution to Mitigation	FEMA Category
78	Develop and maintain matrix of all local capabilities for next state strategy update	2019 - 2024	Deferred due to staffing and time constraints	Low	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA & Agency Budget	62	Helps improve integration of local plan information into the State Plan.	Planning & Regulation
79	Research feasibility and practicality of additional high priority projects identified in mitigation strategy workshop.	2019 – 2024	New	Medium	1-3	All Hazards	GEMA/HS	Various	HMA and Agency Budget	New	Will help reduce future damages and losses from multiple hazards.	Planning and Regulation
80	Integrate hazard mitigation into other state and local processes such as THIRA, Long-Term Recovery Plan, local comprehensive plans, CWPPs, and capital improvement plans	2019 - 2024	Ongoing as various plans are updated	High	1 - 3	All Hazards	GEMA/HS	DCA, GFC, Local Communities	HMA & Agency Budget	76	Helps improve the full integration of hazard mitigation into other operations.	Planning & Regulation
81	Require communities to remain in good standing in the NFIP to be eligible for hazard mitigation funding, as well as continue to give mitigation funding priority to CRS communities	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA & Agency Budget	78	Help reduce damages to flood prone properties and to improve access to flood insurance.	Planning and Regulation
82	Assist local communities with eligible acquisition/elevation, floodproofing, and storm water projects	2019 - 2024	Ongoing continually	High	1 - 3	Inland Flooding	GEMA/HS	GEMA/HS	HMA & Agency Budget	91	Help reduce damages resulting from flooding.	Structure & Infrastructure
83	Promote the development of safe areas in public and private schools	2019 - 2024	Ongoing as opportunities allow	High	1 - 3	Tornadoes	GEMA/HS	BOR, DOE & Local Communities	HMA & Agency Budget	92	Protect people from tornadoes.	Structure & Infrastructure
84	Expand the use of safe rooms throughout Georgia communities	2019 - 2024	Ongoing as funding and opportunities allow	High	1 - 3	Tornadoes	GEMA/HS	GEMA/HS & GFC	HMA & Agency Budget	93	Protect people from tornadoes	Structure & Infrastructure
85	Identify state assets at highest risk and list appropriate mitigation actions to reduce these risk and identify opportunities for structural protections (ie. safe rooms) in buildings	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA & Agency Budget	94	Reduce damages to state owned and operated facilities.	Structure & Infrastructure
86	Coordinate with local emergency management agencies to predesignate safe areas for at-risk population	2019 - 2024	Ongoing continually	High	1 - 3	Tornadoes	GEMA/HS	GEMA/HS	EMPG & Agency Budget	95	Protect people from tornadoes and severe weather.	Structure & Infrastructure

2019 MITIGATION ACTIONS												
2019 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	Contribution to Mitigation	FEMA Category
87	Identify historic sites that may be vulnerable to natural hazards	2019 - 2024	Ongoing continually	Medium	1 - 3	All Hazards	GEMA/HS	SHPO	HMA & Agency Budget	101	Improve understanding of risks to historic sites.	Natural & Cultural Protection
88	Ensure there are no adverse effects of any proposed mitigation projects on Georgia's natural resources and/or threatened or endangered species	2019 - 2024	Ongoing with each mitigation project	Low	1 - 3	All Hazards	GEMA/HS	FEMA, US Fish Wildlife	HMA & Agency Budget	102	Protect natural resources and endangered or threatened species.	Natural & Cultural Protection
89	Educate and promote the prevention of development in places such as flood plains, steep ravines, lands with underground caves, through news letters and workshops	2019 - 2024	Ongoing continually	Low	1 - 3	All Hazards	GEMA/HS	DCA	HMA & Agency Budget	103	Protect natural resources and endangered or threatened species.	Natural & Cultural Protection
90	Develop a list of public and private sector incentives such as CRS & NFIP, that encourage the implementation of hazard mitigation measures for publication on GEMA/HS's website.	2019 - 2024	Ongoing continually	Medium	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA, Agency Budget	106	Improve public awareness of and encourage practices that help improve resilience to natural hazards.	Public Awareness
91	Support the use of state of the art warning technology and local warning projects with available initiative funds	2019 - 2024	Ongoing as funding allows	Medium	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA, Agency Budget	107	Help protect people by warning of incoming severe weather.	Public Awareness
92	Expand NOAA weather alert system by applying for grants to distribute radios to local communities	2019 - 2024	Ongoing as funding allows	Medium	1 - 3	All Hazards	GEMA/HS	Local Communities	HMA, Agency Budget	108	Help reduce loss of life by warning of incoming severe weather.	Public Awareness
93	Determine percentage of population coverage by current alert systems	2019 - 2024	Deferred due to time and staffing resources	Medium	1 - 3	All Hazards	GEMA/HS	GEMA/HS	Agency Budget	110	Help reduce loss of life by warning of incoming severe weather.	Public Awareness



2019 MITIGATION ACTIONS												
2019 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	Contribution to Mitigation	FEMA Category
94	Support the StormReady Program in Georgia in partnership with the National Weather Service, promoting the increase in the number of StormReady counties, communities, governments, universities and commercial sites from the current number of 113 as of 8/2018	2019 - 2024	Ongoing continually	Medium	1 - 3	All Hazards	GEMA/HS	GEMA/HS, NWS	Agency Budget	111	Improve public awareness of and encourage practices that help improve resilience to natural hazards.	Public Awareness
95	Promote and share Mitigation Ideas Guide (Jan 2013) with local communities and planners	2019 - 2024	Ongoing continually and as local plan updates are started.	High	1 - 3	All Hazards	GEMA/HS	FEMA	Agency Budget	112	Help improve mitigation throughout the State	Public Awareness
96	Make Georgia hazard data available on GEMA/HS webpage	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA, Agency Budget	113	Help improve awareness of natural hazards.	Public Awareness
97	Conduct post-disaster workshops for affected local communities	2019 - 2024	Ongoing after major disasters	High	1 - 3	All Hazards	GEMA/HS	NRCS	HMA, Agency Budget	115	Help encourage effective use of mitigation opportunities.	Public Awareness
98	Share mitigation project/plan success stories via media such as websites and newsletters	2019 - 2024	Ongoing as opportunities allow	Medium	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA, Agency Budget	116	Help improve awareness of the benefits of mitigation.	Public Awareness
99	Develop workshops and webinars to facilitate the update of the state plan risk assessment	2019 - 2024	Ongoing prior to the beginning of the State Plan major update process.	High	1 - 3	All Hazards	GEMA/HS	FEMA	HMA, Agency Budget	120	Help obtain the best available information for future updates to the State Plan.	Public Awareness
100	Increase local participation in flood hazard mitigation programs such as NFIP and CRS, through workshops and posted information on GEMA/HS and DNR websites	2019 - 2024	Ongoing as opportunities arise	High	1 - 3	Flood	GEMA/HS	DNR & FEMA	Agency Budget	121	Improve public awareness of and encourage practices that help improve resilience to natural hazards	Public Awareness
101	Increase local participation in hazard mitigation programs such as Firewise and Storm Ready Communities, through workshops and posted information on GEMA/HS website	2019 - 2024	Ongoing as opportunities arise.	High	1 - 3	All Hazards	GEMA/HS	FEMA & NWS	Agency Budget	122	Improve public awareness of and encourage practices that help improve resilience to natural hazards	Public Awareness

2019 MITIGATION ACTIONS												
2019 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	Contribution to Mitigation	FEMA Category
102	Distribute information via brochures, websites, webinars and workshops on community and household saferooms to Georgia communities	2019 - 2024	Ongoing as opportunities arise.	Medium	1 - 3	Tornadoes	GEMA/HS	GEMA/HS	Agency Budget	124	Help protect people from tornadoes.	Public Awareness
103	Support the Severe Weather Awareness Week and the Prescribed Fire Awareness Week campaigns in partnership with the Office of the Governor	2019 - 2024	Ongoing as applicable	High	1 - 3	Severe Weather, Wildfire	GEMA/HS	GEMA/HS	HMA, Agency Budget	133	Improve public awareness of and encourage practices that help improve resilience to natural hazards	Public Awareness
104	Increase community awareness of the negative impacts of repetitive loss properties and the benefits of mitigation actions	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	GEMA/HS	DNR	HMA, Agency Budget	135	Improve public awareness of and encourage practices that help improve resilience to flooding	Public Awareness
105	Lead and direct the Georgia Silver Jackets Team to promote flood risk management programs throughout the state.	2019 - 2024	Ongoing continually	High	1 - 3	Flood	GEMA/HS	USGS, NWS, USACE, FEMA, EPA, NRCS, FHA, USEDA	HMA, Agency Budgets	136	Bring together multiple agencies and funding sources to reduce the potential for losses from flooding	Planning & Regulation
106	Promote and support mitigation allied programs, such as the Community Rating System (CRS) and Storm Ready by giving application incentive points for communities applying for HMA assistance.	2019 - 2024	Ongoing as HMA assistance opportunities become available	Low	1 - 3	All Hazards	GEMA/HS	GEMA/HS	Agency Budget	137	Encourage practices that help improve resilience to natural hazards	Planning & Regulation
107	Promote safe room construction at all levels i.e. (individual residents, local governments and local school districts, and private industry).	2019 - 2024	Ongoing continually as opportunities arise	Low	1 - 3	Tornadoes	GEMA/HS	GEMA/HS	Agency Budget	138	Protect people from tornadoes.	Planning & Regulation
108	Continue education of local emergency managers on various mitigation activities and funding opportunities	2019 - 2024	Ongoing continually	Low	1 - 3	All Hazards	GEMA/HS	GEMA/HS	Agency Budget	139	Encourage practices that help improve resilience to natural hazards	Planning & Regulation

2019 MITIGATION ACTIONS												
2019 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	Contribution to Mitigation	FEMA Category
109	Promote mitigation activities on properties that are located in areas vulnerable to hazards	2019 - 2024	Ongoing continually	Low	1 - 3	All Hazards	GEMA/HS	GEMA/HS	Agency Budget	140	Encourage practices that help improve resilience to natural hazards	Planning & Regulation
110	Promote structural retrofits for structures that are vulnerable to wind events	2019 - 2024	Ongoing continually	Low	1 - 3	All Hazards	GEMA/HS	GEMA/HS	Agency Budget	141	Encourage practices that help improve resilience to wind related hazards.	Planning & Regulation
111	Develop working relationship with local floodplain managers to educate them on the FEMA's Flood Mitigation Assistance program	2019 - 2024	Ongoing continually	Low	1 - 3	All Hazards	GEMA/HS	GEMA/HS	Agency Budget	142	Improve awareness of flood mitigation programs	Planning & Regulation
112	Identify properties that might be eligible for cost effective mitigation measures and coordinate results with local governments	2019 - 2024	Ongoing continually	Low	1 - 3	All Hazards	GEMA/HS	GEMA/HS	Agency Budget	143	Encourage practices that help improve resilience to flooding	Planning & Regulation
113	Facebook Fans – Increase total number of fans by 20 percent over 2014 number	2019 - 2024	New	High	1 - 3	All Hazards	GEMA/HS External Affairs	GEMA/HS	Agency Budget	New	Improve the awareness of the importance of individual resilience	Public Awareness
114	Twitter Followers – increase total number of followers by 20 percent over 2014 number	2019 - 2024	New	High	1 - 3	All Hazards	GEMA/HS External Affairs	GEMA/HS	Agency Budget	New	Improve the awareness of the importance of individual resilience	Public Awareness
115	Distribute quarterly publication – The Dispatch	2019 - 2024	New	High	1 - 3	All Hazards	GEMA/HS External Affairs	GEMA/HS	Agency Budget	New	Improve the awareness of the importance of individual resilience	Public Awareness
116	Dispatch Readers – increase total number of readers by 20 percent over 2014 number	2019 - 2024	New	High	1 - 3	All Hazards	GEMA/HS External Affairs	GEMA/HS	Agency Budget	New	Improve the awareness of the importance of individual resilience	Public Awareness
117	Ready Georgia – increase total number of app users by 20 percent over 2014 number	2019 - 2024	New	High	1 - 3	All Hazards	GEMA/HS External Affairs	GEMA/HS	Agency Budget	New	Improve the awareness of the importance of individual resilience	Public Awareness

2019 MITIGATION ACTIONS												
2019 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	Contribution to Mitigation	FEMA Category
118	Develop and update Wildfire Protection Plans throughout the State	2019 - 2024	Ongoing continually as needed	High	1 - 3	Wildfire	GFC	GEMA/HS	Agency Budget	9	Improve assessment of wildfire hazard.	Planning & Regulation
119	Update Community Wildfire Protection (CWPP) in conjunction with Local Hazard Mitigation Plan (LHMP) update	2019 - 2024	Ongoing as LHMPs are updated	High	1 - 3	Wildfire	GFC	GEMA/HS	Agency Budget	28	Improve assessment of wildfire hazard.	Planning & Regulation
120	Continue developing the hazard, risk, and vulnerability assessments for CWPP and SWRA by utilizing updated technology and improved data	2019 - 2024	Ongoing continually	High	1 - 3	Wildfire	GFC	GEMA/HS	Agency Budget	49	Improve assessment of wildfire hazard.	Planning & Regulation
121	Support prescribed burning in CWPP plans	2019 - 2024	Ongoing continually	High	1 - 3	Wildfire	GFC	GFC	EMPG	53	Reduce risk of fires.	Planning & Regulation
122	Build future buildings to withstand high winds and other hazards	2019 - 2024	Ongoing as applicable	High	1 - 3	All Hazards	GFC	GBA	Agency Budget	98	Reduce damages to future GFC facilities	Structure & Infrastructure
123	Increase local participation in fire hazard mitigation programs such as FireWise, through workshops and posted information on GEMA/HS and GFC websites	2019 - 2024	Ongoing continually	High	1 - 3	Wildfire	GFC	GEMA/HS	Agency Budget	123	Improve public awareness of and encourage practices that help improve resilience to wildfires	Public Awareness
124	Encourage local communities to review related planning processes such as CWPPs and Comprehensive Plans, when updating LHMPs	2019 - 2024	Ongoing when LHMPs are updated.	High	1 - 3	All Hazards	GFC & DCA	GEMA/HS	Agency Budget	13	Improve integration and consideration of wildfire hazard in other operations.	Planning & Regulation
125	Purchase 2 Single Engine Air Tankers for wildfire mitigation	2019 - 2024	New	High	1 - 3	Wildfire	GFC	GFC	Agency Budget	New	Improve preparedness for wildfire events.	Planning and Regulation
126	Wildfire Response fire dispatch system with equipment tracking	2019 - 2024	New	High	1 - 3	Wildfire	GFC	GFC	Agency Budget	New	Improve preparedness for wildfire events.	Planning and Regulation
127	Update Hurricane Procedure Manual and Preparedness Guide for the Georgia Port Authority	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	GPA	GPA	Agency Budget	80	Improve preparedness for hurricane events.	Structure & Infrastructure
128	The Georgia Port Authority will participate in the development of Coastal County Hazard Mitigation Plan updates	2019 - 2024	Ongoing as hazard mitigation plans are updated.	High	1 - 3	All Hazards	GPA	GPA	HMA & Agency Budget	81	Improve awareness and assessment of risks and vulnerabilities	Planning and Regulation

2019 MITIGATION ACTIONS												
2019 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	Contribution to Mitigation	FEMA Category
129	The Georgia Port Authority has begun the procedure of stacking containers three high and tying the ends together to prevent property damage	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	GPA	GPA	Agency Budget	83	Reduce risk of damages from hurricanes.	Structure & Infrastructure
130	Elevate flood prone areas at the Georgia Ports Authority Colonel's Island facility in Brunswick, GA	2019 - 2024	New	High	3-Jan	Flooding	GPA	GEMA/HS	HMGP/HMA, Agency Budget	New	Reduce risk of damages from storm surge.	Structure & Infrastructure
131	GPA has established relationship for weather reporting with Meteorologist John Weatherby and also subscribes to a weather monitoring service and uses local and state EMA weather updates	2019 - 2024	New	High		All Hazards	GPA	GPA	Agency Budget	New	Improve preparedness for severe weather type events.	Planning and Regulation
132	Develop breach zone studies to mitigate potential loss of life in the event of dam failure	2019 - 2024	Ongoing as funding and opportunities allow.	Medium	1 - 3	Dam Failure	GSWCC	GSWCC	NRCS	59	Improve awareness of risks from dam failures.	Planning & Regulation
133	Education and the possible prevention of the installation of structures (i.e. houses) within the breach zone of flood control dams will be dependent on the willingness of local government entities to zone these areas	2019 - 2024	Ongoing as opportunities allow	Medium	1 - 3	Dam Failure	GSWCC	GSWCC	NRCS	63	Reduce potential for damages from future dam failure events.	Planning & Regulation
134	The Commission will continue to work closely with the Districts and the NRCS in the preparation of breach zone studies necessary for development of EAPs	2019 - 2024	Ongoing continually	Medium	1 - 3	Dam Failure	GSWCC	GSWCC	NRCS	64	Improve awareness of risks from dam failures.	Planning & Regulation
135	Establish a procedure for District personnel to work with county EMGs in practice drills or preparedness during a dam failure simulation	2019 - 2024	Ongoing continually	Medium	1 - 3	Dam Failure	GSWCC	GSWCC	NRCS	65	Improve preparedness for dam failure events.	Planning & Regulation

2019 MITIGATION ACTIONS												
2019 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	Contribution to Mitigation	FEMA Category
136	Seek funding that will allow the modification of existing NRCS constructed flood control dams in order to comply with state safe dam criteria for high hazard dams	2019 - 2024	Ongoing as funding opportunities allow.	Medium	1 - 3	Dam Failure	GSWCC	GSWCC	NRCS	66	Reduce potential for future dam failure events.	Planning & Regulation
137	Update GWIS database	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	ITOS	GEMA/HS	HMA	33	Provide best available data for risk assessments.	Planning & Regulation
138	The Archives will provide training on disaster preparedness to local governments and other not-for-profit cultural organizations in Georgia	2019 - 2024	Ongoing continually as needed	High	1 - 3	All Hazards	SOS	SOS	IMLS	72	Improve preparedness for natural hazard events.	Planning & Regulation
139	The Archives will collect GIS information for all collection holding organizations in Georgia in a database to determine their level of emergency preparedness	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	SOS	SOS	IMLS	73	Improve preparedness for natural hazard events.	Planning & Regulation
140	Issue and get approval for a statewide contract for document recovery services to ensure that local governments and state agencies contract with the most qualified vendors for document restoration after a disaster	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	SOS	SOS, FEMA	IMLS	74	Improve resiliency to natural hazard events.	Planning & Regulation
141	Expand the current Georgia Archives emergency plan to include provisions for business continuity and for water conservation	2019 - 2024	Ongoing continually	High	1 - 3	All Hazards	SOS	SOS	IMLS	75	Improve resiliency to natural hazard events.	Planning & Regulation
142	Annual revision of Hazard Vulnerability Assessments (System & 22 Individual colleges)	2019 - 2024	New	High	1 - 3	All Hazards	TCSG	GEMA/HS	Agency 'Budget	New	Help prevent damages to facilities by ensuring risk assessments remain up to date.	Planning and Regulation
143	Annual revision of Critical Mission Functions (System & 22 Individual colleges)	2019 - 2024	New	High	1 - 3	All Hazards	TCSG	GEMA/HS	Agency Budget	New	Improve preparedness for future hazard events.	Planning and Regulation

2019 MITIGATION ACTIONS												
2019 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	Contribution to Mitigation	FEMA Category
144	Develop & implement orientation and training for Emergency Operations Coordinators	2019 - 2024	New	High	1 - 3	All Hazards	TCSG	GEMA/HS	Agency Budget	New	Improve preparedness for future hazard events.	Planning and Regulation
145	Develop & implement orientation and training for Business Continuity Coordinators	2019 - 2024	New	High	1 - 3	All Hazards	TCSG	GEMA/HS	Agency Budget	New	Improve preparedness for future hazard events.	Planning and Regulation
146	NIMS training & credentialing all College (22) Emergency Operations Coordinators	2019 - 2024	New	High	1 - 3	All Hazards	TCSG	GEMA/HS	Agency Budget	New	Improve preparedness for future hazard events.	Planning and Regulation
147	NIMS training & credentialing all College (22) Business Continuity Coordinators	2019 - 2024	New	High	1 - 3	All Hazards	TCSG	GEMA/HS	Agency Budget	New	Improve preparedness for future hazard events.	Planning and Regulation
148	Biannual training and peer review Emergency Operations Coordinators	2019 - 2024	New	High	1 - 3	All Hazards	TCSG	GEMA/HS	Agency Budget	New	Improve preparedness for future hazard events.	Planning and Regulation
149	Biannual training and peer review Business Continuity Coordinators	2019 - 2024	New	High	1 - 3	All Hazards	TCSG	GEMA/HS	Agency Budget	New	Improve preparedness for future hazard events.	Planning and Regulation
150	Coordination with Local Hazard Mitigation Plan Groups across 22 Colleges' Service Delivery Areas (90+ counties)	2019 - 2024	New	High	1 - 3	All Hazards	TCSG	GEMA/HS	Agency Budget	New	Improve awareness and assessment of risks and vulnerabilities	Planning and Regulation
151	Re-establishment of College Safety Committees and Community Safety Advisory Boards	2019 - 2024	New	High	1 - 3	All Hazards	TCSG	GEMA/HS	Agency Budget	New	Improve preparedness for future hazard events.	Planning and Regulation
152	Coordination of Mitigation Planning with TCSG System Office Facilities Management	2019 - 2024	New	High	1 - 3	All Hazards	TCSG	GEMA/HS	Agency Budget	New	Improve awareness and assessment of risks and vulnerabilities	Planning and Regulation
153	Coordination of Mitigation Planning with Colleges' (22) Facilities Management Peer Group	2019 - 2024	New	High	1 - 3	All Hazards	TCSG	GEMA/HS	Agency Budget	New	Improve awareness and assessment of risks and vulnerabilities	Planning and Regulation
154	Coordination of Mitigation Planning with TCSG System Office Strategic Planning	2019 - 2024	New	High	1 - 3	All Hazards	TCSG	GEMA/HS	Agency Budget	New	Improve awareness and assessment of risks and vulnerabilities	Planning and Regulation



2019 MITIGATION ACTIONS												
2019 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	Contribution to Mitigation	FEMA Category
155	Expand the number of Flood Tracking Chart Projects to other river basins, ensuring greater availability of information to the emergency management community and public	2019 - 2024	Ongoing as funding and opportunities allow	Medium	1-3	Inland Flooding	USGS	GEMA/HS, DNR, NOAA	USGS, DNR, Local	54	Improve understanding for flood risks	Planning and Regulation
156	Improve statewide Digital Elevation Models	2019 - 2024	Ongoing continually	High	1-3	All Hazards	USGS	DNR	USGS	60	Improve understanding for flood risks	Planning and Regulation
157	Share and promote stream gauge historic crests database to local communities	2019 - 2024	Ongoing continually	High	1 - 3	Flood	USGS	GEMA/HS & NWS	HMA, Agency Budget	118	Provide best available information for awareness and local planning and preparedness.	Public Awareness
158	Increase the number of stream gauges in Georgia	2019 - 2024	Ongoing as funding allows	High	1 - 3	Flood	USGS	GEMA/HS	HMA, Agency Budget	119	Provide best available information for awareness and planning and preparedness	Public Awareness

**TABLE 3.6 COMBINED OR DELETED MITIGATION ACTION TABLE**

2019 DELETED MITIGATION ACTIONS										
2014 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	FEMA Category
35	Provide watertight document storage for assets in SLOSH and Floodway/Velocity Zones	2014 - 2019	Deleted	Medium	1 - 3	All Hazards	DPS	GEMA/HS	Agency Budget	Planning & Regulation
	Place brochures and documents in DPS facilities for public and employee awareness of mitigation steps they can take for their own and family protection									
36		2014 - 2019	Deleted	Medium	1 - 3	All Hazards	DPS	GEMA/HS	Agency Budget	Planning & Regulation
	Chatham and Glynn Counties to team up with GPA and DOAS to develop a maximum loss study in the event of various levels of cyclonic events									
79		2014 - 2019	Deleted	High	1 - 3	All Hazards	GPA	DOAS	Agency Budget	Structure & Infrastructure
	Develop private weather center for the Georgia Port Authority, staffed with a meteorologist									
82		2014 - 2019	Deleted	High	1 - 3	All Hazards	GPA	GPA	Agency Budget	Structure & Infrastructure
	Develop webinars and workshops for local communities to increase public awareness of disaster risks and mitigation actions that protect life and decrease property damages									
114		2014 - 2019	Deleted	Medium	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA, Agency Budget	Public Awareness
	Meet or exceed 2012 media impressions for Ready Georgia (74 million)									
125		2014 - 2019	Deleted	High	1 - 3	All Hazards	GEMA/HS PIO	GEMA/HS	Agency Budget	Public Awareness
	Increase Ready profile registrations by 50 percent over 2012 goal									
126		2014 - 2019	Deleted	High	1 - 3	All Hazards	GEMA/HS PIO	GEMA/HS	Agency Budget	Public Awareness
	Meet or exceed 2012 levels of website traffic									
127		2014 - 2019	Deleted	High	1 - 3	All Hazards	GEMA/HS PIO	GEMA/HS	Agency Budget	Public Awareness
	Ready Georgia App – 58,000 website visits									
128		2014 - 2019	Deleted	High	1 - 3	All Hazards	GEMA/HS PIO	GEMA/HS	Agency Budget	Public Awareness
	Meet or exceed 2012 mobile app downloads for Ready Georgia App (14,477)									
	Maintain average of 500 monthly app users (6,000 total)									
N/A		2014 - 2019	Deleted	High	1 - 3	All Hazards	GEMA/HS PIO	GEMA/HS	Agency Budget	Public Awareness
	Blog/Podcast – Meet or exceed 2012 traffic for Ready Georgia App (10,622 visits)									
131		2014 - 2019	Deleted	High	1 - 3	All Hazards	GEMA/HS PIO	GEMA/HS	Agency Budget	Public Awareness
	You Tube – Meet or exceed 2012 views for Ready Georgia App (4,771)									
148		2014 – 2019	Deleted	High	1-3	All Hazards	GEMA/HS PIO	GEMA/HS	Agency Budget	Public Awareness

**TABLE 3.7 COMPLETED MITIGATION ACTION TABLE**

2019 COMPLETED MITIGATION ACTIONS										
2014 Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	FEMA Category
16	Georgia will achieve 100% federal approval for the initial update of all 159 local mitigation plans by SFY 2019	2014 - 2019	Complete	High	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA	Planning and Regulations
20	Georgia will contract with 40 % of counties to update their local hazard mitigation plans in the second update cycle by SFY 2019 DCA is currently in the process of developing a Business Impact Analysis Survey to be completed by the management of each DCA program. This survey will identify strengths, weaknesses, opportunities, and threats (SWOT). The information from these surveys will be incorporated into the existing DCA Management Recovery Team Action Plan.	2014 - 2019	Complete	High	1 - 3	All Hazards	GEMA/HS	GEMA/HS	HMA	Planning and Regulations
23	Provide lightning suppression protection to all DPS facilities	2014 - 2019	Complete	High	1 - 3	All Hazards	DCA	DCA	Agency Budget	Planning & Regulation
31	DCA will conduct training building inspector workshops on the disaster resilient building codes	2014 - 2019	Complete	Medium	1 - 3	All Hazards	DPS	GEMA/HS	Agency Budget	Planning & Regulation
77	Develop a university system wide communications plan	2014 - 2019	Complete	High	1 - 3	All Hazards	DCA	DCA	Agency Budget	Planning & Regulation
86	Develop Emergency Planning Group to plan for all hazards facing the university system	2014 - 2019	Complete	High	1 - 3	All Hazards	BOR	TBA	Agency Budget	Structure & Infrastructure
87	Rebuild Dade County Georgia Forestry Office in Trenton, GA destroyed by tornados in 2011 to higher building standards to withstand high winds	2014 - 2019	Complete	High	1 - 3	All Hazards	BOR	BOR	Agency Budget	Structure & Infrastructure
96	Purchase 6 Masficcutters (Brush Cutters) to mitigate underbrush and reduce fuel loads	2014 - 2019	Complete	High	1 - 3	All Hazards	GFC	GBA	Agency Budget	Structure & Infrastructure
97	Install generator to keep electricity available to the server in the Macon office (Drybranch)	2014 - 2019	Complete	High	1 - 3	All Hazards	GFC	GEMA/HS	Agency Budget	Structure & Infrastructure
99	Facebook Fans – Increase total number of fans by 20 percent over 2011 (2,245) – 2,700	2014 - 2019	Complete	High	1 - 3	All Hazards	GFC	GFC	Agency Budget	Structure & Infrastructure
118	Create new "Southwrap" web-based program to display Southern Wildfire Risk Assessment data electronically	2014 - 2019	Complete	High	1 - 3	All Hazards	GFC	GEMA/HS	Agency Budget	Public Awareness
132		2013 - 2014	Complete	High	1 - 3	All Hazards	GFC	GFC	Agency Budget	Public Awareness

### **3.3 STATE CAPABILITY ASSESSMENT**

The state capability assessment includes evaluation of Georgia's pre- and post-disaster hazard management infrastructure, including policies, programs, and funding. Subsection 3.3.1 focuses on the role of various state agencies in relation to pre- and post-disaster hazard management within Georgia. This includes mitigation-related policies, programs, and available funding. Next is a discussion of federal agency roles, including policies, programs, and funding opportunities.

Contacts within the Georgia General Assembly initiate legislation that is of direct interest to GEMA/HS while also tracking and supporting legislation that is of interest to the public safety, homeland security, and emergency management communities. GEMA/HS also works closely with other agencies and organizations such as the Association County Commissioners of Georgia, the Georgia Municipal Association, the Georgia Fire Chiefs Association, the Georgia Sheriffs' Association, the Georgia Police Chiefs Association, and the Departments of Public Safety and Natural Resources to support legislation of common interest.

The Official Code of Georgia Annotated (O.C.G.A.) is the compendium of all laws enacted in Georgia. The O.C.G.A. contains numerous legislative rules supporting mitigation. The following legislation relates to hazard mitigation in the State of Georgia:

- Georgia Coastal Management Act, O.C.G.A. §12-5-320
- Georgia Coastal Marshland Protection Act, O.C.G.A. §12-5-280
- Georgia River Corridor Protection Act, O.C.G.A. §12-2-1
- Georgia Shore Protection Act, O.C.G.A. §12-5-230
- Georgia Safe Dams Act of 1978, O.C.G.A. §12-5-370 to 385
- Georgia Planning Act of 1989, O.C.G.A. §50-8-1
- Erosion and Sedimentation Act, O.C.G.A. §12-7-1
- Georgia Emergency Management Act of 1981, as amended, O.C.G.A. §38-3-1
- Soil and Water Conservation Districts Law, O.C.G.A. §2-6-20 and §2-6-27
- Georgia Environmental Policy Act, O.C.G.A. §12-16-1
- Metropolitan North Georgia Water Planning District Act, O.C.G.A. §12-5-570
- Georgia Building Codes, O.C.G.A. §8
- Georgia Records Act, O.C.G.A. §50-18-90
- Georgia Forest Fire Protection Act, O.C.G.A. §12-6-80 to §12-6-93
- Georgia Prescribed Burning Act, O.C.G.A. §12-6-145

Several of the acts are discussed elsewhere in the plan under the corresponding state or federal agency and under the state capability summary. The Georgia General Assembly has passed no relevant legislation or regulations since the approval of the last Hazard Mitigation Plan in March of 2014.

Another example of state capability as it relates to GEMA/HS is the use of the Georgia Mitigation Information System (GMIS). GEMA/HS contracts with the University of Georgia's Information Technology Outreach Services to develop an online data entry and display system for local planning efforts that evolved into GMIS. The web-based GMIS provides easy access and maintenance without requiring extensive knowledge of GIS applications and software. Only authorized users can access the application through a log-in process. Users can manipulate critical facility data (depending on access level), view maps, and download data and reports for analysis. Authorized users have two options in which to enter critical facility data. Most communities use a bulk upload option in which the user downloads a blank spreadsheet from the system,

fills it in with up to date data on all critical facilities and uploads it to the system. GEMA/HS planners and ITOS staff then review the data and ITOS integrates it into the system. Users can also enter facility information directly online. The authorized user fills out a web-based form that includes drop-down boxes and other methods of validating user input, which minimizes training and improves data quality. As new data is entered, the database updates to provide the most recent information available. In addition to critical facilities, other layers are available within GMIS, including transportation corridors, political boundaries, hydrology, and hurricane surge zones.

### **3.3.1 State Policies and Programs**

Table 3.9 identifies state programs and policies related to mitigation. Each program was evaluated to determine relevance to mitigation and whether it affects repetitive loss and severe repetitive loss properties.

### **3.3.2 State Capability Related to Development**

Table 3.8 details the State of Georgia's mitigation policies, programs, and funding in relation to specific state and federal agencies. These agencies include the Georgia Department of Natural Resources, the Georgia Department of Community Affairs, GEMA/HS, the Georgia Forestry Commission, the Georgia Department of Transportation, FEMA, the Department of Defense Army Corps of Engineers, the Natural Resource Conservation Service, the Department of Transportation, the Department of Agriculture, the Small Business Administration, the Department of Housing and Urban Development, the U.S. Geological Survey, the Department of Commerce National Weather Service and National Oceanic and Atmospheric Administration, and the National Park Service. The previous section also outlined hazard mitigation-related legislation produced by the Georgia General Assembly that is found in the Official Code of Georgia Annotated.

Of the legislation listed, several policies relate to the development of hazard-prone areas, including the Georgia Planning Act of 1989, Coastal Management Act, Coastal Marshland Protection Act, Erosion and Sedimentation Act, River Corridor Protection Act, and Shore Protection Act. Table 3.9 describes each policy in relation to the issue of development.

The State of Georgia's policies regarding development in hazard-prone areas specifically cover the areas likely to face inland and coastal flooding hazards. These policies neglect to cover development in areas prone to other hazards such as wind and seismic hazards. However, Georgia does have legislation regarding building code standards that regulates the actual structure instead of the development of the area. These policies are discussed in Section 3.4. Other Georgia legislation concerns wildfire management but does not address development in wildfire prone areas. Other hazards such as tornadoes, severe weather, winter storms, and drought are not addressed by development-regulating legislation because these hazards are not spatially definable. In other words, all areas of the State of Georgia could be considered prone to tornadoes, severe weather, winter storms, and drought; therefore, the general development policy (Georgia Planning Act of 1989) applies statewide. When the statewide Planning Act of 1989 and additional legislation that addresses development in flood-prone areas is looked at comprehensively, the State of Georgia's policies related to development in hazard-prone areas are effective and increase the state's hazard mitigation capabilities.

**Table 3.8 Mitigation-Related State and Federal Programs**

State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
Georgia Department of Natural Resources	The Georgia Community Greenspace Program	The Georgia Community Greenspace Program establishes a framework in which developed and rapidly developing counties and their municipalities can preserve community greenspace. This bill promotes the adoption of policies and rules that enable the preservation of at least 20% of county or municipal land area as connected and open greenspace usable for informal recreation and natural resource protection.	X
	The Georgia Land Conservation Act	The Georgia Land Conservation Act, initiative to encourage the long-term conservation and protection of the state's natural resources. The legislation establishes the Georgia Land Conservation Trust Fund and the Georgia Land Conservation Revolving Loan Fund that provides up to \$100 million in state, federal and private funding to local governments and the Georgia DNR for the purchase of conservation lands. The responsibilities of the Georgia DNR under this legislation include establishing a state land geographic information system database for conservation activities and providing technical support to local governments.	
	The River Basin Management Planning Program	The Environmental Protection Division (EPD) of Georgia DNR implements a river basin management planning approach for the 14 major river basins in Georgia. A written plan is required and updated on a five-year cycle to coincide with National Pollutant Discharge Elimination (NPDES) permitting.	
	The Coastal Resources Division (CRD)	The Coastal Resources Division (CRD) implements provisions of the Coastal Marshlands Protection Act of 1970, the Shore Protection Act, the Revocable Licenses Program, the Coastal Zone Management Act and others. These existing	

State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
		authorities provide protection for critical marshes, water bottoms, beaches, sand dunes, and submerged lands. Members of the CRD staff are also available to assist hazard response and damage assessments. Also available for disaster resilience projects is the Coastal Incentive Grants.	
Georgia Department of Community Affairs	Federal Community Development Block Grant Program	Georgia's Department of Community Affairs (DCA) has the ability to fund certain hazard mitigation projects (with appropriate federal waivers and authorizations) using the Federal Community Development Block grant program. DCA administers portions of these grants to repair public facilities, to repair public and private housing, to provide relocation assistance for displaced households, to provide for public infrastructure improvements, and to assist in business loans to support threatened jobs.	X
	Immediate Threat and Danger (ITD) Program	The DCA administers the Immediate Threat and Danger (ITD) program available through the Community Development Block Grant Program of Housing and Urban Development (HUD). These grants (usually limited to \$20,000) are available to qualifying local governments with a 50% provision of funding for activities designed to meet community development needs.	
	GA Planning Act	With the passing of the 1989 Georgia Planning Act, DCA created the State Comprehensive and Coordinated Planning Program to encourage effective growth management by local governments throughout the state. This program includes the development and updating of minimum standards for local and regional planning and provides technical assistance to local governments and Regional Commissions to carry out these standards. Many opportunities exist with this program for local government hazard mitigation programs or measures in connection with the state-required preparation and	



State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
		implementation of local comprehensive plans. This comprehensive planning approach is especially applicable to floodplain management and construction standards (mitigation approaches).	
Georgia Department of Community Affairs	Uniform Codes Act	The Construction Codes and Industrialized Buildings section of DCA maintains and updates Georgia's state minimum standard codes for construction. These codes are designed to help protect the life, health, and property of all Georgians from faulty design and unsafe construction. The Uniform Codes Act is codified in Chapter 2 of Title 8 of The Official Code of Georgia Annotated. O.C.G.A. Section 8-2-20(9)(B) identifies the "state minimum standard codes". Each of these separate codes typically consists of a base code and a set of state amendments to the base code. Georgia law further dictates that nine of these codes are mandatory (effective throughout the entire state of Georgia regardless of whether a county or municipality adopts them) and the remaining are permissive (effective only in those counties and municipalities that choose to adopt the permissive code through local ordinance). DCA periodically reviews, amends, and updates the state minimum standard code.	
	Office of Mapping and Decision Support Systems	Within DCA exists the Office of Mapping and Decision Support Systems that provides support and training to local governments for comprehensive planning activities.	
		DCA programs that support mitigation include Housing Choice Voucher, Home Buyer Mortgage Revenue Bond, Homeless and Special Needs	

State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
		Housing, HOME Investment Partnership, Georgia Housing Search, Immediate Threat and Danger, Redevelopment Fund, Environmental Educational and Assistance, and Construction Codes, and Planning. DCA administers over 70 state and federal programs and serves as the state's lead agency in housing finance and development and low income rental housing assistance; promulgates building codes to be adopted by local governments; and provides comprehensive planning, technical and research assistance to local governments.	
<b>Georgia Emergency Management and Homeland Security Agency</b>	Public Assistance Grant Program	Authorizes funding for cost-effective hazard mitigation measures on facilities damaged by disaster events	
	Pre-Disaster Mitigation Program	The PDM program provides funds to states, territories, Indian tribal governments, and communities for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event. Funding these plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. PDM grants are to be awarded on a competitive basis and without reference to state allocations, quotas, or other formula-based allocation of funds.	X
	Hazard Mitigation Grant Program	The Hazard Mitigation Grant Program (HMGP) provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster.	X

State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
Georgia Emergency Management and Homeland Security Agency	Flood Mitigation Assistance Program	Created as part of the National Flood Insurance Reform Act of 1994, 42 U.S.C. 4101, attempts to reduce or eliminate claims under the NFIP by assisting states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to structures insurable by NFIP. Elements of Repetitive Flood Claims and Severe Repetitive Loss programs have been integrated into the FMA program.	X
	Forest Protection Program	Supports many mitigation and preparedness activities through the Forest Protection Programs to reduce the number of wildfires and acres burned. These programs include Pre-Suppression Firebreak Plowing, Burning Assistance, and Fire Prevention and Firewise, Rural Fire Defense Program, Volunteer Fire Assistance Grants, and Burn Permit System.	
	Southern Wildfire Risk Assessment (SWRA)	The SWRA is a regional project completed by the 13 southern states included in the USDA-Forest Service Region 8. It is a GIS project, illustrated in an Arc View product that documents and maps forest fuels, historical wildfire occurrence, values at risk from wildfires, communities at risk, wildfire susceptibility index, and levels of concern for damage from wildfires. The program also allows for illustration of mitigation treatments and the corresponding affect on wildfire susceptibility and level of concern. Working with GEMA/HS, GFC is providing SWRA information to be included in county EMA plans statewide.	
The Georgia Forestry Commission	Community Wildfire Protection Plans (CWPP)	A community wildfire protection plan outlines wildfire history and risk (SWRA), lists preparedness resources available for wildfire suppression, provides maps to illustrate the wildfire situation, and makes suggestions on how to prepare for, respond to and mitigate wildfires. The Georgia Forestry Commission will facilitate CWPP's on a county level for each Georgia	

State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
		<p>County. Appropriate state, county, and community leaders will work in teams to provide wildfire planning that has buy in from all. The SWRA will be utilized not only to identify risk for CWPP's but will be used to help set priorities for getting started to insure that high risk counties are priority. GEMA/HS and local fire departments will be important partners in completion of CWPP's for the entire state. Georgia has currently 138 completed CWPPs and will continue to focus on completing each county focusing this year on the metro counties of Atlanta, Savannah, Columbus, Macon, and Augusta.</p> <p><a href="http://www.gfc.state.ga.us/forest-fire/CWPP/index.cfm">http://www.gfc.state.ga.us/forest-fire/CWPP/index.cfm</a></p>	
<b>Georgia Forestry Commission</b>	Firewise Communities	<p>The Georgia Forestry Commission embraces the Firewise Communities USA concept and employees one full time position to conduct Firewise workshops and encourage communities to become nationally recognized. There are currently 38 nationally recognized Firewise Communities in Georgia with several nearing recognition. Communities are recognized for developing wildfire mitigation teams, funding Firewise practices, completing mitigation projects, and promoting Firewise practices. National Fire Plan grants are used to fund this program. Communities showing special interest may receive small grants for projects. The Georgia Forestry Commission currently has a special focus project to address Northeast and Southeast Georgia whom have the greatest numbers of wildfires and fast growing populations in a high risk wildland urban interface area.</p>	

State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
Georgia Forestry Commission	Wildfire Prevention	Wildfire Prevention efforts are an integral part of Georgia Forestry Commission routine efforts. Approximately \$250,000 is granted through National Fire Plan to the Georgia Forestry Commission for fire prevention efforts each year. Georgia Forestry Commission has a special project named "50 County Wildfire Prevention" that targets specific wildfire causes in Georgia's top 50 wildfire occurrence counties. A scientific method for measuring success of this program compares reductions in the number of wildfires in this part of the state to reductions realized in the part of the state that is not served by this special program. Numbers of wildfires have been reduced 5% to 10% where \$2,500.00 dollars have been applied to address prevention in individual counties. Georgia has just recently added 4 additional staff to battle current wildfire trends nationwide. These folks will assist the state program manager with outreach and mitigation to Communities at Risk statewide.	
	Rural Fire Defense	Since 1975 the Rural Fire Defense program operated by the Georgia Forestry Commission has provided planning advice and firefighting equipment to rural fire departments across the state. Today there are some 1375 fire engines leased or on loan to 143 Georgia counties. The program currently provides about 25 fire apparatus, at cost, per year to fire departments. Signed agreements provide for cooperation between state and local efforts for community protection from wildfires. Recent additions to the program include provision of wildfire personal protective gear and specialized wildfire training allowing fire departments to participate more fully and safely in wildfire suppression.	

State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
Georgia Forestry Commission	Prescribed Burning	Georgia law, Georgia Prescribed Burning Act 12-6-145, makes provisions to protect prescribed burning as a forest management and wildfire mitigation tool and assigns Georgia Forestry Commission as the agency for promoting prescribed burning and certifying practitioners. Since 1992 nearly 3190 practitioners have received certification through the Georgia Prescribed Fire Manager Certification Program. Georgia law protects those who prescribe burn under this program by requiring that gross negligence be proven against any liability suits resulting from prescribed burning. Georgia's governor proclaims Prescribed Fire Awareness Week the first full week in February each year. Nearly one million acres of Georgia forestland are treated with prescribed fire each year. Georgia averages over 79,000 prescribed fires a year covering 1.4 million ac.	
	Burn Authorizations	One of the most effective wildfire mitigation tools is the Georgia Burn Permit System. Enacted in 1988, Georgia code 12-6-90, requires a permit to be obtained from the Georgia Forestry Commission for most outdoor burning. This allows management of outdoor burning for wildfire control and for air quality concerns. Since outdoor burning is the number one cause of wildfires, the system allows for some control over wildfire occurrences, especially on the highest fire danger days. The GFC issues some 900,000 permits per year for leaf burning, brush pile burning, land clearing, and prescribed burning. Wildfire suppression costs are charged to Georgians who have escaped fires when burning illegally, without a permit. Although the GFC law enforcement program is very small, burning without a permit is a misdemeanor, punishable by up to \$1,000 fine or 1 year imprisonment.	

State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
Georgia Forestry Commission	Fire Weather Forecasting	In support of wildfire suppression readiness planning, burn permitting, prescribed burning and other forestry activities, the Georgia Forestry Commission employs a full time meteorologist who manages the National Fire Danger Rating System for Georgia and several fire weather stations across the state. Starting Oct. 1 2018 the GFC will start using the fire weather forecast produced by the NWS to manage smoke related issues and issue permits.	
	Urban Forestry Strike Team	Arborists can provide disaster planning assistance to communities, risk assessment, and FEMA debris identification following storms. Risk assessment helps communities identify trees that are an unacceptable risk, and trees suitable for retention and management during disaster recovery.	
The Georgia Department of Transportation		<p>The Georgia Department of Transportation (DOT) plans, constructs, maintains, and improves the state's road and bridge network; provides planning and financial support for other modes of transportation such as mass transit and airports; provides airport and air safety planning; and provides air travel to state departments. Georgia's DOT also provides administrative support to the State Tollway Authority and the Georgia Rail Passenger Authority.</p> <p>Since Hurricane Floyd in 1999, extensive evacuation planning has been completed by the state in response to the large influx of evacuees on the interstate system. When tropical systems threaten neighboring states, Georgia's DOT is prepared for potential influx of evacuees as well as the potential hazard events associated with the tropical system. Georgia DOT also plans and prepares for contra-flow interstates, including planning crossovers, ramp entrance closings, and</p>	



State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
		regular flow exchanges. Georgia's DOT website provides a host of information concerning preparation for emergency evacuation including evacuation routes, emergency supply lists, emergency shelter locations, and contact information for the Georgia NaviGator Transportation Management Center.	
United State Geological Survey (USGS)	Georgia HydroWatch	<b>Georgia HydroWatch</b> is your portal to the USGS hydrologic data and information for Georgia and links to other sources of water information. The USGS operates the most extensive satellite network of stream-gaging stations in the state, many of which form the backbone of flood-warning systems. The USGS currently operates about 318 data collection sites in Georgia for acquiring information on surface-water, ground-water, water-quality, and precipitation. 226 of the sites are equipped with satellite telemetry, which provides real-time data via GOES satellites and downlinks, which enables the posting of data to the Web for public dissemination. Real-time and historical surface-water, ground-water, and water-quality data are available, as well as project information about floods, droughts, and bacterial studies of the Chattahoochee River. Links are provided to weather, river, lake, and hurricane forecast sites.	
United State Geological Survey (USGS)	Georgia Water Information Network (GWIN)	A county-based system that offers water information for thousands of surface-water, ground-water, and water-quality measurement sites in Georgia. Other information includes water-use data and annual hydrologic summaries.	
	StreaMail	StreaMail is a new USGS initiative for emergency management officials to obtain the latest stream flow and river level information via text message on cell phones or other PDAs.	
	Storm Surge Determination	.Storm Surge Determination is a new USGS initiative to monitor the real extent and timing of hurricane surge along the coast of the Southeast United States to provide more accurate surge data for calibration of SLOSH models and flood studies.	

State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
		<p>Flood inundation modeling and visualization study has been completed along a 4.8 mile reach of the Flint River in Albany-Dougherty County. USGS updates the regional flood frequency equations every 10 years which is critical in ensuring the statistical return periods are based on the latest hydrologic data. Recent initiatives also include ensuring consistency for estimating the magnitude and frequency of floods in rural basins that are near or cross State borders.</p> <p>USGS seeks to partner with State/local/other federal agencies in the acquisition of high resolution LiDAR derived elevation data for the entire Coastal area of Georgia. Acquisition of the data will support NSDI and advance efforts related to the National Map. Similar to the LiDAR effort, updating the DEMs in flood-prone river reaches across Georgia will provide for more accurate elevation contours for more accurate flood forecasting.</p> <p>USGS has partnered with State/local/other federal agencies in the development of flood tracking charts. Three charts have been produced in Georgia.</p> <p>Other agency initiatives and capabilities include hydrologic alarm notification system, BacteriAlert, real-time bridge scour monitoring, real-time evacuation route monitoring, and toxic spill extent determination.</p>	
<b>Natural Resource Conservation Service (NRCS)</b>	Conservation Planning and Technical Consultation	Provides data, information, or technical expertise that helps people collect and analyze information to identify natural resource problems and opportunities, clarify their objectives, and formulate and evaluate alternatives.	
	Conservation Implementation	NRCS helps customers install on their land conservation practices and systems that meet established technical standards and specifications.	
	Natural Resource Inventory and Assessment	NRCS assesses, acquires, develops, interprets, analyzes, and delivers natural resource data and information to enable knowledge-based natural resource planning and decision making at all landscape scales.	
	Natural Resource Technology Transfer	NRCS develops, documents, and distributes a wide array of technology pertaining to resource assessment, conservation planning, and conservation system installation and evaluation.	

State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
Natural Resource Conservation Service (NRCS)	Financial Assistance	NRCS provides financial assistance to encourage the adoption of land treatment practices that have been proven to provide significant benefits to the public. Financial assistance is awarded to participants who voluntarily enter into contracts, easements, and agreements to conserve natural resources. Through the Emergency Watershed Protection Program (EWP), more than \$30 million has been invested since 1996 in this program to assist sponsors in implementing emergency measures to relieve imminent hazards to life and property created by natural disaster.	
	Construction Codes and Industrialized Buildings	NRCS helps customers install on their land conservation practices and systems that meet established technical standards and specifications.	
	Natural Resource Inventory and Assessment	NRCS assesses, acquires, develops, interprets, analyzes, and delivers natural resource data and information to enable knowledge-based natural resource planning and decision making at all landscape scales.	
National Weather Service (NWS)	Georgia Mesonet	provided a statewide network of automated, real-time, high-quality, high-density weather sensors. Some of the benefits of the program include improved severe weather warnings, greater detail and success in winter weather forecasting, more effective drought monitoring and water resource management, better real-time weather information, and better monitoring and forecasting of forest management controlled and uncontrolled burns.	
National Weather Service (NWS)	Storm Ready	Allows for recognition of communities who have taken steps to increase their preparedness for severe weather.	
	Incident Command Response and Support	Involves planning, training and support for local emergency incident responses where weather plays a critical role.	

State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
<b>National Weather Service (NWS)</b>	Integrated Warning Team Workshop (IWT)	IWT are workshops to bring media, EM's and the NWS to encourage cooperation among these organizations and to better understand each other's programs and capabilities. The IWT concentrates on the social impacts of severe weather events and uses best practices from previous events to be better prepared. Also they concentrate on communicating the correct message to the public. One that they can understand.	
<b>Soil and Water Conservation Commission (GSWCC)</b>		GSWCC is charged with coordinating the operation and maintenance of the Districts' 357 USDA/SCS watershed dams, 150 of which are rated as Category 1 dams and regulated by the Georgia Safe Dams Act. GSWCC provided a database with pertinent information on all watershed dams. Development of emergency action plans and breach zone maps will be shared with emergency management personnel and local officials.	
<b>Department of Public Safety (DPS)</b>		DPS staff provide law enforcement and security support in responding to natural and manmade disasters Plan integration includes Hurricane Evacuation Plans for both the Atlantic and Gulf Coast and Hurricane re-entry plans.	
<b>Georgia Department of Banking and Finance (DBF)</b>		DBF promotes safe, sound, competitive financial services in Georgia through innovative, responsive regulation and supervision. DBF's motto is "Safeguarding Georgia's financial services. DBF requires that financial institutions have disaster recovery/business resumption plans to support their operations in the event of an emergency/disaster situation.	
<b>Georgia Department of Juvenile Justice (DJJ)</b>		DJJ has the primary responsibility of providing supervision, detention and services (treatment and educational) of court adjudicated juveniles.. DJJ created an Emergency Operations Unit to handle mitigation activities with a focus on safety and security of the facilities and staff. The Emergency Operations Unit is actively working towards developing a comprehensive strategy for the agency as well as for each individual facility. These strategies are being incorporated into	

State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
		departmental policy and local operating procedures	
<b>Georgia Department of Technical and Adult Education (DTAE)</b>		DTAE is responsible for overseeing the Technical College System of Georgia, the adult literacy program, and a host of economic and workforce development programs. Established campus security as a top priority and implemented program to improve security at each college. This specific agency initiative supports Objective – 3.8 DTAE is actively working towards developing a Mitigation Program at Savannah Technical College.	
<b>Department of Audits and Accounts (DAA)</b>		DAA provides decision-makers with credible management information to promote improvements in accountability and stewardship in state and local government. DAA is a support agency to other state agencies DAA has completed activities to minimize impacts of hazard events and specific agency initiatives	
<b>Board of Regents (BOR)</b>		BOR is responsible for overseeing the governance and management of 35 colleges and universities. BOR created an Emergency Operations Initiative to complete a system wide review of emergency operations plans with a focus on best practices. BOR supported the ongoing Disaster Resistant University Initiative that requires each campus to have a mitigation plan meeting DMA2K requirements. BOR established the Hazard Mitigation Awareness Program. Specific agency initiatives support Objectives – 1.1, 2.1 & 3.3. Opportunities for plan integration include campus mitigation plans, emergency operations plans and a system-wide mitigation plan.	

State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
Office of Secretary of State (SOS)		SOS supports CoSA <b>Intergovernmental Preparedness for Essential Records (IPER)</b> project grant to develop Web- and CD-based training for state and local governments on vital records identification and management related emergency preparedness. The training initiative will provide the knowledge and skills needed to secure essential records and recover those damaged by natural or human-caused disasters. SOS created the Heritage Emergency Response Alliance to mitigate loss of cultural heritage materials in the event of a disaster. SOS is actively pursuing a grant to conduct preservation and emergency preparedness planning. This project will produce survey instruments used to develop a comprehensive database of emergency contact information for all cultural institutions in Georgia..	
Georgia Ports Authority (GPA)		GPA develops, maintains and operates ocean and inland river ports within Georgia; fosters international trade and new industry for state and local communities; promotes Georgia's agricultural, industrial and natural resources; and maintains the natural quality of the environment. GPA has identified numerous strategies to protect physical and intangible assets in the environment. GPA agency specific goals complement the State Mitigation Strategy. Specific initiatives include developing and maintaining a hurricane plan.	
Office of Insurance and Safety Fire Commissioner (GADOI)		GADOI facilitates regulation, coordination and uniformity among state regulators and provides public access to services and fire safety information that results in a consumer friendly and competitive market place.	

**Table 3.9 Georgia Legislation Related to Development**

Legislation	Policy Purpose	Methods	Administration
GA Planning Act of 1989	Encourage better growth management and smart growth	Local long-range comprehensive planning	Local governments must maintain designation of “Qualified” in order to remain eligible for assistance programs
GA Coastal Management Act	Encourage sustainable development and protection of coastal resources	GA DNR able to receive and disburse federal grant monies	Coastal Resources Division and GA DNR established as governing bodies for developing a coastal management program
GA Coastal Marshland Protection Act	Protect tidal wetlands	Limit certain activities and structures in marsh areas through permitting	Coastal Resources Division grants permits for activities in protected tidal wetlands.
GA Erosion and Sedimentation Act	Limit land-disturbing activities near state waters	Local adoption of comprehensive ordinances governing land-disturbing activities based on minimum requirements	GA DNR EPD and local governments administer ordinances’ requirements for land-disturbing activities near state waters
GA River Corridor Protection Act	Protect river corridors	Major provisions include minimum vegetative buffers and local identification of river corridors in land use planning	GA DNR EPD administers the act’s minimum standards to all rivers in GA with at least 400 ft <sup>3</sup> /s average annual flow
GA Shore Protection Act	Protect and manage GA’s shoreline features (sand-sharing system)	Limits certain activities and structures in sand—sharing system	Coastal Resources Division grants permits for activities and structures consistent with the GA Coastal Management Program



## **3.4 LOCAL CAPABILITY ASSESSMENT**

The local capability assessment includes a discussion of local policies governing building codes, zoning, and floodplain management that relate to hazard mitigation. This is followed by a discussion about the history and purpose of local mitigation planning, which increases local capability. Chapter 4 provides additional details on the current progress in regard to local planning as well as the status of each Georgia county.

### **3.4.1 Local Mitigation Policies: Building Codes, Zoning, Floodplain Development Regulations, and Mitigation Planning**

Several policies instituted by the Georgia General Assembly relate to the construction standards or building codes enforced at the local level. The State provides guidance to the communities by offering model ordinances and available grant opportunities to communities interested in adopting hazard mitigation actions. These policies include Georgia's state minimum standard codes for construction (the Uniform Codes Act) and the Uniform Standards Code for Manufactured Homes and Installation of Manufactured and Mobile Homes Act. The State encourages local communities to formally adopt the latest Georgia state minimum codes to be uniformly applied and consistently enforced in the community. The Georgia Department of Community Affairs (DCA) updates these model codes whenever new international codes are released in order to stay current with best practices.

Georgia's state minimum standard codes for construction are designed to help protect the life and property of citizens from faulty design and construction; unsafe, unsound, and unhealthy structures and conditions; and the financial hardship resulting from rebuilding after a hazard event. In other words, these codes require a minimum standard of construction that minimally mitigates certain hazards (e.g., high winds, severe thunderstorms, etc.). The Uniform Codes Act identifies the 14 "state minimum standard codes," with each code typically consisting of a base code and a set of state amendments. Georgia law dictates that nine of the 14 codes are mandatory (applicable to all construction regardless of local enforcement) and five are permissive (only applicable if the local government chooses to adopt and enforce them). The codes are as follows:

#### **Mandatory Codes:**

- International Building Code, 2012 Edition, with Georgia Amendments ([2014](#)) ([2015](#)) ([2017](#))([2018](#))
- International Residential Code, 2012 Edition, with Georgia Amendments ([2014](#)) ([2015](#))([2018](#))
- International Fire Code, 2012 Edition, with Georgia Amendments ([2014](#))
- International Plumbing Code, 2012 Edition, with Georgia Amendments ([2014](#)) ([2015](#))
- International Mechanical Code, 2012 Edition, with Georgia Amendments ([2014](#)) ([2015](#))
- International Fuel Gas Code, 2012 Edition, with Georgia Amendments ([2014](#)) ([2015](#))
- National Electrical Code, 2017 Edition (No Georgia Amendments)
- International Energy Conservation Code, 2009 Edition, with Georgia Supplements and Amendments ([2011](#)) ([2012](#))
- International Swimming Pool and Spa Code, 2012 Edition, with Georgia Amendments ([2014](#))

#### **Permissive Codes:**

- Disaster Resilient Building Code IBC Appendix([2013](#))

- Disaster Resilient Building Code IRC Appendix ([2013](#))
- International Property Maintenance Code, 2012 Edition, with Georgia Amendments ([2015](#))
- International Existing Building Code, 2012 Edition, with Georgia Amendments ([2015](#))
- National Green Building Standard, 2008 Edition, with Georgia Amendments ([2011](#))

As noted above, the building, one and two family dwelling residential, fire, plumbing, mechanical, gas, electrical, energy, and swimming pool codes are mandatory codes, meaning that under Georgia law, any structure built in Georgia must comply with these codes, whether or not the local government chooses to locally enforce these codes.

In addition, since Georgia law gives the enumerated codes statewide applicability, it is not required that local governments have to adopt the mandatory codes. Local governments must, however, adopt administrative procedures in order to enforce them (O.C.G.A. Section 8-2-25(a)). However, the local government can choose which of the mandatory codes it wishes to locally enforce.

The remaining codes are referred to as permissive codes. Unlike the mandatory codes, in order for a local government to enforce one or more of these permissive codes, that code or codes must be adopted, either by ordinance or resolution, by the local jurisdiction. A copy of the ordinance or resolution adopted must be forwarded to DCA (O.C.G.A. Section 8-2-25 (b)).

### **Administration and Enforcement of the State Minimum Standard Codes**

In order to properly administer and enforce the state minimum standard codes, local governments must adopt reasonable administrative provisions. The power to adopt these administrative procedures is set forth in O.C.G.A. Section 8-2-26(a)(1). These provisions should include procedural requirements for the enforcement of the codes, provisions for hearings, provisions for appeals from decisions of local inspectors, and any other procedures necessary for the proper local administration and enforcement of the state minimum standard codes. These powers include:

- Inspecting buildings and other structures to ensure compliance with the code;
- Employing inspectors and other personnel necessary for the proper enforcement of codes;
- Requiring permits and to establishment charges for said permits; and
- Contracting with other local governments for code enforcement.

DCA periodically reviews, amends and/or updates the state minimum standard codes. If a local government chooses to locally enforce any of these codes, it must enforce the latest editions and the amendments adopted by DCA.

DCA has developed a sample resolution/ordinance that may be used as a guide for local governments in the development of their administrative procedures. Please contact DCA for a copy of this sample resolution/ordinance and for any technical assistance needed in the development of a local code enforcement program.

### **Appendices**

It should be noted that The Uniform Codes Act states that the appendices of the codes are not enforceable unless referenced in the body of the code, adopted by DCA, or specifically adopted by a municipality or county. If any appendices have been adopted by DCA, they will be noted in the Georgia amendments as such.

## Local Amendments

The Uniform Codes Act provides that local governments may, under certain conditions, adopt local amendments to the state minimum standard codes. Please note that DCA does not approve or disapprove any local amendment. The department provides a recommendation only. However, in order to enforce any local amendment, the local government must submit the proposed amendment to DCA for review (O.C.G.A. Section 8-2-25(c)).

There are several requirements local governments must meet in order to enact a local code amendment. These requirements are as follows:

- The requirements in the proposed local amendment cannot be less stringent than the requirements in the state minimum standard code.
- The local requirements must be based on local climatic, geologic, topographic, or public safety factors;
- The legislative findings of the local governing body must identify the need for the more stringent requirements; and
- The local government must submit the proposed amendment to DCA 60 days prior to the proposed adoption of such an amendment.

After submittal of the proposed local amendment, DCA has 60 days in which to forward its recommendations to the local government. DCA may respond in three ways: recommend adoption of the amendment, recommend the amendment not be adopted, or have no comment on the proposal. If DCA recommends against the adoption of the proposed amendment, the local governing body must vote specifically to reject DCA's recommendation before the local amendment can be adopted and enforced. If DCA fails to respond within the 60-day time frame, the local government may adopt the proposed local amendment.

Figure 3.3 is a DCA map showing Georgia communities' enforcement of construction codes as of 2016. As the map illustrates, 112 of Georgia's 159 counties issue permits and enforce the state minimum construction codes.

**Figure 3.3. Construction Codes in Georgia  
as of November 2016**

**Codes and Permitting Provided within Jurisdiction**  
Method of Service Provision Reported By Counties and Cities



\* as of map creation date November 2016

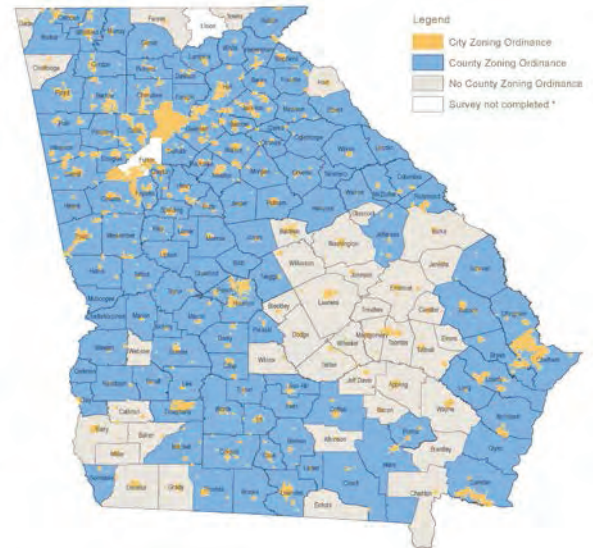
Data source: 2016 Government Management Indicators (GMI) survey  
Question IV-1 (2013 & 2014): Are building permits issued and/or  
construction codes enforced in the jurisdiction?

GMI is a mandated annual survey required of all Local Governments  
in Georgia by O.C.G.A. 36-61-14.

Georgia Department of  
Community Affairs

**Figure 3.4. Communities in Georgia with  
Zoning, as of November 2016**

**Communities with Zoning Ordinance**  
Reported by Cities and Counties



\* as of map creation date November 2016

Data source: 2016 Government Management Indicators (GMI) survey  
Question IV -2: Does your government have a zoning ordinance?

GMI is a mandated annual survey required of all Local Governments  
in Georgia by O.C.G.A. 36-61-8.

Georgia Department of  
Community Affairs

Theoretically, the primary purpose of zoning is to segregate incompatible land uses. Practically, zoning consists of locally produced laws and ordinances that regulate development by dividing a community into zones that are regulated by development criteria. For example, zoning can regulate which activities are acceptable in a certain zone such as open space, residential, agricultural, commercial, or industrial. Zoning has the potential to inhibit inappropriate development in hazard-prone areas as well as designating certain areas for conservation, open space, and public use. Zoning laws vary immensely by jurisdiction and, in the State of Georgia, have no standard basis like the construction codes. Enforcement of zoning ordinances can, at times and depending on the particular situation, be highly political. Given that, a true statewide analysis of the effectiveness of zoning ordinances is impractical. Nevertheless, zoning ordinances have the potential to help protect the community from development in hazard-prone areas.

DCA monitors the communities in Georgia that produce zoning ordinances. Figure 3.4 shows which Georgia communities have zoning ordinances. As the map illustrates, 117 of Georgia's 159 counties have local zoning ordinances.

A third type of code that is prevalent throughout the state is floodplain development regulation. As of February 2018, 561 of Georgia's 678 cities and counties participate in the National Flood Insurance Program (NFIP). As a prerequisite for participation in NFIP, the community must adopt and enforce a floodplain development ordinance that meets certain minimum standards, such as minimum finished floor elevations for buildings built in floodplains. These regulations, while they do allow development in the floodplains, are designed to ensure that the development causes no or minimal negative flood impact on any other properties. In addition, any buildings must be constructed so that floodwaters from a 100 year/1% chance per year flood will flow freely and will not enter and cause damage to the enclosed livable or workable spaces of a structure. While the ordinances do not directly address Repetitive Loss or Severe Repetitive Loss properties, they do address substantially damaged structures, which are those where cumulative damage have exceeded 50% of the pre-damage market value of the structure, requiring the entire structure to be built to current codes. This reduces the possibility of a structure meeting one of the Severe Repetitive Loss structure definitions – where two or more claims exceed the market value of the structure. While the link between NFIP regulations and Repetitive Loss and Severe Repetitive Loss properties is indirect, a complete understanding of the effect of these regulations on RL and SRL properties would require additional analysis.

As stated above, all communities participating in the NFIP must adopt minimum floodplain development regulations. Therefore, at least 82% of the State's cities and counties have floodplain development regulations. It is possible, though not very likely, that some communities, unbeknownst to GEMA/HS, have adopted floodplain regulations, but, for one reason or another, do not participate in the NFIP. Many communities have adopted higher regulatory standards, including many of the communities in the Metro North Georgia Water Planning District, further limiting development within the Special Flood Hazard Areas. That being said, the majority of Georgia appears to be fairly well protected from improper development within the floodplain areas.

Between January 2002 and June 2013, all 159 of Georgia's counties, along with the participating municipalities, completed local multi-jurisdictional hazard mitigation plans. As of March, 2018, all 159 counties had completed the first update to their local hazard mitigation plans and 55 counties had completed their second update. The quality and effectiveness of the plans has improved over time and continues to do so. For a more detailed description of the local planning process, including historical, current, and future activities as well as GEMA/HS's assistance and coordination of the local process, see Chapter 4.

### 3.4.2 Community Rating System (CRS)

The CRS is a voluntary program through which NFIP communities are rewarded for beneficial floodplain management that exceeds minimum NFIP requirements, including higher regulatory standards. Under the CRS, flood insurance premium rates are adjusted to reflect the reduced flood risk resulting from community activities that meet the three goals of CRS: reducing flood losses, facilitating accurate insurance ratings, and promoting the awareness of flood insurance. The CRS classifies communities based on a point system, with the first class (Class 1) receiving the largest premium reduction and the last class (Class 10) receiving no reduction. CRS recognizes 18 credible flood mitigation activities that fall under four broad categories: public information, mapping and regulations, flood damage reduction, and flood preparedness. Table 3.10 provides further information about the CRS classes and associated flood insurance reductions.

Table 3.11 lists all CRS communities in Georgia as of October 1, 2017. The table also provides the CRS class for each community for previous selected years. If no class is provided, that community had not yet joined the CRS program. The number of CRS communities in Georgia has steadily increased, with many improving on their CRS class.

Participating in the CRS program benefits communities by providing enhanced public safety, reducing damage to public and private property, avoiding economic losses and disruption, and protecting the local environment. The program also allows the evaluation of local programs in comparison to a nationally recognized benchmark.



**Table 3.10 Community Rating System and Associated Flood Insurance Reductions**

Credit Points	Class	Premium Reduction	
		SFHA*	Non-SFHA**
4,500 +	1	45%	10%
4,000 – 4,499	2	40%	10%
3,500 – 3,999	3	35%	10%
3,000 – 3,499	4	30%	10%
2,500 – 2,999	5	25%	10%
2,000 – 2,499	6	20%	10%
1,500 – 1,999	7	15%	5%
1,000 – 1,499	8	10%	5%
500 – 999	9	5%	5%
0 – 499	10	0	0

\* Special Flood Hazard Area

\*\* Preferred Risk Policies are available only in B, C, and X Zones for properties that are shown to have a minimal risk of flood damage. The Preferred Risk Policy does not receive premium rate credits under the CRS because it already has a lower premium than other policies. The CRS credit for AR and A99 Zones are based on non-Special Flood Hazard Areas (non-SFHAs) (B, C, and X Zones). Credits are: classes 1-6, 10% and classes 7-9, 5%. Premium reductions are subject to change.

**Table 3.11 Georgia CRS Communities and Rankings**

CRS Class by Year of Data					
Community Name	2004	2007	2010	2013	2017
Albany, City of	9	9	8	8	7
Atlanta, City of					7
Austell, City of				8	8
Bloomington, City of					8
Brunswick, City of	9	9	9	9	9
Bryan County					6
Camden County				8	6
Cartersville, City of		9	9	9	7
Catoosa County				8	8
Chatham County	7	7	6	6	5



CRS Class by Year of Data					
Community Name	2004	2007	2010	2013	2017
Cherokee County		8	8	8	8
Cobb County	8	8	8	8	8
College Park, City of	6	6	6	6	6
Columbia County	8	8	7	7	7
Columbus, City of	8	8	8	8	8
Covington, City of	9	9	9	9	9
Coweta County				8	8
Crisp County		9	9	9	9
Decatur, City of	8	7	6	6	7
DeKalb County	8	8	7	7	7
Dougherty County	7	7	6	6	6
Douglas, City of				9	9
Douglas County	8	8	8	8	7
Duluth, City of	9	9	8	8	8
East Point, City of					7
Effingham County				7	7
Fayette County	7	7	6	6	6
Fayetteville, City of		8	8	7	7
Forest Park, City of				9	9
Fulton County	9	9	9	8	8
Garden City, City of					8
Glynn County	8	8	8	7	7
Griffin, City of			6	5	5
Gwinnett County	8	8	8	8	7
Henry County				8	8
Hinesville, City of				7	7
Jekyll Island, State Park Authority	7	6	6	6	5
Johns Creek, City of					8
Lake City, City of				9	9
Marietta, City of					8
Morrow, City of				9	9
Paulding County	10	10	10	10	10
Peachtree City, City of	7	7	7	7	7
Pembroke, City of					9
Pooler, Town of	8	8	8	7	6
Powder Springs, City of					6

CRS Class by Year of Data					
Community Name	2004	2007	2010	2013	2017
Richmond Hill, City of					7
Roswell, City of	7	7	7	7	7
Savannah, City of	8	8	8	6	5
St. Marys, City of					7
Thunderbolt, Town of					6
Tifton, City of			8	8	8
Tybee Island, City of	8	8	7	7	5
Waynesboro, City of	10	10	10	10	10
Worth County	9	9	9	9	9
<b>Total Participating</b>	<b>26</b>	<b>30</b>	<b>32</b>	<b>43</b>	<b>55</b>

## 3.5 STATE AND LOCAL FUNDING SOURCES

The State of Georgia currently uses several funding sources to implement hazard mitigation activities. Primarily, these funds stem from federal, state, and local sources. The State of Georgia is interested in continuing to pursue these federal, state, and local funding sources throughout the future implementation of the mitigation strategy as well as in pursuing additional private sources.

**Table 3.12 Current Funding Sources**

Program	Source	Description	Estimated Annual Funding	How It Is Used
Hazard Mitigation Grant Program (HMGP)	FEMA	The funds provided to states, territories, Indian Tribal governments, local governments, and eligible private non-profits (PNPs) following a Presidential major disaster declaration.	Only available after disaster declaration and varies depending on size and scope of disaster	State and local planning, state and local projects
Community Development Block Grant (CDBG)	HUD, DCA	Provides communities with resources to address a wide range of unique community development needs.	In Georgia: 2018 approximately \$42 million	Housing, economic development, disaster recovery
Assistance to Firefighters Grant	FEMA	Meet the firefighting and emergency response needs of fire departments and nonaffiliated emergency medical service organizations	Prescribed by Congress; \$310 million in FY2017 Nationwide	Funding Community Wildfire Protection Planning (CWPP) for GA
Pre Disaster Mitigation (PDM)	FEMA	Annual, nationally competitive grant program for hazard mitigation	Prescribed by Congress each year: \$100 million for FY2017 Nationwide	State and local planning, state and local mitigation projects
Flood Mitigation Assistance (FMA)	FEMA	Provides funds on an annual basis so that measures can be taken to reduce or eliminate risk of flood damage to buildings insured under the National Flood Insurance Program (NFIP).	Prescribed by Congress; \$160 million allocated in FY2017 Nationwide	Flood mitigation projects, flood mitigation planning

**Table 3.13 Potential Funding Sources**

Program	Source	Description	Estimated Annual Funding	Potential Uses
Pre Disaster Mitigation (PDM)	FEMA	Annual, nationally competitive grant program for hazard mitigation	Prescribed by Congress each year: \$100 million for FY2017 Nationwide	State and local planning, state and local mitigation projects
Assistance to Firefighters Grant	FEMA	Meet the firefighting and emergency response needs of fire departments and nonaffiliated emergency medical service	Prescribed by Congress; \$310 million in FY2017 Nationwide	Fire mitigation projects, community wildfire protection planning
Community Development Block Grant (CDBG)	HUD, DCA	Provides communities with resources to address a wide range of unique community development needs	Approximately \$42 million in 2018 in Georgia	Housing, economic development, disaster recovery
Flood Mitigation Assistance (FMA)	FEMA	Provides funds on an annual basis so that measures can be taken to reduce or eliminate risk of flood damage to buildings insured under the National Flood Insurance Program (NFIP).	Prescribed by Congress; \$160 million allocated in FY2017 Nationwide	Flood mitigation projects, flood mitigation planning
Hazard Mitigation Grant Program (HMGP)	FEMA	The funds provided to states, territories, Indian Tribal governments, local governments, and eligible private non-profits (PNPs) following a Presidential major disaster declaration.	Only available after disaster declaration and varies depending on size and scope of disaster	State and local planning, state and local projects

# Chapter 4: Coordination of Local Mitigation Assistance

As discussed in Chapter 3, the local mitigation planning requirements are an attempt to accumulate greater knowledge of local hazard exposure, available critical facilities (especially those with high hazard exposure), and potential mitigation policies, programs, and projects. The following three sections in this chapter detail the approval and update process of local mitigation planning. This is followed by a discussion in Section 4.4 about the State's prioritization of local assistance.

Each section in this chapter was reviewed and updated by GEMA/HS Hazard Mitigation staff. Each section was revised as necessary to reflect previous, current, and future planned activities to assist Georgia's 159 counties, their municipalities, University System campuses, and authorities in the completion and updating of their local hazard mitigation plans and projects. Table 4.1 lists the changes to Chapter 4 that have occurred since the 2014 approval.

**Table 4.1: Summary of Changes to Chapter 4**

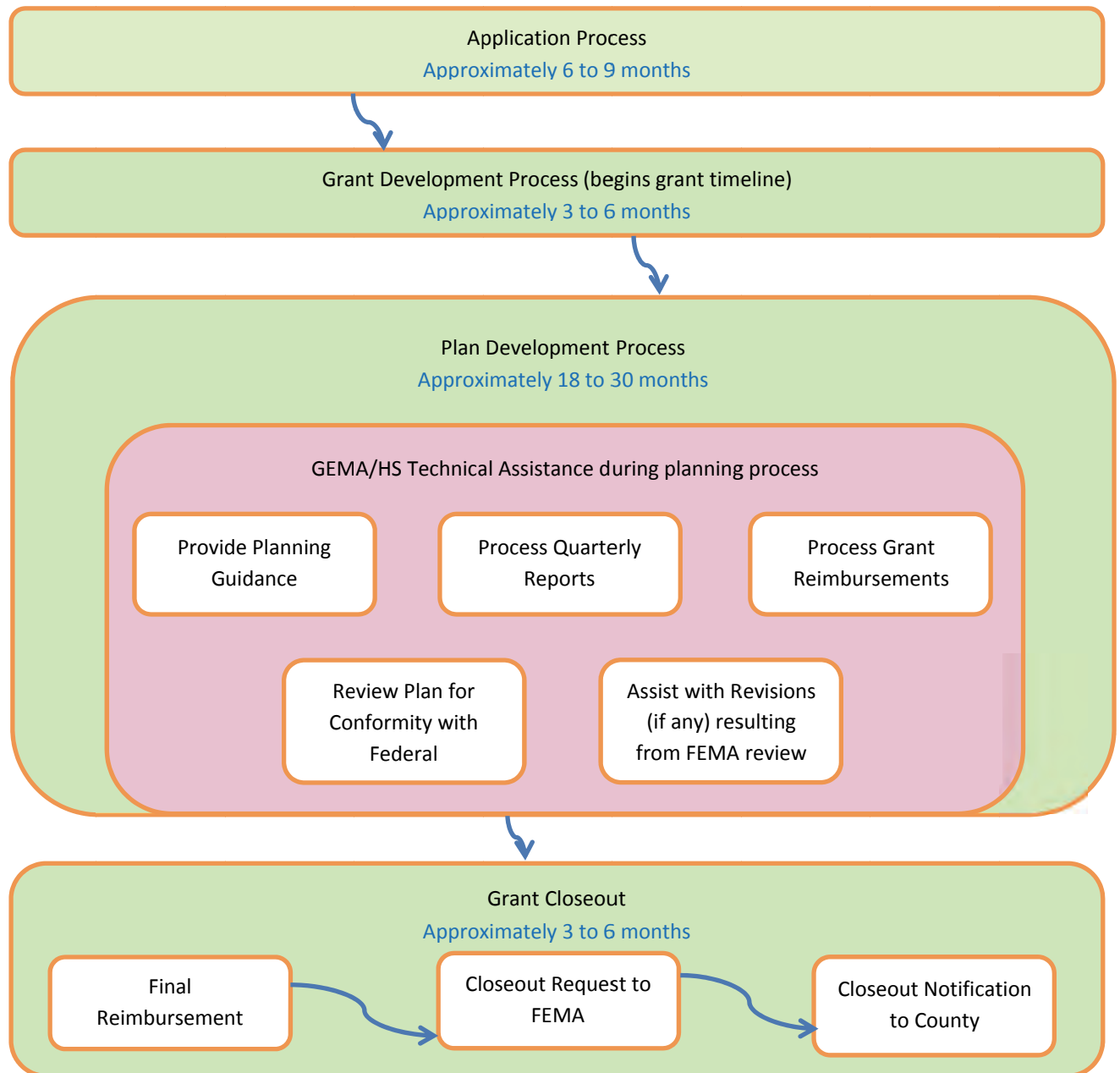
Chapter 4 Section	Updates to Section
<b>Title</b>	<ul style="list-style-type: none"><li>Change chapter title from "Coordination of Local Mitigation Planning" to "Coordination of Local Mitigation Assistance."</li></ul>
<b>4.1 Local Technical Assistance</b>	<ul style="list-style-type: none"><li>Updated Text.</li><li>Updated Figure 4.4</li></ul>
<b>4.2 Local Funding</b>	<ul style="list-style-type: none"><li>Updated text and figures.</li></ul>
<b>4.3 Local Plan Integration</b>	<ul style="list-style-type: none"><li>Updated text</li></ul>
<b>4.4 Prioritizing Local Assistance</b>	<ul style="list-style-type: none"><li>Combined 4.4.1 "Prioritization of Local Plan Updates" and 4.4.2 "Prioritization of Local Plan Funding" into 4.4.1 "Prioritization of Local Plan Update Funding."</li><li>Updated tables</li></ul>

## 4.1 LOCAL TECHNICAL ASSISTANCE

The GEMA/HS Hazard Mitigation staff proactively works to meet the requirements of the Disaster Mitigation Act of 2000 for local hazard mitigation planning activities. The following sections describe the staff's process for assisting local plan development and grant management.

### 4.1.1 PLAN DEVELOPMENT PROCESS

**Figure 4.1 Grant Process Flow Chart**



The development process is captured in Figure 4.1. This flowchart details the process the State of Georgia and local jurisdictions typically follow during the funding of planning projects. Embedded in this flowchart is

the timeline associated with the mitigation plan development process. First is the application period, which lasts 6–9 months. For HMGP grants, this timeframe can be longer, depending on the time necessary to lock in the overall amount available for grants. This lock-in time often overlaps with the beginning of the State’s outreach to affected communities to discuss needs and possibilities for mitigation grants. The application period includes outreach, calls for applications, GEMA/HS assistance with application development, submittal to FEMA, and FEMA’s review and response, which ultimately ends in the project receiving or not receiving funding. The second period, the grant development process, lasts 3–6 months and includes the development and signing of grantee-subgrantee agreements and the distribution of guidance packages, usually accomplished at the local kickoff meeting. The third period, the plan development process, lasts around 18–30 months. During this phase, GEMA/HS provides technical assistance with plan development as needed, receives and processes quarterly reports and payment requests, and reviews draft copies of the plan. The third period also includes FEMA review, plan adoption, FEMA approval, and the approval notifications by GEMA/HS and FEMA. Overall, the third period lasts between 1½ and 3 years, though extensions are available if needed. The fourth and final period lasts 3–6 months and includes all final payments to the county and close out of the grant. After the local mitigation plan has been completed, the county continues to monitor its plan annually, as described in the maintenance section of each plan.

**Figure 4.2 GEMA/HS Mitigation Planner Areas, 2017**

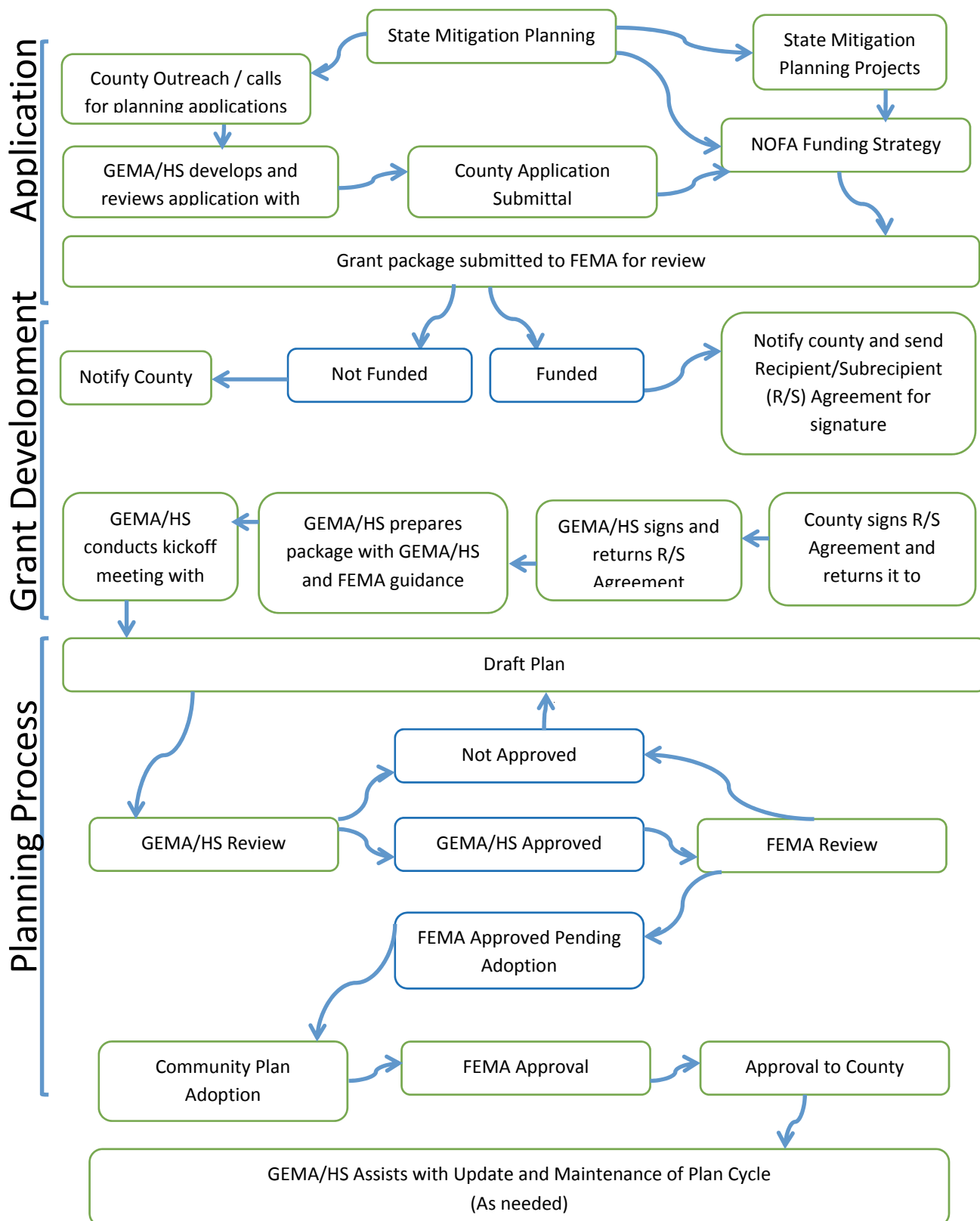


GEMA/HS's Mitigation Planners conduct local kickoff meetings with each county and its invited mitigation planning teams. This will include the leadership of all municipalities, emergency management agencies, private businesses, and interested citizens. The purpose of these kickoff meetings is to give the entire planning team an overview of the program and some basic guidance to help them get started with the mitigation planning process.

During the plan development, review, and approval stages, every county follows the same basic process whereby the planning committee meets on a regular basis to discuss findings of research and related activity conducted outside of the meetings. Most counties use contractors, such as their regional commission or a private consultant, to coordinate their planning process, but others have used existing emergency management or planning staff. GEMA/HS Planners avail themselves to the counties through phone calls, emails, site visits, and/or attendance at planning committee meetings as necessary. When new planning tools are developed or new consultants or planners are brought into the process, the GEMA/HS Mitigation Planners conduct training and workshops with the necessary parties to teach them how to use the tools available to them and to inform them about what is expected of local mitigation plans.



**Figure 4.3 Local Hazard Mitigation Planning Process Flow Chart**



The final phase of the plan development process begins when a county submits a draft plan to its assigned GEMA/HS Hazard Mitigation Planner for review. GEMA/HS currently has four planners that cover four geographic areas in the state, as shown in Figure 4.2. Two planners are located in the Atlanta office and work with counties in the northern half of Georgia; one planner is located in Cordele to assist counties in Southwest Georgia; and one planner is located in Statesboro to assist counties in Southeast Georgia. Each planner works with counties to help ensure that plans are updated and reviewed prior to the plan expiration date.

GEMA/HS utilizes the Local Plan Review Tool to review local plans for compliance with FEMA requirements (44 CFR 201.6). In addition to the FEMA requirements, GEMA/HS has developed additional state requirements that must be met for approval. These are included in Element F of the Regulation Checklist, as shown in Figure 4.4.

**Figure 4.4 Local Plan Review Tool Element F: State Requirements**

1. REGULATION CHECKLIST		Location in Plan (section and/or page number)	Met	Not Met
<b>Regulation</b> (44 CFR 201.6 Local Mitigation Plans)				
<b>ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)</b>				
F1. Does the plan document opportunities for participation by neighboring communities, businesses and other interested parties? (Invitation letters, sign in sheets, etc.)				
F2. Does the plan document opportunities for public input and participation? (copies of meeting notices, sign in sheets, or other applicable documentation)				
F3. Does the plan discuss the review of the following planning mechanisms, at a minimum, for incorporation as applicable? <ul style="list-style-type: none"> <li>• Comprehensive Plan</li> <li>• Flood Mitigation Assistance Plan (if one exists)</li> <li>• Flood Insurance Study (If one exists)</li> <li>• Community Wildfire Protection Plan</li> <li>• Local Emergency Operations Plan</li> <li>• State Hazard Mitigation Strategy</li> </ul>				
F4. Has the Critical Facilities Inventory been completed online?				
F5. Have the GMIS Critical Facilities reports and maps, or maps from a superior system, been provided?				
F6: Has the county included/incorporated their state-provided Hazus-MH report (if available).				
<b><u>ELEMENT F: REQUIRED REVISIONS</u></b>				

Once GEMA/HS's Mitigation Planners determine that the plan meets the federal mitigation planning requirements (except for final public comment and adoption, which come later), the local governments prepare a final draft and send it to the GEMA/HS Hazard Mitigation Division for submittal to FEMA Region IV

for federal review. Once FEMA determines the plan meets all requirements, they will issue an approval pending adoption for the plan. The local governments then conduct their final public comment process, adopt the plan, and forward this documentation and a copy of the final plan to GEMA/HS, who then forwards it to FEMA. During the state and federal review processes, if revisions become necessary as a result of the reviews, GEMA/HS's Mitigation Planners will suggest and assist with revisions to the plan in order to meet the requirements. Once FEMA has determined that the plan meets the local mitigation planning requirements, all the necessary notifications of plan approval are made and the county then implements and monitors the plan over the next five years.

### **4.1.2 LOCAL PLANNING TOOLS**

The GEMA/HS Hazard Mitigation staff continues to provide an array of tools to assist local communities with local hazard mitigation planning activities. These include participating in local plan kickoff meetings, disseminating planning guides and documents via CDs and email, sharing information on available training, and hosting planning workshops.

Since the 2014 GHMS, the GEMA/HS Hazard Mitigation website has been updated to provide information and resources on local hazard mitigation planning. Information found on the website includes the current State Hazard Mitigation Strategy; FEMA planning guides, including but not limited to the how-to guides, the Disaster Mitigation Act of 2000, FEMA Mitigation Ideas, and the Local Mitigation Planning Guidance with GEMA/HS highlights (recently replaced by the Local Mitigation Planning Handbook); GEMA/HS planning documents; and links to other useful resources. This website can be accessed through the GEMA/HS webpage at <http://www.GEMA/HS.ga.gov/>.

Beginning with the 2014 local plan update cycle, the State began providing a Level 2 Hazus Analysis for each county as they conducted their mitigation plan updates. Initially, the State contracted with the Polis Center at Indiana University, as there was nobody in the State able to provide this service on a large scale. As part of this contract, the Polis Center trained the University of Georgia Information Technology Outreach Service (ITOS) and several Regional Commissions to use Hazus-MH. Beginning with the 2015 local plan update cycle, the State contracted with ITOS to provide the analyses. ITOS utilizes a combination of in-house staff and students and some of the larger Regional Commissions to do the analyses and provide the reports, which the State then provides to the counties for inclusion in their plan updates. The State has utilized funding from, both the Pre-Disaster Mitigation (PDM) and Hazard Mitigation Grant Program (HMGP) funding sources (both described below), including providing the entire non-Federal share, to provide the analyses.

Training is a vital resource to ensure that GEMA/HS staff possesses the most effective capabilities to guide local communities in their planning efforts. Staying current on regulations, FEMA programs, and best practices with appropriate FEMA mitigation training allows GEMA/HS staff to advise local communities on maintaining regulatory compliance, maximizing funding opportunities, and improving local hazard mitigation planning.

### **4.1.3 LOCAL PLANNING ROADBLOCKS**

Since the 2014 plan was completed, the GEMA/HS planning staff has identified two roadblocks, or hindrances, to effective local mitigation planning. These roadblocks are primarily hindrances to the State's ability to provide the best products and services possible. In that time, the State has worked to overcome both of these issues.

As noted in Section 4.1.1, GEMA/HS uses a team of four planners, stationed throughout the state, to provide

technical assistance to local communities in the development and update of their local hazard mitigation plans. Between 2016 and 2017, GEMA/HS went through a year and a half period where the entire team either retired or took other jobs, requiring all four planner positions to be filled with new team members. This required planners to take on additional responsibilities while positions were vacant and while newer team members were learning the job. By planners covering other areas, the state was able to continue to provide the same services as always, even if they were sometimes temporarily delayed to a degree.

As described in Section 4.1.2, the state provides several tools to local communities to use in the development and update of their local hazard mitigation plans. One additional tool the State is looking into providing is the ability to include RiskMap data in their local mitigation plans. The Georgia Department of Natural Resources is in the process of conducting RiskMap studies throughout the State and providing updated flood mapping and flood risk products to the affected communities. The data is being provided in GIS format. One problem has been, however, that many smaller communities do not have sufficient access to GIS software. The State is, therefore, looking into ways to include RiskMap products into its GMIS website, where communities can then incorporate the maps and some of the data into their local mitigation plans.

## 4.2 LOCAL FUNDING

Since the inception of the federal government's local mitigation planning requirements, GEMA/HS has assisted Georgia communities in locating and obtaining funding for plan development and updates. The planning team continues to use a grant application that addresses and provides examples of responses for both pre- and post-disaster grants. Completed grant applications should have sufficient information for both of FEMA's NEMIS and eGrants systems, and should be found acceptable by FEMA. Appendix F contains a copy of the application. Each planning team member works closely with the counties in his or her territory when developing these applications. The applications approved by FEMA are made part of the agreement between county, state, and federal agencies; therefore, they are prepared with great detail and forethought.

In the 16 years Georgia has been involved in mitigation planning, the state has made use of two categories of mitigation grant sources provided by FEMA. These are Disaster-Related Mitigation Programs and Non-Disaster-Related Mitigation Programs. The primary difference between the two categories is when and where they are available. Non-disaster-related is available nationwide on a regular basis, regardless of the occurrence of disasters. Disaster-related mitigation is only available in the aftermath of a declared disaster and is only available to the affected state.

### 4.2.1 DISASTER-RELATED MITIGATION PROGRAMS

**Table 4.2 Plan Updates Included in Recent Disasters (2007 through 2016)**

Disaster #	Month/Year	# Counties	Total Project Costs	Federal Share Approved
1686	3/2007	28	630,950	473,211
1750	3/2008	1	109,213	81,909
1761	6/2008	9	189,095	141,820
1833	5/2009	23	413,142	309,856
1858	9/2009	74	1,711,150	1,283,358
1973	4/2011	20	474,633	345,306

Disaster #	Month/Year	# Counties	Total Project Costs	Federal Share Approved
4165	3/2014	8	320,098	146,810
4215	4/2015	5	173,844	130,383
4259	2/2016	11	357,000	267,750
<b>Total</b>		<b>179</b>	<b>4,379,125</b>	<b>3,180,403</b>

**Table 4.3 Future Plan Updates Included in Recent Disasters (2016 - Present)**

Disaster #	Month/Year	# Counties	Total Project Costs	Federal Share
4284	10/2016	44	1,612,933	1,209,700
4294*	1/2017	Available	254,715	191,036
4297*	1/2017	Available	511,917	383,938
4338**	9/2017	Available	N/A	N/A
<b>Total</b>		<b>44</b>	<b>2,379,565</b>	<b>1,784,674</b>

\*DR 4294 and 4297 figures based on 6 month lock in estimate

\*\*DR 4338 figures not available as of September 30, 2017.

Due to a series of natural disasters that have affected Georgia in various forms and locations, Georgia has utilized the Hazard Mitigation Grant Program (HMGP grants), awarded by the President, provided by FEMA, and administered by GEMA/HS to fund the development and update of multiple plans. Beginning with FYs 2002 and 2005, the State utilized DRs 1311 and 1560, respectively, to fund the initial plan development for 20 of Georgia's 159 counties. Then, from 2007 to 2011, Georgia used HMGP grants, solely, to fund 155 plan updates (DRs 1686 – 1973). Seven disasters, DRs 4165, 4215, 4259, 4284, 4294, 4297 and 4338, have occurred since the 2014 approval. In that timeframe, Georgia has utilized funding from 3 of these disasters (DRs 4165 – 4259) to fund an additional 25 plan updates, including this update to the State Hazard Mitigation Strategy. In addition, Georgia is pursuing funding for an additional 48 local plan updates from DRs 4284 and 4294. At this time, Georgia is not targeting any local plan updates through DR 4297, but is considering options for funding State or local plans through DR 4338.

For counties involved in a disaster, Governor Deal has authorized payment of 10% of the total grant amount, leaving the local government responsible for only 15% of the total grant amount. In addition, the State has developed an incentive program where, counties that meet all of the following criteria will receive an additional 2% State match for disaster related grants:

- The County is a current participant in the Emergency Management Performance Grant Program.

- The County has a current FEMA approved FEMA approved and adopted Hazard Mitigation Plan.
- The County is a current participant in the National Flood Insurance Program (NFIP).
- The County has a currently locally approved and adopted Point of Distribution (POD) Plan
- The County has a current locally approved and adopted Disaster Volunteer Assistance and Management Plan
- The County has a current trained Local Damage Assessment Team.
- The County is a certified Storm Ready Community by the National Weather Service.
- The County has adopted model emergency power ordinances available through the Association of County Commissioners of Georgia.

In many cases this takes a large burden off the counties struck by disaster and whose assets have been depleted in their recovery.

## 4.2.2 NON-DISASTER-RELATED MITIGATION PROGRAMS

**Table 4.4 Plan Updates Included in Non-Disaster Grants (2013 - Present)**

Grant Cycle #	# Counties	Total Project Costs	Federal Share Approved
PDMC 2013*	24	961,780	721,335
PDMC 2014*	20	762,169	571,627
PDMC 2015*	30	1,155,525	866,647
PDMC 2016	34	1,182,300	886,725
<b>Total</b>	108	4,061,774	3,046,334

\*PDMCs 2013 – 2015 include one GMIS management application each.

Historically, Georgia has used two non-disaster-related mitigation programs to help local communities develop and update their mitigation plans. These are the Pre-Disaster Mitigation (PDM) grant program and the Flood Mitigation Assistance (FMA) grant program. FMA is specifically for flood mitigation planning, and, prior to October 2008, the FMA planning requirements were much more stringent.

Notably, Georgia used a combination of PDM and FMA funding to fund 139 of the State's 159 original local plans between FYs 2002 and 2005. In 2007, the State used PDMC 2008 funding for three local plan updates. However, due to a large number of disasters that occurred in Georgia between 2007 and 2011, it was not necessary to utilize PDM between the 2008 and 2013 grant cycles to fund mitigation plans. Once again, due to DRs 4284 and 4294, it is not necessary to use PDM funding for the next two plan update cycles, which are currently in the application process.



In 2008, Georgia used FMA funds for a limited number of FMA stand-alone plans. One of these (Glynn County) was only recently completed in 2012. Prior to October 2008, FMA planning requirements were more stringent than local multi-hazard planning requirements. However, in 2008, FMA planning requirements were incorporated into the local multi-hazard planning requirements. Therefore, FEMA will no longer fund a stand-alone plan using FMA funds.

If the State of Georgia finds itself in the fortunate position of not incurring any disasters over the next five years, the local applications will require funding from PDM or other available grant programs.

### **4.2.3 OTHER MITIGATION FUNDING PROGRAMS**

In addition to the multi-jurisdictional hazard mitigation plans discussed in Sections 4.2.1 and 4.2.2, GEMA/HS has worked with various agencies on two other mitigation planning programs: the Disaster Resistant University (DRU) program for college and university campuses and the FMA planning program for local governments.

The Board of Regents of the University System of Georgia (USG), through a federal PDM grant and GEMA/HS, initialized the DRU program for fiscal year 2003. The PDM grant allowed all 35 public institutions within the USG to develop a hazard mitigation plan to meet the federal requirements of the Disaster Mitigation Act of 2000 and of the FEMA planning criteria promulgated in Title 44 of the Code of Federal (CFR) Regulations, 201.6 on Federal Register, 2-26-2002. Though the grant is no longer in effect, GEMA/HS has continued to work with various campuses, as requested, in developing and updating their plans.

As of December 2010, 25 of the 36 universities successfully completed hazard mitigation plans. Each of the universities has been instructed to submit its plans to the county in which it is located. They are also encouraged to participate in the update of that county's local hazard mitigation plan during its next update. The inclusion of the university's plan in the approved local plan makes the university eligible for federal funds in the event it is affected by a presidentially approved hazardous event.

All universities are headed by the Board of Regents, which is a state agency, and are covered by the State Hazard Mitigation Plan. Therefore, state universities can apply for federal aid as a state entity in the event they are affected by a presidentially declared hazard event. Universities that participate in the update of a local hazard mitigation plan and whose plans are included in that approved local plan can apply for federal funding if they are subject to a Presidential Declared Disaster event.

Each DRU hazard mitigation plan includes a hazard, risk, and vulnerability assessment based on data and hazard maps provided by GEMA/HS. The institutional-level risk-based, data-driven mitigation plans were created with clearly identified future mitigation goals and objectives that will ultimately lead to mitigation projects. This process and the provided data allow for accurate risk and loss estimates, which lead to more cost-effective mitigation actions. The DRU program is an integral part of bridging non-traditional local and state partnerships within the context of emergency management.

## **4.3 LOCAL PLAN INTEGRATION**

Chapters 2 and 3 describe how the State reviews the hazards and mitigation actions included in local plans. The GEMA/HS Hazard Mitigation staff integrates information gleaned from this review into the state plan. GEMA/HS uses a local plan integration matrix to compile information from the local plans for analysis and inclusion in the State Plan. Table 4.5 below shows the relationship between the hazards identified in the State Plan and the hazards gleaned from review of the local plans.

**Table 4.5 Hazards Identified in Local Plans.**

State Plan Hazard	Hazards in Local Plans	% of Counties identifying
Tornadoes	Tornadoes	99%
Inland Flooding	Inland Flooding	99%
Drought	Drought	90%
Wildfire	Wildfire	82%
Severe Winter Weather	Winter Storms	79%
Wind	Wind	73%
Severe Weather	Severe Weather	73%
	Hailstorm	61%
	Lightning	58%
Hurricane Wind	Hurricane/Tropical Storm	55%
Dam Failures	Dam Failure	36%
Earthquake	Earthquake	27%
Coastal Hazards	Coastal Flooding	6%
Geologic Hazards	Landslide	4%
	Sinkhole	3%
	Heat	28%

In addition to the above, the matrix also analyzes the mitigation strategies of all local mitigation plans. Review of the data indicates greater than 95% of all local plans include mitigation actions that fall into 3 of the 4 basic mitigation categories. 98% of plans include mitigation actions that fall within the “Planning and Regulation” and “Education and Awareness” categories while 100% of all plans include mitigation actions

that fall under the “Structure and Infrastructure Projects” category. 22% of local plans include mitigation actions in the “Natural Resources Protection” category. The State Hazard Mitigation Strategy includes mitigation actions representing all 4 categories and includes mitigation actions to support local communities in their efforts to reduce their vulnerability to their identified hazards.

In addition to the above, a state requirement in the Local Plan Review Tool asks if the plan references specific planning mechanisms, including the Georgia State Hazard Mitigation Strategy. Specifically, it requires the local planning committee to review the current State Plan as part of their update process.

## **4.4 PRIORITIZING LOCAL ASSISTANCE**

The State of Georgia must utilize analytical methods for prioritizing the distribution of available funding to communities and local jurisdictions. Section 4.4.1 discusses the methods the State uses for prioritizing the funding for local mitigation planning. Section 4.4.2 discusses the prioritization of mitigation grant program funding based on repetitive losses.

### **4.4.1 PRIORITIZATION OF LOCAL PLAN UPDATE FUNDING**

Georgia has been working in local hazard mitigation planning since 2002. Since then, all of Georgia’s 159 counties have completed and adopted their initial mitigation plans. One stipulation to local plans is they are only effective for five years and must be updated to maintain their community-approved status. Georgia has developed an evolving spreadsheet that tracks local plans. Georgia uses this spreadsheet to prioritize local plan funding according to the expiration dates of each county’s local plan. The focus is on maintaining eligibility for each community to pursue mitigation grant funding as the need and opportunity arises. The goal is to fund the local plan updates so that they are completed before the current plan has expired.

In the summer of 2008, GEMA/HS’s Mitigation Planning team developed a list of counties that at that time had received plan approval. Using this list, the staff divided the counties into 12 levels of priority using six-month timeframes. The priority levels were assigned based on each county’s plan expiration date and the date that the plan updates were due, with priority 1 being the highest priority and priority 12 being the lowest. This list is updated on an ongoing basis as plans are approved.

Since summer 2008, GEMA/HS has assisted 157 counties in obtaining funding assistance through HMGP and PDM to update their mitigation plans. As of September 2017, 156 of those counties have completed their updated plans. GEMA/HS anticipates that the remainder will be completed by the end of 2018.

In addition, as of September, 2017, GEMA/HS is pursuing funding assistance for the next 47 counties on the priority list. For some of these counties, this would be the third update to their plans. GEMA/HS anticipates receiving approval and holding kickoff meetings to initiate the planning processes for these counties in the winter and spring of 2018.

GEMA/HS will continue to adhere to this priority system of updating local hazard mitigation plans when distributing funding and assistance for the planning process. Table 4.6 gives the priority of the various counties in terms of plan updates by six-month period beginning in July of 2015. In each five-year update cycle, the factor driving the priority listings will be the counties’ plan expiration dates.

**Table 4.6 Local Plan Priority Update Schedule by Expiration Date**

County	Plan Expiration	Priority
Pulaski	7/14/2015	1
Houston	8/2/2015	1
Gwinnett	8/19/2015	1
Jones	8/19/2015	1
Fayette	9/2/2015	1
Monroe	10/14/2015	1
Lamar	11/4/2015	1
Camden	11/9/2015	1
Chatham	11/9/2015	1
Upson	11/10/2015	1
Crisp	1/3/2016	2
Lee	2/4/2016	2
White	2/4/2016	2
Bibb	3/22/2016	2
Dougherty	3/29/2016	2
DeKalb	3/31/2016	2
Floyd	4/19/2016	2
Douglas	5/5/2016	2
Hall	5/9/2016	2
Chattooga	6/17/2016	2
Union	7/12/2016	3
Miller	7/26/2016	3
Carroll	8/18/2016	3
Baker	8/22/2016	3
Cobb	9/16/2016	3
Laurens	9/22/2016	3
Fulton	9/23/2016	3
Lumpkin	10/21/2016	3
Liberty	11/15/2016	3
Worth	1/5/2017	4
Bartow	1/10/2017	4
Clayton	1/18/2017	4
Mitchell	1/26/2017	4

County	Plan Expiration	Priority
Lowndes	2/10/2017	4
Cherokee	2/17/2017	4
Calhoun	2/22/2017	4
Quitman	3/19/2017	4
Glynn	4/4/2017	4
Paulding	4/13/2017	4
McDuffie	4/27/2017	4
Decatur	5/2/2017	4
Baldwin	6/15/2017	4
Gordon	6/15/2017	4
Putnam	6/21/2017	4
Richmond	6/28/2017	4
Catoosa	7/5/2017	5
Elbert	7/6/2017	5
Walker	7/10/2017	5
Long	8/30/2017	5
Forsyth	9/5/2017	5
Heard	9/6/2017	5
Muscogee	9/6/2017	5
Morgan	9/14/2017	5
Whitfield	9/18/2017	5
Tift	9/21/2017	5
Fannin	10/12/2017	5
Wayne	10/12/2017	5
Spalding	10/19/2017	5
Columbia	10/19/2017	5
Early	10/24/2017	5
Polk	11/14/2017	5
Murray	1/16/2018	6
Seminole	2/5/2018	6
Clarke	3/26/2018	6
Gilmer	4/1/2018	6
Clay	5/23/2018	6

County	Plan Expiration	Priority
Haralson	6/7/2018	6
Banks	6/19/2018	6
Johnson	6/26/2018	6
Crawford	7/25/2018	7
Dawson	7/30/2018	7
Coweta	8/20/2018	7
Thomas	8/26/2018	7
Rabun	8/29/2018	7
Brantley	9/24/2018	7
Taylor	9/30/2018	7
McIntosh	10/1/2018	7
Charlton	10/7/2018	7
Effingham	10/30/2018	7
Turner	11/4/2018	7
Warren	11/6/2018	7
Wilkes	11/25/2018	7
Terrell	12/2/2018	7
Macon	12/3/2018	7
Ware	12/10/2018	7
Bacon	12/11/2018	7
Pierce	12/11/2018	7
Glascok	12/15/2018	7
Washington	12/17/2018	7
Henry	1/23/2019	8
Cook	2/18/2019	8
Rockdale	2/20/2019	8
Greene	2/27/2019	8
Jackson	2/27/2019	8
Bleckley	3/11/2019	8
Echols	3/18/2019	8
Brooks	3/19/2019	8
Lanier	3/19/2019	8
Franklin	3/20/2019	8
Towns	3/25/2019	8
Atkinson	4/16/2019	8

County	Plan Expiration	Priority
Irwin	4/17/2019	8
Bryan	4/28/2019	8
Peach	5/1/2019	8
Coffee	5/6/2019	8
Oconee	5/6/2019	8
Stephens	5/6/2019	8
Pickens	5/12/2019	8
Madison	5/26/2019	8
Twiggs	6/5/2019	8
Appling	6/10/2019	8
Berrien	6/10/2019	8
Ben Hill	6/16/2019	8
Wilkinson	7/1/2019	9
Telfair	7/24/2019	9
Grady	8/6/2019	9
Toombs	8/6/2019	9
Dodge	8/11/2019	9
Troup	8/19/2019	9
Randolph	8/22/2019	9
Stewart	9/3/2019	9
Habersham	9/8/2019	9
Oglethorpe	10/28/2019	9
Wheeler	11/3/2019	9
Jeff Davis	11/18/2019	9
Candler	12/8/2019	9
Jefferson	12/29/2019	9
Burke	1/4/2020	10
Jenkins	1/7/2020	10
Butts	3/9/2020	10
Hancock	4/6/2020	10
Clinch	4/7/2020	10
Dade	4/10/2020	10
Wilcox	4/15/2020	10
Sumter	4/20/2020	10
Pike	5/6/2020	10

County	Plan Expiration	Priority
Jasper	5/25/2020	10
Taliaferro	6/7/2020	10
Colquitt	6/7/2020	10
Screven	6/8/2020	10
Tattnall	6/14/2020	10
Marion	6/18/2020	10
Lincoln	7/13/2020	11
Newton	7/14/2020	11
Bulloch	7/19/2020	11
Meriwether	7/27/2020	11
Gwinnett	8/18/2020	11
Dooly	8/26/2020	11
Montgomery	8/26/2020	11
Fayette	9/2/2020	11
Webster	9/7/2020	11
Barrow	9/9/2020	11
Evans	10/14/2020	11
Emanuel	10/19/2020	11
Treutlen	12/14/2020	11
Lamar	1/5/2021	12
Harris	1/7/2021	12
Houston	1/10/2021	12
Pulaski	1/11/2021	12
Lee	2/3/2021	12
Chatham	2/16/2021	12
Crisp	2/22/2021	12
Jones	2/23/2021	12
Dougherty	3/2/2021	12
Walton	5/9/2021	12
Talbot	6/8/2021	12
Douglas	6/12/2021	12
Union	7/12/2021	13
Hart	7/21/2021	13
White	7/21/2021	13
Miller	7/25/2021	13

County	Plan Expiration	Priority
Carroll	7/31/2021	13
Baker	8/22/2021	13
Bibb	8/30/2021	13
Upson	9/6/2021	13
Laurens	9/21/2021	13
Schley	10/16/2021	13
Camden	11/9/2021	13
Columbia	11/10/2021	13
Liberty	11/14/2021	13
Lumpkin	11/16/2021	13
Cobb	12/11/2021	13
Worth	1/3/2022	14
Floyd	1/4/2022	14
Bartow	1/9/2022	14
Mitchell	1/26/2022	14
Lowndes	2/8/2022	14
Chattooga	2/13/2022	14
Cherokee	2/15/2022	14
Calhoun	2/21/2022	14
Spalding	2/22/2022	14
DeKalb	2/28/2022	14
Fulton	2/28/2022	14
Decatur	5/1/2022	14
Paulding	5/1/2022	14
Early	6/14/2022	14
Elbert	7/5/2022	15
Clayton	8/2/2022	15
Monroe	8/9/2022	15
Hall	8/24/2022	15
Long	8/29/2022	15
Forsyth	9/4/2022	15
Heard	9/5/2022	15
Morgan	9/13/2022	15
Tift	9/23/2022	15
McDuffie	10/10/2022	15

County	Plan Expiration	Priority
Richmond	10/10/2022	15
Wayne	10/11/2022	15
Catoosa	10/17/2022	15
Putnam	11/21/2022	15
Fannin	12/17/2022	15
Gordon	12/20/2022	15
Whitfield	1/7/2023	16
Chattahoochee	03/23/2023	16
Seminole	04/08/2023	16
Haralson	6/5/2023	16
Banks	6/17/2023	16
Murray	7-10-23	17
Athens-Clarke	7/24/2023	17
Baldwin	8/22/2023	17
Rabun	8/27/2023	17
Quitman	10/2/2023	17
Glynn	10/9/2023	17

County	Plan Expiration	Priority
Polk	10/21/2023	17
Charlton	10/21/2023	17
Columbus-Muscogee	10/28/2023	17
Effingham	10/28/2023	17
Turner	11/3/2023	17
Pierce	12/10/2023	17
Bacon	12/11/2023	17
Ware	12/12/2023	17
Brantley	12/16/2023	17
Warren	12/18/2023	17
Glascok	12/20/2023	17
Taylor	1/16/2024	18
Greene	2/26/2024	18
Atkinson	4/14/2024	18
Irwin	4/16/2024	18
Pickens	5/11/2024	18

#### 4.4.2 PRIORITIZATION OF PROJECT FUNDING

To maximize the amount of federal and state funding available, GEMA/HS employs an application prioritization system. In the event that submitted pre-applications exceed the available funds for the disaster allocation, GEMA/HS reviews, scores, and ranks submitted pre-applications and applications using criteria on GEMA/HS's Hazard Mitigation Assistance Score Sheet. The criteria include natural hazard exposure, history of damages, type of mitigation, potential impact on the community, impact on the environment, community commitment to mitigation, and the benefits of mitigation. Generally, pre-applications and applications for acquisition and demolition projects receive the highest ranking. See Appendix H for a copy of the GEMA/HS Hazard Mitigation Assistance Score Sheet.

When a hazard mitigation assistance application cycle is opened, GEMA/HS uses a two-tiered review process. Initially, communities are directed to submit pre-applications that allow GEMA/HS staff to determine whether a proposed mitigation project meets FEMA funding criteria. Completed pre-applications received by the publicly stated deadline are scored using criteria on GEMA/HS's Hazard Mitigation Assistance Score Sheet. In addition to the above criteria, for post-disaster grants (HMGP), pre-applications are prioritized under two categories: within the declared area and outside of the declared area. Projects that mitigate the impacts of the specific declaration event such as a flood or a tornado in the declared areas have the highest priority for the State of Georgia.



Applicants whose pre-applications receive the highest score and meet minimum project criteria will be invited to complete and submit a full grant application. Risk Reduction Specialists and Hazard Mitigation Planning Specialists will assist in completing the applications and will conduct an initial review in accordance with the GEMA/HS Hazard Mitigation Assistance Score Sheet. The State Hazard Mitigation Division Manager will review the results of the staff scoring and the prioritization of applications. The recommendations are presented to the GEMA/HS Agency Director for final determination.

For DR4165 application process, GEMA/HS prioritization for the declared counties was for generators for critical facilities. As this was the first application cycle for generators being an approvable project type, the State received many more requests for funding than was available in the allocation. Additional analysis beyond the standard scoring sheet was required to prioritize and rank the generator sites within the applications. In FEMA's BCA tool, a value of service per day is computed based on the critical facility type. Each of the generator sites were ranked using the value of service per day per dollar invested. This allowed GEMA/HS to select the generator sites that provided the most impact on reducing future losses.

Benefit-cost analyses (BCA) incorporate various data to determine the cost-effectiveness of a project or activity. Essentially, the BCA determines whether the current cost of investing in a project will result in sufficiently reduced damages in the future. Only projects with a benefit-cost ratio (BCR) exceeding 1.0 are ranked for further review and forwarded to FEMA for funding consideration. GEMA/HS Hazard Mitigation staff work closely with project applicants to determine each project's cost-effectiveness. The basic information the State obtains to conduct accurate BCAs includes, but is not limited to, the following:

- Flood Insurance Study data or historical flood data (flood frequency, discharge, and elevation),
- Past damages to the project site or in the project area,
- Well-documented cost estimates for the project,
- Useful life of the project,
- Square footage of the building with replacement and content values,
- Facility function,
- Associated future maintenance costs,
- Displacement costs,
- Temporary relocation costs,
- Loss of use, and
- Elevation certificates or land surveyor certification of finished floor elevation.

All of the projects completed to meet the state's mitigation goals (listed in Table 3.7) must have met the minimum BCR of 1.0 in order to garner funding (where applicable). Georgia's success in all funding rounds to date of the Hazard Mitigation Assistance (HMA) grants, which include the Pre-Disaster Mitigation Competitive Program, FMA program, and the Repetitive Flood Claims Program, demonstrates the ability of the GEMA/HS Hazard Mitigation staff to complete accurate BCAs. The State of Georgia has submitted a total of 80 projects since 2003 that have been reviewed at the national level in the competitive grant program. A total of 66 of these projects have been selected and awarded. Of the non-awarded projects, 10 were deemed eligible but not selected due to funding constraints.

Finally, not only do projects have to meet standards of cost-effectiveness and technical feasibility but they also have to be deemed environmentally sound. The State of Georgia relies on the staff at FEMA Region IV to conduct environmental reviews and prepare the environmental documentation on all submitted mitigation applications. As part of the application process, the State requires documentation from the sub-applicant to comply with all applicable federal, state, and local codes and standards, including the National

Environmental Policy Act (NEPA), PL 91-190, as amended. Georgia provides information to each applicant on the necessary environmental coordination that must be completed as part of the application process. The State reviews each applicant's environmental documentation before forwarding it to FEMA. The State of Georgia has successfully worked with each applicant on obtaining the required environmental documentation to comply with the NEPA process.

#### **4.4.3 REPETITIVE LOSS PROPERTIES**

Repetitive loss properties (RLPs) generally consist of older, less-safe properties that were “grandfathered” into the National Flood Insurance Program (NFIP) during its creation. The RLPs have been repaired multiple times to pre-flood conditions with subsidized flood insurance claim payments. According to FEMA, a relatively small number of RLPs account for a relatively large share of paid flood claims. Therefore, identifying and mitigating RLPs and severe repetitive loss properties (SRLPs) leads to a reduction in actual flood insurance claims, which will diminish the pressure to raise flood insurance rates and will stabilize NFIP.

SRLP was defined in the Bunning-Bereuter-Blumenaur Flood Insurance Reform Act of 2004 and an interim rule was published on October 31, 2007 which implemented the SRL grant program. In the FY13 grant funding opportunity announcement for the FMA program, FEMA introduced an increased federal share grant funding to 90% for other repetitive loss properties, subsequently noted as FMA/RL properties.

According to FEMA, data anomalies exist in the NFIP data that was used to create the SRL and FMA/RL data sets. In preparation for the FY17 FMA grant cycle, every repetitive loss property was analyzed to determine whether the property met the definition of SRL or FMA/RL by looking at the flood claims paid on the property and the market value of the structure obtained from the tax assessor website for each Georgia County. Further analysis was conducted to determine properties that were best candidates for grant funding for the FMA program. Best candidates are those that have a current flood policy, are in the Special Flood Hazard Area, and the benefit cost requirement can be met by utilizing the standard benefits for acquisition.

Table 4.7 totals have been updated that lists the total losses and total RLPs, the GEMA/HS analysis to determine the total number of SRLPs, and the total number of mitigated RLPs and total mitigated SRLPs. Table 4.7 also includes additional information and summary of FMA/RL properties and best SRL and FMA/RL candidates for the FMA program. The FEMA SRL indicator code in the repetitive loss data set was utilized to capture historic information on mitigated SRLPs so the updated figures include many more structures than was previously reported.

The repetitive loss information was obtained from DataXchange, and the mitigated property information was obtained from GEMA/HS's mitigated properties database. To be considered an RLP by FEMA, the property must have two or more losses (at least \$1,000 per loss) paid within a 10-year period. To be considered an SRLP by FEMA, the property must have four or more losses (at least \$5,000 per loss) paid or have two or more losses in which the payments to repair the structure exceed the structure value. To be considered an FMA/RL by FEMA, the property must have two or more losses in which on the average, the payments to repair the structure equaled or exceed 25% of the structure value. As of September 30, 2017, Georgia has 1,786 RLPs totaling more than \$149 million in paid claims. Also, Georgia has 191 SRLPs and 187 FMA/RL properties. Of these, 69 SRL and 62 FMA/RL properties are best candidates for the FMA program.

Table 4.7 shows that the City of Savannah contains almost 20% of the RLPs but has a low percentage of SRLPs in the State of Georgia. Savannah also accounts for approximately 40% of the completed mitigated activities on RLPs in Georgia. The City of Atlanta accounts for approximately 17% of the SRLPs. This is

driven largely by the losses from Hurricane Ivan in 2004 and record-breaking flooding in the Metro Atlanta region in September of 2009. The number of repetitive loss properties has also increased over the past few years due to flood claims from Hurricanes Matthew and Irma.

**Table 4.7 Repetitive and Severe Repetitive Loss Properties by NFIP Community**

Community	2017 Data Losses (\$)	RL	GEMA/HS Analysis		SRL Best Cand.	FMA/RL Best Cand.	# Mit. RLPs (GMS)	# Mit. SRLPs
			SRL	FMA/RL				
Albany, City Of	1,821,779	43	9	10	5	2	1	
Alpharetta, City Of	100,312	3					1	
Ambrose, City of	18,071	1						
Aragon, City Of	11,702	1						
Athens-Clarke County	54,702	5						
Atlanta, City Of	35,492,629	228	34	27	7	2	8	5
Augusta-Richmond County	2,051,798	56	1	2			17	4
Austell, City Of	1,019,923	8	1		1		5	3
Baconton, City Of	280,663	2		2		2		
Bainbridge, City Of	117,239	2						
Baker County *	104,551	2						
Bartow County *	3,604	1						
Brookhaven, City of	3,005,071	19	2	2				
Brooklet, Town Of	52,989	1						
Brooks County*	140,513	1	1		1			
Brunswick, City Of	1,141,794	16	10	2				
Bryan County*	47,132	2						
Bulloch County*	105,964	4						
Butts County*	29,664	1	1					
Calhoun, City Of	187,739	2						
Camden County*	140,626	3		1		1		
Camilla, City of	120,182	3		2				
Canton, City Of	609,960	2	1					
Carroll County*	13,617	1						
Carrollton, City Of	1,802,107	3						
Cartersville, City Of	80,412	1						
Catoosa County*	566,789	13	2	4		3	3	
Cedartown, City Of	22,456	3						
Chamblee, City Of	412,319	10					1	
Charlton County*	142,456	3	1					
Chatham County*	1,508,904	44	1	1	1	1	3	
Chatsworth, City Of	165,000	4		1				
Chattooga County*	149,600	3	2		2			
Chickamauga, City Of	147,116	4	3	1	1		3	2

Community	2017 Data Losses (\$)	RL	GEMA/HS Analysis		SRL Best Cand.	FMA/RL Best Cand.	# Mit. RLPs (GMS)	# Mit. SRLPs
			SRL	FMA/RL				
Clayton County*	554,682	16	3	3	1			
Cobb County*	19,953,355	128	13	14	1	2	11	5
Coffee County*	483,042	6	4	1	3			
College Park, City Of	1,291,621	7					2	
Colquitt County*	50,489	1						
Columbia County*	173,007	4	1		1			
Columbus Consolated Government	455,727	7	1	1		1		
Coweta County *	53,623	1	1					
Crisp County*	29,555	3	1					
Dalton, City Of	618,290	2	1					
Decatur County*	1,970,306	20		4			8	
Decatur, City Of	702,726	11	4		1		3	
Dekalb County *	7,051,117	123	9	5	4	3	37	8
Donalsonville, City Of	127,917	4		2				
Dooly County*	130,483	1	1					
Doraville, City Of	126,523	1						
Dougherty County *	3,790,638	42	12	10	7	6	7	
Douglas County *	2,024,887	21					16	6
Douglas, City Of	9,045	1						
Douglasville, City Of	241,130	2		1			2	
Dublin, City Of	603,366	6	3	1	1	1		
Duluth, City Of	94,120	2						
Dunwoody, City of	555,163	7						
Early County*	206,717	2		1		1		
East Dublin, Town Of	233,079	2		1				
East Ellijay, City Of	1,207,496	5		5		5		
East Point, City Of	317,673	11	2	2	1			
Effingham County *	3,644	1						
Elberton, City Of	13,683	1						
Ellijay, City Of	19,178	2						
Fannin County*	30,090	4						
Fayette County *	13,645	1						
Fayetteville, City Of	20,684	2						
Fitzgerald, City Of	37,010	1						
Floyd County*	180,594	7	1					

Community	2017 Data Losses (\$)	RL	GEMA/HS Analysis		SRL Best Cand.	FMA/RL Best Cand.	# Mit. RLPs (GMS)	# Mit. SRLPs
			SRL	FMA/RL				
Folkston, City Of	162,467	1	1					
Forsyth County *	155,802	4						
Fort Oglethorpe, City Of	2,136,081	18						
Fulton County *	609,454	12	1	5		5	3	1
Gainesville, City Of	3,651	1						
Garden City, City Of	197,318	2						
Gilmer County*	1,376,757	12	5	2	4			
Glennville, City Of	33,492	1						
Glynn County *	1,765,861	33	5	5	2	1		
Gordon County*	75,848	3						
Grady County*	17,557	1						
Gwinnett County *	1,446,330	18		2		2	3	3
Hall County *	36,779	2						
Hawkinsville, City of	29,371	1						
Helen, City Of	37,837	2						
Henry County *	114,326	2						
Hinesville, City Of	18,526	2						
Houston County *	161,466	3	1					
Jakin, City of	17,149	1		1				
Jasper County*	27,818	1						
Johns Creek, City of	30,636	1						
Kennesaw, City Of	49,937	1						
Kingsland, City Of	166,922	4	1					
Lafayette, City Of	256,842	1						
Lagrange, City Of	319,915	3	1		1			
Lee County *	7,703,055	99	15	15	14	10	20	8
Lilburn, City Of	140,238	2					3	1
Lowndes County *	285,303	2	1		1			
Lumber City, City Of	80,966	2						
Macon, City Of	661,904	6	3		1			1
Marietta, City Of	55,294	2						
Millen, City Of	8,963	1						
Mitchell County *	165,521	2	1		1			
Monroe County*	245,220	3		2		1	1	
Montgomery County*	186,708	3	2		2			
Morrow, City of	10,984	1						

Community	2017 Data Losses (\$)	RL	GEMA/HS Analysis		SRL Best Cand.	FMA/RL Best Cand.	# Mit. RLPs (GMS)	# Mit. SRLPs
			SRL	FMA/RL				
Moultrie, City Of	511,678	4						
Newnan, City Of	79,391	2	1		1			
Newton County *	129,175	3					1	1
Newton, City Of	114,708	2		1		1	1	
Peachtree City, City Of	406,747	7	1	2	1	1		
Pine Lake, City Of	100,219	1						
Polk County *	179,121	9		1		1	1	
Pooler, City Of	193,351	5		1				
Port Wentworth, City Of	332,612	8	2		1			
Powder Springs, City Of	1,167,830	11					9	8
Pulaski County*	35,347	1		1				
Reynolds, Town of	7,004	1						
Richmond Hill, City Of	7,934	2		1		1		
Ringgold, City Of	119,717	4					2	
Riverdale, City Of	79,131	3	1					
Rockdale County *	435,689	7	1	1	1		1	1
Rome, City Of	1,034,957	32	4	6				
Rossville, City Of	70,616	4	1					
Roswell, City Of	164,490	6		1		1		
Sandersville, City Of	6,154	1						
Sandy Springs, City Of	4,683,624	49	3				8	7
Savannah, City Of	19,056,425	328	6	20	1	4	119	10
Seminole County*	754,626	7	2	3	1			
Smyrna, City Of	107,504	5						
St. Marys, City Of	144,566	2						
Statesboro, City Of	18,165	1						
Stone Mountain, City Of	367,513	4	2	1	1			
Sylvester, City Of	53,032	1						
Tattnall County *	99,497	2		1				
Thomasville, City Of	919,308	5	2	1			1	
Thunderbolt, Town Of	13,110	2						
Tift County *	114,336	1						
Tifton, City Of	1,978,394	4		1				
Toombs County*	39,716	3						
Towns County*	61,681	3		1				
Trenton, City Of	86,072	1		1				



Community	2017 Data Losses (\$)	RL	GEMA/HS Analysis		SRL Best Cand.	FMA/RL Best Cand.	# Mit. RLPs (GMS)	# Mit. SRLPs
			SRL	FMA/RL				
Troup County *	116,697	2	1					
Tybee Island, City Of	482,528	17		2		2		
Tyrone, Town Of	137,578	1						
Union County*	67,463	2						
Upson County *	30,697	1						
Uvalda, City Of	15,505	1						
Valdosta, City Of	580,176	6	2	2	2	2		
Vidalia, City Of	134,971	1						
Walker County *	196,225	4		1				
Walton County *	66,794	2						
Ware County *	11,369	1						
Warner Robins, City Of	35,566	1					1	
Waycross, City Of	18,763	2						
West Point, City of	21,741	1						
Wheeler County*	16,982	1						
Whitfield County*	175,175	6	1					
Woodbine, City Of	3,459	1						
Worth County*	99,678	2	1					
Totals	149,720,786.95	1,786	194	187	73	62	302	74

#### 4.4.4 COORDINATION WITH REPETITIVE LOSS JURISDICTIONS

GEMA/HS has utilized multiple programs to mitigate RLPs. Table 4.8 lists the program years for the FMA program and the Pre-Disaster Mitigation Competitive (PDM-C) Program as well as the disaster numbers for the HMGP along with the corresponding mitigation activities enacted upon RLPs. For the program years or disasters that have yet to be closed out, the State of Georgia and GEMA/HS will continue to utilize available programs to mitigate RLPs and SRLPs. Note the RFC program is no longer available.

