

# Gwinnett County, Georgia HAZARD MITIGATION PLAN

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## Plan Mission

The key purposes of the Gwinnett County Multi-Jurisdictional Hazard Mitigation Plan (HMP) include the following:

- Involve members of the county, cities, townships, public and other agencies to draft and adopt a multi-jurisdictional mitigation plan that serves as the blueprint for future development and preparedness activities across the county.
- Identify risks and hazards that may affect Gwinnett County through a systematic hazard identification and risk assessment process.
- Prioritize loss reduction and emergency preparedness activities for disasters.
- Determine areas within Gwinnett County that may be vulnerable to various hazards.
- Develop strategies and the best practices to avoid and mitigate the impact of identified hazards.

## Plan Organization

The scope of the HMP encompasses all areas of Gwinnett County, including all its cities and townships. The HMP will identify all natural and technological hazards that could threaten life and property in these communities. The scope of this HMP includes both short- and long-term mitigation strategies, implementation and possible sources of project funding.

In addition, the HMP contains the following information:

- The vision of mitigation in the community
- A profile of Gwinnett County, its geography, history, physical features and other community indicators
- The planning process and the involvement of all cities, townships, state and federal governments, the public, industry and other community players
- Documentation of Gwinnett County's past and predicted exposure to natural hazards, including risks with the potential to impact critical infrastructure and anticipated losses resulting from such an event
- An overview of Gwinnett County's capabilities to implement hazard mitigation goals, objectives and policies that will effectively mitigate risks to the community
- Procedures for maintaining an effective, long range HMP and the strategy to implement it

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- An assessment of Gwinnett County’s current policies, goals and regulations pertaining to hazard mitigation
- Critical facilities information
- Documentation of the process

## Plan Financing

This HMP was funded by the Gwinnett County Office of Emergency Management through the Gwinnett County Board of Commissioners, with the aim of fulfilling the requirements of the Federal Disaster Mitigation Act of 2000. The plan was prepared under the direction of the Gwinnett County Multi-Jurisdictional Hazard Mitigation Steering Committee (HMSC). For additional information, please contact the Gwinnett County Office of Emergency Management.

## Plan Participation

This HMP will be updated and maintained by Gwinnett County Emergency Management in order to continually address hazards determined to be of high and moderate risk, as detailed in the vulnerability assessment for Gwinnett County. Other hazards that pose a low or negligible risk will continue to be evaluated for future updates to the HMP; however, they may not be fully addressed until they are determined to be of high or moderate risk. The geographic scope for the HMP includes all incorporated and unincorporated areas of Gwinnett County.

Gwinnett County elected to hire an emergency management consulting firm, Beck Disaster Recovery, Inc., to guide the HMSC and participating jurisdictions through the planning update process. The below table contains a list of Gwinnett County Multi-Jurisdictional HMSC members:

**Table 1**  
**Gwinnett County Multi-Jurisdictional HMSC Members**

| <b>Name</b>         | <b>Organization</b>                           |
|---------------------|-----------------------------------------------|
| Mark Reiswig        | East Metro Health District                    |
| Kelly Keefe         | Georgia Emergency Management Agency           |
| Misty Berry         | Gwinnett County Chamber of Commerce           |
| Chief Roy Whitehead | Gwinnett County Chiefs of Police Association  |
| Kevin Coyle         | Gwinnett County Department of Transportation  |
| Jonathan Semerjian  | Gwinnett County Department of Water Resources |
| Neal Strickland     | Gwinnett County Department of Water Resources |

| Name            | Organization                                |
|-----------------|---------------------------------------------|
| Charles Wells   | Gwinnett County Fire and Emergency Services |
| Charles Wells   | Gwinnett County Fire and Emergency Services |
| Larry Dancy     | Gwinnett County Planning and Development    |
| Gregory Swanson | Gwinnett County Emergency Management        |
| Jim Osborn      | Gwinnett County Municipal Association       |
| Eric Horne      | Gwinnett County Parks and Recreation        |
| James Taylor    | Gwinnett County Public Schools              |

## Interagency and Intergovernmental Coordination

The geographic scope for the HMP includes the following list of all incorporated and unincorporated areas of Gwinnett County:

- City of Auburn
- City of Berkeley Lake
- City of Buford
- City of Dacula
- City of Duluth
- City of Grayson
- City of Lawrenceville
- City of Lilburn
- City of Norcross
- City of Snellville
- City of Sugar Hill
- City of Suwanee
- Town of Braselton

## Hazards Identified

The following hazards have been identified as having the potential to significantly impact Gwinnett County. Detailed information regarding each hazard can be found in **Section 3, Hazard Vulnerability Assessment**.

### Natural Hazards

- Winter Storms
- Severe Thunderstorms/Windstorms
- Tropical Storms/Hurricanes
- Tornadoes
- Lightning
- Wildfires
- Drought

### Hydrologic Hazards

- Flooding

### Seismic Hazards

- Earthquakes

### Technological Hazards

- Dam Failure
- Cyber Crime
- Hazardous Materials – Transportation Accidents
- Hazardous Materials – Fixed Facilities
- Epidemics/Pandemics
- Terrorism

### Plan Goals

The following goals and objectives form the basis of this plan and summarize what the Gwinnett County HMSC will accomplish as a result of implementing this plan.

- Maximize the use of all resources by promoting intergovernmental coordination and partnerships in the public and private sectors.
- Harden the communities against the impacts of disasters through the development of new mitigation strategies and strict enforcement of current regulations that have proven effective.
- Reduce and, where possible, eliminate repetitive damage, loss of life and property from disasters.

- Raise community awareness about potential hazards and the need for community preparedness.

## **Mitigation Goals, Objectives and Strategy Organization**

Emergency Managers succeed and fail by how well they follow the following fundamental principles of emergency management: mitigation, preparedness, response and recovery. Our emergency management forefathers purposefully put mitigation first as a means to prevent or minimize the effects of disasters.

Mitigation forms, or should form, the very foundation of every emergency management agency. The prevention of disasters in communities, as well as emergency management agencies that adopt mitigation practices in an effort to reduce, minimize or eliminate hazards in their community, have found the vision for the future of emergency management. The Federal Disaster Mitigation Act of 2000 has set the benchmark and outlines the criteria for communities with the vision to implement hazard mitigation practices in their communities.

Gwinnett County and its cities and townships realize the benefits of developing and implementing mitigation plans and strategies in the county. Gwinnett County elected officials, public safety organizations, planners and many others have proven that by working together towards the development and implementation of this plan, they have the vision to implement mitigation practices, thereby reducing the loss of life and property in their communities.

## **Plan Implementation**

The Gwinnett County HMSC process is overseen by the Gwinnett County Office of Emergency Management. The HMP will be submitted to the Georgia Emergency Management Agency (GEMA) and then to the Federal Emergency Management Agency (FEMA) for approval. The Gwinnett County Board of Commissioners and all cities will formally adopt the plan by resolution, in accordance with the Federal Disaster Mitigation Act of 2000.

Each jurisdiction participating in this HMP is responsible for implementing specific mitigation actions through their individual jurisdiction mitigation action plans, located in Section 6, and as prescribed in the mitigation strategies. In each mitigation strategy, every proposed action is assigned to a specific local department and/or agency in order to assign responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual jurisdictions to update their unique mitigation strategy as needed and without altering the broader focus of the countywide HMP. The separate adoption of locally specific actions also ensures that each jurisdiction is not held responsible for monitoring and implementing the actions of other jurisdictions involved in the planning process.

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In addition to the assignment of a local lead department or agency, an implementation time period or a specific implementation date has been assigned in order to assess whether actions are being implemented in a timely fashion. As necessary, Gwinnett County and its participating jurisdictions will seek outside funding sources to implement mitigation projects in both the pre-disaster and post-disaster environments. When applicable, potential funding sources have been identified for proposed actions listed in the mitigation strategies.

## 1.1 Hazard Mitigation

**Disaster Mitigation Act of 2000:** To support the expanded role of emergency management, Congress passed the Disaster Mitigation Act of 2000 (DMA2K), commonly known as the Stafford Act. Section 322, an amendment to the Act, deals with the development of local HMPs. DMA2K was signed into law on October 30, 2000 (Public Law 106-390). The Interim Final Rule for planning provisions (44 CFR Part 201) was published in the Federal Register in February 2002, and again in October 2002. Local hazard mitigation planning requirements are implemented in 44 CFR Part 201.6. The purpose of DMA2K is to amend the Stafford Act to establish a national program for pre-disaster mitigation, streamline administration of disaster relief, and control federal costs of disaster assistance. Congress envisioned that implementation of these new requirements would result in the following key benefits:

- Reduction of loss of life and property, human suffering, economic disruption and disaster costs
- Prioritization of hazard mitigation planning at the local level, with an increased emphasis placed on planning and public involvement, assessing risks, implementing loss reduction measures, and ensuring critical services/facilities survive a disaster
- Establishment of economic incentives, awareness and education to state, tribal and local governments that result in forming community-based partnerships, implementing effective hazard mitigation measures, leveraging additional non-federal resources, and establishing commitments to long-term hazard mitigation efforts

The DMA2K legislation requires all local, county and tribal governments to develop an HMP for their respective communities in order to be eligible to receive Hazard Mitigation Grant Program (HMGP) funds. Each community's HMP must be submitted to, and approved by, their respective state and FEMA. DMA2K requires that each plan must, at minimum, address or include the following general items:

- Plan adoption by all jurisdictions
- Planning process including public involvement
- Hazard identification and risk assessment
- Mitigation strategy
- Plan implementation and maintenance procedures
- Any specific state requirements

## Section 1

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**Hazard Mitigation Grant Program:** In 1988, Congress established the Hazard Mitigation Grant Program (HMGP) by enactment of Section 404 of the Stafford Act. In 2002, regulations pertaining to the HMGP to reflect the DMA2K of 2000 were changed by 44 CFR Part 206, Subpart N. An Interim Final Rule was issued in October 2002, wherein the final compliance date was set to November 1, 2004. The HMGP assists states and local communities to implement long-term hazard mitigation measures by providing federal funding after a major disaster declaration. Eligible applicants include state and local agencies, tribal organizations and certain non-profit organizations. Examples of typical HMGP projects include the following:

- Property acquisition and relocation projects
- Structural retrofitting to minimize damages from high winds, earthquake, flood, wildfire or other natural hazards
- Elevation of flood-prone structures
- Vegetative management programs

**Pre-Disaster Mitigation Program:** The Pre-Disaster Mitigation Program (PDM) was authorized by Section 203 of the 2000 Stafford Act, 42 USC (Public Law 106-390). Funding for the program is provided through the National Pre-Disaster Mitigation Fund to assist state, local and tribal governments in implementing cost-effective hazard mitigation activities that complement a comprehensive mitigation program. The following two types of grants are offered under the PDM Program:

- Planning Grants – Allocated funds to be used for HMP development.
- Competitive Grants – Distributed funds using a competitive application process wherein all state, local and tribal governments interested in obtaining grant funds can submit applications to be reviewed and ranked by FEMA using pre-determined criteria.

The minimum eligibility requirements for jurisdictions receiving competitive PDM funds include the following:

- Participation in the National Flood Insurance Program (NFIP)
- Must not be suspended or on probation from the NFIP
- Must have a FEMA-approved HMP

**Flood Mitigation Assistance Program:** The Flood Mitigation Assistance Program (FMA) was created as part of the National Flood Insurance Reform Act (NFIRA) of 1994 (42 U.S.C. 4101) with the goal of reducing or eliminating claims under the NFIP. Funding for the program is provided through the National Flood Insurance Fund. FMA provides funding to assist states and communities in implementing measures to:

- Reduce the number of repetitively or substantially damaged structures and the associated claims on the National Flood Insurance Fund.
- Encourage long-term, comprehensive mitigation planning.

- Respond to the needs of communities participating in the NFIP to expand their mitigation activities beyond floodplain development review and permitting.
- Complement other federal, state and local mitigation programs with similar long-term mitigation goals.

The following three types of grants are available under FMA:

- FMA Planning Grants are available to states and communities to prepare Flood Mitigation Plans. NFIP-participating communities with approved Flood Mitigation Plans can apply for FMA Project Grants.
- FMA Project Grants are available to states and NFIP participating communities to implement measures to reduce flood losses.
- Technical Assistance Grants are a part of Project Grants. Up to 10 percent of the Project Grants funding is made available to the states for technical assistance. These funds may be used by the state to help administer the program.

The NFIRA stipulates that to be eligible to receive an FMA grant, a community must have a FEMA-approved mitigation plan and must be participating in the NFIP. Examples of eligible FMA projects include the following:

- Acquisition of NFIP-insured structures and underlying real property.
- Demolition of NFIP-insured structures on acquired or restricted real property.
- Minor physical flood mitigation projects that do not duplicate flood-prevention activities of other federal agencies, lessen the frequency or severity of flooding, and decrease predicted flood damages in local flood areas. These include modification of existing culverts and bridges, installation or modification of floodgates, stabilization of stream banks, and creation of small debris or flood/storm water retention basins. Construction or improvement of major structural flood-control structures such as dikes, levees, dams, seawalls, groins and jetties, and projects consisting of channel widening or stream alignment are not eligible, as indicated in Section 1366.
- Other activities that bring an NFIP-insured structure into compliance with the authorized statutory floodplain management requirements of 44 CFR Part 60.3.
- Relocation of NFIP-insured structures from acquired or restricted real property to sites not prone to flood hazards.
- Elevation of NFIP-insured residential structures, and elevation or dry flood proofing of NFIP-insured non-residential structures, in accordance with 44 CFR Part 60.3.

## 1.2 Incorporating Mitigation into Existing Planning Mechanisms

It will be the responsibility of each participating jurisdiction to determine additional implementation procedures when appropriate. This includes integrating the

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requirements of the HMP into other local planning documents, processes or mechanisms such as the following:

- Comprehensive Plans
- Strategic Plans
- Capital Improvement Plans
- Growth Management Plans
- Ordinances, Resolutions and Regulations
- Continuity of Operations Plans

Opportunities to integrate the requirements of this HMP into other local planning mechanisms will continue to be identified through future meetings of the HMSC and through the five-year review process.

The primary means for integrating mitigation strategies into other local planning mechanisms will be through the revision, update and implementation of each jurisdiction's individual action plans that require specific planning and administrative tasks (e.g., plan amendments, ordinance revisions, and capital improvement projects).

The members of the HMSC will remain charged with ensuring that the goals and strategies of new and updated local planning documents for their jurisdictions and/or agencies are consistent with the goals and actions of the HMP, and will not contribute to increased hazard vulnerability in Gwinnett County or its participating municipalities.

During the planning process for new and updated local planning documents—such as a comprehensive plan, capital improvements plan or emergency management plan—Gwinnett County will provide a copy of the HMP to the appropriate parties and recommend that all goals and strategies of new and updated local planning documents be consistent with, and support the goals of, the HMP and will not contribute to increased hazards in the affected jurisdiction(s).

Although it is recognized that there are many possible benefits to integrating components of this plan into other local planning mechanisms, the development and maintenance of this stand-alone HMP is deemed by the Gwinnett County HMSC to be the most effective and appropriate method to ensure implementation of local hazard mitigation actions at this time.

### 1.3 Mitigation Planning Process

Local hazard mitigation planning is a process of organizing community resources, identifying and assessing hazard risks, and determining how to minimize or manage those risks. This process results in an HMP that identifies specific mitigation actions, each designed to achieve both short-term objectives and a long-term community vision. To ensure the functionality of mitigation actions, responsibility is assigned to a specific agency, department or individual, along with a schedule for implementation. Plan maintenance procedures are established to monitor implementation progress and

the evaluation and enhancement of plan. These plan maintenance procedures ensure that Gwinnett County's HMP remains a current, dynamic and effective planning document over time and offers the following benefits:

- Saving lives and property
- Saving money
- Facilitating recovery following disasters
- Reducing future vulnerability through wise development and post-disaster recovery and reconstruction
- Expediting the receipt of pre- and post-disaster grant funding
- Demonstrating a commitment to improve community health and safety

Typically, mitigation planning has the potential to produce long-term and recurring benefits by breaking the repetitive cycle of disaster loss. A core assumption of hazard mitigation is that pre-disaster investments will significantly reduce the demand for post-disaster assistance by lessening the need for emergency response, repair, recovery and reconstruction. Mitigation practices will enable residents, businesses and industries to recover in the wake of a disaster to ensure the community economy is re-established quicker and with less interruption.

The benefits of mitigation planning go beyond reducing hazard vulnerability. Measures such as land acquisition or regulation in known hazard areas can help achieve community goals, such as preserving open space, maintaining environmental health and enhancing recreational opportunities. It is vitally important that mitigation planning be integrated with other planning efforts, and that mitigation strategies are congruent with other community goals or initiatives.

In preparing this HMP, Gwinnett County utilized a multi-jurisdictional planning process consistent with the one recommended by FEMA (Publication Series 386). A local mitigation plan crosswalk, found in Appendix D, provides a summary of FEMA's current minimum standards of acceptability for compliance with the Disaster Mitigation Act of 2000 and notes the location where each requirement is met within the plan. These standards are based upon FEMA's Interim Final Rule, as published in the Federal Register on February 26, 2002, in Part 201 of the Code of Federal Regulations (CFR).

Gwinnett County, like many counties in Georgia, has numerous cities. All cities were notified in April 2009 of the requirement concerning the HMP and process. The Cities of Auburn, Berkeley Lake, Buford, Dacula, Duluth, Grayson, Lawrenceville, Lilburn, Norcross, Snellville, Sugar Hill and Suwanee; the Town of Braselton; and Gwinnett County all have a documented commitment to the planning process and have been active participants throughout the planning update process. Area universities and colleges, including Georgia Gwinnett College and Gwinnett Technical College were also invited to participate in the update process. These entities declined the opportunity to participate, but will be provided with copies of the final draft plan to provide comments and input to the HMSC. The HMSC and Gwinnett County participated in the general session meeting on April 2, 2009, at the Gwinnett County

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Police Headquarters, and have worked collectively over the past months to gather data that included known hazards, flood prone areas, areas of vulnerability, existing mitigation plans and projects, and technical information for the plan. Meetings with each jurisdiction were conducted the week of May 4-7, 2009 at the East Metro Health District Office. The data was forwarded to the HMSC for review and incorporation into the plan. Subsequent meetings have been held in an effort to ensure that all information is correct, and that all agencies, organizations and the public's input were included as presented. Resolutions documenting each jurisdiction's support for the HMP are included in this plan. In all, the plan update process was conducted over the course of ten months, from March to December of 2009. Listed below is a chronology of meetings and events conducted during that timeframe.

**Table 1-1  
Calendar of Events**

| Date              | Task                                                                                        |
|-------------------|---------------------------------------------------------------------------------------------|
| March 18, 2009    | Letter requesting support for the plan to all interested parties                            |
| April 2, 2009     | Kickoff meeting with the HMSC to begin mitigation process                                   |
| May 4-7, 2009     | Individual jurisdictional meetings to discuss mitigation action plans for each jurisdiction |
| May 6, 2009       | Public Meeting #1 at Gwinnett County Justice Center Meeting Room                            |
| June 1, 2009      | Meeting with county staff to identify hazards for risk assessment                           |
| June 15, 2009     | Meeting with county staff to discuss risk and vulnerabilities assessment                    |
| June 15, 2009     | Public Meeting #2 at Gwinnett County Justice Center Meeting Room                            |
| July 14, 2009     | Draft risk assessment and meeting with HMSC to discuss risk assessment                      |
| July 27, 2009     | Meeting with county staff and HMSC to discuss mitigation strategies                         |
| July 27, 2009     | Public Meeting #3 at Gwinnett County Justice Center Meeting Room                            |
| August 28, 2009   | Final draft risk assessment sent to HMSC for final review                                   |
| September 4, 2009 | Draft mitigation strategies and draft HMP sent to HMSC for review                           |
| October 27, 2009  | Final HMSC Draft HMP Review Meeting                                                         |
| December 2009     | Draft HMP and FEMA crosswalk sent to GEMA for state review                                  |
| February 2010     | Revisions received from GEMA and revisions completed                                        |
| March 2010        | Submit to FEMA                                                                              |
| April 2010        | Anticipate approval by FEMA by January 2010                                                 |
| May 2010          | Formal adoption by County and all municipalities                                            |

| Date     | Task                |
|----------|---------------------|
| May 2010 | Plan implementation |

Throughout the planning update process, the HMSC reviewed and analyzed each section of the plan. Table 1-2 documents and summarizes how each section was updated and revised by the HMSC.

**Table 1-2  
Summaries of Plan Updates and Revisions**

| Section                                    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Section 1, Introduction                    | Revised to reflect the planning update process, including revisions to the plan and multi-jurisdictional participation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Section 2, Planning Area Profile           | The HMSC updated this section by researching available historical records incorporating the County’s background and history of establishment. The HMSC also analyzed topographical data, recent census data, as well as environmental and geological data in order to display the County’s overall composition and provide a basis for later sections of the plan to identify hazards and assess risks.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Section 3, Hazard Vulnerability Assessment | <p>The HMSC conducted a hazard vulnerability assessment for the county beginning with hazard identification. Hazard identification procedures completed by the HMSC include:</p> <ul style="list-style-type: none"> <li>▪ Reviews of the State Hazard Mitigation Plan, local and regional hazard report and plans, flood ordinances, and land use regulations.</li> <li>▪ Discussions with experts from Federal, State, and local agencies.</li> <li>▪ Reviews of collected data from past events and declared disasters.</li> <li>▪ Searching the internet and newspapers for hazard data and statistics.</li> <li>▪ Discussions with long time residents and historical society representatives regarding past events.</li> </ul> <p>The HMSC profiled the identified hazards by assessing the locations or geographical areas that may be affected by each hazard. The HMSC also analyzed and documented the extent of each hazard including the potential magnitude and severity, as well as the probability of occurrence.</p> <p>In order to estimate potential losses, the Gwinnett County Tax Assessor’s Office was asked by the HMSC to provide the monetary values of common structure types within the County (residential, commercial, industrial, agricultural/conservation, and historic) and</p> |

## Section 1

| Section                                                           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                   | <p>to calculate loss in intervals of 75 percent, 50 percent and 25 percent.</p> <p>Gwinnett County Planning and Development were also asked by the HMSC to review land use and development trends, authorities and ordinances for inclusion in the plan.</p> <p>The HMSC also compiled a list of critical facilities by category, determined their total square footage, and calculated total structural values to determine overall risk.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <p>Section 4, Community Capability Assessment</p>                 | <p>The HMSC examined legal documents, authorities, ordinances and plans to determine the overall capability of Gwinnett County in terms of local government and how it affects the ability to conduct mitigation-related activities. The HMSC collaborated with the Tax Assessor's Office, Planning and Development, and County Commissioners to collect and analyze data related to the National Flood Insurance Program (NFIP) and the Community Rating System (CRS), stormwater management, floodway regulations, and the like.</p> <p>The HMSC also coordinated with all County departments, including Gwinnett County Public Schools, to assess their institutional and fiscal capabilities. The County Commissioners also provided data showcasing the County's overall fiscal and political capabilities.</p>                                                                                                                                                                                                         |
| <p>Section 5, Mitigation Strategies</p>                           | <p>To update the County's mitigation strategies, the HMSC conducted a workshop focused entirely on reviewing and updating the goals, objectives and actions outlined in the original publication of this plan. Each strategy was assessed on its current relevance, status (completed, deleted or deferred), cost and timeframe. The HMSC also addressed the following criteria questions in updating the mitigation strategies:</p> <ul style="list-style-type: none"> <li>▪ Do the goals and objectives identified in the previously approved plan reflect the updated risk assessment?</li> <li>▪ Did the goals and objectives identified in the previously approved plan lead to mitigation projects and/or changes in policy that helped the jurisdiction(s) to reduce vulnerability?</li> <li>▪ Do the goals and objectives identified in the previously approved plan support any changes in mitigation priorities?</li> <li>▪ Are goals identified in the updated plan reflective of current State goals?</li> </ul> |
| <p>Section 6, Individual Jurisdiction Mitigation Action Plans</p> | <p>This section was developed to give each jurisdiction participating in the planning update process the opportunity to take an in-depth look at their own capabilities and characteristics as they relate to mitigation and reducing the impact of disasters to their</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| Section | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | <p>communities. Each jurisdiction was responsible for collecting census data and municipal records related to economics, demographics, and legal and regulatory capabilities. Jurisdictions were also asked to assess their critical infrastructure and values, land usage trends, and administrative and technical capabilities. This data was compiled and presented to the HMSC. The HMSC then collaborated with each jurisdiction to review their capabilities and needs, and developed mitigation strategies unique to each jurisdiction in an effort to reduce vulnerabilities.</p> |

To be an effective plan, input from the public is vital. The HMSC recognizes the valuable contribution that the public can provide to the contents and accuracy of this plan. As required, the HMSC conducted three public meetings in an effort to allow the public to provide comments on the plan. Minimal feedback was received from the public at large during these meetings therefore, the final draft plan is also posted on the County’s website ([www.gwinnettcounty.com](http://www.gwinnettcounty.com)) in an effort to solicit additional public input. The HMSC conducted a final review workshop to review the final Draft HMP before submittal to GEMA and FEMA.

Meeting minutes documenting public and multi-jurisdictional involvement is provided in Appendix B. It is important to note that the Town of Braselton and the City of Auburn elected not to participate in the original development of this plan in 2004. Since that time, the Town of Braselton and the City of Auburn have been active participants in the planning update process and largely contributed to the development of this updated plan. Table 1-3 illustrates each jurisdiction’s level of participation and specific activities that each contributed to throughout the plan update process.

**Table 1-3  
Multi-Jurisdictional Participation**

| Jurisdiction          | Task                                                                                                              |                                                                                                    |                                                                         |
|-----------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
|                       | One-on-One Jurisdictional Interviews (focused on hazard identification, event history, and mitigation strategies) | Conference Calls (follow up on collected information and ensure accuracy of mitigation strategies) | Electronic final draft review and provision of comments and suggestions |
| City of Auburn        |                                                                                                                   | <b>X</b>                                                                                           | <b>X</b>                                                                |
| City of Berkeley Lake | <b>X</b>                                                                                                          |                                                                                                    | <b>X</b>                                                                |
| City of Buford        | <b>X</b>                                                                                                          | <b>X</b>                                                                                           | <b>X</b>                                                                |
| City of Dacula        | <b>X</b>                                                                                                          | <b>X</b>                                                                                           | <b>X</b>                                                                |

## Section 1

| Jurisdiction          | Task |   |   |
|-----------------------|------|---|---|
| City of Duluth        | X    | X | X |
| City of Grayson       | X    | X | X |
| City of Lawrenceville | X    | X | X |
| City of Lilburn       | X    | X | X |
| City of Norcross      | X    |   | X |
| City of Snellville    | X    | X | X |
| City of Sugar Hill    | X    | X | X |
| City of Suwanee       | X    | X | X |
| Town of Braselton     | X    |   | X |

Gwinnett County Emergency Management is responsible for coordinating the HMSC, as well as coordinating and monitoring the plan update process. The HSMC has selected the following activities to guide their plan maintenance strategy. Table 1-4 lists these activities and the timeframe associated with each one.

**Table 1-4  
Plan Maintenance Strategy**

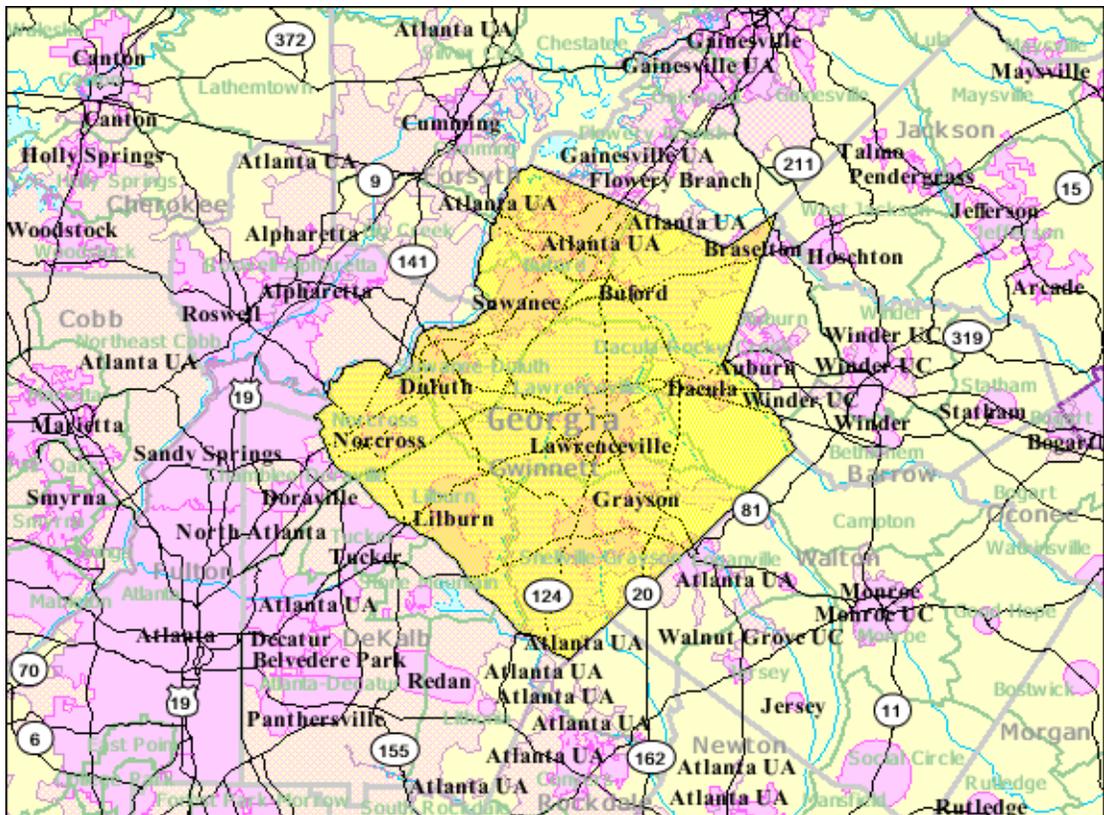
| Activity                                                                                                                                                                 | Timeframe                                                                     | Responsible Department(s)                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| HMSC meetings                                                                                                                                                            | Biannual (January and July)                                                   | Gwinnett County Emergency Management; HMSC Participants                               |
| Plan review and update (including but not limited to new hazard identification, additions/revisions to the risk assessment, and status updates to mitigation strategies) | Annually (to coincide with the annual Emergency Operations Plan (EOP) update) | Gwinnett County Emergency Management; HMSC Participants                               |
| Mitigation strategy status update meetings for participating municipalities                                                                                              | Annually (to coincide with the annual EOP update)                             | Gwinnett County Emergency Management; HMSC Participants; Participating Municipalities |
| Submit the updated plan to GEMA/FEMA for review and approval                                                                                                             | Every five years                                                              | Gwinnett County Emergency Management                                                  |

# Section 2 PLANNING AREA PROFILE

## 2.1 History

Gwinnett County is located in the northeastern part of the State of Georgia and was created on December 15, 1818 by the state legislature. The County is named after Button Gwinnett, the Georgia representative in signing the United States Declaration of Independence. The county is part of the Atlanta Metropolitan Area containing many suburbs of the City of Atlanta, located approximately 30 miles north of the city. In fact, Gwinnett County makes up approximately 14 percent of the total Atlanta region population and is responsible for 26 percent of the region’s growth since 2000. Over the past 20 years the county has been one of the fastest growing counties in America (based on population). The county seat is Lawrenceville.

Figure 1 – Map of Gwinnett County



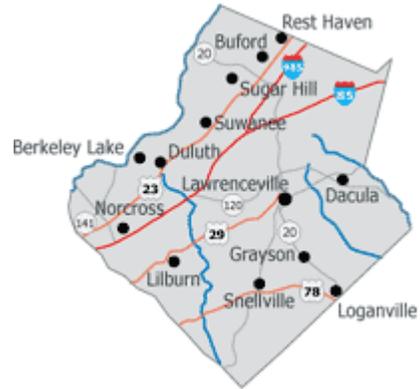
## 2.2 Topography

According to the U.S. Census Bureau, Gwinnett County has a total area of 433 square miles of land and four square miles of water. Adjacent counties include Forsyth, Hall,

## Section 2

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Jackson, Barrow, Walton, DeKalb, Rockdale and Fulton, all of which are also located in Georgia. The county includes part of the Chattahoochee River National Recreation Area, which is a National Protected Area.

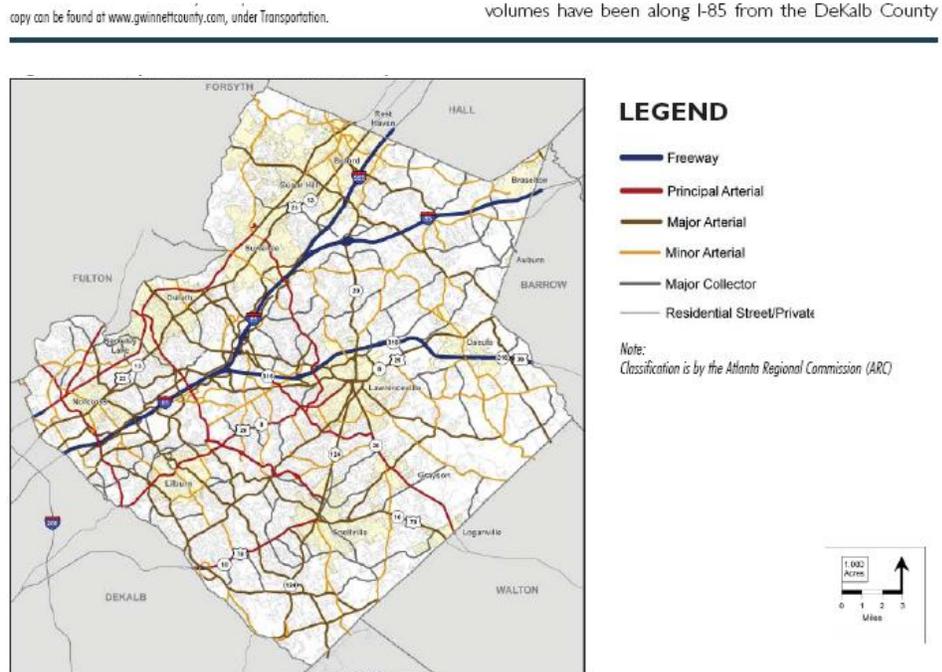


Cities located within the county include the following:

- City of Auburn
- City of Berkeley Lake
- City of Buford
- City of Centerville (unincorporated)
- City of Dacula
- City of Duluth
- City of Five Forks (unincorporated)
- City of Grayson
- City of Harbins (unincorporated)
- City of Hog Mountain (unincorporated)
- City of Lawrenceville
- City of Lenora (unincorporated)
- City of Lilburn
- City of Mountain Park (unincorporated)
- City of Norcross
- City of Peachtree Corners (unincorporated)
- City of Rosebud (unincorporated)
- City of Snellville
- City of Sugar Hill

- City of Suwanee
- Town of Braselton

**Figure 2 – Major Roads in Gwinnett County**



Major highways intersecting the county include the following:

- Interstate 85
- Interstate 985
- U.S. Routes – 23, 29, 78
- State Routes – 8, 10, 13, 20, 84, 120, 124, 140, 141, 264, 316, 317, 324, 347, 365, 378,
- 403, 419

Secondary highways intersecting the county include the following:

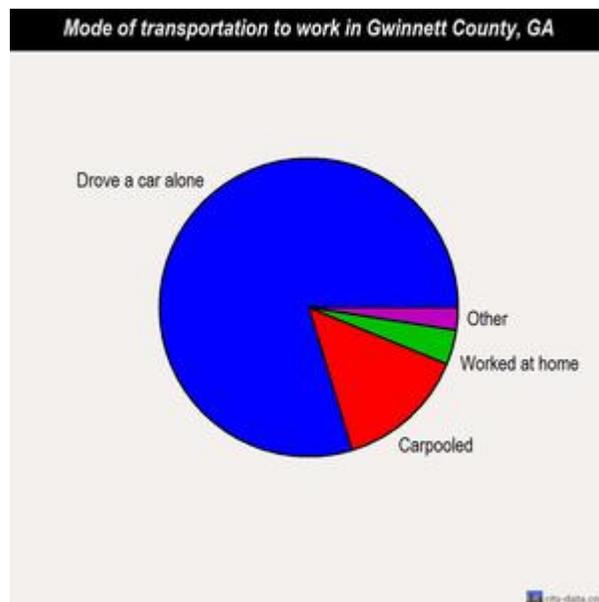
- Arcado Road
- Beaver Ruin Road (S.R. 378)
- Bethany Church Road (S.R. 264)
- Braselton Highway (S.R. 124)
- Buford Drive (S.R. 20)

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- Buford Highway (U.S. 23/S.R. 13)
- Duluth Highway (S.R. 120)
- Indian Trail-Lilburn Road
- Jimmy Carter Boulevard
- Jones Mill Road
- Lawrenceville Highway (U.S. 29/S.R. 8)
- Pleasantdale Road
- Pleasant Hill Road
- Ronald Reagan Parkway
- Scenic Highway (S.R. 124)
- Singleton Road
- Steve Reynolds Boulevard
- Stone Mountain Freeway (U.S. 78/S.R. 10)
- Sugarloaf Parkway
- University Parkway (U.S. 29/S.R. 316)

**Figure 3 – Modes of Transportation to Work in Gwinnett County**



Means of transportation to work:

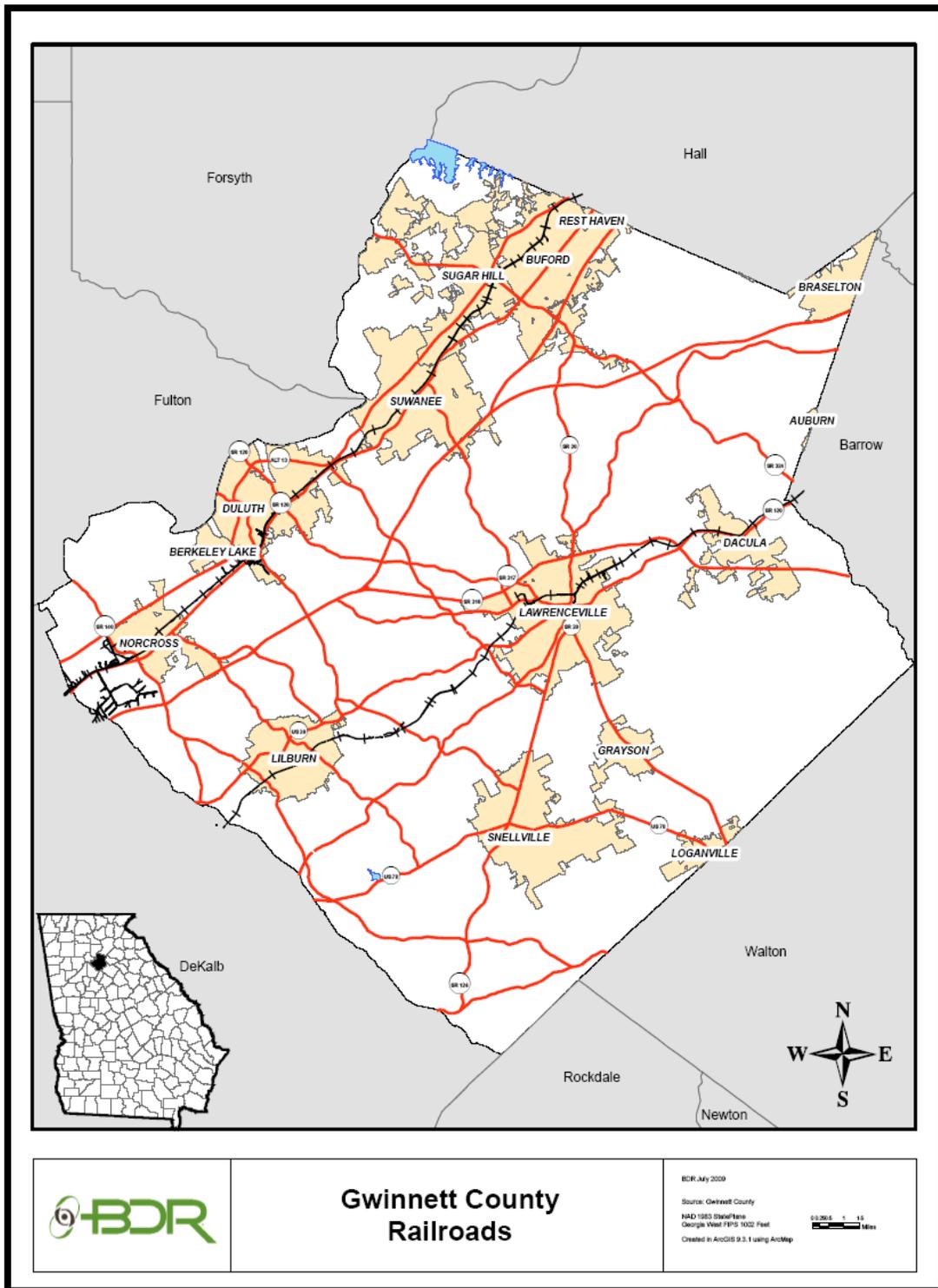
- Drove a car alone: 246,884 (80 percent)
- Carpooled: 43,689 (14 percent)

- Bus or trolley bus: 610 (0 percent)
- Streetcar or trolley car: 88 (0 percent)
- Subway or elevated: 1,383 (0 percent)
- Railroad: 103 (0 percent)
- Ferryboat: 14 (0 percent)
- Taxi: 434 (0 percent)
- Motorcycle: 247 (0 percent)
- Bicycle: 162 (0 percent)
- Walked: 2,494 (1 percent)
- Other means: 1,985 (1 percent)
- Worked at home: 11,704 (4 percent)

Three active railway systems pass through Gwinnett County. The Norfolk Southern, the Georgia Northeastern, and CSX pass through the Cities of Berkeley Lake, Buford, Dacula, Duluth, Lawrenceville, Lilburn, Sugar Hill and Suwanee.

Section 2

Figure 4 – Gwinnett County Railroad System



Travel by air is primarily serviced by the Atlanta Hartsfield-Jackson International Airport, which is located approximately 45 miles south of Gwinnett County in Atlanta, GA.

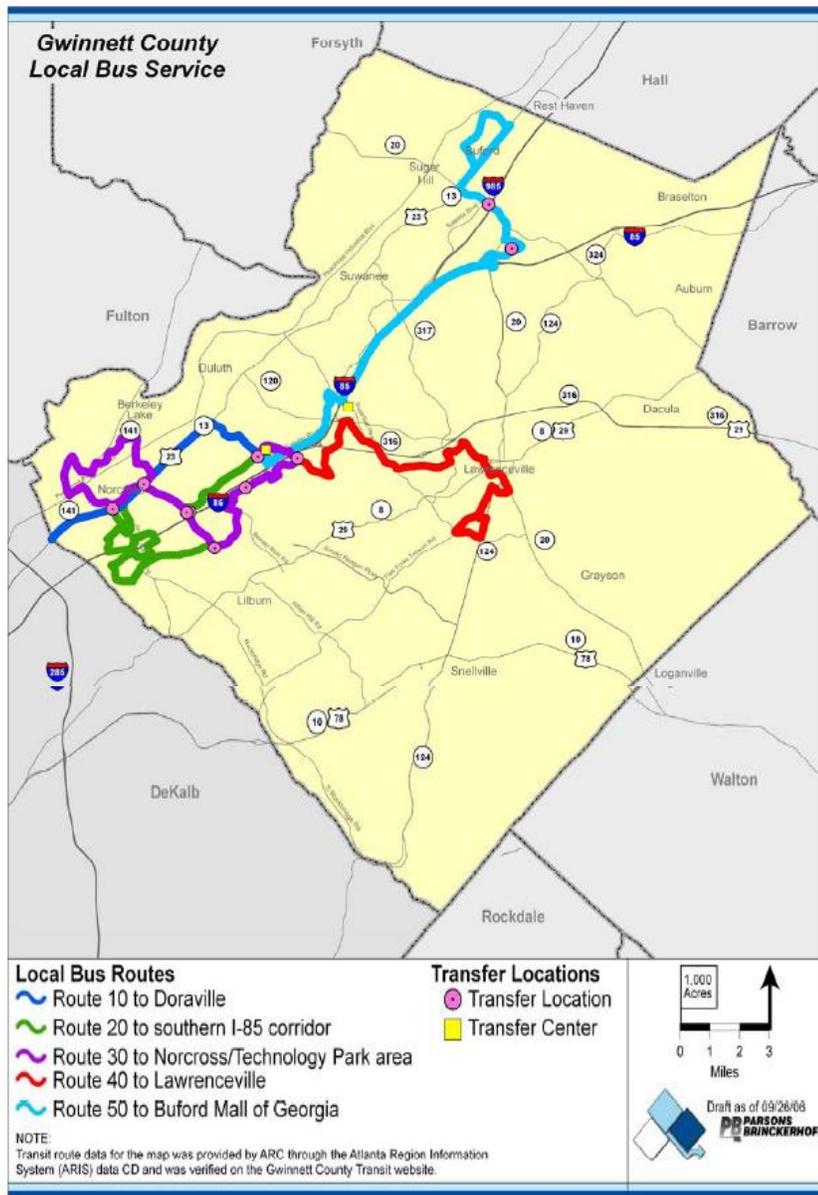
The county has an airport called the Gwinnett County Briscoe Field. The airport is near Lawrenceville, accessible by GA Route 316. Gwinnett County Airport is located on approximately 500 acres just one mile northeast of the city of Lawrenceville. Briscoe Field is surrounded by industrial areas to the south and west, the Gwinnett Progress Center to the north, and the Alcovy River to the east. The airport consists of a single 6,021-foot-long by 100-foot-wide runway capable of handling all light general aviation and most corporate jet aircraft in operation today. Gwinnett County Airport is governed by a five member board called the Airport Authority.

The County operates its own public transportation called Gwinnett County Transit. There are also four park and ride locations located within the county. Gwinnett County Transit was formed in 2000 to provide express, local and paratransit services for the people of Gwinnett County. Express bus service operates Monday through Friday and includes six routes using the high-occupancy vehicle lanes on I-85. Park and ride lots at I-985, Discover Mills and Indian Trail have been built or upgraded to provide free and convenient parking for bus riders. Local bus service operates five routes, Monday through Saturday, connecting neighborhoods and businesses to Gwinnett County's many cultural, shopping and educational opportunities. Paratransit service for qualifying persons with disabilities operates in conjunction with the local bus service.

The express bus service provides downtown Atlanta and Gwinnett County employers with a viable transportation alternative. The buses provide first-class service each weekday for commuters traveling between three park and ride lots in Gwinnett County and downtown Atlanta. In addition, three routes from the MARTA Five Points station in downtown Atlanta serve employers located near Gwinnett Place Mall, Mall of Georgia, Discover Mills and other major employment locations in the I-85 corridor. New local bus service was implemented in late 2002. These local routes serve the major employment and activity centers in the County, with schedules designed to serve commuters, shoppers and more.

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Figure 5 – Gwinnett County Local Bus Service



## **2.3 Climate**

Gwinnett County gets 49.63 inches of rain per year; the U.S. average is 37. Snowfall for the county is one inch per year, while the average U.S. city gets 25 inches of snow annually. The number of days with any measurable precipitation is 105. On average, there are 217 sunny days per year in Gwinnett County. The July high is around 88 degrees. The January low is 29. The comfort index, which is based on humidity during the hot months, is a 35 out of 100, where higher is more comfortable. The U.S. average on the comfort index is 44.

Gwinnett County has an average high temperature of 71 degrees and an average low of 48 degrees. The annual precipitation is 49.63 inches.

## **2.4 Water Resources**

The county includes part of the Chattahoochee River National Recreation Area, which is a National Protected Area. Protection of water resources in Gwinnett County is of the utmost importance and beneficial for the entire County. To protect these valuable resources, Gwinnett County has a Water and Sewerage Authority that was established in 1970 by law. The Authority consists of five members who are residents of Gwinnett County and are appointed by the Board of Commissioners. The Authority appoints a chairman, vice-chairman, secretary and treasurer from its members.

Park of Lake Sidney Lanier is located in Gwinnett County. Lake Lanier was created in the 1950s when the U.S. Army Corps of Engineers built Buford Dam to provide flood control, power generation and recreation. It is the primary source of water for Gwinnett County. The lake has 692 miles of shoreline and is 26 miles long, covering almost 47 miles of the original riverbed. At the dam, the lake is more than 200 feet deep.

## **2.5 Soils**

The soils in Gwinnett County consist of well drained sandy clay loams with moderate infiltration rates. Gwinnett County is in a region of moderate- to high-grade metamorphic rocks, such as schists, amphibolites, gneisses and migmatites, and igneous rocks like granite. Overlying the bedrock is a variable zone of sand, silt and clay that has resulted from the partial to complete chemical weathering of the bedrock. The unconsolidated sediment in this zone, referred to as saprolite, largely retains the physical structure of its parent bedrock. Near the top of the saprolitic zone the material gradually grades into soil. Gwinnett County soils consist of kaolinite and halloysite (1:1 aluminosilicate clay minerals) and of iron oxides. They result from the intense weathering of feldspar-rich igneous and metamorphic rocks. This intense weathering dissolves or alters nearly all minerals, and leaves behind a residue of aluminum-bearing clays and iron-bearing iron oxides because of the low solubility of aluminum and iron at earth-surface conditions. Those iron oxides give the red color to

## Section 2

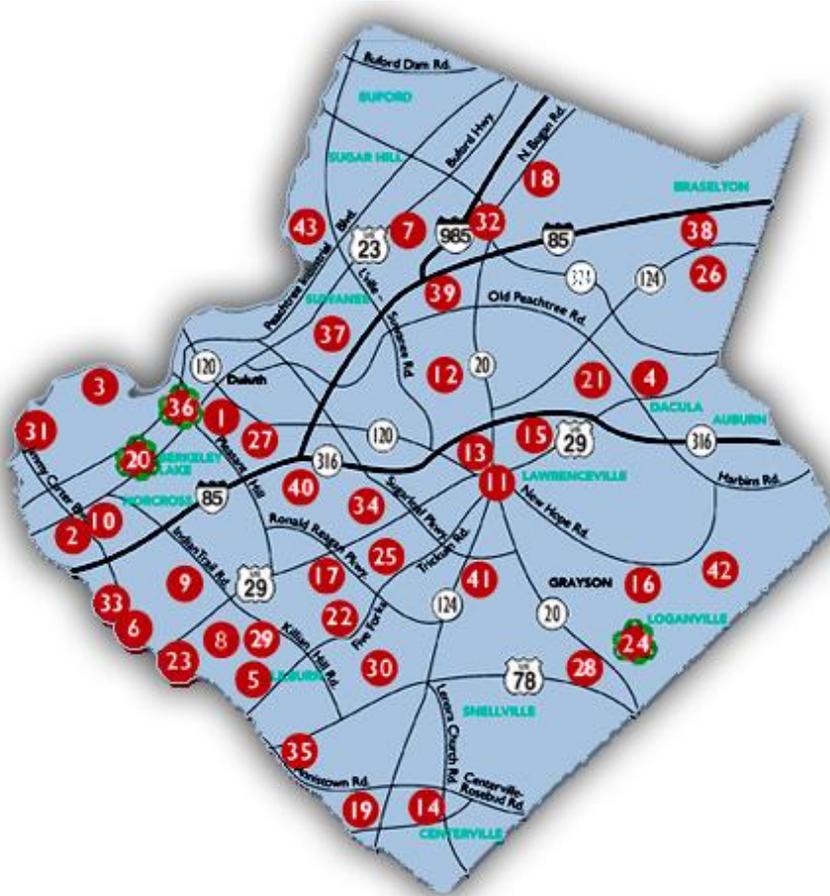
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the clay-rich soil, yielding the red clay that has come to be almost synonymous with Gwinnett County and the State of Georgia.

## 2.6 Natural Resources

Gwinnett County is filled with natural resources and recreational opportunities for the public. There is a parks system that is owned and operated by the County.

Figure 6 – Gwinnett County's Park Locations



*Note: Numbers next to park name signify location on map.*

- Alexander Park (41)
- Bay Creek Park (24)
- Best Friend Park (2)
- Bethesda Park (17)
- Bogan Park (18)

- Cemetery Field (10)
- Club Drive Park (40)
- Collins Hill Aquatic Center (12)
- Collins Hill Park (12)
- Dacula Park (4)
- DeShong Park (35)
- Duncan Creek Park (38)
- George Pierce Park (7)
- Graves Park (33)
- Gwinnett Environmental and Heritage Center (32)
- Gwinnett Historic Courthouse (13)
- Harbins Park (42)
- Harmony Grove Soccer Complex (8)
- Holcomb Bridge Park (31)
- Jones Bridge Park (3)
- Lawrenceville Female Seminary (11)
- Lenora Park (14)
- Lions Club Park (29)
- Little Mulberry Park (26)
- Lucky Shoals Park (6)
- McDaniel Farm Park (27)
- Mountain Park Aquatic Center (23)
- Mountain Park (5)
- Peachtree Ridge Park (37)
- Pinckneyville Park Community Recreation Center(20)
- Pinckneyville Park (20)
- Pinckneyville Soccer Complex (20)
- Rabbit Hill Park (21)
- Rhodes Jordan Park (15)
- Rock Springs Park (39)
- Ronald Reagan Park (25)

## Section 2

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- Settles Bridge Park (43)
- Shorty Howell Park (1)
- Singleton Road Activity Building (9)
- South Gwinnett Park (30)
- Sweet Water Park (34)
- Tribble Mill Park (16)
- Vines Gardens (28)
- West Gwinnett Park & Aquatic Center (36)
- Yellow River Park (19)
- Yellow River Post Office (22)

## 2.7 Demographic Profile

Table 2-1  
Demographic Quick Facts

| Demographic Quick Facts                                   | Gwinnett County | Georgia   |
|-----------------------------------------------------------|-----------------|-----------|
| Population, 2008 estimate                                 | 789,499         | 9,685,744 |
| Population, percent change, April 1, 2000 to July 1, 2008 | 34.2%           | 18.3%     |
| Population, 2000                                          | 588,450         | 8,186,812 |
| Persons under 5 years old, percent, 2008                  | 8.8%            | 7.6%      |
| Persons under 18 years old, percent, 2008                 | 29.1%           | 26.3%     |
| Persons 65 years old and over, percent, 2008              | 6.4%            | 10.1%     |
| Female persons, percent, 2008                             | 49.6%           | 50.8%     |
| Caucasian, percent, 2008 (a)                              | 66.5%           | 65.4%     |
| African American persons, percent, 2008 (a)               | 21.6%           | 30.0%     |
| American Indian and Alaska Native persons, percent, 2008  | 0.6%            | 0.4%      |
| Asian persons, percent, 2008 (a)                          | 9.4%            | 2.9%      |
| Native Hawaiian and Other Pacific Islander, percent, 2008 | 0.1%            | 0.1%      |

## PLANNING AREA PROFILE

| Demographic Quick Facts                                           | Gwinnett County | Georgia   |
|-------------------------------------------------------------------|-----------------|-----------|
| Persons reporting two or more races, percent, 2008                | 0.9%            | 1.5%      |
| Persons of Hispanic or Latino origin, percent, 2008 (b)           | 1.8%            | 1.3%      |
| Caucasian, not of Hispanic/Latino origin, percent, 2008           | 50.3%           | 58.1%     |
| Living in same house in 1995 and 2000, percent, age 5+            | 41.7%           | 49.2%     |
| Foreign born persons, percent, 2000                               | 16.9%           | 7.1%      |
| Language other than English spoken at home, percent, age 5+, 2000 | 21.2%           | 9.9%      |
| High school graduates, percent of persons age 25+, 2000           | 87.3%           | 78.6%     |
| Bachelor's degree or higher, percent of persons age 25+, 2000     | 34.1%           | 24.3%     |
| Persons with a disability, age 5+, 2000                           | 76,467          | 1,456,812 |
| Mean travel time to work (minutes), workers age 16+, 2000         | 32.2            | 27.7      |
| Housing units, 2007                                               | 283,669         | 3,961,474 |
| Homeownership rate, 2000                                          | 72.4%           | 67.5%     |
| Housing units in multi-unit structures, percent, 2000             | 22.4%           | 20.8%     |
| Median value of owner-occupied housing units, 2000                | \$142,100       | \$111,200 |
| Households, 2000                                                  | 202,317         | 3,006,369 |
| Persons per household, 2000                                       | 2.88            | 2.65      |
| Median household income, 2007                                     | \$64,005        | \$49,080  |
| Per capita money income, 1999                                     | \$25,066        | \$21,154  |
| Persons below poverty, percent, 2007                              | 22.4%           | 20.8%     |

## Section 2

**Table 2-2  
Business Quick Facts**

| Business Quick Facts                                                  | Gwinnett County | Georgia                   |
|-----------------------------------------------------------------------|-----------------|---------------------------|
| Private nonfarm establishments, 2006                                  | 21,858          | 225,996                   |
| Private nonfarm employment, 2006                                      | 318,376         | 3,623,210 <sup>1</sup>    |
| Private nonfarm employment, percent change, 2000-2006                 | 10.8%           | 4.0% <sup>1</sup>         |
| Nonemployer establishments, 2006                                      | 70,136          | 690,191                   |
| Total number of firms, 2002                                           | 64,615          | 674,521                   |
| Black-owned firms, percent, 2002                                      | 9.2%            | 13.4%                     |
| American Indian and Alaska Native owned firms, percent, 2002          | 0.7%            | 0.7%                      |
| Asian-owned firms, percent, 2002                                      | 11.0%           | 4.0%                      |
| Native Hawaiian and Other Pacific Islander owned firms, percent, 2002 | 0%              | 0%                        |
| Hispanic-owned firms, percent, 2002                                   | 6.8%            | 2.7%                      |
| Women-owned firms, percent, 2002                                      | 28.0%           | 29.1%                     |
| Manufacturers' shipments, 2002 (\$1000)                               | \$4,646,717     | \$126,156,636             |
| Wholesale trade sales, 2002 (\$1000)                                  | \$36,028,796    | \$201,091,020             |
| Retail sales, 2002 (\$1000)                                           | \$9,767,435     | \$90,098,598              |
| Retail sales per capita, 2002                                         | \$15,054        | \$10,551                  |
| Accommodation and food services sales, 2002 (\$1000)                  | \$938,765       | \$12,740,423              |
| Building permits, 2008                                                | 1,959           | 35,368                    |
| Federal spending, 2007 (\$1000)                                       | \$2,237,545     | \$71,078,990 <sup>1</sup> |

**Table 2-3  
Geography Quick Facts**

| Geography Quick Facts                                | Gwinnett County                               | Georgia   |
|------------------------------------------------------|-----------------------------------------------|-----------|
| Land area, 2000 (square miles)                       | 432.73                                        | 57,906.14 |
| Persons per square mile, 2000                        | 1,359                                         | 141.4     |
| Metropolitan Area                                    | Atlanta-Sandy Springs-Marietta, GA Metro Area |           |
| Federal Information Processing Standards (FIPS) Code | 135                                           | 13        |

*I: Includes data not distributed by county.*

*A: Includes persons reporting only one race.*

*B: Hispanics may be of any race, so also are included in applicable race categories.*

*F: Fewer than 100 firms.*

*S: Suppressed; does not meet publication standards.*

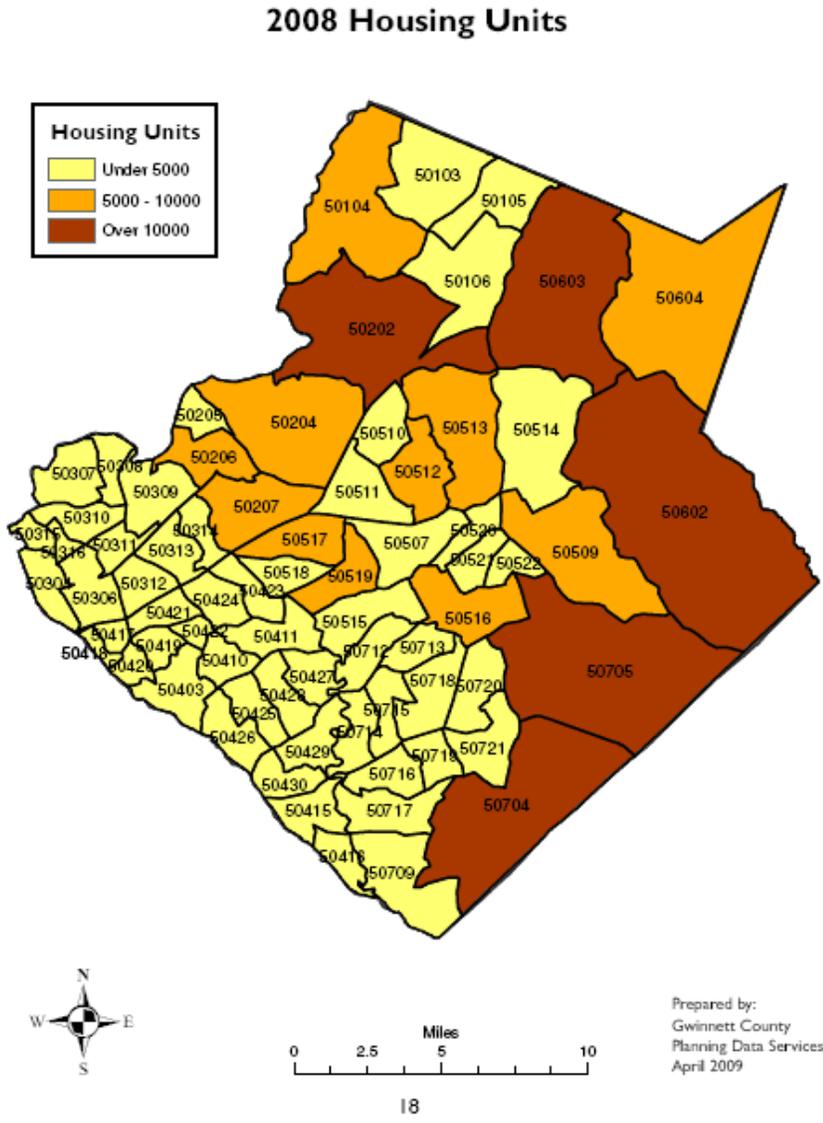
According to the Gwinnett County 2030 Unified Plan, Gwinnett County’s growth in population is expected to slow somewhat over the next 25 years as its supply of land is developed.

## 2.8 Residential Development

### 2.8.1 General Housing Characteristics

According to the Gwinnett County 2030 Unified Plan, low-density residential is the dominant single land use in Gwinnett County, with more than one-third of the county’s total acreage. Large-lot estate residential properties are another 11 percent of the county. A large proportion of Gwinnett County land is still undeveloped or is in active agriculture. A more in-depth look at housing and trends and challenges can be found in the Gwinnett County 2030 Unified Plan.

Figure 7 – 2008 Housing Units



## PLANNING AREA PROFILE

**Table 2-4**  
**Existing Land Uses by Acres and Percentage of Total**

| Land Use                                     | Acres            | Percentage    |
|----------------------------------------------|------------------|---------------|
| <b>Residential</b>                           |                  |               |
| Low Density Residential                      | 91,286.1         | 35.0%         |
| Medium Density Residential                   | 8,475.1          | 3.3%          |
| High Density Residential                     | 4,211.3          | 1.6%          |
| <b>Commercial/Office</b>                     |                  |               |
| Commercial/Retail                            | 8,650.6          | 3.3%          |
| Office/Professional                          | 2,807.6          | 1.1%          |
| <b>Industrial</b>                            |                  |               |
| Light Industrial                             | 9,279.4          | 3.6%          |
| Heavy Industrial                             | 3,817.3          | 1.5%          |
| <b>Mixed Use</b>                             |                  |               |
| Mixed Use                                    | 1,196.5          | 0.5%          |
| <b>Supportive Infrastructure</b>             |                  |               |
| Institutional/Public                         | 10,387.0         | 4.0%          |
| Transportation/Communications                | 3,730.0          | 1.4%          |
| Right of Way                                 | 679.1            | 0.3%          |
| Park (Public)                                | 10,495.9         | 4.0%          |
| Recreation/Conservation/<br>Non-Public Parks | 20,681.5         | 7.9%          |
| Water                                        | 376.6            | 0.1%          |
| Unlabeled                                    | 26.6             | 0.0%          |
| <b>Low Intensity Land Uses</b>               |                  |               |
| Undeveloped                                  | 44,802.0         | 17.2%         |
| Agriculture                                  | 9,057.7          | 3.5%          |
| Estates                                      | 30,775.1         | 11.8%         |
| <b>Total</b>                                 | <b>260,735.4</b> | <b>100.0%</b> |

| Indicator                                                                     | 2000    | 2008    | Net Change | Percent Change |
|-------------------------------------------------------------------------------|---------|---------|------------|----------------|
| Population                                                                    | 588,448 | 752,800 | 164,352    | 27.9           |
| Households                                                                    | 202,317 | 262,974 | 60,657     | 29.9           |
| Housing Units                                                                 | 209,682 | 284,698 | 75,016     | 35.8           |
| Single-family                                                                 | 161,896 | 220,452 | 58,556     | 36.2           |
| Multifamily                                                                   | 42,766  | 59,426  | 16,660     | 38.9           |
| Mobile Homes                                                                  | 5,020   | 4,820   | -200       | -3.9           |
| Source: Atlanta Regional Commission, Gwinnett County Planning and Development |         |         |            |                |

### 2.9 Commercial Development

According to the Gwinnett County 2030 Unified Plan, due to commercial development, employment in Gwinnett County has expanded as fast as the population. According to the Georgia Department of Labor figures, Gwinnett went from 129,209 jobs in 1989 to 282,229 in 2000, with an increase to 325,070 by 2006. During that time, Gwinnett County went from one major shopping mall to three, and major distribution warehouses lined the Interstate 85 and Highway 316 corridors. Warehousing and distribution remain one of Gwinnett's most distinctive land uses along the major highways. Gwinnett County serves as the distribution center for goods across the southeastern U.S., mostly distributed by truck along the interstate highway.

To encourage economic growth and development, the County government established an office for economic development in 2006. At the same, the Gwinnett Chamber of Commerce established a Partnership Gwinnett initiative, which established a specific goal of 65,000 new high-wage jobs over the next five years.

American Megatrends is headquartered in an unincorporated area of Gwinnett County near the city of Norcross.

Waffle House is headquartered in an unincorporated area of Gwinnett County near the city of Norcross.

In 2008 the county reported that 27 percent of the businesses in the county are minority-owned.

The county is also home to a number of professional and semi-professional athletic teams. The teams include the Gwinnett Gladiators, Gwinnett Braves and the Atlanta Vision.

Major employers in the county include the following:

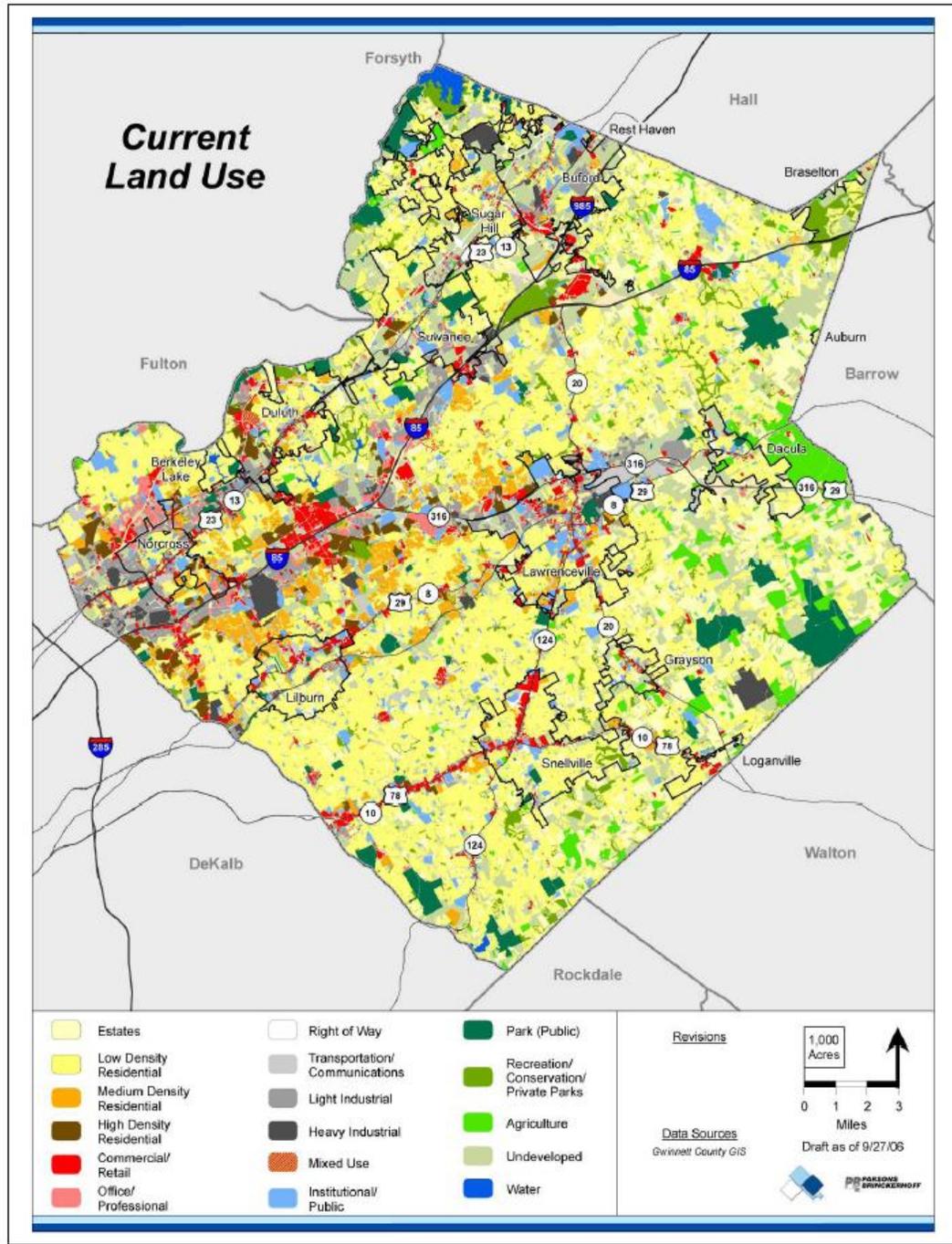
- Gwinnett County Public Schools – 19,378
- Gwinnett County Government – 4,797
- Gwinnett Health Care System – 4,500
- Wal-Mart – 3,990
- Publix – 3,318
- U.S. Postal Service – 2,613
- State of Georgia – 2,114
- Kroger – 2,042
- Primerica Financial Services – 1,858
- Scientific-Atlanta – 1,680
- The Home Depot – 1,191

■ Waffle House – 1,103

(Source: Gwinnett County Forecasting and Research Division, January 2008)

Figure 8 – Current Land Use

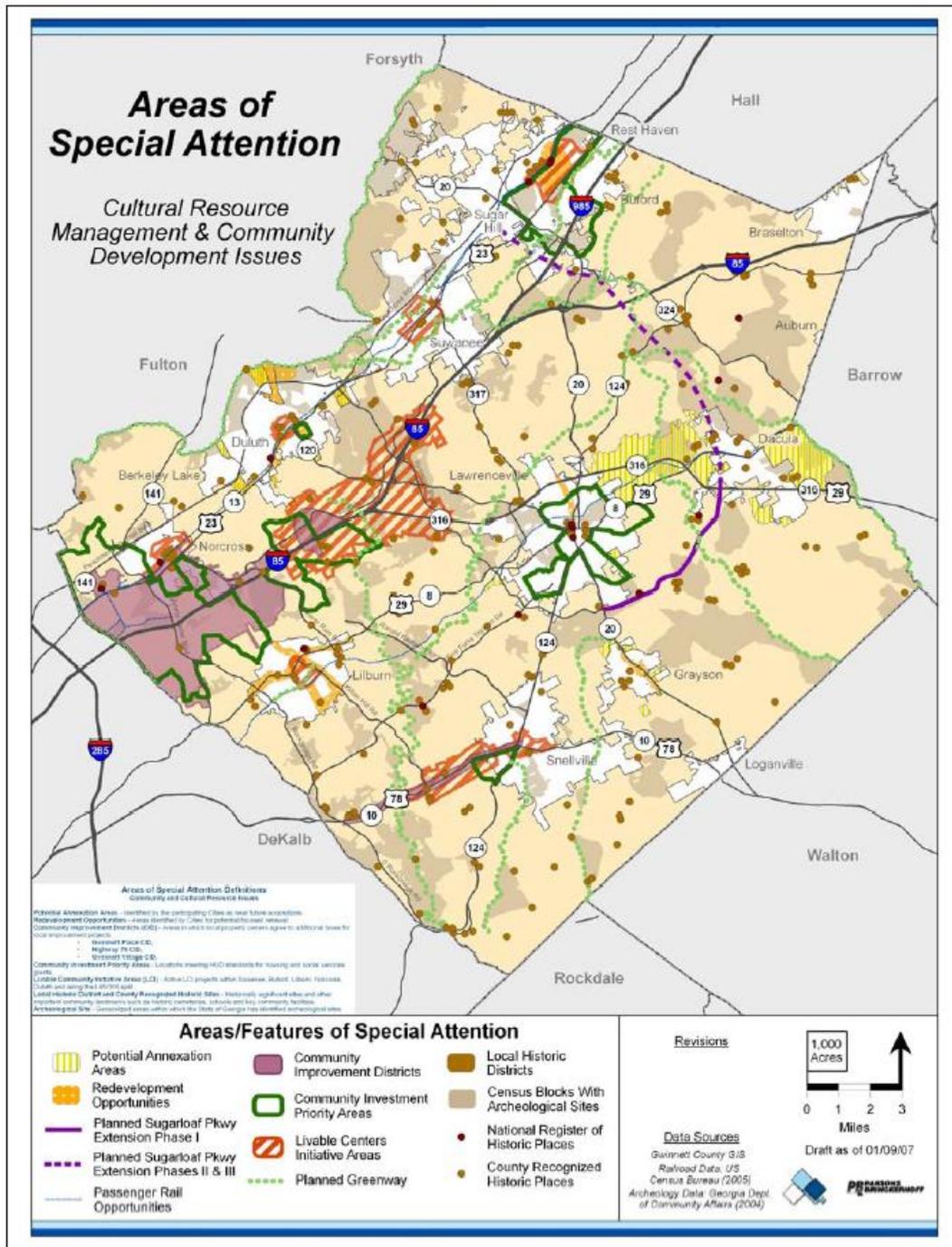
Joint County-Cities Community Assessment  
January 2007



## Section 2

### Figure 9 – Areas of Special Attention

Joint County-Cities Community Assessment  
January 2007



## 2.10 County Government

### 2.10.1 Government Administration

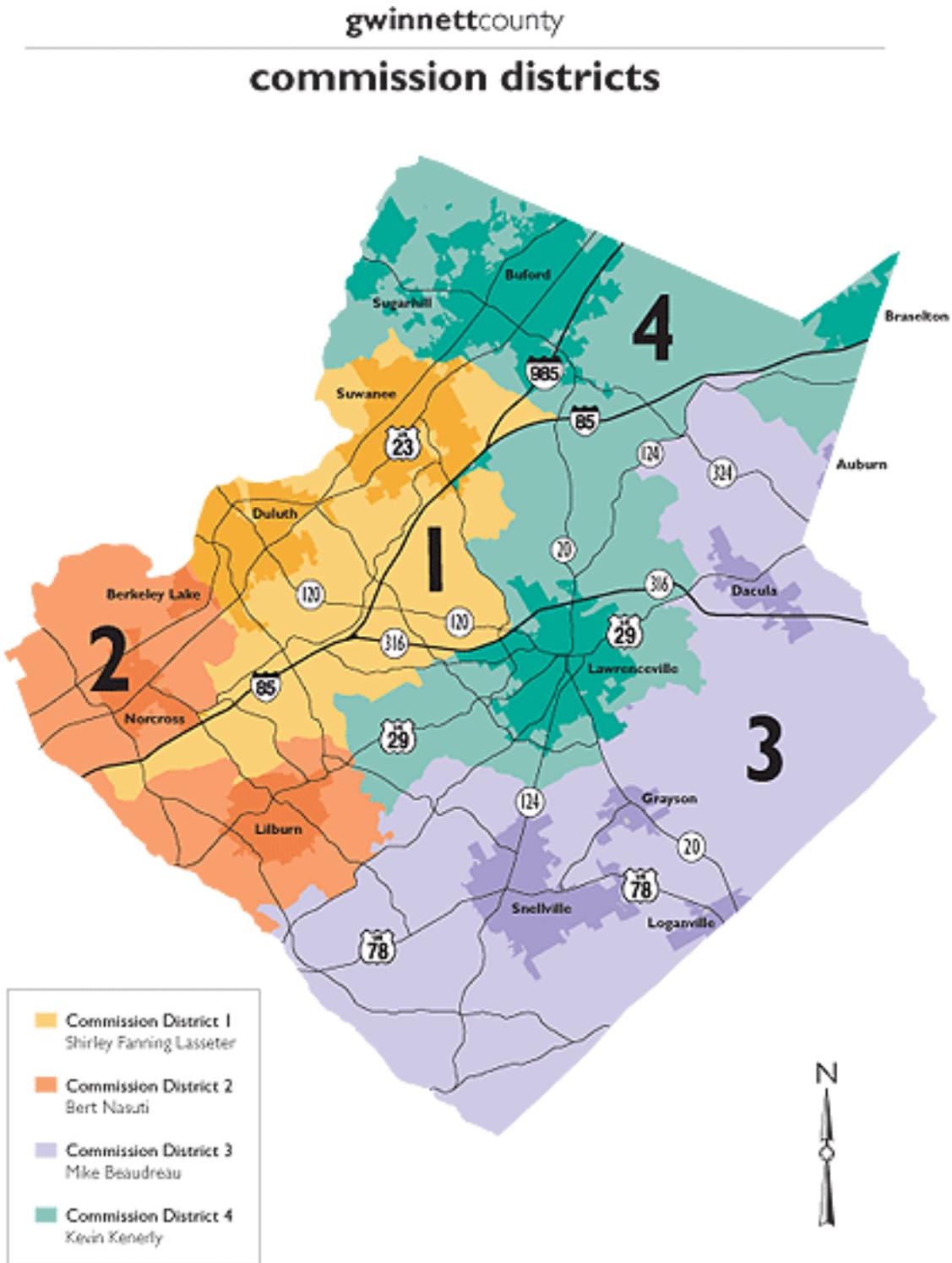
Gwinnett County government provides high quality essential services for Gwinnett residents and as many other services as tax revenues allow; spends and accounts for tax dollars in a responsible manner; responds to needs and concerns of the citizens; and conducts business in an open and professional manner without favoritism.

The Board sets direction and formulates policies for the county government, adopts the budget, authorizes expenditures, and approves or disapproves specific actions, such as rezoning of private property.

Voters in each of the four districts elect a part-time District Commissioner. The full-time Commission Chairman is elected countywide. Terms last for four years but are staggered so the chairman and two commissioners are elected during one election cycle, and the other two commissioners are elected two years later.

The Board holds official business meetings the first and third Tuesdays of each month at 2:00 p.m. On those days, the Board conducts work sessions at 10:00 a.m. The Board also holds a public hearing to consider zoning requests on the fourth Tuesday of each month at 7:00 p.m. These meetings are held in the auditorium of the Gwinnett Justice and Administration Center. On many Tuesdays, the Board conducts informal discussions with county departments and community groups. These meetings are held in the conference room of the Board of Commissioners suite. Informal discussions as well as official meetings are always open to the public.

Figure 10 – Commission Districts



## 2.10.2 Law Enforcement

The Gwinnett County Sheriff's Department is a multi-faceted law enforcement organization charged with numerous constitutional and legal responsibilities. The department is headed by the Sheriff, an elected constitutional officer. The Sheriff's Department is responsible for the following:

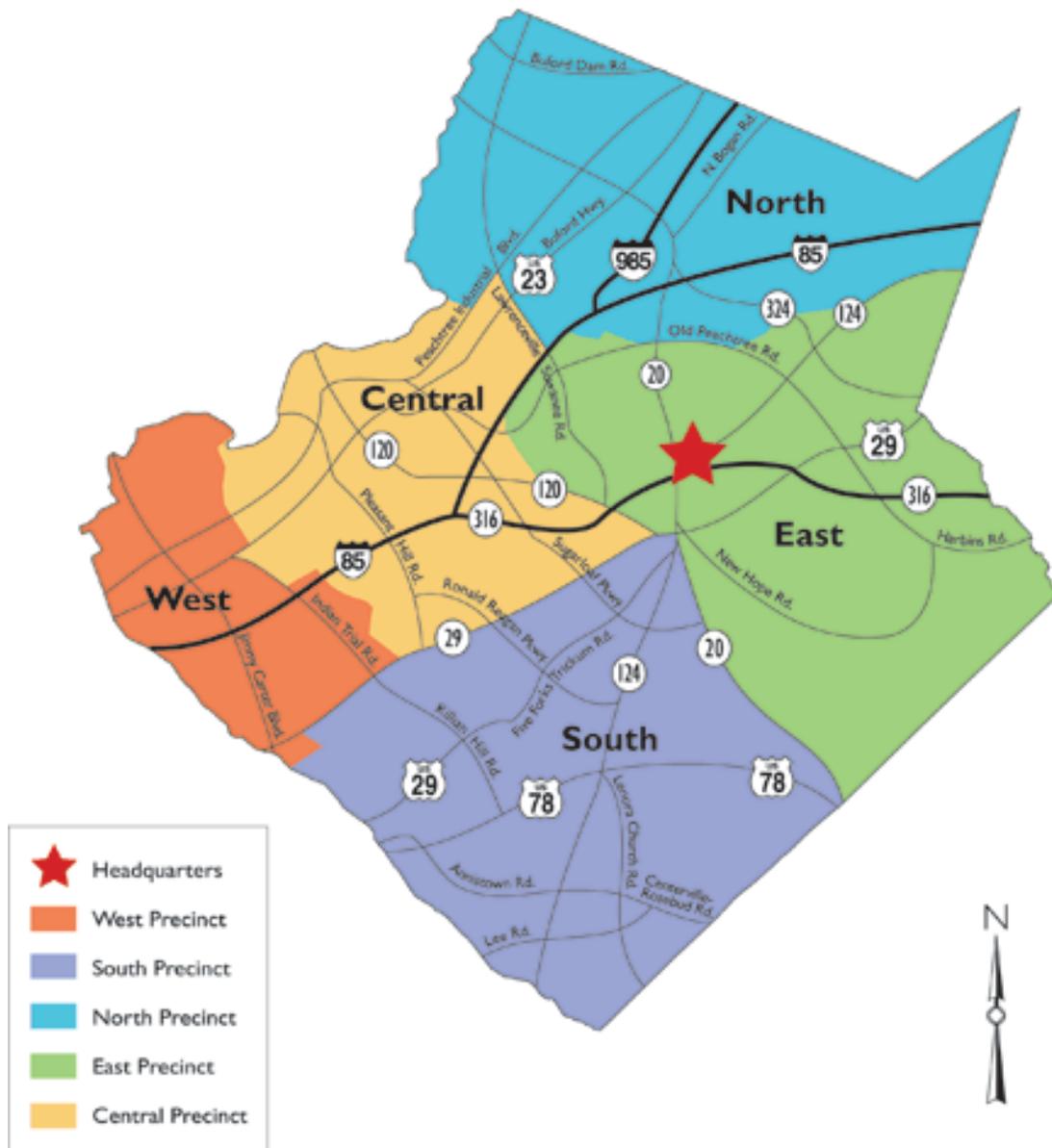
- Operation of the detention facility.
- Service of arrest warrants.
- Service of civil papers.
- Service of Family Violence orders.
- Provide court security to all state and county courts in Gwinnett County
- Provide security for the Gwinnett Justice and Administration Center, which is visited by more than a million citizens each year, as well as the Juvenile/Recorder's Court building

The Gwinnett County Police Department is a nationally accredited and rapidly growing police agency located in the northeastern quadrant of the Atlanta Metropolitan area. The department currently has an authorized strength of 729 sworn officers, supported by 313 civilian employees with the responsibility of providing law enforcement services to over 700,000 residents within an area of 436 square miles. The department is organized into the following five divisions: Administrative Services, Criminal Investigations, Uniform, Support Operations, and Training. The department is divided into five precincts.

Figure 11 – Police Precincts

gwinnettcounty

police precincts

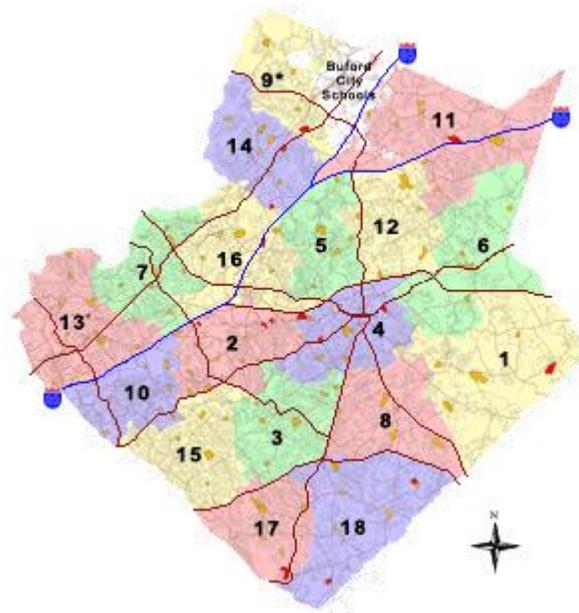




### 2.10.4 Education

Gwinnett County Public Schools (GCPS), located in the metro Atlanta area, is the largest school system in Georgia. The school district continues to grow, welcoming approximately 1,600 new students for the 2008-09 school year. One of every five Gwinnett County residents is a GCPS student. GCPS and its 123 schools and other educational facilities serve more than 158,000 students. Attendance zones are determined by geographical clusters, called clusters. Within each cluster, there are three to six elementary schools, one or two middle schools, and one high school. There are 72 elementary schools, 24 middle schools, and 17 high schools. A listing of the schools can be found in Section 4 of this HMP.

**Figure 13 – Locations for the Gwinnett County Public Schools**



1. Archer Schools
2. Berkmar Schools
3. Brookwood Schools
4. Central Gwinnett Schools
5. Collins Hill Schools
6. Dacula Schools
7. Duluth Schools
8. Grayson Schools
9. North Gwinnett Schools
10. Meadowcreek Schools
11. Mill Creek Schools

- 12. Mountain View Schools
- 13. Norcross Schools
- 14. North Gwinnett Schools
- 15. Parkview Schools
- 16. Peachtree Ridge Schools
- 17. Shiloh Schools
- 18. South Gwinnett Schools

**2.10.5 Hospitals**

Emory Eastside Medical Center is a 231-bed, acute care medical center, located in Snellville. The medical staff totals over 400 physicians and the hospital employs 1,500 clinical and support staff.

Gwinnett Medical Center (GMC) is a not-for-profit healthcare network providing award-winning healthcare services to the Gwinnett community and beyond. In 2008, GMC’s 4,300 associates and 800 physicians served more than 400,000 patients. Campuses in both Duluth and Lawrenceville provide acute care, outpatient services, orthopedic and neuroscience specialty care, as well as a full continuum of wellness services. Digital imaging is the standard of care at all GMC facilities, including the newest imaging center in north Gwinnett’s Hamilton Mill area. The Lawrenceville campus has also opened a new, state-of-the art, eight-story patient tower.

**2.10.6 Religious Facilities**

A little under half (42.37 percent) of the population of Gwinnett County consider themselves religious, meaning they affiliate with a religion. The below table contains a breakdown of religious affiliation within the county as compared to the U.S. as a whole.

**Table 2-5  
Religious Facilities**

| Religion          | Gwinnett County | United States |
|-------------------|-----------------|---------------|
| Percent Religious | 42.37%          | 50.03%        |
| Protestant        | 29.72%          | 19.12%        |
| Baptist           | 16.00%          | 8.16%         |
| Catholic          | 8.02%           | 21.92%        |
| Methodist         | 7.43%           | 3.84%         |
| Other Christian   | 2.54%           | 4.66%         |

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|                  |       |       |
|------------------|-------|-------|
| Presbyterian     | 2.28% | 1.33% |
| Pentecostal      | 2.26% | 1.89% |
| Lutheran         | 1.20% | 2.81% |
| Latter Day Saint | 1.06% | 1.57% |
| Jewish           | 0.85% | 2.16% |
| Episcopalian     | 0.55% | 8.12% |
| Islam            | 0.12% | 0.54% |
| Eastern          | 0.06% | 0.05% |

## Section 3

# HAZARD VULNERABILITY ASSESSMENT

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The Gwinnett County Hazard Mitigation Steering Committee (HMSC) initially identified all natural and human hazards that could potentially affect Gwinnett County. This list was then narrowed to only the hazards that are most likely to impact the county. As a result of the pre-disaster mitigation planning process, the HMSC determined that thirteen human and natural hazards pose a direct, measurable threat to Gwinnett County. Lightning, severe thunderstorms/windstorms, winter storms, tropical storms/hurricanes, drought, tornadoes and earthquakes are all potential threats to the entire community. Flooding on the other hand, is isolated to select areas of the county that are within the flood plain and/or hazard area. Each of these potential hazards is addressed individually with relevant supporting data. Dam/Levee failures, Cyber Crime, Hazardous Material Spills (transportation and fixed facilities), Pandemic/Epidemic Events, and Terrorism are hazards identified in the human caused (technological) hazards.

In this section, the past hazards of Gwinnett County are recorded and analyzed. This information is identified by using both primary and secondary research materials which will include but is not limited to reports from local, state, and national agencies, as well as, media accounts, state and local weather records, and conversations with key personnel and residents in Gwinnett County. This analysis will include the possible severity and magnitude, as well as, the potential impact of damage within each governing jurisdiction from future hazards.

To drive the risk assessment effort, two distinct methodologies were applied. The first methodology consists of utilizing HAZUS@MH (GIS based loss estimation software available from the Federal Emergency Management Agency) as well as GIS-based approach independent of the HAZUS@MH software. The quantitative assessment focuses on potential loss estimates, while the qualitative assessment is comprised of a scoring system built around value assigned by the HMSC to the likelihood of occurrence, consequence of impact and potential impact of each hazard studied here.

It is important to note the determinations presented in this section with regard to vulnerability were developed using the best available data, and the methodologies applied have resulted in an approximation of risk. These estimates should be used to understand relative risk from hazards and potential losses that may be incurred; however, uncertainties are inherent in any loss estimation methodology, arising in part from incomplete scientific knowledge concerning natural hazards and their effects on the built environment and also from approximations and simplifications that are necessary in order to provide a comprehensive analysis.

**Table 3-1  
Hazard Index Ranking**

| Hazard Index Ranking      |                       |                      |                      |                      |
|---------------------------|-----------------------|----------------------|----------------------|----------------------|
| Impact →                  | Catastrophic          | Critical             | Limited              | Negligible           |
| Frequency of Occurrence ↓ |                       |                      |                      |                      |
| Highly Likely             | 5<br><i>(Highest)</i> | 4<br><i>(High)</i>   | 4<br><i>(High)</i>   | 3<br><i>(Medium)</i> |
| Likely                    | 5<br><i>(Highest)</i> | 4<br><i>(High)</i>   | 3<br><i>(Medium)</i> | 2<br><i>(Low)</i>    |
| Possible                  | 4<br><i>(High)</i>    | 3<br><i>(Medium)</i> | 2<br><i>(Low)</i>    | 2<br><i>(Low)</i>    |
| Unlikely                  | 3<br><i>(Medium)</i>  | 2<br><i>(Low)</i>    | 1<br><i>(Lowest)</i> | 1<br><i>(Lowest)</i> |
| Highly Unlikely           | 2<br><i>(Low)</i>     | 1<br><i>(Lowest)</i> | 1<br><i>(Lowest)</i> | 1<br><i>(Lowest)</i> |

Hazard Index Scale: 1-5, with 5 indicating the highest priority for considering mitigation measures (Highest, High, Medium, Low, and Lowest). Source: FEMA, 1997

**Table 3-2  
Frequency of Occurrence**

| Frequency of Occurrence |                                                                                                       |
|-------------------------|-------------------------------------------------------------------------------------------------------|
| <i>Highly Likely</i>    | Near 100 percent probability in the next year.                                                        |
| <i>Likely</i>           | Between 10 and 100 percent probability in the next year, or at least one chance in the next 10 years. |
| <i>Possible</i>         | Between 1 and 10 percent probability in the next year or at least one chance in the next 100 years.   |
| <i>Unlikely</i>         | Less than 1 percent probability in the next year or less than one chance in the next 100 years.       |
| <i>Highly Unlikely</i>  | Little to no probability in next 100 years.                                                           |

Source: FEMA

**Table 3-3  
Consequences of Impact**

| Consequences of Impact |                                                                                                                                                                          |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Catastrophic</i>    | Multiple deaths, complete shutdown of facilities for 30 days or more, more than 50 percent of property is severely damaged.                                              |
| <i>Critical</i>        | Multiple severe injuries, complete shutdown of critical facilities for at least 2 weeks, more than 25 percent of property is severely damaged.                           |
| <i>Limited</i>         | Some injuries, complete shutdown of critical facilities for more than one week, more than 10 percent of property severely damaged.                                       |
| <i>Negligible</i>      | Minor injuries, minimal quality-of-life impact, shutdown of critical facilities and services for 24 hours or less, less than 10 percent of property is severely damaged. |

Source: FEMA

In addition to the identification and ranking of each hazard, this section used the information identified in the community profile section of this plan and compared it to the hazards identified to determine the areas vulnerability to each hazard. This assessment provides detailed information on the number of structures and the potential population that could be affected by each hazard.

Based upon the qualitative approach defined in detail under methodologies used, the risk from human and natural hazards in Gwinnett County were weighted by the HMSC and criteria was used to assign values to the likelihood of occurrence, and potential impact of each hazard. These values combined to form a total rating for each hazard (Tables 3-1, 3-2, and 3-3).

**Table 3-4  
Hazard Identification and Likelihood of Occurrence**

| Hazard                          | Likelihood    | Potential Impact | Hazard Rating |
|---------------------------------|---------------|------------------|---------------|
| Severe Thunderstorms/Windstorms | Highly Likely | High             | 5             |
| Lightning                       | Highly Likely | Highest          | 5             |
| Tornadoes                       | Likely        | Medium           | 4             |
| Tropical Storms/Hurricanes      | Possible      | Medium           | 3             |
| Winter Storms                   | Likely        | Medium           | 3             |
| Flooding                        | Likely        | Medium           | 3             |
| Drought                         | Likely        | Medium           | 3             |
| Earthquakes                     | Unlikely      | Medium           | 3             |
| Dam Failures                    | Unlikely      | Medium           | 3             |

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| Hazard                                         | Likelihood | Potential Impact | Hazard Rating |
|------------------------------------------------|------------|------------------|---------------|
| Hazardous Materials (Transportation Accidents) | Likely     | Medium           | 3             |
| Wildfires                                      | Possible   | Low              | 2             |
| Hazardous Materials (Fixed Facilities)         | Likely     | Low              | 2             |
| Epidemics/Pandemics                            | Likely     | Low              | 2             |
| Terrorism                                      | Unlikely   | Low              | 1             |

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**Individual Jurisdictions  
Hazard Identification and Likelihood of Occurrence**

| <b>Hazard</b>                                  | <b>City of Auburn</b> | <b>City of Berkeley Lake</b> | <b>City of Buford</b> | <b>City of Dacula</b> | <b>City of Duluth</b> | <b>City of Grayson</b> | <b>City of Lawrenceville</b> | <b>City of Lilburn</b> | <b>City of Norcross</b> | <b>City of Snellville</b> | <b>City of Sugar Hill</b> | <b>City of Suwanee</b> | <b>Town of Braselton</b> |
|------------------------------------------------|-----------------------|------------------------------|-----------------------|-----------------------|-----------------------|------------------------|------------------------------|------------------------|-------------------------|---------------------------|---------------------------|------------------------|--------------------------|
| Severe Thunderstorms /Windstorms               | H                     | H                            | H                     | H                     | H                     | H                      | H                            | H                      | H                       | H                         | H                         | H                      | H                        |
| Lightning                                      | H                     | H                            | H                     | H                     | H                     | H                      | H                            | H                      | H                       | H                         | H                         | H                      | H                        |
| Tornadoes                                      | M                     | M                            | M                     | M                     | M                     | M                      | M                            | M                      | M                       | M                         | M                         | M                      | M                        |
| Tropical Storms /Hurricanes                    | M                     | M                            | M                     | M                     | M                     | M                      | M                            | M                      | M                       | M                         | M                         | M                      | M                        |
| Winter Storms                                  | M                     | M                            | M                     | M                     | M                     | M                      | M                            | M                      | M                       | M                         | M                         | M                      | M                        |
| Flooding                                       | M                     | M                            | M                     | M                     | M                     | M                      | M                            | M                      | M                       | M                         | M                         | M                      | M                        |
| Drought                                        | M                     | M                            | M                     | M                     | M                     | M                      | M                            | M                      | M                       | M                         | M                         | M                      | M                        |
| Earthquakes                                    | M                     | M                            | M                     | M                     | M                     | M                      | M                            | M                      | M                       | M                         | M                         | M                      | M                        |
| Dam Failures                                   | M                     | L                            | L                     | L                     | L                     | H                      | H                            | L                      | L                       | H                         | L                         | L                      | M                        |
| Hazardous Materials (Transportation Accidents) | M                     | M                            | M                     | M                     | M                     | M                      | M                            | M                      | M                       | M                         | M                         | M                      | M                        |
| Wildfires                                      | L                     | L                            | L                     | L                     | L                     | L                      | L                            | L                      | L                       | L                         | L                         | L                      | L                        |
| Hazardous Materials (Fixed Facilities)         | L                     | H                            | H                     | L                     | H                     | M                      | H                            | H                      | H                       | H                         | H                         | H                      | L                        |
| Epidemics/Pandemics                            | L                     | L                            | L                     | L                     | L                     | L                      | L                            | L                      | L                       | L                         | L                         | L                      | L                        |

| Hazard    | City of Auburn | City of Berkeley Lake | City of Buford | City of Dacula | City of Duluth | City of Grayson | City of Lawrenceville | City of Lilburn | City of Norcross | City of Snellville | City of Sugar Hill | City of Suwanee | Town of Braselton |
|-----------|----------------|-----------------------|----------------|----------------|----------------|-----------------|-----------------------|-----------------|------------------|--------------------|--------------------|-----------------|-------------------|
| Terrorism | L              | L                     | L              | L              | L              | L               | L                     | L               | L                | L                  | L                  | L               | L                 |

**Potential Impact of Hazard**

**H=High**

**M=Medium**

**L=Low**

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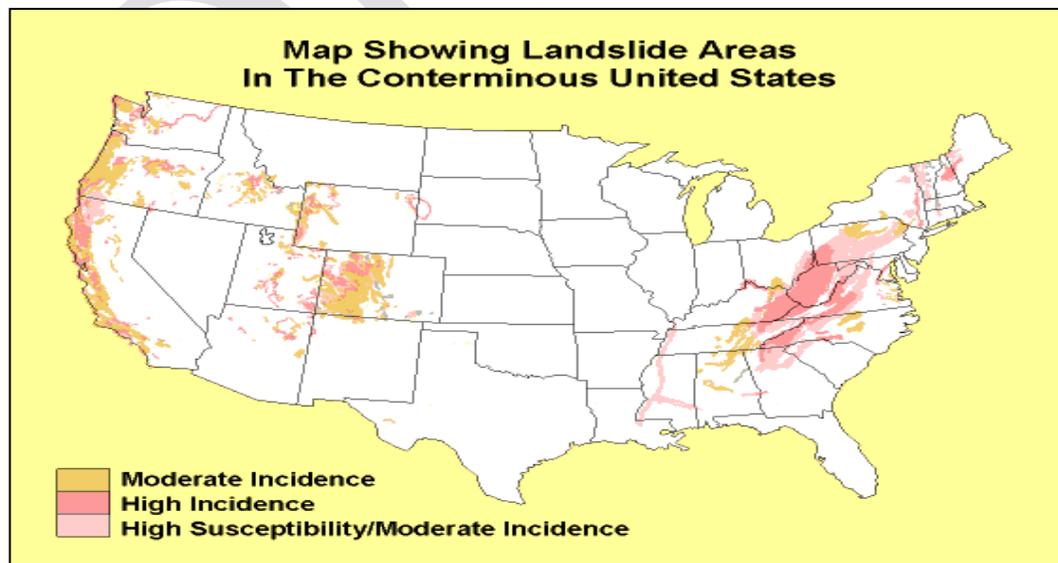
### 3.1 Natural Hazards

Natural hazards such as tropical storms/hurricanes, floods, tornadoes, winter storms, and the like are an enduring condition around the human environment. Natural hazards become disasters when they intersect with the human environment and in Georgia, particularly; natural disasters have left a profound imprint causing devastating loss of life, property, economy and community. While most processes present little danger to human well being, some develop into hazardous situations that place life, property, economy, and community at higher risk. For the purpose of this plan natural hazards will be divided into five sub-sections: Atmospheric Hazards, Hydrologic Hazards, Erosion Hazards, Geologic Hazards, and Seismic Hazards.

### 3.2 Landslides and Mudslides Not Included

Landslides and Mudslides do not occur frequently in Gwinnett County and are not considered to be a significant hazard at this time.

**Figure 14**  
**Landslide Areas in the Conterminous United States**



Source – USGS National Center

### 3.3 Sinkholes Not Included

Although the geology of Gwinnett County does provide for some incidence of sinkholes there is an extremely low incidence of any occurrence of these hazards. This hazard is not included at this time.

### 3.4 Civil Disturbance Not Included

It was determined by the Gwinnett County HMSC that the occurrence or impact of a civil disturbance hazard was not of sufficient concern to be included in the plan at this time.

### 3.5 Atmospheric Hazards

The group “Atmospheric Hazards” includes weather-generated events. Each has its own natural characteristics, geographic location and/or aerial extent, seasonality, severity, and associated risks. Though these characteristics allow identification of each individual hazard, many of these hazards are interrelated (FEMA 1997). For example, tornadoes can be a product of severe thunderstorms and/or tropical storms/hurricanes and snow or ice can be a byproduct of nor’easters. These hazards may also be directly linked to other categories of natural hazards (i.e. excessive rain can cause the geologic hazard of sinkholes and landslides). In addition they can be interlinked with Technological Hazards as well (i.e. excessive rains can cause dam/levee failure which can lead to flooding) These linkages make it difficult to attribute damage to one hazard or to assess the risk one hazard has on the planning area but mitigation strategies quite often have beneficial effects on several types of hazards.

In this sub-section, 6 atmospheric hazards were addressed: winter storms, severe thunderstorms/windstorms, tropical storms/hurricanes, tornadoes, lightning, and wildfires. Each category has a general description of the hazard, a vulnerability summary for the planning area, and specific hazard information for each individual governing jurisdiction.

### 3.6 Damage Assessment

This component of the plan will estimate the damage and loss projections in a geographical area of Gwinnett County based on the disaster. The information in the Damage Assessment section was derived from a combination of Critical Facility information and data from the Gwinnett County Tax Assessors Office. The table below represents damage and loss projections for Gwinnett County for tornadoes, extreme winter storms, wildfires, and earthquakes. Due to the nature of these hazards, there is no geographical area specific for these hazards. Each hazard area location is not predictable, therefore this table may be used for estimating losses for the above hazards.

**Table 3-5  
Damage Assessment**

| Structure Type<br>Amount of Structures | Value         | 75%           | 50%           | 25%           |
|----------------------------------------|---------------|---------------|---------------|---------------|
| Residential                            | \$201,564,376 | \$151,923,000 | \$100,782,000 | \$503,910,000 |
| Commercial                             | \$335,403,706 | \$251,552,000 | \$167,701,000 | \$838,507,000 |
| Industrial                             | \$39,580,510  | \$29,685,382  | \$19,790,255  | \$9,895,127   |
| Agricultural/Conservation              | \$18,127,656  | \$13,595,742  | \$9,063,828   | \$4,531,914   |
| Historic                               | \$81,480      | \$61,110      | \$40,740      | \$20,370      |



### 3.7 Winter Storms

#### 3.7.1 Hazard Identification

To determine Gwinnett County’s vulnerability to winter storms, a time period from 1950 to 2009 was examined. Numerous sources were used in identifying the winter storm hazards that have occurred in Gwinnett County since 1950 both primary and secondary. Primary sources used include the Gwinnett County EMA Staff. Secondary sources include the Gwinnett Daily Post; Cable News Network, National Oceanic Atmospheric Agency (NOAA), National Climatic Data Center (NCDC), the National Weather Service (NWS), Spatial Hazard Events and Losses Database for the United States (SHELDUS) and the Weather Channel. Winter storms bring the threat of snow, freezing rain and ice storms to the County. A heavy accumulation of ice, especially when accompanied by high winds, devastates trees and power lines. Sidewalks, streets, and highways become extremely hazardous to pedestrians and motorists.

#### 3.7.2 Hazard Profile

Research from SHELDUS indicates there have been thirty-six winter storm occurrences recorded for Gwinnett County in the past fifty-nine years. Although winter storms occur infrequently, they have the potential to wreak havoc on the community when they do strike. Statistically, Gwinnett County can expect a winter storm every three years; the most frequent occurrences were in 2003, 2005 and 2009. This equates to a 33% chance of a winter storm occurring in any given year. A

blizzard, which struck the north Georgia area in March of 1993, was particularly devastating to the County. Numerous power lines were downed; several roads, bridges and buildings were damaged as a result of the heavy snow and ice accumulation. (See Table 3-5)

### 3.7.3 Assets Exposed to Hazard

**Property Risk/Vulnerability:** In evaluating assets that may potentially be impacted by the affects of winter storms, the committee determined that all critical facilities, as well as all public, private and commercial property, are susceptible to effects of a winter storm.

**People Risk/Vulnerability:** In evaluating vulnerability of the population in Gwinnett County, it was determined that risk/vulnerability includes the entire population of Gwinnett County since there is no way to determine the impact/magnitude of a winter storm and no way to predict where a storm will hit. People are vulnerable to winter storms through power outages, effects on transportation routes, establishment of shelters, water freezing, etc. This is particularly true due to a 33% chance of a winter storm occurring in any given year in Gwinnett County.

**Environment Risk/Vulnerability:** Risks to the environment are low for a winter storm. Most of the environmental risks would be access to water (due to frozen water pipes and supply). Also, winter thaw can causes flooding which in turn can affect and create contamination of potable water for public consumption.

### 3.7.4 Estimate of Potential Losses

The Gwinnett County HMSC was able to determine potential monetary losses for all critical facilities in Gwinnett County. Structure loss combined with content loss and functional downtime is evaluated at intervals of 25 percent, 50 percent, 75 percent and 100 percent. (See Table 3-5)

### 3.7.5 Land Use and Development Trends

Gwinnett County currently has no land use or development trends related to winter storms.

### 3.7.6 Multi-Jurisdictional Concerns

All of Gwinnett County can potentially be affected by a winter storm. As a result, any mitigation steps taken related to winter storms should be undertaken on a countywide basis and include the cities of Berkeley Lake, Buford, Dacula, Duluth, Grayson, Lawrenceville, Lilburn, Norcross, Snellville, Sugar Hill and Suwanee.

### 3.7.7 Hazard Summary

Winter storms, unlike other natural hazards, typically afford communities some advance warning. The NWS issues winter storm watches, warnings and advisories as

these storms make their way into the County. Unfortunately, even with advance warning, some of the most destructive winter storms have occurred in the southern United States, where buildings, infrastructure and crops are not typically designed to sustain severe winter conditions. Also, motorists not accustomed to driving in snow and icy conditions pose an additional danger on roads and highways. The Gwinnett County HMSC recognized the dangers posed by winter storms and has identified specific mitigation actions in Section 5 – Mitigation Strategies of the 2009 Gwinnett County Hazard Mitigation Plan.



## 3.8 Severe Thunderstorms/Windstorms

### 3.8.1 Hazard Identification

The Gwinnett County HMSC utilized data from the NCDC, SHELDUS, the NWS and the Gwinnett County Emergency Operations Plan in researching thunderstorm winds and their impact on Gwinnett County. Thunderstorm winds are generally short in duration involving straight-line winds and/or gusts in excess of 50 mph. Thunderstorm winds tend to affect areas of the county with significant tree stands, as well as areas with exposed property and infrastructure, and above ground utilities. Thunderstorm winds can cause power outages, transportation and economic disruptions, significant property damage and pose a high risk for injuries and loss of life. Data from the NCDC contains the following disclosure: All Weather Events from 1993-1995, as entered into Storm Data. (Except 6/93-7/93, this is missing (No Latitude/Longitude).

### 3.8.2 Hazard Profile

One of the most prevalent natural hazard events occurring in Gwinnett County is thunderstorm wind. During the spring and summer months, the county typically experiences countless thunderstorms, some packing significant winds. Over the course of the past fifty-nine years, 157 thunderstorm wind events have been recorded within the county. On average, at least two thunderstorms each year produce winds strong enough to inflict significant property damage. The most storms were in 2002 in which the county experienced 15 thunderstorms. While many of these thunderstorm wind events have been recorded within the past fifteen years (99 events), this is primarily

due to more accurate record keeping. In the same fifty-nine year period, twenty-four injuries and twelve deaths have been attributed to thunderstorm winds in Gwinnett County. A review of historical weather data indicates there is a very significant chance of thunderstorm winds impacting Gwinnett County each year. Thunderstorm winds occur more frequently than any other natural hazard event within Gwinnett County.

### 3.8.3 Assets Exposed to Hazard

**Property Risk/Vulnerability:** In evaluating assets that are susceptible to thunderstorm winds, the HMSC determined that all critical facilities, as well as all public, private and commercial property is susceptible to thunderstorm winds.

**People Risk/Vulnerability:** In evaluating vulnerability of the population in Gwinnett County, it was determined that risk/vulnerability includes the entire population of Gwinnett County since there is no way to determine the impact/magnitude of a severe thunderstorm/windstorm and no way to predict where a storm will hit. People are vulnerable to severe thunderstorms/windstorms through power outages, effects on transportation routes, establishment of shelters, roofs blown off structures, etc. This is particularly true for severe thunderstorms/windstorms since they occur more frequently than any other natural hazard event within Gwinnett County.

**Environment Risk/Vulnerability:** Risks to the environment are minimal for a severe thunderstorm/windstorm. Severe thunderstorms can cause flooding which in turn can affect and create contamination of potable water for public consumption.

### 3.8.4 Estimate of Potential Losses

Utilizing a straight-lined method for estimating losses; it can be assumed that structures or facilities with the greatest replacement value will be those that sustain the most monetary damage. Operating on the assumption that a facility would sustain at least 75% damage in the event of thunderstorm winds, some of the more vulnerable facilities from a monetary standpoint are the Gwinnett Justice and Administration Center, Gwinnett Center (Arena, Civic Center, etc). In addition, facilities with vulnerable populations include Gwinnett Medical Center and Emory Eastside Medical, 88 nursing homes and/or personal care homes, as well as over 125 public and private schools located throughout Gwinnett County. The Gwinnett County HMSC was able to determine potential monetary losses for all critical facilities in Gwinnett County. (See Appendix A for Damage Assessment Estimated Losses)

### 3.8.5 Land Use and Development Trends

Gwinnett County currently has no land use or development trends related to thunderstorm winds.

### 3.8.6 Multi-Jurisdictional Concerns

All of Gwinnett County can potentially be affected by thunderstorm winds. As a result, any mitigation steps taken related to thunderstorm winds should be undertaken

on a countywide basis and include the cities of Berkeley Lake, Buford, Dacula, Duluth, Grayson, Lawrenceville, Lilburn, Norcross, Snellville, Sugar Hill and Suwanee.

## 3.8.7 Hazard Summary

Overall, thunderstorm winds pose one of the greatest threats to Gwinnett County in terms of property damage, as well as injuries and loss of life. Thunderstorm winds are the most frequently occurring natural hazard in the county and have the greatest chance of affecting the county each year. Based on the frequency of this hazard, as well as its ability to negatively impact anywhere in the county, the pre-disaster mitigation measures identified in this plan should be aggressively pursued. Specific mitigation actions related to thunderstorm winds are identified in Section 5 – Mitigation Strategies of the 2009 Gwinnett County Hazard Mitigation Plan. Thunderstorm wind data collected from the NCDC is provided in Table A-3 in Appendix A.



## 3.9 Tropical Storms/Hurricanes

### 3.9.1 Hazard Identification

The Gwinnett County HMSC researched historical data from the NCDC, SHELDUS, NWS, as well as information from past newspaper articles relating to tropical storms/hurricanes in Gwinnett County. Tropical storms and hurricanes bring the threat of winds, heavy rains and flooding that may require the need for Evacuee Support and Sheltering. Streets and highways become extremely hazardous to motorists due to debris, flooding and power lines obstructing travel. There are no other storms like tropical storms/hurricanes on earth. Views of hurricanes and/or tropical storms from satellites located thousands of miles above the earth shows how unique these powerful, tightly coiled weather systems are.

A hurricane is a type of tropical cyclone-the general term for all circulating weather systems (counterclockwise in the Northern Hemisphere) over tropical waters. Tropical storms are classified as follows:

- 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 to 73 mph (34-63 knots).

- Hurricane – An intense tropical weather system with a well-defined circulation and maximum sustained winds of 74 mph (64 knots) or higher. In the western Pacific, hurricanes are called “typhoons,” and similar storms in the Indian Ocean are called “cyclones.”