**Table 4.8 Mitigated Repetitive Loss Properties by Program Year or Disaster from GMIS**

Program	Year/Disaster	Acquisitions	Elevations	Relocations	Drainage
FMA	1997	4	0	0	0
FMA	2001	1	2	0	0
FMA	2002	2	0	0	0
FMA	2003	2	0	0	0
FMA	2004	1	0	0	0
FMA	2005	1	0	0	0

Program	Year/Disaster	Acquisitions	Elevations	Relocations	Drainage
FMA	2006	3	0	0	1
FMA	2007	4	0	0	0
FMA	2008	1	0	0	0
FMA	2009	1	0	0	0
FMA	2013	3	0	0	0
FMA	2014	4	0	0	0
HMGP	1020	0	1	0	0
HMGP	1033	84	2	0	0
HMGP	1042	21	0	0	0
HMGP	1071	12	5	1	0
HMGP	1209	12	0	0	2
HMGP	1271	5	0	0	0
HMGP	1311	36	0	0	0
HMGP	1554	4	0	0	0
HMGP	1560	1	0	0	0
HMGP	1686	4	0	0	0
HMGP	1761	2	0	0	0
HMGP	1833	6	0	0	0
HMGP	1858	38	0	0	0
HMGP	1973	4	0	0	0
PDM-C	2003	4	0	0	0
PDM-C	2005	8	0	0	7
PDM-C	2006	1	0	0	0
PDM-C	2007	6	0	0	0
PDM-C	2011	2	0	0	0
PDM-C	2012	1	0	0	0
RFC	2007	3	0	0	0
DRI	1998	1	0	0	0
<b>Totals</b>		<b>282</b>	<b>10</b>	<b>1</b>	<b>10</b>

After reviewing and analyzing Georgia's RLP and SRLP data, GEMA/HS formed a mitigation strategy to reduce or eliminate the negative impacts of repetitive losses on NFIP as well as on Georgia's citizens and economy. This strategy aligns with the existing goals and objectives discussed in Chapter 3 of this mitigation strategy. Chapter 3 lists the specific tasks and action steps related to repetitive losses. The State of Georgia continues to prioritize the mitigation of RLPs and SRLPs through all available mitigation grant programs.

# Chapter 5: Plan Maintenance

The purpose of Chapter 5 is to identify and evaluate the process used to monitor, evaluate, and update the 2014 Georgia Hazard Mitigation Strategy (GHMS) over the previous five years, as well as to outline the mechanism for updating the 2019 strategy over the next five years. This chapter establishes both the methodology and schedule for monitoring, evaluating, and updating the plan. Table 5.1 documents the changes to Chapter 5 that have occurred since the 2014 approval.

**Table 5.1 Changes to Chapter 5**

Chapter 5 Section	Updates to Section
5.1 Monitoring, Evaluating, and Updating Methods	<ul style="list-style-type: none"><li>• Includes table of changes.</li><li>• Revised to include new schedule for future updates.</li><li>• Updated text</li></ul>
5.2 Mitigation Activity Monitoring	<ul style="list-style-type: none"><li>• Updated tables</li><li>• Updated Text</li></ul>

The review of Chapter 5 of the GHMS was coordinated by the GEMA/HS Hazard Mitigation Division. Each section was reviewed by the staff and revised as necessary to reflect the monitoring, evaluation, and update process used over the previous five years. In addition, state planning stakeholders were presented opportunities to review each section in the plan, as described in Chapter 1. This included placing draft sections of the plan on the GEMA/HS website for public review and comment.

The planning team followed the GHMS update process outlined in Chapter 1. The planning team will continue to use this process over the next five years for the next plan update. The next plan update is anticipated to begin in the summer of 2022 and to be completed and approved in 2024.

## **5.1 MONITORING, EVALUATING, AND UPDATING THE PLAN**

Previously, the State of Georgia has reviewed and updated the GHMS and submitted it for gubernatorial and federal approval once every three years. Since the 2014 plan's approval, FEMA has extended the effective period for state mitigation plans from three to five years. Therefore, the State of Georgia will continue to review and update the GHMS as it has done in the past, but will do so at a minimum of once every five years. The State may update the plan more frequently under the following conditions: a state declaration without federal assistance; a Presidential Disaster Declaration; changes in state policy; significant updates to the hazard, risk, and vulnerability assessment based on new data; or a need deemed by the governor or state hazard mitigation planning group.

GEMA/HS's Hazard Mitigation Division is responsible for coordinating the monitoring, evaluation, and update of the GHMS. Within this division, the Mitigation Planning Supervisor is responsible for the oversight

of this process, including the coordination of local, state, and federal agencies. Participants in this process are listed in Chapter 1 and include state government agencies participating in mitigation programs and federal government agency representatives with general interest or legislative authority on items presented in the mitigation strategy.

The GEMA/HS Hazard Mitigation staff performed an analysis of the 2014 GHMS methodology and schedule for monitoring, evaluating, and updating and concluded that these items adequately meet the planning requirements. Specifically, the planning staff concluded the workshops added to the process for the 2014 update were successful in including a wider variety of stakeholders in the process. Therefore, GEMA/HS will continue to use the described update process. The update process includes a scheduled annual review, a post-disaster review, and the five-year plan review and update. The planning staff anticipates using the workshops, or a similar process, again in 2022 and 2023.

The scheduled annual review occurs each calendar year. This process includes an analysis of the goals, objectives, and actions identified in the state mitigation strategy for current applicability by the SHMPT. In addition to monitoring and evaluating plan implementation reflecting the progress and success of mitigation actions, the annual review also identifies whether any updates are necessary, with special regard to updating the hazard, risk, and vulnerability assessment to reflect the best available data.

A post-disaster review occurs whenever there is a federal disaster declaration within the State of Georgia in order to determine if any updates are necessary to accommodate the impacts of the disaster and any new data. Following disaster events, GEMA/HS staff will coordinate with local officials to document how mitigation measures instituted in the affected areas might have reduced the amount of damages or loss of life that could have resulted from those events. GEMA/HS will continue to identify and develop opportunities to analyze successes. GEMA/HS staff, together with state stakeholders, reviews the disaster-related strategies within the hazard mitigation plan to determine if any adjustments are necessary. This post-disaster review may replace an annual review, depending on the severity of the disaster event. Depending on the timing of the event, the post disaster and annual reviews are combined into one process for efficiency.

The comprehensive five-year plan review and update of the state plan occurs prior to federal submission for approval. This review process begins more than 18 months prior to the federal approval deadline (March 2024), and the first submission occurs six months prior (September 2023) to the federal approval deadline in order to allow sufficient time for FEMA review. The review and any necessary revisions are guided by GEMA/HS's Hazard Mitigation Division and the SHMPT.

The 2014 plan included a monitoring and evaluation strategy using a process of annual review meetings and post-disaster review meetings, as applicable. Since the approval of the 2014 GHMS, the SHMPT has used the process described in Table 5.2. The plan was approved in March 2014.

Since the approval of the 2014 GHMS, the State has received seven disaster declarations, including two severe ice storms, flooding, two hurricanes and two severe weather / tornado events. After each event, the SHMPT conducted post-disaster reviews of the 2014 plan. In addition, 2014, 2015, 2016, 2017 and 2018 each included a scheduled annual review. In September, 2017, the Mitigation Planning staff began the process of reviewing the 2014 plan to kick off the five-year update process. The next mandatory five-year update is currently scheduled for final approval in March 2024. A schedule of each task leading up to final approval of the 2024 update is found in Table 5.3. The process is scheduled to begin more than 18 months prior to the approval deadline. Therefore, the notice to proceed and the interagency planning group's initial meeting will occur in the summer of 2022. GEMA/HS intends the next updated plan to incorporate the

newest data and methods into the hazard, vulnerability, and risk assessments as well as updated data from all approved local hazard mitigation plans.

**Table 5.2 2014 Plan Review and Update Schedule**

<b>Update Event</b>	<b>Timeframe</b>
Presidential Disaster Declaration Severe Ice Storms	January, February 2014
State Plan Approval	March 2014
Annual Review / Post Disaster Review	May 2014
Annual Review	March 2015
Presidential Disaster Declaration Severe Ice Storms	February 2015
Post Disaster Review	June, 2015
Presidential Disaster Declaration Severe Storms, Flooding	December 2015
Annual Review / Post Disaster Review	May 2016
Presidential Disaster Declaration Hurricane Matthew	October 2016
Post Disaster Review	January 2017
2 Presidential Disaster Declarations Severe Storms and Tornadoes	January 2017
Annual Review / Post Disaster Review	May 2017
Presidential Disaster Declaration Hurricane Irma	September 2017
Post Disaster Review	December, 2017
Workshop 1	January 2018
Workshop 2	February 2018
Workshop 3	March 2018
Plan Review and Update	Fall 2017–September 2018
Plan Submission to FEMA	September 2018
State Plan expires	March 2019

**Table 5.3 2019 Plan Review and Update Schedule**

<b>Update Event</b>	<b>Timeframe</b>
State Plan Approval	March 2019
Annual Review	May 2019
Annual Review	May 2020
Annual Review	May 2021

Update Event	Timeframe
Annual Review	May 2022
Post Disaster Review	As needed after each major disaster
Begin State Plan Update	Summer 2022
Plan Review and Update	Fall 2022-September 2023
Risk Assessment and Mitigation Workshops	December 2022 – April 2023
Plan Submission to FEMA	September 2023
State Plan expires	March 2024

## **5.2 MONITORING PROGRESS OF MITIGATION ACTIVITIES**

GEMA/HS's Hazard Mitigation Division is responsible for monitoring implementation of projects and activities identified in the state mitigation strategy. The Mitigation Division Director oversees this function. Consistent with the annual and post-disaster plan review processes, progress toward these projects and activities are reviewed and updated at least once per year. The review and status of the activities (or "action steps") are discussed in Section 3.2.5, titled "Action Plan." Actions and projects listed in Chapter 3 contribute to achieving State goals.

The GEMA/HS Mitigation staff hosts annual meetings with the SHMPT to provide a forum to share information on hazard mitigation news and activities in the state. During these meetings, state stakeholders are given opportunities to present updates on mitigation projects and activities within their organizations.

GEMA/HS is currently using a software program specifically developed to manage all grant projects called the Grants Management System (GMS). The Hazard Mitigation Division uses the GMS to manage all aspects of project grants, including monitoring mitigation measures and closeouts. The system is also used to prepare and email blank quarterly reports to be completed and returned by the local grant recipients, as well as to submit its quarterly reports to FEMA. The system was in full use when the 2014 plan was approved. Notably, the State is in the process of migrating to a new software program. However, this process is only in the very beginning stages. Modules will have to be built to meet the State's needs. Until that process is complete, GMS will continue to be used to monitor all grant funded mitigation activities.

In addition, the State uses GMIS to track the status of mitigated properties and losses avoided due to completed mitigation projects. This information is shared with local officials as well as with FEMA as a way to track the effectiveness and success of mitigation efforts. GEMA/HS is in the process of upgrading this system in order to improve its tracking and evaluation capabilities.

# Chapter 6: Enhanced Plan

## 6.1 INTEGRATION WITH OTHER PLANNING INITIATIVES

44 CFR 201.5(b)(1) states that a state's Enhanced Plan must demonstrate that the plan is integrated, to the extent practicable, with other state and/or regional planning initiatives (comprehensive, growth management, economic development, capital improvement, land development, and/or emergency management plans) and FEMA mitigation programs and initiatives that provide guidance to state and regional agencies. In the following sections, we will demonstrate how Georgia has continued to meet this requirement.

**Table 6.1 Changes to Chapter 6**

Chapter 6 Section	Updates to Section
6.1 Integration With Other Planning Initiatives	<ul style="list-style-type: none"><li>• Updated the other state and regional planning initiatives the State Plan is integrated with and the description of how the State Plan is and will be integrated into those initiatives</li><li>• Updated all tables</li></ul>
6.2 Project Implementation Capability	<ul style="list-style-type: none"><li>• Updated the description and history showing the State's capability for successful project implementation.</li><li>• Updated all Tables</li></ul>
6.3 Program Management Capability	<ul style="list-style-type: none"><li>• Updated the description and history showing the State's capability to manage the Hazard Mitigation Program.</li><li>• Updated all Tables</li></ul>
6.4 Assessment of Mitigation Actions	<ul style="list-style-type: none"><li>• Updated the description of the State's methods for assessment of completed mitigation actions</li><li>• Record of actual cost avoidance updated for new events</li></ul>
6.5 Effective Use of Available Mitigation Funding	<ul style="list-style-type: none"><li>• Updated the description and history of the State's effective use of available mitigation funding</li><li>• Updated all tables</li></ul>
6.6 Commitment to a Comprehensive Mitigation Program	<ul style="list-style-type: none"><li>• Updated the description of the State's commitment to a comprehensive mitigation program.</li><li>• Updated all tables</li></ul>



### 6.1.1 INTEGRATION WITH OTHER PLANNING INITIATIVES

GEMA/HS's Hazard Mitigation Division has taken the lead in integrating and incorporating the state mitigation planning process with other ongoing federal, state, and regional planning efforts. A discussion on the integration with other state and regional planning initiatives is introduced in Chapters 1 and 3.

This section of the plan details the steps Georgia has taken to integrate the GHMS into other state, regional, and FEMA initiatives. As noted in Chapter 1, the State Hazard Mitigation Planning Team (SHMPT) involves numerous state and federal agencies that meet on a regular basis throughout the planning period. The purpose of these meetings is twofold. First, they allow for the input of these various agencies into the planning process. Second, they facilitate the dissemination of mitigation-related information, including current activities, available programs, and plan-related information to the participating agencies.

Information provided by each agency has been collectively reviewed to accomplish the following objectives:

- Incorporate mitigation data or resources into emergency management plans and activities;
- Link program and planning initiatives to support specific hazard mitigation strategies;
- Check for planning initiatives that promote mitigation as part of authorities and responsibilities; and
- Coordinate with other state and regional agencies to incorporate hazard mitigation into their own programs, regulations, and activities.

SHMPT meetings allow for various agencies to give input on the planning process. In addition, they also provide the opportunity for interaction between the participating agencies, who can then take the information from the meetings and the plan document back to their respective agencies for incorporation, as applicable, into their various short- and long-term plans and programs.

This section includes information from the state agencies and their programs in the effort to accomplish the State's mitigation goals. Throughout the planning process, GEMA/HS utilized information provided by the agencies. State agencies were also valuable contributors to the review and update of the goals and actions provided in Chapter 3. Many of these agencies provided GEMA/HS with information on how they planned to achieve the goals and actions that are specific to their program areas.

Table 6.2 has been updated to provide examples of how the GHMS is integrated and incorporated into other agencies' activities and their programs and the relevant public sectors, including emergency management, economic development, land use development, housing, health and social services, infrastructure, natural and cultural resources, and law enforcement. The table also includes information on how each of these programs effectively contributes to the states hazard mitigation goals.

**Table 6.2 GHMS Integration into Other State Initiatives**

Agency	Initiative	Public Sector	Description of GHMS Integration into Initiative	Contribution to Hazard Mitigation Goals
GFC	Community Wildfire Protection Plans (CWPPs)	Land Use Development, Natural and Cultural Resources	<ul style="list-style-type: none"> <li>- CWPPS to be updated during local hazard mitigation plan (LHMP) updates</li> <li>- CWPPs to include information to meet FEMA hazard profile requirements</li> <li>- CWPPs integrated with LHMPs</li> </ul>	Contributes to the preservation of life and prevention of damages and losses by identifying hazard prone areas and proposing actions to reduce the potential for losses.
DCA	Disaster Resilient Building Codes (DRBC)	Land Use Development, Economic Development Housing	The State Mitigation Officer and Floodplain Coordinator served on the DRBC Task Force to establish and implement the DRBC appendices to the IBC and IRC. DCA developed and conducted a comprehensive training program for code enforcement officials on the importance, implementation and enforcement of DRBC appendices.	Contributes to the preservation of life and prevention of damages and losses by requiring structures in the relevant areas to be built to a higher standard, better able to withstand the potential hazards of the areas.
GEMA/HS	HAZUS-MH	Emergency Management, Land Use Development, Infrastructure	In 2014, GEMA/HS contracted with Polis to develop translators for all Computer Aided Mass Appraisal (CAMA) systems in use throughout the State in order to develop a way to utilize local assessor's data as part of a Hazus Analysis for each local mitigation Plan update. GEMA/HS now contracts with ITOS for continued use of these translators for every county as they update their local mitigation plans.	Contributes to the preservation of life and prevention of damages and losses by assessing the vulnerability of local communities to hurricanes, flooding and tornadoes.
GEMA/HS	GMIS	Emergency Management, Land Use Development, Infrastructure	GMIS supports the documentation and implementation of mitigation activities through mapping and reporting of Critical Facilities, Mitigated Properties, and National Flood Insurance Program (NFIP) Properties. Exploring opportunities to include RiskMAP products into GMIS to give ease of access.	Contributes to the preservation of life and prevention of damages and losses by providing a tool for assessing the vulnerability of a community to various hazards, including flooding, winds, earthquakes, landslides and wildfires.

Agency	Initiative	Public Sector	Description of GHMS Integration into Initiative	Contribution to Hazard Mitigation Goals
GEMA/HS	Disaster Recovery Program Workshops	Emergency Management	GEMA/HS mitigation staff provided training to local government officials on HMA programs.	Contributes to the preservation of life and prevention of damages and losses by helping communities identify areas of potential mitigation projects, which would reduce future damages and losses.
DNR	Risk MAP	Land Use Development, Natural and Cultural Resources	GEMA/HS mitigation staff provided data to support discovery maps and presented mitigation information at the RiskMAP Discovery & Resilience Workshops.	Contributes to the preservation of life and prevention of damages and losses by identifying hazard prone areas and proposing actions to reduce the potential for losses.
Board of Regents (BOR)	Mitigation Plans	Education, Land Use Development	BOR encourages each campus to have a hazard mitigation plan and that they work with the counties in the update of their local hazard mitigation plans.	Contributes to the preservation of life and prevention of damages and losses by identifying hazard prone areas and proposing actions to reduce the potential for losses.
EMAG	Mitigation planning workshops	Emergency Management	Mitigation Planning workshops provided during annual EMAG conference.	Contributes to the preservation of life and prevention of damages and losses by increasing awareness of mitigation programs throughout the State.
DPH	Emergency Power Program	Health and Social Services	Worked with Department of Public Health to provide emergency power to nursing homes.	Contributes to the preservation of life by supplying backup power to particularly vulnerable members of the population living in nursing homes.

### 6.1.2 INTEGRATION WITH REGIONAL PLANNING INITIATIVES

GEMA/HS has been working very closely with numerous state agencies and nongovernmental organizations over the past five years to pass along the benefits and concepts of hazard mitigation and how to incorporate these ideas into their own programs, regulations, and activities. Georgia is

fortunate to have positive relationships among all state agencies and nongovernmental organizations. Each organization and its individual representatives have been proactive in their ideas and efforts to work together to help the citizens of Georgia. The following are lists of opportunities the state took advantage of to integrate hazard mitigation into other organizations' programs.

### **Georgia Department of Community Affairs (DCA) HUD Disaster Recovery Enhancement Fund Grant**

Because of three Presidential Disaster declarations in 2017, Georgia has been allocated \$64,904,000 in disaster recovery funding from HUD. These funds will fund necessary expenses related to disaster relief, long-term recovery, restoration of infrastructure and housing, and economic revitalization in the "most impacted and distressed" areas as identified by HUD. Given the extent of damage to housing in the eligible disaster areas, the funding will require each grantee to primarily consider and address its unmet housing recovery needs.

Georgia's allocation will affect 15 counties, but primarily funding will address unmet housing needs in three identified zip codes in these 'most impacted areas'. Outreach has included meeting with each affected county to discuss the program's directives and to solicit local data for unmet housing needs. This data will be used for the State's Disaster Action Plan required prior to receipt of grant funding.

### **Georgia's Coastal Zone Management Program**

DNR Coastal Resource Division (CRD) has worked over the past few years to determine the effects of sea level rise on our coastal areas and their natural assets. Sea level rise is not an immediate natural hazard; however, over the next 100 years, its effects on Georgia's coastline and natural habitats could be detrimental. Increased sea level can affect the amount of tidal surge during hazard events such as a hurricane or tropical wind event.

Georgia's coast has experienced some effects of rising sea levels and changing inland waterways, the extent of which is still being determined. Current studies estimate that Georgia's sea level has risen approximately 3mm/year over the past 70 years. Also, during that time, rates of residential and infrastructure development along Coastal Georgia's waterways have increased significantly, resulting in more persons and property at risk. Scientists predict that the rate of global mean sea level rise during the 21st century will exceed the rate observed from 1971 thru 2010. CRD, in conjunction with Indiana University's Polis Center, has completed a Hazus analysis of the impacts of a 3' rise in sea levels along the Georgia coast using several hurricane scenarios. ITOS has also completed a Hazus analysis of state owned and operated facilities based on CRD's study. Details of the studies, and their findings, are located in several individual hazard profiles in Chapter 2, as well as in Appendix D. If these predictions materialize, the state will need to develop plans and actions to counter the effects.

### **Post-Disaster Redevelopment Plans**

Prior to 2016, Georgia's coast had not been hit directly by a major hurricane in over 100 years. In 2016, Hurricane Matthew hit Georgia's coast with a glancing blow from the Florida line to the South Carolina line. While the eye came ashore just north of Charleston, S.C., the entire Georgia coast experienced strong tropical storm to hurricane force winds. The following year, the entire state experienced severe impacts from Hurricane Irma, with the coast experiencing significant flooding from storm surge. It is important that the state and local communities not become complacent and that they diligently create disaster resiliency plans and incorporate long-term planning for natural disasters into both their state and local management processes. It is important that preparations be initiated to reduce our vulnerabilities to probable coastal-related natural disasters and potential changes from sea level rise. GEMA/HS, in conjunction with DCA and DNR, developed a plan to guide coastal communities in their redevelopment after a major natural disaster. The plan revised state policies on the post-disaster repair and rebuilding of homes, businesses, permitted piers,

docks, marinas, etc. This model plan is used as a guidance document to prepare post-disaster redevelopment plans for coastal and inland communities throughout the state. As of September 2017, three communities, Brantley, Chatham and Glynn Counties, have developed post-disaster recovery and redevelopment plans. Two of the primary benefits for local communities that accept and implement these plans is the possible reduction in insurance rates and the reduction in probable future loss of life and property. In addition, the State of Georgia is in the process of developing the Georgia Disaster Recovery and Redevelopment Plan (GaDRRP), which will guide the State in its efforts to assist local communities in their recovery and redevelopment processes in the aftermath of major incidents.

### **Regional Commissions**

A regional commission (RC) is a multicounty planning and development organization that partners with local governments in their planning and development efforts and can also serve as a service delivery organization. RCs often embody the local and regional layers of Georgia's "bottom-up" planning philosophy. RCs are owned and operated by the local governments that they serve. The RCs help counties plan and secure funding for development with projects such as construction, repair or upgrade of roads, repair or upgrade of bridges and water and sewer lines, and industrial park development as well as projects related to community services, education, and workforce development.

DCA contracts with the RCs to provide a variety of services mandated in the Georgia Planning Act. These services include assisting local governments with comprehensive planning, regional transportation plans, and specific plan implementation activities such as developing new zoning ordinances or putting a GIS system in place.

A comprehensive plan outlines a framework for the development of an area, recognizing the physical, economic, social, political, aesthetic, and related factors of a community. A comprehensive plan typically results from lengthy and intensive analysis, includes a long-range scope (usually 20 years or more), and provides the overall guiding principles for growth and development of a community.

Regional transportation plans (RTP) are integral parts of the Statewide Transportation Improvement Plan, Georgia's four-year transportation and capital improvements program. The RTP examines regional and county transportation needs over the next 20+ years and provides a framework to address anticipated growth through systems and policies. It contains both short- and long-term transportation strategies to improve mobility and investments to improve the region's transportation system.

A significant number of counties contracted with the RCs in the development of their multi-jurisdictional hazard mitigation plans. While there is no formal programmatic working relationship through which GEMA/HS has a direct agreement with the RCs, because many of Georgia's counties contract with RCs to develop and update their local mitigation plans, the GEMA/HS Mitigation staff continues to work closely with each of the state's 12 RCs on this planning effort.

In addition to assisting local communities with their local planning efforts, RCs also conduct regional planning initiatives to help guide local planning efforts and to encourage cooperation among counties where such cooperation would be beneficial to the region. The regional planning efforts include, but are not limited to, items such as economic development, natural and cultural resources, land use, and transportation. On cursory review, hazard mitigation is included, even if mostly indirectly, in regional planning efforts. As stated part of natural resources protection is maintaining a river or stream's capacity to handle increased water levels, which otherwise would result in flooded areas. Another part of natural resources protection is shielding these areas from incompatible development. In the case of rivers and streams, it includes protecting the banks and floodplains.

In addition, local governments are required to remain consistent with their RC's Regional Plan in order to maintain their Qualified Local Government status with the State of Georgia. Some regional plans include updating and adopting a hazard mitigation plan as part of the minimum requirements for a local government to remain consistent. This is consistent with the State Plan's strategy of maintaining approved status for all 159 counties and their municipalities.

The State will continue to work with DCA and the RCs to develop GIS capabilities that can provide communities with a better understanding of hazards that could affect economic development. The GEMA/HS Mitigation staff and the RCs will continue to work closely to keep the counties informed of mitigation initiatives in their region. GEMA/HS plans to keep a close working relationship with the RCs in developing local plan updates as they become due.

### **HAZUS-MH Training**

During 2012–2013, DCA was the recipient of a special competitive grant from HUD. The HUD Disaster Recovery Enhancement Fund was a one-time supplement to the Community Development Block Grant Program for states with Presidential Declared Disasters during 2008. DCA used part of its award to partner with FEMA, GEMA/HS, and the Georgia RCs to educate a cadre of Georgia planning and mitigation professionals in the use of FEMA's HAZUS-MH risk assessment software.

DCA, in partnership with the Polis Center at Indiana University–Purdue University Indianapolis and FEMA's Emergency Management Institute, provided a basic series of HAZUS-MH training courses to GEMA/HS Hazard Mitigation Planners, University of Georgia Internet Technology Outreach Service (ITOS), regional commission personnel, county planners, and others for learning how to use and benefit from this software program.

HAZUS-MH is a nationally applicable standardized methodology that contains models for estimating potential losses from earthquakes, floods, and hurricanes. Government planners, GIS specialists, and emergency managers use HAZUS-MH to determine possible future losses and the most beneficial mitigation approaches to take to minimize them.

HAZUS-MH has several benefits for state and local planners, including the following: updated 2010 demographics in the HAZUS inventory can be used to estimate losses; GEMA/HS Georgia Mitigation Information System (GMIS) Essential Facilities (fire, police, schools, hospitals) have been embedded into the HAZUS inventory; it includes custom tools to import Georgia parcel maps and WinGAP assessor data to create countywide building inventory maps and to update the general building stock maps used to estimate losses; custom tools and documented workflow can be used to produce multi-hazard risk assessments and reports; and it allows for better coordinated interagency, inter-governmental hazard mitigation planning partnerships.

They also developed a workflow to translate local government computer-aided mass appraisal (CAMA) information into a parcel-based building inventory map for HAZUS analysis, producing detailed exposure and loss estimates for the modeled disaster scenarios. Augusta–Richmond County was selected as one of the four pilot counties to develop procedures for running the model and incorporating the data into their Hazard Mitigation Plan. GEMA/HS then contracted with the Polis Center to develop translators for all other known CAMA systems in use throughout Georgia and to complete HAZUS analyses for each county starting their local Hazard Mitigation Update process in the FY 2014 planning cycle. Since that time, ITOS has become fully trained on the use of HAZUS-MH and is working to get more RCs trained. Therefore, since FY 2015, GEMA/HS has contracted with ITOS for all new HAZUS reports to be included in local plan updates. By November of 2017, the Polis Center and ITOS had completed HAZUS reports for 50 counties. It is GEMA/HS's goal to produce these reports in timely manner so this information can be included in each of the local Hazard Mitigation Plan updates. As part of this process, as mentioned earlier, some Regional Commissions were trained in the use of Hazus MH. Since ITOS began running the analyses, they

have sub-contracted with capable RCs for completion of the local Hazus analyses. As RCs' capabilities increase, ITOS has worked to train them on the program. One of GEMA/HS's goals is to eventually have all RCs trained in the use of Hazus MH.

### **Georgia Association of Floodplain Management**

The Georgia Association of Floodplain Management (GAFM) promotes advances in floodplain management. As a chapter of the national organization, the Association of State Floodplain Managers (ASFPM), opportunities exist to link to a nationwide network with similar aims. GAFM facilitates opportunities for the presence, thoughts, and actions of its members to affect and integrate within public policy the best known management practices expressing collective intent and experience. It thereby initiates within the general populace the recognition toward and resonance with sound floodplain, stormwater, wetlands, river corridor, and coastline management as an imperative duty of environmental stewardship, described by the actions, examples, and contributions of its members.

The GAFM provides educational opportunities, allowing dissemination of general and technical information, in order to keep its members abreast with the advancement of floodplain and stormwater management knowledge. GAFM encourages the exchange of information, ideas, and experiences among the practitioners and advocates of floodplain, stormwater, wetlands, river corridor, and coastline management.

Due to its role as the State Floodplain Coordinator, the Floodplain Management Unit of the Georgia Department of Natural Resources, Environmental Protection Division (DNR-EPD/FM) has a strong working relationship with GAFM and GEMA/HS. The State will continue to work with DNR-EPD/FM on the implementation of mitigation plans and projects. GEMA/HS staff has supported each of GAFM's annual and regional workshops to provide mitigation information to its members. GEMA/HS Mitigation staff will continue to coordinate with DNR-EPD/FM and GAFM to inform them of mitigation initiatives in their region.

### **Metropolitan North Georgia Water Planning District**

The Metropolitan North Georgia Water Planning District (District) was created by the Georgia General Assembly in 2001 (O.C.G.A. 12-5-570) and is currently composed of 15 counties, 95 cities, and 7 water authorities in the Metro Atlanta area. Per this legislation, the District developed three water management plans and five model ordinances, including the Model Floodplain Management/ Flood Damage Prevention Ordinance. Each year the District surveys the jurisdictions to report activities and achievements.

The purpose of the Flood Damage Prevention Ordinance is to protect, maintain, and enhance the public health, safety, environment, and general welfare and to minimize public and private losses due to flood conditions in flood hazard areas. Furthermore, the intent of the ordinance is to protect the beneficial uses of floodplain areas for water quality protection, stream bank and stream corridor protection, and wetlands preservation as well as ecological and environmental protection. The model ordinance mandates that local governments adhere to a 3-foot freeboard requirement that will significantly reduce future flood damages and flood insurance premiums on new and substantially improved structures.

All but two of the jurisdictions surveyed in 2014 have adopted the Model Floodplain Management/ Flood Damage Prevention Ordinance or equivalent regulations. This ordinance is intended to minimize future flooding impacts and integrate floodplain management with stormwater management during the land development process by promoting the No Adverse Impact approach. Eighty-seven



of these jurisdictions have incorporated the new floodplain management provisions into their local development review process.

As part of the adoption of the model floodplain ordinance, local jurisdictions are required to delineate the future-conditions hydrology 100-year floodplain within their jurisdictions. The ordinance also requires the local government to regulate floodplains on all streams with a drainage area of 100 acres or greater. Future-conditions flood studies are based on the best estimates of future land use conditions within a watershed. Local governments are responsible, at a minimum, for delineating future-conditions floodplains for all streams with a drainage area of 1 square mile or greater. Fifty-seven communities have responded by providing completed mapping of future-conditions floodplains within their jurisdictions, while another ten have partially completed mapping in their city or county. Three jurisdictions currently have an RFP or contract in place for the mapping of future-conditions floodplains, and/or they have completed some preliminary technical work.

### **6.1.3 Integration with Federal Programs and Planning Initiatives**

This section of the plan lists federal programs that GEMA/HS and the State of Georgia utilize, including regulations that provide local communities with guidance for state and regional agencies. The State integrates several FEMA programs to accomplish its mitigation goals. Table 6.3 summarizes the federal programs or planning initiatives and how GHMS is integrated into them.

**Table 6.3 GHMS Integration with Federal Programs and Initiatives**

FEDERAL PROGRAM OR PLANNING INITIATIVE	INTEGRATION INTO INITIATIVE
NFIP	Potential applicants must be good standing in NFIP to be eligible for any mitigation project funding.
CRS	Prioritization of mitigation funds for CRS communities. 55 communities have incorporated CRS principles and practices into their local mitigation strategies.
RISK MAP	Mitigation information incorporated into discovery and resilience workshops.
FMA	Projects must be identified in local mitigation plans. More than \$15.1 million for planning and projects designed to reduce or eliminate flood hazard caused damages throughout the State.
HMGP	Projects must be identified in local mitigation plans. More than \$146.7 million for planning and projects designed to reduce or eliminate hazard caused damages throughout the State.
PDM	Projects must be identified in local mitigation plans. More than \$41.4 million for planning and projects designed to reduce or eliminate hazard caused damages throughout the State.
EMPG	More than \$1.3 million in EMPG funds utilized to improve warning and communication and provide uninterrupted power for critical facilities throughout the State between 2013 and 2018.
HAZUS-MH	Workflow developed to incorporate available local parcel and tax data from all CAMA systems in use in Georgia. Level two data developed for 50 communities which will be utilized in local plan updates. Process developed to incorporate HAZUS level two data into local plan updates for all of Georgia's 159 counties.
EMAP	Integration of EMAP standards including hazard vulnerability and risk assessments, state and local mitigation plans, grant administration and public education and outreach.

FEDERAL PROGRAM OR PLANNING INITIATIVE	INTEGRATION INTO INITIATIVE
PA	Mitigation information provided to potential applicants at DRP and applicant briefing workshops. State staff supports Section 406 mitigation and State match assistance provided to implement Section 406 mitigation projects.
Silver Jackets	State lead team activities support GHMS and integration of mitigation into recovery actions.
NRCS	State match assistance provided to local sponsors to implement EWP projects for the restoration of impaired watersheds.
NWS	Support of Georgia Storm Ready Program and prioritization of warning grants for Storm Ready communities.
THIRA	Overall assessment of all threats to Georgia including natural hazards, technological hazards, terrorism, etc. Natural hazard information is based on information described in the State Hazard Mitigation Strategy.
National Dam Safety Program	Support EPD in Regulation of and identification of threats from potential failure of classified dams

## National Flood Insurance Program (NFIP)

The NFIP was established with the passage of the National Flood Insurance Act of 1968 to:

- Provide flood insurance through a cooperative public–private program with equitable sharing of costs between the public and private sectors as an alternative to disaster relief
- Distribute responsibility for floodplain management to all levels of government and the private sector
- Set a national standard for regulating development in the floodplain
- encourage state and local governments to use land-use adjustments to constrict development of land exposed to flood hazards and guide future development away from such locations;
- Begin a comprehensive mapping program

The State of Georgia, represented by the Georgia Department of Natural Resource, Environmental Protection Division (GADNR-EPD), entered into a Cooperating Technical Partner Agreement with FEMA's Region IV in August 1999. GADNR-EPD is therefore a cooperating technical partner (CTP) with FEMA in the administration of the NFIP. Since project eligibility requirements for mitigation grants depend on NFIP participation, GEMA/HS works closely with the GADNR-EPD floodplain management staff on NFIP issues. Flood insurance, floodplain management, and flood hazard mapping are the three main components of the NFIP. Federally backed flood insurance is available to homeowners, renters, and business owners in communities that voluntarily participate in the NFIP. Increasing participation in the NFIP and encouraging property owners to purchase flood insurance significantly reduces disaster losses.

There are 678 counties and cities in Georgia, 647 of which have mapped Special Flood Hazard Areas (SFHAs). 561 communities (87%) currently participate in the NFIP, including communities in all 159 counties. There are currently 86 communities with mapped Special Flood Hazard Areas (SFHAs) that are not yet participating in the NFIP. Through the NFIP, there are now

86,402 policies in place, \$22.5 billion total coverage, \$66.3 million total annual premium, 18,287 total # of claims since 1978 and \$349.4 million paid since 1978.

In exchange for NFIP participation, communities are required to adopt and enforce flood damage prevention ordinances to manage development within SFHAs. In this regard, model ordinances have been developed which many communities have adopted. These include:

- Coastal model flood ordinance (coastal communities only)
- Riverine model flood ordinance (noncoastal communities)
- Metropolitan North Georgia Water Planning District (for the 15 counties currently comprising the Water Planning District as established in 2001 by Senate Bill 130 and subsequently modified)

In an effort to increase the number of NFIP-participating communities, the State requires NFIP participation to be eligible for mitigation funding. Since the inception of the HMGP, several communities have joined the NFIP in order to get HMGP funds. The majority of these new NFIP entrants can be attributed to this requirement due to the popularity of the warning grants and other statewide mitigation initiatives. Communities that do not participate in the NFIP when a local flood hazard area has been identified through a flood insurance study face the following challenges:

- Flood insurance is not available. No resident is able to purchase a flood insurance policy.
- No federal grants or loans for buildings may be made in identified flood hazard areas. Includes all Federal agencies such as HUD, EPA, SBA, HHR, etc.
- No federal disaster assistance may be provided in identified flood hazard areas for permanent restorative construction and grants.
- No federal mortgage insurance may be provided in identifies flood hazard areas. This includes FHA, VA, FmHA, etc.
- For conventional loans in non-participating communities: Restrictions on conventional loans in non-participating communities require that lenders:
  - Must notify buyer or lessee that property is in a flood hazard area; and
  - Must notify buyer or lessee that property is in the flood hazard area is not eligible for federal disaster relief in a declared disaster.
- The Flood Insurance Rate Map and appropriate actuarial rates go into effect regardless of whether or not a community participates in the program. Lacking a local ordinance, unsafe construction today may result in prohibitively expensive insurance rates tomorrow.

- Local governing body may be susceptible to liability by not participating because their action:
  - Denies the ability of its citizens to purchase flood insurance and;
  - Does not take positive steps to reduce the exposure of life and property in the face of authoritative scientific and technical data.

### **Community Rating System (CRS)**

The NFIP also has a voluntary incentive program known as the Community Rating System (CRS). The CRS program encourages community floodplain management activities that exceed the minimum NFIP requirements and in exchange, insurance premium discounts are offered to residents and businesses in the community. Discounts are tiered based on the CRS classification awarded to the community, and can range from 5% to 45%. Additional information about the CRS is located in Chapter 3, Section 3.4.2. In partnership with GADNR-EPD and Silver Jackets team members, GEMA/HS Mitigation staff promotes the CRS program at mitigation workshops. In an effort to increase the number of CRS participating communities and improve classification, the State incorporates CRS information into the overall ranking of mitigation projects. In August, 2014, Hazard Mitigation staff supported a CRS conference at Armstrong State University (now Georgia Southern University-Armstrong Campus), hosted by the Carl Vinson Institute of Government at the University of Georgia. As of September 2017, there are 55 Participating in the CRS, of which 15 are coastal communities.

### **Georgia CRS User's Group Activity**

The Georgia coastal communities continue to actively participate in a Coastal CRS User's Group consisting of Bryan, Camden, Chatham, Glynn, Effingham, and McIntosh counties. Representatives from local jurisdictions in Bloomingdale, Darien, Garden City, Jekyll Island, Pooler, Richmond Hill, Rincon, Savannah, St. Mary's, Thunderbolt and Tybee Island are also members of the group. The group meets every two (2) months and efforts are currently underway to encourage other coastal communities between Florida and South Carolina to join, including communities in Brantley, Liberty, Long, and Wayne counties.

Several training opportunities are offered by the group such as Elevation Certification Training, How to prepare for your CRS Cycle Visit, and, in conjunction with GADNR-EPD, Managing Floodplain Development through the NFIP. The group was also instrumental in the development of Chatham Emergency Management Agency's (CEMA) All Hazard Plan and provided support in the development of the Elevation Certificate Reference Guide. Future goals of the group include hosting the NFIP/CRS Training (known as L278) and encouraging unified coastal Georgia construction practices.

GADNR-EPD, along with Silver Jackets team members, is currently looking at ways to promote CRS User Groups through the State. It has been reported that through knowledge gained at these meetings, communities such as Camden County have improved their CRS rating a full class just by better understanding the ways they can improve their local program.

### **Georgia Flood Mapping, Assessing, and Planning (MAP) Program**

Prior to 2009, FEMA had embarked on a multi-year effort Map Modernization (a.k.a. Map Mod) to update and transform flood maps into more reliable, easy-to-use, and readily available digital

products. Map Mod enabled communities and citizens across the country to more efficiently obtain flood hazard data, learn about their flood risk, and make informed decisions about development, floodplain management, and mitigation projects

**Figure 6.1 RiskMap Diagram**



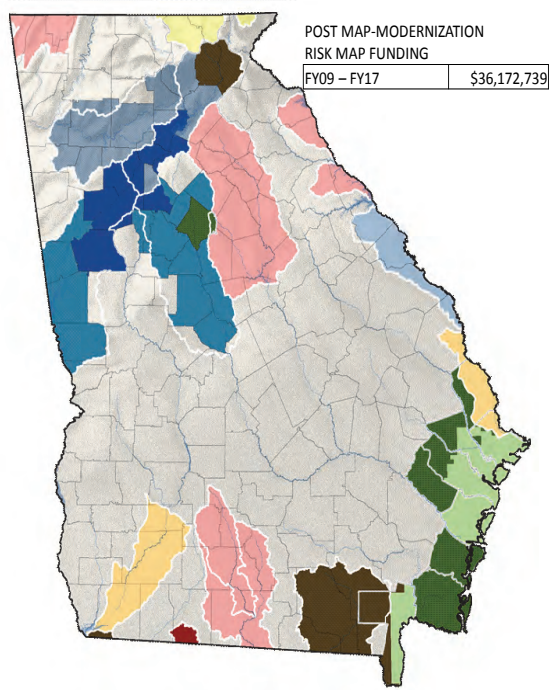
Building upon the goals and commitments of FEMA's Map Mod, FEMA implemented the Risk Mapping Assessment and Planning Process, known as Risk MAP. Risk MAP will produce products and services based on accurate and reliable data delivered through an integrated and collaborative approach. Risk MAP will provide communities, and ultimately individuals, with the information and tools they need to identify, assess, and take action to reduce flood risks.

Since 2009, GADNR-EPD has received about 36.2 Million Dollars in grant funding from FEMA for Risk MAP projects. All of the counties in Georgia benefitted from the Map Modernization effort and, since the Risk Map Process was initiated in 2009, GADNR-EPD has projects either completed or ongoing in 20 of the 48 HUC-8 watersheds in Georgia, including Metropolitan Atlanta and Coastal communities. Figure 6.2 following summarizes GADNR-EPD's Risk MAP activities.

**FIGURE 6.2 Georgia RiskMap Program Projects**

## Georgia Risk MAP Program Projects

GEORGIA RISK MAP ACTIVITIES		
Completed Project Areas	FY09	Atlanta Metro - Chattahoochee River: Effective 2013
	FY10	Georgia Coastal: Effective 2014 (Riverine) & 2017
	FY11	Upper Ocmulgee North: Effective 2016/2017
		Upper Ocmulgee South: Effective 2017
		Middle Chattahoochee-Lake Harding: Effective 2017
	FY12	Apalachicola: Discovery Upper Suwanee: Discovery
In-Progress Project Areas	FY13	Apalachee Bay-St. Marks: Discovery
	FY10	Georgia Coastal: Effective 2017/2018
	FY12	Upper Chattahoochee: Effective 2018 Etowah: Effective 2018
	FY14	Middle Savannah: Preliminary 2017
	FY15	Upper Savannah: Preliminary 2018 Upper Oconee: Early Study Phase Withlacoochee/Little: Early Study Phase
	FY16	Lower Savannah: Early Study Phase Lower Flint: Discovery
	FY17	Hiwassee: Discovery Upper Little Tennessee: Discovery



A Risk MAP project can take up to 5 years to complete and involves the following:

- Acquisition of Topographic Data: Topographic information is the foundation for watershed modeling and flood hazard analysis. The State currently utilizes the latest digital topographic information, known as Light Detection and Ranging (LiDAR) Data, to support the identification of flood risks. LiDAR data is capable of delivering 1-foot equivalent contour accuracy for ground conditions in study areas. Through partnerships with NOAA, USGS, NRCS and the State's Geospatial Information Office, State LiDAR coverage is about 70% with full coverage anticipated in the next 3 years or so.
- Discovery: The objectives of Discovery are to engage watershed stakeholders, understand the needs of the communities in a watershed, introduce or enhance flood risk discussions, and balance FEMA's resources with a plan for a possible Risk Mapping Assessment & Planning (MAP) project.
- Multi-agency Project Kick-off Meetings
- Perform Field Survey along stream channels and at hydraulic structures for detailed studies
- Develop Topography from LiDAR data
- Hydrologic modeling to estimate the amount of rainfall and peak discharges from different storm events, such as the 1% annual chance flood (commonly referred to as the 100-year flood).
- Hydraulic modeling to determine where flood waters will flow using computed peak flow values resulting from hydrologic modeling
- Delineate floodplain boundaries (flood hazard areas) against the topographic data
- Develop Flood Risk Products such as Changes Since Last FIRM, Depth Grids and Areas of Mitigation Interest
- Flood Risk Communication & Outreach in the form of Flood Risk Reviews or Draft Map meetings where local officials have an opportunity to review draft products and provide feedback.
- Develop DFIRM Database based on community feedback
- Develop DFIRM Maps & Reports and issue Preliminary Maps
- Public Risk Communication & Outreach where Preliminary Maps are presented to community officials and open houses held for the public. At open houses, members of the public are able to determine their flood risk and can discuss their circumstances with State, FEMA and local officials.
- Formal 90-day Appeal Period
- Issue of Letters of Final Determination after resolution of appeals and completion of a thorough quality review process
- Resilience meetings: To focus use of flood risk products to inform hazard mitigation and planning
- Local communities ensure that their flood damage prevention ordinances are compliant
- Maps become effective 6 months after Letters of Final Determination

Georgia communities and citizens will benefit in a number of ways:

- The updated study data will provide more accurate information for Georgia communities to help with design decisions when rebuilding after flood disasters, when building new

structures and infrastructure, and when retrofitting existing structures.

- DFIRMs will more accurately depict flood risk information.
- Users will be able to make more precise flood risk determinations.
- Builders and developers can use the updated map data to determine where and how to build structures more safely and how high to build to reduce the risk of flood damage.
- Real estate agents will be better able to inform clients of the risk factors that could affect the property they are buying or selling as well as any flood insurance requirements.
- Insurance agents will know their clients' current flood risk and can provide more informed recommendations regarding flood insurance coverage options.
- Residents and business owners will understand their current flood risk and be able to make better decisions about insuring and protecting their property against floods.
- Community officials will be able to develop a more comprehensive approach to disaster mitigation planning, economic development, and emergency response, resulting in a safer Georgia in which to live and work.
- The flood risk products will provide substantially more information and more details to communities to enable them to identify mitigation activities and to use in local plan updates. These products can further identify where flooding might take place within a community. Identifying the additional locations could help prioritize potential mitigation actions within the community. These products include changes since the last DFIRM such as depth and probability grids, HAZUS-MH loss estimates, and areas of mitigation interest.

### **Community Assistance Program**

GADNR-EPD also provides community outreach and assistance through a structured Community Assistance Program State Support Services Element (CAP SSSE) funded by FEMA. Among the activities supported by the CAP SSSE Program are:

- Community Assistance Visits and Contacts
- Assistance with reviewing local flood ordinances to verify with NFIP requirements and adoption prior to effective date of Flood Insurance Rate Maps (FIRMs).
- Promote participation in the NFIP and CRS.
- Continue to build local capability, increase knowledge of the NFIP and understanding of floodplain management among local officials and stakeholders through workshops and training.
- Provides General Technical Assistance to communities, individuals and State agencies (i.e., Department of Transportation, Department of Education and Board of Regents).
- Upon issuance of Preliminary Digital Flood Insurance Rate Maps (DFIRMs) to a community, participate in Preliminary DFIRM Community Coordination (PDCC) meetings and Flood Risk Information Open Houses as well as provide guidance to local officials regarding ordinance update/adoption.
- Provide post-disaster assistance and support to NFIP communities including technical assistance and training to implement and enforce Substantial Damage requirements

### **Other Floodplain Management Information**

The Floodplain unit also maintains a website, [www.georgiadfirm.com](http://www.georgiadfirm.com) that provides technical and outreach information for community officials and the public, including a "look up" tool that



allows the public to enter their address and determine their flood risk. The website also offers a host of outreach material for the community material, including:

- Acronym and Abbreviation Table
- Risk MAP Process Overviews
- Floodplain Management Quick Guide
- Georgia DNR Outreach Planning Guidebook
  - Fact Sheets
  - Public Talking Points
  - Press Release Templates
  - Sample Property Owner Letters
  - Mapping Project Brochure Template
  - Example Mapping Web Page
  - Sample notification letters
  - Informational brochures/fact sheets
  - Phased suggested outreach schedule
- Greenspace and Flood Protection Guidebook
- Flood Response Toolkit
- Media Packets
- Newsletters to help keep stakeholders informed
- Model Ordinances
- Community Contact Database
- Risk MAP Project Status
- Educational Videos
  - An Outreach Guide for Community Officials
  - A Georgia Property Owner's Guide to Assessing Flood Risks

GEMA/HS worked closely with state floodplain management staff to advance the Map Modernization and continues to actively participate in Risk MAP initiatives. Mitigation staff supports GADNR-EPD's community and public outreach interventions, with particular emphasis on discovery and resilience meetings. Improved flood maps and flood risk products will lead to a much more refined risk assessment in the ongoing efforts to reduce Georgia's flood vulnerability. GEMA/HS has been working with some of the communities in the Risk MAP study areas to utilize the flood risk products to select future flood mitigation projects.

### **Flood Mitigation Assistance (FMA)**

FEMA provides FMA funds to help states and communities implement measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the NFIP. Georgia has utilized planning, project, and technical assistance grants through the FMA program. As noted in Section 6.5, FMA funds are used to develop flood mitigation plans and implement projects that reduce or eliminate claims against the NFIP, primarily through property acquisition. Since the HMA13 application cycle, the State has focused our efforts on FMA application development for the mitigation of Severe Repetitive Loss and Repetitive Loss properties, primarily through property acquisition.

## **Hazard Mitigation Grant Program (HMGP)**

The HMGP provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The HMGP is designed to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. The HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

The Disaster Mitigation Act of 2000 (DMA2K) placed a much greater emphasis on risk-based data-driven mitigation plans. Georgia used primarily Pre-Disaster Mitigation Program (PDM) funds to meet the initial development of state and local mitigation planning requirements of DMA2K. For the initial plan development, 20 of the state's 159 counties received HMGP planning assistance, with the remainder receiving assistance through the PDM program. Through the Enhanced Plan, the State has received a 33% increase in mitigation funds in the aftermath of the following disasters: DR1833, DR1858, DR1973, DR4165, DR4215, DR4259, DR4284, DR4294, DR4297, and DR4338. This has made additional funds available to meet the plan update funding needs in Georgia. HMGP grants are a major component of funding Georgia will use to not only update plans but also to implement state and local projects identified in these plans. With the increase in HMGP funds due to the 13 Presidential Disaster Declarations since 2007, many local plan updates have been funded through the HMGP 7% allocation. HMGP funds have been used to fund the completion of the first local plan update cycle and the third and fourth State Mitigation Plan updates. Since the completion of the 2014 GHMS, the State has funded 24, or approximately 1/5<sup>th</sup> of all local mitigation plan updates using HMGP funding. Going forward, the State is applying for all local plan updates for the FY 17 and 18 cycles using HMGP funding from DRs 4284 and 4294.

## **Pre-Disaster Mitigation Program (PDM)**

The PDM program provides funds to states, territories, Indian tribal governments, and communities for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event. Funding these plans and projects reduces overall risks to the population and structures while also reducing reliance on funding from actual disaster declarations. PDM grants are awarded on a competitive basis, without reference to state allocations, quotas, or other formula-based allocations of funds.

The 44CFR Part 201, Hazard Mitigation Planning, established criteria for state and local hazard mitigation planning authorized by Section 322 of the Stafford Act, as amended by Section 104 of the Disaster Mitigation Act of 2000. State and local mitigation plans meeting these criteria must be approved in order to receive PDM funds for state and local mitigation projects. Therefore, the development and update of state and local mitigation plans is essential to maintain eligibility for future PDM funding.

The State has utilized the PDM program to fund the initial development of multi-jurisdictional planning grants for 136 counties and plan updates in 108 counties. The State has utilized PDM funds through the FY13, FY14, FY15, and FY16 application cycles to fund the majority of second local plan updates. Section 6.5 includes further discussion on the use of the PDM program since its inception in 2002. The GEMA/HS Mitigation staff works closely with local governments to develop and submit projects and plans for funding consideration. Mitigation staff has also served on the national review panel, and GEMA/HS will continue to support the development of plans and projects for future PDM funding.

## **HAZUS-MH**

HAZUS-MH is a nationally applicable standardized methodology and software program that contains models for estimating potential losses from earthquakes, floods, and hurricane winds. HAZUS-MH was developed by FEMA under contract with the National Institute of Building Sciences. Loss estimates produced by HAZUS-MH are based on current scientific and engineering knowledge of the effects of hurricane winds, floods, and earthquakes. Estimating losses is essential to decision-making at all levels of government, providing a basis for developing mitigation plans and policies, emergency preparedness, and response and recovery planning.

HAZUS-MH uses ArcGIS software to map and display hazard data and the results of damage and economic loss estimates for buildings and infrastructure. It also allows users to estimate the impacts of hurricane winds, floods, and earthquakes on built environments and populations. HAZUS-MH is fast-running to facilitate use in real time to support response and recovery following a natural disaster.

HAZUS User Groups (HUGs) have been in existence since 1997. These public-private partnerships between public, private, and academic organizations use HAZUS-MH software and technology to build enhanced disaster-resistant communities and save lives, time, and dollars. Georgia has its own chapter, which is very active.

In addition, as described in Section 6.1.2, DCA, with support from GEMA/HS, conducted HAZUS-MH training in three locations throughout the state for local communities and interested regional commissions. This training allows more local communities to use the program in their planning efforts. Since 2014, the State has used FEMA mitigation funds to provide HAZUS Level 2 analyses for each county as they have updated their local hazard mitigation plans.

## **Emergency Management Performance Grants (EMPG)**

Concerning the Enhanced Plan element of plan integration, one example of demonstrated integration with FEMA programs and initiatives is how the Enhanced Plan guides activities funded by EMPG.

One activity funded through the EMPG was the Emergency Management Accreditation Program (EMAP) certification. EMAP is a standard-based voluntary assessment and accreditation process for state and local government programs responsible for coordinating prevention, mitigation, preparedness, response, and recovery activities for natural and human-caused disasters. Accreditation is based on compliance with collaboratively developed national standards, the EMAP Standard. (The EMAP Standard is based on the National Fire Protection Association 1600 Standard on Disaster/Emergency Management and Business Continuity Programs, 2004).

Georgia went through EMAP reaccreditation in March 2013. Georgia received full reaccreditation on the 64 standards in May 2013. The Georgia programs continue to meet national standards for disaster preparedness and response. The Georgia Mitigation Information System was noted as a best practice in our exit interview. As of August 2018, Georgia is currently undergoing reassessment with the goal of maintaining EMAP accreditation for the next 5 years.

Starting in fiscal year 2008, GEMA/HS established criteria for local emergency management agencies to be eligible for additional funds above the baseline EMPG allocation. These response and recovery project competitive award criteria demonstrate Enhanced Plan integration. In order to be eligible for these enhancement grants, local governments must have an approved local hazard

mitigation plan or be in the process of updating their plan to meet the five-year recertification. In addition, the local government must be in good standing in the NFIP. Since the time of the last update, an additional \$2.8 million has been awarded to 103 local governments for warning and communication enhancements. As a result of this initiative, almost \$4.3 million has been awarded to 162 local governments to implement projects to improve warning and communication.

### **Public Assistance Program**

The objective of FEMA's Public Assistance (PA) Grant Program is to provide assistance to state, tribal, and local governments as well as certain types of private nonprofit organizations so that communities can quickly respond to and recover from major disasters or emergencies declared by the President. Through the PA program, FEMA provides federal disaster grant assistance for debris removal, emergency protective measures, and the repair, replacement, or restoration of disaster-damaged, publicly owned facilities and the facilities of certain private nonprofit organizations. The PA program also encourages protection of these damaged facilities from future events by providing assistance for hazard mitigation measures during the recovery process, which is commonly referred to as Section 406 mitigation.

Local governments are encouraged to pursue Section 406 mitigation. A significant amount of emphasis was placed on public assistance mitigation for each project worksheet written for DR4259 flood disaster. Public Assistance Mitigation Profile reports for DRs 4165, 4215, 4259, 4284, 4294, and 4297, which were pulled from FEMA's EMMI System and FEMA PA Portal, can be viewed in Appendix H. These reports show a significant amount of Section 406 mitigation completed for DRs 4259, 4284, 4294 and 4297.

### **Silver Jackets**

Effective and continuous collaboration between state and federal agencies is critical to successfully reducing the risk of flooding and other natural disasters in the United States and enhancing response and recovery efforts when such events do occur. No single agency has all the answers, but often multiple programs can be leveraged to provide a cohesive solution. The Silver Jackets is an innovative program that provides an opportunity to consistently bring together multiple federal, state, and sometimes local agencies to learn from one another and apply that knowledge to reduce risk.

The Silver Jackets program provides a formal and consistent strategy for an interagency approach to planning and implementing measures to reduce the risks associated with flooding and other natural hazards.

The program is a partnership of the U.S. Army Corps of Engineers (USACE), FEMA, and other federal and state agencies. Silver Jackets programs are developed at the state level with support from USACE, FEMA, and other federal agencies. The program's primary goals are to

- Create or supplement a mechanism to collaboratively address risk management issues, prioritize those issues, and implement solutions;
- Increase and improve risk communication through a unified interagency effort;
- Leverage information and resources, including providing access to such national programs as FEMA's Map Modernization program and RiskMAP programs and USACE's Levee Inventory and Assessment Initiative;
- Provide focused, coordinated hazard mitigation assistance in implementing high-priority actions such as those identified by state mitigation plans; and

- Identify gaps among the various agency programs and/or barriers to implementation, such as conflicting agency policies or authorities, and provide recommendations for addressing these issues.

The program has several desired outcomes.

- Reduced flood risk
- Agencies better understand and leverage each other's programs
- Collaboration between various agencies, coordinated programs, cohesive solutions
- Multi-agency technical resource for state and local agencies
- Mechanism for establishing relationships to facilitate integrated solutions post-disaster

Georgia developed a Silver Jackets team with a signed charter in 2010. The team meets quarterly or as needed to address flood risk reduction strategies. Appendix H contains a copy of the charter along with GEMA/HS's adoption.

Team activities over the past five years have resulted in the development of additional Flood Inundation Maps (FIM) libraries similar to what was completed in Albany, Georgia. FIMs have been completed and are on NWS's Advanced Hydrologic Prediction Service website for Suwanee Creek near Suwanee, Sweetwater Creek near Austell, the Chattahoochee River at Vinings, and Ocmulgee River at Macon. A proposal is pending for the Flint River at Bainbridge FFIM product. Additional FIM's have been completed and are available on the USGS Flood Inundation Mapper website for the Withlacoochee River at Skipper Bridge Road near Bemiss (Valdosta), Big Creek near Alpharetta, South Fork Peachtree Creek at Casa Drive near Clarkston, and Peachtree Creek at Atlanta.

Two FIM libraries are currently in development by USGS at Yellow River near Snellville, and Yellow River at GA 124, near Lithonia. Two FIM libraries are nearing completion by USACE at Chattahoochee at Helen and Etowah River near Canton.

The FIMs assist federal, state, and local officials as well as property owners by enabling them to take action long before a flood actually occurs, which saves lives and reduces property damages. This online tool helps identify where the potential threat of floodwaters is greatest, enabling federal, state, and local officials to better plan for flood response and resource recovery and to assess evacuation routes at various flood levels before the rain falls.

Pilot funds were awarded to assist Augusta–Richmond County with the identification of flood risks for the Hyde Park area. That project resulted in a new FEMA FIRM.

### **Emergency Watershed Protection (EWP)**

Funding has been committed on each Presidential Declared Disaster to provide or assist with the non-federal match for locally sponsored projects under this program. Since 1994, almost \$25 million has been approved on Emergency Watershed Protection (EWP) measures, and the State has provided \$5.7 million as a match for this program. Since the last plan update, all work has been completed on NRCS-EWP projects for DR1973. GEMA/HS and the NRCS continue to promote the EWP at HMGP applicant workshops and Disaster Recovery Program workshops. All work has been completed on -for DR1973.

### **National Weather Service (NWS)**

GEMA/HS has continued its partnership with NWS on the StormReady program. This NWS program recognizes counties that have reached a high level of severe weather preparedness. StormReady counties have increased by 15 since the completion of the 2014 GHMS, presently reaching 94 total counties. Also, one county is a designated TsunamiReady county. In addition, GEMA/HS supports the Atlanta Integrated Warning Team. This team is made up of staff from the National Weather Service, emergency management, the media, the private sector and social scientists to look for ways to improve the warning system and reduce weather-related fatalities and injuries.

### **Threat and Hazard Identification and Risk Assessment**

GEMA/HS prepares a Threat and Hazard Identification and Risk Assessment (THIRA), which identifies the top five natural and human-caused hazards to impact the state. The THIRA assesses one natural and four human caused hazards. The assessment is based on the potential physical impact of an event on the population, economy, infrastructure and development, as well as the impact on State operations for response, recovery and mitigation, as well as continued day-to-day responsibilities. Information on natural hazards is based on hazard profile information provided by the State Hazard Mitigation Strategy.

### **National Dam Safety Program**

Georgia's Department of Natural Resources Environmental Protection Division manages the Georgia Safe Dams program. The program regulates dams meeting a certain size, capacity and threat to downstream population. The program studies inundation zones for dam failures and, when it determines failure of a dam would potentially cause loss of life if it fails, that dam is classified as a high hazard dam, which carries stricter regulations.

## **6.2 PROJECT IMPLEMENTATION CAPABILITY**

44 CFR 201.5(b)(2) (i) and (ii) states that the Enhanced Plan must document the State's project implementation capability, identifying and demonstrating the ability to implement the plan, including:

- Established eligibility criteria for multi-hazard mitigation measures, and
- A system to determine the cost-effectiveness of mitigation measures, consistent with OMB Circular A-94, Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs, and
- [A system] to rank the measures according to the State's eligibility criteria.

GEMA/HS's Hazard Mitigation Division staff has overall responsibility for implementation of the Hazard Mitigation Assistance programs. These programs include the HMGP, FMA, and PDM programs. The Biggert-Waters Flood Insurance Reform Act of 2012 incorporated elements of the Repetitive Flood Claims and Severe Repetitive Loss programs into the FMA program, so the implementation of these two programs have been incorporated into the FMA program. State criteria have been developed for determining eligibility for all types of proposed multi-hazard mitigation measures for these programs.

The State utilizes the procedures outlined in the HMGP Administrative Plan for the administration of all of the programs mentioned above. The State submitted its last update to the HMGP Administrative Plan in October 2017 for the DR4338 disaster. The HMGP Administrative Plan was approved by FEMA in October 2017. See Appendix H for the HMGP Administrative Plan.

### **6.2.1 ELIGIBILITY CRITERIA**

Applications that are received by the Hazard Mitigation Division for funding consideration through the HMGP, FMA, and PDM programs are reviewed for the following eligibility criteria:

- Conforms to the goals and actions of the State Hazard Mitigation Plan,
- Meets applicant eligibility requirements,
- Meets project type requirements which include but are not limited to:
  - Voluntary acquisition or relocation of hazard-prone structures for conversion to open space in perpetuity;
  - Retrofitting of existing buildings and facilities for wildfire, seismic, wind, or flood hazards (i.e., elevation, storm shutters, hurricane clips), including designs and feasibility studies when included as part of the proposed project;
  - Construction of "safe rooms"(i.e., tornado and severe wind shelters) that meet the FEMA construction criteria in FEMA 320 "Taking Shelter from the Storm" and FEMA 361 "Design and Construction Guidance for Community Shelters";
  - Minor structural hazard control or protection projects that may include vegetation management, stormwater management (e.g., culverts, floodgates, retention basins), or shoreline/landslide stabilization;
  - Localized flood control projects that are designed specifically to protect critical facilities (defined as hazardous materials facilities, emergency operation centers, power facilities, water facilities, sewer and wastewater treatment facilities, communications facilities, emergency medical care facilities, fire protection, and emergency facilities) and that do not constitute a



- section of a larger flood control system;
  - Development of State or local plans that meet DMA2K requirements; and
  - Projects that improve the warning and communication capabilities of local governments for severe weather or emergency events (HMGP Only).
  - Generators for critical facilities
  - Advance Assistance;
  - Technical Assistance;
  - Other community flood mitigation; and
  - Other all-hazard resilient infrastructure projects that may include floodplain and stream restoration, and aquifer storage and recovery.
- Has a beneficial impact upon the project area,
- Conforms to 44 CFR Part 9, Floodplain Management and Protection of Wetlands and 44 CFR Part 10, Environmental Considerations,
- Solves a problem independently or constitute a functional portion of a solution where there is assurance that the project as a whole will be completed (Projects that merely identify or analyze hazards or problems without a funded, scheduled implementation program are not eligible.),
- Addresses a repetitive problem or one that poses a significant risk if left unsolved,
- Is cost-effective: demonstrates that the project will not cost more than the anticipated value of the reduction in both direct damages (property) and subsequent negative impacts (loss of function, deaths, injuries) to the area if future disasters were to occur. Both costs and benefits will be computed on a net present value basis (i.e., expected damage estimates as a function of hazard intensity),
- Has been determined to be the most practical, effective, and environmentally sound alternative after consideration of a range of options, including the “no action” alternative,
- Contributes, to the extent practicable, to a long-term solution to the problem it is intended to address,
- Considers long-term changes to the areas and entities it protects, and has manageable future maintenance and modification requirements, and
- Has a federally approved hazard mitigation plan.

In addition, GEMA/HS considers the following criteria in evaluating proposed mitigation projects:

- Conformance with the goals and objectives of the Local Hazard Mitigation Plan. For each of the HMA programs, projects must be listed in the plan;
- Mitigation activities that if not taken will have a severe detrimental impact on the community such as the loss of life, loss of essential services, damage to critical facilities, or economic hardship;
- Mitigation activities that have the greatest potential for reducing future disaster losses;
- Mitigation activities that are designed to accomplish multiple objectives, including damage reduction, environmental enhancement, historical preservation, recreational opportunities, and economic recovery;
- The community’s level of interest and demonstrated degree of commitment to mitigation programs and activities;
- Community participation in and compliance with the National Flood Insurance Program (NFIP) (exception for planning grants); GEMA/HS coordinates with the Georgia Department

of Natural Resources in determining a community's compliance with the NFIP.

- The proposed project does not encourage development in a Special Flood Hazard Area;
- The applicant has the ability to provide for the non-federal cost share; and
- The applicant and/or local government that is receiving the mitigation benefit must be in good standing in the NFIP (exception for planning grants).

The eligibility requirements were reviewed and updated to account for additional project types deemed eligible per the 2015 HMA guidance.

## **6.2.2 COST-EFFECTIVENESS DETERMINATION**

As stated in the above criteria, projects have to be cost-effective. Only projects with a benefit-cost ratio of at least 1-to-1 are forwarded to FEMA for funding consideration. The State utilizes a system to determine the cost-effectiveness of all mitigation measures consistent with OMB Circular A-94 for each project application submitted to FEMA for funding with the exception of Planning, TA/Management, and Initiative projects. Prior to mitigation grant applications being scored for competitive ranking, the GEMA/HS Hazard Mitigation staff works closely with each applicant to get sufficient documentation to determine if the proposed applications are cost-effective. Only projects with a benefit-cost ratio exceeding 1.0 are ranked for further funding consideration. Each analysis conducted by GEMA/HS staff utilizes the most recent benefit-cost analysis (BCA) tools (current version is BCA Version 5.3.0) approved and provided by FEMA. State Mitigation staff work very closely with the sub-applicants on proposed grants to ensure they meet the minimum benefit-cost requirements.

Although the State Mitigation staff completes the benefit-cost analysis, GEMA/HS depends on information in the application provided by the community. To help communities develop mitigation projects that are as cost-effective as possible and that have a benefit of one dollar for each dollar of cost, the Mitigation staff developed pre-application and application worksheets for each type of project that are used for all of the mitigation programs. The information requested on the worksheets provides staff with the data necessary for an accurate and complete benefit-cost analysis. Sub-applicants submit the worksheets (pre-applications) for benefit-cost review before completing the full application. The worksheets are updated annually and utilized with every HMA application process.

The State has extensive experience in utilizing the FEMA-developed benefit-cost modules. Since October 1, 1995, the State has utilized FEMA-developed software to complete benefit-cost (BC) reviews for each mitigation project submitted for federal funding. Due to the high number of flood mitigation projects, the State has the most experience in using the FEMA flood BC models (both Full Data and Limited Data).

Table 6.4 provides information on the total number of approved HMA projects that had a BCA submitted with the application. The table also shows the approved projects that had a BCA submitted with the application during this plan update cycle. The table does not show the other 573 approved HMA projects that are exempt from BC review. The exempt projects consist of planning, management cost, advanced assistance, acquisition of substantially damaged properties, and initiative projects.

GEMA/HS's track record for submitting eligible projects for mitigation funding is exceptional, as the overwhelming majority of projects submitted for funding consideration have received FEMA approval.

As part of populating the mitigated properties database, the State Mitigation staff has completed reviewing the BC information on all closed projects to ensure that we have an updated BC analysis for all mitigated properties. This information is critical in documenting future successes of GEMA/HS's completed mitigation activities.

Based on GEMA/HS's review of all approved HMGP mitigation projects that had a property acquisition or elevation component, the State has completed an analysis using either the Full Data or Limited Data FEMA-approved modules on more than 1,874 properties. This number only includes approved grants and not the hundreds of analyses completed on proposed grants that did not meet the minimum benefit-cost requirements, as these data were not tracked in any of GEMA/HS's historical databases. The State does not submit projects to FEMA for funding consideration if minimum federal project criteria are not met.

**Table 6.4 HMA Projects with BCA**

Project Type	Approved Projects with BCAs	Approved Projects with BCAs Since Last Plan Update
Acquisition w/ (Demolition or Relocation)	122	6
Acquisition and Elevation	3	0
Acquisition and Drainage Improvements	2	0
Elevation	7	0
Retrofit (Wind, Flood, Lightning)	15	0
Drainage Improvement	58	0
Safe Room	10	0
Generator Projects	12	12
<b>Totals</b>	<b>229</b>	<b>18</b>

Approved projects since last update (October 1, 2013 – September 30, 2017)

Based on the review of all approved HMGP mitigation projects that had a wind retrofit or building retrofit component, the State has completed an analysis using either the Hurricane or Tornado FEMA-approved BC modules on 46 properties.

Based on the review all approved HMGP generator projects, the state completed an analysis using the FEMA-approved BC module for 134 sites.

The approval rate of projects submitted in the Pre-Disaster Mitigation—Competitive (PDM-C) program since its inception in 2003 is directly related to the technical accuracy, supporting documentation completeness, and credibility of the data in demonstrating that the projects submitted for funding are cost-effective. FEMA headquarters staff recognized the State's efforts in this area by requesting Georgia share their experience with the rest of the states at the National Hazard Mitigation Assistance (HMA) summit in 2008.

All GEMA/HS Risk Reduction Hazard Mitigation Division staff members receive benefit-cost training from FEMA Region IV or at EMI to fully understand how to utilize the FEMA benefit-cost modules for completing the BCAs. Each new employee, as part of his or her training, is required to attend the next available FEMA-offered BC training courses.

The State has implemented hazard mitigation eligibility criteria reviews in 28 Presidential Declared Disasters on 666 projects since 1990. In addition, similar types of reviews are done for the FMA and PDM-C programs. The projects submitted have been diverse in nature and include drainage improvements, acquisition, elevation, wind retrofit, tornado safe room construction, planning, generators for critical facilities, and many warning initiative projects.

The State's system for determining cost-effectiveness for Hazard Mitigation Assistance grants has been reviewed. The State continues to use the most recent FEMA BCA tools in determining cost-effectiveness for mitigation grants, and the process is updated to incorporate these tools.

### 6.2.3 SYSTEM TO RANK PROJECTS

GEMA/HS Hazard Mitigation Division staff review all proposed mitigation pre-applications and applications to ensure that the proposed projects are eligible and meet minimum criteria as outlined above. GEMA/HS reviews, ranks, and scores proposed projects. The state review criteria include a scoring sheet to determine potential for funding and overall priority within the application process. There are three basic types of projects: Regular Program Projects, Initiative Projects and Planning Projects. Except for planning projects, each has its own score sheet. The main categories utilized in ranking the Regular Program project submissions are natural hazard, history of damages, type of mitigation, potential impact on community, estimated environmental impact, community commitment to mitigation, and benefits. The ranking categories in the Initiative Project score sheet include history of tornado hazard in county, potential benefit to community, cost-effectiveness, and intangible factors.

Each category on the two score sheets is given a maximum range of points. Point amounts were developed over several years by the Hazard Mitigation staff and are based primarily upon HMGP guidelines. Maximum point possibilities per category range from 5 to 25 points and are listed below. The maximum amount of points any one project can accumulate is 100. The Regular Program score sheet has a possible 10 bonus points that can be used in a tiebreaker situation.

Categories included in the Regular Program score sheet are described here:

**Natural Hazard Score:** The natural hazard score is dependent upon the type of disaster, its location in regard to the coast, and whether a tornado is involved. A maximum of 25 points is possible in this section, depending upon the following criteria: the total amount of damage, the amount of flooding, proximity to the coast line, and the historic record of tornadoes in that area. In a post-disaster environment, priorities are established by the disaster type(s). In the event of multiple disasters, scoring will be calculated for each event and combined to give an overall score. (In some situations with multiple disasters, the score could exceed 25)

**History of Damage in Project Area:** Historical records of events in a county/project area and the likelihood of the event happening again will determine the total amount of points issued in this category. Five points are given for every event documented, up to a maximum of five events. The highest amount available in this category is 25 points.

**Type of Mitigation:** In this category, the reviewer must determine if the mitigative action is non-structural or structural. Examples of non-structural projects are flood proofing,

retrofitting, elevation, acquisition, and the implementation of stricter building codes. Structural projects would entail flood walls and storm water drainage improvements. The most effective type of mitigative action can garner 5 points.

**Potential Impact on Community:** Projects are prioritized by their ability to eliminate or reduce the effects of a disaster event on the community. The failure to implement a project can have either a severe, moderate, or no potential impact on a community. Depending upon the amount of perceived future impact avoidance, a project can accumulate up to 15 points.

**Estimated Environmental Impact:** Environmental impact is broken into three categories: major, moderate, and insignificant. A maximum of 5 points is awarded to the project based on its ability to reduce the impact of a disaster on the environment.

**Intangible Factors:** These factors include whether or not a community is storm ready, its CRS rating, the amount of local cost share paid by the community and the community's experience in successfully completing mitigation projects.

**Benefits:** One point is awarded per \$500,000 in hazard avoidance benefits to a community, with a maximum of 15 points.

**Bonus Point Section:** (Tiebreaker) The State examines the quality of the data in the application as a tiebreaker if needed. A maximum of 10 points can be given to an application, depending upon the quality of the data in the application, the amount of hazard data, damage history, cost data, and environmental impact analysis. In this section, two applications with very similar scores are compared, and a tiebreaker is issued.

#### Additional consideration for Generator Projects

For DR4165, the state prioritized generator projects for critical facilities for the HMGP. As this was the first HMGP application process where generators were an eligible regular project type, the State received more requests for generators than available funds. It became necessary to establish additional factors to prioritize generator sites that were not individually cost effective. The FEMA BCA tool for critical facilities establishes a value of service per day for each facility. In order to maximize the effectiveness of the HMGP, project sites were selected based on the value of service per day per dollar invested. This allowed the State to select the generator sites that would provide the most value to the community.

In 2009, the State developed a prioritization schedule for local plan updates. The state uses this schedule to prioritize planning projects based on the expiration dates of each county's local hazard mitigation plan. A complete description of this process is included in Chapter 4, Section 4.4.1.

Initiative projects are noncompetitive; however, they are competitive among one another for the funds available. Categories included in the most recently used Initiative Program score sheet are described below:

**History of Tornado Hazard in County:** The likelihood that a tornado event will occur determines the amount of points awarded a project. The likelihood is calculated based on the history of tornadoes in that area. The higher the likelihood, the higher the number of points awarded, to a maximum of 25.

**Potential Benefit to Community:** One-quarter of a point is awarded per 1,000 population warned per device. The maximum award possible is 25 points.

**Cost-Effectiveness (\$/per capita warned):** Cost-effectiveness is broken down into six categories. Points are awarded based on the overall cost per capita warned. The maximum award is 25 points.

**Intangible Factors:** These factors include whether or not a community is storm ready and the community's experience in successfully completing mitigation projects. A maximum of 25 points can be awarded in this category.

Additional consideration for initiative projects

The state has established additional priorities for initiative projects for the HMGP allocations during this update cycle. Priority has been given to mass alert systems. Once this category is funded, the State utilizes the initiative program score sheet to select projects if the funding requests exceed the available funds.

Based on state priorities, non-structural projects such as acquisition, demolition, and relocation generally receive the highest ranking and the greatest consideration for funding. Planning projects are given priority over structural and non-structural projects because a FEMA-approved hazard mitigation plan is required for a community to be eligible for a federal grant. Therefore, planning projects always receive a higher ranking than a structural or non-structural application. Counties involved in a Presidential Declaration are given priority over non-declared counties.

A copy of the HMA score sheet is located in Appendix H. This score sheet is used to rank all HMA project grants that meet BC and other project eligibility criteria and is used when project applications exceed available funding.

For the FMA program, additional criteria include that the proposed project must address mitigation to an NFIP-insured property, with repetitive loss and severe repetitive loss properties receiving priority.

## **6.3 PROGRAM MANAGEMENT CAPABILITY**

44 CFR 201.5(b)(2) (iii A-D) states that the Enhanced Plan must document that the state has the capability to effectively manage the HMGP as well as other mitigation grant programs and provide a record of the following:

- Meeting HMGP and other mitigation grant application timeframes and submitting complete, technically feasible, and eligible project applications with appropriate supporting documentation;
- Preparing and submitting accurate environmental reviews and benefit-cost analyses;
- Submitting complete and accurate quarterly progress and financial reports on time; and
- Completing HMGP and other mitigation grant projects within established performance periods, including financial reconciliation.

This section of the plan demonstrates the Georgia's abilities to effectively manage the HMGP and other mitigation grant programs.

GEMA/HS's Hazard Mitigation Division has primary responsibility for program management. The Division consists of a Planning Section and a Risk Reduction Section, with staff dedicated to providing technical assistance to state agencies and local governments on the development and implementation of mitigation plans and projects. Each section is supervised by a Program Supervisor who reports to the Hazard Mitigation Manager. The respective program supervisors

review all activities of their program staff for compliance. The number of program staff can vary based on disaster activity. Since the last plan update, the Division has added one additional Risk Reduction Specialist to support state and local project applications. The current HMGP Administrative Plan details how the Hazard Mitigation Division administers the mitigation programs.

Program management is significantly enhanced by the vast experience of the Hazard Mitigation management team and staff. Collectively, the management team has a combined 37 years of experience and the program staff has a combined 8 years.

Table 6.5 summarizes the program management activities for each of the open allocations for this grant update cycle for the period of October 1, 2013 through September 30, 2017. Timelines vary among the different types of grant programs. For example, the PDM program is designed to assist states, territories, Indian tribal governments, and local communities in implementing a sustained pre-disaster natural hazard mitigation program to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on federal funding in future disasters. These grants are offered annually, with the application period typically starting in June or July and ending in December. Awards for this type of grant typically are announced in January of the following year. PDM grants have a 3.5 year Period of Performance, including the application period. The total amount allocated to PDM grants is determined by Congress. The HMGP provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. Post-disaster grants are only awarded after Presidential Declared Disasters and are subject to FEMA's determination of loss. These grants are typically structured for three years, and a designated application period is established by FEMA. Timelines for the various grants differ by program.

Sections 6.3.1 through 6.3.4 provide additional detail to document each of the program management capability requirements shown in Table 6.5.



**Table 6.5 Program Management Project Summary October 1, 2013 – September 30, 2017**

Program	Meet HMA Application Timeframe	Projects Submitted	Projects with Environmental	Projects w/ BCA	Quarterly and Financial Reports	Projects Completed Within POP
DR1686	NA	NA	NA	NA	Yes	6
DR1750	NA	NA	NA	NA	Yes	1
DR1761	NA	NA	NA	NA	Yes	4
DR1833	NA	NA	NA	NA	Yes	12
DR1858	NA	NA	NA	NA	Yes	72
DR1973	Pilot	1	1	1	Yes	42
DR4165	18 months	34	21	12	Yes	9
DR4215	15 months	10	1	1	Yes	1
DR4259	18 months	29	11	7	Yes	0
DR4284	18 months	37	3	0	Yes	0
DR4294	15 months	1	0	0	Yes	0
DR4297	15 months	1	0	0	Yes	0
DR4338	12 months	1	0	0	NA	NA
PDMC09	NA	NA	NA	NA	Yes	1
PDMC10	NA	NA	NA	NA	Yes	2
PDMC11	NA	NA	NA	NA	Yes	4
PDMC12	NA	NA	NA	NA	Yes	2
PDMC13	3 months	5	0	0	Yes	5
PDMC14	33 months	4	0	0	Yes	0
PDMC15	33 months	4	0	0	Yes	0
PDMC16	3 months	5	0	0	Yes	0
PDMC17	3 months	2	1	1	NA	NA
LPDM08	NA	NA	NA	NA	Yes	1
LPDM10	11 months	NA	NA	NA	Yes	2
FMA13	33 months	4	4	4	Yes	2
FMA14	3 months	5	4	4	Yes	NA
FMA15	33 months	3	2	2	NA	NA
FMA16	3 months	3	1	1	Yes	0
FMA17	3 months	3	1	1	NA	NA
<b>Totals</b>		<b>152</b>	<b>50</b>	<b>34</b>		<b>166</b>

\*\*NA = No activity during this timeframe.

### 6.3.1 MEET HMA APPLICATION TIMEFRAME AND SUBMISSION OF ELIGIBLE PROJECT APPLICATIONS

The State continues to meet all mitigation grant application timeframes and submits complete, technically feasible, and eligible project applications with appropriate supporting documentation evidenced through the FEMA approval of all grant applications. Since the completion of the 2014 SHMS, the State has submitted grant applications through the HMGP (DR4165, DR4215, DR4259, DR4284, DR4294, DR4297 and DR4338), PDMC (2013, 2014, 2015, 2016 and 2017) and FMA (2013, 2014, 2015, 2016, and 2017) grant programs. Of the 152 projects submitted, only two were not selected for funding in both the FMA 2014 and 2015 programs due to insufficient funding. Subsequently, these projects were submitted and approved in the HMGP.

**Figure 6.3 HMA Application Process.**

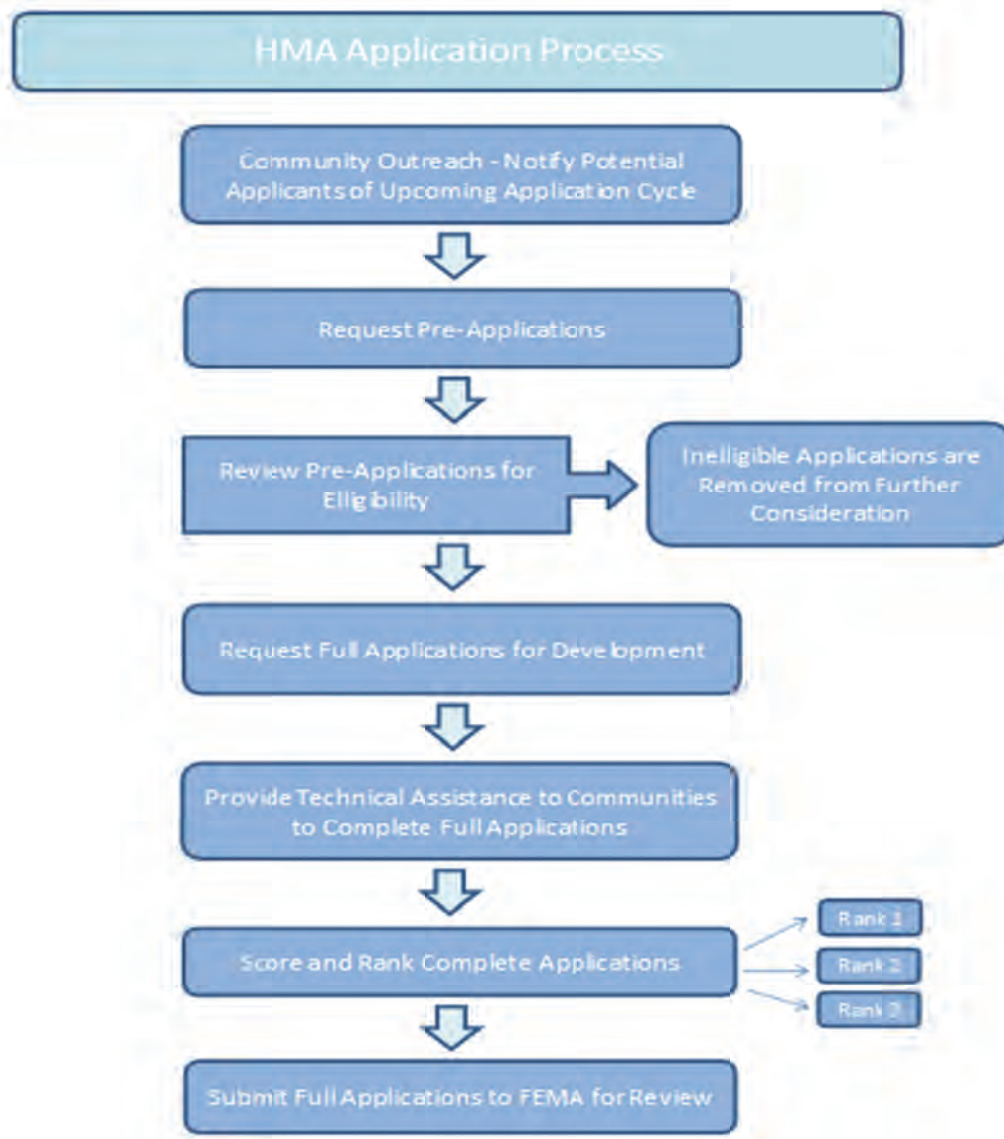


Figure 6.3 shows the steps the State takes in working with potential applicants on the development and submittal of eligible project applications. The application process starts with either a disaster declaration for HMGP or a Notice of Funding Availability for the non-disasters programs (FMA and PDM). Supplemental information is provided on each of the steps.

**Outreach:** Application information is developed and posted on the GEMA/HS website and distributed through emergency management agency directors as well as through press releases. Appendix H provides information on the DR4338 HMGP application process. For HMGP, applicant briefings are conducted in the declared counties.

Due to the competitive nature of the non-disaster HMA programs, the State does a selected outreach based on priorities established by FEMA. For FMA, outreach focuses toward communities having Severe Repetitive Loss properties. PDM outreach targets communities with the ability to provide the non-Federal share and meet the priorities established for the application cycle.

**Pre-Applications:** Pre-applications are reviewed for funding potential and pre-screened for HMA eligibility. An initial BCA is completed on all project submittals. Only eligible applications are recommended for full application development. Ineligible applications are removed from further consideration.

**Technical Assistance:** The State Mitigation staff works closely with potential applicants and provides technical assistance on completing applications. GEMA/HS uses the FEMA application completeness template to ensure that adequate information has been provided to document HMA minimum requirements.

**Applications:** The BCA is finalized based on data in the full application. Completed applications that meet the minimum program requirements are scored and ranked as described in Section 6.2.3 prior to submission to FEMA. The Hazard Mitigation Manager makes a recommendation to the GEMA/HS Director, who makes the final decision regarding which projects to forward to FEMA for consideration.

GEMA/HS's simplified application process allows the State to react to any grant funding opportunity quickly. In the event of a major disaster declaration, GEMA/HS can provide the needed outreach and technical assistance to its communities. Also, the GMIS database allows GEMA/HS to identify communities that are eligible for a particular program such as the FMA program, which targets SRLPs and RLPs.

### **HMGP Performance**

Within the past four years (since October 1, 2013), the State has implemented the HMGP for seven new Presidential Disaster Declarations and has continued to manage the HMGP for six other disasters. All HMGP applications are submitted through FEMA's NEMIS system, and only projects submitted by the State's deadline are eligible for consideration.

For the disaster designated DR1973, the State took advantage of the Pilot Program offered by FEMA and requested additional time to develop one project to take advantage of the de-obligated funds associated with the disaster. This application was sufficient to expend the allocation.

For DR4165, DR4215, and DR4259, the State completed the grant application process within the approved HMA application timeframe. Based on the 12-month lock-in amounts, a sufficient number of projects were identified through the pre-application process, and the State has completed its work with local governments on their submission of fully developed project applications. Alternate sites were identified in each allocation to take advantage of any de-obligated funds.

For DR4284, DR4294, DR4297, and DR4338, the State is still working with local governments to complete the application process.

Table 6.6 provides a snapshot as of September 30, 2017 for each Presidential Disaster Declaration of the number of HMGP projects approved and managed by the State during this plan update cycle. The State had previously closed out the HMGP for 15 disasters declared prior to 2013. This table provides a good indication of the numbers of grants and amount of federal funding the State has effectively managed or is currently managing in the HMGP programs since October 1, 2013. An asterisk after the disaster number indicates that the disaster is closed. Disasters 1686, 1750, 1761, and 1833 were closed during this update cycle. All work on Disaster 1858 has been completed and the disaster is projected to close in the next federal fiscal year. The federal funds expended column includes grantee and subgrantee administrative funds. Since the last update, the State has received approval on 56 additional projects, closed 144 projects, and processed expenditures of more than \$19 million.

**Table 6.6 Hazard Mitigation Grant Project Summary October 1, 2013 – September 30, 2017**

Disaster	Approved Projects		Open Projects	Closed Projects		Federal Funds Expended	
	Last 4 Years	Total	Total	Last 4 Years	Total	Last 4 Years	Total
DR1686*	0	58	0	6	58	\$761,335	\$8,877,853
DR1750*	0	7	0	1	7	\$0	\$932,979
DR1761*	0	17	0	4	17	\$32,056	\$1,775,988
DR1833*	0	46	0	12	46	\$405,828	\$5,450,849
DR1858	0	95	3	69	92	\$8,729,888	\$27,764,486
DR1973	0	49	3	42	46	\$2,785,391	\$3,806,118
DR4165	34	34	25	9	9	\$5,797,069	\$5,797,069
DR4215	10	10	9	1	1	\$249,330	\$249,330
DR4259	9	9	9	0	0	\$157,104	\$157,104
DR4284	1	1	1	0	0	\$67,572	\$67,572
DR4294	1	1	1	0	0	\$12,940	\$12,940
DR4297	1	1	1	0	0	\$15,224	\$15,224
DR4338	0	0	0	0	0	\$0	\$0
<b>Subtotal</b>	<b>56</b>	<b>328</b>	<b>52</b>	<b>144</b>	<b>276</b>	<b>\$19,013,738</b>	<b>\$54,907,513</b>

\* indicates the disaster is closed.

### Non-Disaster Programs Performance

Within the past four years (since October 1, 2013), the State has taken advantage of the non-disaster programs within the Hazard Mitigation Assistance (HMA) Program. The application intake is managed through FEMA's eGrants system, and only projects submitted by the State's deadline are eligible for consideration. The State has submitted a successful grant application(s) for each fiscal

year allocation of HMA. Each of the project applications submitted to FEMA had sub-applications that were reviewed and approved by FEMA Regional/HQ staff.

Tables 6.7 and 6.8 provide snapshots as of September 30, 2017, for each of the non-disaster programs of the number of projects approved and managed by the State during this plan update cycle. The State had previously closed out the FMA program for all 13 allocations prior to 2012, closed out the PDM program for seven allocations prior to 2012, and closed out the RFC program for both allocations. These tables provide a good indication of the numbers of grants and amount of federal funding the State has effectively managed or is currently managing in the various mitigation programs. An asterisk after the program year indicates that the allocation is closed. The Mitigation staff's program management ability is effectively demonstrated by their success in each year of the HMA Program for both the Pre-Disaster Mitigation Competitive Program (including LPDM) and the Flood Mitigation Assistance Program funding cycles.

### **FMA Project Summary**

Over the past four years, the State submitted applications for the FMA program in each year's funding opportunity. All projects were selected in the FMA13, 14, and 16 grants cycles. Projects submitted in the FMA15 grant cycle were deemed eligible but not selected. Grant announcements have not been received for the FMA17 grant cycle. Due to the increased disaster activity in 2014 through 2017, most of the local government projects submitted during this timeframe were handled with HMGP funds. The other projects submitted through the HMA application cycle were submitted through the PDM program. All of the submitted applications for the FMA program have been deemed eligible for funding consideration.

**Table 6.7 Flood Hazard Mitigation Assistance Project Summary October 1, 2013 – September 30, 2017**

Program Year	Approved Projects		Open Projects	Closed Projects		Federal Funds Expended	
	Last 4 Years	Total	Total	Last 4 Years	Total	Last 4 Years	Total
FMA13	4	4	2	2	2	\$770,434	\$770,434
FMA14	3	3	3	0	0	\$814,814	\$814,814
FMA16	3	3	3	0	0	\$15,053	\$15,053
<b>Subtotal</b>	10	10	8	2	2	\$1,600,301	\$1,600,301

### **PDM Project Summary**

Over the past 4 years, the State completed the grant submission for the non-disaster grant programs for 2013 PDM-C, 2014 PDM-C, 2015 PDM-C, 2016 PDM-C, and 2017 PDM-C programs. All 18 of the non-disaster applications submitted to FEMA for PDMC13-PDMC16 were complete, technically feasible, and eligible project applications, of which all 18 were approved. FEMA has not completed their review of the PDMC17 applications submitted.

Over the past four years, all work has been completed for the PDMC09 through PDMC13 and LPDM08 and LPM10 programs. All projects have been completed, and these allocations are closed out or going through closeout. The other open program allocations are progressing on schedule. Since the last update, the State has received approval on 18 additional projects, closed 11 projects, and processed expenditures of more than \$5.5 million.

The State has submitted a total of 82 competitive applications in the Pre-Disaster Program since its inception in 2002 through the 2016 program year. Eighty-three (83%) of these projects have been selected and awarded federal funds. Table 6.8 also includes information on the legislative directed projects through this program. The State has successfully worked with each of the legislative directed communities to develop projects to meet this directive. Where possible, the State has worked diligently to assist local governments to develop these projects consistent with the goals of the competitive nature of the program.

In summary, the State has been very successful in applying for and receiving approvals for projects submitted through the competitive HMA program. To date, almost 86% of the competitive projects submitted to FEMA have been approved.

**Table 6.8 Pre-Disaster Mitigation Program Summary October 1, 2013 – September 30, 2017**

Program Year	Approved Projects		Open Projects	Closed Projects		Federal Funds Expended	
	Last 4 Years	Total	Total	Last 4 Years	Total	Last 4 Years	Total
PDMC09*	0	2	0	1	2	\$851	\$662,606
PDMC10**	0	3	2	1	1	\$1,338,541	\$1,478,279
PDMC11*	0	4	0	4	4	\$2,065,130	\$2,287,334
PDMC12*	0	2	0	2	2	\$384,115	\$384,115
PDMC13**	5	5	5	0	0	\$710,055	\$710,055
PDMC14	4	4	4	0	0	\$467,450	\$467,450
PDMC15	4	4	4	0	0	\$212,543	\$212,543
PDMC16	5	5	5	0	0	\$36,906	\$36,906
PDMC17	0	0	0	0	0	\$0	\$0
LPDM08	0	8	0	1	8	\$43,788	\$966,030
LPDM10	0	2	0	2	2	\$275,100	\$284,184
<b>Subtotal</b>	<b>18</b>	<b>39</b>	<b>20</b>	<b>11</b>	<b>19</b>	<b>\$ \$5,534,478</b>	<b>\$7,489,500</b>

\* indicates the allocation is closed.

\*\* indicates all work is completed.

## 6.3.2 PREPARING AND SUBMITTING ACCURATE ENVIRONMENTAL REVIEWS AND BENEFIT-COST ANALYSIS

### Preparing and Submitting Accurate Environmental Reviews

The State of Georgia relies on the FEMA Region IV staff to conduct environmental reviews and prepare the environmental documentation on all submitted mitigation applications.

### Preparing and Submitting Accurate Benefit-Cost Analysis (BCA)

As discussed in Section 6.2.2 on project implementation capability, the State has an excellent track record of submitting accurate BCAs that meets FEMA criteria for hazard mitigation projects. For this update cycle, the State completed BCA reviews on 12 HMGP projects for 54 communities and 6 FMA projects.

Basic information the State obtains and uses to conduct accurate BCAs includes, but is not limited to, the following:

- Flood Insurance Study data or historical flood data, including flood frequency, discharge, and elevation;
- Past damages at the project site or in the project area;
- Well-documented cost estimates for the project;
- Useful life of the project;
- Structure type;
- Square footage of the building/s and replacement values along with contents value;
- Function of the facility;
- Associated future maintenance costs;
- Displacement costs;
- Temporary relocation costs;
- Loss of use;
- Elevation certificates or certification from a land surveyor of finished floor elevation; and
- History of power outages caused by natural hazard events.

GEMA/HS Mitigation staff assist in determining the appropriate FEMA-approved BCA module to use for each project. Based on the type of project and the information provided in the pre-application and application, GEMA/HS staff will determine which BCA module will be used to determine the project's cost-effectiveness.

The BCA determines whether the cost of investing in a project today will result in sufficiently reduced damages in the future to justify spending the money on the project. If the benefit is greater than the cost, then the project is cost-effective. Cost-effectiveness is determined by comparing the project cost to the value of damages prevented after the mitigation measure. If the dollar value of the benefits exceeds the cost of funding the project, the project is cost-effective. To arrive at a ratio, the benefits are divided by the costs, resulting in a benefit-cost ratio (BCR). If the result is 1.0 or greater, then the project is cost-effective. If it is less than 1.0, it is not cost-effective. The BCR simply states whether the benefits exceed the project costs and by how much.

A narrative analysis is used when the benefits of a project cannot be easily quantified into specific categories and do not conform to any of the other modules or formats. This analysis allows for a subjective, broad-based approach to quantify the benefits of a project so that all benefits of the project can be recorded and the project objectively assessed. This type of analysis is typically used in the HMGP 5% State Initiative projects.

If the project is cost-effective, it is considered by GEMA/HS for funding consideration and full application development. If the project is not cost-effective, the GEMA/HS Mitigation staff attempts to obtain additional information from the applicant to arrive at a positive BCA. If there is no additional credible data available or all



available data have been used and the project is still not cost-effective, the project is not considered for full application development.

The Mitigation staff's ability to complete accurate BCAs was demonstrated by GEMA/HS's success in all funding rounds to date of the HMA programs. Over the past 4 years, each of the HMGP and FMA projects that were submitted for funding that had BCA's were approved.

### **6.3.3 QUARTERLY REPORTS**

The State of Georgia provides timely, complete, and accurate quarterly progress and financial reports on all funded HMA grants. Separate financial reports are submitted quarterly from the Office of Planning and Budget for each of the open disasters or allocations. For this update cycle, the State submitted all quarterly reports within 30 days of the end of the calendar quarter. Subsequent meetings were held with FEMA staff on each quarterly report submission to discuss any findings or questions. All questions and findings were satisfactorily addressed.

The State provides an enhanced quarterly and financial report on all open mitigation projects. This report includes details on work completed, work remaining, project delays (if any), and all associated financial information. This reporting format has been shared by FEMA at regional meetings with other Region IV states as a model format for other states to follow. The quarterly report submissions also include budget comparison reports on each of the State's open management grants.

GEMA/HS uses an agency-wide computer program to manage all federal grants called the Grants Management System (GMS). Some of the major features included in the system are:

- The ability to view key dates, funding amounts, status, expenditures, itemization of subgrants, and current balances for all federal grant allocations;
- The ability to add/view/track key dates, funding amounts, applications data, status, expenditure history, adjustment history, progress report history, closeout details, correspondence, and current balances on all plans, applications, and subgrants;
- Automated subgrantee Progress Report generation and the creation of FEMA Quarterly Progress Report from the subgrantee reports;
- The ability to generate and track correspondence (paper and email) tailored by subgrants; and
- The ability to generate dozens of standard reports and user-created ad hoc reports.

One of the significant enhancements of this system is the ability to create quarterly reports for FEMA that include additional information on activities completed in the quarter, with all activities tied back to the milestones for the project. This new report format was developed and has been utilized for all quarterly report submissions for this plan update cycle.

Upon project approval notification from FEMA, a State/Local Grantee/Subgrantee Agreement is prepared by GEMA/HS and sent to the subgrantee for signature. Upon receipt of the signed agreement, the GEMA/HS Director signs the agreement and a fully executed agreement is sent to the subgrantee with instructions to start the project. The signed agreement requires the subgrantee to submit quarterly status reports within 15 days of the end of the quarter. Due dates are January 15, April 15, July 15, and October 15. As noted above, GEMA/HS uses GMS to generate the subgrantee quarterly report, which is emailed to the project point of contact. The reports include financial information current as of the end of the quarter as well as grant status information current as of the end of the previous quarter. The counties update the status and return the reports to their assigned planner or specialist, who then inputs the updated information into the GMS system. As an incentive to receiving timely quarterly reports from each subgrantee, the State requires all reports to be current in order to process progress payments.

Quarterly report information was also submitted in FEMA's NEMIS system for HMGP open projects starting on July 1, 2014. This process continued until FEMA discontinued this requirement on September 30, 2016. The NEMIS quarterly report information for HMGP projects is now submitted via an Excel spreadsheet starting with the quarter beginning on October 1, 2016. Also included in the quarterly report submission starting for the quarter beginning on January 1, 2015, is another Excel spreadsheet for reporting properties acquired in the quarter for the HMA Portfolio Manager.

The quarterly report consists of a letter with narrative information regarding each open grant program as well as information on other activities that the Mitigation staff has been involved in for the quarter. In addition, a project summary spreadsheet is completed for each program detailing the status of each funded program, listing both closed and open projects. The GMS printout, budget comparison reports, NEMIS HMGP spreadsheet, and HMA Portfolio Manager complete the quarterly report package.

In addition to the quarterly report submitted for each of the open projects, the Office of Planning and Budget submits the FF 20-10 financial reports and the PMS 272 Federal Cash Transaction Report for each of the open disasters. The submitted reports are consistent with SMARTLINK and based on the approved supplements received from FEMA. When GEMA/HS's internal financial tracking system, based on supplements received, is not in balance with SMARTLINK, the State notifies FEMA program staff to get the missing supplements so the reports will balance at the end of each quarter.

### **6.3.4 GRANT COMPLETION AND CLOSEOUT**

For this update cycle, the State closed 144 HMGP projects in eight disasters and 12 projects in six non-disaster programs. Four disaster and six non-disaster programs were successfully closed.

The following summarizes the process that the Mitigation staff follows in monitoring approved grants and completing project and declaration closeouts within established performance periods, including financial reconciliation.

The State/Local Grantee/subgrantee Agreement now referred to as the Recipient/Subrecipient agreement that is signed by both GEMA/HS and the subgrantee (now subrecipient) requires the subgrantee (subrecipient) to complete the project based on milestones established in the grant application (not to exceed three years from the project obligation date). In addition, for project grants, they are required to submit supporting documentation identified at final inspection within 30 days.

If the subgrantee cannot complete the project within the performance period specified in the grant agreement, a request for a time extension must be submitted to GEMA/HS 90 days prior to the end of the performance period. Requests for time extensions need to explain why the completion date cannot be met, how much of the project work remains, and an estimated date for completion. If an extension request for any project means that the activity period will go beyond the state's performance period (or closeout date for disasters), GEMA/HS will request up to a one-year time performance extension. This request will be submitted to FEMA 60 days prior to the end of the performance period.

All mitigation projects that receive federal funding go through the same financial reconciliation as part of the closeout process. The State Mitigation staff utilizes the signed grantee-subgrantee agreement with each applicant to monitor progress on the project and ensure that it is on track. Site visits are scheduled as necessary. Upon written notification of project completion, GEMA/HS Hazard Mitigation staff conducts a final inspection to ensure the project is completed per the terms of the agreement, verifies the GPS coordinates, and takes photographs of each mitigated property. For planning grants, GEMA/HS Hazard Mitigation staff conducts a desk audit to verify that the approved scope of work has been completed. As part of the final inspection, all financial documents are reviewed to ensure that only allowable costs are reimbursed consistent with Office of Management and Budget circulars. Project closeout requests are made to FEMA upon completion of final inspection and financial reconciliation on a project-by-project basis. In the project closeout request, GEMA/HS

certifies to FEMA that costs incurred in the performance of eligible work are documented, allowable, and consistent with all Federal requirements, that the approved work was completed, and that the mitigation measure is in compliance with the Federal-State Agreement (for the HMGP) or Agreement Articles (for non-disaster programs) and the State/Local Assistance Agreement. GEMA/HS Mitigation staff will prepare a project closeout worksheet, which is submitted to FEMA Region IV along with a request to close the grant. The financial reconciliation and project closeout requests are completed within 90 days of the final inspection. Upon receipt of final claim amounts from FEMA, any remaining funds are liquidated and a closeout notice is sent to the subgrantee.

When all projects are completed and closed out for the disaster declaration, GEMA/HS prepares the Declaration Closeout Letter and final financial status report, SF425, for the HMGP and forwards it to FEMA.

The subgrantee and grantee closeout reports are valuable for not only historical purposes and in monitoring projects for adherence to certain grant agreements such as open space deed restrictions, but they are also valuable in documenting disaster avoidance and developing success stories. The closeout reports, including those properties that have been acquired, have been shared with the Department of Natural Resources Floodplain Management staff, who uses it during community assistance contacts and visits. In addition, during these visits, floodplain management staff can monitor the acquired sites to ensure that the subgrantees have adhered to the required deed restrictions. This information is also utilized to support Risk MAP Discovery and Resilience workshops.

## **6.4 ASSESSMENT OF MITIGATION ACTIONS**

44 CFR 201.5(b)(2)(iv) states that the Enhanced Plan must document the system and strategy by which the State will conduct an assessment of the completed mitigation actions and include a record of the effectiveness (actual cost avoidance) of each mitigation action.

### **6.4.1 SYSTEM TO TRACK THE ASSESSMENT OF MITIGATION ACTIONS**

The State utilizes the Georgia Mitigation Information System (GMIS) to track the assessment of completed mitigation actions and include the effectiveness or actual losses avoided for each action. The information collected on each site that has had a mitigation action completed includes:

- funding source,
- project number,
- applicant,
- property address,
- parcel number,
- GIS coordinates,
- mitigation action,
- structure size,
- replacement value of property mitigated (structure and contents),
- damage source,
- hazard data,
- elevation data,
- cost,
- benefits,
- repetitive loss number,
- avoided losses,
- last inspection date, and
- project closeout date.

The State Hazard Mitigation Division is currently populating the database for all completed and closed projects within the HMGP and PDM programs. The database is greater than 99% completed, with 2,468 records in the system as of September 30, 2017. The State continues to populate the database with information from older disaster allocations. The database is updated by State Hazard Mitigation Division staff on completed mitigation projects as part of the closeout process.

### **Repetitive Loss Property Tracking**

The State of Georgia targets repetitive loss properties for mitigation through all of FEMA's HMA grants. GEMA/HS's Hazard Mitigation staff utilizes the GMIS to track mitigation actions on repetitive loss properties. When data is entered into GMIS for each mitigated property record, GEMA/HS staff reviews the NFIP repetitive loss data base and adds the repetitive loss property number to the record if the property is in FEMA's database. Authorized users of GMIS can run a report to determine the history of mitigation actions on repetitive loss properties.

### **Property Monitoring and Reporting**

The acquisition of flood-prone structures and conversion of the land to open space is a common mitigation activity utilized by local governments. 44 CFR 80.19(d) outlines the land use and oversight criteria for properties acquired with HMA funds. Section 80.19(d) requires the subgrantee to submit a report every three years certifying that the deed restricted property has been recently inspected and the property continues to be maintained consistent with the deed restrictions. GEMA/HS Hazard Mitigation staff utilizes the GMIS to assist the subgrantee in meeting this requirement.

When a property acquisition project is completed, a record is added to GMIS for each of the acquired and deed-restricted properties. Every three years, GEMA/HS Hazard Mitigation staff utilizes GMIS to pull a list of acquired properties needing certification. This list is sent to the subgrantee (now subrecipient) along with a request to verify the properties are being maintained according to the deed restrictions. Upon receipt of the certification, GEMA/HS submits the certification to FEMA. The most recent three year certification data was submitted to FEMA on September 17, 2017 for the 37 communities in Georgia that have deed restricted properties.

GMIS was migrated to a new platform with enhancements that were completed by December 2014. Enhancements include improvements in the mapping capability, as well as the user interface. Multiple types of maps were included, including, but not limited to basic street maps, aerial photography, and USGS maps. The updated system includes a better interface to the Building Land Lease Inventory of Properties (BLLIP) in order to display state owned and operated facilities. The user interface now includes two methods of updating local critical facility information. The system provides a streamlined, progression of steps where the user can enter data, step by step, to add or update their local critical facilities. If a community has multiple facilities to add or update, the enhanced system now provides a "bulk upload" process by which a community can upload a Microsoft Excel sheet with their updated data without having to manually edit each individual facility, one at a time, online.

## **6.4.2 STRATEGY TO ASSESS MITIGATION ACTIONS**

The following action steps will be taken to effectively assess completed mitigation actions in Georgia:

- Finish the process of populating the Mitigated Properties Database on all completed mitigation projects that are administered by GEMA/HS.
- Incorporate mitigation activities completed by other agencies into the Mitigated Properties database.
- Review Hazard Event information submitted to GEMA/HS to determine the potential for loss reduction as a result of all completed mitigated actions documented in the Mitigated Properties system.
- Upon determination that the completed mitigation action resulted in a reduction of damages, enter data into the Mitigated Properties database and compute the damages avoided for each structure mitigated.

Local governments will be able to access the data in GMIS for their community and pull reports for their counties and municipalities on completed mitigation actions and any avoided losses as a result of hazard events documented in the project area after the projects are completed.

### **Record of Actual Cost Avoidance**

A critical component to estimate the actual avoided losses is having accurate information on the hazard event and information about the exposure of the property to damages. Scenario losses are computed based on established hazard damage relationships such as depth damage curves for wind and flood events provided by FEMA in benefit-cost modules. For flood events, avoided losses can be computed by determining how much flooding would have occurred at the site by comparing the finished floor elevation data with the water surface elevation of the hazard event. Applying the depth damage curves and additional information collected allows one to compute scenario losses at the site that would have occurred if the structure had not been mitigated.

Studies were conducted by FEMA and the State on the effectiveness of completed mitigation actions (acquisitions) in the cities of Newton and Albany and Dougherty County during the 1998 flood event. Additional successes were documented in Douglas and DeKalb counties after the Hurricane Ivan event in 2004. In the previous updates to the Enhanced Plan, the data from the previous studies were added to the Loss Avoidance Section of each mitigated property. For the events for which we had high water marks, a depth of flooding was computed and the scenario losses from the BCA for the depth of flooding were inputted into each record.

In the aftermath of the September 2009 flood event, the State worked with FEMA on a Loss Avoidance Study in the declared counties that had completed mitigated properties. FEMA completed the final study and provided the results to the State in November 2010. The State has populated the "Avoided Losses" section for each mitigated property record in GMIS. In addition, the State has utilized the methodology that is documented in the 2009 Loss Avoidance Study to compute additional losses for all other projects in the counties declared for DR1833 and DR1858. Because high water marks were not available in all projects, the State utilized USGS gauge data to compute the water surface elevation for the declared flood events. The water surface elevation was compared to the base flood elevation. This information was transferred, where practicable, to each of the project sites impacted by DR1833 so that depth of flooding could be computed for properties that had both a finished floor elevation and base flood elevation. Damages have been computed for each of the projects along the main stem of the Flint River for DR1833 declared counties. This information has been incorporated into the "Mitigated Properties" section of GMIS.

A localized flood event in August 2012 impacted an area in Tift County where property acquisition had just been completed. Applying the methodology described above, seven properties that had just been acquired would have received flood damages estimated at \$338,765.

Since the last State Plan Update, there have been three Presidential Disaster Declarations for flooding in Georgia. In the aftermath of the Christmas 2015 flooding, the State worked with FEMA on a Loss Avoidance Study in the declared counties that had completed property acquisitions and elevations. FEMA completed the final study (see Appendix H) and provided the results to the State in 2016. For this event, the study showed that nearly \$5.2 million in losses were avoided as a result of property acquisitions completed in Baker, Dougherty, and Lee Counties. The study goes on to show that for the 40 properties acquired, the return on investment has exceeded the initial project cost by a factor of 2.83 thus verifying that the acquisition of structures in the flood plain continues to be a very cost-effective mitigation action. The State has populated the "Avoided Losses" section for each of the 40 mitigated property records in GMIS.

In the aftermath of the Hurricane Matthew disaster, the State requested the Individual Assistance Home Inspection Reports that provided information on depth of flooding for structures whose property owners filed for Individual Assistance. GEMA/HS utilized this information to analyze areas that were near or adjacent to these properties. By computing a water surface elevation near these mitigated properties, the State can then utilize the methodology to compute avoided losses to structure, contents and displacement as was done in prior losses avoided studies.

In the aftermath of the Hurricane Irma disaster, the State also requested the Individual Assistance Home Inspection reports to go through the same methodology as was used in Hurricane Matthew. FEMA offered technical support to complete the losses avoided studies for both Hurricanes Matthew and Irma using this information and methodology. The FEMA Loss Avoidance studies for Matthew and Irma (see Appendix H) evaluated 94 properties acquired in five neighborhoods. For Hurricane Matthew, 72 properties acquired by the City of Savannah at a cost of \$5.8 million has losses avoided of \$6.6 million. For Hurricane Irma, 71 properties acquired by the City of Savannah at a cost of \$6.3 million has losses avoided of \$5.4 million.

In discussions with FEMA, it was noted that the study was not inclusive of all areas where properties had been acquired in the City of Savannah and Chatham County. The state utilized the methodology by FEMA and expanded the study to all areas in Chatham County where property acquisitions had been completed. For Hurricane Matthew, 64 additional properties in eight neighborhoods mitigated at a cost of \$5.5 million has losses avoided of \$3.3 million. For Hurricane Irma, 59 additional properties in four neighborhoods mitigated at a cost of \$2.4 million has losses avoided of \$3.1 million. This information is provided as a supplement to the FEMA Loss Avoidance Study. For Hurricane Matthew, 136 properties acquired by the City of Savannah and Chatham County has losses avoided of \$9.9 million. For Hurricane Irma, 130 properties acquired by the City of Savannah and Chatham County had losses avoided of \$8.6 million. Table 6.9 has been updated to include losses avoided for these three additional flood events.

Currently, there are 649 records in the database totaling \$63.9 million in losses avoided. Table 6.9 provides a record of the actual losses avoided for all HMA applicants. The return on investment (ROI) was calculated for each individual building for each event that was analyzed. The ROI reflects only the damage and project costs related to the buildings in the analysis or just those buildings where actual losses avoided were computed. The mitigation effectiveness reports for each of the three disasters (DR4259, DR4284, and DR4338) are included in Appendix H.

**Table 6.9 Actual Losses Avoided Summary**

<b>Applicant</b>	<b>Buildings in Analysis</b>	<b>Project Investment</b>	<b>Total Loss Avoided</b>	<b>Return on Investment</b>
Augusta–Richmond County	1	177,948	59,011	0.33
Baker County	3	62,431	218,010	3.49
City of Albany	62	925,582	3,170,028	3.42
City of Chickamauga	49	2,140,887	3,279,171	1.53
City of Newton	25	340,880	864,221	2.54
City of Savannah	1	118,971	89,306	0.75
Cobb County	59	7,315,380	9,495,265	1.30
Decatur County	8	774,276	1,278,799	1.65
DeKalb County	80	26,808,903	12,137,155	0.45
Dougherty County	19	2,827,481	1,317,732	0.47

Applicant	Buildings in Analysis	Project Investment	Total Loss Avoided	Return on Investment
Douglas County	13	704,332	3,396,316	4.82
Douglas County Water and Sewer Authority	4	535,829	429,704	0.80
Gwinnett County	2	261,481	1,677,448	6.42
Lee County	7	398,095	231,890	0.58
Mitchell County	2	109,718	115,310	1.05
Tift County	7	996,830	338,765	0.34
Town of Trion	1	4,465,893	2,138,183	0.48
Lee County*	16	1,317,591	3,262,577	1.97
City of Albany*	16	293,883	1,858,293	6.25
Dougherty County*	3	143,860	481,068	3.24
City of Newton*	3	44,647	168,968	3.78
Baker County*	2	35,229	132,533	3.76
Chatham County*	13	1,395,324	523,430	0.38
City of Savannah*	123	9,989,145	9,397,612	0.94
Chatham County*	12	1,036,492	347,741	0.34
City of Savannah*	118	7,705,519	8,246,384	1.07
<b>Totals</b>	<b>649</b>	<b>70,926,557</b>	<b>63,948,563</b>	<b>0.90</b>

\* New losses avoided since last plan update.

It is interesting to note that with less than 20 years of history in evaluating projects where mitigation has been completed, there are several areas where the ROI exceeds 1. This suggests that mitigation activities have been completed in areas where hazard events continue to occur.

The GMIS database will be an ongoing tool to capture success stories on future disaster events. By capturing information at the property level, the State can at any time create a report on the effectiveness of any completed mitigation project.

## **6.5 EFFECTIVE USE OF AVAILABLE MITIGATION FUNDING**

44 CFR 201.5(b)(3) states that the Enhanced Plan must demonstrate that the State effectively uses existing mitigation programs to achieve its mitigation goals.



The State of Georgia continues to effectively implement hazard mitigation programs toward achieving its goals to

- Reduce human vulnerability to hazard events,
- Reduce the losses associated with hazard events, and
- Reduce overall exposure to hazard events for Georgia citizens and their property.

The mitigation programs utilized in implementing mitigation measures throughout the state are primarily federally funded and state administered. These programs include the Hazard Mitigation Grant Program (HMGP), the Flood Mitigation Assistance Program (FMA), the Pre-Disaster Mitigation Program (PDM), and the Emergency Management Performance Grants. The state provides financial assistance with the non-federal share on the implementation of the HMGP in declared counties. The state also provides financial assistance with HAZUS analysis and reports for local plan update projects. The Repetitive Flood Claims Program (RFC) data have been incorporated into the FMA program. The projects that have been approved and funded through these programs support the State's hazard mitigation goals and specific program eligibility criteria.

Project effectiveness can be defined as the ability of a mitigation project to reduce or eliminate the possibility of future damage or human suffering. There are three levels of project effectiveness. High effectiveness is given to projects that create the most effective type of mitigation, such as property acquisition or relocation where no damage would occur in the event of a future disaster. Medium effectiveness entails projects that reduce the likelihood of future damage; however, in the event of an uncommonly severe disaster event, property damage and human vulnerability might still occur. Low effectiveness refers to projects that provide relatively low and short-term, limited hazard prevention levels or those projects where benefits are difficult to quantify. Table 6.10 lists potential mitigation projects and their effectiveness.

Program effectiveness can be defined as the ability of a mitigation program to fund the most projects to reduce or eliminate the possibility of future damage or human suffering. There are three levels of program effectiveness. A rating of High is given to programs that fund the most projects (>50% of total funds allocated). Medium effectiveness refers to programs that fund fewer projects that reduce the likelihood of future damage (between 20% and 50% of total funds allocated). A low effectiveness rating is given for programs that fund the fewest number of projects (<20% of total funds allocated).

**Table 6.10 Effectiveness of Potential Mitigation Projects**

Project Type	Level of Effectiveness	Rationale
Acquisition	High	Removes structure and inhabitants from hazard area
Elevation	Medium	Reduces damages but structure and inhabitants have residual risk
Acquisition/Relocation	High	Removes structure and inhabitants from hazard area
Acquisition/Elevation	Medium/High	Combination of effectiveness as noted in each project type
Acquisition/Drainage	Medium/High	Combination of effectiveness as noted in each project type
Retrofit (Wind, Flood, Safe Rooms Lightning)	Medium	Reduces damages but structure and inhabitants have residual risk
Drainage Improvement	Medium	Reduces damages but structure and inhabitants have residual risk
Warning/Initiative	Low/Medium	Projects are short term and inhabitants have residual risk
Planning	High	Guide for developing and implementing mitigation measures
Safe Room	High	Protects inhabitants from tornadoes
Generators for Critical Facilities	High	Reduces damages by maintaining operational capability of critical infrastructure and resources
Management	High	Technical support for developing and implementing mitigation measures
Advance Assistance	High	Technical support for developing mitigation measures

Table 6.11 provides a summary of FEMA funding programs used for mitigation projects. The list ties each program with the associated State Mitigation Goal, along with a corresponding level of program effectiveness. RFC program information is included with the FMA, and LPDM is included with the PDM information. In addition, the table shows the amount of funds utilized in accomplishing mitigation goals.

**Table 6.11 FEMA Funding Programs Used for Mitigation Projects**

<b>Program</b>	<b>Number of Projects</b>	<b>Funding (in millions)</b>	<b>% of Total Funds Allocated to GA</b>	<b>Effectiveness</b>	<b>Applicable Goals</b>
HMGP	656	\$138.78	69.9%	High	1-3
FMA	60	\$14.78	7.4%	Low	1-3
PDM	85	\$40.58	20.5%	Medium	1-3
EMPG	152	\$4.23	2.2%	Low	1
<b>Total</b>	<b>962</b>	<b>\$198.43</b>	<b>100</b>		

**Hazard Mitigation Grant Program (HMGP)**

Table 6.12 lists information about the HMGP and the funds approved for each federally declared disaster from 1990 through September 30, 2017. The table has been updated to combine information about disasters for which all work was completed prior to this plan update, which includes 19 disasters from DR857 through DR1833. Since 2004, Georgia has provided and made available 10% of all match funds for counties involved in disasters. The State of Georgia will continue to contribute a percentage of the non-federal cost share for all counties included in a Presidential Declaration. GEMA/HS's Hazard Mitigation Division will continue to provide technical assistance to all counties, their municipalities, and state agencies.

**Table 6.12 HMGP Funding by Disaster**

Disaster	Federal Allocation (NEMIS)	Federal Share Expended	State Share Expended	Local Share Expended	Approved Projects	% of Funds Used
DR857 - DR1833	\$110,285,035	\$100,421,613	\$6,142,387	\$35,759,033	456	91.1%
DR1858	\$35,438,896	\$27,764,486	\$3,697,194	\$5,169,347	95	78.3%
DR1973	\$5,380,886	\$4,313,211	\$752,603	\$785,962	49	80.1%
DR4165	\$8,934,568	\$5,802,503	\$953,648	\$1,025,158	34	64.9%
DR4215	\$2,309,072	\$238,830	\$62,305	\$14,804	10	10.3%
DR4259	\$4,289,893	\$146,604	\$36,732	\$51,277	9	3.4%
DR4284	\$19,490,976	\$67,572	\$22,510	\$0	1	0.4%
DR4294	\$2,862,541	\$12,940	\$4,314	\$0	1	0.5%
DR4297	\$5,753,037	\$15,224	\$5,075	\$0	1	0.3%
DR4338	\$21,601,849	\$0	\$0	\$0	0	0%
DR1858 - DR4338	\$106,061,718	\$38,361,370	\$5,534,381	\$7,046,548	200	36.2%
<b>Total</b>	<b>\$216,346,753</b>	<b>\$138,782,984</b>	<b>\$11,676,769</b>	<b>\$42,805,581</b>	<b>656</b>	<b>64.2%</b>

Any unused mitigation program funding was a result of unavailable non-federal match by counties, uninterested property owners, and/or insufficient program funds to implement prioritized mitigation actions.

### Program Highlights

Through the HMGP, local governments have permanently mitigated losses through the acquisition of 1,396 flood-prone properties. Another 89 flood-prone properties have been elevated, 36 retrofits (predominantly wind related) have been completed, and four safe rooms have been constructed. Rounding out the activities, 469 outdoor warning sirens and 24 mass alert systems have been installed 35 drainage improvement projects completed, and 72 generators for critical facilities. The program also funded the initial development of 20 local mitigation plans, 179 local plan updates, and the initial development of and two updates to the State Mitigation Plan. Table 6.13 summarizes the number of projects and project types funded through the HMGP and their associated State Mitigation Goal.

Since the last plan update, the State has effectively utilized initiative funding from the HMGP to improve its warning and communication capabilities. For disasters DR4165 through DR4338, the State prioritized the use of the HMGP funds for projects in the declared counties that reduce or eliminate damages to life and property. The State utilized the 5% initiative category to improve the warning and communication capabilities of local governments in the declared counties and also gave preference to those projects that help local governments maintain or achieve storm-ready status. In addition to projects involving outdoor warning sirens, there was an increased interest in mass alert systems and weather radio projects. The state utilized the 7% planning category to fund local plan updates. The regular project category was utilized to fund generators for critical facilities, safe rooms, drainage improvements, and the acquisition and/or elevation of flood prone properties.

For disasters DR4165 through DR4338, the Enhanced Plan provided an additional \$15.3 million to the State of Georgia for HMGP projects. These additional funds were made available to the declared counties to address warning and communication enhancements, generators for critical facilities, community safe room projects, and

the mitigation of substantially damaged and floodprone properties through property acquisition and/or structure elevation.

**Table 6.13 Projects Funded with HMGP**

Program	Project Type	Number of Projects	Goal
HMGP	Acquisition	90	2
	Elevation	2	2
	Acquisition/Elevation	4	2
	Acquisition/Drainage	2	2
	Retrofit (Wind, Flood, Lightning)	15	1,2
	Drainage Improvement	49	2
	Warning/Initiative	254	1
	Planning	186	1,3
	Safe Room	7	1,2
	Generators	13	2
	Management	28	1,2,3
	Advance Assistance	6	1,2,3

### **Flood Mitigation Assistance (FMA) Program**

The State has facilitated the use of FMA funds by local governments for the development of flood hazard mitigation plans and projects since the program was initiated in 1997. Planning grants were initially targeted to the communities with the largest number of repetitive loss properties identified by FEMA. All communities with 10 or more repetitive loss properties received funding to develop an FMA plan. Project grants have been targeted to the communities with the largest number of repetitive loss properties that meet the planning requirements. The availability of local match funds has hindered many local governments from pursuing project grants. Table 6.14 lists information through September 30, 2017, about the FMA funds approved since the program has been in existence. The table has been updated to combine information about allocations for which all work was completed prior to this plan update, which includes 13 allocations from 1997 through 2009.

### **Program Highlights**

Through the FMA project grants, local governments have permanently mitigated losses through the acquisition of 42 NFIP-insured properties. Another two NFIP-insured properties have been elevated, and another eight properties have been protected through a drainage improvement. The program also funded the development of 11 FMA plans and the initial development of three local mitigation plans. Table 6.15 summarizes the number of projects and project types funded through the FMA and their associated State Mitigation Goal.

**Table 6.14 FMA Funding**

Fiscal Year	Total Approved	Federal Share	State Share	Local Share	Approved Projects
FMA97-09	\$8,797,602	\$6,412,469	\$138,192	\$2,246,941	46
FMA13	\$1,373,561	\$1,373,561	\$0	\$0	4
FMA14	\$1,198,931	\$1,198,931	\$0	\$0	3
FMA16	\$2,745,108	\$2,554,163	\$32,511	\$158,434	3
<b>Total</b>	<b>\$14,115,202</b>	<b>\$11,539,124</b>	<b>\$170,703</b>	<b>\$2,405,375</b>	<b>56</b>

**Table 6.15 Projects Funded with FMA**

Program	Project Type	Number of Projects	Applicable Goal
FMA	Acquisition	24	2
	Elevation	2	2
	Planning	13	1,3
	Drainage Improvement	2	2
	Management	14	1,2,3
	Technical Assistance	1	1,2,3

**Repetitive Flood Claims (RFC) Program**

The State has facilitated the use of RFC funds by local governments for the development of acquisition projects to permanently mitigate flood damages to NFIP-insured structures. Table 6.16 lists information about the RFC funding received through September 30, 2013.

**Table 6.16 RFC Funding**

Fiscal Year	Total Approved	Federal Share	State Share	Local Share	Approved Projects
RFC06 - RFC07	3,243,615	3,243,615	0	0	4

**Program Highlights**

Through the RFC project grants, local governments have permanently mitigated losses through the acquisition of nine NFIP-insured properties. Table 6.17 summarizes the number of projects and project types funded through the RFC and their associated State Mitigation Goal. The Biggert-Waters Flood Insurance Reform Act of 2012 eliminated the RFC program and future funding to mitigate RFC properties will be accomplished with the other HMA programs.

**Table 6.17 Projects Funded with RFC**

Program	Project Type	Number of Projects	Goal
RFC	Acquisition	2	2
	Management	2	1,2,3

**Severe Repetitive Loss (SRL) Program**

Georgia did not submit an application for grants through this program after the program's inception in 2008. In the initial roll out of the SRL program, Georgia had fewer than 40 validated SRLPs and did not qualify for an allocation. An analysis of these properties showed that 50% of the properties previously had mitigation activities pursued by local governments, with the majority determined to be not cost-effective. Based on all of the subsequent alternative determination of benefits provided by FEMA for the validated SRLPs based on the greatest savings to the fund, the State identified potential SRLPs that may meet cost-effectiveness because the savings to the fund exceeds the projected acquisition cost based on current tax value. Our outreach to local governments on these SRLPs did not result in any new SRL applications. However, several SRLPs were included in future HMGP grant program applications.

GEMA/HS continues to give prioritization to the mitigation of SRLPs. Issues related to cost-effectiveness have hindered our ability to mitigate SRLPs. The State will continue to work with local governments that have SRLPs to implement cost-effective hazard mitigation measures. The Biggert-Waters Flood Insurance Reform Act of 2012 eliminated the SRL program, and future funding to mitigate SRLPs will be accomplished with the other HMA programs.

**Pre-Disaster Mitigation Competitive (PDM-C) Program**

The State has facilitated the use of PDM-C funds by local governments for the development of DMA2K-compliant hazard mitigation plans and the implementation of projects that have been identified or that support goals and actions identified in the local mitigation plans. The State provides technical assistance to local governments in the development of fundable PDM applications. Since the program's inception in 2002, the State has been successful in getting federal approval almost 86% of PDM sub-grant applications. Table 6.18 lists information through September 30, 2017, about the PDM funds approved since the program began. The table has been updated to combine information about allocations for which all work was completed prior to this plan update, which includes fourteen allocations from 2002 through 2012. The legislative directed projects (LPDM) are also in the table.



**Table 6.18 PDMC Funding**

Fiscal Year	Total Approved	Federal Share	State Share	Local Share	Approved Projects
PDMC02-12*	\$51,059,084	\$35,937,388	\$795,581	\$15,326,114	54
LPDM08-10*	1,830,236	1,372,363	30,358	427,516	13
PDMC13**	\$1,162,476	\$710,055	\$274,321	\$178,101	5
PDMC14	\$838,385	\$628,789	\$69,096	\$140,500	4
PDMC15	\$1,271,077	\$953,307	\$133,269	\$184,500	4
PDMC16	\$1,300,530	\$975,398	\$114,533	\$210,600	5
PDMC13-16	\$4,572,468	\$3,267,548	\$591,219	\$713,701	18
<b>Total</b>	<b>\$57,461,789</b>	<b>\$40,577,299</b>	<b>\$1,417,158</b>	<b>\$16,467,330</b>	<b>85</b>

\* Closed Allocations

\*\* Work completed and figures reflect final totals

**Table 6.19 Projects Funded with PDMC**

Program	Project Type	Number of Projects	Goal
PDMC	Planning	23	1,3
	Acquisition	26	2
	Drainage Improvement	7	2
	Elevation	1	2
	Safe Room	1	1,2
	Management	14	1,2,3
LPDM	Acquisition	1	2
	Warning/Initiative	5	1
	Management	3	1,2,3
	Safe Room	3	1,2
	Drainage Improvement	1	2

### Program Highlights

Through the PDM-C and LPDM, local governments have permanently mitigated losses through the acquisition of 126 flood-prone properties. Another 116 flood-prone properties have been mitigated through drainage improvements, and five safe rooms have been constructed. The program also funded the initial development of 136 local mitigation plans and one hundred eleven (111) local plan updates. Since the last plan update, the PDMC program has provided funding for 108 local plan updates. Table 6.19 summarizes the number of projects and project types funded through the PDM-C and their associated State Mitigation Goal.

## Conclusion

The GEMA/HS Hazard Mitigation Division has administered 801 hazard mitigation projects since 1990. These activities as well as those described above and throughout the plan demonstrate that Georgia effectively uses existing mitigation programs to achieve its mitigation goals.

The State endeavors to continue to pursue these mitigation programs along with additional programs and funding streams in the future to take advantage of every possible opportunity to accomplish our goals. Table 6.20 summarizes the information for all four of the FEMA mitigation grants programs and the funding received in Georgia through September 30, 2017.

**Table 6.20 Total Funding all Grant Programs**

Total Approved	Federal Share	State Share	Local Share	Approved Projects
\$291,167,359	\$194,143,022	\$13,264,630	\$61,678,286	801

The State has given priority to the funding of non-structural mitigation projects to eliminate the damages occurring to flood-prone structures, both insured and uninsured. Through September 30, 2017, 1,573 flood-prone structures have been permanently mitigated through the implementation of acquisition projects through the HMA programs.

The State's mitigated properties database is almost 100% completed. Based on information reported to date, 302 properties on FEMA's repetitive loss list have been mitigated primarily through property acquisition. Over 75% of the State's available mitigation funding has been directed to mitigating repetitively damaged structures through acquisition, elevation, or relocation. The State will continue to target these types of properties in future mitigation projects. In addition, GEMA/HS has provided support to local governments in the development of all hazard mitigation plans and projects through the issuance of guidance, education through workshops, and grants.

## 6.6 COMMITMENT TO A COMPREHENSIVE MITIGATION PROGRAM

44 CFR 201.5(b)(4)(i-vi) states that the Enhanced Plan must demonstrate that each state is committed to a comprehensive state mitigation program. Georgia has a long-standing commitment to support a comprehensive mitigation program. This commitment has been demonstrated through continued support in multiple areas:

- Local mitigation planning
- Legislation enacted that supports mitigation
- Commitment to mitigation through state funding for mitigation projects
- A commitment to assist state and local jurisdictions in reducing risks posed by each of the hazards identified in Chapter 2, including vulnerability to critical facilities
- The continued practice of integrating mitigation into post-disaster recovery.

This section provides a discussion of each aspect of the State of Georgia's commitment, how each aspect has been implemented, and the State's plan to continue implementation.

### 6.6.1 LOCAL MITIGATION PLANNING SUPPORT

Georgia is committed to supporting local mitigation planning by providing workshops, training, tools, and technical assistance to meet the planning requirements of the Disaster Mitigation Act of 2000. The Hazard

Mitigation Planning staff supports the development of local mitigation plans with dedicated resources, which includes on-site technical assistance and in-county service through the use of field-stationed planners. Additional details on local plan support are provided in Chapter 4. GEMA/HS has acquired funding for local governments to complete the second local plan update cycle and to begin the third cycle.

## **6.6.2 STATEWIDE PROGRAM OF HAZARD MITIGATION**

GEMA/HS and the Hazard Mitigation Division support the development of legislation and executive actions as well as the formation of public/private partnerships that promote hazard mitigation. GEMA/HS tracks and supports legislation of interest to the public safety, homeland security, and emergency management communities, including bills relevant to hazard mitigation. GEMA/HS also partners with other agencies and organizations to leverage support for legislation of common interest. Those entities include the Association County Commissioners of Georgia, the Georgia Municipal Association, the Georgia Fire Chiefs Association, the Georgia Sheriffs' Association, the Georgia Police Chiefs Association, the Georgia Rural Water Association, the Departments of Public Safety and Natural Resources, and others.

### **Legislation Supporting Mitigation**

The Official Code of Georgia Annotated (O.C.G.A.) is the compendium of all laws in Georgia. Georgia has numerous legislative rules that support the mitigation process in the state. Below is a list of this legislation, which is more thoroughly discussed in Chapter 3 and Appendix J.

- Georgia Emergency Management Act of 1981, as amended, O.C.G.A. §38-3-1
- Soil and Water Conservation Districts Law, O.C.G.A. §§2-6-20 to 23 & §2-6-27
- Coastal Marshlands Protection, O.C.G.A. §12-5-280
- Georgia Safe Dams Act of 1978, O.C.G.A. §§12-5-370 to 385
- Erosion and Sedimentation Act, O.C.G.A. §12-7-1
- Georgia Environmental Policy Act, O.C.G.A. §12-16-1
- Metropolitan North Georgia Water Planning District Act, O.C.G.A. §12-5-570
- Uniform Codes Act, O.C.G.A. §8-2-20
- The Uniform Standards Code for Manufactured Homes Act and Installation of Manufactured and Mobile Homes, O.C.G.A. §8-2-130 and §8-2-160
- Georgia Planning Act of 1989, O.C.G.A. §12-2-8
- Georgia Forest Fire Protection Act, O.C.G.A. §12-6-80 to §12-6-93
- Georgia Prescribed Burning Act, O.C.G.A. §12-6-145
- Georgia Geospatial Advisory Council, O.C.G.A. §12-5-9

### **Mitigation Councils**

#### *Georgia State Interagency Hazard Mitigation Planning Team*

In July 2006, the State Hazard Mitigation Task Force, now called the State Hazard Mitigation Planning Team (SHMPT), was convened via letter from GEMA/HS Director Charley English. The team was made up of a number of state agencies and was instrumental in updating the State Mitigation Plan. The SHMPT is introduced in Chapter 1, and meeting details are included in Appendix B.

### **Other Partnerships**

#### *Association County Commissioners of Georgia (ACCG) and Georgia Municipal Association (GMA)*

The State of Georgia partners with ACCG and GMA to publicize the availability of mitigation program grant funds for local and county governments. In addition, GEMA/HS provides information to ACCG and GMS at their annual meetings.

### *Geographical Information Systems Coordinating Committee (GISCC)*

The Georgia GISCC's vision is that all levels of government become highly effective and efficient through the coordination and use of geospatially related data, standards, and technologies. The GISCC's mission is to be a valued advisor on sustainable geospatial governance, investments, policies, and data-driven decisions influencing Georgia.

The GISCC, formed by the Information Technology Policy Council in July of 1998, is the officially recognized statewide advisory and coordinating body for geospatially related activities, pending legislative approval. The GISCC provides an efficient and effective framework for the collaboration, communication, planning, budgeting, acquisition, utilization, and archiving of all state, regional, and local geospatial resources.

The GISCC leads and encourages continued development and the use of the Georgia Spatial Data Infrastructure (GaSDI), which feeds the National Spatial Data Infrastructure, defined as the "technology, policies, and people necessary to promote geospatial data sharing throughout all levels of government, the private and nonprofit sectors, and academia." The term "infrastructure" is defined as the "underlying base or the basic facilities, equipment, services, and installations needed for the growth and functioning of a community or organization." In the same manner that roads are vitally important to the state's infrastructure, the data, systems, people, and institutional arrangements that make up the GaSDI provide public and private organizations with the foundation for progress.

GISCC members include representatives from all levels of government, private industry, educational institutions, and nonprofit and private groups. The GISCC leadership positions include chair, vice chair, outgoing chair (new in 2008), and chairs of the following three standing subcommittees: strategic plans and policy, education and outreach, and framework management.

### *Georgia Geospatial Advisory Council (GGAC)*

The 2009 floods that affected Metro Atlanta and North Georgia validated the need for accurate maps and data depicting the risk of flooding. In 2010, the Georgia General Assembly passed HB 169 (O.C.G.A. §12-5-9 (b)(3)), creating the GGAC. The GGAC is charged with auditing Georgia's geospatial capabilities at the county, regional, and state levels.

GGAC has two primary tasks:

1. Using geospatial capabilities to meet FEMA floodplain notification requirements, and
2. Formulating recommendations for advancing governmental data interoperability and enhancing service delivery to the citizens of Georgia through geospatial technologies.

The GGAC is overseen by the EPD director and is composed of 43 representatives from state departments and agencies, local governments, the private sector, universities, regional commissions, and others. Findings from the statewide geospatial audit have been compiled and presented to the General Assembly. The GGAC achieved consensus on the following recommendations:

- Formalize a geospatial advisory council to the General Assembly or state governmental entity with rules making authority.
- Establish the Georgia Geospatial Information Office.
- Execute statewide master agreement(s) for geospatial software/services/resources.
- Develop a digital, statewide parcel GIS database (i.e., "property" database).
- Develop a current (2009 and newer), high-resolution, statewide elevation GIS database.

The GGAC finds these recommendations to be the most viable approach to advancing the use of geospatial technology and assets for the purpose of notification as recommended by FEMA. The GGAC believes that they will produce, for a very modest sum, a significant return on investment.

### 6.6.3 STATE MATCH ASSISTANCE FOR MITIGATION PROGRAMS

The State provides 40% of the non-federal match for HMGP projects funded in the counties declared for Individual and or Public Assistance. The State also provides the same level of match for mitigation projects funded through the Public Assistance Program and the Emergency Watershed Protection program. Table 6.21 lists for each of the open Presidential Declared Disasters in this plan update cycle the amount of federal, state, and local assistance that has been approved in support of HMGP projects through September 30, 2017.

**Table 6.21 HMGP Cost Shares for Open Disaster Declarations**

Disaster	Total Approved	Federal Share	State Share	Local Share
DR1858	36,707,925	27,764,486	3,697,194	5,246,245
DR1973	6,002,810	4,331,361	754,546	916,903
DR4165	11,702,777	8,645,327	1,510,670	1,546,780
DR4215	2,560,421	1,892,908	293,664	373,849
DR4259	829,122	619,094	158,385	51,643
DR4284	200,000	150,000	50,000	0
DR4294	150,000	112,500	37,500	0
DR4297	300,000	225,000	75,000	0
<b>Total</b>	<b>58,453,055</b>	<b>43,740,676</b>	<b>6,576,959</b>	<b>8,135,420</b>
<b>Percentage</b>		<b>74.8%</b>	<b>11.3%</b>	<b>13.9%</b>

### 6.6.4 CONSTRUCTION STANDARDS FOR MITIGATION

DCA's Construction Codes and Industrialized Buildings Program establish minimum building construction standards for all new structures. Local governments that adopt building codes under one of these programs must use these minimum standards. Section 3.4.1 provides a list of building construction codes in the State of Georgia. These include nine mandatory and three permissive codes.

#### Disaster Resilient Building Code (DRBC) Appendices

DCA was awarded a grant through the U.S. Department of Housing and Urban Development (HUD) to develop new DRBC Appendices for the International Building Code (IBC) and the International Residential Building Code (IRC). A task force of 19 stakeholders was appointed to look for opportunities to improve any provisions relating to hurricane, flood, and tornado disasters. In addition to improving existing provisions in the codes, the task force developed new provisions that address these issues. See Appendix I for the Georgia State International Building Code and Georgia State International Residential Code in regards to disaster resilient construction. The optional appendices contain increased construction requirements (code plus) for disaster resilience that may be adopted in whole or in part and that were available for adoption by local jurisdictions in the State of Georgia as of January 1, 2013. As of 2018, two communities, the Cities of Kennesaw and Saint Marys have adopted the DRBC appendices. DCA is in the process of updating to the 2018 IBC and IRC with the intention of retaining the DRBCs as appendices to the new codes, beginning in January 2020.

## 6.6.5 MITIGATING RISKS TO CRITICAL AND ESSENTIAL FACILITIES

“Critical facilities” is used to describe all man-made structures or other improvements that because of their function, size, service area, or uniqueness have the potential to cause serious bodily harm, extensive property damage, or disruption of vital socioeconomic activities if they are destroyed or damaged or if their functionality is impaired. Critical facilities commonly include all public and private facilities that a community considers essential for the delivery of vital services and for the protection of the community. They usually include emergency response facilities (fire stations, police stations, rescue squads, and emergency operation centers, custodial facilities (jails and other detention centers, long-term care facilities, hospitals, and other health care facilities), schools, emergency shelters, utilities (water supply, wastewater treatment facilities, and power), communications facilities, and any other assets determined by the community to be of critical importance for the protection of the health and safety of the population.

Essential facilities are a subset of critical facilities and include hospitals, fire and police stations, rescue and other emergency service facilities, power stations, water supply facilities, aviation facilities, and other buildings critical for post-disaster response and recovery operations.

Chapter 2 of the Standard Plan addresses both state-owned and operated facilities as well as critical facilities in order to focus on loss potential within the state. Assessing state-owned and operated facilities allows GEMA/HS to prioritize mitigation efforts directed toward other state agencies with more efficiency as well as to aid in protecting the state's assets. Because critical facilities include any facility or structure that should continue to function and provide necessary services in some capacity (not necessarily normal purpose) to surrounding populations during and after a hazard event, GEMA/HS aims mitigation efforts in this area as well.

As discussed in Section 2.8 of the Standard Plan, an assessment to identify the state-owned and leased facilities has been completed in all 159 Georgia counties. The state has utilized this information to update the hazard, risk, and vulnerability assessment.

Subsequently, future hazard, risk, and vulnerability assessments will include analyses of all spatially defined hazards identified in Chapter 2 of the Standard Plan that have the potential to affect state-owned and operated facilities that are stored in the Building, Land & Lease Inventory of Property (BLLIP) system as well as critical facilities stored in the GMIS system. Efforts are currently under way to develop processes for state agencies to identify critical facilities in the BLLIP system and also to have the GMIS site consume the relevant BLLIP information. Once the risk assessments have been completed for all spatially defined hazards, a formal, comprehensive, multi-year plan to mitigate the risks posed to the identified facilities will be developed.

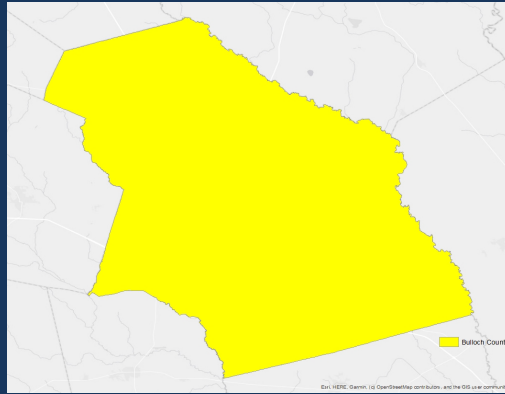
In addition, through community education and outreach, GEMA/HS has encouraged local jurisdictions to include mitigation activities that would reduce or eliminate the vulnerability to local jurisdictional critical facilities. Section 2.4.2 of the Standard Plan provides a table containing a list of hazards identified by local hazard mitigation plans, and Section 3.2.4 of the Standard Plan provides a table containing a list of mitigation activities addressed in each of the approved or submitted local hazard mitigation plans.

## 6.6.6 INTEGRATING MITIGATION TO POST-DISASTER RECOVERY OPERATIONS

Hazard mitigation is an integral part of Georgia's post-disaster recovery operations. Staff from the Mitigation Division support FEMA staff at the Joint Field Office (JFO). State and FEMA staff work together to identify mitigation opportunities through the Human Services, Public Assistance, Small Business Administration, and Floodplain Management programs. Public Assistance staff is proactive in pursuing mitigation activities in the immediate post-disaster recovery effort for repair and restoration projects. GEMA/HS's Mitigation staff supports the Public Assistance staff at their applicant briefings. GEMA/HS's Mitigation staff conducts applicant briefings in the declared counties and provides technical assistance to all potential grant applicants on project development.

For DRs 4165, 4215, 4259, 4284, 4294, 4297, and 4338, GEMA/HS Hazard Mitigation staff worked closely with FEMA Mitigation staff at the JFO to develop a Joint Mitigation Implementation Plan for each disaster. The Joint Mitigation Implementation Plan detailed actions taken at the JFO to address the mitigation priorities identified by GEMA/HS and FEMA in response to damage from each of the seven disasters noted above. The priorities were compiled by the State in cooperation with the JFO Mitigation staff to support the State Mitigation Plan for Georgia. Mitigation staff also worked very closely with FEMA's Hazards and Performance Analysis staff on loss avoidance studies for DR4259, DR4284, and DR4338 to document the losses avoided of acquisition projects completed by local governments in the same areas that saw flooding. For the counties impacted by DR4294 and DR4297 tornado declarations, GEMA/HS partnered with the Georgia Board of Regents and FEMA to deliver Safe Room workshops at six colleges, providing information to more than 150 people on guidelines for determining areas of best available refuge within buildings.





# Hazard Risk Analyses Supplement to the Bulloch County Joint Hazard Mitigation Plan



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# Introduction

The Federal Disaster Mitigation Act of 2000 (DMA2K) requires state, local, and tribal governments to develop and maintain a mitigation plan to be eligible for certain federal disaster assistance and hazard mitigation funding programs.

Mitigation seeks to reduce a hazard's impacts, which may include loss of life, property damage, disruption to local and regional economies, and the expenditure of public and private funds for recovery. Sound mitigation must be based on a sound risk assessment that quantifies the potential losses of a disaster by assessing the vulnerability of buildings, infrastructure, and people.

In recognition of the importance of planning in mitigation activities, FEMA Hazus-MH, a powerful disaster risk assessment tool based on geographic information systems (GIS). This tool enables communities of all sizes to predict estimated losses from floods, hurricanes, earthquakes, and other related phenomena and to measure the impact of various mitigation practices that might help reduce those losses.

In 2021, the Georgia Department of Emergency Management partnered with The Coastal Regional Commission (CRC) to develop a detailed risk assessment focused on defining hurricane, riverine flood and tornado impacts for Georgia. This assessment identifies the characteristics and potential consequences of the disaster, how much of the community could be affected by the disaster, and the impact on community assets. In the following years, the Georgia Association of Regional Commissions (GARC) are utilizing this workflow to define impacts in other counties in Georgia. This document provides the results for Bulloch County.

## Risk Assessment Process Overview

Hazus-MH Version 2.2 SP1 was used to perform the analyses for Bulloch County. The Hazus-MH application includes default data for every county in the US. This Hazus-MH data was derived from a variety of national sources and in some cases the data are also several years old. Whenever possible, using local provided data is preferred. Bulloch County provided building inventory information from the county's property tax assessment system. This section describes the changes made to the default Hazus-MH inventory and the modeling parameters used for each scenario.

## County Inventory Changes

The default Hazus-MH site-specific point inventory was updated using data compiled from the Georgia Emergency Management Agency (GEMA). The default Hazus-MH aggregate inventory (General Building Stock) was also updated prior to running the scenarios. Reported losses reflect the updated data sets.

## General Building Stock Updates

General Building Stock (GBS) is an inventory category that consists of aggregated data (grouped by census geography — tract or block). Hazus-MH generates a combination of site-specific and aggregated loss estimates based on the given analysis and user input.

The GBS records for Bulloch County were replaced with data derived from parcel and property assessment data obtained from Bulloch County. The county provided property assessment data was current as of January 2020 and the parcel data current as of January 2020. Records without improvements were deleted. The parcel boundaries were converted to parcel points located in the centroids of each parcel boundary; then, each parcel point was linked to an assessor record based upon matching parcel numbers. The parcel assessor match-rate for Bulloch County is 100%. The

generated building inventory represents the approximate locations (within a parcel) of structures. The building inventory was aggregated by census block. Both the tract and block tables were updated. Table 1 shows the results of the changes to the GBS tables by occupancy class.

Table 1: GBS Building Exposure Updates by Occupancy Class\*

Occupancy Classification	Default Count	Updated Count	Default Exposure	Updated Exposure
Agricultural	145	6	\$ 32,617	\$ 16,530
Commercial	1,425	1,881	\$ 809,838	\$ 2,552,013
Education	58	28	\$ 113,813	\$ 26,321
Government	46	8	\$ 37,888	\$ 5,382
Industrial	380	157	\$ 143,583	\$ 409,685
Religious	172	20	\$ 99,762	\$ 12,098
Residential	22,736	20,851	\$ 4,428,682	\$ 4,269,841
<b>Total</b>	<b>24,962</b>	<b>22,951</b>	<b>\$ 5,666,183</b>	<b>\$ 7,291,870</b>

\*The exposure values represent the total number and replacement cost for all Bulloch County Buildings

For Bulloch County, the updated GBS was used to calculate hurricane wind losses. The flood losses and tornado losses were calculated from building inventory modeled in Hazus-MH as User-Defined Facility (UDF)<sup>1</sup>, or site-specific points. Figure 1 shows the distribution of buildings as points based on the county provided data.

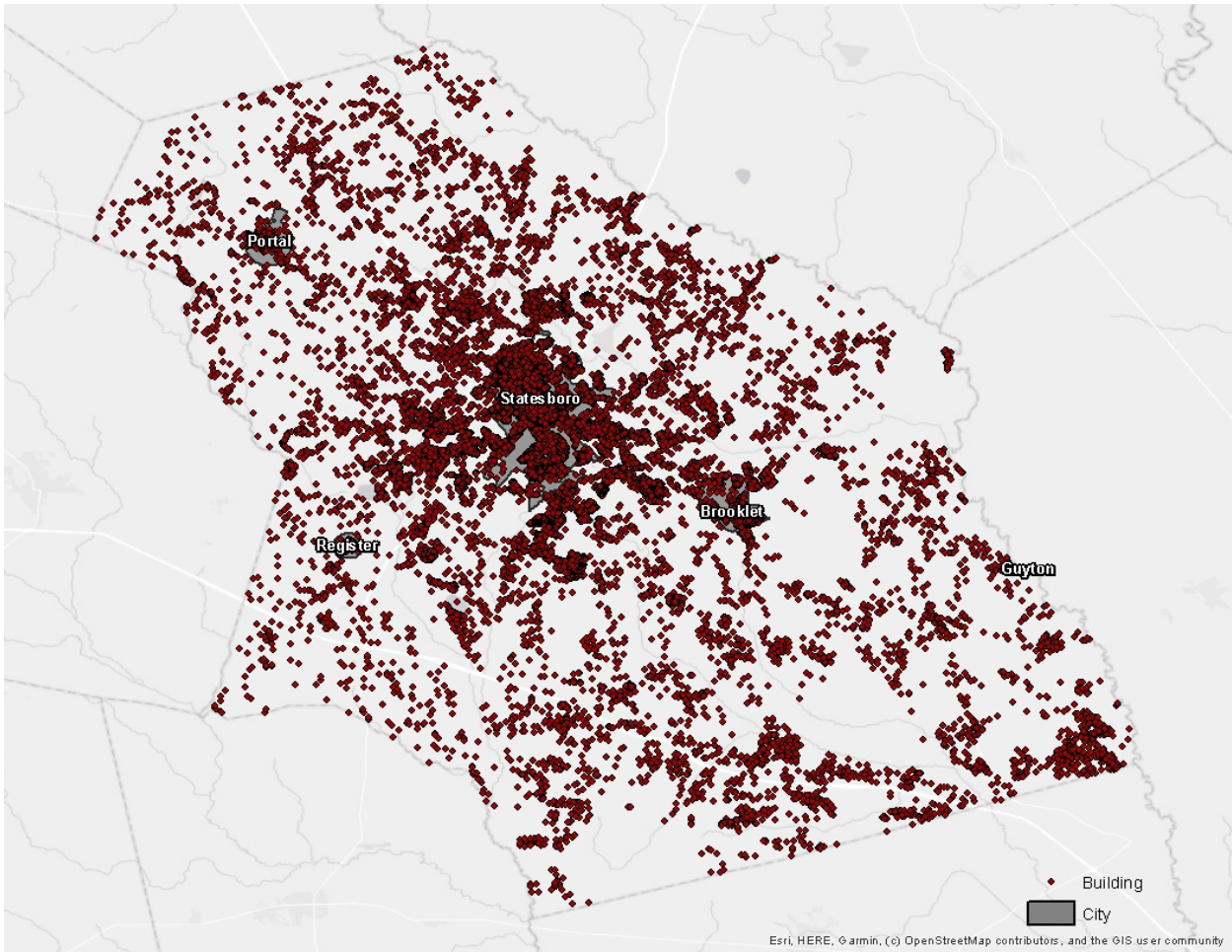


Figure 1: Bulloch County Overview

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<sup>1</sup> The UDF inventory category in Hazus-MH allows the user to enter site-specific data in place of GBS data.



## Essential Facility Updates

The default Hazus-MH essential facility data was updated to reflect improved information available in the Georgia Mitigation Information System (GMIS). For these risk analyses, only GMIS data for buildings that Hazus-MH classified as Essential Facilities was integrated into Hazus-MH because the application provides specialized reports for these five types of facilities. Essential Facility inventory was updated for the analysis conducted for this report. The following table summarizes the counts and exposures, where available, by Essential Facility classification of the updated data for the county.

### Essential facilities include:

- Care facilities
- EOCs
- Fire stations
- Police stations
- Schools

Table 2: Updated Essential Facilities

Classification	Updated Count	Updated Exposure
Bulloch Unincorporated		
EOC	1	\$ 202,000
Care	0	\$ -
Fire	11	\$ 2,923,317
Police	4	\$ 7,912,654
School	9	\$ 80,947,156
<b>Total</b>	<b>25</b>	<b>\$ 91,985,127</b>

Classification	Updated Count	Updated Exposure
Statesboro		
EOC	0	\$ -
Care	4	\$ 90,539,954
Fire	2	\$ 1,864,559
Police	1	\$ 5,000,000
School	49	\$ 1,105,419,761
<b>Total</b>	<b>56</b>	<b>\$ 1,202,824,274</b>

Classification	Updated Count	Updated Exposure
Register		
EOC	0	\$ -
Care	0	\$ -
Fire	1	\$ 659,017
Police	0	\$ -
School	0	\$ -
<b>Total</b>	<b>1</b>	<b>\$ 659,017</b>

Classification	Updated Count	Updated Exposure
Brooklet		
EOC	0	\$ -
Care	0	\$ -
Fire	1	\$ 135,402
Police	1	\$ 53,100
School	1	\$ 218,517
<b>Total</b>	<b>3</b>	<b>\$ 407,019</b>

Classification	Updated Count	Updated Exposure
Portal		
EOC	0	\$ -
Care	0	\$ -
Fire	0	\$ -
Police	1	\$ 142,639
School	2	\$ 4,293,877
<b>Total</b>	<b>3</b>	<b>\$ 4,436,516</b>

Classification	Updated Count	Updated Exposure

# Assumptions and Exceptions

Hazus-MH loss estimates may be impacted by certain assumptions and process variances made in this risk assessment.

- The Bulloch County analysis used Hazus-MH Version 2.2 SP1, which was released by FEMA in May 2015.
- County provided parcel and property assessment data may not fully reflect all buildings in the county. For example, some counties do not report not-for-profit buildings such as government buildings, schools and churches in their property assessment data. This data was used to update the General Building Stock as well as the User Defined Facilities applied in this risk assessment.
- GBS updates from assessor data will skew loss calculations. The following attributes were defaulted or calculated:
  - Foundation Type was set from Occupancy Class
  - First Floor Height was set from Foundation Type
  - Content Cost was calculated from Replacement Cost
- It is assumed that the buildings are located at the centroid of the parcel unless building footprints are used. For this analysis of Bulloch County, parcel centroids were used.
- The essential facilities extracted from the GMIS were only used in the portion of the analysis designated as essential facility damage. They were not used in the update of the General Building Stock or the User Defined Facility inventory.

The hazard models included in this risk assessment included:

- Hurricane assessment which was comprised of a wind only damage assessment
- Flood assessment based on the 1% annual chance event that includes riverine assessments
- Tornado assessment based on GIS modeling

# Hurricane Risk Assessment

## Hazard Definition

The National Hurricane Center describes a hurricane as a tropical cyclone in which the maximum sustained wind is, at minimum, 74 miles per hour (mph)<sup>2</sup>. The term hurricane is used for Northern Hemisphere tropical cyclones east of the International Dateline to the Greenwich Meridian. The term typhoon is used for Pacific tropical cyclones north of the Equator west of the International Dateline. Hurricanes in the Atlantic Ocean, Gulf of Mexico, and Caribbean form between June and November with the peak of hurricane season occurring in the middle of September. Figure 2 shows that many hurricanes have impacted the Atlantic and Gulf coasts of the United States.

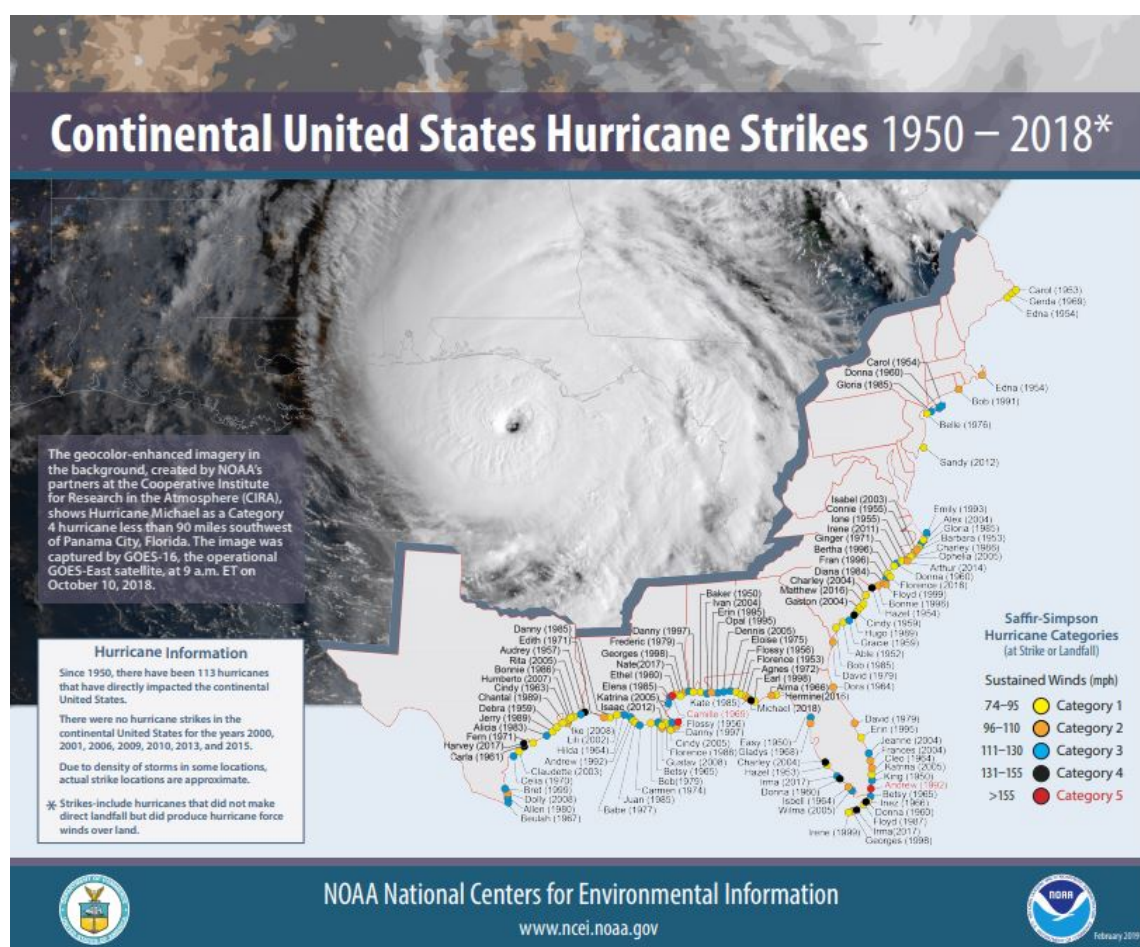


Figure 2: Continental United States Hurricane Strikes: 1950 to 2018<sup>3</sup>  
 Hurricane intensities are measured using the Saffir-Simpson Hurricane Wind Scale (Table 3). This scale is a 1 to 5 categorization based on the hurricane's intensity at the indicated time.

<sup>2</sup> National Hurricane Center (2011). "Glossary of NHC Terms." National Oceanic and Atmospheric Administration. <http://www.nhc.noaa.gov/aboutgloss.shtml#h>. Retrieved 2-23-2012.

<sup>3</sup> Source: NOAA National Climatic Data Center

Table 3: Saffir-Simpson Hurricane Wind Scale

Category	Wind Speed (mph)	Damage
1	74 – 95	Very dangerous winds will produce some damage
2	96 – 110	Extremely dangerous winds will cause extensive damage
3	111 - 130	Devastating damage will occur
4	131 -155	Catastrophic damage will occur
5	> 155	Catastrophic damage will occur

Hurricanes bring a complex set of impacts. The winds from a hurricane produce a rise in the water level at landfall called storm surge. Storm surges produce coastal flooding effects that can be as damaging as the hurricane’s winds. Hurricanes bring very intense inland riverine flooding. Hurricanes can also produce tornadoes that can add to the wind damages inland. In this risk assessment, only hurricane winds, and coastal storm surge are considered.

The National Oceanic and Atmospheric Administration’s National Hurricane Center created the HURDAT database, which contains all of the tracks of tropical systems since the mid-1800s. This database was used to document the number of tropical systems that have affected Bulloch County by creating a 20-mile buffer around the county to include storms that didn’t make direct landfall in Bulloch County but impacted the county. Since 1851, Bulloch County has had 81 tropical systems within 20 miles of its county borders (Table 4).

Table 4: Tropical Systems affecting Bulloch County

Year	Month	Day	Name	Wind (Knots)	Category	Year	Month	Day	Name	Wind (Knots)	Category
Year	Month	Day	Name	Wind (Knots)	Category	Year	Month	Day	Name	Wind (Knots)	Category
1852	10	10	NOTNAMED	60	TS	1924	9	16	NOTNAMED	35	TS
1854	9	8	NOTNAMED	100	H3	1924	9	30	NOTNAMED	55	E
1854	9	9	NOTNAMED	80	H1	1929	10	1	NOTNAMED	40	TS
1854	9	9	NOTNAMED	70	H1	1935	9	5	NOTNAMED	60	TS
1856	8	31	NOTNAMED	60	TS	1940	8	11	NOTNAMED	65	H1
1860	8	13	NOTNAMED	40	TS	1940	8	12	NOTNAMED	60	TS
1860	8	14	NOTNAMED	40	TS	1940	8	12	NOTNAMED	55	TS
1871	8	28	NOTNAMED	30	TD	1941	10	8	NOTNAMED	55	TS
1871	8	28	NOTNAMED	30	TD	1941	10	8	NOTNAMED	55	TS
1871	10	6	NOTNAMED	40	TS	1946	10	8	NOTNAMED	35	TS
1873	9	19	NOTNAMED	60	TS	1947	9	24	NOTNAMED	45	TS
1877	10	3	NOTNAMED	50	TS	1953	9	1	NOTNAMED	30	TD
1877	10	4	NOTNAMED	40	TS	1953	9	1	NOTNAMED	25	TD
1881	8	28	NOTNAMED	90	H2	1953	9	27	FLORENCE	40	E
1881	8	28	NOTNAMED	70	H1	1956	9	25	FLOSSY	35	E
1884	9	11	NOTNAMED	40	TS	1956	9	26	FLOSSY	35	E
1884	9	11	NOTNAMED	30	TD	1957	6	9	NOTNAMED	35	TS
1885	10	12	NOTNAMED	50	TS	1964	8	29	CLEO	40	TS
1886	7	1	NOTNAMED	55	TS	1964	8	29	CLEO	35	TS
1888	9	9	NOTNAMED	40	TS	1964	8	29	CLEO	30	TD
1888	9	10	NOTNAMED	35	TS	1964	8	30	CLEO	30	TD
1893	8	28	NOTNAMED	100	H3	1964	9	12	DORA	35	TS
1893	8	28	NOTNAMED	90	H2	1964	9	13	DORA	35	TS
1894	10	9	NOTNAMED	70	H1	1968	6	7	ABBY	50	TS
1896	9	29	NOTNAMED	100	H3	1968	6	7	ABBY	45	TS
1896	9	29	NOTNAMED	85	H2	1968	6	7	ABBY	30	TD
1898	8	31	NOTNAMED	75	H1	1970	5	25	ALMA	25	TD
1898	8	31	NOTNAMED	60	TS	1985	11	22	KATE	65	H1
1898	8	31	NOTNAMED	50	TS	1985	11	22	KATE	50	TS
1901	9	18	NOTNAMED	35	TS	1986	8	14	CHARLEY	10	SD
1902	6	15	NOTNAMED	35	TS	1986	8	14	CHARLEY	10	SD
1904	11	4	NOTNAMED	30	TD	1986	8	15	CHARLEY	15	SD
1907	9	29	NOTNAMED	35	TS	1994	11	21	GORDON	20	TD
1909	7	2	NOTNAMED	25	TD	1995	6	6	ALLISON	30	TD
1909	7	3	NOTNAMED	25	TD	1995	6	6	ALLISON	35	E
1911	8	28	NOTNAMED	65	H1	1998	9	3	EARL	40	E
1911	8	28	NOTNAMED	50	TS	2000	9	18	GORDON	30	TD
1911	8	29	NOTNAMED	45	TS	2000	9	18	GORDON	25	E
1915	8	3	NOTNAMED	40	TS	2006	6	14	ALBERTO	35	TS
1923	6	27	NOTNAMED	30	TD	2006	6	14	ALBERTO	30	TD
1923	6	27	NOTNAMED	30	TD						

Category Definitions:

TS – Tropical storm

TD – Tropical depression

CAT\_1 – Category 1 (same format for 2, 3, 4 and 5)

E – Extra-tropical cyclone

# Probabilistic Hurricane Scenario

The following probabilistic wind damage risk assessment modeled a Category 1 storm with maximum winds of 93 mph.

## Wind Damage Assessment

Wind losses were determined from probabilistic models run for the Category 1 storm which equates to the 1% chance storm event. Figure 3 shows wind speeds for the modeled hurricane.

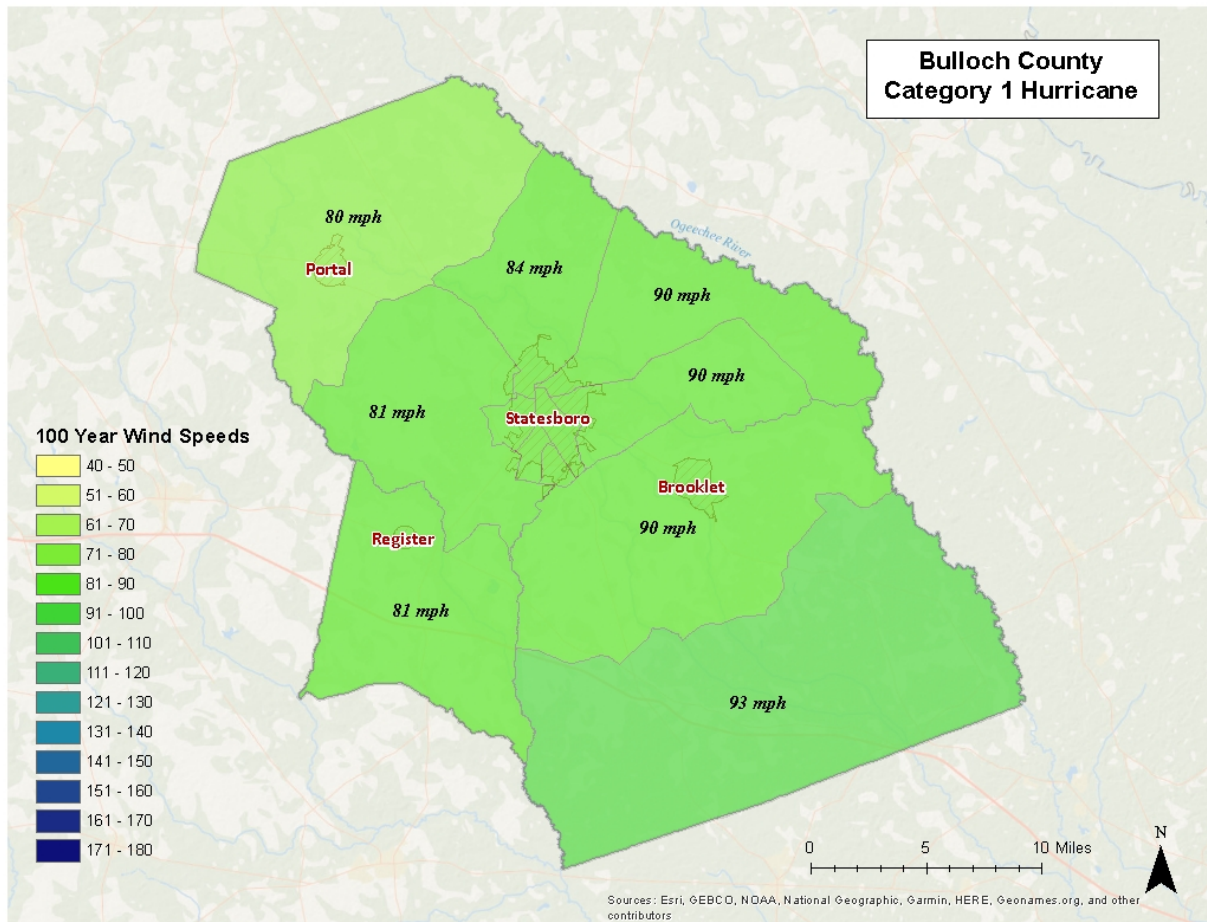


Figure 3: Wind Speeds by Storm Category

## Wind-Related Building Damages

Buildings in Bulloch County are vulnerable to storm events, and the cost to rebuild may have significant consequences to the community. The following table shows a summary of the results of wind-related building damage in Bulloch County for the Category 1 (100 Year Event) storm. The loss ratio expresses building losses as a percentage of total building replacement cost in the county. Figure 4 illustrates the building loss ratios of the modeled Category 1 storm.



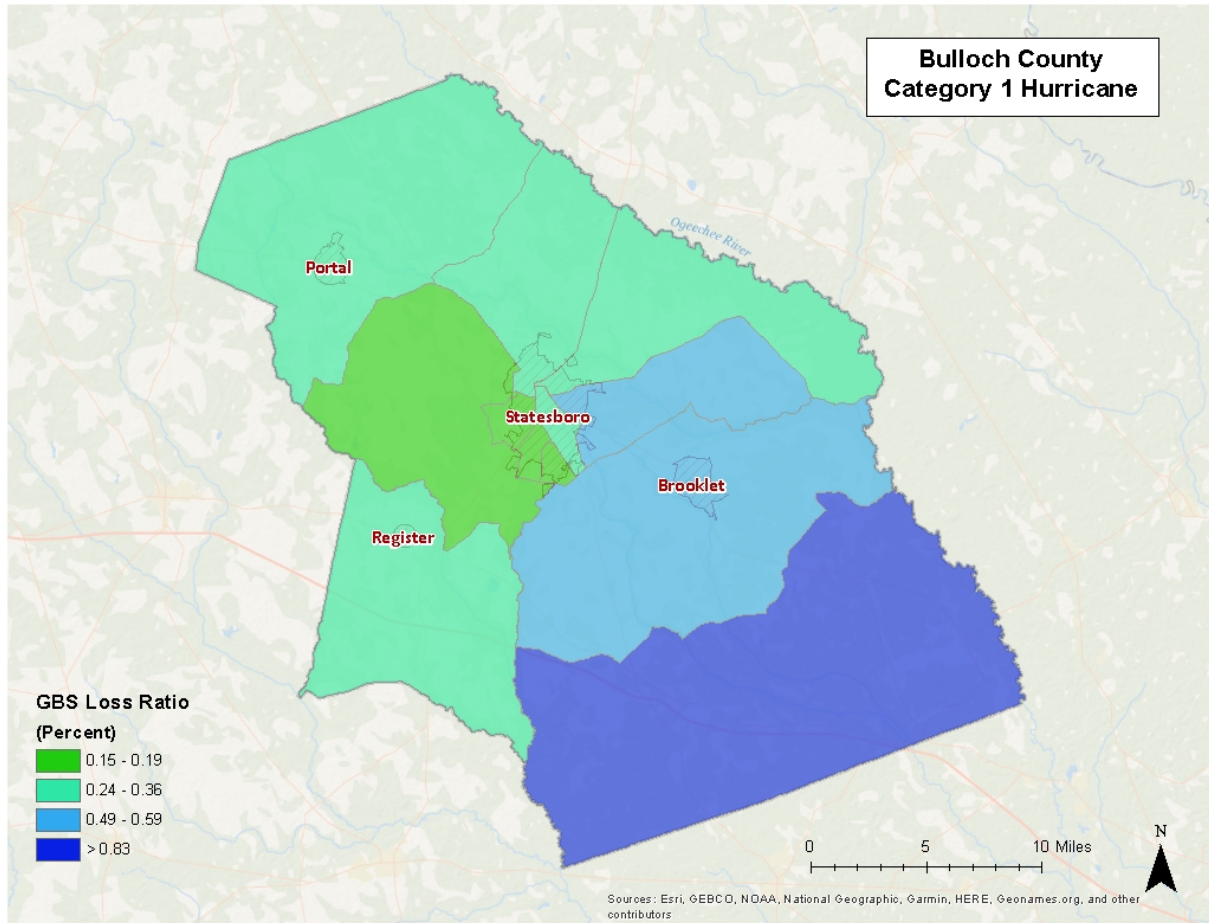


Figure 4: Hurricane Wind GBS Loss Ratios

Table 5 shows the Hurricane Wind Building Damage results including the number of buildings damaged, total building damage, and economic loss.

Table 5: Hurricane Wind Building Damage

Storm Classification	Number of Damaged Buildings	Building Damages	Total Economic Loss	Loss Ratio
Category 1	940	\$ 22,285,810	\$ 29,395,000.00	0.31

## Essential Facility Losses

Essential facilities are also vulnerable to storm events, and the potential loss of functionality may have significant consequences to the community. Hazus-MH identified the essential facilities that may be moderately or severely damaged by winds. The results are compiled in Table 6.

There are 88 essential facilities in Bulloch County.

Classification	Number
EOC	1
Care	4
Fire	15
Police	7
School	61
<b>Total</b>	<b>88</b>



Table 6: Wind-Damaged Essential Facility Losses

Storm Classification	Facilities Moderately Damaged (>50%)	Facilities Completely Damaged (>50%)	Facilities with expected loss (<1day)
Category 1	0	0	88

## Shelter Requirements

Hazus-MH estimates the number of households evacuated from buildings with severe damage from high velocity winds as well as the number of people who will require short-term sheltering. The results are listed in Table 7 and mapped in Figure 5.

Table 7: Displaced Households and People

Storm Classification	# of Displaced Households	# of People Needing Short-Term Shelter
Category 1	7	1

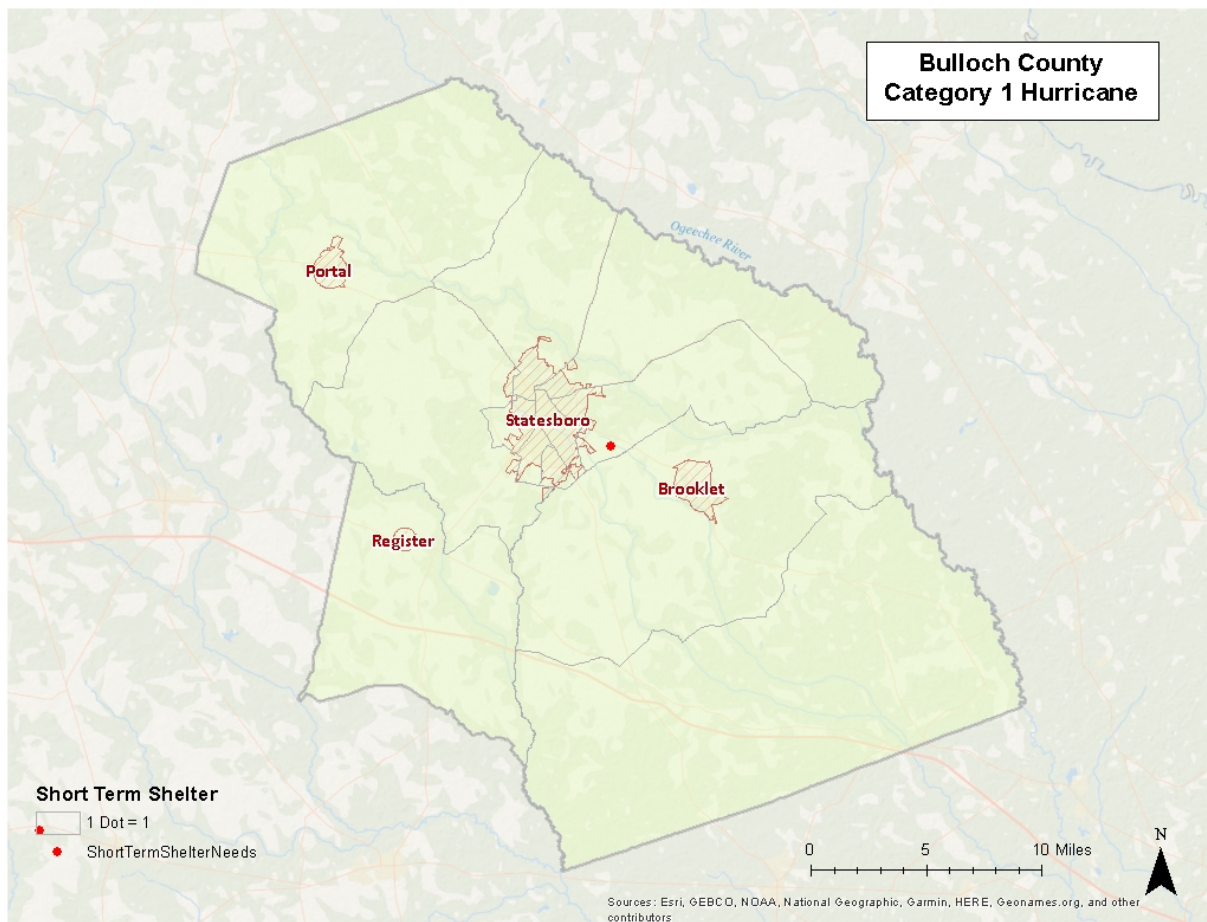


Figure 5: Hurricane Wind Shelter Requirements

## Debris Generated from Hurricane Wind

Hazus-MH estimates the amount of debris that will be generated by high velocity hurricane winds and quantifies it into three broad categories to determine the material handling equipment needed:

- Reinforced Concrete and Steel Debris
- Brick and Wood and Other Building Debris
- Tree Debris

Different material handling equipment is required for each category of debris. The estimates of debris for this scenario are listed in Table 8. The amount of hurricane wind related tree debris that is estimated to require pick up at the public's expense is listed in the eligible tree debris column.

Table 8: Wind-Related Debris Weight (Tons)

Storm Classification	Brick, Wood, and Other	Reinforced Concrete/Steel	Tree Debris	Other Tree Debris	Total
Category 1	3,541	2	12,892	198,745	215,181

Figure 6 shows the distribution of all wind related debris resulting from a Category 1 hurricane. Each dot represents 20 tons of debris within the census tract in which it is located. The dots are randomly distributed within each census tract and therefore do not represent the specific location of debris sites.

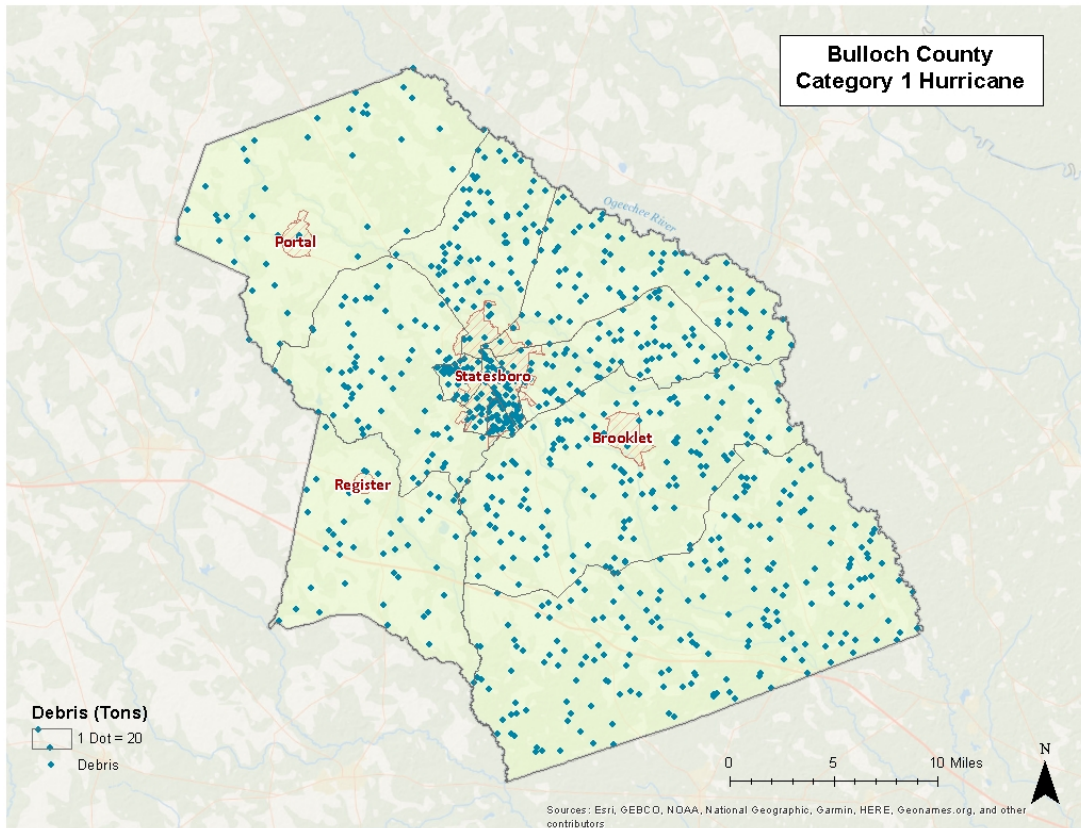


Figure 6: Wind-Related Debris Weight (Tons)

# Flood Risk Assessment

## Hazard Definition

Flooding is a significant natural hazard throughout the United States. The type, magnitude, and severity of flooding are functions of the amount and distribution of precipitation over a given area, the rate at which precipitation infiltrates the ground, the geometry and hydrology of the catchment, and flow dynamics and conditions in and along the river channel. Floods can be classified as one of three types: upstream floods, downstream floods, or coastal floods.

Upstream floods, also called flash floods, occur in the upper parts of drainage basins and are generally characterized by periods of intense rainfall over a short duration. These floods arise with very little warning and often result in locally intense damage, and sometimes loss of life, due to the high energy of the flowing water. Flood waters can snap trees, topple buildings, and easily move large boulders or other structures. Six inches of rushing water can upend a person; another 18 inches might carry off a car. Generally, upstream floods cause damage over relatively localized areas, but they can be quite severe in the local areas in which they occur. Urban flooding is a type of upstream flood. Urban flooding involves the overflow of storm drain systems and can be the result of inadequate drainage combined with heavy rainfall or rapid snowmelt. Upstream or flash floods can occur at any time of the year in Georgia, but they are most common in the spring and summer months.

Downstream floods, also called riverine floods, refer to floods on large rivers at locations with large upstream catchments. Downstream floods are typically associated with precipitation events that are of relatively long duration and occur over large areas. Flooding on small tributary streams may be limited, but the contribution of increased runoff may result in a large flood downstream. The lag time between precipitation and time of the flood peak is much longer for downstream floods than for upstream floods, generally providing ample warning for people to move to safe locations and, to some extent, secure some property against damage.

Coastal floods occurring on the Atlantic and Gulf coasts may be related to hurricanes or other combined offshore, nearshore, and shoreline processes. The effects of these complex interrelationships vary significantly across coastal settings, leading to challenges in the determination of the base (1-percent-annual-chance) flood for hazard mapping purposes. Land area covered by floodwaters of the base flood is identified as a Special Flood Hazard Area (SFHA). The Bulloch County flood risk assessment analyzed at risk structures in the SFHA.

The SFHA is the area where the National Flood Insurance Program's (NFIP) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. The owner of a structure in a high-risk area must carry flood insurance, if the owner carries a mortgage from a federally regulated or insured lender or servicer.

The following probabilistic risk assessment involves an analysis of a 1% annual chance riverine flood event.

## Riverine 1% Flood Scenario

Riverine losses were determined from the 1% flood boundaries downloaded from the FEMA Flood Map Service Center in January 2020. The flood boundaries were overlaid with the USGS 10-meter DEM using the Hazus-MH Enhanced Quick Look tool to generate riverine depth grids. The riverine flood depth grid was then imported into Hazus-MH to calculate the riverine flood loss estimates. Figure 7 illustrates the riverine inundation boundary associated with the 1% annual chance. Please note that the riverine flooding may not take into account elevated housing or raised Base Flood Elevation.

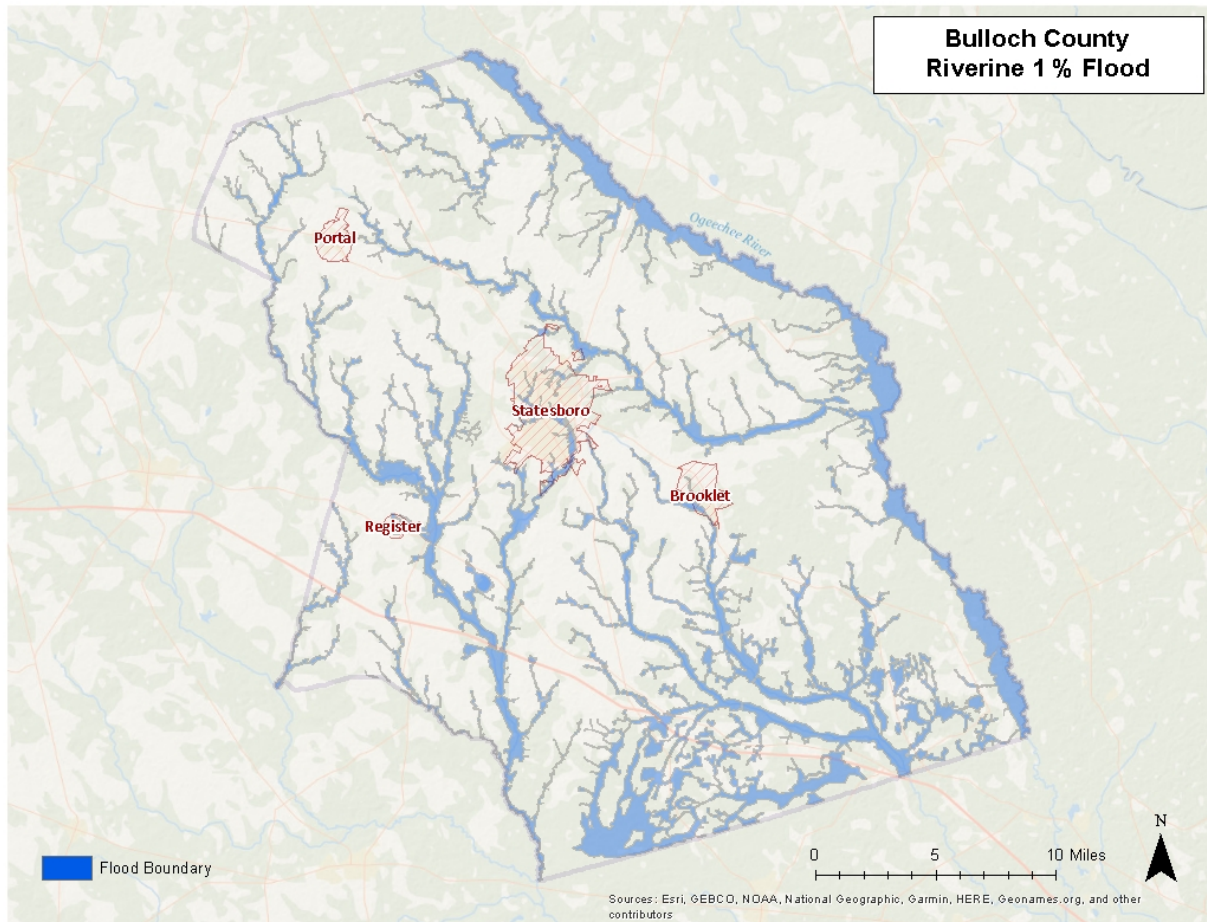


Figure 7: Riverine 1% Flood Inundation



## Riverine 1% Flood Building Damages

Buildings in Bulloch County are vulnerable to flooding from events equivalent to the 1% riverine flood. The economic and social impacts from a flood of this magnitude can be significant. Table 9 provides a summary of the potential flood-related building damage in Bulloch County by jurisdiction that might be experienced from the 1% flood. Figure 8 maps the potential loss ratios of total building exposure to losses sustained to buildings from the 1% flood by 2010 census block and Figure 9 illustrates the relationship of building locations to the 1% flood inundation boundary.

Table 9: Bulloch County Riverine 1% Building Losses

Occupancy Classification	Total Buildings	Total Buildings Damaged	Total Building Exposure	Total Losses to Buildings	Loss Ratio of Exposed to Damaged
<b>Brooklet</b>					
Residential	595	10	\$ 94,280,575	\$ 198,315	0.21%
<b>Statesboro</b>					
Residential	6,261	237	\$ 1,817,215,744	\$ 4,597,587	0.25%
Religious	12	3	\$ 5,189,268	\$ 23,921	0.46%
Industrial	76	6	\$ 107,203,274	\$ 25,594	0.02%
Commercial	1,229	31	\$ 1,431,099,805	\$ 387,625	0.03%
<b>Unincorporated</b>					
Commercial	502	8	\$ 1,032,067,739	\$ 91,364	0.01%
Government	4	4	\$ 1,101,349	\$ 11,886	1.08%
Residential	13709	790	\$ 2,321,109,407	\$ 10,792,370	0.46%
<b>Total</b>	<b>22,388</b>	<b>1,089</b>	<b>\$ 6,809,267,161</b>	<b>\$ 16,128,662</b>	

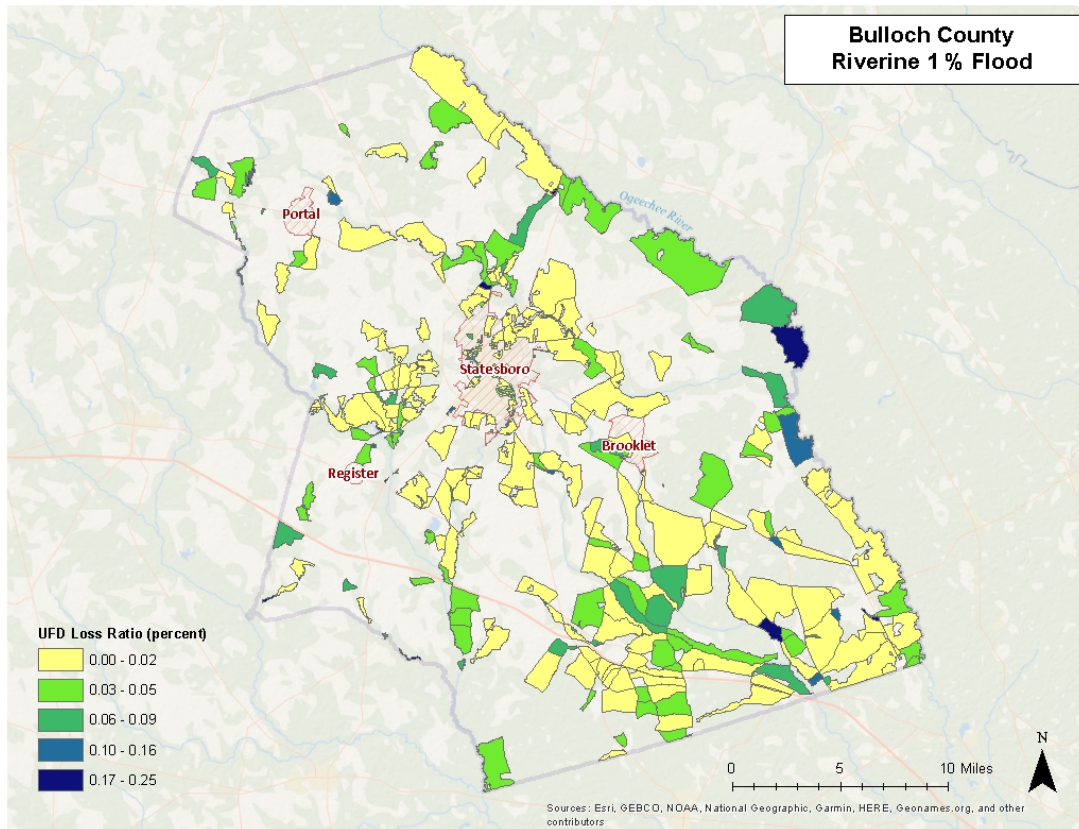


Figure 8: Potential UDF Loss Ratios from the 1% Riverine Flood

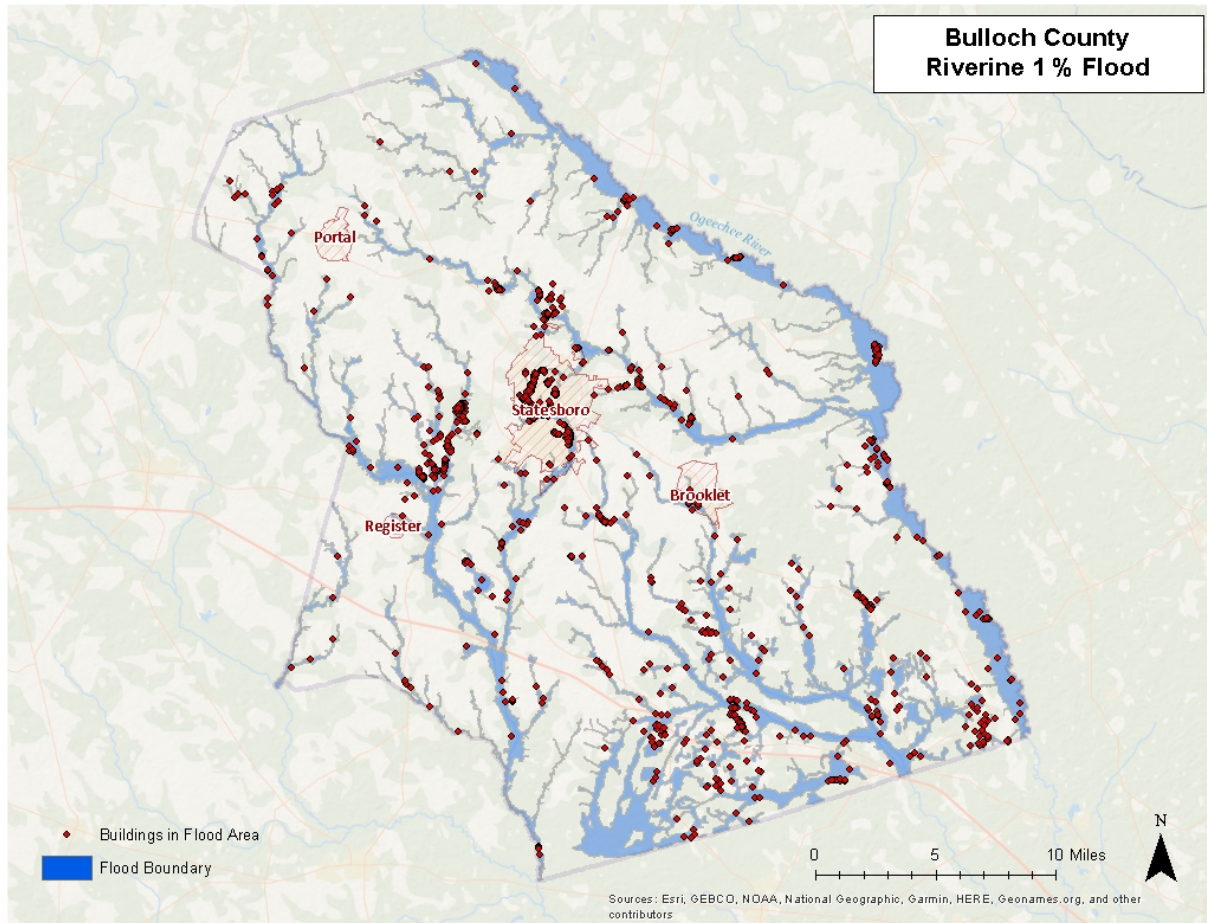


Figure 9: Damaged Buildings in 1% Riverine Flood

## Riverine 1% Flood Essential Facility Losses

An essential facility may encounter many of the same impacts as other buildings within the flood boundary. These impacts can include structural failure, extensive water damage to the facility and loss of facility functionality (e.g. a damaged police station will no longer be able to serve the community). The analysis has identified that were 0 Essential Facilities subject to damage in the Bulloch County riverine 1% probability floodplain.

Table 10: Expected Damage to Essential Facilities in 1% Riverine Flood

Classification	Total	Moderate	Substantial	Loss of Use
Fire Station	15	0	0	0
Hospitals	4	0	0	0
Police Stations	7	1	0	1
Schools	61	0	0	0
EOCs	1	0	0	0



## Riverine 1% Flood Shelter Requirements

Hazus-MH estimates that the number of households that are expected to be displaced from their homes due to riverine flooding and the associated potential evacuation. The model estimates 2,145 households might be displaced due to the flood. Displacement includes households evacuated within or very near to the inundated area. Displaced households represent 6,435 individuals, 3,811 may require short term publicly provided shelter. The results are mapped in Figure 10. These numbers may be overestimated for two reasons: elevated housing not taken into account and parcel centroids (not aligned exactly with actual structures).

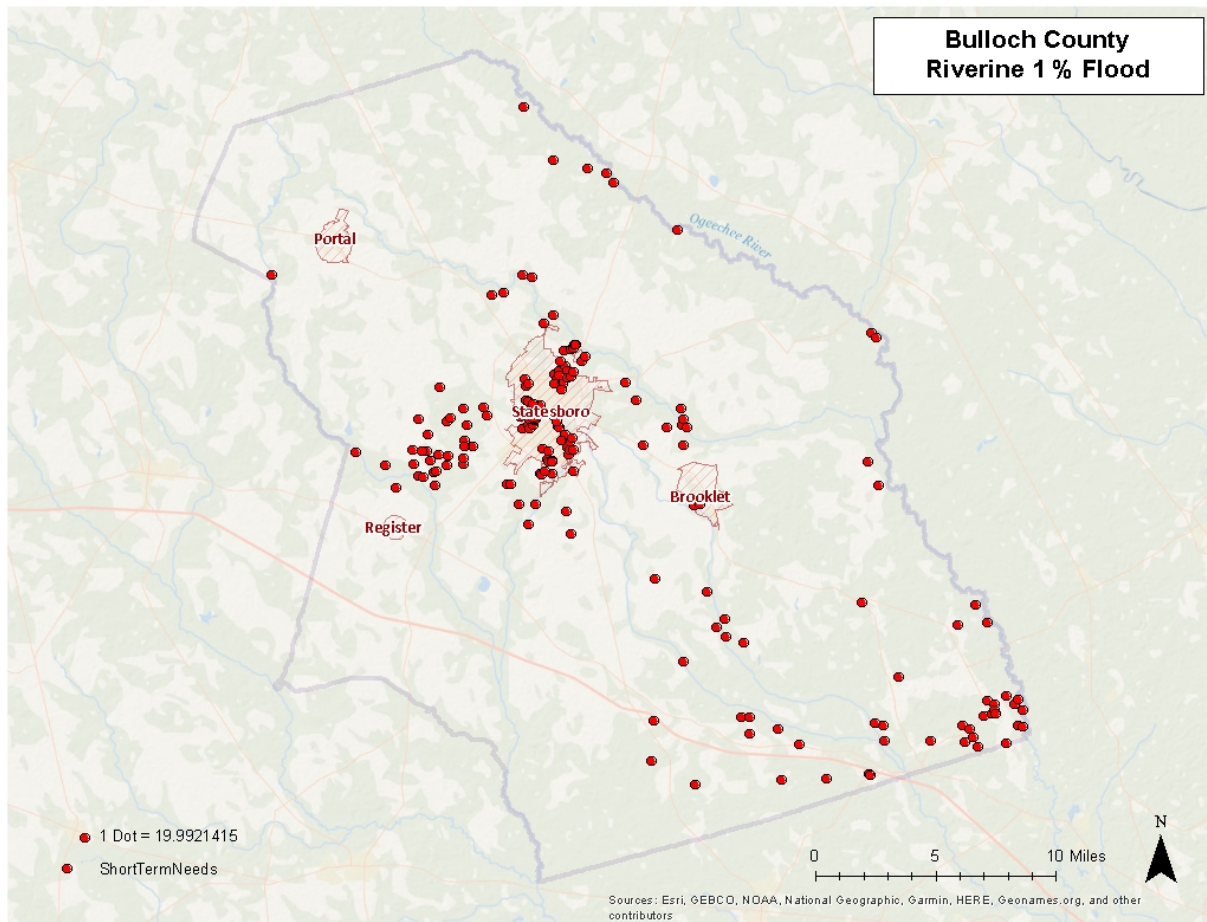


Figure 10: Estimated Flood Shelter Requirements in 1% Riverine Flood

## Riverine 1% Flood Debris

Hazus-MH estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories:

- Finishes (dry wall, insulation, etc.)
- Structural (wood, brick, etc.)
- Foundations (concrete slab, concrete block, rebar, etc.)

Different types of material handling equipment will be required for each category. Debris definitions applied in Hazus-MH are unique to the Hazus-MH model and so do not necessarily conform to other definitions that may be employed in other models or guidelines.

The analysis estimates that an approximate total of 1,561 tons of debris might be generated: 1) Finishes – 1,427 tons; 2) Structural – 39 tons; and 3) Foundations – 96 tons. The results are mapped in Figure 11.

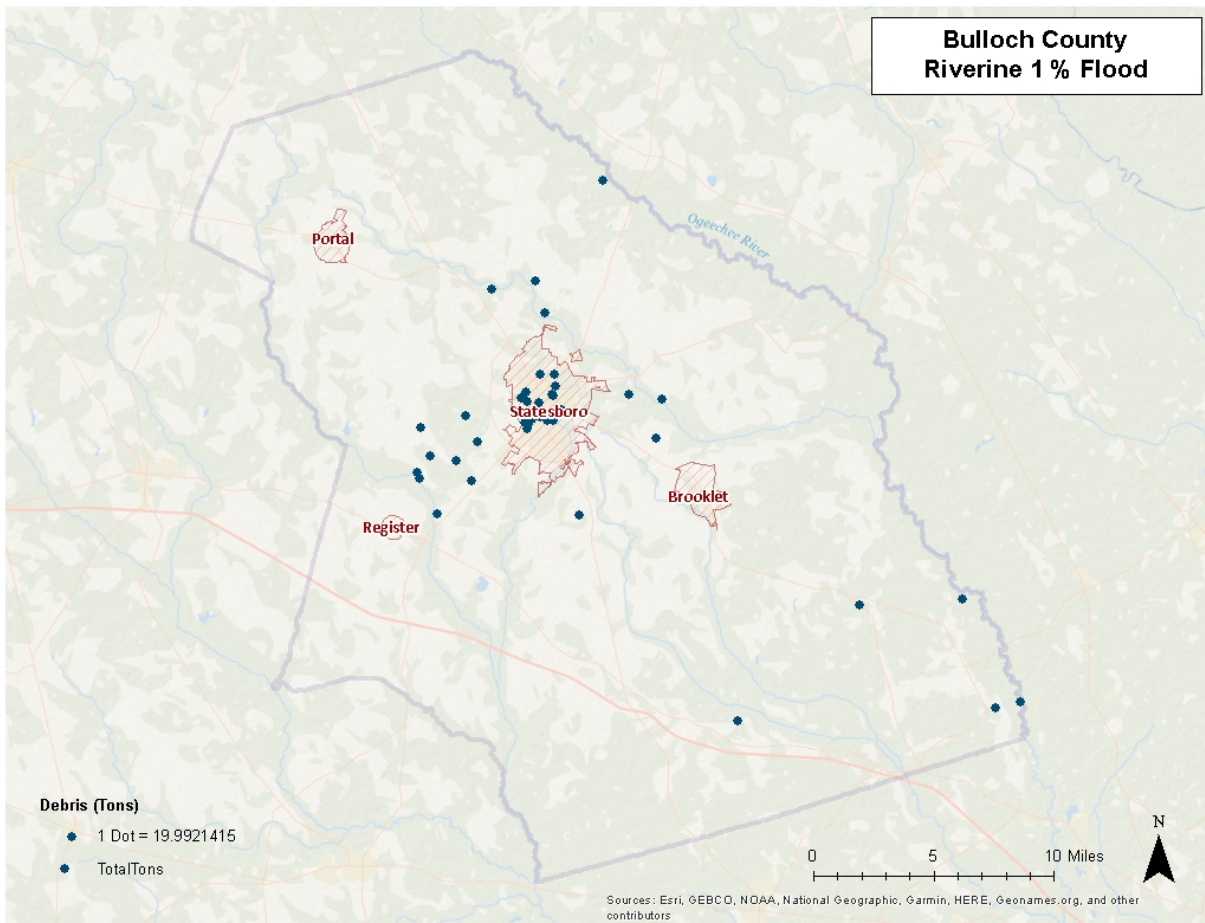


Figure 11: Flood Debris Weight (Tons) in 1% Riverine Flood

# Tornado Risk Assessment

## Hazard Definition

Tornadoes pose a great risk to the state of Georgia and its citizens. Tornadoes can occur at any time during the day or night. They can also happen during any month of the year. The unpredictability of tornadoes makes them one of Georgia's most dangerous hazards. Their extreme winds are violently destructive when they touch down in the region's developed and populated areas. Current estimates place the maximum velocity at about 300 miles per hour, but higher and lower values can occur. A wind velocity of 200 miles per hour will result in a wind pressure of 102.4 pounds per square foot of surface area—a load that exceeds the tolerance limits of most buildings. Considering these factors, it is easy to understand why tornadoes can be so devastating for the communities they hit.

Tornadoes are defined as violently rotating columns of air extending from thunderstorms and cyclonic events. Funnel clouds are rotating columns of air not in contact with the ground; however, the violently rotating column of air can reach the ground very quickly and become a tornado. If the funnel cloud picks up and blows debris, it has reached the ground and is a tornado.

Tornadoes are classified according to the Fujita tornado intensity scale. Originally introduced in 1971, the scale was modified in 2006 to better define the damage and estimated wind scale. The Enhanced Fujita Scale ranges from low intensity EF0 with effective wind speeds of 65 to 85 miles per hour, to EF5 tornadoes with effective wind speeds of over 200 miles per hour. The Enhanced Fujita intensity scale is included in Table 11.

Table 11: Enhanced Fujita Tornado Rating

Fujita Number	Estimated Wind Speed	Path Width	Path Length	Description of Destruction
EF0 <i>Gale</i>	65-85 mph	6-17 yards	0.3-0.9 miles	Light damage, some damage to chimneys, branches broken, sign boards damaged, shallow-rooted trees blown over.
EF1 <i>Moderate</i>	86-110 mph	18-55 yards	1.0-3.1 miles	Moderate damage, roof surfaces peeled off, mobile homes pushed off foundations, attached garages damaged.
EF2 <i>Significant</i>	111-135 mph	56-175 yards	3.2-9.9 miles	Considerable damage, entire roofs torn from frame houses, mobile homes demolished, boxcars pushed over, large trees snapped or uprooted.
EF3 <i>Severe</i>	136-165 mph	176-566 yards	10-31 miles	Severe damage, walls torn from well-constructed houses, trains overturned, most trees in forests uprooted, heavy cars thrown about.
EF4 <i>Devastating</i>	166-200 mph	0.3-0.9 miles	32-99 miles	Complete damage, well-constructed houses leveled, structures with weak foundations blown off for some distance, large missiles generated.
EF5 <i>Uncredible</i>	Over 200 mph	1.0-3.1 miles	100-315 miles	Foundations swept clean, automobiles become missiles and thrown for 100 yards or more, steel-reinforced concrete structures badly damaged.

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

## Hypothetical Tornado Scenario

For this report, an EF3 tornado was modeled to illustrate the potential impacts of tornadoes of this magnitude in the county. The analysis used a hypothetical path based upon an EF3 tornado event running along the predominant direction of historical tornadoes (southeast to northwest). The tornado path was placed to travel through Statesboro. The selected widths were modeled after a re-creation of the Fujita-Scale guidelines based on conceptual wind speeds, path widths, and path lengths. There is no guarantee that every tornado will fit exactly into one of these categories. Table 12 depicts tornado path widths and expected damage.

Table 12: Tornado Path Widths and Damage Curves

Enhanced Fujita Scale	Path Width (feet)	Maximum Expected Damage
EF5	2,400	100%
EF4	1,800	100%
EF3	1,200	80%
EF2	600	50%
EF1	300	10%

Within any given tornado path there are degrees of damage. The most intense damage occurs within the center of the damage path, with decreasing amounts of damage away from the center. After the hypothetical path is digitized on a map, the process is modeled in GIS by adding buffers (damage zones) around the tornado path. Figure 12 describes the zone analysis.

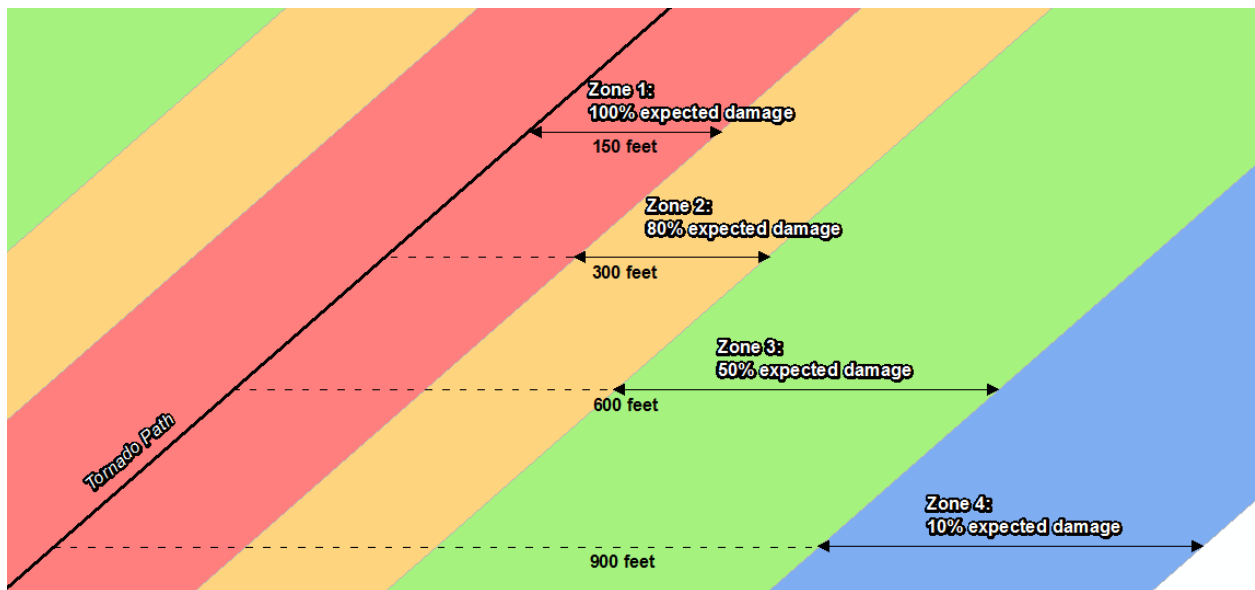


Figure 12: EF Scale Tornado Zones



An EF3 tornado has four damage zones, depicted in Table 13. Major damage is estimated within 150 feet of the tornado path. The outer buffer is 900 feet from the tornado path, within which buildings will not experience any damage. The selected hypothetical tornado path is depicted in Figure 13 and the damage curve buffer zones are shown in Figure 14.

Table 13: EF3 Tornado Zones and Damage Curves

Zone	Buffer (feet)	Damage Curve
1	0-150	80%
2	150-300	50%
3	300-600	10%
4	600-900	0%

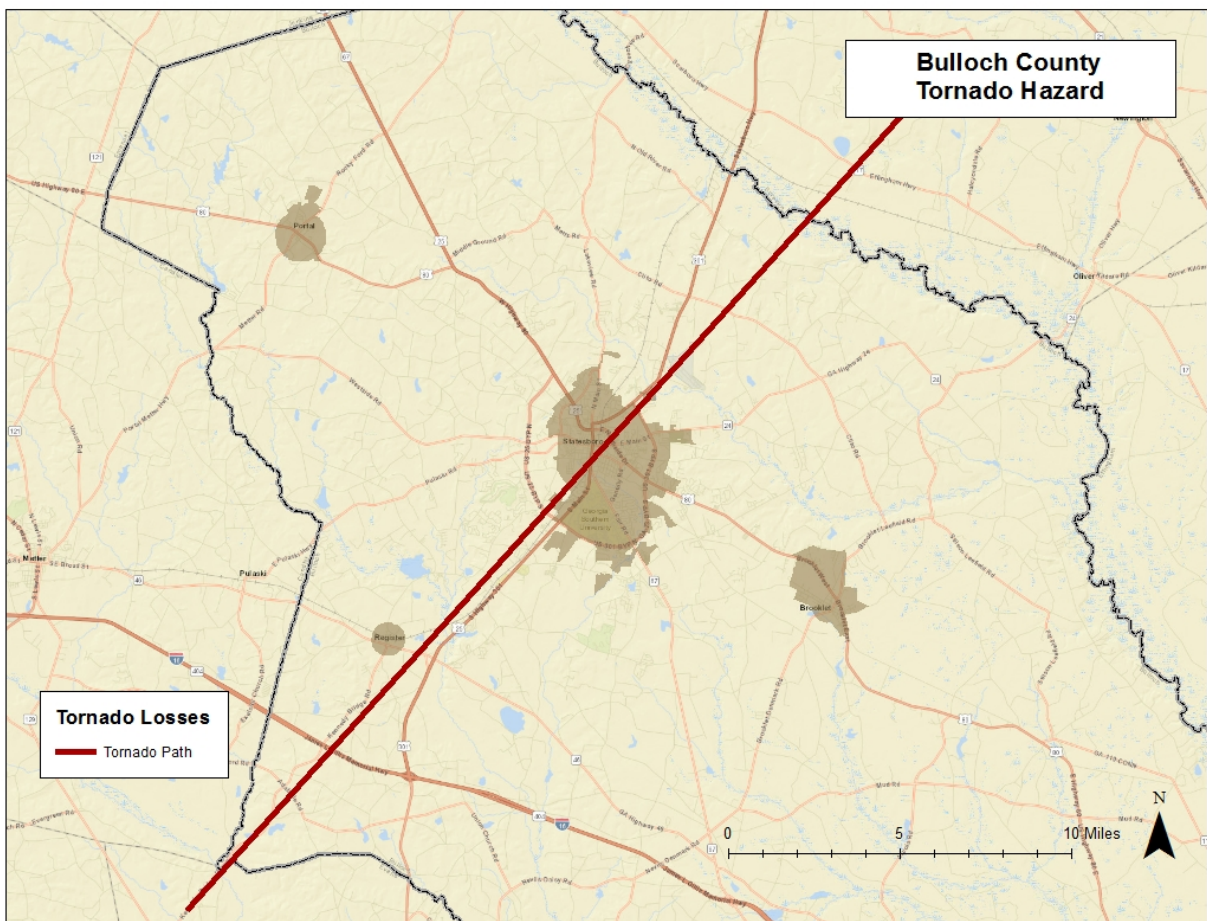


Figure 13: Hypothetical EF3 Tornado Path

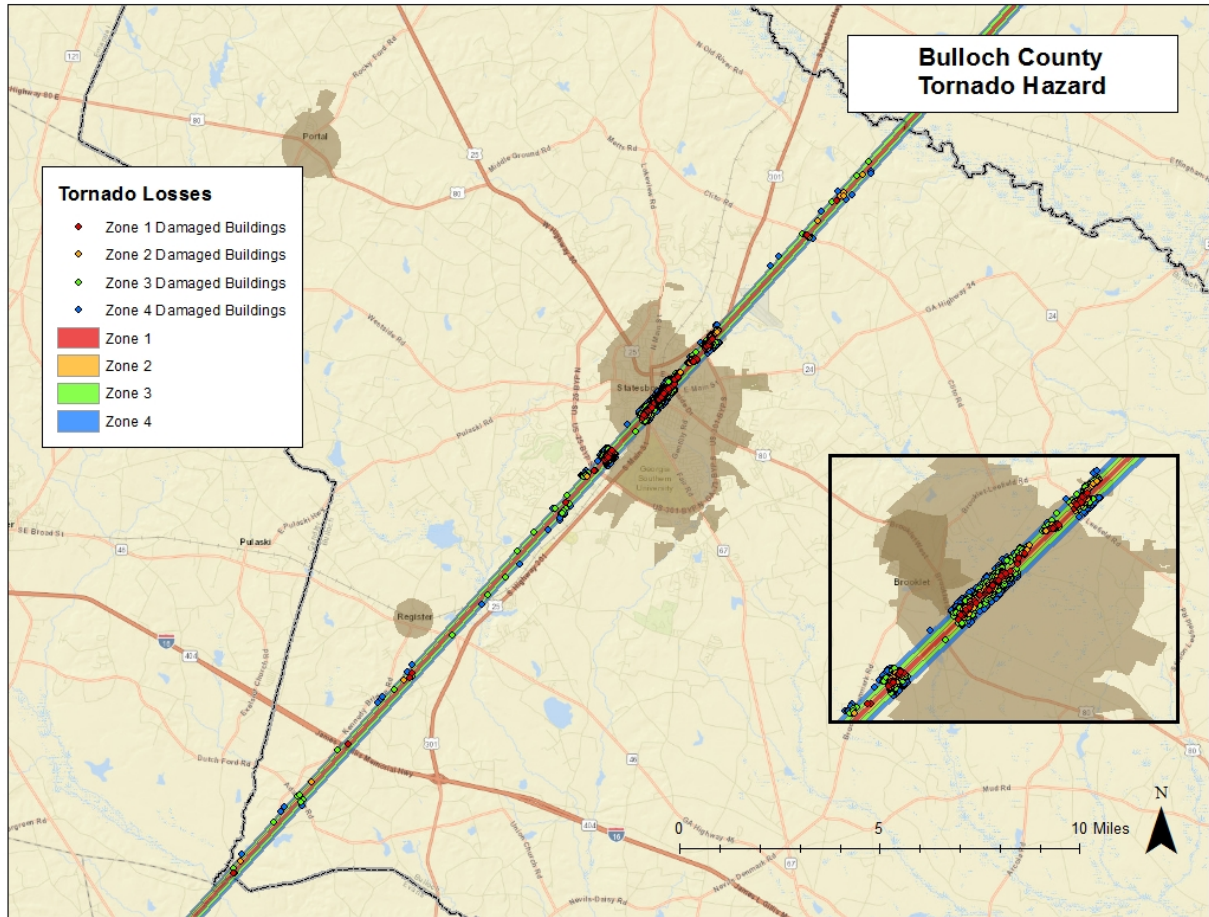


Figure 14: Modeled EF3 Tornado Damage Buffers

## EF3 Tornado Building Damages

The analysis estimated that approximately 907 buildings could be damaged, with estimated building losses of approximately \$145.9 million. The building losses are an estimate of building replacement costs multiplied by the percentages of damage. The overlay was performed against parcels provided by Bulloch County that were joined with Assessor records showing estimated property replacement costs. The Assessor records often do not distinguish parcels by occupancy class if the parcels are not taxable and thus the number of buildings and replacement costs may be underestimated. The results of the analysis are depicted in Table 14.

Table 14: Estimated Building Losses by Occupancy Type

Occupancy Classification	Buildings Damaged	Building Losses
Commercial Retail	80	\$ 23,779,190
Commercial Repair	10	\$ 2,500,754
Banks	10	\$ 982,278
Business Service	58	\$ 26,185,565
Medical Office/Clinic	3	\$ 92,572
Entertainment	14	\$ 5,401,717
Schools / Libraries	4	\$ 1,122,851
Government	1	\$ -
Industrial - Heavy	7	\$ 17,096,231
Industrial - Light	10	\$ 506,421
Church	2	\$ 14,509
Colleges/Universities	2	\$ 2,894,637
Single Family	583	\$ 20,018,125
Manufactured Housing	8	\$ 46,503
Multi-Family - Small	95	\$ 9,495,080
Multi-Family - Medium	2	\$ 1,261,467
Multi-Family - Large	5	\$ 245,201
Lodging	4	\$ -
Nursing Homes	9	\$ 14,296,255
<b>Total</b>	<b>907</b>	<b>\$ 125,939,354</b>



## EF3 Tornado Essential Facility Damage

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There were no essential facilities located within 900 feet of the modeled tornado path.

# Exceptions Report

Hazus Version 2.2 SP1 was used to perform the loss estimates for Bulloch County, Georgia. Changes made to the default Hazus-MH inventory and the modeling parameters used to setup the hazard scenarios are described within this document.

Reported losses reflect the updated data sets. Steps, algorithms and assumptions used during the data update process are documented in the project workflow developed by the Polis Center.

## Statewide Inventory Changes

The default Hazus-MH Essential Facility inventory was updated for the entire state prior to running the hazard scenarios for Bulloch County.

Statewide facility data were supplied by GEMA through the GMIS in June 2015. The Regional Commission updated the essential facilities in 2020. The updated data was used for this analysis. Table 15 summarizes the difference between the original Hazus-MH default data and the updated data for Bulloch County.

Table 15: Essential Facility Updates

Occupancy Classification	Default		Updated	
	Replacement Cost	Default Count	Replacement Cost	Updated Count
Care	\$ 37,408,000	2	\$90,539,954	4
EOC	\$ 880,000	1	\$202,000	1
Fire	\$ 4,689,000	9	\$5,582,297	15
Police	\$ 9,870,000	4	\$13,108,393	7
School	\$ 1,297,196,000	67	\$1,190,879,312	61

## County Inventory Changes

The GBS records for Bulloch County were replaced with data derived from parcel and property assessment data obtained from Bulloch County. The county provided property assessment data was current as of January 2020 and the parcel data current as of January 2020.

## General Building Stock Updates

The parcel boundaries and assessor records were obtained from Bulloch County. Records without improvements were deleted. The parcel boundaries were converted to parcel points located in the centroids of each parcel boundary unless there were building footprints. Each parcel point was linked to an assessor record based upon matching parcel numbers. The generated Building Inventory represents the approximate locations (within a parcel) of building exposure. The Building Inventory was aggregated by Census Block and imported into Hazus-MH using the Hazus-MH Comprehensive Data Management System (CDMS). Both the 2010 Census Tract and Census Block tables were updated.

The match between parcel records and assessor records was based upon a common Parcel ID. For this type of project, unless the hit rate is better than 85%, the records are not used to update the default aggregate inventory in Hazus-MH. The Parcel-Assessor hit rate for Bulloch County was 100%.

Adjustments were made to records when primary fields did not have a value. In these cases, default values were applied to the fields. Table 16 outlines the adjustments made to Bulloch County records.

Table 16: Building Inventory Default Adjustment Rates

Type of Adjustment	Building Count	Percentage
Area Unknown	587	4%
Construction Unknown	699	5%
Condition Unknown	539	4%
Foundation Unknown	702	5%
Year Built Unknown	6	0%

Portions of the CAMA values were either missing (<Null> or '0'), did not match CAMA domains or were unusable ('Unknown', 'Other', 'Pending'). These were replaced with 'best available' values. Missing Year Built values were populated from average values per Census Block. Missing Condition, Construction and Foundation values were populated with the highest-frequency CAMA values per Occupancy Class. Missing Area values were populated with the average CAMA values per Occupancy Class.

The resulting Building Inventory was used to populate the Hazus-MH General Building Stock and User Defined Facility tables. The updated General Building Stock was used to calculate flood and tornado losses. Changes to the building counts and exposure that were modeled in Bulloch County are sorted by General Occupancy in Table 1 at the beginning of this report. If replacements cost or building value were not present for a given record in the Assessor data, replacement costs were calculated from the Building Area (sqft) multiplied by the Hazus-MH RS Means (\$/sqft) values for each Occupancy Class.

Differences between the default and updated data are due to various factors. The Assessor records often do not distinguish parcels by occupancy class when the parcels are not taxable; therefore, the total number of buildings and the building replacement costs for government, religious/non-profit, and education may be underestimated.

## User Defined Facilities

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Local parcel and CAMA data were used to develop points representing the locations of buildings in the county, referred to as User Defined Facilities (UDF) in the Hazus model. For the flood model, this includes only buildings located in the 1% Annual Chance Riverine Flood Area. Table 17 identifies the total building count & exposure for the county and the total building count & exposure for buildings located in the 1% Annual Chance Riverine Flood Area.

Table 17: Building Count and Exposure for County and Riverine Flood Area

Feature	Counts	Exposure
Total buildings in the County	22,951	\$7,291,951,840
Total buildings inside the 1% Annual Chance Riverine Flood Area	1,158	\$216,448,431
Total buildings inside the 1% Annual Chance Coastal Flood Area	0	\$0

It should be noted that UDFs are only used in the flood modeling process, due to the fact that it is important to identify if individual buildings are located within the flood area to obtain the depth of flood.

### Assumptions

- Flood analysis was performed on UDF. The point locations are parcel centroid accuracy.
- The analysis is restricted to the county boundary within the flood area. Events that occur near the county boundary do not contain loss estimates from adjacent counties.
- The following attributes were defaulted or calculated:
  - First Floor Height was set from Foundation Type
  - Content Cost was calculated from Building Cost

# Hurricane Matthew After-Action Report

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Planning Section

1/27/2017



## LETTER FROM THE DIRECTOR

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Team,

Georgia Emergency Management and Homeland Security Agency (GEMA/HS) has made continuous progress in improving our capabilities to support the whole community before, during, and after disasters. Our Agency's performance during the Hurricane Matthew response and recovery operations highlighted this progress as we deployed field operations team members to quickly identify and solve challenges in the field. We established contra-flow operations to assist in the evacuation of coastal Georgia, conducted the first re-entry response of our multi-agency Re-Entry Task Forces, executed a successful evacuation of long term care facilities and hospitals through the Transportation Management Group, and strengthened our relationships with our whole community partners. These and other key accomplishments demonstrate our commitment to supporting Georgia communities and improving survivor outcomes.



We recognize that there are still many key initiatives we can improve upon. Building on our past successes, we will continue our efforts to build a stronger and more resilient Georgia. We must continue our planning efforts, train and exercise for what we can manage, and break through barriers of comfort. We know it's reassuring to our citizens to see state representatives who are actively engaged in impacted areas. We are an organization in which every employee, full-time or temporary, has an integral role in reducing the suffering of citizens and supporting communities in their recovery from disasters.

I know that many of you have worked tirelessly over the last several months during Hurricane Matthew's response and recovery operations. Your efforts have made a difference and are appreciated. Each of you has a role in this report and I am personally committed to ensuring that the opportunities to strengthen GEMA/HS are accomplished. Now is the time to refocus on our mission and ask how - in each and everything we do - we can more efficiently and effectively meet the needs of Georgians before, during, and after a disaster.

Homer Bryson

A handwritten signature in black ink that reads "H. Bryson". The signature is stylized and cursive.

Director of Georgia Emergency Management and Homeland Security Agency

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## EXECUTIVE SUMMARY

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This after action report is a high-level summary of recommended improvements to the State's operations before, during, and immediately following Hurricane Matthew and was developed by the Planning Section of the Georgia Emergency Management and Homeland Security Agency (GEMA/HS) with input from the many State agencies that responded and continue to participate in the State's recovery from the storm. This report is not an exhaustive list of all lessons learned; it includes some, but not all, of the many internal operational adjustments that State agencies will make—and in many cases have already made—to staffing, communications, and deployment of resources. Rather, it is a roadmap of the strategic steps the State will take to improve our ability to protect life and property in the face of the increasing risk of severe weather. Organized by crosscutting themes and focused on addressing the State's most immediate needs before, during, and after a severe storm, this report establishes the State's priorities for how to prepare for the next severe storm. In many cases, the recommendations in this report are applicable beyond coastal storms and will increase the State's overall preparedness to respond to catastrophic events.

The current iteration of the State's formal preparations for a coastal storm began in 2007 with the release of the Hurricane Plan. Its updated form, the draft Tropical Cyclone Incident Annex, is a collection of programs to prepare and respond to a storm, including evacuation, sheltering, and logistics planning. A coastal storm presents a known but largely unpredictable threat: known because large coastal storms form far away from the Southeast coast of the United States and can be tracked for several days before they impact the State of Georgia. Coastal storms are unpredictable because despite knowing their general course, bearing (the direction toward which the storm is heading), and strength, storm conditions can change rapidly and dramatically right up to the time that impacts are felt (or not) in the State. The Tropical Cyclone Incident Annex anticipates the series of decisions the Governor will make regarding the State's storm preparations; its modular format allows State agencies to tailor operations to the conditions of the emergency and to maintain flexibility. GEMA/HS leads periodic reviews of the Tropical Cyclone Incident Annex; the last significant revision occurred in 2016, and significant adjustments were also made following the Hurricane Evacuation Study (HES) in 2013.

The recommendations in this report are the product of working sessions with more than 20 State agencies, as well as consultation with County leaders, volunteer organizations, and nonprofit partners about the substantive areas of the State's preparations and response to the storm. The recommendations in this report are designed to strengthen the State's overall preparedness and to put the building blocks in place for a thorough and organized response to an extended emergency event that impacts thousands of Georgians. The recommendations in this report also focus on the ways the State can improve emergency response to help Georgians resume their lives and get back to work.

### Strengths and Areas for Improvement

---

The GEMA/HS Planning Section was charged to review all aspects of the Agency's preparations for, immediate response to, and initial recovery from the storm. The Planning Section analyzed a wide variety of data and supporting information from GEMA/HS and its Whole Community partners. Based on this analysis, strengths and areas for improvement were identified and organized across five overarching focus areas.

## **Focus Area 1: Preparedness**

In preparation 2016 for hurricane season, GEMA/HS conducted a complete re-write of the existing Hurricane Plan. This re-write, entitled the Tropical Cyclone Incident Annex, identified several assumptions that needed to be documented and corrected for the upcoming hurricane season. Hurricane Matthew revealed several strengths and areas for improvement related to integrating and coordinating State operations.

### **Strengths and Areas for Improvement**

- **Strength:** Development of Pre-scripted Missions
- **Strength:** Relationship with Volunteer Organizations Active in Disasters (VOAD)
- **Area for Improvement:** Developing an Agile and Professional Emergency Management Workforce
- **Area for Improvement:** Ensuring Continuous Improvement of Disaster Doctrine, Policies, and Plans
- **Area for Improvement:** Communication and Coordination of Plans with Local EMAs and Governments

## **Focus Area 2: SOC Activation/Pre-Evacuation**

This focus area includes the timeframe between October 2nd and October 3rd, 120 – 96 hours prior to the anticipated arrival of tropical storm force winds along the Georgia coast. During this period of time, the State Operations Center (SOC) elevated from Level 3 (Active Monitoring) to Level 2 (Enhanced Activation). Preparatory actions taken by representatives of Emergency Support Functions (ESFs) were tracked using the State Synchronization Matrix, Operating Condition (OPCON) 4 (Enhanced Monitoring).

### **Strengths and Areas for Improvement**

- **Strength:** Deployment of Communications Equipment
- **Strength:** Coordination between GEMA/HS and GaDOD
- **Areas for Improvement:** Mobilizing the GEMA/HS Workforce for Disaster Response Operations
- **Areas for Improvement:** Ensuring technological innovation and interoperability within the State Operations Center
- **Areas for Improvement:** Command, Control, and Synchronization of efforts for the State Operations Center

## **Focus Area 3: Evacuation**

This focus area includes the timeframe of October 4th, 72 hours prior to the anticipated arrival of tropical storm force winds along the Georgia coast. During this period of time, the SOC elevated from Level 2 (Enhanced Activation) to Level 1 (Full Scale Activation). Preparatory actions taken by ESF representatives were tracked using the State Synchronization Matrix, OPCON 3 (Strategic Planning). A Governor's State of Emergency was declared initially for 13 counties on October 4th and an additional 17 counties were added on the 5th. Major issues being coordinated from the SOC included preparation for the contraflow of I-16, preparation for the evacuations of Long Term Care Facilities and Hospitals, establishment of shelters along evacuation routes, and assisting in the voluntary evacuations for all coastal counties.

Strengths and Areas for Improvement
<ul style="list-style-type: none"> <li>• <b>Strength:</b> Transportation Management Group Coordination between GEMA/HS and Private Sector Partners</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Strength:</b> Field Communications between State and Support Agency Partners</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Area for Improvement:</b> Coordination of Shelter Operations between the State and American Red Cross</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Area for Improvement:</b> Coordination and Synchronization among State Agencies, County EMAs, and Private Sector Partners Regarding Long Term Care Facilities and Hospital Evacuation Protocols.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Area for Improvement:</b> Communication and Coordination between GEMA/HS and Elected Officials</li> </ul>

#### **Focus Area 4: Post Landfall/Re-Entry**

This focus area includes the timeframe of October 5<sup>th</sup> and October 6<sup>th</sup>, 48 – 24 hours prior to the anticipated arrival of tropical storm force winds along the Georgia coast. During this period of time, the SOC continued to operate at Level 1 (Full Scale Activation). Actions taken by ESF representatives were tracked using the State Synchronization Matrix, OPGON 2 (Readiness and Staging) and OPGON 1 (Final Staging). Major issues being coordinated from the SOC included: contraflow of I-16, evacuations of Long Term Care Facilities and Hospitals, retrograde of state equipment beyond anticipated storm surge locations, establishment and operation of shelters along evacuation routes, evacuation of pets/livestock and establishment of pet friendly shelters, mandatory evacuations for all residents and visitors (East of I-95) in coastal counties, establishment of the Logistics Staging Base at Fort Stewart, activation and deployment of the Georgia Department of Defense, alert and staging of Georgia Search and Rescue Teams, movement and strategic deployment of Mass Fatality Trailers, coordination of fuel deliveries to coastal areas to support all evacuations, and establishment Staging Areas for future Re-Entry operations.

Strengths and Areas for Improvement
<ul style="list-style-type: none"> <li>• <b>Strength:</b> Coordination of Re-entry Operations</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Strength:</b> Coordination between GEMA/HS and Georgia Department of Agriculture</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Area for Improvement:</b> Integrating Re-Entry Efforts with Nongovernmental Personnel</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Area for Improvement:</b> Supporting Deployed Personnel During a Fast Moving Event</li> </ul>

## **Focus Area 5: Response Activities**

This focus area includes the timeframe of October 7th through October 16th: arrival of tropical storm force winds, arrival of hurricane force winds, response to impacts of Hurricane Matthew, and the Whole Community response to affected counties. Actions taken by all State, Federal, Non-Governmental Organizations, and Volunteer Organizations Active in Disasters were synchronized and tracked within the SOC; actions taken by Counties were monitored and supported. Major response actions coordinated included: establishment of a Casualty Collection Point, execution of Re-Entry plan, establishment of Area Security access control points and general law enforcement support to Counties, bridge inspections throughout affected counties, delivery of logistical supplies (food, water, cots, tarps, etc.) to affected communities and County Points of Distribution, shelter operations, coordination of utility restoration throughout the affected locations, coordination and conduct of Public and Individual Assistance, Preliminary Damage Assessments, return of previously evacuated residents, reestablishment of private business operations, and retrograde of support as deemed no longer necessary.

### **Strengths and Areas for Improvement**

- **Strength:** Using an Online Crisis Management System to Coordinate State Response Efforts
- **Area for Improvement:** Integrating State Senior Leader Coordination and Communications into Response Operations
- **Area for Improvement:** Refining the Mission Assignment Process within the State Operations Center
- **Area for Improvement:** Using Planning and Analysis to Drive Operational Decision Making

### **Next Steps**

While Hurricane Matthew's effects were expansive, GEMA/HS must prepare for incidents that are larger and more complex. The strengths and areas for improvement presented in this report are crucial for improving State's ability to respond to and recover from future incidents. GEMA/HS should establish a Continuous Improvement Working Group (CIWG) to assign and monitor continuous improvement actions that reach beyond a single component or that have statewide wide implications.

In recognition of the importance of the findings in this report, GEMA/HS has already begun to address a number of areas for improvement. The Agency is continuing to update the Tropical Cyclone Incident Annex and its corresponding appendices to clarify command relationships and to enhance coordination with federal, state and local partners. Together with the ongoing focus of the CIWG, these actions demonstrate GEMA/HS's commitment to learning lessons from response and recovery operations, developing solutions to identified issues, and following through on their implementation in the interest of better serving disaster survivors.

## 1.0 INTRODUCTION

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On the morning of October 7, 2016, Hurricane Matthew began impacting coastal portions of Georgia as a category 3 major hurricane. After weakening to a category 2 hurricane, the center of the hurricane moved north and northeast, generally parallel to the southeast Atlantic coast. The center of the storm passed Brunswick, Georgia just 60 miles offshore before passing Savannah, Georgia only 35 miles offshore. The worst impacts began Friday evening and lasted through Saturday morning, and included record breaking storm surge flooding, extreme rainfall, and sustained hurricane-force winds. This was the first time since Hurricane David in 1979 that hurricane-force impacts had occurred along the Georgia coast.

GEMA/HS provided resources to support the Whole Community – including state and local partners, nongovernmental organizations, and public health organizations – in its response to the storm. In the days before the storm effects were felt, the Agency worked with threatened communities to develop incident response plans and pre-position supplies to support response efforts. Immediately following the cessation of tropical storm force winds, GEMA/HS coordinated state resources to assist Whole Community life-saving measures and stabilization efforts. The Agency moved to work with Federal, state, local, public, disability community, and private partners in coordinating aid from the Federal Emergency Management Agency (FEMA).

Hurricane Matthew response and recovery efforts demonstrated key strengths. State and local agencies expedited state response and recovery support to affected areas. In addition, GEMA/HS and its state partners utilized WebEOC to facilitate unity of effort across the state response. GEMA/HS also identified and implemented innovative approaches and worked closely with the Whole Community partners to support response and recovery operations. Finally, GEMA/HS drew upon a variety of state partners to complete one of the largest and most diverse deployments of personnel to date.

Despite these strengths, the scale and severity of the storm created significant challenges regarding restoration of power and transportation systems, fuel availability, and public housing. Through these challenges, GEMA/HS identified opportunities to further improve how it coordinates with state partners, serves disaster survivors, integrates with Whole Community Partners, and prepares and deploys its workforce.

While effects of Hurricane Matthew were devastating, GEMA/HS recognizes that it must plan and prepare for even more severe events. GEMA/HS is committed to continuous improvement and ensuring that future response and recovery operations incorporate the lessons learned and best practices identified during Hurricane Matthew.

This report was written following the response and initial recovery efforts to Hurricane Matthew. Any recommendations of findings that result from other interagency Hurricane Matthew-related efforts will continue to be reviewed.

## 1.1 Scope

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- 1.1.1 At the direction of Deputy Director of Emergency Management, the Agency directed the Planning Section to review all aspects of the Agency's preparations for, immediate response to, and initial recovery from the storm. This report contains the findings of that review. While GEMA/HS coordinates disaster response and recovery efforts across the State Government and works closely with non-state Whole Community partners, this report focuses on identified strengths and areas for improvement within GEMA/HS. The analyses detailed in the report concentrate on GEMA/HS activities in Coastal Georgia, where the scale and severity of Hurricane Matthew's impacts most stressed the Agency's capabilities. By examining the events along the coast, the Agency can identify where and how it must improve.

## 1.2 Report Methodology

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- 1.2.1 The GEMA/HS Planning Section, as the coordinator of the Hurricane Matthew after-action report, examined a wide variety of reports from GEMA/HS and its Whole Community Partners.
- 1.2.2 The section's approach included:
- 1.2.2.1 Developing an event chronology that catalogs decisions, actions, and events related to the response and initial recovery from the storm;
  - 1.2.2.2 Analyzing datasets that indicate how the storm's impact, as well as the state's response and recovery, evolved over time;
  - 1.2.2.3 Analyzing component submissions on lessons learned from Hurricane Matthew, and supporting efforts to develop component-specific after-action reports and corrective action plans;
  - 1.2.2.4 Interviewing personnel, including headquarters officials, field staff, representatives from all participating state agencies and departments, and local officials;
  - 1.2.2.5 Issuing a questionnaire to ESF partners and Field Coordinator personnel who deployed to support the Hurricane Matthew Response and Recovery, and analyzing the responses received;
  - 1.2.2.6 Inviting Whole Community partners to share their experiences and lessons learned through various hot wash meetings.
- 1.2.3 The GEMA/HS Planning Section reviewed and analyzed all of these sources to identify strengths and areas for improvement.

## 1.3 Organization of the Report

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- 1.3.1 This report begins with an overview of the storm and the response and recovery efforts.
- 1.3.2 The reports is then organized according to the following five focus areas:
- 1.3.2.1 Focus Area 1: Preparedness
  - 1.3.2.2 Focus Area 2: SOC Activation/Pre-Evacuation
  - 1.3.2.3 Focus Area 3: Evacuation
  - 1.3.2.4 Focus Area 4: Post Landfall/Re-Entry
  - 1.3.2.5 Focus Area 5: Response Activities
- 1.3.3 For each of these focus areas, this report identifies strengths and areas for improvement.



## 2.0 OVERVIEW OF THE STORM, ITS IMPACTS, AND THE RESPONSE

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### 2.1 Hurricane Matthew's Path

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- 2.1.1 The tropical disturbance that became Hurricane Matthew moved off the west coast of Africa on Friday, September 22, 2016. After the disturbance moved westward for 6 days, Hurricane Matthew formed on Wednesday, September 28th just east of the islands of Saint Lucia and St. Vincent in the Lesser Antilles.



- 2.1.2 Hurricane Matthew strengthened into a category 1 hurricane on Thursday, September 29th as it moved westward approximately 250 miles south of Puerto Rico. While over the warm Caribbean waters, Hurricane Matthew rapidly strengthened into a category 5 hurricane on the evening of Friday, September 30th, peaking with a maximum sustained wind speed of 160 MPH. Over the weekend, Hurricane Matthew began to move to the north, setting up landfall in western Haiti as a category 4 hurricane on Tuesday morning and eastern Cuba on Tuesday evening. Hurricane Matthew then turned towards the northwest, impacting the Bahamas as a category 3 and 4 hurricane on Wednesday, October 5th and Thursday, October 6th. Hurricane Matthew impacted the eastern coast of Florida on Thursday and Friday.
- 2.1.3 Hurricane Matthew began impacting coastal portions of Georgia on the morning of Friday, October 7th as a category 3 major hurricane. After weakening to category 2, the center of the hurricane moved north and northeast, generally parallel to the southeast Atlantic coast. The center of the storm passed Brunswick just 60 miles offshore before passing Savannah only 35 miles offshore. The worst impacts began Friday evening and lasted through Saturday morning, and included record-breaking storm surge flooding, extreme rainfall, and sustained hurricane-force winds. This was the first time that hurricane-force impacts had occurred along the Georgia coast since Hurricane David in 1979.
- 2.1.4 Major to record-breaking flooding occurred along the Georgia coast. Sea Camp Dock at Cumberland Island briefly reached major flood stage on Friday afternoon. St. Simon's Island came within 3 inches of major flood stage early Saturday morning. The Savannah River at Fort Pulaski broke a 37-year record by nearly 4 inches early Saturday morning. All of this flooding was caused by excessive storm surge.
- 2.1.5 Hunter U.S. Army Airfield received 17.49 inches of rainfall between 11:00 AM Thursday and 10:00 AM Saturday. Savannah International Airport received 11.51 inches. The record for daily rainfall in the Savannah area was 9.02 inches, which occurred on September 16, 1924. Average annual rainfall in Savannah is 47.96 inches. Parts of Savannah received more than one-third of their yearly total over this period. Widespread amounts of 6-10 inches of rainfall were reported, with parts of Bryan, Chatham, Effingham, and Glynn counties receiving 10-16 inches.

- 2.1.6 Widespread hurricane-force wind gusts were observed, and in some counties lasted for almost five consecutive hours. The highest wind gusts were recorded on Tybee Island: a 94 MPH wind gust at 4:19 AM and a 96 MPH wind gust at 4:38 AM on Saturday morning. Tropical storm-force wind gusts of 39 MPH or greater occurred in Appling, Bacon, Bulloch, Candler, Charlton, Chatham, Evans, Glynn, Jeff Davis, and Liberty, McIntosh, Screven, Ware, and Wayne counties. Hurricane-force winds of 74 MPH or greater occurred in multiple portions of the Georgia coastal Counties.
- 2.1.7 By 8 AM on Saturday, October 8th, all hurricane-force impacts and heavy rainfall had ended in Georgia. Portions of Southeast Georgia continued to experience light rain and tropical storm force winds on the backside of the hurricane for the remainder of the day on Saturday. Tops of trees were taken off and debris was reported throughout the affected counties.

## 2.2 Preparations for Hurricane Matthew

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- 2.2.1 In preparation for the days leading up to Hurricane Matthew's impacts, GEMA/HS and the Whole Community made extensive preparations for the storm. GEMA/HS based pre-landfall decisions both on the predictions of the storm's track and intensity, as well as requests from counties expecting to be impacted. Prior catastrophic planning coordination between GEMA/HS and the counties facilitated these decisions.
- 2.2.2 Key pre-impact actions included:
  - 2.2.2.1 Establishing Staging Area locations in Tifton and Sandersville to pre-position re-entry assets and personnel.
  - 2.2.2.2 Deploying Field Operations Staff to Coastal counties that were expecting impacts.
  - 2.2.2.3 Staging Georgia Search and Rescue (GSAR) teams at the Guardian Center in Perry, Georgia.
  - 2.2.2.4 Staging contra-flow personnel from Georgia Department of Transportation (GDOT), Georgia State Patrol (GSP), Department of Natural Resources (DNR) Law Enforcement along I-16 to implement contra-flow pending evacuation orders.
  - 2.2.2.5 Standing up the Reception, Staging, and Onward Integration (RSOI) Center at the Georgia Public Safety Training Center (GPSTC) for reception of Emergency Management Assistance Compact (EMAC) resources.
  - 2.2.2.6 Moving mobile communications equipment to Aviation Support Operations Center (ASOC) located at Mosquito Control in Savannah, Georgia.

## 2.3 Coordinate Response Operations

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- 2.3.1 Before Hurricane Matthew impacted the Georgia coast, the Governor authorized state emergency declarations for Chatham, Bryan, Liberty, McIntosh, Glynn, Camden, Effingham, Bulloch, Evans, Long, Wayne, Brantley, and Charlton Counties. The Governor later extended the State of Emergency to include Appling, Atkinson, Bacon, Burke, Candler, Clinch, Coffee, Echols, Emanuel, Jenkins, Jeff Davis, Pierce, Screven, Tattnall, Toombs, Treutlen, and Ware Counties. The State of Emergency made State assistance available to the communities and survivors in the impacted counties.
- 2.3.2 While GEMA/HS coordinates State response and recovery activities, they are only part of the broader efforts of the Whole Community – Including all levels of government, private and non-profit sectors, faith-based organizations, communities, and individuals. State agencies deployed significant numbers of personnel, both before and after the storm impacted the coast, to support response and recovery efforts.

- 2.3.3 In the first 72 hours of response operations, GEMA/HS focused efforts on supporting first responders to save lives, maintain safety, restore power, and stabilize communities with the GEMA/HS Director emphasizing response priorities as: people, incident stability, power restoration, and bridge inspections.

## 2.4 The Storm and GEMA/HS' Response in Context

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- 2.4.1 Hurricane Matthew's effect was devastating – hundreds of thousands of Georgia Citizens lost power, tens of thousands were displaced, and 3 people lost their lives as a direct result of the storm. However, history demonstrates that Georgia will experience and must plan for storms of even greater magnitude.

## 3.0 FOCUS AREA 1: PREPAREDNESS

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### 3.1 Strength: Development of Pre-Scripted Missions

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- 3.1.1 GEMA/HS uses mission assignments to task other state agencies and departments to provide direct assistance during emergencies and disasters. In recent years, the mission assignment process has grown to include pre-scripted mission assignments, which are prepared in advance to facilitate a more rapid response and to standardize the process of developing mission assignments.
- 3.1.2 Pre-scripted missions were utilized by the Aviation Support Operations Center during Hurricane Matthew. These missions included fly overs of the Contra-Flow lanes on I-16 and flying over the areas affected by Hurricane Matthew to assist in situational awareness and to help determine re-entry routes that were clear for response personnel.
- 3.1.3 Pre-scripted missions will be expanded and developed for many agencies in the SOC in order to facilitate a more rapid response during emergencies.

### 3.2 Strength: Relationship with Volunteer Organizations Active in Disasters (VOAD)

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- 3.2.1 The partnerships that have been established and maintained with the many organizations through VOAD and the Private Sector proved to be strong and beneficial as partners stepped up to help with debris cleanup, feeding operations, and transportation of resources. Consistent communication produced an effective response from both sectors. VOADs maintained a conference call to discuss unmet needs that were requested in the local communities and had teams on standby ready to deploy in order to quickly assist with response. Private Sector partners also held a daily conference call which allowed state and federal partners to keep private sector partners informed and also enable private sector organizations to provide the state and federal partners with vital information.
- 3.2.2 The strength of the relationship between the state and its external partners played an imperative role in the successful response to the local citizens in the impacted areas.