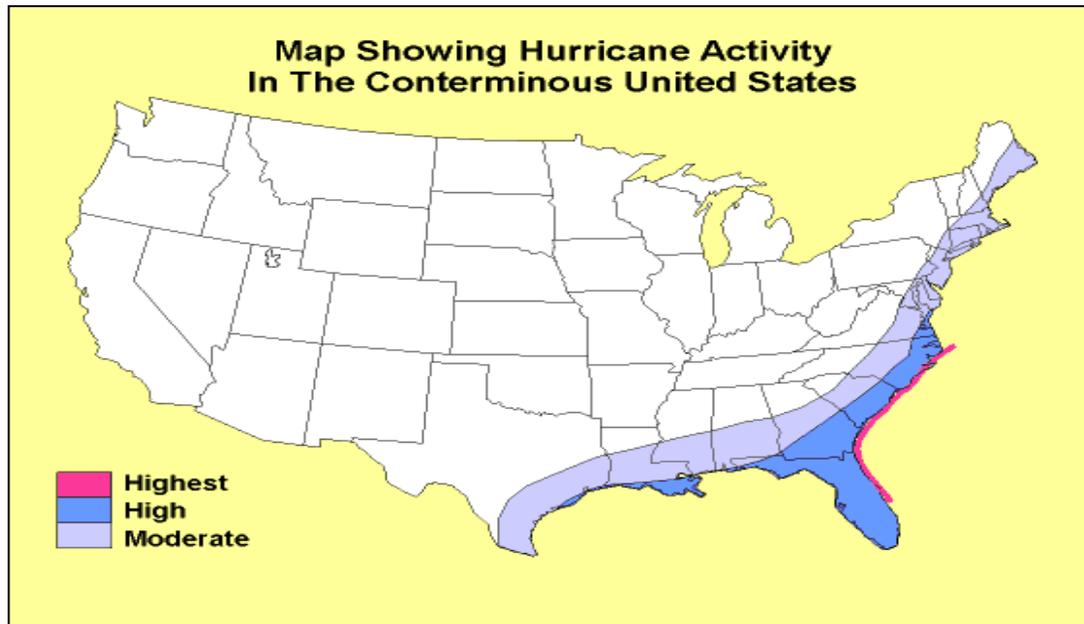
Hurricanes are products of the Tropical Ocean and atmosphere. Powered by heat from the sea, they are steered by the easterly trade winds and the temperate westerlies as well as by their own ferocious energy. Around their core, winds grow with great velocity, generating violent seas. When tropical storms/hurricanes move ashore, they sweep the ocean inward while spawning tornadoes and producing torrential rains and floods. Each year on average, ten tropical storms (of which six become hurricanes) develop over the Atlantic Ocean, Caribbean Sea, or Gulf of Mexico. Many of these remain over the ocean. However, about five hurricanes strike the United States coastline every 3 years. Of these five, two will be major hurricanes (category 3 or greater on the Saffir-Simpson Hurricane Scale).

All Tropical Storms/Hurricanes are dangerous, but some are more so than others. The way storm surge, wind and other factors combine determine the hurricanes destructive power. To make comparisons easier and to make the predicted hazards of approaching hurricanes clearer to emergency managers, NOAA’s hurricane forecasters use a disaster-potential scale, which assigns storms to five categories. This can be used to give an estimate of the potential property damage and flooding expected along the coast with a hurricane. Herbert Saffir, a consulting engineer, and Dr. Bob Simpson director of the National Hurricane Center, formulated the scale in 1969. The World Meteorological Organization was preparing a report on structural damage to dwellings due to windstorms, and Dr. Simpson added information about storm surge heights that accompany hurricanes in each category.

### 3.9.2 Hazard Profile

There is a threat of tropical storms/hurricanes occurring in Gwinnett County. The county experienced 12 events since 2002 of which three of these were hurricanes, one tropical depression, and eight of these were tropical storms. A review of historical weather data indicates there is a significant chance of tropical storms/hurricanes affecting Gwinnett County each year. Tropical storms/hurricanes normally allow time for preplanning for this type of event.

Figure 15  
Hurricane Activity in the Conterminous United States



Source: USGS Geographic Distribution

### 3.9.3 Assets Exposed to Hazard

**Property Risk/Vulnerability:** It can be assumed that all structures and facilities within Gwinnett County could be damaged by a hurricane, being as hurricanes are one the most damaging of weather phenomena, but the meteorological technology does provide more warning of the paths of hurricanes today. Also, tornadoes are usually a secondary affect from tropical storms/hurricanes which can impact property/public.

**People Risk/Vulnerability:** In evaluating vulnerability of the population in Gwinnett County, it was determined that risk/vulnerability includes the entire population of Gwinnett County since there is no way to determine the impact/magnitude of a tropical storm/hurricane and no way to predict where a tropical storm/hurricane will hit. People are vulnerable to tropical storms/hurricanes through power outages, effects on transportation routes, establishment of shelters, flooding, etc. This is particularly true due to there being a significant chance of a tropical storm/hurricane occurring in any given year in Gwinnett County. Due to the warning time of a tropical storm/hurricane the effects on the population is reduced compared to previous years.

**Environment Risk/Vulnerability:** Risks to the environment are significant for a tropical storm/hurricane. Tropical storms/hurricane can cause flooding which in turn can affect and create contamination of potable water for public consumption. The magnitude of flooding that typically occurs after a hurricane can be significant and can cause issues with hazardous materials being in the flooded water which affects the environment.

### 3.9.4 Estimate of Potential Losses

The Gwinnett County HMSC was able to determine potential monetary losses for all critical facilities in Gwinnett County. Structure loss combined with content loss and functional downtime is evaluated at intervals of 25 percent, 50 percent, 75 percent and 100 percent. For additional damage assessment information refer to Table 3-5.

### 3.9.5 Land Use and Development Trends

Gwinnett County currently has no land use or development trends related to tropical storms or hurricanes. However, Gwinnett County does have the Gwinnett County Floodplain Management Ordinance (as amended 8/27/02), which addresses land use planning in regards to flooding issues. Flooding is a secondary affect from tropical storms/hurricanes and this Floodplain Ordinance prohibits further structures being built in the floodplains in Gwinnett County.

### 3.9.6 Multi-Jurisdictional Concerns

All of Gwinnett County can potentially be affected by tropical storms and hurricanes. As a result, any mitigation steps taken related to tropical storms and hurricanes should be undertaken on a countywide basis and include the cities of Berkeley Lake, Buford, Dacula, Duluth, Grayson, Lawrenceville, Lilburn, Norcross, Snellville, Sugar Hill and Suwanee.

### 3.9.7 Hazard Summary

Overall, tropical storms and hurricanes pose one of the greatest threats to Gwinnett County in terms of property damage, as well as injuries and loss of life. Twelve events have impacted Gwinnett County since 2002. The past six years reflect only three hurricanes and eight tropical storms with one tropical depression occurring. These events presented just fewer than two million dollars in damage. These events may change from season to season. Based on the frequency of this hazard, as well as its ability to negatively impact anywhere in the county, the pre-disaster mitigation measures identified in this plan should be aggressively pursued. Specific mitigation actions related to tropical storms/hurricanes are identified in Section 5 – Mitigation Strategies of the 2009 Gwinnett County Hazard Mitigation Plan.

**Table 3-6**  
**Saffir-Simpson Hurricane Scale**

| Category | Winds      | Effects                                                                                                                                                                                                |
|----------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| One      | 74-95 mph  | No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Also, some coastal road flooding and minor pier damage                                       |
| Two      | 96-110 mph | Some roofing material, door, and window damage to buildings. Considerable damage to vegetation, mobile homes, and piers. Coastal and low-lying escape routes flood 2-4 hours before arrival of center. |

## HAZARD VULNERABILITY ASSESSMENT

| Category | Winds                | Effects                                                                                                                                                                                                                                                                                                                                                                              |
|----------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                      | Small craft in unprotected anchorages break moorings.                                                                                                                                                                                                                                                                                                                                |
| Three    | 111-130 mph          | Some structural damage to small residences and utility buildings with a minor amount of curtain wall failures. Mobile homes are destroyed. Flooding near the coast destroys smaller structures with larger structures damaged by floating debris. Terrain continuously lower than 5 feet ASL may be flooded inland 8 miles or more.                                                  |
| Four     | 131-155 mph          | More extensive curtain wall failures with some complete roof structure failure on small residences. Major erosion of beach. Major damage to lower floors of structures near the shore. Terrains continuously lower than 10 feet ASL may be flooded requiring massive evacuation of residential areas inland as far as 6 miles.                                                       |
| Five     | Greater than 155 mph | Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. Major damage to lower floors of all structures located less than 15 feet ASL and within 500 yards of the shoreline. Massive evacuation of residential areas on low ground within 5 to 10 miles of the shoreline may be required. |

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## 3.10 Tornadoes

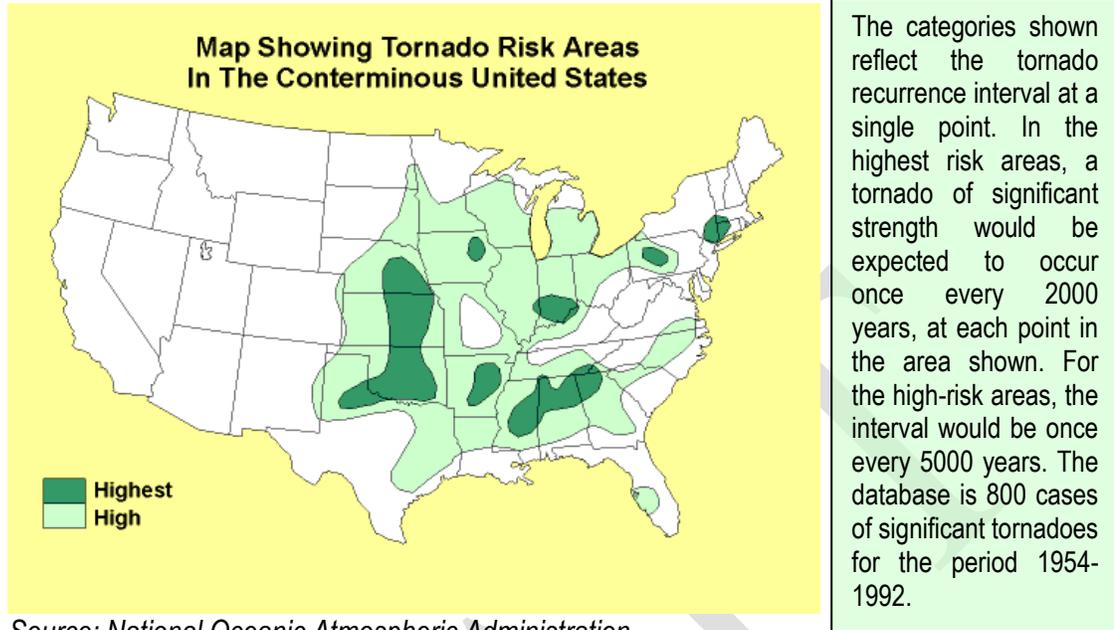
### 3.10.1 Hazard Identification

The Gwinnett County HMSC reviewed historical data from the Georgia Tornado Database Tornado History Project with data submitted by Storm Prediction Center and National Climate Data Center ([tornadohistoryproject.com](http://tornadohistoryproject.com)), SHEL DUS, and the NCDC in researching the past events and affects of tornadoes in Gwinnett County. A tornado is a violently rotating column of air extending from a thunderstorm to the ground. The most violent tornadoes are capable of tremendous destruction with wind speeds of 250 mph or more. Damage paths can be in excess of 1 mile wide and 50 miles long. Tornadoes are among the most unpredictable and destructive of weather phenomena. Tornado season in Georgia ordinarily runs from March through August; however, tornadoes can strike at any time of the year if the essential conditions are present.

### 3.10.2 Hazard Profile

All of Gwinnett County is vulnerable to the threat of a tornado, being as no one can predict exactly when or where a tornado might touchdown. Gwinnett County has experienced three tornados within the last ten years, and within the past fifty-three years the county has experienced a total of ten recorded tornadoes. In addition, countless tornado watches have been recorded during this period. **Trend analysis indicates that a tornado will touch down in Gwinnett County every 7 years. This equates to a 15% chance of a tornado touching down in Gwinnett County in any given year.** Tornadoes tend to strike in somewhat random fashion, making the task of reliably calculating a recurrence interval extremely difficult. The damage potential associated with a tornado is extremely high. In 1998, a Category F2 tornado (Significant Tornado, 113-157 mph) touched down in Gwinnett County resulting in 10 injured and over 50 million dollars in property damage.

Figure 16  
Tornado Risk Areas in the Conterminous United States



Source: National Oceanic Atmospheric Administration

### 3.10.3 Assets Exposed to Hazard

**Property Risk/Vulnerability:** It can be assumed that all structures and facilities within Gwinnett County could be damaged by a tornado, being as tornadoes are among the most unpredictable of weather phenomena and are indiscriminate as to when or where they strike.

**People Risk/Vulnerability:** In evaluating vulnerability of the population in Gwinnett County, it was determined that risk/vulnerability includes the entire population of Gwinnett County since there is no way to determine the impact/magnitude of a tornado and no way to predict where a tornado will hit. People are vulnerable to tornadoes through power outages, effects on transportation routes, establishment of shelters, flying debris, etc. This is particularly true due to a 15% chance of a tornado occurring in any given year in Gwinnett County.

**Environment Risk/Vulnerability:** Risks to the environment can be significant for a tornado. Environmental risks can include flying debris and/or destruction of critical infrastructure that damage and affect water supply and contamination of potable water for public consumption.

### 3.10.4 Estimate of Potential Losses

An obstacle to accurate loss estimation is the fact that losses may vary widely even within one category of natural hazard, depending on place and location. For instance, a tornado may hop from one location to another in a primarily rural area of the county, creating virtually no economic damage, whereas a similar hazard event in an urban

area might create millions of dollars in damages. Compounding this obstacle to accurate loss estimation is that tornadoes range considerably in their intensity and duration. Utilizing a straight-lined method for estimating losses, it can be assumed that structures or facilities with the greatest replacement value will be those that sustain the most monetary damage. Operating on the assumption that a facility would sustain at least 75% damage in the event of a tornado, some of the more vulnerable facilities from a monetary standpoint are the Gwinnett Justice and Administration Center, Gwinnett Center (Arena, Civic Center, etc.). In addition, facilities with vulnerable populations include Gwinnett Medical Center and Emory Eastside Medical, 88 nursing homes and/or personal care homes, as well as over 125 public and private schools located throughout Gwinnett County. For additional Damage Assessment information refer to Table 3-5.

### **3.10.5 Land Use and Development Trends**

Gwinnett County is located in wind zone III, which is associated with 200-mph wind speeds. The county currently has no land use or development trends related specifically to tornadoes. Existing building codes do not require structures to meet or exceed design wind speeds of 200 mph, however, construction must adhere to the Georgia State Minimum Standard Codes (Uniform Codes Act) and the International Building Code (2000 edition). 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.

### **3.10.6 Multi-Jurisdictional Concerns**

All of Gwinnett 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 can 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 cities of Berkeley Lake, Buford, Dacula, Duluth, Grayson, Lawrenceville, Lilburn, Norcross, Snellville, Sugar Hill and Suwanee.

### **3.10.7 Hazard Summary**

Overall, Gwinnett County has high exposure to potential damage from tornadoes. Should a tornado hit certain portions of the county that are highly concentrated with homes, or any of the critical facilities identified, depending upon the strength and duration of the event, significant damage could occur. Due to the destructive nature of tornados it is imperative that the pre-disaster mitigation measures identified in this plan receive full consideration. Specific mitigation actions related to tornadoes are identified in Section 5 – Mitigation Strategies of the 2009 Gwinnett County Hazard Mitigation Plan.



## 3.11 Lightning

### 3.11.1 Hazard Identification

The Gwinnett County HMSC researched historical data from the NCDC, SHELDUS, the NWS, Gwinnett County Fire and Emergency Services as well as information from past newspaper articles relating to lightning strikes in Gwinnett County. By definition, all thunderstorms are accompanied by lightning. The electrical charge from lightning can potentially be as much as 100 million volts. Lightning strikes proceed from cloud to cloud, cloud to ground, or where high structures are involved, from ground to cloud. Lightning strikes in Gwinnett County are most prevalent in July, with June and August being the next two months of highest occurrence.

### 3.11.2 Hazard Profile

Lightning, as with many natural hazards, can strike anywhere and at any time. Data from SHELDUS reported 93 incidents of lightning strikes in Gwinnett County since 1994, despite the fact that “local knowledge” indicates many more instances. Recorded data reflects that lightning can be expected to strike in Gwinnett County 4 times a year. Of the 80 officially recorded instances, five deaths, and fifteen injuries and over \$8.820 million in damages are associated with those lightning strikes. The Gwinnett County Fire and Emergency Services have responded to 166 lightning strikes within Gwinnett County from January 2003 to April 2009 with estimated damages in excess of \$ 4 million dollars.

### 3.11.3 Assets Exposed to Hazard

**Property Risk/Vulnerability:** In evaluating assets that are susceptible to lightning strikes, the committee determined that all critical facilities, as well as all public, private and commercial property, are susceptible to being struck by lightning.

**People Risk/Vulnerability:** In evaluating vulnerability of the population in Gwinnett County, it was determined that risk/vulnerability includes the entire population of Gwinnett County since there is no way to determine the impact/magnitude of a lightning strike/event and no way to predict where lightning will hit. People are vulnerable to lightning strikes/events through power outages, effects on transportation routes, establishment of shelters, being struck by lightning, etc. This is particularly true due to a significance chance of a lightning strike occurring in any given year in Gwinnett County.

**Environment Risk/Vulnerability:** Risks to the environment are low for a lightning strike/event.

### **3.11.4 Estimate of Potential Losses**

Lightning can cause varying degrees of damage to a facility should it be hit. Most common, is lightning destroying the electrical components of a facility, or damage related to fire after a lightning strike. Unlike most other natural hazards, lightning could potentially damage or destroy the contents of a structure (computers, televisions, phones, etc.) without any affect on the structure itself. As stated previously, all structures are vulnerable to a lightning strike and were evaluated for potential losses. Lightning data collected from the NCDC is provided in Table A-4 in Appendix A.

### **3.11.5 Land Use and Development Trends**

Gwinnett County currently has no land use or development trends related to lightning.

### **3.11.6 Multi-Jurisdictional Concerns**

All of Gwinnett County can potentially be affected by lightning. As a result, any mitigation steps taken related to lightning should be undertaken on a countywide basis and include the cities of Berkeley Lake, Buford, Dacula, Duluth, Grayson, Lawrenceville, Lilburn, Norcross, Snellville, Sugar Hill and Suwanee.

### **3.11.7 Hazard Summary**

Lightning strikes have a high danger potential associated with them. Lightning, as with some of the other natural hazards typical to Gwinnett County, can strike anywhere and at any time. Its unpredictability, along with its deadly and destructive potential is all the more reason to explore mitigation actions. The Gwinnett County HMSC identified specific mitigation goals, objectives and action items related to lightning strikes. Specific mitigation actions related to lightning are identified in Section 5 – Mitigation Strategies of the 2009 Gwinnett County Hazard Mitigation Plan. Lightning data collected from the NCDC is provided in Table A-4 in Appendix A.



## 3.12 Wildfires

### 3.12.1 Hazard Identification

A wildfire is the uncontrolled burning of woodlands, brush, or grasslands. According to FEMA (1997) there are 4 categories of wildfires that are experienced throughout the United States:

- **Wildland Fires:** are fueled by natural vegetation. They typically occur in national forests and parks, where Federal agencies are responsible for fire management and suppression.
- **Interface or Intermix Fires:** are urban/wild land fires in which vegetation and the built-environment provide fuel.
- **Firestorms:** are events of such an extreme intensity that effective suppression is virtually impossible. They occur during extreme weather and generally burn until conditions change or the available fuel is exhausted.
- **Prescribed Fires and Prescribed Natural Fires:** are fires that are intentionally set or selected natural fires that are allowed to burn for beneficial purposes.

Wildfires can be a result of naturally occurring influences such as lightning, extreme drought, and heat, as well as human influences such as a discarded cigarette butt, improperly extinguished campfire or a stray spark from nearby railroad tracks. The potential for threat of wildfires is dependent upon topography and slope, surface fuel characteristics, recent climate conditions, current meteorological conditions, and fire behavior. Once a wildfire threatens a community, it's often too late to protect nearby structures and populations have to be evacuated for their own safety.

These fires have damaged structures and utilities as well as hundreds of acres of woodlands. At the present time Gwinnett County and the cities and townships with Gwinnett County have made great progress in lowering their ISO ratings across the entire county.

### 3.12.2 Hazard Profile

From August 2007-April 2009 there were 52 wildfires across Gwinnett County. These 52 wildfires damaged approximately 323 acres.

### 3.12.3 Vulnerability Assessment

All assets within Gwinnett County are susceptible to being affected by a wildfire. A majority of the wildfires in Gwinnett County are by human hands as opposed to nature causing the wildfires. Rural areas of the county are more prone to wildfires than the

urban areas. The smoke from the fires may also affect the urban areas as well as the travel on highways and roads throughout Gwinnett County.

### 3.12.4 Assets Exposed to Hazards

**Property Risk/Vulnerability:** All assets in Gwinnett County are exposed to the threat of wildfires. Any of the assets could be lost during a wildfire. The amount of loss would vary from facility to facility.

**People Risk/Vulnerability:** In evaluating vulnerability of the population in Gwinnett County, it was determined that risk/vulnerability includes the entire population of Gwinnett County since there is no way to determine the impact/magnitude of a wildfire event and no way to predict where a wildfire event will hit. People are vulnerable to wildfires through burning of structures, power outages, effects on transportation routes, establishment of shelters, etc. People living in rural areas of the county are more vulnerable than people living in urban areas due to availability of fuel for a wildfire (woods, open spaces, green area, etc.).

**Environment Risk/Vulnerability:** Risks to the environment are low for a wildfire event due to the frequency of occurrence. Environmental concerns would be loss of vegetation and risk of erosion in areas that area affected by wildfires.

### 3.12.5 Damage Assessment

Because all facilities within the county are subject to potential losses due to wildfires, estimations were done assuming 25%, 50%, 75%, and 100% damages. For additional information see Table 3-5.

### 3.12.6 Land Use and Development Trends

Future development throughout Gwinnett County will result in the potential for damage from wildfires. The Fire Services of Gwinnett County enforce the regulations on outdoor burning to assist in the reduction of wildfires. Land use codes do require that firebreaks be utilized in areas susceptible to wildfires.

### 3.12.7 Multi-Jurisdictional Concerns

All of Gwinnett County is subject to wildfires and therefore should be included in any prospective mitigation projects.

### 3.12.8 Hazard Summary

Wildfires have occurred across the entire Gwinnett County area. From August 8, 2007 to June 15, 2009, 52 wild land fires have been reported and responded to by Gwinnett County Fire and Emergency Services. In excess of 300 acres have been involved, ranging from one acre to 100 acres. This averages to 2.26 wild land fires per month. Preplanning and rapid response by fire services certainly reduce the size and impact of

the wildfires. Specific mitigation actions related to wildfires are identified in Section 5 – Mitigation Strategies of the 2009 Gwinnett County Hazard Mitigation Plan.



## 3.13 Hydrologic Hazards



## 3.14 Flooding

### 3.14.1 Hazard Identification

The Gwinnett County HMSC researched historical data from the NCDC, SHELDUS, The NWS, FEMA, National Flood Insurance Program (NFIP), HAZUS-MH, as well as information from past newspaper articles relating to flooding in Gwinnett County.

#### 3.14.1.1 Hazard Profile

Research indicates that there has been eighteen flood occurrences recorded for Gwinnett County since 1995. The occurrence of flooding in the county is likely and has the potential to wreak havoc to the community. Statistically, Gwinnett County can expect flooding every nine years. This equates to an 11% chance of flooding occurring in any give year. Only one property remains on the repetitive flood list provided by NFIP. Efforts are being done to work with the property owner to mitigate the property and reduce future damages. Previous flooding hazards have been mitigated at 3693 Finger Creek Drive, Lawrenceville, and Tom Smith Road in Lilburn and River Drive in Lawrenceville.

#### 3.14.1.2 Assets Exposed to Hazard

**Property Risk/Vulnerability:** Gwinnett County is continuing to evaluate and prioritize properties for re-construction and/or acquisition/removal. One property located at 6043 Old Town Place, Norcross, GA is currently in the data collection and application development phase. The owner has a property appraisal indicating the value of the property was \$180,000 in 2002 when it was purchased.

**People Risk/Vulnerability:** In evaluating vulnerability of the population in Gwinnett County, it was determined that risk/vulnerability includes the entire population of

Gwinnett County. People living in and around identified floodplain areas are more vulnerable to a flooding event than those that live/work out of floodplain areas, but these areas can still be impacted depending on the severity of the flooding event. This is particularly true due to a minimal chance of a flooding event occurring in any given year in Gwinnett County.

**Environment Risk/Vulnerability:** Risks to the environment are high for a flooding event should one occur. Most of the environmental risks would be access to water and the effects flood water has on public water supply. Flooding can affect and create contamination of potable water for public consumption.

### 3.14.1.3 Estimate of Potential Losses

Losses due to flooding were calculated through the HAZUS-MH program. Total estimates equal approximately 1,244.35 million dollars. The complete HAZUS report is provided in Table 3-7.

### 3.14.1.4 Land Use and Development Trends

Gwinnett County has and continues to make significant efforts to eliminate the placement of structures identified in flood hazard areas. Gwinnett County participates in the National Flood Insurance Program (NFIP) and the Community Rating System (CRS). The County currently has an 8 rating in the CRS program. The County also has the Gwinnett County Floodplain Management Ordinance (as amended 8/27/02), which restricts development in identified floodplains in the county.

### 3.14.1.5 Multi-Jurisdictional Concerns

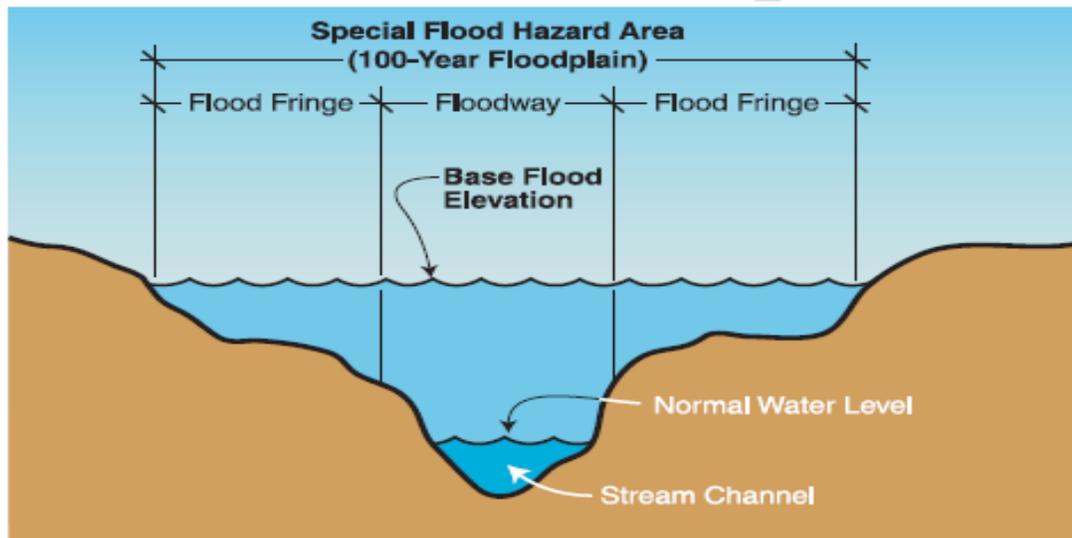
Previous mitigation measures have occurred at both the county level and within each city. Each city within Gwinnett County is currently participating in the NFIP and CRS. Currently all flooding issues in Gwinnett County are included in Unincorporated Gwinnett County. The following are the NFIP participating communities and their identification number:

- 130450# City of Berkeley Lake
- 130343# Town of Braselton
- 130323# City of Buford
- 130324# City of Dacula
- 130098# City of Duluth
- 130325# City of Grayson
- 130322# County of Gwinnett
- 130099# City of Lawrenceville
- 130100# City of Lilburn
- 130474# City of Sugar Hill
- 130328# City of Suwanee

### 3.14.1.6 Hazard Summary

The hazard for flooding in Gwinnett County remains low, due largely in part to previous mitigation measures. The Gwinnett County HMSC recognized the dangers posed by flooding and has identified specific mitigation actions that have been taken and would be considered in the future. Specific mitigation actions related to flooding are identified in Section 5 – Mitigation Strategies of the 2009 Gwinnett County Hazard Mitigation Plan.

**Figure 17**  
**100-Year Floodplain**



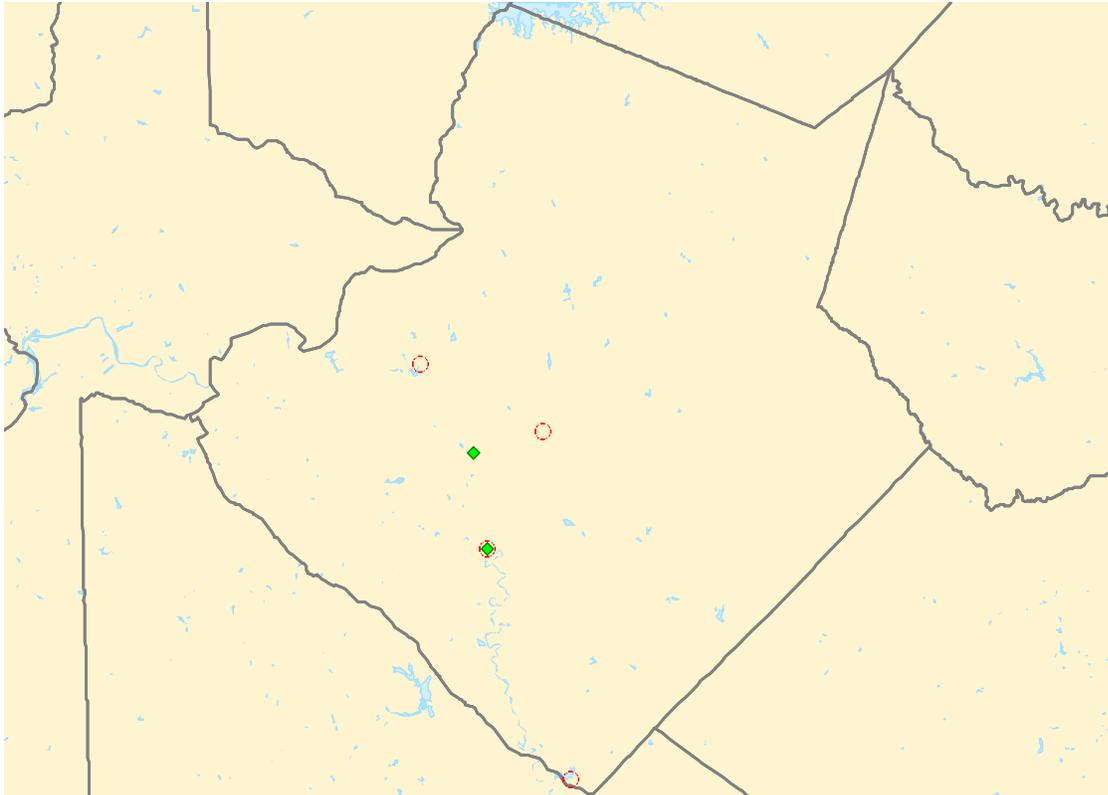
### 3.14.1.7 Repetitive Loss Projects

In addition to the specific projects listed above, the County has several more potential repetitive loss areas. Evaluating and prioritizing these properties could result in the elimination of qualified properties from their current locations in the floodplain. This program can reduce the flood insurance burden and add open space in the County.

Six residential properties are currently participating in or are in the process of collecting documentation for participation in the Repetitive Flood Loss Program. Figure 18 illustrates the approximate locations of these properties throughout the County. Specific information regarding the individual properties is available through Gwinnett County Emergency Management.

Gwinnett County has requested assistance in developing a proactive program to evaluate and prioritize homes in the County that should be bought, demolished and retained as green space because of frequent flooding.

**Figure 18**  
**Repetitive Loss Map**



■ Repetitive Loss Properties

### 3.14.1.8 Drainage Improvement Project

Gwinnett County has developed a Capital Improvement Project (CIP) list for drainage structures that in their existing condition result in flooding conditions during large, infrequent rainfall events. The County intends to further analyze these potential projects, and identify those for which a drainage system improvement would result in significant flood mitigation characterized by a benefit-to-cost ratio of 2.0 or greater by reducing flood risk to homes and other infrastructure.

### 3.14.1.9 Undersized Culverts

Gwinnett County has need of a proactive program to evaluate and prioritize stormwater culverts that are in need of repair or replacement to improve drainage. Gwinnett County is requesting assistance in the development of this program to reduce flooding. See Table A-7 in Appendix A for description of all culverts.

### 3.14.1.10 HAZUS-MH Summary

The flood loss estimates provided in the HAZUS report, provided below in Table 3-7, are based on data gathered for Gwinnett County and conducted for a 500-year flood event. A 100-year flood event scenario was also conducted but produced no results.

The county is 433 square miles and contains 4,943 census blocks. There are over 202,000 households with a total population of 588,445 (2000 Census Bureau data).

There are an estimated 196,182 buildings in the county with a total building replacement value of 45,992 million dollars (2006 dollars) and approximately 91% of the buildings are associated with residential housing.

In the essential facilities HAZUS report, there are 6 hospitals in the county with a total bed capacity of 610 beds. There are 140 schools, 34 fire stations, and 18 law enforcement stations. The HAZUS report estimates approximately 4,656 buildings will be at least moderately damaged and 520 buildings will be completely destroyed in a 500 year flood event. Of the above buildings, the study report showed only 1 school would be moderately damaged. The total economic loss estimated in the study report is 1,244.35 million dollars.

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**Table 3-7**  
**HAZUS 500-Year Flood Analysis**

**HAZUS-MH: Flood Event Report**

**Region Name:** Gwinnett  
**Flood Scenario:** Scenario\_1  
**Print Date:** Wednesday, September 30, 2009

**Disclaimer:**

*Totals only reflect data for those census tracts/blocks included in the user's study region.*

*The estimates of social and economic impacts contained in this report were produced using HAZUS loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific flood. These results can be improved by using enhanced inventory data and flood hazard information.*

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### General Description of the Region

HAZUS is a regional multi-hazard loss estimation model that was developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences (NIBS). The primary purpose of HAZUS is to provide a methodology and software application to develop multi-hazard losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from multi-hazards and to prepare for emergency response and recovery.

The flood loss estimates provided in this report were based on a region that included 1 county(ies) from the following state(s):

- Georgia

**Note:**

Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is 433 square miles and contains 4,943 census blocks. There are over 202 thousand households in the region and has a total population of 588,448 people (2000 Census Bureau data). The distribution of population by State and County for the study region is provided in Appendix B.

There are an estimated 196,182 buildings in the region with a total building replacement value (excluding contents) of 45,992 million dollars (2008 dollars). Approximately 90.53% of the buildings (and 72.97% of the building value) are associated with residential housing.

## Building Inventory

### General Building Stock

HAZUS estimates that there are 196,182 buildings in the region which have an aggregate total replacement value of 45,992 million (2006 dollars). Table 1 and Table 2 present the relative distribution of the value with respect to the general occupancies by Study Region and Scenario respectively. Appendix B provides a general distribution of the building value by State and County.

**Table 1**  
Building Exposure by Occupancy Type for the Study Region

| Occupancy    | Exposure (\$1000) | Percent of Total |
|--------------|-------------------|------------------|
| Residential  | 33,581,011        | 73.0%            |
| Commercial   | 8,688,846         | 18.9%            |
| Industrial   | 2,283,888         | 4.9%             |
| Agricultural | 156,904           | 0.3%             |
| Religion     | 646,598           | 1.4%             |
| Government   | 369,549           | 0.8%             |
| Education    | 305,288           | 0.7%             |
| <b>Total</b> | <b>45,992,058</b> | <b>100.00%</b>   |

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

| Occupancy    | Exposure (\$1000) | Percent of Total |
|--------------|-------------------|------------------|
| Residential  | 12,959,512        | 78.1%            |
| Commercial   | 2,538,043         | 15.3%            |
| Industrial   | 632,764           | 3.8%             |
| Agricultural | 48,871            | 0.3%             |
| Religion     | 216,876           | 1.3%             |
| Government   | 95,545            | 0.6%             |
| Education    | 95,789            | 0.6%             |
| <b>Total</b> | <b>16,587,400</b> | <b>100.00%</b>   |

### Essential Facility Inventory

For essential facilities, there are 6 hospitals in the region with a total bed capacity of 610 beds. There are 140 schools, 34 fire stations, 18 police stations and no emergency operation centers.

## Section 3

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### Flood Scenario Parameters

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

|                            |            |
|----------------------------|------------|
| Study Region Name:         | Gwinnett   |
| Scenario Name:             | Scenario_1 |
| Return Period Analyzed:    | 500        |
| Analysis Options Analyzed: | 0          |

**Building Damage**

**General Building Stock Damage**

HAZUS estimates that about 4,656 buildings will be at least moderately damaged. This is over 31% of the total number of buildings in the study case. There are an estimated 520 buildings that will be completely destroyed. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the HAZUS Flood technical manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 summarizes the expected damage by general building type.

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

| Occupancy    | 1-10     |       | 11-20      |       | 21-30        |       | 31-40      |       | 41-50        |       | Substantially |       |
|--------------|----------|-------|------------|-------|--------------|-------|------------|-------|--------------|-------|---------------|-------|
|              | Count    | (%)   | Count      | (%)   | Count        | (%)   | Count      | (%)   | Count        | (%)   | Count         | (%)   |
| Agriculture  | 0        | 0.00  | 0          | 0.00  | 0            | 0.00  | 0          | 0.00  | 0            | 0.00  | 0             | 0.00  |
| Commercial   | 1        | 3.70  | 18         | 66.67 | 4            | 14.81 | 2          | 7.41  | 1            | 3.70  | 1             | 3.70  |
| Education    | 0        | 0.00  | 0          | 0.00  | 0            | 0.00  | 0          | 0.00  | 0            | 0.00  | 0             | 0.00  |
| Government   | 3        | 20.00 | 12         | 80.00 | 0            | 0.00  | 0          | 0.00  | 0            | 0.00  | 0             | 0.00  |
| Industrial   | 0        | 0.00  | 1          | 33.33 | 1            | 33.33 | 0          | 0.00  | 0            | 0.00  | 1             | 33.33 |
| Religion     | 0        | 0.00  | 0          | 0.00  | 0            | 0.00  | 0          | 0.00  | 0            | 0.00  | 0             | 0.00  |
| Residential  | 0        | 0.00  | 188        | 4.07  | 1,517        | 32.87 | 805        | 17.44 | 1,587        | 34.39 | 518           | 11.22 |
| <b>Total</b> | <b>4</b> |       | <b>219</b> |       | <b>1,522</b> |       | <b>807</b> |       | <b>1,588</b> |       | <b>520</b>    |       |

**Table 4: Expected Building Damage by Building Type**

| Building Type | 1-10  |       | 11-20 |       | 21-30 |       | 31-40 |       | 41-50 |       | Substantially |        |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------------|--------|
|               | Count | (%)   | Count         | (%)    |
| Concrete      | 0     | 0.00  | 1     | 50.00 | 1     | 50.00 | 0     | 0.00  | 0     | 0.00  | 0             | 0.00   |
| Manuf/Housing | 0     | 0.00  | 0     | 0.00  | 0     | 0.00  | 0     | 0.00  | 0     | 0.00  | 53            | 100.00 |
| Masonry       | 1     | 0.48  | 8     | 3.81  | 73    | 34.76 | 27    | 12.86 | 84    | 40.00 | 17            | 8.10   |
| Steel         | 3     | 12.00 | 18    | 72.00 | 2     | 8.00  | 1     | 4.00  | 0     | 0.00  | 1             | 4.00   |
| Wood          | 0     | 0.00  | 188   | 4.31  | 1,445 | 33.13 | 778   | 17.64 | 1,502 | 34.44 | 448           | 10.27  |

## Essential Facility Damage

Before the flood analyzed in this study case, the region had 0 hospital beds available for use. On the day of the scenario flood event, the model estimates that 0 hospital beds are available in the region.

**Table 5: Expected Damage to Essential Facilities**

| Classification  | Total | # Facilities      |                      |             |
|-----------------|-------|-------------------|----------------------|-------------|
|                 |       | At Least Moderate | At Least Substantial | Loss of Use |
| Fire Stations   | 34    | 0                 | 0                    | 0           |
| Hospitals       | 6     | 0                 | 0                    | 0           |
| Police Stations | 18    | 0                 | 0                    | 0           |
| Schools         | 140   | 1                 | 0                    | 0           |

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

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

## Induced Flood Damage

### Debris Generation

HAZUS estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories: 1) Finishes (dry wall, insulation, etc.), 2) Structural (wood, brick, etc.) and 3) Foundations (concrete slab, concrete block, rebar, etc.). This distinction is made because of the different types of material handling equipment required to handle the debris.

Analysis has not been performed for this Scenario.

## Social Impact

### Shelter Requirements

Analysis has not been performed for this Scenario.

## Section 3

### Economic Loss

The total economic loss estimated for the flood is 1,244.35 million dollars, which represents 7.50 % of the total replacement value of the scenario buildings.

#### Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the flood. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the flood.

The total building-related losses were 1,225.12 million dollars. 1% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 62.30% of the total loss. Table 6 below provides a summary of the losses associated with the building damage.

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

| Category                     | Area            | Residential   | Commercial    | Industrial   | Others       | Total           |
|------------------------------|-----------------|---------------|---------------|--------------|--------------|-----------------|
| <u>Building Loss</u>         |                 |               |               |              |              |                 |
|                              | Building        | 479.35        | 91.55         | 22.25        | 10.64        | 603.81          |
|                              | Content         | 294.32        | 209.73        | 49.00        | 50.08        | 603.12          |
|                              | Inventory       | 0.00          | 6.71          | 10.61        | 0.88         | 18.19           |
|                              | <b>Subtotal</b> | <b>773.67</b> | <b>307.99</b> | <b>81.86</b> | <b>61.60</b> | <b>1,226.12</b> |
| <u>Business Interruption</u> |                 |               |               |              |              |                 |
|                              | Income          | 0.02          | 1.45          | 0.00         | 0.12         | 1.59            |
|                              | Relocation      | 1.09          | 0.36          | 0.00         | 0.00         | 1.45            |
|                              | Rental Income   | 0.38          | 0.24          | 0.00         | 0.00         | 0.62            |
|                              | Wage            | 0.04          | 1.37          | 0.01         | 7.36         | 8.78            |
|                              | <b>Subtotal</b> | <b>1.52</b>   | <b>3.42</b>   | <b>0.01</b>  | <b>7.48</b>  | <b>12.44</b>    |
| <b>ALL</b>                   | <b>Total</b>    | <b>776.19</b> | <b>311.41</b> | <b>81.86</b> | <b>69.08</b> | <b>1,237.66</b> |

## Appendix A: County Listing for the Region

Georgia  
- Gwinnett

## Section 3

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

|                           | Population     | Building Value (thousands of dollars) |                   |                   |
|---------------------------|----------------|---------------------------------------|-------------------|-------------------|
|                           |                | Residential                           | Non-Residential   | Total             |
| <b>Georgia</b>            |                |                                       |                   |                   |
| Gwinnett                  | 588,448        | 33,561,011                            | 12,431,047        | 45,992,058        |
| <b>Total</b>              | <b>588,448</b> | <b>33,561,011</b>                     | <b>12,431,047</b> | <b>45,992,058</b> |
| <b>Total Study Region</b> | <b>588,448</b> | <b>33,561,011</b>                     | <b>12,431,047</b> | <b>45,992,058</b> |

## 3.15 Drought

### 3.15.1 Hazard Identification

The Gwinnett County HMSC reviewed historical data from NCDC, SHELDUS, the Georgia Department of Natural Resources (DNR) and the Georgia Forestry Commission in researching drought conditions in Gwinnett County. By definition, a drought is a prolonged period of moisture deficiency. 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, dead vegetation) more fire-prone.

### 3.15.2 Hazard Profile

Gwinnett County most recently experienced drought conditions during the years from 1997 through 2008. Agricultural crop damage during this period was in excess of \$670.760 million. To date, agricultural losses have been the primary losses associated with drought as no critical facilities have sustained any damage or functional downtime due to dry weather conditions. Because of the extremely unpredictable nature of drought (to include duration), reliably calculating a recurrence interval is difficult.

### 3.15.3 Assets Exposed to Hazard

**Property Risk/Vulnerability:** Drought conditions typically pose little or no threat to structures; however, fires can occur as a result of dry weather. The Gwinnett County HMSC concluded that drought, in itself, presents no credible threat to critical facilities. The drought could result in the lost of the availability of municipal water supply. This threat has been addressed by mitigation actions. Wildfire, as a result of drought, was considered, and the committee determined that since previous instances of wildfire in the county have been relatively minimal, it does not bear a significant threat to the community.

**People Risk/Vulnerability:** In evaluating vulnerability of the population in Gwinnett County, it was determined that risk/vulnerability includes the entire population of Gwinnett County since there is no way to determine the impact/magnitude of a drought event. People are vulnerable to drought through available water supply (both public and private wells) and effects from lack of water such as wildfires and ability to grow and water crops.

**Environment Risk/Vulnerability:** Risks to the environment are high for a drought event. Environmental concerns would be loss of vegetation and risk of erosion in areas that area affected by drought, availability of water supply (both public and private wells).

### 3.15.4 Estimate of Potential Losses

The Gwinnett County HMSC was able to determine potential monetary losses for all critical facilities in Gwinnett County. The State of Georgia imposed drought and water use restrictions, which impacted Gwinnett County's reduction in revenues. The Department of Water Resources (DWR) has documented that 15 MGD less water was sold in 2008 than in 2007. This equates to a \$35M reduction in revenues from water and sewer fees.

### 3.15.5 Land Use and Development Trends

Gwinnett County currently has water restrictions and conservation programs in place to address water consumption in drought conditions.

### 3.15.6 Multi-Jurisdictional Concerns

Agricultural losses associated with drought are more likely to occur in the rural, less concentrated areas of the county. Although the cities of Berkeley Lake, Buford, Dacula, Duluth, Grayson, Lawrenceville, Lilburn, Norcross, Snellville, Sugar Hill and Suwanee are not likely to experience drought related agricultural losses, they could experience impacts to their municipal water systems.

### 3.15.7 Hazard Summary

Droughts do not have the immediate effects of other natural hazards, but sustained drought can cause severe economic stress to not only the agricultural interests in Gwinnett County, but to the entire State. The potential negative effects of sustained drought are numerous. In addition to an increased threat of wildfires, drought can affect municipal and industrial water supplies, stream-water quality, water recreation facilities, hydropower generation, as well as agricultural and forest resources. The HMSC discussed the limitations associated with mitigation actions for drought, and did identify mitigation actions related to the potential threat of drought inflicted wildfires in Section 5 – Mitigation Strategies of the 2009 Gwinnett County Hazard Mitigation Plan.

## 3.16 Seismic Hazards

### 3.16.1 Earthquakes

#### 3.16.1.1 Hazard Identification

Although earthquakes occur less frequently in the eastern United States than in California, historical records indicate that earthquakes and their associated seismic hazards exist in Georgia. Major damages have not taken place in this region since the last great earthquake over 100 years ago, (Charleston, South Carolina, 1886) that killed 60 people and devastated the city of Charleston. While large earthquakes are less frequent, some seismologists argue that earthquakes in the eastern United States cause more damage than similar size earthquakes in the western United States. The greater population density in the eastern United States also increases the damage potential. Calculations of seismic hazard indicate that large distant earthquakes are likely to cause as much damage in Georgia, as earthquakes of any size with epicenters within the state. The Gwinnett County HMSC reviewed historical data from the Georgia Tech Earthquake Workshop and the Georgia Southwestern Seismic Station in researching earthquakes in Gwinnett County. By definition, an earthquake is the sudden release of stress along a fault and the resulting vibrations of the earth. The vibrations propagate away from the epicenter.

The Mercalli scale is the method used for measuring earthquake intensity. This scale ranks observed effects from I, felt only under favorable circumstances, to XII, total damage. The magnitude of an earthquake is measured using the Richter scale. Earthquake magnitudes are an absolute scale. An earthquake of magnitude 8 is ten times stronger than a magnitude 7-and 100 times stronger than a magnitude 6-earthquake, etc. There is no highest or lowest value.

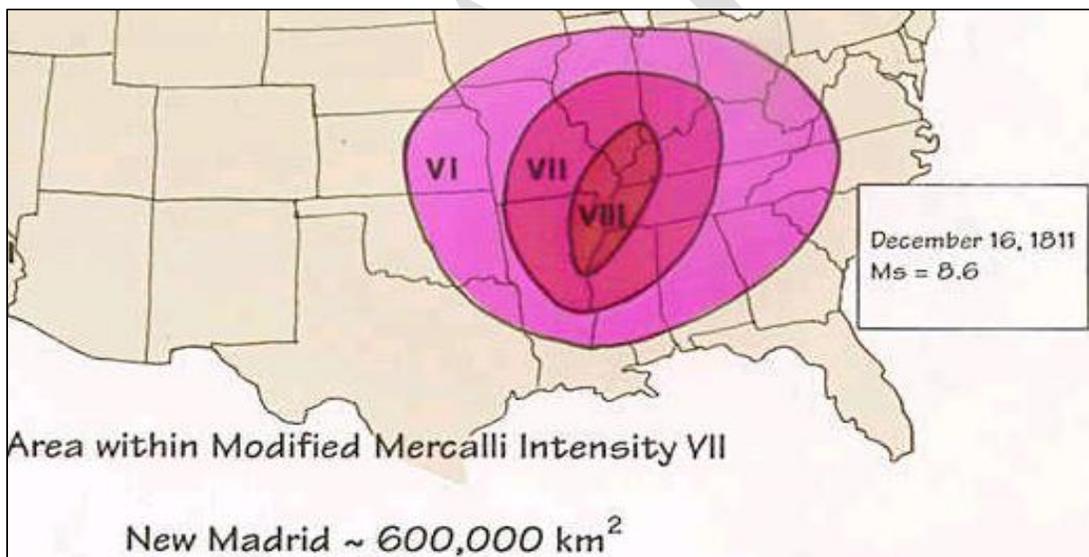
**Table 3-8**  
**Modified Mercalli Scale of Earthquake Intensity**

| Scale | Intensity       | Description of Effects               | Maximum Acceleration (mm/sec) | Corresponding Richter Scale |
|-------|-----------------|--------------------------------------|-------------------------------|-----------------------------|
| I     | Instrumental    | Detected only on seismographs        | <10                           |                             |
| II    | Feeble          | Some people feel it                  | <25                           | <4.2                        |
| III   | Slight          | Felt by people resting               | <50                           |                             |
| IV    | Moderate        | Felt by people walking               | <100                          |                             |
| V     | Slightly Strong | Sleepers awake; church bells ring    | <250                          | <4.8                        |
| VI    | Strong          | Trees sway; objects fall off shelves | <500                          | <5.4                        |
| VII   | Very Strong     | Walls crack; plaster falls           | <1000                         | <6.1                        |

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| Scale | Intensity       | Description of Effects                                                                  | Maximum Acceleration (mm/sec) | Corresponding Richter Scale |
|-------|-----------------|-----------------------------------------------------------------------------------------|-------------------------------|-----------------------------|
| VIII  | Destructive     | Moving cars uncontrollable; building damage                                             | <2500                         |                             |
| IX    | Ruinous         | Houses collapse; ground cracks; pipes break                                             | <5000                         | <6.9                        |
| X     | Disastrous      | Ground cracks profusely; many buildings destroyed; liquefaction/landslides widespread   | <7500                         | <7.3                        |
| XI    | Very Disastrous | Most buildings collapse, pipes roads/bridges, railways destroyed triggers other hazards | <9800                         | <8.1                        |
| XII   | Catastrophic    | Total destruction; ground rises and falls                                               | >9800                         | >8.1                        |

**Figure 19**  
**Area within Modified Mercalli Intensity VI**



Source: USGS National Center

Gwinnett County is within the area of Modified Mercalli Intensity VI of a similar earthquake of 1811 occurring on the New Madrid Fault. This earthquake could measure up to 6.1 on the Richter scale. The major form of damage at this level is damage to construction. Bridges are particularly vulnerable to collapse. Buildings vary in susceptibility, dependent upon construction and the types of soils on which they are built. Fires caused by ruptured gas mains may also destroy structures. The damage caused by both ground breaking and ground shaking can lead to the paralysis of the local infrastructure: police, fire, medical and governmental services. As with many catastrophes, the worst hazard to the survivors is their own shock and inability to

respond to the necessity for prompt, effective action. Secondary earthquake hazards result from distortion of the surface materials such as water, soil, or structures.

### 3.16.1.2 Hazard Profile

Gwinnett County most recently experienced seismic activity from an earthquake with an epicenter located in Menlo Georgia on April 29, 2003. In 1993, residents of the Norris Lake area in the southern most part of Gwinnett reported tremors and subsequent reading by Georgia tech recorded activity from 2-2.7 on the Richter scale. During the years of 1995 and 1996, several small tremors were felt by citizens in the Dacula area of northwest Gwinnett and recorded by Georgia Tech University to be of magnitudes of less than 2.0.

### 3.16.1.3 Assets Exposed to Hazard

**Property Risk/Vulnerability:** The HMSC determined that all critical facilities, as well as all public, private and commercial property, are susceptible to being affected by an earthquake.

**People Risk/Vulnerability:** In evaluating vulnerability of the population in Gwinnett County, it was determined that risk/vulnerability includes the entire population of Gwinnett County since there is no way to determine the impact/magnitude of a earthquake event and no way to predict where and when a earthquake will hit. People are vulnerable to earthquakes through power outages, effects on transportation routes, establishment of shelters, etc.

**Environment Risk/Vulnerability:** Risks to the environment are high should an earthquake occur but the frequency of earthquakes in Gwinnett County are low. Environmental concerns would be interruption of water supply, secondary events such as fires and hazardous materials accidents (such as gas pipelines rupturing, rupture of hazardous material containers at facilities, etc.).

### 3.16.1.4 Estimate of Potential Losses

No historical damage records are available. Based on the nature of earthquakes, the potential loss would be governed by the location and magnitude of the epicenter as well as the intensity of the aftershocks. An earthquake event in Gwinnett County could be expected to affect 30% of the population, primarily through disruption of commerce, malfunction of utility services, and building damage.

### 3.16.1.5 Land Use and Development Trends

Gwinnett County currently has no land use or development trends related to earthquakes.

### 3.16.1.6 Multi-Jurisdictional Concerns

Earthquakes can potentially affect all of Gwinnett County. As a result, any mitigation steps taken related to earthquakes should be undertaken on a countywide basis and

include the cities of Berkeley Lake, Buford, Dacula, Duluth, Grayson, Lawrenceville, Lilburn, Norcross, Snellville, Sugar Hill and Suwanee.

### **3.16.1.7 Hazard Summary**

Overall, Gwinnett County has the potential for damage from earthquakes. Should an earthquake hit certain portions of the county that are highly concentrated with homes, or any of the critical facilities identified, depending upon the magnitude and duration of the event, significant damage could occur. Due to the destructive nature of earthquakes it is imperative that the pre-disaster mitigation measures be identified in Section 5 – Mitigation Strategies of the 2009 Gwinnett County Hazard Mitigation Plan.

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**Table 3-9**  
**HAZUS Earthquake Analysis**

**HAZUS-MH: Earthquake Event Report**

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**Region Name:** Gwinnett

**Earthquake Scenario:** Gwinnet County Magnitude 7 Earthquake

**Print Date:** June 24, 2009

*Totals only reflect data for those census tracts/blocks included in the user's study region.*

**Disclaimer:**

*The estimates of social and economic impacts contained in this report were produced using HAZUS loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific earthquake. These results can be improved by using enhanced inventory, geotechnical, and observed ground motion data.*

### General Description of the Region

HAZUS is a regional earthquake loss estimation model that was developed by the Federal Emergency Management Agency and the National Institute of Building Sciences. The primary purpose of HAZUS is to provide a methodology and software application to develop earthquake losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from earthquakes and to prepare for emergency response and recovery.

The earthquake loss estimates provided in this report was based on a region that includes 1 county(ies) from the following state(s):

Georgia

Note:  
Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is 436.74 square miles and contains 71 census tracts. There are over 202 thousand households in the region and has a total population of 588,448 people (2000 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 175 thousand buildings in the region with a total building replacement value (excluding contents) of 45,992 (millions of dollars). Approximately 96.00 % of the buildings (and 73.00% of the building value) are associated with residential housing.