### 3.3 Area for Improvement: Developing an Agile and Professional Emergency Management Workforce

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- 3.3.1 During the Hurricane Matthew SOC activation, all activities were handled in a timely and professional manner. However, the long hours, and consecutive days took a physical and mental toll on employees. This creates a problem because in many of our positions, we are limited by the number of personnel who can fill them.
- 3.3.2 During the first two days of SOC activation, the day time staffing for the initial response in the SOC was sufficient. Information was readily available and it was apparent that there was a cohesive working environment with common goals well defined.

- 3.3.3 As the event continued into days 5 and 6 of the SOC activation, it also became evident that many of the staff was tired due to their long and continuous hours of duty. Exhaustion was obvious, especially in ESF 2 (Communications), ESF 9 (Search & Rescue), ESF 8 (Public Health) and the Volunteer Resources Coordinator position.
- 3.3.4 All major positions in the SOC should have a minimum of four qualified and trained personnel to staff each position. This would allow long term operations to continue seamlessly without decreased productivity. Corrective actions need to be taken to identify individuals in all responding agencies, other governmental employees, or private partners who can be trained to fill these positions of responsibility. Not only would this allow for more adequate long term operations, it would also provide the ability to use a rotation of staffing during short term activations, thus building depth and experience in operational response.

### 3.4 Area for Improvement: Ensuring Continuous Improvement of Disaster Doctrine, Policies, and Plans

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- 3.4.1 Hurricane Matthew highlighted a number of response and recovery challenges for GEMA/HS and its Whole Community partners. GEMA/HS had previously identified some of these challenges during planning, training, exercise, and operational activities. As one specific example, GEMA/HS identified challenges in using information collection and analysis to drive decision-making during the 2014 Ice Storm—a challenge that emerged again during Hurricane Matthew. As another example, GEMA/HS does not regularly track capability gaps identified during the deliberate planning process. Additionally GEMA/HS did not document which plans, procedures, or actions were used during Hurricane Matthew; thus impeding post-incident review and assessment. The Agency must monitor lessons learned and continuous improvement activities; however no standardized continuous improvement requirements exist. Personnel recognized the value of continuous improvement efforts but lacked consistent processes—formal or informal—for documenting and sharing lessons learned/best practices during Hurricane Matthew. GEMA/HS did deploy members of the Planning Section from its headquarters to support the collection and analysis of lessons learned in the field.
- 3.4.2 Together, these examples highlight the need for a formal, routine process to track and resolve continuous improvement actions across the Agency. As an example, a Continuous Improvement Program (CIP) should be developed to address this challenge by outlining common processes, tools, and functions for documenting and sharing lessons learned throughout the Agency. As part of the CIP, a Continuous Improvement Working Group (CIWG), could be assigned the responsibility to assign and track continuous improvement actions that are beyond the resolution capability of a single GEMA/HS component or that have Agency-wide implications. The CIWG should include senior-level representation from GEMA/HS components and will meet at least quarterly. The CIWG should monitor and report on the progress of GEMA/HS components in addressing the areas for improvement identified in this report.

### 3.5 Area for Improvement: Communication and Coordination of Plans with Local EMAs and Governments

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- 3.5.1 GEMA/HS coordinates with County EMAs, which in turn support coordination with localities and county governments. GEMA/HS' combined organization approach—with geographic Field Coordinators and School Safety Coordinators—provided direct linkages to local community needs and perspectives during Hurricane Matthew. However, the scope of Hurricane Matthew and its impacts on densely populated localities (Savannah) presented challenges for GEMA/HS. The state and counties did not jointly develop evacuation and re-entry plans or priorities before Hurricane Matthew. This created issues early on as county governments waited until the last minute to order evacuations. Problems also arose during the re-entry phases as local law enforcement were not aware of security protocols that were in place and local governments were pushing to allow their citizens to re-enter the counties before bridge inspections had been completed.
- 3.5.2 Local government officials were also reaching out to the Governor's office with resource requests instead of following pre-established procedures and funneling them through the local EMA and WebEOC. This caused issues as it created duplicate resource requests and mission needs.

## 4.0 FOCUS AREA 2: SOC ACTIVATION/PRE-EVACUATION

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### 4.1 Strength: Deployment of Communications Equipment

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- 4.1.1 Following the SOC activation but prior to the coastal evacuation, ESF 2 began deploying communications equipment to response agencies around the State. Contra-flow teams received SouthernLINC radios and Satellite phones to assist with communications in case service was affected by Hurricane Matthew.
- 4.1.2 Satellite phones were issued to County EMAs to assist with back up communications during power outages. A Rapid Communications trailer was placed at the Aviation Support Operations Center in case they were needed as a form of back up communication, and another Rapid Communications trailer was provided to GSAR.
- 4.1.3 ESF 2 Also began running periodic radio checks on pre-established talk groups/channels to verify radios and equipment was operating correctly.
- 4.1.4 ESF 2 closely coordinated with private sector partners; Verizon had mobile communications vehicles available at many shelters for citizens to charge their devices.

### 4.2 Strength: Coordination between GEMA/HS and GaDOD

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- 4.2.1 Georgia Department of Defense (GaDOD) is a key partner during an emergency. They have the ability to provide equipment, personnel, and logistical capabilities that no other State Agency possesses. GaDOD allows GEMA/HS to draw upon the experience and personnel of the Georgia National Guard to augment response personnel and capabilities.
- 4.2.2 The Georgia National Guard has joint operational connectivity with U.S. Northern Command. This connectivity makes equipment available that would otherwise not be and gives the GaDOD a Federal entity from to which it can request support if needed.
- 4.2.3 GaDOD was also able to lean forward with the deployment of its units in anticipation of the Governor's declaration for a State of Emergency. This allowed for units to be deployed immediately to the areas that required their assistance.
- 4.2.4 GaDOD also sent a liaison team to the SOC as soon as it was activated. This assisted with the communication and coordination of missions for the deployed military units assigned to provide support.

### 4.3 Area for Improvement: Mobilizing the GEMA/HS Workforce for Disaster Response

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- 4.3.1 Although GEMA/HS completed one of the largest personnel deployments in its history, it nearly exhausted the number of available personnel. Moreover, staff who deployed for the first time—or without training in the job duties—reported confusion with deployment processes and expectations. The GEMA/HS Reservist program is no longer being utilized by the Agency; the lack of available reservists left little relief assistance for state and local operations center staff. GEMA/HS employees performed a variety of roles during Hurricane Matthew, including conducting Community Relations, working in the SOC and local EOCs, and maintaining operations in the home office while their colleagues were working in the SOC. Because GEMA/HS has just over 100 full-time employees, there are very few people left to run the day to day operations of the Agency during a state activation.
- 4.3.2 In addition, the Hurricane Matthew response highlighted policy gaps regarding the deployment of the permanent workforce. GEMA/HS call down roster allows leadership to notify employees of their job duty requirements in the SOC or field. Many employees reported confusion with the activation process and their roles within the SOC; many were given less than 24 hours' notice to report for emergency operations. Together, these challenges indicate that opportunities exist to better prepare to deploy the entire workforce.

### 4.4 Area for Improvement: Ensuring Technological Interoperability with SOC and Operations

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- 4.4.1 GEMA/HS is responsible for the technology integrations within the SOC. Many of the ESF partners that came to work in SOC were unable to connect their laptops to the GEMA/HS network as the proper drivers were not installed or their computers were locked by the issuing agency so that the proper changes could not be made to them. There were also similar issues with agency representatives that tried to sign into the WIFI in the SOC. It was determined that these instructions must be sent out ahead of time so that other agencies can incorporate the required changes into their laptops.
- 4.4.2 WIFI connectivity was an issue within the SOC. There were too many machines trying to simultaneously access the WIFI which caused a lag in the signal and even blocked some personnel from connecting.
- 4.4.3 The SOC also experienced WebEOC issues; and it was determined that a Database Administrator was needed on staff to be able to patch and perform updates ad hoc.
- 4.4.4 Technology issues were also experienced by Georgia Search and Rescue units. Their laptops are under the control of ESF 9; however the GEMA/HS IT Section maintains control of the laptops on a daily basis. No process exists to keep the laptops in a proper storage unit that will allow them to maintain power and be kept up to date on patches and other software updates.
- 4.4.5 The GEMA/HS IT Section has also recommended that due to the variety of laptops issued by state agencies, GEMA/HS should explore the option of Thin Clients or virtual desktops. This may be a cheaper option than to replace all agency laptops.

#### 4.5 Area for Improvement: Command, Control, and Synchronization of Efforts for all State Operations Center Activities

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- 4.5.1 It is the responsibility of ESF 5 to coordinate command, control, and synchronization of efforts for the activities occur within the SOC. This includes coordinating with the Emergency Operations Command (EOC), ensuring that the correct people are assigned to the right positions, ensure that the SOC is fully staffed for both day and night time operations, and to assist in the decision making process for evacuations.
- 4.5.2 Some of these activities were not done or not fully completed. There is no standard set of guidelines for the EOC in how the decisions they make are communicated to the within the SOC and to the elected officials.
- 4.5.3 There was confusion in the time leading up to evacuations because timelines were not being communicated clearly between all levels of leadership.
- 4.5.4 Training requirements have not been developed to insure that the SOC staff is properly trained in all aspects of emergency management and SOC operations.
- 4.5.5 Standard Operating Procedures have not been developed in regards to resource request forms, HR policies, and communication between levels of government.
- 4.5.6 Guidance was not provided to local elected officials in regards to evacuation timelines and expectations at the state level.

### 5.0 FOCUS AREA 3: EVACUATION

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#### 5.1 Strength: Transportation Management Group Coordination between GEMA/HS and Private Sector Partners

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- 5.1.1 The Transportation Management Group (TMG) activated to provide additional transportation support for the vulnerable population that would be evacuated from the coastal counties. This concept is designed to supplement local evacuation plans when transportation resources are limited due to multiple evacuations occurring simultaneously. The TMG concept provides additional commercial coach, paratransit, and ambulance support vehicles for an evacuation. The TMG concept serves Long Term Care Facilities who have contracted with the local EMA and GEMA/HS for this supplemental support and also serves the home bound populations that require transportation from the affected area. The TMG consists of a management team made up by Metro Atlanta Ambulance Service (GEMA Contractor), the state Medicaid vendors (Logisticare and Southeastern Transportation), personnel from ESF 8 and the state EMS office for ambulance support, ESF 7, and the Department of Administrative Services (DOAS) for commercial coach support. The intent of the plan is to conduct the evacuation of this population between H-48 and H-24 hours, prior to the General population evacuation. This plan has been previously exercised on two occasions; a need was identified to also assist hospitals in the affected area.
- 5.1.2 During Hurricane Matthew, transportation support was provided to several, coastal Long Term Care Facilities, two county staging areas for home bound populations (Glynn and Camden counties), and two hospitals (Glynn and Camden counties). All contracted and non-contracted facilities were slow in making their decision to evacuate, thus the evacuation process was not completed until three hours prior to the onset of tropical storm force winds and was conducted concurrently with the general population evacuation. The TMG was able to accommodate all requests for support.
- 5.1.3 This was the first time that the TMG was activated since its conception. The utilization of this group was considered an overall success but there were still a few issues that need to be fine-tuned.



- 5.1.3.1 Plan does not cover hospitals; hospitals require additional transportation support which impacts vehicle planning for the entire plan and the TMG.
- 5.1.3.2 Counties/facilities show very little understanding of the plan even though the plan has been exercised and briefed multiple times.
- 5.1.3.3 Facilities would request transportation support but when transportation arrived, the population would have been moved by other means.
- 5.1.3.4 The entire plan is based upon having a destination location for all evacuated patients. In many cases, movement could not begin because there was no destination identified to receive the evacuated patients.

## 5.2 Strength: Field Communications between State and Support Agency Partners

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- 5.2.1 State agencies have begun to adopt various interoperable communication systems that were utilized during the evacuation of Coastal Georgia. ESF 2 deployed a satellite communications trailer to the Aviation Support Operations Center at Mosquito Control in Savannah. Satellite phones were also issued to support Strike Teams and local EMAs during evacuation operations.
- 5.2.2 State agencies have also begun adding SouthernLINC communication capabilities to vehicles, the SOC, and handheld devices for deployed personnel use.
- 5.2.3 SouthernLINC experienced few outages and therefore was a reliable source for communications. SouthernLINC deployed multiple, mobile Cell on Wheels (COW) to ensure that all responding state agencies would have cell/radio coverage no matter the functioning condition of the cellular towers.
- 5.2.4 This partnership between SouthernLINC and the state has become an integral part of disaster communications during all phases of an event.

## 5.3 Area for Improvement: Shelter Coordination between Counties, State and American Red Cross

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- 5.3.1 Sheltering is a large component of the evacuation process; Hurricane Matthew exposed many issues with the current sheltering plan developed by the American Red Cross (ARC) and the Georgia Department of Human Services (ESF 6 Mass Care). There was a breakdown between the various groups involved when it came to the opening of shelters. This was partly due to the uncertainty of the path of Hurricane Matthew and partly due to ARC staffing issues.
- 5.3.2 There is a board within WebEOC that lists all of the approved shelter locations across the state. In conjunction with the ARC, these have been pre-established by the county in which the shelter is located. This board was not utilized to the fullest extent possible. This caused a breakdown in communication between local EMAs, the ARC, and ESF 6 at the State level. Requests for sheltering did not align with the original planning strategy. The delay by local governments to call for an evacuation slowed the process down. This delay in communications between ARC and the state led to a slow opening of shelters and the lack of ability for the state to get resources to those shelters in a timely manner.

#### 5.4 Area for Improvement: Coordination and Synchronization among State Agencies, County EMAs, and Private Owners, concerning Long Term Care Facility and Hospital Evacuation

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- 5.4.1 Evacuation of hospitals and Long Term Care Facilities is a long and arduous process. This is due to the special medical requirements of residents and patients at these types of facilities. While some patients may be able to be transported on busses, many require transportation by ambulance, specially equipped buses, and even by helicopter. Coordinating with the private sector entities that provide this type of transportation is done during the preparedness phase of GEMA/HS tropical cyclone planning.
- 5.4.2 The evacuation of the Long Term Care Facilities and hospitals requires an extended period of time due to the amount and types of transportation resources needed. This means that coordination among state, county, and the private owners of these organizations is paramount. The decision to evacuate these facilities must be made 96 hours prior to the onset of tropical storm force winds. This allows for a single transportation asset to make multiple trips between facilities, if deemed necessary, and allows transportation resources to move residents and patients ahead of the general population evacuation. Once contra-flow has been enacted, the ability for a transportation resource to turn around and make a second trip is severely hampered.
- 5.4.3 Since many of these facilities are privately owned, they do not need to wait for the county in which they are located in to make a determination on evacuation. This needs to be better communicated between GEMA/HS, Georgia Department of Community Health, local EMAs and the facility owners.

#### 5.5 Area for Improvement: Communication and Coordination between GEMA/HS and Elected Officials

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- 5.5.1 The planning that was done by GEMA/HS, GDOT, GSP, DNR, and other state agencies in regards to the evacuation process was not communicated clearly to elected officials and executive leadership during the preparedness phases of Hurricane Matthew. This lack of communication hampered the evacuation timelines, which are based on the onset of tropical storm force winds.
- 5.5.2 The time necessary to establish contra-flow and the anticipated duration of a coastal evacuation was not communicated well between GEMA/HS and elected officials. This was also evident in the coastal counties where some local EMAs had trouble conveying the importance of making timely evacuation decisions early.
- 5.5.3 Cross talk between GEMA/HS and elected officials needs to improve so that there are no questions as to the timeline of events and the actions being taken by the Agency

### 6.0 FOCUS AREA 4: FINAL PREPARATION/ARRIVAL

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#### 6.1 Strength: Coordinated Re-entry Operations

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- 6.1.1 Prior to the evacuation of coastal Georgia, GEMA/HS began coordinating re-entry operations with GDOT, GSP, GFC, the Technical College System of Georgia (TCSG), DNR, GDA and other state agencies. This was the first time the new re-entry processes had been attempted. The Staging Areas were staffed by GFC, TCSG, Board of Regents and Georgia Dept. of Agriculture (GDA). The Re-Entry Task Forces were made up of GDOT, GFC, GSP, DNR, and contracted medical personnel.

- 6.1.2 Prior to the cessation of tropical storm force winds the Re-Entry Task Forces moved to the initial Staging Areas. Here they checked in, held operational meetings, and prepared to move out as one unit to begin clearing a path toward the coast. These initial Staging Areas are located at the TCSG campuses in Tifton and Sandersville and managed by a multi-agency team made up of GFC, TCSG, Board of Regents, and Dept. of Agriculture personnel.
- 6.1.3 The Re-Entry Task Forces rapidly moved forward to the next Staging Area locations as they encountered little debris along the re-entry routes. These Staging Area locations are the TCSG campuses and other pre-identified facilities in Statesboro and Waycross. From these locations teams were able to move closer to the coast to assist in clearing roadways for the response and area security teams behind them and to establish Area Security. This was Phase one of the re-entry operations.
- 6.1.4 Phase two alpha of the Re-Entry operations saw critical infrastructure personnel and medical personnel begin to return to the affected areas. This included hospital staff, power companies, and other agencies needed to re-establish basic services to the coast.
- 6.1.5 Phase two bravo saw the return of fuel and grocery vendors to the coastal areas.
- 6.1.6 Due to the lack of debris, many of the elected officials in the coastal counties decided to allow the public back into the affected areas before all services had been restored. The Re-Entry Task Forces adjusted and continued their work even while working around the civilian population that was attempting to re-enter these areas.
- 6.1.7 This is the largest re-entry operation coordinated by GEMA/HS in the Agency's history and the successes of the operations provide a strong foundation to continue fine tuning the process.

## 6.2 Strength: Coordination between GEMA/HS and Georgia Department of Agriculture (GDA)

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- 6.2.1 The ESF 11 desk is maned by GDA; and they are responsible for handling pet sheltering and evacuation, veterinary issues, food related issues, and multiple additional tasks during an event. GDA had successes on many fronts and are listed below.
  - 6.2.1.1 Animal and Veterinary Medical
    - 6.2.1.1.1 Local animal shelters in the six coastal counties successfully Sheltered in Place; Glynn and Savannah evacuated and returned safely to their locations post event.
    - 6.2.1.1.2 The use of the Humane Society of Missouri (HSM) transportation vehicles to successfully evacuate 25 pets from Savannah to Augusta to accompany the evacuation of their owners was executed well.
    - 6.2.1.1.3 HSM was staged in Savannah and Brunswick to assist with coastal pet evacuation efforts.
    - 6.2.1.1.4 ESF 11 successfully implemented the MOUs for the American Veterinary Medical Association Veterinary Medical Assistance Team and the National Animal Rescue Sheltering Coalition.
    - 6.2.1.1.5 Local EMAs and the ESF 11 desk coordinated the sheltering needs for 15 animal shelters across the state that housed over 400 animals during the response. These included companion animal, equine, and exotic animals.
    - 6.2.1.1.6 GDA placed on standby Trailer Hauling Teams to assist with equine evacuation requests.

#### 6.2.1.2 Food Supply

- 6.2.1.2.1 Prior to the storm, GDA conducted outreach to the Meat Inspection Facilities to acquire generators and refrigerated trucks, to prevent any destruction of product during the continued power outages. Starting on Wednesday, October 5th, Meat Inspection staff hosted face to face meetings with officials of each licensed establishment in the potentially affected area.
- 6.2.1.2.2 GDA had a successful activation of the GA Food and Feed Rapid Response Teams to perform inspections post impact.
- 6.2.1.2.3 GDA coordinated the ~1400 food and meat inspection contacts for damage assessment data post impact.
- 6.2.1.2.4 ESF 6 coordinated mass feeding and SNAP inquiries during the storm and relayed information to ESF 11; posted DHS request process for emergency food stamp benefits and the link to the Form 841- Food Loss Replacement form.

#### 6.2.1.3 Fuel

- 6.2.1.3.1 GDA sent emails pre-event to the Oilmen's Association and the Association of Convenience Stores to replace caps on underground storage tanks. 80% complied and there were no reports of compromised tanks post impact.
- 6.2.1.3.2 Four Fuel Inspectors performed checks for water contamination at gas stations based upon the flood inundation GIS data provided by GEMA/HS and FEMA.

#### 6.2.1.4 Logistical Support

- 6.2.1.4.1 GDA provided staff to the Logistical Staging Areas to support state operations.
- 6.2.1.4.2 GDA coordinated the Refueling Task Force documentation support to Hurricane Matthew (staff placed on standby for response).
- 6.2.1.4.3 The TCSG helped with the successful staging of animal resources in Waycross, GA to support operations in the S.E. United States
- 6.2.1.4.4 The GDA Atlanta Farmers Market staff supported resource staging efforts coordinated by the district office.

### 6.3 Area for Improvement: Integrating Re-Entry efforts with Non-Governmental partners

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- 6.3.1 GEMA/HS issues Re-Entry permits to Critical Infrastructure Owners/Operators, Georgia Coastal County EMAs (for dissemination), and Private Sector Businesses. These permits are made available for these entities to disseminate to their contractors, sub-contractors, and assigns. These Re-Entry permits are issued via an application process through the Planning Section of GEMA/HS and are valid for five years. The GEMA/HS Re-entry plan is a five phased plan. Phase 1 begins with State teams designed to render safe roadways from debris and power lines so that Phase 2A – Emergency Response Workers can begin re-entry for life saving purposes followed by Phase 2B – Critical Infrastructure workforces may enter. Phase 3 allows local residents to enter, phase 4 allows the public with limited access to only certain areas during daylight hours, and Phase 5 allows full access to everyone.

- 6.3.2 These phases were not communicated properly between GEMA/HS and EMAs to many of its private sector partners. There were some airlines that flew into areas that were not prepared to receive citizens and there were some counties that were ready for citizens while a neighboring county was not. This all caused problems for local governments and private businesses. GEMA/HS needs to communicate through its state agency partners and the Governor's office the correct procedure for re-entering an area following a disaster. Following established procedures will ensure infrastructure recovery, economic recovery of the area, and get needed commodities back into the counties faster.
- 6.3.3 Finally, in an attempt to accommodate the private sector and their necessity to return to an impacted area before the general population, the state and/or local EMA office can provide the private sector corporations a re-entry pass. In the future, upon activation of the SOC before a tropical cyclone/hurricane event, all issuance of permits will cease unless the requester of the permit is willing to physically come to the SOC to retrieve the passes for their company. The time and capability of GEMA/HS staff is limited once the SOC activates and will be focused on other preparation actions for the pending/ongoing event.

#### 6.4 Area for Improvement: Supporting Deployed Personnel during a Fast Moving Re-Entry Process

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- 6.4.1 Throughout the Hurricane Matthew response, GEMA/HS encountered difficulties supporting a large deployed state workforce. During the initial waves of personnel deployments, for instance, the Agency lacked a facility to stage personnel as they began deploying to the field. On October 7, GEMA/HS established Staging Areas (SA) at TCSG Facilities in Sandersville and Tifton, to address this need. GEMA/HS used these facilities to equip and organize staff before deploying them further afield to their assigned re-entry mission. The SAs operated for 1 day; not enough planning went into the overall activation and operation of these SAs. For example, staff at Oconee Fall Line Technical College was unable to determine an accurate number of personnel that were going to require billeting overnight. They were also unaware that a second wave of personnel was going to be arriving at the SA the next day. There was no tracking of departure of personnel in route to Sandersville or Tifton. Staging Areas require a great deal of logistical support and are not fully developed in current doctrine.
- 6.4.2 Personnel deployed to SAs required some administrative and logistical services that GEMA/HS had difficulty supporting. Feeding this many personnel from a variety of agencies proved difficult and the need for shower facilities was not anticipated in the planning process.
- 6.4.3 Challenges existed with lodging a large response force. Re-Entry Task Forces leveraged personal relationships to gain access to the Technical College located in Jessup in order to use it for housing personnel. While staff generally found the solution to be effective, it was accompanied by its own set of implementation issues due to the ad hoc nature. This challenge indicates that GEMA/HS plans do not adequately account for how the Agency will house a large deployed workforce in a fast moving event.
- 6.4.4 To help relieve the administrative burdens on deployed personnel, the Agency is working on developing new procedures for feeding, showering, and lodging Re-Entry personnel. This includes working with the GEMA/HS Finance Division and working closer with our partners in the TCSG to further develop the SA plans. Even with these innovations, the challenges above indicate that opportunities remain to improve State support to its deployed personnel.

## 7.0 FOCUS AREA 5: RESPONSE

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### 7.1 Strength: Using an Online Crisis Management System to Coordinate State Response Efforts

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- 7.1.1 During Hurricane Matthew, GEMA/HS employed WebEOC, an online crisis management system, to coordinate and support statewide response operations. GEMA/HS and its State partners used the system for multiple activities, including supporting resource requests from the field, coordinating sheltering activities, maintaining situational awareness, monitoring and tracking operational tasks, and tracking assistance delivered to survivors. Using a single on-line platform facilitated information sharing and ensured that each section of the SOC and ESFs shared a common operating picture, contributing to a unified state response. In addition, WebEOC facilitated a common operating picture on the status of all orders through a live resource tracking board which consolidated information on all resources to support Hurricane Matthew response efforts.
- 7.1.2 Hurricane Matthew also identified areas where WebEOC can be expanded to provide a clearer State Common Operating Picture, including enhancements of real-time feeds, integration with Situational Awareness products, and linking to the information of other Whole Community partners. GEMA/HS plans to expand the scope of activities and processes conducted through WebEOC and continue expanding its use in operations centers and field locations.

### 7.2 Area for Improvement: Integrating State Senior Leader Coordination and Communications into Response Operations

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- 7.2.1 The high volume of senior-level engagement presented occasional challenges during response operations. For example, while the National Response Framework (NRF) and the National Disaster Response Framework (NDRF) describe the important role of senior leaders, these frameworks do not provide guidance on establishing formal mechanisms for senior leader communications or coordination with operations centers. As State senior leaders worked aggressively to anticipate and address the needs of state and local partners, these State partners did not always inform the SOC of independent actions taken to support response and recovery efforts.
- 7.2.2 GEMA/HS and its State partners also experienced challenges with accurately, clearly, and quickly communicating senior leaders' decisions to those responsible for implementing them and to those affected by them.

### 7.3 Area for Improvement: Refining the Mission Assignment Process

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- 7.3.1 GEMA/HS uses mission assignments to direct State partners to conduct specific disaster response and recovery activities. Mission assignments are work orders that GEMA/HS issues to another State department or agency, directing completion of a specified task by that agency. Mission assignments must be in place in order for GEMA/HS and State departments and agencies to be reimbursed by FEMA for performing disaster-related activities. Mission assignments to GEMA/HS' State partners—such as GDOT, the GaDOD, and the Georgia Department of Health—were vital to the Hurricane Matthew response efforts.

- 7.3.2 The mission assignment process can be complex and time-consuming. As an example, GEMA/HS had to revise a mission assignment to the Transportation Management Group four times to correct errors. Similarly, the Logistics Section observed that some written mission assignments to ESF 7 partners outlined unclear requirements while others conflicted with other requests for assistance. The willingness of several departments and agencies to act on verbal mission assignments and deploy resources before receiving a written mission assignment lessened the effect of these delays. In addition, GEMA/HS worked with several State partners ahead of Hurricane Matthew to develop pre-scripted mission assignments (PSMAs). These PSMAs enabled GEMA/HS to issue clear written mission assignments to certain departments and agencies throughout the response, mitigating some of the written process delays.
- 7.3.3 Moreover, multiple response stakeholders—including state and Federal departments and agencies—can request a mission assignment. However, these response partners do not have visibility into what mission assignments other partners are requesting. Field personnel reported that this lack of transparency sometimes resulted in uncoordinated mission assignments over the course of the Hurricane Matthew response.
- 7.3.4 To address these challenges, GEMA/HS is working to update the mission assignment process. In addition, GEMA/HS' SOC is adding functionality in its WebEOC to increase transparency of the status of mission assignments.

#### 7.4 Area for Improvement: Using Planning and Analysis to Drive Operational Decision Making

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- 7.4.1 National Incident Management System doctrine states, "Planning guides incident response and recovery operations at all levels and ensures that the focus remains on achieving incident objectives." At the SOC, GEMA/HS planners had success adapting deliberate plans to develop a Tropical Cyclone Incident Annex, which GEMA/HS actively tracked, evaluated, and reported on. More broadly, GEMA/HS experienced challenges in using the planning function to guide operations.

##### **Planning definitions**

**Deliberate planning** is conducted under nonemergency conditions to prepare for known or perceived risks arising from natural hazards or man-made threats.

**Crisis action planning** is time-sensitive planning conducted in response to a specific, imminent threat or to an incident that has already occurred.

- 7.4.2 GEMA/HS struggled to effectively use "deliberate planning" developed pre-incident to then guide "incident planning" during Hurricane Matthew (see planning definitions in the box above). For example, a survey of GEMA/HS' field personnel found that none had used, nor had access to, the Tropical Cyclone Incident Annex, which serves as a critical pre-incident planning product.
- 7.4.3 In addition, field personnel reported that the different operations centers around the state worked independently of each other and lacked mechanisms to fully engage Whole Community partners in incident planning. These challenges limited the ability of planning efforts to support operational decision-making. Leaders need to be involved in the planning process to ensure that planning efforts reflected leadership guidance.



## 8.0 CONCLUSION

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Hurricane Matthew provided a significant test of GEMA/HS's capabilities and those of its Whole Community partners. The scale and severity of the storm resulted in extensive effects-including flooding, damages to transportation networks and other critical infrastructure, power outages, fuel disruptions, and property damage – across the coast and inland. GEMA/HS coordinated large-scale State response and recovery activities that contributed to the integrated, state effort to support affected communities.

While Hurricane Matthew's effects were not devastating, GEMA/HS recognizes that it must plan for even larger, more severe storms and disasters. As GEMA/HS prepares to respond to and recover from these larger scale incidents, the strengths and areas for improvement identified in the report will help guide the agency.

In reviewing all aspects of the Agency's preparations for, immediate response to, and initial recovery from the storm, the GEMA/HS Planning Section identified strengths and areas for improvement organized across five overarching focus areas:

- Focus Area 1: Preparedness
- Focus Area 2: SOC Activation/Pre-Evacuation
- Focus Area 3: Evacuation
- Focus Area 4: Post-Landfall/Re-Entry
- Focus Area 5: Response Activities

In recognition of the importance of the findings in the report, GEMA/HS has already begun to address a number of the areas for improvement. Together with the future focus of the proposed CIWG these actions demonstrate GEMA/HS's commitment to learning lessons from response and recovery operations, developing solutions to identified issues, and following through on their implementation in the interest of better serving and protecting disaster survivors.

For many survivors, recovery will be measured in years, not months. GEMA/HS remains committed to working closely with the Whole Community to meet the long-term needs of survivors and to help the impacted counties and communities to recover and rebuild.

# 2014 State of Georgia Hazard Mitigation Strategy



# **Georgia Hazard Mitigation Strategy**

## **Standard and Enhanced Plan**

Effective April 1, 2014-March 31, 2017



Prepared by the Georgia Emergency Management Agency

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# Chapter 1: Introduction to Planning Process

## 1.1 OVERVIEW AND PURPOSE

The summary of updates and changes is included in the overview section of every chapter as a table that details each section and the changes that have occurred within the section since the last approval in 2011. Table 1.1 describes the updates and changes that have occurred in Chapter 1.

Chapter 1 Section	Updates to Section
1.1 Overview and Purpose	<ul style="list-style-type: none"><li>• Changed title from Plan Organization and Overview</li><li>• Text revised to describe overview and purpose of plan</li><li>• Text revised to add information on State of Georgia (Section 1.3 in 2011 GHMS)</li></ul>
1.2 State Adoption and Federal Statute Compliance	<ul style="list-style-type: none"><li>• Changed title from Adoption by State</li><li>• Summarized Federal statute compliance and added into new section 1.2.2</li></ul>
1.3 Planning Process	<ul style="list-style-type: none"><li>• Changed title from State of Georgia</li><li>• Added new sections 1.3.1, 1.3.2, 1.3.3, 1.3.4 and updated text to each</li><li>• Added table that summarizes workshops</li></ul>
1.4 Coordination among Agencies	<ul style="list-style-type: none"><li>• Changed name from Plan Goals</li><li>• Added tables to identify 2014 plan update participants and how they were involved</li><li>• Described changes in participant coordination</li></ul>
1.5 Program Integration	<ul style="list-style-type: none"><li>• Changed title from Documentation of the Planning Process</li><li>• Added table that identifies other state mitigation programs and how they were incorporated into the 2014 plan update</li><li>• Added table that identifies FEMA mitigation programs and how they were incorporated into the 2014 plan update</li></ul>

**Table 1.1 Summary of Changes to Chapter 1**

Hazard Mitigation is sustained action taken to reduce or eliminate long-term risk to people and their property from hazards and their effects. Mitigation focuses on breaking the cycle of disaster damage, reconstruction, and repeated damage. Mitigation efforts provide value to people and society by creating safer communities and reducing loss of life and property.

Hazard mitigation planning is the process State, Tribal, and local governments use to identify risks and vulnerabilities associated with natural disasters, and to develop long-term strategies for protecting people and property from future hazard events.

This document, referred to as the Georgia Hazard Mitigation Strategy (GHMS), is an official update



of the State of Georgia Hazard Mitigation Plan submitted to and approved by the Federal Emergency Management Agency (FEMA) Region IV on March 31, 2011. The Georgia Emergency Management Agency (GEMA) is the state agency responsible for presenting this planning document on behalf of the State of Georgia.

The primary purpose for this plan is to eliminate or reduce risk and vulnerability to natural hazards in the State of Georgia. This is achieved through a comprehensive range of activities including education, outreach and coordination, hazard identification, risk and vulnerability assessment and development of mitigation strategies. The contents of this document provide the framework for hazard mitigation strategies and actions undertaken by local and state governments within the State of Georgia.

The United States Census Bureau estimates that the population of Georgia was 9,919,945 on July 1, 2012, a 2.4% increase since the 2010 United States Census. This was an increase of 104,735 from the previous year, and an increase of 232,292 since 2010. This includes a natural increase since the last census of 438,939 people (that is 849,414 births minus 410,475 deaths) and an increase from net migration of 606,673 people into the state. Georgia is the 8th most populous state in the United States and ranks 18th in population density with 165 people per square mile.

As of 2010, 87.35% (7,666,663) of Georgia residents age 5 and older spoke English at home as a primary language, while 7.42% (651,583) spoke Spanish, 0.51% (44,702) Korean, 0.44% (38,244) Vietnamese, 0.42% (36,679) French, 0.38% (33,009) Chinese (which includes Mandarin,) and 0.29% German. In total, 12.65% (1,109,888) of Georgia's population age 5 and older spoke a mother language other than English.

Georgia's 2010 total gross state product was \$403.1 billion and Per Capita personal income for 2011 puts it 39th in the nation at \$35,979. There are 15 Fortune 500 companies and 26 Fortune 1000 companies with headquarters in Georgia. Atlanta has a very large effect on the state of Georgia and the Southeastern United States. The city is an ever-growing addition to communications, industry, transportation, tourism, and government.

Widespread farms produce peanuts, corn, and soybeans across middle and South Georgia. The state is the number one producer of pecans in the world, with the region around Albany in southwest Georgia being the center of Georgia's pecan production. Gainesville in northeast Georgia touts itself as the Poultry Capital of the World. Other important agricultural outputs include peaches, cotton, peanuts, rye, cattle, hogs, dairy products, turfgrass, timber, particularly pine trees, tobacco and vegetables.

Industrial output includes textiles and apparel, transportation equipment, food processing, paper products, chemical products, and electric equipment. The Georgia Ports Authority owns and operates four ports in the state: Port of Savannah, Port of Brunswick, Port Bainbridge, and Port Columbus. The Port of Savannah is the fourth largest seaport in the United States, importing and exporting a total of 2.3 million TEUs per year. Other important contributions to Georgia's economy include tourism, film and military installations.

With a low-lying coastal area, a middle piedmont area, and a mountainous northern area, Georgia's

exposures to natural hazards range from hurricanes to drought and wildfire to severe winter weather. These exposures coupled with the expanding sprawl of metropolitan Atlanta, increasing coastal and mountainous area development, and increasing impoverishment in agricultural communities throughout the State lead to an increased “hazardousness of place”.

Exposure to the coastal weather patterns from the Atlantic Ocean and Gulf of Mexico and the continental weather patterns driven by the jet stream allows severe weather to originate from any direction and to occur during any season.

Because of the wide exposure to natural hazards and the increasing growth of population, identifying the hazards, risk and vulnerability both locally and statewide becomes critically important in the process of mitigating to protect human life and property.

## **1.2 STATE ADOPTION AND FEDERAL STATUTE COMPLIANCE**

### **1.2.1 *State Adoption***

As evidence of the State of Georgia’s intent to fully comply with applicable Federal statutes and regulations in effect with respect to the periods in which it receives grant funding, in compliance with 44 CFR 13.11(c), a copy of the formal state adoption resolution and a copy of FEMA’s approval, once received, of Georgia’s Standard and Enhanced Hazard Mitigation Plans will be placed in Appendix F.

The State of Georgia assures that it will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding, in compliance with 44 CFR 13.11(c). The GHMS will be amended according to the process and procedures listed and described in the plan maintenance section in Chapter 5, wherever necessary to reflect appropriate changes in State and Federal statutes as required in 44 CFR 13.11(c) and 44 CFR 13.11(d) and as described by the State of Georgia.

### **1.2.2 *Federal Statute Compliance***

The GHMS has met the requirements of the Disaster Mitigation Act of 2000 Public Law 106-390, October 30, 2000, as stipulated in the Interim Final Rule 44 CFR 201.4 Standard State Plan criteria, published on February 26, 2002. Meeting the regulations will allow Georgia to maintain eligibility and qualify to secure all federally declared disaster assistance, including certain types of Public Assistance and hazard mitigation grants available through the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288, as amended).

## **1.3 PLANNING PROCESS**

### **1.3.1 *Plan Update Narrative***

Chapter 1 of the Georgia Hazard Mitigation Plan was reviewed and updated by GEMA’s Hazard Mitigation Planners. Each section was reviewed by each member of the planning staff individually and

as a group. As a group, the planning staff revised each section as necessary to reflect the current update process utilized for this plan document, including the methodology, timeline and the participating Federal and State agencies.

Since the creation of the 2005 Georgia Hazard Mitigation Strategy, the State of Georgia has maintained a series of quarterly meetings of State agencies, called the State Hazard Mitigation Planning Team (SHMPT). The purpose of these meetings is to establish and maintain relationships between state agencies with a focus on hazard mitigation within the State of Georgia. These quarterly meetings provide a means for the State Hazard Mitigation Staff to update other state agencies, and receive feedback from those agencies, on mitigation activities throughout the State, including the GHMS.

In addition to the quarterly meetings, the SHMPT meets in the aftermath of major disasters. The purpose of these post-disaster meetings are to review and, if necessary, update the plan with any information related to the disaster and for the State Mitigation Staff to be made aware of any disaster or damage information the other agencies may have to determine possibilities for mitigation assistance to the affected agencies. The SHMPT conducted a post-disaster review of the 2011 GHMS in the aftermath of the 2011 major tornado outbreak in Northern and Central Georgia (DR 1973). The details of this post-disaster review meeting are described in Section 1.3.4 below.

Beginning in the Spring of 2012, the GEMA hazard mitigation planning staff began a more active update phase by conducting a summary review of the 2011 plan and update process. Each chapter was examined and the following list of suggested changes and areas to update was compiled:

- Update the risk assessment to reflect new hazard data including maps and occurrences of hazard events since the previous state plan update.
- Update the mitigation strategy to reflect a broader spectrum of mitigation partners and stakeholders, as well as increase connectivity to the risk assessment.
- Streamline the planning document itself by simplifying chapter contents and moving more detailed and technical information to supplemental annexes.
- Increase the number and diversity of participants.

After the summary review, the GEMA Hazard Mitigation planning staff developed a new process that would attempt to accomplish the objectives outlined above. In addition to the quarterly meetings and, if necessary, post disaster review meetings with the SHMPT, one of the substantive changes to the planning process for the 2014 update was the development and implementation of plan update workshops. For these workshops, a wide range of agencies and organizations were invited to participate.

Three workshops were developed: Understanding Risks, Understanding Vulnerabilities and Developing a Mitigation Strategy. The workshops allowed staff to present information from the previous plan such as the risk assessment and goals for comment and review. One of the tools created for these workshops is a risk ranking method that could help reinforce risk information and capture risk perceptions of the participants. This risk ranking method is explained in greater detail in Chapter 2. Breakout sessions, presentations and handouts were utilized in each of the workshops to engage the participants and facilitate discussions and activities. GEMA staff facilitated each of the breakout

Workshop	Date	Information Presented	Results
1: Understanding Risks	December 6, 2012	12 hazards in 2011 GHMS and profiles; Hazard risk ranking methodology	Breakout group discussion on hazards; hazards scored and ranked based on profile
2: Understanding Vulnerability	February 6, 2013	Vulnerability definition; historical and potential impacts of 12 hazards	Breakout group discussion on hazard vulnerabilities; hazards scored and ranked based on vul-
3: Developing Georgia's Mitigation Strategy	April 25, 2013	Risk summary from first 2 workshops; types of mitigation actions	Lists of potential mitigation actions for each hazard with prioritization

**Table 1.2 State Plan Update Workshops**

sessions and led the presentations and group discussions. The GEMA Hazard Mitigation website was used to publish results from each of the workshops.

The first workshop, Understanding Risks, was held on December 6, 2012 and included almost 70 participants from federal and state agencies, local government, non-government/non-profit organizations and the private sector. The definition of risk as a combination of hazard of vulnerability was presented to the participants. This workshop focused on identifying and profiling the natural hazards Georgia is exposed to. Handouts were developed that listed the twelve hazards identified in 2011 GHMS and included characteristics of these hazards in Georgia such as history, frequency, extent and locations at risk. GEMA staff presented overview of the planning process that includes these three workshops. A presentation was also given providing specifics on each of the twelve hazards. After these presentations, the participants were divided into three breakout groups. The breakouts involved discussion of hazard information and hazard scoring and ranking. After the breakout sessions, each group presented summary of comments from the discussion and hazard rankings.

The second workshop, Understanding Vulnerability, was held on February 6, 2013 and included 44 participants. In this workshop, the participants were given a presentation on the definition of vulnerability and information on impacts from the 12 natural hazards identified in the 2011 GHMS. Handouts were provided which described information on the historical and potential impacts of each hazard including adjusted losses, injuries and deaths, property damage, critical facilities, economic disruption and natural and cultural resources. The participants were divided into breakout groups where they scored and ranked each of the hazards in respect to the vulnerability. Each of the participants were given score sheets to rank the vulnerability of each hazard. Participants also added these scores to the average hazard scores from Workshop 1 to calculate the total risk score and rankings for all 12 hazards. After the breakout sessions, each group presented summary of comments from the discussion and vulnerability and total risk rankings. The results of the hazard scores and ranking are presented in Chapter 2.

The third workshop, Developing Georgia's Mitigation Strategy, was held on April 25, 2013 and included 25 participants. Risk summaries and findings from the previous two workshops were presented to the participants. This included the total risk scores and rankings for all the hazards. The participants were given a presentation on what mitigation means and the four categories of mitigation ac-

tions along with examples. The participants were divided into breakout groups with each assigned a different set of hazards. Each group developed a list of possible mitigation actions for their assigned hazards. These lists were compiled and presented to the entire group. Afterwards, the participants were given opportunity to prioritize these actions by placing sticker dots on the actions they believed are most important to reduce long-term risks. Some of the results from this workshop are presented in Chapter 3.

Another substantial change in the planning process for the 2014 GHMS was for the mitigation planning staff to proactively reach out, individually, to state agencies to discuss hazard mitigation and find out what type activities each agency was doing or had plans to do that have mitigation effects. These identified mitigation activities and priorities were reviewed by GEMA Hazard Mitigation Planning staff for inclusion into the State mitigation strategy.

### **1.3.2 State Plan Update Participants**

As noted above, the State of Georgia has historically involved multiple other State and Federal agencies in the development and subsequent updates of the GHMS, primarily through the planning staff and the SHMPT meetings. One of the goals for the 2014 update was to broaden participation by involving more Federal and State agencies and partnering non-governmental organizations.

The 2014 GHMS was developed utilizing three core groups:

1. GEMA Hazard Mitigation Planning staff
2. University of Georgia Information Technology Outreach Services (ITOS)
3. Other agencies and partners

The planning process for the 2014 Update to the GHMS was led by the GEMA Hazard Mitigation Planning staff which consists of four planners and a manager. This team developed the process to the update the plan, facilitated the update implementation and drafted the planning document.

The Office of Information Technology Outreach Services (ITOS), a Division of the Carl Vinson Institute of Government of the University of Georgia, updated and developed data that was integrated into the risk assessment. This includes collection of hazard history from SHELDES and NCDC, maps used in risk analysis and other hazard information.

Other agencies and partner organizations were invited and contributed to the development of the risk assessment and mitigation strategies. These organizations included federal, state and local representatives, non-government organizations and the private sector. Coordination among these organizations was completed with three mechanisms: the State Hazard Mitigation Planning Team (SHMPT), planning workshops and individual interviews with State agencies. Details on participants and how they participated in the state planning process is provided in section 1.4.

As described above, previous planning process utilized a group called the State Hazard Mitigation Planning Team (SHMPT). The SHMPT has evolved with each plan update and largely includes state agencies that meet quarterly. The quarterly meetings provide an opportunity for participants to receive updates on GEMA Hazard Mitigation activities as well as mitigation-related activities from other

agencies. During the state plan update, the SHMPT is informed of progress and given the opportunity to provide feedback on the planning process and completed sections. For more information on the history to the SHMPT and agencies actively participating, please see Appendix B.

For this plan update, the GEMA Hazard Mitigation Planning staff developed a new mechanism to expand participation to other agencies and organizations to reflect a broader representation of state interests. The result was a series of three workshops that would be designed to inform participants about hazard risks, vulnerabilities and mitigation strategies through the review of information from the 2011 GHMS. GEMA staff coordinated with federal and state agencies, local governments, regional planning organizations, non-government organizations and the private sector to participate.

### **1.3.3 Plan Review and Revisions**

Since the adoption of the 2011 GHMS, the document has been available on the GEMA website for public view. During local plan update meetings, communities are informed about the availability of the GHMS as a resource and also encouraged to provide feedback on how the document could be improved to assist their needs. Some of these comments that have been received are that the GHMS is difficult to read and find useful information. Many of the sections are burdensome in length and contain highly technical language. Including more useful figures, tables and maps into the chapters would help communities find the information they need. This feedback was taken into consideration in the process and development of the 2014 update to the GHMS. Relevant maps that support text have been moved from appendices and integrated into the appropriate sections of the plan. Tables were formatted to improve clarity. The GHMS has been streamlined by removing redundant and superfluous information. New figures that support plan text and provide relevant information have been integrated into the chapters.

As described above in Section 1.3.1, the active update process began with a summary review of each section of the plan to note which items needed updating, as well as identifying any necessary changes to the planning process that would be needed in order to accomplish the goals the staff had for the 2014 plan. The review of the planning process, as well as the evaluation, monitoring and updating process to be used in the future, revealed changes that were necessary in order to accomplish the goal of broadening participation and input by other Federal and State agencies and non-governmental organizations. Therefore, the description of the planning process was revised to reflect, not only the quarterly and post disaster review meetings of the SHMPT and the planning work done by the mitigation staff, but also the workshops and agency interviews described in Section 1.3.1. The evaluation, monitoring and updating description was revised to reflect a similar process that was used to create the current update, with notation that the process may be modified as necessary to continually improve the state plan.

The planning staff's review also revealed much of the information in the discussion on program integration contained much information not related to hazard mitigation. This information was streamlined to focus only on details related to hazard mitigation and how those programs were integrated into hazard mitigation as well as how hazard mitigation is integrated into them.

Upon review of the integration of local plan information into the State plan, the planning staff realized

that the process was only vaguely described. This resulted in additional detail being added to the 2014 plan to describe how the review of local information took place. The 2014 plan now describes whether changes were necessary as a result of the local plan review or whether the state plan adequately addresses the hazards and goals identified in Georgia's 159 local plans.

Information from the 2011 GHMS was used in the workshops to provide interactive opportunity for the participants to review and provide comments. This includes hazard descriptions, history, frequency, location and extent. The information used in the workshops was posted on the GEMA website for review. Participants were also encouraged to review other sections of the GHMS and provide comments. Some of the comments included adding maps into plan chapters, improving clarity of text and removing non-essential information.

The planning staff's summary review and Workshops 1 and 2 described in Section 1.3.1, included review and analysis of the risk assessment from the 2011 plan. This review and analysis revealed the following needs:

- The hazard history needed to be updated. This was done, including the most recent events, Presidential declarations, etc..
- The risk assessment section was highly technical and difficult to read and contained an unnecessary amount of detail not related to the hazards themselves. This was addressed by streamlining the information in the plan text, narrowing it to the actual risk assessment information, replacing paragraphs with tables and maps, and moving detailed technical information to the appendix.
- Some of the hazards did not adequately address the scope of those hazards, as faced by the State of Georgia. This was addressed by broadening hazards identified in the 2011 plan, such as storm surge and sinkholes. "Storm Surge" was re-labeled "Coastal Hazards" and now includes events, such as storm surge, coastal flooding, high surf and abnormal tides. "Sinkholes" was re-labeled "Geologic Hazards" and now includes sinkholes and landslides.
- Some of the map data was out of date. Out of date maps were replaced with maps based on the best and most recent data available.
- Staff review, Workshop 3 and agency interviews were used to review and analyze the mitigation strategy of the 2011 plan. This review revealed opportunities for improvement regarding the mitigation strategy. While the goals remained relevant, the mitigation actions were revised to be more comprehensive and inclusive of more State agencies, as well as to more adequately and concisely reflect what the State of Georgia wishes to accomplish and how (responsible party, potential funding sources, etc.) the State wishes to accomplish it.

The Staff reviewed the information on State assistance to local communities. The review did not result in any changes, other than updating and streamlining the presented information.

As draft sections of the plan were completed, these were posted on the GEMA website for public review and comment. Participants from the SHMPT and workshops were also contacted via e-mail informing them that draft chapters are available on the GEMA website. GEMA staff in other divisions was also given opportunity to review plan drafts and submitted comments that were incorporated in-



to the plan update.

### **1.3.4 *Post-Disaster Review***

Since the approval of Georgia's Hazard Mitigation Strategy update in 2011, one major hazard event has resulted in disaster a declaration in the State of Georgia. DR 1973 in April 2011 produced severe storms and tornadoes throughout central and northern Georgia.

In conjunction with ITOS, GEMA Hazard Mitigation Division and the Planning Team staff have updated the Standard Plan's hazard, risk, and vulnerability assessment (found in Chapter 2) to include the most recent disaster information and to reflect the new risks associated with the occurrence of the new disaster events.

A Post-Disaster meeting was held following the 2011 disaster, which occurred after the 2011 update. During this meeting, information on disaster impacts to communities and available mitigation funding programs were provided to the attendees. A separate portion of this meeting was held to specifically discuss the damages incurred by state agencies during each disaster, lessons learned, and any changes to local hazard mitigation plans, the state plan and state agency annexes. Two State agencies, the Georgia Department of Transportation and the Department of Juvenile Justice, reported damages to their facilities from the storms.

During the disaster many of the agencies involved with the hazard mitigation program were also involved with the state's response and took active roles in the State Operations Center by participating in ESF's. Support agencies worked on improving their response and coordination with other agencies from the state, the federal government and several private non-profit organizations.

## **1.4 COORDINATION AMONG AGENCIES**

### **1.4.1 *State and Federal Agency Participation***

As described in the above sections, the State of Georgia used methods to involve Federal and State agencies and other interested organizations. These included the quarterly and post-disaster review meetings of the SHMPT, three plan update workshops held between December, 2012 and April, 2013 and individual agency interviews held between July and September 2013. Tables 1.3 and 1.4 identify and describe the participation of State and Federal Agencies in the 2014 plan update. The 2014 plan update also involved coordination with other organizations such as local communities, non-profit organizations, regional planning organizations and the private sector.

### **1.4.2 *Changes in Participant Coordination***

As described in Section 1.3, the State of Georgia changed the planning process in two substantial ways. The quarterly and post-disaster meetings that have occurred since the completion of the 2005 plan are continuing as a tool for stakeholder engagement. However, beginning with this update, Georgia added the series of workshops and agency interviews in order to increase participation in

the planning process and to improve coordination of Federal and State agencies into the 2014 State Plan.

<b>State Agency</b>	<b>Participation</b>
Administrative Office of the Courts	Workshops
GA Forestry Commission	Workshops, quarterly meetings, risk analysis, SHMPT
GA Dept of Driver Services	Workshops
GA Dept of Behavioral Health & Dev Dis	Workshops
Soil & Water Conservation Commission	Workshops
DNR	Workshops, quarterly meetings, risk analysis, SHMPT
GA State Patrol	Workshops
GEMA	Workshops
Georgia Lottery	Workshops
GA Dept of Community Affairs	Workshops, quarterly meetings, risk analysis, SHMPT
DOAS Risk Mgmt Services	Workshops
Dept. of Human Resources	Workshops, quarterly meetings, SHMPT
West Central Health District 7	Workshops
BOR-USG	Workshops
Dept. of Revenue	Agency telephone Interviews
Board of Regents	Workshops, Agency telephone Interviews
Georgia Port Authority	Workshops, Agency telephone Interviews
Dept. of Highway Safety	Workshops, quarterly meetings, SHMPT
Dept. of Audits	Workshops
GA Assoc. of Soil & Water Conservation Commission	Workshops
GA Dept. of Veterans Affairs	Workshops
State Property Office	Workshops
Dept. of Administrative Services	Workshops, SHMPT

**Table 1.3 State Agency Participation in 2014 GHMS Update**

<b>Federal Agency</b>	<b>Participation</b>
FEMA Mitigation Division - Risk Analysis	Workshops
National Weather Service	Workshops

**Table 1.4 Federal Agency Participation in 2014 GHMS Update**

Other Organization	Participation
GA 4 MW	Workshops
Family Intervention Specialists, Inc.	Workshops
Odyssey Family Counseling Center	Workshops
Cherokee Briggs & Associates	Workshops
Oconee Center - CSB	Workshops
UGA-ITOS	Workshops, risk analysis
Advantage Behavioral Health Systems	Workshops
CBF of Georgia	Workshops
Volunteers of America, SE	Workshops
Noah's Ark	Workshops
Children's Healthcare of Atlanta	Workshops
ACTS Retirement-Life Communities	Workshops
Lynndale, Inc.	Workshops
Hope Animal-Assisted Crisis Response (AACR)	Workshops
GA Community Support & Solutions	Workshops
Pudar Mitigation Consulting, Inc.	Workshops
Devereux	Workshops
Meritan, Inc.	Workshops
River Valley Regional Commission	Workshops
Cross Plains Community Partner	Workshops
Behavioral Health Link	Workshops
Volunteer Organizations Active in Disaster (VOAD)	Workshops
United Way 211	Workshops
Rockdale County	Workshops
Volunteers of America	Workshops
Salvation Army	Workshops
Child & Family Guidance	Workshops
Humane Assoc of GA	Workshops
Georgia Power Company	Workshops

**Table 1.5 Other Organizations Participation in the 2014 GHMS Update**

## **1.5 PROGRAM INTEGRATION**

### **1.5.1 *State Planning Programs***

GEMA Hazard Mitigation planning staff has identified fourteen programs and initiatives that are relevant to hazard mitigation. These were reviewed for their effectiveness and incorporated into this plan update where appropriate. All of the programs and initiatives align with the overall goals of Georgia's Hazard Mitigation Strategy: reducing human vulnerability to hazard events; reducing the losses as-

sociated with hazard events; and reducing the people and property of Georgia's overall exposure to hazard events. Specific program and initiatives that are represented in the State mitigation strategy include Safe Dams, Community Wildfire Protection Plans and Risk MAP. GEMA Hazard Mitigation planning staff will continue to review other state programs and initiatives for review and inclusion into the GHMS. Additional information on these programs is provided in Section 3.3.

State Planning Efforts	GHMS Integration
Georgia StormReady	State capability assessment, mitigation strategy
GA Planning Act	State capability assessment, mitigation strategy
Safe Dams	State capability assessment, mitigation strategy
Coastal Management	State capability assessment
Coastal Marshland Protection	State capability assessment
Erosion and Sedimentation Control	State capability assessment
River Corridor Protection	State capability assessment
Shore Protection	State capability assessment
Emergency Watershed Protection	State capability assessment
EMAP Accreditation	State capability assessment
Southern Wildfire Risk Assessment	Data added into wildfire risk assessment and hazard maps, State capability assessment
Community Wildfire Protection Plans	State capability assessment, mitigation strategy
Silver Jackets	State capability assessment, mitigation strategy
Risk MAP	State capability assessment

**Table 1.6 Integration of State Programs into the 2014 GHMS**

### 1.5.2 FEMA Mitigation Programs

The 2014 GHMS is integrated with FEMA programs such as Hazard Mitigation Assistance (HMA), National Flood Insurance Program (NFIP), Community Rating System (CRS), and Risk Map. The mitigation actions in Chapters 3 and 4 include details on the State's efforts at increasing NFIP and CRS participation, implementation and support of the Risk MAP program and use of the HMA and FMA grant programs. Additional information on these programs is found in Sections 3.3, 3.4 and 4.2.

FEMA Program	GHMS Integration
HMA	Funding sources for Mitigation Grants
NFIP	State risk assessment, mitigation strategy, Local capability assessment
CRS	
FMA	Funding Source for Mitigation Grants
Risk MAP	Activity being conducted in the State of Georgia.

**Table 1.7 Integration of FEMA Mitigation Programs into the 2014 GHMS**

# Chapter 2: Risk Assessment

## 2.1 OVERVIEW

The Hazard, Risk, and Vulnerability Assessment of the Georgia Hazard Mitigation Strategy provides the scientifically-sound foundation for the goals, objectives, tasks, and actions steps that are proposed in the plan. This chapter of the plan consists of the following sections: Overview, Definition of Terms, Methodology, Overview of Natural Hazards in Georgia, Hazard-Specific Assessments, Vulnerability Assessment, Composite Assessment, and Loss Potential.

The Definition of Terms section includes definitions of the terms *hazard*, *risk*, *risk assessment*, *vulnerability*, and *mitigation* utilized in this plan.

The Methodology section outlines the processes used in developing the risk assessment, including data manipulation and analyses that led to the presented conclusions.

The All-Hazard Assessment section discusses the hazard event and loss history for the State of Georgia without regard for specific hazard types. This section includes analysis of losses associated with all hazard events and claims associated with Presidential Disaster Declarations (PDDs).

The Hazard Specific Assessments section identifies the specific hazards affecting Georgia by recounting each hazard's event and loss history, Presidential Disaster Declarations history, and notable event history. Also, this section includes hazard-specific occurrence probabilities (risk).

The Vulnerability Assessments section addresses both social and environmental vulnerability to hazard events at a state level. This also includes an analysis of vulnerable state buildings and critical facilities.

The Composite Assessment section attempts to address the concept of “hazardousness of place” by combining the composite of hazards with vulnerability in order to highlight areas of concern.

The last section, which relates to Loss Potential, presents the state assets and locally-defined critical facilities in conjunction with the composite hazard scores in order to determine the areas with the highest potential for loss.

The summary of changes that occurred to the updated mitigation strategy from the 2011 plan is recorded in the following table, Table 2.1.

Chapter 2 of the Georgia Hazard Mitigation Plan was updated with assistance by the Carl Vinson Institute's Information Technology Outreach Service (ITOS) at the University of Georgia. The risk assessment is based on best available risk and vulnerability statistics and data available as of June 30, 2013.

Chapter 2 Section	Updates to Section
2.1 Overview	<ul style="list-style-type: none"> <li>• Changed dates to reflect new plan</li> <li>• Text changes to describe structure of chapter</li> </ul>
2.2 Definition of Terms	<ul style="list-style-type: none"> <li>• Changed name from Context</li> <li>• Definitions changed and new term added</li> </ul>
2.3 Methodology	<ul style="list-style-type: none"> <li>• New text added to describe risk assessment process</li> <li>• New section 2.3.2 describing risk ranking</li> </ul>
2.4 Overview of Natural Hazards in Georgia	<ul style="list-style-type: none"> <li>• Changed title from All-Hazard Assessment</li> <li>• Reformatted and revised all sections</li> <li>• Added maps and tables into sections</li> <li>• Updated dates to section to reflect the dates as they pertain to the plan update</li> </ul>
2.5 Hazard-Specific Assessments	<ul style="list-style-type: none"> <li>• Tropical cyclone to Hurricane Wind</li> <li>• New geologic hazards section; includes sinkhole and landslide</li> <li>• New coastal hazards section; includes previous storm surge and coastal flooding; adds related hazards</li> <li>• Seismic changed to Earthquake</li> <li>• Added text to each section</li> <li>• Added maps and figures</li> <li>• Updated tables, text, and maps to reflect the current available data for hazards</li> </ul>
2.6 Social Vulnerability Assessment	<ul style="list-style-type: none"> <li>• Updated data, tables and maps</li> <li>• Name changed from Vulnerability Assessment</li> </ul>
2.7 Composite Assessment	<ul style="list-style-type: none"> <li>• Updated tables, text, and maps to reflect the current available data for composite assessment</li> </ul>
2.8 Loss Potential	<ul style="list-style-type: none"> <li>• Updated tables, text, and maps to reflect the current available data for hazard risk</li> </ul>

**Table 2.1: Overview of Updates to Chapter 2: Hazard, Risk, and Vulnerability Assessment**

## 2.2 DEFINITION OF TERMS

Risk, for the purpose of hazard mitigation planning, is the potential for damage, loss, or other impacts created by the interaction of natural hazards with community assets. Hazards are natural processes, such as tornados and earthquakes. The exposure of people, property, and other community assets to natural hazards can result in disasters depending on the impacts. Impacts are the consequences or effects of the hazard on the community and its assets. The type and severity of impacts are based on the extent of the hazard and the vulnerability of the asset, as well as the community's capabilities to mitigate, prepare for, respond to, and recover from events. The following are FEMA definitions of terms used in risk assessments.

**Hazard:** A source of potential danger or adverse condition. Natural hazards are created by a meteorological, environmental, or geological event.

**Risk:** The estimated impact that a hazard would have on people, services, facilities, and structures in a community; the likelihood of a hazard event resulting in an adverse condition

that causes injury or damage. Risk is often expressed in relative terms such as a high, moderate or low likelihood of sustaining damage above a particular threshold due to a specific type of hazard event. It also can be expressed in terms of potential monetary losses associated with the intensity of the hazard. As Figure 2.1 illustrates, risk exists when natural hazards interact with community assets.

**Risk Assessment:** The product or process that collects information and assigns values to risks for the purpose of informing priorities, developing or comparing courses of action, and informing decision making.

**Vulnerability:** Describes how exposed or susceptible to damage an asset is. Vulnerability depends on an asset's construction, contents, and the economic value of its functions. Like indirect damages, the vulnerability of one element of the community is often related to the vulnerability of another. For example, many businesses depend on uninterrupted electrical power – if an electric substation is flooded, it will affect not only the substation itself, but a number of businesses as well. Often, indirect effects can be much more widespread and damaging than direct ones.

**Mitigation:** Hazard mitigation is sustained action taken to reduce or eliminate long-term risk to people and their property from hazards.



Note: Modified from U.S. Geological Survey and Oregon Partnership for Disaster Resilience Models.

Figure: 2.1



## **2.3 METHODOLOGY**

The focus of this risk assessment is to identify and describe the hazards and their impacts affecting the State of Georgia. The point of this Methodology section is to outline the steps to analyzing risk to Georgia from natural hazards. Methods pertaining to specific hazard and risk assessments are outlined in the individual hazard's section of the Hazard Specific Assessments.

### ***2.3.1 2014 Risk Assessment***

Updating the risk assessment began with a review of the twelve identified natural hazards in the 2011 GHMS. Identifying natural hazards in Georgia is a process involving local plan inputs, comments from state stakeholders and hazard history. GEMA staff started this process by examining local hazard mitigation plans to determine if additional locally identified hazards warrant consideration in this risk assessment. This review did not produce additional hazards for the state plan update.

During the state plan update workshops, participants were given the opportunity to review the 2011 identified hazards. Several comments were given on additional hazards to consider. These include landslides, agricultural pests, wildfire smoke/air quality, pandemic flu and climate change. After the workshops, GEMA staff analyzed each of these hazards to determine if the definition and data were sufficient to meet natural hazard profile requirements.

Landslides were mentioned under seismic hazards in the 2011 plan as a secondary hazard to earthquakes; however, this description was deemed insufficient as landslides have several causes. Additional data and discussion on the landslide hazard was added to the new section 2.5.11 Geologic Hazards. Among other updates to section 2.5.9 Wildfire, the description now includes air quality impacts from smoke. The other suggested hazards were determined to either not meet the definition of natural hazard, or insufficient data is available to objectively document specific risk to life and property.

Historic data from Spatial Hazard Events and Losses Database for the United States (SHELDUS), National Climate Data Center (NCDC) and other records were reviewed to identify any additional hazards. This did not produce any hazards for the risk assessment. More information on SHELDUS and NCDC is provided in section 2.4.2

After the hazard identification process, the assessments for all twelve identified hazards were reviewed to identify new sources of information and updated data. This includes hazard events that have occurred since the 2011 GHMS adoption, hazard maps, potential risk areas and potential vulnerability. All hazard assessments have been updated to reflect best available descriptions and data.

### ***2.3.2 Hazard Risk Ranking***

To gain a better understanding of risks to hazards, GEMA staff developed a tool that could comparatively assess and prioritize each of the identified hazards in the GHMS. GEMA staff surveyed existing hazard ranking tools that were incorporated into various state and local hazard mitigation plans

around the nation. While many of those ranking tools in other mitigation plans had useful or insightful components or methods, GEMA staff created its own methodology incorporating best practices from other examples.

Among the problems this methodology attempts to resolve includes developing a priority ranking based on total risk, factoring vulnerability into risk and potential for events not recorded in data sources. An example of the latter is hurricanes. While some major hurricanes have made impact in the past, none have in over a century therefore data event and impact sources such as SHELDUS and NCDC do not have information on this hazard since those records begin in the 1950's.

The basic definition that GEMA staff operated from to create this methodology is that Risk = Hazard + Vulnerability. Specific categories were identified based on common definitions of hazard and vulnerability. Where possible, objective data was utilized such as events per year and annualized losses. Only data was from 1992-2012 was incorporated since older records are often incomplete. This methodology is not intended to be a scientific process, but rather an additional tool for understanding natural hazards in Georgia. The results are presented in Tables 2.2, 2.3 and 2.4.

Hazard:

Historical Frequency	Duration	Area Impacted
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Vulnerability:

Annualized Losses	Injuries and Deaths Per Year	Human Loss	Property Damage & Effect	Critical Facilities Impacted	Economy Disruption	Natural and Cultural Resources (Environment)
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Blue: Historical Impact (SHELDUS data)

Green: Potential Hazard

Red: Potential Vulnerability

#### Hazard Ranking

	Hazard	Score	Threat
1	Severe Weather	12	VH
2	Drought	10	H
3	Winter Weather	9	H
4	Inland Flooding	8	M
5	Wind	8	M
6	Tornado	7	M
7	Trop. Cyclone	6	M
8	Wildfire	6	M
9	Storm Surge	5	L
10	Seismic	4	L
11	Dam Failure	4	L
12	Sinkhole	3	L

#### Threat Levels

Very High= 12-15

High= 9-11

Medium= 6-8

Low= 3-5

Table 2.2 Workshop 1 Hazard Ranking

Vulnerability Ranking			Impact Level
	Hazard	Score	
1	Tornado	25	VH
2	Inland Flooding	17	H
3	Severe Weather	17	H
4	Trop. Cyclone	15	M
5	Wind	13	M
6	Drought	12	M
7	Winter Weather	12	M
8	Storm Surge	12	M
9	Wildfire	12	M
10	Dam Failure	11	M
11	Seismic Hazards	7	L
12	Sinkhole	4	L

**Table 2.3 Workshop 2 Vulnerability Ranking**

Total Risk Ranking			Risk Levels
	Hazard	Score	
1	Tornado	32	H
2	Severe Weather	30	H
3	Inland Flooding	26	H
4	Drought	22	M
5	Wind	22	M
6	Winter Weather	21	M
7	Trop. Cyclone	21	M
8	Wildfire	18	M
9	Storm Surge	18	M
10	Dam Failure	15	L
11	Seismic Hazards	11	L
12	Sinkhole	7	L

**Table 2.4 Workshop 2 Total Risk Ranking**

This ranking methodology was presented in the state plan update workshops and participants were given the opportunity to present their perspectives of these hazards based on their understanding of the hazards and the scoring criteria presented. Worksheets used in this ranking are included in Appendix C. The hazard specific assessments in section 2.5 include the hazard, vulnerability and risk levels as well as the total rank out of the 12 hazards.

## 2.4 OVERVIEW OF NATURAL HAZARDS IN GEORGIA

### 2.4.1 Introduction

The 2014 GHMS retains twelve natural hazards although some of these have been modified after the risk assessment process was completed. Tropical Cyclonic Events was changed to Hurricane Wind to reflect the data used in the analysis. Storm Surge was changed to Coastal hazards to also include Coastal Flooding related events that are not associated with tropical cyclones. The Seismic Hazards section was changed to Earthquake to more specifically identify the hazard and data described in that section. Sinkhole was added to the Geologic Hazards along with Landslide. The table below shows the hazards identified in the 2011 and 2014 GHMS. Sub-hazards included under each hazard are also listed. This summary of changes is depicted in Table 2.5.

2011 Hazards	2014 Hazards	2014 Sub-hazards
Tropical Cyclonic Events	Hurricane Wind	
Storm Surge	Coastal Hazards	Storm Surge, Coastal Flooding
Wind	Wind	
Severe Weather	Severe Weather	Thunderstorms, lightning, hail
Tornadoes	Tornadoes	
Inland Flooding	Inland Flooding	
Severe Winter Weather	Severe Winter Weather	
Drought	Drought	
Wildfire	Wildfire	
Seismic Hazards	Earthquake	
Sinkholes	Geologic Hazards	Sinkhole, landslides and debris flows
Dam Failures	Dam Failures	

**Table 2.5 Changes in Hazards from 2011 to 2014 State Plan**

Table 2.6 was created based upon the results of reviewing all 159 local hazard mitigation plans. GE-MA staff extracted information about hazards that the locals included in each risk assessment. The table includes hazard type and percentages of local plans that identify that hazard. There is a significant increase in the percentage of local plans that are identifying Wind, Hurricane Wind and Severe Weather hazards.

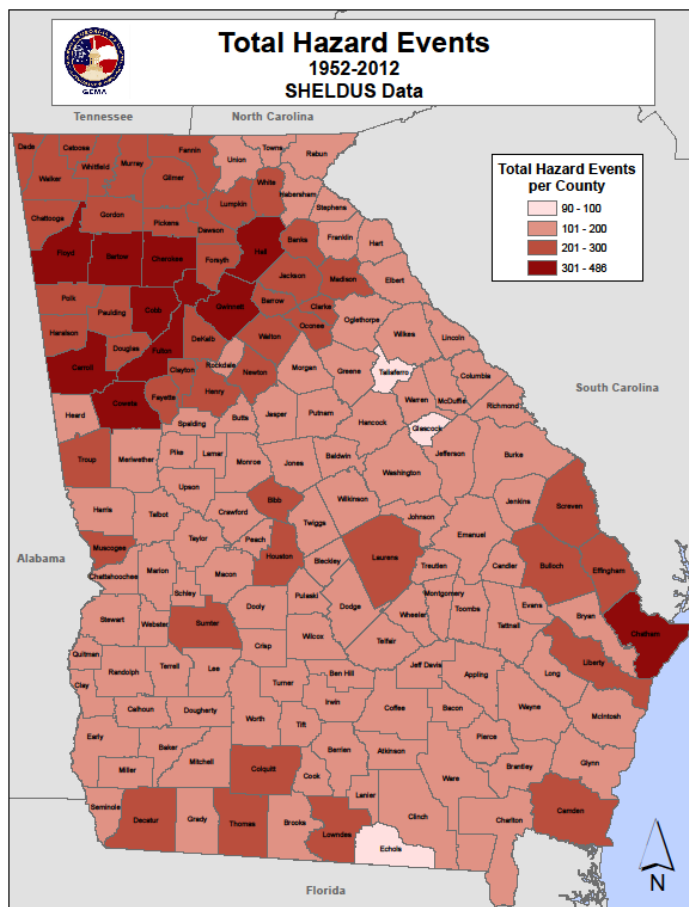
### 2.4.2 Hazard Profiling and Characteristics

The primary characteristics used in profiling hazards include event history, extent (magnitude), probability and location. History involves describing previous events and impacts to the affected areas. Extent or magnitude is the greatest severity likely to occur. Probability is the likelihood that an event will occur in the future. Location is the areas that are susceptible to being impacted by the event.

The primary source for historical events and impacts is the Spatial Hazard Event and Loss Database for the United States (SHELDUS) produced by the Hazards & Vulnerability Research Institute of the University of South Carolina. This searchable database contains hazard-specific data with each

Hazard Type	% of Counties Identifying in 2010	% of Counties Identifying in 2013
Inland Flooding	97%	98%
Tornadoes	97%	98%
Drought	91%	90%
Severe Winter Storms	81%	81%
Wind	72%	80%
Wildfire	78%	79%
Tropical Cyclonic Events (Hurricane Wind)	52%	60%
Severe Weather	52%	68%
Hailstorm (Severe Weather)	50%	64%
Lightning (Severe Weather)	45%	63%
Dam Failure	32%	32%
Heat	22%	22%
Earthquake	26%	21%
Coastal Flooding	5%	6%
Sinkhole	3%	3%
Landslide	1%	1%

**Table 2.6 Hazards in Local Plans**



event having the location (county), beginning date, property losses, crop losses, injuries, and fatalities. This database is derived from many national data sources including the National Climatic Data Center (NCDC) and the National Geophysical Data Center (NGDC). The data covers hazard events and losses from 1952 to 2012 for tornado events and 1960 to 2012 for all other events, with updates for additional years forthcoming. The version of SHELUDS used for this plan update is 10.1, released in August of 2013. This version includes a greater number of events than previous versions. In older versions, a hazard event was utilized only if exceeding a \$50,000 loss or 1 fatality. In SHELUDS 10.1, every loss-causing event between 1960 and 1989 and from 1995 to December 31, 2012 was included. Events occurring between 1990 and 1995 were still subject to the loss threshold of 1 fatality or \$50,000 in damages. Therefore this version of SHELUDS still undercounts some events but overall has improved in its tabulation

**Figure 2.2 Total Hazard Events by County**

of Hazard events with the dropping of loss thresholds for the majority of years covered. Other sources of hazards events and loss are presented as best available data in instances where SHEL-DUS and NCDC were incomplete. This includes coastal flooding and wildfire.

The data gathered from SHEL-DUS is visually represented in maps located in the Hazard Specific Assessments. Figure 2.2 illustrates the total of hazard events that have occurred within the State from 1952-2012. Areas around Metro Atlanta and Savannah experienced the greatest number of total hazard events during this timeframe.

Figure 2.3 illustrates the total losses from all hazard events by county from 1952 - 2012. These totals take into account inflation; therefore, all amounts are in 2012 dollars. Counties in the Metro Atlanta area experienced the greatest total losses during this timeframe.

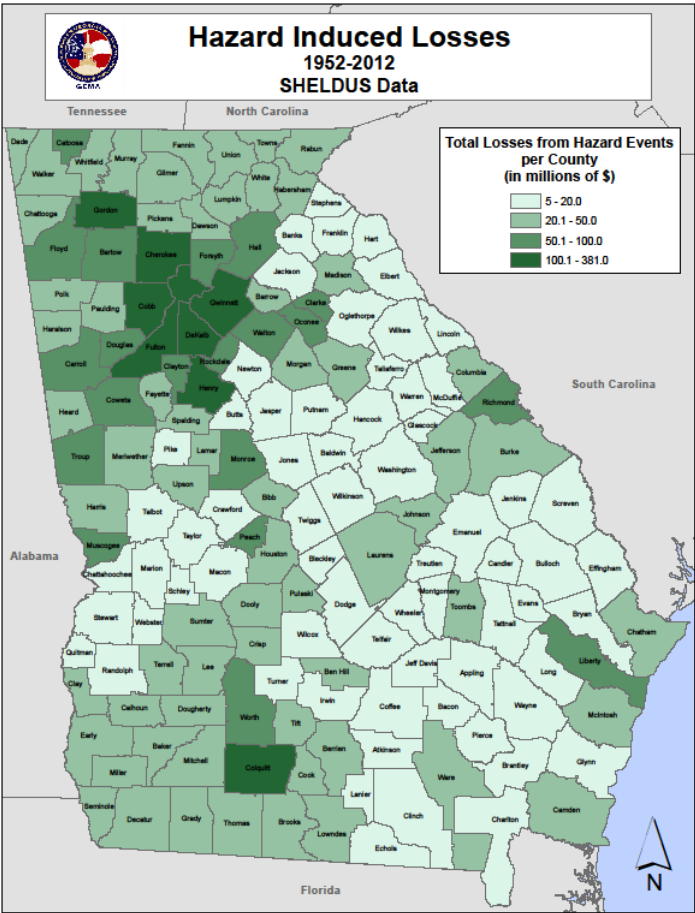


Figure 2.3 Total Hazard Losses by County

Figure 2.4 depicts the average loss per hazard event for each county. Fulton County represents the highest loss per event category with totals between \$750,000 and one million dollars per hazard event.

Extent or magnitude of a hazard event is defined by a scientific scale or objective data that describes how severe the event could be. Examples include the Enhanced Fujita Tornado Scale or Saffir-Simpson Hurricane scale. A review of historical events that have occurred can indicate a reasonable expectation of the potential extent to a future event. With tornadoes, the greatest severity experienced in Georgia is an EF4; therefore, the potential extent of a future tornado event in Georgia is an EF4. Each of the hazard specific assessments describes potential extent.

The best source of information for determining

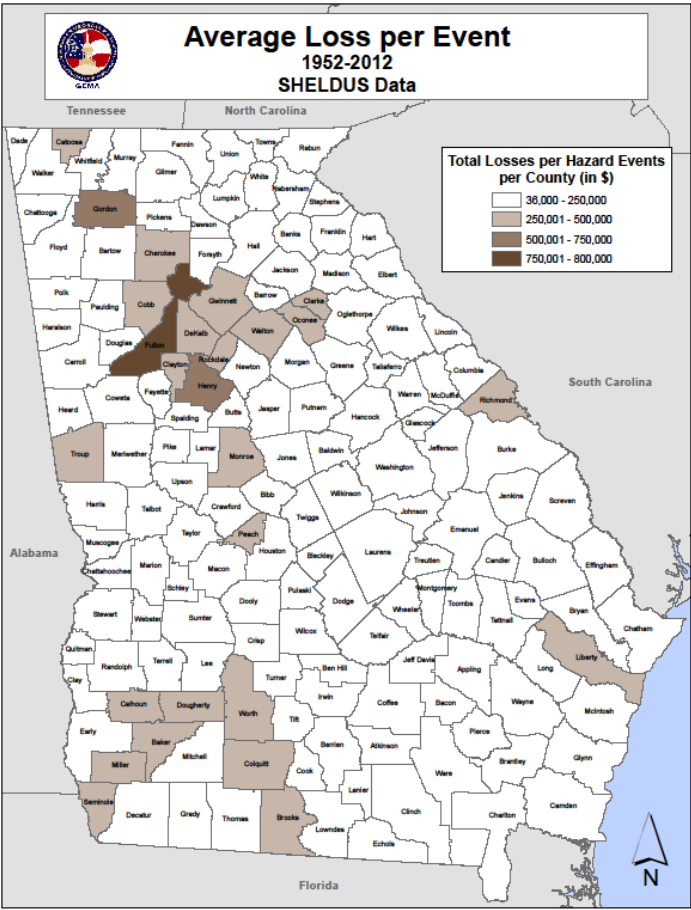


Figure 2.4 Average Loss per Event by County

future probability is to review the historic occurrence or frequency of a hazard event. This is limited depending on the quality of historical records and availability of data. For example, no major hurricane has made landfall since 1898; however, between 1854 and 1898 there were three. There is not enough scientific data to determine the exact probability of a future event.

Location of the areas susceptible to the hazard event also takes into consideration previous occurrences. However, just as the case with other profile characteristics location depends on the availability and quality of data. Maps are included in the hazard specific assessments to help indicate susceptible locations either by historical events or other data sources such as floodplain maps and wildfire risk.

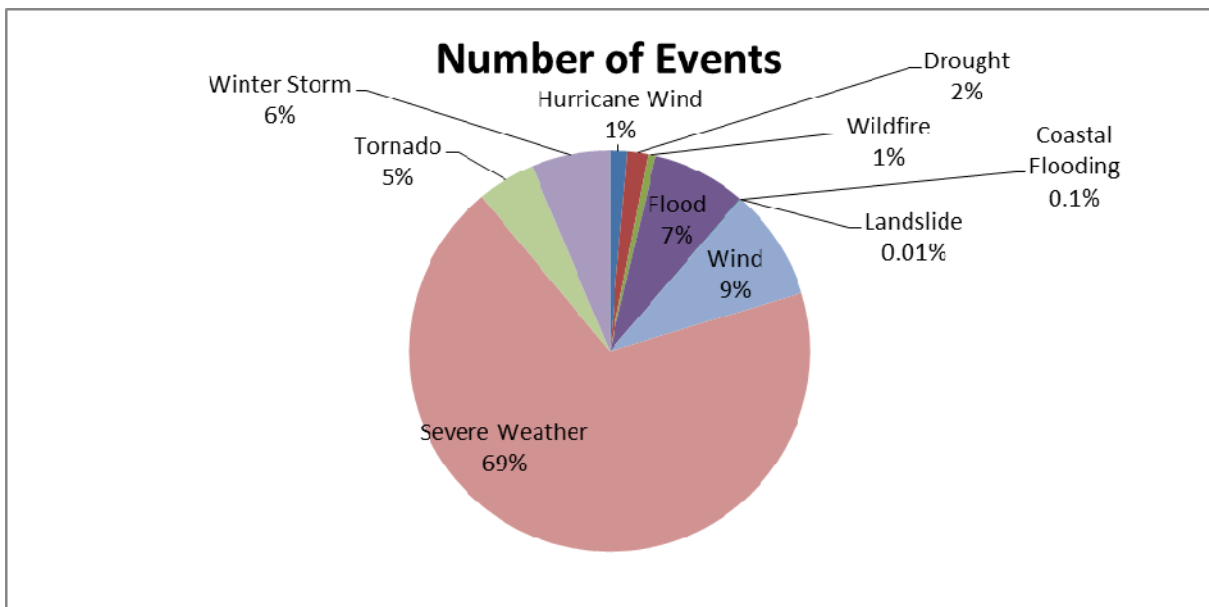


Figure 2.5 SHELDUS Hazard Events Percentage 1992-2012

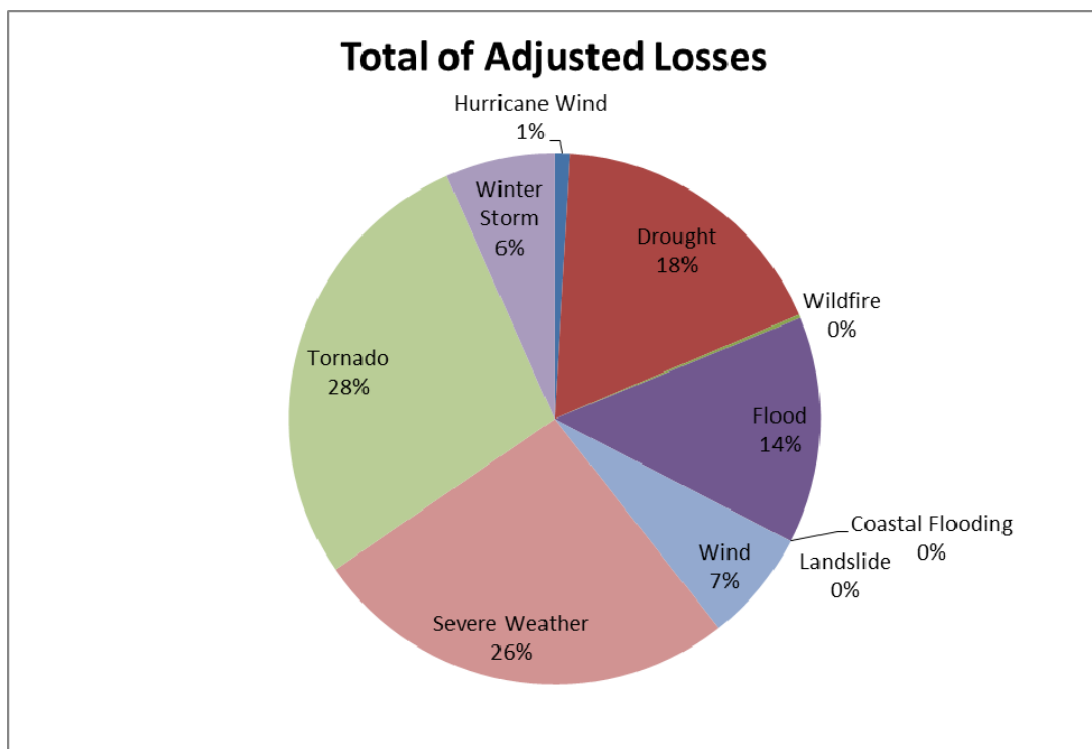
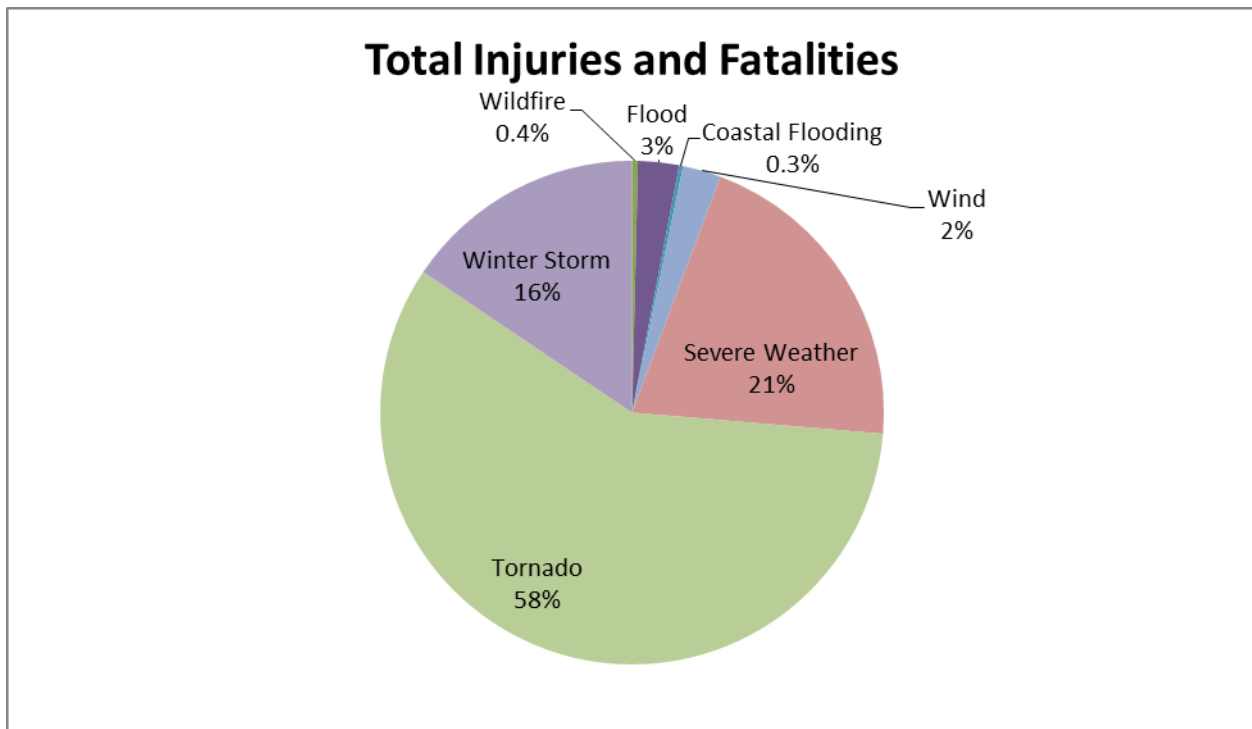


Figure 2.6 SHELDUS Adjusted Loss Percentage by Hazard 1992-2012





**Figure 2.7 SHELUDS Total Injuries and Fatalities Percentage by Hazard.**

Figure 2.5 illustrates the distributions of number of events of each hazard according to data from SHELUDS between 1992 and 2012. By far, Severe Weather (Thunderstorm, Lightning, Hail) is the most frequent hazard event that occurs in Georgia. Figure 2.6 illustrates the distributed of Total Losses by hazard. Tornado and Severe Weather create the highest dollar amount loss in Georgia. Figure 2.7 illustrates the distribution of Total Injuries and Fatalities from each hazard. SHELUDS data did not have any recorded injuries or fatalities from Hurricane Wind, Drought or Landslide, therefore these hazards were not included in this diagram. Tornado events produce more injuries and fatalities than all the other hazards combined.

### 2.4.3 Presidential Declared Disasters

Only one Presidential Declared Disaster (PDD) has occurred since the 2011 GHMS was adopted. This was DR1973 in April 2011 after severe thunderstorm outbreak produced tornadoes, straight-line winds and associated flooding. The following Table 2.7 lists the declared counties in this disaster. Twenty-three counties were declared under Individual Assistance (IA) and Public Assistance (PA), two counties declared only under Individual Assistance and one county declared only under Public Assistance. Information on previous PDDs can be found in Appendix D. Notable hazard events that were also PDDs are identified in the hazard specific assessments in section 2.5.

Bartow	Catoosa	Cherokee	Coweta	Dade	Floyd
Gordon	Greene	Habersham	Harris	Heard	Jasper
Lamar	Lumpkin	Meriwether	Monroe	Morgan	Newton
Pickens	Polk	Rabun	Spalding	Troup	Upson
Walker	White				

IA & PA	IA Only	PA Only
---------	---------	---------

**Table 2.7 Declared Counties in PDD DR1973**

## **2.5 HAZARD SPECIFIC ASSESSMENTS**

The hazard-specific assessments contained within this section follow the subsequent order:

**2.5.1 Hurricane Wind**

**2.5.2 Coastal Hazards (includes storm surge and coastal flooding)**

**2.5.3 Wind**

**2.5.4 Severe Weather (includes lightning and hail)**

**2.5.5 Tornado**

**2.5.6 Inland Flooding**

**2.5.7 Severe Winter Weather**

**2.5.8 Drought**

**2.5.9 Wildfire**

**2.5.10 Earthquake**

**2.5.11 Geologic Hazards (includes sinkhole and landslide)**

**2.5.12 Dam Failure**

Within each hazard's assessment will be a description of the event and a hazard profile. The description defines what the hazard is and general information on characteristics. The hazard profile describes the history of the hazard in Georgia, locations susceptible to the hazard, probability of occurrence and extent. Hazard history includes SHELDES data where this information is available. Maps, tables and other related figures are also included to describe and profile each hazard.

## 2.5.1 Hurricane Wind

Associated Hazards:

Tropical cyclones, hurricanes, tropical storms, tropical depressions, coastal storms

Hazard	Vulnerability	Total	Rank
Medium	Medium	Medium	7

### Hazard Description:

Tropical cyclones are referred to in a multitude of ways across the globe from Hurricanes in the Atlantic Ocean, Typhoons in the Pacific Ocean, and more generically Tropical Cyclones in the south-west Indian Ocean. According to the Atlantic Oceanographic and Meteorological Laboratory (AOML) a tropical cyclone "...is the generic term for a non-frontal synoptic scale low-pressure system over tropical or sub-tropical waters with organized convection (i.e. thunderstorm activity) and definite cyclonic surface wind circulation." The National Oceanic and Atmospheric Administration's (NOAA) National Hurricane Center (NHC) categorizes tropical cyclones in the Atlantic Basin (Atlantic Ocean, Caribbean Sea, and Gulf of Mexico) into four types based on intensity.

**Tropical Disturbance:** A discrete tropical weather system of apparently organized thunderstorms - generally 100 to 300 nautical miles in diameter - originating in the tropics or subtropics, and maintaining its identity for 24 hours or more.

**Tropical Depression:** An organized system of clouds and thunderstorms with a defined circulation and maximum sustained winds of 38 mph (33 knots) or less.

**Tropical Storm:** An organized system of strong thunderstorms with a defined circulation and maximum sustained winds of 39 mph to 73 mph (34-63 knots).

**Hurricane:** An intense tropical weather system with a well-defined circulation, producing maximum sustained winds of 74 mph (64 knots) or greater. Hurricane intensity is classified into five categories using the Saffir-Simpson Hurricane Scale (presented in Attachment 2: Saffir-Simpson Hurricane Scale). Winds in a hurricane range from 74 – 95 mph for a category 1 hurricane to greater than 156 mph for a category 5 hurricane. Hurricane Camille (1969) and Hurricane Allen (1980) epitomize the destructive potential of hurricanes as both had sustained winds of 190 mph and gusts well over 200 mph.

Hurricanes can cause catastrophic damage to coastlines and areas several hundred miles inland. Hurricane can produce winds exceeding 155 miles per hour as well as tornadoes and microbursts. Additionally, hurricanes can create storm surges along the coast and cause extensive damage from heavy rainfall. Floods and flying debris from the excessive winds are often the deadly and destructive results of these weather events. Slow moving hurricanes traveling into mountainous regions tend to produce especially heavy rain. Excessive rain can trigger landslides or mud slides. Flash flooding can occur due to intense rainfall. (Source: <http://www.ready.gov/hurricanes>)

Each of these hazards present unique characteristics and challenges; therefore, the following have been separated and analyzed as individual hazards: Hurricane Wind, Storm Surge, Tornado, Flooding (inland and coastal), Wind and Severe Weather. This section will focus on the hurricane wind hazard.

## Hazard Profile

Throughout history, tropical cyclones have plagued Georgia. The NHC has accumulated records of all of the tropical cyclones that have affected the state since 1851. The National Weather Service (NWS) and NOAA's Atlantic Oceanic and Meteorological Laboratory (AOML) have records of tropical cyclone activity affecting the Georgia Coast since 1565. Table 2.8 presents the total number of hurricanes by intensity that have affected any portion of Georgia from 1851 through 2011. Table 2.9 presents all of the tropical cyclones that have made landfall on the Georgia coast during the period of 1800 through the present.

Hurricane Intensity	Number of Hurricanes
Category 1	15
Category 2	5
Category 3	2
Category 4	1
Category 5	0

**Table 2.8 Total Number of Hurricanes that have Tracked Over Georgia, 1851 to Present**

Tropical Cyclone Intensity	Number of Named Storms	Recurrence Interval (years per storm)
Tropical Storm & Category 1 – 2	25	8
Major Hurricane: Category 3 – 5	6	35

**Table 2.9 Tropical Cyclones that have made Landfall on the Georgia Coast, 1800 to Present**

Year	Name (if applicable)	Area Affected	Remarks
1804		Savannah Area	Hutchison Island inundated; 3 deaths
1813		Coastal Georgia	28 deaths
1881		Savannah Area	\$1.5 million in damages; 335 deaths
1893		Savannah Area	\$10 million in damages; 1000 deaths
1898		Coastal Georgia	120 deaths
1911		Coastal Georgia	18" of rain in 24 hours
1916		Southwest Georgia	\$2.5 million in damages
1928		Savannah Area	11" of rain
1940		Coastal Georgia	> \$1 million in damages
1947		Savannah Area	> \$2 million in damages
1959	Gracie	Coastal Georgia	\$5 million in damages
1964*	Dora	Coastal Georgia	DR177; \$8 million in damages
1979	David	Coastal Georgia	2 deaths
1990*	Klaus/Marco	Central Georgia	FEMA DR880; *\$6 million in damages
1994*	Alberto	Statewide	FEMA DR1033; Extreme flooding on Flint and Ocmulgee Rivers; > \$400 million in damages
1995*	Opal	Western Georgia	FEMA DR1071; Widespread wind damages
2004*	Frances, Ivan, and Jeanne	Statewide	FEMA DR1554 and DR1560; Wind / rain damage in 107 counties
2005	Dennis	Statewide	Wind / rain damage; Flooding

**Table 2.10, Notable and Historic Tropical Cyclonic Events Affecting Georgia**

\*Presidential Declared Disasters

Between 1800 and 1850, three major hurricanes made landfall on the Georgia coast in 1804, 1813, and 1824, causing a combined total of over 600 fatalities. Between 1851 and 1899, 14 named storms and three major hurricanes (in 1854, 1893, and 1898) made landfall on the Georgia coast, with the number of fatalities nearing 2700. From 1900 to 1949, four named storms (1911, 1928, 1940, and 1947) made landfall on the Georgia coast. From 1950 to the present, only one hurricane (Category 2 Hurricane David, 1979) has impacted the Georgia coast.

Table 2.10, details the more notable events in Georgia's tropical cyclone history. These events are not representative of all events affecting the State, but are selected on the basis of having a great impact. Damage values are given in historic dollars.

Although all of Georgia's counties can be affected by tropical cyclonic activity, two regions stand

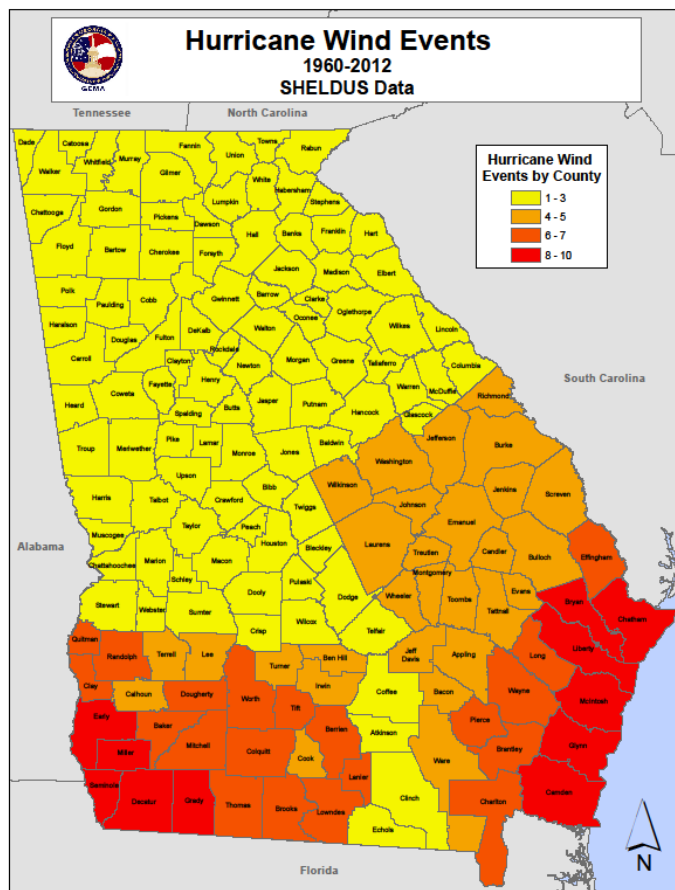


Figure 2.8

apart when analyzed using SHELDUS data. Figure 2.8, which illustrates the tropical cyclonic events per county from 1960 to 2012 highlights the two regions in Southwest Georgia and Coastal Georgia. Based on SHELDUS, the counties in Southwest Georgia are most affected by tropical cyclones (that enter from the Gulf of Mexico) while the counties are less affected by tropical cyclones (that enter from the Atlantic Ocean).

The risk analysis of all hazard events takes into account the recurrence interval of the hazard. Because the historical record of tropical cyclonic events is limited and subject to seasonality, a true recurrence interval is unknown and changes yearly (as demonstrated by the NWS forecasting). However, using the various sources for Georgia's tropical cyclone history (NOAA, SHELDUS), one can estimate over a 200 year period around 36 tropical cyclones affected the State (not necessarily a direct hit). This trans-

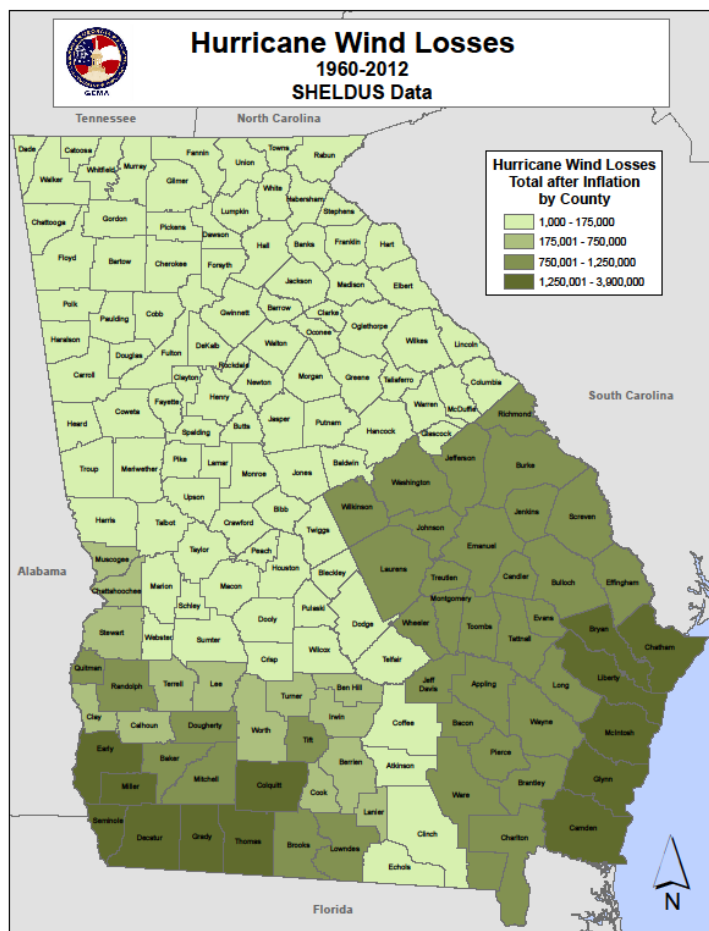


Figure 2.9

lates to about an 18% chance of a tropical cyclone affecting the State per year or approximately one storm every 5.5 years.

Figure 2.9 illustrates the cumulative estimated losses from hurricane wind events. Losses from associated hurricane hazards such as flooding, storm surge and tornados are not included in these figures.

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74-95 mph 64-82 kt 119-153 km/h	<b>Very dangerous winds will produce some damage:</b> 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 83-95 kt 154-177 km/h	<b>Extremely dangerous winds will cause extensive damage:</b> 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 96-112 kt 178-208 km/h	<b>Devastating damage will occur:</b> 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 113-136 kt 209-251 km/h	<b>Catastrophic damage will occur:</b> 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 137 kt or higher 252 km/h or higher	<b>Catastrophic damage will occur:</b> A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. 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.

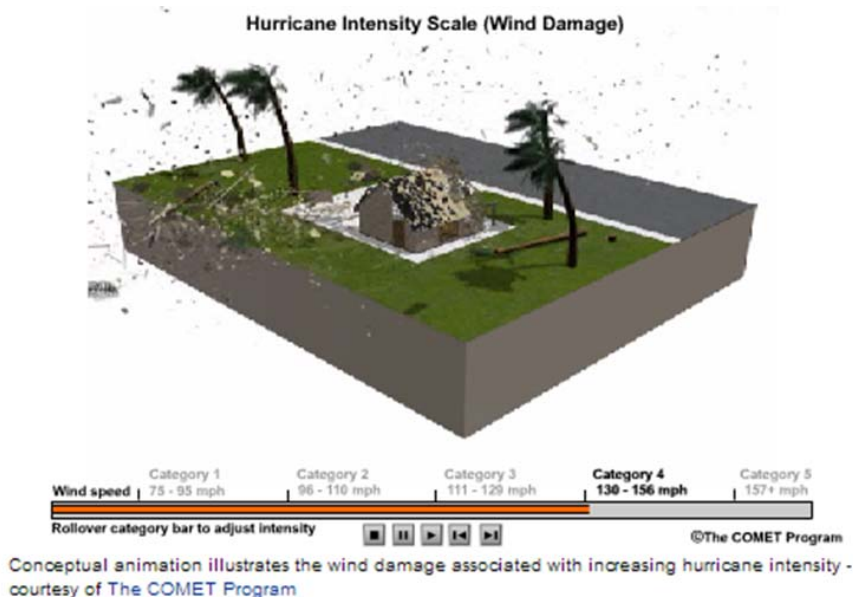
Source: NOAA National Hurricane Center <http://www.nhc.noaa.gov/aboutsshws.php>

**Figure 2.10 Hurricane Wind Intensity Scale**

## Extent

The best available method for determining potential extent or magnitude of a future hurricane wind event is to review historical records. Based on hazard history for Georgia, the potential extent for a future hurricane wind event in Georgia is a Category 4 Hurricane producing maximum sustained winds of up to 156 miles per hour.

The graphic in Figure 2.11 provides a simulation of damages to a wood-frame structure from winds that are



**Figure 2.11** [http://www.nhc.noaa.gov/pdf/sshws\\_table.pdf](http://www.nhc.noaa.gov/pdf/sshws_table.pdf).



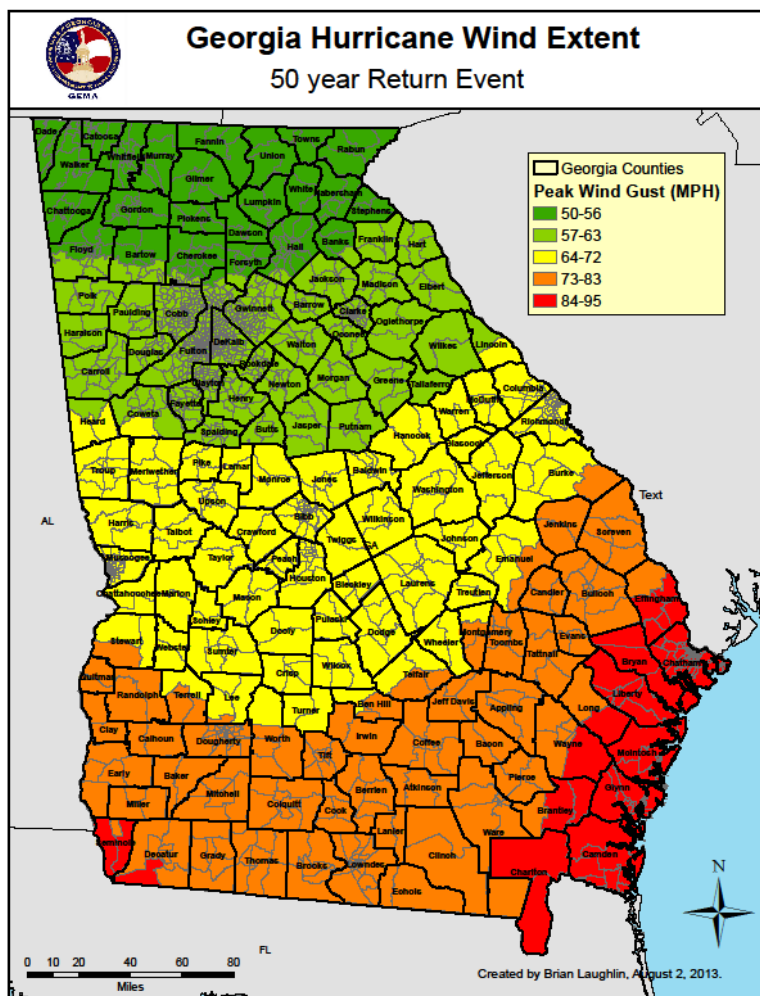


Figure 2.12

approximately 130 miles per hour (Category 4 Hurricane). The animated graphic and additional information on the Hurricane Intensity Wind Scale can be viewed at: [http://www.nhc.noaa.gov/pdf/sshws\\_table.pdf](http://www.nhc.noaa.gov/pdf/sshws_table.pdf).

The map in Figure 2.12 is based on data available from HAZUS-MH. It provides estimates of Peak Wind Gust for a 2% annual chance hurricane or 50-year return interval. Peak wind gusts are hurricane winds that maintain its velocity for 3-seconds. HAZUS uses peak wind gust in its loss estimation since these higher velocity winds can produce the greatest amount of damage. There is no direct correlation between maximum sustained winds (which determines Category) and peak wind gusts.



## 2.5.2 Coastal Hazards

### Associated Hazards:

Tropical cyclones, hurricanes, tropical storms, tropical depressions, coastal storms, coastal winter storms, storm surge, coastal flooding.

Hazard	Vulnerability	Total	Rank
Low	Medium	Medium	9

This section was previously called Storm Surge and after review of hazard data, was expanded to include broader discussion of coastal hazards. These include storm surge, coastal flooding, high surf and abnormal tides.

### Hazard Description

The NHC defines storm surge as “...an abnormal rise in sea level accompanying a hurricane or other intense storm, and whose height is the difference between the observed sea surface and the level that would have occurred in the absence of the cyclone.” Storm surge that is produced by a tropical cyclone is a function of both tropical cyclone and geographic characteristics. Tropical cyclone characteristics affecting storm surge values include the intensity of the hurricane (strength of the winds and central pressure), angle of approach, and forward speed. Geographic characteristics that affect the extent of storm surge include bathymetry (underwater terrain), slope of the continental shelf, roughness of the continental shelf, shape of the coastal region, and existence of natural or manmade barriers.

The overall observed height of water that will impact a region from a tropical cyclone is referred to as the storm tide. Storm tide is the actual level of the sea water resulting from the astronomical tide combined with the storm surge. The value of storm tide includes the storm surge created by the tropical cyclone and the tidal variations that exist in a region. Along the Georgia coast, the tidal variation or total height difference between low tide and high tide can be as much as ten feet (five feet above sea level during high tide, and four and one half feet below sea level during low tide) during spring tides. Compounding the destructive potential of a storm tide is the occurrence of wind driven waves. Hurricane force winds blowing over the ocean creates large waves known as wind driven waves. These waves can reach heights of 10 feet and exists on top of the rising waters.

Hurricanes primarily occur during hurricane season which spans June 1 through November 30, although hurricanes have been known to form outside of the official hurricane season. The official hurricane season accounts for 95% of observed activity; therefore, on average, only 5% of hurricanes form outside of hurricane season.

The rate of onset of a storm surge has a smaller range than the storm itself. While the storm may show signs of approach up to days before the storm peaks, the storm surge will often appear somewhat suddenly. However, the surge can reach inland for miles along a vast span of coastline (depends on the size and strength of the storm). This rapid rate of onset is the major contributor to the many deaths associated with storm surge. The duration of the surge event depends on the depth

of the surge and other environmental factors such as drainage capability. The waters from the surge may remain for days in certain areas. The frequency of storm surges of a certain magnitude greatly depends on the frequency of tropical cyclones with the ability to produce the surge. The measure of magnitude of storm surge is largely based upon height above mean water level.

It should be noted that tropical cyclones are not the only type of storms that can cause destructive storm surge. Albeit less common in Georgia, nor'easters and strong winter storms can result in elevated water levels, which while not as high at their peak, may be more destructive over a sustained period of time.

Coastal flooding is defined as flooding of coastal areas not associated with tropical cyclone events. Coastal flooding is caused by strong, persistent onshore wind, high astronomical tide, and/or low atmospheric pressure and results in damage, erosion, flooding, fatalities, or injuries. Coastal areas are defined as those portions of coastal land zones adjacent to the waters and bays of the oceans.

High surf is defined as large waves breaking on or near shore, resulting from swell spawned by a distant storm or from strong onshore winds, causing a fatality, injury or damage. In addition, if accompanied by anomalous astronomical high tides, high surf may produce beach erosion and possible damage to beachfront structures. High surf conditions are usually accompanied by rip currents and near-shore breaks.

Date	Event	Description of Impact on Georgia
September 7-8, 1804	"Great Gale of 1804"	St. Simons Island was flooded with water 7' above normal. The tide rose 10' above MSL on the Savannah waterfront. Severely flooded Pablo Creek (currently the intracoastal waterway). More than 500 persons drowned.
September 16-17, 1813	Category 3-4 Hurricane	Storm surge of at least 19 feet above Mean Low Water (MLW)
September 14-15, 1824	Major Hurricane	Exceeded 1804 storm in flooding and damage. St. Simons Island completely overflowed.
September 8, 1854	Category 3 Hurricane	Fort Pulaski- storm tide elevation 10.50 feet above normal.
August 27, 1881	Hurricane	Fort Pulaski- storm tide level 11.57 feet above normal. Isle of Hope- 11.82 feet above normal
August 27, 1893	Category 3 Hurricane	Fort Pulaski- storm tide elevation between 12-13 feet above normal. Heavy storm surge of approximately 16 feet in other areas.
October 2, 1898	Category 4 Hurricane	Hutchinsons Island, opposite Savannah, was completely inundated to a depth of 4 to 8 feet. Campbell Island, near Darien, GA, was inundated, while Darien reported a tidal wave about 13 feet above mean high water mark and Sapelo Island, GA, reported about 18 feet. This hurricane caused 179 deaths and damage was estimated at around \$2.5 million. 16 foot storm surge in downtown Brunswick.
October 14, 1947	Hurricane	High tides along the Georgia and South Carolina coasts ranged from 12 feet above mean low tide at Savannah Beach, GA, and 9.6 feet at St. Simons Island near Brunswick, GA.
September 4, 1979	Hurricane David	Storm surge of 3-5 feet and heavy surf

**Table 2.11 Notable Storm Surge Events in Georgia from Tropical Cyclones**

## Profile

No major hurricanes have made landfall along the Georgia coast since 1898; therefore there is a limitation on historical data that can be used for comprehensive risk analysis to storm surge. Table 2.11 describes more notable storm surge events that have affected Georgia. This list only includes hurricanes where there were recorded storm tide elevations. It is possible that other hurricanes that produced storm surge or coastal flooding may have occurred during this time; however, no records on storm tides are available. The greatest extent of storm surge was associated with a Category 4 hurricane. According to Table 2.9 in section 2.5.1, the recurrence interval for a major hurricane making landfall in Georgia is approximately once every 35 years.

SHELDUS and NCDC data include information on some coastal flooding events. Four counties had one coastal flooding occurrence, while one (Chatham County) reported twelve occurrences

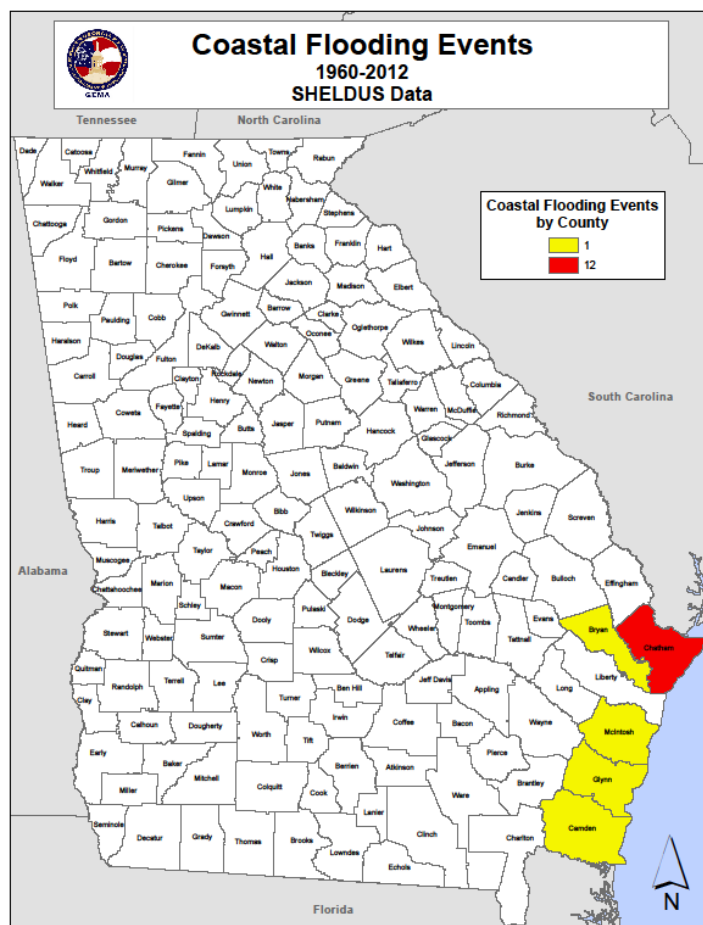


Figure 2.13

between 1960 and 2012. The NCDC narratives describe these events as not associated with storms but rather attributes to unusual tidal events. Coastal flooding was minor and beach erosion was the most substantial impact. Figures 2.13 and 2.14 show the location and losses of these coastal flooding events.

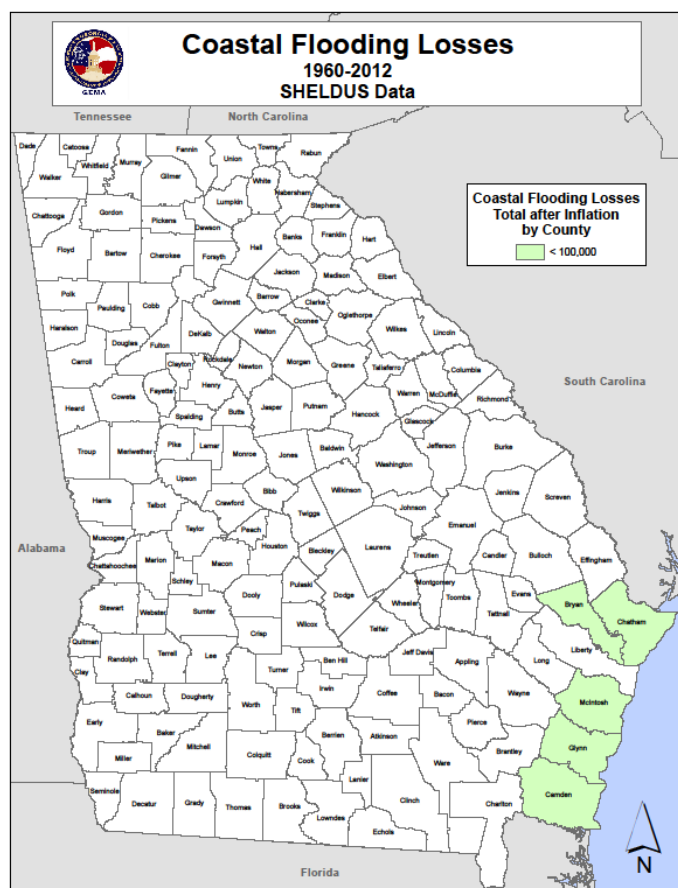


Figure 2.14

The Sea, Lake and Overland Surges from Hurricanes (SLOSH) is a deterministic model based on historical, hypothetical, or predicted hurricane data (pressure, size, forward speed, track, and wind speed) that estimates storm surge heights at particular locations when impacted by a certain magnitude storm. The surge levels are defined by the corresponding category of hurricane on the Saffir-Simpson scale. The areas inundated by a Category 4 or 5 are combined to reflect their decreased probability of occurrence. The exact heights of the surge are not noted because hori-

zontal positional accuracy is unknown due to no prior collection of reliable surge data in Georgia. Figure 2.15 shows approximate SLOSH inundation areas for Category 1-5 Hurricanes and tropical storms.

Although the SLOSH-based hazard scores stop at the inland borders of the six coastal counties, strong hurricanes have the ability to drive storm surge farther into the other non-coastal counties. This is not represented on the maps because the underlying data does not account for counties beyond the coast. Also, the SLOSH model does not account for any barriers to the storm surge such as Interstate 95's acting as a berm. It is, however, provided as the best available information.

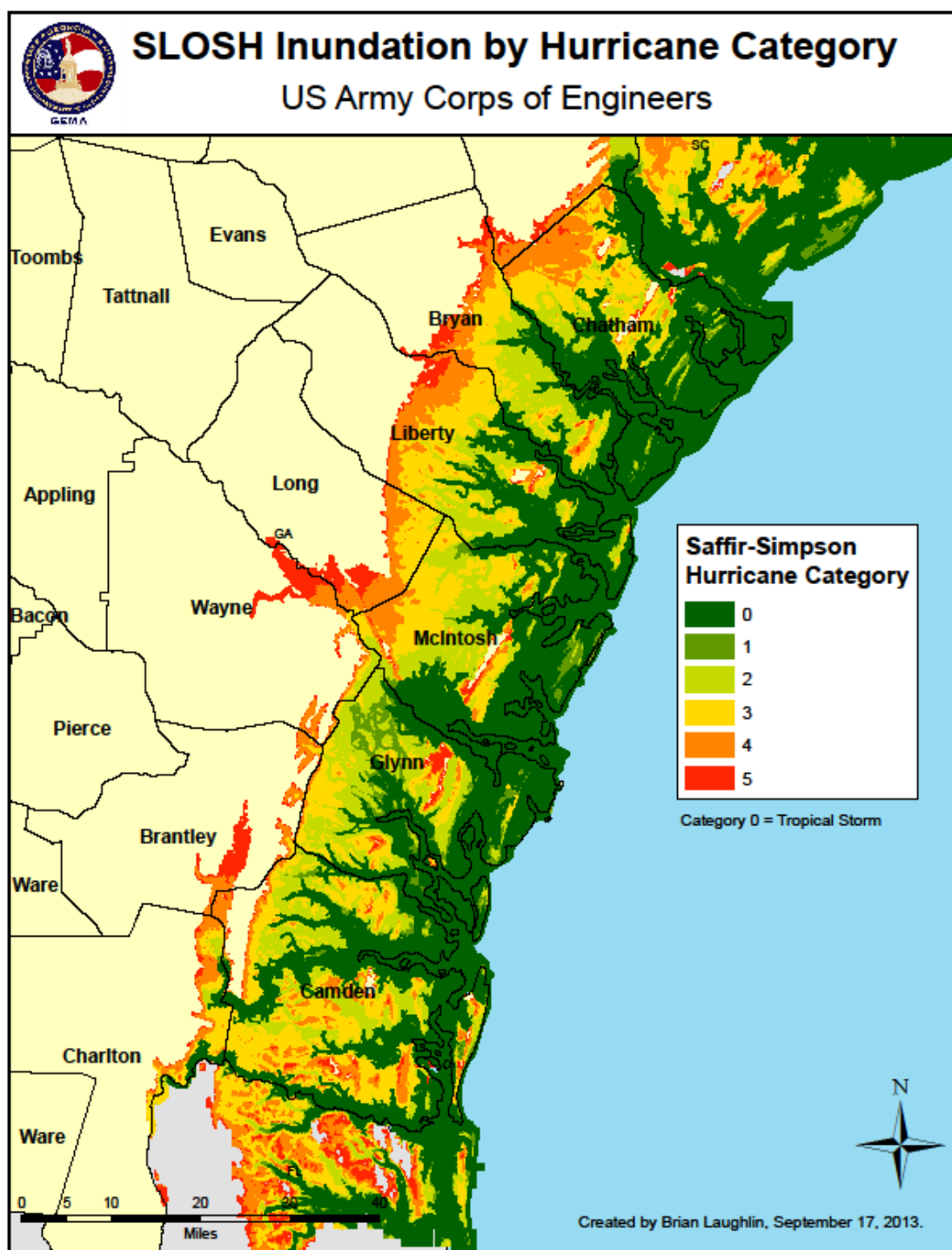


Figure 2.15 Model of Potential Storm Surge Inundation by Hurricane Category

## 2.5.3 Wind

Associated Hazards:

Thunderstorms, downbursts, gustnadoes.

Hazard	Vulnerability	Total	Rank
Medium	Medium	Medium	5

### Hazard Description

The National Data Climate Center (NCDC) divides wind events into several types including High Wind, Strong Wind, Thunderstorm Wind, Tornado and Tropical Cyclone. For the purpose of this risk assessment, the Wind hazard will include data from High Wind, Strong Wind and Thunderstorm Wind. Tropical cyclone wind is covered under the Hurricane Wind section. The wind related hazards Tornado and Winter Storms are addressed as individual hazards in this risk assessment. The following definitions come from the NCDC Storm Data Preparation document.

High Wind- Sustained non-convective winds of 35 knots (40 mph) or greater lasting for 1 hour or longer or winds (sustained or gusts) of 50 knots (58 mph) for any duration (or otherwise locally/regionally defined), on a widespread or localized basis.

Strong Wind- Non-convective winds gusting less than 50 knots (58 mph), or sustained winds less than 35 knots (40 mph), resulting in a fatality, injury, or damage.

Thunderstorm Wind- Winds, arising from convection (occurring within 30 minutes of lightning being observed or detected), with speeds of at least 50 knots (58 mph), or winds of any speed (non-severe thunderstorm winds below 50 knots) producing a fatality, injury, or damage.

Downbursts, including dry, or wet, microbursts or macrobursts, will be classified as Thunderstorm Wind events. In some cases, the downburst may travel several miles away from the parent thunderstorm, or the parent thunderstorm may have dissipated.

A gustnado is a small and usually weak whirlwind which forms as an eddy in thunderstorm outflows. They do not connect with any cloud-base rotation and are not tornadoes. Since their origin is associated with cumuliform clouds, gustnadoes will be classified as Thunderstorm Wind events.

### Profile

The first map of historical wind events in Figure 2.16 shows the majority of events in the northern portion of the State as reported in the SHEL DUS data. The historical losses map based on SHEL DUS data in Figure 2.17 illustrates that the majority of losses are found within the area cited as having the most wind events.



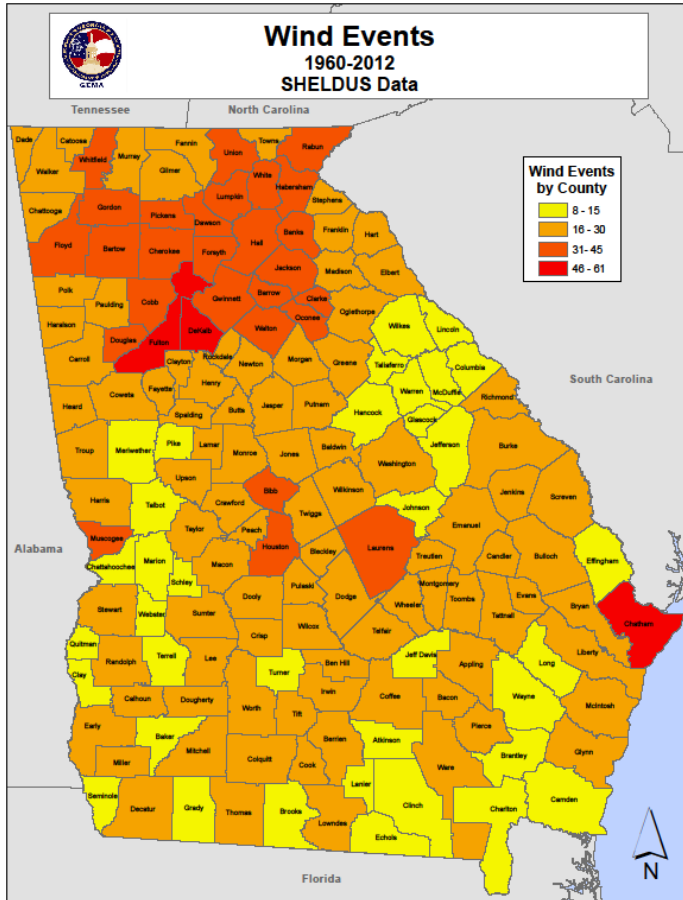


Figure 2.16

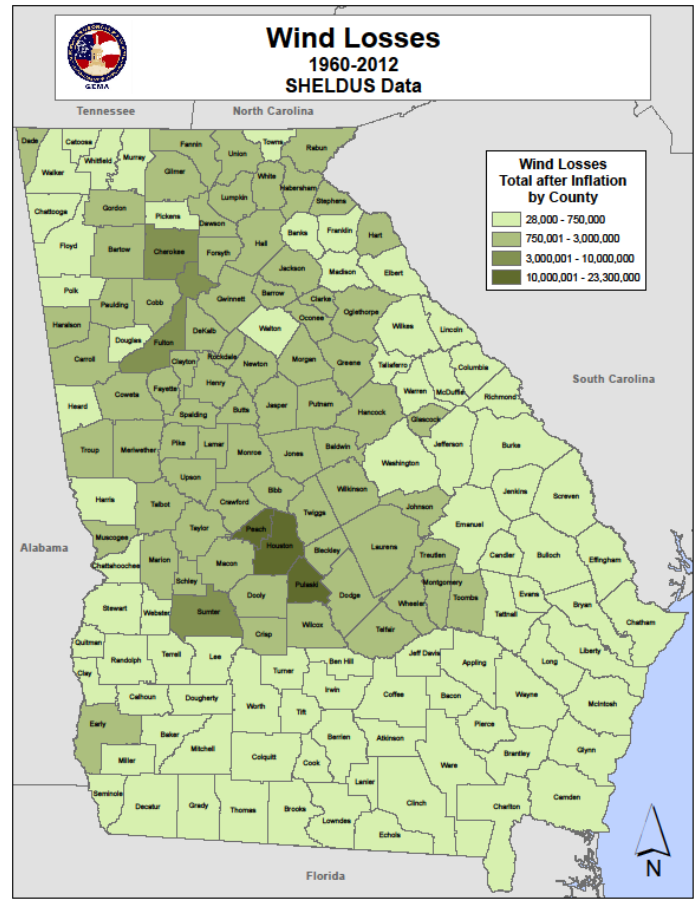


Figure 2.17

Figure 2.18 shows the average hazard score by county for wind risk. These wind speeds correspond with the assigned hazard scores with values ranging from 1 to 5 shown in Table 2.12. The highest risk areas are located along the Atlantic coast and the Southern portion of the state.

The wind risk map, Figure 2.19, illustrates the wind gust speeds that have a return interval of 50 years for the counties in Georgia.

Hazard Score	Wind Speeds
1	<90 mph gust
2	91 – 100 mph gust
3	101 – 110 mph gust
4	111 – 120 mph gust
5	>120 mph gust

Table 2.12

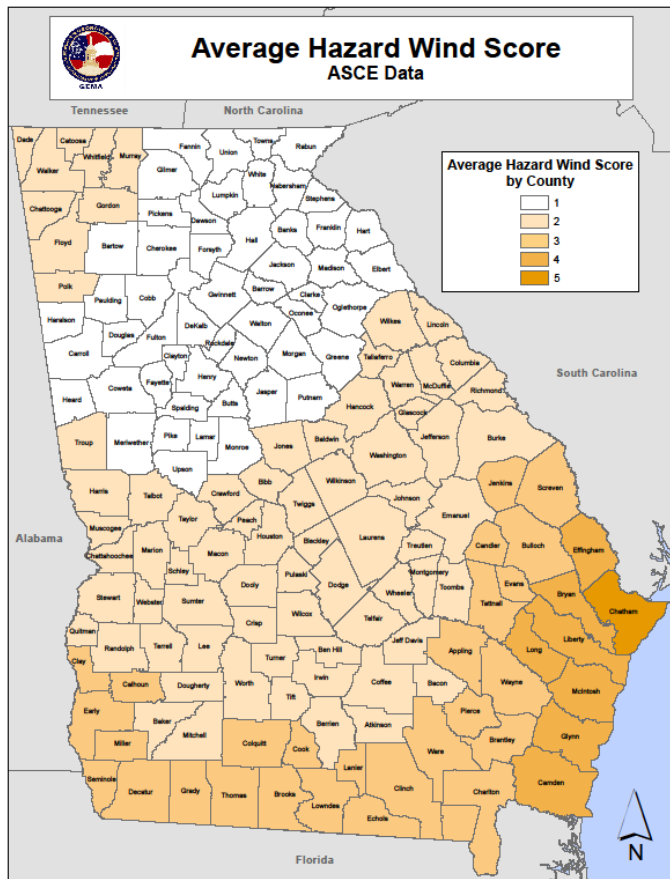


Figure 2.18

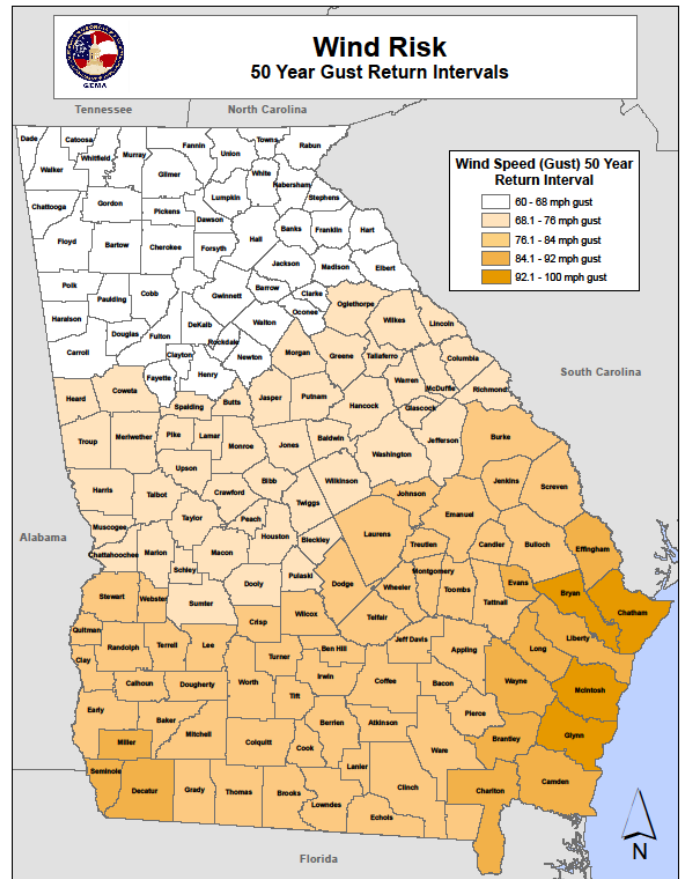


Figure 2.19



# 2.5.4 Severe Weather

Associated Hazards:  
Thunderstorms, hail, lightning.

Hazard	Vulnerability	Total	Rank
Very High	High	High	2

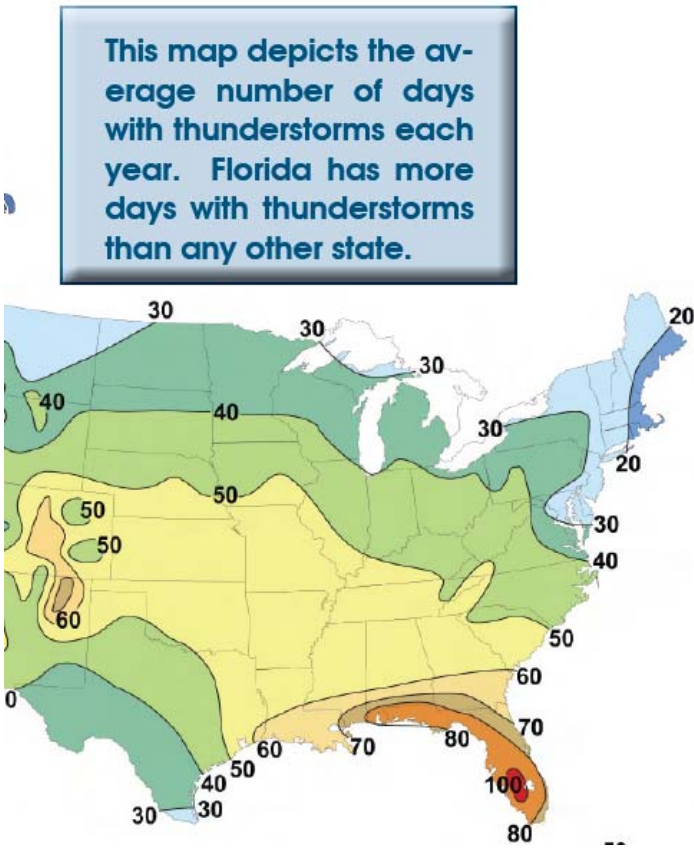
## Hazard Description

This section provides general and historical information about severe weather’s main elements of thunderstorms, lightning, and hail. Other elements of severe weather such as tornadoes and wind are addressed in other sections of this chapter.

Thunderstorms are formed when moist air near the earth’s surface is forced upward through some catalyst (convection or frontal system). As the moist air rises, the air condenses to form clouds. Because condensation is a warming process, the cloud continues to expand upward. When the initial updraft is halted by the upper troposphere, both the anvil shape and a downdraft form. This system of up-drafting and down-drafting air columns is termed a “cell”.

As the process of updrafts and downdrafts feeds the cell, the interior particulates of the cloud collide and combine to form rain and hail which falls when the formations are heavy enough to push through the updraft. The collision of the water and ice particles within the cloud creates a large electrical field

that must discharge to reduce charge separation. This discharge is the lightning that occurs from cloud to ground or cloud to cloud in the thunderstorm cell. In the final stage of development, the updraft weakens as the downdraft-driven precipitation continues until the cell dies.



moves across the surface. Georgia experiences thunderstorms an average of 50 to 80 days per year.

In terms of magnitude, the NWS defines thunderstorms in terms of severity as a severe thunderstorm that produces winds greater than 57 miles per hour and/or hail greater than 1 inch in diameter and/or a tornado. The NWS chose these measures of severity as parameters more capable of producing considerable damage. Therefore, these are measures of magnitude that may project intensity.

Lightning occurs when the difference between the positive and negative charges of the upper layers of the cloud and the earth's surface becomes great enough to overcome the resistance of the insulating air. The current flows along the forced conductive path to the surface (in cloud to ground lightning) and reaches up to 100 million volts of electrical potential. In Georgia, lightning strikes peak in July with June and August being second highest in occurrence.

Hail is a form of precipitation that forms during the updraft and downdraft-driven turbulence within the cloud. The hailstones are formed by layers of accumulated ice (with more layers creating larger hailstones) that can range from the size of a pea to the size of a grapefruit. Hailstones span a variety of shapes but usually take a spherical form. Hail storms mostly endanger crops but have been known to damage automobiles, aircraft, and structures.

## Profile

The hazard event and loss history for severe weather (thunderstorms, lightning, and hail) from SHELUDS data are shown in Figures 2.21 and 2.22. The map illustrating the total events from 1960 – 2012, highlights the area around metropolitan Atlanta as having the most events. This may be a result of urban areas' having more valuables to damage and, thus, having SHELUDS recognize the occurrence as an event. The losses from severe weather map illustrate the fact that severe weather hazard events may also affect rural, farm communities to the same extent as urban areas in terms of losses.

While most events related to severe weather are limited in terms of their impact, duration, and spatial extent, the hazard remains one of the most common in the State of Georgia. According to SHELUDS data, an average of 296 severe weather events have occurred from 1960-2012. These events in total have

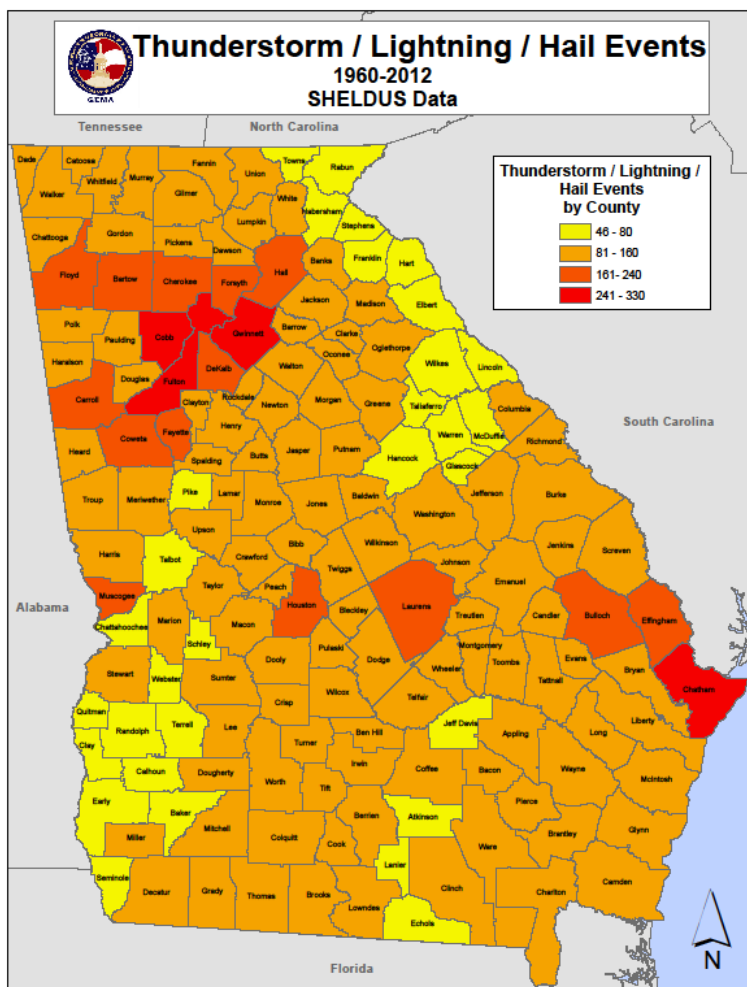


Figure 2.21

caused 990 injuries, 168 fatalities and over \$1.2 billion in damages. Over the period from 1992-2012, the historic occurrence jumps to 442 severe weather events per year.

According to the Vaisala US National Lightning Detection Network, from 1997 to 2011 Georgia averaged approximately 811, 240 cloud to ground lightning flashes per year. While lightning frequently occurs, only 18 deaths have been reported from 2002-2011 as a result of lightning, although this is the 5th highest total in the United States (source: <http://www.vaisala.com/nldn30/> ).

In terms of magnitude, the NWS defines thunderstorms in terms of severity. A severe thunderstorm produces winds greater than 57 miles per hour and/or hail greater than 1 inch in diameter and/or a tornado. The NWS chose these measures of severity as parameters more capable of producing considerable damage. Hail stones can vary in diameter and in Georgia there have been records of hail of up to 2.75 inches.

Severe weather is not as spatially defined to any particular location in Georgia; therefore, the entire state is equally at risk to severe weather.

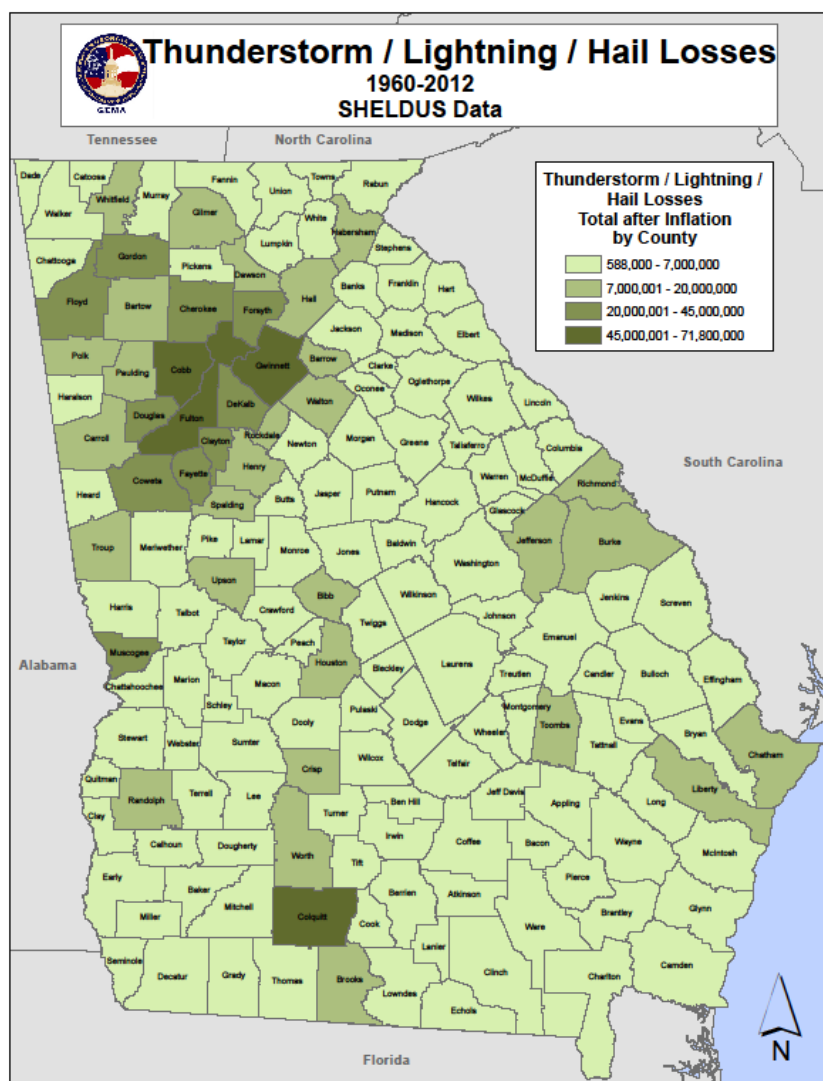


Figure 2.22

## 2.5.5 Tornado

Associated Hazards:

Thunderstorms, tropical cyclones.

Hazard	Vulnerability	Total	Rank
Medium	Very High	High	1

### Hazard Description

A tornado is a violently rotating column of air (seen only when containing condensation, dust, or debris) in contact with the surface of the ground. Exceptionally large tornadoes may not exhibit the classic “funnel” shape but may appear as a large, turbulent cloud near the ground or a large rain shaft. Destructive because of strong winds and windborne debris, tornadoes can topple buildings, roll mobile homes, uproot vegetation and launch objects hundreds of yards.

Most significant tornadoes (excluding some weak tornadoes and coastal waterspouts) stem from the right, rear quadrant of large thunderstorm systems where the circulation develops between 15,000 and 30,000 feet. As circulation develops, a funnel cloud (rotating air column aloft) or tornado descends to the surface. These tornadoes are typically stronger and longer-lived. The weaker, shorter-lived tornadoes can develop along the leading edge of a singular thunderstorm.



Chuck Doswell III

#### Weak Tornadoes

- 88% of all tornadoes
- Less than 5% of tornado deaths
- Lifetime 1 – 10+ minutes
- Winds less than 110 mph
- Produces EF0 or EF1 damage



Wikimedia/Justin Hobson

#### Strong Tornadoes

- 11% of all tornadoes
- Nearly 30% of all tornado deaths
- May last 20 minutes or longer
- Winds 111-165 mph
- Produces EF2 or EF3 damage



Wikimedia/Joshua Jans

#### Violent Tornadoes

- Less than 1% of all tornadoes
- 70% of all tornado deaths
- Can exceed 1 hour
- Winds greater than 166 mph
- Produces EF4 or EF5 damage

Figure 2.23 Tornado Characteristics by Strength. Source: NOAA National Weather Service



EF Number	3 Second Gust (mph)	Damage
0	65-85	<b>Light damage.</b> Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
1	86-110	<b>Moderate damage.</b> Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
2	111-135	<b>Considerable damage.</b> 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.
3	136-165	<b>Severe damage.</b> 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 blown away some distance.
4	166-200	<b>Devastating damage.</b> Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
5	Over 200	<b>Incredible damage.</b> Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (109 yd); high-rise buildings have significant structural deformation; incredible phenomena will occur.

**Table 2.13. Enhanced Fujita Scale Source: NOAA**

Although tornadoes can occur in most locations, most of the tornado activity in the United States exists in the Mid-West and Southeast. Within the State of Georgia, tornadoes can occur anywhere. In terms of the continuum of area of impact for hazard events, tornadoes are fairly isolated. Typically ranging from a few hundred feet to one or two miles across, tornadoes affect far less area than larger meteorological events such as hurricanes, winter storms, and severe weather.

An exact season does not exist for tornadoes; however, most occur within the time period of early spring to middle summer (February – June). The rate of onset of tornado events is rapid. Typically, the appearance of the first signs of

Year	Area Affected	Description
1903	Gainesville Area	200 deaths; 400 injuries; 1500 homeless
1936	Gainesville Area	203 deaths; >1000 injuries; 800 homes destroyed
1944	Hall and Franklin Counties	18 deaths
1974	Dawsonville Area	4 deaths
1992*	Lumpkin County	FEMA DR969; F4 tornado; 6 deaths; 170 injuries; >1000 homes damage; \$2 million in damages
1993*	Hall County	FEMA DR980; 44 homes damaged; \$2.5 million in damages
1994*	Northwestern Georgia	FEMA DR1020; 19 deaths; >200 injuries; \$67.5 million in damages
1994*	Camden County	FEMA DR1042; F2 intensity
1995*	Albany Area	FEMA DR1076; 36 injured; 250 buildings damaged
1998*	Hall County & Metropolitan Atlanta	FEMA DR1209; tornadoes causing extensive damage to homes and critical facilities
1999*	Dooly and Candler Counties	FEMA DR1271; tornadoes causing damage to homes, especially in Vienna
2000*	Southwest Georgia	FEMA DR1315; 18 deaths; >100 injured; \$5 million in damages
2007*	Southwest Georgia	FEMA DR1686; 2 deaths; numerous injuries; hospital destroyed in Sumter County
2008*	Atlanta Metro Area, including downtown	FEMA DR1750; 3 deaths; 39 injuries; \$38 million in damages
2008*	Macon and surrounding areas and Southeast Georgia	FEMA DR1761; 2 deaths; 25 injuries; \$71.2 million in damages
2011*	North and Central Georgia Tornadoes	FEMA DR-1973; 15 tornadoes including 1 EF4 and 4 EF3; 15 deaths; 143 injuries; \$167 million damages

**Table 2.14 Notable Tornado Events in Georgia**

**\*Presidential Declared Disaster**

the tornado is the descending funnel cloud. This sign may be only minutes from the peak of the event, giving those in danger minimal sheltering time. However, meteorological warning systems attempt to afford those in danger more time to shelter. The frequency of specific tornado intensities is undetermined because no pattern seems to exist in occurrence. Finally, the duration of tornado events range from the few minutes of impact on a certain location to the actual tornado lasting up to a few hours.

Tornadoes are measured after the occurrence using the subjective intensity measures. The Enhanced Fujita scale (Fujia-Pearson Tornado Classification) describes the damage and then gives estimates of magnitude of peak 3-second gusts in miles per hour. Table 2.13 lists the rankings on the Enhanced Fujita scale and the corresponding magnitude and intensity measures.

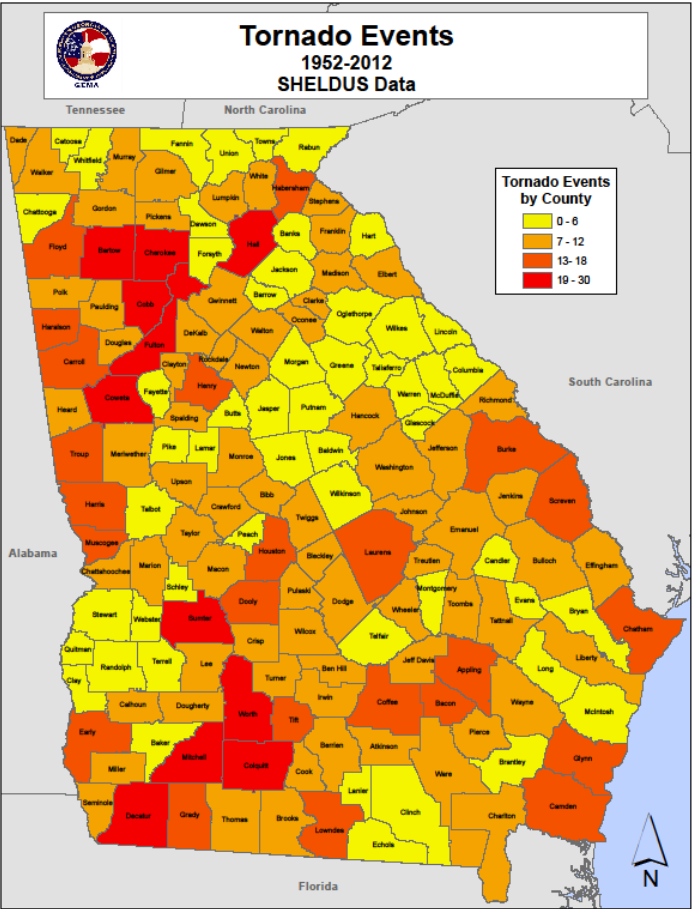


Figure 2.24

Figure 2.24 illustrates the tornado events per county from 1952 to 2012. Based on this map, counties in Northwest and Southeast Georgia have experienced a higher number of tornado events. However, tornadoes can occur anywhere within the state. In terms of losses associated with these events, Figure 2.25 illustrates that the areas with the most losses from tornadoes exist in around the city of Atlanta. This phenomenon is most likely due the fact that urban areas have more potential for loss in terms of property (not necessarily including crop damage).

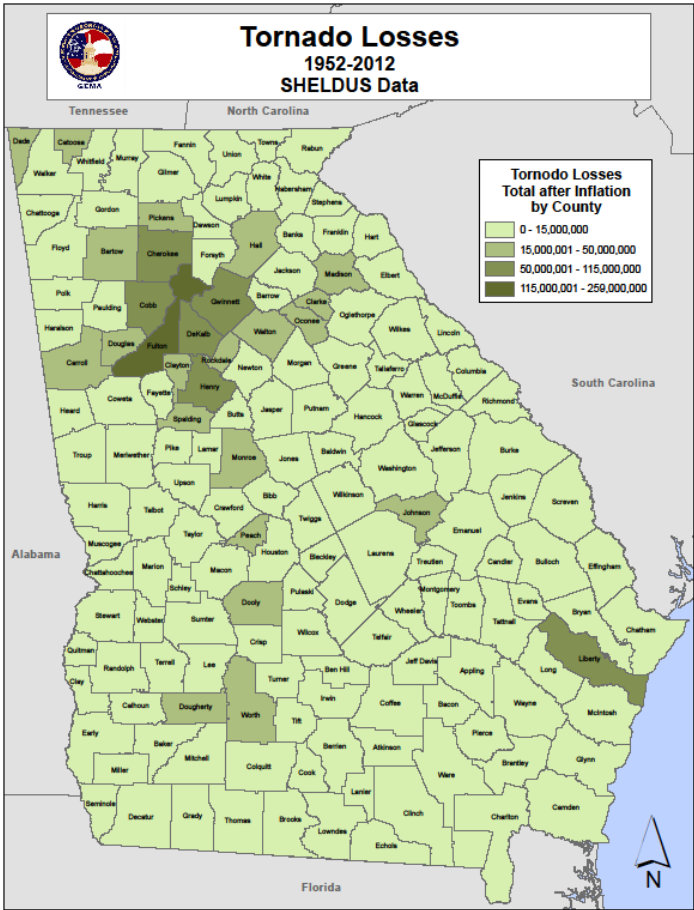


Figure 2.25

but are a sample meant to demonstrate the ability of tornadoes to impact the State.

The best available information to determine future probability of a tornado event is to review historic frequency. In total, 1438 tornado events have occurred from 1952-2012 in Georgia according to SHELDUS data. This equates to approximately 24 events per year historic average. These events in total have caused 2,940 injuries, 153 fatalities and over \$1.7 billion in damages.

NOAA's SVRGIS data contains several spatial datasets for tornado events covering the years 1950-2011. Figure 2.26 shows tornado tracks from SVRGIS data. These tracks show that tornadoes seem to predominantly travel in a northeasterly direction in the state. This data indicates that the highest recorded magnitude tornado event in Georgia is an EF4.

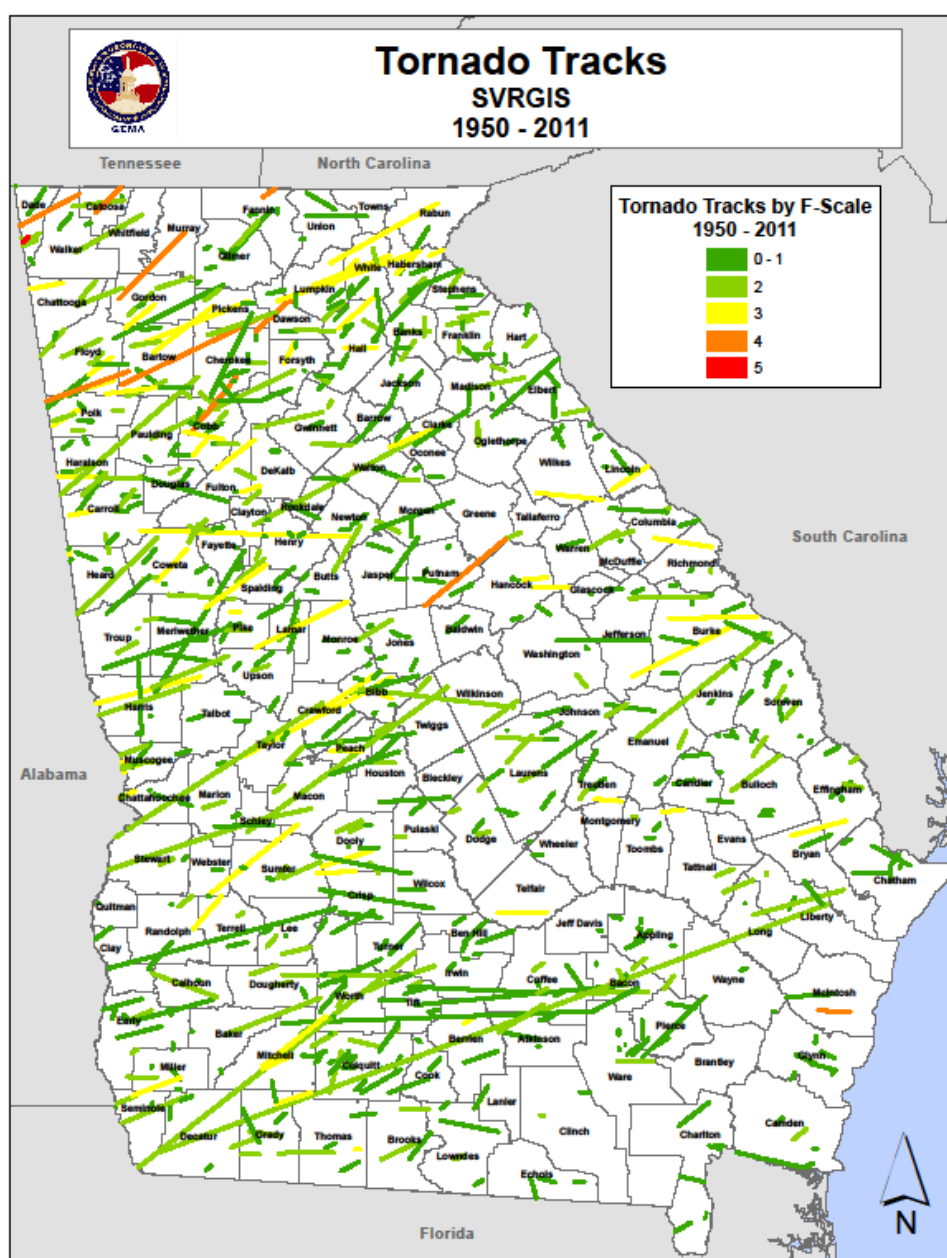


Figure 2.26



## 2.5.6 Inland Flooding

Associated Hazards:

Thunderstorms, tropical cyclones, dam failure

Hazard	Vulnerability	Total	Rank
Medium	High	High	3

### Hazard Description

Flooding is a temporary overflow of water on normally dry lands adjacent to the source of water (river, stream, or lake). The causes of flooding include mass sources of precipitation such as tropical cyclonic systems, frontal systems, and isolated thunderstorms combined with other environmental variables such as changes to physical environment, topography, ground saturation, soil types, basin size, drainage patterns, and vegetative cover. Adverse impacts may include structural damages, temporary backwater effects in sewers and drainage systems, death of livestock, agricultural crop loss, loss of egress and access to critical facilities due to roads being washed-out or over-topped and unsanitary conditions by deposition of materials during recession.

Floods are loosely classified as either coastal or riverine. Coastal flooding is addressed in the Coastal Hazards section of this chapter. Riverine flooding occurs from inland water bodies such as streams and rivers. Riverine flooding is often classified based on rate of onset. The first is slow to build, peak, and recede often allowing sufficient time for evacuations. The other type of riverine flood is referred to as a “flash” flood which rapidly peak and recedes and gives insufficient time for evacuations. The more dangerous flash floods are common to the mountainous, impermeable surfaces of northern Georgia. Urban flash flooding can also present dangerous conditions, especially with roads washing out.

On a broad scale, flooding can occur around any body of water or low-lying surface given enough precipitation or snow melt. The spatial extent of the flooding event depends on the amount of water overflow but can usually be mapped because of existing floodplains (areas already prone to flooding).

In the State of Georgia, flooding is highly dependent of precipitation amounts and is highly variable within the State. Georgia's climate is primarily affected by latitude, proximity to the Atlantic Ocean and Gulf of Mexico, and topography. Certain seasons are more prone to flooding due to their proneness to excessive precipitation. Typically, the wet seasons are during the winter, early spring and midsummer while the drier seasons are in the fall and late spring. However, this varies across the State with the northern portion receiving maximum precipitation amounts during the winter as a result of frontal systems while central and coastal Georgia receive maximums in the mid to late summer as a result of tropical cyclones and convective thunderstorm activity.

### Profile

The rate of onset and duration of flooding events depends on the type of flooding (typical flood or

flash flood). The frequency measure of flooding events typically refers to the 100 year flood. In other words, this particular flood magnitude has the probability of occurring in one out of 100 years (1% chance per year). This magnitude of flood is often mapped as 100 year floodplains, which often delineate those with substantial risk to some severe flooding. Higher number of events in the Atlanta area is likely a result of the growth and development within floodplains in the region prior to floodplain mapping efforts that began in the 1970s. As a result, land and structures in this region are more likely to experience flood events.

Figures 2.27 and 2.28 illustrate flooding hazard events' history and losses in the State of Georgia from 1960 – 2012. Although the event totals pale compared to more frequent events such as severe weather, the total losses speak to the impact of flooding on Georgia. The regions with major losses from flooding include the Atlanta

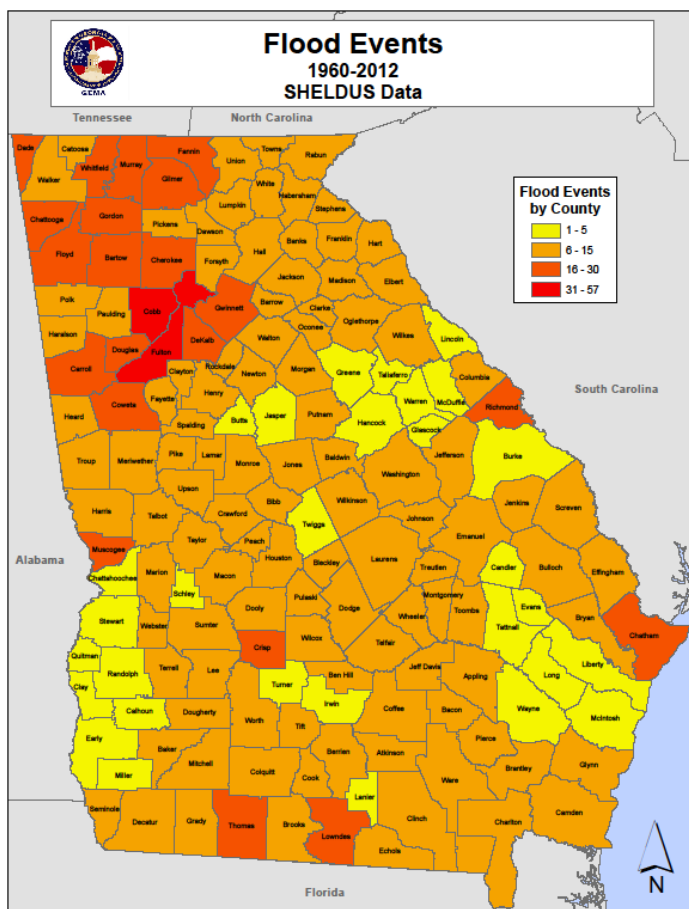


Figure 2.27

area, the Augusta area, and southwestern Georgia. However, the entire State of Georgia has experienced loss from flooding.

In total, 1,601 inland flooding events have occurred from 1960-2012 in Georgia according to SHELDUS data. This equates to approximately 26 events per year historic average. These storms in total have caused 51 injuries, 69 fatalities and over \$854 million in damages.

Table 2.15 lists notable flooding events in Georgia since the late 1800s along with an estimate of magnitude of the flood (recurrence interval). Although the majority of floods will be minor in their impact, the risk analysis demonstrates the susceptibility of Georgia to experience significant flooding events. It should be noted that the 1994 Tropical Storm Alberto and 2009 Metro Atlanta flood events were extreme events with damages almost ten times the amount of any

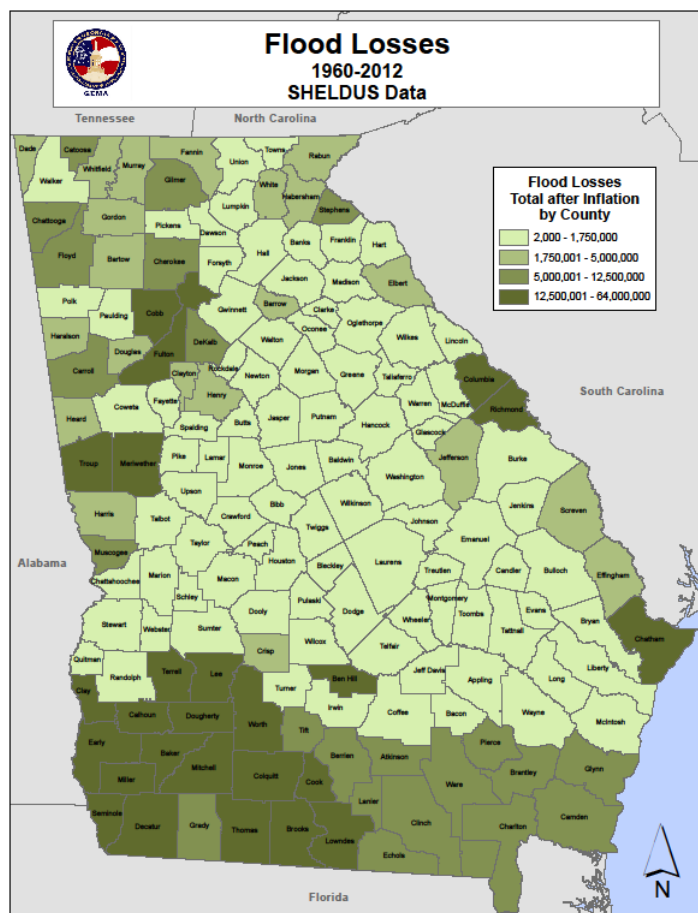


Figure 2.28

Year	Area Affected	Recurrence Interval	Remarks
1881	Savannah Area	>100 years	335 deaths; \$1.5 million in damages
1893	Savannah Area	>100 years	2,500 deaths; \$10 million in damages
1916	Chattahoochee, Coosa, and Flint Rivers	25 to >100 years	8-21 inches of rain; \$2.3 million in damages
1925	Central / South Georgia	25 to >100 years	8-11 inches of rain; 2 deaths
1929	Savannah, Ogeechee, and Altamaha Rivers	25 to >100 years	6-10 inches of rain; \$3 million in damages
1940	Ogeechee and Savannah Rivers	10 to 75 years	25 deaths; \$850,000 in damages; hurricane
1977*	Toccoa Creek	Unknown	DR541; Dam failure; 39 deaths; \$2.8 million in damages
1990*	Conasauga, Chattooga, Toccoa and Oconee Rivers	50 to >100 years	FEMA DR857; 9 deaths; \$13.9 million in damages
1990*	Savannah, Ogeechee and Ochopee Rivers	>100 years	FEMA DR880; \$7.6 million in damages, tropical storm
1991*	Altamaha, Apalachicola, Ocklockonee, Ogeechee, Satilla, and Savannah Rivers	25 to 50 years	FEMA DR897; \$3.4 million in damages
1994*	Flint, Chattahoochee, and Altamaha Rivers	>100 years	FEMA DR1033; 31 deaths; >20 inches of rain; \$400 million in damages; Tropical Storm Alberto
1994*	Savannah area	25 to >100 years	FEMA DR1042; 15 inches of rain; \$10.5 million in damages
1995*	Western Georgia	25 to 50 years	FEMA DR1209; 5-9 inches of rain; \$20 million in damages; hurricane
2004*	Middle and South Georgia	10 to 50 years	FEMA DR1560; 4-9 inches of rain; \$20 million in damages; hurricane
2004*	Northern and Southwestern Georgia	10 to 50 years	FEMA DR1554; 4-9 inches of rain; \$30 million in damages; hurricane
2009*	Southwestern Georgia	10 to >500 years	FEMA DR1833; 5-10 inches of rain; \$36.5 million in damages
2009*	Northwest Georgia, Atlanta Area	> 500 years (Epic)	FEMA DR1858; 9-12 inches of rain; \$225 million in damages

**Table 2.15 Notable Flood Events in Georgia**

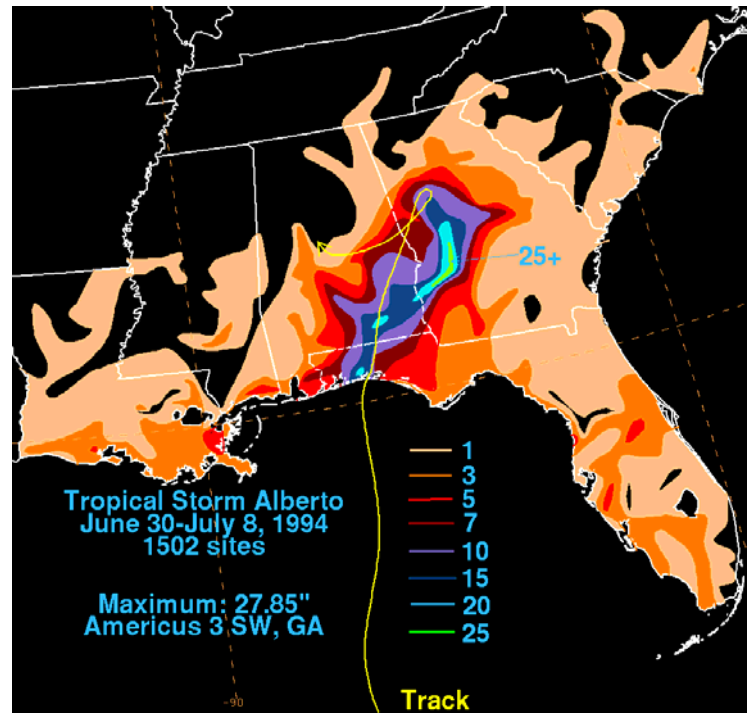
\*Presidential Declared Disasters

other recorded flood event.

The worst flooding event in Georgia since records were kept is the flooding from a decaying tropical system, previously known as Tropical Storm Alberto, that produced torrential rainfall which resulted in some of the worst flooding ever observed across portions of the States of Georgia, Alabama, and Florida during July 1994. By far, the worst flooding occurred along Georgia's Flint and Ocmulgee Rivers and their tributaries. Some of the hardest hit cities along these rivers include Albany, Macon, and Montezuma. Across the entire three-state area impacted by the flooding, 17 NWS river forecast locations set new record flood stages, some breaking the old record by 5-7 feet. In all, 47 NWS river forecast locations exceeded flood stage. Crests of 5-15 feet above flood stage were common, while portions of some rivers observed crests that exceeded flood stage by more than 20 feet.

The flooding from Tropical Storm Alberto took a significant toll on human life, as a total of 33 persons perished. Of that total, 31 deaths occurred in Georgia, while the other 2 occurred in Alabama. Many of the fatalities, as is typical with flood events, occurred as a result of flash flooding; and most occurred in vehicles. In addition, approximately 50,000 people were forced from their homes due to the

flooding. More than 18,000 dwellings were damaged or destroyed by the floods, and nearly 12,000 people applied for emergency housing. In Macon, Georgia, the fresh water supply to nearly 160,000 people was disrupted when the water treatment plant, located along the banks of the Ocmulgee River, was flooded. Some residences were without fresh water for as long as 19 days. In addition, thousands of people and pieces of equipment were engaged in various flood-fighting efforts throughout the three-state area impacted by the flooding. Dozens of Federal, state, and local government agencies, private organizations, as well as various volunteer groups, were heavily involved in the massive mobilization of resources.



**Figure 2.29 Tropical Storm Alberto Rainfall Totals (inches)**

With respect to property damages from Tropical Storm Alberto, the estimates are nearly \$750 million across the States of Georgia, Alabama, and Florida as a result of this flood event. In addition to the more than 18,000 dwellings damaged or destroyed, hundreds of bridges and well over 1,000 roads sustained damages. Also, 218 dams (most of them small dams located in Georgia) were damaged by the flooding, many of which failed altogether. Agricultural losses accounted for approximately \$100 million. In the States of Georgia, Alabama, and Florida combined, more than 900,000 acres of crops were affected by the flooding. Georgia and Alabama suffered the greatest crop losses with more than 400,000 acres in each state impacted. In all three states, peanuts and cotton were the commodities most severely affected. Livestock losses were also significant, especially to poultry, with as many as 250,000 chickens reportedly lost to the flooding.

Similar to storm surge models, flood models are statistically based on historical flooding events and estimate the impact areas of certain magnitudes of floods (typically the 100 year flood). Figure 2.30 maps the 1% (100 year) and 0.2% (500-year) floodplains for the State of Georgia based on the FEMA DFIRM floodplain layer. This is the result of map modernization efforts that ended in 2010. As of this plan update, all counties in Georgia have available DFIRM data. During the map updates, not all 500 year floodplains were mapped. For many counties, only 100 year floodplains were mapped.



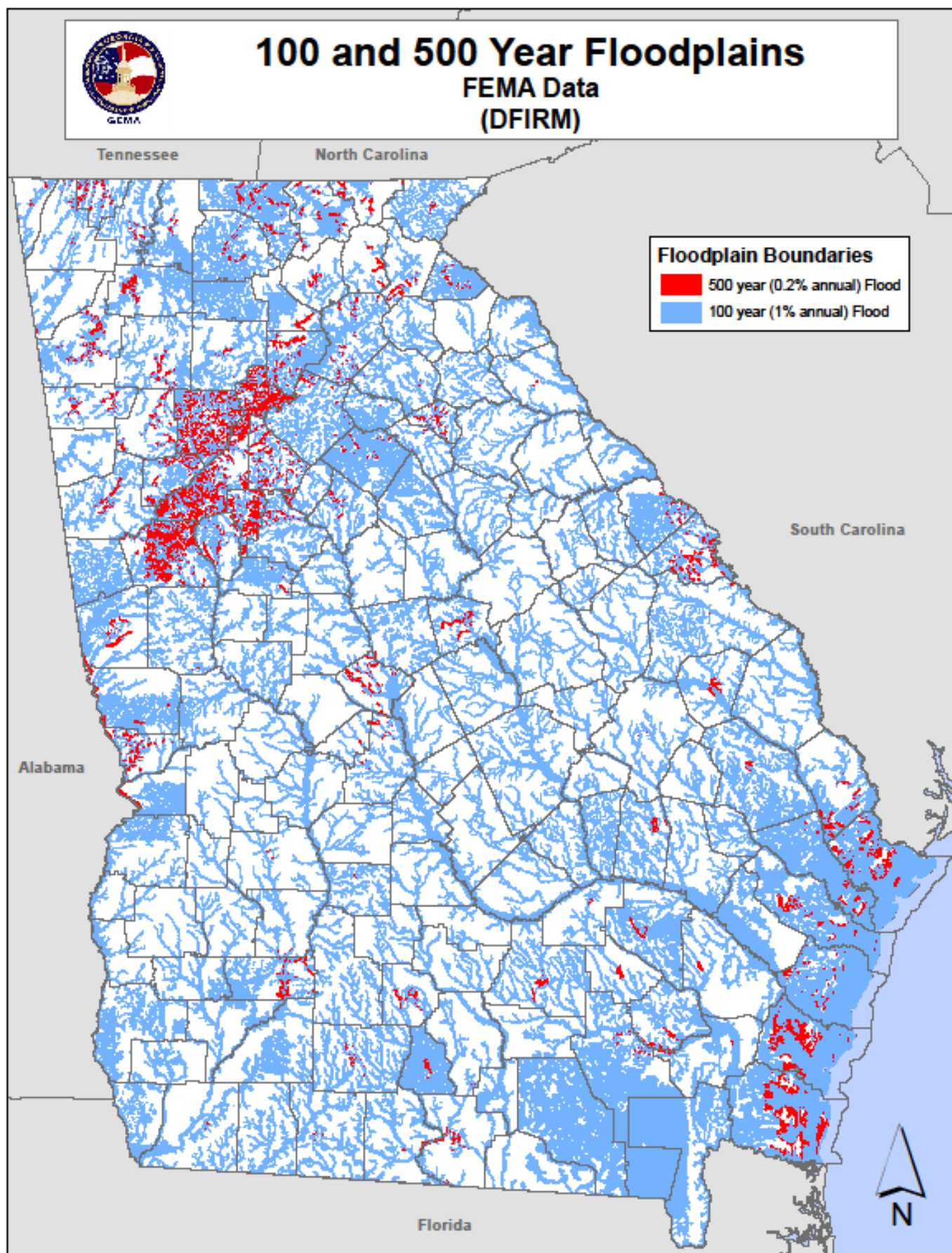


Figure 2.30

## 2.5.7 Severe Winter Weather

Associated Hazards:

Snowfall, ice, high winds, extreme cold temperatures, winter coastal storms

Hazard	Vulnerability	Total	Rank
High	Medium	Medium	6

### Hazard Description

Severe winter storms bring the threat of ice. Freezing rain consists of super cooled falling liquid precipitation freezing on contact with the surface when temperatures are below freezing. This results in an ice glazing on exposed surfaces including buildings, roads, and power lines. Sleet is easily discernable from freezing rain in that the precipitation freezes before hitting the surface. Often this sleet bounces when hitting a surface and does not adhere. However, sleet can compound into sufficient depths to pose some threat to motorists and pedestrians.

A heavy accumulation of ice, which is often accompanied by high winds, has the ability to devastate infrastructure and vegetation. Destructiveness in the southern states is often amplified due the lack of preparedness and response measures. Also, the infrastructure was not designed to withstand certain severe weather conditions such as weight build-up from snow and ice. Often, sidewalks and streets become extremely dangerous to pedestrians and motorists. Primary industries such as farming and fishing suffer losses through winter seasons that produce extreme temperatures and precipitation.

Within Georgia, the impacts of winter storms are often contained in the northern part of the State. However, events like the 1993 “storm of the century” illustrated the vast impacts that one storm can have on the entire State. The greatest impacts to Georgia come from winter storms that are the result of coastal storms coming up from the Gulf of Mexico, including the winter storms in 1973 and 1993. The 1973 storm produced snowfalls of up to 19 inches in parts of Central Georgia including the City of Thomaston in Upson County.

Severe winter weather exhibits seasonal qualities in that most occur within the months of January to March, with the highest probability of occurrence in February. The rate of onset and duration varies among storms, depending on the weather system driving the storm. Severe winter weather rarely frequents the State of Georgia; however, the impacts of the storms substantiate severe winter weather’s inclusion in risk assessments for most southern states.

### Profile

The best measures for describing the magnitude and intensity of severe winter weather include average amounts of precipitation (snow fall), inches of accumulated ice, low and high temperatures, and wind gust speeds.

NOAA's National Climatic Data Center is now producing the Regional Snowfall Index (RSI) for significant snowstorms that impact the eastern two thirds of the U.S. The RSI ranks snowstorm impacts on a scale from 1 to 5, similar to the Fujita scale for tornadoes or the Saffir-Simpson scale for hurricanes.

The RSI differs from these other indices because it includes population. RSI is based on the spatial extent of the storm, the amount of snowfall, and the juxtaposition of these elements with population. Including population information ties the index to societal impacts. Currently, the index uses population based on the 2000 Census.

Category	RSI Value	Description
1	1–3	Notable
2	3–6	Significant
3	6–10	Major
4	10–18	Crippling
5	18.0+	Extreme

Table 2.16 NOAA RSI Categories for Southeast

The RSI is an evolution of the Northeast Snowfall Impact Scale (NESIS) which NCDC began producing operationally in 2005. While NESIS was developed for storms that had a major impact in the Northeast, it includes the impact of snow on other regions as well. It can be thought of as a quasi-national index that is calibrated to Northeast snowstorms. By contrast, the RSI is a regional index; a separate index is produced for each of the six NCDC climate regions in the eastern two-thirds of the nation. Georgia is in the Southeast climate region.

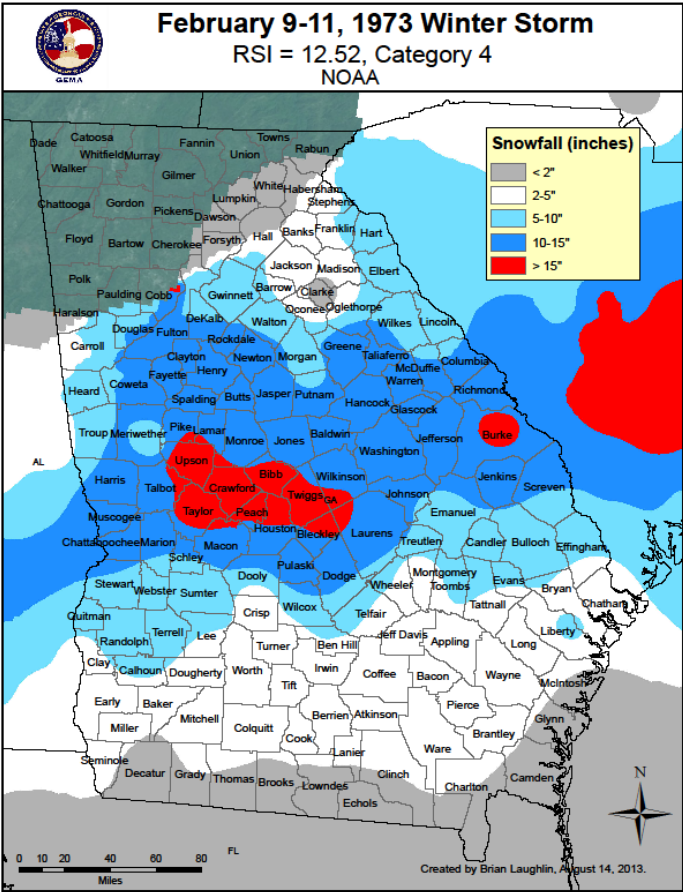


Figure 2.31

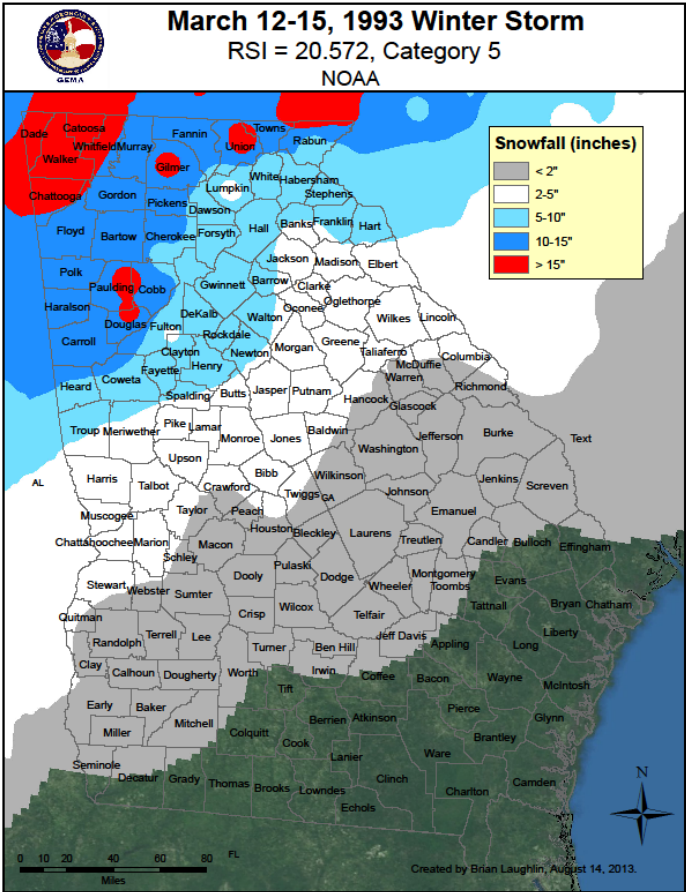


Figure 2.32

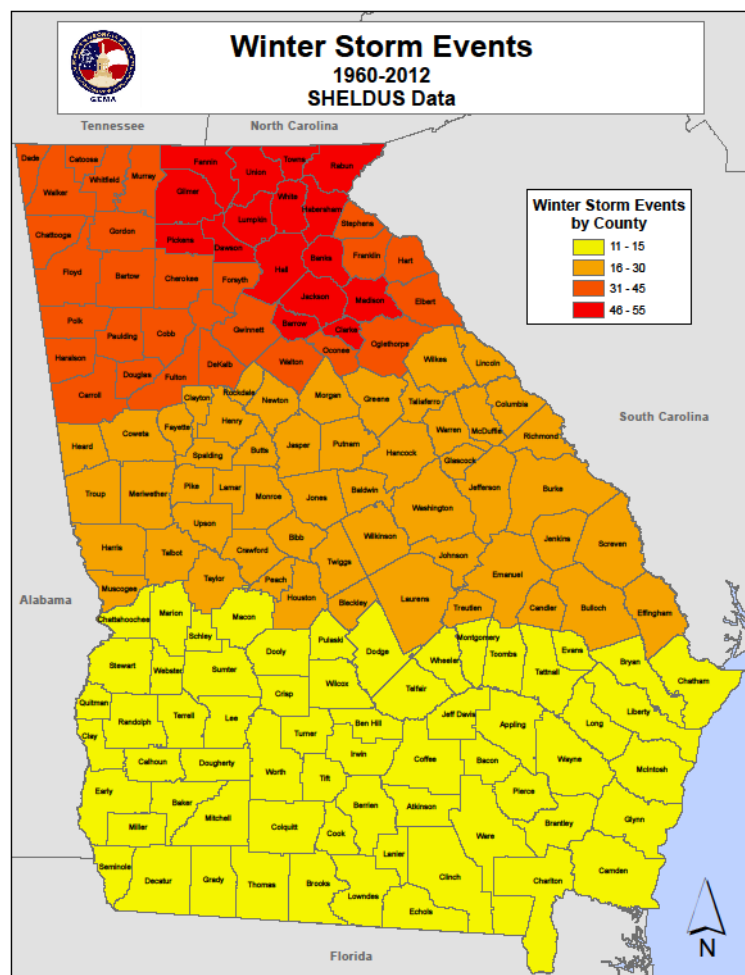


Date	Areas Affected	Description
1/21-24/1940	North and Central GA	Up to 14.5 inches of snow in North GA; Central GA reported up to 10 inches
2/9-11/1973	Central and South GA	More than 15 inches reported in Upson, Taylor, Bibb, Twiggs, Wilkinson and Burke counties;
2/17-20/1979	North GA	10 inches in Toccoa, GA
1/21-24/1987	North and Central GA	11.5 inches in Dallas and Helen
3/12-15/1993	North and Central GA	Several locations in North GA and Metro Atlanta area reporting 13-21 inches
1/22-2/1/2000*	North and Central GA	FEMA DR1311; Severe ice storms, freezing rain, damaging wind, severely cold temperatures; 51 declared counties
1/9-11/2011	North and Central GA	Several locations in North and Central GA reporting 7-13 inches; RSI = 4.158, Category 2

**Table 2.17 Notable Winter Storm Events in Georgia.** \*Presidential Declared Disaster

The RSI is important because of the need to place snowstorms and their societal impacts into a historical perspective on a regional scale. For example in February 1973 (Figure 2.31), a major snowstorm hit the Southeast affecting areas not prone to snow. The storm stretched from the Louisiana and Mississippi Gulf coasts northeastward to the Carolinas. Over 11 million people received more than 5" of snow and three quarters of a million people in Georgia and South Carolina experienced

over 15" of snow. This is currently the 10th highest ranked storm for the Southeast region. More information on RSI available at <http://www.ncdc.noaa.gov/snow-and-ice/rsi/overview>.



The historical events map for severe winter weather, Figure 2.33, illustrates the relationship with latitude. Areas that typically have cooler temperatures are more likely to experience more extreme temperatures. The map roughly corresponds to the southern, piedmont, and mountainous regions of Georgia. The losses incurred from severe winter weather shown in Figure 2.34 do not mirror the event distribution. The areas with the highest losses do not correspond with the areas with the most events; however, all are located in North Georgia. North Georgia counties are not the only ones at risk, however. Figure 2.31 shows snowfall impacts from the winter storm of 1973 that had greater impacts on Central and South Georgia.

**Figure 2.33**

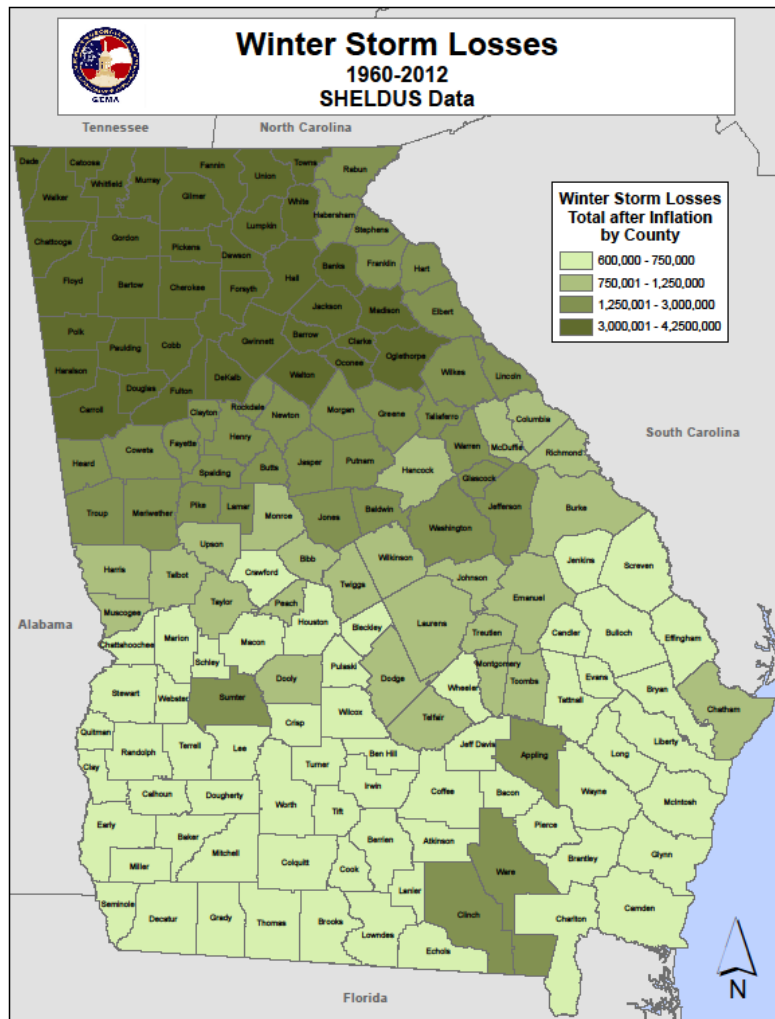


Figure 2.34

Table 2.17 lists major winter storms that have occurred in Georgia. The most notable of these events occurred in March of 1993. In the morning of March 12, 1993, the collision of a low pressure system from the Gulf of Mexico, an arctic high pressure system from the Great Plains, and a steep southward jet stream brought high winds, heavy rain and snow, tornadoes, record low temperatures and blizzard conditions to the State of Georgia. The entire Southeast region, including Georgia, shut down for three days. As a result of the incident, FEMA declared Georgia counties eligible for Federal assistance to cover expenses associated with debris removal and emergency protective measures. This storm also was rated a Category 5 by the NOAA RSI.

In total, 3958 severe winter weather events have occurred from 1960-2012 in Georgia according to SHEL DUS data. This equates to approximately 65 events per year historic average. These storms in total have caused 415 injuries, 40 fatalities and over \$413 million in damages.

## 2.5.8 Drought

Hazard	Vulnerability	Total	Rank
High	Medium	Medium	4

### Hazard Description

Drought is a normal, recurrent feature of climate consisting of a deficiency of precipitation over an extended period of time (usually a season or more). This deficiency results in a water shortage for some social or environmental sector. Drought should be judged relative to some long-term average condition of balance between precipitation and evapotranspiration in a particular area that is considered “normal”. Drought should not be viewed as only a natural hazard because the demand people place on water supply affects perceptions of drought conditions. The impacts of drought are vast, including limited water supplies in urban areas to insufficient water for farmland.

Droughts occur in virtually every climatic zone (on every continent). Because the impacts of drought conditions are largely dependent on the human activity in the area, the spatial extent of droughts can span a few counties to an entire country.

Temporal characteristics of droughts are drastically different from other hazards due to the possibility of extremely lengthy durations as well as a sluggish rate of onset. Drought conditions may endure for years to decades, which implicate droughts as having high potential to cause devastation on a given area. The duration characteristic of droughts is so important that droughts are classified in terms of length of impact. Droughts lasting 1 to 3 months are considered short term, while droughts lasting 4 to 6 months are considered intermediate and droughts lasting longer than 6 months are long term. With the slow rate of onset, most populations have some inkling that drought conditions are increasingly present. However, barring drastic response measures, most only have to adapt to the changing environment.

Seasonality has no general impact on droughts in terms of calendar seasons. However, “wet” and “dry” seasons obviously determine the severity of drought conditions. In other words, areas are less susceptible to drought conditions if the area is experiencing a wet season. The frequency of droughts is undetermined due to the fact that the hazard spans such a long period of time. However, climatologists track periods of high and low moisture content similarly to the tracking of cooling and warming periods.

Measures of drought magnitude and intensity can be found in some of the drought indices. Dr. Michael Hays with the National Drought Mitigation Center (NDMC) lists the drought indices currently being used as the percent of normal, Standardized Precipitation Index, Palmer Drought Severity Index, Crop Moisture Index, Surface Water Supply Index, and Reclamation Drought Index. Basically, all of these indices are comparable and not absolute measures of magnitude or intensity. In other

words, the indices highlight areas that are wetter or drier using statistical calculations based on a limited climatic history.

The historical events and losses maps for drought (Figures 2.35 and 2.36) illustrate areas of drought being in the heart and northern portion of Georgia. This may be a result of South and Coastal Georgia’s preexisting proneness to aridity. Because most indicators measure drought in terms of precipitation below average, the indicators may not differentiate between typically moist and arid areas when receiving the same amounts of precipitation. As the loss map illustrates, drought causes a drain totaling more than 5 million dollars in some counties. Most of these losses are probably crop losses since agriculture is often greatly affected by drought.

Because droughts are “creeping” disasters, only large-scale events are considered notable. One

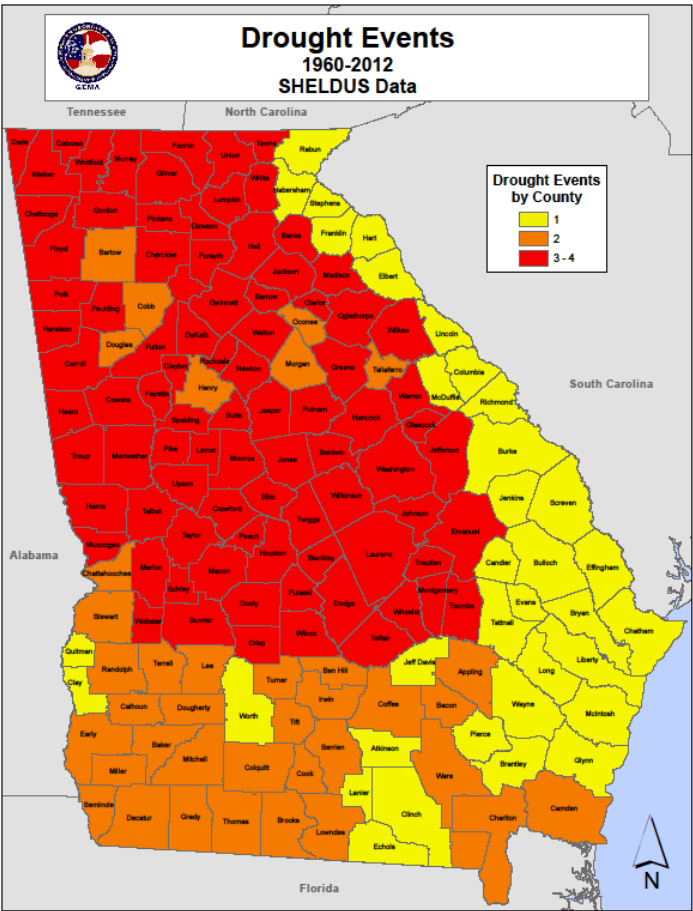


Figure 2.35

of the most severe drought events in Georgia occurred in 1977 and resulted in a Federal disaster declaration. The drought spanned most of the Midwestern and Southeastern United States and doomed many harvests of hay, corn, soybean, cotton, and peanut. The declaration included 130 of Georgia’s 159 counties with costs to farmers topping \$300 million (inflation rate not included).

Other notable droughts have severely affected municipal and industrial water supplies, stream-water quality, recreation, hydropower generation, navigation, and agricultural production. The following table, Table 2.18, lists the more notable droughts in Georgia’s history since the beginning of the 20<sup>th</sup> century.

Typically, the risk analysis of hazard events takes into account the recurrence interval of the hazard. Droughts are not measured in terms of

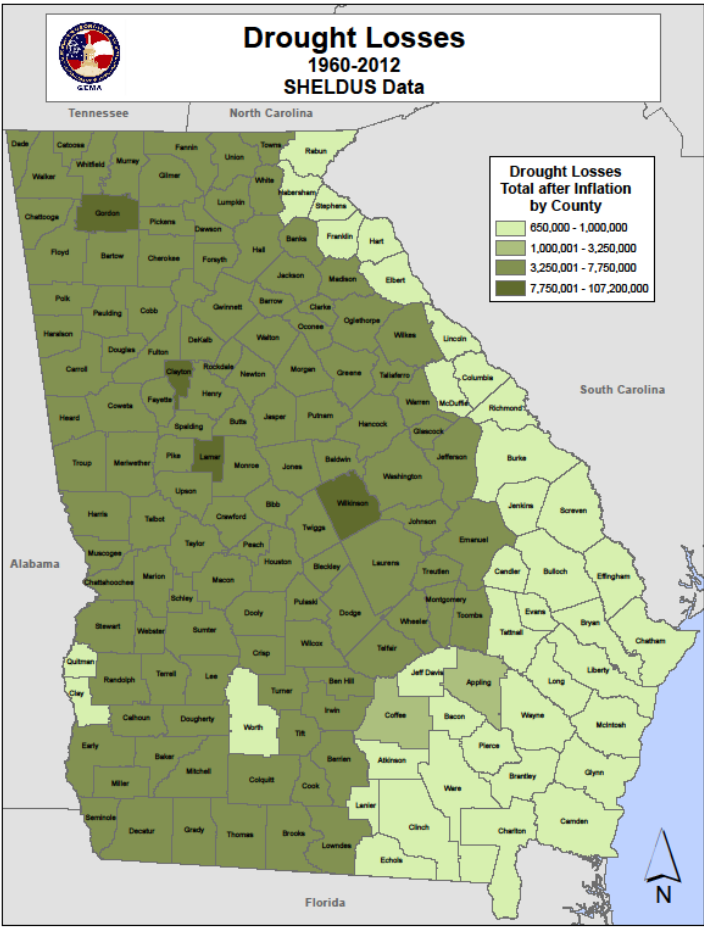


Figure 2.36

Year	Area Affected	Remarks
1903-05	Statewide	Severe
1924-27	North-central Georgia	One of the most severe of the century
1930-35	Mostly statewide	Affected most of US
1938-44	Statewide	Regional drought
1950-57	Statewide	Regional drought
1968-71	Southern and Central Georgia	Variable severity
1977	Statewide	Disaster 3044
1985-90	North and Central Georgia	Regional drought
1999-2009	Statewide	Severe

**Table 2.18: Notable Drought Events in Georgia**

recurrence intervals. However, drought prediction and indication models utilize historical and current meteorological and geological data in order to determine the current and possible extent of drought conditions. These models, which can be found at the NDMC website, are dynamic and, therefore, are not useful in the composite score. Also, drought does not seem to impact portions of Georgia more than other portions and, therefore, is not a spatially-defined hazard.

The nature of drought events, along with the limited data on previous occurrences, makes estimating a future probability difficult at best. Nevertheless, tables 2.18 shows 9 drought events occurring within 106 years. Looking at the 100 year record from 1903 to 2003, 37 of those 100 years were affected by drought. This yields a probability of a 37% chance of a drought occurring in any given year.

One of the newer indices of drought is the Standardized Precipitation Index (SPI) which is based on the probability of precipitation for any time scale. This index is used by many drought planners because of the versatility of computing for different time scales, the ability to provide early warning of drought and to assess drought severity. The SPI include the impacts of precipitation deficits on groundwater, reservoir storage, soil moisture, snowpack and streamflow. Monthly maps of the SPI are downloadable from the NDMC. Figure 2.37 is an examples of SPI maps for United States. This map shows the extent of drought conditions can reach a SPI score of  $-2.0$  or less, or extremely dry conditions.

Because of the slow rate of onset and long duration of droughts in Georgia, long-term management and mitigation measures are appropriate. The Environmental Protection Division (EPD) of Georgia's Department of Natural Resources (DNR) publishes the Georgia Drought Management Plan, which addresses both pre-drought mitigation strategies and drought response strategies. Refer to the Drought Mitigation Plan for more details on drought assessments for the State of Georgia.

SPI Score	Condition
+2 and above	Extremely wet
+1.5 to +1.99	Very wet
+1.0 to +1.49	Moderately wet
-0.99 to +0.99	Near normal
-1.0 to -1.49	Moderately dry
-1.5 to -1.99	Severely dry
-2.0 and less	Extremely dry

**Table 2.19: SPI Scores and Corresponding Conditions**



# Standardized Precipitation Index 24 Months

November 2010-October 2012

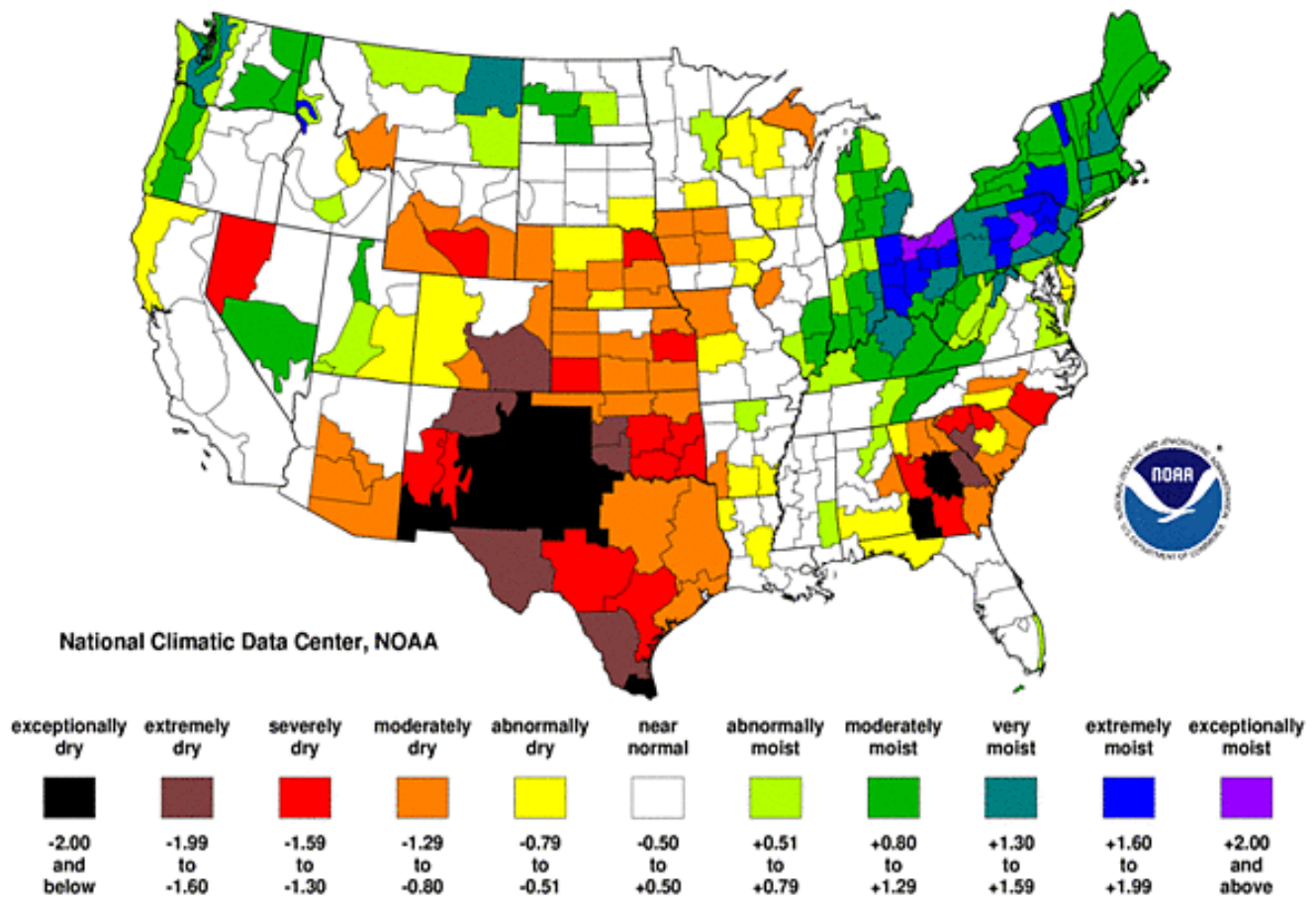


Figure 2.37

## 2.5.9 Wildfire

Hazard	Vulnerability	Total	Rank
Medium	Medium	Medium	6

### Hazard Description

A wildfire is an uncontained fire that spreads through the environment. Wildfires have the ability to consume large areas, including infrastructure, property, and resources. When massive fires, or conflagrations, develop near populated areas, evacuations possibly ensue. Not only do the flames impact the environment, but the massive volumes of smoke spread by certain atmospheric conditions also impact the health of nearby populations.

Wildfires result from the interaction of three crucial elements: fuel, ignition (heat), and oxygen. Natural and man-made forces cause the three crucial elements to coincide in a manner that produces wildfire events. Typically, fuel consists of natural vegetation. However, as the urban and suburban footprint expands, wildfires may utilize other means of fuel such as buildings. In terms of ignition or source of heat, the primary natural source is lightning. However, humans are more responsible for wildfires than lightning (causing around 80% of fires). Man-made sources vary from the unintentional (fireworks, campfires, machinery) to the intentional (arson). With these two elements provided, the wildfires may spread as long as oxygen is present.

Weather is the most variable factor affecting wildfire behavior. Strong winds propel wildfires quickly across most landscapes (unless fire breaks are present). Shifting winds create erratic wildfires, complicating fire management. Dry conditions provide faster-burning fuels, either making the area more vulnerable to wildfire or increasing the mobility of preexisting wildfires.

Wildfires are notorious for spawning secondary hazards, such as flash flooding and landslides, long after the original fire is extinguished. Both flash flooding and landslides result from fire consuming the vegetation that provides precipitation interception and infiltration as well as slope stability.

All of Georgia is prone to wildfire due to presence of wildland fuels associated with wildfires. Land cover associated with wildland fuels include coniferous, deciduous, and mixed forest; shrubland; grasslands/herbaceous; transitional; and woody and emergent herbaceous wetlands. The spatial extent of wildfire events greatly depends on both the factors driving the fire as well as efforts of fire management and containment. Within the State of Georgia, the more recent fires of 2007 engulfed over 400,000 acres and even reached into Florida. However, these fires occurred in largely isolated regions with limited exposure to human development. While these fires posed minimal impact to development, air quality and visibility were greatly reduced throughout large areas of southeast Georgia due to smoke.



In terms of seasonality, wildfires can occur during any season of the year. However, drier seasons, which vary within the State of Georgia, are more vulnerable to severe wildfires because of its abundant quick-burning fuels. In terms of rate of onset and duration, wildfires vary depending on the available fuels and weather patterns. Some wildfires can engulf an area in a matter of minutes from the first signs whereas others may be slower burning and moving. The frequency of wildfires is not typically measured because of the high probability of human ignition being statistically unpredictable.

Magnitude and intensity are typically only measured by size of the wildfire and locations of burning. Three classes of fires include understory fires, crown fires, and ground fires. Naturally-induced wildfires burn at relatively low intensities, consuming grasses, woody shrubs, and dead trees. These understory fires often play an important role in plant reproduction and wildlife habitat renewal and self-extinguish by low fuel loads or precipitation. Crown fires, which consist of fires consuming whole living trees, are low probability but high consequence type events due to the creation of embers that can spread by wind. Crown fires typically match perceptions of wildfires. In areas with high concentrations of organic materials in the soil, ground fires may burn, sometimes persisting undetected for long periods until the surface is ignited.

## Profile

Data on historical occurrence and extent of wildfires varies depending on the source. Table 2.20 provides the National Interagency Fire Center (NIFC) figures for wildland fire and burn acreage totals from 2002-2012 in Georgia. The data indicates wildland fires in Georgia can vary substantially in size with the vast majority of small size. Higher totals in 2007 coincide with several swamp fires in southeast Georgia that year. Even with the 2007 figures, the average extent of wildland fires is approximately 20 acres. Based on this data, the State can expect to experience approximately 5,800 wildland fires in any given year.

Year	Fires	Acres
2002	7,185	160,041
2003	3,430	9,908
2004	6,257	27,500
2005	5,573	19,263
2006	8,352	40,202
2007	8,726	837,895
2008	5,454	23,081
2009	3,732	13,714
2010	3,489	14,534
2011	8,387	149,222
2012	3,331	19,136
<b>Total</b>	<b>63,916</b>	<b>1,314,496</b>
<b>Average</b>	<b>5,811</b>	<b>119,500</b>

Table 2.20 GA Wildfires and Acres (NIFC)

The most notable wildfire events are most likely the most recent 2007 fires that affected the southeast quadrant of Georgia. These massive fires, the largest in Georgia's history, burned more than 400,000 acres and destroyed 18 homes. Initial estimates of Georgia Forestry Commission (GFC)'s expenditures for fire control efforts totaled more than \$62 million.

In 2005, the Southern Wildfire Risk Assessment produced reports and data based best available data and models. One of the products is a Levels of Concern index which combines the existing Wildland Fire Susceptibility Index and the Fire Effects Index to define overall wildfire risk. These models take into account surface fuel, canopy closure, historic fire occurrences, topography, weather influence, fire suppression effectiveness, urban interfaces, and infrastructure areas. Figure 2.39 shows the Levels of Concern (LOC) map

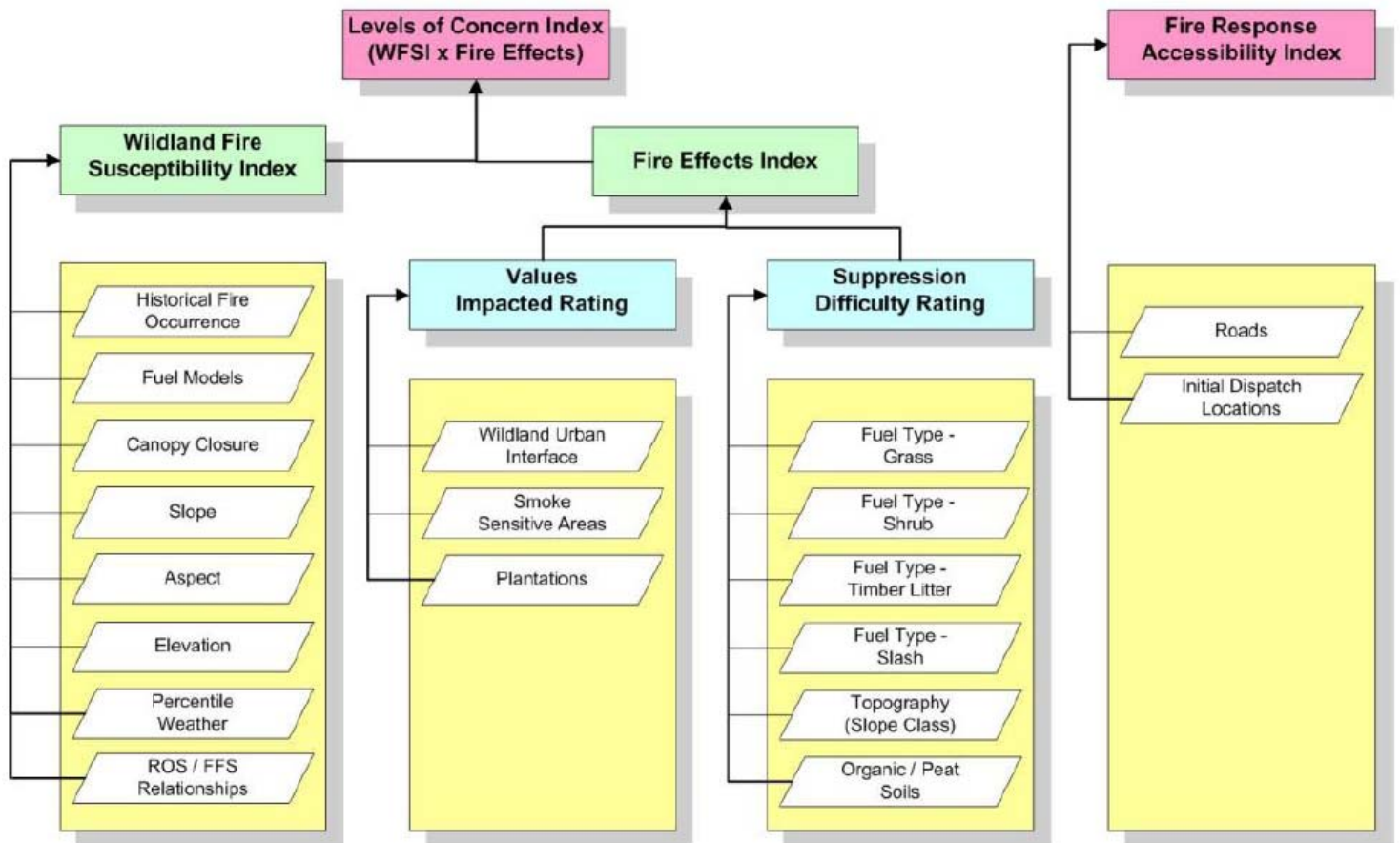


Figure 2.38 Southern Wildfire Risk Assessment Model. Source: SWRA Final Report (2006)

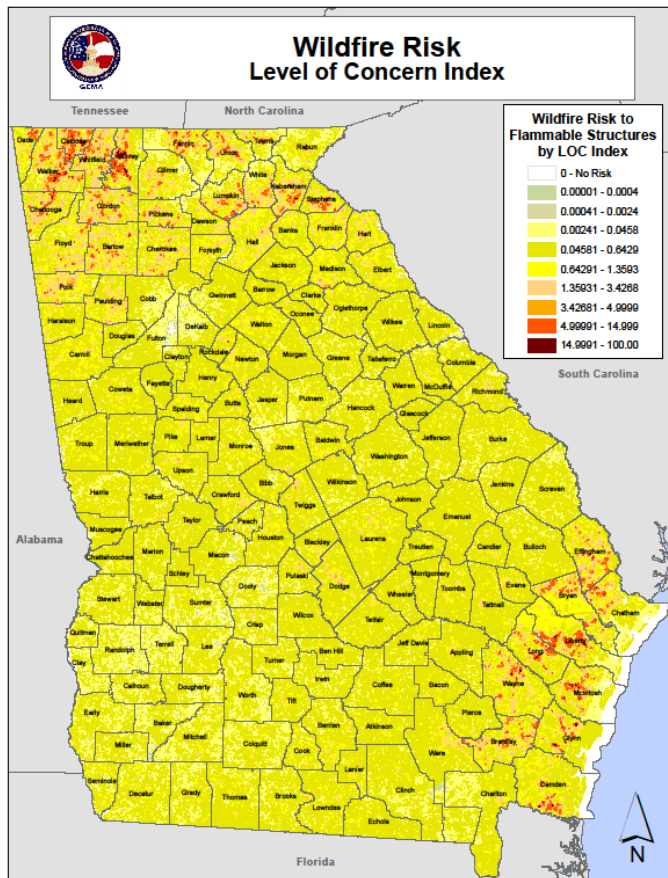


Figure 2.39 Level of Concern Index

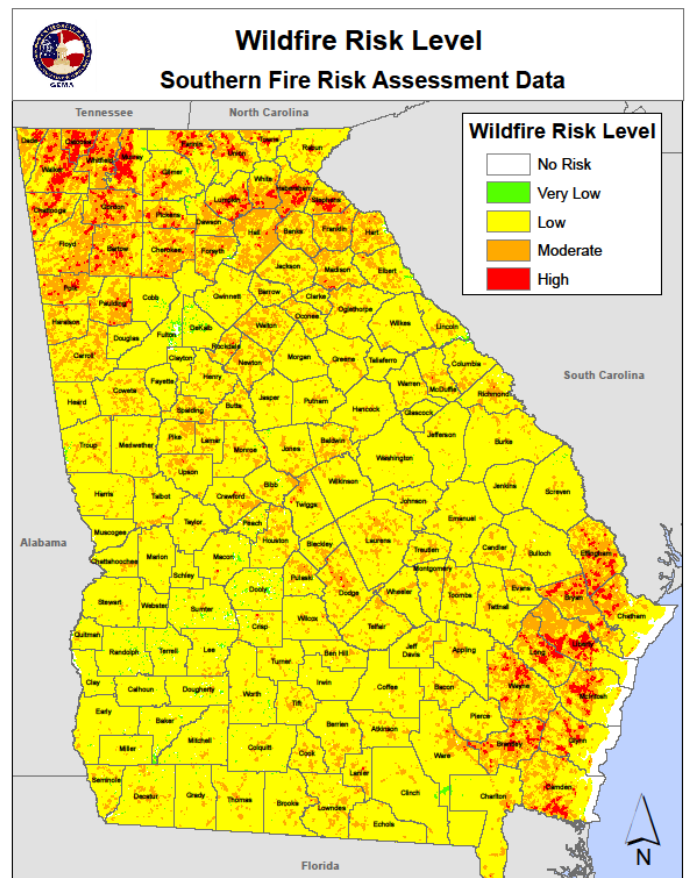


Figure 2.40 Wildfire Risk Level

Hazard Score	Description	Level of Concern Index
0	None	0
1	Very Low	0.00001 - 0.0004 0.00041 - 0.0024
2	Low	0.00241 - 0.0458 0.04581 - 0.6429
3	Moderate	0.64291 - 1.3593 1.35931 - 3.4268
4	High	3.42681 - 4.9999 4.99991 - 14.999 14.9991 - 100.00

**Table 2.21 Hazard Score Descriptions for Figure 2.39**

The wildfires that cause the greatest impact to loss of life and property are those located in the Wildland-Urban Interface. There are many definitions of the Wildland-Urban Interface (WUI), however from a fire management perspective it is commonly defined as an area where structures and other human development meet or intermingles with undeveloped wildland or vegetative fuels. Wildfires are dependent on a certain set of conditions which includes type of vegetation, building construction, accessibility, lot size, topography and other factors such as weather and humidity. When these conditions are present in certain combinations, they make some communities more vulnerable to wildfire damage than others. This “set of conditions” method is perhaps the best way to define wildland-urban interface areas when planning for wildfire prevention, mitigation, and protection activities.

There are three major categories of WUI: Boundary, Intermix and Island. Depending on the set of conditions present, any of these areas may be at risk from wildfire.

1. **“Boundary”** wildland-urban interface is characterized by areas of development where homes, especially new subdivisions, press against public and private wildlands, such as private or commercial forest land or public forests or parks. This is the classic type of wildland-urban interface, with a clearly defined boundary between the suburban fringe and the rural countryside. Due to the higher concentration of development that abuts the wildland areas, Boundary or Interface as it commonly called presents the highest level of risk of the three categories.
2. **“Intermix”** wildland-urban interface areas are places where improved property and/or structures are scattered and interspersed in wildland areas. These may be isolated rural homes or an area that is just beginning to go through the transition from rural to urban land use.
3. **“Island”** wildland-urban interface, also called **occluded interface**, are areas of wildland within predominately urban or suburban areas. As cities or subdivisions grow, islands of un-

for Georgia. The Georgia Forestry Commission is in the process of updating indexes that factor into the LOC map.

The nine categories in LOC were divided into four hazard scores to help describe risk for local planning as shown in Figure 2.40. Table 2.21 describes these levels and how they correspond to LOC Index categories.



**Figure 2.41 Example of WUI Boundary (GFC)**



developed land may remain, creating remnant forests. Sometimes these remnants exist as parks, or as land that cannot be developed due to site limitations, such as wetlands.

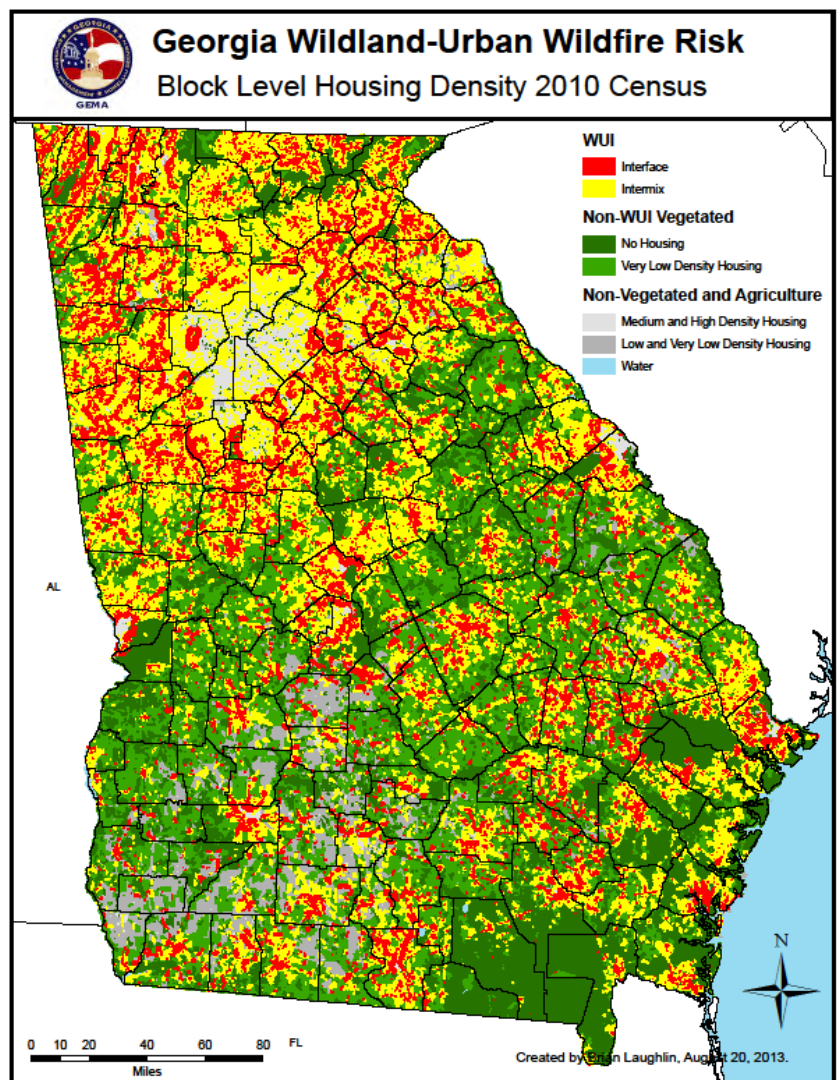
A more in-depth local wildfire risk assessment can help determine the specific level of risk to a community. A great source for local wildfire risk assessment is the Community Wildfire Protection Plans (CWPP). Copies of completed CWPPs and more information on the program can be found at <http://www.gfc.state.ga.us/forest-fire/CWPP/index.cfm>.

Year	Total Area (mi <sup>2</sup> )	Intermix Area	Intermix %	Interface Area	Interface %	WUI Total	WUI %
1990	59,131,458,950	9,668,026,927	16.35%	2,110,058,205	3.57%	11,778,085,132	19.92%
2000	59,131,458,950	11,881,950,792	20.09%	2,487,979,653	4.21%	14,369,930,445	24.30%
2010	59,425,174,404	13,443,969,176	22.62%	2,787,403,529	4.69%	16,231,372,705	27.31%

**Table 2.22 Wildland-Urban Interface Areas in Georgia from 1990-2010.**

Source: <http://silvis.forest.wisc.edu/maps/wui/2010/download>

Figure 2.42 illustrates areas within Georgia that most likely fall under Boundary (Interface) or Intermix categories. The WUI areas were created by identifying census blocks that contained both at least 6.17 housing units/km<sup>2</sup> (or 1 house/40 acres) and substantial amounts of vegetation prone to wildfires (Radeloff et al. 2005). The map indicates that all counties in Georgia contain WUI areas. Table 2.22 provides the size and percentage increase of WUI areas in the State.



**Figure 2.42 Location of WUI areas in Georgia.**

Source: <http://silvis.forest.wisc.edu/maps/wui/2010/download>

## 2.5.10 Earthquake

Associated Hazards:

Ground-shaking, liquefaction, landslides, tsunamis

Hazard	Vulnerability	Total	Rank
Low	Low	Low	8

### Hazard Description

Earthquakes are generally defined as the sudden motion or trembling of the Earth's surface caused by an abrupt release of slowly accumulated strain. This release typically manifests on the surface as ground shaking, surface faulting, tectonic uplifting and subsidence, or ground failures, and tsunamis. In the United States, earthquake activity east of the Rocky Mountains is relatively low compared to the West because it is away from active plate boundaries and the plate interior strain rates are known to be very low.

The physical property of earthquakes that causes the majority of damage within the United States is ground shaking. The vibrations from the seismic waves that propagate outward from the epicenter may cause failure in structures not adequately designed to withstand earthquakes. Because the seismic waves have different frequencies of vibration, the waves disseminate differently through sub-surface materials. For example, high frequency compression and shear waves arrive first whereas lower frequency Rayleigh and love waves arrive later. Not only are speeds varied between seismic waves but also the types of movement. The surface vibration may be horizontal, vertical, or a combination of the two, which causes a wider array of structures to collapse.

Another manifestation of earthquakes is surface faulting. This phenomenon is defined as the offset or tearing of the earth's surface by a differential movement across a fault. Structures built across active faults tend to sustain damage regularly. There are no active faults within or near Georgia. Distinct Inactive faults are known within the state north of the Columbus, Macon, and Augusta fall line and running generally northeast-southwest. One of these is the Brevard Fault line which last moved 185 million years ago and is not associated with ongoing seismic activity in Georgia.

The third earthquake phenomenon that causes damage is tectonic uplift and subsidence. Tectonic uplift can cause shallowing of harbors and waterways while tectonic subsidence can cause permanent or intermittent inundation similar to what happened as a result of the 1964 Alaskan earthquake. Due to the association of tectonic uplift and subsidence with active faults, Georgia is not at risk to this phenomenon.

The fourth earthquake damage-causing phenomena are earthquake-induced ground failures, including liquefaction and landslides. During an earthquake, the areas that are rich in sand and silt and have groundwater within 30 feet of the surface temporarily behave as viscous fluids during strong ground shaking. Structures built on these materials can settle, topple, or collapse as the ground 'liquefies' beneath it. Landslides can also form when earthquake shaking or seismic activity dislodg-

es rock and debris on steep slopes triggering rock falls, avalanches, and slides. Also, unstable, or nearly unstable slopes consisting of clay soils may lose shear strength when disturbed by ground shaking and fail, resulting in a landslide. Georgia is at very low risk of seismic induced liquefaction or landslides.

The last of earthquake-induced phenomena are tsunamis, large gravity-driven waves triggered by the sudden displacement of a large volume of water (by underwater earthquake, landslide, or volcanic eruption). The waves produced travel in all directions from the origin at speeds of up to 600 miles per hour. In deep water tsunamis normally have small wave heights, however, as the waves reach shallower water near land, the wave speed diminishes and the amplitude drastically increases. Upon impact with a shoreline, the waves can inundate land rapidly engulfing everything in its path. Successive wave crests follow, typically arriving minutes to hours later, frequently with later arrivals being more dominant. Frequently, the first tsunami waves are downward, causing dramatic exposure of beach. Because of this, people are often killed trying to collect newly exposed seashells when the positive waves then arrive.

Although large tsunamis are rare in the eastern coast of the US, the possibility of such events occurring anywhere along the Atlantic and Gulf coast exists. For example, a severe earthquake in the Grand Banks of Newfoundland on November 18, 1929 generated tsunami waves that caused considerable damage in coastal Newfoundland and reached as far south as Charleston, South Carolina. Another example occurred in the Caribbean with a large earthquake on November 18, 1867 that caused tsunami waves larger than 20 feet in the Virgin Islands and Puerto Rico.

## Profile

Earthquakes of magnitude less than 5.0 are not known to produce significant damage. Georgia's greatest risks for earthquakes of magnitude 5.0 or greater are from three different seismic areas:

**New Madrid Fault Zone**- centered on the Mississippi River north of Memphis

**Eastern Tennessee Seismic Belt**- running west of the Appalachians between Knoxville and Northeastern Alabama

**Charleston, SC**

Modest earthquakes distributed throughout the Georgia Piedmont also occur; however, risk level remains low due to much lower magnitude and intensity associated with these events. The spatial extent of specific earthquakes largely depends on its magnitude (discussed below). For example, the New Madrid earthquakes of 1811 and 1812, centered between St. Louis and Memphis on the Mississippi River, caused damage as far away as Cincinnati and Richmond and were felt as far as Boston.

The temporal characteristics of earthquakes include rate of onset, duration, and the frequency of recurrence. Earthquakes rarely give warning of their impending occurrence, and hence such events are currently considered unpredictable by many in the scientific community. When one occurs ground failure can occur within a few seconds, and strong shaking can last from a few seconds to several minutes depending on the severity of the event, and the distance an individual is from its oc-

Magnitude	Description	Effects
<2	Micro	Not felt; infrequently recorded in the Eastern US
2.0 – 2.9	Minor	Not felt by most; frequently Recorded
3.0 – 3.9	Minor	Often felt; Rarely causes damage
4.0 – 4.9	Light	Noticeable shaking of indoor items; Significant damage unlikely
5.0 – 5.9	Moderate	Damage to poorly constructed buildings near epicenter; Possible slight damage to well-constructed
6.0 – 6.9	Strong	Destructive in area up to 200 miles across
7.0 – 7.9	Major	Serious damage over large area
8.0 – 8.9	Great	Serious damage in areas several hundred miles across
9.0 – 9.9	Great	Devastating in areas several thousand miles across
>10	Great	Never recorded

**Table 2.23: Earthquake Magnitudes**

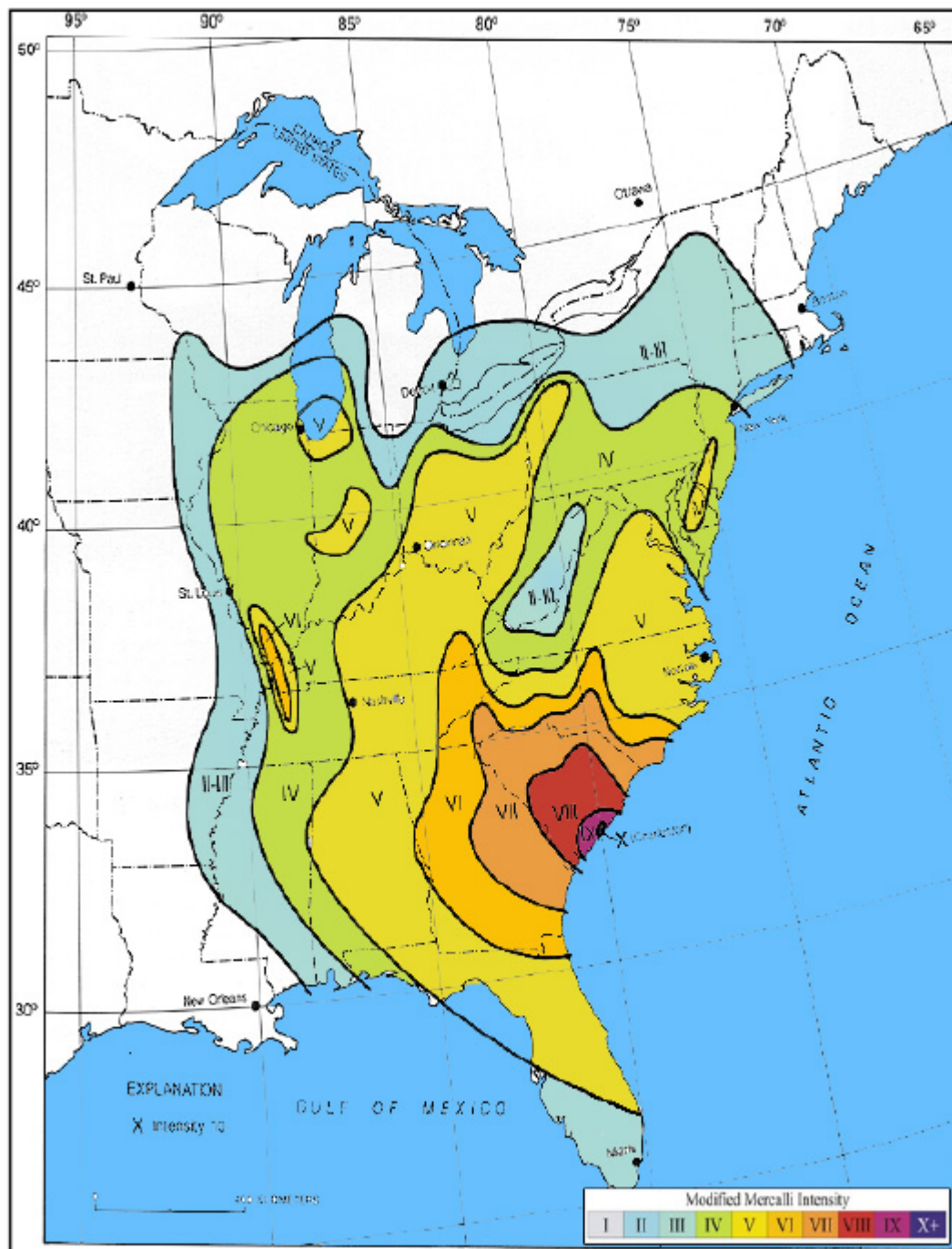
currence. Earthquake recurrence is based primarily on historical activity, and since earthquakes are infrequent within the eastern US, future earthquake probability remains low.

The remaining characteristics, magnitude and intensity, are addressed with the Moment Magnitude and the Mercalli scales, respectively. The moment magnitude scale (abbreviated as MMS; denoted as MW or M) is used by seismologists to measure the size of earthquakes in terms of the energy released. The magnitude is based on the seismic moment of the earthquake, which is equal to the rigidity of the Earth multiplied by the average amount of slip on the fault and the size of the area that slipped. The scale was developed in the 1970s to succeed the 1930s-era Richter magnitude scale (ML). Even though the formulae are different, the new scale retains the familiar continuum of magnitude values defined in Table 2.23. The MMS is now the scale used to estimate magnitudes for all modern large earthquakes by the United States Geological Survey .

Mercalli Intensity	Description	Effects
I	Instrumental	Detected only by sensitive instruments
II	Feeble	Felt by few persons (upper floors)
III	Slight	Felt noticeably indoors; Similar to passing truck
IV	Moderate	May awaken sleeping; Household items possibly disturbed
V	Rather Strong	Felt by nearly all; Broken household items
VI	Strong	Felt by all; Chimney damage; Slight other damage
VII	Very Strong	Difficult to stand; Considerable damage in poorly constructed buildings
VIII	Destructive	Considerable damage in average buildings with partial collapse; Chimneys, stacks, columns fall
IX	Ruinous	General panic; Damage to all structures
X	Disastrous	Rails bent; More collapse and damage to all types of structures
XI	Very Disastrous	Few masonry structures standing; Bridges destroyed
XII	Catastrophic	Total damage; Ground moves in waves or ripples; Objects airborne

**Table 2.24 Modified Mercalli Scale of Intensity**





**Figure 2.43 Mercalli Earthquake Intensity from 1886 Charleston, SC Earthquake.** Source: USGS

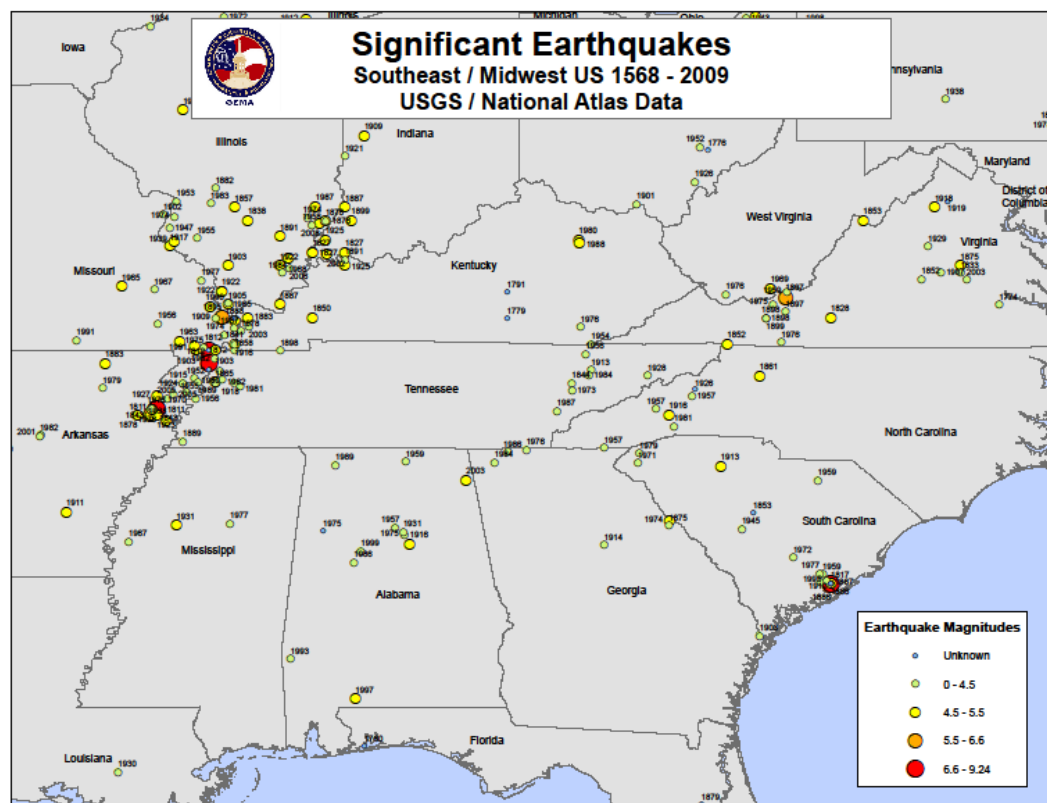
Because accounts of earthquakes occurring before the 1960's relied dominantly upon those experiencing the event rather than seismographs, the Modified Mercalli intensity scale is used to evaluate and compare earlier events to modern ones. The Modified Mercalli scale is a qualitative measure of the degree of shaking which an earthquake incurs on people, structures, and the ground at a particular location. Due to this reliance on subjectivity, Mercalli values of intensity vary for each event, and distance from the event (as opposed to the MMS scale). Table 2.24 describes the Modified Mercalli scale of intensity. Figure 2.43 shows an example of historical earthquake intensity from the 1886 Charleston, SC earthquake.

Year	Magnitude	Area Affected	Remarks
1811 – 1812	7.3 – 7.8	New Madrid	XI intensity; Rerouted Miss. River; Damage in Richmond; Felt in Boston
1886	6.9	Charleston, SC	V-VIII intensity
1914	5	North Georgia	Caused little damage
1964	4.5	Lake Sinclair	Tremors every 2-3 years
1972	4.5	Clarks Hill Reservoir	Quakes felt every 20 seconds
1976		Toombs County	Intensity V
1985	3.0-3.5	Columbus	
1996	2.4	DeKalb County	Norris Lake area
2003	4.9	North Georgia / Alabama border	Some power outages; Felled trees; Minor household damage
2010	2.8	Northwestern Georgia	Dalton area
2013	2.5-2.8	Georgia / South Carolina border	Thurmond Lake area

**Table 2.25: Notable Earthquake Events Affecting Georgia**

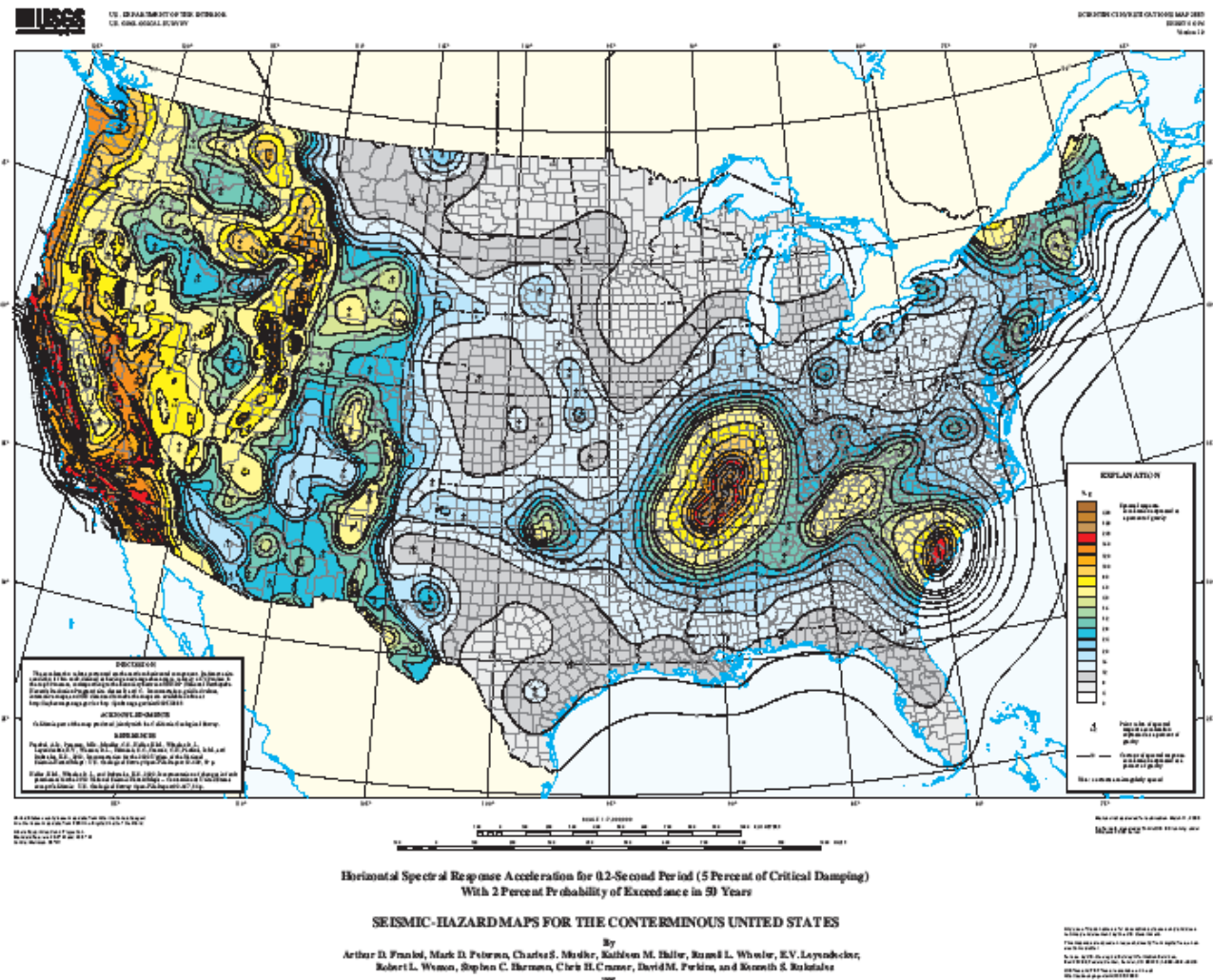
SHELDUS reports no earthquake events, meaning that no events occurred in Georgia during 1960 – 2012. However, Georgia has been seismically active throughout that time period, consisting of minor to light earthquakes. No disasters have been declared for the State of Georgia related to earthquake events due to the lack of losses associated with seismic activity during this timeframe.

Georgia's earthquake history, however, demonstrates Georgia's potential for damaging seismic activity, even with events occurring outside of the state line. Table 2.25 lists notable events that have



**Figure 2.44 Significant Earthquakes**

affected Georgia since the late 19<sup>th</sup> century. Note the magnitude value is estimated based on the historical record or Mercalli scale of intensity rating. These more notable events are included in Figure 2.43, which illustrates notable earthquakes from 1568 through 2009 for parts of the Southeast and Midwest United States (possibly affecting Georgia).



**Figure 2.45 Seismic Hazard Map for the Conterminous Unites States**

Although frequency, and thus risk, is difficult to determine with earthquakes, estimates are produced about possible return intervals. Recent estimates suggest that an earthquake of 6.0 magnitude or greater is likely to occur every 80 years within the New Madrid Seismic Zone. Though the last such event occurred back in 1895 in New Madrid, this does not mean one is overdue, as earthquake recurrence is highly variable (sometimes with recurrences longer than twice their expected average). Similar earthquake recurrence intervals apply to regions in northwestern Georgia.

Figure 2.45 is a USGS seismic map that portrays the estimated probability of spectral acceleration for a 0.2 second period with the probability of exceedance at 10 percent in 50 years for the conterminous United States. This map illustrates the several regions of potential seismic activity that could affect the State of Georgia: the New Madrid fault, Southern Appalachia, and Charleston, SC.

**Seismic Risk**  
USGS Seismic Contours

0.2 second spectral acceleration with a 2% probability of exceedance in 50 years

Contour*	County*
16% g	< 16% g
24% g	16-24% g
32% g	24-32% g
40% g	32-40% g
60% g	40-60% g

\*spectral acceleration represented as a % of gravity

The map displays Georgia's counties, each shaded according to its seismic risk level. Major seismic contours are overlaid, showing varying levels of risk across the state. The risk generally increases from west to east, with the highest risk (60% g) occurring along the southeastern coast. The map also shows the state's borders with Tennessee, North Carolina, South Carolina, Alabama, and Florida.

68



## 2.5.11 Geologic Hazards

Associated Hazards:

Sinkholes, landslides, debris flow, mudslides, flooding, tropical cyclones, wildfire.

Hazard	Vulnerability	Total	Rank
Low	Low	Low	9

Previously called Sinkhole, this section was expanded to include description of another geologic hazard, landslides. Landslides are also associated with and called debris flows. Landslide was not assessed during the risk ranking; therefore the levels of risk and ranking in the boxes above are solely for Sinkhole.

### Sinkhole

Sinkholes are generally defined as a natural depression or hole in the surface topography formed by mechanisms such as the gradual removal of soluble bedrock by percolating water, the collapse of cave roofs (due to some seismic activity), or the lowering of the water table. These natural phenomena occur in areas where the subsurface rock consists of evaporites (salt, gypsum, and anhydrite) and carbonates (limestone and dolomite). However, the correlation between sinkholes and land-use practices reveal that sinkholes are often human-induced through over pumping groundwater and through altering natural water drainage patterns.

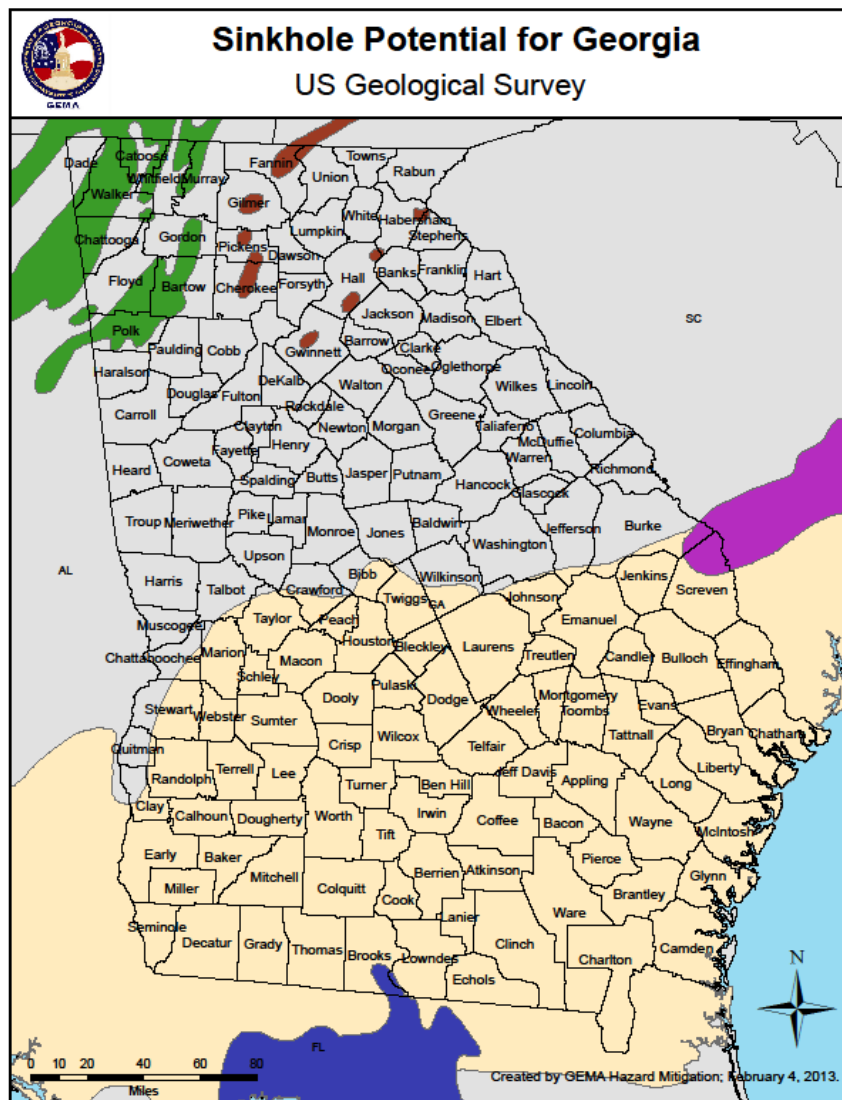
In the State of Georgia, sinkholes occur due to the underlying carbonate rock beneath the area running along the fall line (border between coastal plain and piedmont region of Georgia) and the area of the southern Appalachian Mountains. The spatial dispersion of sinkholes-susceptible soils in Georgia and the United States is found in Figure 2.47. In terms of spatial extent, sinkholes can affect areas from less than one meter to several hundred meters in diameter and depth.

Temporal characteristics greatly depend on the underlying bedrock excluding seasonality. In other words, seasonality has no affect on sinkholes because the hazard is not meteorological. The rate of onset and duration of the event greatly depend on the type of sinkhole forming. Subsidence and solution sinkholes typically form gradually in areas of thin overburden or exposed carbonate rock, respectively. Collapse sinkholes occur rapidly in areas with thick overburden after the confining layer is breached. Therefore, the rate of onset is slow for subsidence and solution sinkholes while rapid for collapse sinkholes; and the duration is longer for subsidence and solution sinkholes and shorter for collapse sinkholes. No frequency estimates exist for sinkholes except that sinkholes are more likely in the areas depicted with soluble bedrocks.

### Profile

Official measures and scales of magnitude and intensity do not exist for sinkholes. However, the magnitude may be measured by the areal extent of the sinkhole while intensity may be estimated by the losses involved with the hazard event.

Within the databases utilized for the hazard and risk assessment to account the hazard history in terms of events and losses (SHELDUS, PDD), no sinkhole events exist. This relates to the fact that no sinkholes have caused significant losses in the State of Georgia at least since 1960. However, one notable sinkhole event exists in recent history. During the 1994 flooding of Albany, Georgia in Dougherty County from Tropical Storm Alberto, numerous sinkholes formed under the floodwaters. Notable sinkholes occurred in Riverside and Oakview Cemeteries in downtown Albany, where a combination of flood waters and subsiding terrain released disturbed gravesites. Although disturbed by both floodwaters and sinkholes, the federal and state declarations and subsequently administered grants for Dougherty County for this event only pointed to flooding as the hazard event.



Sinkholes were identified as hazards in 5 local hazard mitigation plans during the first round of plan development. Sinkholes are prevalent primarily in Lowndes County, particularly in the southern part of the county. Historically, some sinkholes in Lowndes County are quite large, measuring hundreds of yards across. Others are small with diameters of 30 to 40 feet. However, it is unknown the degree of threat of potential sinkholes to Lowndes County. Based on limited data, there is a 30 % chance of a sinkhole event in Lowndes County each year. There is, however, no data available at this time to predict when or where a sinkhole might occur in Lowndes County.

In order to provide a risk assessment or probability of future occurrence for sinkhole events, a detailed history of sinkholes through some period of time must be known. Currently, Georgia has no detailed history of sinkhole

Figure 2.47 Geology Associated with Sinkhole Potential (Legend Below)

## Geology

**Fissures, tubes, and caves over 1,000 ft (300 m) long; 50 ft (15 m) to over 250 ft (75 m) vertical extent**

- In gently dipping to flat-lying beds of carbonate rock
- In moderately to steeply dipping beds of carbonate rock

**Fissures, tubes and caves generally less than 1,000 ft (300 m) long; 50 ft (15 m) or less vertical extent**

- In gently dipping to flat-lying beds of carbonate rock
- In gently dipping to flat-lying beds of carbonate rock beneath an overburden of noncarbonate material 10 ft (3 m) to 200 ft (60 m) thick
- In metamorphosed limestone, dolostone, and marble

events for the entire state. With no recorded losses from sinkhole events besides those sinkholes compounded by other hazards (such as the Albany floods) the sinkhole hazard threat in the State of Georgia is not significant enough to warrant further analysis or inclusion in the composite assessment at the end of this chapter.

## **Landslides and Debris Flow**

Landslides occur in all U.S. states and territories and can be caused by a variety of factors including earthquakes, storms, volcanic eruptions, fire and by human modification of land. Landslides can occur quickly, often with little notice and the best way to prepare is to stay informed about changes in and around your home that could signal that a landslide is likely to occur.

In a landslide, masses of rock, earth or debris move down a slope. Debris and mud flows are rivers of rock, earth, and other debris saturated with water. They develop when water rapidly accumulates in the ground, during heavy rainfall or rapid snowmelt, changing the earth into a flowing river of mud or “slurry.” They can flow rapidly, striking with little or no warning at avalanche speeds. They also can travel several miles from their source, growing in size as they pick up trees, boulders, cars and other materials.

Landslide problems can be caused by land mismanagement, particularly in mountain, canyon and coastal regions. In areas burned by forest and brush fires, a lower threshold of precipitation may initiate landslides. Land-use zoning, professional inspections, and proper design can minimize many landslide, mudflow, and debris flow problems.

## **Profile**

An exact historical record is difficult to determine as many landslide and debris flow events are minor, do not cause significant damage or go unreported. SHELDUS data from 1952 to 2012 list one event occurring in Rabun County in 2004. Property losses from this event were estimated at \$100,000. This event was triggered by excessive rainfalls from Hurricane Ivan as it passed through the state.

In August 2013, heavy rains created a mudslide in Sandy Springs, GA that closed a local road. It is estimated the road will remain closed for up to a year while a retaining wall is constructed at a cost of approximately \$1 million. Residents have reported eight other mudslides in the area.

The most vulnerable locations in Georgia are identified in Figure 2.48. Higher risk areas are mostly located in North Georgia where steeper slopes exist in mountain and hill terrain.

Given the variety of events that could cause landslides or debris flows and incomplete records of previous occurrences, it is not currently possible to determine the future probability of an event in Georgia.