The replacement value of the transportation and utility lifeline systems is estimated to be 1,528 and 818 (millions of dollars) , respectively.

## Building and Lifeline Inventory

### Building Inventory

HAZUS estimates that there are 175 thousand buildings in the region which have an aggregate total replacement value of 45,992 (millions of dollars). Appendix B provides a general distribution of the building value by State and County.

In terms of building construction types found in the region, wood frame construction makes up 87% of the building inventory. The remaining percentage is distributed between the other general building types.

### Critical Facility Inventory

HAZUS breaks critical facilities into two (2) groups: essential facilities and high potential loss (HPL) facilities. Essential facilities include hospitals, medical clinics, schools, fire stations, police stations and emergency operations facilities. High potential loss facilities include dams, levees, military installations, nuclear power plants and hazardous material sites.

For essential facilities, there are 2 hospitals in the region with a total bed capacity of 610 beds. There are 103 schools, 1 fire stations, 8 police stations and 0 emergency operation facilities. With respect to HPL facilities, there are 59 dams identified within the region. Of these, 6 of the dams are classified as 'high hazard'. The inventory also includes 71 hazardous material sites, 0 military installations and 0 nuclear power plants.

### Transportation and Utility Lifeline Inventory

Within HAZUS, the lifeline inventory is divided between transportation and utility lifeline systems. There are seven (7) transportation systems that include highways, railways, light rail, bus, ports, ferry and airports. There are six (6) utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power and communications. The lifeline inventory data are provided in Tables 1 and 2.

The total value of the lifeline inventory is over 2,346.00 (millions of dollars). This inventory includes over 376 kilometers of highways, 168 bridges, 9,740 kilometers of pipes.

## Section 3

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Table 1: Transportation System Lifeline Inventory

| System     | Component       | # locations/<br># Segments | Replacement value<br>(millions of dollars) |
|------------|-----------------|----------------------------|--------------------------------------------|
| Highway    | Bridges         | 168                        | 218.10                                     |
|            | Segments        | 112                        | 1,121.90                                   |
|            | Tunnels         | 0                          | 0.00                                       |
|            | <b>Subtotal</b> |                            | <b>1,340.00</b>                            |
| Railways   | Bridges         | 2                          | 0.30                                       |
|            | Facilities      | 3                          | 5.80                                       |
|            | Segments        | 23                         | 56.80                                      |
|            | Tunnels         | 0                          | 0.00                                       |
|            | <b>Subtotal</b> |                            | <b>62.80</b>                               |
| Light Rail | Bridges         | 0                          | 0.00                                       |
|            | Facilities      | 0                          | 0.00                                       |
|            | Segments        | 0                          | 0.00                                       |
|            | Tunnels         | 0                          | 0.00                                       |
|            | <b>Subtotal</b> |                            | <b>0.00</b>                                |
| Bus        | Facilities      | 2                          | 1.90                                       |
|            | <b>Subtotal</b> |                            | <b>1.90</b>                                |
| Ferry      | Facilities      | 0                          | 0.00                                       |
|            | <b>Subtotal</b> |                            | <b>0.00</b>                                |
| Port       | Facilities      | 0                          | 0.00                                       |
|            | <b>Subtotal</b> |                            | <b>0.00</b>                                |
| Airport    | Facilities      | 3                          | 14.40                                      |
|            | Runways         | 4                          | 109.40                                     |
|            | <b>Subtotal</b> |                            | <b>123.80</b>                              |
|            |                 | <b>Total</b>               | <b>1,528.50</b>                            |

# HAZARD VULNERABILITY ASSESSMENT

Table 2: Utility System Lifeline Inventory

| System           | Component          | # Locations / Segments | Replacement value (millions of dollars) |
|------------------|--------------------|------------------------|-----------------------------------------|
| Potable Water    | Distribution Lines | NA                     | 97.40                                   |
|                  | Facilities         | 0                      | 0.00                                    |
|                  | Pipelines          | 0                      | 0.00                                    |
|                  | Subtotal           |                        | <b>97.40</b>                            |
| Waste Water      | Distribution Lines | NA                     | 58.40                                   |
|                  | Facilities         | 9                      | 527.50                                  |
|                  | Pipelines          | 0                      | 0.00                                    |
|                  | Subtotal           |                        | <b>585.90</b>                           |
| Natural Gas      | Distribution Lines | NA                     | 39.00                                   |
|                  | Facilities         | 0                      | 0.00                                    |
|                  | Pipelines          | 0                      | 0.00                                    |
|                  | Subtotal           |                        | <b>39.00</b>                            |
| Oil Systems      | Facilities         | 0                      | 0.00                                    |
|                  | Pipelines          | 0                      | 0.00                                    |
|                  | Subtotal           |                        | <b>0.00</b>                             |
| Electrical Power | Facilities         | 3                      | 290.40                                  |
|                  | Subtotal           |                        | <b>290.40</b>                           |
| Communication    | Facilities         | 5                      | 0.40                                    |
|                  | Subtotal           |                        | <b>0.40</b>                             |
|                  |                    | Total                  | <b>1,013.10</b>                         |

## Section 3

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### Earthquake Scenario

HAZUS uses the following set of information to define the earthquake parameters used for the earthquake loss estimate provided in this report.

|                               |                                       |
|-------------------------------|---------------------------------------|
| Scenario Name                 | Gwinnet County Magnitude 7 Earthquake |
| Type of Earthquake            | Probabilistic                         |
| Fault Name                    | NA                                    |
| Historical Epicenter ID #     | NA                                    |
| Probabilistic Return Period   | 100.00                                |
| Longitude of Epicenter        | NA                                    |
| Latitude of Epicenter         | NA                                    |
| Earthquake Magnitude          | 7.00                                  |
| Depth (Km)                    | NA                                    |
| Rupture Length (Km)           | NA                                    |
| Rupture Orientation (degrees) | NA                                    |
| Attenuation Function          | NA                                    |

## Building Damage

### Building Damage

HAZUS estimates that about 180 buildings will be at least moderately damaged. This is over 0.00 % of the total number of buildings in the region. There are an estimated 0 buildings that will be damaged beyond repair. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the HAZUS technical manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 summarizes the expected damage by general building type.

Table 3: Expected Building Damage by Occupancy

|                   | None           |       | Slight     |       | Moderate   |       | Extensive |       | Complete |       |
|-------------------|----------------|-------|------------|-------|------------|-------|-----------|-------|----------|-------|
|                   | Count          | (%)   | Count      | (%)   | Count      | (%)   | Count     | (%)   | Count    | (%)   |
| Agriculture       | 99             | 0.06  | 1          | 0.12  | 0          | 0.14  | 0         | 0.18  | 0        | 0.13  |
| Commercial        | 4,408          | 2.52  | 55         | 6.67  | 15         | 8.92  | 2         | 11.95 | 0        | 9.22  |
| Education         | 78             | 0.04  | 1          | 0.11  | 0          | 0.14  | 0         | 0.19  | 0        | 0.17  |
| Government        | 376            | 0.21  | 4          | 0.51  | 1          | 0.61  | 0         | 0.72  | 0        | 0.46  |
| Industrial        | 1,087          | 0.62  | 13         | 1.55  | 3          | 2.04  | 0         | 2.56  | 0        | 1.66  |
| Other Residential | 11,029         | 6.31  | 159        | 19.31 | 42         | 25.04 | 2         | 14.19 | 0        | 9.90  |
| Religion          | 316            | 0.18  | 4          | 0.48  | 1          | 0.73  | 0         | 1.07  | 0        | 1.10  |
| Single Family     | 157,419        | 90.05 | 587        | 71.24 | 104        | 62.38 | 9         | 69.14 | 1        | 77.37 |
| <b>Total</b>      | <b>174,811</b> |       | <b>824</b> |       | <b>167</b> |       | <b>13</b> |       | <b>1</b> |       |

Table 4: Expected Building Damage by Building Type (All Design Levels)

|              | None           |       | Slight     |       | Moderate   |       | Extensive |       | Complete |        |
|--------------|----------------|-------|------------|-------|------------|-------|-----------|-------|----------|--------|
|              | Count          | (%)   | Count      | (%)   | Count      | (%)   | Count     | (%)   | Count    | (%)    |
| Wood         | 151,691        | 86.77 | 372        | 45.18 | 30         | 18.22 | 0         | 0.00  | 0        | 0.00   |
| Steel        | 3,192          | 1.83  | 29         | 3.58  | 6          | 3.73  | 0         | 3.32  | 0        | 0.00   |
| Concrete     | 666            | 0.38  | 5          | 0.65  | 1          | 0.58  | 0         | 0.23  | 0        | 0.00   |
| Precast      | 202            | 0.12  | 4          | 0.44  | 2          | 1.03  | 0         | 1.71  | 0        | 0.00   |
| RM           | 1,075          | 0.62  | 10         | 1.18  | 4          | 2.13  | 0         | 2.70  | 0        | 0.00   |
| URM          | 13,335         | 7.63  | 292        | 35.48 | 95         | 57.05 | 12        | 88.39 | 1        | 100.00 |
| MH           | 4,650          | 2.66  | 111        | 13.49 | 29         | 17.26 | 0         | 3.66  | 0        | 0.00   |
| <b>Total</b> | <b>174,811</b> |       | <b>824</b> |       | <b>167</b> |       | <b>13</b> |       | <b>1</b> |        |

\*Note:  
 RM Reinforced Masonry  
 URM Unreinforced Masonry  
 MH Manufactured Housing

## Section 3

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### Essential Facility Damage

Before the earthquake, the region had 610 hospital beds available for use. On the day of the earthquake, the model estimates that only 583 hospital beds (96.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 99.00% of the beds will be back in service. By 30 days, 100.00% will be operational.

Table 5: Expected Damage to Essential Facilities

| Classification | Total | # Facilities                      |                          |                                      |
|----------------|-------|-----------------------------------|--------------------------|--------------------------------------|
|                |       | At Least Moderate<br>Damage > 50% | Complete<br>Damage > 50% | With Functionality<br>> 50% on day 1 |
| Hospitals      | 2     | 0                                 | 0                        | 2                                    |
| Schools        | 103   | 0                                 | 0                        | 103                                  |
| EOCs           | 0     | 0                                 | 0                        | 0                                    |
| PoliceStations | 8     | 0                                 | 0                        | 8                                    |
| FireStations   | 1     | 0                                 | 0                        | 1                                    |

**Transportation and Utility Lifeline Damage**

Table 6 provides damage estimates for the transportation system.

**Table 6: Expected Damage to the Transportation Systems**

| System     | Component  | Locations/<br>Segments | Number of Locations          |                         |                           |             |
|------------|------------|------------------------|------------------------------|-------------------------|---------------------------|-------------|
|            |            |                        | With at Least<br>Mod. Damage | With Complete<br>Damage | With Functionality > 50 % |             |
|            |            |                        |                              |                         | After Day 1               | After Day 7 |
| Highway    | Segments   | 112                    | 0                            | 0                       | 112                       | 112         |
|            | Bridges    | 168                    | 0                            | 0                       | 168                       | 168         |
|            | Tunnels    | 0                      | 0                            | 0                       | 0                         | 0           |
| Railways   | Segments   | 23                     | 0                            | 0                       | 23                        | 23          |
|            | Bridges    | 2                      | 0                            | 0                       | 2                         | 2           |
|            | Tunnels    | 0                      | 0                            | 0                       | 0                         | 0           |
|            | Facilities | 3                      | 0                            | 0                       | 3                         | 3           |
| Light Rail | Segments   | 0                      | 0                            | 0                       | 0                         | 0           |
|            | Bridges    | 0                      | 0                            | 0                       | 0                         | 0           |
|            | Tunnels    | 0                      | 0                            | 0                       | 0                         | 0           |
|            | Facilities | 0                      | 0                            | 0                       | 0                         | 0           |
| Bus        | Facilities | 2                      | 0                            | 0                       | 2                         | 2           |
| Ferry      | Facilities | 0                      | 0                            | 0                       | 0                         | 0           |
| Port       | Facilities | 0                      | 0                            | 0                       | 0                         | 0           |
| Airport    | Facilities | 3                      | 0                            | 0                       | 3                         | 3           |
|            | Runways    | 4                      | 0                            | 0                       | 4                         | 4           |

Note: Roadway segments, railroad tracks and light rail tracks are assumed to be damaged by ground failure only. If ground failure maps are not provided, damage estimates to these components will not be computed.

Tables 7-9 provide information on the damage to the utility lifeline systems. Table 7 provides damage to the utility system facilities. Table 8 provides estimates on the number of leaks and breaks by the pipelines of the utility systems. For electric power and potable water, HAZUS performs a simplified system performance analysis. Table 9 provides a summary of the system performance information.

### Section 3

Table 7 : Expected Utility System Facility Damage

| System           | # of Locations |                               |                      |                           |             |
|------------------|----------------|-------------------------------|----------------------|---------------------------|-------------|
|                  | Total #        | With at Least Moderate Damage | With Complete Damage | with Functionality > 50 % |             |
|                  |                |                               |                      | After Day 1               | After Day 7 |
| Potable Water    | 0              | 0                             | 0                    | 0                         | 0           |
| Waste Water      | 9              | 0                             | 0                    | 9                         | 9           |
| Natural Gas      | 0              | 0                             | 0                    | 0                         | 0           |
| Oil Systems      | 0              | 0                             | 0                    | 0                         | 0           |
| Electrical Power | 3              | 0                             | 0                    | 3                         | 3           |
| Communication    | 5              | 0                             | 0                    | 5                         | 5           |

Table 8 : Expected Utility System Pipeline Damage (Site Specific)

| System        | Total Pipelines Length (kms) | Number of Leaks | Number of Breaks |
|---------------|------------------------------|-----------------|------------------|
| Potable Water | 4,870                        | 4               | 1                |
| Waste Water   | 2,922                        | 3               | 1                |
| Natural Gas   | 1,948                        | 3               | 1                |
| Oil           | 0                            | 0               | 0                |

Table 9: Expected Potable Water and Electric Power System Performance

|                | Total # of Households | Number of Households without Service |          |          |           |           |
|----------------|-----------------------|--------------------------------------|----------|----------|-----------|-----------|
|                |                       | At Day 1                             | At Day 3 | At Day 7 | At Day 30 | At Day 90 |
| Potable Water  | 202,317               | 0                                    | 0        | 0        | 0         | 0         |
| Electric Power |                       | 0                                    | 0        | 0        | 0         | 0         |

## Induced Earthquake Damage

### Fire Following Earthquake

Fires often occur after an earthquake. Because of the number of fires and the lack of water to fight the fires, they can often burn out of control. HAZUS uses a Monte Carlo simulation model to estimate the number of ignitions and the amount of burnt area. For this scenario, the model estimates that there will be 0 ignitions that will burn about 0.00 sq. mi (0.00 % of the region's total area.) The model also estimates that the fires will displace about 0 people and burn about 0 (millions of dollars) of building value.

### Debris Generation

HAZUS estimates the amount of debris that will be generated by the earthquake. The model breaks the debris into two general categories: a) Brick/Wood and b) Reinforced Concrete/Steel. This distinction is made because of the different types of material handling equipment required to handle the debris.

The model estimates that a total of 0.00 million tons of debris will be generated. Of the total amount, Brick/Wood comprises 0.00% of the total, with the remainder being Reinforced Concrete/Steel. If the debris tonnage is converted to an estimated number of truckloads, it will require 0 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

### Social Impact

#### Shelter Requirement

HAZUS estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 9 households to be displaced due to the earthquake. Of these, 6 people (out of a total population of 588,448) will seek temporary shelter in public shelters.

#### Casualties

HAZUS estimates the number of people that will be injured and killed by the earthquake. The casualties are broken down into four (4) severity levels that describe the extent of the injuries. The levels are described as follows;

- Severity Level 1: Injuries will require medical attention but hospitalization is not needed.
- Severity Level 2: Injuries will require hospitalization but are not considered life-threatening
- Severity Level 3: Injuries will require hospitalization and can become life threatening if not promptly treated.
- Severity Level 4: Victims are killed by the earthquake.

The casualty estimates are provided for three (3) times of day: 2:00 AM, 2:00 PM and 5:00 PM. These times represent the periods of the day that different sectors of the community are at their peak occupancy loads. The 2:00 AM estimate considers that the residential occupancy load is maximum, the 2:00 PM estimate considers that the educational, commercial and industrial sector loads are maximum and 5:00 PM represents peak commute time.

Table 10 provides a summary of the casualties estimated for this earthquake

Table 10: Casualty Estimates

|             |                   | Level 1  | Level 2  | Level 3  | Level 4  |
|-------------|-------------------|----------|----------|----------|----------|
| <b>2 AM</b> | Commercial        | 0        | 0        | 0        | 0        |
|             | Commuting         | 0        | 0        | 0        | 0        |
|             | Educational       | 0        | 0        | 0        | 0        |
|             | Hotels            | 0        | 0        | 0        | 0        |
|             | Industrial        | 0        | 0        | 0        | 0        |
|             | Other-Residential | 2        | 0        | 0        | 0        |
|             | Single Family     | 3        | 0        | 0        | 0        |
|             | <b>Total</b>      | <b>5</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| <b>2 PM</b> | Commercial        | 5        | 1        | 0        | 0        |
|             | Commuting         | 0        | 0        | 0        | 0        |
|             | Educational       | 1        | 0        | 0        | 0        |
|             | Hotels            | 0        | 0        | 0        | 0        |
|             | Industrial        | 1        | 0        | 0        | 0        |
|             | Other-Residential | 0        | 0        | 0        | 0        |
|             | Single Family     | 0        | 0        | 0        | 0        |
|             | <b>Total</b>      | <b>8</b> | <b>1</b> | <b>0</b> | <b>0</b> |
| <b>5 PM</b> | Commercial        | 4        | 0        | 0        | 0        |
|             | Commuting         | 0        | 0        | 0        | 0        |
|             | Educational       | 0        | 0        | 0        | 0        |
|             | Hotels            | 0        | 0        | 0        | 0        |
|             | Industrial        | 1        | 0        | 0        | 0        |
|             | Other-Residential | 1        | 0        | 0        | 0        |
|             | Single Family     | 1        | 0        | 0        | 0        |
|             | <b>Total</b>      | <b>6</b> | <b>1</b> | <b>0</b> | <b>0</b> |

**Economic Loss**

The total economic loss estimated for the earthquake is 16.65 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

**Building-Related Losses**

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the earthquake. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the earthquake.

The total building-related losses were 16.51 (millions of dollars); 39 % of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 43 % of the total loss. Table 11 below provides a summary of the losses associated with the building damage.

**Table 11: Building-Related Economic Loss Estimates**  
(Millions of dollars)

| Category                    | Area            | Single Family | Other Residential | Commercial  | Industrial  | Others      | Total        |
|-----------------------------|-----------------|---------------|-------------------|-------------|-------------|-------------|--------------|
| <b>Income Losses</b>        |                 |               |                   |             |             |             |              |
|                             | Wage            | 0.00          | 0.06              | 1.17        | 0.05        | 0.10        | 1.38         |
|                             | Capital-Related | 0.00          | 0.03              | 1.04        | 0.03        | 0.02        | 1.11         |
|                             | Rental          | 0.18          | 0.30              | 1.01        | 0.03        | 0.04        | 1.56         |
|                             | Relocation      | 0.63          | 0.22              | 1.22        | 0.14        | 0.24        | 2.44         |
|                             | <b>Subtotal</b> | <b>0.81</b>   | <b>0.60</b>       | <b>4.44</b> | <b>0.25</b> | <b>0.40</b> | <b>6.48</b>  |
| <b>Capital Stock Losses</b> |                 |               |                   |             |             |             |              |
|                             | Structural      | 1.19          | 0.38              | 1.38        | 0.27        | 0.22        | 3.45         |
|                             | Non_Structural  | 2.87          | 0.78              | 1.47        | 0.24        | 0.26        | 5.62         |
|                             | Content         | 0.37          | 0.07              | 0.31        | 0.11        | 0.05        | 0.91         |
|                             | Inventory       | 0.00          | 0.00              | 0.01        | 0.03        | 0.00        | 0.04         |
|                             | <b>Subtotal</b> | <b>4.43</b>   | <b>1.23</b>       | <b>3.18</b> | <b>0.65</b> | <b>0.54</b> | <b>10.03</b> |
|                             | <b>Total</b>    | <b>5.24</b>   | <b>1.83</b>       | <b>7.61</b> | <b>0.89</b> | <b>0.93</b> | <b>16.51</b> |

## Transportation and Utility Lifeline Losses

For the transportation and utility lifeline systems, HAZUS computes the direct repair cost for each component only. There are no losses computed by HAZUS for business interruption due to lifeline outages. Tables 12 & 13 provide a detailed breakdown in the expected lifeline losses.

HAZUS estimates the long-term economic impacts to the region for 15 years after the earthquake. The model quantifies this information in terms of income and employment changes within the region. Table 14 presents the results of the region for the given earthquake.

**Table 12: Transportation System Economic Losses**  
(Millions of dollars)

| System       | Component  | Inventory Value | Economic Loss | Loss Ratio (%) |
|--------------|------------|-----------------|---------------|----------------|
| Highway      | Segments   | 1,121.86        | \$0.00        | 0.00           |
|              | Bridges    | 218.12          | \$0.00        | 0.00           |
|              | Tunnels    | 0.00            | \$0.00        | 0.00           |
|              | Subtotal   | 1340.00         | 0.00          |                |
| Railways     | Segments   | 56.79           | \$0.00        | 0.00           |
|              | Bridges    | 0.30            | \$0.00        | 0.00           |
|              | Tunnels    | 0.00            | \$0.00        | 0.00           |
|              | Facilities | 5.76            | \$0.00        | 0.08           |
|              | Subtotal   | 62.80           | 0.00          |                |
| Light Rail   | Segments   | 0.00            | \$0.00        | 0.00           |
|              | Bridges    | 0.00            | \$0.00        | 0.00           |
|              | Tunnels    | 0.00            | \$0.00        | 0.00           |
|              | Facilities | 0.00            | \$0.00        | 0.00           |
|              | Subtotal   | 0.00            | 0.00          |                |
| Bus          | Facilities | 1.92            | \$0.00        | 0.22           |
|              | Subtotal   | 1.90            | 0.00          |                |
| Ferry        | Facilities | 0.00            | \$0.00        | 0.00           |
|              | Subtotal   | 0.00            | 0.00          |                |
| Port         | Facilities | 0.00            | \$0.00        | 0.00           |
|              | Subtotal   | 0.00            | 0.00          |                |
| Airport      | Facilities | 14.39           | \$0.03        | 0.21           |
|              | Runways    | 109.40          | \$0.00        | 0.00           |
|              | Subtotal   | 123.80          | 0.00          |                |
| <b>Total</b> |            | <b>1528.50</b>  | <b>0.00</b>   |                |

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**Table 13: Utility System Economic Losses**  
(Millions of dollars)

| System           | Component          | Inventory Value | Economic Loss | Loss Ratio (%) |
|------------------|--------------------|-----------------|---------------|----------------|
| Potable Water    | Pipelines          | 0.00            | \$0.00        | 0.00           |
|                  | Facilities         | 0.00            | \$0.00        | 0.00           |
|                  | Distribution Lines | 97.40           | \$0.02        | 0.02           |
|                  | <b>Subtotal</b>    | <b>97.41</b>    | <b>\$0.02</b> |                |
| Waste Water      | Pipelines          | 0.00            | \$0.00        | 0.00           |
|                  | Facilities         | 527.50          | \$0.04        | 0.01           |
|                  | Distribution Lines | 58.40           | \$0.01        | 0.02           |
|                  | <b>Subtotal</b>    | <b>585.92</b>   | <b>\$0.05</b> |                |
| Natural Gas      | Pipelines          | 0.00            | \$0.00        | 0.00           |
|                  | Facilities         | 0.00            | \$0.00        | 0.00           |
|                  | Distribution Lines | 39.00           | \$0.01        | 0.04           |
|                  | <b>Subtotal</b>    | <b>38.96</b>    | <b>\$0.01</b> |                |
| Oil Systems      | Pipelines          | 0.00            | \$0.00        | 0.00           |
|                  | Facilities         | 0.00            | \$0.00        | 0.00           |
|                  | <b>Subtotal</b>    | <b>0.00</b>     | <b>\$0.00</b> |                |
| Electrical Power | Facilities         | 290.40          | \$0.02        | 0.01           |
|                  | <b>Subtotal</b>    | <b>290.40</b>   | <b>\$0.02</b> |                |
| Communication    | Facilities         | 0.40            | \$0.00        | 0.00           |
|                  | <b>Subtotal</b>    | <b>0.44</b>     | <b>\$0.00</b> |                |
|                  | <b>Total</b>       | <b>1,013.13</b> | <b>\$0.10</b> |                |

**Table 14. Indirect Economic Impact with outside aid**  
(Employment as # of people and Income in millions of \$)

| LOSS                 | Total | %    |
|----------------------|-------|------|
| <b>First Year</b>    |       |      |
| Employment Impact    | 0     | 0.00 |
| Income Impact        | 0     | 0.00 |
| <b>Second Year</b>   |       |      |
| Employment Impact    | 0     | 0.00 |
| Income Impact        | 0     | 0.00 |
| <b>Third Year</b>    |       |      |
| Employment Impact    | 0     | 0.00 |
| Income Impact        | 0     | 0.00 |
| <b>Fourth Year</b>   |       |      |
| Employment Impact    | 0     | 0.00 |
| Income Impact        | 0     | 0.00 |
| <b>Fifth Year</b>    |       |      |
| Employment Impact    | 0     | 0.00 |
| Income Impact        | 0     | 0.00 |
| <b>Years 6 to 15</b> |       |      |
| Employment Impact    | 0     | 0.00 |
| Income Impact        | 0     | 0.00 |

## Section 3

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### Appendix A: County Listing for the Region

Gwinnett, GA

## Appendix B: Regional Population and Building Value Data

| State        | County Name | Population | Building Value (millions of dollars) |                 |        |
|--------------|-------------|------------|--------------------------------------|-----------------|--------|
|              |             |            | Residential                          | Non-Residential | Total  |
| Georgia      | Gwinnett    | 588,448    | 33,561                               | 12,431          | 45,992 |
| Total State  |             | 588,448    | 33,561                               | 12,431          | 45,992 |
| Total Region |             | 588,448    | 33,561                               | 12,431          | 45,992 |

## 3.17 Technological Hazards

### 3.17.1 Dam/Levee Failures

Figure 3-9 below shows the location of dams in and around Gwinnett County in relation to population density. Whereas this may not support any conclusive correlation between dam breaches and/or failures and affected populations, it does aid the planning process by visually placing all known state-regulated dams in direct relationship to population distribution.

### 3.17.2 Assets Expose to Hazard

**Property Risk/Vulnerability:** The HMSC determined that critical facilities, as well as public, private and commercial property, are susceptible to being affected by a dam failure if they are located in the inundation area. See the following dam inundation maps for identified properties in the affected areas.

**People Risk/Vulnerability:** In evaluating vulnerability of the population in Gwinnett County, it was determined that risk/vulnerability includes the population of Gwinnett County that is located in the dam failure inundation areas identified in the following maps. People are vulnerable to dam failure through power outages, effects on transportation routes, establishment of shelters, flooding, etc.

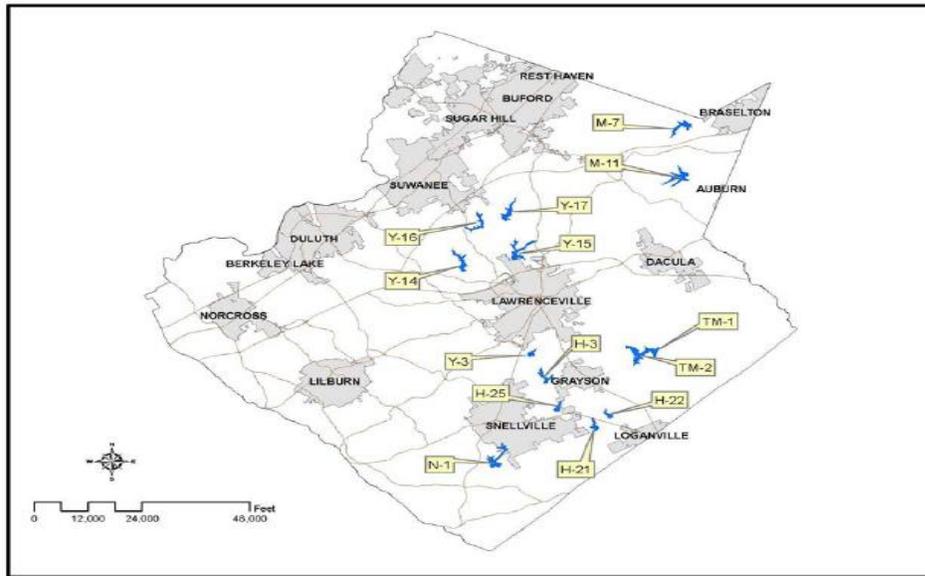
**Environment Risk/Vulnerability:** Risks to the environment are high should a dam failure occur but the frequency of dam failures in Gwinnett are low. Environmental concerns would be interruption of water supply, water contamination and loss of properties.

**Table 3-10  
Dam/Levee Classifications**

| Category    | Descriptions       | Quantity |
|-------------|--------------------|----------|
| Category I  | High Hazard        | 24       |
| Category II | Low Hazard         | 42       |
| E           | Exempt             | 9        |
| EH          | Exempt High Hazard | 3        |
| TBS         | To Be Studied      | 0        |

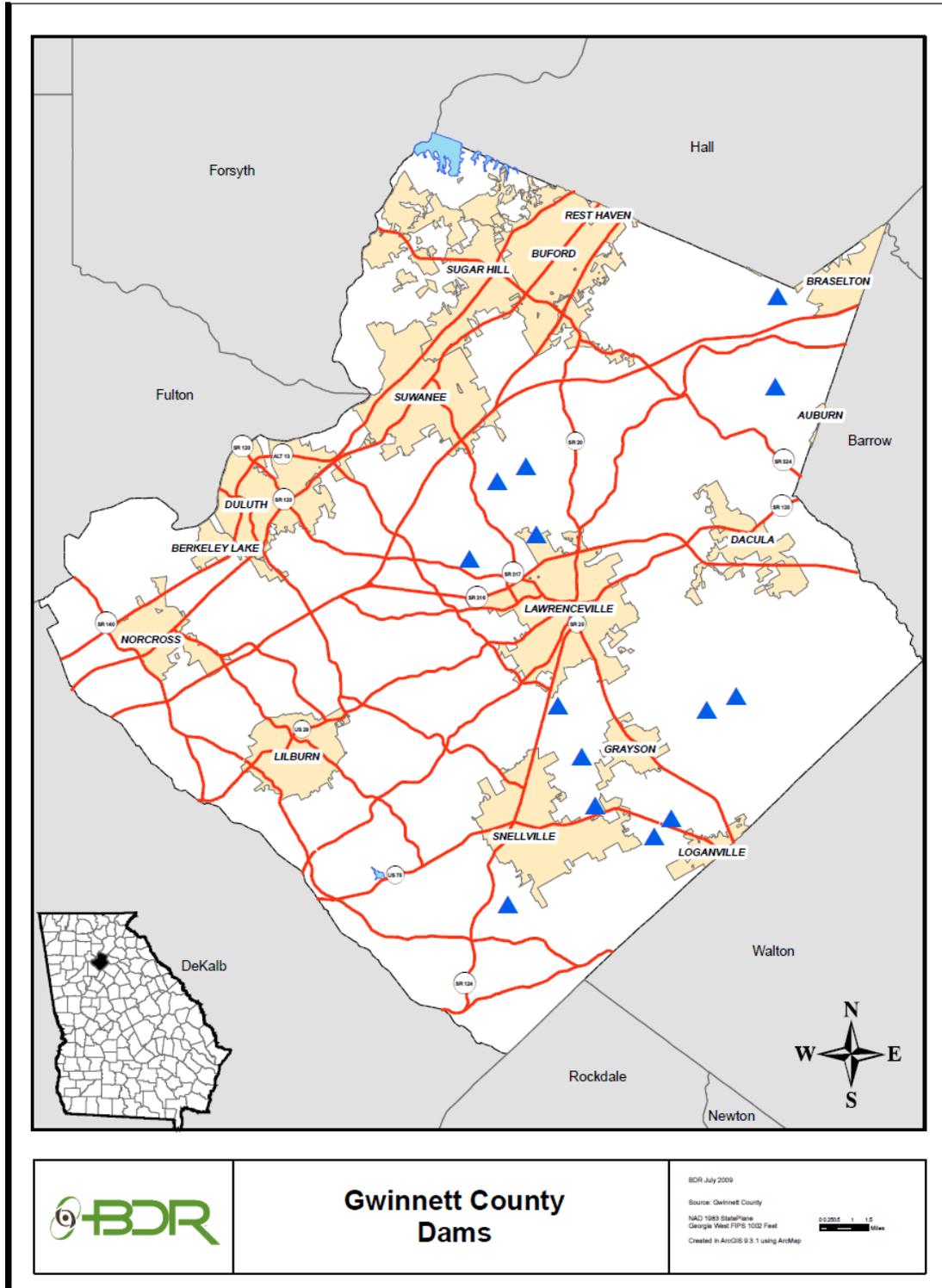
| Category      | Descriptions | Quantity  |
|---------------|--------------|-----------|
| ND            | Breached     | 2         |
| <b>TOTALS</b> |              | <b>80</b> |

Figure 20  
Location Map

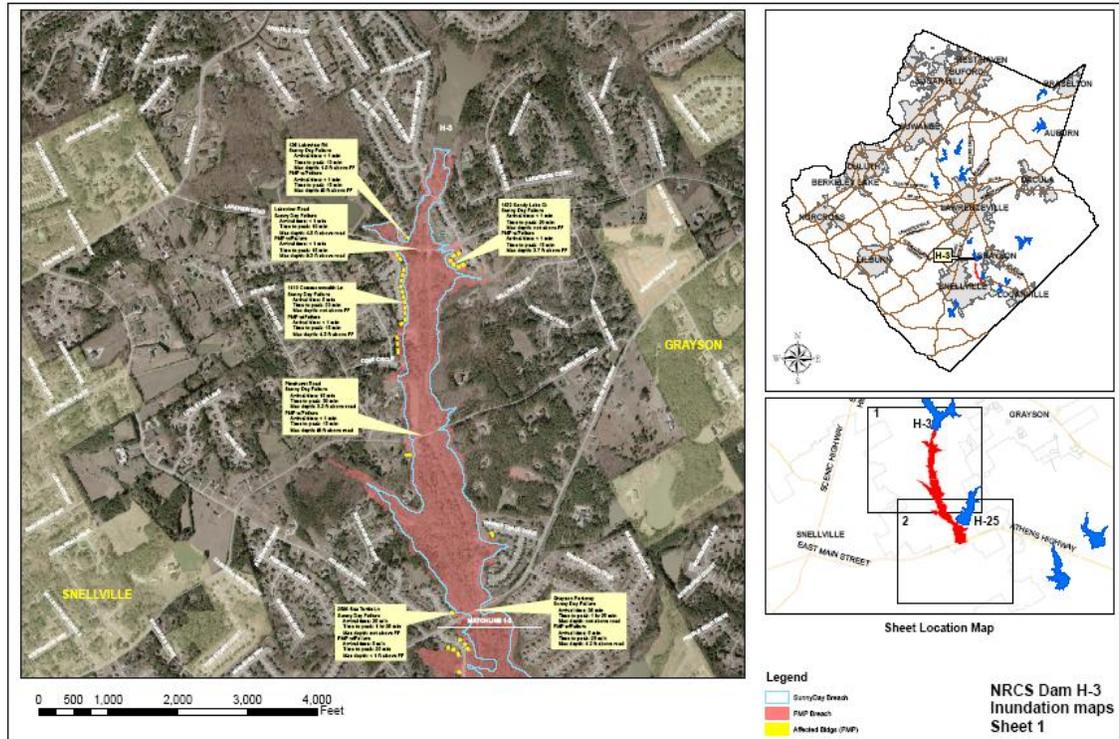


- NRCS Dam H-3 – Waterton Lake
- NRCS Dam H-21 – Midway Lake
- NRCS Dam H-22 – Lake Wellbrook
- NRCS Dam H-25 – Haynes Crossing Lake
- NRCS Dam M-7 – Duncans Lake
- NRCS Dam M-11 – Little Mulberry Park Lake
- NRCS Dam N-1 – Trophy Club Lake
- NRCS Dam TM-1 – Ozora Lake
- NRCS Dam Y-3 – Knollwood Lake
- NRCS Dam Y-14 – Wolf Lake
- NRCS Dam Y-15 – Channings Lake
- NRCS Dam Y-16 – Richland Lake
- NRCS Dam Y-17 – Collins Hill Park Lake

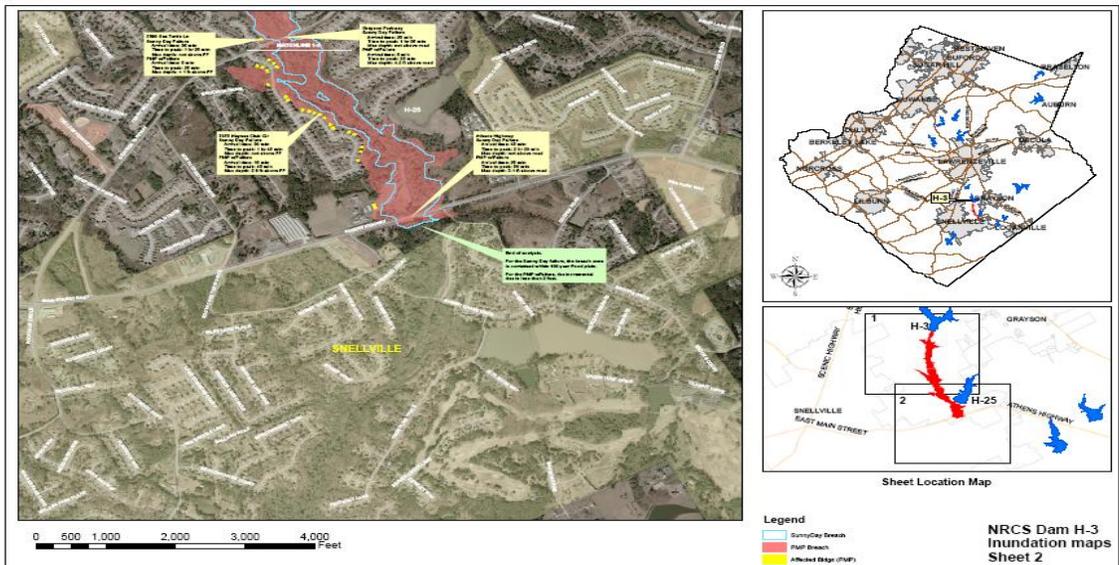
**Figure 21**  
**Locations of Dams and Levees in Relation to Population Density**