# Landslide Potential for Georgia

## US Geological Survey

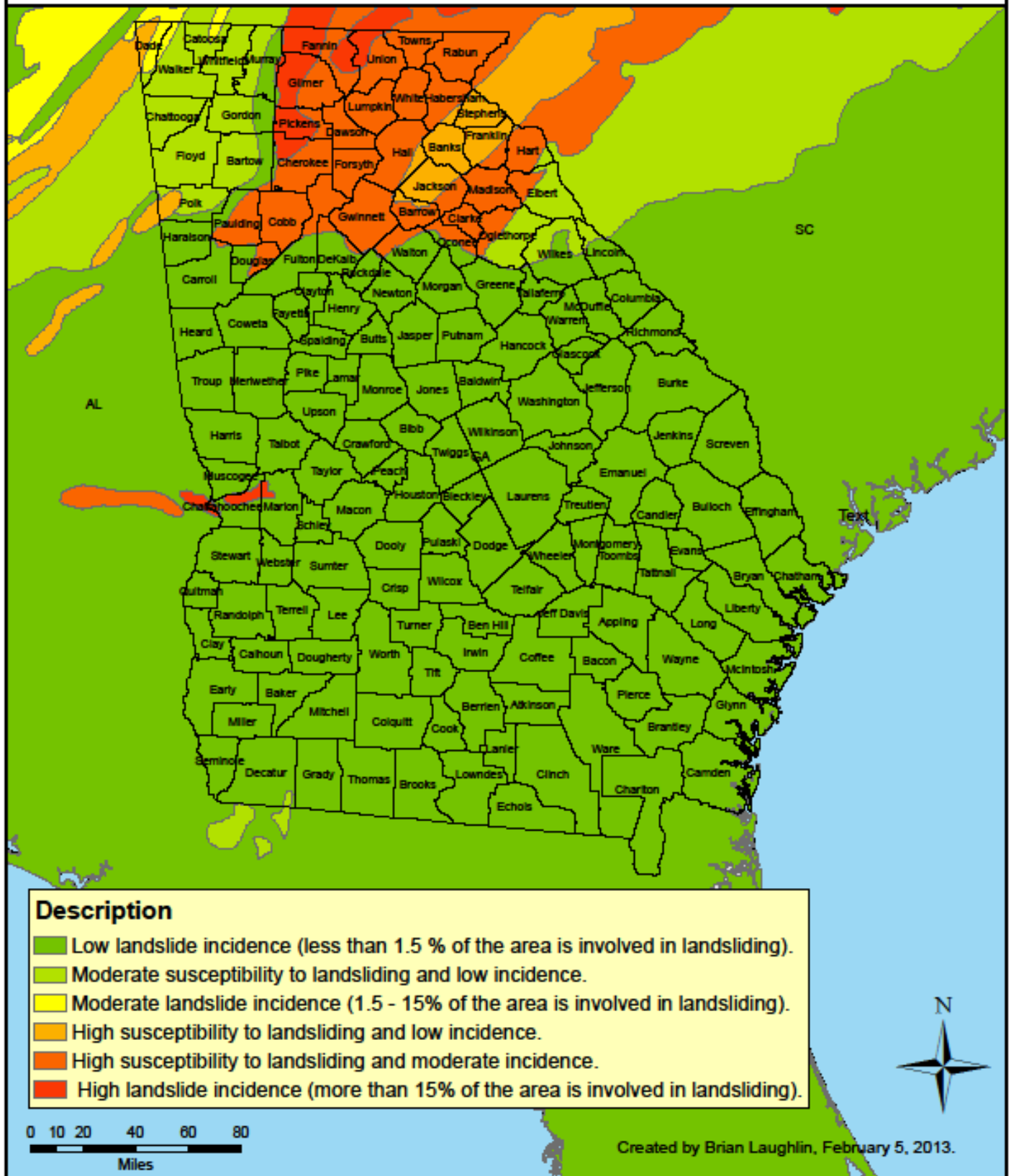


Figure 2.48 Landslide Potential for Georgia

## 2.5.12 Dam Failure

Associated Hazards:

Flooding, technological (man-made) hazards

Hazard	Vulnerability	Total	Rank
Low	Medium	Low	7

### Hazard Description

A dam is a constructed barrier across flowing water that obstructs, directs, or slows the velocity of the water, creating a reservoir, lake, or impoundment. The structure's purpose is to retain water for a variety of purposes such as generating power, providing water for irrigation or water supply, or controlling flooding.

The threat of dam failures is triggered by carelessness of design, construction, and maintenance. The integrity of older dams, often affected by weathering, mechanical changes, and the influence of chemical agents, is deteriorating. Not only is dam failure risk increasing (with aging infrastructure) but the population vulnerable to this hazard is also increasing due to downstream development. Even structures outside of the known 100 year floodplain may prove affected by dam failures because of the water's often sudden release and velocity.

Dam failures are generally grouped into three classifications: hydraulic, seepage, and structural. The three types of failure sometimes compound upon one another to create complex and interrelated hazard events.

Hydraulic failures are a result of the uncontrolled flow of water over and around the dam structure as well as the erosive action on the dam and its foundation. The uncontrolled flow causing the failure is often classified as wave action, toe erosion, or gulying. Earthen dams are particularly susceptible to hydraulic failure because earthen materials erode at relatively slow velocities. This type of failure constitutes approximately 40% of all dam failures.

While all dams exhibit some seepage, the velocity and amount of water are controlled to prevent failure. Seepage occurs through the structure and its foundation and erodes the structure from within. Seepage accounts for approximately 4% of all dam failures.

Structural failure involves the rupture of the dam or the foundation by water movement, earthquake, or sabotage. Large earthen dams and dams constructed with weak materials (such as silt) are especially susceptible to structural failure. This type of failure accounts for approximately 30% of all dam failures.

In the State of Georgia, all of the major rivers are dammed at least once before leaving the boundaries. Also, numerous smaller dams, including agricultural dams, exist throughout the state. Therefore, the possibility of dam failure hazards exists throughout the state. The spatial extent of the dam

failure event highly depends on the amount of water within the dammed reservoir and the downstream topography. Because of the high velocity of the water, flooding can strike beyond known floodplains.

Dam failures often have a rapid rate of onset, leaving little time for evacuation. The first signs of the failure may go unnoticed upon visual inspection of the dam structure. However, continual maintenance and inspection of dams often provides knowledge on the possibility of failure with certain precipitation amounts. The duration of the flooding event caused by the failure also depends on the amount of water and downstream topography. Given smaller volumes of water and a topography suited for transporting the water rapidly downstream, the event may only last hours. Because of the lack of seasonality and other predictive factors, the frequency of dam failures cannot be determined.

In terms of magnitude and intensity of the flooding event caused by dam failures, no measures actually exist. However, the National Dam Safety Program (NDSP) produces rankings and definitions of dam structures based on potential impact. Table 2.26 lists the dam categories and potential impact of dam failure.

Classification	Loss of Human Life	Economic, Environmental, or Lifeline Loss
High	Probable, >1	Yes (not necessary for classification)
Significant	None expected	Yes
Low	None expected	Low and generally limited to owner

Table 2.26: Dam Classification from NDSP

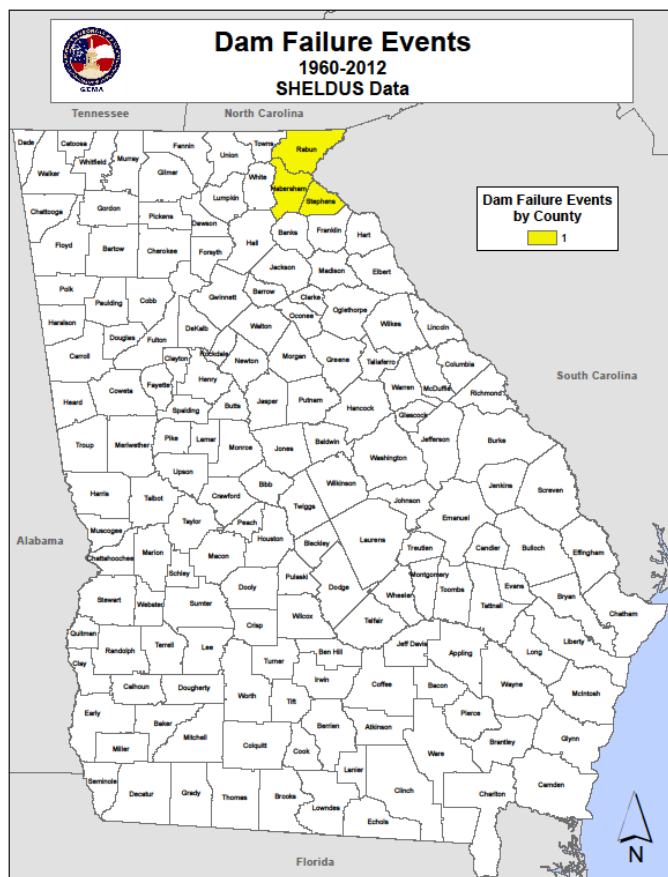


Figure 2.49

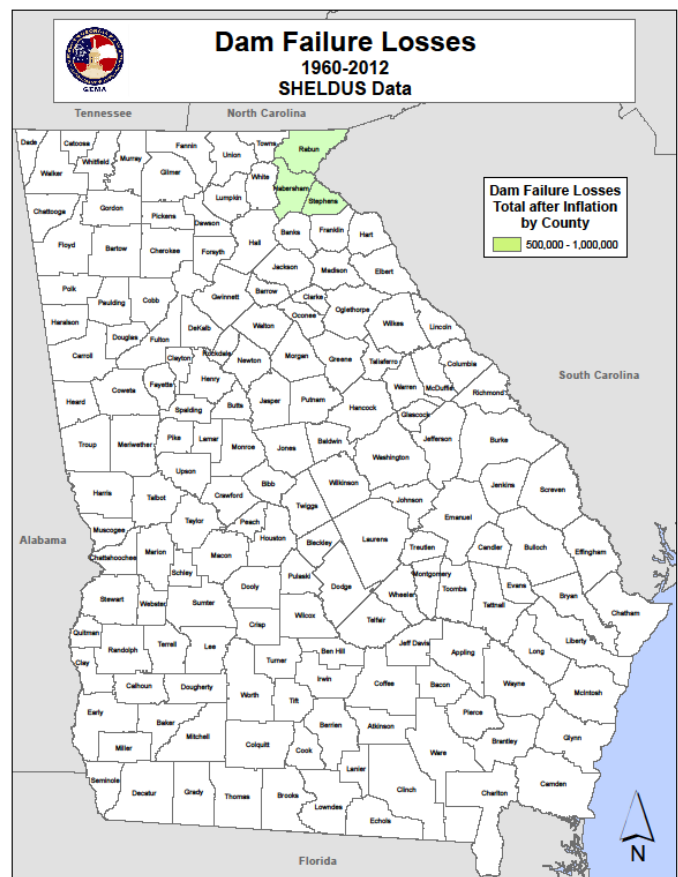


Figure 2.50

The historical events and losses for dam failures for the State of Georgia, Figures 2.49 and 2.50, only show one event from 1960-2012.

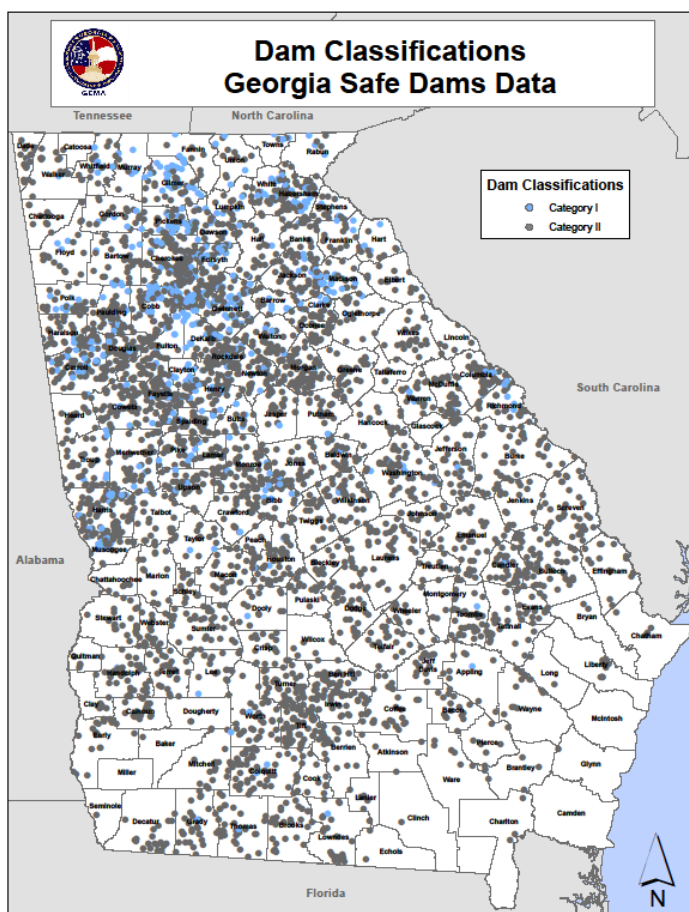
Date	Name	Description
11/6/1977*	Kelly Barnes Dam	DR541; Dam Collapse, Flooding

**Table 2.27: Dam Failure Notable Events    \*Presidential Declared Disaster**

This particular event is the 1977 failure of the Kelly Barnes Dam in Toccoa. The original structure consisted of a rock crib dam built in 1899 in order to create a small reservoir for a hydroelectric plant. The Toccoa Falls Bible Institute built an earthen dam over the original rock crib dam in 1937 in order to develop a more stable electric power source. The dam structure was raised several times, reaching 42 feet above the rock foundation by 1957, when power production was halted and the reservoir was solely utilized for recreation. At around 1:30 am on Sunday, November 6, 1977, the Kelly Barnes Dam failed. This collapse resulted in a flash flood that swept downstream causing 39 fatalities and caused \$2.3 million in property damage. The sole cause of the failure is undetermined but the probable causes include a local slide on the steep downstream slope probably associated with piping (form of seepage) and a localized breach in the crest followed by progressive erosion, saturation of the downstream embankment, and the subsequent total collapse of the structure.

Other dam failures have occurred in Georgia with some related to the spring of 1990 flooding and the July of 1994 flooding associated with Tropical Storm Alberto. However, these dam failures were not documented as having a significant contribution to already flooded conditions.

In order to complete a risk assessment for dam failures in the State of Georgia, the location of all the potential sources of the hazard (the dams) must be located and evaluated using some categorization of failure potential (risk). In attempts to meet this criterion, the Georgia Safe Dams Act of 1978 established Georgia's Safe Dams Program. The Environmental Protection Division (EPD) within the Department of Natural Resources (DNR) is responsible for administering the program. The purpose of the program is to *provide for the inspection and permitting of certain dams in order to protect the health, safety, and welfare of all citizens of the state by reducing the risk of failure of such dams.* The program has the two main functions of inventorying and classifying dams and regulating and permitting high hazard dams.



**Figure 2.51**



For this plan update, Georgia EPD provided safe dams data for Category I and Category II dams. The definitions of these dams are different than the NDSP definitions.

“Category I” means the classification where improper operation or dam failure would result in probable loss of human life. Situations constituting “probable loss of life” are those situations involving frequently occupied structures or facilities, including, but not limited to, residences, commercial and manufacturing facilities, schools and churches.

“Category II” means the classification where improper operation or dam failure would not expect to result in probable loss of human life. (Georgia Department of Natural Resources – Environmental Protection Division Rules Chapter 391-3-8)

The map in Figure 2.51 shows the location of all

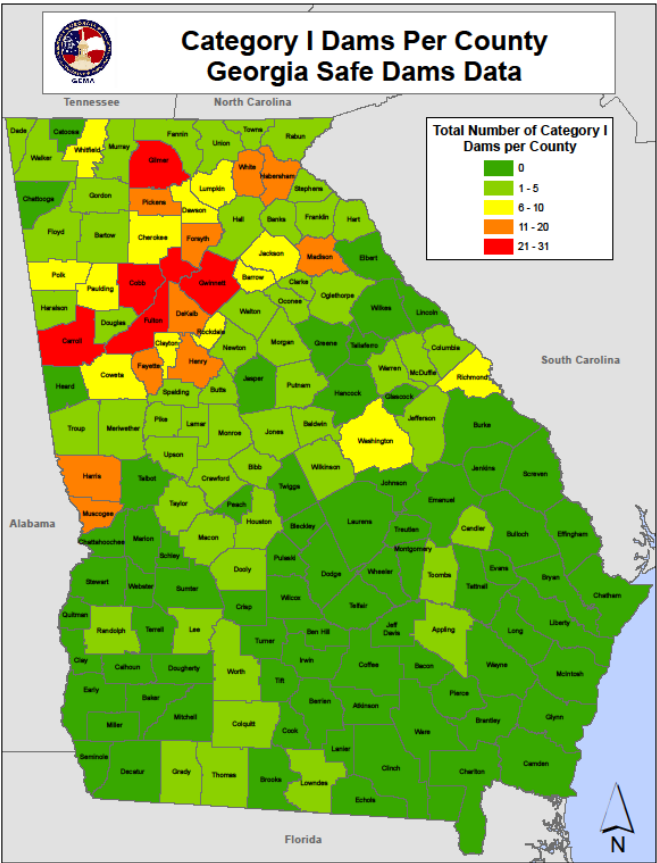


Figure 2.52

Category I and Category II dams in the state. Figure 2.52 depicts the total number of Category I dams by county. This data illustrates that the most populous area of the state, the Atlanta Metro region, also has the greatest amount of risk due to dam failure as this area has the highest number of Category I dams.

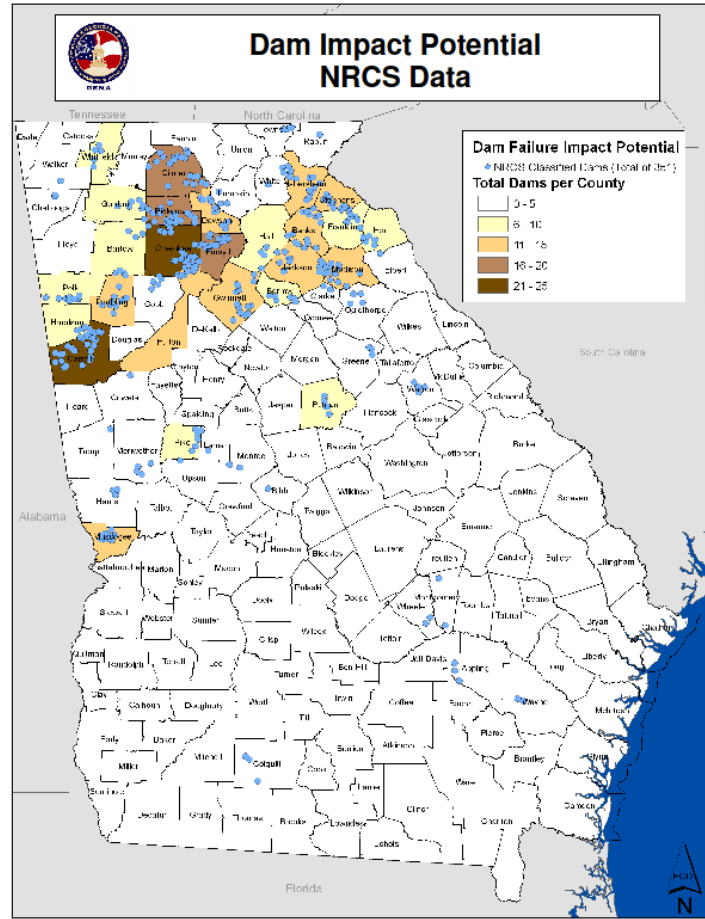


Figure 2.53

The dams presented in Figures 2.53 and 2.54 are considered watershed dams in that they meet Georgia’s definition of a dam (any structure 25 feet or more in height or one impounding 100 acre area of water at the top of the dam) that was built with 100% federal money on private land through the coordination of USDA NRCS and local Soil and Water Conservation (SWC) districts. This data, provided by NRCS and representing a small portion of dams that exist within the State of Georgia, allows analysis to determine the counties with the most impact potential (based on mere existence of dams). The dam impact potential map, Figure 2.53, illustrates the

NRCS classified watershed dam locations within Georgia coupled with a summary of total dams per county. The highest concentration of watershed dams are within Georgia counties occurs in Cherokee and Carroll Counties while most of the watershed dams are in the northern portion of the State. The dam failure risk map, Figure 2.54, utilizes a NRCS risk analysis that includes an indicator of failure potential, population at risk, structures at risk, and interstates and secondary roads at risk to calculate an overall risk index for each of the 351 watershed dams shown in Figure 2.53. All of the dams' risk values within each county were combined to calculate each county's overall dam failure risk. The counties with the highest risk include Gwinnett, Cobb, and Muscogee. This map also illustrates the State's higher risk located in the northern portion of Georgia.

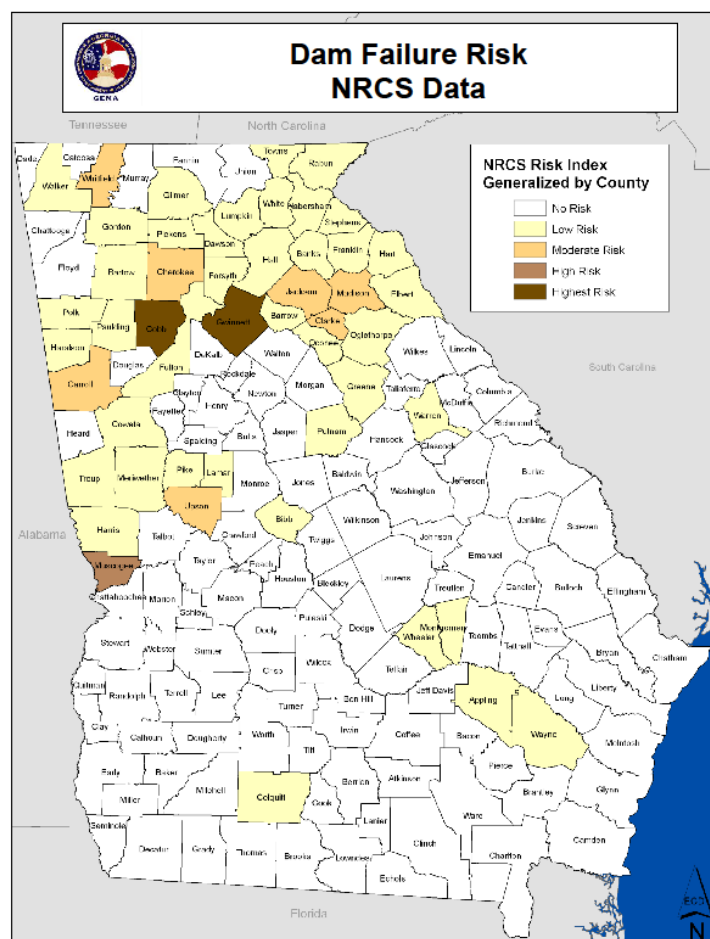


Figure 2.54

## 2.6 SOCIAL VULNERABILITY ASSESSMENT

While vulnerability may include a range of assets that can be impacted by hazards, the data in this vulnerability assessment is limited to social vulnerability. Social vulnerability is represented as the social, economic, demographic, and housing characteristics that influence a community's ability to respond to, cope with, recover from, and adapt to environmental hazards.

The tool utilized in determine the social vulnerability for each county is the Social Vulnerability Index (SoVI®). SoVI® 2006-10 measures the social vulnerability of U.S. counties to environmental hazards. The index is a comparative metric that facilitates the examination of the differences in social vulnerability among counties and graphically illustrates the geographic variation in social vulnerability. It shows where there is uneven capacity for preparedness and response and where resources might be used most effectively to reduce the pre-existing vulnerability. SoVI® also is useful as an indicator in determining the differential recovery from disasters.

### 2.6.1 Methods

The index synthesizes 31 socioeconomic variables, which the research literature suggests contribute to reduction in a community's ability to prepare for, respond to, and recover from hazards. SoVI® data sources is based solely on the United States Census Bureau. These variables are listed in Table 2.28.

SoVI Variables	SoVI Variables
Hospitals	Female population
Non-Urban population	Unemployed
Median age	Per capita income
Population density	People per household
Service industry employment	Wealthy Population (over 200,000)
Institutionalized population	Poor population (below poverty line)
Social security Households	Median House Value
Extractive industry employment	Rented housing
Native American population	Median Gross Rent
Children Living in Married Couple Families	Female headed households
Population Without Health Insurance	Mobile homes
Black Population	Uneducated population
Asian Population	Female labor force participation
Hispanic Population	Population Speaking English as Second Language with limited Proficiency
Young Population (under 5)	Population Housing with No Car
Old population (Over 65)	

**Table 2.28 Variables Included in the SoVI Analysis**



The data are compiled and processed by the Hazards and Vulnerability Research Institute at the University of South Carolina. The data are standardized and placed into a principal components analysis to reduce the initial set of variables into a smaller set of statistically optimized components. Adjustments are made to the components' cardinality (positive (+) or negative (-)) to insure that positive component loadings are associated with increased vulnerability, and negative component loadings are associated with decreased vulnerability. Once the cardinalities of the components are determined, the components are added together to determine the numerical social vulnerability score for each county. The SoVI variables listed in Table 2.28 explain 72% of the variance in the data.

### 2.6.2 Assessing Social Vulnerability by Jurisdiction

After completing the SoVI methods, the results are tabulated and mapped in GIS. The following table, Tables 2.29 and 2.30 lists the counties with the highest and lowest SoVI scores for the State of Georgia.

Highest Vulnerability	SoVI Score
Clay County	8.00
Hancock County	6.79
Wilcox County	6.22
Stewart County	5.77
Calhoun County	5.20
Telfair County	4.79
Taliaferro County	4.59
Randolph County	3.68
Wheeler County	3.45
Johnson County	3.04

Table 2.29 Most Vulnerable Counties in Georgia

Lowest Vulnerability	SoVI Score
Forsyth County	-7.68
Fayette County	-7.29
Oconee County	-6.11
Cherokee County	-5.94
Henry County	-5.89
Lee County	-5.65
Paulding County	-5.58
Cobb County	-5.49
Columbia County	-5.45
Gwinnett County	-5.14

Table 2.30 Least Vulnerable Counties in Georgia

The map of relative SoVI scores, Figure 2.55, represents the remaining social vulnerability for the State of Georgia. The number of counties in each score is identified in Table 2.31. The scores are categorized based on standard deviations from the average score for the entire state. The standard deviation for each of the hazard scores is described in Table 2.32.

SoVI Score	Number of Counties
Extremely High	5
High	21
Average	85
Low	33
Extremely Low	15

Table 2.31 Number of Counties by SoVI Score

SoVI Score	Standard Deviation from State Average
Extremely High	-7.68 - -4.55
High	-4.54 - -1.41
Average	-1.40 - 1.73
Low	1.74 - 4.86
Extremely Low	4.87 - 8.00

Table 2.32 Standard Deviation for each SoVI Score

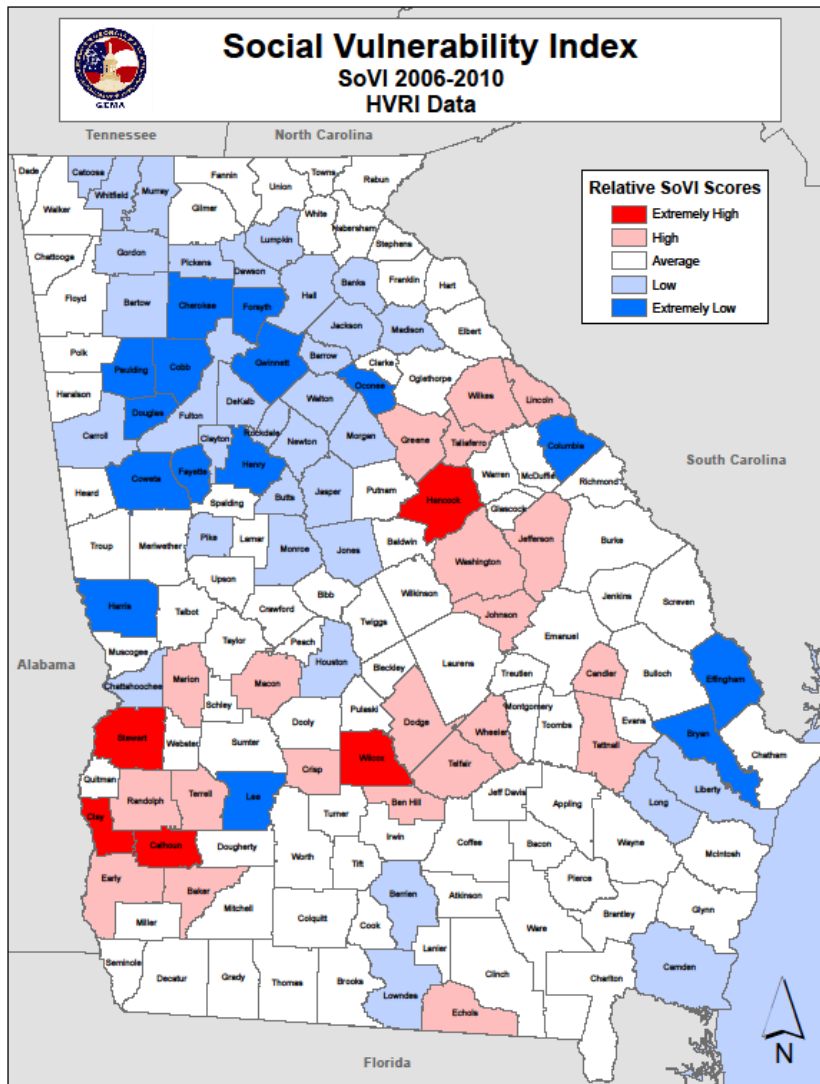


Figure 2.55 SoVI Index by County

## 2.7 COMPOSITE ASSESSMENT

The composite assessment is a compilation of the social vulnerability scores in Section 2.6 and hazard risk scores for Storm Surge (SLOSH), Wind, Flood, Wildfire and Earthquake. These are the only hazards included in the composite risk as they are the only ones that are spatially constricted or exhibit a strong spatial pattern. The hazard scores are different than those used in the risk ranking in that they only factor location and potential extent. The scores for each of these five hazards are described in the Tables 2.33 to 2.37.

Hazard Score	Description
5	Inundated by a category 1 Hurricane
4	Inundated by a category 2 Hurricane
3	Inundated by a category 3 Hurricane
2	Inundated by a category 4 Hurricane Inundated by a category 5 Hurricane

Table 2.33 SLOSH Hazard Scores

Hazard Score	Wind Speeds
5	>120 mph gust
4	111-120 mph gust
3	101-110 mph gust
2	91-100 mph gust
1	<90 mph gust

Table 2.34 Wind Hazard Scores

Hazard Score	DFIRM Zone	Description
4	Floodway / AE/FW	Floodway (within AE)
4	VE	1% with velocity, BFE
3	A	1% no BFE
3	AE	1% BFE
3	AH	1% Ponding has BFE
3	AO	1% Sheet flow has depths
3	1 PCT FUTURE	1% Future Conditions
2	0.2PCT ANNUAL CHANCE	0.2 % Annual Chance of Flood
1	AREA NOT INCLUDED	Area not included in survey
1	D	Undetermined but possible

Table 2.35 Flood Hazard Scores

Hazard Score	Description
4	High Risk
3	Moderate Risk
2	Low Risk
1	Very Low Risk
0	No Houses
	Agriculture
	Bodies of Water
	Dense Urban Development

Table 2.36 Wildfire Hazard Scores

Figure 2.56 illustrates the composite of the hazard scores. The values, ranging from 0 to 20, represent the least to the most hazardous areas in the state, respectively. The composite of hazard scores highlights areas of greater hazard potential in the red hues. This map proves useful in sub-county assessments as the scores are somewhat continuous data (not confined by an arbitrary boundary).

Figure 2.57 illustrates the average hazard score by county and include the same hazards listed above. This map identifies the counties that have substantially more risk to hazard events than other counties. For example, the coastal region of Georgia and the mountainous northern portion of Georgia are at more risk than the interior. Because the hazards are not weighted in terms of impact (storm surge being more hazardous than wind, for example), these similarities in risk are caused by different hazards. For example, the

Hazard Score	Description
4	50 – 83% g value
3	33 – 50% g value
2	17 – 33% g value
1	0 – 17% g value

Table 2.37 Earthquake Hazard Scores

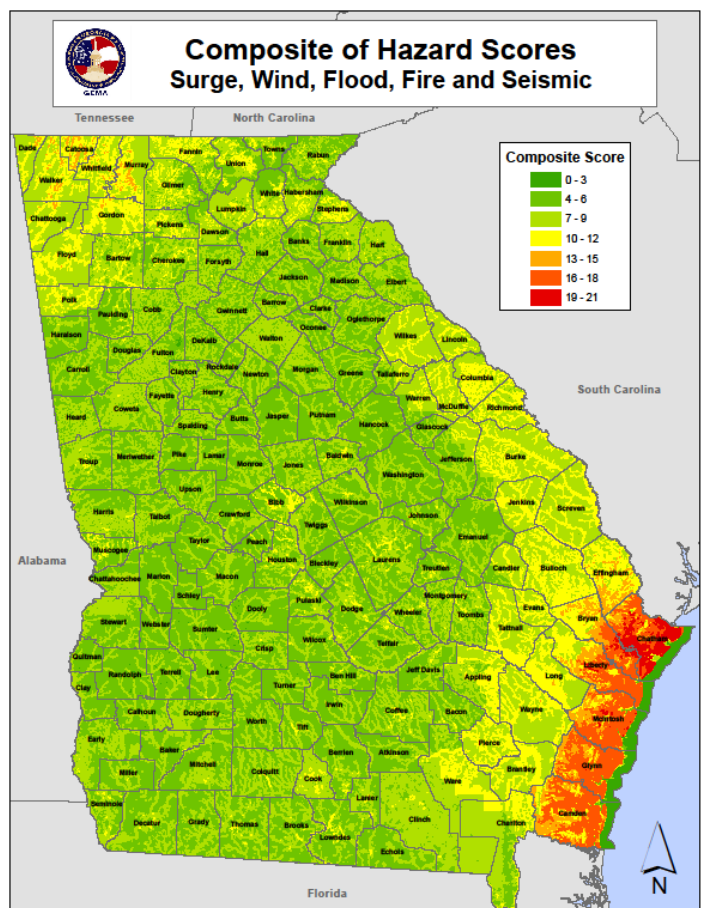


Figure 2.56 Composite Hazard Scores for Georgia

County	Average Hazard Score
Chatham County	13.8
Bryan County	13.3
Liberty County	12.8
Glynn County	12.6
Camden County	12.1
McIntosh County	12.0
Effingham County	11.1
Catoosa County	10.2
Whitfield County	10.0
Walker County	10.0

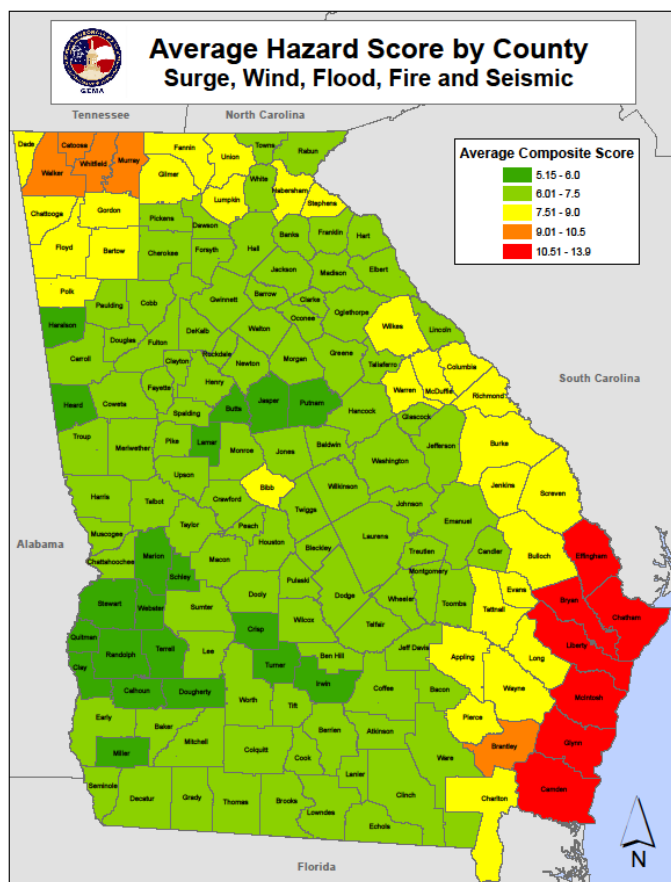
**Table 2.38 Counties with Highest Average Hazard**

County	Composite Score (Hazard+SoVI)
Chatham County	15.3
Clay County	13.9
Hancock County	13.5
Wilcox County	12.6
McIntosh County	12.4
Telfair County	11.7
Glynn County	11.4
Stewart County	11.2
Taliaferro County	11.2
Calhoun County	10.9

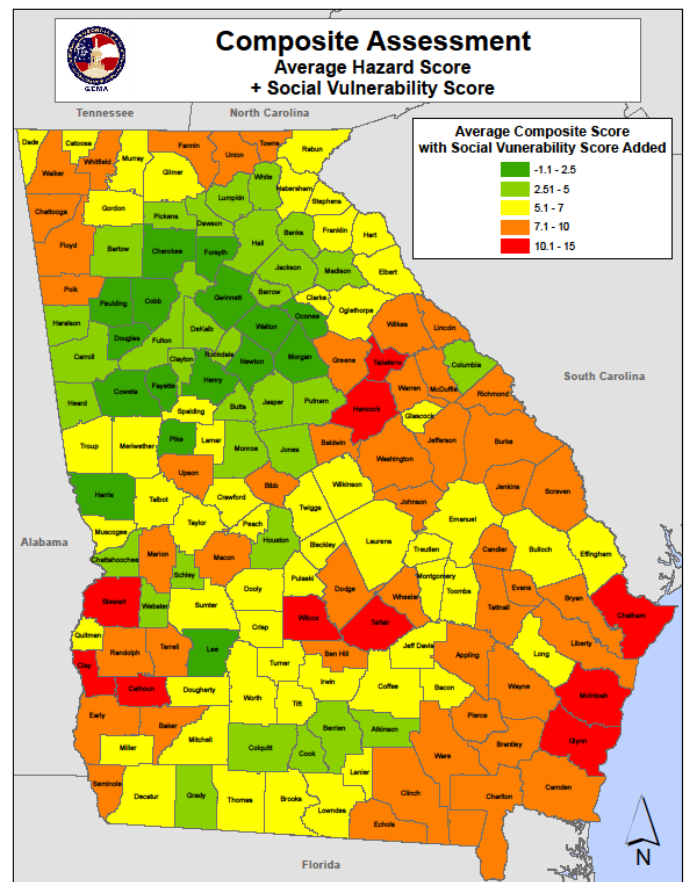
**Table 2.39 Counties with Highest Composite Score**

coast is mainly at risk to flooding events (storm surge and inland flooding) while the mountainous north is more at risk to seismic events along with inland flooding. The most at risk counties (based on average) and their respective scores are found in Table 2.38.

When combining the hazard score with social vulnerability scores from section 2.6, an estimate of total risk can be calculated for each county. Figure 2.58 combines the average hazard score with the SoVI score for each county. These scores are categorized by quantiles (equal units in each category-



**Figure 2.57 Average Hazard Score by County**

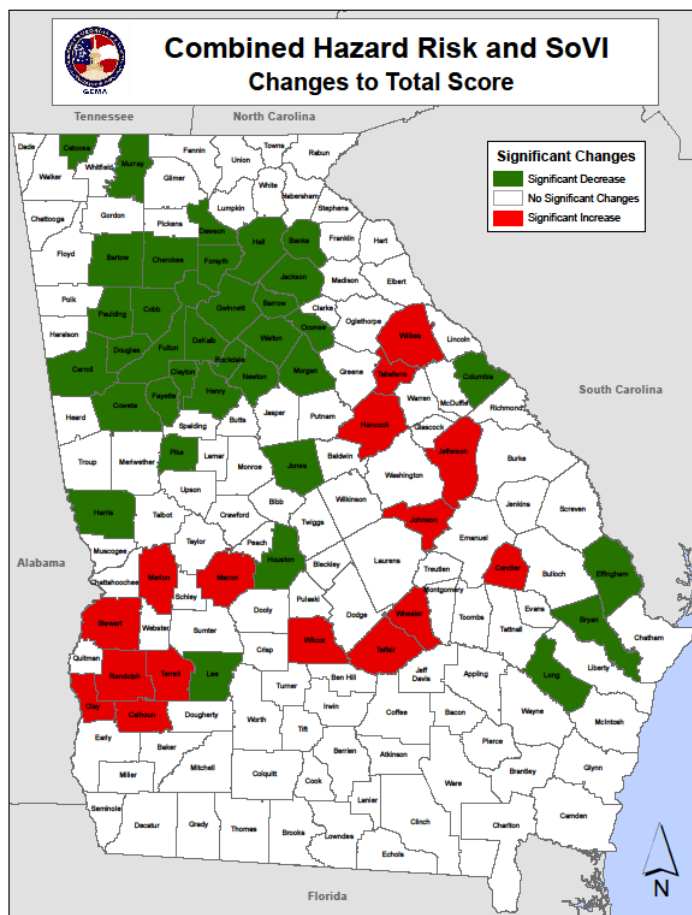


**Figure 2.58 Combined Hazard Risk and SoVI**

ry) into five groups. The red and orange counties represent the most at risk and vulnerable counties within the State of Georgia while the green counties represent the least at risk and vulnerable. The counties with the highest combined score are listed in Table 2.39.

Adding social vulnerability to the hazard scores changes the risk for several counties and Figure 2.59 illustrates those counties with significant change. Counties with less risk, increased in score because of high SoVI scores. As section 2.6 described, these are the counties where the ability of the population to prepare, respond, and recover comparatively has less capacity than other counties. In contrast, the total risk to some counties was reduced since the population of these counties exhibit greater potential for preparation, response, and recovery.

Also of importance is the change in development in jurisdictions that are high or low risk. The data indicates, for example, that growing suburban communities surrounding larger Metropolitan Statistical Areas, have lower SOVI scores, which when added to the composite scores, lowered the overall assessed vulnerability of those communities. Examples of this include Richmond, Harris, Lee and Clayton Counties, which surround Augusta, Columbus, Albany and Atlanta, respectively. This would seem to suggest that population increases due to suburban development tend to lower a community's overall vulnerability. Additional analysis will be necessary to determine the SOVI variables that directly cause this, as well as effects of other population changes on vulnerability over time. If these changes in development continue, the changes may impact future risk and vulnerability assessments. However, because variables related to growth and development are included in SoVI and, therefore, included in the composite assessment, the ranking of the most vulnerable and most at risk has been updated to reflect the most current SoVI scores.



**Figure 2.59 Combined Hazard Risk and SoVI**

## 2.8 LOSS POTENTIAL

At present, the best available method to estimate potential losses is in relation to two types of facilities: state-owned or leased facilities and locally-reported critical facilities. The analysis derives critical facility data from the Georgia Mitigation Information System (GMIS). This system allows authorized users to add local critical facility data to an accessible database and to also generate reports against Hazard datasets. Since completion of the last Hazard Mitigation plan, GMIS has continued to be enhanced in order to make the tools and data as useful as possible. Completion of each county's critical facility data is required by GEMA through the local planning process. This section presents



information on critical facility loss potential to local jurisdictions and state facilities. Information on repetitive loss properties is also presented.

The biophysical vulnerability has the potential to increase or decrease because of changes in development. Therefore, as vulnerability changes because of development, the estimates of loss change as well. With increases in development in the higher hazard areas, the estimates of loss will increase accordingly. With the inclusion of the monetary potential for loss for both state facilities and critical facilities in this update, future updates may address the impacts of development on these numbers by calculating the changes in value at risk and standardizing the difference using an indicator of development such as population change. Completed mitigation projects such as acquisitions are a minor change in development that have possibly decreased loss estimates for those areas. Since the 2011 GHMS there have been 87 number acquisition projects completed. GEMA Hazard Mitigation staff are in the process of developing additional methods for tracking development changes as it applies to loss potential.

**2.8.1 Estimating Potential Losses by Jurisdiction**

Critical facility data for this analysis include structures that should continue to function and provide services in some capacity (not necessarily normal purpose) to surrounding populations during and after a hazard event. Typical critical facilities include hospitals, fire stations, police stations, critical record storage, schools, and similar facilities. As of July 1, 2013 the GMIS database includes 18,143 locally-reported critical facilities. There have been a decrease of 140 critical facility records added to the database since the last plan was produced.

The GMIS database is also designed to include numerous attributes to each locally-reported critical facility. As implied, the accuracy of the facility information relies on the participation of local officials using the GMIS. Therefore, as locals continue to add to the database, the data continue to improve. These attributes are identified in

Facility Name	Valuation Year
Location Coordinates	Building Valuation Type
Jurisdiction	Critical Facility Type
Area square footage	Occupancy
Building Value	

**Table 2.40 GMIS Critical Facility Attributes**

Table 2.40. In order for the record to be considered complete in the GMIS system, all of the attributes must have been reported by the local officials. However, these analyses include the incomplete records as well in order to complete the risk assessment for the critical facilities. The information presented in this analysis utilizes the attributes of the estimated value and the occupancy type because these attributes were the most complete within the system.

Including the locally-provided GMIS data in the GIS hazard maps allows the spatial joining of the critical facility data with the composite hazard assessment. Also, the GMIS data are used to summarize percentages of critical facilities located in specific hazard categories (high to low composite hazard scores) as well as summarize the estimated value of the critical facilities at varied risk to hazards. These summaries are found in Tables 2.41 and 2.42.

As the tables illustrate, the majority of total critical facilities and the greatest amount of estimated value of those critical facilities reside in the low hazard zone. All of the facilities are included in the spa-

Hazard Category	Hazard Score Range	Total Facilities	%Total Facilities
High	18-25	59	0.3%
Moderate	9-17	1395	7.7%
Low	0-8	16,681	91.9%

**Table 2.41: Local Critical Facilities by Hazard Category**

Hazard Category	Hazard Score Range	Estimated Value at Risk	% Total Value
High	18-25	\$16,725,605	0.02%
Moderate	9-17	\$16,469,725,013	19.9%
Low	0-8	\$66,171,116,486	80.1%

**Table 2.42: Local Critical Facility Value at Risk According to Hazard Categories**

tial join with the composite hazard assessment. In terms of the estimated value of critical facilities at risk, 84.6% of the facilities are represented.

Table 2.43 identifies the most commonly found critical facility types that are in GMIS. These percentages reveal the types of critical facilities that counties are reporting into the GMIS. All of these facilities fit the definition of critical facility: structures that should continue to function and provide services in some capacity to surrounding populations during and after a hazard event.

Building Type	% of Total	Building Type	% of Total
Other	26.5	MSWL	0.5
Water System	14.9	State Prison	0.4
Fire Station	9.5	SL	0.4
Public University	9.4	Primary School	0.4
Elementary School	5.6	Landfill	0.4
Wastewater Treatment Plant	4.0	Public Vocational Technical School	0.4
City Hall	3.0	Transfer Station	0.4
Emergency Services	2.7	Hospital, Emergency Entrance	0.3
Police Station	2.4	Middle/High School	0.3
Private School	2.0	City Jail	0.3
Middle School	2.0	C&D	0.2
Library	1.8	County Correctional Institution	0.2
High School	1.4	Adult Edu. Center	0.2
Courthouse	1.3	Alternative School	0.2
High School, Public	1.1	Recycling Center	0.2
Public Four-Year College	1.0	Private Four-Year College	0.2
Hospital, Admissions Entrance	1.0	Psychoeducational	0.1
Other School	0.9	Private University	0.1
Airport	0.8	Private Two-Year College	0.1
Sheriff's Office	0.8	Federal Penitentiary	0.1
Public Two-Year College	0.8	Marshal's Office	0.1
County Jail	0.7	Kindergarten	0.1
Pre-kindergarten	0.7	Alternative Division	0.0

**Table 2.43: Critical Facility Types: Percentage of Total Reported**



In order to evaluate the monetary potential for loss by jurisdiction, the locally-reported critical facility data was utilized in conjunction with the average composite hazard scores. This evaluation results in the Table 2.44 which ranks the counties based on the highest value per facility, the highest average risk score per facility, and a combination of the two. As the table illustrates, these jurisdictions have potential for higher losses to the self-reported critical facilities due to having a high average value per facility, a high average risk score per facility, and high average standardized score (the average value standardized by the average risk). Table 2.45 lists the jurisdictions with the highest total value in critical facilities, as reported in the GMIS.

Rank	High Avg. Value / Facility	High Avg. Risk / Facility	High Avg. Standardized
1	Habersham County	City of Tybee Island	Habersham County
2	City of Warner Robins	City of Brunswick	City of Marietta
3	Heard County	Chatham County	City of Warner Robins
4	City of Marietta	City of Richmond Hill	Heard County
5	Effingham County	Glynn County	City of Perry
6	Town of Portal	City of Garden City	Cobb County
7	City of Perry	Town of Thunderbolt	City of Austell
8	City of Canton	City of Savannah	Effingham County
9	Cobb County	City of Port Wentworth	Town of Portal
10	Tattnall County	Liberty County	City of Canton

**Table 2.44: Rankings of Potential for Loss by Jurisdiction**

Rank	High Value/Facility
1	Habersham County
2	City of Marietta
3	City of Savannah
4	Cobb County
5	City of Warner Robins
6	Columbus-Muscogee County
7	Augusta-Richmond County
8	Fulton County
9	City of Rome
10	Heard County

**Table 2.45: Rankings of Total Value of Critical Facilities by Jurisdiction**

### **2.8.2 Assessing Vulnerability of State Facilities**

The BLLIP database provides information on state-owned and leased properties as well as other assets such as radio and fire towers. This data is provided and sponsored by the Georgia Building Authority (GTS), Georgia State Financing and Investment Commission (GSFIC), State Properties Commission (SPC), and Commission for a New Georgia in collaborations with the Information Technology Outreach Services (ITOS) division of the Carl Vinson Institute of Government at the University of Georgia.

Currently, the database includes 19,626 structures with 14,360 being state-owned, 2,367 being state-leased structures, and 2,899 other assets. The location of these state facilities are depicted in Figure 2.60. The greatest liability to the state is from state-owned facilities. The average composite hazard risk for State-owned properties is provided in Figure 2.61 by county they are located in. The state-owned facilities located in coastal counties are at the highest risk to hazard events.

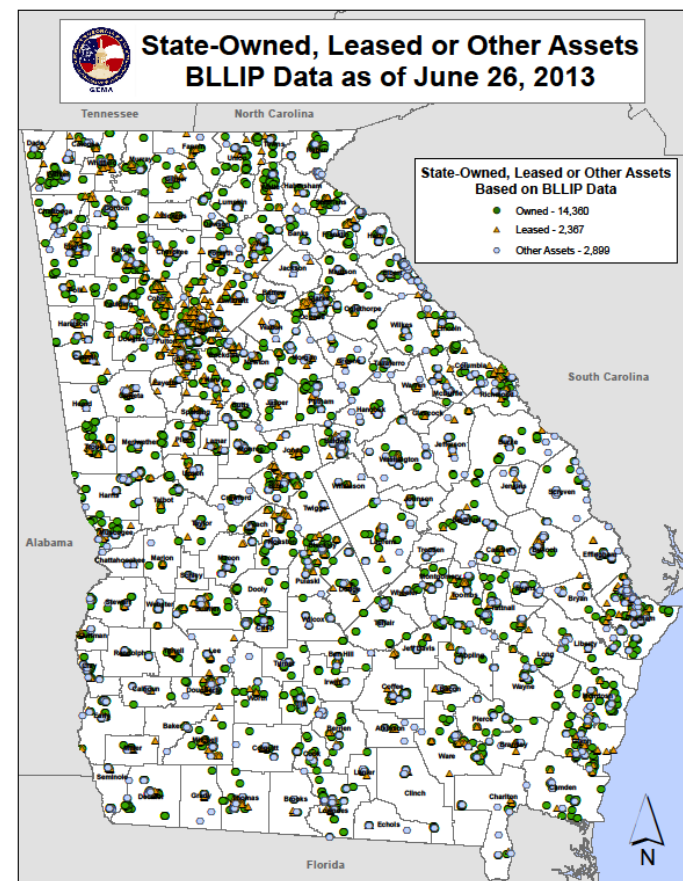
State Asset Type	2007	2010	2013
Owned	13,222	20,574	14,360
Leased	1,665	2,391	2,367
Other	N/A	1,800	2,899
Total	14,887	24,765	19,626

**Table 2.46 State Asset Totals According to BLLIP Data by Year of Data**

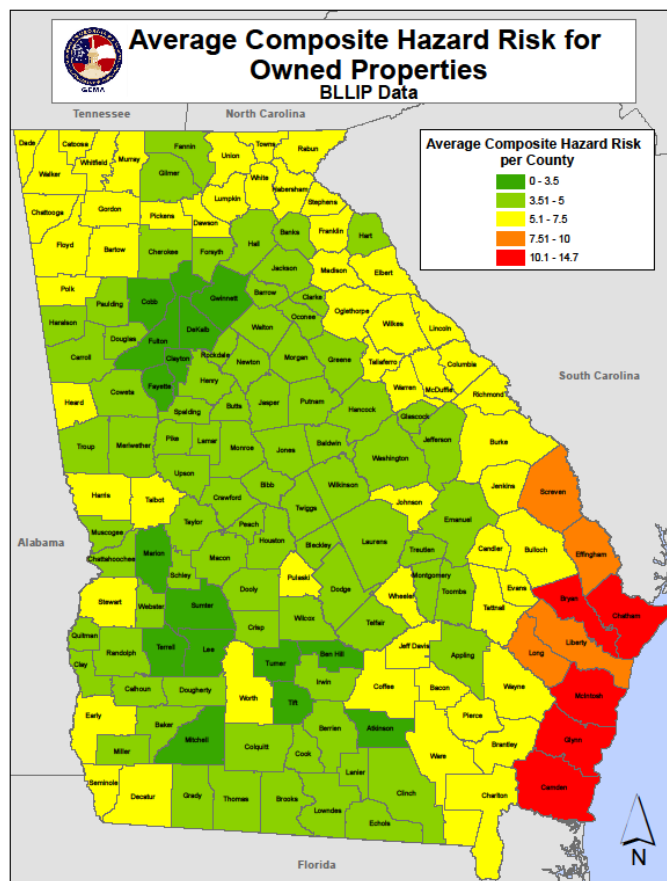
The BLLIP database is designed to include a plethora of information regarding state-owned and leased facilities. The authorities listed above continue to improve the database so that all the attribute data is complete. BLLIP facility attributes are identified in Table 2.47.

Location information	Insured value
Occupying entity	Estimated value
Owning entity	Fire code compliance
Total floors	Historic value
Square footage	Contents value
Percentage occupied	Contact information
Construction year	

**Table 2.47 BLLIP Facility Attributes**



**Figure 2.60 Location of State Assets**



**Figure 2.61 Risk to State-Owned Properties**

as state hospitals or prisons); however, all state-owned and leased facilities are included in the BLLIP database. The most consistently complete of the attributes was the estimated value. Therefore, this attribute was reported in Tables 2.48 and 2.49 to illustrate the amount at risk in the hazard categories.

Including the BLLIP data in the GMIS allows the spatial joining of the structure data with the composite hazard assessment. In other words, each point spatial feature (BLLIP structure) is assigned the attribute information of the raster cell (composite hazard score) in which point falls. For example, the spatial joining assigns GEMA's Building 5 the hazard score of 6 (on a scale of 25).

In terms of statewide analyses, the BLLIP data are used to summarize percentages of state facilities located in specific hazard categories (high to low composite hazard scores) as well as summarize the estimated value of the structures (state-owned only) at varied risk to hazards. These summaries are found in Tables 2.48 and 2.49.

Hazard Category	Hazard Score Range	% Owned	% Leased	% Total Facilities
High	18-25	0.6%	0.1%	0.5%
Moderate	9-17	6.7%	3.3%	6.2%
Low	0-8	84.0%	57.2%	80.2%
None	Undetermined	8.7%	39.4%	13.1 %

**Table 2.48: State Facility Percentages in Hazard Categories**

Hazard Category	Hazard Score Range	Estimated Value at Risk	% Total Value
High	18-25	\$15,870,561	0.1%
Moderate	9-17	\$1,178,706,274	6.1%
Low	0-8	\$17,010,654,127	87.8%
None	Undetermined	\$1,158,429,485	6.0%

**Table 2.49: State Facility Value at Risk According to Hazard Categories**

As Table 2.48 illustrates, the majority of total structures reside in the low hazard zone areas. Likewise, the greatest value of state owned properties are in the low hazard areas of the state as shown in Table 2.49. Some records had invalid coordinates which led to the categorization of undetermined for these structures. Most likely, the facilities that are located in the highest hazard areas are located in the counties with the highest average composite risk: the coastal counties in eastern Georgia and the mountainous counties in northern Georgia.

Note that the value totals and facility totals are based on the BLLIP data, which is not completely whole. In terms of the state facility percentages in the various hazard zones, only 8.7% of the state-owned structures and 39.4% of the state-leased structures are represented due to invalid coordinate information. In terms of the estimated value of structures at risk, only 80.9% of the structures are represented due to incomplete value information. Therefore, one may assume that the estimated value at risk in each category is underrepresented substantially.

### 2.8.3 Repetitive Loss Properties

The State of Georgia utilizes several federal hazard mitigation programs to mitigate repetitive and severe repetitive loss properties. These programs include the Hazard Mitigation Grant Program (HMGP), the Flood Mitigation Assistance (FMA), the Pre-Disaster Mitigation Competitive (PDM-C) program, and the Repetitive Flood Claims (RFC) program. The various federal programs have the ability to provide funds to assist states and communities in reducing flood damages to insured properties that multiple claims to the National Flood Insurance Fund. Eligible mitigation activities include property acquisition (includes either demolition or relocation, where the property is deed restricted for open space in perpetuity), property elevation, dry flood proofing of non-residential structures, and minor localized flood control projects.

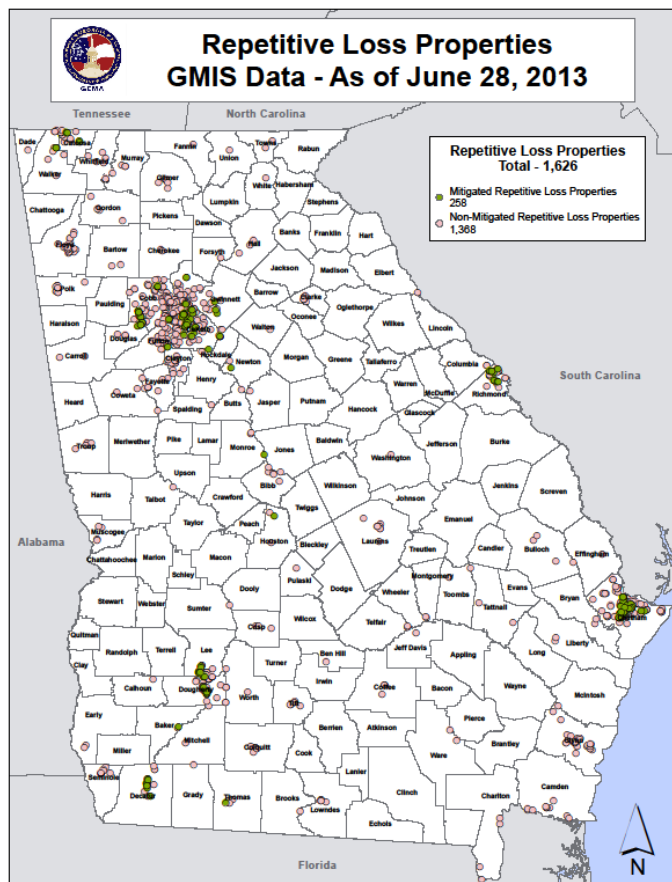
In order for this strategy to target repetitive loss properties, including severe repetitive loss properties, those properties must be documented and mapped for further analysis. In 2012, the Federal Register was updated with new definitions for Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties. For the purposes of comparison to 2011 data, the figures presented in this section are based on the definition used in 2011 assessment.

In order to assess the risk associated with the repetitive loss properties, the point location of every property was aligned with the inland flood hazard score previously discussed from section 2.7. The results are provided in Table 2.50. The numbers include both mitigated and non-mitigated repetitive loss properties. The significant increase of RL properties between 2004 to 2007 and 2007 to 2010 is a result of major flood events during those timeframes. Between 2010 and 2013, there were no major flood events in Georgia; therefore, the change in property totals was negligible. Analyzing location of RL properties in relation to special flood hazard areas did not begin until the 2007 data; therefore, the 2004 data does not have the number of properties located within each flood hazard category.

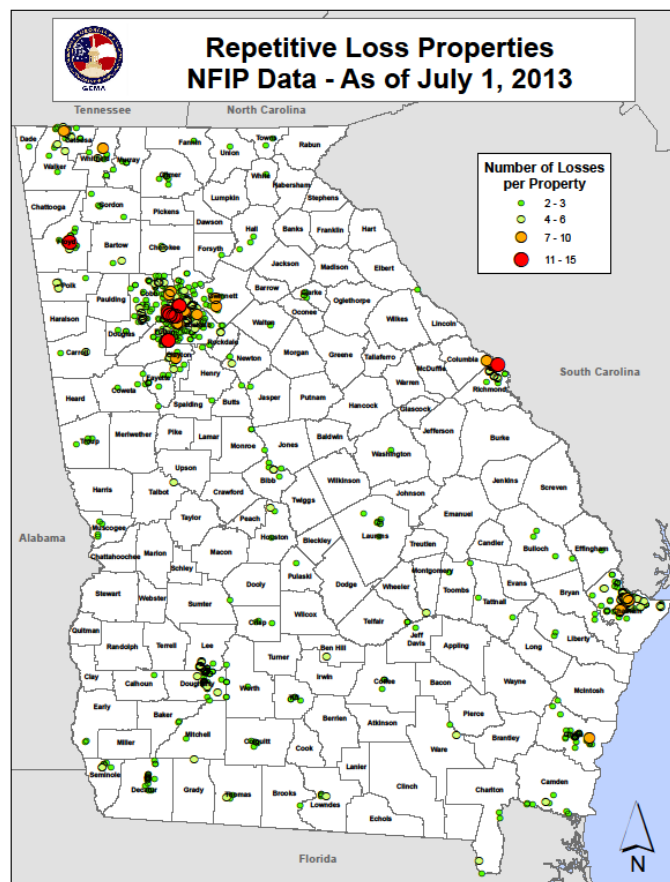
<b>Flood Hazard Category</b>	<b>2004</b>	<b>2007</b>	<b>2010</b>	<b>2013</b>
Floodway / Velocity	N/A	168	135	157
100 Year Floodplain	N/A	450	668	739
500 Year Floodplain	N/A	82	106	126
Undetermined/Possible	N/A	518	701	604
<b>Total</b>	<b>811</b>	<b>1218</b>	<b>1610</b>	<b>1626</b>

**Table 2.50: Total Repetitive Loss Properties in Flood Hazard Zones by Year of Data**

The first column in this table refers back to Table 2.35 in section 2.7 that details the flood hazard scores. In reference to repetitive loss properties, this table reveals that between 2010 and 2013 there was an increase in RL properties in identified flood hazard areas and a decrease in RL properties where location in relation to a flood hazard area was not known. Reasons for this change include floodplain mapping improvements in the state and updates to the location data in the Repetitive Loss property database. Figure 2.62 shows the general location of mitigated and non-mitigated Repetitive Loss properties.



**Figure 2.62 Repetitive Loss Properties**



**Figure 2.63 Number of Losses Per RL Property**

Figures 2.63 through 2.66 illustrate various aspects of the repetitive loss properties in Georgia that are helpful in identifying opportunities to reduce risk. The first map, Figure 2.63 illustrates the total number of losses per property using graduated symbols. As this map indicates, clusters of repetitive loss properties are located in the metropolitan Atlanta, Augusta-Richmond, Lee and Dougherty Counties and Savannah/Chatham County areas. Those properties with frequent flood claim losses are possible locations for mitigation actions.

The second map, Figure 2.64, illustrates the municipalities with the highest totals of repetitive loss properties. Figure 2.65 illustrates the communities with the highest sums of insurance claim payments to the repetitive loss properties. These communities with high numbers of RL properties or highest total losses from flood claims are ideal targets for outreach to reduce risk and implement mitigation actions. More information on number of RL properties and total losses by community can be found in Chapter 4, section 4.3.3.



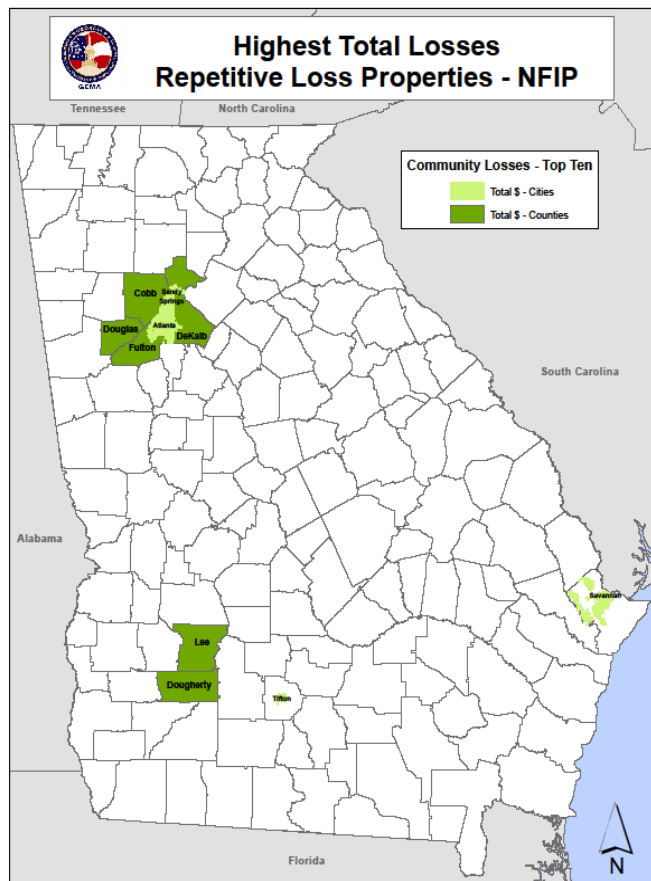


Figure 2.65 Top 10 Communities by Total RLP Losses.

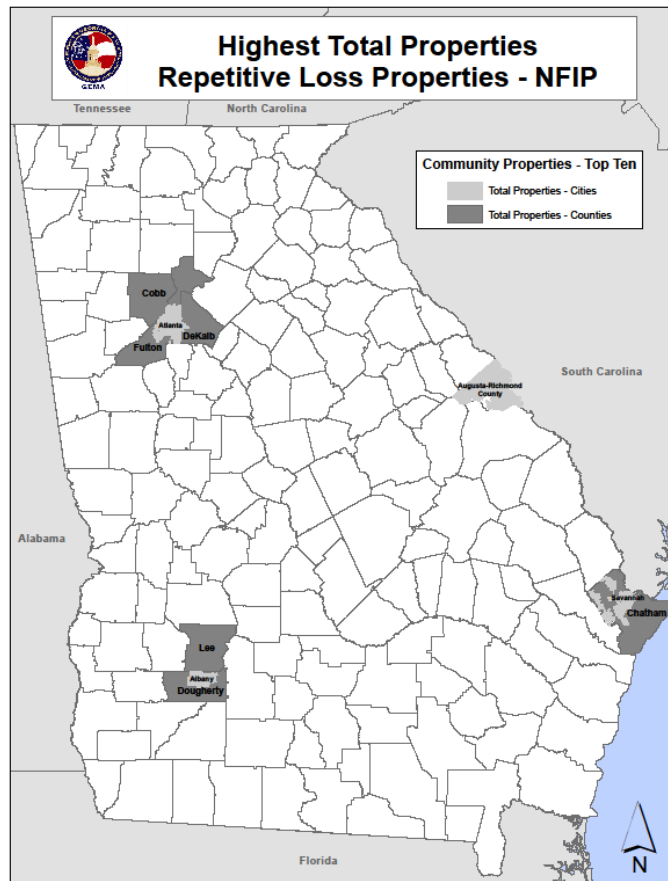


Figure 2.64 Top 10 Communities by Total RL Properties

Table 2.51 identifies the number of validated Severe Repetitive Loss Properties by jurisdiction and is visualized in Figure 2.66. There was a decrease in the number of validated SRL properties from 62 to 51 since 2010. As the number of validated SRL properties changes from month to month, most of this change is likely due to changes in flood insurance on the properties. Additional information on RL and SRL properties by jurisdiction can be found in Chapter 4, Section 4.3.3.

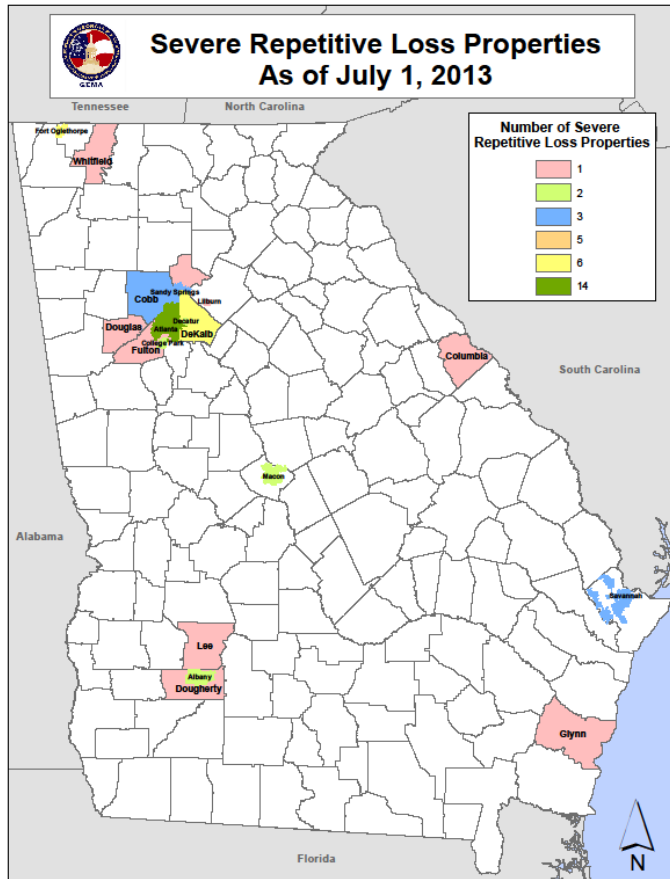


Figure 2.66 Communities with SRL Properties

Jurisdiction	2007	2010	2013
Albany, City of	5	3	2
Atlanta, City of	14	21	14
Austell, City of	2	0	0
Catoosa County	1	1	0
Clayton County	1	0	0
Cobb County	4	5	3
College Park, City of	0	2	2
Columbia County	0	1	1
Dalton, City of	1	0	0
Decatur County	2	0	0
Decatur, City of	3	2	2
DeKalb County	5	5	6
Dougherty County	3	3	1
Douglas County	1	2	1
Fort Oglethorpe, City of	1	2	6
Fulton County	1	0	1
Glynn County	1	1	1
Gwinnett County	1	0	0
Houston County	1	0	0
Lee County	2	2	1
Lilburn, City of	0	1	1
Macon, City of	2	2	2
Powder Springs, City of	0	1	0
Rockdale County	0	1	0
Rome, City of	1	0	0
Sandy Springs, City of	0	2	3
Savannah, City of	6	3	3
Seminole County	0	1	0
Troup County	1	0	0
Whitfield County	0	1	1
<b>Total</b>	<b>59</b>	<b>62</b>	<b>51</b>

Table 2.51 Validated Severe Repetitive Loss (SRL) Properties by Jurisdiction



# Chapter 3: State Mitigation Strategy

## 3.1 OVERVIEW

The summary of changes to Chapter 3 of Georgia's Hazard Mitigation Strategy/Plan since the 2011 approval are listed in the following table, Table 3.1.

Chapter 3 Section	Updates to Section
3.1 Overview	<ul style="list-style-type: none"><li>• Updated table of changes.</li><li>• Updated text</li></ul>
3.2 Georgia Mitigation Strategy	<ul style="list-style-type: none"><li>• Revised text to include additional information</li><li>• Goal text revised, content updated.</li><li>• Deleted objectives</li><li>• Organized actions into the 4 categories</li><li>• Added actions from state appendices into action plan</li><li>• Updated gaps and obstacles</li><li>• Describes new action plan table</li><li>• Revised to include additional analysis on local plan review; Text and data moved from Chapter 4</li></ul>
3.3 State Capability Assessment	<ul style="list-style-type: none"><li>• Updated state agency capabilities and consolidated into tables</li><li>• Moved funding information to 3.5</li></ul>
3.4 Local Capability Assessment	<ul style="list-style-type: none"><li>• Updated text and tables</li><li>• Added maps and tables</li></ul>
3.5 State and Local Funding Sources	<ul style="list-style-type: none"><li>• Consolidated into summary of funding sources</li></ul>

**Table 3.1 Summary of Changes to Chapter 3**

Chapter 3 of the Georgia Hazard Mitigation Plan was reviewed and updated by GEMA's Hazard Mitigation Planners. The planning staff revised each section as necessary to reflect the updated mitigation strategy, based on accomplishments, current activities and the integration of current local multi-jurisdictional hazard mitigation plans and state agency inputs.

This chapter provides the State of Georgia's Strategy toward resilience. Based on the findings of the *Risk Assessment* and the state-level *Capability Assessment*, the goals and actions that follow are intended to guide state agencies, counties, cities, towns and non-governmental organizations toward resilience in regard to the many hazards that plague this region. In order to achieve these aims, this section has been separated into the following components:

- Goals and Actions
- State Capability Assessment

- Local Capability Assessment
- State and Local Funding Sources

This chapter discusses the concept and approaches of mitigation in order to clarify the State's mitigation strategy. Mitigation is a combination of sustained measures and actions that attempt to reduce or eliminate the long-term risk to people and property from hazards. The main methods of mitigation include (1) modifying the hazard event; (2) reducing human vulnerability; and (3) reducing losses.

The State of Georgia's mitigation strategy is an ongoing effort to identify the goals, and actions that will reduce or eliminate losses from natural hazard events.

## 3.2 GEORGIA MITIGATION STRATEGY

### 3.2.1 Overview

The Mitigation Strategy serves as the blueprint for how Georgia will reduce vulnerability and risk to the hazards identified in Chapter 2. The mitigation strategy is made up of three main components: mitigation goals, mitigation actions, and an action plan for implementation. These provide the framework to identify, prioritize, and implement actions to reduce risk to hazards. For the purposes of this mitigation strategy, the following FEMA definitions were used.

*Mitigation goals* are general guidelines that explain what the State wants to achieve with the plan (see Figure 6.1). They are usually broad policy-type statements that are long-term, and they represent visions for reducing or avoiding losses from the identified hazards.

*Mitigation actions* are specific projects and activities that help achieve the goals.

The *action plan* describes how the mitigation actions will be implemented; including how those actions will be prioritized, administered, and incorporated into the State's existing planning mechanisms, policies and programs.

Mitigation actions fall into four categories, including Planning and Regulation, Structure and Infrastructure Protection, Natural Resources System Protection, and Public Awareness and Education. Table 3.2 provides descriptions and examples of each category.



Figure 3.1 Mitigation Strategy

Mitigation Category	Description	Examples
Local Plans and Regulations	These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.	<ul style="list-style-type: none"> <li>• Comprehensive plans</li> <li>• Land use ordinances</li> <li>• Subdivision regulations</li> <li>• Development review</li> <li>• Building codes and enforcement</li> <li>• NFIP Community Rating System</li> <li>• Capital improvement programs</li> <li>• Open space preservation</li> <li>• Stormwater management regula-</li> </ul>
Structure and Infrastructure Projects	<p>These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure.</p> <p>This type of action also involves projects to construct manmade structures to reduce the impact of hazards.</p> <p>Many of these types of actions are projects eligible for funding through the FEMA Hazard Mitigation Assistance program. <i>Task 9 – Create a Safe and Resilient Community</i> provides more information on these programs.</p>	<ul style="list-style-type: none"> <li>• Acquisitions and elevations of structures in flood prone areas</li> <li>• Utility undergrounding</li> <li>• Structural retrofits.</li> <li>• Floodwalls and retaining walls</li> <li>• Detention and retention structures</li> <li>• Culverts</li> <li>• Safe rooms</li> </ul>
Natural Systems Protection	These are actions that minimize damage and losses and also preserve or restore the functions of natural systems.	<ul style="list-style-type: none"> <li>• Sediment and erosion control</li> <li>• Stream corridor restoration</li> <li>• Forest management</li> <li>• Conservation easements</li> <li>• Wetland restoration and preservation</li> </ul>
Education and Awareness Programs	These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady or Firewise Communities. Although this type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. A greater understanding and awareness of hazards and risk among local officials, stakeholders, and the public is more likely to lead to direct actions.	<ul style="list-style-type: none"> <li>• Radio or television spots</li> <li>• Websites with maps and information</li> <li>• Real estate disclosure</li> <li>• Presentations to school groups or neighborhood organizations</li> <li>• Mailings to residents in hazard prone areas.</li> <li>• StormReady</li> <li>• Firewise Communities</li> </ul>

**Table 3.2 Categories of Mitigation Actions. Source: FEMA Local Mitigation Planning Handbook**

### **3.2.2 Review and Assessment of 2011 GHMS Goals**

The 2011 GHMS included the following three goals:

1. Reduce human vulnerability to hazard events.
2. Reduce the losses associated with hazard events.
3. Reduce overall exposure to hazard events for Georgia citizens and their property.

The State of Georgia reviewed these to ensure that these goals are consistent with State priorities and remain valid. The State's priorities have not changed since the completion of the 2011 GHMS. The goals were found to be consistent with State priorities and valid and, therefore, remain unchanged.

### **3.2.3 Updating the Mitigation Action Plan**

The State of Georgia used a combination of multiple tools and processes to create the updated mitigation action plan. These include the updated risk assessment, review of the mitigation actions from the 2011 plan, review of mitigation actions from local plans, review of practices from other state plans and input from multiple State and non-governmental agencies throughout the State.

In order for a mitigation plan to be effective, the mitigation goals and actions must address the hazards identified in the risk assessment. Once the State had completed updating the risk assessment, this information was used to ensure the updated goals and actions addressed the updated risks and vulnerabilities posed by the identified hazards. One tool that was used to do this was a workshop held in April, 2013 where various State agencies and non-governmental partnering agencies gathered to review the updated risk assessment and determine the types of projects and actions they would like to see, whether planning and regulations, structure and infrastructure projects, natural resource protection or education and awareness programs. Multiple agencies participated in the workshop, including but not limited to FEMA, the Georgia Technology Authority, Department of Audits, Department of Community Affairs, Lyndale, Inc., Volunteers of America, Family Intervention Specialists and the Oconee Center. For a full list of participants, see Appendix B. One key finding of the workshop was the overwhelming majority (75%) of the chosen actions fall within the 'Planning and Regulation' and 'Education and Awareness' categories. For example, 16% of the chosen actions were related to building and development regulations. For details on the chosen categories, please see Table 3.3.

<b><u>Mitigation Type</u></b>	<b><u>FEMA</u></b>	<b><u>State Agencies</u></b>	<b><u>Non-Governmental Organizations</u></b>	<b><u>GEMA</u></b>	<b><u>Totals</u></b>	<b><u>%</u></b>
Planning & Regulations	10	56	50	20	136	40%
Structure & Infrastructure	6	29	25	13	73	21%
Natural Systems Protection	1	6	7	0	14	4%
Education & Awareness Pro-	16	37	54	11	118	35%

**Table 3.3**

While the majority of workshop participants favored the 'planning and regulation' and 'education and awareness,' there are two notable exceptions. Two structural and infrastructure actions that were favored by the workshop participants were burying powerlines and installing mass alert systems. These are notable due to the cost of structure and infrastructure projects. In particular, converting from overhead to buried power lines is a very high cost project and would be difficult to show cost

effectiveness. For full details on the workshop tallies, please see Appendix E

Another tool that was used for updating the mitigation actions is individual interviews with various state agencies conducted by State Mitigation Planning staff. The purpose was to identify specific projects and activities other agencies in the State are planning or conducting. This process identified many new planned actions, as well as many that, while currently in progress, were not included in the 2011 strategy and are, therefore, “new” to the updated mitigation action plan.

During the update process, the State noted the following gaps and obstacles, the first three of which were identified in the 2011 GHMS:

1. The 2011 GHMS noted the state would benefit from incorporating more GIS and other technical information into the hazard mitigation planning process. One major area the State has worked to improve upon is the quality and amount of technical and GIS data that is available and used in, both, local and State Mitigation Planning. The previous strategy included multiple actions to address this issue, including the following:
  - a. Actions 1.10 and 4.8 included development of Community Wildfire Protection Plans (CWPP), which provide greater detail than previously available on local risks of wildfire hazards. These CWPPs are now mostly complete. The State now requires local plans to include relevant data and maps from these CWPPs in risk assessments. The GIS data developed from this project is also included in the State risk assessment for wildfires.
  - b. Actions 2.4 and 2.5 related to RiskMAP studies the Georgia Department of Natural Resources has initiated in various locations in the State. The pilot phase in the Metropolitan Atlanta area is now approximately 90% complete and the next phase, including counties in the coastal Georgia region has been initiated. This information includes site specific flood studies with GIS and technical data that will be available for inclusion in the next updates of the studied counties' local mitigation plans.
  - c. Action 4.4 related to making improvements to the Georgia Mitigation Information System (GMIS). This system is provided as a basic GIS tool for locals to use in developing their risk assessments, as well as an inventory and reporting tool for their Critical Facilities. It is also used as a reporting and mapping tool for State owned and operated facilities. The State of Georgia is in the process of upgrading the system to make it more user-friendly, as well as open the possibility of including future datasets as they become available.
  - d. Action 2.13 related to including and updating data on NFIP repetitive loss properties in the GMIS. This helps local planners in meeting a specific requirement in their local mitigation plans. The State continues to update this data as it becomes available.
  - e. Action 4.10 related to updates to the Flood Hazard Maps throughout the State, as well as inclusion of the locations of high hazard dams. The updated maps have been provided to the affected counties and have been included in the GMIS. The updates to the flood maps are now complete. Dam locations, while not included in GMIS have been included in the State Mitigation Strategy as new dams are built, the dam location dataset will be updated.

2. Many state residents did not realize hazard mitigation planning activities were occurring in the area. This part of the process is primarily up to local planners as they update the local mitigation plans. GEMA's Mitigation Planning staff, however, works closely with the local planners and encourages multiple forms of public participation. Encourage FEMA template for news releases; public notices during planning process;
3. Local communities in the state were unaware of the types of assistance available to them for hazard mitigation planning. Action 2.7 in the 2011 GHMS related to two process the GEMA Mitigation staff uses in order to address this. In the aftermath of Presidentially declared disasters, the staff deploys to affected areas and hosts post disaster briefings where the potential for HMGP funding for planning and projects is discussed with declared counties. Also, GEMA hosts specific training for all new Emergency Management Directors. A portion of this training is focused on hazard mitigation, including the programs available and the potential funding for projects and planning. Finally, as described in section 4.4.1, the State Mitigation staff maintains a list of counties prioritized by the expiration dates of their plans and reached out to the prioritized communities, letting them know of the need to update their plans and the potential for funding assistance.
4. The GHMS would benefit from improved methods of incorporating state and local mitigation actions. While this was not noted in the previous strategy, it was a concern identified by the State mitigation planning staff in the initial phases of the current update. The State Mitigation Planning staff did three things in order to address this issue. The workshops described in Chapter 1 were new to Georgia's planning process and provided a way to better capture input from multiple State agencies and partnering non-governmental organizations. Also, the staff specifically reached out to several of the larger State agencies with individual interviews to include the projects those agencies had in process that were related to mitigation. These two processes allowed the mitigation planning staff to incorporate types of mitigation actions the workshop participants perceived as a high priority as well as include projects various State agencies have planned or in progress that have a mitigation effect. Finally, in revising the mitigation action plan, described below, part of the effort was to ensure mitigation actions noted in the local plans were adequately included in the State's action plan.

The State of Georgia also reviewed the 2011 Action Plan, first, to ensure that the goals continued to address the updated risk assessment. The next step was to review the action steps according to the following criteria:

1. Assess their progress.
2. Determine their validity based on the State's capabilities and the current risk assessment.
3. Ensure they contribute to the identified goals.
4. Ensure the actions are cost effective, technically feasible and environmentally sound.
5. Identify actions that could be refined, expanded or deleted.
6. Ensure the updated action plan accurately and completely describes what the State of Georgia, including all agencies, is currently doing or plans to do over the coming years.
7. Ensure the updated Action Plan addresses all relevant needs as identified by State agen-

cies and local mitigation plans.

8. Determine whether the Action Plan is presented in the most effective, concise manner.

The majority of the actions from the 2011 GHMS were listed as ongoing. Upon review, the State found these actions were still ongoing. One key finding of the review was that, while valid, many of the actions in the previous plan were vague. The State, therefore, began to revise the actions, sometimes separating one action into multiple, more specific actions, in order to more clearly define what, exactly, is being done. One method the State used for this was to look at examples from other state plans to see how relevant actions were described by other states. This provided a method for more clearly stating many of the actions in the 2014 update without “reinventing the wheel.”

### **3.2.4 Local Plan Review**

GEMA staff reviewed all local hazard mitigation plans to identify mitigation actions communities were proposing in order to reduce their identified risks and vulnerabilities to natural hazards. Results of this analysis are provided in Tables 3.4 and 3.5. This information was considered in the development of the updated 2014 Action Plan. The two tables are color coded such that the mitigation types in Table 3.4 are colored to match the FEMA Mitigation Categories they apply to in Table 3.5. Mitigation types that have no color do not fall within the FEMA mitigation categories and are response and preparedness type actions that have consistently been included in local mitigation plans. Examples of State mitigation actions related to local plans include, but are not limited to the following:

- Continue supporting the use of state of the art warning technology and local warning projects with available initiative funds
- Support local government cost-effective requests through available grant opportunities to mitigate repetitive loss properties with priority given to severe repetitive loss properties and removal of repetitive loss properties from regulatory floodway
- Continue to give priority to projects identified in local mitigation plans that minimize damages to critical facilities

Table 3.4 shows changes in the percentages from the 2011 GHMS. One key observation is the higher changes in 3 of the mitigation action types. The percentage of counties identifying ‘planning and zoning’ and ‘additional analysis’ as mitigation actions decreased from 88% and 64% to 76% and 47% respectively. In addition, the percentage of counties identifying ‘Emergency Response Operations’ type actions increased from 62% to 75%. Further analysis will be necessary to determine whether these trends are indicative of concerns which would require the modification of the Action Plan.



Mitigation Type	% of counties identifying Action		Change from
	2011 GHMS	2014 GHMS	
Public Outreach	93%	94%	1
Warning / Communications	86%	92%	6
Flood Programs (NFIP / CRS)	86%	92%	6
Preparedness Efforts	78%	87%	9
Flood Control	74%	82%	8
Planning / Zoning	88%	76%	-12
Structural Retrofit	82%	75%	-7
Emergency Response Operations	62%	75%	13
Equipment Acquisition	81%	73%	-8
Fire Programs (Firewise, etc.)	64%	62%	-2
Drought Management	62%	61%	-1
Broad Cooperation	61%	60%	-1
Additional Analysis	64%	47%	-17
Property Acquisition	35%	35%	0
Dam Management	25%	30%	5
Property Relocation / Elevation	28%	26%	-2
Wetland Protection	22%	22%	0
Greenspace Preservation	18%	13%	-5

**Table 3.4 Local Identification by Mitigation Type**

Mitigation Category	% of Counties Identifying Category
Planning and Regulation	98%
Natural Resources Protection	22%
Structure and Infrastructure Projects	100%
Education and Awareness	98%

**Table 3.5 Mitigation Categories from Local Plans**

### 3.2.5 Action Plan

As described in the previous sections, the State of Georgia undertook a robust process to update the Action Plan from the 2011 GHMS. The process incorporated input from several State agencies and outside organizations, as well as all 159 Georgia counties through incorporation of data from their local hazard mitigation plans. The current action plan was updated to provide a comprehensive, achievable set of actions for the State of Georgia to pursue over the coming years in order to reduce losses, both human and property, to natural hazards. All actions either directly reduce losses to the identified hazards or obtain better, more current information to better understand the risks and vulnerabilities Georgia faces from all natural hazards.

As noted in Section 3.2.3 above, one key finding in the review of the 2011 Action Plan, was many of the actions were vague and actually included several projects being conducted separately by multi-

ple agencies. One major effort in this update was to separate such actions from the 2011 plan such that each project would be its own action in the updated plan. This allowed for more effective assessment of each individual project's status as well as easier identification of the applicable details, such as the lead and support agencies, funding sources, etc.

Another key aspect of the update process was to make the plan itself more concise and usable for interested parties, including local communities to use. One element of this was to shift the focus of the action plan from being heavily focused on GEMA to it being a more statewide plan with each agency responsible for its own actions. For example, in the 2011 Action Plan, Action 3.10 had GEMA as the lead and support agency in the Georgia Forestry Commission's (GFC) project to install safe rooms on their main campus. In the updated plan, GFC would be the lead agency and GEMA would be the support. In another example, the new outreach methods described above allowed the Mitigation Planning staff to become aware of mitigation activities other agencies were undertaking, that were not using FEMA mitigation funding streams and the mitigation staff was not previously aware of. Another element of this was to revise the format of the Action Plan into a more clean, concise presentation. In doing this, the State made several changes to the format of the Action Plan, including the following:

- Elimination of objectives
- Separating the Action Items into the four categories listed in Table 3.5 above
- Listing the applicable goal as part of the details of each Action Item
- Listing the previous item number from the 2011 GHMS.
- Noting the applicable hazard each action item applies to.

Table 3.6 shows the updated 2014 State of Georgia Action Plan. Each action item includes the following details:

- A. Statement naming the action item.
- B. The timeline within which the action is proposed to be completed.
- C. The current status of the action, whether new, ongoing or deferred. Those activities that have not reached "Complete" status are not fully implemented due to a variety of reasons. The activity may be "Ongoing" in that continued small actions are implemented that leave room for more mitigation activity under that objective or action step. The activity may be "New" in that the planning team recently included the activity in the updated Standard Plan. Deferred actions mean no activity occurred, either due to limited funding or staff resources, but the action was reviewed and continues to be valid. Completed and deleted actions are listed separately in Tables 3.7 and 3.8. Deleted means no action was taken or the action was not completed and the action item was deemed no longer valid.
- D. The priority of the action. Part of the prioritization includes a general assessment according to the STAPLEE criteria, which stands for Social, Technical, Administrative, Political, Legal, Economic and Environmental. Also, most items that require grant funding must undergo a full Benefit Cost Analysis, described in Section 4.2.2, to determine that action's actual cost effectiveness prior to funding.
- E. The applicable State goal.
- F. The specific hazard being addressed, if applicable. Many of the actions are applicable to

all hazards, though some are directly applicable to specific hazards. For example, technical assistance for local mitigation plans is applicable to all hazards, where acquisition of flood prone properties would be applicable to the flood hazard.

- G. The Lead Agency. The lead agency is the agency responsible for accomplishing the action.
- H. Supporting Agencies. Supporting agencies are those agencies that are not responsible for the completion of the action, but provide assistance in various ways.
- I. The applicable resources (staffing, funding, etc.) necessary in order to complete the action. The State of Georgia currently uses several funding sources to implement hazard mitigation activity. Primarily, these funds stem from federal, state, and local sources, which include the programs discussed in Section 3.3's assessment of state mitigation policies, programs, and funding and Section 3.5's description of funding sources. The State of Georgia is interested in continuing to pursue these federal, state, and local funding sources throughout the future implementation of the mitigation strategy as well as in pursuing additional private sources
- J. The item number, if applicable, from the 2011 GHMS.
- K. The applicable FEMA category described above.

2014 MITIGATION ACTIONS											
Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	FEMA Category
1	Identify new funding sources to update local mitigation plans	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	FEMA	HMA	1.1	Planning & Regulation
2	Provide assistance to Georgia counties in obtaining grant funding to update local mitigation plans	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	FEMA,	HMA	1.1	Planning & Regulation
3	Conduct plan kickoff meetings with local mitigation planning committees to provide overview of the mitigation planning process	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	Local Communities	Local Budget	1.3	Planning & Regulation
4	Provide tools, such as fillable charts and templates to assist local planners with data collection for the completion of local mitigation plan documents	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	GEMA	HMA	1.2	Planning & Regulation
5	Provide updated mapping to local communities through GMIS for the Flood, Wildfire, Landslide, Seismic, SLOSH and Wind hazards	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	GEMA	HMA	1.1	Planning & Regulation
6	Provide training to local county EMA Directors, planners and state users on entering data into the Georgia Mitigation Information System (GMIS)	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	GEMA	HMA	2.7	Planning & Regulation
7	Collect, quantify and integrate the local data, such as risk assessment, vulnerability, loss estimates, capability assessment, and mitigation actions, from mitigation plans as they are developed into a standardize matrix for use in the State plan	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	GEMA	HMA	1.4	Planning & Regulation
8	Review local mitigation plans for compliance with Federal regulations prior to submittal to FEMA	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	FEMA	HMA	New	Planning & Regulation
9	Develop and update Wildfire Protection Plans throughout the State	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GFC	GEMA	Agency Budget	New	Planning & Regulation
10	Georgia will maintain Enhanced State Mitigation Plan status throughout SYF 2017	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	GEMA	HMA	New	Planning & Regulation
11	Identify potential funding assistance to implement mitigation measures for state agencies and local governments	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GEMA	GEMA	HMA	1.6	Planning & Regulation
12	During disaster operations, deploy staff to ensure continued working relationships with local, state and federal agencies in the implementation of all available hazard mitigation programs	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	FEMA	HMA	1.7	Planning & Regulation
13	Encourage local communities to review related planning processes such as CWPPs and Comprehensive Plans, when updating LHMPs	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GFC & DCA	GEMA	Agency Budget	New	Planning & Regulation
14	Provide training, webinars, workshops on integration of local mitigation plans into local Comprehensive Plans	2014 - 2017	Ongoing	High	1 - 3	All Hazards	DCA	GEMA	Agency Budget	New	Planning & Regulation
15	Provide State Plan risk assessment data on GEMA's Hazard Mitigation Website for local communities to utilize in their local mitigation planning processes	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GEMA	GEMA	HMA	New	Planning & Regulation
16	Georgia will achieve 100% federal approval for the initial update of all 159 local mitigation plans.	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	GEMA	HMA	New	Planning & Regulation
17	Update GMIS with the most current flood maps available from FEMA	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	DNR & FEMA	HMA	New	Planning & Regulation
18	Add tax parcel data to GMIS	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GEMA	DCA	HMA	New	Planning & Regulation
19	Update GMIS with the most current Wildfire maps available from the Georgia Forestry Commission	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	GFC	HMA	New	Planning & Regulation
20	Georgia will contract with 40 % of counties to update their local hazard mitigation plans in the second update cycle by SFY 2017	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	GEMA	HMA	New	Planning & Regulation

Table 3.6 (a) Mitigation Action Table

2014 MITIGATION ACTIONS											
Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	FEMA Category
21	GEMA will support DNR in the development and adoption of a strategy to increase the number of Georgia local governments participating in the National Flood Insurance Program by 5 % in SFY 2017	2014 - 2017	Ongoing	High	1 - 3	All Hazards	DNR	GEMA	Agency Budget	New	Planning & Regulation
22	Develop and conduct Risk MAP meetings in various watersheds throughout Georgia	2014 - 2017	Ongoing	High	1 - 3	All Hazards	DNR	GEMA, FEMA	Agency Budget	New	Planning & Regulation
23	DCA is currently in the process of developing a Business Impact Analysis Survey to be completed by the management of each DCA program. This survey will identify strengths, weaknesses, opportunities, and threats (SWOT). The information from these surveys will be incorporated into the existing DCA Management Recovery Team Action Plan.	2014 - 2017	Ongoing	High	1 - 3	All Hazards	DCA	DCA	Agency Budget	New	Planning & Regulation
24	Develop map inundation zones for dam failure	2014 - 2017	Ongoing	Low	1 - 3	Flood & Dam Failure	DNR Safe Dams & USACE	GEMA	HMA	New	Planning & Regulation
25	DCA will continue to pursue its vision that every Georgia community will offer a quality of life where people and businesses can grow and prosper through administration of the programs that mitigate future natural and man-made disasters.	2014 - 2017	Ongoing	High	1 - 3	All Hazards	DCA	DCA	Agency Budget	New	Planning & Regulation
26	DPS will conduct annual reviews of all their natural disaster plans and participation in disaster exercises	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	DPS	GEMA	Agency Budget	New	Planning & Regulation
27	Develop a hazard mitigation element to local comprehensive plans	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GEMA	DCA	HMA & Agency Budget	New	Planning & Regulation
28	Update Community Wildfire Protection (CWPP) in conjunction with Local Hazard Mitigation Plan (LHMP) update	2014 - 2017	Ongoing	High	1 - 3	Wildfire	GFC	GEMA	Agency Budget	New	Planning & Regulation
29	Provide a link to the GEMA website for hurricane and severe weather emergency preparedness data on the DPS website	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	DPS	GEMA	HUD	New	Planning & Regulation
30	Strengthen and add support to Radio Towers at DPS buildings to prevent wind damage to a critical structure	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	DPS	GEMA	HUD	New	Planning & Regulation
31	Provide lightning suppression protection to all DPS facilities	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	DPS	GEMA	HUD	New	Planning & Regulation
32	Determine effectiveness of mitigation programs through loss avoidance studies	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	GEMA	HMA & Agency Budget	New	Planning & Regulation
33	Update GMIS database	2014 - 2017	Ongoing	High	1 - 3	All Hazards	ITOS	GEMA	HMA	New	Planning & Regulation
34	Develop statewide flood depth grid database	2014 - 2017	Ongoing	Low	1 - 3	Flood	DNR	GEMA, DCA	HMA & Agency Budget	New	Planning & Regulation
35	Provide watertight document storage for assets in SLOSH and Floodway/Velocity Zones	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	DPS	GEMA	HUD	New	Planning & Regulation
36	Place brochures and documents in DPS facilities for public and employee awareness of mitigation steps they can take for their own and family protection	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	DPS	GEMA	HUD	New	Planning & Regulation
37	Reduce flood loss claims against NFIP through the mitigation of repetitive loss properties	2014 - 2017	Ongoing	High	1 - 3	Flood	GEMA	DNR & FEMA	Agency Budget	3.12	Planning & Regulation

Table 3.6 (b) Mitigation Action Table



2014 MITIGATION ACTIONS											
Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	FEMA Category
38	Update repetitive loss data in GMIS and maintain database to track mitigation activities including mitigated properties and repetitive loss structures	2014 - 2017	Ongoing	High	1 - 3	Flood	GEMA	GEMA	HMA & Agency Budget	2.13 & 3.14	Planning & Regulation
39	The Department of Agriculture will conduct an annual review of all it's natural disaster plans and participate in fully functional food emergency exercises annually	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GDAG	GDAG	Ag Grant	New	Planning & Regulation
40	To activate the Agricultural Information Sharing and Analysis Center (AGISAC) to serve as a clearinghouse for information impacting agriculture	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GDAG	GDAG	Ag Grant	New	Planning & Regulation
41	To establish a system of pet friendly shelters in times of disaster	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GDAG	GDAG	Ag Grant	New	Planning & Regulation
42	Conduct post disaster review of state and local hazard mitigation plans for evaluation and updating as appropriate	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	GEMA	HMA & Agency Budget	4.6	Planning & Regulation
43	To continue strengthening the foundation of the All Hazards State Agriculture Response Team	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GDAG	GDAG	Ag Grant	New	Planning & Regulation
44	Collect category one and two data from the Safe Dams Program	2014 - 2017	Ongoing	Low	1 - 3	Flood & Dam Failure	GEMA	DNR	HMA & Agency Budget	New	Planning & Regulation
45	Develop update a map for dams in the risk evaluation portion of the state hazard mitigation plan	2014 - 2017	Ongoing	Low	1 - 3	Flood & Dam Failure	GEMA	DNR	HMA & Agency Budget	4.7	Planning & Regulation
46	Change Georgia definition of categories to include losses other than human	2014 - 2017	Ongoing	Low	1 - 3	Flood & Dam Failure	DNR	DNR	Agency Budget	New	Planning & Regulation
47	Determine non-human loss from dam failures	2014 - 2017	Ongoing	Low	1 - 3	Flood & Dam Failure	GEMA	DNR	HMA & Agency Budget	New	Planning & Regulation
48	Adopt applicable recommendations from the publication Emergency Action Planning for High Hazard Potential Dams: Findings, Recommendations, and Strategies (FEMA 608) into the State Plan	2014 - 2017	Ongoing	Low	1 - 3	Flood & Dam Failure	DNR	GEMA	Agency Budget	4.7	Planning & Regulation
49	Continue developing the hazard, risk, and vulnerability assessments for CWPP and SWRA by utilizing updated technology and improved data	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GFC	GEMA	Agency Budget	4.8	Planning & Regulation
50	To set up an electronic, web-based Reportable Animal Diseases System to incorporate into AGISAC; to train veterinarians and agricultural specialists to be a part of the reporting and response networks, and to plan additional animal and food safety response training exercises	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GDAG	GDAG	Ag Grant	New	Planning & Regulation
51	Develop a plan to provide saferooms for all Department of Human Services offices throughout the state	2014 - 2017	Ongoing	High	1 - 3	All Hazards	DHS	GEMA	Agency Budget	New	Planning & Regulation
52	Develop plan to backup all computer files for the Department of Human Services in the event of a hazard event.	2014 - 2017	Ongoing	High	1 - 3	All Hazards	DHS	GEMA	Agency Budget	New	Planning & Regulation
53	Support prescribed burning in CWPP plans	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GFC	GFC	EMPG	New	Planning & Regulation

Table 3.6 (c) Mitigation Action Table

2014 MITIGATION ACTIONS											
Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	FEMA Category
54	Expand the number of Flood Tracking Chart Projects to other river basins, ensuring greater availability of information to the emergency management community and public	2014-2017	Ongoing	Medium	1-3	Inland Flooding	USGS	GEMA, DNR, NOAA	USGS, DNR, Local	1.9	Planning & Regulation
55	Provide technical assistance to local communities in identifying and developing hazard mitigation projects	2014-2017	Ongoing	High	1-3	All	GEMA	GEMA	HMA	3.6	Planning & Regulation
56	Support cost effective mitigation activities that minimize damages to critical facilities, utilities and property	2014-2017	Ongoing	High	1-3	All	GEMA	GEMA	HMA	3.7	Planning & Regulation
57	Support local government cost-effective requests through available grant opportunities to mitigate repetitive loss properties with priority given to severe repetitive loss properties and removal of repetitive loss properties from regulatory floodway	2014 - 2017	Ongoing	Medium	1-3	Inland Flooding	GEMA	Local Communities, DNR	HMA	3.13	Planning & Regulation
58	Utilize and share information on lessons learned from analysis of the mitigated properties database	2014 - 2017	Ongoing	Medium	1-3	All Hazards	GEMA	GEMA	HMA	4.5	Planning & Regulation
59	Develop breach zone studies to mitigate potential loss of life in the event of dam failure	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GSWCC	GSWCC	NRCS	New	Planning & Regulation
60	Improve statewide Digital Elevation Models	2014 - 2017	Ongoing	High	1-3	All Hazards	USGS	DNR	USGS	4.9	Planning & Regulation
61	Investigate mitigation grant opportunities with Department of Agriculture	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	GEMA	HMA & Agency Budget	New	Planning & Regulation
62	Develop Local Capability Matrix for next state strategy update	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	GEMA	HMA & Agency Budget	New	Planning & Regulation
63	Prevention of the installation of structures (i.e. houses) within the breach zone of flood control dams will be dependent on the willingness of local government entities to zone these areas	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GSWCC	GSWCC	NRCS	New	Planning & Regulation
64	The Commission will continue to work closely with the Districts and the NRCS in the preparation of breach zone studies necessary for development of EAPs	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GSWCC	GSWCC	NRCS	New	Planning & Regulation
65	Establish a procedure for District personnel to work with county EMGs in practice drills or preparedness during a dam failure simulation	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GSWCC	GSWCC	NRCS	New	Planning & Regulation
66	Seek funding that will allow the modification of existing NRCS constructed flood control dams in order to comply with state safe dam criteria for high hazard dams	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GSWCC	GSWCC	NRCS	New	Planning & Regulation
67	Plot all financial institution locations on a map to determine the probability and impact of various hazards that they may face	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	DBF	DBF	FDIC	New	Planning & Regulation
68	Explore the possibility of establishing some sort of protocol/credentialing system with GEMA to allow our Commissioner or Senior Deputy Commissioner to be able to quickly get a re-entry pass in the event that the Department or a financial institution needs to get to their data center and/or critical documents	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	DBF	DBF	FDIC	New	Planning & Regulation
69	Review and updating annually the Department of Transportation Hurricane Plans, Snow and Ice Plans and ensuring that emergency response personnel are properly trained to ensure the Department is NIMS compliant	2014 - 2017	Ongoing	High	1 - 3	All Hazards	DOT	DOT	FDOT	New	Planning & Regulation

Table 3.6 (d) Mitigation Action Table



2014 MITIGATION ACTIONS											
Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	FEMA Category
70	Schedule and conduct dry run exercises on contra-flow and snow and ice operations annually	2014 - 2017	Ongoing	High	1 - 3	All Hazards	DOT	DOT	FDOT	New	Planning & Regulation
71	Continue to evaluate and update current plans and continues to research any additional resources that may be available to improve DOT's role and response to any hazard that may arise	2014 - 2017	Ongoing	High	1 - 3	All Hazards	DOT	DOT	FDOT	New	Planning & Regulation
72	The Archives will provide training on disaster preparedness to local governments and other not-for-profit cultural organizations in Georgia	2014 - 2017	Ongoing	High	1 - 3	All Hazards	SOS	SOS	IMLS	New	Planning & Regulation
73	The Archives will collect GIS information for all collection holding organizations in Georgia in a database to determine their level of emergency preparedness	2014 - 2017	Ongoing	High	1 - 3	All Hazards	SOS	SOS	IMLS	New	Planning & Regulation
74	Issue and get approval for a statewide contract for document recovery services to ensure that local governments and state agencies contract with the most qualified vendors for document restoration after a disaster	2014 - 2017	Ongoing	High	1 - 3	All Hazards	SOS	SOS	IMLS	New	Planning & Regulation
75	To expand the current Georgia Archives emergency plan to include provisions for business continuity and for water conservation	2014 - 2017	Ongoing	High	1 - 3	All Hazards	SOS	SOS	IMLS	New	Planning & Regulation
76	Integrate hazard mitigation into other state and local processes such as THIRA, Long-Term Recovery Plan, local comprehensive plans, CWPPs, and capital improvement plans	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	DCA, GFC, Local Communities	HMA & Agency Budget	New	Planning & Regulation
77	DCA will conduct training building inspector workshops on the disaster resilient building codes	2014 - 2017	Ongoing	High	1 - 3	All Hazards	DCA	DCA	Agency Budget	2.8	Planning & Regulation
78	Require communities to remain in good standing in the NFIP to be eligible for hazard mitigation funding, as well as continue to give mitigation funding priority to CRS communities	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	GEMA	HMA & Agency Budget	2.6	Planning and Regulation
79	Chatham and Glynn Counties to team up with GPA and DOAS to develop a maximum loss study in the event of various levels of cyclonic events	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GPA	DOAS	Agency Budget	New	Structure & Infrastructure
80	Update Hurricane Procedure Manual and Preparedness Guide for the Georgia Port Authority	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GPA	GPA	HMA & Agency Budget	New	Structure & Infrastructure
81	The Georgia Port Authority will participate in the development of Coastal County Hazard Mitigation Plan updates	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GPA	GPA	HMA & Agency Budget	New	Planning and Regulation
82	Develop private weather center for the Georgia Port Authority, staffed with a meteorologist	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GPA	GPA	Agency Budget	New	Structure & Infrastructure
83	The Georgia Port Authority has begun the procedure of stacking containers three high and tying the ends together to prevent property damage	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GPA	GPA	Agency Budget	New	Structure & Infrastructure
84	Formulate policy to have saferooms placed in all new university building	2014 - 2017	Ongoing	High	1 - 3	All Hazards	BOR	GBA	Agency Budget	New	Structure & Infrastructure
85	Establish policy to not develop any high profile buildings due to wind hazards	2014 - 2017	Ongoing	High	1 - 3	All Hazards	BOR	BOR	Agency Budget	New	Structure & Infrastructure
86	Develop of a university system wide communications plan	2014 - 2017	Ongoing	High	1 - 3	All Hazards	BOR	TBA	Agency Budget	New	Structure & Infrastructure
87	Develop Emergency Planning Group to plan for all hazards facing the university system	2014 - 2017	Ongoing	High	1 - 3	All Hazards	BOR	BOR	Agency Budget	New	Structure & Infrastructure

Table 3.6 (e) Mitigation Action Table

2014 MITIGATION ACTIONS											
Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	FEMA Category
88	Backup all IT systems in multiple locations throughout the state	2014 - 2017	Ongoing	High	1 - 3	All Hazards	BOR	TBA	Agency Budget	New	Structure & Infrastructure
89	Increase hazard vulnerability identification training throughout the university system	2014 - 2017	Ongoing	High	1 - 3	All Hazards	BOR	GEMA	Agency Budget	New	Structure & Infrastructure
90	Complete DRU plans for remaining 12 universities	2014 - 2017	Ongoing	High	1 - 3	All Hazards	BOR	GEMA	Agency Budget	New	Structure & Infrastructure
91	Assist local communities with eligible acquisition/elevation, floodproofing, and storm water projects	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	GEMA	HMA & Agency Budget	New	Structure & Infrastructure
92	Promote the development of safe areas in public and private schools	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	BOR, DOE & Local Communities	HMA & Agency Budget	3.10	Structure & Infrastructure
93	Expand the use of safe rooms throughout Georgia communities	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	GEMA & GFC	HMA & Agency Budget	3.10	Structure & Infrastructure
94	Identify state assets at highest risk and list appropriate mitigation actions to reduce these risk and identify opportunities for structural protections (ie. safe rooms) in buildings	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	GEMA	HMA & Agency Budget	New	Structure & Infrastructure
95	Coordinate with local emergency management agencies to predesignate safe areas for at-risk population	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	GEMA	EMPG & Agency Budget	New	Structure & Infrastructure
96	Rebuild Dade County Georgia Forestry Office in Trenton, GA destroyed by tomados in 2011 to higher building standards to withstand high winds	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GFC	GBA	Agency Budget	New	Structure & Infrastructure
97	Purchase 6 Masficccutters (Brush Cutters) to mitigate underbrush and reduce fuel loads	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GFC	GEMA	Agency Budget	New	Structure & Infrastructure
98	Build future buildings to withstand high winds and other hazards	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GFC	GBA	Agency Budget	New	Structure & Infrastructure
99	Install generator to keep electricity available to the server in the Macon office (Drybranch)	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GFC	GFC	Agency Budget	New	Structure & Infrastructure
100	As a part of DCA's ongoing Disaster Recovery/Business Continuity planning efforts, they plan to set up a Secondary Site in Eastman, GA with back up servers, a back up HVAC system, and a back up generator to prepare for tragic events affecting the City of Atlanta.	2014 - 2017	Ongoing	High	1 - 3	All Hazards	DCA	DCA	Agency Budget	New	Structure & Infrastructure
101	Identify historic sites that may be vulnerable to natural hazards	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GEMA	SHPO	HMA & Agency Budget	New	Natural & Cultural Protection
102	Ensure there are no adverse effects of any proposed mitigative projects on Georgia's natural resources and/or threatened or endangered species	2014 - 2017	Ongoing	Low	1 - 3	All Hazards	GEMA	FEMA, US Fish Wildlife	HMA & Agency Budget	New	Natural & Cultural Protection
103	Educate and promote the prevention of development in places such as flood plains, steep ravines, lands with underground caves, through news letters and workshops	2014 - 2017	Ongoing	Low	1 - 3	All Hazards	GEMA	DCA	HMA & Agency Budget	New	Natural & Cultural Protection
104	Minimize damage to natural resources through the use of and compliance with greenspace, stream buffers, zoning ordinances as actions to protect Georgia communities	2014 - 2017	Ongoing	Low	1 - 3	All Hazards	DNR	GEMA	HMA & Agency Budget	New	Natural & Cultural Protection

Table 3.6 (f) Mitigation Action Table

2014 MITIGATION ACTIONS											
Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	FEMA Category
105	Create state wide map layer that identifies important natural and cultural resources	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	DNR	GEMA	Agency Budget	New	Natural & Cultural Protection
106	Develop a list of public and private sector incentives such as CRS & NFIP, that encourage the implementation of hazard mitigation measures for publication on GEMA's website.	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GEMA	GEMA	HMA, Agency Budget	1.5	Public Awareness
107	Support the use of state of the art warning technology and local warning projects with available initiative funds	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GEMA	GEMA	HMA, Agency Budget	3.1 & 3.2	Public Awareness
108	Expand NOAA weather alert system by applying for grants to distribute radios to local communities	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GEMA	Local Communities	HMA, Agency Budget	1.8	Public Awareness
109	Support the StormReady Program in Georgia in partnership with the National Weather Service (NWS)	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GEMA	NWS	Agency Budget	2.2	Public Awareness
110	Determine percentage of population coverage by current alert systems	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GEMA	GEMA	HMA, Agency Budget	New	Public Awareness
111	Promote the increase in the number of StormReady counties from the current number of 77 as of 10/2013	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GEMA	GEMA	HMA, Agency Budget	New	Public Awareness
112	Promote and share Mitigation Ideas Guide (Jan 2013) with local communities and planners	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	FEMA	HMA, Agency Budget	New	Public Awareness
113	Make Georgia hazard data available on GEMA webpage	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	GEMA	HMA, Agency Budget	New	Public Awareness
114	Develop webinars and workshops for local communities to increase public awareness of disaster risks and mitigation actions that protect life and decrease property damages	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GEMA	GEMA	HMA, Agency Budget	2.1	Public Awareness
115	Conduct post-disaster workshops for affected local communities	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	NRCS	HMA, Agency Budget	New	Public Awareness
116	Share mitigation project/plan success stories via media such as websites and newsletters	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GEMA	GEMA	HMA, Agency Budget	2.1	Public Awareness
117	Develop flood information outreach resources, such as fact sheets and web pages that summarize flood hydrology for emergency managers and planners	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	DNR	FEMA	Agency Budget	New	Public Awareness
118	Share and promote stream gauge historic crests database to local communities	2014 - 2017	Ongoing	High	1 - 3	Flood	USGS	GEMA & NWS	HMA, Agency Budget	New	Public Awareness
119	Increase the number of stream gauges in Georgia	2014 - 2017	Ongoing	High	1 - 3	Flood	USGS	GEMA	HMA, Agency Budget	New	Public Awareness
120	Develop workshops and webinars to facilitate the update of the state plan risk assessment	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	FEMA	HMA, Agency Budget	New	Public Awareness

Table 3.6 (g) Mitigation Action Table



2014 MITIGATION ACTIONS											
Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	FEMA Category
121	Increase local participation in flood hazard mitigation programs such as NFIP and CRS, through workshops and posted information on GEMA and DNR websites	2014 - 2017	Ongoing	High	1 - 3	Flood	GEMA	DNR & FEMA	HMA, Agency Budget	2.5	Public Awareness
122	Increase local participation in hazard mitigation programs such as Storm Ready Communities, through workshops and posted information on GEMA website	2014 - 2017	Ongoing	High	1 - 3	All Hazards	GEMA	FEMA & NWS	HMA, Agency Budget	New	Public Awareness
123	Increase local participation in fire hazard mitigation programs such as FireWise, through workshops and posted information on GEMA and GFC websites	2014 - 2017	Ongoing	High	1 - 3	Wildfire	GFC	GEMA	Agency Budget	New	Public Awareness
124	Distribute information via brochures, websites, webinars and workshops on community and household saferooms to Georgia communities	2014 - 2017	Ongoing	Medium	1 - 3	All Hazards	GEMA	GEMA	Agency Budget	3.10	Public Awareness
125	Meet or exceed 2012 media impressions for Ready Georgia (74 million)	2013 - 2014	Ongoing	High	1 - 3	All Hazards	GEMA PIO	GEMA	Agency Budget	New	Public Awareness
126	Increase Ready profile registrations by 50 percent over 2012 goal	2013 - 2014	Ongoing	High	1 - 3	All Hazards	GEMA PIO	GEMA	Agency Budget	New	Public Awareness
127	Meet or exceed 2012 levels of website traffic Ready Georgia App – 58,000 website visits	2013 - 2014	Ongoing	High	1 - 3	All Hazards	GEMA PIO	GEMA	Agency Budget	New	Public Awareness
128	Meet or exceed 2012 mobile app downloads for Ready Georgia App (14,477)	2013 - 2014	Ongoing	High	1 - 3	All Hazards	GEMA PIO	GEMA	Agency Budget	New	Public Awareness
129	Facebook Fans – Increase total number of fans by 20 percent over 2011 (2,245) – 2,700	2013 - 2014	Ongoing	High	1 - 3	All Hazards	GEMA PIO	GEMA	Agency Budget	New	Public Awareness
130	YouTube – Meet or exceed 2012 views for Ready Georgia App (4,771)	2013 - 2014	Ongoing	High	1 - 3	All Hazards	GEMA PIO	GEMA	Agency Budget	New	Public Awareness
131	Blog/Podcast – Meet or exceed 2012 traffic for Ready Georgia App (10,622 visits)	2013 - 2014	Ongoing	High	1 - 3	All Hazards	GEMA PIO	GEMA	Agency Budget	New	Public Awareness
132	Create new "Southwrap" web-based program to display Southern Wildfire Risk Assessment data electronically	2013 - 2014	Ongoing	High	1 - 3	All Hazards	GFC	GFC	Agency Budget	New	Public Awareness
133	Support the Severe Weather Awareness Week and the Prescribed Fire Awareness Week campaigns in partnership with the Office of the Governor	2013 - 2014	Ongoing	High	1 - 3	All Hazards	GEMA	GEMA	Agency Budget	New	Public Awareness
134	Provide technical assistance to local governments in order to improve the enforcement of floodplain management requirements	2013 - 2014	Ongoing	High	1 - 3	All Hazards	DNR	GEMA	Agency Budget	New	Public Awareness
135	Increase community awareness of the negative impacts of repetitive loss properties and the benefits of mitigation actions	2013 - 2014	Ongoing	High	1 - 3	All Hazards	GEMA	DNR	HMA, Agency Budget	New	Public Awareness
136	Lead and direct the Georgia Silver Jackets Team to promote flood risk management programs throughout the state.	2014 - 2017	Ongoing	High	1 - 3	Flood	DNR, GEMA	USGS, NWS, USACE, FEMA, EPA, NRCS, FHA, USED	HMA, Agency Budgets	New	Planning & Regulation
137	Promote and support mitigation allied programs, such as the Community Rating System (CRS) and Storm Ready by giving application incentive points for communities applying for HMA assistance.	2014 - 2017	Ongoing	Low	1 - 3	All Hazards	GEMA	GEMA	Agency Budget	New	Planning & Regulation

Table 3.6 (h) Mitigation Action Table

2014 MITIGATION ACTIONS											
Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	FEMA Category
138	Promote safe room construction at all levels i.e. (individual residents, local governments and local school districts, and private industry).	2014 - 2017	Ongoing	Low	1 - 3	All Hazards	GEMA	GEMA	Agency Budget	New	Planning & Regulation
139	Continue education of local emergency managers on various mitigation activities and funding opportunities	2014 - 2017	Ongoing	Low	1 - 3	All Hazards	GEMA	GEMA	Agency Budget	New	Planning & Regulation
140	Promote mitigation activities on properties that are located in areas vulnerable to hazards	2014 - 2017	Ongoing	Low	1 - 3	All Hazards	GEMA	GEMA	Agency Budget	New	Planning & Regulation
141	Promote structural retrofits for structures that are vulnerable to wind events	2014 - 2017	Ongoing	Low	1 - 3	All Hazards	GEMA	GEMA	Agency Budget	New	Planning & Regulation
142	Develop working relationship with local floodplain managers to educate them on the FEMA's Flood Mitigation Assistance program	2014 - 2017	Ongoing	Low	1 - 3	All Hazards	GEMA	GEMA	Agency Budget	New	Planning & Regulation
143	Identify properties that might be eligible for cost effective mitigation measures and coordinate results with local governments	2014 - 2017	Ongoing	Low	1 - 3	All Hazards	GEMA	GEMA	Agency Budget	New	Planning & Regulation

Table 3.6 (i) Mitigation Action Table

COMBINED OR DELETED MITIGATION ACTIONS											
Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	FEMA Category
1	Provide technical assistance to state agencies to incorporate hazard mitigation measures into their own plans	0	Deleted	0	0	0	0	0	0	2.9	Planning & Regulation
2	Support the coordination of hazard mitigation planning and project initiatives with various regional agencies throughout the state of Georgia	0	Deleted	0	0	0	0	0	0	2.11	Planning & Regulation
3	Develop and update plans, prepare for, respond to and recover from disasters, acts of terrorism and special events to enhance the protection of Georgia citizens and visitors	0	Deleted	0	0	0	0	0	0	3.3	Planning & Regulation
4	Streamline the delivery of HMA to eligible recipients	0	Deleted	0	0	0	0	0	0	3.4	Planning & Regulation
5	Work with FEMA on MOA's to shorten HMGP application and approval timelines	0	Deleted	0	0	0	0	0	0	3.5	Planning & Regulation
6	Give priority to projects identified in local mitigation plans that minimize damages to critical facilities	0	Combined	0	0	0	0	0	0	3.8	Planning & Regulation
7	Support cost-effective mitigation activities that minimize damages to state owned or operated assets	0	Combined	0	0	0	0	0	0	3.9	Planning & Regulation
8	Support implementation of mitigation strategies identified in the Georgia Drought Management Plan	0	Deleted	0	0	0	0	0	0	3.11	Planning & Regulation
9	Conduct an annual review of the effectiveness of mitigation programs and recommend courses of action of mitigation programs	0	Deleted	0	0	0	0	0	0	4.1	Planning & Regulation
10	Survey our mitigation customers on an annual basis to determine effectiveness of mitigation programs	0	Deleted	0	0	0	0	0	0	4.2	Planning & Regulation
11	Improve critical facility and hazard history data collection and analysis at local and state levels	0	Deleted	0	0	0	0	0	0	4.3	Planning & Regulation
12	Work with ITOS on data collection tools	0	Deleted	0	0	0	0	0	0	4.4	Planning & Regulation
13	Coordinate with DNR on flood mapping, map modernization and Safe Dam programs to ensure local government mapping and data needs areas properly addressed	0	Deleted	0	0	0	0	0	0	4.1	Planning & Regulation
14	Research new and improved data resources to integrate into the state mitigation strategy and local planning efforts	0	Deleted	0	0	0	0	0	0	4.11	Planning & Regulation
15	Work with NWS, USGS, DNR and other agencies to increase effective warning capabilities	0	Deleted	0	0	0	0	0	0	1.8	Public Awareness

Table 3.7 Combined or Deleted Mitigation Action Table

COMPLETED MITIGATION ACTIONS											
Item #	Mitigation Actions	Timeline	Status	Priority	State Goal	Hazard	Lead Agency	Support Agency	Resources	Previous Item #	FEMA Category
1	Integrate Natural Hazards and Disaster Management into Georgia Comprehensive Plans and Regional Plans	2014 - 2017	Completed	Medium	1 - 3	All Hazards	DCA	GEMA	HMA	New	Planning & Regulation
2	Develop the Georgia HAZUS Pilot Project Prototype Workshops	2014 - 2017	Completed	High	1 - 3	All Hazards	DCA	FEMA, GEMA	Agency Budget	New	Planning & Regulation
3	Develop Disaster Resilience Building Codes to address tornado, flood, and wind hazards	2014 - 2017	Completed	High	1 - 3	All Hazards	DCA	NGO, DNR, GEMA, HUD, GMA, ACCG	Agency Budget	New	Planning & Regulation

**Table 3.8 Completed Mitigation Action Table**



### 3.3 STATE CAPABILITY ASSESSMENT

The state capability assessment includes evaluation of Georgia's pre- and post-disaster hazard management including policies, programs, and funding. The first subsection concerns the role of various state agencies in relation to pre- and post-disaster hazard management within Georgia. This includes mitigation-related policies, programs, and funding availability. Following the discussion of state agency roles within Georgia is a discussion of federal agency roles, including policies, programs, and funding opportunities.

Contacts within the Georgia General Assembly initiate legislation that is of direct interest to the agency while also tracking and supporting legislation that is of interest to the public safety, homeland security, and emergency management communities. GEMA also works closely with other agencies and organizations such as the Association County Commissioners of Georgia, the Georgia Municipal Association, the Georgia Fire Chiefs Association, the Georgia Sheriffs' Association, the Georgia Police Chiefs Association, and the Departments of Public Safety and Natural Resources to support legislation of common interest.

The Official Code of Georgia Annotated or OCGA is the compendium of all laws enacted in Georgia. Within the OCGA lie numerous legislative rules supporting mitigation. The following legislation relates to hazard mitigation in the State of Georgia:

- Georgia Coastal Management Act, OCGA 12-5-320
- Georgia Coastal Marshland Protection Act, 12-5-280
- Georgia River Corridor Protection Act 12-2-1
- Georgia Shore Protection Act 2-5-230
- Georgia Safe Dams Act of 1978, OCGA 12-5-370 to 385
- Georgia Planning Act of 1989, OCGA 12-2-8
- Erosion and Sedimentation Act, OCGA 12-7-1
- Georgia Emergency Management Act of 1981, as amended, OCGA 38-3-1
- Soil and Water Conservation Districts Law, OCGA 2-6-20 & 2-6-27
- Georgia Environmental Policy Act, OCGA 12-16-1
- Metropolitan North Georgia Water Planning District Act, OCGA 12-5-70
- Georgia Housing Codes, OCGA 8-2-20
- The Uniform Standards Code for Manufactured Homes Act and Installation of Manufactured and Mobile Homes, OCGA 8-2-130 and 8-2-160
- Georgia Records Act, OCGA 50-18-93
- Georgia Forest Fire Protection Act, OCGA 12-6-80 to 12-6-93
- Georgia Prescribed Burning Act, OCGA 12-6-145

As stated, the legislation listed above relates to hazard mitigation in the State of Georgia. The first seven of the legislative acts listed were previously discussed in Chapter 1's section concerning program integration. Several of the remaining acts are discussed below under the corresponding state or federal agency and under the state capability summary. There has been no legislation or regulations passed by the Georgia General Assembly since the approval of the last Hazard Mitigation Plan

in March of 2011.

Another example of state capability as it relates to the Georgia Emergency Management Agency is the use of the Georgia Mitigation Information System (GMIS). GEMA contracts with the University of Georgia's Information Technology Outreach Services (ITOS) in developing an online data entry and display system for local planning efforts that evolved into the GMIS. The web-based GMIS provides easy access and maintenance without requiring extensive knowledge of GIS applications and software. As an online database, GMIS only allows authorized access to the application through a login process. As an authorized user, one may manipulate critical facility data (based on access level), view maps, and download data and reports for analysis. In order to enter critical facility data, the authorized user utilizes a web-based form that includes drop-down boxes and other methods of validating user-input, which minimizes training and improves data quality. As new data are entered, the database updates to provide the most recent information available. In addition to critical facilities, other layers are available within the GMIS including transportation corridors, political boundaries, hydrology, or hurricane surge zones.

### 3.3.1 State Policies and Programs

Table 3.9, below identifies state programs and policies related to mitigation. Each program was evaluated to determine relevance to mitigation and if it affect Repetitive Loss and Severe Repetitive Loss properties.

State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
Georgia Department of Natural Resources	The Georgia Community Greenspace Program	The Georgia Community Greenspace Program establishes a framework in which developed and rapidly developing counties and their municipalities can preserve community greenspace. This bill promotes the adoption of policies and rules that enable the preservation of at least 20% of county or municipal land area as connected and open greenspace usable for informal recreation and natural resource protection.	X
	The Georgia Land Conservation Act	The Georgia Land Conservation Act, initiative to encourage the long-term conservation and protection of the state's natural resources. The legislation establishes the Georgia Land Conservation Trust Fund and the Georgia Land Conservation Revolving Loan Fund that provides up to \$100 million in state, federal and private funding to local governments and the Georgia DNR for the purchase of conservation lands. The responsibilities of the Georgia DNR under this legislation include establishing a state land geographic information system database for conservation activities and providing technical support to local governments.	
	The River Basin Management Planning Program	The Environmental Protection Division (EPD) of Georgia DNR implements a river basin management planning approach for the 14 major river basins in Georgia. A written plan is required and updated on a five-year cycle to coincide with National Pollutant Discharge Elimination (NPDES) permitting.	
	The Coastal Resources Division (CRD)	The Coastal Resources Division (CRD) implements provisions of the Coastal Marshlands Protection Act of 1970, the Shore Protection Act, the Revocable Licenses Program, the Coastal Zone Management Act and others. These existing authorities provide protection for critical marshes, water bottoms, beaches, sand dunes, and submerged lands. Members of the CRD staff are also available to assist hazard response and damage assessments. Also available for disaster resilience projects is the Coastal Incentive Grants.	