**Figure 22**  
**Areas that would be impacted by Dam Failure**  
**NRCS Dam H-3 Inundation Maps Sheet 1**



**Figure 23**  
**NRCS Dam H-3 Inundation Maps Sheet 2**



**Figure 24**  
**NRCS Dam H-21 Inundation Maps Sheet 1**

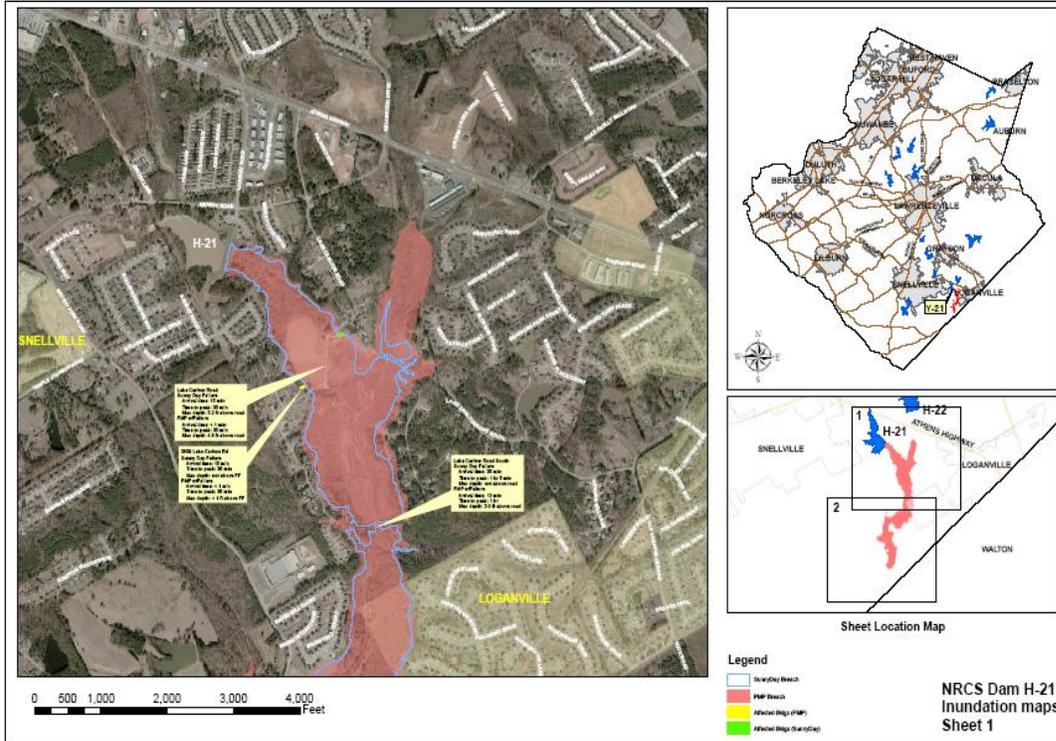


Figure 25  
NRCS Dam H-21 Inundation Maps Sheet 2

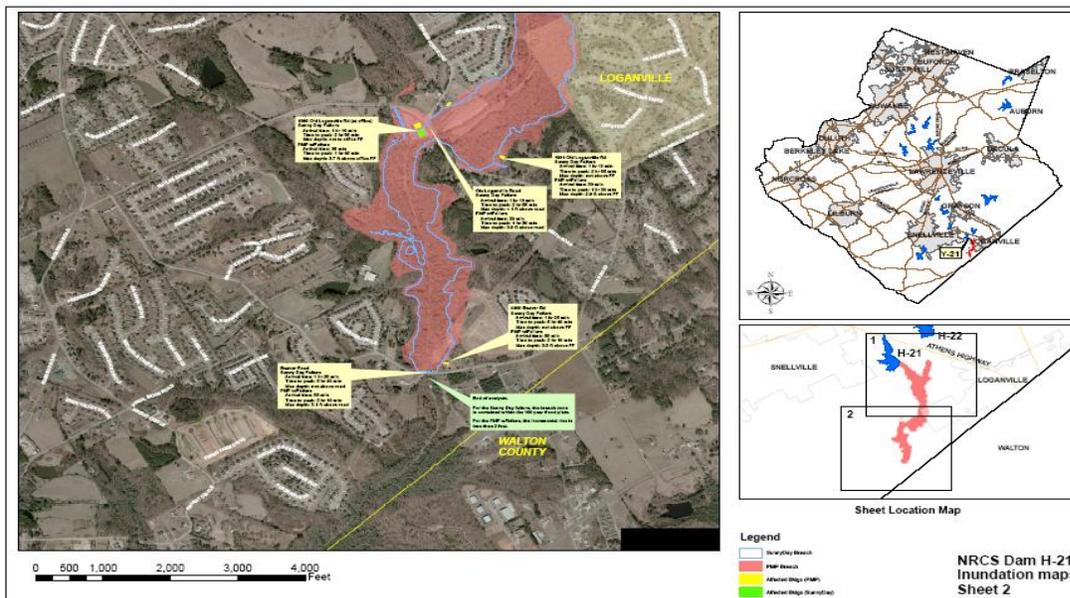


Figure 26  
NRCS Dam H-22 Inundation Maps Sheet 1



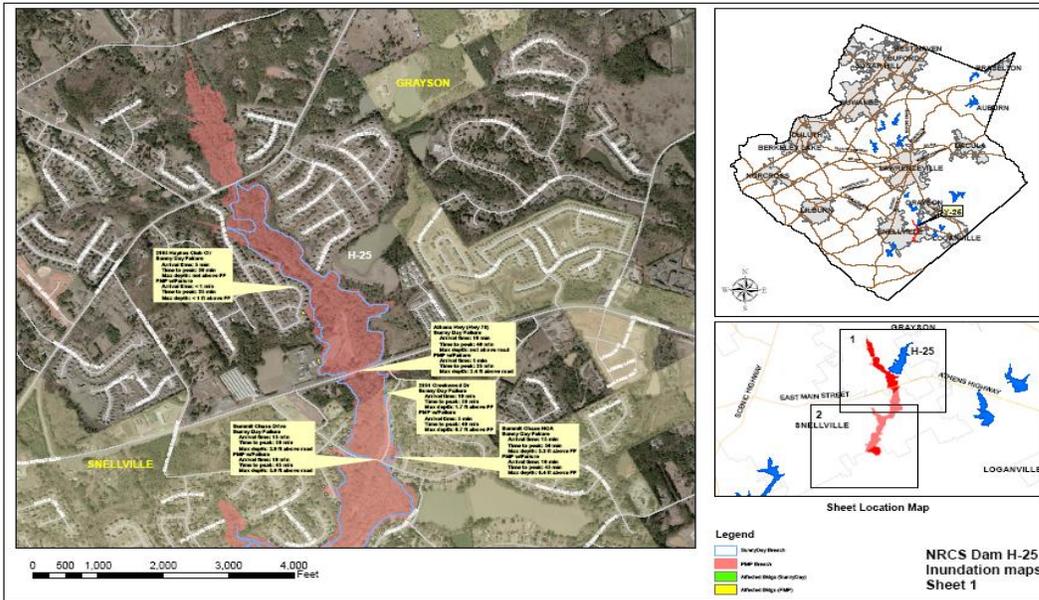


Figure 29  
NRCS Dam H-25 Inundation Maps Sheet 2

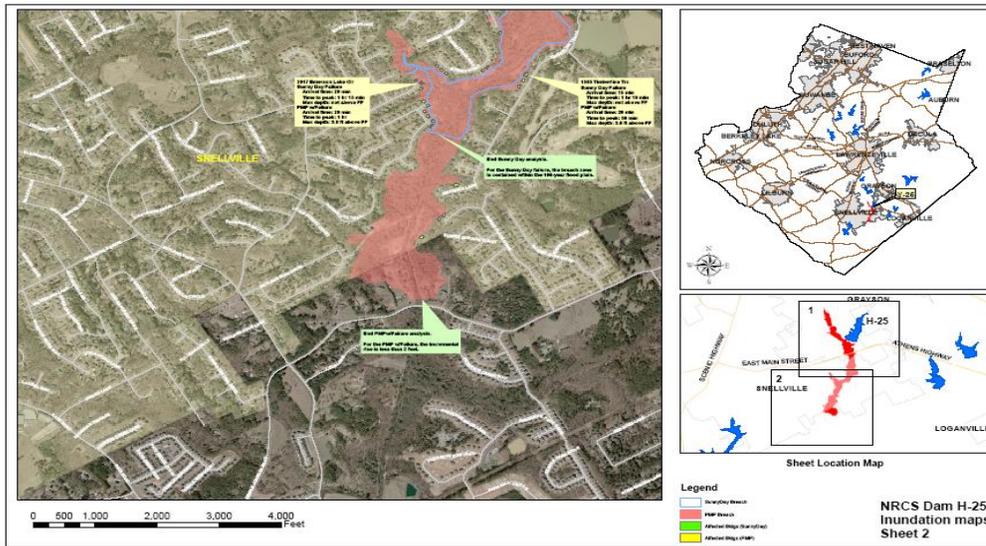


Figure 30  
NRCS Dam M-7 Inundation Maps Sheet 1

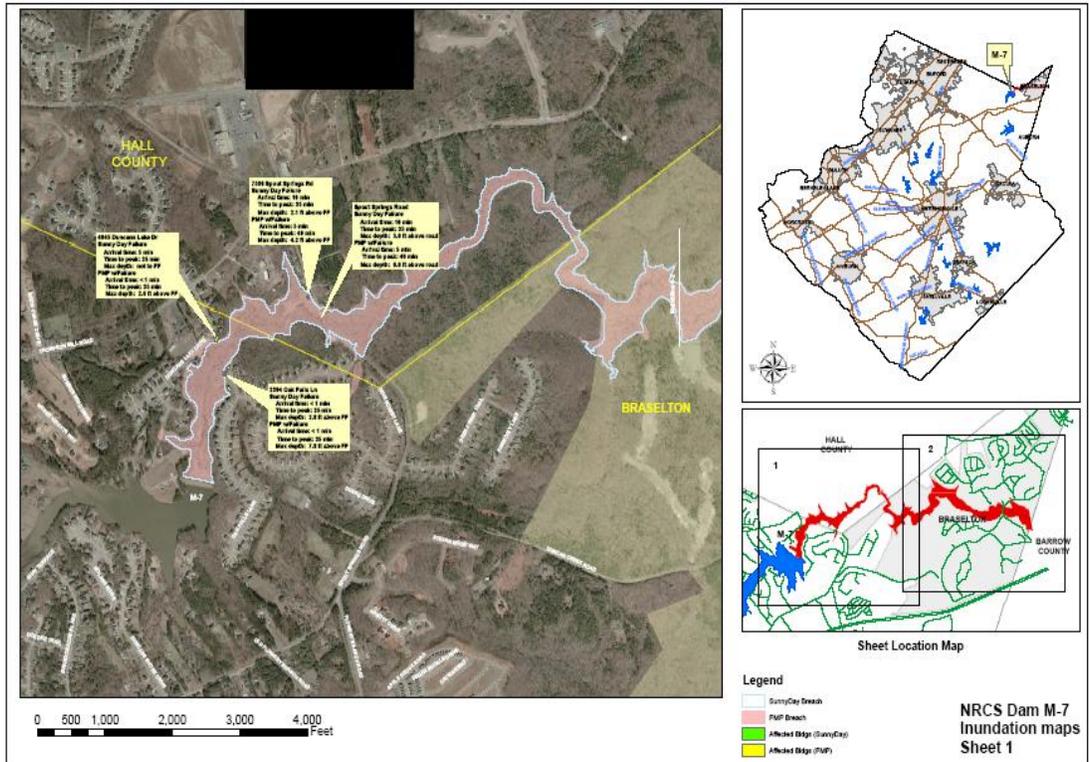


Figure 31  
NRCS Dam M-7 Inundation Maps Sheet 2

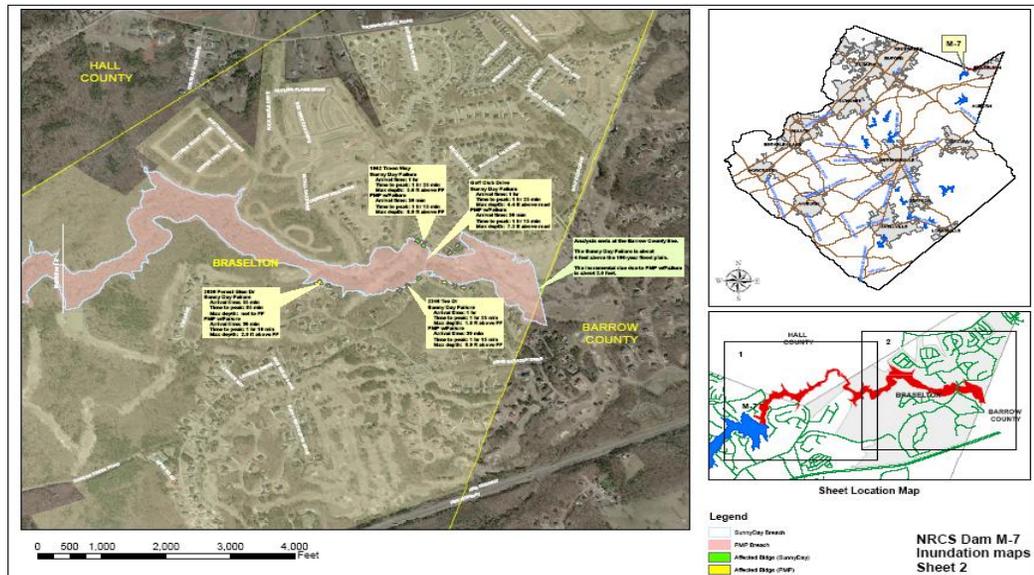


Figure 32  
NRCS Dam M-11 Inundation Maps Sheet 1

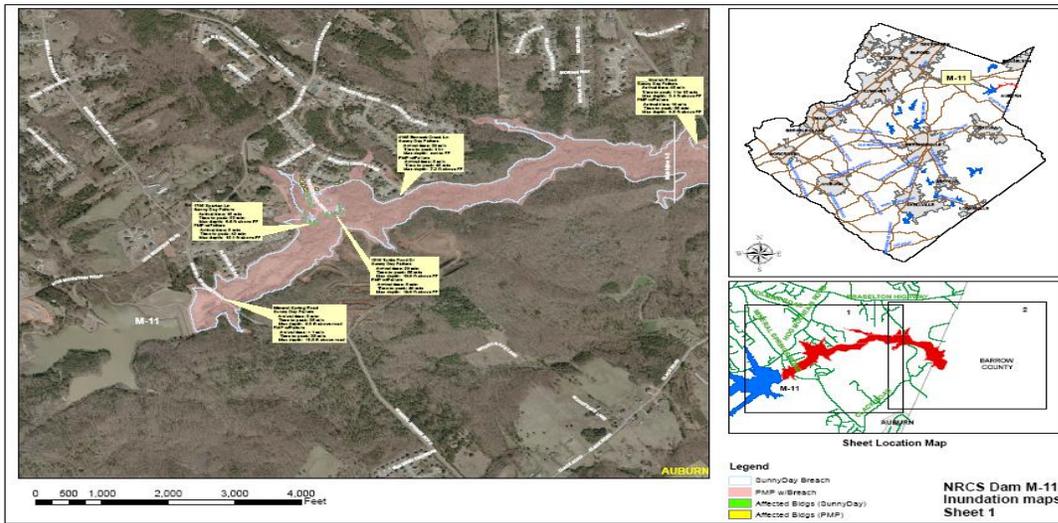


Figure 33  
NRCS Dam M-11 Inundation Maps Sheet 2

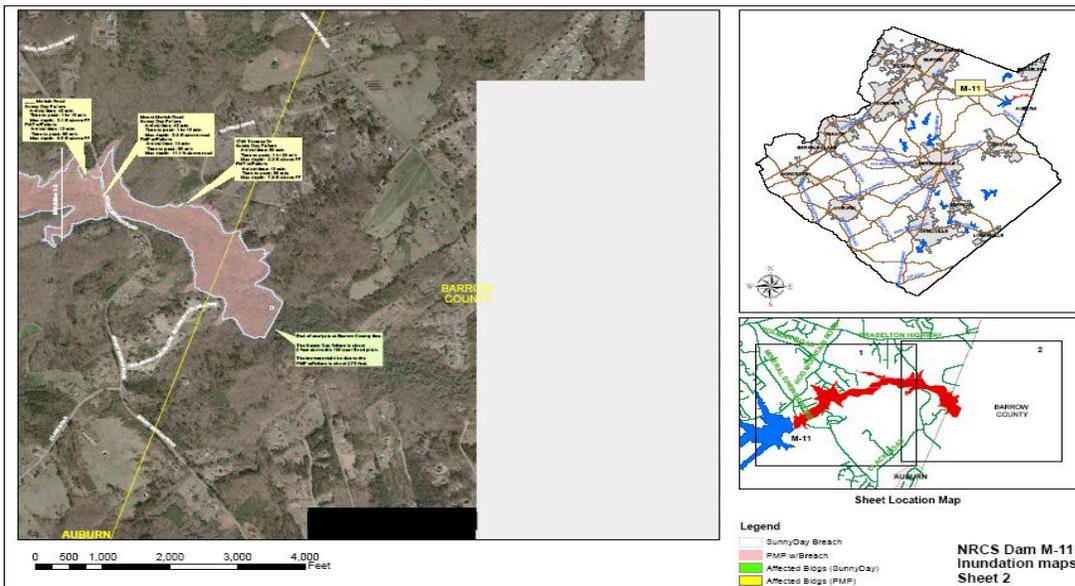


Figure 34  
NRCS Dam N-1 Inundation Maps Sheet 1

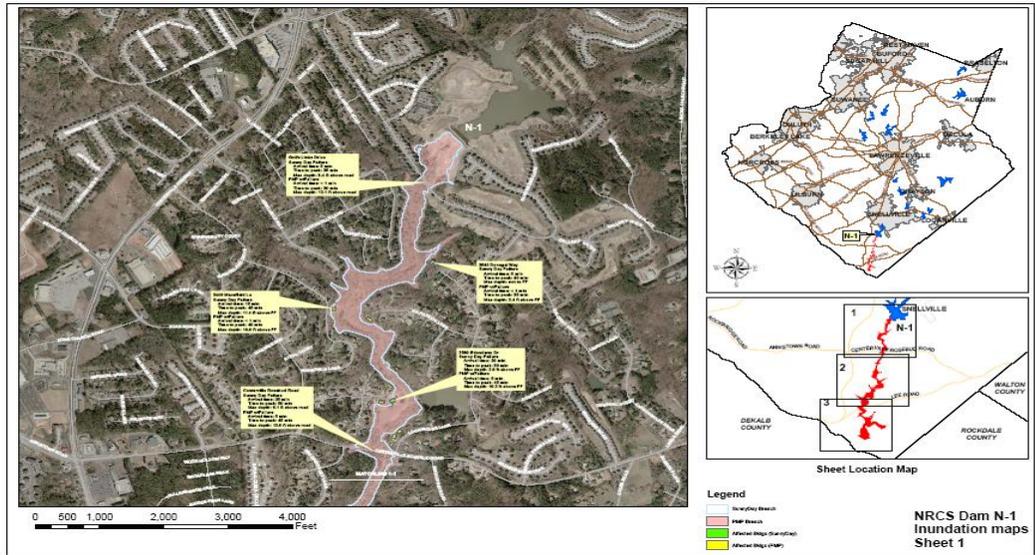


Figure 35  
NRCS Dam N-1 Inundation Maps Sheet 2

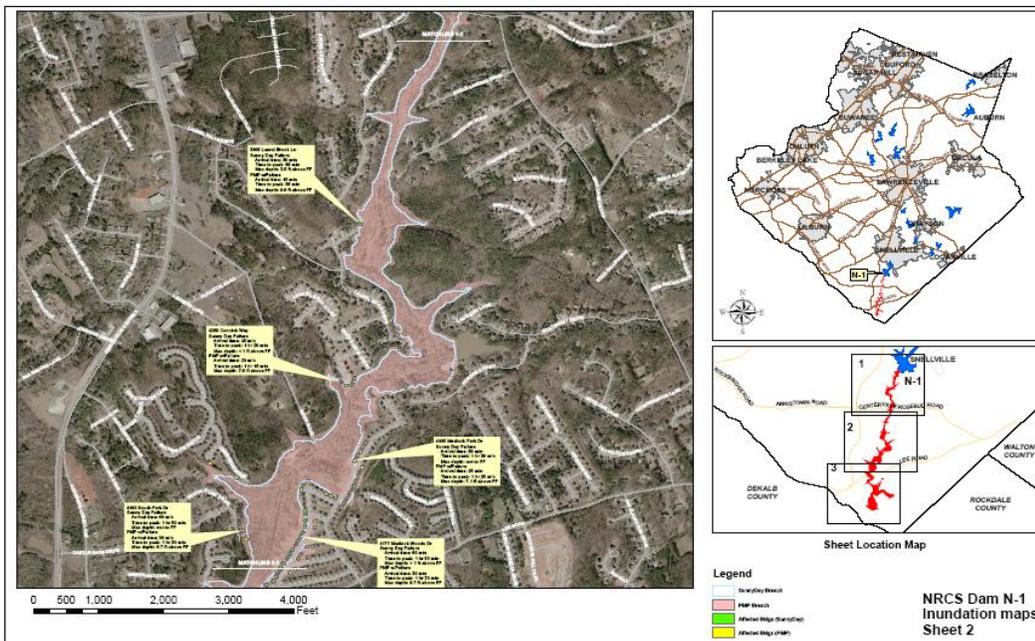


Figure 36  
NRCS Dam TM-1 Inundation Maps Sheet 1

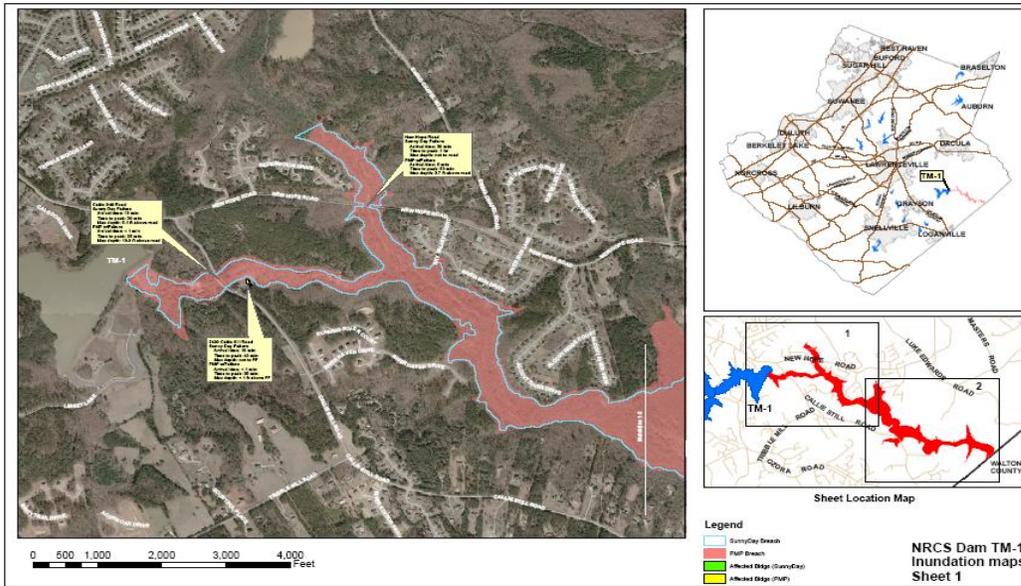


Figure 37  
NRCS Dam TM-1 Inundation Maps Sheet 2

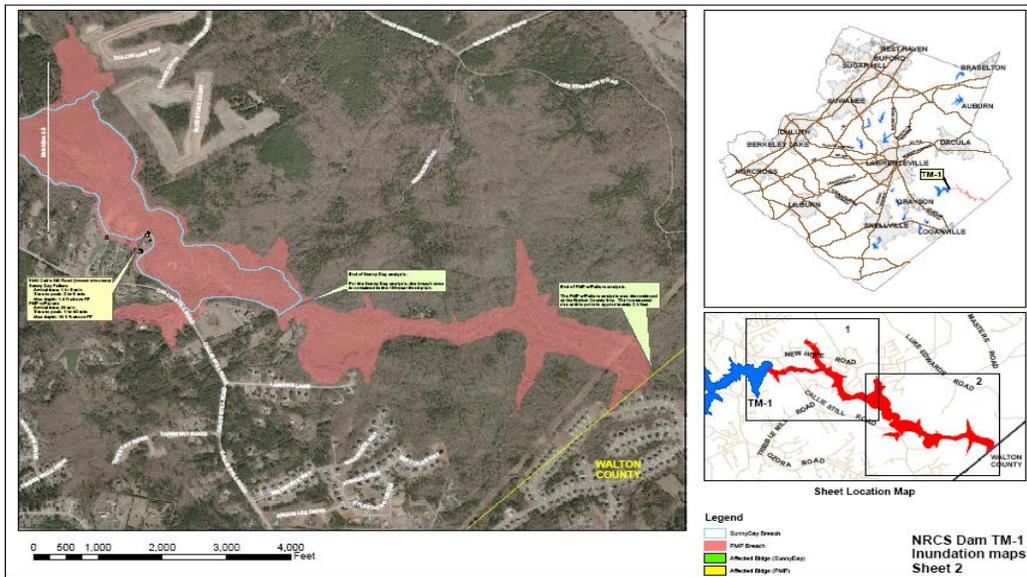


Figure 38  
NRCS Dam Y-3 Inundation Maps Sheet 1

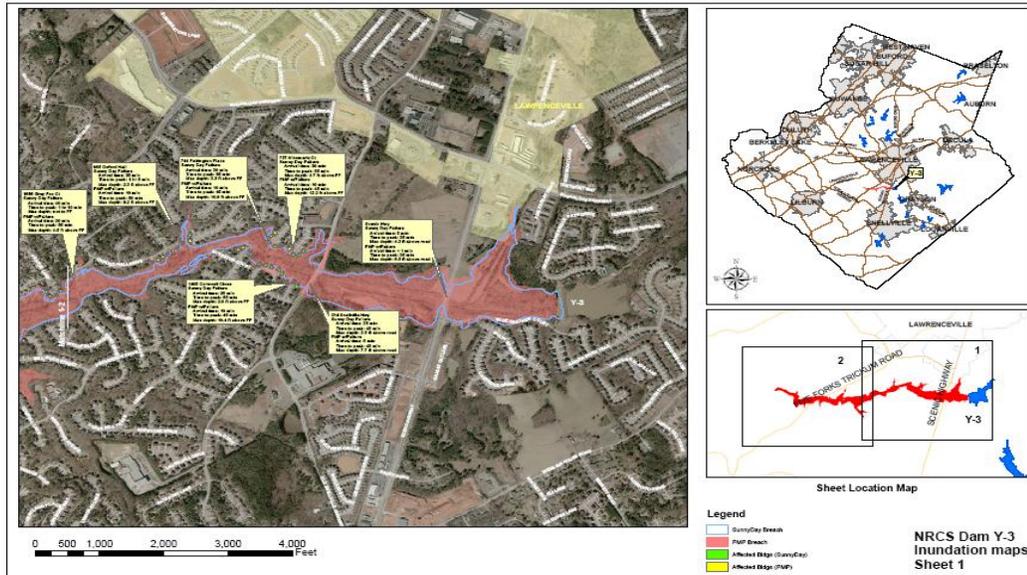
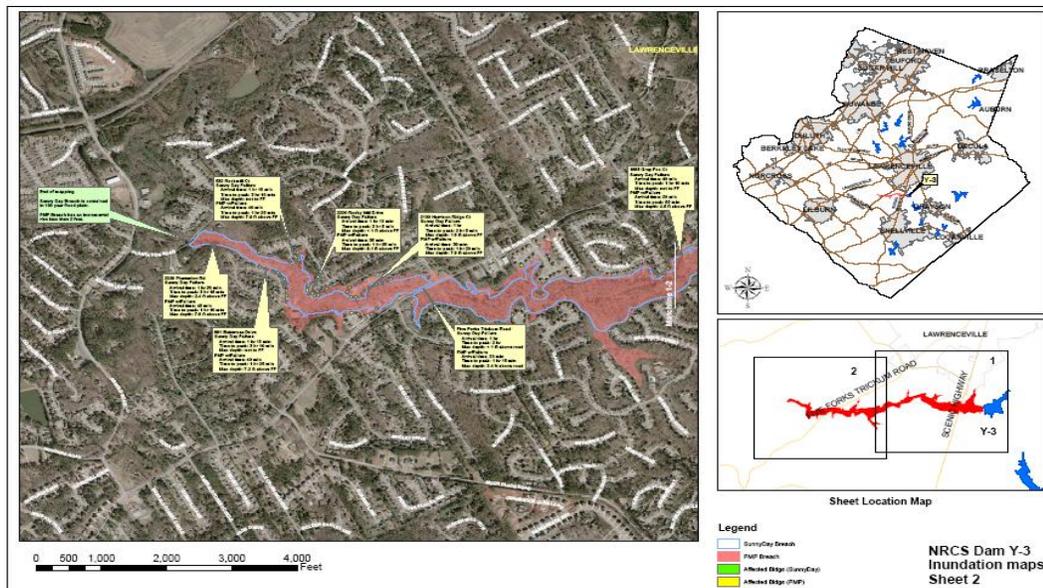
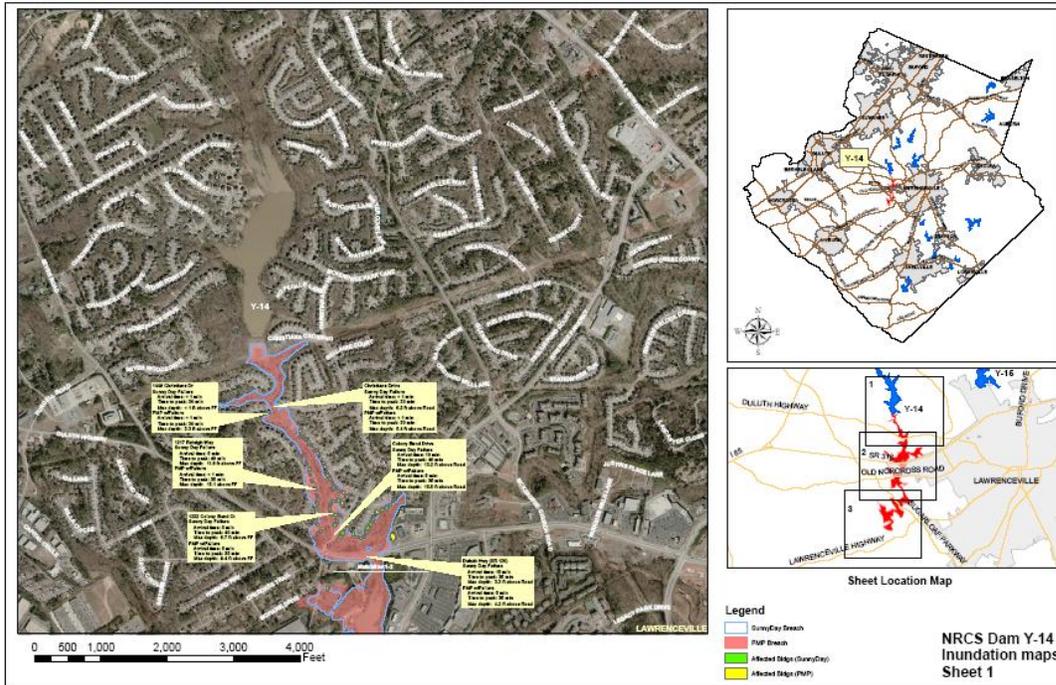


Figure 39  
NRCS Dam Y-3 Inundation Maps Sheet 2



**Figure 40**  
**NRCS Dam Y-14 Inundation Maps Sheet 1**



**Figure 41**  
**NRCS Dam Y-14 Inundation Maps Sheet 2**

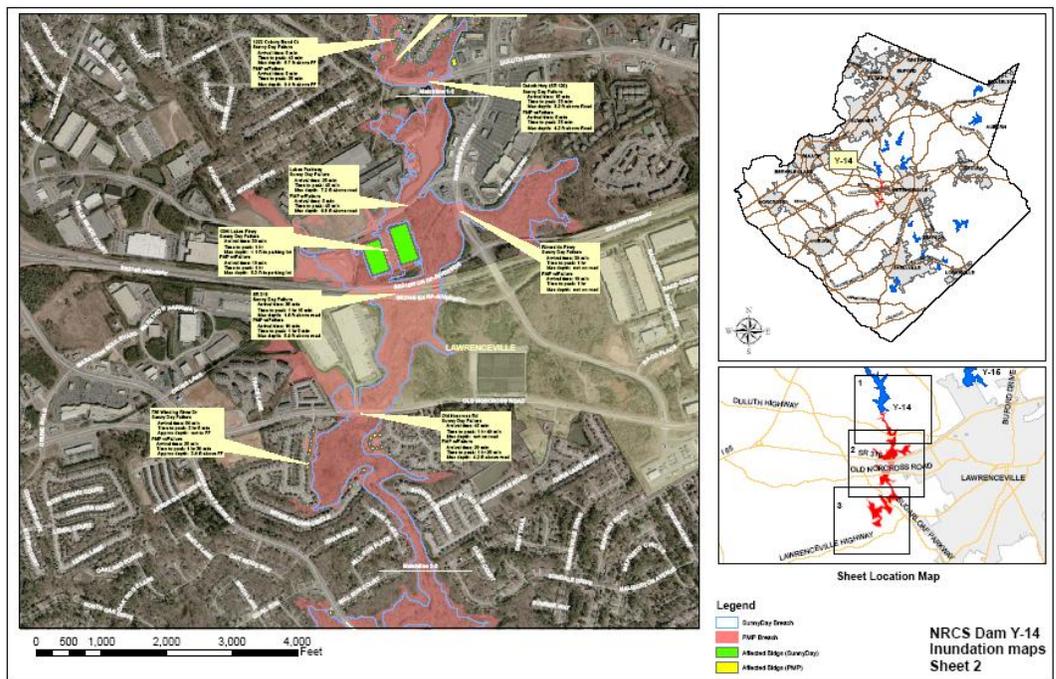


Figure 42  
NRCS Dam Y-14 Inundation Maps Sheet 3

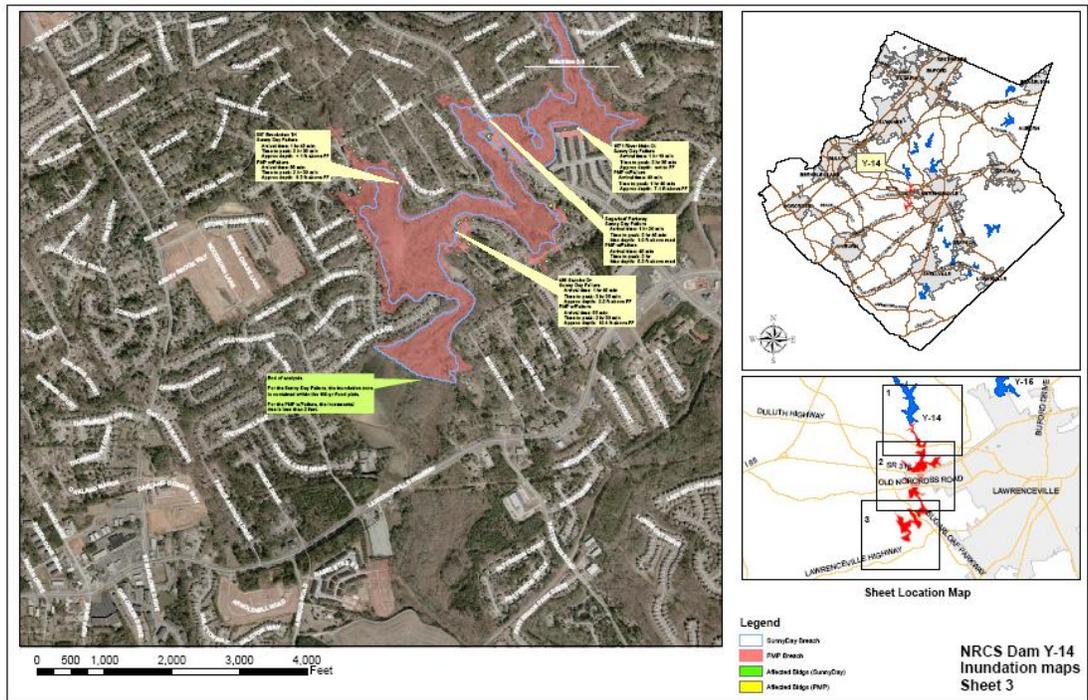


Figure 43  
NRCS Dam Y-15 Inundation Maps Sheet 1

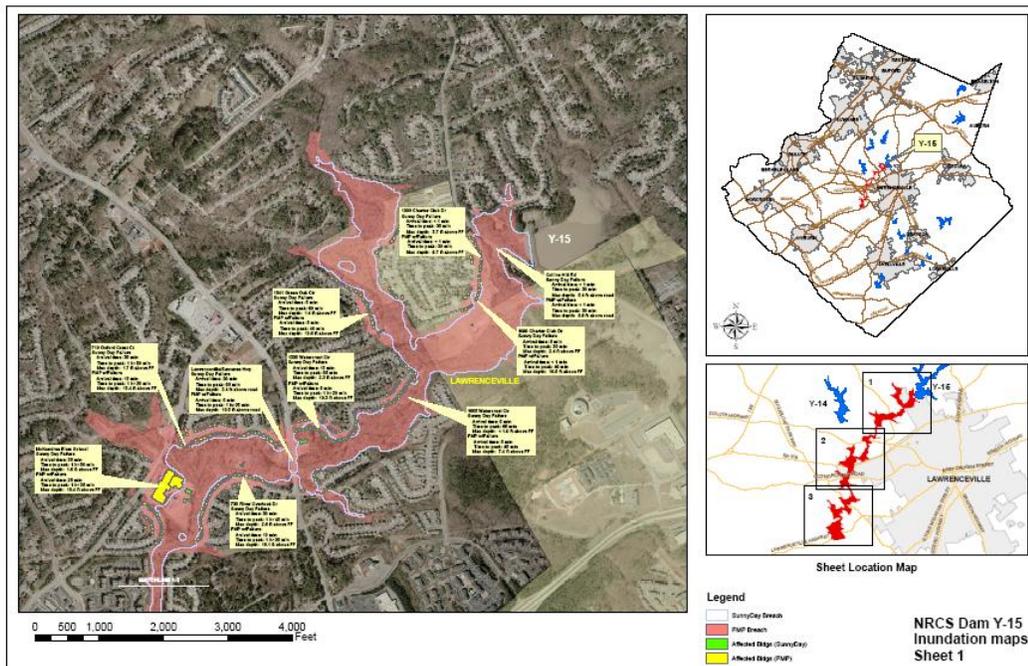




Figure 46  
NRCS Dam Y-16 Inundation Maps Sheet 1

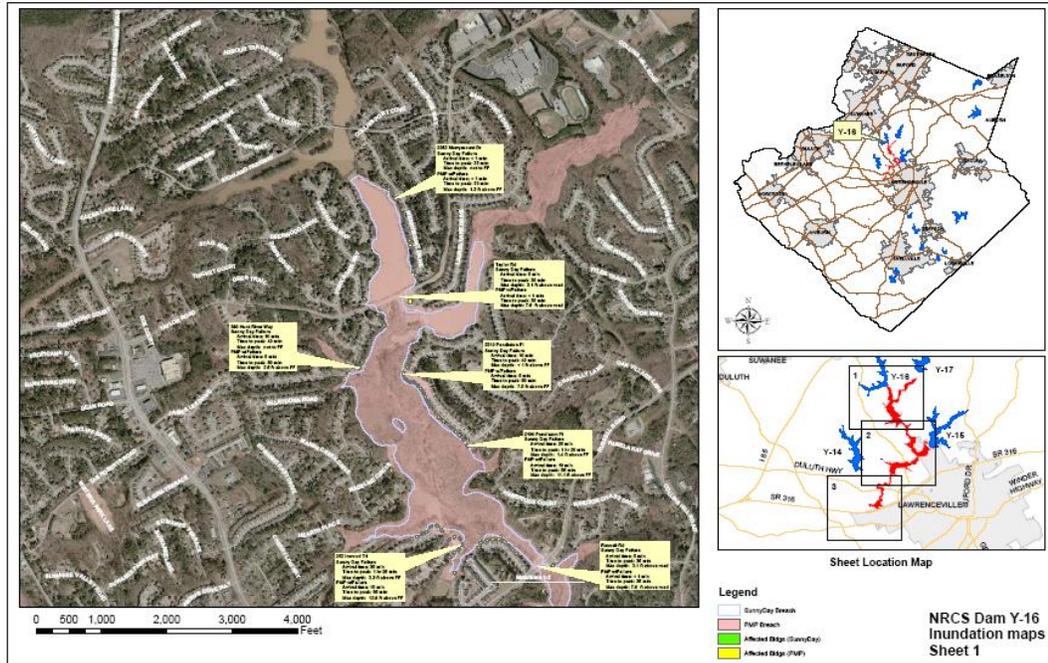


Figure 47  
NRCS Dam Y-16 Inundation Maps Sheet 2

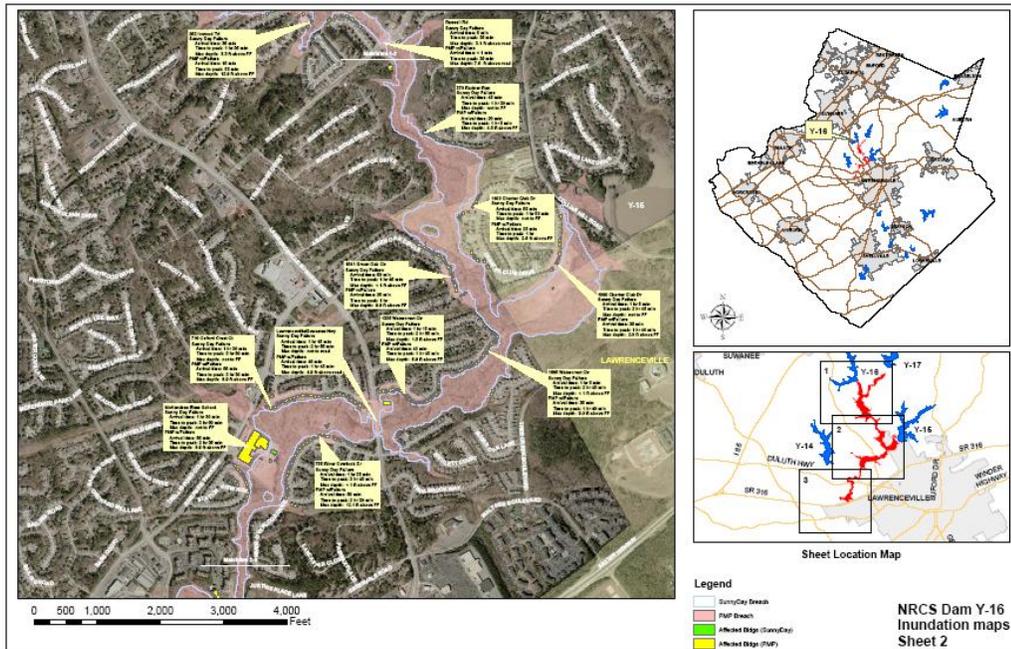


Figure 48  
NRCS Dam Y-16 Inundation Maps Sheet 3

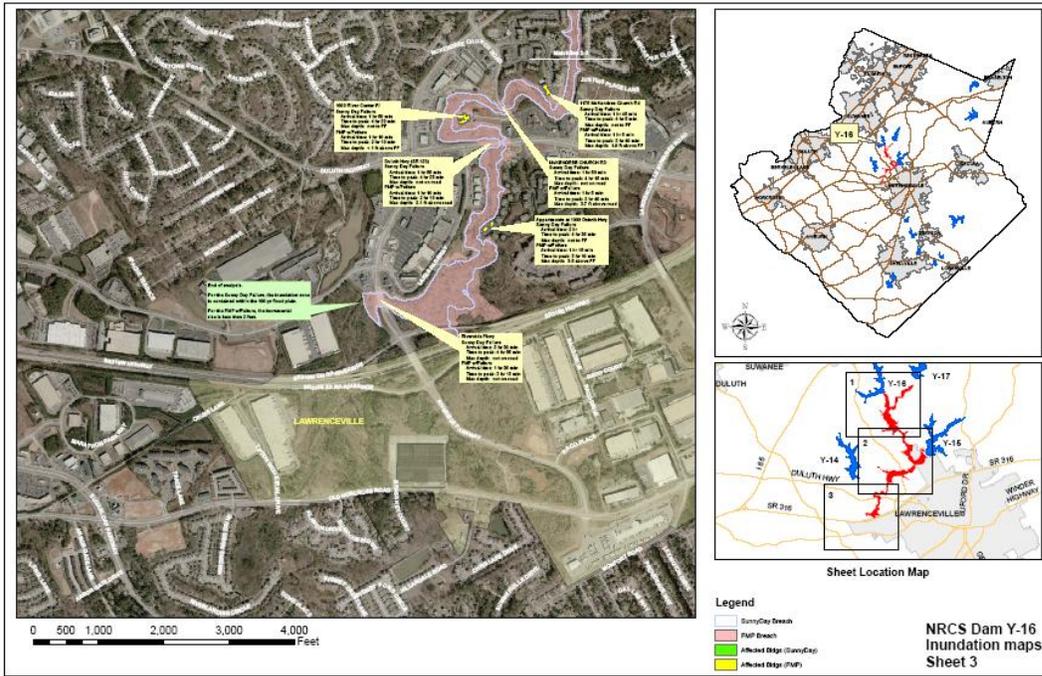


Figure 49  
NRCS Dam Y-17 Inundation Maps Sheet 1

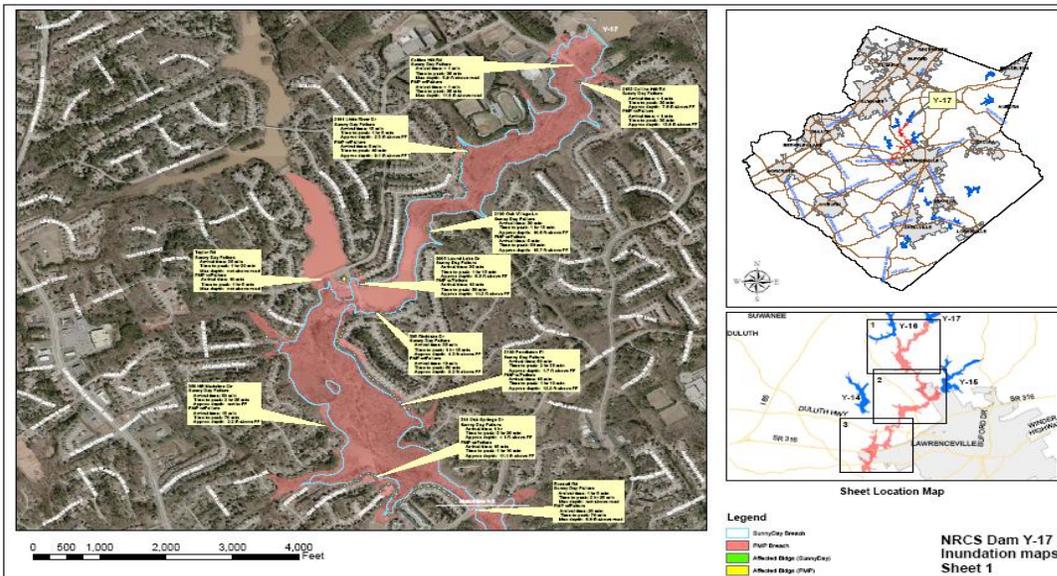


Figure 50  
NRCS Dam Y-17 Inundation Maps Sheet 2

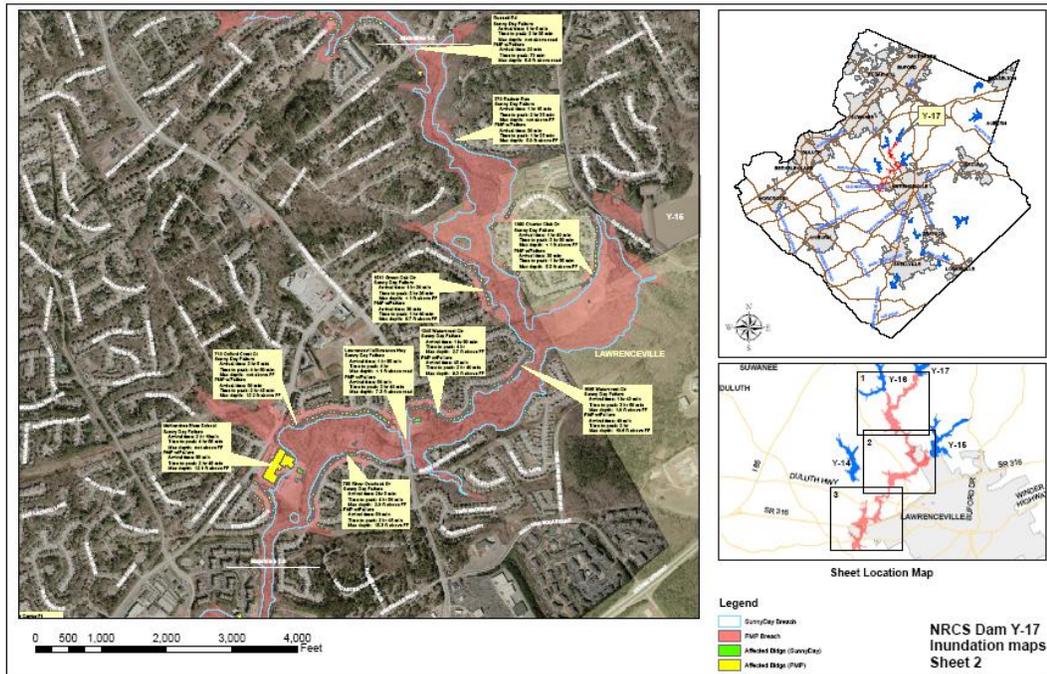
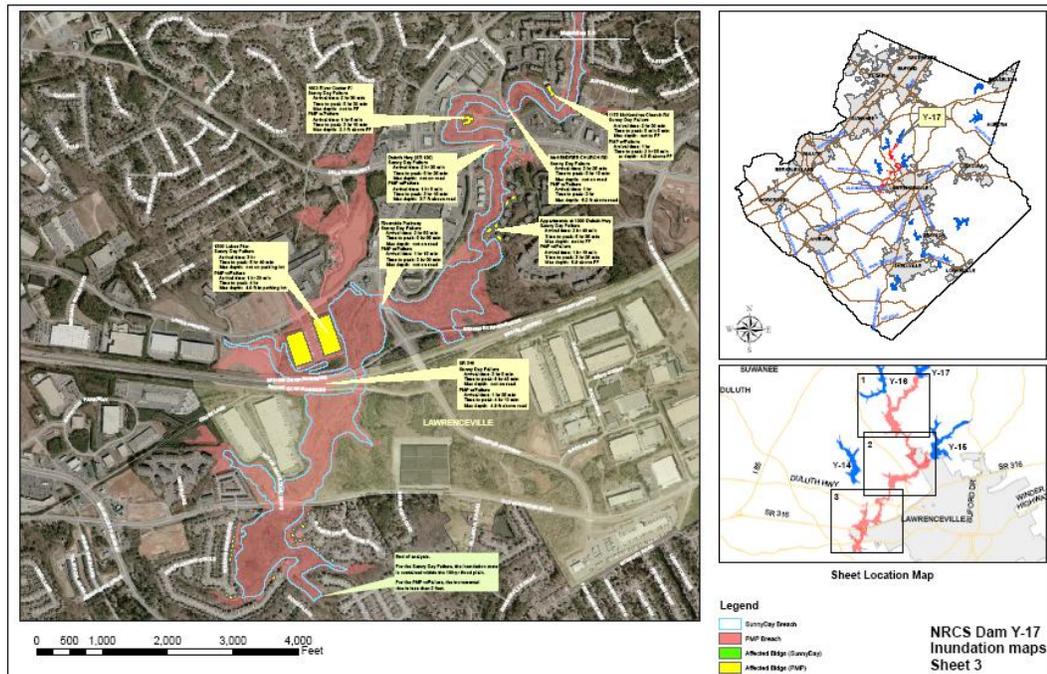


Figure 51  
NRCS Dam Y-17 Inundation Maps Sheet 3





## 3.18 Cyber Crime

### 3.18.1 Hazard Identification

Cyber crime, like every digital industry, is outsourcing. Though the U.S. still produces more malware, spam and viruses than any country in the world, illicit IT jobs are increasingly scattered across an anarchic and international Internet, where labor is cheap, legitimate IT jobs are scarce and scammers are insulated from the laws that protect their victims by thousands of miles.

Cyber crime this geographically diverse isn't just hard to stop; it's hard to track. Common tactics like phishing and spam are usually achieved with "botnets," herds of PCs hijacked with malware while their owners are not aware. Botnet attacks can usually be traced only to the zombie computers, not to their original source. That means the majority of studies mapping botnet attacks point to every place in the world that has vulnerable PCs, with no real sense of where the attacks begin.

Consolidation efforts of decentralized IT practices to a more centralized venue would strengthen our security, reducing the weak link set of symptoms that often occur in decentralized departments. Information security is evolving, we learn from managing our issues, trends and best practices. We develop our skills using a combination of formal training classes and focused research to help and maintain career development. The emerging threats in Information Technology will not be radically different from those experienced in other businesses. The technical level of skill requirements is similar, however our regulations will differ. Introduction of an ISAC (Information Sharing & Analysis Center) community may be utilized to bridge the gap between the public and private sectors. We maintain our integrity by maintaining backup plan(s) of all our data, with backups done on a regular time frame, with secure storage of backed up data. We also maintain Security systems that enable us to monitor all incoming and outgoing lines of data to ensure the integrity of Gwinnett County information and resources. In addition to the Warning Point, Gwinnett County has implemented the GCSIRT (Gwinnett County Security Incident Response Team) to mitigate compromises not intercepted by existing implemented security. The team's ultimate responsibility is to contain those threats within two hours of compromise.

Gwinnett County Security Incident Response Team (GCSIRT) services can be grouped into three categories, which are common practices across the nation for successful information security teams:

- Reactive services - These services are triggered by an event or request, such as a report of a compromised host, wide-spreading malicious code, software vulnerability, or something that was identified by an intrusion detection or logging system. Reactive services are the core component of GCSIRT work.
- Proactive services - These services provide assistance and information to help prepare, protect, and secure constituent systems in anticipation of attacks, problems, or events. Performance of these services will directly reduce the number of incidents in the future.
- Security quality management services - These services augment existing and well established services that are independent of incident handling and traditionally performed by areas of an organization such as the ITS, Audit, or training departments.

### 3.18.2 Hazard Profile

Computer hackers are one of the risks that everyone faces in the world today. Increasingly more sophisticated attacks, BotNets, Phishing, data theft from out of office working/home working, stolen or lost media, insider threat, and unauthorized machines accessing internal network. DR or other additional cyber funding is welcome, as we will need the tools to challenge our counterparts. The investment is not always realized during inception, but always needed when compromised. Malware, including more sophisticated Trojans are areas of major concern. The issue of intruders with selective and developed predefined targets, that operates in “stealth” are not always visible, and is not always detected by Anti-Virus software. Threats of attacks may be from insider or outsiders. Histories of Cyber threats indicate that 80% of the attacks come from outsiders and 20% from insiders. This model is continually changing as the larger threat is now reviewed as the internal threat, due to accessibility. We often refer to this as having a hard shell, but a soft middle. Both are concerns nevertheless.

### 3.18.3 Assets Exposed to Hazard

**Property Risk/Vulnerability:** County Government technology organizations are challenged more than ever to operate efficiently, to deliver cost-effective, robust solutions, to protect IT assets from cyber threats and to position the County's infrastructure for the future. In response to these challenges the Department of Information Technology Services and our information technology partners in Gwinnett County are taking an enterprise view and approach with regard to the deployment of IT solutions that meet countywide business goals. Assets are reflected in Hazard Summary 3.13.7 below.

**People Risk/Vulnerability:** In evaluating vulnerability of the population in Gwinnett County, it was determined that risk/vulnerability includes the entire population of Gwinnett County since there is no way to determine the impact/magnitude of a cyber crime event and no way to predict where and when a cyber crime event will occur.

People are vulnerable to cyber crime events through identity theft and impact upon person computer use.

**Environment Risk/Vulnerability:** Risks to the environment are of no concern at this time should a cyber crime event occur.

### **3.18.4 Estimate of Potential Losses**

Loss prevention is attributed to our initial warning point and backup plan for all critical data within Do ITS.

### **3.18.5 Land Use and Development Trends**

Gwinnett County currently has no land use or development trends related to cyber crimes.

### **3.18.6 Multi-Jurisdictional Concerns**

Cyber Crimes are likely to occur in the County as well as the municipalities of Gwinnett County.

### **3.18.7 Hazard Summary**

Cyber Crimes can potentially affect all of Gwinnett County and its municipalities. As a result, any mitigation steps taken related to cyber crimes should be undertaken on a countywide basis and include the cities of Berkeley Lake, Buford, Dacula, Duluth, Grayson, Lawrenceville, Lilburn, Norcross, Snellville, Sugar Hill and Suwanee. Introducing the Warning Point and ISAC concepts to these agencies will greatly decrease the levels of compromise.

**Table 3-11**  
**Remove Table prior to making document public**  
**Information Technology Resources and Level of Threat**

**This table has been removed for security purposes. Include this statement.**

| <b>Resources</b>               | <b>Services and Support</b>                                                                                                                                                                                                                                                                           | <b>Threat Level</b> |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Enterprise Application Support | Business Solutions, Web Development, Land Information Solutions                                                                                                                                                                                                                                       | 4<br>See Table 3-1  |
| Business Solutions             | Support of Computer Applications, Fleet Mgt., Community Services, Balanced Scorecard Reporting, Tax Assessment, Tax Billing and Collection, Elections, Enterprise Content Management, District Attorney, Solicitor, and Law Case Management Systems. Working Closely with County Agencies and Vendors | 4                   |
| ERP Solutions                  | Support County wide SAP Systems including R3 ERP – Financials, Human Resources, Payroll, and Utility Billing. SRM                                                                                                                                                                                     | 5                   |

| Resources                         | Services and Support                                                                                                                                                                                                           | Threat Level          |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
|                                   | – Supplier Relationship Management, Procurement Management, Vendor Self Service. CRM – Customer Relationship Management, Internal Service Management, Citizens Self Service. BW – Business Warehouse, Data Analysis, Reporting |                       |
| Land Information Solutions        | GIS, 245,000 tax parcels, 2,300 miles of countywide roads                                                                                                                                                                      | 3                     |
| Web Development and Integration   | Applications development, services to areas of Web Business System Design, Internet/Intranet Programming, eCommerce and Internet/Intranet Application Technical Support                                                        | 2                     |
| Infrastructure/Operations Support | 3200 PC's, 1000 printers, 285 servers, 110 physical network locations, 3,500 telephone lines                                                                                                                                   | 5                     |
| Computer Operations and Desktop   | Operations, technical, desktop support and help desk                                                                                                                                                                           | 3                     |
| Systems and Networks              | 3200 PC's, 1000 printers, 285 servers, 110 physical network locations, 3,500 telephone lines                                                                                                                                   | 5                     |
| Enterprise Application Support    | Business Solutions, Web Development, Land Information Solutions                                                                                                                                                                | 4<br>See<br>Table 3-1 |



### 3.19 Hazardous Material Spills

#### 3.19.1 Hazard Identification

The Gwinnett County HMSC reviewed historical data from the Gwinnett County Fire and Rescue Department and the Environmental Protection Division (EPA) of the Georgia DNR in their research involving hazardous material spills in Gwinnett County. A major source of hazardous spills is along roadways, highways and railways. Hazardous materials are substances that are harmful to the health and safety of people and property. Facilities that produce, process or store hazardous materials are at risk, as are facilities that treat or dispose of hazardous waste. **There are 213 identified facilities in Gwinnett County that produce, process, and/or store hazardous materials. The Gwinnett County Fire and Emergency Services keeps a list of identified facilities that are required to report their hazardous materials list through the SARA Title III Program.**

### 3.19.2 Hazard Profile

Hazardous material spills occur frequently within the county. Over 58% of the recorded spills in Gwinnett County have been transportation related. This is directly attributable to the presence of two Interstate Highways (I-85 and I-985), two major railways (CSX and Norfolk Southern) and several multilane highways (Hwy 78, 316, etc.) running through portions of the county. During the past four years there have been a total of 2415 spills recorded in Gwinnett County. 1401 of the spills were transportation related with 1014 being fixed location spills, and one reported radiological release. Gwinnett County has a 100% chance of a fixed location hazardous material spill occurring in any given year.

Gwinnett County has a 100% chance of a transportation related hazardous material spill occurring in any given year. The county averages 253 fixed location spills and 350 transportation related spills every year.

### 3.19.3 Assets Exposed to Hazard

**Property Risk/Vulnerability:** With over 200 SARA Title III reporting facilities, multiple interstate and highway systems and both CSX and Norfolk Southern railways that dissect the county into thirds, the planning committee considers all critical facilities as having the possibility of being affected by a hazardous materials incident.

**People Risk/Vulnerability:** In evaluating vulnerability of the population in Gwinnett County, it was determined that risk/vulnerability includes the entire population of Gwinnett County since there is no way to determine the impact/magnitude of a hazardous materials event and no way to predict where and when a hazardous materials event will occur. People are vulnerable to hazardous materials events through effects on transportation routes, establishment of shelters, etc.

**Environment Risk/Vulnerability:** Risks to the environment are high should a hazardous materials accident occur. Environmental concerns would be interruption of water supply, secondary events such as fires and hazardous materials accidents (such as gas pipelines rupturing, rupture of hazardous material containers at facilities, etc.). When spills do occur, whether inside or outside facilities, or whether along roadways, shutdowns, lost time, and expended man- hours are all factors mitigation planners must take into account. The Gwinnett County Fire and Emergency Services can provide a listing of facility locations throughout Gwinnett County if requested.

### 3.19.4 Estimate of Potential Losses

It is difficult to determine the damage to the environment associated with hazardous material spills. Gwinnett County has no recorded instances of critical facilities and/or other property being damaged as a result of hazardous material spills. Gwinnett County Fire and Emergency Services can provide a listing and location of facility locations throughout Gwinnett County if requested.

### 3.19.5 Land Use and Development Trends

Gwinnett County currently has no land use or development trends related to hazardous material spills.

### 3.19.6 Multi-Jurisdictional Concerns

All of Gwinnett County, to include the cities of Berkeley Lake, Buford, Dacula, Duluth, Grayson, Lawrenceville, Lilburn, Norcross, Snellville, Sugar Hill and Suwanee are vulnerable to both fixed location and transportation related hazardous material spills. The I-85 and I-985 corridor are most vulnerable to transportation related spills. Fixed location spills are possible in all areas of the county. **Gwinnett County Fire and Emergency Services can provide a list of the facilities located in Gwinnett County. See Figure 3-40 below for the facility locations in Gwinnett County.**

### 3.19.7 Hazard Summary

Hazardous material spills are a relatively common occurrence in Gwinnett County, the volume of spills experienced in the past dictates that mitigation measures be considered. The types of hazardous materials passing through Gwinnett County are many and varied. The presence of two Interstate Highways, two railways and multiple highways with an unknown quantity of hazardous materials traveling through the county on a daily basis, poses an interesting challenge in the development of adequate mitigation measures. The Gwinnett County HMSC has identified specific mitigation actions in Chapter 5, Section I of the 2004 Gwinnett County Hazard Mitigation Plan.

**Table 3-12**  
**Hazmat Incident Responses**  
**01-01-2009 thru 06-19-2009**

| Incident Classification                   | Responses |
|-------------------------------------------|-----------|
| Outside gas or vapor combustion explosion | 1         |
| Hazardous conditions                      | 29        |
| Flammable gas or liquid condition         | 49        |
| Gasoline or other flammable liquid spills | 70        |
| Gas leak (Natural gas or LPG)             | 1093      |
| Oil or other combustible liquid spills    | 12        |
| Toxic conditions                          | 1         |
| Chemical spills or leaks                  | 25        |
| Refrigeration leaks                       | 1         |
| Radioactive conditions                    | 2         |

## Section 3

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| Incident Classification                          | Responses |
|--------------------------------------------------|-----------|
| Biological hazard, confirmed or suspected        | 2         |
| Overpressure rupture from air or gas             | 15        |
| Overpressure rupture of air or gas pipe/pipeline | 205       |
| Air or gas rupture of pressure or process vessel | 10        |
| Chemical reaction rupture of process vessel      | 1         |
| Explosion (no fire)                              | 1         |
| Blasting Agent explosion (no fire)               | 1         |

DRAFT

Figure 52  
Hazardous Materials Facilities

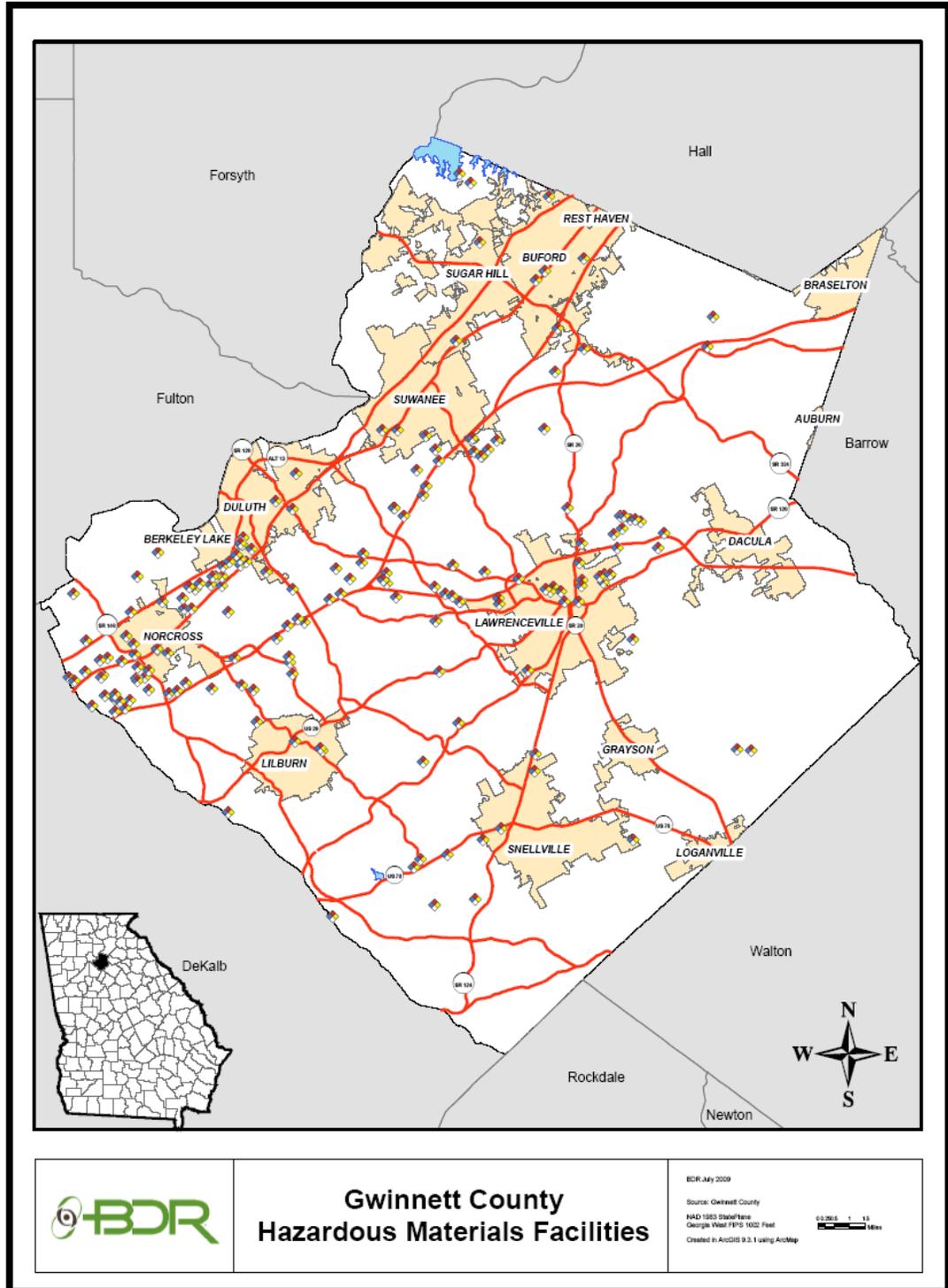


Figure 53  
Gas Lines

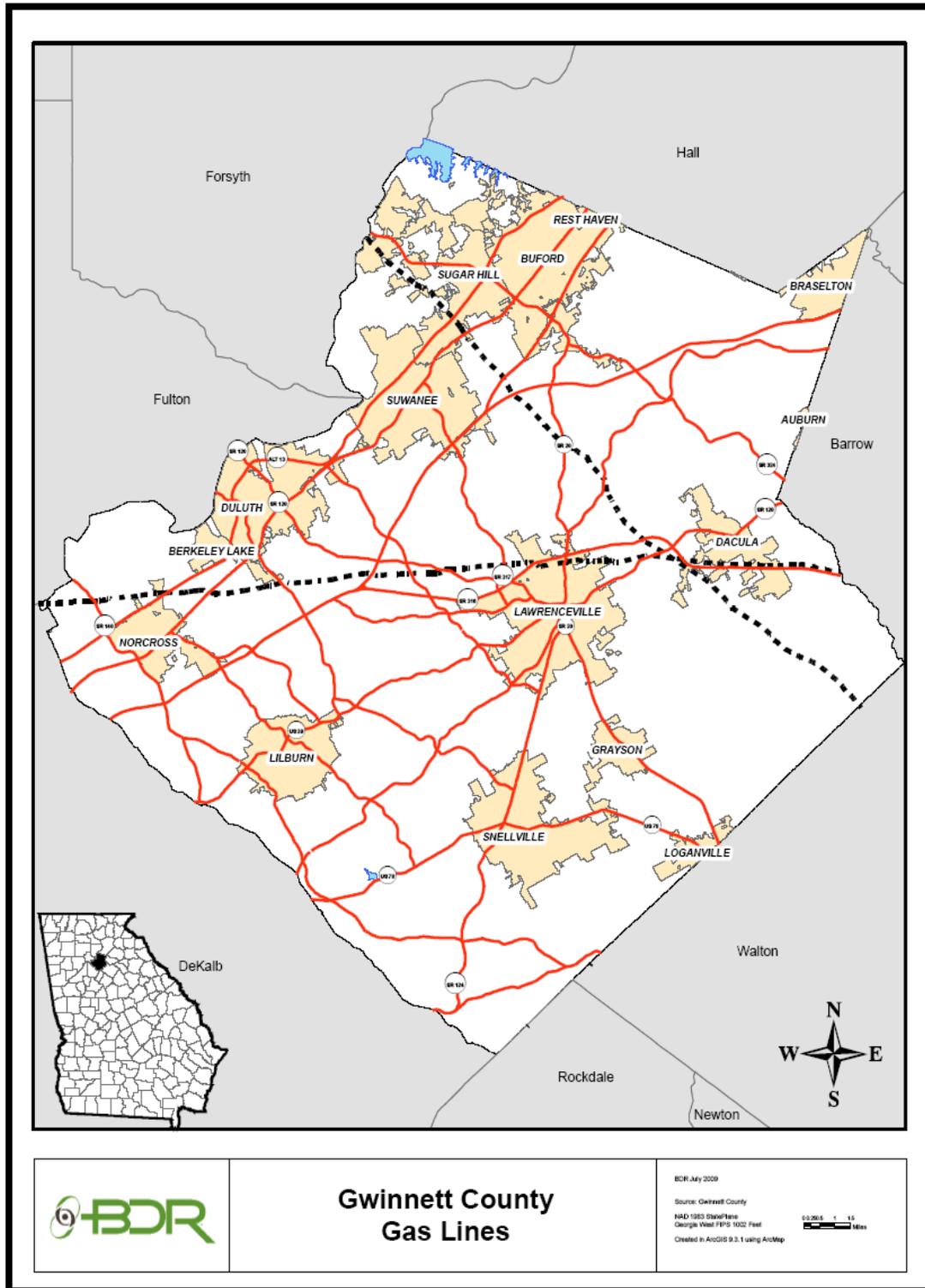
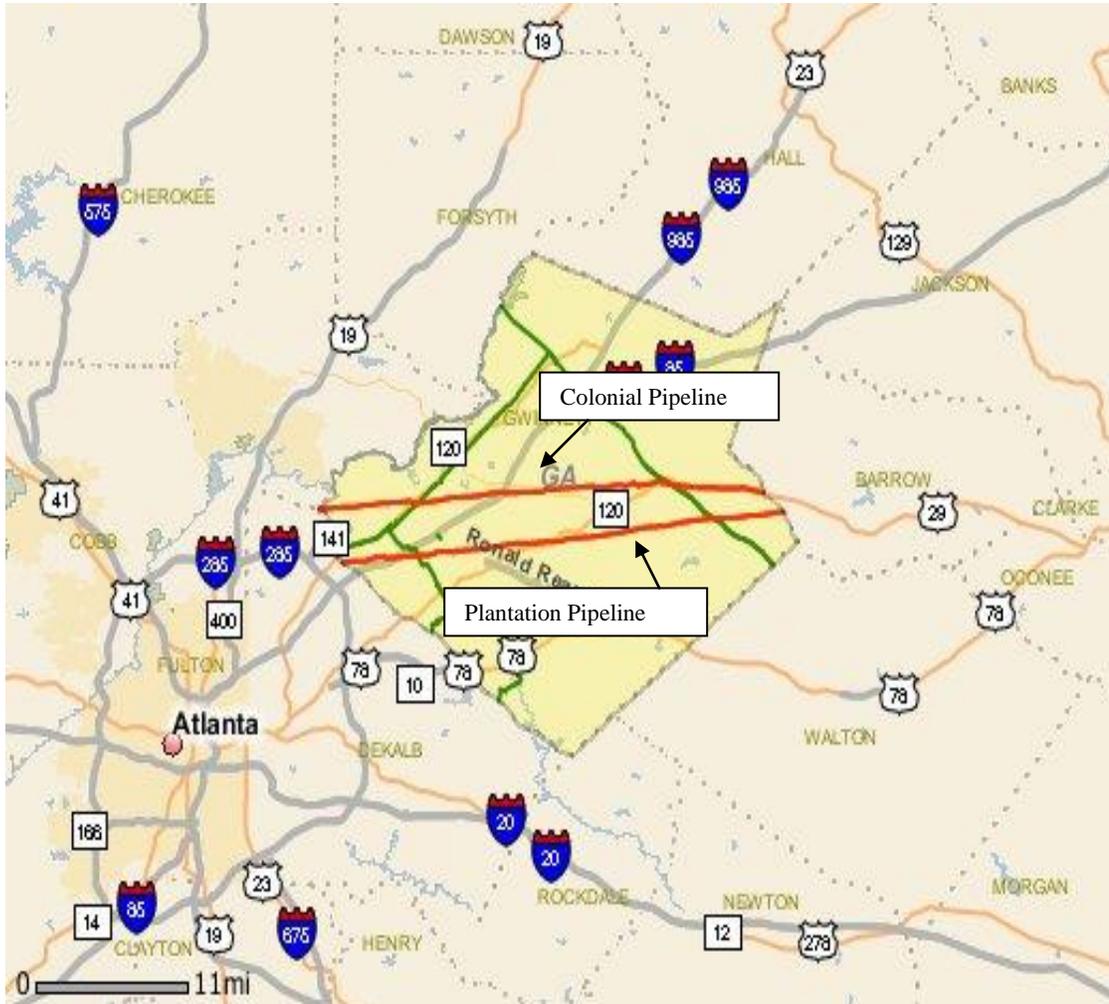


Figure 54  
Plantation Pipeline and Colonial Pipeline





## 3.20 Pandemics/Epidemic Incidents

### 3.20.1 Hazard Identification

A widespread pandemic/epidemic event is a plausible incident(s) in the Gwinnett County area. Pandemic/Epidemic incidents are a danger to the emergency responders and the general public. This can include influenza, tuberculosis, polio, smallpox, SARS, H1N1 and other health related events. Bioterrorism incidents can also be included in this identified hazard area.