Table 3.9 (a) Mitigation Related State Programs

State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
Georgia Department of Community Affairs	The Federal Community Development Block Grant Program	Georgia's Department of Community Affairs (DCA) has the ability to fund hazard mitigation projects (with appropriate federal waivers and authorizations) using the Federal Community Development Block grant program. DCA administers portions of these grants to repair public facilities, to repair public and private housing, to provide relocation assistance for displaced households, to assist in business loans to support threatened jobs, and to provide engineering and technical assistance to local governments.	X
	Immediate Threat and Danger (ITD) Program	The DCA administers the Immediate Threat and Danger (ITD) program available through the Community Development Block Grant Program of Housing and Urban Development (HUD). These grants (usually limited to \$20,000) are available to qualifying local governments with a 50% provision of funding for activities designed to meet community development needs.	
	GA Planning Act	With the passing of the 1989 Georgia Planning Act, DCA created the State Comprehensive and Coordinated Planning Program to encourage effective growth management by local governments throughout the state. This program includes the development and updating of minimum standards for local and regional planning and provides technical assistance to local governments and Regional Commissions to carry out these standards. Many opportunities exist with this program for local government hazard mitigation programs or measures in connection with the state-required preparation and implementation of local comprehensive plans. This comprehensive planning approach is especially applicable to floodplain management and construction standards (mitigation approaches).	
	Uniform Codes Act	The Construction Codes and Industrialized Buildings section of DCA maintains and updates Georgia's state minimum standard codes for construction. These codes are designed to help protect the life, health, and property of all Georgians from faulty design and unsafe construction. The Uniform codes Act is codified in Chapter 2 of Title 8 of The Official Code of Georgia Annotated. O.C.G.A. Section 8-2-20(9)(B) identifies the ten "state minimum standard codes". Each of these separate codes typically consists of a base code and a set of state amendments to the base code. Georgia law further dictates that eight of these codes are mandatory (effective throughout the entire state of Georgia regardless of whether a county or municipality adopts them) or permissive (effective only in those counties and municipalities that choose to adopt the permissive code through local ordinance). DCA periodically reviews, amends, and updates the state minimum standard code.	
	Office of Mapping and Decision Support Systems	Within DCA exists the Office of Mapping and Decision Support Systems that provides support and training to local governments for comprehensive planning activities. They also provide hazard mitigation planning assistance to local governments using FEMA's HAZUS-MH risk assessment software with which they can prepare a detailed parcel-based building-level risk assessment for floods and hurricanes. Contact GIS@dca.ga.gov for free assistance.	
	The Local Development Fund	A state-appropriated grant program that provides matching grants to fund community improvement activities	

**Table 3.9 (b) Mitigation Related State Programs**

State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
Georgia Emergency Management Agency	The Public Assistance Grant Program	Authorizes funding for cost-effective hazard mitigation measures on facilities damaged by disaster events	
	PDM	The PDM program provides funds to states, territories, Indian tribal governments, and communities for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event. Funding these plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. PDM grants are to be awarded on a competitive basis and without reference to state allocations, quotas, or other formula-based allocation of	X
	HMGP	The Hazard Mitigation Grant Program (HMGP) provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster.	X
	The Flood Mitigation Assistance Program	Created as part of the National Flood Insurance Reform Act of 1994, 42 U.S.C. 4101, attempts to reduce or eliminate claims under the NFIP by assisting states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to structures insurable by NFIP. Elements of Repetitive Flood Claims and Severe Repetitive Loss programs have been integrated into the FMA program.	X
The Georgia Forestry Commission		Supports many mitigation and preparedness activities through the Forest Protection Programs to reduce the number of wildfires and acres burned. These programs include Pre-Suppression Firebreak Plowing, Burning Assistance, and Fire Prevention and Firewise, Rural Fire Defense Program, Volunteer Fire Assistance Grants, and Burn Permit System.	
	Southern Wildfire Risk Assessment (SWRA)	The SWRA is a regional project completed by the 13 southern states included in the USDA-Forest Service Region 8. It is a GIS project, illustrated in an Arc View product that documents and maps forest fuels, historical wildfire occurrence, values at risk from wildfires, communities at risk, wildfire susceptibility index, and levels of concern for damage from wildfires. The program also allows for illustration of mitigation treatments and the corresponding affect on wildfire susceptibility and level of concern. Working with GEMA, GFC is providing SWRA information to be included in county EMA plans statewide.	
	Community Wildfire Protection Plans (CWPP)	A community wildfire protection plan outlines wildfire history and risk (SWRA), lists preparedness resources available for wildfire suppression, provides maps to illustrate the wildfire situation, and makes suggestions on how to prepare for, respond to and mitigate wildfires. The Georgia Forestry Commission will facilitate CWPP's on a county level for each Georgia County. Appropriate state, county, and community leaders will work in teams to provide wildfire planning that has buy in from all. The SWRA will be utilized not only to identify risk for CWPP's but will be used to help set priorities for getting started to insure that high risk counties are priority. GEMA and local fire departments will be important partners in completion of CWPP's for the entire state. Georgia has currently 138 completed CWPPs and will continue to focus on completing each county focusing this year on the metro counties of Atlanta, Savannah, Columbus, Macon, and Augusta. <a href="http://www.gfc.state.ga.us/forest-fire/CWPP/index.cfm">http://www.gfc.state.ga.us/forest-fire/CWPP/index.cfm</a>	

**Table 3.9 (c) Mitigation Related State Programs**

State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
Georgia Forestry Commission	Firewise Communities	The Georgia Forestry Commission embraces the Firewise Communities USA concept and employs one full time position to conduct Firewise workshops and encourage communities to become nationally recognized. There are currently 38 nationally recognized Firewise Communities in Georgia with several nearing recognition. Communities are recognized for developing wildfire mitigation teams, funding Firewise practices, completing mitigation projects, and promoting Firewise practices. National Fire Plan grants are used to fund this program. Communities showing special interest may receive small grants for projects. The Georgia Forestry Commission currently has a special focus project to address Northeast and Southeast Georgia whom have the greatest numbers of wildfires and fast	
	Wildfire Prevention	Wildfire Prevention efforts are an integral part of Georgia Forestry Commission routine efforts. Approximately \$250,000 is granted through National Fire Plan to the Georgia Forestry Commission for fire prevention efforts each year. Georgia Forestry Commission has a special project named "50 County Wildfire Prevention" that targets specific wildfire causes in Georgia's top 50 wildfire occurrence counties. A scientific method for measuring success of this program compares reductions in the number of wildfires in this part of the state to reductions realized in the part of the state that is not served by this special program. Numbers of wildfires have been reduced 5% to 10% where \$2,500.00 dollars have been applied to address prevention in individual counties. Georgia has just recently added 4 additional staff to battle current wildfire trends nationwide. These folks will assist the state program manager with outreach and miti-	
	Rural Fire Defense	Since 1975 the Rural Fire Defense program operated by the Georgia Forestry Commission has provided planning advice and firefighting equipment to rural fire departments across the state. Today there are some 1375 fire engines leased or on loan to 143 Georgia counties. The program currently provides about 25 fire apparatus, at cost, per year to fire departments. Signed agreements provide for cooperation between state and local efforts for community protection from wildfires. Recent additions to the program include provision of wildfire personal protective gear and specialized wildfire training allowing fire departments to participate more fully and safely in wildfire suppression.	
	Prescribed Burning	Georgia law, Georgia Prescribed Burning Act 12-6-145, makes provisions to protect prescribed burning as a forest management and wildfire mitigation tool and assigns Georgia Forestry Commission as the agency for promoting prescribed burning and certifying practitioners. Since 1992 nearly 2500 practitioners have received certification through the Georgia Prescribed Fire Manager Certification Program. Georgia law protects those who prescribe burn under this program by requiring that gross negligence be proven against any liability suits resulting from prescribed burning. Georgia's governor proclaims Prescribed Fire Awareness Week the first full week in February each year. Nearly one million acres of Georgia forestland are treated with prescribed fire each year. In FY13 Georgia	

**Table 3.9 (d) Mitigation Related State Programs**

State Agencies			
Department	Program	Description	Affected Repetitive Flood Loss / SRL
Georgia Forestry Commission	Burn Authorizations	One of the most effective wildfire mitigation tools is the Georgia Burn Permit System. Enacted in 1988, Georgia code 12-6-90, requires a permit to be obtained from the Georgia Forestry Commission for most outdoor burning. This allows management of outdoor burning for wildfire control and for air quality concerns. Since outdoor burning is the number one cause of wildfires, the system allows for some control over wildfire occurrences, especially on the highest fire danger days. The GFC issues some 400,000 permits per year for leaf burning, brush pile burning, land clearing, and prescribed burning. Wildfire suppression costs are charged to Georgians who have escaped fires when burning illegally, without a permit. Although the GFC law enforcement program is very small, burning without a permit is a misdemeanor, punishable by up to \$1,000 fine or 1 year imprisonment.	
	Fire Weather Forecasting	In support of wildfire suppression readiness planning, burn permitting, prescribed burning and other forestry activities, the Georgia Forestry Commission employs a full time meteorologist who produces fire weather forecasts and manages the National Fire Danger Rating System for Georgia. Twice a day forecasts are posted on the Georgia Forestry Commission public internet site. This site includes specialized fire weather information that is not produced at this scale by the National Weather Service. Emergency managers across the state may utilize the fire weather forecast for management of other disasters.	
	Mechanical Fuel Treatment	The Georgia Forestry Commission is offering a new service that efficiently and economically clears understory vegetation. Mechanical fuel treatment machines are now available in GFC districts statewide and are ideal for use in areas that are unsuited for traditional prescribed burning, such as land near gas or power lines, in the wildland urban interface, on rights of way or in other smoke-sensitive areas. The program consists of 6 Type 6 engines and 6 Mechanical Fuel Treatment Machines (Masticators). The specialized vehicles have an 88" wide front mount/triple rotary deck that mulches underbrush and trees up to four inches in diameter. The machines are capable of clearing up to two acres per hour. To find out more about the benefits of mechanical fuel treatment service, visit GaTrees.org	
	Urban Forestry Strike Team	Arborists can provide disaster planning assistance to communities, risk assessment, and FEMA debris identification following storms. Risk assessment helps communities identify trees that are an unacceptable risk, <u>and trees suitable for retention and management during disaster recovery.</u>	
The Georgia Department of Transportation		<p>The Georgia Department of Transportation (DOT) plans, constructs, maintains, and improves the state's road and bridge network; provides planning and financial support for other modes of transportation such as mass transit and airports; provides airport and air safety planning; and provides air travel to state departments. Georgia's DOT also provides administrative support to the State Tollway Authority and the Georgia Rail Passenger Authority.</p> <p>Since Hurricane Floyd in 1999, extensive evacuation planning has been completed by the state in response to the large influx of evacuees on the interstate system. When tropical systems threaten neighboring states, Georgia's DOT is prepared for potential influx of evacuees as well as the potential hazard events associated with the tropical system. Georgia DOT also plans and prepares for contra-flow interstates, including planning crossovers, ramp entrance closings, and regular flow exchanges. Georgia's DOT website provides a host of information concerning preparation for emergency evacuation including evacuation routes, emergency supply lists, emergency shelter locations, and contact information for the Georgia NaviGator Transportation Management Center.</p>	

**Table 3.9 (e) Mitigation Related State Programs**

### 3.3.2 State Capability Related to Development

The information provided in the previous section details the State of Georgia’s mitigation policies, programs, and funding in relation to specific state and federal agencies. These agencies include Georgia’s Emergency Management Agency, Department of Natural Resources, Department of Community Affairs, Forestry Commission, and Department of Transportation and Federal Emergency Management Agency, Department of Defense Army Corps of Engineers, Natural Resource Conservation Service, Department of Transportation, Department of Agriculture, Small Business Administration, Housing and Urban Development, U.S. Geological Survey, Department of Commerce National Weather Service and National Oceanic and Atmospheric Administration, and National Park Service. The previous section also outlined hazard mitigation related legislation produced by the Georgia General Assembly that is found in the Official Code of Georgia Annotated.

Of the legislation listed, several policies relate to the development of hazard prone areas. These policies include the Georgia Planning Act of 1989, Coastal Management Act, Coastal Marshland Protection Act, Erosion and Sedimentation Act, River Corridor Protection Act, and Shore Protection Act. The specifics of each policy are described in Chapter 1’s Program Integration Section. Table 3.10 lists information specifically regarding development in each policy.

Legislation	Policy Purpose	Methods	Administration
GA Planning Act of 1989	Encourage better growth management and smart growth	Local long-range comprehensive planning	Local governments must maintain designation of “Qualified” in order to remain eligible for assistance programs
GA Coastal Management Act	Encourage sustainable development and protection of coastal resources	GA DNR able to receive and disburse federal grant monies	Coastal Resources Division and GA DNR established as governing bodies for developing a coastal management program
GA Coastal Marshland Protection Act	Protect tidal wetlands	Limit certain activities and structures in marsh areas through permitting	Coastal Resources Division grants permits for activities in protected tidal wetlands.
GA Erosion and Sedimentation Act	Limit land-disturbing activities near state waters	Local adoption of comprehensive ordinances governing land-disturbing activities based on minimum requirements	GA DNR EPD and local governments administer ordinances’ requirements for land-disturbing activities near state waters
GA River Corridor Protection Act	Protect river corridors	Major provisions include minimum vegetative buffers and local identification of river corridors in land use planning	GA DNR EPD administers the act’s minimum standards to all rivers in GA with at least 400 ft <sup>3</sup> /s average annual flow
GA Shore Protection Act	Protect and manage GA’s shoreline features (sand-sharing system)	Limits certain activities and structures in sand—sharing system	Coastal Resources Division grants permits for activities and structures consistent with the GA Coastal Management Program

**Table 3.10 Georgia Legislation Related to Development**



The State of Georgia's policies regarding development in hazard prone areas specifically cover the areas prone to inland and coastal flooding hazards. These policies neglect to cover development in areas prone to other hazards such as wind and seismic hazards. However, the Georgia legislation does include building code standards that regulate the actual structure instead of the development of the area. These policies are discussed in the following section of this chapter that concerns local capabilities. Other Georgia legislation concerns wildfire management, however, the legislation does not address development in wildfire prone areas. Other hazards such as tornadoes, severe weather, winter storms, and drought are not addressed by development-regulating legislation due to the hazards' not being spatially definable. In other words, all areas of the State of Georgia could be considered prone to tornadoes, severe weather, winter storms, and drought; therefore, the general development policy (Georgia Planning Act of 1989) applies statewide. By including the statewide Planning Act of 1989 and additional legislation that addresses development in flooding-prone areas, the State of Georgia's policies related to development in hazard prone areas is effective and increases the state's hazard mitigation capabilities.

### **3.4 LOCAL CAPABILITY ASSESSMENT**

The local capability assessment includes discussion of local policies governing building codes zoning and floodplain management that relate to hazard mitigation. This is followed by a discussion on the history and purpose of local mitigation planning, which increases local capability. Details of the current progress of local planning as well as the specific status of each Georgia County are further discussed in Chapter 4 of this document.

#### ***3.4.1 Local Mitigation Policies: Building Codes, Zoning, Floodplain Development Regulations and Mitigation Planning***

Of the state legislation listed in previous sections, several policies relate to the construction standards or building codes enforced at the local level. The State provides guidance to the communities by offering model ordinances and available grant opportunities to communities interested in adopting hazard mitigation actions. These policies include Georgia's state minimum standard codes for construction (the Uniform Codes Act) and the Uniform Standards Code for Manufactured Homes and Installation of Manufactured and Mobile Homes Act. The State encourages local communities to formally adopt the latest Georgia State Minimum Codes to be uniformly applied and consistently enforced in the community. DCA updates these model codes whenever the latest International Codes are released to stay current with best practices.

Georgia's state minimum standard codes for construction are designed to help protect the life and property of citizens from faulty design and construction; unsafe, unsound, and unhealthy structures and conditions; and the financial hardship resulting from rebuilding after a hazard event. In other words, these codes require a minimum standard of construction which minimally mitigates certain hazards (i.e. high winds, severe thunderstorms, etc.). The Uniform Codes Act identifies the ten "state minimum standard codes" with each code typically consisting of a base code and a set of state amendments. Georgia law dictates that eight of the 10 codes are mandatory (applicable to all construction regardless of local enforcement) and two are permissive (only applicable if the local gov-

ernment chooses to adopt and enforce). The codes are as follows:

**Mandatory Codes:**

- Georgia State Minimum Standard Building Code (International Building Code with Georgia Amendments)
- Georgia State Minimum Standard One and Two Family Dwelling Code (International Residential Code for One and Two Family Dwellings with Georgia Amendments)
- Georgia State Minimum Standard Fire Code (International Fire Code with Georgia Amendments)
- Georgia State Minimum Standard Plumbing Code (International Plumbing Code with Georgia Amendments)
- Georgia State Minimum Standard Mechanical Code (International Mechanical Code with Georgia Amendments)
- Georgia State Minimum Standard Gas Code (International Fuel Gas Code with Georgia Amendments)
- Georgia State Minimum Standard Electrical Code (National Electrical Code with Georgia Amendments)
- Georgia State Minimum Standard Energy Code (International Energy Conservation Code with Georgia Supplements and Amendments)

**Permissive Codes:**

- International Property Maintenance Code
- International Existing Building Code

As previously noted, the building, one and two family dwelling, fire, plumbing, mechanical, gas, electrical and energy codes are mandatory codes. Essentially, Georgia law dictates that any structure built in the state must comply with the applicable mandatory codes regardless of the local government's decision to locally enforce. Though local governments do not adopt the mandatory codes, the local government must adopt administrative procedures in order to enforce the codes. However, the local government has the ability to choose which mandatory codes are enforced. The remaining codes, known as permissive codes, must be adopted by either ordinance or resolution by the local jurisdiction in order for the local government to enforce.

In order to properly administer and enforce the state minimum standard codes, local governments must adopt reasonable administrative provisions which should include procedural requirements for code enforcement, provisions for hearings and appeals, and other procedures necessary for the proper local administration and enforcement of the state minimum standard codes. The power to adopt these administrative procedures is set forth in OCGA Section 8-2-26(a)(1) and includes powers such as:

- Building and structure inspection ensuring code compliance;
- Inspector and personnel employment ensuring proper code enforcement;
- Permit issuance and related charges; and
- Contracting with other local governments for code enforcement.

Georgia's Department of Community Affairs (DCA) periodically reviews, amends, and updates the state minimum standard codes. If a local government chooses to enforce any of the codes, the latest edition and the amendments adopted by DCA must be used.

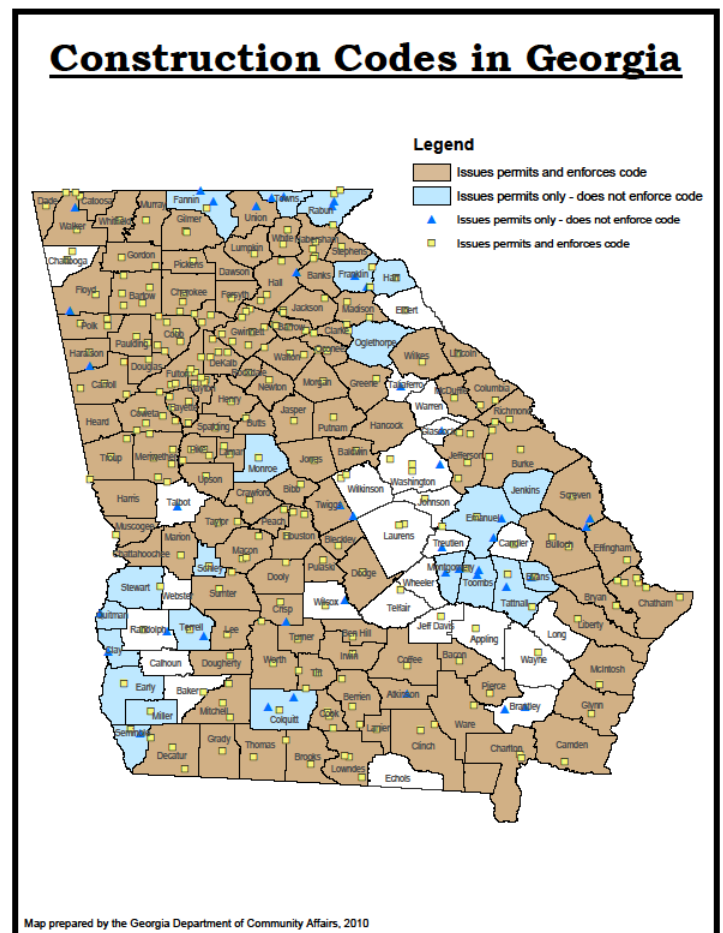
The Uniform Codes Act provides that local governments may adopt local amendments to the state minimum standard codes under certain conditions. In order to enforce the local amendment, DCA must review the proposal. Several requirements exist for local code amendment, which are as follows:

- The proposed local amendment requirement cannot be less stringent than the requirement in the state minimum standard code;
- The local requirement must be based on local climatic, geologic, topographic, or public safety factors;
- The legislative findings of the local governing body must identify the need for the more stringent requirement; and
- The local government must submit the proposed amendment to DCA at least 60 days prior to the proposed adoption of the amendment.

After the submittal of the proposed local amendment, DCA has 60 days in which to forward its recommendations to the local government. The recommendations are in favor of adoption, against adoption, or neutral with no comment. Following adoption by the local governing authority, copies of local amendments must be filed with DCA.

Figure 3.2 is a map produced by DCA that details Georgia communities' enforcement of construction codes as of 2010. As the map illustrates, 112 of Georgia's 159 counties issue permits and enforce the state minimum construction codes.

Theoretically, the primary purpose of zoning is to segregate incompatible land uses. Practically, zoning consists of locally-produced laws and ordinances that regulate development by dividing a community into zones that are regulated by development criteria. For example, zoning may regulate which activities are acceptable in a certain zone such as open space, residential, agricultural, commercial, or industrial. Zoning has the potential to inhibit inappropriate development in hazard-prone areas as well as designate certain areas for conservation, open space, and public use. Zoning laws vary immensely by jurisdiction and, in the State of Georgia, have no standard basis like the construction codes. En-



**Figure 3.2**

forcement of zoning ordinances can, at times and depending on the particular situation, be highly political. With that, a true statewide analysis of the effectiveness of zoning ordinances is impractical. Nevertheless, the potential is there for zoning ordinances to help protect the community from development in hazard prone areas.

The DCA monitors the communities in Georgia that produce zoning ordinances. The status of Georgia communities in regards to zoning ordinances is shown in Figure 3.3. As the map illustrates, 111 of Georgia's 159 counties enact zoning ordinances at the local level.

A third type of code that is prevalent throughout the State is floodplain development regulation. As of July, 2013, 152 of Georgia's 159 counties and 351 of Georgia's 530 cities and towns participate in the National Flood Insurance Program (NFIP). As a pre-requisite for participation in the NFIP, the community must adopt and enforce a floodplain development ordinance that meets certain minimum standards, such as minimum finished floor elevations for buildings built in floodplains. These regulations are designed so that, while they do allow development in the floodplains, any such development must be done so that there is no or minimal negative flood impact on any other properties and any buildings must be constructed so that floodwaters from a 100 year/1% chance per year flood will flow freely and should not enter and cause damage to the enclosed livable or workable spaces of a structure.

Currently, at least 152, or 96%, of Georgia's 159 counties and 351, or 66%, of Georgia's 530 municipalities have adopted and enforce floodplain development regulations that meet the minimum NFIP standards. It is possible, though not very likely, that some communities, unbeknownst to GEMA, have adopted floodplain regulations, but, for one reason or another, do not participate in the NFIP. It is likely, however, that some communities, though probably not very many, have adopted more stringent floodplain development regulations than the minimum NFIP standards require. That being said, the majority of Georgia appears to be fairly well protected from improper development within the floodplain areas.

Between January 2002 and June 2013, all 159 of Georgia's counties, along with the participating municipalities, completed local multi-jurisdictional hazard mitigation plans. As of June 2013, 70 counties have completed first update to their LHMP. The quality and effectiveness of the plans has improved over time and continues to do so. For a more detailed description of the local planning process, including historical, current and future activities, as well as GEMA's assistance and coordina-

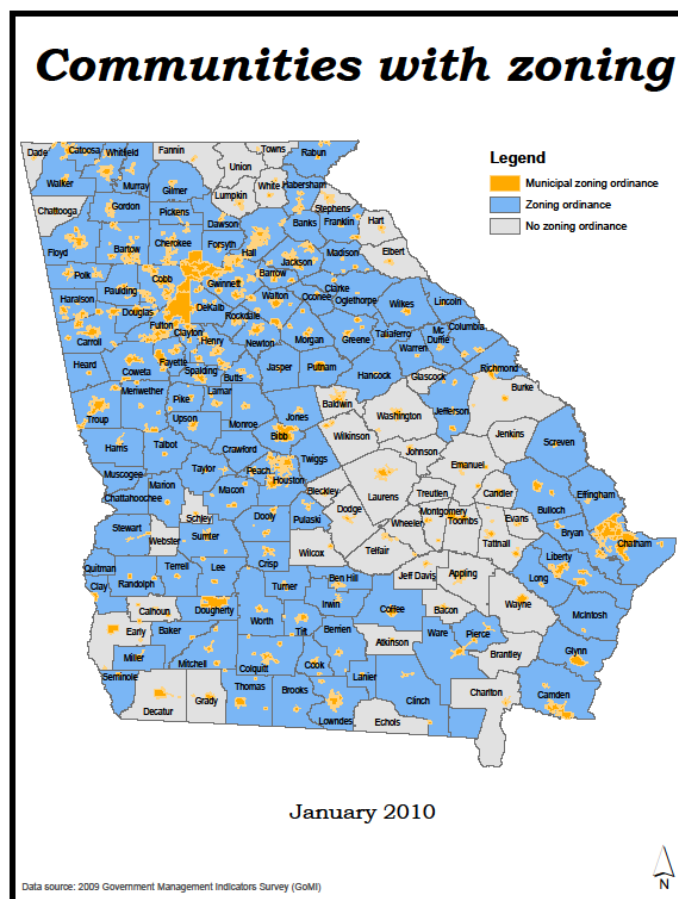


Figure 3.3

tion of the local process, please see Chapter 4.

### 3.4.2 Community Rating System

The Community Rating System is a voluntary program through which National Flood Insurance Program (NFIP) communities are rewarded for beneficial floodplain management that exceed minimum NFIP requirements. Under the CRS, flood insurance premium rates are adjusted to reflect the reduced flood risk resulting from community activities that meet the three goals of CRS: reducing flood losses; facilitating accurate insurance ratings; and promoting the awareness of flood insurance. The CRS classifies communities based on a point system with the first class (Class 1) receiving the largest premium reduction and the last class (Class 10) receiving no reduction. CRS recognizes 18 credible flood mitigation activities that fall under four broad categories: public information, mapping and regulations, flood damage reduction, and flood preparedness.

Credit Points	Class	Premium Reduction	
		SFHA*	Non-SFHA**
4,500 +	1	45%	10%
4,000 – 4,499	2	40%	10%
3,500 – 3,999	3	35%	10%
3,000 – 3,499	4	30%	10%
2,500 – 2,999	5	25%	10%
2,000 – 2,499	6	20%	10%
1,500 – 1,999	7	15%	5%
1,000 – 1,499	8	10%	5%
500 - 999	9	5%	5%
0 - 499	10	0	0

**Table 3.11 Community Rating System and Associated Flood Insurance Reductions**

\* **Special Flood Hazard Area**

\*\* **Preferred Risk Policies are available only in B, C, and X Zones for properties that are shown to have a minimal risk of flood damage. The Preferred Risk Policy does not receive premium rate credits under the CRS because it already has a lower premium than other policies. The CRS credit for AR and A99 Zones are based on non-Special Flood Hazard Areas (non-SFHAs) (B, C, and X Zones). Credits are: classes 1-6, 10% and classes 7-9, 5%. Premium reductions are subject to change.**

Table 3.12, lists the total CRS communities in Georgia as of May 1, 2013. The table also provides the CRS class for each community for previous selected years. If no class is provided, that community had not yet joined the CRS program. The number of CRS communities in Georgia has steadily increased with many improving on their CRS class.

Participating in the CRS program benefits communities by providing enhanced public safety, reducing damage to public and private property, avoiding economic losses and disruption, and protecting the local environment. The program also allows the evaluation of local programs in comparison to a nationally recognized benchmark.

**CRS Class by Year of Data**

<b>COMMUNITY NAME</b>	<b>2004</b>	<b>2007</b>	<b>2010</b>	<b>2013</b>
Albany, City of	9	9	8	8
Austell, City of				8
Brunswick, City of	9	9	9	9
Camden County				8
Cartersville, City of		9	9	9
Catoosa County				8
Chatham County	7	7	6	6
Cherokee County		8	8	8
Cobb County	8	8	8	8
College Park, City of	6	6	6	6
Columbia County	8	8	7	7
Columbus, City of	8	8	8	8
Covington, City of	9	9	9	9
Coweta County				8
Crisp County		9	9	9
Decatur, City of	8	7	6	6
Dekalb County	8	8	7	7
Dougherty County	7	7	6	6
Douglas, City of				9
Douglas County	8	8	8	8
Duluth, City of	9	9	8	8
Effingham County				7
Fayette County	7	7	6	6
Fayetteville, City of		8	8	7
Forest Park, City of				9
Fulton County	9	9	9	8
Glynn County	8	8	8	7
Griffin, City of			6	5
Gwinnett County	8	8	8	8
Henry County				8
Hinesville, City of				7
Jekyll Island, State Park Authority	7	6	6	6
Lake City, City of				9
Morrow, City of				9
Paulding County	10	10	10	10
Peachtree City, City of	7	7	7	7
Pooler, Town of	8	8	8	7
Roswell, City of	7	7	7	7
Savannah, City of	8	8	8	6
Tifton, City of			8	8
Tybee Island, City of	8	8	7	7
Waynesboro, City of	10	10	10	10
Worth County	9	9	9	9
<b>Total Participating</b>	<b>26</b>	<b>30</b>	<b>32</b>	<b>43</b>

**Table 3.12 Georgia CRS Communities and Rankings**

### 3.5 STATE AND LOCAL FUNDING SOURCES

The State of Georgia currently uses several funding sources to implement hazard mitigation activity. Primarily, these funds stem from federal, state, and local sources. The State of Georgia is interested in continuing to pursue these federal, state, and local funding sources throughout the future implementation of the mitigation strategy as well as in pursuing additional private sources.

The State of Georgia currently uses several funding sources to implement its hazard mitigation actions. These funds primarily come from Federal and State sources, and the State is interested in pursuing additional private sources. Current and potential sources are listed in the following tables.

Program	Source	Description	Estimated Annual Funding	How it is used
Hazard Mitigation Grant Program (HMGP)	FEMA	The provides funds to States, Territories, Indian Tribal governments, local governments, and eligible private non-profits (PNPs) following a Presidential major disaster declaration.	Only available after disaster declaration and varies depending on size and scope of disaster	State and local planning, state and local projects
CDBG (Community Development Block Grant)	HUD, DCA	Provides communities with resources to address a wide range of unique community development needs.	In Georgia (millions): 2008 \$40.1 2009 \$39.9 2010 \$43.6 2011 \$36.6. 2012 \$34.5	Housing, economic development, disaster recovery
Assistance to Firefighters Grant	FEMA	Meet the firefighting and emergency response needs of fire departments and non-affiliated emergency medical service organizations	Prescribed by Congress; \$320 million in FY2013	Funding Community Wildfire Protection Planning (CWPP) for GA

**Table 3.13 Current Funding Sources**



Program	Source	Description	Estimated Annual Funding	Potential Uses
PDM	FEMA	Annual, nationally competitive grant program for hazard mitigation	Prescribed by Congress each year	State and local planning, state and local mitigation projects
Assistance to Firefighters Grant	FEMA	Meet the firefighting and emergency response needs of fire departments and non-affiliated emergency medical service organizations	Prescribed by Congress; \$320 million in FY2013	Fire mitigation projects, community wildfire protection planning
CDBG	HUD, DCA	Provides communities with resources to address a wide range of unique community development needs.	Between 2008-2013, GA has received \$33-40 million each year	Housing, economic development, disaster recovery
FMA	FEMA	Provides funds on an annual basis so that measures can be taken to reduce or eliminate risk of flood damage to buildings insured under the National Flood Insurance Program (NFIP).	Prescribed by Congress; \$120 million allocated in FY2013	Flood mitigation projects, flood mitigation planning

**Table 3.14 Potential Funding Sources**

# Chapter 4: Coordination of Local Mitigation Planning

As previously discussed in Chapter 3, the local mitigation planning requirements are an attempt to accumulate greater knowledge of local hazard exposure, available critical facilities (especially those with high hazard exposure), and potential mitigation policies, programs, and projects. The following sections detail the approval and update process of local mitigation planning. Following these sections is a discussion concerning the state's prioritization of local assistance.

Chapter 4 Section	Updates to Section
4.1 Local Technical Assistance	<ul style="list-style-type: none"><li>• Revised to reflect new plan content.</li><li>• Moved Local Funding to 4.2</li><li>• Revised to include figures and tables</li><li>• Revised to add details on local plan review process</li></ul>
4.2 Local Funding	<ul style="list-style-type: none"><li>• New section, moved from 4.1</li></ul>
4.3 Local Plan Integration	<ul style="list-style-type: none"><li>• Updated text</li><li>• Results of local plan review analysis table moved to Ch.3</li></ul>
4.4 Prioritizing Local Assistance	<ul style="list-style-type: none"><li>• Updated text</li><li>• Updated tables</li></ul>

**Table 4.1: Summary of Changes to Chapter 4**

Each section of Chapter 4 of the Georgia Hazard Mitigation Strategy (GHMS) was reviewed and updated by GEMA Hazard Mitigation staff. Each section was revised as necessary to reflect previous, current and future planned activities to assist Georgia's 159 counties, their municipalities, University System campuses and authorities in the completion and updating of their local hazard mitigation plans and projects.

## 4.1 LOCAL TECHNICAL ASSISTANCE

GEMA Hazard Mitigation staff proactively works on meeting the requirements of the Disaster Mitigation Act of 2000 for local hazard mitigation planning activities. The following sections describe the process for how staff assist local plan development and grant management.

### 4.1.1 Plan Development Process

The development process is captured in Figure 4.1. This flow chart details the process by which the State of Georgia and local jurisdictions typically follow during the funding of planning projects. Imbedded in this flowchart is the timeline associated with the mitigation plan development process. As the chart illustrates, the first section is the application period that lasts 6 - 9 months. For HMGP grants, this timeframe can be longer, depending on the time necessary to get the overall amount

available for grants locked in. This lock-in time often overlaps with when the State begins to reach out to affected communities to discuss needs and possibilities for mitigation grants. The application period includes outreach, calls for applications, GEMA assistance with application development, submittal to FEMA and FEMA's review and response that ultimately ends in the project's receiving or not receiving funding. The second period, the grant development process, lasts from 3 - 6 months and includes the development and signing of grantee-subgrantee agreements and the distribution of guidance packages, usually accomplished at the local kickoff meeting. The third period, the plan development phase, lasts around 18 - 30 months and includes GEMA's provision of technical assistance with plan development as needed, receipt and processing of quarterly reports and payment requests, and plan draft copies. The third period also includes GEMA and FEMA review, plan adoption, FEMA approval, and the notifications of approval. Overall, the third period lasts between 2 ½

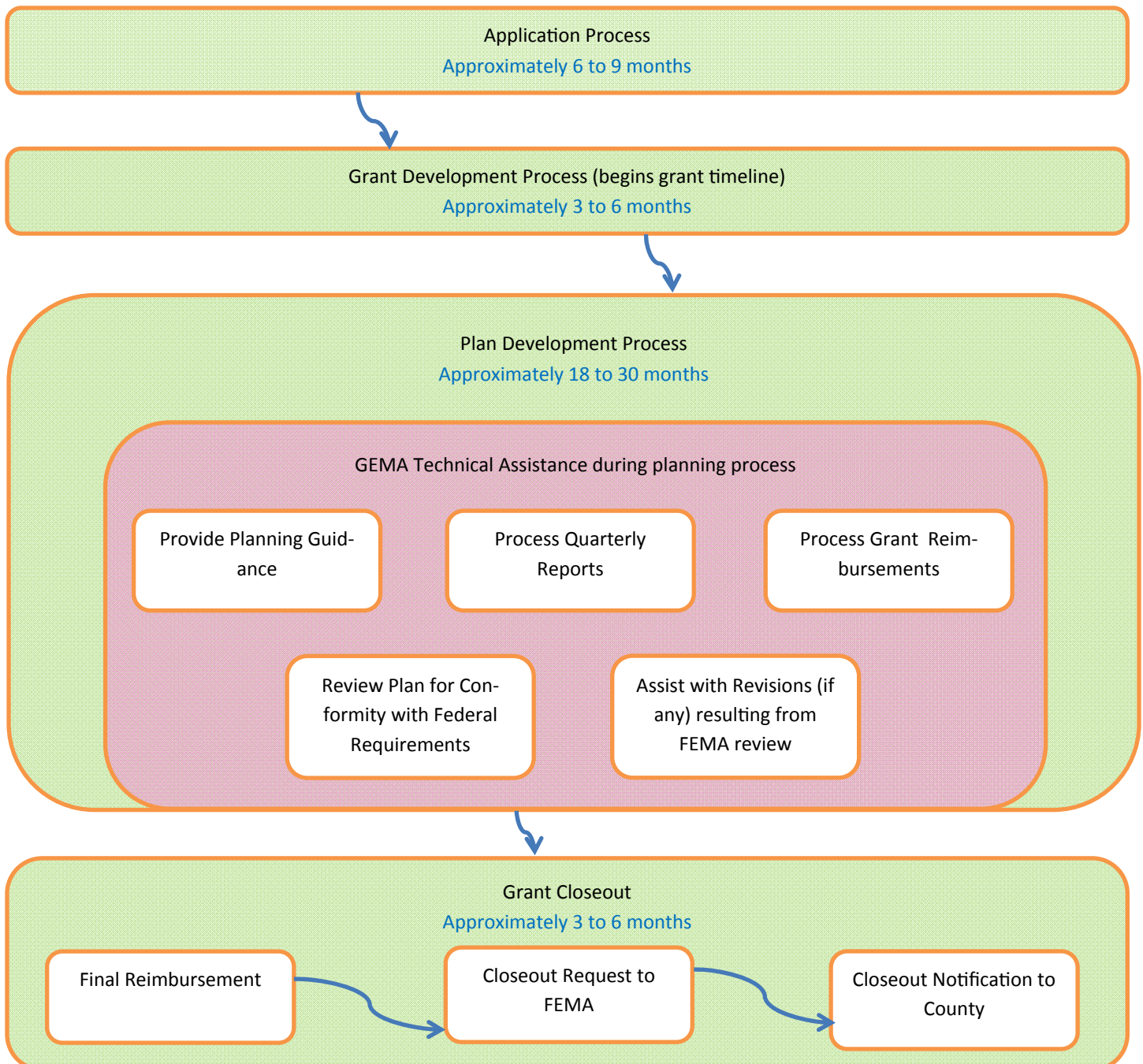


Figure 4.1 Grant Process Flow Chart

GEMA's Mitigation Planners conduct local kickoff meetings with each county and their invited mitigation planning teams. This will include the leadership of all municipalities, emergency management agencies, private businesses and interested citizens. The purpose of these kickoff meetings is to give the entire planning team an overview of the program and some basic guidance to help them get started with the mitigation planning process.

The final phase of the plan development process begins when a draft plan is submitted to GEMA for review. Once the plan has been drafted, the County sends the plan to their assigned GEMA Hazard Mitigation planner for review. GEMA currently has four planners that cover four geographic areas in the State as shown in Figure 4.2. Two planners are located in the Atlanta office and work with counties in the northern half of Georgia, one planner is located in Cordele to assist counties in Southwest Georgia and one planner is located in Statesboro to assist counties in Southeast Georgia. Each planner works with counties to help ensure that plans are updated and reviewed prior to the plan expiration date.

**GEMA Hazard Mitigation Planner Areas**  
August 14, 2012

**Planners**

- Kelly Keefe
- Brian Laughlin
- Scott Sherman
- Alan Sloan

GEMA Offices

Interstates

131



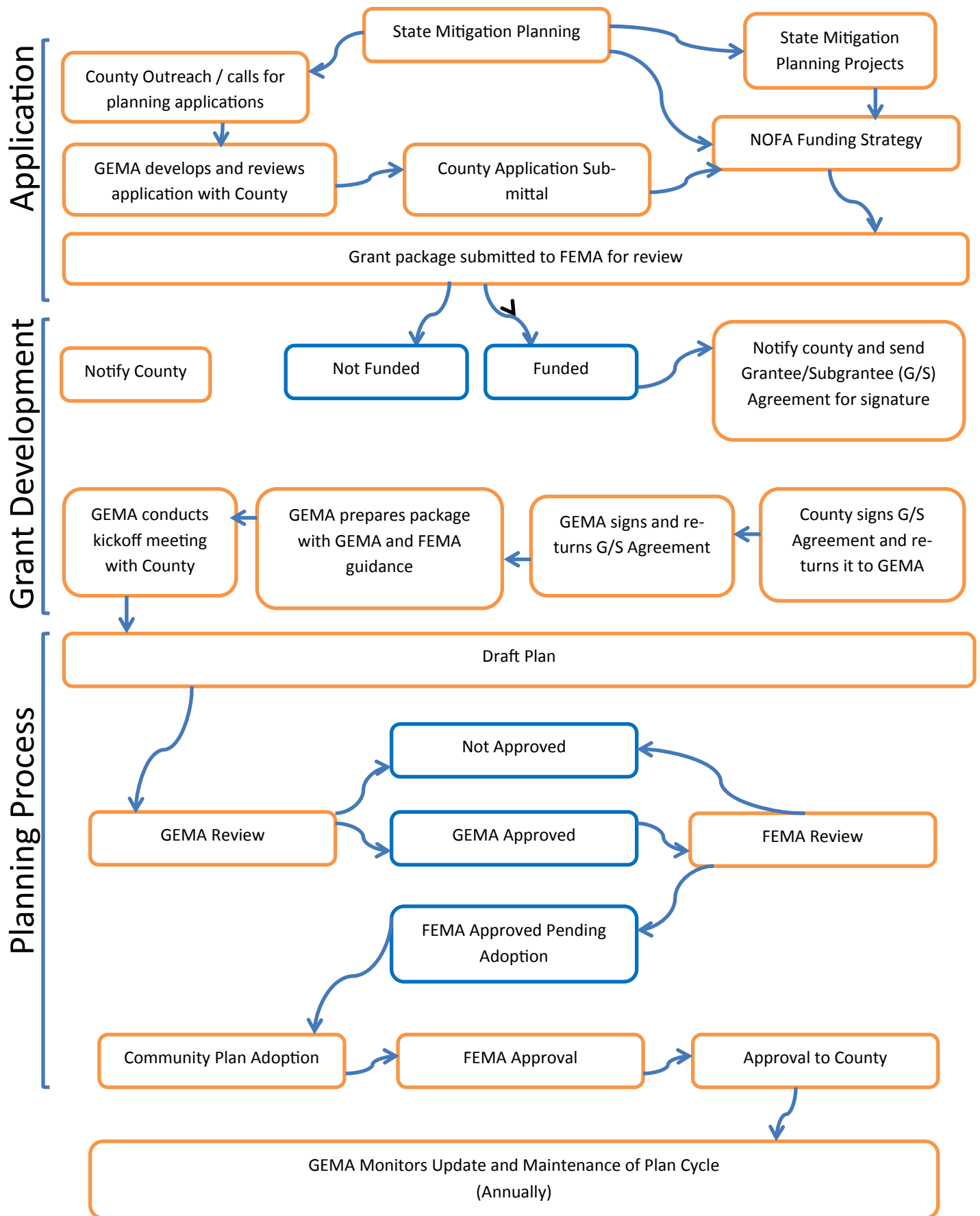


Figure 4.3 Local Hazard Mitigation Planning Process Flow Chart

<b>1. REGULATION CHECKLIST</b>		<b>Location in Plan (section and/or page number)</b>	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>				
<b>ELEMENT F. ADDITIONAL STATE REQUIREMENTS</b>				
F1. Does the plan document opportunities for participation by neighboring communities, businesses and other interested parties? (Invitation letters, sign in sheets, etc.)				
F2. Does the plan document opportunities for public input and participation? (copies of meeting notices, sign in sheets, or other applicable documentation)				
F3. Does the plan discuss the review of the following planning mechanisms, at a minimum, for incorporation as applicable? <ul style="list-style-type: none"> <li>• Comprehensive Plan</li> <li>• Flood Mitigation Assistance Plan (if one exists)</li> <li>• Flood Insurance Study (If one exists)</li> <li>• Community Wildfire Protection Plan</li> <li>• Local Emergency Operations Plan</li> <li>• State Hazard Mitigation Strategy</li> </ul>				
F4. Has the Critical Facilities Inventory been completed online?				
F5. Have the GMIS Critical Facilities reports and maps, or maps from a superior system, been provided?				
<b><u>ELEMENT F: REQUIRED REVISIONS</u></b>				

**Figure 4.4 Local Plan Review Tool Element F: State Requirements**

Once GEMA's mitigation planners determine that the plan meets the federal mitigation planning requirements, except for final public comment and adoption, the local governments prepare a final draft and send it to the GEMA Hazard Mitigation Division for submittal to FEMA Region IV for Federal review. Once FEMA determines the plan meets all requirements, except for final public comment and adoption, FEMA will issue an approval pending adoption for the plan. The local governments then conduct their final public comment process, adopt the plan and forward this documentation, along with a final copy of the plan to GEMA, who then forwards this to FEMA. During the state and federal review processes, if revisions become necessary as a result of the reviews, GEMA's mitigation planners will suggest and assist with revisions to the plan in order to meet the requirements. Once FEMA has determined that the plan meets the local mitigation planning requirements, all the necessary notifications of plan approval are made and the county then implements and monitors the plan over the next 5 years.

### **4.1.2 Local Planning Tools**

GEMA Hazard Mitigation staff continues to provide an array of tools to assist local communities with local hazard mitigation planning activities. This includes participating in local plan kickoff meetings, disseminating planning guides and documents via CDs and email, sharing information on available training and hosting planning workshops.

Since the 2011 GHMS, the GEMA Hazard Mitigation website has been updated to provide information and resources on local hazard mitigation planning. Information found on the website include the current State Hazard Mitigation Strategy; FEMA planning guides, including but not limited to the How-to Guides, Disaster Mitigation Act of 2000, FEMA Mitigation Ideas and the Local Mitigation Planning Guidance with GEMA highlights (recently replaced by the Local Mitigation Planning Handbook); GEMA planning documents and links to other useful resources. This website can be located from the GEMA webpage at <http://www.gema.state.ga.us/> .

Training is a vital resource to ensure that GEMA staff possesses the most effective capabilities to guide local communities in their planning efforts. Staying current on regulations, FEMA programs and best practices with appropriate FEMA mitigation training allows GEMA staff to advise local communities on maintaining regulatory compliance, maximize funding opportunities and improving local hazard mitigation planning.

## **4.2 LOCAL FUNDING**

Since the inception of the Federal local mitigation planning requirements, GEMA has assisted Georgia communities in locating and obtaining funding for plan development and updates. The planning team continues to use a grant application which addresses and provides examples of responses for both pre and post disaster grants. Upon completion of all parts of the grant application, the applicant should have an acceptable application that will have sufficient information for both of FEMA's NEMIS and eGrants system, and to be found acceptable by FEMA. A copy of the application can be found in Appendix F. Each planning team member works very closely with the counties in their territory when developing these applications. The applications approved by FEMA are made part of the agreement between county, state and federal agencies; therefore they are prepared in great detail and forethought.

In the eleven years Georgia has been involved in mitigation planning, the state has made use of two categories of mitigation grant sources, both of which have been provided by FEMA. These are Disaster Related Mitigation Programs and Non-Disaster Related Mitigation Programs. The primary difference between the two categories is when and where they are available. Non-disaster related is available nationwide on a regular basis, regardless of the occurrence of disasters. Disaster related mitigation is only available in the aftermath of a declared disaster and is only available to the affected state.



#### **4.2.1 Disaster Related Mitigation Programs**

Due to a series of natural disasters which have affected the state in various forms and locations, funding for local plan development since 2009, has come solely in the form of the Hazard Mitigation Grant Program(HMGP grants), awarded by the President, provided by FEMA and administered by GEMA. One disaster, DR1973, has occurred since the 2011 approval. This disaster, in conjunction with previously declared disasters, provides sufficient funding for 155 of the 159 counties to update their plans over the course of the last several years and going into the next three.

<b>Disaster #</b>	<b>Month/Year</b>	<b>Total Project Costs</b>	<b># Applications</b>	<b>Federal Share Approved</b>
1686	3/2007	643,765	28	482,819
1750	3/2008	109,213	1	81,909
1761	6/2008	186,740	9	140,055
1833	5/2009	461,442	23	346,081
1858	9/2009	1,869,803	74	1,402,357
1973	4/2011	478,000	20	358,500
<b>Total</b>		<b>3,748,963</b>	<b>155</b>	<b>2,811,721</b>

**Table 4.2 Plan Updates Included in Recent Disasters (Current through September 30, 2013)**

For counties involved in a disaster, Governor Deal has authorized payment of 40% of the local match requirement by the State or 10% of the total grant amount, leaving the local government responsible for only 60% of the remaining match or 15% of the total grant amount. In many cases this takes a large burden off the counties struck by disaster and whose assets have been depleted in their recovery.

#### **4.2.2 Non-Disaster Related Mitigation Programs**

Historically, Georgia has used two non-disaster related mitigation programs to help local communities develop and update their mitigation plans. These are the Pre-Disaster Mitigation (PDM) grant program and the Flood Mitigation Assistance (FMA) grant program. The primary difference is FMA is specifically for flood mitigation planning and, prior to October 2008, the FMA planning requirements were much more stringent. Due to a large number of disasters that have occurred in Georgia since 2007, it has not been necessary to utilize PDM since the 2008 grant cycle to fund mitigation plans.

In 2008, Georgia used FMA funds for a limited number of FMA stand-alone plans. One of these (Glynn County) was only recently completed in 2012. Prior to October 2008, FMA planning requirements were more stringent than local multi-hazard planning requirements. However, in 2008, FMA planning requirements were incorporated into the local multi-hazard planning requirements. Therefore, FEMA will no longer fund a stand-alone plan using FMA funds.

If the State of Georgia finds itself in the fortunate position of not incurring any disasters over the next five years, the local applications will require financial assistance from the Pre-Disaster Mitigation or other available grant programs.

### **4.2.3 Other Mitigation Funding Programs**

In addition to the multi-jurisdictional hazard mitigation plans discussed in Sections 4.2.1 and 4.2.2 above, GEMA has worked with various agencies on two other mitigation planning programs. The first was the Disaster Resistant University (DRU) program for college and university campuses. The other was the Flood Mitigation Assistance (FMA) planning program for local governments.

The Board of Regents of the University System of Georgia (USG), through a federal Pre-Disaster Mitigation (PDM) grant and GEMA, initialized the Disaster Resistant University (DRU) program for fiscal year 2003 (FY03). The PDM grant allowed all 35 public institutions within the USG to develop a hazard mitigation plan to meet the federal requirements of the Disaster Mitigation Act of 2000 and of the FEMA planning criteria promulgated in Title 44 of the Code of Federal (CFR) Regulations, 201.6 on Federal Register, 2-26-2002. Though the grant is no longer in effect, GEMA has continued to work with various campuses, as requested, in developing and updating their plans.

As of December 2010, twenty-five of the thirty-six universities successfully completed hazard mitigation plans. Each of the universities has been instructed to submit their plans to the counties they are located. They are also recommended to participate in the update of that county's local hazard mitigation plan during their next update. The inclusion of the university's plan in the approved local plan makes them eligible for federal funds in the event they are affected by a presidentially approved hazardous event.

All universities are headed up by the Board of Regents, which is a state agency, and are covered by the State Hazard Mitigation Plan. Therefore, state universities can apply for federal aid as a state entity in the event they are affected by a presidentially declared hazard event. Universities that participate in the update of a local hazard mitigation plan and have their plans included in that approved local plan, can apply for federal funding if they are subject to a presidentially declared event.

Each DRU hazard mitigation plan includes a hazard, risk, and vulnerability assessment based on refined data and hazard maps provided by GEMA. The institutional level risk-based, data-driven mitigation plans were created with clearly identified future mitigation goals and objectives that will ultimately lead to mitigation projects. This process and the provided data allow accurate risk and loss estimates which lead to more cost effective mitigation actions. The DRU program is an integral part of bridging non-traditional local and state partnerships within the context of emergency management.

## **4.3 LOCAL PLAN INTEGRATION**

Chapters 2 and 3 described the review of local plans to ascertain which hazards and mitigation actions are identified in within those plans. The results of this review is utilized by GEMA Hazard Mitigation staff in the assessment on how local plans are reviewed, coordinated and integrated into the state plan.

With an increase in the percentage of counties identifying Wind, Hurricane Wind and Severe weather hazards in the local plans, the risk assessment and mitigation strategy of the state plan has been updated to include additional risk information and strategies to reflect this increase in local priority.

More significant changes were observed in the types of mitigation actions identified in local plans. The most notable is the decrease in Planning/Zoning actions identified from 88% in 2010 to 76% in 2013. Given that these types of actions have proven to have great value in reducing long-term risk, the mitigation strategy in the state plan was updated to include actions that support local planning and zoning efforts. In addition, GEMA Hazard Mitigation planners changed how they review local plans by creating the state requirement in the Plan Review Tool that asks if the plan references specific planning mechanisms. An increase in non-mitigation actions such as preparedness and response indicates GEMA Hazard Mitigation staff should provide more effective education and training to local officials on hazard mitigation planning. Actions related to this have been integrated in the state mitigation strategy.

#### **4.4 PRIORITIZING LOCAL ASSISTANCE**

The State of Georgia must utilize analytical methods for prioritizing the distribution of available funding to communities and local jurisdictions. The first subsection discusses the methods the State uses for prioritizing the funding for local mitigation planning. The following section discusses the prioritization of mitigation grant program funding based on repetitive losses.

##### ***4.4.1 Prioritization of Local Plan Updates***

In the summer of 2008, GEMA's mitigation Planning Team developed list of counties that at that time had received plan approval. Using this list, the Staff divided the counties into 12 levels of priority based on six month timeframes and according to each county's plan expiration date and the date that plan updates would be due with priority 1 being the highest priority and priority 10 being the lowest. This list is updated every six months. For example, counties whose plans expire between July 1, 2015 and December 31, 2015 received priority 1 status. Those that expired between January 1, 2016 and June 30, 2016 received priority 2 status and so forth.

Since that time, GEMA has continued to maintain and update the priority list as local updates are completed. In that time, GEMA has assisted 84 counties in obtaining funding assistance through HMGP to update their mitigation plans. As of August, 2013, 70 of those counties have completed their updated plan. GEMA anticipates the remainder to be completed by the end of 2014.

In addition, as of August, 2013, GEMA is pursuing funding assistance for the next 29 counties in the priority list. It's notable that, for some of these counties, this would be the second update to their plans. GEMA anticipates receiving approval and holding kickoff meetings to initiate the planning processes for these counties in the Winter and Spring of 2014.

GEMA will continue to adhere to this priority system of updating local hazard mitigation plans when distributing funding and assistance for the planning process. Table 4.3 illustrates the priority of the various counties' in terms of plan updates by 6 month period beginning in January of 2010. In each 5 year update cycle the driving factor on priority will be the county's plan expiration date.

County	Plan Expiration	Priority
Pulaski	7/14/2015	1
Houston	8/2/2015	1
Gwinnett	8/19/2015	1
Jones	8/19/2015	1
Fayette	9/2/2015	1
Monroe	10/14/2015	1
Lamar	11/4/2015	1
Camden	11/9/2015	1
Chatham	11/9/2015	1
Upson	11/10/2015	1
Crisp	1/3/2016	2
Lee	2/4/2016	2
White	2/4/2016	2
Bibb	3/22/2016	2
Dougherty	3/29/2016	2
DeKalb	3/31/2016	2
Floyd	4/19/2016	2
Douglas	5/5/2016	2
Hall	5/9/2016	2
Chattooga	6/17/2016	2
Union	7/12/2016	3
Miller	7/26/2016	3
Carroll	8/18/2016	3
Baker	8/22/2016	3
Cobb	9/16/2016	3
Laurens	9/22/2016	3
Fulton	9/23/2016	3
Lumpkin	10/21/2016	3
Liberty	11/15/2016	3
Worth	1/5/2017	4
Bartow	1/10/2017	4
Clayton	1/18/2017	4
Mitchell	1/26/2017	4
Lowndes	2/10/2017	4
Cherokee	2/17/2017	4
Calhoun	2/22/2017	4
Quitman	3/19/2017	4
Glynn	4/4/2017	4
Paulding	4/13/2017	4

County	Plan Expiration	Priority
McDuffie	4/27/2017	4
Decatur	5/2/2017	4
Baldwin	6/15/2017	4
Gordon	6/15/2017	4
Putnam	6/21/2017	4
Richmond	6/28/2017	4
Catoosa	7/5/2017	5
Elbert	7/6/2017	5
Walker	7/10/2017	5
Long	8/30/2017	5
Forsyth	9/5/2017	5
Heard	9/6/2017	5
Muscogee	9/6/2017	5
Morgan	9/14/2017	5
Whitfield	9/18/2017	5
Tift	9/21/2017	5
Fannin	10/12/2017	5
Wayne	10/12/2017	5
Spalding	10/19/2017	5
Columbia	10/19/2017	5
Early	10/24/2017	5
Polk	11/14/2017	5
Murray	1/16/2018	6
Seminole	2/5/2018	6
Clarke	3/26/2018	6
Gilmer	4/1/2018	6
Clay	5/23/2018	6

**Table 4.3 Local Plan Priority Update Schedule by Expiration Date**

#### **4.4.2 Prioritization of Local Plan Funding**

Georgia has been working in local hazard mitigation planning since 2002. Since then, all of Georgia's 159 counties have completed and adopted their initial mitigation plans. One stipulation to local plans is they are only effective for 5 years and must be updated in order to maintain the community's approved status. With that, Georgia has developed an ever evolving tracking spreadsheet which tracks local plans. Georgia uses this spreadsheet to prioritize local plan funding according to the expiration dates of each county's local plan. The focus is on maintaining eligibility for each community to pursue mitigation grant funding as the need and opportunity arises. The goal is to fund the local plan updates in time to be completed prior to the expiration of the each county's current local plan. The current priority list for the upcoming 3 years is shown in Table 4.3.

#### **4.4.3 Prioritization of Project Funding**

In order to maximize the amount of federal and state funding available, GEMA employs an application prioritization system. GEMA reviews, scores and ranks submitted pre- applications and applications using criteria on GEMA's Hazard Mitigation Assistance Score Sheet. The criteria includes: natural hazard exposure, history of damages, type of mitigation, potential impact on the community, impact on environment, community commitment to mitigation, and benefits of mitigation. Generally pre-applications and applications for acquisition and demolition projects receive the highest ranking. See Appendix F for a copy of the GEMA's Hazard Mitigation Assistance Score Sheet.

When a Hazard Mitigation assistance application cycle is opened, GEMA uses a two tiered review process. Initially, communities are directed to submit pre-applications that allow GEMA staff to determine if a proposed mitigation project meets FEMA funding criteria. Completed pre-applications received by the publicly stated deadline are scored using criteria on GEMA's Hazard Mitigation Assistance Score Sheet. In addition to the above criteria, for post-disaster grants (HMGP), pre-applications are prioritized under two categories- within the declared area and outside of the declared area. Projects that mitigate the impacts of the specific declaration event such a flood versus tornado in the declared areas have the highest priority for the State of Georgia.

Applicants whose pre-applications receive the highest score and meet minimum project criteria will be invited to complete and submit a full grant application. Risk Reduction Specialists and Hazard Mitigation Planners will assist applicants in completing their applications and will conduct an initial review in accordance with the GEMA's Hazard Mitigation Assistance Score Sheet. The State Hazard Mitigation Division Director will review the results of the staff scoring and prioritization of applications. The recommendations are presented to the GEMA Agency Director for final determination.

Benefit Cost Analyses (BCA) incorporate various data to determine the cost effectiveness of a project or activity. Essentially, the BCA determines whether the current cost of investing in a project will result in sufficiently reduced damages in the future. Only projects with a benefit-cost ratio (BCR) exceeding 1.0 are ranked for further review and forwarded to FEMA for funding consideration. GEMA Hazard Mitigation staff work closely with project applicants to determine each project's cost effectiveness. The basic information the state obtains to conduct accurate BCAs includes, but is not limited to the following:

- Flood Insurance Study data or historical flood data (flood frequency, discharge, and elevation);
- Past damages to the project site or in the project area;
- Well-documented cost-estimates for the project;
- Useful life of the project;
- Square footage of the building with replacement and content values;
- Facility function;
- Associated future maintenance costs;
- Displacement costs;
- Temporary relocation costs;
- Loss of use; and
- Elevation Certificates or land surveyor certification of finished floor elevation.

All of the projects completed to meet the state's mitigation goals (listed in Table 3.12) must have met the minimum BCR of 1.0 in order to garner funding (where applicable). Georgia's success in all funding rounds to date of the Hazard Mitigation Assistance (HMA) grants which include the Pre-Disaster Mitigation Competitive Program, Flood Mitigation Assistance Program and Repetitive Flood Claims Program demonstrates GEMA's Hazard Mitigation staff's ability to complete accurate BCAs. The State of Georgia has submitted a total of 80 projects since 2003 that have been reviewed at the national level in the competitive grant program. A total of 66 projects applications have been selected and awarded. Of the non-awarded projects, ten were deemed eligible but not selected due to funding constraints.

Finally, not only do projects have to meet standards of cost-effectiveness and technical feasibility, but also environmental soundness. The State of Georgia relies on the staff at FEMA Region IV to conduct environmental reviews and prepare the environmental documentation on all submitted mitigation applications. As part of the application process, the state requires documentation from the sub-applicant to comply with all applicable federal, state, and local codes and standards, including the National Environmental Policy Act (NEPA), PL 91-190, as amended. Georgia provides information to each applicant on the necessary environmental coordination that must be completed as part of the application process. The state reviews each applicant's environmental documentation prior to forwarding it to FEMA. The State of Georgia has successfully worked with each applicant on obtaining the required environmental documentation to comply with the NEPA process.

#### ***4.4.4 Repetitive Loss Properties***

Repetitive loss properties (RLPs) generally consist of older, less-safe properties that were "grandfathered" into the National Flood Insurance Program (NFIP) during its creation. The RLPs have been repaired multiple times to pre-flood conditions with subsidized flood insurance claim payments. According to FEMA, a relatively small number of RLPs account for a relatively large share of paid flood claims. Therefore, identifying RLPs and Severe Repetitive Loss Properties (SRLPs) and mitigating the specified properties leads to the reduction of actual flood insurance claims, which will diminish the pressure to raise flood insurance rates and stabilize the condition of the NFIP.

The following table, Table 4.4, lists the total losses, total RLPs, total SRLPs, total mitigated RLPs, and total mitigated SRLPs by NFIP community in the State of Georgia as of June 30, 2013. The City of Augusta and Augusta-Richmond County figures have been combined as Augusta-Richmond County is a consolidated government and mitigated actions are compiled at this government level. The repetitive loss information was obtained from DataXchange while the mitigated property information was obtained from GEMA's mitigated properties database. To be considered a RLP by FEMA, the property must have two or more losses (at least \$1,000 per loss) paid within a 10 year time period. To be considered a SRLP by FEMA, the property must have four or more losses (at least \$5,000 per loss) paid or have two or more losses where the payments exceed the property value. As of June 30, 2013, Georgia has 1,645 RLPs totaling over \$135 million in paid claims. Also, Georgia has 51 validated residential SRLPs totaling over \$15 million in paid claims.

Table 4.4 illustrates that the City of Savannah accounts for approximately 20% of the RLPs and SRLPs in the State of Georgia. However, Savannah also accounts for approximately 43% of the completed mitigated activities on repetitive loss properties in the State of Georgia. The City of Atlanta also accounts for approximately 27% of the Severe Repetitive Loss properties. This is driven largely in part to the losses from Hurricane Ivan in 2004 and record breaking flooding in Metro Atlanta region in September of 2009.

Community	Losses (\$)	# RLPs	# SRLPs	# Mit. RLPs	# Mit. SRLPs
Albany, City Of	1,795,563.35	42	2	1	
Alpharetta, City Of	86,788.47	2		1	
Aragon, City Of	11,701.50	1			
Athens-Clarke County	41,006.19	4			
Atlanta, City Of	33,608,701.54	209	14	2	2
Augusta-Richmond County, City	2,017,773.70	53		15	
Austell, City Of	1,019,922.63	8			
Baconton, City Of	280,663.37	2			
Bainbridge, City Of	117,238.54	2			
Baker County	85,825.77	2			
Bartow County	3,603.75	1			
Bloomingdale, City Of	5,943.87	1			
Brooklet, Town Of	52,988.53	1			
Brooks County	177,413.68	2			
Brunswick, City Of	181,772.79	6			
Bulloch County	52,256.61	2			
Butts County	29,664.41	1			
Calhoun, City Of	185,475.93	2			

**Table 4.4 (a) Repetitive and Severe Repetitive Loss Properties by NFIP Community**



Community	Losses (\$)	# RLPs	# SRLPs	# Mit. RLPs	# Mit. SRLPs
Camden County	140,626.18	3			
Canton, City Of	609,960.12	2			
Carroll County	13,616.50	1			
Carrollton, City Of	30,400.80	1			
Cartersville, City Of	80,411.90	1			
Catoosa County	523,711.67	12		3	
Cedartown, City Of	22,456.23	3			
Chamblee, City Of	124,033.30	3			
Charlton County	142,456.18	3			
Chatham County	1,171,823.48	42		2	
Chatsworth, City Of	164,999.59	4			
Chattooga County	149,600.15	3			
Chickamauga, City Of	147,115.73	4		3	
Clayton County	554,682.47	16			
Cobb County	19,917,179.44	127	3	18	
Coffee County	275,185.48	4			
College Park, City Of	1,123,930.55	6	2	2	
Columbia County	67,263.70	2	1		
Columbus, City Of	296,268.18	4			
Coweta County	53,623.20	1			
Crisp County	29,554.99	3			
Dalton, City Of	147,571.90	2			
Decatur County	1,970,305.95	20		8	
Decatur, City Of	602,052.11	9	2		
Dekalb County	9,010,595.59	135	6	39	
Donalsonville, City Of	127,916.81	4			
Dooly County	48,781.04	1			
Doraville, City Of	126,522.60	1			
Dougherty County	3,683,644.33	41	1	7	
Douglas County	2,024,887.04	21	1	15	
Douglas, City Of	9,044.75	1			
Douglasville, City Of	241,129.90	2			
Dublin, City Of	523,297.04	6			
Duluth, City Of	9,703.64	1			
Early County	106,776.35	2			
East Dublin, Town Of	233,078.82	2			
East Ellijay, City Of	673,237.05	3			

**Table 4.4 (b) Repetitive and Severe Repetitive Loss Properties by NFIP Community**

Community	Losses (\$)	# RLPs	# SRLPs	# Mit. RLPs	# Mit. SRLPs
East Point, City Of	266,741.09	10			
Effingham County	3,643.64	1			
Elberton, City Of	13,683.32	1			
Ellijay, City Of	14,946.50	1			
Fannin County	3,556.52	1			
Fayette County	13,645.45	1			
Fayetteville, City Of	20,683.94	2			
Fitzgerald, City Of	37,009.65	1			
Floyd County	180,593.97	7			
Folkston, City Of	162,466.79	1			
Forsyth County	142,463.78	2			
Fort Oglethorpe, City Of	1,976,557.15	18	6		
Fulton County	2,789,517.29	41	1		
Gainesville, City Of	3,650.92	1			
Garden City, City Of	197,317.86	2			
Gilmer County	255,417.97	3			
Glennville, City Of	33,491.83	1			
Glynn County	1,290,250.82	29	1		
Gordon County	71,222.03	3			
Grady County	17,556.55	1			
Gwinnett County	1,315,624.35	14		3	
Hall County	36,779.47	2			
Helen, City Of	16,419.49	1			
Henry County	114,326.01	2			
Hinesville, City Of	18,525.57	2			
Houston County	161,465.63	3			
Jasper County	27,818.04	1			
Kennesaw, City Of	49,936.92	1			
Kingsland, City Of	166,922.35	4			
Lafayette, City Of	256,842.12	1			
Lagrange, City Of	270,608.74	3			
Lee County	6,849,769.21	96	1	20	
Lilburn, City Of	140,238.48	2	1		
Lowndes County	285,302.80	2			
Lumber City, City Of	71,002.51	2			
Macon, City Of	607,257.06	6	2		
Marietta, City Of	55,293.79	2			

Table 4.4 (c) Repetitive and Severe Repetitive Loss Properties by NFIP Community

Community	Losses (\$)	# RLPs	# SRLPs	# Mit. RLPs	# Mit. SRLPs
Millen, City Of	8,962.99	1			
Mitchell County	165,520.87	2			
Monroe County	245,219.73	3		1	
Montgomery County	68,636.58	2			
Moultrie, City Of	511,677.99	4			
Newnan, City Of	66,816.34	2			
Newton County	101,556.32	2		1	
Newton, City Of	51,398.67	1		1	
Peachtree City, City Of	206,299.33	6			
Pine Lake, City Of	100,218.51	1			
Polk County	179,121.17	9			
Pooler, City Of	184,445.61	5			
Port Wentworth, City Of	245,679.79	7			
Powder Springs, City Of	1,167,830.13	11			
Pulaski County	35,347.00	1			
Richmond Hill, City Of	7,933.68	2			
Ringgold, City Of	119,717.12	4		2	
Riverdale, City Of	79,130.80	3			
Rockdale County	391,526.85	5		1	
Rome, City Of	1,034,956.93	32			
Rossville, City Of	70,615.65	4			
Roswell, City Of	113,173.13	4			
Sandersville, City Of	6,154.40	1			
Sandy Springs, City Of	3,124,342.04	23	3		
Savannah, City Of	17,974,660.53	327	3	111	
Seminole County	689,439.01	7			
Smyrna, City Of	46,488.19	2			
St. Marys, City Of	144,565.64	2			
Statesboro, City Of	18,165.14	1			
Stone Mountain, City Of	291,633.75	3			
Sylvester, City Of	53,032.03	1			
Tattnall County	99,496.83	2			
Thomasville, City Of	833,338.02	4		1	
Thunderbolt, Town Of	13,110.29	2			
Tift County	114,336.24	1			
Tifton, City Of	1,978,394.36	4			
Towns County	9,927.00	2			

**Table 4.4 (d) Repetitive and Severe Repetitive Loss Properties by NFIP Community**

Community	Losses (\$)	# RLPs	# SRLPs	# Mit. RLPs	# Mit. SRLPs
Trenton, City Of	86,071.78	1			
Troup County	76,643.40	1			
Tybee Island, City Of	207,914.94	13			
Tyrone, Town Of	137,577.52	1			
Union County	9,033.99	1			
Upton County	30,697.26	1			
Uvalda, City Of	15,505.00	1			
Valdosta, City Of	580,175.84	6			
Vidalia, City Of	134,970.56	1			
Walker County	196,224.63	4			
Walton County	21,145.06	1			
Ware County	11,369.38	1			
Warner Robins, City Of	35,566.46	1		1	
Waycross, City Of	10,553.19	1			
Wheeler County	16,981.97	1			
Whitfield County	175,174.57	6	1		
Woodbine, City Of	3,459.20	1			
Worth County	97,445.33	2			
<b>Total</b>	<b>135,269,677.74</b>	<b>1,645</b>	<b>51</b>	<b>258</b>	<b>2</b>

**Table 4.4 (e) Repetitive and Severe Repetitive Loss Properties by NFIP Community**

#### **4.4.5 Coordination with Repetitive Loss Jurisdictions**

In previous chapters, the Repetitive Flood Claims (RFC) grant program and the Severe Repetitive Loss (SRL) grant program are discussed as programs to provide funds to assist in reducing flood damages to NFIP insured properties. However, GEMA has utilized other available programs to mitigate repetitive loss properties. For HMA13, these programs have been incorporated into the Flood Mitigation Assistance program. The following table, Table 4.5, lists the program years for the Flood Mitigation Assistance (FMA) program and the Pre-Disaster Mitigation-Competitive (PDM-C) program as well as the disaster numbers for the Hazard Mitigation Grant Program (HMGP) along with the corresponding mitigation activities enacted upon repetitive loss properties. For the program years or disasters that have yet to be closed out, the State of Georgia and GEMA will continue to utilize available programs to mitigate repetitive loss and severe repetitive loss properties.

Upon review and analysis of Georgia's RLP and SRLP data, GEMA formed a mitigation strategy to reduce or eliminate the negative impacts of repetitive losses on the NFIP as well as Georgia's citizens and economy. This strategy aligns with the existing goals and objectives discussed in Chapter 3 of this mitigation strategy. The specific tasks and action steps related to repetitive losses are included in Chapter 3 of this document. The State of Georgia continues to prioritize the mitigation of RLPs and SRLPs through all available mitigation grant programs.

Program	Year/Disaster	Acquisitions	Elevations	Relocations	Drainage
FMA	1997	4	0	0	0
FMA	2001	1	2	0	0
FMA	2002	2	0	0	0
FMA	2003	2	0	0	0
FMA	2004	1	0	0	0
FMA	2005	1	0	0	0
FMA	2006	13	0	0	1
FMA	2007	9	0	0	0
FMA	2008	1	0	0	0
FMA	2009	1	0	0	0
HMGP	1020	0	1	0	0
HMGP	1033	80	2	0	0
HMGP	1042	18	0	0	0
HMGP	1071	9	5	1	0
HMGP	1209	12	0	0	1
HMGP	1271	5	0	0	0
HMGP	1311	36	0	0	0
HMGP	1554	4	0	0	0
HMGP	1560	1	0	0	0
HMGP	1686	1	0	0	0
HMGP	1833	4	0	0	0
HMGP	1858	14	0	0	0
PDM-C	2003	4	0	0	0
PDM-C	2005	8	0	0	7
PDM-C	2006	1	0	0	0
PDM-C	2007	2	0	0	0
RFC	2007	3	0	0	0
DRI	1998	1	0	0	0
<b>Totals</b>		<b>238</b>	<b>10</b>	<b>1</b>	<b>9</b>

Table 4.5 Mitigation Repetitive Loss Properties by Program Year or Disaster From GMIS

# Chapter 5: Plan Maintenance

The purpose of Chapter 5 is to identify and evaluate the process used to monitor, evaluate and update the 2011 Georgia Hazard Mitigation Strategy over the previous 3 years, as well as to outline the mechanism for updating the 2014 strategy over the next three years. This chapter establishes both the method and schedule for monitoring, evaluating, and updating the plan. The following table, Table 5.1, documents the changes to Chapter 5 that have occurred since the 2008 approval.

Chapter 5 Section	Updates to Section
5.1 Monitoring, Evaluating, and Updating Methods	<ul style="list-style-type: none"><li>• Includes table of changes.</li><li>• Revised to include new schedule for future updates.</li></ul>
5.2 Mitigation Activity Monitoring	<ul style="list-style-type: none"><li>• Updated tables</li><li>• Updated Text</li></ul>

**Table 5.1 Changes to Chapter 5**

The review of Chapter 5 of the Georgia Hazard Mitigation Strategy (GHMS) was coordinated by GEMA Hazard Mitigation division. Each section was reviewed by the staff and revised as necessary to reflect the monitoring, evaluation and update process used over the previous 3 years. In addition, state planning stakeholders were presented opportunities to review each section in the plan as described in Chapter 1. This includes placing draft sections of the plan on the GEMA website for public review and comment.

The planning team followed the process outlined in Chapter 1 in order to update the GHMS. The planning team will continue to use this process over the next three years for the next plan update. The next plan update is anticipated to begin in spring of 2014 and to be completed and approved in 2017.

## 5.1 MONITORING, EVALUATING, AND UPDATING THE PLAN

The State of Georgia has and will continue to review and update the GHMS to submit for gubernatorial and federal approval at a minimum of once every three years. The state may update the plan more frequently under the following conditions: a state declaration without federal assistance; a presidential disaster declaration; changes in state policy; significant updates to the hazard, risk, and vulnerability assessment based on new data; or a need deemed by the governor or state hazard mitigation planning group.

Within the state, the Hazard Mitigation Division of GEMA is responsible for coordinating the monitoring, evaluation, and update of the GHMS. Within this division, the Planning Program Manager is responsible for the oversight of this process, including the coordination of local, state, and federal agencies. Participants in this process are listed in Chapter 1 and include state government agencies participating in mitigation programs and federal government agency representatives with general interest or legislative authority on items presented in the mitigation strategy.

The GEMA Hazard Mitigation staff performed an analysis of the 2011 GHMS method and schedule for monitoring, evaluating, and updating and concluded these items were adequate in meeting the planning requirements. However, the planning staff determined adding a series of workshops would go farther in meeting the intent of including a wide variety of stakeholders in the planning process. This effort was successful. Therefore, GEMA will continue to use the described update process. The update process includes a scheduled annual review, a post-disaster review, and the three year plan review and update. The planning staff anticipates using the workshops, or a similar process, again in 2015 and 2016.

State Plan Approval	March 2011
Presidential Disaster Declaration Tornado Outbreaks	April 27-29, 2011
Post Disaster Review	July 2011
Annual Review	January 2012
Begin State Plan Update	Summer 2012
Workshop 1	December 2012
Workshop 2	February 2013
Workshop 3	April 2013
Plan Review and Update	Fall 2012-September 2013
Plan Submission to FEMA	September 2013
State Plan expires	March 2014

**Table 5.2 2014 Plan Review and Update Schedule**

The scheduled annual review occurs at the beginning of each calendar year. This process includes an analysis of the goals, objectives and actions identified in the state mitigation strategy for current applicability by the SHMPT. In addition to monitoring and evaluating plan implementation reflecting the progress and success of mitigation actions, the annual review also identifies, whether any updates are necessary with special regard to updating the hazard, risk, and vulnerability assessment to reflect the best available data.

The post-disaster review occurs on the occasion of each state of emergency, state disaster declaration, or federal disaster declaration within the State of Georgia in order to determine any necessary updates to accommodate the impacts of the disaster and the potential new data. Following disaster events; GEMA staff will coordinate with local officials to document how mitigation measures instituted in the affected areas may have reduced the amount of damages or loss of life that may have resulted from those events. GEMA will continue to identify and develop opportunities to analyze successes. GEMA staff accompanied by state stakeholders reviews the disaster-related strategies within the hazard mitigation plan to determine if any adjustments are necessary. This post-disaster review may replace an annual review depending on the severity of the disaster event.

The comprehensive three year plan review and update of the state plan occurs prior to federal submission for approval. This review process begins more than 18 months prior to the federal approval deadline (March 2017) and the first submission occurs 6 months prior (September 2016) to the federal approval deadline in order to allocate sufficient review time. The review and any necessary revisions are guided by GEMA's Hazard Mitigation Division and the SHMPT.



The 2011 plan included a monitoring and evaluation strategy using a process of annual review meetings and post-disaster review meetings as applicable. Since the approval of the 2011 GHMS, the SHMPT has used the process described in Table 5.2. The plan was approved in March 2011.

The state received a presidential disaster declaration for tornado outbreaks on April 27-28, 2011. After this event, the SHMPT conducted post-disaster reviews of the 2011 plan. In addition, 2012 included a scheduled annual review. The annual review for 2013 was not scheduled because the plan update process had already begun. Beginning in June 2011, the mitigation planning staff began the process of reviewing the 2011 plan for the purpose of starting the 3-year update process. The next mandatory three year update is currently scheduled for final approval in March 2017. A schedule of each task leading up to final approval of the 2017 update is found in Table 5.3. The process is scheduled to begin more than 18 months prior to the approval deadline. Therefore, the notice to proceed and interagency planning group's initial meeting will occur in Summer of 2015. GEMA intends the next updated plan to incorporate the newest data and methods into the hazard, vulnerability, and risk assessment as well as updated data from all approved local hazard mitigation plans.

State Plan Approval	March 2014
Annual Review	January 2015
Begin State Plan Update	Summer 2015
Plan Review and Update	Fall 2015-September 2016
Plan Submission to FEMA	September 2016
State Plan expires	March 2017

**Table 5.3 2017 Plan Review and Update Schedule**

## 5.2 MONITORING PROGRESS OF MITIGATION ACTIVITIES

The Hazard Mitigation Division within GEMA is responsible for monitoring implementation of projects and activities identified in the state mitigation strategy. The Mitigation Division Director oversees this function. Consistent with the annual and post-disaster plan review processes, progress to these projects and activities are reviewed and updated at least once per year. The review and status of the activities (or "action steps") is located within Section 3.2.5 of this plan under the heading of "Action Plan". Actions and projects listed in Chapter 3 contribute to achieving State goals.

GEMA Mitigation Staff hosts quarterly meetings with the SHMPT to provide a forum to share information on hazard mitigation news and activities in the state. During these meetings, state stakeholders are given opportunities to present updates on mitigation projects and activities within their organizations.

GEMA is currently using a software program specifically developed to manage all grant projects called the Grants Management System (GMS). The Hazard Mitigation Division uses the GMS to manage all aspects of project grants, including monitoring mitigation measures and closeouts. The system is also used to prepare and email blank quarterly reports to be completed and returned by the local grant recipients, as well as to submit its quarterly reports to FEMA. The system was in the

process of being phased in when the 2011 plan was approved. The system is now in full use and will continue to be used for the foreseeable future.

In addition, the state uses the Georgia Mitigation Information System (GMIS) to track the status of mitigated properties and avoided losses to completed mitigation projects. This information is shared with local officials as well as FEMA for utilization as a vehicle to track the effectiveness and success of mitigation efforts. GEMA is in the process of upgrading this system in order to improve the system's capability of tracking and evaluating .

# Chapter 6: Enhanced Plan

Chapter 6 Section	Updates to Section
6.1 Integration With Other Planning Initiatives	<ul style="list-style-type: none"> <li>Updated the other State and regional planning initiatives the State plan is integrated with and the description of how the State Plan is and will be integrated into those initiatives.</li> <li>Updated all Tables</li> </ul>
6.2 Project Implementation Capability	<ul style="list-style-type: none"> <li>Updated the description and history showing the State's capability for successful project implementation.</li> <li>Updated all Tables.</li> </ul>
6.3 Program Management Capability	<ul style="list-style-type: none"> <li>Updated the description and history showing the State's capability to manage the Hazard Mitigation Program.</li> <li>Restructured the Section</li> <li>Updated all Tables and added Tables and Figures to support text.</li> </ul>
6.4 Assessment of Mitigation Actions	<ul style="list-style-type: none"> <li>Updated the description of the State's methods for assessment of completed mitigation actions.</li> <li>Record of actual cost avoidance updated for new events.</li> </ul>
6.5 Effective Use of Available Mitigation Funding	<ul style="list-style-type: none"> <li>Updated the description and history of the State's effective use of available mitigation funding.</li> <li>Restructured the Section</li> <li>Updated all Tables and added new Tables on Program effectiveness</li> </ul>
6.6 Commitment to a Comprehensive Mitigation Program	<ul style="list-style-type: none"> <li>Updated the description of the State's commitment to a comprehensive mitigation program.</li> <li>Restructured the Section</li> <li>Updated all Tables</li> </ul>

**Table 6.1 Changes to Chapter 6**

## 6.1 INTEGRATION WITH OTHER PLANNING INITIATIVES

44 CFR 201.5(b)(1) states that a state's Enhanced Plan must demonstrate that the plan is integrated to the extent practicable with other State and/or regional planning initiatives (comprehensive, growth management, economic development, capital improvement, land development, and/or emergency management plans) and Federal Emergency Management Agency (FEMA) mitigation programs and initiatives that provide guidance to State and regional agencies. In the following sections we will demonstrate how Georgia has continued to meet this requirement.

### 6.1.1 Integration with Other Planning Initiatives

Georgia Emergency Management Agency's (GEMA) Hazard Mitigation Division has taken the lead for the integration and incorporation of the State mitigation planning process with other ongoing fed-

eral, state and regional planning efforts. A discussion on the integration with other state and regional planning initiatives is introduced in Chapter 1 and Chapter 3.

This section of the plan specifically details the steps Georgia has taken to integrate the GHMS into other state, regional, and FEMA initiatives. As noted in Chapter 1, the State Hazard Mitigation Plan-

Agency	Initiative	Description of GHMS Integration into Initiative
GFC	Community Wildfire Protection Plans (CWPPs)	<ul style="list-style-type: none"> <li>- CWPPS to be updated during local hazard mitigation plan (LHMP) updates</li> <li>- CWPPs to include information to meet FEMA hazard profile requirements</li> <li>- CWPPs integrated with LHMPs</li> </ul>
DCA	Disaster Resilient Building Codes (DRBC)	The State Mitigation Officer and Floodplain Coordinator served on the DRBC Task Force to establish and implement the DRBC appendices to the IBC and IRC. DCA developed and conducted a comprehensive training program for code enforcement officials on the importance, implementation and enforcement of DRBC appendices.
DCA	Comparative analysis of Comprehensive Plans, Regional Plans, and Local Hazard Mitigation Plans	Members of the Hazard Mitigation staff provided input into the initiative to compare comprehensive plans, regional plans, and local hazard mitigation plans to determine commonalities and parts of each type of plan that would benefit the other.
DCA	HAZUS-MH Pilot	DCA in coordination with the Polis Center at IUPUI developed data layers to enhance HAZUS-MH models in Georgia. This includes a workflow to translate local government Computer Aided Mass Appraisal (CAMA) information into a parcel-based building inventory map for HAZUS-MH analysis producing detailed exposure and loss estimates for the modeled disaster scenarios. For four counties a risk assessment using HAZUS-MH models incorporated data from GMIS. GEMA staff participated in the presentation of materials to counties.
GEMA	GMIS	GMIS supports the documentation and implementation of mitigation activities through mapping and reporting of Critical Facilities, Mitigated Properties, and National Flood Insurance Program (NFIP) Properties.
GEMA	Disaster Recovery Program Workshops	GEMA mitigation staff provided training to local government officials on HMA programs.
DNR	Risk MAP	GEMA mitigation staff provided data to support discovery maps and presented mitigation information at the Risk-MAP Discovery & Resilience Workshops.
Georgia Department of Juvenile Justice (DJJ)	Safety and Security Plan	DJJ created an Emergency Operations Unit to handle mitigation activities with a focus on safety and security of the facilities and staff.
Board of Regents (BOR)	Mitigation Plans	BOR encourages each campus to have a hazard mitigation plan and that they work with the counties in the update of their local hazard mitigation plans.

**Table 6.2 GHMS Integration into Other State Initiatives**

ning Team involves numerous state and Federal agencies that meet together on a regular basis throughout the planning period. The purpose of these meetings is twofold. First, they allow for the input of these various agencies into the planning process. Second, they allow for the dissemination of mitigation related information; including current activities, available programs and plan related information to the participating agencies.

Information provided by each agency has been collectively reviewed to accomplish the following objectives:

- 1) Incorporate mitigation data or resources into emergency management plans and activities;
- 2) Link program and planning initiatives to support specific hazard mitigation strategies;
- 3) Check for planning initiatives that promote mitigation as part of authorities and responsibilities; and
- 4) Coordinate with other state and regional agencies to incorporate hazard mitigation into their own programs, regulations, and activities.

The above mentioned meetings allow for the input of various agencies into the planning process. In addition, they also provide the opportunity for interaction between the participating agencies and the encouragement to take the information from the meetings and the plan document back to their respective agencies for incorporation, as applicable, into their various short and long term plans and programs.

This section includes information from the state agencies and their programs in the effort to accomplish mitigation goals. Throughout the planning process, GEMA utilized information provided by the agencies. State agencies were also valuable contributors to the review and update of the goals and actions provided in Chapter 3. Many of these agencies provided GEMA with information on how they planned to achieve the goals and actions that are specific to their program area.

Table 6.2 has been updated to provide examples of how the Georgia Hazard Mitigation Strategy (GHMS) is integrated and incorporated into other agency activities and their programs.

### **6.1.2 Integration with Regional Planning Initiatives**

GEMA has been working very closely with numerous state agencies and non-governmental organizations over the past three years to pass along the benefits and concepts of hazard mitigation and how to incorporate these ideas into their own programs, regulations, and activities. In Georgia, we have the fortunate situation of a positive relationship among all state agencies and non-governmental organizations. Each organization and their individual representatives have been proactive in their ideas and efforts to work together to help the citizens of this state. The following are lists of opportunities we took advantage of to integrate hazard mitigation into other organization's programs.

**Georgia Department of Community Affairs HUD Disaster Recovery Enhancement Fund Grant**  
Following the presidentially declared disasters in 2008 (DR1750 and DR1761), which included severe weather and tornados affecting over 20 counties in north and central Georgia, DCA received funding from HUD to increase disaster mitigation education and review consistency among various

required planning documents throughout the state. GEMA and DCA staff met numerous times with the consultant (AMEC) to develop a system that compares local comprehensive, regional and mitigation plans for commonality and identification of areas that could benefit each and help communities look ahead at their direction of growth and possible affects by natural hazards.

The review process identified several areas that could benefit local community plans by incorporating separate section of each plan. For example comprehensive and regional plans could benefit from the hazard analysis contained in the hazard mitigation plan so that communities keep hazards in mind when making plans to expand. The local mitigation plans can benefit from the comprehensive plans by incorporating future growth patterns, not just looking at current building stock. This shared information makes all three plans more valuable to the counties and their citizens.

DCA and GEMA conducted three workshops throughout the areas affected of DR1750 and DR1761, and met with county and city officials to discuss the benefits of combining data sources. The ideas and suggestions were well received and this information was passed on to other regions that develop these plans.

### **Georgia's Coastal Zone Management Program**

GEMA has been working closely with DNR Coastal Resource Division over the past few years to determine the effects of sea level rise on our coastal areas and their natural assets. A number of federal and state funded studies are underway. Sea level rise is not an immediate natural hazard, however, over the next 100 years, its effects to Georgia's coastline and natural habitats could be detrimental. Increased sea level can affect the amount of tidal surge during hazard events such as a hurricane or tropical wind event.

Georgia's coast has experienced some effects of rising sea levels and changing inland waterways. To what level is still being determined. Current studies estimate that Georgia's sea level has risen approximately 3mm/year over the past 70 years. Also, during that time, rates of residential and infrastructure development along coastal Georgia's waterways have increased significantly, resulting in more persons and property at risk. Scientists predict that the rate of global mean sea level rise during the 21st century will exceed the rate observed from 1971 thru 2010. If these predictions materialize we will need to develop plans and actions to counter the effects.

### **Post Disaster Redevelopment Plans**

Georgia's coast has not been hit directly by a major storm in over 100 years. It is important that the state and local communities not become complacent and diligently create disaster resilient plans and incorporate long-term planning for natural disasters into both their state and local management processes. It is important that preparations be initiated to reduce our vulnerabilities to probable coastal related natural disasters and potential changes from sea-level rise. GEMA in conjunction with DCA and DNR are in the process of developing a plan to guide coastal communities in their redevelopment after a major natural disaster. The plan will revise state policies on the post-disaster repair and rebuilding of homes, businesses, permitted piers, docks, marinas, etc. Upon completion, this model plan will be used as a guidance document to prepare post-disaster redevelopment plans for coastal and inland communities throughout the state.

## **Regional Commissions (RC)**

A Regional Commission (RC) is a multi-county planning and development organization that partners with local governments in their planning and development efforts and can also serve as a service delivery organization. RCs often constitute the local and regional layers of Georgia's "bottom-up" planning philosophy. RCs are owned and operated by the local governments that they serve. The RCs help counties plan and secure funding for development with projects such as construction, repair or upgrade of roads, repair or upgrade of bridges and water and sewer lines, industrial park development as well as projects related to community services, education and workforce development.

The Department of Community Affairs contracts with the RCs to provide a variety of services mandated in the Georgia Planning Act. These services include assisting local governments with comprehensive planning, regional transportation plans, and specific plan implementation activities such as developing new zoning ordinances or putting a GIS system in place.

A comprehensive plan outlines a framework for the development of an area, recognizing the physical, economic, social, political, aesthetic and related factors of a community. A comprehensive plan typically results from lengthy and intensive analysis, includes a long-range scope (usually 20 years or more) and provides the overall guiding principles for growth and development of a community.

Regional Transportation Plans (RTP) are integral parts of the Statewide Transportation Improvement Plan - Georgia's four-year transportation and capital improvements program. The RTP examines regional and county transportation needs over the next 20+ years and provides a framework to address anticipated growth through systems and policies. It contains both short- and long-term transportation strategies to improve mobility and investments to improve the region's transportation system.

A significant number of counties contracted with the RCs in the development of their multi-jurisdictional Hazard Mitigation plans. While there is no formal programmatic working relationship where GEMA has any agreement directly with the RCs, by default of many of Georgia's counties contracting with RCs to develop and update their local mitigation plans, GEMA mitigation staff has worked very closely with most of the State's 12 RCs on this planning effort over the previous years.

In addition to assisting local communities with their local planning efforts, RCs also conduct regional planning initiatives to help guide local planning efforts and to encourage cooperation between counties where such cooperation would be beneficial to the region. The regional planning efforts include, but are not limited to, items such as economic development, natural and cultural resources, land use, transportation, etc. On cursory review, hazard mitigation is included, even if mostly indirectly, in regional planning efforts. A stated part of natural resources protection is maintaining a river or stream's capacity to handle increased water levels, which otherwise, would result in flooded areas. Another part of natural resources protection is protecting these areas from incompatible development. In the case of rivers and streams, it includes protecting the banks and floodplains.

In addition, local governments are required to remain consistent with their RC's Regional Plan in order to maintain their Qualified Local Government status with the State of Georgia. Some regional plans include updating and adopting a Hazard Mitigation Plan as part of the minimum requirements



for a local government to remain consistent. This is consistent with the State Plan's strategy of maintaining approved status for all 159 counties and their municipalities.

The State will continue to work with DCA and the RCs to develop GIS capabilities which can provide communities with a better understanding of hazards that possibly affect economic development. The GEMA mitigation staff and the RCs will continue to work closely to keep the counties informed of mitigation initiatives in their region. GEMA plans to keep a close working relationship with the RCs in developing local plan updates as they become due.

### **HAZUS-MH Training**

During 2012 - 2013 the Georgia Department of Community Affairs was the recipient of a special competitive grant from the US Department of Housing and Urban Development. The HUD Disaster Recovery Enhancement Fund was a one-time supplement to the Community Development Block Grant Program for states with presidentially declared disasters during 2008. DCA used part of their award to partner with the Federal Emergency Management Agency, the Georgia Emergency and the Georgia Regional Commissions to educate a cadre of Georgia students in the use of FEMA's HAZUS-MH risk assessment software.

DCA in partnership with the POLIS Center at Indiana University Purdue University, and FEMA's Emergency Management Institute provided a basic series of HAZUS-MH training courses to GEMA Hazard Mitigation planners, regional Commission personnel, county planners, and others in order to learn how to use and benefit from this software program. There were about 20-30 students in each class, spread over three locations (Atlanta, Savannah, and Macon). FEMA provided teleconferencing from Atlanta to classrooms in Macon and Savannah, as well as subject matter experts in all three classrooms. 22 students completed the courses to receive FEMA certification as HAZUS Trained Professionals and the more advanced HAZUS Practitioner Certificate.

They also developed a workflow to translate local government Computer Aided Mass Appraisal (CAMA) information into a parcel-based building inventory map for HAZUS analysis producing detailed exposure and loss estimates for the modeled disaster scenarios. Augusta-Richmond County was selected as one of the four pilot counties for the development of their pre disaster mitigation plan processing procedures. This process can now be readily applied to all of the other 141 Georgia counties that use similar WinGAP CAMA systems.

HAZUS-MH is a nationally applicable standardized methodology that contains models for estimating potential losses from earthquakes, floods, and hurricanes. Government planners, GIS specialists, and emergency managers use HAZUS-MH to determine losses and the most beneficial mitigation approaches to take to minimize them.

Some of the benefits of these courses were: the updated 2010 demographics in HAZUS inventory which can be used to estimate losses; embedded GEMA Georgia Mitigation Information System (GMIS) Essential Facilities (Fire, Police, Schools, Hospitals) into HAZUS inventory; used to estimate losses; custom tools to import Georgia parcel maps and WinGAP assessor data to create county-wide building inventory maps and to update the general building stock maps used to estimate loss-

es; custom tools and documented workflow to produce multi-hazard risk assessments and reports; and better coordinated inter-agency, inter-governmental hazard mitigation planning partnership.

### **Georgia Association of Floodplain Management**

The Georgia Association of Floodplain Management (GAFM) promotes advances in floodplain management. As a chapter of the national organization, the Association of State Floodplain Managers (ASFPM), opportunities exist to link to a nationwide network with similar aims. GAFM seeks to find and make possibilities for the presence, thoughts and actions of its members to affect and integrate within public policy the best known management practices expressing collective intent and experience, thereby initiating within the general populace the recognition towards, and resonance with sound floodplain, stormwater, wetlands, river corridor, and coastline management as an imperative duty of environmental stewardship, described by the actions, examples and contributions of its members.

The GAFM provides educational opportunities allowing dissemination of general and technical information, in order to keep its members abreast with the advancement of floodplain and stormwater management knowledge. GAFM encourages the exchange of information, ideas and experiences among the practitioners and advocates of floodplain, stormwater, wetlands, river corridor, and coastline management.

Due to its role as the State Floodplain Coordinator, the Floodplain Management Unit of the Georgia Department of Natural Resources, Environmental Protection Division (DNR-EPD/FM) has a strong working relationship with GAFM and GEMA. The State will continue to work with DNR-EPD/FM on the implementation of mitigation plans and projects. GEMA staff has supported each of GAFM's annual workshops and a few of the regional workshops to provide mitigation information to its members. GEMA mitigation staff will continue to coordinate with DNR-EPD/FM and GAFM to inform them of mitigation initiatives in their region.

### **Metropolitan North Georgia Water Planning District (MNGWPD)**

The Metropolitan North Georgia Water Planning District (District) was created by the Georgia General Assembly in 2001 (O.C.G.A. 12-5-570) and is currently comprised of 15 counties, 92 cities and 7 water authorities in the Metropolitan Atlanta area. Per this legislation, the District developed three water management plans and five model ordinances, including the Model Floodplain Management / Flood Damage Prevention Ordinance. Each year the District surveys the jurisdictions to report activities and achievements.

The purpose of the Flood Damage Prevention Ordinance is to protect, maintain and enhance the public health, safety, environment and general welfare and to minimize public and private losses due to flood conditions in flood hazard areas. Furthermore, the intent of the ordinance is to protect the beneficial uses of floodplain areas for water quality protection, stream bank and stream corridor protection, wetlands preservation, as well as ecological and environmental protection. The model ordinance requires local governments to adhere to a 3 foot freeboard requirement which will significantly reduce future flood damages and flood insurance premiums on new and substantially improved structures.

All of the jurisdictions surveyed in 2012 except for two have adopted the Model Floodplain Management / Flood Damage Prevention Ordinance or equivalent regulations. This ordinance is intended to minimize future flooding impacts and integrate floodplain management with stormwater management during the land development process by promoting the No Adverse Impact approach. Eighty-seven of these jurisdictions have incorporated the new floodplain management provisions into their local development review process.

As part of the adoption of the model floodplain ordinance, local jurisdictions are required to delineate the future-conditions hydrology 100-year floodplain within their jurisdictions. The ordinance also requires the local government to regulate floodplains on all streams with a drainage area of 100 acres and greater. Future-conditions flood studies are based on the best estimates of future land use conditions within a watershed. Local governments are responsible, at a minimum, for delineating future-conditions floodplains for all streams with a drainage area of one-square mile or greater. Forty-seven communities have responded by providing completed mapping of future-conditions floodplains within their jurisdictions, while another 25 have partially completed mapping in their city or county. Eight jurisdictions currently have a RFP or contract in place for the mapping of future-conditions floodplain, and/or they have completed some preliminary technical work.

### **6.1.3 Integration with Federal Programs and Planning Initiatives**

This section of the plan includes federal programs that GEMA and the State of Georgia utilize, which includes regulations that provide local communities with guidance for state and regional agencies. The State integrates several FEMA programs to accomplish our mitigation goals. Table 6.3 summarizes the Federal Program or Planning Initiative and how GHMS is integrated into them.

#### **National Flood Insurance Program (NFIP)**

The Georgia Department of Natural Resources (DNR), Environmental Protection Division (EPD) is a cooperating technical partner (CTP) with FEMA in the administration of the NFIP. GEMA works closely with the DNR floodplain management staff on NFIP issues as project eligibility requirements for mitigation grants depends on NFIP participation. Flood insurance, floodplain management, and flood hazard mapping are the three main components of the NFIP. Federally backed flood insurance is available to homeowners, renters, and business owners in communities who voluntarily participate in the NFIP. Increasing participation in the NFIP and encouraging property owners to purchase flood insurance significantly reduces disaster losses. There are 643 counties and cities in Georgia, of which 84% participate in the NFIP. The number of participating communities has increased by 14% since the last plan update.

- Coastal model flood ordinance (coastal communities only)
- Riverine model flood ordinance (non-coastal communities)
- Metropolitan North Georgia Water Planning District (for the fifteen counties currently comprising the Water Planning District as established in 2001 by Senate Bill 130 and subsequently modified)

Federal Program or Planning Initiative	GHMS Integration into Initiative
NFIP	Potential applicants must be good standing in NFIP to be eligible for any mitigation project funding.
CRS	Prioritization of mitigation funds for CRS communities. 43 communities have incorporated CRS principles and practices into their local mitigation strategies.
RISK MAP	Mitigation information incorporated into discovery and resilience workshops.
FMA	Projects must be identified in local mitigation plans. More than \$9.9 million for planning and projects designed to reduce or eliminate flood hazard caused damages throughout the State.
HMGP	Projects must be identified in local mitigation plans. More than \$142.9 million for planning and projects designed to reduce or eliminate hazard caused damages throughout the State.
PDM	Projects must be identified in local mitigation plans. More than \$38 million for planning and projects designed to reduce or eliminate hazard caused damages throughout the State.
EMPG	EMPG funds utilized to improve warning and communication throughout the State.
HAZUS-MH	Level two data developed for 4 pilot communities which will be utilized for local plan updates and workflow developed to incorporate parcel level data for 141 of Georgia's 159 counties.
EMAP	Integration of EMAP standards including hazard vulnerability and risk assessments, state and local mitigation plans, grant administration and public education and outreach.
PA	Mitigation information provided to potential applicants at DRP and applicant briefing workshops. State staff supports Section 406 mitigation and State match assistance provided to implement Section 406 mitigation projects.
Silver Jackets	State lead team activities support GHMS and integration of mitigation into recovery actions.
NRCS	State match assistance provided to local sponsors to implement EWP projects for the restoration of impaired watersheds.
NWS	Support of Georgia Storm Ready Program and prioritization of warning grants for Storm Ready communities.

**Table 6.3 GHMS Integration with Federal Programs and Initiatives**

#### Other Floodplain Management Information

- Floodplain Management Quick Guide: a reference manual for local officials, floodplain administrators, and persons newly involved in floodplain determinations, enforcement and reviews.
- ( [http://www.gaepd.org/Files\\_PDF/techguide/wpb/GAQG2009\\_ScreenView.pdf/](http://www.gaepd.org/Files_PDF/techguide/wpb/GAQG2009_ScreenView.pdf/) )
- Flood Insurance Rate Maps, Flood Hazard Boundary Maps, and Flood Insurance Studies: Contact the Georgia Floodplain Management Office.
- GA DNR's Outreach Planning Guidebook for Local Governments
- Offsite Links
  - ◊ FEMA On-line Library
  - ◊ Georgia Flood MAP ( <http://www.georgiadfirm.com/> )
  - ◊ GAFM ( <http://www.gafloods.org/> )
  - ◊ ASFPM ( <http://www.floods.org/> )

In an effort to increase the number of NFIP participating communities, the State requires NFIP participation to be eligible for mitigation funding. Since the inception of the HMGP, several communities

have joined the NFIP in order to get HMGP funds. The majority of these new NFIP entrants can be attributed to this requirement due to the popularity of the warning grants and other statewide mitigation initiatives.

### **Community Rating System (CRS)**

Information about the CRS program is detailed in Chapter 3. In partnership with DNR, GEMA mitigation staff promotes the CRS program at mitigation workshops. In an effort to increase the number of CRS participating communities and improved classification, the State incorporates CRS information into the overall ranking of mitigation projects. As shown in Chapter 3, the number of CRS communities has increased by 34% in the last three years.

### **Georgia Community Rating System (CRS) User's Group Activity**

The Georgia CRS users group held their first meeting in May, 2012. Six communities participated along with one private firm in an informal, round table discussion around what neighboring communities are doing in the CRS Program and the challenges they face. Suggestions were made from other communities who have dealt with similar issues and how they had met those challenges.

The CRS User's Group continues to grow and other Georgia communities are encouraged to join. It has been reported that communities have improved their CRS rating a full class just by better understanding the ways they can improve their local program using knowledge gained at these meetings.

Discussions have taken place at the State's quarterly Silver Jackets meetings to see how this group might provide support to increase the efficiency of the CRS users group and increase participation in the CRS.

### **Georgia Flood Mapping, Assessing, and Planning (MAP) Program**

As part of a Cooperating Technical Partner (CTP) Agreement with FEMA, the Georgia Environmental Protection Division (EPD) under the Department of Natural Resources (DNR) accepted delegation and responsibility of the Map Modernization program for the State of Georgia. Georgia's Flood Map Modernization program concluded in July 2012, which provided updated, easily accessible Digital Flood Insurance Rate Maps for 159 counties and over 530 municipalities.

Building on the strengths of the Map Modernization program, FEMA has a new effort in helping communities nationwide to assess their risk associated with flooding, and minimize, or avoid altogether, damage they experience in the face of future flooding disasters. This program, called Risk MAP (Mapping, Assessment and Planning) combines quality engineering with updated flood hazard data to help communities plan for and reduce losses due to flooding using the best possible, most current information.

Continuing as a CTP with FEMA, the EPD is facilitating the implementation of FEMA's Risk MAP Program through its Georgia Flood MAP (Mapping, Assessment & Planning) program.



**Figure 6.1 RiskMAP Diagram**

This will provide direct management and support of all regulatory, engineering, and mapping activities within the State of Georgia. EPD is committed to developing a fully integrated floodplain management program that incorporates:

- Mapping needs assessments;
- Project scoping;
- Hydrologic and hydraulic modeling;
- Floodplain delineation;
- An internal quality control process for all aspects of the program;
- Digital Flood Insurance Rate Map (DFIRM) revisions;
- Post preliminary DFIRM processing; and
- Risk Assessment & Communication.

Benefits to Georgia communities and citizens include:

- The updated study data will provide more accurate information for Georgia communities to help with design decisions when rebuilding after flood disasters, building new structures and infrastructure, and when retrofitting existing structures.
- DFIRMs will more accurately depict flood risk information.
- Users will be able to make more precise flood risk determinations.
- Builders and developers can use the updated map data to determine where and how to build structures more safely and how high to build to reduce the risk of flood damage.
- Real estate agents will be better able to inform clients of the risk factors that may affect the property they are buying or selling as well as any flood insurance requirements.
- Insurance agents will know their clients' current flood risk and can provide more informed recommendations regarding flood insurance coverage options.
- Residents and business owners will understand their current flood risk and be able to make better decisions about insuring and protecting their property against floods.
- Community officials will be able to develop more comprehensive approach to disaster mitigation planning, economic development and emergency response, resulting in a safer Georgia in which to live and work.
- The Non-Regulatory products will provide substantially more and detailed information to communities to enable them to identify mitigation activities and for local plan updates. These products can further identify where flooding may take place within a community. Developing the additional locations could be used to help prioritize potential mitigation actions within the community. These products include changes since last firm, depth and probability grids, HAZUS-MH loss estimates, and areas of mitigation interest.

## **RISK MAP Activities**

### **Upper Chattahoochee River Basin (UCRB) Project**

In April 2010, the Georgia Department of Natural Resources – Floodplain Management (GA DNR) launched the UCRB RiskMAP project that will assess and re-map flood risks along a 107-mile stretch of the Chattahoochee River Basin, including Cobb, Coweta, DeKalb, Douglas, Forsyth, Fulton and Gwinnett Counties. The new study will replace outdated detailed studies within the basin that date back as far as 1977. The updated maps will incorporate studies using new technology that

results in more accurate measurement and modeling. The models will also incorporate data collected from recent flooding, such as the widespread floods of September 2009 to ensure that the new flood maps reflect the effects of actual flooding events that have occurred in the region.

Scoping meetings were held with each county and extensive surveying performed. Preliminary flood maps were completed and made available for public review in September- November 2011 and became effective in the March-April of 2012. Over 50 meetings were held within the project area following the issuance of the Preliminary Maps. Letters of final determination were completed in the August-November 2012 and the new maps went effective February-May 2013. DNR in partnership with GEMA and FEMA hosted Disaster Resilience workshops for each of the communities when the new maps and products were completed. With the new maps and associated studies, government agencies, residents, and businesses throughout the upper Chattahoochee River region will have more up-to-date information about their flood risks and the data will be easily available online.

In addition, the non-regulatory products produced will further support the identification of mitigation projects and local mitigation plan updates.

### Georgia Coastal Mapping Project

GA DNR launched its second Georgia Flood MAP project in the fall of 2010. The Georgia Coastal Mapping Project will involve two different studies (riverine and coastal) in nine coastal counties (Bryan, Camden, Charlton, Chatham, Effingham, Glynn, Liberty, Long, and McIntosh). The coastal study will provide the most detailed analysis of the flood risk along the coastline ever performed. New elevation and updated storm data will be used along with the latest computer models and high-capacity systems to generate Georgia's most accurate coastal study, flood maps and improved understanding of the coastal flood risk. While this is occurring, a second study will be ongoing that will map in more detail select watersheds in the nine coastal counties. Again, new elevation and storm data will be used to more accurately model and map the current flood risk. The preliminary FIRMs for the coastal phase are expected to be issued in the Spring of 2015.

### Initial Discovery Meetings for Three Watersheds

In the spring of 2012, in partnership with GEMA and FEMA, the GA DNR conducted the Discovery Process for communities within the Middle Chattahoochee, Upper Ocmulgee, Middle Savannah and Upper Savannah Watersheds. This process began with online surveys to obtain basic needs documentation from communities followed by one-on-one telephone interviews to determine the detailed mapping needs of the community as well as mitigation efforts in place. After information was obtained from communities, as well as GA DNR, FEMA and GEMA, watershed-wide Discovery Meetings were held to further explain this new initiative to stakeholders while encouraging intercommunity dialogue and mitigation planning. Communities shared information with one another about capital improvement projects within the watershed as well as major mitigation projects (both ongoing and planned) in addition to major flooding and mapping issues. Community participants included emergency managers, planners, engineers, zoning administrators, permitting officials, among other technical staff.



In January 2013, a new flood hazard mapping project commenced that will assess and re-map the flood risks within the Middle Chattahoochee – Lake Harding and Upper Ocmulgee River Basin watersheds. Project kick-off meetings were held throughout each watershed to introduce the project scope to all impacted communities. GA DNR and its contractors have engaged county and community officials as well as industry stakeholders from the involved counties to share information as well as receive updated information related to local flooding as well as any new detailed studies that may have been locally performed.

DNR has published newsletters that provide much more detail on the RISK MAP activities. These newsletters can be accessed on the GeorgiaDFIRM website. As part of the transition to Georgia Flood MAP Program, the GeorgiaDFIRM.com website has been updated to more effectively distribute comprehensive information about the program to floodplain management officials, property owners, and other community stakeholders. The website contains background information, status reports, technical data, outreach materials, and valuable links to other pertinent information.

GEMA works closely with State floodplain management staff to advance the Map Modernization and Risk MAP initiatives. Mitigation staff supported all of the discovery meetings with data and presentation of information. In addition, staff supported all of the Disaster Resilience Workshops. These improved flood maps and non-regulatory products will lead to a much more refined risk assessment in our ongoing efforts to reduce Georgia's flood vulnerability. GEMA has worked with some of the communities in the RISK MAP study area to utilize the non-regulatory products to select future flood mitigation projects.

### **Flood Mitigation Assistance (FMA)**

FEMA provides FMA funds to assist States and communities implement measures that reduce or eliminate the long term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program. Georgia has utilized planning, project, and technical assistance grants through the FMA program. As noted in Section 6.5, FMA funds are utilized to develop flood mitigation plans and implement projects that reduce or eliminate claims against the NFIP primarily through property acquisition. With the recent update to the FMA program to incorporate Severe Repetitive Loss (SRL) and Repetitive Flood Claims programs, the State has focused its efforts for the HMA13 application cycle to address SRL properties.

### **Hazard Mitigation Grant Program (HMGP)**

The Hazard Mitigation Grant Program (HMGP) provides grants to States and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. The HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

The Disaster Mitigation Act of 2000 (DMA2K) placed a much greater emphasis on risk-based data driven mitigation plans. Georgia utilized primarily PDM funds to meet the initial development of state and local mitigation planning requirements of DMA2K. For the initial plan development, 20 of the state's 159 counties received HMGP planning assistance with the remainder receiving assistance through the PDM program. Through the Enhanced Plan, the State has received a 33% increase in

mitigation funds in the aftermath of a disaster for DR1833, DR1858, and DR1973. This has made additional funds available to meet the plan update funding needs in Georgia. HMGP grants are a major component of funding Georgia will utilize to not only update plans but to implement state and local projects identified in these plans. With the increase in HMGP funds due to the 6 presidential disaster declarations since 2007, the majority of the local plan updates are being funded through the HMGP 7% allocation. HMGP funds have been utilized to fund the completion of the first local plan update cycle and the third State Mitigation Plan update.

### **Pre-Disaster Mitigation Program (PDM)**

The PDM program provides funds to states, territories, Indian tribal governments, and communities for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event. Funding these plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. PDM grants are to be awarded on a competitive basis and without reference to state allocations, quotas, or other formula-based allocation of funds.

The 44CFR Part 201, Hazard Mitigation Planning, established criteria for State and local hazard mitigation planning authorized by Section 322 of the Stafford Act, as amended by Section 104 of the Disaster Mitigation Act of 2000. State and local mitigation plans meeting these criteria must be approved in order to receive PDM funds for State and local mitigation projects. Therefore, the development and update of State and local mitigation plans is essential to maintain eligibility for future PDM funding.

The State has utilized the PDM program to fund the initial development of multi-jurisdictional planning grants for 136 counties and plan updates in 3 counties. The State is pursuing PDM funds through the FY13 application cycle to start the second local plan update cycle for 28 counties. Section 6.5 includes a further discussion on the utilization of the PDM program since its inception in 2002. GEMA mitigation staff works closely with local governments to develop and submit projects and plans for funding consideration. Mitigation staff has also served on the national review panel and GEMA will continue to support the development of plans and projects for future PDM funding.

### **HAZUS-MH**

HAZUS-MH is a nationally applicable standardized methodology and software program that contains models for estimating potential losses from earthquakes, floods, and hurricane winds. HAZUS-MH was developed by the Federal Emergency Management Agency (FEMA) under contract with the National Institute of Building Sciences (NIBS). Loss estimates produced by HAZUS-MH are based on current scientific and engineering knowledge of the effects of hurricane winds, floods, and earthquakes. Estimating losses is essential to decision-making at all levels of government, providing a basis for developing mitigation plans and policies, emergency preparedness, and response and recovery planning.

HAZUS-MH uses ArcGIS software to map and display hazard data and the results of damage and economic loss estimates for buildings and infrastructure. It also allows users to estimate the impacts of hurricane winds, floods, and earthquakes on built environment and populations. HAZUS-MH is

fast-running to facilitate use in real time to support response and recovery following a natural disaster.

HAZUS User Groups (HUGs) have been in existence since 1997. These public-private partnerships between public, private, and academic organizations use HAZUS-MH software and technology to build enhanced disaster-resistant communities and save lives, time, and dollars. Georgia has its own chapter which is very active.

In addition, as described in Section 6.1.2 above, The Georgia Department of Community Affairs, with the support of the Georgia Emergency Management Agency, conducted HAZUS-MH training in three locations throughout the state for local communities and interested Regional Commissions. This training will allow more local communities to make use of the program for their planning needs.

### **Emergency Management Performance Grants (EMPG)**

Concerning the enhanced plan element of plan integration, one of the examples of demonstrated integration with FEMA programs and initiatives include how the enhanced plan guides activities funded by EMPG.

One activity funded through the EMPG was the Emergency Management Accreditation Program (EMAP) certification. EMAP is a standard-based voluntary assessment and accreditation process for state and local government programs responsible for coordinating prevention, mitigation, preparedness, response, and recovery activities for natural and human-caused disasters. Accreditation is based on compliance with collaboratively developed national standards, the EMAP Standard. (The EMAP Standard is based on the NFPA 1600 Standard on Disaster/Emergency Management and Business Continuity Programs, 2004).

Georgia went through the EMAP reaccreditation in March 2013. Georgia received full reaccreditation on the 64 standards in May 2013. The Georgia programs continue to meet national standards for disaster preparedness and response. The Georgia Mitigation Information System was noted as a best practice in our exit interview.

Starting in Fiscal Year 2008, GEMA established criteria for local EMAs to be eligible for additional funds above the baseline EMPG allocation. These response and recovery project competitive award criteria demonstrate enhanced plan integration. In order to be eligible for these enhancement grants, local governments must have an approved local hazard mitigation plan or be in the process of updating their plan to meet the five year recertification. In addition, the local government must be in good standing in the NFIP. Since the time of the last update, an additional \$1.02 million has been awarded to 33 local governments for warning and communication enhancements. As a result of this initiative, almost \$1.5 million has been awarded to 59 local governments to implement projects to improve warning and communication.

### **Public Assistance Program**

The objective of the Federal Emergency Management Agency's (FEMA) Public Assistance (PA) Grant Program is to provide assistance to State, Tribal and local governments, and certain types of Private Nonprofit organizations so that communities can quickly respond to and recover from major

disasters or emergencies declared by the President. Through the PA Program, FEMA provides Federal disaster grant assistance for debris removal, emergency protective measures, and the repair, replacement, or restoration of disaster-damaged, publicly owned facilities and the facilities of certain Private Non-Profit (PNP) organizations. The PA Program also encourages protection of these damaged facilities from future events by providing assistance for hazard mitigation measures during the recovery process, which is commonly referred to as Section 406 mitigation.

Georgia utilized Section 403 to assist with the implementation of the HMGP for DR 1858. Both programs (HMGP and PA) were packaged to local governments in an effort to maximize the number of substantially damaged (SD) properties that could be mitigated through property acquisition and demolition. The PA program was utilized to cover the expenses associated with the demolition of HMGP funded SD acquisitions. As a result of this initiative, more than \$2 million in demolition expenses were covered by the PA program, which freed up these funds to acquire approximately 20-30 more SD properties.

Local governments are encouraged to pursue Section 406 mitigation. Public Assistance Mitigation Profile reports for DR 1833, DR 1858 and DR1973, which were pulled from FEMA's EMMI System, can be viewed in Appendix H. These reports show a significant amount of Section 406 mitigation completed for DR1833 and DR1858.

### **Silver Jackets**

Effective and continuous collaboration between state and Federal agencies is critical to successfully reducing the risk of flooding and other natural disasters in the United States and enhancing response and recovery efforts when such events do occur. No single agency has all the answers, but often multiple programs can be leveraged to provide a cohesive solution. The Silver Jackets is an innovative program that provides an opportunity to consistently bring together multiple Federal, State and sometimes local agencies to learn from one another and apply that knowledge to reduce risk. The Silver Jackets program provides a formal and consistent strategy for an interagency approach to planning and implementing measures to reduce the risks associated with flooding and other natural hazards.

The program is a partnership of the U.S. Army Corps of Engineers, the Federal Emergency Management Agency (FEMA) and other federal and state agencies. Silver Jacket programs are developed at the state level with support from the Corps, FEMA and other Federal agencies. The program's primary goals are to:

- Create or supplement a mechanism to collaboratively address risk management issues, prioritize those issues, and implement solutions;
- Increase and improve risk communication through a unified interagency effort;
- Leverage information and resources, including providing access to such national programs as FEMA's Map Modernization program and RiskMAP programs and USACE's Levee Inventory and Assessment Initiative;
- Provide focused, coordinated hazard mitigation assistance in implementing high-priority actions such as those identified by state mitigation plans; and

- Identify gaps among the various agency programs and/or barriers to implementation, such as conflicting agency policies or authorities, and provide recommendations for addressing these issues.

The program's desired outcomes are:

- Reduced flood risk;
- Agencies better understand and leverage each other's programs;
- Collaboration between various agencies, coordinated programs, cohesive solutions;
- Multi-agency technical resource for state and local agencies; and
- Mechanism for establishing relationships to facilitate integrated solutions post-disaster

Georgia has developed a Silver Jackets team with a signed charter. The team meets on a quarterly basis or as needed to address flood risk reduction strategies. A copy of the charter along with GE-MA's adoption can be found in Appendix H.

Team activities over the past three years have resulted in the development of Flood Forecast Inundation Maps (FFIM) similar to what was completed in Albany, Georgia. FFIMS have been completed for Suwanee Creek at Suwanee, Sweetwater Creek at Austell, Chattahoochee River at SR280 near Atlanta, and Peachtree Creek at Atlanta. FFIMs are under development for the Ocmulgee River at Macon.

The FFIMs assist federal, state, and local officials as well as property owners to be able to take action long before a flood actually happens to save lives and reduce property damages. This online tool helps identify where the potential threat of floodwaters is greatest, enabling federal, state, and local officials to better plan for flood response, resource recovery, and assess evacuation routes at various flood levels before the rain falls.

Pilot funds have been awarded for the Macon Levee Safety Project. This project will examine the high-risk problems of the reduced level of protection and under seepage and opportunities that could alleviate these problems, reduce the risk of loss of life and damages to property and support accreditation.

Pilot funds have been awarded to assist Augusta-Richmond County with the identification of cost-effective mitigation strategies for the Hyde Park area. The purpose of this project is for the Georgia Silver Jackets Team to assist the state and Augusta-Richmond County in eliminating the risk of loss of life and damages to 189 properties in Hyde Park.

Funding has been committed on each presidentially declared disaster to provide or assist with the non-federal match for locally sponsored projects under this program. Since 1994, almost \$25 million has been approved on EWP measures and the State has provided \$5.7 million as match for this program. Since the last plan update, GEMA and NRCS established a Memorandum of Understanding for DR1973 which authorized the State to provide 40% of the non-federal match requirement on all Emergency Watershed Protection projects approved by NRCS.

## **National Weather Service (NWS)**

GEMA has continued its partnership with NWS on the StormReady program. This NWS program recognizes counties that have reached a high level of severe weather preparedness. StormReady counties have increased by 12 since July of 2010, presently reaching 79 total counties. In addition, GEMA supports the Atlanta Integrated Warning Team. This team is made up of staff from the National Weather Service, emergency management, the media, the private sector and social scientists to look for ways to improve the warning system and reduce weather related fatalities and injuries.

## **6.2 PROJECT IMPLEMENTATION CAPABILITY**

The 44 CFR 201.5(b)(2) (i) and (ii) states the Enhanced Plan must document the State's project implementation capability, identifying and demonstrating the ability to implement the plan, including:

- Established eligibility criteria for multi-hazard mitigation measures; and
- A system to determine the cost effectiveness of mitigation measures, consistent with OMB Circular A-94, Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs, and to rank the measures according to the State's eligibility criteria.

Georgia Emergency Management Agency's Hazard Mitigation Division staff has overall responsibility for implementation of the Hazard Mitigation Assistance programs. These programs include the Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA) program, and Pre-Disaster Mitigation (PDM) program. The Biggert-Waters Flood Insurance Reform Act of 2012 incorporated elements of the Repetitive Flood Claims and Severe Repetitive Loss programs into the FMA program so the implementation of these two programs have been incorporated into the FMA program. State criteria have been developed for determining eligibility for all types of proposed multi-hazard mitigation measures for these programs.

The State utilizes the procedures outlined in the HMGP administrative plan for the administration of all of the programs mentioned above. The State submitted its last update to the HMGP administrative plan in May 2011 for the DR1973 disaster. The HMGP administrative plan was approved by FEMA in July 2011. See Appendix H for the HMGP Administrative Plan.

### **6.2.1 Eligibility Criteria**

Applications that are received by the Hazard Mitigation Division for funding consideration through the HMGP, FMA, and PDM programs are reviewed for the following eligibility criteria:

- Conformance with the goals and actions of the State Hazard Mitigation Plan;
- Meets applicant eligibility requirements;
- Meets project type requirements which include but are not limited to:
  - ◊ Voluntary acquisition or relocation of hazard-prone structures for conversion to open space in perpetuity;
  - ◊ Retrofitting of existing buildings and facilities for wildfire, seismic, wind or flood hazards (i.e., elevation, storm shutters, hurricane clips), including designs and feasibility studies when included as part of the proposed project;

- ◊ Construction of “safe rooms”(i.e., tornado and severe wind shelters) that meet the FEMA construction criteria in FEMA 320 “Taking Shelter from the Storm” and FEMA 361 “Design and Construction Guidance for Community Shelters”;
  - ◊ Minor structural hazard control or protection projects that may include vegetation management, stormwater management (e.g., culverts, floodgates, retention basins), or shoreline/landslide stabilization;
  - ◊ Localized flood control projects that are designed specifically to protect critical facilities (defined as Hazardous Materials Facilities, Emergency Operation Centers, Power Facilities, Water Facilities, Sewer and Wastewater Treatment Facilities, Communications Facilities, Emergency Medical Care Facilities, Fire Protection, and Emergency Facilities) and that do not constitute a section of a larger flood control system;
  - ◊ Development of State or local plans that meet DMA2K requirements; and
  - ◊ Projects that improve the warning and communication capabilities of local governments for severe weather or emergency events (HMGP Only).
- Have a beneficial impact upon the project area;
  - Be in conformance with 44 CFR Part 9, Floodplain Management and Protection of Wetlands and 44 CFR Part 10, Environmental Considerations;
  - Solve a problem independently or constitute a functional portion of a solution where there is assurance that the project as a whole will be completed (Projects that merely identify or analyze hazards or problems without a funded, scheduled implementation program is not eligible.);
  - Addresses a problem that has been repetitive, or a problem that poses a significant risk if left unsolved;
  - Be cost-effective. Demonstrate that the project will not cost more than the anticipated value of the reduction in both direct damages (property) and subsequent negative impacts (loss of function, deaths, injuries) to the area if future disasters were to occur. Both costs and benefits will be computed on a net present value basis (i.e. obtaining expected damage estimates as a function of hazard intensity);
  - Has been determined to be the most practical, effective, and environmentally sound alternative after consideration of a range of options, including the “no action” alternative; and
  - Contributes, to the extent practicable, to a long term solution to the problem it is intended to address;
  - Considers long-term changes to the areas and entities it protects, and has manageable future maintenance and modification requirements; and
  - Have a federally approved hazard mitigation plan.

In addition, GEMA also considers the following criteria in evaluating proposed mitigation projects:

- Conformance with the goals and objectives of the Local Hazard Mitigation Plan. For each of the HMA programs, projects must be listed in plan;
- Mitigation activities that if not taken will have a severe detrimental impact on the community such as the loss of life, loss of essential services, damage to critical facilities, or economic hardship;
- Mitigation activities that have the greatest potential for reducing future disaster losses;



- Mitigation activities that are designed to accomplish multiple objectives, including damage reduction, environmental enhancement, historical preservation, recreational opportunities, and economic recovery;
- The community's level of interest and demonstrated degree of commitment to mitigation programs and activities;
- Communities participation in and compliance with the National Flood Insurance Program (NFIP); GEMA coordinates with the Georgia Department of Natural Resources in determining a community's compliance with the NFIP.
- The proposed project does not encourage development in a Special Flood Hazard Area;
- Applicant has the ability to provide for the non-federal cost share; and
- Applicant and/or local government that are receiving the mitigation benefit must be in good standing in the National Flood Insurance Program (exception for planning grants)

The eligibility requirements were reviewed during the update process. No changes were necessary.

### **6.2.2 Cost Effectiveness Determination**

As stated in the above criteria, projects have to be cost-effective. Only projects with a benefit-cost ratio of at least 1 to 1 are forwarded to FEMA for funding consideration. The State utilizes a system to determine the cost-effectiveness of all mitigation measures consistent with OMB Circular A-94 for each project application submitted to FEMA for funding with the exception of Planning, TA/ Management, and Initiative projects. Prior to mitigation grant applications being scored for competitive ranking, GEMA Hazard Mitigation Staff works closely with each applicant to get sufficient documentation to determine if the proposed applications are cost-effective. Only projects with a benefit-cost ratio exceeding 1.0 are ranked for further funding consideration. Each analysis conducted by GEMA staff utilizes the most recent Benefit Cost Analysis (BCA) tools (current version is BCA Version 4.8.0) approved and provided by FEMA. State Mitigation staff work very closely with the sub-applicants on proposed grants to ensure they meet the minimum benefit cost requirements.