### 3.20.2 Hazard Profile

Influenza comes to the East Metro Health District (Gwinnett, Newton and Rockdale Counties) every winter, usually between October and March. Although influenza is often referred to as “the flu”, it is a specific viral infection that is responsible for a substantial number of hospitalization and deaths each winter- it **isn't** the common cold. The Center for Disease Control and Prevention estimates 36,000 excess deaths are caused by influenza each year in the United States. Each year approximately 100 deaths are attributed to influenza in the East Metro Health District. The continuous genetic changes in the virus, called “antigenic drift,” mean that people can get sick from the same virus year after year; this year’s flu shot doesn’t prevent next year’s illness.

Historians estimate that over the last 3 centuries there have been 10 influenza “pandemics”. A pandemic is an epidemic that affects the entire world. Influenza pandemics occur when the virus undergoes such dramatic changes that virtually no one has resistance to infection. When this occurs the number of people infected is much higher than during ordinary flu seasons. In addition, during some pandemics, the severity of illness is higher. For example, in 1918-1919, not only was the number of ill people high but also the death rate was 50 times higher than usual. Furthermore, there was a shift in the age group most severely affected from the elderly to those 20-40 years of age. In contrast, the more recent pandemics of 1957 and 1968 caused far less dramatic increases in the death rate (only about two times the norm of 36,000 per year from regular flu).

Evidence from multiple outbreak sites demonstrates that the H1N1 pandemic virus has rapidly established itself and is now the dominant influenza strain in most parts of the world. The pandemic will persist in the coming months as the virus continues to move through susceptible populations.

The outbreak of the H5N1 influenza strain (bird flu) in wild and domestic birds, which began in Asia in late 2003, is being carefully watched as a potential precursor to a pandemic since several hundred humans have been infected. Although the number of human infections is quite small, about 60% have died demonstrating the severity of this infection. The conditions to trigger a pandemic are not yet present since, at this point; the H5N1 virus is not efficiently transmitted from human to human.

The key to early detection of the next worldwide pandemic is influenza surveillance. In Georgia, we have the following three systems in place to monitor influenza activity:

The Georgia State Public Health Laboratory (GSPHL) is part of the network of World Health Organization (WHO) laboratories dedicated to detecting and characterizing influenza viruses year round. Influenza viral culture is performed free of charge for clinicians submitting specimens, results are tabulated weekly, and a subset of specimens are sent to the Centers for Disease Control (CDC) for further characterization.

The city of Atlanta participates in the CDC 122 cities project that tracks deaths from pneumonia and influenza around the US.

The Georgia Epidemiology program collaborates with clinicians around the state in the “sentinel provider” influenza surveillance network to track the frequency of influenza-like illness (ILI) from October-May. Each week, participating clinicians report the total number of patients evaluated and the number that had a fever  $\geq 100.0$  F or  $37.8$  C plus a cough and/or sore throat, in the absence of a known cause other than influenza. This data is compiled and reported weekly.

The East Metro Health District developed a Pandemic Influenza Plan with both government and external partners. The purpose of the plan is to lessen the impact of a pandemic on the residents of Gwinnett, Newton, and Rockdale Counties and to outline the roles of our public safety agencies in responding to this threat. The plan is revised annually to ensure coordination with federal, state, and non-governmental organizations, many of which have also developed pandemic influenza plans.

### 3.20.3 Vulnerability Assessment

All populations within Gwinnett County are susceptible to pandemic/epidemic events that occur in the county.

### 3.20.4 Assets Exposed to Hazard

**Property Risk/Vulnerability:** The HMSC determined that all critical facilities, as well as all public, private and commercial property, are susceptible to being affected by a Pandemic/Epidemic event due to people being affected in the workplace.

**People Risk/Vulnerability:** In evaluating vulnerability of the population in Gwinnett County, it was determined that risk/vulnerability includes the entire population of Gwinnett County since there is no way to determine the impact/magnitude of a Pandemic/Epidemic event and no way to predict where and when a Pandemic/Epidemic will hit. The impact of human resources would suffer the most

with the potential of 30% of the workforce becoming ill. Gwinnett County's current just-in-time economy would suffer major setbacks in community infrastructure such as public water supply, food, trucking, health care delivery, and energy resources.

**Environment Risk/Vulnerability:** Risks to the environment are high should a pandemic/epidemic event occur.

### 3.20.5 Damage Assessment

Although the diseases of Polio and Smallpox have largely been eradicated from the world and tuberculosis under control, past historical complications on human health were devastating and any new infectious disease introduced to the world could have health emergency implications. Recent SARS, H1N1 and seasonal influenza cases demonstrate that health emergencies are unpredictable, can erupt quickly, and have significant impact on communities including Gwinnett County as history has shown.

### 3.20.6 Land Use and Development Trends

As more and more people move into populated areas, all of Gwinnett County is susceptible to outbreaks of pandemics/epidemics.

### 3.20.7 Multi-Jurisdictional Concerns

No one area in Gwinnett County is less susceptible to the other from the effects of a pandemic/epidemic event. Of course, the more densely populated the area is the greater threat of the spread of the pandemic/epidemic.

### 3.20.8 Hazard Summary

Pandemics/epidemics do pose a threat to all of Gwinnett County. The impact of human resources would suffer the most with the potential of 30% of the workforce becoming ill. As part of a district effort, the staff from the Epidemiology Division participates in emergency preparedness planning, field and tabletop exercises and education and outreach together with local, state and federal government agencies as well as community health care organizations, private businesses and other individuals from the community. In 2007, a total of 25 arboriviral/vector-borne illnesses were reported to the East Metro Health District (EMHD). These illnesses consisted primarily of Rocky Mountain Spotted Fever (13) but also included small numbers of cases of malaria (6), Lyme Disease (1), erlichiosis (1), chikungunya (1), and West Nile Virus (3).

Tuberculosis (TB) continues to present a major threat to the population of Gwinnett County. In 2007, there were 56 reports of active TB of which slightly over half were diagnosed as pulmonary TB. The remaining cases were reported as clinical TB and extra-pulmonary TB cases. The number of cases of TB in foreign-born persons has increased dramatically since the EMHD started collecting this data in 2004. The latest information available from the State indicates the EMHD has the highest percentage of foreign-born cases in the State. Data is not currently available for 2007, however, it

is anticipated the trend will continue. Mitigation strategies specific to this threat can be found in Section 5 - Mitigation Strategies of the 2009 Gwinnett County Hazard Mitigation Plan.

**Table 3-13  
Latest Flu Pandemics**

| Latest Flu Pandemics  |         |                  |                  |
|-----------------------|---------|------------------|------------------|
| Name of pandemic      | Date    | Deaths           | Subtype involved |
| Asiatic (Russian) Flu | 1889–90 | 1 million        | Possibly H2N2    |
| Spanish Flu           | 1918–20 | 50 million       | H1N1             |
| Asian Flu             | 1957–58 | 1.5 to 2 million | H2N2             |
| Hong Kong Flu         | 1968-69 | 1 million        | H3N2             |
| H1N1 (Swine Flu)      | 2009 -  | Ongoing          | H1N1             |



## 3.21 Terrorism

### 3.21.1 Hazard Identification

A major terrorism hazard event has been determined to have a Low likelihood of occurrence in Gwinnett County within the five-year planning cycle of this Plan. Therefore, although some hazard characterization information is presented below, no further risk assessment has been performed for this hazard. Additional analyses to further characterize the risks of this hazard and the development of suitable mitigation action items will be conducted in the future based on periodic reviews of this hazard mitigation plan and available resources

### 3.21.2 Hazard Profile

Terrorism is defined in the Code of Federal Regulations as "The unlawful use of force and violence against persons or property to intimidate or coerce a government, the

civilian population, or any segment thereof, in furtherance of political or social objectives."

### 3.21.3 Vulnerability Assessment

Terrorist incidents in this country prior to the September 11, 2001 attacks have included bombings of the World Trade Center (1993) in New York City, the United States Capitol Building in Washington, D.C., and Mobil Oil corporate headquarters in New York City. There were also the 1995 bombing of the Murrah Federal Building in Oklahoma City. In the U.S., most terrorist incidents have involved small extremist groups using terrorism to further a designated objective or obtain publicity for a cause. Bombings have been the most frequent method of attack in the U.S. Other possibilities include attacks against transportation facilities, utilities, or other public services, or an incident involving chemical or biological materials.

The primary objectives of most terrorist groups are to:

- Gain publicity
- Stimulate loss of confidence in the government
- Attract recruits
- Get public support
- Gain support from financial institutions, and ultimately
- Weaken and overthrow the government

Techniques used to gain an audience for their platform include: hostage-taking, product-tampering, criminal extortion, arson, sabotage, threats against individual family members, assassinations, kidnapping, explosive bombings, and armed attacks. The most likely targets of these forms of terrorism are political leaders, key military personnel, foreign missions, military facilities, corporate executives and facilities, and celebrities. Unfortunately, the risk of terrorist acts exists in the State of Georgia, and cannot be ruled out for Gwinnett County. Terrorist attacks can take a wide variety of forms, ranging from a verbal threat to sabotage to biological weapons to a bomb. The most frequently used terrorist method in the U.S. include, but are not limited to:

***Bombs, Guns, and Explosives*** – These are the “traditional” weapons used by terrorists worldwide. Typically, these weapons are less technically and resource demanding.

***Biological Weapons*** – These weapons use infectious microbes or toxins to produce illness or death in people, animals, or plants. Potential biological weapons include: anthrax, botulism, smallpox, viral hemorrhagic fevers, water safety threats (e.g. cholera), and food safety threats (e.g. salmonella). Biological weapons are relatively difficult to cultivate and disseminate.

***Chemical Weapons*** – Chemical weapons cause severe health reactions designed to incapacitate or cause death. There is a wide array of potential chemical agents that could be used as weapons. These agents vary in how their effects on the body, required dose, exposure mechanism, length of exposure, toxicity, origination, and form (e.g. liquid, gas). Examples of chemical agents include sarin, mustard agent, VX

and cyanide. Stockpiles of many of these agents are held at the Umatilla Chemical Depot, pending destruction.

***Radiological and Nuclear Weapons*** – Although there has been much speculation by media and various governmental agencies regarding the potential for a terrorist to obtain fissionable material or a nuclear bomb, there are no known unclassified cases of any such organization or group actually obtaining weapons grade material. Constructing a nuclear bomb would be relatively difficult and require special resources, training, and materials.

***Cyber terrorism*** – Cyber terrorism attacks computers and networks, and the information contained within them. A cyber attack could potentially disrupt communications, banking systems, power systems, and emergency networks. Terrorist attacks typically occur without prior warning. There may, in some cases, be a heightened sense of hazard or alert, but there is rarely sufficient information available prior to an incident to allow for predicting the specific nature and time of an attack. The effects of terrorism can vary significantly from property damage and disruption of services (power, water, transportation, and communication), to injury and/or loss of life. An incident could directly impact a relatively small area (e.g. a single building) or a large area (multiple buildings or disrupted services throughout a city). Even a small terrorist incident could have multiple impacts spreading throughout a community, such as disruption of services, interruptions to businesses, banking, and communications systems, false alarms, and long term trauma to responders, witnesses, caregivers, and others.

Terrorism is often categorized as "domestic" or "international." This distinction refers not to where the terrorist act takes place but rather to the origin of the individuals or groups responsible for it. For example, the 1995 bombing of the Murrah Federal Building in Oklahoma City was an act of domestic terrorism, but the attacks of September 2001 were international in nature. For the purposes of consequence management, the origin of the perpetrator(s) is of less importance than the impacts of the attack on life and property; thus, the distinction between domestic and international terrorism is less relevant for the purposes of mitigation, preparedness, response, and recovery than understanding the capabilities of terrorist groups and how to respond to the impacts they can generate.

### **3.21.4 Assets Exposed to Hazard Damage Assessment**

**Property Risk/Vulnerability:** All assets within Gwinnett County are susceptible to being affected by a Terrorist event.

**People Risk/Vulnerability:** In evaluating vulnerability of the population in Gwinnett County, it was determined that risk/vulnerability includes the entire population of Gwinnett County since there is no way to determine the impact/magnitude of a terrorist event and no way to predict where and when a terrorist event will occur. People are vulnerable to terrorist events through power outages, effects on transportation routes, establishment of shelters, effect of event on mental state of the public, confidence of public in law enforcement support, etc.

**Environment Risk/Vulnerability:** Risks to the environment are high should a terrorist event occur but the frequency of terrorist events in Gwinnett are low. Environmental concerns would be interruption of water supply, secondary events such as fires and hazardous materials accidents (such as gas pipelines rupturing, rupture of hazardous material containers at facilities, etc.).

### **3.21.5 Land Use and Development Trends**

Future development throughout Gwinnett County will take into consideration possible events.

### **3.21.6 Multi-Jurisdictional Concerns**

All of Gwinnett County is subject to events and therefore should be included in any prospective mitigation projects

### **3.21.7 Hazard Summary**

Terrorism events have occurred in the United States but not in Gwinnett County.

**Table 3-14  
High Potential Loss Properties, Critical Facilities and HAZMAT Sites**

| Type                                | Total Number in Inventory | At Risk from Flood Hazard | At Risk from Other Hazards |
|-------------------------------------|---------------------------|---------------------------|----------------------------|
| High Potential Loss Properties      | 15                        | 0                         | 15                         |
| Hospitals                           | 3                         | 0                         | 3                          |
| Fire Stations/EMS                   | 36                        | 0                         | 36                         |
| Law Enforcement/Police/911          | 19                        | 0                         | 19                         |
| Schools                             | 125                       | 0                         | 125                        |
| Radio Towers                        | 11                        | 0                         | 11                         |
| Toxic Release Inventory Sites (TRI) | 2                         | 0                         | 0                          |
| <b>TOTALS</b>                       | <b>211</b>                | <b>0</b>                  | <b>211</b>                 |

Gwinnett County has been the subject of several disaster declarations and subsequent disaster funding. The table below identifies those declarations and the economic relief provided.

**Table 3-15  
Gwinnett County Disaster Declaration Economic Relief**

| Date      | Declaration Number | Hazard Incident                  | Economic Relief | Source |
|-----------|--------------------|----------------------------------|-----------------|--------|
| 3/15/1993 | 3097               | Winter Storm                     | IA and PA       | FEMA   |
| 3/20/98   | 1209               | Severe Storms/Tornadoes/Flooding | IA and PA       | FEMA   |
| 1/28/00   | 1311-DR            | Winter Storm                     | IA and PA       | FEMA   |
| 9/5/05    | 3218               | Hurricane Katrina Evacuation     | PA              | FEMA   |
| 9/24/09   | 1858               | Flooding                         | IA and PA       | FEMA   |



## 3.22 Critical Facilities and Infrastructure

### 3.22.1 Hazard Identification

According to FEMA, critical facilities and infrastructure are those systems “whose incapacity or destruction would have a debilitating impact on the defense or economic security of that community.” These systems include the following seven general categories: fire and emergency services; telecommunications infrastructure; hospitals; law enforcement; educational buildings; government services and public utilities.

Gwinnett County maintains a database for critical facilities and infrastructure. Participating organizations provided the critical facilities and/or assets within their communities. County Emergency Services then combined the local jurisdiction information with the county information to identify the structure value of all critical assets and structures.

Table 3-16 is a summary table that specifically summarizes potentially at-risk facilities or assets based on the analysis of Gwinnett County’s critical facilities and databases of hazardous material.

### 3.22.2 Hazard Profile

All Facilities and Infrastructure within Gwinnett County are susceptible to natural and terrorist events. Lightning and wind within the county can cause damage to facilities.

The possibility of a fire within the facilities could cause damage, but facilities are equipped with fire detection equipment, as well as buildings constructed with more fire retardant materials. Our infrastructure could receive damage from flooding, earthquakes, and hazardous materials that travel the infrastructure every day.

### **3.22.3 Assets Exposed to Hazard Damage Assessment**

All assets within Gwinnett County are susceptible to being affected by natural or terrorist events. Plans have been developed to prevent terrorist events from impacting Facilities and Infrastructure. Natural events may have some impact on Facilities and Infrastructure but building codes have been developed to reduce the damage to facilities.

### **3.22.4 Estimate of Potential Losses**

Gwinnett County has recorded instances of critical facilities and/or other property being damaged as a result of natural events such as wind and rain. There are no recorded instances of damage to critical facilities or infrastructure from terrorist events.

### **3.22.5 Land Use and Development Trends**

Future development throughout Gwinnett County will take into consideration possible natural and terrorist events.

### **3.22.6 Multi-Jurisdictional Concerns**

All of Gwinnett County is subject to events and therefore should be included in any prospective mitigation projects.

### **3.22.7 Hazard Summary**

Natural events have occurred within Gwinnett County, Terrorism events have occurred in the United States but not in the County.

**Table 3-16  
Gwinnett County and Participating Jurisdictions Critical Facility Summary**

| Jurisdiction                              | Number of Critical Facilities | Critical Facilities Total Sq. Footage | Total Structure Value |
|-------------------------------------------|-------------------------------|---------------------------------------|-----------------------|
| Gwinnett County Fire & Emergency Services | 36                            | 330,306                               | 81,600,000            |
| Communications                            | 11                            |                                       | 23,100,000            |
| Hospitals                                 | 3                             | 1,192,457                             | 244,740,740           |
| Police Departments                        | 19                            | 992,679                               | 43,468,500            |
| Educational Buildings                     | 125                           |                                       | 1,144,252,033         |
| Government Buildings                      | 112                           | 60,090                                | 99,171,100            |
| Public Utilities                          | 3                             |                                       | 9,280,200             |
| Emergency Shelters                        | 19                            |                                       |                       |
| <b>Totals</b>                             | <b>210</b>                    | <b>2,575,532</b>                      | <b>1,645,612,573</b>  |

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## Section 4

# COMMUNITY CAPABILITY ASSESSMENT

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This section of the plan is a detailed assessment of Gwinnett County's capability as a local governmental unit to mitigate the impacts of the natural hazards that were identified and analyzed in this plan. This assessment includes an examination of the following local government capabilities:

- Legal Capability
  - General Authority
  - Building Codes and Inspections
  - Land Use Planning
  - Zoning
  - Subdivision Ordinance
  - Acquisition
  - Taxation
  - Floodway Regulations
  - National Flood Insurance Program and Community Rating System
  - Stormwater Management
  - FEMA's Floodplain Map Modernization Program
  - Emergency Management
- Institutional Capability
- Political Capability
- Technical Capability
- Fiscal Capability
- Analysis Conclusion
  - Legal Capability Conclusion
  - Institutional Capability Conclusion
  - Political Capability Conclusion
  - Technical Capability

### 4.1 Legal Capability

Local governments in Georgia have a wide array of powers that enable counties and municipalities to adopt and implement policies and ordinances that may be used to mitigate the potential harmful effects of natural hazards. Below is a summary of the legal authority and powers that Georgia has conferred on local governments with the State (Local Hazard Mitigation Planning Manual, GA Division of Emergency Management). These powers fall into the following four broad categories: regulations, acquisitions, taxation and spending.

#### 4.1.1 General Authority

The board of commissioners shall have the power and authority to fix and establish, by appropriate resolution entered on its minutes, policies, rules and regulations governing all matters reserved to its exclusive jurisdiction. Such policies, rules and regulations, when so adopted, with proper entry thereof made on the minutes of the board of commissioners, shall be conclusive and binding. The board of commissioners shall exercise only those administrative powers which are necessarily and properly incident to its functions as a policy-making or rule-making body, or which are necessary to compel enforcement of its adopted resolutions. The following powers are vested in the board of commissioners and reserved to its exclusive jurisdiction:

- To levy taxes
- To make appropriations
- To fix the rates of all other charges
- To authorize the incurring of indebtedness
- To order work done where the cost is to be assessed against benefited property and to fix the basis for such assessment
- To authorize and provide for the execution of contracts
- To establish, alter, open, close, build, repair or abolish public roads, private ways, bridges and ferries, according to law, provided, however, that the chairman shall have the authority to accept subdivision plats when the requirements established by the board of commissioners for subdivisions have been met
- To establish, abolish or change election precincts and militia districts according to law
- To accept, for the county, the provisions of any optional statute where the statute permits its acceptance by the governing authority of the county
- To exercise all powers, duty and authority formerly imposed upon or vested in the commissioner of roads and revenues of Gwinnett County in respect to zoning and planning
- To create and change the boundaries of special taxing districts authorized by law
- To fix the bonds of county officers where same are not fixed by statute

- To enact any ordinances or other legislation which the county may be given authority to enact
- To determine the priority of capital improvements
- To call elections for the voting of bonds
- To exercise all of the power and authority formerly vested by law in the board of commissioners of Gwinnett County together with the power and authority which may be delegated by law to the governing authority of the county, by whatever name designated
- To appoint retained legal counsel and an independent county auditor and provide for their compensation

### **4.1.2 Building Codes and Inspections**

The Building Permits Section of the Department of Planning and Development is responsible for enforcement of Building Codes and Inspections.

The Building Inspections Section is responsible for all building construction related inspections, with the goal to protect life, limb, property and adherence to applicable codes. This goal is accomplished through identifying structural strength and stability, as well as establishing viable means of egress, proper sanitation control, adequate lighting and ventilation, energy conservation, and personal property safety from fire and other hazards.

The Building Plan Review Section of the Department of Planning and Development is responsible for the review and authorization to permit the construction of commercial buildings, commercial structures and commercial interior projects located in unincorporated Gwinnett County. Commercial buildings include all buildings or structures other than one and two family dwellings or townhomes. Commercial structures include site retaining walls, cell tower installations, racking systems and signage foundations.

The Building Permits Section of the Department of Planning and Development is responsible for enforcement of the following functions:

- Issuance of building permits
- Building permit revisions
- Building permit renewals and extensions
- Temporary certificates of occupancy/completion
- Replacement permit cards
- Payment of re-inspection fees
- Subcontractor affidavits
- Contractor name changes
- Subcontractor name changes

Open record requests concerning building permits or building inspections

### 4.1.3 Land Use Planning

Gwinnett County's 2030 Comprehensive Plan and Land Use Plan Map have been updated annually since adoption of the plan in 1997. However, because the county has changed dramatically since then, the County began a two-year effort to complete a major update to its comprehensive plan. As part of the project, the Transportation Plan and Consolidated Plan will be updated in a coordinated fashion. Public input is welcomed throughout the process.

### 4.1.4 Zoning

Pursuant to the authority conferred by Article 9, Section 2, Paragraph IV, 1983 Constitution of Georgia, and for the purposes of promoting the health, safety, morals, convenience, order, prosperity or the general welfare of the present and future inhabitants of Gwinnett County; of lessening congestion in the streets; securing safety from fire, panic and other dangers; providing adequate light and air; preventing the overcrowding of land by avoiding both undue concentration of population and urban sprawl; facilitating the adequate provision of transportation, water, sewerage, schools, parks and other public requirements; protecting property against blight and depreciation; encouraging the most appropriate use of land, buildings and other structures throughout the County; securing economy in government expenditures; and for other purposes, all in accordance with a comprehensive plan for the development of the County, the County Commissioners of Gwinnett County do hereby ordain and enact into law the following Articles and Sections of the Zoning Resolution of Gwinnett County, Georgia.

**Table 4-1  
Section 607 – Zoning Resolution**

| Section 607 of the Zoning Resolution |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Customary Home Occupation            | An occupation customarily carried on within a dwelling unit for gain or support involving the sale of only those articles, products or services produced on the premises, conducted entirely within the dwelling by members of the immediate family residing in the dwelling unit with equipment customarily used for household purposes and involving no display of articles or products. A customary home occupation includes the accommodation of not more than two boarders or roomers. A customary home occupation may include a family personal care home or a family daycare home. |
| 1                                    | The home occupation shall be carried on only by a member or members of the family residing in the residence.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 2                                    | To the extent that there is any sale of any item or service related to the home occupation, no sale of that item or service may occur on or adjacent to the premises unless this use has been granted a Special Use Permit by the Board of Commissioners after receiving recommendations from the Director of Planning and Development and Planning Commission and following a public hearing.                                                                                                                                                                                            |

| Section 607 of the Zoning Resolution |                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3                                    | The home occupation shall not involve group instruction or group assembly of people on the premises.                                                                                                                                                                                                                                                                                        |
| 4                                    | There shall be no exterior evidence of the conduct of a home occupation. Except for the breeding of horses by a Hobby Breeder, the home occupation shall be conducted only within the enclosed living area of the home (including basement, if any). There shall be no display or storage of products, materials or machinery where they may be visible from the exterior of the residence. |
| 5                                    | The conduct of the home occupation shall neither increase the normal flow of traffic nor shall it increase either on-street or off-street parking.                                                                                                                                                                                                                                          |
| 7                                    | No more than 25 percent of the dwelling unit may be used for conducting the home occupation.                                                                                                                                                                                                                                                                                                |
| 8                                    | One business vehicle used exclusively by the resident is permissible. This vehicle must be parked in a carport, garage, side yard or rear yard. This vehicle shall be no larger in size than a pick-up truck, panel truck or van not having a carrying capacity of more than one and one-half tons.                                                                                         |

**Table 4-2  
Section 400 – Zoning Districts**

| Section 400 Zoning Districts |                                            |
|------------------------------|--------------------------------------------|
| RA-200                       | Agriculture-Residence District             |
| R-140                        | Single Family Resident District            |
| R-LL                         | Single Family Residence-Large Lot District |
| R-100                        | Single Family Residence                    |
| R-75                         | Single Family Residence                    |
| R-60                         | Single Family Residence                    |
| R-SR                         | Senior Oriented Residence District         |
| R-TH                         | Single Family Residence Townhouse District |
| HRR                          | High-Rise Residential District             |
| RM                           | Multi-Family Residence District            |
| RM-13                        | Multi-Family Residence District            |
| RM-10                        | Multi-Family Residence District            |
| RM-8                         | Multi-Family Residence District            |
| RM-6                         | Multi-Family Residence District            |
| RMD                          | Multi-Family Residence District (Duplexes) |

## Section 4

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| Section 400 Zoning Districts |                                                                                  |
|------------------------------|----------------------------------------------------------------------------------|
| RL                           | Lakeside Residence District                                                      |
| R-ZT                         | Single Family Residence District                                                 |
| MH                           | Mobile Home Park District                                                        |
| MHS                          | Manufactured Housing Subdivision District                                        |
| HS                           | Hospital Service District                                                        |
| NS                           | Neighborhood Shopping District                                                   |
| C-1                          | Neighborhood Business District                                                   |
| C-2                          | General Business District                                                        |
| C-3                          | Highway Business District                                                        |
| O-1                          | Office-Institutional District                                                    |
| OBP                          | Office-Business Park District                                                    |
| M-1                          | Light Industry District                                                          |
| M-2                          | Heavy Industry District                                                          |
| MUD                          | Mixed-Use Development District                                                   |
| R-TH                         | Single-Family Residence Townhouse District (Prior to January 2005)               |
| R-ZT                         | Single-Family Residence Zero Lot Line/Townhouse District (Prior to January 2005) |
| Section 1314.6               | Big Haynes Creek Conservation Subdivision Option                                 |

### 4.1.5 Subdivision Ordinance

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Subdivision regulations are a more limited tool than zoning and only indirectly affect the type of use made of land or minimum specifications for structures.

Subdivision regulations provide for orderly growth and development by setting standards for street construction, interconnecting street systems, utilities, and for other improvements that ensure the appropriate design and layout of new development. These regulations also serve to protect natural features and resources by not allowing or reducing development intensity within sensitive environmental areas. Flood-related subdivision controls typically require that developers install adequate stormwater drainage facilities, and design water and sewer systems to minimize flood damage and contamination. Regulations typically prohibit the filling of floodways or the subdivision of land subject to flooding unless flood hazards are overcome through filling or other measures.

The Gwinnett County Subdivision Ordinance was first adopted in 1986. The original ordinance contained few specific design criteria for the approval or disapproval of new subdivisions. The ordinance was substantially revised to include specific development standards, including requirements for stormwater drainage to minimize or eliminate flood damage. The ordinance was last revised on July 24, 2007.

### **4.1.6 Acquisition**

The power of acquisition can be useful tool for pursuing mitigation goals. Local governments may find the most effective method for completely hazard-proofing a particular piece of property is to acquire the property, either in fee simple or a lesser interest, such as an easement. Public acquisition removes the property from the private market and eliminates or reduces the possibility of inappropriate development. Georgia legislation empowers cities and counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease or eminent domain (Ga. Article III Legislative Branch).

### **4.1.7 Taxation**

The Gwinnett County Board of Commissioners adopted their Code of Ordinances on September 6, 1994. The following are the findings of Article VI Section 1 of the ordinance:

The governing authority of Gwinnett County is hereby authorized and empowered to establish and administer fire protection districts and sewerage districts in the unincorporated area of the County. The governing authority shall fix the geographical boundaries of any such district and may construct, maintain, operate and administer a fire protection system or a sewerage system, as the case may be, in such district. The governing authority is hereby authorized to levy a tax, not to exceed five mills, for such purpose on all property in said district, if the levying of such tax is approved by a majority vote of those qualified voters of said district voting at a special election to be called and conducted by the probate court judge of said county in said district. The governing authority shall set the date for said election, which shall be held and conducted, as are other special elections. General obligation bonds also may be issued for such purposes, to be paid for by taxes levied only in said district. In the event such bonds are issued, a tax may be levied in such district with no limitation as to rate or amount and such tax shall not be affected by the tax of not to exceed five mills provided for hereinbefore. If such bonds are issued, they shall be authorized in all respects as provided in Article VII, Section VII, Paragraph I of the Constitution at an election called and held by the governing authority of Gwinnett County and only those voters residing in the affected district shall participate in the election held for that purpose. Such bonds may be issued in an amount up to ten (10%) percent of the assessed valuation of property located in such district and such percentage shall be in addition to that authorized elsewhere in this Constitution. The governing authority is also authorized to issue revenue bonds for such purposes as authorized by the Constitution and laws of this State. The homestead exemption granted under the Constitution and laws of this State shall not be granted and shall not apply to the levy

of any taxes provided for herein. In order to assist in constructing, maintaining, operating, and administering any such system, assessment may be made against the property in such district benefitted thereby, and the General Assembly is hereby authorized to provide the property against which assessments may be made, the procedure relative thereto, and all other matters relative thereto. In addition to the authority granted hereinbefore, the governing authority of Gwinnett County is hereby authorized to contract with any other political subdivision for the furnishing of fire protection services or sewerage services, or both, to any district established by the governing authority.

### 4.1.8 Floodway Regulations

The Gwinnett County Board of Commissioners adopted their Floodplain Management Ordinance on September 16, 2006. The following are the findings of Section 50-31 of the ordinance:

#### **Sec. 50-31. Findings**

It is hereby determined that:

- The flood hazard areas of Gwinnett County are subject to periodic inundation, which may result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood relief and protection, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare;
- Flood hazard areas can serve important stormwater management, water quality, stream bank protection, stream corridor protection, wetland preservation and ecological purposes when permanently protected as undisturbed or minimally disturbed areas;
- Effective floodplain management and flood hazard protection activities can (1) Protect human life and health; (2) Minimize damage to private property; (3) Minimize damage to public facilities and infrastructure such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in floodplains; and (4) Minimize expenditure of public money for costly flood control projects associated with flooding and generally undertaken at the expense of the general public; and,
- Article IX, Section II of the Constitution of the State of Georgia and O.C.G.A. § 36-1-20(a), have delegated the responsibility to local governmental units to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry. Therefore, Gwinnett County, Georgia, does ordain this article and establishes this set of floodplain management and flood hazard reduction policies for the purpose of regulating the use of flood hazard areas. It is determined that the regulation of flood hazard areas and the prevention of flood damage are in the public interest and will minimize threats to public health and safety, as well as to private and public property.

(Ord. of 9-19-06, § 1.1.1)

## **Sec. 50-32. Requirements**

The requirements of this article only apply to the development of or construction upon any property, which adjoins or contains an area subject to inundation by the future conditions flood or the base flood, as defined herein.

(Ord. of 9-19-06, § 1.1.2)

## **Sec. 50-33. Statement of purpose**

It is the purpose of this article 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, as well as to protect the beneficial uses of floodplain areas for water quality protection, stream bank and stream corridor protection, wetlands preservation and ecological and environmental protection by provisions designed by:

- Restricting or prohibiting uses activities which are dangerous to health, safety, and property due to flooding or erosion hazards or in flood heights or velocities;
- Require that uses vulnerable to floods, including facilities, which serve such uses, be protected against flood damage at the time of initial construction or renovation;
- Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of flood waters;
- Controlling filling, grading, dredging and other development, which may increase erosion or flood
- Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands; and,
- Protect the stormwater management, water quality, stream bank protection, stream corridor protection, wetland preservation and ecological functions of natural floodplain areas.

(Ord. of 9-19-06, § 1.1.3)

## **Sec. 50-34. Special definitions**

The following definitions of words or phrases apply only to their use and application within the context of this article, and are included herein because of their special nature. For more common or general definitions, see the Development Regulations of Gwinnett County, Georgia.

***Addition (to an existing building).*** Any walled and roofed expansion to the perimeter of a building in which the addition is connected by a common load-bearing wall other than a four-hour firewall. Any walled and roofed addition which is connected by a four-hour fire wall or is separated by independent perimeter load-bearing walls is new construction.

***Appeal.*** A request for a review of the department's interpretation of any provision of this article.

***Base flood.*** The flood having a one percent chance of being equaled or exceeded in any given year; i.e., the "100-year flood".

**Base flood elevation.** The highest water surface elevation anticipated at any given point during the base flood.

**Basement.** That portion of a building having its floor sub grade (below ground level) along all or a majority of its perimeter length, and includes the term "cellar."

**Breakaway wall.** A wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces without causing damage to the elevated portion of the building or the supporting foundation system.

**Building.** Any structure built for support, shelter, or enclosure for any occupancy or storage.

**Compensation.** The replacement of flood storage capacity lost as the result of floodplain encroachment.

**Department.** The Gwinnett County Department of Planning and Development.

**Development.**

- (Verb) All activities associated with man-made changes to improved or unimproved real estate and the conversion of land or the expansion or replacement of an existing use to any new use intended for human operation, occupancy or habitation, other than for agricultural purposes devoted strictly to the cultivation of the land, dairying or animal husbandry. Such activities include but are not limited to buildings or other structures, mining, dredging, filling, clearing, grubbing, grading, paving, any other installation of impervious cover, excavation or drilling operations, storage of equipment or materials, water or sewer mains, storm water drainage facilities, sidewalks or other structures permanently placed on or in the property.
- (Noun) Where appropriate to the context, the term "development" also may be used to denote a specific subdivision or project which is a single entity or intended to be constructed as in interrelated whole, whether simultaneously or in phases.

**Development regulations.** The Development Regulations of Gwinnett County, Georgia which are administered by the department of planning and development.

**Elevated building.** A non-basement building built to have the lowest floor of the lowest enclosed area elevated above the ground level by means of fill, solid foundation perimeter walls, pilings, columns (posts and piers), shear walls, or breakaway walls adequately anchored so as not to impair the structural integrity of the building during a base flood event.

**Existing construction.** Any structure for which the "start of construction" commenced before April 9, 1975.

**Existing manufactured home park or subdivision.** A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum the installation of

utilities, the construction of streets, and final site grading of the pouring of concrete pads) is completed before April 9, 1975.

***Expansion to an existing manufactured home park or subdivision.*** The preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed, including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads.

***Federal Emergency Management Agency (FEMA).*** The federal agency which administers the National Flood Insurance Program. This agency prepares, revises and distributes the maps and studies referenced in this article.

***Flood or flooding.*** A general and temporary condition of partial or complete inundation of normally dry land areas from:

- The overflow of inland waters; or
- The unusual and rapid accumulation or runoff of surface waters from any source.

***Flood boundary and floodway map.*** The official map issued by the Federal Emergency Management Agency, where the boundaries of the floodways are shown and the areas of special flood hazard have been defined as zone "A".

***Flood Insurance Rate Map (FIRM).*** An official map on which the Federal Emergency Management Agency has delineated both the areas of special flood hazard and the applicable risk premium zones.

***Flood insurance study.*** The official report provided by the Federal Insurance Administration evaluating flood hazards and containing flood profiles and water surface elevations of the base flood.

***Flood prone area or floodplain.*** Any land area subject to flooding.

***Flood proofing.*** Any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

***Floodway.*** The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to: 1) discharge the base flood without cumulatively increasing the water surface elevation more than one foot above the base flood elevation; or, 2) discharge the future conditions flood without cumulatively increasing the water surface elevation more than one foot above the future conditions flood elevation. The more restrictive shall apply.

***Floor.*** The top surface of an enclosed area in a building (including basement), i.e., top of slab in concrete slab construction or top of wood flooring in wood frame construction. The term does not include the floor of a garage used solely for parking vehicles.

***Functionally dependent use.*** A use which cannot be used for its intended purpose unless it is located or carried out in close proximity to water.

***Future conditions flood.*** This flood standard is equal to or higher than the base flood. The flood having a one percent chance of being equaled or exceeded in any given year based on future conditions hydrology.

***Future conditions flood elevation.*** This flood standard is equal to or higher than the base flood elevations. The highest water surface elevation anticipated at any given point during the future conditions flood.

***Future conditions floodplain.*** Any land area susceptible to flooding by the future-conditions flood.

***Future conditions hydrology.*** The flood discharges associated with the drainage basin being fully developed as shown on the currently adopted future land use plan. Only detention that can be shown that it will remain (i.e. owned by the county) and is large enough to be included in the hydrograph routings shall be considered when determining the flood peak. No consideration of projected future construction of flood detention structures or projected future hydraulic modifications within a stream or other waterway, such as bridge and culvert construction, fill, and excavation shall be given.

***Highest adjacent grade.*** The highest natural (original) elevation of the ground surface, prior to construction, next to the proposed foundation of a structure.

***Historic structure.*** Any structure that is;

- Listed individually in the National Register of Historic Places (a listing maintained by the U.S. Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
- Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the secretary to qualify as a registered historic district;
- Individually listed on a state inventory of historic places and determined as eligible by states with historic preservation programs which have been approved by the Secretary of the Interior; or
- Individually listed on a local inventory of historic places and determined as eligible by communities with historic preservation programs that have been certified either:
  - By an approved state program as determined by the Secretary of the Interior, or
  - Directly by the Secretary of the Interior in states without approved programs.

***Lowest floor.*** The lowest floor of the lowest enclosed area, including basement. An unfinished or flood resistant enclosure, used solely for parking of vehicles, building access, or storage, in an area other than a basement, is not considered a building's lowest floor, provided that such enclosure is not built so as to render the structure in violation of other provisions of this article.

**Manufactured home.** A structure (or building), transportable in one or more sections, which is built on a permanent chassis and designed to be used with or without a permanent foundation when connected to the required utilities. The term also includes mobile homes, park trailers, travel trailers, and similar transportable structures placed on a site for 180 consecutive days or longer and intended to be improved property.

**Mean Sea Level (MSL).** The average height of the sea for all stages of the tide. It is used as a reference for establishing various elevations within the floodplain. For purposes of this article, the term is synonymous with National Geodetic Vertical Datum (NGVD) and/or North American Vertical Datum (NAVD) of 1988.

**National Geodetic Vertical Datum (NGVD).** As corrected in 1929, the vertical control used as a reference for establishing varying elevations within the floodplain.

**New construction.** Any structure for which the "start of construction" commenced on or after the effective date of this article, April 9, 1975, and includes any subsequent improvements to the structure.

**New manufactured home park of subdivision.** A manufactured home park of subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be fixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading of the pouring of concrete pads) is completed on or after April 9, 1975.

**North American Vertical Datum (NAVD) of 1988.** A vertical control used as a reference for establishing varying elevations within the floodplain.

**Owner.** A person having a majority fee simple interest in real property, or a majority interest through any other form of ownership.

**Permit.** The permit issued by the department to the applicant which is required prior to undertaking any development activity.

**Principal building.** A building built to fulfill the primary or predominant purpose for which a lot is occupied and/or used.

**Recreational vehicle.** A vehicle which is:

- Built on a single chassis;
- Four hundred square feet or less when measured at the largest horizontal projection;
- Designed to be self-propelled or permanently towable by light duty truck; and,
- Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

**Repetitive loss.** Flood-related damages sustained by a structure on two separate occasions during a ten-year period for which the cost of repairs at the time of each such flood event, on the average, equals, or exceeds 25 percent of the market value of the structure before the damage occurred.

**Special flood hazard area.** The land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. This includes all

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floodplain and flood prone areas at or below the base flood elevation (including A, A1-30, A-99, AE, AO, AH, and AR on the FHBM or the FIRM), all floodplain and flood prone areas at or below the future conditions flood elevation, and all other flood prone areas as referenced in section 50-35. All streams with a drainage area of 100 acres or greater shall have the area of special flood hazard delineated. In the absence of official designation by the Federal Emergency Management Agency, special flood hazard areas shall be those designated by the local community and referenced in section 50-35.

***Start of construction.*** Includes substantial improvement, and means the date the permit was issued, provided the actual start of construction, repair, reconstruction, or improvement was within 180 days of the permit date. The actual start means the first placement of permanent construction of a structure (including a manufactured home) on a site, such as the pouring of slabs or footings, installation of piles, construction of columns, or any work beyond the stage of excavation; or, the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers or foundations or the erection of temporary forms; nor does it include buildings appurtenant to the permitted structure, such as garages or sheds not occupied as dwelling units or not part of the main structure. (NOTE: Accessory structures are not exempt from any ordinance requirements). For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

***Structure.*** A walled and roofed building that is principally above ground, a manufactured home, a gas or liquid storage tank.

***Subdivision.*** 1. (verb) Any division or re-division of a lot, tract or parcel, regardless of its existing or future use, resulting in one or more new lots, tracts or parcels. The term, "subdivision" shall mean the act or process of dividing property. Lots that do not abut or are not directly across a public street from other subdivided lots shall be considered a separate distinct subdivision with a separate name. 2. (noun) Where appropriate to the context, the term "subdivision" so may be used in reference to the aggregate of all lots held in common ownership at the time of division.

***Substantial damage.*** Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

***Substantial improvement.*** Any combination of repairs, reconstruction, alteration, or improvements to a structure, taking place during a ten-year period, in which the cumulative cost equals or exceeds 50 percent of the market value of the structure prior to the improvement. The market value of the structure should be:

- The appraised value of the structure prior to the start of the initial repair or improvement; or,
- In the case of damage, the value of the structure prior to the damage occurring.

This term includes structures, which have incurred "repetitive loss" or "substantial damage" regardless of the actual amount of repair work performed. For the purposes of this definition, "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the structure commences, whether or not that alteration affects the external dimensions of the structure. The term does not, however, include any project for improvement of a structure to correct existing violations of state or local health, sanitary or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions or any alteration of a "historic structure" provided that the alteration will not preclude the structure's continued designation as a "historic structure".

***Substantially improved existing manufactured home parks or subdivision.*** Where the repair, reconstruction, rehabilitation or improvement of the streets, utilities and pads equals or exceeds 50 percent of the value of the streets, utilities and pads before the repair, reconstruction or improvement commenced.

***Variance.*** A grant of relief from the requirements of this article that permits construction in a manner otherwise prohibited by this article.

***Violation.*** The failure of a structure or other development to be fully compliant with the community's floodplain management regulations. A structure or other development without the elevation certificate, other certificates, or other evidence of compliance required in this article is presumed to be in violation until such time as that documentation is provided.

***Watercourse.*** A channel with a defined bed and banks, including lakes, ponds, and marshes.

(Ord. of 9-19-06, § 1.1.4)

### **Sec. 50-35. Flood area maps and studies.**

- For the purposes of this article, the following are adopted: The Flood Insurance Study (FIS), dated December 5, 1980 and Flood Insurance Rate Map (FIRM), dated June 15, 1981, prepared by the Federal Emergency Management Agency (FEMA) for unincorporated areas of Gwinnett County, Georgia, with accompanying maps and other supporting data and any revision thereto.
- Other studies, which may be relied upon for establishment of the base flood elevation or delineation of the 100-year floodplain, include:
  - Any flood or flood related study conducted by the United States Corps of Engineers or the United States Geological Survey or any local, State, or Federal Agency applicable to Gwinnett County.
  - Any base flood study authored by a currently registered professional engineer in the State of Georgia which has been approved by the department.
- Other studies which may be relied upon for establishment of the future conditions flood elevation or delineation of the future conditions floodplain include:

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- Any flood or flood related study conducted by the United States Corps of Engineers or the United States Geological Survey or any local, state, or federal agency applicable to Gwinnett County.
- Any future conditions flood study authorized by a currently registered professional engineer in the State of Georgia, which has been approved by the department.
- The repository for public inspection of the FIS, accompanying maps and other supporting data is located at the following location:

### **Gwinnett County Department of Water Resources**

One Justice Square  
446 West Crogan Street  
Lawrenceville, GA 30045

(Ord. of 9-19-06, § 1.2.1)

### **Sec. 50-36. Areas regulated**

This article shall be applicable to all special flood hazard areas within unincorporated Gwinnett County, Georgia.

(Ord. of 9-19-06, § 1.2.2)

### **Sec. 50-37. Interpretation**

- In the interpretation and application of this article all provisions shall be:
  - Considered as minimum requirements;
  - Liberally construed in favor of Gwinnett County; and,
  - Deemed neither to limit nor repeal any other powers granted under state statutes.
- Where interpretation is needed as to the exact location of floodplain or floodway boundaries (for example, where there appears to be a conflict between a mapped boundary and actual field conditions) the department shall make the necessary interpretation based on data submitted by the applicant. The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in this article.
- Where flood plain elevations have been defined, the floodplain shall be determined based on flood elevations rather than the area graphically delineated on the floodplain maps.

(Ord. of 9-19-06, § 1.2.3)

### **Sec. 50-38. Drainage easement established**

On behalf of the public, a drainage easement is hereby established for the sole purpose of preserving and protecting the free flow of surface waters inside the future conditions Flood contour elevations and along all watercourses. Where debris has accumulated in such a manner as would increase the need for flood protection, raise the flood level, or increase the risk of hazardous inundation of adjacent communities

or jurisdictions, the county is hereby authorized to enter upon such watercourse and clear or remove such debris or obstructions as are hazardous to the public safety. The cost thereof shall be charged to the owner of the property where such debris and/or obstruction was generated. Where erosion has occurred in such a manner as would endanger a building or a structure, the county is hereby authorized to enter upon such watercourse and stabilize the channel for public safety. The cost thereof shall be charged to the owner of the property where the erosion has occurred and/or caused the erosion.

(Ord. of 9-19-06, § 1.2.4)

### **Sec. 50-39. Establishment of development permit**

A development permit shall be required in conformance with the provisions of the development regulations prior to the commencement of any clearing, grading, or development activities adjacent to, within, or affecting a future conditions floodplain.

(Ord. of 9-19-06, § 1.2.5)

### **Sec. 50-40. Compliance**

No structure or use of land shall hereafter be located, extended, converted or structurally altered without full compliance with the terms of this article and other applicable regulations.

(Ord. of 9-19-06, § 1.2.6)

### **Sec. 50-41. Abrogation and greater restrictions**

This article is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this article and other codes or regulations conflict or overlap, with respect to the prevention of flood damage on property this article shall prevail.

(Ord. of 9-19-06, § 1.2.7)

### **Sec. 50-42. Warning and disclaimer of liability**

The degree of flood protection required by this article is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This article does not imply that land outside the special flood hazard or flood prone areas or uses permitted within such areas will be free from flooding or flood damages. This article shall not create liability on the part of Gwinnett County or by any officer or employee thereof for any flood damages that result from reliance on this article or any administrative decision lawfully made hereunder.

(Ord. of 9-19-06, § 1.2.8)

### **Sec. 50-43. Designation of ordinance administrator**

The director of the department of planning and development or the director's designee is hereby appointed to administer and implement the provisions of this article.

(Ord. of 9-19-06, § 1.2.9)

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### **Sec. 50-44. Duties and responsibilities of ordinance administrator**

The duties of the director or director's designee shall include, but shall not be limited to:

- Review all development applications and permits to assure that the requirements of this article have been satisfied and to determine whether proposed building sites will be reasonably safe from flooding;
- Require that copies of all necessary permits from governmental agencies from which approval is required by federal or state law, including but not limited to Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334, be provided and maintained on file;
- When base flood elevation data or floodway data have not been provided, then the director or director's designee shall require the applicant to obtain, review and reasonably utilize any base flood elevation and floodway data available from a federal, state or other sources in order to meet the provisions of divisions 3 and 4 herein;
- Review and record the actual elevation in relation to mean sea level (or highest adjacent grade) of the lowest floor, including basement, of all new or substantially improved structures;
- Review and record the actual elevation, in relation to mean sea level to which any substantially improved structures have been flood-proofed;
- When flood proofing is utilized for a non-residential structure, the director or director's designee shall obtain certification of design criteria from a registered professional engineer or architect;
- Notify affected adjacent communities and the Georgia Department of Natural Resources prior to any alteration or relocation of a watercourse and submit evidence of such notification to the Federal Emergency Management Agency (FEMA);
- Where interpretation is needed as to the exact location of boundaries of the special flood hazard area (e.g., where there appears to be a conflict between a mapped boundary and actual field conditions) the director or director's designee shall make the necessary interpretation. Any person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in this article. Where floodplain elevations have been defined, the floodplain shall be determined based on flood elevations rather than the area graphically delineated on the floodplain maps; and,
- All records pertaining to the provisions of this article shall be maintained in the office of the director or director's designee and shall be open for public inspection.

(Ord. of 9-19-06, § 1.2.10)

**Secs. 50-45--50-60. Reserved.**

### 4.1.9 National Flood Insurance Program and Community Rating System

Another voluntary program that provides significant value is the Community Rating System (CRS). CRS is an incentive-based program that encourages counties and municipalities to undertake defined flood mitigation activities that go beyond the minimum requirements of the NFIP, adding extra local measures to provide protection from flooding. All of the 18 creditable CRS mitigation activities are assigned a range of point values. As points are accumulated and reach identified thresholds, communities can apply for an improved CRS class. Class ratings, which run from 10 to 1, are tied to flood insurance premium reductions. As class ratings improve, the percent reduction in flood insurance premiums for NFIP policy holder's increases. CRS premium discounts, by class as defined by FEMA, are depicted in the adjacent table.

| Class | Discount |
|-------|----------|
| 1     | 45%      |
| 2     | 40%      |
| 3     | 35%      |
| 4     | 30%      |
| 5     | 25%      |
| 6     | 20%      |
| 7     | 15%      |
| 8     | 10%      |
| 9     | 5%       |
| 10    | 0%       |

The Gwinnett County Board of Commissioners adopted the Flood Insurance Study dated December 5, 1980, Flood Insurance Rate Map dated June 15, 1981, and the revised maps dated September 29, 2006 prepared by FEMA for unincorporated areas of Gwinnett County. The ordinance was updated September 19, 2006.

**Table 4-3  
Gwinnett County Community Rating**

| Community Number | Community Name  | CRS Entry Date | Current Effective Date | Current Class | Percent Discount For Sfha1 | Percent Discount For Non-Sfha | Status3 |
|------------------|-----------------|----------------|------------------------|---------------|----------------------------|-------------------------------|---------|
| 130322           | Gwinnett County | 10/1/94        | 05/1/04                | 8             | 10                         | 5                             | C       |

**Sec. 50-35. Flood area maps and studies.**

- For the purposes of this article, the following are adopted: The Flood Insurance Study (FIS), dated December 5, 1980 and Flood Insurance Rate Map (FIRM), dated June 15, 1981, prepared by the Federal Emergency Management Agency (FEMA) for unincorporated areas of Gwinnett County, Georgia, with accompanying maps and other supporting data and any revision thereto.
- Other studies which may be relied upon for establishment of the base flood elevation or delineation of the 100-year floodplain include:
  - Any flood or flood related study conducted by the United States Corps of Engineers or the United States Geological Survey or any local, State, or Federal Agency applicable to Gwinnett County.
  - Any base flood study authored by a currently registered professional engineer in the State of Georgia, which has been approved by the department.

- Other studies which may be relied upon for establishment of the future conditions flood elevation or delineation of the future conditions floodplain include:
  - Any flood or flood related study conducted by the United States Corps of Engineers or the United States Geological Survey or any local, state, or federal agency applicable to Gwinnett County.
  - Any future conditions flood study authorized by a currently registered professional engineer in the State of Georgia, which has been approved by the department.
- The repository for public inspection of the FIS, accompanying maps and other supporting data is located at the following location:

### **Gwinnett County Department of Water Resources**

One Justice Square  
446 West Crogan Street  
Lawrenceville, GA 30045

(Ord. of 9-19-06, § 1.2.1)

### **Sec. 50-36. Areas regulated.**

This article shall be applicable to all special flood hazard areas within unincorporated Gwinnett County, Georgia.

(Ord. of 9-19-06, § 1.2.2)

## **4.1.10 Stormwater Management**

The Gwinnett County Board of Commissioners adopted the Stormwater Management Ordinance on January 27, 2004 and updated on March 22, 2005. Article II Sec. 100 defines the Stormwater Management ordinance.

### **Sec. 100-22. Definitions.**

- For the purposes of this article, unless specifically defined below, words or phrases shall be interpreted so as to give them the meaning they have in common usage and to give this article it's most effective application. Words in the singular shall include the plural, and words in the plural shall include the singular. Words used in the present tense shall include the future tense; the word "shall" connotes "mandatory" and not "discretionary"; the word "may" is permissive.
- Unless otherwise specified, or it is apparent from the context, definitions herein will be the same as those in other county codes.
- For the purposes of this article, the following terms, phrases and words, and their derivatives, shall have the meaning given herein:

*Accidental discharge* means a discharge prohibited by this article that occurs by chance and without planning or thought prior to occurrence.

*Clean Water Act* means the Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.), and any subsequent amendments thereto.

**Construction activity** means activities subject to the Georgia Erosion and Sedimentation Control Act or NPDES General Construction Permits. These include construction projects resulting in land disturbance. Such activities include but are not limited to clearing and grubbing, grading, excavating, and demolition.

**Conveyance** shall mean an aboveground or underground natural or man made drainage feature, that provides for the collection and movement of stormwater, and shall include but not be limited to concrete or metal pipes, ditches, depressions, swales, roads with drainage systems, highways, county streets, curbs, gutters, inlets, catch basins, piped storm drains, pumping facilities, structural stormwater controls, drainage channels, reservoirs, rights of way, storm drains, culverts, street gutters, oil/water separators, modular pavements and other similar drainage structures.

**County** shall mean Gwinnett County and such of its departments, employees and agents as may have duties and responsibilities for administering and enforcing all stormwater management activities and implementation of the provisions of this article.

**County separate storm sewer system** means any conveyance of system of conveyances which is:

- Owned or operated by the county;
- Not a combined sewer; and
- Not part of a publicly owned treatment works.

**Department** shall mean, unless otherwise specified, the county department responsible for stormwater management activities and implementation of the provisions of this article.

**Director** shall mean either the director of the county department responsible for stormwater management activities and implementation of the provisions of this article or any of that person's duly authorized representatives.

**Discharge** shall mean the direct or indirect release of water, fluid, materials or other matter to a conveyance or surface that drains to a conveyance.

**Illicit discharge** means any direct or indirect non-stormwater discharge to the county separate storm sewer system.

**Illegal connection** shall mean any of the following:

- Any pipe, open channel, drain or other conduit, whether natural or manmade, which is used exclusively to drain a non-stormwater discharge to the county's separate storm sewer system; or
- Any pipe, open channel, drain or other conduit, whether natural or manmade, that was designed, installed or redirected for the purpose of draining a non-stormwater discharge into the county's separate storm sewer system; or
- Any pipe, open channel, drain or other conduit, whether natural or manmade, which is connected to the county separate storm sewer system and which has not been documented in plans, maps, or equivalent records and approved by

the county regardless of whether such pipe, open channel, drain or other conduit, whether natural or manmade, was permissible under law or practices applicable or prevailing at the time the connection was made, or has been previously allowed, permitted, or approved by the county or any other authorized enforcement agency. "Illegal connection" expressly includes, without limitation, those connections made in the past.

**Industrial activity** means activities subject to NPDES Industrial Permits as defined in 40 CFR, Section 122.26 (b)(14).

**National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permit** means a permit issued by the Georgia EPD under authority delegated pursuant to 33 USC § 1342(b) that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.

**Non-stormwater** means any surface flow, runoff, drainage, or discharge that is not composed entirely of stormwater and which may include pollutants, but that excludes:

- Water from those sources described in subsections 100-23(a)(2)a. and (a)(2)b. of this article; and/or
- Any discharge permitted under NPDES permit or order issued to the discharger and administered under the authority of the state and the Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the county separate storm sewer system.

**Person** means, except to the extent exempted from this article, any individual, partnership, firm, association, joint venture, public or private corporation, trust, estate, commission, board, public or private institution, utility, cooperative, city, county or other political subdivision of the state, any interstate body or any other legal entity.

**Pollutant** means anything that causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; petroleum hydrocarbons; automotive fluids; cooking grease; detergents (biodegradable or otherwise); degreasers; cleaning chemicals; non-hazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects and accumulations, so that same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; liquid and solid wastes; process waste water and wash water; sewage, fecal coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; concrete and cement; and noxious or offensive matter of any kind.

**Pollution** shall mean the man-made or man-induced alteration of the chemical, physical, biological, thermal and radiological integrity of water.

**Premises** shall mean any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

**Procedure** shall mean a procedure adopted by the department, by and through the director, to implement a regulation or regulations adopted under this article, or to carry out other responsibilities as may be required by this Code or other codes, ordinances or resolutions of the county or other agencies.

**State waters** means any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wells, and other bodies of surface and subsurface water, natural or artificial, lying within or forming a part of the boundaries of the state which are not entirely confined and retained completely upon the property of a single person.

**Stormwater** means any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation, and resulting from such precipitation, but which also includes:

- Water from those sources described in subsections 100-23(a)(2)a. and b. of this article; and/or
- Any discharge permitted under NPDES permit or order issued to the discharger and administered under the authority of the state and the Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the county separate storm sewer system.

**Stormwater management design manual** shall mean the most recent version of the stormwater design manual.

**Structural stormwater control** means a structural stormwater management facility or device that controls storm water runoff and changes the characteristics of that runoff including, but not limited to, the quantity and quality, the period of release or the velocity of flow.

**Variance** shall mean the modification of the minimum stormwater requirements for specific circumstances where strict adherence of the requirements would result in unnecessary hardship and not fulfill the intent of this article.

(Ord. No. IDA2003-001, § 2, 1-27-04; Res. No. IDA2005-001, 3-22-05)

#### **4.1.11 FEMA's Floodplain Map Modernization Program**

The Gwinnett County Board of Commissioners adopted the Flood Insurance Rate Map dated June 15, 1981 prepared by FEMA for unincorporated areas of Gwinnett County.

##### **Sec. 50-35. Flood area maps and studies**

- For the purposes of this article, the following are adopted: The Flood Insurance Study (FIS), dated December 5, 1980 and Flood Insurance Rate Map (FIRM), dated June 15, 1981, prepared by the Federal Emergency Management Agency

(FEMA) for unincorporated areas of Gwinnett County, Georgia, with accompanying maps and other supporting data and any revision thereto.

- Other studies, which may be relied upon for establishment of the base flood elevation or delineation of the 100-year floodplain, include:
  - Any flood or flood related study conducted by the United States Corps of Engineers or the United States Geological Survey or any local, State, or Federal Agency applicable to Gwinnett County.
  - Any base flood study authored by a currently registered professional engineer in the State of Georgia, which has been approved by the department.
- Other studies which may be relied upon for establishment of the future conditions flood elevation or delineation of the future conditions floodplain include:
  - Any flood or flood related study conducted by the United States Corps of Engineers or the United States Geological Survey or any local, state or federal agency applicable to Gwinnett County
  - Any future conditions flood study authorized by a currently registered professional engineer in the State of Georgia, which has been approved by the department
- The repository for public inspection of the FIS, accompanying maps and other supporting data is located at the following location:

**Gwinnett County Department of Water Resources**

One Justice Square  
446 West Crogan Street  
Lawrenceville, GA 30045

### 4.1.12 Emergency Management

The Gwinnett County Board of Commissioners created the Department of Emergency Management Sec. 2-141, January 5, 1993. One of the primary functions of the Department of Emergency Management is to maintain an Emergency Operations Plan for Multi-Hazards. This is a mechanism to pre-determine actions to be taken by government agencies and private organizations of Gwinnett County to reduce the vulnerabilities of people and property to disaster, and establish capabilities to respond effectively to the actual occurrence of a disaster.

Although the primary purpose of the plan is to ready the County and its citizens for a disaster, the plan also helps mitigate the extent of actual damages to life and property by having an action plan in place to prepare and then respond to an emergency situation.

In addition to natural disasters, the plan anticipates the possibility of manmade, technological, and national security emergencies (for detailed information, the reader is referred to the Emergency Operations Plan).

The Plan anticipates and plans for a number of potential emergency situations including:

- Nuclear Threat/Attack
- Hazardous Materials and Hazardous Waste
- Transportation Accidents
- Flooding and Dam Failures
- Hurricanes/Tropical Storms
- Drought
- Tornadoes
- Winter Storms
- Civil Disorders

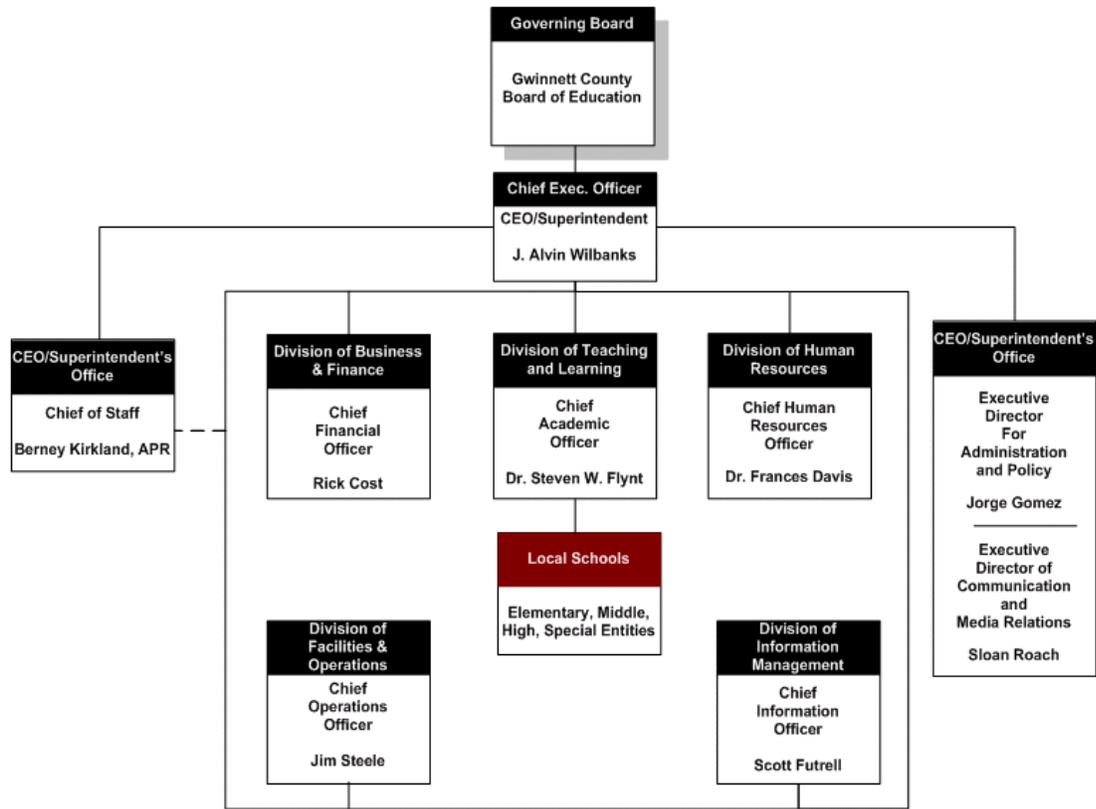
### 4.2 Institutional Capability

Gwinnett County Public Schools (GCPS) and its 125 schools and other educational facilities serve more than 158,000 students. Gwinnett's modern, well-equipped, and well-maintained schools provide an environment where teaching and learning thrive. Geographical clusters, called clusters, determine attendance zones. Within each cluster, there are three to six elementary schools, one or two middle schools, and one high school.

The goal of the GCPS Community School program is to extend education and recreation to the community.

The Strategic Vision for Results Plan is intended to communicate, internally and externally, GCPS's strategic direction. As such, it provides the foundation for the strategic goals that guide the school system's work now and seven to 10 years forward. The Strategic Vision for Results Plan is divided into 11 major components of the organization. It lists for each of them the desired qualities and characteristics that the systems believe that are essential in a system of world-class schools. The plan captures the desired state toward which the system continuously strives. It also reflects the ongoing commitment to excellence, instructionally and operationally, through continuous quality improvement and accountability for results.

**Figure 55**  
**Gwinnett County Public Schools Organization Chart**



**Table 4-4**  
**Institutional Capability**

| Institutional Capability                     | Yes or No |
|----------------------------------------------|-----------|
| County Board of Education (elected official) | Yes       |
| CEO/Superintendent                           | Yes       |
| Chief of Staff                               | Yes       |
| Chief Financial Officer                      | Yes       |
| Chief Academic Officer                       | Yes       |
| Chief Human Resources Officer                | Yes       |
| Chief Operations Officer                     | Yes       |
| Chief Information Officer                    | Yes       |

## COMMUNITY CAPABILITY ASSESSMENT

| Institutional Capability                                 | Yes or No |
|----------------------------------------------------------|-----------|
| Executive Director for Administration and Policy         | Yes       |
| Executive Director of Communications and Media Relations | Yes       |

**Table 4-5  
Institutional Capability**

| Institutional Capability           | Level                   |
|------------------------------------|-------------------------|
| Alford Elementary                  | Elementary              |
| Arcado Elementary                  | Elementary              |
| Archer High School                 | High School             |
| Bay Creek Middle                   | Middle                  |
| Beaver Ridge Elementary            | Elementary              |
| Benefield Elementary               | Elementary              |
| Berkeley Lake Elementary           | Elementary              |
| Berkmar High                       | High School             |
| Berkmar Middle                     | Middle                  |
| Bethesda Elementary                | Elementary              |
| Britt Elementary                   | Elementary              |
| Brookwood Elementary               | Elementary              |
| Brookwood High                     | High School             |
| Buchanan High School of Technology | High School             |
| Buice School                       | Preschool Special Needs |
| Camp Creek Elementary              | Elementary              |
| Cedar Hill Elementary              | Elementary              |
| Centerville Elementary             | Elementary              |
| Central Gwinnett High              | High School             |
| Chattahoochee Elementary           | Elementary              |
| Chesney Elementary                 | Elementary              |
| Collins Hill High                  | High School             |

## Section 4

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| Institutional Capability                                | Level                 |
|---------------------------------------------------------|-----------------------|
| Cooper Elementary                                       | Elementary            |
| Corley Elementary                                       | Elementary            |
| Couch Middle                                            | Middle                |
| Craig Elementary                                        | Elementary            |
| Creekland Middle                                        | Elementary            |
| Crews Middle                                            | Middle                |
| Dacula Elementary                                       | Elementary            |
| Dacula High                                             | High School           |
| Dacula Middle                                           | Middle                |
| Duluth High                                             | High School           |
| Duluth Middle                                           | Middle                |
| Duncan Creek Elementary                                 | Elementary            |
| Dyer Elementary                                         | Elementary            |
| Five Forks Middle                                       | Middle                |
| Fort Daniel Elementary                                  | Elementary            |
| Freeman's Mill Elementary                               | Elementary            |
| Gwinnett InterVention and Education (GIVE) Center East  | Other                 |
| GIVE Center West                                        | Other                 |
| Grayson Elementary                                      | Elementary            |
| Grayson High                                            | High School           |
| Gwin Oaks Elementary                                    | Elementary            |
| Gwinnett County Online Campus                           | Online                |
| Gwinnett School of Mathematics, Science, and Technology | System Charter School |
| Harbins Elementary                                      | Elementary            |
| Harmony Elementary                                      | Elementary            |
| Harris Elementary                                       | Elementary            |
| Head Elementary                                         | Elementary            |
| Hooper Renwick School                                   | Other                 |

## COMMUNITY CAPABILITY ASSESSMENT

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| Institutional Capability          | Level          |
|-----------------------------------|----------------|
| Hopkins Elementary                | Elementary     |
| Hull Middle                       | Middle         |
| Ivy Creek Elementary              | Elementary     |
| Jackson Elementary                | Elementary     |
| Jones Middle                      | Middle         |
| Kanoheda Elementary               | Elementary     |
| Knight Elementary                 | Elementary     |
| Lanier Middle                     | Middle         |
| Lawrenceville Elementary          | Elementary     |
| Level Creek Elementary            | Elementary     |
| Lilburn Elementary                | Elementary     |
| Lilburn Middle                    | Middle         |
| Lovin Elementary                  | Elementary     |
| Magill Elementary                 | Elementary     |
| Mason Elementary                  | Elementary     |
| Maxwell High School of Technology | High School    |
| McConnell Middle                  | Middle         |
| McKendree Elementary              | Elementary     |
| Meadowcreek Elementary            | Elementary     |
| Mill Creek High                   | High School    |
| Minor Elementary                  | Elementary     |
| Monarch School                    | Middle         |
| Mountain Park Elementary          | Elementary     |
| Mountain View High School         | High School    |
| Mulberry Elementary               | Elementary     |
| Nesbit Elementary                 | Elementary     |
| New Life Academy of Excellence    | Charter School |
| Norcross Elementary               | Elementary     |

## Section 4

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| Institutional Capability  | Level       |
|---------------------------|-------------|
| Norcross High             | High School |
| North Gwinnett High       | High School |
| North Gwinnett Middle     | Middle      |
| Norton Elementary         | Elementary  |
| Oakland Meadow School     | Other       |
| Osborne Middle            | Middle      |
| Parkview High             | High School |
| Parsons Elementary        | Elementary  |
| Partee Elementary         | Elementary  |
| Patrick Elementary        | Elementary  |
| Peachtree Elementary      | Elementary  |
| Peachtree Ridge High      | High School |
| Pharr Elementary          | Elementary  |
| Phoenix High              | High School |
| Pinckneyville Middle      | Middle      |
| Puckett's Mill Elementary | Elementary  |
| Radloff Middle            | Middle      |
| Richards Middle           | Middle      |
| Riverside Elementary      | Elementary  |
| Rock Springs Elementary   | Elementary  |
| Rockbridge Elementary     | Elementary  |
| Rosebud Elementary        | Elementary  |
| Shiloh Elementary         | Elementary  |
| Shiloh High               | High School |
| Shiloh Middle             | Middle      |
| Simonton Elementary       | Elementary  |
| Simpson Elementary        | Elementary  |
| Snellville Middle         | Middle      |

| Institutional Capability | Level       |
|--------------------------|-------------|
| South Gwinnett High      | High School |
| Starling Elementary      | Elementary  |
| Stripling Elementary     | Elementary  |
| Sugar Hill Elementary    | Elementary  |
| Summerour Middle         | Middle      |
| Suwanee Elementary       | Elementary  |
| Sweetwater Middle        | Middle      |
| Sycamore Elementary      | Elementary  |
| Taylor Elementary        | Elementary  |
| Trickum Middle           | Middle      |
| Trip Elementary          | Elementary  |
| Twin Rivers Middle       | Middle      |
| Walnut Grove Elementary  | Elementary  |
| White Oak Elementary     | Elementary  |
| Winn Holt Elementary     | Elementary  |
| Woodward Mill Elementary | Elementary  |

### 4.3 Political Capability

Gwinnett County government provides high quality essential services for Gwinnett residents and as many other services as tax revenues allow; spends and accounts for tax dollars in a responsible manner; responds to needs and concerns of the citizens; and conducts business in an open and professional manner without favoritism.

The Board sets direction and formulates policies for the county government, adopts the budget, authorizes expenditures, and approves or disapproves specific actions; such as rezoning of private property.

Voters in each of four districts elect a part-time District Commissioner. The full-time Commission Chairman is elected countywide. Terms are for four years, but are staggered so the chairman and two commissioners are elected during one election cycle, and the other two commissioners are elected two years later.

The Board holds official business meetings the first and third Tuesdays of each month at 2:00 p.m. On those days, the Board conducts work sessions at 10:00 a.m. The Board also holds a public hearing to consider zoning requests on the fourth Tuesday of

## Section 4

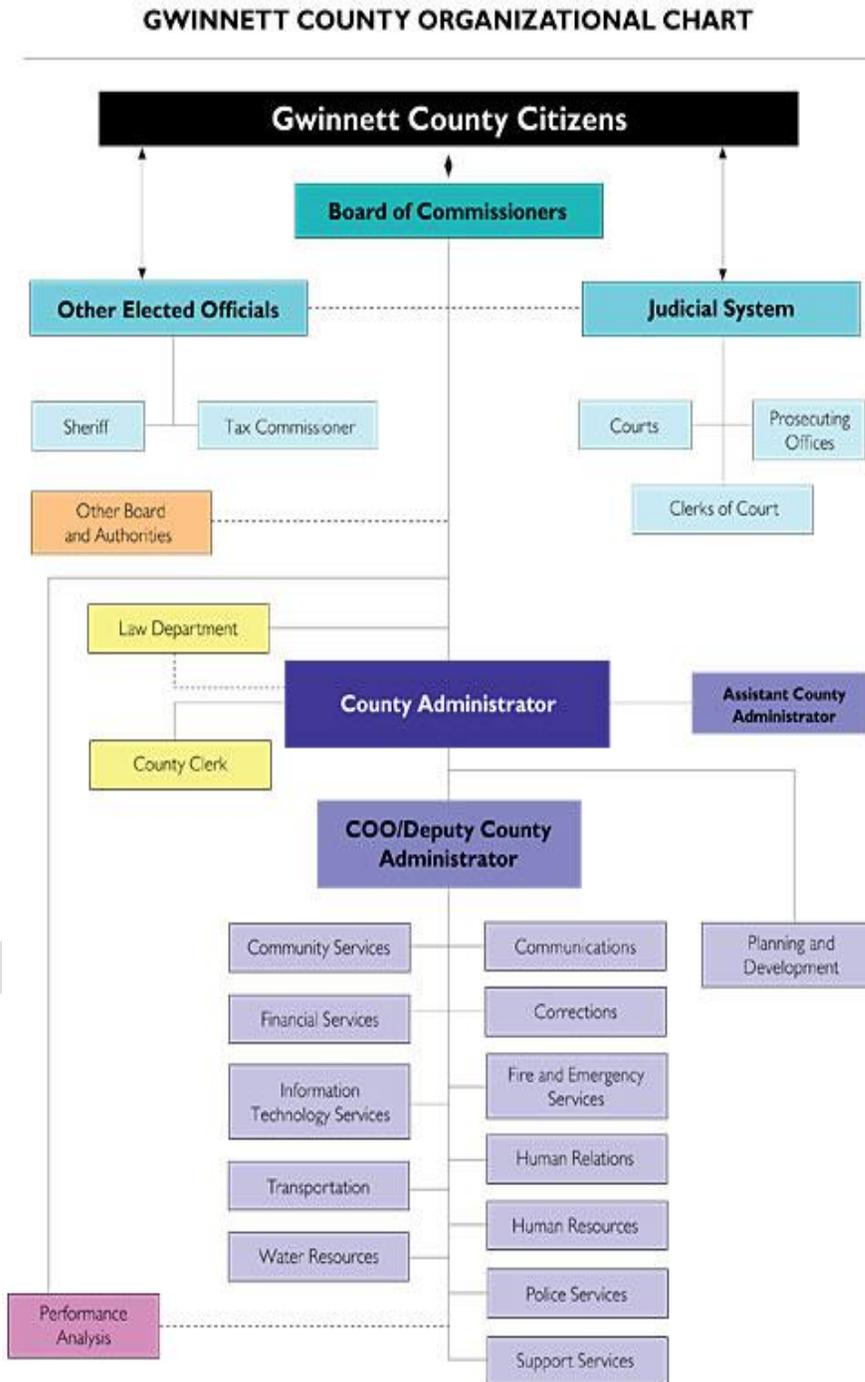
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each month at 7:00 p.m. These meetings are held in the auditorium of the Gwinnett Justice and Administration Center. On many Tuesdays, the Board conducts informal discussions with county departments and community groups. These meetings are held in the conference room of the Board of Commissioners suite. Informal discussions as well as official meetings are always open to the public.

The Gwinnett County Board of Commissioners sets the standard as a dynamic, vibrant community where all people can enjoy essential economic opportunities, safe neighborhoods, plentiful green space and recreational facilities. They are committed to partnering with others in the community who share a dedication to making life better for Gwinnett County citizens.

DRAFT

Figure 56  
Gwinnett County Organization Chart



## 4.4 Technical Capability

**Table 4-6  
Technical Capability**

| Technical Capability                                                              | Yes or No |
|-----------------------------------------------------------------------------------|-----------|
| CRS Coordinator’s Manual                                                          | Yes       |
| Georgia State HMP                                                                 | Yes       |
| Georgia State Emergency Management Plan                                           | Yes       |
| FEMA 386 Series “How to Manuals”                                                  | Yes       |
| GIS Data Base and Technical Layers                                                | Yes       |
| FEMA Floodplain Maps                                                              | Yes       |
| FEMA-154 Rapid Visual Screening of Buildings for Potential Seismic Hazards – Book | Yes       |
| FEMA-310 NEHRP Handbook for Seismic Evaluation of Existing Buildings              | Yes       |

## 4.5 Fiscal Capability

The evaluation of funds and ordinances for the Community Capability section of this document provided valuable information on Gwinnett County’s position in terms of existing mitigation planning; however, local conditions are constantly changing due to increased development, changes in technology, changes in local mitigation capabilities, or natural disaster events. It is because of these ever changing conditions that evaluation must be an ongoing process; therefore, the initial community capability assessment should be viewed as a starting point rather than an end result. Because these conditions do not change at regular intervals, it is difficult to establish a timeline dictating how often ordinances and policies should be reviewed. The best window of opportunity for policy evaluation may come following a natural disaster event.

Gwinnett has maintained AAA credit ratings from the three major credit rating agencies for the past 11 years. Only 22 counties across the nation can boast triple-AAA ratings.

**Table 4-7  
Fiscal Capability**

| Fiscal Capability Fiscal Tools (Taxes, Bonds, Funds and Fees) | Yes or No |
|---------------------------------------------------------------|-----------|
| Crime Victims Assistance Fund                                 | Yes       |
| District Attorney Special Operations Fund                     | Yes       |
| E-911 Fund                                                    | Yes       |

## COMMUNITY CAPABILITY ASSESSMENT

| Fiscal Capability Fiscal Tools (Taxes, Bonds, Funds and Fees)         | Yes or No |
|-----------------------------------------------------------------------|-----------|
| Police Special Investigation Fund                                     | Yes       |
| Sheriff Inmate Store Fund                                             | Yes       |
| Sheriff Special Operations Fund                                       | Yes       |
| Stadium Operating Fund                                                | Yes       |
| Tree Bank Fund                                                        | Yes       |
| Tourism Fund                                                          | Yes       |
| Tourism Sustainability Fund                                           | Yes       |
| Airport Operating Fund                                                | Yes       |
| Local Transit Operating Fund                                          | Yes       |
| Solid Waste Operating Fund                                            | Yes       |
| Stormwater Management Operating Fund                                  | Yes       |
| Water and Sewer Operating Fund                                        | Yes       |
| Auto Liability Fund                                                   | Yes       |
| Fleet Management Fund                                                 | Yes       |
| Group Self-Insurance Fund                                             | Yes       |
| Risk Management Fund                                                  | Yes       |
| Vehicle Purchasing fund                                               | Yes       |
| Worker's Compensation Fund                                            | Yes       |
| <b>Capital Project Funds</b>                                          |           |
| Capital Project Fund                                                  | Yes       |
| Airport Renewal and Extension Fund                                    | Yes       |
| Solid Waste Renewal and Extension Fund                                | Yes       |
| Stormwater Renewal and Extension Fund                                 | Yes       |
| Transit Renewal and Extension fund                                    | Yes       |
| Water and Sewer Renewal and Extension/Proposed bond Construction Fund | Yes       |
| 1997 Special Purpose Local Option Sales Tax Fund                      | Yes       |
| 2001 Special Purpose Local Option Sales Tax Fund                      | Yes       |
| 2005 Special Purpose Local Option Sales Tax Fund                      | Yes       |

## Section 4

| Fiscal Capability Fiscal Tools (Taxes, Bonds, Funds and Fees) | Yes or No |
|---------------------------------------------------------------|-----------|
| 2009 Special Purpose Local Option Sales Tax Fund              | Yes       |
| <b>Grant Funds</b>                                            |           |
| General Grant Fund                                            | Yes       |
| HUD Grant funds                                               | Yes       |
| Local Transit Operating Grants                                | Yes       |
| <b>Jurisdiction Capabilities</b>                              |           |
| Authority to Levi Taxes                                       | Yes       |
| <b>Taxes and Revenues</b>                                     |           |
| Property Taxes                                                | Yes       |
| Beer and Wine Taxes                                           | Yes       |
| Insurance Premium Tax                                         | Yes       |
| Other Taxes                                                   | Yes       |
| Licenses and Permits                                          | Yes       |
| Intergovernmental Revenue                                     | Yes       |
| Judicial Revenue                                              | Yes       |
| Charges for Services                                          | Yes       |
| Sales and Rental                                              | Yes       |
| Interest on Investments                                       | Yes       |
| Other                                                         | Yes       |
| <b>Bonds</b>                                                  |           |
| Authority to Issue Bonds                                      | Yes       |
| <b>Funds</b>                                                  |           |
| General Obligation Debt Service Fund (1986 Issue)             | Yes       |
| General Obligation debt Service – Detention Center Fund       | Yes       |
| Recreation Fund                                               | Yes       |
| Speed Hump Fund                                               | Yes       |
| Street Lighting Fund                                          | Yes       |
| Corrections Inmate Welfare Fund                               | Yes       |

## **4.6 Analysis Conclusion**

### **4.6.1 Legal Capability Conclusion**

Statutes and ordinances have been adopted to ensure that the HMP will protect the citizens and property of those who live and work in Gwinnett County, and to improve the quality of life for all the citizens of Gwinnett County.

### **4.6.2 Institutional Capability Conclusion**

The Gwinnett County Community School program is structured to extend education and recreation to the community. Gwinnett's modern, well-equipped, and well-maintained schools provide an environment where teaching and learning thrive.

### **4.6.3 Political Capability Conclusion**

Gwinnett County government provides high quality essential services for Gwinnett residents and as many other services as tax revenues allow; spends and accounts for tax dollars in a responsible manner; responds to needs and concerns of the citizens; and conducts business in an open and professional manner without favoritism.

### **4.6.4 Technical Capability Conclusion**

Gwinnett County Planning and Development, Fire and Emergency Services and Information Technology Services have in place the necessary plans and tools to support a comprehensive multi-hazard mitigation plan supporting the citizens and property owners of Gwinnett County.



## **5.1 Natural, Human Caused, and Technological Hazard Mitigation Goals and Objectives**

The foundation of this plan is the identification of strategies through which Gwinnett County can implement natural, human caused and technological hazard mitigation goals, objectives and actions. As identified in Section 3, Hazard Vulnerability Assessment, the Multi-Jurisdictional HMSC has a clear understanding of the community's hazards and risks. The next step is to develop a mitigation strategy. The multi-jurisdictional hazard mitigation goals, objectives and actions discussed in this section are prioritized under each hazard. The methodology that was used to determine the priority of projects was based on repetition of the event, monetary loss, anticipated costs, and the potential for loss of life. For each of the hazards identified in Section 3, the Multi-Jurisdictional HMSC has outlined below our goals and objectives as part of the mitigation strategy. Mitigation actions for all the cities and townships within Gwinnett County are incorporated in Gwinnett County's goals, objectives and actions, and are also identified in Section 6, Individual Jurisdiction Mitigation Action Plans.

## **5.2 Previous Hazard Mitigation Accomplishments**

Gwinnett County has made previous efforts to mitigate hazards in our community. Some have been significant and have been beneficial to reducing loss of life and property from disasters throughout Gwinnett County. Among them are the following:

- Changing and updating building codes to higher standards
- Enforcing land use plans
- Placing NOAA Weather Radios in all public buildings, churches, nursing homes and daycare centers
- Purchasing repetitive flood loss property

The HMSC has determined that many of the mitigation strategies identified in the original publication of this plan in 2004 are outdated and no longer applicable to Gwinnett County and its mitigation program. The "completed" and "deferred" strategies are still included throughout this section, and the "deleted" strategies are no longer included in order to eliminate confusion.

## Section 5

**Table 5-1  
Winter Storms**

| Goal 1: Reduce Gwinnett County's risk and vulnerability to severe winter storms                                      |                                                                                                                                                    |                    |                                                                     |                |                   |                                                           |           |          |
|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------|----------------|-------------------|-----------------------------------------------------------|-----------|----------|
| Objective 1.1: Increase citizen severe winter storm awareness, preparedness and response                             |                                                                                                                                                    |                    |                                                                     |                |                   |                                                           |           |          |
| Action                                                                                                               | Action/Project Description                                                                                                                         | Jurisdiction       | Responsible                                                         | Estimated Cost | Estimated Benefit | Funding Sources                                           | Timeframe | Status   |
| 1.1.1                                                                                                                | Distribute severe winter weather preparedness literature at appropriate/identified community events                                                | All                | County Emergency Management Agency (EMA), City and County Officials | \$2,000        | \$20,000          | City/County Budget                                        | 2010-2011 | New      |
| 1.1.2                                                                                                                | Partner with National Weather Service (NWS) and the American Red Cross (ARC) to offer additional weather spotter and citizen preparedness training | County             | County EMA, NWS, ARC                                                | \$2,000        | \$20,000          | County Budget, Federal Emergency Management Agency (FEMA) | 2011-2012 | New      |
| Objective 1.2: Improve first responder capability to prepare for, respond to and recover from severe winter storms   |                                                                                                                                                    |                    |                                                                     |                |                   |                                                           |           |          |
| 1.2.1                                                                                                                | Identify/acquire/equip all emergency response vehicles with tire chains                                                                            | All                | County EMA, City and County Officials                               | \$2,000        | \$20,000          | City/County Budget, FEMA, National Fire Grant             | 2011      | New      |
| 1.2.2                                                                                                                | Inventory generators at all City and County critical facilities and consider filling gaps                                                          | All                | County EMA, City and County Officials                               |                |                   | County and City staff time                                | 2004-2005 | Complete |
| Objective 1.3: Improve Gwinnett County's capability to prepare for, respond to and recover from severe winter storms |                                                                                                                                                    |                    |                                                                     |                |                   |                                                           |           |          |
| 1.3.1                                                                                                                | Establish programs to protect the homeless, poor, ill, and elderly during extreme winter temperatures                                              | All                | County EMA, City and County Officials                               | \$3,000        | \$100,000         | City/County Budget, FEMA                                  | 2011      | New      |
| 1.3.2                                                                                                                | Acquire additional sheltering supplies (e.g., cots, blankets)                                                                                      | County             | County EMA, ARC                                                     | \$10,000       | \$200,000         | County Budget, FEMA                                       | 2010-2011 | New      |
| 1.3.3                                                                                                                | Identify and bury utility lines in densely populated and commercial areas in the City of Auburn                                                    | City of Auburn     | City Officials, Public Works                                        |                |                   | City Budget, Grants                                       | 2011-2012 | New      |
| 1.3.4                                                                                                                | Identify and bury utility lines in densely populated and commercial areas in the City of Snellville                                                | City of Snellville | City Officials, Public Works                                        |                |                   | City Budget, Grants                                       | 2011-2012 | New      |
| 1.3.5                                                                                                                | Identify and bury utility lines in densely populated and commercial areas in the City of Norcross                                                  | City of Norcross   | City Officials, Public Works                                        |                |                   | City Budget, Grants                                       | 2011-2012 | New      |
| 1.3.6                                                                                                                | Identify and bury utility lines in densely populated and commercial areas in the City of Lilburn                                                   | City of Lilburn    | City Officials, Public Works                                        |                |                   | City Budget, Grants                                       | 2011-2012 | New      |

## MITIGATION STRATEGIES

| Goal 1: Reduce Gwinnett County's risk and vulnerability to severe winter storms |                                                                                                                                                             |                 |                              |  |  |                     |           |     |
|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------------|--|--|---------------------|-----------|-----|
| 1.3.7                                                                           | Identify and bury utility lines in densely populated and commercial areas in the City of Dacula                                                             | City of Dacula  | City Officials, Public Works |  |  | City Budget, Grants | 2011-2012 | New |
| 1.3.8                                                                           | Identify and bury utility lines in densely populated and commercial areas including Main Street, Martin Farm Road and Buford Highway in the City of Suwanee | City of Suwanee | City Officials, Public Works |  |  | City Budget, Grants | 2011-2012 | New |

**Table 5-2  
Severe Thunderstorms/Windstorms**

| Goal 2: Minimize losses of life and property due to high winds from severe thunderstorms and windstorms in Gwinnett County, including all municipalities     |                                                                                                                                                       |              |                                       |                |                   |                          |           |          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------------------------|----------------|-------------------|--------------------------|-----------|----------|
| Objective 2.1: Increase citizen severe thunderstorm/windstorm awareness, preparedness and response                                                           |                                                                                                                                                       |              |                                       |                |                   |                          |           |          |
| Action                                                                                                                                                       | Action/Project Description                                                                                                                            | Jurisdiction | Responsible                           | Estimated Cost | Estimated Benefit | Funding Sources          | Timeframe | Status   |
| 2.1.1                                                                                                                                                        | Distribute severe weather preparedness literature at appropriate/identified events                                                                    | All          | County EMA, City and County Officials | \$2,000        | \$20,000          | City/County Budget, FEMA | Ongoing   | New      |
| 2.1.2                                                                                                                                                        | Provide National Oceanic and Atmospheric Administration (NOAA) weather radios to identified special needs citizens (e.g., elderly, rural, low-income) | All          | County EMA, City and County Officials | \$5,000        | \$200,000         | City/County Budget, FEMA | 2010-2011 | Deferred |
| 2.1.3                                                                                                                                                        | Implement alert, warning and notification systems for visually-impaired and hearing-impaired citizens                                                 | All          | County EMA, City and County Officials | \$5,000        | \$200,000         | City/County Budget, FEMA | 2011-2012 | New      |
| Objective 2.2: Improve Gwinnett County's capability to prepare for, respond to and recover from severe weather events including thunderstorms and windstorms |                                                                                                                                                       |              |                                       |                |                   |                          |           |          |
| 2.2.1                                                                                                                                                        | Establish school shelter-in-place programs                                                                                                            | County       | School Officials, County EMA          | \$2,000        | \$100,000         | Gwinnett School Budget   | 2010-2011 | New      |

**Table 5-3  
Tropical Storms/Hurricanes**

| Goal 3: Minimize the impacts of tropical storms and hurricanes in Gwinnett County, including all municipalities |                                                                                       |              |             |                |                   |                     |           |        |
|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------|-------------|----------------|-------------------|---------------------|-----------|--------|
| Objective 3.1: Enhance advance warning and preparedness capabilities                                            |                                                                                       |              |             |                |                   |                     |           |        |
| Action                                                                                                          | Action/Project Description                                                            | Jurisdiction | Responsible | Estimated Cost | Estimated Benefit | Funding Sources     | Timeframe | Status |
| 3.1.1                                                                                                           | Acquire a standalone computer system that can be solely dedicated to running HAZUS-MH | County       | County EMA  |                |                   | County Budget, FEMA | 2011-2012 | New    |

## Section 5

### Goal 3: Minimize the impacts of tropical storms and hurricanes in Gwinnett County, including all municipalities

|       |                                                                                                                                             |        |            |  |  |                     |           |     |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------|--------|------------|--|--|---------------------|-----------|-----|
| 3.1.2 | Outfit emergency operations center (EOC) antennas with Digital Smart Technologies for Amateur Radio (D-STAR) to accommodate high-speed data | County | County EMA |  |  | County Budget, FEMA | 2011-2012 | New |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------|--------|------------|--|--|---------------------|-----------|-----|

**Table 5-4  
Tornadoes**

### Goal 4: Reduce the loss of life and property caused by tornadoes in Gwinnett County

#### Objective 4.1: Improve Gwinnett County's capability to prepare for, respond to and recover from severe weather events involving tornadoes

| Action | Action/Project Description                       | Jurisdiction | Responsible                           | Estimated Cost | Estimated Benefit | Funding Sources    | Timeframe | Status   |
|--------|--------------------------------------------------|--------------|---------------------------------------|----------------|-------------------|--------------------|-----------|----------|
| 4.1.1  | Adopt a mobile home tie-down and skirt ordinance | All          | County EMA, City and County Officials | \$3,000        | \$100,000         | City/County Budget | 2010      | Deferred |
| 4.1.2  | Establish school shelter-in-place programs       | County       | School Officials, County EMA          | \$2,000        | \$100,000         | School Budget      | 2010-2011 | New      |

**Table 5-5  
Lightning**

### Goal 5: Reduce Gwinnett County's risk and vulnerability to lightning

#### Objective 5.1: Increase citizen lightning awareness

| Action | Action/Project Description                                                                                                                                              | Jurisdiction | Responsible                           | Estimated Cost | Estimated Benefit | Funding Sources     | Timeframe | Status |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------------------------|----------------|-------------------|---------------------|-----------|--------|
| 5.1.1  | Distribute lightning awareness literature at appropriate/identified community events                                                                                    | All          | County EMA, City and County Officials | \$2,000        | \$20,000          | City/County Budget  | Ongoing   | New    |
| 5.1.2  | Improve the siren/warning notification system currently in place at County parks by installing additional units in high-traffic areas and operating them 24 hours a day | County       | County EMA, County Parks Department   |                |                   | County Budget, FEMA | 2010-2011 | New    |
| 5.1.3  | Institute a public education campaign and associated signage for walking trails in County parks                                                                         | County       | County Parks Department               |                |                   | County Budget, FEMA | 2010-2011 | New    |

#### Objective 5.2: Improve Gwinnett County's capability to prepare for, respond to and recover from severe weather events involving lightning and its effects

|       |                                                                    |        |                         |  |  |                                          |           |     |
|-------|--------------------------------------------------------------------|--------|-------------------------|--|--|------------------------------------------|-----------|-----|
| 5.2.1 | Outfit the County Parks Department with light brush fire equipment | County | County Parks Department |  |  | County Budget, FEMA, National Fire Grant | 2010-2011 | New |
|-------|--------------------------------------------------------------------|--------|-------------------------|--|--|------------------------------------------|-----------|-----|

## MITIGATION STRATEGIES

**Table 5-6  
Wildfires**

| Goal 6: Minimize losses of life and property in Gwinnett County due to wildfires                    |                                                                                                                                                  |              |                                                                                       |                |                   |                     |           |          |
|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|----------------|-------------------|---------------------|-----------|----------|
| Objective 6.1: Protect critical facilities and vulnerable populations from the effects of wildfires |                                                                                                                                                  |              |                                                                                       |                |                   |                     |           |          |
| Action                                                                                              | Action/Project Description                                                                                                                       | Jurisdiction | Responsible                                                                           | Estimated Cost | Estimated Benefit | Funding Sources     | Timeframe | Status   |
| 6.1.1                                                                                               | Identify critical facilities in wildfire hazard areas and develop protective action plans                                                        | All          | County EMA, County Fire/Rescue, City and County Officials                             |                |                   | City/County Budget  | 2010      | Deferred |
| Objective 6.2: Encourage the protection of residential and commercial structures                    |                                                                                                                                                  |              |                                                                                       |                |                   |                     |           |          |
| 6.2.1                                                                                               | Implement minimum width private road and driveway standards to allow emergency vehicle access, as well as to decrease grades at stream crossings | County       | County EMA, County Planning and Development Department, County Fire/Rescue Department |                |                   | County Budget, FEMA | 2011      | Deferred |
| 6.2.2                                                                                               | Educate homeowners during Fire Prevention Month (October)                                                                                        | All          | County EMA, County Fire/Rescue, City and County Officials                             |                |                   | City/County Budget  | 2010      | Deferred |
| 6.2.3                                                                                               | Distribute pamphlets to homeowners on clearing underbrush a safe distance from the house                                                         | All          | County EMA, County Planning and Development Department, County Fire/Rescue Department |                |                   | City/County Budget  | 2010      | Deferred |

**Table 5-7  
Flooding**

| Goal 7: Reduce Gwinnett County's risk and vulnerability to flood events                            |                                                                                          |              |                   |                |                   |                 |           |          |
|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------|-------------------|----------------|-------------------|-----------------|-----------|----------|
| Objective 7.1: Improve Gwinnett County's flooding information distribution and warning to citizens |                                                                                          |              |                   |                |                   |                 |           |          |
| Action                                                                                             | Action/Project Description                                                               | Jurisdiction | Responsible       | Estimated Cost | Estimated Benefit | Funding Sources | Timeframe | Status   |
| 7.1.1                                                                                              | Ensure that flood maps are updated/aligned with tax roles for detailed flood information | County       | EMA, Tax Assessor | \$15,000       | \$1,500,000       | County Budget   | 2010-2011 | New      |
| 7.1.2                                                                                              | Use HAZUS-MH to map 500/100-year flood plains                                            | County       | EMA, IT Director  | \$5,000        | \$100,000         | County Budget   | 2010-2011 | Deferred |
| 7.1.3                                                                                              | Identify repetitive loss areas and structures                                            | County       | EMA, IT Director  | \$5,000        | \$500,000         | County Budget   | Ongoing   | New      |

## Section 5

### Goal 7: Reduce Gwinnett County's risk and vulnerability to flood events

#### Objective 7.2: Improve Gwinnett County's capability to prepare for, respond to and recover from flood events

|       |                                                                                                                               |                |                                     |           |             |                       |           |          |
|-------|-------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------------------|-----------|-------------|-----------------------|-----------|----------|
| 7.2.1 | Relocate/acquire structures that could be affected by flooding, as appropriate                                                | County         | County Planning Department, EMA, IT | \$15,000  | \$250,000   | County Budget, Grants | Ongoing   | New      |
| 7.2.2 | Continue efforts to lower the county's Community Rating System (CRS) rating                                                   | County         | County EMA                          |           |             |                       | 2010-2014 | Deferred |
| 7.2.3 | Identify and replace damaged and aged culverts in the City of Auburn                                                          | City of Auburn | City Officials, Public Works        |           |             | City Budget, Grants   | 2010-2011 | New      |
| 7.2.4 | Install water level monitoring devices on 15 Category I dams to remotely monitor water surface elevations during flood events | County         | County                              | \$250,000 | \$2,000,000 | County/Grants         | 2010-2011 | New      |

**Table 5-8  
Drought**

### Goal 8: Minimize agricultural and property losses in Gwinnett County resulting from drought conditions

#### Objective 8.1: Protect critical facilities and vulnerable agriculture from effects of drought conditions

| Action | Action/Project Description                                                                                                  | Jurisdiction | Responsible                             | Estimated Cost | Estimated Benefit | Funding Sources                            | Timeframe | Status |
|--------|-----------------------------------------------------------------------------------------------------------------------------|--------------|-----------------------------------------|----------------|-------------------|--------------------------------------------|-----------|--------|
| 8.1.1  | Identify vulnerable areas (e.g., farms) and develop a protective action plan                                                | All          | County EMA, City and County Officials   | \$1,500        | \$100,000         | County/City Staff Time                     | 2010-2011 | New    |
| 8.1.2  | Educate citizens and farmers in the County about the potential negative effects that arise from extended drought conditions | County       | County EMA                              | \$1,000        | \$50,000          | County Budget                              | Ongoing   | New    |
| 8.1.3  | Continue to identify and implement water conservations efforts before, during and after times of drought                    | All          | County EMA and Individual Jurisdictions |                |                   | County and Individual Jurisdiction Budgets | Ongoing   | New    |

## MITIGATION STRATEGIES

**Table 5-9  
Earthquakes**

| Goal 9: Reduce Gwinnett County's risk and vulnerability to earthquake events                                          |                                                                       |              |                                       |                |                   |                    |           |          |
|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|--------------|---------------------------------------|----------------|-------------------|--------------------|-----------|----------|
| Objective 9.1: Improve Gwinnett County's earthquake information distribution and warning to citizens                  |                                                                       |              |                                       |                |                   |                    |           |          |
| Action                                                                                                                | Action/Project Description                                            | Jurisdiction | Responsible                           | Estimated Cost | Estimated Benefit | Funding Sources    | Timeframe | Status   |
| 9.1.1                                                                                                                 | Distribute earthquake preparedness literature at community events     | All          | County EMA, City and County Officials | \$2,500        | \$100,000         | County/City Budget | 2010      | Deferred |
| Objective 9.2: Improve Gwinnett County's first responder capabilities to prepare for and respond to earthquake events |                                                                       |              |                                       |                |                   |                    |           |          |
| 9.2.1                                                                                                                 | Train all first responders on earthquake search and rescue techniques | County       | County EMA, County Fire Department    | \$10,000       | \$50,000          | County Budget      | 2010-2011 | New      |

**Table 5-10  
Dam Failure**

| Goal 10: Reduce Gwinnett County's risk and vulnerability to dam failure events                     |                                                                                                            |              |                                         |                |                   |                 |           |        |
|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|--------------|-----------------------------------------|----------------|-------------------|-----------------|-----------|--------|
| Objective 10.1: Improve Gwinnett County's capabilities to prepare for and respond to a dam failure |                                                                                                            |              |                                         |                |                   |                 |           |        |
| Action                                                                                             | Action/Project Description                                                                                 | Jurisdiction | Responsible                             | Estimated Cost | Estimated Benefit | Funding Sources | Timeframe | Status |
| 10.1.1                                                                                             | Implement zoning ordinances and/or development regulations for areas downstream of high hazard dams        | County       | Water Resources, Planning & Development | Unknown        | Unknown           | County Budget   | 2010-2012 | New    |
| 10.2.1                                                                                             | Initiate public education programs to inform the public of dam safety measures and preparedness activities | County       | Water Resources, Emergency Management   | \$1,000        | Unknown           | County Budget   | 2010-2011 | New    |

**Table 5-11  
Cyber Crime**

| Goal 11: Reduce Gwinnett County's risk and vulnerability to cyber crime attacks                          |                                                                                                                                                                                     |              |                    |                |                   |                 |           |        |
|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------------|----------------|-------------------|-----------------|-----------|--------|
| Objective 11.1: Improve Gwinnett County's capabilities to prepare for and respond to cyber crime attacks |                                                                                                                                                                                     |              |                    |                |                   |                 |           |        |
| Action                                                                                                   | Action/Project Description                                                                                                                                                          | Jurisdiction | Responsible        | Estimated Cost | Estimated Benefit | Funding Sources | Timeframe | Status |
| 11.1.1                                                                                                   | Organize and conduct tabletop exercises focused on cyber crime attacks for Information Technology Services (ITS) and the Gwinnett County Security Incident Management Team (GCSIRT) | County       | County ITS, GCSIRT | \$5,000        | \$50,000          | County Budget   | 2011-2012 | New    |

## Section 5

### Goal 11: Reduce Gwinnett County's risk and vulnerability to cyber crime attacks

|        |                                                            |        |                    |          |           |               |         |     |
|--------|------------------------------------------------------------|--------|--------------------|----------|-----------|---------------|---------|-----|
| 11.1.2 | Maintain sufficient anti-virus software for County systems | County | County ITS, GCSIRT | \$50,000 | \$200,000 | County Budget | Ongoing | New |
|--------|------------------------------------------------------------|--------|--------------------|----------|-----------|---------------|---------|-----|

**Table 5-12  
Hazardous Material Spills**

### Goal 10: Reduce Gwinnett County's risk and vulnerability to hazardous materials events

#### Objective 10.1: Increase citizen hazardous materials event awareness, preparedness and response

| Action | Action/Project Description                                                                                                             | Jurisdiction | Responsible                                               | Estimated Cost | Estimated Benefit | Funding Sources    | Timeframe | Status |
|--------|----------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------------------------------------------------|----------------|-------------------|--------------------|-----------|--------|
| 10.1.1 | Provide the public with information on hazardous materials hazards, including how to identify and report hazardous materials incidents | All          | County EMA, County Fire/Rescue, City and County Officials | \$2,000        | \$20,000          | County/City Budget | Ongoing   | New    |
| 10.1.2 | Educate the public on shelter-in-place procedures for hazardous materials incidents                                                    | All          | County EMA, County Fire/Rescue, City and County Officials | \$2,000        | \$20,000          | County/City Budget | Ongoing   | New    |

#### Objective 10.2: Improve first responder capability to prepare for, respond to and recover from hazardous materials events

|        |                                                                                                                                         |     |                                                                                        |         |          |                                   |           |     |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------------------------------------------------------------------------|---------|----------|-----------------------------------|-----------|-----|
| 10.2.1 | Participate in annual chemical, biological, radiological, nuclear and high yield explosives exercises with all first responder agencies | All | City and County Officials, School Officials, County EMA, County Fire/Rescue Department | \$5,000 | \$50,000 | City/County Budget, School Budget | 2010-2014 | New |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------------------------------------------------------------------------|---------|----------|-----------------------------------|-----------|-----|

#### Objective 10.3: Improve Gwinnett County's capability to prepare for, respond to and recover from hazardous materials events

|        |                                                                                                        |        |                                       |         |           |                                    |           |     |
|--------|--------------------------------------------------------------------------------------------------------|--------|---------------------------------------|---------|-----------|------------------------------------|-----------|-----|
| 10.3.1 | Continue to enforce requirements for each site to submit Tier II reports to the Fire Rescue Department | County | County Fire/Rescue Department         | \$3,000 | \$100,000 | County Budget                      | Ongoing   | New |
| 10.3.2 | Establish a county Local Emergency Planning Committee.                                                 | County | County EMA, City and County Officials |         |           | County Budget                      | 2011      | New |
| 10.3.3 | Provide County department representatives with awareness-level hazmat training                         | County | County Fire/Rescue                    |         |           | County Budget, National Fire Grant | 2011-2013 | New |

## MITIGATION STRATEGIES

**Table 5-13  
Pandemics/Epidemic Incidents**

| Goal 11: Reduce Gwinnett County's risk and vulnerability to pandemic/epidemic events                                          |                                                                                           |              |                                                                   |                |                   |                                                         |           |        |
|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------|----------------|-------------------|---------------------------------------------------------|-----------|--------|
| Objective 11.1: Improve Gwinnett County's pandemic/epidemic information distribution and warning to citizens                  |                                                                                           |              |                                                                   |                |                   |                                                         |           |        |
| Action                                                                                                                        | Action/Project Description                                                                | Jurisdiction | Responsible                                                       | Estimated Cost | Estimated Benefit | Funding Sources                                         | Timeframe | Status |
| 11.1.1                                                                                                                        | Educate the public on pandemics, including isolation, quarantine, triage and medical care | County       | County EMA, East Metro District Health                            | \$2,000        | \$20,000          | County Budget, Public Health Grants                     | 2010-2011 | New    |
| Objective 11.2: Improve Gwinnett County's first responder capabilities to prepare for and respond to Pandemic/Epidemic events |                                                                                           |              |                                                                   |                |                   |                                                         |           |        |
| 11.2.1                                                                                                                        | Train all first responders on pandemic flu response                                       | All          | County EMA, East Metro District Health, City and County Officials | \$5,000        | \$50,000          | State Budget, County Budget, FEMA, Public Health Grants | 2010-2011 | New    |
| 11.2.2                                                                                                                        | Participate in Strategic National Stockpile drills and exercises                          | All          | County EMA, East Metro District Health, City and County Officials | \$5,000        | \$50,000          | State Budget, County Budget, FEMA, Public Health Grants | 2010-2014 | New    |
| 11.2.3                                                                                                                        | Acquire infectious disease personal protective equipment for all first responders         | All          | County EMA, East Metro District Health, City and County Officials | \$5,000        | \$50,000          | State Budget, County Budget, FEMA, Public Health Grants | 2010-2011 | New    |
| Objective 11.3: Improve Gwinnett County's capability to prepare for, respond to and recover from pandemic/epidemic events     |                                                                                           |              |                                                                   |                |                   |                                                         |           |        |
| 11.3.1                                                                                                                        | Assist all critical departments in developing continuity of operations (COOP) plans       | County       | County EMA, East Metro District Health, City and County Officials | \$5,000        | \$100,000         | State Budget, County Budget, FEMA                       | 2010-2013 | New    |

**Table 5-14  
Terrorism**

| Goal 12: Reduce Gwinnett County's risk and vulnerability from domestic and international terrorism incidents |                                                                         |              |                                                       |                |                   |                 |           |        |
|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------|-------------------------------------------------------|----------------|-------------------|-----------------|-----------|--------|
| Objective 12.1: Increase citizen domestic and international terrorism awareness, preparedness and response   |                                                                         |              |                                                       |                |                   |                 |           |        |
| Action                                                                                                       | Action/Project Description                                              | Jurisdiction | Responsible                                           | Estimated Cost | Estimated Benefit | Funding Sources | Timeframe | Status |
| 12.1.1                                                                                                       | Increase public terrorism awareness through public speaking engagements | County       | County Sheriff, County EMA, County Police Departments | \$1,000        | \$5,000           | County Budget   | Ongoing   | New    |

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|                                                                                                              |                                                             |        |                                                                         |         |           |                                    |           |     |
|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|--------|-------------------------------------------------------------------------|---------|-----------|------------------------------------|-----------|-----|
| 12.1.2                                                                                                       | Increase awareness of potential incidents in public schools | County | County Sheriff, County EMA, County Police Departments, School Officials | \$2,000 | \$6,000   | County Budget, School Budget       | Ongoing   | New |
| <b>Objective 12.2. Improve first responders capability to prepare for and respond to terrorism incidents</b> |                                                             |        |                                                                         |         |           |                                    |           |     |
| 12.2.1                                                                                                       | Train all first responders on terrorism response            | All    | County Sheriff, County EMA, County Police Departments, School Officials | \$5,000 | \$100,000 | County Budget, School Budget, FEMA | 2010-2012 | New |

**Table 5-15  
All Hazards**

| <b>Goal 13: Improve Gwinnett County's capability to reduce risk and vulnerability to all-hazards events</b>    |                                                                                                                                                                                                                                                                                                                                   |              |                                       |                |                   |                             |           |          |
|----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------------------------|----------------|-------------------|-----------------------------|-----------|----------|
| <b>Objective 13.1: Improve Gwinnett County's information distribution and warning capabilities to citizens</b> |                                                                                                                                                                                                                                                                                                                                   |              |                                       |                |                   |                             |           |          |
| Action                                                                                                         | Action/Project Description                                                                                                                                                                                                                                                                                                        | Jurisdiction | Responsible                           | Estimated Cost | Estimated Benefit | Funding Sources             | Timeframe | Status   |
| 13.1.1                                                                                                         | Conduct a countywide communications study to assess the capabilities and effectiveness of all-hazards alert and notification system—including sirens and audible devices—currently in place; determine the need for additional sirens and other audible devices; and build in redundancy (e.g., reverse 911, text message alerts) | All          | County EMA, City and County Officials |                |                   | County Budget, Grants, FEMA | 2010-2011 | Deferred |
| 13.1.2                                                                                                         | Implement actions recommended by the countywide communications study assessing the capabilities and effectiveness of all-hazards alert and notification system                                                                                                                                                                    | County       | County EMA, City and County Officials |                |                   | County Budget, Grants, FEMA | 2012      | Deferred |
| 13.1.3                                                                                                         | Schedule and complete regular testing of current and future alert sirens                                                                                                                                                                                                                                                          | County       | County EMA, City and County Officials | \$2,000        | \$20,000          | County Budget, Grants, FEMA | Ongoing   | New      |
| 13.1.4                                                                                                         | Educate residents on what actions to take in response to audible alerts and sirens sounding                                                                                                                                                                                                                                       | County       | County EMA, City and County Officials | \$5,000        | \$100,000         | County Budget, Grants, FEMA | 2012      | Deferred |
| 13.1.5                                                                                                         | Publish news articles and distribute educational literature regarding safe rooms and shelter-in-place procedures to the public                                                                                                                                                                                                    | All          | County EMA, City and County Officials | \$2,000        | \$20,000          | County/City Budgets         | 2010-2012 | New      |

## MITIGATION STRATEGIES

### Goal 13: Improve Gwinnett County's capability to reduce risk and vulnerability to all-hazards events

|         |                                                                                                                                |                                                                                                          |                |  |  |                           |           |     |
|---------|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|----------------|--|--|---------------------------|-----------|-----|
| 13.1.6  | Upgrade all-hazards alert and notification sirens in the City of Berkeley Lake                                                 | City of Berkeley Lake                                                                                    | City Officials |  |  | City Budget, Grants       | 2010-2012 | New |
| 13.1.7  | Implement an all-hazards notification system for the City of Suwanee                                                           | City of Suwanee                                                                                          | City Officials |  |  | City Budget, FEMA, Grants | 2010-2012 | New |
| 13.1.8  | Implement an all-hazards notification system for the City of Snellville                                                        | City of Snellville                                                                                       | City Officials |  |  | City Budget, FEMA, Grants | 2010-2012 | New |
| 13.1.9  | Implement an all-hazards notification system for the City of Lilburn                                                           | City of Lilburn                                                                                          | City Officials |  |  | City Budget, FEMA, Grants | 2010-2012 | New |
| 13.1.10 | Develop and distribute multi-lingual all-hazards preparedness materials                                                        | City of Buford, City of Grayson, City of Norcross, City of Duluth, City of Sugar Hill, Town of Braselton | City Officials |  |  | City Budget, FEMA, Grants | 2010-2012 | New |
| 13.1.11 | Acquire and implement a high-speed internet-based mass emergency notification system such as CodeRED in the City of Snellville | City of Snellville                                                                                       | City Officials |  |  | City Budget, FEMA, Grants | 2010-2012 | New |

### Objective 13.2: Improve Gwinnett County's first responder capabilities to prepare for and respond to all-hazards events

|        |                                                                                                            |                |                                                          |          |             |                             |           |          |
|--------|------------------------------------------------------------------------------------------------------------|----------------|----------------------------------------------------------|----------|-------------|-----------------------------|-----------|----------|
| 13.2.1 | Conduct annual disaster exercises involving all response agencies and County departments                   | All            | County EMA, First Responder Agencies, County Departments | \$50,000 | \$1,000,000 | County Budget, Grants, FEMA | Ongoing   | New      |
| 13.2.2 | Train first responders and County department representatives annually on EOC procedures                    | County         | County EMA, First Responder Agencies, County Departments | \$10,000 | \$100,000   | County Budget, Grants, FEMA | 2010-2011 | Deferred |
| 13.2.3 | Develop/implement/train first responders in the City of Dacula on standard emergency activation procedures | City of Dacula | City Officials                                           |          |             | City Budget, Grants, FEMA   | 2010-2012 | New      |

### Objective 13.3: Improve Gwinnett County's capability to prepare for, respond to and recover from all-hazards events

|        |                                                                                                                         |        |                        |         |          |               |           |     |
|--------|-------------------------------------------------------------------------------------------------------------------------|--------|------------------------|---------|----------|---------------|-----------|-----|
| 13.3.1 | Train County geographic information systems (GIS) personnel to ensure proper incorporation of HAZUS-MS in GIS databases | County | County EMA, County GIS | \$1,000 | \$30,000 | County Budget | 2010-2012 | New |
|--------|-------------------------------------------------------------------------------------------------------------------------|--------|------------------------|---------|----------|---------------|-----------|-----|

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| Goal 13: Improve Gwinnett County's capability to reduce risk and vulnerability to all-hazards events |                                                                                                                                                                                           |                                     |                                            |          |             |                             |           |          |
|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------------|----------|-------------|-----------------------------|-----------|----------|
| 13.3.2                                                                                               | Assist individual jurisdictions in developing COOP plans                                                                                                                                  | County                              | County EMA                                 | \$30,000 | \$1,000,000 | County/City Budgets, Grants | 2010-2013 | New      |
| 13.3.3                                                                                               | Maintain the Hazard Mitigation Steering Committee for plan maintenance                                                                                                                    | County                              | County EMA                                 | \$5,000  | \$250,000   | County/City Budgets         | Ongoing   | Deferred |
| 13.3.4                                                                                               | Develop/maintain/revise a resource management inventory that is compliant with National Incident Management System (NIMS) guidelines                                                      | All                                 | County EMA, City/County Officials          | \$30,000 | \$200,000   | County Budget, Grants, FEMA | 2011-2013 | New      |
| 13.3.5                                                                                               | Acquire a mobile command unit for the County Planning and Development Department to issue permits on-site following an event, facilitate just-in-time training, and provide credentialing | County                              | County Planning and Development Department |          |             | County Budget, Grants, FEMA | 2011      | New      |
| 13.3.6                                                                                               | Develop and issue a Request for Proposals to obtain pre-positioned contracts for disaster debris removal services                                                                         | County                              | County Transportation Department           |          |             | County Budget               | 2010-2011 | New      |
| 13.3.7                                                                                               | Replace the aged section of water line along Parks Mills Road and Harmony Grove Church Road in the City of Auburn                                                                         | City of Auburn                      | City Officials, Public Works               |          |             | City Budget, FEMA, Grants   | 2010-2013 | New      |
| 13.3.8                                                                                               | Acquire a generator large enough to provide backup power for all of the Lawrenceville Police Department                                                                                   | City of Lawrenceville               | City Officials, Police Department          |          |             | City Budget, FEMA, Grants   | 2011      | New      |
| 13.3.9                                                                                               | Coordinate with the City of Buford to expand the current burial depth of gas lines in the City of Dacula                                                                                  | City of Dacula, City of Buford      | City Officials, Public Works               |          |             | City Budget(s)              | 2010-2013 | New      |
| 13.3.10                                                                                              | Coordinate with the City of Snellville to execute a mutual aid agreement for relocation space for the Lilburn Communications Center                                                       | City of Lilburn, City of Snellville | City Officials                             |          |             | City Budget(s)              | 2010-2011 | New      |

**Section 6**  
**INDIVIDUAL JURISDICTION MITIGATION ACTION**  
**PLANS**

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## Section 6

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# CITY OF AUBURN, GEORGIA MITIGATION ACTION PLAN

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## Geography/History

The City of Auburn (City) is located at 34°1'0"N, 83°49'55"W (34.016692, -83.831869). According to the U.S. Census Bureau, the City has a total area of 6.52 square miles (16.9 km<sup>2</sup>), all of which is land.