Although the state mitigation staff completes the benefit-cost analysis, they depend on information in the application provided by the community. To help communities develop mitigation projects that are as cost-effective as possible, and that have a benefit of one dollar for each dollar of cost, the mitigation staff developed the Pre-application and application specific worksheets for each type of project and are used for all of the mitigation programs. The information requested on the worksheets provides staff with the data necessary for an accurate and complete benefit-cost analysis. Sub-applicants submit the worksheets (pre-applications) for benefit-cost review, prior to moving forward with the completion of the full application. The worksheets are updated annually and utilized with every HMA application process.

The State has extensive experience in utilizing the FEMA developed benefit-cost modules. Since October 1, 1995, the State has utilized FEMA developed software to complete benefit-cost (BC) reviews for each mitigation project submitted for federal funding. Due to the high number of flood mitigation projects, the state has gained the most experience in utilizing the FEMA flood BC models (both Full Data and Limited Data).

Table 6.4 provides information on the total number of approved HMA projects that had a BCA submitted with the application. The table also shows the approved projects that had a BCA submitted with the application during this plan update cycle. The table does not show the other 506 approved HMA projects that are exempt from BC review. The exempt projects consist of planning, management cost, acquisition of substantially damaged properties, and initiative projects.

<b>Project Type</b>	<b>Approved Projects with BCAs</b>	<b>Approved Projects with BCAs Since Last Plan Update</b>
Acquisition w/ (Demolition or Relocation)	116	11
Acquisition and Elevation	3	0
Acquisition and Drainage Improvements	2	0
Elevation	7	0
Retrofit (Wind, Flood, Lightning)	15	0
Drainage Improvement	58	1
Safe Room	10	3
<b>Totals</b>	<b>211</b>	<b>15</b>

**Table 6.4 HMA Projects with BCA**

Our track record for submitting eligible projects for mitigation funding is exceptional, as the overwhelming majority of all projects submitted for funding consideration have received FEMA approval.

As part of populating the mitigated properties database, the State Mitigation staff is currently reviewing the BC information on all closed projects and ensuring that we have an updated BC analysis for all mitigated properties. This information is critical in documenting future successes of our completed mitigation activities.

Based on our review of all approved HMGP mitigation projects that had a property acquisition or elevation component, the State has completed an analysis using either the Full Data or Limited Data FEMA approved modules on more than 1,850 properties. This number only includes approved grants and does not include the hundreds of analysis completed on proposed grants that did not meet the minimum benefit cost requirements, as this data was not tracked in any of our historical databases. The State does not submit projects to FEMA for funding consideration where minimum federal project criteria are not met.

Based on the review of all approved HMGP mitigation projects that had a wind retrofit or building retrofit component, the State has completed an analysis using either the Hurricane or Tornado FEMA approved BC modules on 46 properties.

The approval rate of projects submitted in the Pre Disaster Mitigation – Competitive (PDM-C) program since its inception in 2003 is directly related to the technical accuracy, supporting documentation completeness, and credibility of the data in demonstrating the projects submitted for funding are cost-effective. FEMA Head Quarters staff recognized the State's efforts in this area by requesting Georgia share their experience with the rest of the States at the National Hazard Mitigation Assistance (HMA) summit in 2008.

All GEMA Risk Reduction Hazard Mitigation Division staff receive benefit-cost training from FEMA Region IV or at EMI to fully understand how to utilize the FEMA benefit-cost modules for completing the benefit-cost analysis. Each new employee as part of their training is required to attend the next available FEMA offered BC training courses.

The State has implemented hazard mitigation eligibility criteria reviews in 21 presidential declared disasters on 600 projects since 1990. In addition, similar types of reviews are done for the Flood Mitigation Assistance and PDM-C programs. The projects submitted have been diverse in nature and include drainage improvements, acquisition, elevation, wind retrofit, tornado safe room construction, planning, and many warning initiative projects.

The State's system for determining cost-effectiveness for Hazard Mitigation Assistance grants has been reviewed. The State continues to use the most recent FEMA BCA tools in determining cost-effectiveness for mitigation grants and the process is updated to incorporate these tools.

### **6.2.3 System to Rank Projects**

GEMA Hazard Mitigation Division staff review all proposed mitigation pre-applications and applications to ensure that the proposed projects are eligible and meet minimum criteria as outlined above. In evaluating proposed projects, GEMA reviews, ranks and scores proposed projects. The State review criteria include a scoring sheet to determine potential for funding and overall priority within the application process. There are two basic types of projects: Regular Program Projects and Initiative Projects. Each has its own score sheet. The main categories utilized in ranking the Regular Program project submissions include natural hazard, history of damages, type of mitigation, potential impact on community, estimated environmental impact, community commitment to mitigation, and benefits. The ranking categories in the Initiative Project score sheet include History of Tornado Hazard in County, Potential Benefit to Community, Cost Effectiveness and Intangible Factors.

Each category within either score sheet is given a maximum range of points. Point amounts were developed over several years by the Hazard Mitigation staff and are based primarily upon HMGP guidelines. Maximum point possibilities per category range from 5 to 25 points and are listed below. The maximum amount of points any one project could accumulate would be 100. The Regular Program score sheet has a possible 10 bonus points which can be used in a tie breaker situation.

Categories included in the Regular Program score sheet are described here:

Natural Hazard Score – The natural hazard score is dependent upon the type of disaster, its location in regard to the coast and if a tornado is involved. A maximum of 25 points is possible in this section, depending upon the following criteria: the total amount of damage, the amount of flooding, proximity to the coast line and historic record of tornados in that area. In a post-disaster environment, priorities are established by the disaster type(s). In the event of multiple disasters scoring will be calculated for each event and combined to give an overall score. (In some situations with multiple disasters the score could exceed 25)

History of Damage in Project Area – Historical records of events in a county/project area and the likelihood of the event happening again will determine the total amount of points issued in this category. Five points are given for every event documented, up to a maximum of five events. The highest amount available in this category is 25 points.

Type of Mitigation – In this category the reviewer must determine if the mitigative action is Non-Structural or Structural. Examples of Non-Structural projects are flood proofing, retrofitting, elevation, acquisition and the implementation of stricter building codes. Structural projects would entail flood walls and storm water drainage improvements. The most effective type of mitigative action can garner 5 points.

Potential Impact on Community – Projects are prioritized by their ability to eliminate or reduce the effects upon the community by a disaster event. The failure to implement a project can have either a severe, moderate or no potential impact on a community. Depending upon the amount of perceived future impact avoidance, a project can accumulate up to 15 points.

Estimated Environmental Impact – Environmental impact is broken into three categories; Major, Moderate and Insignificant. A maximum of 5 points is awarded to the project according to its ability to reduce the impact of a disaster to the environment.

Intangible Factors – These factors include whether or not a community is storm ready, its CRS rating, amount of local cost share paid by the community and the community's experience in successfully completing mitigation projects.

Benefits – One point is awarded per \$500,000 in hazard avoidance benefits to a community with a maximum of 15 points.

Bonus Point Section – (Tie Breaker) The State utilizes the quality of the data in the application as a tie-breaker if needed. A maximum of 10 points can be given to an application depending upon the quality of the data in the application, the amount of hazard data, damage history, cost data and environmental impact analysis. It is in this section that two applications with very similar scores are compared and a tie breaker is issued.

Initiative projects are non-competitive; however, they are competitive between each other for the funds available. Categories included in the most recently used Initiative Program score sheet are described here:

History of Tornado Hazard in County – The more likely a tornado event will occur determines the amount of points awarded a project. The likelihood is calculated based on the history of tornadoes in that area. The higher the likelihood the higher the points to a maximum of 25.

Potential Benefit to Community – One quarter of a point is awarded per 1,000 population warned per device. Maximum award possible 25 points.

Cost Effectiveness (\$/per capita warned) – Cost effectiveness is broken down into 6 categories.

Points are awarded based on the overall cost per capita warned. Maximum award is 25 points.

Intangible Factors – These factors include whether or not a community is storm ready and the communities experience in successfully completing mitigation projects. A maximum of 25 points can be awarded in this category.

Based on State priorities, non-structural projects such as acquisition, demolition, and relocation generally receive the highest ranking and the greatest consideration for funding. Planning projects are given priority over structural and non-structural projects due to the fact that a FEMA approved hazard mitigation plan is a requirement for a community to be eligible for a federal grant. Therefore, planning projects always receives a higher ranking than a structural or non-structural application. Counties involved in a Presidential Declaration are given priority over non-declared counties.

Appendix F provides the HMA score sheet used for the FMA grant for FY 2013. This score sheet is used to rank all of the HMA project grants that meet BC and other project eligibility criteria.

For the Flood Mitigation Assistance Program, additional criteria include the proposed project must address mitigating an NFIP insured property with repetitive loss and severe repetitive loss properties receiving priority.

### **6.3 PROGRAM MANAGEMENT CAPABILITY**

The 44 CFR 201.5(b)(2) (iii A-D) states the Enhanced Plan must document that the State has the capability to effectively manage the HMGP as well as other mitigation grant programs, and provide a record of the following:

- Meeting HMGP and other mitigation grant application timeframes and submitting complete, technically feasible, and eligible project applications with appropriate supporting documentation;
- Preparing and submitting accurate environmental reviews and benefit-cost analyses;
- Submitting complete and accurate quarterly progress and financial reports on time; and
- Completing HMGP and other mitigation grant projects within established performance periods, including financial reconciliation.

This section of the plan demonstrates the State's capabilities to effectively manage the Hazard Mitigation Grant Program (HMGP) and other mitigation grant programs.

GEMA's Hazard Mitigation Division has primary responsibility for program management. The Division consists of a Planning Section and a Risk Reduction Section, with staff dedicated to providing technical assistance to state agencies and local governments on the development and implementation of mitigation plans and projects. Each section is supervised by a Program Manager who reports to the Division Director. The respective program managers review all activities of their program staff for compliance. The number of program staff can vary based on disaster activity. Since the last plan update, the Division has added one additional planner to support state and local plan updates. The

HMGP Administrative Plan details how the Hazard Mitigation Division administers the mitigation programs.

Program management is significantly enhanced by the vast experience of the Hazard Mitigation management team and staff. The management team averages more than 13 years of experience in the administration of the FEMA mitigation programs and program staff averages more than 5 years of experience.

Table 6.5 summarizes the Program Management Activities for each of the open allocations for this grant update cycle for the period October 1, 2010 through September 30, 2013. (NA = No activity during this timeframe) Timelines vary among the different types of grant programs. For example, the PDM Program is designed to assist States, Territories, Indian Tribal governments, and local communities to implement a sustained pre-disaster natural hazard mitigation program to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on Federal funding in future disasters. These grants are offered annually with the application period typically starting in June or July and ending in December. Awards for this type of grant typically are announced in January of the following year. PDM grants are now limited to two years including the period from the application close date. The total amounts of PDM grants are determined by Congress.

<b>Program</b>	<b>Meet HMA Application Timeframe</b>	<b>Projects Submitted</b>	<b>Projects with Environmental</b>	<b>Projects w/ BCA</b>	<b>Quarterly and Financial Reports</b>	<b>Projects Completed Within POP</b>
DR1560	NA	NA	NA	NA	Yes	1
DR1686	NA	NA	NA	NA	Yes	44
DR1750	NA	NA	NA	NA	Yes	6
DR1761	NA	NA	NA	NA	Yes	13
DR1833	18 months	9	5	3	Yes	31
DR1858	18 months	54	5	0	Yes	19
DR1973	18 months	49	19	7	Yes	3
PDMC07	NA	NA	NA	NA	Yes	5
PDMC08	NA	NA	NA	NA	Yes	2
PDMC09	NA	NA	NA	NA	Yes	2
PDMC10	NA	NA	NA	NA	Yes	1
PDMC11	6 months	4	3	3	Yes	0
PDMC12	6 months	4	3	3	Yes	0
LPDM08	NA	NA	NA	NA	Yes	6
LPDM09	NA	NA	NA	NA	Yes	3
LPDM10	11 months	2	1	NA	Yes	0
FMA07	NA	NA	NA	NA	Yes	1
FMA08	NA	NA	NA	NA	Yes	2
FMA09	NA	NA	NA	NA	Yes	2
<b>Totals</b>		<b>122</b>	<b>36</b>	<b>16</b>		<b>141</b>

**Table 6.5 Program Management Project Summary since October 1, 2010**

The Hazard Mitigation Grant Program (HMGP) provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. Post disaster grants are only awarded after presidentially declared disasters and are subject to FEMA's determination of loss. These grants are typically structured for three years and a designated application period is established by FEMA. Timelines for the various grants vary by program.

Sections 6.3.1 through 6.3.4 provide additional detail to document each of the program management capability requirements shown in Table 6.3.

### **6.3.1 Meet HMA Application Timeframe and Submission of Eligible Project Applications**

The State has an excellent track record of submitting eligible project applications within the applicable grant application timeframe. For this plan update cycle, the State completed the grant submission for the HMGP for DR1833, DR1858, and DR1973. All 112 HMGP applications submitted to FEMA were complete, technically feasible, and eligible project applications and subsequently approved by FEMA.

Also in this update cycle, the State completed the grant submission for the Non-Disaster grant programs for 2011 PDMC, 2012 PDMC, and 2010 LPDM programs. All ten of the Non-Disaster applications submitted to FEMA were complete, technically feasible, and eligible project applications, of which eight were approved.

Figure 6.3.1 shows the steps the State takes in working with potential applicants on the development and submittal of eligible project applications. The application process starts with either a disaster declaration for HMGP or a Notice of Funding Availability for the non-disasters programs (FMA and PDM). Supplemental information is provided on each of the steps.

**Outreach:** Application information is developed and posted on the GEMA website and distributed through the Association of County Commissioners of Georgia (ACCG), the Georgia Municipal Association (GMA), EMA directors, and through press releases. Appendix H provides information on the DR1973 HMGP and the HMA 13 application process. For HMPG, applicant briefings are conducted in the declared counties.

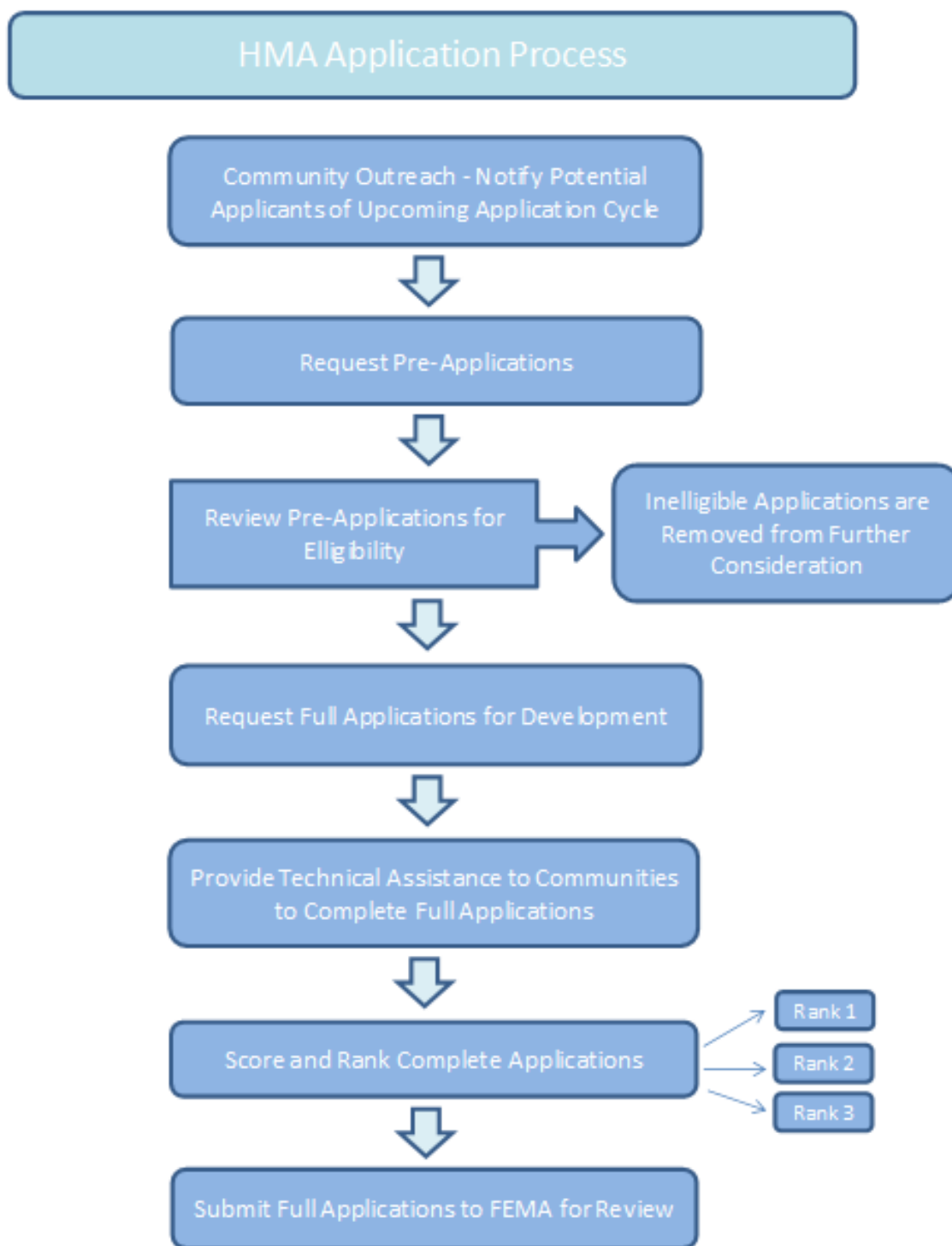
**Pre-Applications:** Pre-applications are reviewed for funding potential and pre-screened for HMA eligibility. An initial BCA is completed on all project submittals. Only eligible applications are recommended for full application development. Ineligible applications are removed from further consideration.

**Technical Assistance:** State mitigation staff work closely with potential applicants and provide technical assistance to assist applicants in completing full applications. GEMA uses the FEMA application completeness template to ensure that adequate information has been provided to document HMA minimum requirements.

**Applications:** The BCA is finalized based on data in the full application. Completed applications that meet the minimum program requirements will be scored and ranked as described in Section 6.2.3 prior to submission to FEMA. The Hazard Mitigation Division Director will make a recommendation to



the GEMA Director who will make the final decision regarding the selection of projects to forward to FEMA for consideration.



**Figure 6.2 HMA Application Process**

GEMA's simplified application process allows the state to react to any grant funding opportunity quickly. In the event of a major disaster declaration, GEMA can provide the needed outreach and technical assistance to its communities. Also, by using the GMIS database, we can also target communities that are eligible for a particular program such as the PDM13 program which targets SRL and RL properties.

## HMGP Performance

Within the past three years (since October 1, 2010) the State has implemented the HMGP for one new presidential disaster declaration and continued to manage the HMGP for seven other disasters.

For the disaster designated DR1973, the state requested additional time beyond the 12 months to submit applications. All of the grant applications for this disaster were submitted within the FEMA deadline. The applications submitted were sufficient to expend the allocation. All forty-nine project applications submitted to FEMA were determined to be technically feasible and eligible project applications with appropriate supporting documentation.

For DR1858, the State completed the grant application process. Based on the 12 month program estimate, a sufficient number of projects were identified through the pre-application process, and the State has completed its work with local governments on their submission of fully developed project applications. In addition, work was completed on grant amendments to take care of the large number of alternate properties identified with the original project submissions for Cobb County and the City of Austell.

Table 6.6 provides a snapshot as of September 30, 2013, for each presidential disaster declaration of the number of HMGP projects approved and managed by the State during this plan update cycle. The State had previously closed out the HMGP for 13 disasters declared prior to 2004. This table provides a good indication of the numbers of grants and amount of federal funding the State has effectively managed or currently managing in the HMGP programs since October 1, 2010. A \* after the disaster number denotes the disaster is closed. Disasters 1554 and 1560 have been closed during this update cycle. Disaster 1750 is projected to close in the next federal fiscal year and all work has been completed in this disaster. The federal funds expended column includes grantee and subgrantee administrative funds. Since the last update, the State has received approval on 120 additional projects, closed 117 projects and processed expenditures of almost \$33 million.

Disaster	Approved Projects		Open Projects	Closed Projects		Federal Funds Expended	
	Last 3 Years	Total	Total	Last 3 Years	Total	Last 3 Years	Total
1554*	0	6	0	0	6	\$2	\$892,147
1560*	0	6	0	1	6	\$2,537	\$1,135,905
1686	0	58	6	44	52	\$5,921,176	\$8,116,518
1750	0	7	1	6	6	\$457,518	\$932,979
1761	0	17	4	13	13	\$1,639,171	\$1,743,932
1833	14	46	15	31	31	\$4,922,088	\$5,045,021
1858	57	95	76	19	19	\$18,825,035	\$19,034,598
1973	49	49	46	3	3	\$1,020,727	\$1,020,727
<b>Sub-total</b>	<b>120</b>	<b>284</b>	<b>148</b>	<b>117</b>	<b>136</b>	<b>\$32,788,254</b>	<b>\$37,921,827</b>

Table 6.6 Hazard Mitigation Grant Project Summary

## Non-Disaster Programs Performance

Within the past three years (since October 1, 2010) the State has taken advantage of the non-disaster programs within the Hazard Mitigation Assistance (HMA) Program. The application intake is managed through FEMA's eGrants system, and only those projects submitted by the State's dead-

line are eligible for consideration. The State has submitted a successful grant application(s) for each fiscal year allocation of HMA. Each of the project applications submitted to FEMA had sub-applications that were reviewed and approved by FEMA Regional/HQ staff.

Tables 6.7 and 6.8 provide a snapshot as of September 30, 2013, for each of the non-disaster programs of the number of projects approved and managed by the State during this plan update cycle. The State had previously closed out the FMA program for all 11 allocations prior to 2008, closed out the PDM program for all 5 allocations prior to 2007, and closed out the RFC program for both allocations. These tables provides a good indication of the numbers of grants and amount of federal funding the State has effectively managed or currently managing in the various mitigation programs. A \* after the program year denotes the allocation is closed. The mitigation staff's program management ability is effectively demonstrated by their success in each year of the HMA Program for both the Pre-Disaster Mitigation Competitive Program (including Legislative component) and Flood Mitigation Assistance Program funding cycles.

### FMA Project Summary

Over the past 3 years, all work has been completed for the FMA08 and FMA09 programs. All projects have been completed and these allocations are closed out. Due to the increased disaster activity in 2009 and 2011, most of the local government projects submitted during this timeframe were handled with HMGP funds. The other projects submitted through the HMA application cycle were submitted through the PDM program. All of the submitted applications for the FMA program have been considered eligible for funding consideration.

Program Year	Approved Projects		Open Projects	Closed Projects		Federal Funds Expended	
	Last 3 Years	Total		Last 3 Years	Total	Last 3 Years	Total
FMA08*	0	3	0	2	3	\$35,283	\$320,993
FMA09*	0	2	0	2	2	(\$26,893)	\$156,907
<b>Sub-total</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>4</b>	<b>5</b>	<b>\$8,390</b>	<b>\$477,900</b>

**Table 6.7 Flood Hazard Mitigation Assistance Project Summary**

### PDM Project Summary

Over the past 3 years, all work has been completed for the PDMC07 thru PDMC09 programs. All projects have been completed and these allocations closed out or going through closeout. The other open program allocations are progressing on schedule. Since the last update, the State has received approval on 11 additional projects, closed 18 projects and processed expenditures of more than \$3.6 million.

The State has submitted a total of 64 competitive applications in the Pre-Disaster Program since its inception in 2002 thru the 2012 program year. Fifty (78%) of these projects have been selected and awarded federal funds. The Pre-Disaster Mitigation Program Summary table also includes information on the legislative directed projects through this program. The state has successfully worked with each of the legislative directed communities to develop projects to meet this directive. Where possible, the State has worked diligently to assist local governments to develop these projects consistent with the goals of the competitive nature of the program.

Program Year	Approved Projects		Open Projects	Closed Projects		Federal Funds Expended	
	Last 3 Years	Total		Last 3 Years	Total	Last 3 Years	Total
PDMC07*	0	7	0	5	7	\$2,081,607	\$6,617,197
PDMC08*	0	2	0	2	2	\$80,654	\$116,192
PDMC09	0	2	1	1	1	\$661,755	\$661,755
PDMC10	3	3	2	1	1	\$139,738	\$139,738
PDMC11	4	4	4	0	0	\$222,204	\$222,204
PDMC12	2	2	2	0	0	\$0	\$0
LPDM08	0	8	2	6	6	\$402,949	\$922,242
LPDM09*	0	3	0	3	3	\$7,135	\$122,149
LPDM10	2	2	2	0	0	\$9,084	\$9,084
<b>Sub-total</b>	<b>11</b>	<b>33</b>	<b>13</b>	<b>18</b>	<b>20</b>	<b>\$3,605,126</b>	<b>\$8,810,561</b>

**Table 6.8 Pre-Disaster Mitigation Program Summary**

In summary, the State has been very successful in applying for and receiving approvals for projects submitted through the competitive HMA program. To date, almost 83% of the competitive projects submitted to FEMA have been approved.

### **6.3.2 Preparing and Submitting Accurate Environmental Reviews and Benefit-Cost Analysis**

#### **Preparing and Submitting Accurate Environmental Reviews**

The State of Georgia relies on the staff of the Federal Emergency Management Agency Region IV to conduct environmental reviews and prepare the environmental document on all submitted mitigation applications.

#### **Preparing and Submitting Accurate Benefit Cost Analysis (BCA)**

As discussed in Section 6.2.2 on project implementation capability, the State has a track record of submitting accurate benefit-cost analysis that meets FEMA criteria for hazard mitigation projects. For this update cycle, the State completed BCA reviews on 10 HMGP projects and 6 PDMC projects.

Basic information the State obtains and utilizes to conduct accurate BCAs includes, but is not limited to:

- Flood Insurance Study (FIS) data or historical flood data. This includes flood frequency, discharge and elevation;
- Past damages at the project site or in the project area;
- Well documented cost-estimate for the project;
- Useful life of the project;
- Structure Type;
- Square footage of the building/s and replacement values along with contents value;
- Function of the facility;
- Associated future maintenance costs;
- Displacement costs;
- Temporary relocation costs;
- Loss of Use; and

- Elevation Certificates or certification from land surveyor of finished floor elevation.

GEMA mitigation staff utilizes their experience to assist in determining the appropriate FEMA approved BC module to use for each project. Based on the type of project and information provided in the pre-application and application, GEMA staff will determine which benefit cost analysis module will be used to determine the project's cost effectiveness.

The BCA determines whether the cost of investing in a project today, will result in sufficiently reduced damages in the future to justify spending the money on the project. If the benefit is greater than the cost, then the project is cost-effective. Cost effectiveness is determined by comparing the project cost to the value of damages prevented after the mitigation measure. If the dollar-value of the benefits exceeds the cost of funding the project, the project is cost-effective. To arrive at a ratio, the benefits are divided by the costs, resulting in a benefit-cost ratio (BCR). The BCR simply states whether the benefits exceed the project costs, and by how much. To arrive at a BCR, divide the benefits by the cost. If the result is 1.0 or greater, then the project is cost-effective. If it is less than 1.0, it is not cost-effective.

A narrative analysis is used when the benefits of a project cannot be easily quantified into specific categories and do not conform to any of the other modules or formats. This analysis allows for a subjective, broad-based approach to quantify the benefits of a project so that all benefits of the project can be recorded and the project objectively assessed. This type of analysis is used normally in the HMGP 5% State Initiative projects.

If the project is cost-effective, it is considered by GEMA for funding consideration and full application development. If the project is not cost-effective, mitigation staff would attempt to obtain additional information from the applicant to arrive at a positive BCA. If there is no additional credible data available or all available data has been utilized, and the project is still not cost-effective, the project is not considered for full application development.

The mitigation staff's ability to complete accurate BCAs was demonstrated by their success in all funding rounds to date of the HMA programs. In addition, the State has completed Data Documentation Templates for all applications submitted from 2005 through 2012. This form is utilized to document each piece of data and the values that are input into the various FEMA benefit-cost models. This form documents the accuracy of the BCA. Due to changes within the BCA tool version 4.8, the State will discontinue this form as it is incorporated into the BCA tool to document the information utilized in completing the BCA.

### **6.3.3 Quarterly Reports**

The State of Georgia provides timely, complete, and accurate quarterly progress and financial reports on all funded HMA grants. Separate financial reports are submitted quarterly from the Office of Planning and Budget for each of the open disasters or allocations. For this update cycle, the State submitted all quarterly reports within 30 days of the end of the calendar quarter. Subsequent meetings were held with FEMA staff on each quarterly report submission to discuss any findings or questions. All questions and findings were satisfactorily addressed.

The State provides an enhanced quarterly and financial report on all open mitigation projects. This report includes detail on work completed, work remaining, project delays (if any), and all associated financial information. This reporting format has been shared at Regional meetings with other Region IV states as a model format for other states to follow. The quarterly report submissions also include budget-comparison reports on each of the State's open management grants.

GEMA uses an agency wide computer program to manage all federal grants called the Grants Management System (GMS). Some of the major features included in the system are:

- Ability to view key dates, funding amounts, status, expenditures, itemization of subgrants and current balances for all federal grant allocations;
- Ability to add/view/track key dates, funding amounts, applications data, status, expenditure history, adjustment history, progress report history, closeout details, correspondence, and current balances on all plans, applications and subgrants;
- Automated subgrantee Progress Report generation and creation of FEMA Quarterly Progress Report from the subgrantee reports;
- Ability to generate and track correspondence (paper and email) tailored by subgrants; and
- Ability to generate dozens of standard reports and user-created ad hoc reports.

One of the significant enhancements of this system is the ability to create quarterly reports to FEMA that includes additional information on activities completed in the quarter with all activities tied back to the milestones for the project. This new report format was developed and has been utilized for all quarterly report submissions for this plan update cycle.

Upon project approval notification from FEMA, a State/Local Grantee/Subgrantee Agreement is prepared by GEMA and sent to the subgrantee for signature. Upon receipt of the signed agreement, the GEMA Director signs the agreement and a fully executed agreement is sent to the subgrantee with instructions to start the project. The signed agreement requires the subgrantee to submit quarterly status reports within 15 days of the end of the quarter. Due dates are January 15, April 15, July 15 and October 15. As noted above, GEMA uses GMS to generate the subgrantee quarterly report which is emailed to the project point of contact. The reports include financial information current as of the end of the quarter, as well as grant status information current as of the end of the previous quarter. The counties update the status and return the reports to their assigned planner or specialist who then inputs the updated information into the GMS system. As an incentive to receiving timely quarterly reports from each subgrantee, the State requires all reports to be current in order to process progress payments.

The quarterly report consists of a letter with narrative information regarding each open grant program as well as information on other activities that the mitigation staff has been involved in for the quarter. In addition, a project summary spreadsheet is completed for each program detailing the status of each funded program listing both closed and open projects. The GMS printout and budget comparison reports complete the quarterly report package.

In addition to the quarterly report submitted for each of the open projects, the Office of Planning and Budget submits the FF 20-10 financial reports and the PMS 272 Federal Cash Transaction Report for each of the open disasters. The submitted reports are consistent with SMARTLINK and based on

the approved supplements received from FEMA. When GEMA's internal financial tracking system, based on supplements received, is not in balance with SMARTLINK, the State notifies FEMA program staff to get the missing supplements so the reports will balance at the end of each quarter.

#### **6.3.4 Grant Completion and Closeout**

For this update cycle, the State closed 117 HMGP projects in seven disasters, and 22 projects in eight non-disaster programs. Two disaster and five non-disaster programs were successfully closed.

The following summarizes the process that the mitigation staff follows in monitoring approved grants and completing project and declaration closeouts within established performance periods including financial reconciliation.

The State/Local Grantee/subgrantee Agreement that is signed by both GEMA and the subgrantee requires the subgrantee to complete the project based on milestones established in the grant application (not to exceed three years from project obligation date). In addition, for project grants, they are required to submit supporting documentation identified at final inspection within 30 days.

If the subgrantee cannot complete the project within the identified performance period per the grant agreement, a request for a time extension must be submitted to GEMA 90 days prior to the end of the performance period. Requests for time extensions need to explain why the completion date cannot be met, how much of the project work remains, and an estimated date for completion. If an extension request for any project means that the activity period will go beyond the State's performance period (or closeout date for disasters), GEMA will request up to a one-year time performance extension. This request will be submitted to FEMA 60 days prior to the end of the performance period.

All mitigation projects that receive federal funding go through the same financial reconciliation as part of the closeout process. State Mitigation staff utilizes the signed grantee-subgrantee agreement with each applicant to monitor progress of their project and ensure the project is on track. Site visits are scheduled as necessary. Upon written notification of project completion, GEMA Hazard Mitigation staff conducts a final inspection to ensure the project is completed per the terms of the agreement and verifies the GPS coordinates and takes photographs of each mitigated property. For planning grants, GEMA Hazard Mitigation staff conducts a desk audit to verify the approved scope of work has been completed. As part of the final inspection, all financial documents are reviewed to ensure only allowable costs are reimbursed consistent with Office of Management and Budget circulars. Project closeout requests are made to FEMA upon completion of final inspection and financial reconciliation on a project-by-project basis. In the project closeout request, GEMA certifies to FEMA that costs incurred in the performance of eligible work are allowable, that the approved work was completed, and that the mitigation measure is in compliance with the Federal-State Agreement (for the HMGP) or Agreement Articles (for non-disaster programs) and the State/Local Assistance Agreement. GEMA mitigation staff will prepare a project closeout worksheet which is submitted to FEMA Region IV along with a request to close the grant. The financial reconciliation and project closeout requests are completed within 90 days of the final inspection. Upon receipt of final claim amounts from FEMA, any remaining funds are liquidated and closeout notice sent to the subgrantee.



When all projects are completed and closed out for the disaster declaration, GEMA prepares the Declaration Closeout Letter and final financial status report, SF425, for the HMGP and forwards it to FEMA.

The subgrantee and grantee closeout reports are valuable for not only historical purposes and in monitoring projects for adherence to certain grant agreements such as open space deed restrictions, but they are also valuable in documenting disaster avoidance and developing success stories. The closeout reports including those properties that have been acquired have been shared with the Department of Natural Resources Floodplain Management staff. This information is useful by floodplain management staff during community assistance contacts and visits. In addition, during these visits floodplain management staff can monitor the acquired sites to ensure that the subgrantees have adhered to the required deed restrictions. This information is also utilized to support Risk MAP Discovery and Resilience workshops.

## **6.4 ASSESSMENT OF MITIGATION ACTIONS**

The 44 CFR 201.5(b)(2)(iv) states the Enhanced Plan must document the system and strategy by which the State will conduct an assessment of the completed mitigation actions and include a record of the effectiveness (actual cost avoidance) of each mitigation action.

### **6.4.1 *System to Track the Assessment of Mitigation Actions***

The information collected on each site that has had a mitigation action completed includes:

- Funding Source;
- Project Number;
- Applicant;
- Property Address;
- Parcel Number;
- GIS Coordinates;
- Mitigation Action;
- Structure Size;
- Replacement Value of property mitigated (Structure and Contents);
- Damage Source;
- Hazard Data;
- Elevation Data;
- Cost;
- Benefits;
- Repetitive Loss Number ;
- Avoided Losses;
- Last Inspection Date; and
- Project Closeout Date.

The State Hazard Mitigation Division is currently populating the database for all completed and closed projects within the HMGP and PDM programs. The database is greater than 99% completed

with 1,891 records in the system as of September 30, 2013. The State continues to populate the database with information from older disaster allocations. The database is updated by State Hazard Mitigation Division staff on completed mitigation projects as part of the closeout process.

### **Repetitive Loss Property Tracking**

When a property acquisition project is completed, a record is added to GMIS for each of the acquired and deed restricted properties and the last inspection date is entered into the database. GEMA Hazard Mitigation staff utilizes the GMIS to pull a list of acquired properties needing certification. This list is sent to the subgrantee along with a request to verify the properties are being maintained according to the deed restrictions. Upon receipt of the certification, GEMA Hazard Mitigation staff updates GMIS to reflect the most recent inspection date.

The GMIS is undergoing a complete update to a new platform with enhancements to be completed by June 2014. Specific details on the updated system will be reported in the next State Plan Update cycle.

### **6.4.2 Strategy to Assess Mitigation Actions**

The following action steps will be taken to effectively assess completed mitigation actions in Georgia:

- Finish the process of populating the Mitigated Properties Database on all completed mitigation projects that are administered by GEMA.
- Incorporate mitigation activities completed by other agencies into the Mitigated Properties database.
- Review Hazard Event information submitted to GEMA to determine the potential for loss reduction as a result of all completed mitigated actions documented in the Mitigated Properties system.
- Upon determination that the completed mitigation action resulted in a reduction of damages, data will be entered into the Mitigated Properties database and a computation of damages avoided for each structure mitigated.

Local governments will be able to access the data in the GMIS for their community and pull reports for their counties and municipalities on completed mitigation actions and any avoided losses as a result of hazard events documented in the project area after the projects are completed.

### **Record of Actual Cost Avoidance**

A critical component to estimate the actual avoided losses is having accurate information on the hazard event and information about the exposure of the property to damages. Scenario losses are computed based on established hazard damage relationships such as depth damage curves for wind and flood events provided by FEMA in benefit-cost modules. For flood events, avoided losses can be computed by knowing how much flooding would have occurred at the site by comparing the finished floor elevation data with the water surface elevation of the hazard event. Applying the depth damage curves and additional information collected allows one to compute scenario losses at the site that would have occurred if the structure had not been mitigated.

Studies were completed by FEMA and the State on the effectiveness of completed mitigation actions (acquisitions) in the cities of Newton and Albany and Dougherty County at the time of the 1998 flood event. Additional successes were documented in Douglas and DeKalb Counties after the Hurricane Ivan event in 2004. In the previous updates of the Enhanced Plan, the data from the previous studies was added to the Loss Avoidance Section of each mitigated property. For the events for which we had high water marks, a depth of flooding was computed and the scenario losses from the BCA analysis for the depth of flooding were input into each record.

In the aftermath of the September 2009 flood event, the State worked with FEMA on a Loss Avoidance Study in the declared counties which had completed mitigated properties. FEMA completed the final study and provided the results to the State in November 2010. The State has populated the Avoided Losses section for each mitigated property record in the GMIS. In addition, the State has utilized the methodology that is documented in the 2009 Loss Avoidance Study to compute additional losses for all other projects in the counties declared for DR1833 and DR1858. As high water marks were not available in all projects, the State utilized gauge data from the USGS to compute the water surface elevation for the declared flood events. The water surface elevation was compared to the Base Flood elevation. This information was transferred where practicable to each of the project sites impacted by DR1833 so depth of flooding could be computed for properties that had both a finished floor elevation and base flood elevation. Damages have been computed for each of the projects along the main stem of the Flint River for DR1833 declared counties. This information has been incorporated into the Mitigated Properties section of GMIS.

<b>Applicant</b>	<b>Buildings in Analysis</b>	<b>Project Investment</b>	<b>Total Loss Avoided</b>	<b>Return on Investment</b>
Augusta-Richmond County	1	177,948	59,011	33%
Baker County	3	62,431	218,010	349%
City of Albany	62	925,582	3,170,028	342%
City of Chickamauga	49	2,140,887	3,279,171	153%
City of Newton	25	340,880	864,221	254%
City of Savannah	1	118,971	89,306	75%
Cobb County	59	7,315,380	9,495,265	130%
Decatur County	8	774,276	1,278,799	165%
DeKalb County	80	26,808,903	12,137,155	45%
Dougherty County	19	2,827,481	1,317,732	47%
Douglas County	13	704,332	3,396,316	482%
Douglas County Water and Sewer Authority	4	535,829	429,704	80%
Gwinnett County	2	261,481	1,677,448	642%
Lee County	7	398,095	231,890	58%
Mitchell County	2	109,718	115,310	105%
Tift County *	7	996,830	338,765	34%
Town of Trion	1	4,465,893	2,138,183	48%
<b>Totals</b>	<b>343</b>	<b>48,964,917</b>	<b>40,236,314</b>	<b>82%</b>

**Table 6.9 Actual Losses Avoided Summary \* New losses avoided since last plan update**

Since the last State Plan Update, the State has not received any presidential disaster declarations for flooding. The State had several areas impacted by flooding, but the only location that impacted a mitigation project area was in Tift County. A localized flood event impacted an area in Tift County where property acquisition had just been completed. Applying the methodology described above, seven properties which had just been acquired would have received flood damages estimated at \$338,765.

Currently there are 483 records in the database totaling \$40.2 million in losses avoided. Table 6.9 provides a record of the actual losses avoided for all HMA applicants. The return on investment (ROI) was calculated for each individual building for each event that was analyzed. The ROI reflects only the damage and project costs related to the buildings in the analysis or just those buildings where actual losses avoided were computed.

It is interesting to note that with less than 20 years of history in evaluating projects where mitigation has been completed, there are several areas where the ROI exceeds 100%. This suggests that mitigation activities have been completed in areas where hazard events continue to occur.

The GMIS database will be an ongoing tool to capture success stories on future disaster events. By capturing information at the property level, the State can at any time create a report on the effectiveness of any completed mitigation project.

## **6.5 EFFECTIVE USE OF AVAILABLE MITIGATION FUNDING**

The 44 CFR 201.5(b)(3) states the Enhanced Plan must demonstrate that the State effectively uses existing mitigation programs to achieve its mitigation goals.

The State of Georgia continues to effectively implement hazard mitigation programs towards achieving its goals to:

1. Reduce human vulnerability to hazard events;
2. Reduce the losses associated with hazard events; and
3. Reduce overall exposure to hazard events for Georgia citizens and their property.

The mitigation programs utilized in implementing mitigation measures throughout the state are primarily federally funded and state administered. These include the Hazard Mitigation Grant Program (HMGP), the Flood Mitigation Assistance Program (FMA), the Pre-Disaster Mitigation Program (PDM), and the Emergency Management Performance Grants. The Repetitive Flood Claims Program (RFC) data has been incorporated into the FMA program. The projects that have been approved and funded through these programs support the State's hazard mitigation goals and specific program eligibility criteria.

Project effectiveness can be defined as the ability of a mitigation project to reduce or eliminate the possibility of future damage or human suffering. There are three levels of project effectiveness. High effectiveness would be given to projects that create the most effective type of mitigation such as property acquisition or relocation where no damage would occur in the event of a future disaster. Medium effectiveness would entail projects that reduce the likelihood of future damage, however, in

the event of an uncommonly severe disaster event, property damage and human vulnerability may still occur. Low effectiveness would entail projects that provide relatively low and short term limited hazard prevention levels or those projects where benefits are difficult to quantify. Table 6.10 lists potential mitigation projects and their effectiveness.

Project Type	Level of Effectiveness	Rationale
Acquisition	High	Removes structure and inhabitants from hazard area
Elevation	Medium	Reduces damages but structure and inhabitants have residual risk
Acquisition/Relocation	High	Removes structure and inhabitants from hazard area
Acquisition/Elevation	Medium/High	Combination of effectiveness as noted in each project type
Acquisition/Drainage	Medium/High	Combination of effectiveness as noted in each project type
Retrofit (Wind, Flood, Safe Rooms Lightning)	Medium	Reduces damages but structure and inhabitants have residual risk
Drainage Improvement	Medium	Reduces damages but structure and inhabitants have residual risk
Warning/Initiative	Low/Medium	Projects are short term and inhabitants have residual risk
Planning	High	Guide for developing and implementing mitigation measures
Safe Room	High	Protects inhabitants from tornadoes
Management	High	Technical support for developing and implementing mitigation measures

**Table 6.10 Effectiveness of Potential Mitigation Projects**

Program effectiveness can be defined as the ability of a mitigation program to fund the most projects to reduce or eliminate the possibility of future damage or human suffering. There are three levels of program effectiveness. A rating of High would be given to programs that fund the most projects (>50% of total funds allocated). Medium effectiveness would entail to programs that fund fewer projects that reduce the likelihood of future damage (between 20% and 50% of total funds allocated). A low effectiveness rating would entail to programs that fund the fewest number of projects (<20% of total funds allocated).

Program	Number of Projects	Funding (Millions)	% of total funds allocated to GA	Effectiveness	Applicable Goals
HMGP	600	142.9	74%	High	1-3
FMA	50	9.9	5%	Low	1-3
PDM	67	38	20%	Medium	1-3
EMPG	59	1.5	1%	Low	1
Total		192.3	100%		

**Table 6.11 FEMA Funding Programs used for Mitigation Projects**

Table 6.11 provides a summary of FEMA Funding Programs used for Mitigation Projects. The list ties each program with the associated State mitigation goal, along with a corresponding level of program effectiveness. RFC program information has been included with the FMA and LPDM has been included with the PDM information. In addition, the amount of funds utilized in accomplishing mitigation goals has also been incorporated into the table.

### Hazard Mitigation Grant Program (HMGP)

Table 6.12 lists information about the HMGP and the funds approved for each federally declared disaster from 1990 through September 30, 2013. The table has been updated to combine information about disasters where all work was completed prior to this plan update which includes 15 disasters from DR857 through DR1560. Since 2004, Georgia has provided and made available 10% of all match funds for counties involved in disasters. The State of Georgia will continue to contribute a percentage of the non-federal cost share for all counties included in a Presidential Declaration. GEMA's Hazard Mitigation Division will continue to provide technical assistance to all counties, their municipalities and state agencies.

Any unused mitigation program funding was a result of unavailable non-federal match by counties, uninterested property owners, and/or insufficient program funds to implement prioritized mitigation actions.

Disaster	Federal Allocation (NEMIS)	Federal Share Expended	State Share Expended	Local Share Expended	Approved Projects	Percentage of Funds Used
DR857–1560	\$87,748,097	\$83,383,944	\$4,421,111	\$31,618,372	328	95.0%
DR1686	\$12,699,596	10,164,570	664,025	2,724,163	58	80.0%
DR1750	\$1,258,542	932,979	38,476	272,518	7	74.1%
DR1761	\$2,821,243	2,445,520	103,365	711,810	17	86.7%
DR1833	\$5,756,746	5,704,463	804,882	1,204,073	46	99.1%
DR1858	\$35,438,896	35,104,735	4,956,491	6,744,748	95	99.1%
DR1973	5,380,886	5,365,349	523,041	1,265,373	49	99.7%
DR1686-DR1973	\$63,355,909	\$59,717,616	\$7,090,280	\$12,922,685	272	94.3%
<b>Total</b>	<b>\$151,104,816</b>	<b>\$143,101,560</b>	<b>\$11,511,391</b>	<b>\$44,541,057</b>	<b>600</b>	<b>94.7%</b>

**Table 6.12 HMGP Funding by Disaster**

### Program Highlights

Through the HMGP, local governments have permanently mitigated losses through the acquisition of 1317 flood prone properties. Another 89 flood prone properties have been elevated and 36 retrofits predominantly wind related have been completed, and two safe rooms constructed. Rounding out the activities, 433 outdoor warning sirens have been installed and 35 drainage improvement projects completed. The program also funded the initial development of 20 local mitigation plans, 155 local plan updates, and the initial development and 2 updates of the State Mitigation Plan. Table 6.13 summarizes the number of projects and project types funded through the HMGP and their associated State Mitigation Goal.

Program	Project Type	Number of Projects	Goal
HMGP	Acquisition	86	2
	Elevation	4	2
	Acquisition/Relocation	4	2
	Acquisition/Elevation	3	2
	Acquisition/Drainage	2	2
	Retrofit (Wind, Flood, Safe Rooms Lightning)	15	1,2
	Drainage Improvement	49	2
	Warning/Initiative	238	1
	Planning	168	1,3
	Safe Room	25	1,2
	Management	6	1,2,3

**Table 6.13 Projects Funded with HMGP**

Since the last plan update, the State has effectively utilized initiative funding from the HMGP to improve the warning and communication capabilities. For disaster DR1973, the state prioritized the utilization of the HMGP funds for projects in the declared counties that reduce or eliminate damages to life and property resulting from high winds and tornadoes. The State utilized the full 5% initiative and 5% tornado initiative to improve the warning and communication capabilities of local governments in the declared counties and also gave preference to those projects that help local government maintain or achieve storm ready status. In addition to the outdoor warning siren type projects, there was an increased interest in mass alert systems and weather radio projects.

For DR1973, the enhanced plan status provided an additional \$1.3 million to the State of Georgia for HMGP projects. These additional funds were also made available to the declared counties to address warning and communication enhancements and Safe Room type projects. The State was also able to meet the unmet needs from DR1858 with these funds.

### **Flood Mitigation Assistance (FMA) Program**

The State has facilitated the use of FMA funds by local governments for the development of flood hazard mitigation plans and projects since the program was initiated in 1997. Planning grants were targeted to the communities that had the largest number of repetitive loss properties identified by FEMA. All communities with 10 or more repetitive loss properties have received funding to develop an FMA plan. Project grants have been targeted to the communities with the largest number of repetitive loss properties who meet the planning requirements. Availability of local match has hindered many local governments in pursuing project grants. Table 6.5.e lists information through September 30, 2013, about the FMA funds approved since the program has been in existence. The table has been updated to combine information about allocations where all work was completed prior to this plan update which includes 11 allocations from 1997 through 2007.

### **Program Highlights**

Through the FMA project grants, local governments have permanently mitigated losses through the acquisition of 35 NFIP insured properties. Another 2 NFIP insured properties have been elevated and another 8 properties protected through a drainage improvement. The program also funded the development of 11 FMA plans and the initial development of 3 local mitigation plans. Table 6.14 summarizes the number of projects and project types funded through the FMA and their associated State Mitigation Goal.



Since the last update, all work has been completed for the FMA08 and FMA09 programs.

Fiscal Year	Total Approved	Federal Share	State Share	Local Share	Approved Projects
FMA97-07	\$8,158,886	\$5,934,569	\$117,033	\$2,107,284	41
FMA08	\$427,991	\$320,993	\$13,239	\$93,759	3
FMA09	\$210,725	\$156,907	\$7,921	\$45,898	2
FMA08– 09	\$638,716	\$477,900	\$21,159	\$139,657	5
<b>Total</b>	<b>\$8,797,602</b>	<b>\$6,412,469</b>	<b>\$138,192</b>	<b>\$2,246,941</b>	<b>46</b>

Table 6.14

Program	Project Type	Number of Projects	Applicable Goal
FMA	Acquisition	18	2
	Elevation	2	2
	Planning	13	1,3
	Drainage Improvement	2	2
	Management	11	1,2,3

Table 6.15

### Repetitive Flood Claims (RFC) Program

The State has facilitated the use of RFC funds by local governments for the development of acquisition projects to permanently mitigate flood damages to NFIP insured structures. Table 6.16 lists information about the RFC funding received through September 30, 2013. The table has been updated to combine information about allocations where all work was completed prior to this plan update which includes 2 allocations.

Fiscal Year	Total Approved	Federal Share	State Share	Local Share	Approved Projects
RFC06 - RFC07	3,243,615	3,243,615	0	0	4

Table 6.16

Program	Project Type	Number of Projects	Goal
RFC	Acquisition	2	2
	Management	2	1,2,3

Table 6.17

### Program Highlights

Through the RFC project grants, local governments have permanently mitigated losses through the acquisition of 9 NFIP insured properties. Table 6.17 summarizes the number of projects and project types funded through the RFC and their associated State Mitigation Goal. The Biggert-Waters Flood Insurance Reform Act of 2012 eliminated the Repetitive Flood Claims program and future funding to mitigate RFC properties will be accomplished with the other Hazard Mitigation Assistance (HMA) programs.

### Severe Repetitive Loss (SRL) Program

Georgia has not made an application for SRL grants since the program's inception in 2008. In the initial roll out of the SRL program, Georgia had fewer than forty validated SRL properties and did not qualify for an allocation. An analysis of these properties showed that 50% of the properties previous-

ly had mitigation activities pursued by local governments with the majority determined to be not cost-effective. Based on all of the subsequent alternative determination of benefits provided by FEMA for the validated SRL properties based on greatest savings to the fund, the State identified potential SRL properties that may meet cost-effectiveness as the savings to the fund exceeds the projected acquisition cost based on current tax value. Our outreach to local governments on these SRL properties has not resulted in any new SRL applications. However, several SRL properties were included in HMGP grant program applications as a result of the September 2009 flooding in the Metro-Atlanta area. As these SRL properties were substantially damaged, the cost-effective requirement was satisfied by the BCA waiver for HMGP substantially damaged properties in the special flood hazard area.

GEMA continues to give prioritization to the mitigation of SRL properties. Issues related to cost-effectiveness have hindered our ability to mitigate SRL properties. The State will continue to work with local governments that have SRL properties to implement cost-effective hazard mitigation measures. The Biggert-Waters Flood Insurance Reform Act of 2012 eliminated the Severe Repetitive Loss program and future funding to mitigate SRL properties will be accomplished with the other HMA programs.

### **Pre-Disaster Mitigation Competitive (PDMC) Program**

The State has facilitated the use of PDM competitive funds by local governments for the development of DMA2K compliant hazard mitigation plans and the implementation of projects which have been identified or support goals and actions identified in the local mitigation plans. The State provides technical assistance to local governments in the development of fundable PDM applications. Since the program's inception in 2002, the State has been successful in getting federal approval on more than 82% of PDM sub-grant applications. Table 6.18 lists information through September 30, 2013, about the PDM funds approved since the program has been in existence. The table has been updated to combine information about allocations where all work was completed prior to this plan update which includes 5 allocations from 2002 through 2006. In addition, the table has been updated to show Legislative directed projects.

<b>Fiscal Year</b>	<b>Total Approved</b>	<b>Federal Share</b>	<b>State Share</b>	<b>Local Share</b>	<b>Approved Projects</b>
PDMC 02-06	\$28,850,110	\$19,341,033	\$480,233	\$10,028,843	34
PDMC07	8,891,405	6,617,197	56,639	2,217,570	7
PDMC08	166,814	116,192	15,489	35,132	2
PDMC09	1,708,909	1,281,681	54,206	373,022	2
PDMC10	3,125,117	2,343,838	40,648	740,631	3
PDMC11	5,008,172	3,756,115	103,761	1,148,295	4
PDMC12	4,133,876	3,100,407	81,169	952,300	2
LPDM08	1,384,638	1,038,476	26,905	319,256	8
LPDM09	162,869	122,149	3,244	37,475	3
LPDM10	403,333	302,500	9,167	91,667	2
PDMC07-12	\$24,985,133	\$18,678,555	\$391,228	\$5,915,348	33
<b>Total</b>	<b>\$54,835,243</b>	<b>\$38,019,588</b>	<b>\$871,461</b>	<b>\$15,944,191</b>	<b>67</b>

**Table 6.18**

## Program Highlights

Through the PDMC and LPDM, local governments have permanently mitigated losses through the acquisition of 126 flood prone properties. Another 116 flood prone properties have been mitigated through drainage improvements and 5 safe rooms constructed. The program also funded the initial development of 136 local mitigation plans and 3 local plan updates. Table 6.19 summarizes the number of projects and project types funded through the PDMC and their associated State Mitigation Goal.

Program	Project Type	Number of Projects	Goal
PDMC	Planning	9	1,3
	Acquisition	26	2
	Drainage Improvement	7	2
	Elevation	1	2
	Safe Room	1	1,2
	Management	10	1,2,3
LPDM	Acquisition	1	2
	Warning/Initiative	5	1
	Management	3	1,2,3
	Safe Room	3	1,2
	Drainage Improvement	1	2

**Table 6.19**

## Conclusion

The mitigation staff has administered 717 hazard mitigation projects since 1990. These activities as well as those described above and throughout the plan demonstrate that Georgia effectively uses existing mitigation programs to achieve its mitigation goals.

The State endeavors to continue to pursue these mitigation programs along with additional programs and funding streams in the future to take advantage of every possible opportunity to accomplish our goals. Table 6.20 summarizes the information for all four of the FEMA mitigation grants programs and funding received in Georgia through September 30, 2013.

Total Approved	Federal Share	State Share	Local Share	Approved Projects
266,030,467	190,777,233	12,521,043	62,640,525	717

**Table 6.20**

The State has given priority to the funding of non-structural mitigation projects to eliminate the damages occurring to flood prone structures, both insured and uninsured. Through September 30, 2013, 1,487 flood prone structures have been permanently mitigated through the implementation of acquisition projects through the HMA programs.

The State's mitigated properties database is almost 100% completed. Based on information reported to date, 258 properties on FEMA's repetitive loss list have been mitigated primarily through property acquisition. Over 75% of the State's available mitigation funding has been directed to mitigating repetitively damaged structures through acquisition, elevation or relocation. The State will continue to target these types of properties in future mitigation projects. In addition, GEMA has provided support

to local governments in the development of all hazard mitigation plans and projects through the issuance of guidance, education through workshops and grants.

## **6.6 COMMITMENT TO A COMPREHENSIVE MITIGATION PROGRAM**

The 44 CFR 201.5(b)(4)(i-vi) states the Enhanced Plan must demonstrate that each state is committed to a comprehensive state mitigation program. Georgia has a long-standing commitment to support a comprehensive mitigation program. This commitment has been demonstrated through continued support for local mitigation planning, legislation enacted that supports mitigation, commitment to mitigation through state funding for mitigation projects, commitment to assist state and local jurisdictions in reducing vulnerability to critical facilities and the continued practice of integrating mitigation into post-disaster recovery. This section provides a discussion of each aspect of the State of Georgia's commitment, how each aspect has been implemented and the State's plan to continue implementation.

### **6.6.1 *Local Mitigation Planning Support***

Georgia is committed to support local mitigation planning by providing workshops, training, tools, and technical assistance to meet the planning requirements of the Disaster Mitigation Act of 2000. The Hazard Mitigation Planning Staff supports the development of local mitigation plans with dedicated resources, which includes on-site technical assistance and in-county service through the use of field stationed planners. Additional details on local plan support are provided in Chapter 4. GEMA has acquired funding for local governments to complete the first local plan update cycle and is in the process of acquiring funding to begin the second cycle of local plan updates.

### **6.6.2 *Statewide Program of Hazard Mitigation***

GEMA and the Hazard Mitigation Division support the development, of legislation and executive actions, as well as, the formation of public/private partnerships that promote hazard mitigation. GEMA tracks and supports legislation of interest to the public safety, homeland security and emergency management communities, including bills relevant to hazard mitigation. GEMA also works closely in partnership with other agencies and organizations to leverage support for legislation of common interest. Those entities include the Association County Commissioners of Georgia, the Georgia Municipal Association, the Georgia Fire Chiefs Association, the Georgia Sheriffs' Association, the Georgia Police Chiefs Association, the Departments of Public Safety and Natural Resources, and others.

### **Legislation Supporting Mitigation**

The Official Code of Georgia Annotated or O.C.G.A is the compendium of all laws in Georgia. Georgia has numerous legislative rules that support the mitigation process in the State. Below is a list of this legislation and O.C.G.A, which is more thoroughly discussed in Chapter 3 and Appendix J.

Georgia Emergency Management Act of 1981, as amended, O.C.G.A § 38-3-1

Soil and Water Conservation Districts Law, O.C.G.A §§ 2-6-20 to 23 & § 2-6-27

Coastal Marshlands Protection, O.C.G.A. § 12-5-280

Georgia Safe Dams Act of 1978, O.C.G.A §§ 12-5-370 to 385

Erosion and Sedimentation Act, O.C.G.A § 12-7-1

Georgia Environmental Policy Act, O.C.G.A § 12-16-1  
Metropolitan North Georgia Water Planning District Act, O.C.G.A § 12-5-570  
Uniform Codes Act, O.C.G.A § 8-2-20  
The Uniform Standards Code for Manufactured Homes Act and Installation of Manufactured and Mobile Homes, O.C.G.A § 8-2-130 and § 8-2-160  
Georgia Planning Act of 1989, O.C.G.A §12-2-8  
Georgia Forest Fire Protection Act, O.C.G.A §12-6-80 to §12-6-93  
Georgia Prescribed Burning Act, O.C.G.A §12-6-145  
Georgia Geospatial Advisory Council, O.C.G.A §12-5-9

## **Mitigation Councils**

### ***Georgia State Inter-Agency Hazard Mitigation Planning Team***

In July 2006, the State Hazard Mitigation Task Force, now called the State Hazard Mitigation Planning Team (SHMPT) was convened by letter from GEMA Director Charley English. The team was made up of a number of state agencies and was instrumental in updating the State Mitigation Plan. The SHMPT was introduced in Chapter 1 and meeting details are included in Appendix B.

## **Other Partnerships**

### ***Association of County Commissioners of Georgia (ACCG) and Georgia Municipal Association (GMA)***

The State of Georgia places considerable value on partnerships the State utilizes ACCG and GMA to publicize the availability of mitigation program grant funds for local and county governments. In addition, GEMA provides information to ACCG and GMS at their annual meetings.

### ***Geographical Information Systems Coordinating Committee (GISCC)***

The Georgia GISCC's vision is that all levels of government become highly effective and efficient through the coordination and use of geospatially-related data, standards and technologies. The GISCC's mission is to be a valued advisor on sustainable geospatial governance, investments, policies and data-driven decisions influencing Georgia.

The GISCC, formed by the Information Technology Policy Council (ITPC) in July of 1998, is the officially recognized statewide advisory and coordinating body for geospatially-related activities, pending legislative approval. The GISCC provides an efficient and effective framework for the collaboration, communication, planning, budgeting, acquisition, utilization and archiving of all state, regional and local geospatial resources.

The GISCC leads and encourages continued development and use of the Georgia Spatial Data Infrastructure (GaSDI) which feeds the National Spatial Data Infrastructure (NSDI), defined as the "technology, policies, and people necessary to promote geospatial data sharing throughout all levels of government, the private and non-profit sectors, and academia." The term "infrastructure" is defined as the "underlying base or the basic facilities, equipment, services, and installations needed for the growth and functioning of a community or organization." In the same manner that roads are vital-

ly important to the State's infrastructure, the data, systems, people, and institutional arrangements that comprise the GaSDI provide public and private organizations with the foundation for progress.

GISCC members include representatives from all levels of government, private industry, educational institutions, non-profit and private groups. The GISCC leadership positions include Chair; Vice Chair, Outgoing Chair (new in 2008) and Chairs of the following three standing subcommittees: Strategic Plans and Policy, Education and Outreach, and Framework Management.

### ***Georgia Geospatial Advisory Council (GGAC)***

The 2009 floods which affected the metro-Atlanta and North Georgia areas validated the need for accurate maps and data depicting the risk of flooding. In 2010, the Georgia General Assembly passed HB 169 (O.C.G.A § 12-5-9 (b)(3), creating the Georgia Geospatial Advisory Council (GGAC). The GGAC is charged with auditing Georgia's geospatial capabilities at county, regional, and state levels.

The two primary tasks of the GGAC are:

- 1) Use geospatial capabilities in meeting Federal Emergency Management Agency (FEMA) floodplain notification requirements; and
- 2) Formulate GGAC recommendations for advancing governmental data interoperability and enhancing service delivery to the citizens of Georgia through geospatial technologies.

The GGAC is overseen by the EPD Director and is comprised of 43 representatives from state departments and agencies, local governments, private sector, universities, regional commissions and others. Findings from the statewide geospatial audit have been compiled and presented to the General Assembly. The GGAC achieved consensus on the following recommendations:

1. Formalize a geospatial advisory council to the General Assembly or state governmental entity with rules making authority;
2. Establish Georgia Geospatial Information Office;
3. Execute statewide master agreement(s) for geospatial software/services/resources;
4. Develop a digital, statewide parcel GIS database (i.e., "property" database); and
5. Develop a current (2009 and newer), high-resolution, statewide elevation GIS database.

These recommendations represent what the GGAC finds to be the most viable approach to advancing the use of geospatial technology and assets for the purpose of notification as recommended by FEMA, and which will produce, for a very modest sum, a significant return on investment.

### ***6.6.3 State Match Assistance for Mitigation Programs***

The State provides 40% of the non-federal match for HMGP projects funded in the counties declared for Individual and or Public Assistance. The State also provides the same level of match for mitigation projects funded through the Public Assistance Program and the Emergency Watershed Protection program. Table 6.21 lists for each of the open presidentially declared disasters in this plan update cycle the amount of federal, state, and local assistance that has been expended or approved in support of HMGP projects through September 30, 2013.

Disaster	Total Approved	Federal Share	State Share	Local Share
DR1560	1,493,304	1,096,129	45,672	351,503
DR1686	13,552,758	10,164,570	664,025	2,724,163
DR1750	1,243,973	932,979	38,476	272,518
DR1761	3,260,695	2,445,520	103,365	711,810
DR1833	7,713,418	5,704,463	804,882	1,204,073
DR1858	46,805,974	35,104,735	4,956,491	6,744,748
DR1973	7,153,763	5,365,349	523,041	1,265,373
<b>Total</b>	<b>81,223,885</b>	<b>60,813,745</b>	<b>7,135,952</b>	<b>13,274,188</b>
<b>Percent</b>		<b>74.9%</b>	<b>8.8%</b>	<b>16.3%</b>

Table 6.21

#### 6.6.4 Construction Standards for Mitigation

DCA's Construction Codes and Industrialized Buildings Program establish minimum building construction standards for all new structures. Local governments that adopt building codes under one of these programs must utilize these minimum standards. Chapter 3.4.1 provides a list of building construction codes in the State of Georgia. These include eight mandatory and two permissive codes.

##### ***Disaster Resilient Building Codes (DRBC) Appendices***

The Georgia Department of Community Affairs (DCA) was awarded a grant through the U.S. Department of Housing and Urban Development (HUD) to develop new disaster resilient building code (DRBC) Appendices for the International Building Code (IBC) and the International Residential Building Code (IRC). A task force of 19 stakeholders was appointed to look for opportunities to improve any provisions relating to hurricane, flood, and tornado disasters. In addition to improving existing provisions in the codes, the task force developed new provisions that address these issues. See Appendix I for the Georgia State International Building Code and Georgia State International Residential Code in regards to Disaster Resilient Construction. The optional appendices contain increased construction requirements (code plus) for disaster resilience that may be adopted in whole or part and are available for adoption by local jurisdictions in the State of Georgia as of January 1, 2013.

##### ***DRBC Workshops/Training***

The state has developed and conducted a comprehensive training program for building officials on the importance, implementation and enforcement of the disaster resilient construction appendices. The training focused on the provisions within the appendices and aide in helping a community to determine which options may apply to provide increased requirements beyond what may be currently enforced.

#### 6.6.5 Mitigating Risks to Critical and Essential Facilities

Critical facilities is used to describe all manmade structures or other improvements that, because of their function, size, service area, or uniqueness, have the potential to cause serious bodily harm, extensive property damage, or disruption of vital socioeconomic activities if they are destroyed, damaged, or if their functionality is impaired. Critical facilities commonly include all public and private facilities that a community considers essential for the delivery of vital services and for the protection of the community. They usually include emergency response facilities (fire stations, police stations,



rescue squads, and emergency operation centers [EOCs]), custodial facilities (jails and other detention centers, long-term care facilities, hospitals, and other health care facilities), schools, emergency shelters, utilities (water supply, wastewater treatment facilities, and power), communications facilities, and any other as-sets determined by the community to be of critical importance for the protection of the health and safety of the population.

Essential facilities are a subset of critical facilities and include hospitals, fire and police stations, rescue and other emergency service facilities, power stations, water supply facilities, aviation facilities, and other buildings critical for post disaster response and recovery operations.

Chapter 2 of the Standard Plan addresses both state-owned and operated facilities as well as critical facilities in order to focus on loss potential within the state. Assessing state-owned and operated facilities allows GEMA to prioritize mitigation efforts directed towards other state agencies with more efficiency as well as to aid in protecting the state's assets. Because critical facilities include any facility or structure that should continue to function and provide necessary services in some capacity (not necessarily normal purpose) to surrounding populations during and after a hazard event, GEMA aims mitigation efforts in this area as well.

As discussed in Section 2.8 of the Standard Plan, an assessment to identify the state-owned and leased facilities has been completed in all 159 Georgia counties. The state has utilized this information to update the hazard, risk, and vulnerability assessment.

Subsequently, future hazard, risk, and vulnerability assessments will include analyses of all spatially defined hazards identified in Chapter 2 of the Standard Plan that have the potential to affect state-owned and operated facilities that are stored in the Building, Land & Lease Inventory of Property (BLLIP) system as well as critical facilities stored in the GMIS system. Efforts are currently underway to develop processes for state agencies to identify critical facilities in the BLLIP system and also to have the GMIS site consume the relevant BLLIP information. Once the risk assessments have been completed for all spatially defined hazards, a formal, comprehensive, multi-year plan to mitigate the risks posed to the identified facilities will be developed.

In addition, through community education and outreach, GEMA has encouraged local jurisdictions to include mitigation activities that would reduce or eliminate the vulnerability to local jurisdictional critical facilities. Section 2.4.2 of the Standard Plan provides a table containing a list of hazards identified by local hazard mitigation plans and Section 3.2.4 of the Standard Plan provides a table containing a list of mitigation activities addressed in each of the approved or submitted local hazard mitigation plans.

### ***6.6.6 Integrating Mitigation to Post Disaster Recovery Operations***

Hazard Mitigation is an integral part of Georgia's post-disaster recovery operations. Staff from the Mitigation Division support FEMA staff at the Joint Field Office (JFO). State and FEMA staff work together to identify mitigation opportunities through both the Human Services, Public Assistance, Small Business Administration and Floodplain Management programs. Public Assistances' staff is very proactive in pursuing mitigation activities in the immediate post disaster recovery effort for re-

pair and restoration projects. GEMA's Mitigation staff supports the Public Assistance staff at their applicant briefings. GEMA's Mitigation staff conducts applicant briefings in the declared counties and provides technical assistance to all potential grant applicants on project development.

For DR1973, GEMA Hazard Mitigation staff worked very closely with FEMA Mitigation staff at the JFO to develop a Joint Mitigation Implementation plan for the disaster. The Joint Mitigation Implementation Plan detailed actions taken at the JFO to address the mitigation priorities identified by GEMA and FEMA in response to damage from severe storms/tornadoes associated with FEMA DR1973. The priorities were compiled by the State in cooperation with the JFO Mitigation staff to support the State Mitigation Plan for Georgia. Mitigation staff also worked very closely with FEMA's Hazards and Performance Analysis staff on benefit cost analysis of individual Safe Room type projects. This work resulted in higher benefits for Georgia Counties bordering the State of Alabama than the FEMA developed standard benefits identified in the Expedited Residential Safe Room application. Safe Room workshops were conducted at four colleges and at GEMA providing information to more than 100 people on guidelines for determining areas of Safe Refuge within buildings.

[illegible]

# GEMA Worksheet #1

## Identify the Hazard

## Step 1

Date: 8/13/2018

What kinds of natural hazards can affect Bulloch County?

### Task A. List the hazards that may occur.

1. Research newspapers and other historical records
2. Review existing plans and reports.
3. Talk to the experts in your community, state, or region.
4. Gather information on Internet Websites.
5. Next to the hazard list below, put a check mark in the Task A boxes beside all hazards that may occur in your community or state.

### Task B. Focus on the most prevalent hazard in your community or state.

1. Go to hazard Websites.
2. Locate your community or state on the Website map.
3. Determine whether you are in a high-risk area. Get more localized information if necessary.
4. Next to the hazard list below, put a check mark in the Task B boxes beside all hazards that post a significant threat.

Avalanche	___	___
Costal Erosion	___	___
Coastal Storm	___	___
Dam Failure	___	___
Drought	<u>X</u>	___
Earthquake	___	___
Expansive Soils	___	___
Extreme Heat	___	___
Flash Flood	<u>X</u>	___
Hailstorm	<u>X</u>	___
Hurricane	___	___
Land Slide	___	___
Severe Winter Storm	___	___
Tornado	<u>X</u>	___
Tsunami	___	___
Volcano	___	___
Wildfire	<u>X</u>	___
High Wind	<u>X</u>	___
Hazard Material	___	___
Radiological	___	___
Ice Storm	<u>X</u>	___
Thunderstorm	<u>X</u>	___
Tropical Depression	<u>X</u>	___

Hazard			
Drought	NCDC	Almost all summer months 1999-2002	September of 2019 with crop losses
Flash Flood 4/1998 to 4/2018	NCDC	12 events	3 w/ reported property damage
Hailstorm	NCDC	51 events	1 w/ reported damages
Ice Storm	NCDC	4 events	\$97K in damages
Thunderstorm Wind	NCDC	135 events	~\$547K damages
Tornado	NCDC	7 events	~\$420K
Tropical Depression: 9/11/2017 Irma 5/29/2012 Beryl	NCDC		~\$900K \$1,500
Matthew: October 2016	NCDC		1 death + \$ damages
Wildfires	CWPP	547 events in 10 years	

# Bulloch County

## Disaster Mitigation Plan Update 2020

### Documentation of Labor Match

NAME (Please Print): \_\_\_\_\_

ORGANIZATION: \_\_\_\_\_

DATE(S): \_\_\_\_\_

EVENT: \_\_\_\_\_

HOURS CONTRIBUTED (Include travel time): \_\_\_\_\_

HOURLY SALARY & BENEFITS: \_\_\_\_\_

TOTAL LABOR MATCH (Hours Contributed X Hourly Salary): \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

(FORM IS NOT VALID WITHOUT SIGNATURE)

For use by committee members (e.g. EMA Director, County Engineer ...)

**GEMA Worksheet #3**  
**Jurisdiction: Bulloch County**  
**Hazard:**

**Inventory of Assets 2021**

**Task A. Determine the proportion of buildings, the value of buildings, and the population in your community or state that are located in hazard areas.**

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures			Number of People		
	# in Community of State	# in Hazard Area	% in Hazard Area	\$ in Community or State	\$ in Hazard Area	% in Hazard Area	# in Community or State	# in Hazard Area	% in Hazard Area
Residential	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Commercial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Industrial	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Agricultural	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Religious/ Non-profit	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Government	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Education	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Utilities	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!
Total	0	0	#DIV/0!	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!

**Task B. Determine whether (and where) you want to collect additional inventory data.**

**Y N**

1. Do you know where the greatest damages may occur in your area?
2. Do you know whether your critical facilities will be operational after a hazard event?
3. Is there enough data to determine which assets are subject to the greatest potential damages?
4. Is there enough data to determine whether significant elements of the community are vulnerable to potential hazards?
5. Is there enough data to determine whether certain areas of historic, environmental, political, or cultural significance are vulnerable to potential hazards?
6. Is there concern about a particular hazard because of its severity, repetitiveness, or likelihood of occurrence?
7. Is additional data needed to justify the expenditure of community or state funds for mitigation initiatives?

## CRITICAL FACILITY DATA FIELDS

# CRITICAL FACILITIES DATA SPREADSHEET

[illegible]



CRITICAL FACILITY DATA FIELDS

CRITICAL FACILITIES DATA SPREADSHEET												
	Decimal Degrees Format	Decimal Degrees Format	See Codes and Definitions Tab		See Codes and Definitions tab	No commas or dollar signs		See Codes and Definitions tab	See Codes and Definitions tab	See Codes and Definitions tab	Do Not Change	1 - YES 2 - NO
Name	Latitude	longitude	jurisdiction	FIPS Code	occupancyclassID	value	valueyear	valuationtypeID	FacilityTypePrimaryId	FacilityTypeNodeID	deleted	critical
(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	0	1
(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	0	1

# CRITICAL FACILITY

	Decimal Degrees Format	Decimal Degrees Format	See Codes and Definitions Tab	
Name	Latitude	longitude	jurisdiction	FIPS Code
EXAMPLE - City Hall	33.51861111	-82.09777778	141	026
Anderson Hall	32.426477	-81.782017	Statesboro	(null)
Deal Hall	32.425909	-81.783174	Statesboro	(null)
Hollis Building	32.4272	-81.780783	Statesboro	(null)
Military Science Building	32.424643	-81.790133	Statesboro	(null)
Interdisciplinary Academic Building	32.423773	-81.785423	Statesboro	(null)
Child Development Center	32.426311	-81.786774	Statesboro	(null)
Veazy	32.426595	-81.784932	Statesboro	(null)
Cone	32.427818	-81.781404	Statesboro	(null)
Hendricks	32.426176	-81.78577	Statesboro	(null)
Russell Union	32.424894	-81.779805	Statesboro	(null)
Central Receiving	32.397931	-81.783628	Statesboro	(null)
Health Center	32.418687	-81.783878	Statesboro	(null)
Centennial Hall	32.423185	-81.780331	Statesboro	(null)
Dining Commons	32.423752	-81.778683	Statesboro	(null)
NOC 2	32.418457	-81.789164	Statesboro	(null)
NOC 3	32.418694	-81.789272	Statesboro	(null)
Water Tower	32.419441	-81.784565	Statesboro	(null)
Auxiliary Warehouse	32.420823	-81.790944	Statesboro	(null)
Well House Nessmith	32.419562	-81.78465	Statesboro	(null)
Well House Lewis	32.425824	-81.784291	Statesboro	(null)
Public Safety	32.425991	-81.788515	Statesboro	(null)
Counseling Center	32.422563	-81.783358	Statesboro	(null)
Paulson Stadium	32.412224	-81.783269	Statesboro	(null)
Biological Sciences	32.420982	-81.789777	Statesboro	(null)

## CRITICAL FACILITY DATA FIELDS

CEAR Building	32.419905	-81.788853	Statesboro	(null)
Facilities Services Administration	32.4178	-81.795011	Statesboro	(null)
ilities Services Landscape & Custodial Serv	32.418357	-81.794111	Statesboro	(null)
Facilities Services Shops	32.419042	-81.794971	Statesboro	(null)
Rosenwald	32.427129	-81.781701	Statesboro	(null)
Lewis Hall	32.426137	-81.784045	Statesboro	(null)
Foy Annex	32.424116	-81.780485	Statesboro	(null)
Electrical Distribution Yard	32.42413	-81.789468	Statesboro	(null)
City Campus	32.448576	-81.781112	Statesboro	(null)
Freedoms Landing	32.409905	-81.782269	Statesboro	(null)
Shooting Sports	32.415459	-81.796346	Statesboro	(null)
RAC	32.417079	-81.792282	Statesboro	(null)
College of Education	32.422218	-81.788345	Statesboro	(null)
Nursing & Chemistry	32.421451	-81.787252	Statesboro	(null)
College of Information Technology	32.423087	-81.786781	Statesboro	(null)
Math & Physics Building	32.425971	-81.778865	Statesboro	(null)
Natural Sciences Building	32.425925	-81.779926	Statesboro	(null)
Herty Building	32.426271	-81.780973	Statesboro	(null)
Deal Hall	32.425928	-81.783156	Statesboro	(null)
Pittman Administration Building	32.426035	-81.782486	Statesboro	(null)
Henderson Library	32.424897	-81.783088	Statesboro	(null)
Carrol Building	32.424292	-81.784337	Statesboro	(null)
Hanner Complex	32.427702	-81.779305	Statesboro	(null)
Sanford Hall	32.427956	-81.782219	Statesboro	(null)
Brannen Hall	32.42873	-81.782262	Statesboro	(null)
Watson Hall Pods	32.422255	-81.78198	Statesboro	(null)
Watson Hall Commons	32.421829	-81.782344	Statesboro	(null)
Eagle Village Building 1	32.420579	32.420579	Statesboro	(null)
Eagle Village Building 2	32.419717	-81.777122	Statesboro	(null)
Kennedy 1	32.418438	-81.778129	Statesboro	(null)
Kennedy 2	32.418725	-81.779351	Statesboro	(null)
Southern Courtyard Building 1	32.417324	-81.78224	Statesboro	(null)
Southern Courtyard Building 2	32.416928	-81.781524	Statesboro	(null)
Southern Courtyard Building 3	32.416743	-81.780305	Statesboro	(null)

## CRITICAL FACILITY DATA FIELDS

Southern Courtyard Building 4	32.417329	-81.779846	Statesboro	(null)
Southern Pine 1	32.417413	-81.78414	Statesboro	(null)
Southern Pine 2	32.41759	-81.784756	Statesboro	(null)
Southern Pine 3	32.418277	-81.785035	Statesboro	(null)
Southern Pine 4	32.418648	-81.785643	Statesboro	(null)
Southern Pine 5	32.417898	-81.784139	Statesboro	(null)
Nessmith Lane Continuing Education	32.42011	-81.78271	Statesboro	(null)
Hazardous Waste Storage Building	32.419372	-81.792469	Statesboro	(null)
	(null)	(null)	(null)	(null)
	(null)	(null)	(null)	(null)
(null)	(null)	(null)	(null)	(null)
(null)	(null)	(null)	(null)	(null)
(null)	(null)	(null)	(null)	(null)
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(null)	(null)	(null)	(null)	(null)
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(null)	(null)	(null)	(null)	(null)
(null)	(null)	(null)	(null)	(null)
(null)	(null)	(null)	(null)	(null)
(null)	(null)	(null)	(null)	(null)
(null)	(null)	(null)	(null)	(null)

# CRITICAL FACILITY DATA SPREADSHEET

See Codes and Definitions tab	No commas or dollar signs		See Codes and Definitions tab	See Codes and Definitions tab	See Codes and Definitions tab	Do Not Change
occupancyclassID	value	valueyear	valuationtypeID	FacilityTypePrimaryId	FacilityTypeNodeID	deleted
15	200000	2015	3	4	18	0
14	3375949	2018	3	1	1	1
14	3448521	2018	3	1	1	1
14	12484133	2018	3	1	1	1
14	9889670	2018	3	1	1	1
14	34806000	2018	3	1	1	1
14	2080993	2018	3	1	1	1
14	6783201	2018	3	1	1	1
14	8649559	2018	3	1	1	1
14	9033482	2018	3	1	1	1
14	25061308	2018	3	1	1	1
14	8900000	2018	3	1	1	1
14	11315996	2018	3	1	1	1
14	3000000	2018	3	1	1	1
14	4000000	2018	3	1	1	1
14	2180683	2018	3	1	1	1
14	4341700	2018	3	1	1	1
14		2018	3	1	1	1
14	4650000	2018	3	1	1	1
14	586642	2018	3	1	1	1
14	74000	2018	3	1	1	1
14	3514781	2018	3	1	1	1
14	1467760	2018	3	1	1	1
14	19085412	2018	3	1	1	1
14	38516140	2018	3	1	1	1

## CRITICAL FACILITY DATA FIELDS

14		2018	3	1	1	1
14	3350703	2018	3	1	1	1
14	2619760	2018	3	1	1	1
14	5415850	2018	3	1	1	1
14	7981825	2018	3	1	1	1
14	4440579	2018	3	1	1	1
14		2018	3	1	1	1
14	285695	2018	3	1	1	1
14	500000	2018	3	1	1	1
14	1336030	2018	3	1	1	1
14	6414100	2018	3	1	1	1
14	76159056	2018	3	1	1	1
14	32450000	2018	3	1	1	1
14	30800000	2018	3	1	1	1
14	36552792	2018	3	1	1	1
14	29233840	2018	3	1	1	1
14	11580861	2018	3	1	1	1
14	11678200	2018	3	1	1	1
14	3448521	2018	3	1	1	1
14	12095586	2018	3	1	1	1
14	80383349	2018	3	1	1	1
14	17668099	2018	3	1	1	1
14	44066084	2018	3	1	1	1
14	9889279	2018	3	1	1	1
14	7436641	2018	3	1	1	1
14	8988738	2018	3	1	1	1
14	5275469	2018	3	1	1	1
14	54448758	2018	3	1	1	1
14	54752552	2018	3	1	1	1
14	19718775	2018	3	1	1	1
14	12108582	2018	3	1	1	1
14	12283799	2018	3	1	1	1
14	12349100	2018	3	1	1	1
14	20571424	2018	3	1	1	1

## CRITICAL FACILITY DATA FIELDS

14	20571424	2018	3	1	1	1
14	17781910	2018	3	1	1	1
14	17781910	2018	3	1	1	1
14	17781910	2018	3	1	1	1
14	17781910	2018	3	1	1	1
14	8972937	2018	3	1	1	1
14	25712280	2018	3	1	1	1
14	670388	2018	3	1	1	1
(null)	(null)	(null)	(null)	(null)	(null)	
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(null)	(null)	(null)	(null)	(null)	(null)	
(null)	(null)	(null)	(null)	(null)	(null)	
(null)	(null)	(null)	(null)	(null)	(null)	
(null)	(null)	(null)	(null)	(null)	(null)	
(null)	(null)	(null)	(null)	(null)	(null)	
(null)	(null)	(null)	(null)	(null)	(null)	
(null)	(null)	(null)	(null)	(null)	(null)	
(null)	(null)	(null)	(null)	(null)	(null)	
(null)	(null)	(null)	(null)	(null)	(null)	
(null)	(null)	(null)	(null)	(null)	(null)	
(null)	(null)	(null)	(null)	(null)	(null)	
(null)	(null)	(null)	(null)	(null)	(null)	
(null)	(null)	(null)	(null)	(null)	(null)	
(null)	(null)	(null)	(null)	(null)	(null)	



## CRITICAL FACILITY DATA FIELDS

1 - YES 2 - NO	Address Information			
critical	Address1	Address2	city	state
1	123 Main Street	Suite 163	Barnesville	GA
1	1850 Southern Drive		Statesboro	GA
1	1582 Southern Drive		Statesboro	GA
1	62 Georgia Avenue		Statesboro	GA
1	4526 Old Register Road		Statesboro	GA
1	950 I.T. Drive		Statesboro	GA
1	789 Forest Drive		Statesboro	GA
1	261 Forest Drive		Statesboro	GA
1	2254 Southern Drive		Statesboro	GA
1	501 Forest Drive		Statesboro	GA
1	85 Georgia Avenue		Statesboro	GA
1	375 Lanier Drive		Statesboro	GA
1	984 Plant Drive		Statesboro	GA
1	98 Georgia Ave		Statesboro	GA
1	97 Georgia Ave		Statesboro	GA
1	4002 Forest Drive		Statesboro	GA
1	4002 Forest Drive		Statesboro	GA
1	657 Plant Drive		Statesboro	GA
1	4280 Old Register Road		Statesboro	GA
1	657 Plant Drive		Statesboro	GA
1	1332 Southern Drive		Statesboro	GA
1	1220 Forest Drive		Statesboro	GA
1	5731 Forest Drive		Statesboro	GA
1	207 Lanier Drive		Statesboro	GA
1	4324 Old Register Road		Statesboro	GA

## CRITICAL FACILITY DATA FIELDS

1		Statesboro	GA
1	3769 Old Register Road	Statesboro	GA
1	3787 Old Register Road	Statesboro	GA
1	824 S. Main Street	Statesboro	GA
1	2142 Southern Drive	Statesboro	GA
1	1332 Southern Drive	Statesboro	GA
1	84 Georgia Avenue	Statesboro	GA
1		Statesboro	GA
1	62 E Main St	Statesboro	GA
1	211 Lanier Dr	Statesboro	GA
1	3271 Old Register Road	Statesboro	GA
1	2687 Bunny Akins Blvd	Statesboro	GA
1	275 C.O.E. Drive	Statesboro	GA
1	521 C.O.E. Drive	Statesboro	GA
1	1100 I.T. Drive	Statesboro	GA
1	65 Georgia Avenue	Statesboro	GA
1	69 Georgia Avenue	Statesboro	GA
1	68 Georgia Avenue	Statesboro	GA
1	1582 Southern Drive	Statesboro	GA
1	1770 Southern Drive	Statesboro	GA
1	1400 Southern Drive	Statesboro	GA
1	1360 Southern Dr	Statesboro	GA
1	590 Herty Drive	Statesboro	GA
1	2434 Southern Drive	Statesboro	GA
1	2670 Southern Drive	Statesboro	GA
1	1620 Chandler Road	Statesboro	GA
1	1630 Chandler Road	Statesboro	GA
1	410 Georgia AVE	Statesboro	GA
1	410 Georgia AVE	Statesboro	GA
1	191 Knight Drive	Statesboro	GA
1	191 Knight Drive	Statesboro	GA
1	391 Knight Drive	Statesboro	GA
1	391 Knight Drive	Statesboro	GA
1	391 Knight Drive	Statesboro	GA

## CRITICAL FACILITY DATA FIELDS

1	391 Knight Drive		Statesboro	GA
1	1818 Chandler RD		Statesboro	GA
1	1818 Chandler RD		Statesboro	GA
1	1818 Chandler RD		Statesboro	GA
1	1818 Chandler RD		Statesboro	GA
1	1818 Chandler RD		Statesboro	GA
1	847 Plant Drive		Statesboro	GA
1	3820 Old Register Road		Statesboro	GA
	(null)	(null)	(null)	GA
	(null)	(null)	(null)	GA
	(null)	(null)	(null)	GA
	(null)	(null)	(null)	GA
	(null)	(null)	(null)	GA
	(null)	(null)	(null)	GA
	(null)	(null)	(null)	GA
	(null)	(null)	(null)	GA
	(null)	(null)	(null)	GA
	(null)	(null)	(null)	GA
	(null)	(null)	(null)	GA
	(null)	(null)	(null)	GA
	(null)	(null)	(null)	GA
	(null)	(null)	(null)	GA
	(null)	(null)	(null)	GA
	(null)	(null)	(null)	GA
	(null)	(null)	(null)	GA

## CRITICAL FACILITY DATA FIELDS

[illegible]

## CRITICAL FACILITY DATA FIELDS

[illegible]

## CRITICAL FACILITY DATA FIELDS

[illegible]

## CRITICAL FACILITY DATA FIELDS

y with the word "True".

**See Codes and Definitions  
tab**

[illegible]



## CRITICAL FACILITY DATA FIELDS

[illegible]

## CRITICAL FACILITY DATA FIELDS

[illegible]

# CRITICAL FACILITY DATA FIELDS

Square feet
area
20563

18,566.00

18,561.00

48,658.00

51,132.00

109,887.00

10,470.00

32,494

43,165

40,099

104,032

57,333

37,450

377,075

73,616

1,500

3,371

34,770

600

240

9,327

8,392

41,930

135,275

## CRITICAL FACILITY DATA FIELDS

23,673  
10,400  
21,500  
43,977  
24,466

240  
9,234  
461,711  
29,479  
220,668  
131,185  
123,649  
138,988  
112,864  
51,132  
49,560  
18,561  
42,577  
245,888  
78,133  
158,163  
32,197  
29,685  
44,871  
25,296  
153,420  
154,276  
94,552  
58,061  
34,612  
34,796  
57,964

## CRITICAL FACILITY DATA FIELDS

57,964  
50,104  
50,104  
50,104  
50,104  
25,283  
116,874  
2,525  
(null)  
(null)  
(null)  
(null)  
(null)  
(null)  
(null)  
(null)  
(null)  
(null)  
(null)  
(null)  
(null)  
(null)  
(null)  
(null)  
(null)

## Haz Mit Planning – GA Critical Facilities Field Worksheet

Facility Name:

Longitude

Latitude

Location:

(in digital decimal degrees)

Address:

City, Zip:

Jurisdiction:

Mark any or all that apply:

- |  |   |
|--|---|
| <input type="checkbox"/> Essential Facility      | <input type="checkbox"/> Economic Asset           |
| <input type="checkbox"/> Transportation Facility | <input type="checkbox"/> Special Consideration    |
| <input type="checkbox"/> Lifeline System         | <input type="checkbox"/> Historical Consideration |
| <input type="checkbox"/> High Potential Loss     | <input type="checkbox"/> Important Facility       |
| <input type="checkbox"/> HazMat Facility         | <input type="checkbox"/> Other Facility:          |
| <input type="checkbox"/> Vulnerable Population   | _____   |

Sq. Ft Area:

Point of Contact Name:

Replacement Value:

Point of Contact Phone #:

Valuation Year:

Valuation Type:

Year Constructed:

Facility Type:

- ☐ Daycare ☐ Primary/Elementary School ☐ Middle/High School ☐ College
- ☐ Airport ☐ Govt. Bldg. ☐ Jail or Prison ☐ Fire Station ☐ Emergency Services
- ☐ Police or Sheriff's Facility ☐ Hospital ☐ Recycling ☐ Water System ☐ \_\_\_\_\_

## HMP Update Milestones

### Period of Agreement

Contractor shall provide the services specified hereunder beginning on June 26, 2018 and ending when the Plan Update is formally approved by FEMA.

Milestone Event
<b>1) Completion of organizing Bulloch County Hazard Mitigation Planning Committee and facilitating the publicly held Kick-off meeting; Gather Critical Facilities Data, assessing Bulloch County's Hazards, Risks and Vulnerabilities (Chapter 2 of the Plan Update)</b>
<b>2) Completion of formulation of Mitigation Goals, and Action Steps; Mitigation Strategy Update (Chapter 3 of the Plan Update)</b>
<b>3) Update the Planning Process; Conduct a Public Meeting to review and comment on the Draft of the Plan Update.</b>
<b>4) Submit Plan Update for review by GEMA; Incorporate any reviewers' comments into Plan and Submit to GEMA/FEMA for final approval.</b>
<b>5) After FEMA approval, Formal Adoption of the Approved Plan Update by the County and each municipality; Publish plan and distribute Plan Update to Stake Holders</b>



## Plan Update Grant Milestones

(Note: highlighted items are not on the quarterly report list of milestones)

Issuance of the Grantee / Sub-Grantee Agreement

Hire Planning Consultant

Establish and form the Planning Committee

Gather Critical Facility Data

Hazard Identification and Risk Analysis

Complete Draft of Hazard Analysis Chapter update

Submit Progress Payment Request with all necessary paperwork

Develop Goals and Action Steps

Update Mitigation Strategy

Complete Draft of Mitigation Strategy Chapter

Submit Progress Payment Request with all necessary paperwork

Update Planning Process Chapter

Update Plan Maintenance and Implementation Chapter

Complete Draft of Chapter 1, the executive summary

Submit Plan for GEMA review and approval

Complete required revisions if necessary

Submit Progress Payment Request with all necessary paperwork

Submit Plan for FEMA review and approval

Complete required revisions if necessary

Plan Adoption and Implementation

Submit Progress Payment Request with all necessary paperwork

## Create the planning team – *Suggestions for team members.*

### Local/Tribal

- ☐ Administrator/Manager's Office
- ☐ Budget and Finance Offices
- ☐ Building Code Enforcement Office
- ☐ City/County Attorney's Office
- ☐ Economic Development Office
- ☐ Emergency Preparedness Office
- ☐ Fire and Rescue Department
- ☐ Hospital Management
- ☐ Local Emergency Planning Committee
- ☐ Planning and Zoning Office
- ☐ Police/Sheriff's Department
- ☐ Public Works Office
- ☐ Sanitation Department
- ☐ School Board
- ☐ Transportation Department
- ☐ Tribal Leaders

### Special Districts and Authorities

- ☐ Airport and Seaport Authorities
- ☐ Business Improvement Districts
- ☐ Fire Control District
- ☐ Flood Control District
- ☐ Redevelopment Agencies
- ☐ Regional Planning Organizations
- ☐ School Districts
- ☐ Transit/Transportation Agencies

### Others

- ☐ Architectural/Engineering/Planning Firms
- ☐ Citizen Corps
- ☐ Colleges/Universities
- ☐ Land Developers
- ☐ Major Employers/Businesses
- ☐ Professional Associations
- ☐ Retired Professionals

### State

- ☐ Adjutant General's Office (National Guard)
- ☐ Board of Education
- ☐ Building Code Office
- ☐ Climatologist
- ☐ Earthquake Program Manager
- ☐ Economic Development Office
- ☐ Emergency Management Office/State Ha Officer
- ☐ Environmental Protection Office
- ☐ Fire Marshal's Office
- ☐ Geologist
- ☐ Homeland Security Coordinator's Office
- ☐ Housing Office
- ☐ Hurricane Program Manager
- ☐ Insurance Commissioner's Office
- ☐ National Flood Insurance Program Coordi
- ☐ Natural Resources Office
- ☐ Planning Agencies
- ☐ Police
- ☐ Public Health Office
- ☐ Public Information Office
- ☐ Tourism Department

### Non-Governmental Organizations

- ☐ American Red Cross
- ☐ Chamber of Commerce
- ☐ Community/Faith-Based Organizations
- ☐ Environmental Organizations
- ☐ Homeowners Associations
- ☐ Neighborhood Organizations
- ☐ Private Development Agencies
- ☐ Utility Companies
- ☐ Other Appropriate NGOs

*Haz Mit Planning*

*JoAnn Sherman*

*1798 G W Oliver Road*

*Statesboro, GA 30458*

*Office Phone: (912) 481-1177*

*[JoAnn@HazMitPlanning.com](mailto:JoAnn@HazMitPlanning.com)*

June 26, 2018

## **Bulloch County Initial “Plan Update 2018” Meeting Agenda**

Application for grant funding – what the County said it would do

R/SR Agreement – what GEMA agreed you and they would do

Agreement for Hazard Mitigation Planning Services

Occupation Tax Certificate, W-9, & EIN – what Haz Mit Planning will do

Quarterly Report Filing

Facilitate GSU inclusion (wants to be an active participant in this Plan Update)

Reply Reply All Forward



Mon 9/17/2018 8:29 AM

Ted Wynn <tedwynn@bullochema.com>

Hazard Mitigation Plan Update

To Ted Wynn; (gnevill@bullochcounty.net); Barbara Rushing (brushing@frontiernet.net); Becky Livingston (blivingston1@frontiernet.net); brookletpd104@hotmail.com; Bulloch 1 (lynn@bullochsheriff.com); bullochci@hotmail.com; Chief Bill Black (bill@bullochsheriff.com); Chief L. McCullough (lmccullough@georgiasouthern.edu); Chief Max Meyer (brookletpd101@gmail.com); Chief Mike Broadhead (mike.broadhead@statesboroga.gov); Christopher Ivey; Christopher Ivey (firechief@bullochcounty.net); Clay Gracen (jgracen@georgiasouthern.edu); Collin Hopf; cwilson@bulloch.k12.ga.us; Danny Lively (danny.lively@statesboroga.gov); David Nevius; David Bryant (dbryant@gsp.net); Cc Scott.Sherman@hazmitplanning.com; joann@hazmitplanning.com; Al Hackle (ahackle@statesboroherald.com); dcannady@wtoc.com; hbragg@statesboroherald.com; Jessica Szilagyi (jessica@allongeorgia.com)



Bulloch County Local Labor Match form.doc  
29 KB

Good Morning Partners,

Believe it or not it is time to update our Hazard Mitigation Plan. We have contracted with the Haz Mit Planning group to help us update the plan. As you may or may not be aware, under the Disaster Mitigation Act of 2000, local jurisdictions are required to have a FEMA-approved Local Hazard Mitigation Plan (LHMP) to better position resources in advance of a disaster, and **to maintain eligibility for certain disaster assistance and hazard mitigation funding programs**. I have attached the labor match form which we will utilize to facilitate our local funding match requirement. Please save this form to your computer, you will need it in the future. As in the past Bulloch EMA will take the lead and move the process through to Federal approval.

We will have our kick-off meeting on September 25<sup>th</sup> at 2pm in the EOC. I anticipate a maximum of 90 minutes at this meeting, and I need you there. Please put this on the calendar, and I will see you on the 25<sup>th</sup>. Thanks



Ted Wynn, Director  
Bulloch County Public Safety/EMA/HS  
17245 Highway 301 North  
Statesboro, Ga. 30458

Get a kit.....Make a plan.....Be informed



# Hazard Mitigation Plan Update

## Meeting Planned for September 25, 2018

The Bulloch County Hazard Mitigation Plan Update Committee will hold a kick-off meeting on Wednesday, September 25 at 2:00 PM. The meeting will be held at the Bulloch County Emergency Operations Center in Statesboro at 17245 Highway 301 North.

The purpose of the meeting is to inform citizens about the Hazard Mitigation Plan Update process that is taking place in Bulloch County and includes the municipalities of Statesboro, Brooklet, Register, and Portal. The Plan Update will better prepare the community for natural disasters and reduce the damage should one occur. Citizens will be given the opportunity for input concerning the preparation of the plan. All interested parties are invited and encouraged to attend.

For more information please contact Mr. Ted Wynn, Bulloch County Public Safety / EMA Director at (912) 489-1661.

**Bulloch County  
and the  
Cities of Statesboro,  
Brooklet, Portal, and Register**

**Hazard Mitigation Plan Update  
Kick Off Meeting  
September 25, 2018**



**Bulloch County  
and the  
Cities of Statesboro, Brooklet Portal, and Register**

**Welcome and Introductions**

**Please sign in on one of the sheets.**



# Georgia Emergency Management Agency & Homeland Security



Shelby Meyers

*Hazard Mitigation Planner*

**Georgia Emergency Management Agency  
& Homeland Security**

Office: [Shelby.meyers@gema.ga.gov](mailto:Shelby.meyers@gema.ga.gov)

**Bulloch County  
and the  
Cities of Statesboro, Brooklet Portal, and Register**

# **Plan Update Overview**

Where are we going?

**Executive Summary, Community Information,  
Capability Assessment**

**Hazard, Risk, and Vulnerability**

**Goals and Action Steps**

**Plan Maintenance and Updates**

# Bulloch County and the Cities of Statesboro, Brooklet Portal, and Register

Critical facilities are structures and institutions necessary for a community’s **response to and recovery** from emergencies.

Critical facilities are critical for **life safety** and **economic viability** and include transportation, power, communication, and water and wastewater systems.

Critical facilities must **continue to operate** during and following a disaster to reduce the severity of impacts and accelerate recovery. Consider both the structural integrity and content value of critical facilities.

**Develop an inventory of the location of specific critical infrastructure and facilities in the planning area.**

Hospitals and medical facilities	Nuclear power plants	Water and wastewater
Police and fire stations	Dams	Power utilities
Emergency operations centers	Military and civil defense installations	Transportation (roads, railways, waterways)
Evacuation shelters	Locations housing hazardous materials	Communication systems/centers
Schools		Energy pipelines and storage
Airports/heliports		



# Bulloch County and the Cities of Statesboro, Brooklet Portal, and Register

## Critical Facilities in the current Bulloch County Hazard Mitigation Plan

Facility	Wind Hazard	All Hazard Scores							
Jurisdiction	Name	Value	Replacement	Building size	Functional Use	value	Facility type	Risk	
Brooklet town	Brooklet Elementary	11403299	2014	69562	2086860		Education, Clinics	Important, Vulnerable Population, Special Consideration	
Brooklet town	Brooklet Police Department	35000	2014	1653	0		Law Enforcement, Police	Essential	
Brooklet town	Brooklet City Hall	194083	2014	1749	52470		Government, Private	Important	
Brooklet town	Portal Police Department				0		Law Enforcement, Police		
Bulloch County	Statesboro/Bulloch County Landfill	2622880	2014	16000	480000		NGO, Water/Sewer	Essential, Important, Special Consideration	
Bulloch County	Mill Creek Elementary School	14244206	2014	869578	2606760		Education, Clinics	Important, Vulnerable Population	
Bulloch County	William James Middle School	2464196	2014	15032	450960		Education, Clinics	Important, Vulnerable Population, Special Consideration	
Bulloch County	Southeast Bulloch Middle	15260572	2014	92392	2771760		Education, Clinics	Important, Special Consideration	
Bulloch County	Portal Elementary	7695187	2014	69346	2080380		Education, Clinics	Important, Vulnerable Population, Economic Assets	
Bulloch County	Nevils Elementary School	5847015	2014	52691	1580730		Education, Clinics	Important, Vulnerable Population	
Bulloch County	Stilson Elementary School	7142455	2014	64365	193950		Education, K - 12	Important, Vulnerable Population	
Bulloch County	Julia P. Bryant	8792771	2014	79237	2377110		Education, K - 12	Important, Special Consideration	
Bulloch County	Bulloch County Fire Department Sta. #6	507527	2014	3096	133128		Emergency Services, Fire Fighters	Essential, Important	
Bulloch County	Bulloch County Fire Department Sta #3	601951	2014	3672	157896		Emergency Services, Fire Fighters	Essential, Important	
Bulloch County	Georia Forestry	851125	2014	5192	155760		Law Enforcement, Court House	Essential, Special	
Bulloch County	G DOT	639327	2014	3900	117000		Medical, EMS	Important, Special Consideration	
Bulloch County	Walmart Distribution	229502000	2014	2000000	254000000		Education, Government Offices	Hazardous Materials, Important, Economic Assets	
Bulloch County	Briggs & Stratton	45482821	2014	396361	50337847		Education, Government Offices	Important, Economic Assets	
Bulloch County	GEMA	693708	2014	2009	0		Education, Government Offices	Important	
Bulloch County	RAC	76159056	2014	214593	0		Education, Government Offices		
Bulloch County	College of Education	37179324	2014	104760	0		Education, Government Offices		
Bulloch County	Nursing & Chemistry	43883030	2014	123649	0		Education, Government Offices		
Bulloch County	College of Information Technology	49326841	2014	138988	0		Education, Government Offices	Important, Economic Assets	
Bulloch County	Math & Physics Building	30686073	2014	86464	0		Education, Government Offices		
Bulloch County	Biology Building	18146747	2014	51132	0		Education, Government Offices		
Bulloch County	Herty Building	17588844	2014	49560	0		Education, Government Offices		
Bulloch County	Deal Hall	6587299	2014	18561	0		Education, Government Offices		
Bulloch County	Pittman Administration Building	15110577	2014	42577	0		Education, Government Offices		
Bulloch County	Henderson Library	47421028	2014	133618	0		Education, Government Offices		
Bulloch County	Institute of Arthropodology & Parasitology	1278705	2014	3603	0		Education, Government Offices		
Bulloch County	Henderson Library Addition (Under construction)	35501357	2014	100032	0		Education, Government Offices		
Bulloch County	Hanner Complex	56142049	2014	158163	0		Education, Government Offices		
Bulloch County	Sanford Hall	11426715	2014	32197	0		Education, Government Offices		
Bulloch County	Brannen Hall	10535207	2014	29685	0		Education, Government Offices		
Bulloch County	Winburn Hall	17445402	2014	49184	0		Education, Government Offices		
Bulloch County	Olliff Hall	20846826	2014	58740	0		Education, Government Offices		
Bulloch County	Johnson Hall	28292628	2014	79720	0		Education, Government Offices		
Bulloch County	Watson Hall Pods	15924718	2014	44871	0		Education, Government Offices		
Bulloch County	Watson Hall Commons	8977550	2014	25296	0		Education, Government Offices		
Bulloch County	Eagle Village Building 1	54448758	2014	153420	0		Education, Government Offices		
Bulloch County	Eagle Village Building 2	54752552	2014	154276	0		Education, Government Offices		
Bulloch County	Kennedy 1	20605849	2014	58061	0		Education, Government Offices		
Bulloch County	Kennedy 2	33556505	2014	94552	0		Education, Government Offices		

# Bulloch County and the Cities of Statesboro, Brooklet, Portal, and Register

46	Bulloch County	Southern Courtyard Building 1	12283799	2014	34612	0	Education, Government Offices					
47	Bulloch County	Southern Courtyard Building 2	12349100	2014	34796	0	Education, Government Offices					
48	Bulloch County	Southern Courtyard Building 3	20571424	2014	57964	0	Education, Government Offices					
49	Bulloch County	Southern Courtyard Building 4	20571424	2014	57964	0	Education, Government Offices					
50	Bulloch County	Southern Pine 1	17781910	2014	50104	0	Education, Government Offices					
51	Bulloch County	Southern Pine 2	17781910	2014	50104	0	Education, Government Offices					
52	Bulloch County	Southern Pine 3	17781910	2014	50104	0	Education, Government Offices					
53	Bulloch County	Southern Pine 4	17781910	2014	50104	0	Education, Government Offices					
54	Bulloch County	Southern Pine 5	8972937	2014	25283	0	Education, Government Offices					
55	Bulloch County	Nessmith Lane Continuing Education	47465391	2014	133743	0	Education, Government Offices					
56	Bulloch County	Russell Union	36920957	2014	104032	0	Education, Government Offices					
57	Bulloch County	Health Services Building	5443101	2014	15337	0	Education, Private					
58	Bulloch County	Landrum Center	143349552	2014	40582	0	Education, Government Offices					
59	Bulloch County	Physical Plant Office	1034534	2014	2915	0	Education, Government Offices					
60	Bulloch County	Physical Plant Shop 1	4045150	2014	11395	0	Education, Government Offices					
61	Bulloch County	Physical Plant Shop II	767294	2014	2162	0	Education, Private					
62	Bulloch County	Physical Plant FPD& C Building	1750012	2014	4931	0	Education, Government Offices					
63	Bulloch County	Grounds Equipment Building	496860	2014	2400	0	Education, Government Offices					
64	Bulloch County	Hazardous Waste Storage Building	851760	2014	2400	0	Education, Government Offices					
65	Bulloch County	Electrical Switch House	285695	2014	805	0	Education, Government Offices					
66	Bulloch County	Well House 1	85176	2014	240	0	Education, Government Offices					
67	Bulloch County	Housing Maint. Bldg. (Tom's Whse)	2075455	2014	5848	0	Education, Government Offices					
68	Bulloch County	Southeast Bulloch High	17053638	2014	104030	3120900	Education, K - 12	Important, Special Consideration				
69	Bulloch County	Bulloch County Fire Department Sta #4	487692	2014	2975	127925	Emergency Services, Fire Fighters	Essential, Important				
70	Bulloch County	Bulloch County Fire Department Sta #7	89249	2014	3675	127925	Emergency Services, Fire Fighters	Essential, Important				
71	Bulloch County	Bulloch County Fire Department Sta. #2	330130	2014	2975	127925	Emergency Services, Fire Fighters	Essential, Important				
72	Bulloch County	Ogeechee Tech	43255553	2014	263866	7915980	Education, VoTech	Important, Economic Assets				
73	Bulloch County	Bulloch County Sheriff's Office	5419000	2013	67838	0	Law Enforcement, Sheriff	Essential, Important, Vulnerable Population				
74	Bulloch County	Bulloch Academy	3525000	2014	50000	0	Education, Private	Vulnerable Population				
75	Bulloch County	Willingway Hospital	6573429	2014	40099	1202970	Education, Private	Hazardous Materials, Vulnerable Population				
76	Bulloch County	Bulloch County Fire Department Sta #8	550805	2014	3360	144480	Emergency Services, Fire Fighters	Essential, Important				
77	Bulloch County	Bulloch County Fire Department Sta #9	573753	2014	3500	150500	Emergency Services, Fire Fighters	Essential, Important				
78	Bulloch County	Statesboro Fire Department Station #1	1164559	2014	7104	305472	Emergency Services, Fire Fighters	Essential				
79	Bulloch County	Bulloch County Juvenile Court	277436	2014	7575	0	Law Enforcement, Court House	Vulnerable Population				
80	Bulloch County	Bulloch County Jail	2237559	2014	20164	423630	Law Enforcement, Jails	Essential, Important, Special Consideration				
81	Bulloch County	Bulloch County Correctional Institution	2679877	2014	24150	724500	Law Enforcement, Prisons	Essential, Special Consideration				
82	Bulloch County	Statesboro Municipal Airport	480713	2014	4332	129960	NGO, Transportation	Transportation, Important, Economic Assets				
83	Bulloch County	Georgia State Patrol	970000	2014	8325	0	NGO, Transportation	Essential, Special Consideration				
84	Bulloch County	Gateway Industrial Park Well	0	2014	0	0	Government, Water/Sewer	Essential, Important				
85	Bulloch County	Jef Rd Well	65572	2014	400	0	Government, Water/Sewer	Essential, Important				
86	Bulloch County	Gateway Industrial Park Water Storage	0	2014	0	0	Government, Water/Sewer	Essential, Important				
87	Bulloch County	Georgia Department of Drivers Services	200000	2014	4670	0	Medical, EMS	Important				
88	Bulloch County	Bulloch County Fire Department Sta #5	388388	2014	3500	150500	Emergency Services, Fire Fighters	Essential, Important				
89	Portal town	Portal Middle/High	12482122	2014	76143	2284290	Education, K - 12	Important, Vulnerable Population				
90	Portal town	Portal Well	0	2014	0	0	Government, Water/Sewer	Essential				



# Bulloch County and the Cities of Statesboro, Brooklet, Portal, and Register

91	Portal town	Portal Water Tower #2	0	2014	0	0	Government, Water/Sewer	Essential					
92	Portal town	Portal Elementary	12481957	2014	76143	2284290	Education, K - 12	Important, Vulnerable Population					
93	Portal town	Portal Town Hall	332571	2014	2997	89910	Government, Private	Important, Economic Assets					
94	Register town	Portal Well				0	Government, Water/Sewer						
95	Register town	Register Well	22950	2014	200	86200	Government, Water/Sewer	Essential, Important					
96	Register town	Town of Register	39343	2014	240	103440	Government, Water/Sewer	Essential					
97	Register town	Register Town Hall	99871	2014	900	27000	Government, Private	Important					
98	Statesboro city	Langston Chapel Elementary School	9552125	2014	86080	2582400	Education, K - 12	Important, Special Consideration					
99	Statesboro city	Langston Chapel Middle School	1708855	2014	104243	3127290	Education, K - 12	Important, Vulnerable Population, Special Consideration					
100	Statesboro city	Mattie Lively Elementary School	6816986	2014	61432	1842960	Education, K - 12	Important, Vulnerable Population					
101	Statesboro city	Crossroads Alternative	7301805	2014	65801	1874030	Education, K - 12	Important, Special Consideration					
102	Statesboro city	Bulloch County Judicial Annex	5562637	2014	33933	1017990	Law Enforcement, Court House	Important					
103	Statesboro city	Bulloch County Health Department	2336003	2014	14250	427500	Law Enforcement, Court House	Important					
104	Statesboro city	East Georgia Regional Medical Center	30835070	2014	188099	5642970	Medical, EMS	Essential, Hazardous Materials, Important, Special Consideration					
105	Statesboro city	Bulloch County Building & Zoning	212945	2014	1299	38970	Medical, EMS	Important					
106	Statesboro city	Georgia Southern University Public Safety	2648100	2014	7000	225000	Education, Government Offices	Important, Special Consideration					
107	Statesboro city	Federal Courthouse	4339883	2014	37820	1626260	Education, Government Offices	Important, Special Consideration					
108	Statesboro city	First Baptist Church	1445863	2014	126000	3780000	Education, Government Offices	Important, Special Consideration					
109	Statesboro city	First Presbyterian Church	1893392	2014	16500	495000	Education, Government Offices	Important, Special Consideration					
110	Statesboro city	Sallie Zetterower Elementary School	0	2014	0	0	NGO, Transportation	Important, Vulnerable Population					
111	Statesboro city	Statesboro WPCP	950794	2014	5800	2499800	Government, Water/Sewer	Essential, Important					
112	Statesboro city	Statesboro Police Department	2179941	2014	13298	398940	Law Enforcement, Police	Essential, Important					
113	Statesboro city	Statesboro Regional Library	4868721	2014	29700	891000	Education, Library	Important, Economic Assets					
114	Statesboro city	Statesboro High School	2027076	2014	123655	3709650	Education, K - 12	Important, Vulnerable Population, Special Consideration					
115	Statesboro city	Bulloch County North Main Annex	2475671	2014	15102	453060	Law Enforcement, Court House	Important, Economic Assets					
116	Statesboro city	Bulloch County Courthouse	1566979	2014	14121	423630	Law Enforcement, Court House	Important, Economic Assets, Historic Consideration					
117	Statesboro city	Bulloch County Magistrate Court	712259	2014	6207	186210	Law Enforcement, Court House	Important, Special Consideration					
118	Statesboro city	First United Methodist Church	4016285	2014	35000	1050000	Education, Government Offices	Important, Special Consideration					
119	Statesboro city	GA Southern Water Storage Tower	0	2014	0	0	Government, Water/Sewer	Essential, Important					
120	Statesboro city	Paulson Stadium Storage Tower	0	2014	0	0	Government, Water/Sewer	Essential, Important					
121	Statesboro city	Old Register Rd Well	65572	2014	400	172400	Government, Water/Sewer	Essential, Important					
122	Statesboro city	Statesboro, City Water Storage Tower	0	2014	0	0	Government, Water/Sewer	Essential, Important					
123	Statesboro city	Proctor St Well	65572	2014	400	172400	Government, Water/Sewer	Essential, Important					
124	Statesboro city	Brazwell St Well	65572	2014	400	172400	Government, Water/Sewer	Essential, Important					
125	Statesboro city	Statesboro Water Storage Tower	0	2014	0	0	Government, Water/Sewer	Essential, Important					
126	Statesboro city	Statesboro City Hall	2330328	2014	21000	630000	Government, Private	Essential, Important					

## Bulloch County and the Cities of Statesboro, Brooklet Portal, and Register

- Which natural hazards are to be included or removed in this plan update
- Are there other natural hazards which should be included into this update that were not listed in the current plan
- All hazard events that have occurred since the writing of the currently approved plan will be added



# Bulloch County and the Cities of Statesboro, Brooklet Portal, and Register

## Bulloch County Disaster Mitigation Plan Update 2019 Documentation of Labor Match

NAME (Please Print): \_\_\_\_\_

ORGANIZATION: \_\_\_\_\_

DATE(S): \_\_\_\_\_

EVENT: \_\_\_\_\_

HOURS CONTRIBUTED (Include travel time): \_\_\_\_\_

HOURLY SALARY & BENEFITS: \_\_\_\_\_

TOTAL LABOR MATCH (Hours Contributed X Hourly Salary): \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

(FORM IS NOT VALID WITHOUT SIGNATURE)

# **Bulloch County and the Cities of Statesboro, Brooklet Portal, and Register**

## **Meeting Schedules:**

**When:**

**Where:**

Bulloch County  
and the  
Cities of Statesboro, Brooklet Portal, and Register

# Questions and Comments Information:

Ted Wynn (Director Bulloch County EMA)

Phone: (912)489-1661

Email: [tedwynn@bulloch.net](mailto:tedwynn@bulloch.net)

JoAnn Sherman Haz Mit Planning

Phone: (912) 481-1177

Email: [JoAnn@HazMitPlanning.com](mailto:JoAnn@HazMitPlanning.com)

[Scott.Sherman@HazMitPlanning.com](mailto:Scott.Sherman@HazMitPlanning.com)

# AGENDA

## Bulloch County Hazard Mitigation Plan Update Committee Kick-Off Meeting

**Bulloch County and Statesboro, Brooklet, Portal, and Register**

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*September 25, 2018 | 2:00 PM | Meeting called by Ted Wynn*

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- |      |  |               |
|------|--|---------------|
| I.   | Welcome and Introductions  | Ted Wynn      |
| II.  | Georgia Emergency Management Agency (GEMA) Presentation              | Shelby Meyers |
| III. | Plan Update Overview   | JoAnn Sherman |
| IV.  | Critical Facilities Update Activity<br>With Handouts and work sheets | JoAnn Sherman |
| V.   | GEMA Work Sheets Identify Hazards<br>and NCDC Data                   | JoAnn Sherman |
| VI.  | In-Kind Labor Match forms  | Scott Sherman |
| VII. | Future Meetings: When, where, time.                                  | Ted Wynn      |
-

# Bulloch Co. Plan Update Kick-off Meeting Minutes:

September 25, 2018 | 2:00 PM | Meeting location Bulloch County EOC

Meeting called by	Ted Wynn	Guest Speaker: Shelby Meyers Georgia Emergency Management Agency (GEMA) Disaster Mitigation Plan Specialist
Type of meeting	Kick-off Meeting	
Facilitator	Ted Wynn	
Plan Consultant	JoAnn Sherman	
Plan Consultant	Scott Sherman	

## AGENDA TOPICS

Time | 2:00 PM | Agenda topic Overview | Presenter Ted Wynn

Ted Wynn, Bulloch County Public Safety Director/EMA Director opened the meeting, gave a brief overview of the Plan Update purpose and process, and introduced the other speakers.

## Action items

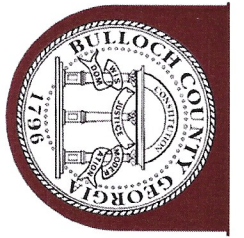
Shelby Meyers discussed the Federal and States requirements for the plan update, the funding source, and deadline to complete it. She gave her contact information and invited any questions during the plan update process.

Scott Sherman reminded everyone to sign in, and invited all attendees to help themselves to the snacks located on either side of the room and the water in the cooler near the door, & feel free to ask questions at any time.

Action items	Person responsible
A PowerPoint presentation was given on hazard groups, worksheet activities, & chapter summaries	JoAnn Sherman
Critical Facilities Update Activity with form requirements, and In-Kind Labor Match forms at back of handout.	Scott Sherman

Participants were told that they are invited to attend all meetings, the next would cover the updating of critical facilities, and an e-mail will be sent to all informing date, time and location of future plan update

meetings, and Scott instructed the participants to fill out and turn in their labor match forms before leaving.



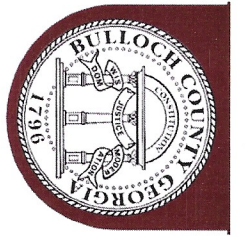
Bulloch County Hazard Mitigation Plan Update Meeting Sign-in Sheet

Tuesday, September 25, 2018

[illegible]







## Bulloch County Hazard Mitigation Plan Update Meeting Sign-in Sheet

Tuesday, September 25, 2018

[illegible]



## Bulloch County Hazard Mitigation Plan Update Meeting Sign-in Sheet

Tuesday, September 25, 2018

[illegible]



## Public Notices

### Family Children Youth

gpn10

IN THE JUVENILE COURT OF  
BULLOCH COUNTY STATE OF  
GEORGIA

IN THE INTEREST OF:

J.L.B., SEX: Male; DOB: 06-13-06

K.L.B., SEX: Male; DOB: 05-12-08

L.D.B., SEX: Male; DOB: 05-18-10

E.A.B., SEX: Male; DOB: 05-28-11

A.S.M., SEX: Female; DOB:  
01-10-14

I.C.M., SEX: Female; DOB:  
12-03-15

J.N.M., SEX: Female; DOB:  
10-17-16

Minor child under 18 years of age  
NOTICE OF SUMMONS

PETITION TO TERMINATE  
PARENTAL RIGHTS

TO: ANY UNKNOWN

BIOLOGICAL FATHER of J.L.B.,  
a male child born on 06-13-06;

K.L.B., a male child born on  
05-12-08; L.D.B., a male child

born on 05-18-10; E.A.B., a male  
child born on 05-28-11; A.S.M., a

female child born on 01-10-14;  
I.C.M., a female child born on

12-03-15; and J.N.M. a female  
child born on 10-17-16, born to

Patricia McDonald. You are hereby  
notified that the above styled

action seeking to terminate your  
parental rights and place custody of

said children with the Georgia  
Department of Human Services,

acting through the Bulloch County  
Department of Family and

Children Services, was filed in said  
Court on September 14, 2018 and

that by reason of Order for Service  
by Publication, entered by the

Court on September 14, 2018 you  
are hereby commanded and

required to file with the Clerk of  
said Court and serve upon Jennifer

C. Mock, Attorney for Petitioner,  
whose address is P.O. Box 159,

326 South Main Street, Statesboro,  
Georgia 30459 an answer to the

petition within 30 (thirty) days of  
October 26, 2018. A copy of the

petition is attached to this sum-

mons or, if this summons is served  
by publication, can be obtained  
from the Clerk of this Court during  
business hours. Final hearing in  
this matter is scheduled for 9:00  
o'clock a.m. on the 29th day of  
November, 2018 in a courtroom of  
the Bulloch County Judicial Annex  
in Statesboro, Georgia. This is a  
summons requiring you to be in  
Court. If you fail to come to Court  
as required, you may be held in  
Contempt of Court and punished  
accordingly. Now, therefore, you  
the party named above, are com-  
manded to be and appear on the  
date and time stated herein and to  
remain in attendance from hour to  
hour, day to day, month to month,  
year to year, and time to time, as  
said case may be continued, and  
until discharged by the Court, and  
you are commanded to lay any and  
all other business aside and to be  
and appear before the Juvenile  
Court of Bulloch County, Georgia.  
In accordance with O.C.G.A.

15-11-96(b) you are hereby noti-  
fied that this proceeding and the  
hearing(s) specified herein is for  
the purpose of terminating your  
parental rights. You are advised  
that O.C.G.A. Section 15-11-96 (h)  
provides as follows: "When notice  
is given pursuant to subsection (e)  
of this code section, it shall advise  
such biological father who is not  
the legal father that he loses all  
rights to the child and will not be  
entitled to object to the termination  
of his rights to the child unless,  
within 30 days of receipt of such  
notice, he files: A petition to legiti-  
mate the child pursuant to Code  
Section 19-7-22; and Notice of the  
filing of the petition to legitimate  
with the court in which the action  
under this Code section is pend-  
ing." READ CAREFULLY: This  
Summons requires you to be pres-  
ent at a formal hearing in the  
Juvenile Court. The children or  
other parties involved may be rep-  
resented by a lawyer at all stages  
of these proceedings. If you want  
a lawyer, you may choose and hire  
your own lawyer. If you want to  
hire a lawyer, please contact your  
lawyer immediately. If you want a  
lawyer but are not able to hire a

will be legally freed to be adopted  
by someone else. Even if your  
parental rights are terminated: (1)  
You will be responsible for provid-  
ing financial support (child support  
payments) for your child's care  
unless and until your child are  
adopted; and (2) Your child can  
still inherit from you unless and  
until your child is adopted. This  
Summons requires you to be pres-  
ent at a formal hearing in the  
Juvenile Court. The child or other  
parties involved may be represent-  
ed by a lawyer at all stages of these  
proceedings. If you want a lawyer,  
you may choose and hire your own  
lawyer. If you want to hire a law-  
yer, please contact your lawyer  
immediately. If you want a lawyer  
but are not able to hire a lawyer  
without undue financial hardship,  
you may ask for a lawyer to be  
appointed to represent you. The  
Court would inquire into your  
financial circumstances and if the  
Court finds you to be financially  
unable to hire a lawyer, then a law-  
yer will be appointed to represent  
you. If you want a lawyer appoint-  
ed to represent you, you must let  
the Court or the officer of this  
Court handling this case know that  
you want a lawyer immediately.  
WITNESS, the Honorable F. Gates  
Peed, Michael T. Muldrew, or  
Lovett Bennett, Judge of said  
Court. This 20th day of  
September, 2018./s/Heather B.  
McNeal Clerk, Juvenile  
Court Bulloch County,  
Georgia  
sw46331 09/25/2018

gpn11

IN THE JUVENILE COURT OF  
BULLOCH COUNTY STATE OF  
GEORGIA

IN THE INTEREST OF:

J.L.B., SEX: Male; DOB: 06-13-06

K.L.B., SEX: Male; DOB: 05-12-08

L.D.B., SEX: Male; DOB: 05-18-10

E.A.B., SEX: Male; DOB: 05-28-11

A.S.M., SEX: Female; DOB:  
01-10-14

I.C.M., SEX: Female; DOB:  
12-03-15

J.N.M., SEX: Female; DOB:  
10-17-16

the Court or the officer of this  
Court handling this case know that  
you want a lawyer immediately.  
WITNESS the Honorable Michael  
T. Muldrew, Lovett Bennett, Jr., or  
Gates Peed, Judge of said Court.  
This 20th day of September, 2018.  
/s/ Heather B. McNeal  
Clerk, Juvenile Court,  
Bulloch County, Georgia  
sw46332 09/25/2018

## Local Government

gpn16

Hazard Mitigation Plan Update  
Meeting Planned for September 25,  
2018

The Bulloch County Hazard  
Mitigation Plan Update Committee  
will hold a kick-off meeting on  
Wednesday, September 25 at 2:00  
PM. The meeting will be held at  
the Bulloch County Emergency  
Operations Center in Statesboro at  
17245 Highway 301 North. The  
purpose of the meeting is to inform  
citizens about the Hazard  
Mitigation Plan Update process  
that is taking place in Bulloch  
County and includes the munici-  
palities of Statesboro, Brooklet,  
Register, and Portal. The Plan  
Update will better prepare the com-  
munity for natural disasters and  
reduce the damage should one  
occur. Citizens will be given the  
opportunity for input concerning  
the preparation of the plan. All  
interested parties are invited and  
encouraged to attend. For more  
information please contact Mr. Ted  
Wynn, Bulloch County Public  
Safety / EMA Director at (912)  
489-1661.  
sw46314 9/21/2018

Find your career  
connection in the  
**Statesboro Herald**  
CLASSIFIEDS

489-9455





# AGENDA

Bulloch County 2020 Hazard Mitigation Plan Update: GSU Critical Facilities  
Public Safety Building #110, 1220 Forrest Drive

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*October 31, 2019 | 1:00 PM*

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- |      |  |                       |
|------|--|-----------------------|
| I.   | Welcome and Introductions                    | Kelly Nilsson         |
| II.  | Georgia Mitigation Information System (GMIS) | Shelby Meyers         |
| III. | Critical Facilities Overview                 | Scott Sherman         |
| IV.  | Critical Facilities Update Activity          | Scott & JoAnn Sherman |
| V.   | In-Kind Labor Match forms                    | JoAnn Sherman         |
| VI.  | Questions                                    | All                   |
-