The City of Auburn is in Barrow County, within the Atlanta metro area. The Barrow County seat is Winder. The community of Auburn, which straddles Barrow and Gwinnett counties, was established in 1892. Its name is derived from the red clay that was found in nearby land that was used to dye clothes to a rich auburn color. Auburn is a community that has a mix of residential and commercial areas, planned houses, apartments and green areas.

## Significant Characteristics

Roy E. Parks Children's Playground is the newest addition to the City. A safe and clean place for children to play, the park is surrounded by a six foot wrought iron fence. This park displays a whimsical mural on a retaining wall and features plenty of brightly colored play equipment.

The City of Auburn Ballpark is located in Downtown Auburn and hosts the Auburn Dixie Youth Baseball League.

R.H. Burel Park is one of Auburn's most prominent parks. It is best known for a bright red caboose that was donated to the City by CSX Railroad.

James Shackelford Memorial Park was dedicated for the late Council member James Shackelford. With its shelters and beautiful nature trails, this park is great for camping.

Named by students at Auburn Elementary, Whistlestop Park is a green space park with picnic tables, shrubbery and pecan trees.

## Population and Demographics

As of the 2000 census, there are 7,602 people; 2,260 households; and 1,846 families residing in the City. The population density is 1,165.9 people per square mile (408.5/km<sup>2</sup>). There are 2,322 housing units at an average density of 356.1 housing units per square mile (137.4/km<sup>2</sup>). The racial makeup of the City is 88.80 percent White, 2.64 percent African American, 0.30 percent Native American, 4.17 percent Asian, 0.06 percent Pacific Islander, 4.35 percent Hispanic or Latino (of any race), 2.23 percent other races, and 1.80 percent two or more races.

## Section 6

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There are 2,260 households, of which 51.0 percent include children under the age of 18, 67.0 percent are married couples living together, 9.8 percent have a female head of house with no husband present, and 18.3 percent are non-families. Approximately 12.8 percent of all households are made up of individuals, while 1.7 percent have someone living alone who is 65 years of age or older. The average household size is 3.05, and the average family size is 3.33.

The median age of an Auburn resident is 30 years old. In the City the population is spread out, with 33.7 percent under the age of 18, 7.9 percent from 18 to 24, 41.5 percent from 25 to 44, 13.3 percent from 45 to 64, and 3.5 percent who are 65 or older. For every 100 females, there are 103.3 males. For every 100 females age 18 and over, there are 103.2 males.

The city's population in the 1990s increased by about 3,637, which is roughly 111.3 percent.

**Table 1**  
**City of Auburn Population Since 1970**

| Year       | 1970 | 1980 | 1990  | 2000  |
|------------|------|------|-------|-------|
| Population | 650  | 750  | 3,000 | 7,000 |

## Economy

The median income for a household in the city is \$51,346, while the median income for a family is \$52,695. Males have a median income of \$37,392 versus \$24,381 for females. The per capita income for the city is \$20,023. About 3.6 percent of families and 5.2 percent of the population are below the poverty line, including 7.1 percent of individuals 18 and under and none of those ages 65 or over.

Below is a chart of main industries based on data from 2002, when 6,905 was the population of the City of Auburn:

**Table 2**  
**Main Industries Based on Data from 2002**

| Industry Description                            | Number of Establishments | Number of Employees |
|-------------------------------------------------|--------------------------|---------------------|
| Wholesale Trade                                 | 7                        | 20-99               |
| Retail Trade                                    | 8                        | 127                 |
| Information                                     | 1                        | 0-19                |
| Real Estate, Rental, Leasing                    | 3                        | 15                  |
| Professional, Scientific and Technical services | 8                        | 36                  |

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

| Industry Description                                                    | Number of Establishments | Number of Employees |
|-------------------------------------------------------------------------|--------------------------|---------------------|
| Administrative and Support and Waste Management and Remediation Service | 6                        | 16                  |
| Educational Services                                                    | 1                        | 0-19                |
| Health Care and Social Assistance                                       | 4                        | 20-99               |
| Accommodation and Food Services                                         | 4                        | 49                  |
| Other Services                                                          | 12                       | 30                  |

The most common industries for males are construction (20 percent); administrative and support and waste management services (5 percent); truck transportation (5 percent); motor vehicle and parts dealers (4 percent); public administration (4 percent); repair and maintenance (4 percent); and building material, garden equipment and supplies dealers (3 percent).

The most common industries for females are educational services (13 percent), food and beverage stores (7 percent), health care (7 percent), accommodation and food services (6 percent), finance and insurance (6 percent), miscellaneous manufacturing (6 percent), and social assistance (5 percent).

Auburn-area historical tornado activity is slightly above the Georgia state average. It is 92 percent greater than the overall U.S. average.

On November 22, 1992, an F4 tornado with maximum wind speeds of 207-260 miles per hour (mph) struck 35.9 miles away from the City center, injuring 46 people and causing approximately \$5 million in damages.

On May 28, 1973, an F3 tornado with maximum wind speeds of 158-206 mph, struck 15.4 miles away from the City center, killing one person and injuring 65 others. Damages were estimated between \$5 million and \$50 million.

**Table 3**  
**Single-Family New House Construction Building Permits**

| Year | Permits | Average Cost |
|------|---------|--------------|
| 1996 | 52      | \$60,800     |
| 1997 | 75      | \$64,000     |
| 1998 | 78      | \$71,800     |
| 1999 | 15      | \$127,200    |
| 2000 | 5       | \$115,300    |
| 2001 | 7       | \$111,100    |

## Section 6

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| Year | Permits | Average Cost |
|------|---------|--------------|
| 2002 | 4       | \$120,900    |
| 2003 | 48      | \$129,200    |
| 2004 | 66      | \$139,000    |
| 2005 | 37      | \$134,700    |
| 2006 | 48      | \$134,700    |
| 2007 | 89      | \$137,400    |
| 2008 | 17      | \$122,500    |

## Infrastructure

The Auburn Police Department, consisting of about 20 employees, offers excellent coverage from well-trained and professional officers. The department includes divisions in Code Enforcement, Investigations, Support Services, and Uniform Patrol.

Fire and emergency services for Auburn are provided by the Barrow County Department of Fire and Emergency Services, Station 4. Station 4 has an advanced life support ambulance and a licensed basic life support engine, and is staffed by four personnel 24 hours a day. Station 4 also houses a reserve engine and a reserve ambulance.

The Auburn school system consists of the following:

**Table 4**  
**Braselton School Infrastructure**

| School                   | Type         | Enrollment |
|--------------------------|--------------|------------|
| Bramlett                 | Elementary   | 256        |
| Auburn                   | Elementary   | 553        |
| Mulberry                 | Elementary   | 536        |
| Old Peachtree Montessori | Private-PK-1 | 120        |

## Land Usage

The City has a total area of 13.8 square kilometers, all of which is land.

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

### Legal and Regulatory Capabilities

The Legal and Regulatory Capability survey documents authorities available to the jurisdiction and/or enabling legislation at the state level affecting planning and land management tools that support local hazard mitigation planning efforts. The identified planning and land management tools are typically used by states and local and tribal jurisdictions to implement hazard mitigation activities.

**Table 5  
Legal and Regulatory Capability**

| Regulatory Tools/Plans                                                     | Regulatory Type:<br>Ordinance<br>Resolution<br>Codes<br>Plans, Etc. | Reference<br>Number      | Date<br>Adopted | Local Authority | State Prohibited | Higher Authority |
|----------------------------------------------------------------------------|---------------------------------------------------------------------|--------------------------|-----------------|-----------------|------------------|------------------|
|                                                                            |                                                                     |                          |                 | Y               | N                | Y                |
| Building Codes                                                             | Municipal Code                                                      | Chapter 15               |                 | Y               | N                | N                |
| Capital Improvements Plan                                                  | Municipal Code                                                      | Charter -<br>Article VI  |                 | Y               | N                | N                |
| Comprehensive Plan                                                         | 2030 Comprehensive Plan and<br>Referenced in the Municipal Code     | Chapter 17               |                 | Y               | N                | N                |
| Continuity of<br>Operations/Continuity of<br>Government (COOP/COG)<br>Plan | County COOP/COG Plan                                                |                          |                 | N               | N                | Y                |
| Community Rating System                                                    | County Rating                                                       |                          |                 | N               | N                | Y                |
| Economic Development Plan                                                  | County Plan                                                         |                          |                 | N               | N                | Y                |
| Emergency Management<br>Accreditation Program<br>Certified                 |                                                                     |                          |                 | N               | N                | Y                |
| Emergency Response Plan                                                    | County Emergency Operations Plan<br>(EOP)                           |                          |                 | N               | N                | Y                |
| Flood Management Plan                                                      | Referenced in the Municipal Code                                    | Chapter 15<br>Chapter 18 |                 | Y               | N                | N                |
| Growth Control Ordinance                                                   | Municipal Code                                                      | Chapter 17               |                 | Y               | N                | N                |
| Hazard Setback Regulations                                                 |                                                                     |                          |                 |                 |                  |                  |
| Hillside Ordinance                                                         |                                                                     |                          |                 |                 |                  |                  |
| Historic Ordinance                                                         | Municipal Code                                                      | Chapter 15<br>Chapter 17 |                 | Y               | N                | N                |
| National Flood Insurance<br>Program Participant                            |                                                                     |                          |                 | N               | N                | Y                |

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| Regulatory Tools/Plans      | Regulatory Type:<br>Ordinance<br>Resolution<br>Codes<br>Plans, Etc. | Reference<br>Number                    | Date<br>Adopted | Local Authority | State Prohibited | Higher Authority |
|-----------------------------|---------------------------------------------------------------------|----------------------------------------|-----------------|-----------------|------------------|------------------|
| Post-Disaster Ordinance     |                                                                     |                                        |                 |                 |                  |                  |
| Post-Disaster Recovery Plan | County EOP                                                          |                                        |                 | N               | N                | Y                |
| Real Estate Disclosure      | Real Estate Commission                                              |                                        |                 | N               | N                | Y                |
| Site Plan Requirements      | Referenced in the Municipal Code                                    | Chapter 16                             |                 | Y               | N                | N                |
| Subdivision Regulations     | Municipal Code                                                      | Chapter 15<br>Chapter 16<br>Chapter 17 |                 | Y               | N                | N                |
| Wildfire Ordinance          |                                                                     |                                        |                 |                 |                  |                  |
| Zoning Ordinances           | Municipal Code                                                      | Chapter 17                             |                 | Y               | N                | N                |

## Administrative and Technical Capabilities

The City of Auburn has a number of administrative and technical capabilities. City departments include Administrative, Downtown Development Authority, Licenses and Permits, Municipal Court, Parks and Leisure, Planning, Police, Public Library, Public Works, Storm Water Pollution, Tax, Economic Development and Utilities. The City government includes a Mayor and four City Council Members. The City Administrator and City Clerk manage administrative functions.

## Mitigation Actions

Each jurisdiction participating in this Plan is responsible for implementing specific mitigation actions as prescribed in the adopted mitigation action plan. In each mitigation action plan, every proposed action is assigned to a specific local department or agency in order to assign responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual jurisdictions to update their unique mitigation strategy as needed without altering the broader focus of the countywide Plan. The separate adoption of locally specific actions also ensures that each jurisdiction is not held responsible for monitoring and implementing the actions of other jurisdictions involved in the planning process. A complete list of countywide mitigation strategies is provided in Section 5 of the Gwinnett County Hazard Mitigation Plan.

# INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

**Table 6  
Mitigation Actions**

**Goal 1: Reduce Gwinnett County's risk and vulnerability to severe winter storms**

**Objective 1.3: Improve Gwinnett County's capability to prepare for, respond to and recover from severe winter storms**

| Action | Action/Project Description                                                                      | Jurisdiction   | Responsible                  | Estimated Cost | Estimated Benefit | Funding Sources     | Timeframe | Status |
|--------|-------------------------------------------------------------------------------------------------|----------------|------------------------------|----------------|-------------------|---------------------|-----------|--------|
| 1.3.3  | Identify and bury utility lines in densely populated and commercial areas in the City of Auburn | City of Auburn | City Officials, Public Works |                |                   | City Budget, Grants | 2011-2012 | New    |

**Goal 7: Reduce Gwinnett County's risk and vulnerability to flood events**

**Objective 7.2: Improve Gwinnett County's capability to prepare for, respond to and recover from flood events**

| Action | Action/Project Description                                           | Jurisdiction   | Responsible                  | Estimated Cost | Estimated Benefit | Funding Sources     | Timeframe | Status |
|--------|----------------------------------------------------------------------|----------------|------------------------------|----------------|-------------------|---------------------|-----------|--------|
| 7.2.3  | Identify and replace damaged and aged culverts in the City of Auburn | City of Auburn | City Officials, Public Works |                |                   | City Budget, Grants | 2010-2011 | New    |

**Goal 13: Improve Gwinnett County's capability to reduce risk and vulnerability to all-hazards events**

**Objective 13.3: Improve Gwinnett County's capability to prepare for, respond to and recover from all-hazards events**

| Action | Action/Project Description                                                                                        | Jurisdiction   | Responsible                  | Estimated Cost | Estimated Benefit | Funding Sources           | Timeframe | Status |
|--------|-------------------------------------------------------------------------------------------------------------------|----------------|------------------------------|----------------|-------------------|---------------------------|-----------|--------|
| 13.3.7 | Replace the aged section of water line along Parks Mills Road and Harmony Grove Church Road in the City of Auburn | City of Auburn | City Officials, Public Works |                |                   | City Budget, FEMA, Grants | 2010-2013 | New    |

## Section 6

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# CITY OF BERKELEY LAKE, GEORGIA MITIGATION ACTION PLAN

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## Geography/History

The City of Berkeley Lake (City) is located at 33°59'7"N, 84°11'0"W (33.985333, -84.183382). According to the U.S. Census Bureau, the City has a total area of 1.1 square miles (3.0 km<sup>2</sup>), of which 1.0 square miles (2.6 km<sup>2</sup>) is land and 0.1 square miles (0.4 km<sup>2</sup> or 12.28 percent) is water.

The majority of lands within the limits of the City of Berkeley Lake were developed in the late 1940s by Frank Coggins. It contains a dam that was constructed in 1948, which happens to be one of the largest earthen dams in the state. The 88 acre Lake Berkeley, the City's namesake, was named after Frank Coggins's Berkeley Blue Granite Quarries in Elberton, GA.

In 1952 the Berkeley Realty & Investment Company and its 700 acre property were purchased by Calvin and Kate Parsons along with John and Dorothy Bagwell. In 1953 Lake Berkeley Civic Association was formed by some 25 property owners. This association discussed important needs such as electricity, telephones and accessibility around the lake. The need for benefits that an incorporated City could help secure brought on the creation of the City of Berkeley Lake's charter.

On March 6, 1956, the General Assembly of Georgia approved the municipality as the City of Berkeley Lake in Gwinnett County. Since that time a number of ordinances have been passed to protect the character and tranquility of the community. A master plan for future land use and growth has also been developed and adopted.

Since 1994 five new subdivisions have been added. Two tracts of over 10 acres remain; however, in 1996 a referendum for the issuance of a bond was supported by residents to purchase one of the tracts, which included about 63 acres of undeveloped forest land.

## Significant Characteristics

Children's Park is a popular park located near City Hall for the enjoyment of area children.

Lake Berkeley is an 88 acre area where people can enjoy fishing, boating and various outdoor activities.

## Population and Demographics

Berkeley Lake has grown into a thriving community centered on its 77 acre lake. According to the 2000 census, Berkeley Lake is the most affluent community in metro Atlanta and all of Georgia.

## Section 6

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As of the 2000 census, there were 1,695 people; 601 households; and 504 families residing in the City. The population density was 1,682.8 people per square mile (648.0/km<sup>2</sup>). There were 610 housing units at an average density of 605.6 housing units per square mile (233.2/km<sup>2</sup>). The racial makeup of the population of the City was 80.94 percent White, 4.07 percent African American, 0.18 percent Native American, 11.80 percent Asian, 2.65 percent Hispanic or Latino (of any race), 1.65 percent from other races, and 1.36 percent from two or more races.

There were 601 households, of which 43.8 percent included children under the age of 18, 77.2 percent were married couples living together, 5.2 percent had a female head of house with no husband present, and 16.1 percent were non-families. Approximately 12.6 percent of all households were made up of individuals, while 3.0 percent had someone living alone who was 65 or older. The average household size was 2.82, and the average family size was 3.11.

The median age of a Berkeley Lake resident is 39 years old. In the City the population was spread out, with 27.7 percent under the age of 18, 3.5 percent from 18 to 24, 32.7 percent from 25 to 44, 28.8 percent from 45 to 64, and 7.2 percent who were 65 or older. For every 100 females, there were 93.1 males. For every 100 females age 18 and over, there were 92.8 males.

The population since 2000 has increased by 23.7 percent.

## Economy

The median income for a household in the City was \$109,401, while the median income for a family was \$115,548. Males had a median income of \$84,708 versus \$51,750 for females. The per capita income for the City was \$43,439. About 2.7 percent of families and 2.3 percent of the population were below the poverty line, including 1.8 percent of individuals 18 and under and 4.9 percent age 65 or over.

The most common industries for males are professional, scientific and technical services (24 percent); finance and insurance (7 percent); construction (6 percent); administrative and support and waste management services (5 percent); broadcasting and telecommunications (5 percent); public administration (4 percent); and health care (3 percent).

The most common industries for females are educational services (12 percent); professional, scientific and technical services (12 percent); health care (9 percent); finance and insurance (8 percent); accommodation and food services (7 percent); broadcasting and telecommunications (5 percent); and real estate and rental and leasing (4 percent).

Berkeley Lake-area historical tornado activity is above the Georgia state average. It is 107 percent greater than the overall U.S. average.

On November 22, 1992, an F4 tornado with maximum wind speeds of 207-260 miles per hour (mph) struck 19.0 miles away from the City center, injuring 46 people and causing between \$5 million to \$50 million in damages.

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

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On April 3, 1974, an F4 tornado struck 27.9 miles away from the City center, killing six people and injuring 30 people. Damages were estimated between \$500,000 and \$5 million.

The 2007 estimated range of home values of owner-occupied houses in Berkeley Lake is:

**Table 1**  
**Estimated Range of Home Values**

| Amount                 | Permits |
|------------------------|---------|
| \$175,000 to \$199,999 | 9       |
| \$200,000 to \$249,999 | 47      |
| \$250,000 to \$299,999 | 58      |
| \$300,000 to \$399,999 | 141     |
| \$400,000 to \$499,999 | 193     |
| \$500,000 to \$749,999 | 221     |
| \$750,000 to \$999,999 | 24      |
| \$1,000,000 or more    | 7       |

**Table 2**  
**New Houses Built from 1939-2000**

| Year               | Permits |
|--------------------|---------|
| 1939 or Earlier    | 2       |
| 1940 to 1949       | 2       |
| 1950 to 1959       | 34      |
| 1960 to 1969       | 42      |
| 1970 to 1979       | 79      |
| 1980 to 1989       | 142     |
| 1990 to 1994       | 75      |
| 1995 to 1998       | 216     |
| 1999 to March 2000 | 26      |

## Infrastructure

Police services are provided by Gwinnett County. The City of Berkeley Lake is currently exploring options to supplement these services.

Fire services are provided to Berkeley Lake by the Gwinnett County Department of Fire and Emergency Services.

The Berkeley Lake school system consists of the following:

**Table 3**  
**Berkeley Lake School Infrastructure**

| School        | Type       | Enrollment |
|---------------|------------|------------|
| Berkeley Lake | Elementary | 1,101      |
| Duluth        | Middle     | 1,901      |
| Duluth        | High       | 2,298      |

## Land Usage

The City has a total area of 1.1 square miles (3.0 km<sup>2</sup>), of which 1.0 square miles (2.6 km<sup>2</sup>) is land and 0.1 square miles (0.4 km<sup>2</sup> or 12.28 percent) is water.

## Legal and Regulatory Capabilities

The Legal and Regulatory Capability survey documents authorities available to the jurisdiction and/or enabling legislation at the state level affecting planning and land management tools that support local hazard mitigation planning efforts. The identified planning and land management tools are typically used by states and local and tribal jurisdictions to implement hazard mitigation activities.

**Table 4**  
**Legal and Regulatory Capability**

| Regulatory Tools/Plans | Regulatory Type:<br>Ordinance<br>Resolution<br>Codes<br>Plans, Etc. | Reference<br>Number       | Date<br>Adopted | Local Authority | State Prohibited | Higher Authority |
|------------------------|---------------------------------------------------------------------|---------------------------|-----------------|-----------------|------------------|------------------|
|                        |                                                                     |                           |                 | Y               | N                | N                |
| Building Codes         | Code of Ordinances                                                  | Chapter 14,<br>Chapter 78 |                 | Y               | N                | N                |

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

| Regulatory Tools/Plans                                            | Regulatory Type:<br>Ordinance<br>Resolution<br>Codes<br>Plans, Etc. | Reference<br>Number                                | Date<br>Adopted | Local Authority | State Prohibits | Higher Authority |
|-------------------------------------------------------------------|---------------------------------------------------------------------|----------------------------------------------------|-----------------|-----------------|-----------------|------------------|
| Capital Improvements Plan                                         | Referenced in the Code of Ordinances                                | Part I – Article 6<br>Chapter 54 - Article III     |                 | Y               | N               | N                |
| Comprehensive Plan                                                | 2030 Comprehensive Plan                                             |                                                    |                 | Y               | N               | N                |
| Continuity of Operations/Continuity of Government (COOP/COG) Plan | County COOP/COG Plan                                                |                                                    |                 | N               | N               | Y                |
| Community Rating System                                           | County Rating                                                       |                                                    |                 | N               | N               | Y                |
| Economic Development Plan                                         | County Plan                                                         |                                                    |                 | N               | N               | Y                |
| Emergency Management Accreditation Program Certified              |                                                                     |                                                    |                 | N               | N               | Y                |
| Emergency Response Plan                                           | County Emergency Operations Plan (EOP)                              |                                                    |                 | N               | N               | Y                |
| Flood Management Plan                                             | Referenced in the Code of Ordinances                                | Chapter 42 - Article IV                            |                 | Y               | N               | N                |
| Growth Control Ordinance                                          |                                                                     |                                                    |                 | Y               | N               | N                |
| Hazard Setback Regulations                                        |                                                                     |                                                    |                 |                 |                 |                  |
| Hillside Ordinance                                                |                                                                     |                                                    |                 |                 |                 |                  |
| Historic Ordinance                                                | Code of Ordinances                                                  | Chapter 32 - Article II<br>Chapter 42 - Article IV |                 | Y               | N               | N                |
| National Flood Insurance Program Participant                      |                                                                     |                                                    |                 | N               | N               | Y                |
| Post-Disaster Ordinance                                           |                                                                     |                                                    |                 |                 |                 |                  |
| Post-Disaster Recovery Plan                                       | County EOP                                                          |                                                    |                 | N               | N               | Y                |
| Real Estate Disclosure                                            | Real Estate Commission                                              |                                                    |                 | N               | N               | Y                |
| Site Plan Requirements                                            | Code of Ordinances                                                  | Chapter 32 - Article II                            |                 | Y               | N               | N                |

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| Regulatory Tools/Plans  | Regulatory Type:<br>Ordinance<br>Resolution<br>Codes<br>Plans, Etc. | Reference<br>Number                                                                   | Date<br>Adopted | Local Authority | State Prohibited | Higher Authority |
|-------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------------|-----------------|------------------|------------------|
| Subdivision Regulations | Code of Ordinances                                                  | Chapter 26 -<br>Article V<br>Chapter 32 -<br>Article II<br>Chapter 42 -<br>Article IV |                 | Y               | N                | N                |
| Wildfire Ordinance      |                                                                     |                                                                                       |                 |                 |                  |                  |
| Zoning Ordinances       | Code of Ordinances                                                  | Chapter 78                                                                            |                 | Y               | N                | N                |

## Administrative and Technical Capabilities

The City of Berkeley Lake has a number of administrative and technical capabilities. City departments include Administrative, Courts, Planning and Zoning Commission, as well as Budget and Finance. The City government includes a Mayor and five City Council Members. The City Administrator/City Clerk, Deputy City Administrator, Ordinance Enforcement Officer and Deputy City Clerk manage administrative functions. Other key City personnel include the City Attorney, City Treasurer, Municipal Judge, City Engineer and City Building Inspector.

## Mitigation Actions

Each jurisdiction participating in this Plan is responsible for implementing specific mitigation actions as prescribed in the adopted mitigation action plan. In each mitigation action plan, every proposed action is assigned to a specific local department or agency in order to assign responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual jurisdictions to update their unique mitigation strategy as needed without altering the broader focus of the countywide Plan. The separate adoption of locally specific actions also ensures that each jurisdiction is not held responsible for monitoring and implementing the actions of other jurisdictions involved in the planning process. A complete list of countywide mitigation strategies is provided in Section 5 of the Gwinnett County Hazard Mitigation Plan.

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

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**Table 5  
Mitigation Actions**

| Goal 13: Improve Gwinnett County's capability to reduce risk and vulnerability to all-hazards events    |                                                                                |                       |                |                |                   |                     |           |        |
|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-----------------------|----------------|----------------|-------------------|---------------------|-----------|--------|
| Objective 13.1: Improve Gwinnett County's information distribution and warning capabilities to citizens |                                                                                |                       |                |                |                   |                     |           |        |
| Action                                                                                                  | Action/Project Description                                                     | Jurisdiction          | Responsible    | Estimated Cost | Estimated Benefit | Funding Sources     | Timeframe | Status |
| 13.1.6                                                                                                  | Upgrade all-hazards alert and notification sirens in the City of Berkeley Lake | City of Berkeley Lake | City Officials |                |                   | City Budget, Grants | 2010-2012 | New    |

## Section 6

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# CITY OF BUFORD, GEORGIA MITIGATION ACTION PLAN

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## Geography/History

The City of Buford (City) is located at 34°7'1"N, 83°59'55"W (34.117080, -83.998535). According to the U.S. Census Bureau, the City has a total area of 14.8 square miles (38.3 km<sup>2</sup>), of which 14.7 square miles (38.2 km<sup>2</sup>) is land and 0.1 square miles (0.1 km<sup>2</sup> or 0.34 percent) is water.

Winning a bid to host the lunch stop on the new Atlanta and Richmond Air Line Railway, the City of Buford was named after the railway's president, Algernon S. Buford. Formerly the Town of Buford," the City was incorporated by Act of legislature on August 24, 1872. The City's name was changed to the City of Buford in 1896.

Buford was blessed in its early years with far-sighted citizens who had an interest in business and education. The City was often called the "city of many factories" and has been referenced as the "New York of Gwinnett."

For over 60 years, Buford was the largest city in Gwinnett County. During most of those 60 years, it had the only significant industrial development in the county and exerted a powerful—and many times dominant—influence upon county politics.

Buford has the first bank within the county and had two running before any other permanent banking facilities were established in the county.

Buford is also associated with the field of education. Many students came from other areas of the county to acquire a diploma from a place that was recognized for quality education.

The City of Buford also made a name for itself with its leather industry, creating nationally known shoes, saddles, harness, horse collars, and other leather products. It also operated the only glue factory in the South, and conducted a large farming operation which produced straw for horse collars and other farm products.

## Significant Characteristics

Lake Sidney Lanier has over 692 miles of shoreline and is known for its aqua blue water, amazing scenery and a variety of recreational activities.

Lake Lanier Islands is located past the Holiday Marina on the south side of the lake, and hosts many events ranging from concerts, arts and craft festivals, fireworks shows, holiday light shows and activities for every member of the family.

The Mall of Georgia is a huge shopping mall with 225 stores that are available seven days a week.

# Population and Demographics

As of the 2000 census, there are 10,668 people; 3,794 households; and 2,579 families residing in the City. The population density is 724.4 people per square mile (279.6/km<sup>2</sup>). There are 4,044 housing units at an average density of 274.6 housing units per square mile (106.0/km<sup>2</sup>). The racial makeup of the City is 76.16 percent White, 17.27 percent Hispanic or Latino (of any race), 13.33 percent African American, 0.31 percent Native American, 0.82 percent Asian, 0.04 percent Pacific Islander, 7.56 percent from other races, and 1.78 percent from two or more races.

There are 3,794 households, of which 34.7 percent include children under the age of 18, 48.0 percent are married couples living together, 14.3 percent are a female head of house with no husband present, and 32.0 percent are non-families. Approximately 26.0 percent of all households are made up of individuals, while 7.7 percent have someone living alone who was 65 or older. The average household size is 2.76, and the average family size is 3.29.

The median age of a Buford resident is 32 years old. In the City the population is spread out, with 26.5 percent under the age of 18, 10.7 percent from 18 to 24, 33.7 percent from 25 to 44, 19.0 percent from 45 to 64, and 10.0 percent who are 65 or older. For every 100 females, there are 102.0 males. For every 100 females age 18 and over, there are 99.6 males.

The City's population has grown more than 10.4 percent since 2000.

# Economy

The median income for a household in the city is \$38,733, and the median income for a family is \$43,100. Males have a median income of \$29,458 versus the \$22,342 for females. The per capita income for the city is \$18,308. About 7.5 percent of families and 11.2 percent of the population are below the poverty line, including 9.2 percent of under age 18 and 17.2 percent age 65 or over.

Gwinnett County is home to more than 700 manufacturing companies, more than 1,200 high-tech companies, and more than 410 international companies

The most common industries for males are construction (21 percent); accommodation and food services (6 percent); administrative and support and waste management services (5 percent); building material and garden equipment and supplies dealers (4 percent); computer and electronic products (3 percent); professional, scientific, and technical services (3 percent); and public administration (3 percent).

The most common industries for females are accommodation and food services (11 percent); educational services (8 percent); health care (8 percent); professional, scientific, and technical services (8 percent); department and other general merchandise stores (6 percent); finance and insurance (5 percent); and social assistance (4 percent).

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

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Buford-area historical tornado activity is slightly above the Georgia state average. It is 101 percent greater than the overall U.S. average.

On November 22, 1992, an F4 tornado with maximum wind speeds of 207-260 miles per hour (mph) struck 25.0 miles away from the City center, injuring 46 people and causing between \$5 million and \$50 million in damages.

On April 3, 1974, an F4 tornado struck 25.8 miles away from the City center, killing six people and injuring 30 others. Damages were estimated between \$500,000 and \$5 million.

**Table 1**  
**Single-Family New House Construction Building Permits**

| Year | Permits | Average Cost |
|------|---------|--------------|
| 1996 | 43      | \$114,800    |
| 1997 | 58      | \$100,900    |
| 1998 | 28      | \$108,300    |
| 1999 | 37      | \$148,000    |
| 2000 | 31      | \$155,800    |
| 2001 | 64      | \$194,100    |
| 2002 | 41      | \$170,200    |
| 2003 | 7       | \$148,600    |
| 2004 | 6       | \$126,700    |
| 2005 | 58      | \$178,700    |
| 2006 | 155     | \$170,200    |
| 2007 | 78      | \$157,500    |
| 2008 | 46      | \$171,700    |

## Infrastructure

The North Precinct of the Gwinnett County Police Department, which covers an area of 87 square miles in northern Gwinnett County, serves Buford.

Fire services are provided to Buford by the Gwinnett County Department of Fire and Emergency Services.

The Buford school system consists of the following:

## Section 6

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**Table 2**  
**Buford School Infrastructure**

| School                 | Type           | Enrollment          |
|------------------------|----------------|---------------------|
| Buford                 | Elementary     | 735                 |
| Friendship             | Elementary     | 885                 |
| Harmony                | Elementary     | 645                 |
| Ivy Creek              | Elementary     | 1,382               |
| Patrick                | Elementary     | 789                 |
| Sugar Hill             | Elementary     | 1,103               |
| Buford Academy         | Elementary 3-5 | 637                 |
| Glenn C. Jones         | Middle         | 1,393               |
| Lanier                 | Middle         | 2,571               |
| Buford                 | Middle         | 699                 |
| Buford                 | High           | 777                 |
| Lanier                 | High           | Opening August 2010 |
| Old Suwannee Christian | PK-12          | 252                 |

## Land Usage

Buford has a total area of 14.8 square miles (38.3 km<sup>2</sup>), of which 14.7 square miles (38.2 km<sup>2</sup>) is land and 0.1 square miles (0.1 km<sup>2</sup> or 0.34 percent) is water.

## Legal and Regulatory Capabilities

The Legal and Regulatory Capability survey documents authorities available to the jurisdiction and/or enabling legislation at the state level affecting planning and land management tools that support local hazard mitigation planning efforts. The identified planning and land management tools are typically used by states and local and tribal jurisdictions to implement hazard mitigation activities.

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

**Table 3  
Legal and Regulatory Capability**

| Regulatory Tools/Plans                                            | Regulatory Type:<br>Ordinance<br>Resolution<br>Codes<br>Plans, Etc. | Reference<br>Number | Date<br>Adopted | Local<br>Authority | State<br>Prohibited | Higher<br>Authority |
|-------------------------------------------------------------------|---------------------------------------------------------------------|---------------------|-----------------|--------------------|---------------------|---------------------|
| Building Codes                                                    |                                                                     |                     |                 | Y                  | N                   | N                   |
| Capital Improvements Plan                                         |                                                                     |                     |                 | Y                  | N                   | N                   |
| Comprehensive Plan                                                | 2030 Comprehensive Plan                                             |                     |                 | Y                  | N                   | N                   |
| Continuity of Operations/Continuity of Government (COOP/COG) Plan | County COOP/COG Plan                                                |                     |                 | N                  | N                   | Y                   |
| Community Rating System                                           | County Rating                                                       |                     |                 | N                  | N                   | Y                   |
| Economic Development Plan                                         | County Plan                                                         |                     |                 | N                  | N                   | Y                   |
| Emergency Management Accreditation Program Certified              |                                                                     |                     |                 | N                  | N                   | Y                   |
| Emergency Response Plan                                           | County Emergency Operations Plan (EOP)                              |                     |                 | N                  | N                   | Y                   |
| Flood Management Plan                                             |                                                                     |                     |                 | Y                  | N                   | N                   |
| Growth Control Ordinance                                          |                                                                     |                     |                 | Y                  | N                   | N                   |
| Hazard Setback Regulations                                        |                                                                     |                     |                 |                    |                     |                     |
| Hillside Ordinance                                                |                                                                     |                     |                 |                    |                     |                     |
| Historic Ordinance                                                |                                                                     |                     |                 | Y                  | N                   | N                   |
| National Flood Insurance Program Participant                      |                                                                     |                     |                 | N                  | N                   | Y                   |
| Post-Disaster Ordinance                                           |                                                                     |                     |                 |                    |                     |                     |
| Post-Disaster Recovery Plan                                       | County EOP                                                          |                     |                 | N                  | N                   | Y                   |
| Real Estate Disclosure                                            | Real Estate Commission                                              |                     |                 | N                  | N                   | Y                   |
| Site Plan Requirements                                            |                                                                     |                     |                 | Y                  | N                   | N                   |
| Subdivision Regulations                                           |                                                                     |                     |                 | Y                  | N                   | N                   |
| Wildfire Ordinance                                                |                                                                     |                     |                 |                    |                     |                     |

## Section 6

| Regulatory Tools/Plans | Regulatory Type:<br>Ordinance<br>Resolution<br>Codes<br>Plans, Etc. | Reference<br>Number | Date<br>Adopted | Local Authority | State Prohibited | Higher Authority |
|------------------------|---------------------------------------------------------------------|---------------------|-----------------|-----------------|------------------|------------------|
| Zoning Ordinances      |                                                                     |                     |                 | Y               | N                | N                |

## Administrative and Technical Capabilities

The City of Buford has a number of administrative and technical capabilities. City departments include Electric, Finance, Gas, Inspection, Marshal, Planning and Zoning, Recreation, Sanitation, Sewer, Storm Water Management, Street, Utility Billing and Water. The City government includes a Commission Chairman and two Commissioners. Other key City personnel include the City Manager, City Clerk/Planning Director, Public Utilities Director and Finance Director/Deputy Clerk.

## Mitigation Actions

Each jurisdiction participating in this Plan is responsible for implementing specific mitigation actions as prescribed in the adopted mitigation action plan. In each mitigation action plan, every proposed action is assigned to a specific local department or agency in order to assign responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual jurisdictions to update their unique mitigation strategy as needed without altering the broader focus of the countywide Plan. The separate adoption of locally specific actions also ensures that each jurisdiction is not held responsible for monitoring and implementing the actions of other jurisdictions involved in the planning process. A complete list of countywide mitigation strategies is provided in Section 5 of the Gwinnett County Hazard Mitigation Plan.

**Table 4  
Mitigation Actions**

| Goal 13: Improve Gwinnett County's capability to reduce risk and vulnerability to all-hazards events    |                                                                         |                                                                                                          |                |                |                   |                           |           |        |
|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|----------------|----------------|-------------------|---------------------------|-----------|--------|
| Objective 13.1: Improve Gwinnett County's information distribution and warning capabilities to citizens |                                                                         |                                                                                                          |                |                |                   |                           |           |        |
| Action                                                                                                  | Action/Project Description                                              | Jurisdiction                                                                                             | Responsible    | Estimated Cost | Estimated Benefit | Funding Sources           | Timeframe | Status |
| 13.1.10                                                                                                 | Develop and distribute multi-lingual all-hazards preparedness materials | City of Buford, City of Grayson, City of Norcross, City of Duluth, City of Sugar Hill, Town of Braselton | City Officials |                |                   | City Budget, FEMA, Grants | 2010-2012 | New    |

# CITY OF DACULA, GEORGIA MITIGATION ACTION PLAN

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## Geography/History

The City of Dacula (City) is located at 33°59'15"N, 83°53'31"W (33.987598, -83.891926). According to the U.S. Census Bureau, the City has a total area of 2.9 square miles (7.5 km<sup>2</sup>), all of which is land.

The City of Dacula began as the Town of Chinquapin Grove. When it was founded, the name was changed due to the fact that no chinquapin trees actually existed in the City. The name Dacula was formed by letters found in Decatur and Atlanta. Those two cities were nearby Dacula and were already prospering during the time of Dacula's founding.

There was a train station on a CSX line in Dacula, and though it closed in the mid 1950s, the City experienced immense growth. Formerly a small, one light town in the early 80s, the City of Dacula now has nearly 10 public schools from both the Dacula and Mill Creek clusters of Gwinnett County.

## Significant Characteristics

With its 3,850 seat auditorium, Hebron Baptist Church is one of the largest Southern Baptist churches in the Southeast United States.

The City has several beautiful parks suitable for weddings, picnics, and other large or small outdoor functions.

Little Mulberry Park is a park that encompasses 485 acres of an 890 acre park. It features five miles of trails, including two paved multi-purpose trails and a handicap-accessible trail, and more than two miles of woodland foot trails. The park also offers many picnic pavilions, restrooms, a playground and an observation terrace.

Dacula is also known for its large Memorial Day parade, as well as its professional and collegiate athletes.

## Population and Demographics

As of the 2000 census, there are 3,848 people; 1,283 households; and 1,077 families residing in the City. The population density is 1,333.0 people per square mile (514.1/km<sup>2</sup>). There are 1,320 housing units at an average density of 456.9 housing units per square mile (176.2/km<sup>2</sup>). The racial makeup of the City is 91.37 percent White, 4.24 percent African American, 3.72 percent Hispanic or Latino (of any race), 0.34 percent Native American, 1.53 percent Asian, 0.03 percent Pacific Islander, 1.25 percent from other races, and 1.25 percent from two or more races.

## Section 6

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There are 1,283 households, of which 44.3 percent include children under the age of 18, 68.9 percent are married couples living together, 11.1 percent have a female head of house with no husband present, and 16.0 percent are non-families. Approximately 12.5 percent of all households are made up of individuals, while 3.4 percent have someone living alone who is 65 or older. The average household size is 3.00, and the average family size is 3.27.

The median age of a Dacula resident is 33 years old. In the City the population is spread out, with 29.2 percent under the age of 18, 7.7 percent from 18 to 24, 36.9 percent from 25 to 44, 19.7 percent from 45 to 64, and 6.5 percent who are 65 or older. For every 100 females, there are 96.2 males. For every 100 females age 18 and over, there are 91.0 males.

The City's population has grown more than 21.2 percent since 2000.

## Economy

The median income for a household in the City is \$57,525, while the median income for a family is \$58,603. Males have a median income of \$40,616 versus \$27,380 for females. The per capita income for the City is \$19,720. About 0.9 percent of families and 1.5 percent of the population are below the poverty line, including 1.0 percent of individuals under the age of 18 and 2.3 percent age 65 or over.

The most common industries for males are construction (17 percent); professional, scientific and technical services (8 percent); administrative and support and waste management services (4 percent); grocery and related product merchant wholesalers (3 percent); religious, grant making, civic, professional and similar organizations (3 percent); repair and maintenance (3 percent); and truck transportation (3 percent).

The most common industries for females are health care (11 percent); educational services (10 percent); finance and insurance (8 percent); construction (5 percent); public administration (5 percent); food and beverage stores (4 percent); and professional, scientific and technical services (4 percent).

Dacula-area historical tornado activity is slightly above the Georgia state average. It is 94 percent greater than the overall U.S. average.

On November 22, 1992, an F4 tornado with maximum wind speeds of 207-260 miles per hour (mph) struck 33.3 miles away from the City center, injuring 46 people and causing between \$5 million and \$50 million in damages.

On April 3, 1974, an F4 tornado struck 36.4 miles away from the City center, killing six people and injuring 30 others. Damages were estimated between \$500,000 and \$5 million.

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

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**Table 1**  
**Single-Family New House Construction Building Permits**

| Year | Permits | Average Cost |
|------|---------|--------------|
| 1996 | 68      | \$68,500     |
| 1997 | 28      | \$64,300     |
| 1998 | 28      | \$64,000     |
| 1999 | 96      | \$47,800     |
| 2000 | 125     | \$58,400     |
| 2001 | 8       | \$81,200     |
| 2002 | 63      | \$70,200     |
| 2003 | 4       | \$81,300     |
| 2004 | 4       | \$82,100     |
| 2005 | 3       | \$86,000     |
| 2006 | 15      | \$133,200    |
| 2007 | 12      | \$146,100    |
| 2008 | 13      | \$172,900    |

## Infrastructure

The East Precinct, which covers an area of 125 square miles in Gwinnett County, of the Gwinnett County Police Department serves Dacula.

Fire services are provided to Dacula by the Gwinnett County Department of Fire and Emergency Services.

The Dacula school system consists of the following:

**Table 2**  
**Dacula School Infrastructure**

| School      | Type       | Enrollment |
|-------------|------------|------------|
| Dacula      | Elementary | 1,722      |
| Alcova      | Elementary | 1,006      |
| Fort Daniel | Elementary | 1,191      |

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| School                     | Type          | Enrollment |
|----------------------------|---------------|------------|
| Harbins                    | Elementary    | 1,017      |
| Child's World Kindergarten | Private PK-KG | 65         |
| Dacula                     | Middle        | 2,158      |
| Dacula                     | High          | 2,264      |

## Land Usage

The City has a total area of 2.9 square miles (7.5 km<sup>2</sup>), all of which is land.

## Legal and Regulatory Capabilities

The Legal and Regulatory Capability survey documents authorities available to the jurisdiction and/or enabling legislation at the state level affecting planning and land management tools that support local hazard mitigation planning efforts. The identified planning and land management tools are typically used by states and local and tribal jurisdictions to implement hazard mitigation activities.

**Table 3**  
**Legal and Regulatory Capability**

| Regulatory Tools/Plans                                                     | Regulatory Type:<br>Ordinance<br>Resolution<br>Codes<br>Plans, Etc. | Reference<br>Number | Date<br>Adopted | Local Authority | State Prohibited | Higher Authority |
|----------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------|-----------------|-----------------|------------------|------------------|
|                                                                            |                                                                     |                     |                 | Y               | N                | Y                |
| Building Codes                                                             |                                                                     |                     |                 | Y               | N                | N                |
| Capital Improvements Plan                                                  | Referenced in the 2030<br>Comprehensive Plan                        |                     |                 | Y               | N                | N                |
| Comprehensive Plan                                                         | 2030 Comprehensive Plan                                             |                     | 12/4/2008       | Y               | N                | N                |
| Continuity of<br>Operations/Continuity of<br>Government (COOP/COG)<br>Plan | County COOP/COG Plan                                                |                     |                 | N               | N                | Y                |
| Community Rating System                                                    | County Rating                                                       |                     |                 | N               | N                | Y                |
| Economic Development Plan                                                  | County Plan                                                         |                     |                 | N               | N                | Y                |
| Emergency Management<br>Accreditation Program<br>Certified                 |                                                                     |                     |                 | N               | N                | Y                |

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

| Regulatory Tools/Plans                          | Regulatory Type:<br>Ordinance<br>Resolution<br>Codes<br>Plans, Etc. | Reference<br>Number | Date<br>Adopted | Local Authority | State Prohibited | Higher Authority |
|-------------------------------------------------|---------------------------------------------------------------------|---------------------|-----------------|-----------------|------------------|------------------|
| Emergency Response Plan                         | County EOP                                                          |                     |                 | N               | N                | Y                |
| Flood Management Plan                           |                                                                     |                     |                 | Y               | N                | N                |
| Growth Control Ordinance                        | Referenced in the 2030<br>Comprehensive Plan                        |                     |                 | Y               | N                | N                |
| Hazard Setback Regulations                      |                                                                     |                     |                 |                 |                  |                  |
| Hillside Ordinance                              |                                                                     |                     |                 |                 |                  |                  |
| Historic Ordinance                              | Referenced in the 2030<br>Comprehensive Plan                        |                     |                 | Y               | N                | N                |
| National Flood Insurance<br>Program Participant |                                                                     |                     |                 | N               | N                | Y                |
| Post-Disaster Ordinance                         |                                                                     |                     |                 |                 |                  |                  |
| Post-Disaster Recovery Plan                     | County Emergency Operations Plan<br>(EOP)                           |                     |                 | N               | N                | Y                |
| Real Estate Disclosure                          | Real Estate Commission                                              |                     |                 | N               | N                | Y                |
| Site Plan Requirements                          | Referenced in 2030<br>Comprehensive Plan                            |                     |                 | Y               | N                | N                |
| Subdivision Regulations                         | Referenced in 2030<br>Comprehensive Plan                            |                     |                 | Y               | N                | N                |
| Wildfire Ordinance                              |                                                                     |                     |                 |                 |                  |                  |
| Zoning Ordinances                               | Zoning Ordinance                                                    |                     |                 | Y               | N                | N                |

## Administrative and Technical Capabilities

The City of Dacula has a number of administrative and technical capabilities. City departments include Administration, Planning and Development, Inspections, the Planning and Zoning Board, Public Works, Marshal's Office, Elections, and the Municipal Court. The City government includes a Mayor and four Commissioners. The administrative functions of the City are managed by the City Administrator, City Planner and Public Works Director.

## Mitigation Actions

Each jurisdiction participating in this Plan is responsible for implementing specific mitigation actions as prescribed in the adopted mitigation action plan. In each

## Section 6

mitigation action plan, every proposed action is assigned to a specific local department or agency in order to assign responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual jurisdictions to update their unique mitigation strategy as needed without altering the broader focus of the countywide Plan. The separate adoption of locally specific actions also ensures that each jurisdiction is not held responsible for monitoring and implementing the actions of other jurisdictions involved in the planning process. A complete list of countywide mitigation strategies is provided in Section 5 of the Gwinnett County Hazard Mitigation Plan.

**Table 4  
Mitigation Actions**

| Goal 1: Reduce Gwinnett County's risk and vulnerability to severe winter storms                                         |                                                                                                            |                                |                              |                |                   |                           |           |        |
|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|--------------------------------|------------------------------|----------------|-------------------|---------------------------|-----------|--------|
| Objective 1.3: Improve Gwinnett County's capability to prepare for, respond to and recover from severe winter storms    |                                                                                                            |                                |                              |                |                   |                           |           |        |
| Action                                                                                                                  | Action/Project Description                                                                                 | Jurisdiction                   | Responsible                  | Estimated Cost | Estimated Benefit | Funding Sources           | Timeframe | Status |
| 1.3.7                                                                                                                   | Identify and bury utility lines in densely populated and commercial areas in the City of Dacula            | City of Dacula                 | City Officials, Public Works |                |                   | City Budget, Grants       | 2011-2012 | New    |
| Goal 13: Improve Gwinnett County's capability to reduce risk and vulnerability to all-hazards events                    |                                                                                                            |                                |                              |                |                   |                           |           |        |
| Objective 13.2: Improve Gwinnett County's first responder capabilities to prepare for and respond to all-hazards events |                                                                                                            |                                |                              |                |                   |                           |           |        |
| Action                                                                                                                  | Action/Project Description                                                                                 | Jurisdiction                   | Responsible                  | Estimated Cost | Estimated Benefit | Funding Sources           | Timeframe | Status |
| 13.2.3                                                                                                                  | Develop/implement/train first responders in the City of Dacula on standard emergency activation procedures | City of Dacula                 | City Officials               |                |                   | City Budget, Grants, FEMA | 2010-2012 | New    |
| Objective 13.3: Improve Gwinnett County's capability to prepare for, respond to and recover from all-hazards events     |                                                                                                            |                                |                              |                |                   |                           |           |        |
| 13.3.9                                                                                                                  | Coordinate with the City of Buford to expand the current burial depth of gas lines in the City of Dacula   | City of Dacula, City of Buford | City Officials, Public Works |                |                   | City Budget(s)            | 2010-2011 | New    |

# CITY OF DULUTH, GEORGIA MITIGATION ACTION PLAN

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## Geography/History

The City of Duluth (City) is located at 34°0'11"N, 84°8'44"W (34.003, -84.114). According to the U.S. Census Bureau, the City has a total area of 10.0 square miles (25.9 km<sup>2</sup>), of which 9.9 square miles (25.6 km<sup>2</sup>) is land and 0.1 square miles (0.3 km<sup>2</sup>) is water.

The City of Duluth was named for Daniel Greysolon Du Luth, a French captain and explorer who signed and negotiated a peace treaty between the Saulters and Sioux nations in the area. The City has been an important crossroads ever since the Cherokee Indians first settled in Duluth. Because it was then part of the Cherokee Indian Territory, there were no known white settlers in Duluth in the early 1800s. However, in 1818 Gwinnett County was created, and the area was opened to settlers. During that time the only open road in Duluth was what is now known as Peachtree Road, which remains the most famous road in Georgia.

Evan Howell was the first successful farmer and merchant of Duluth. He had a vision of a railway system that would run from Howell Crossing, a town he developed, to Duluth, Minnesota. In 1871 the railroad came to Duluth, Georgia, bringing with it new prosperity and growth. In 1906 the City was officially incorporated as the City of Duluth.

In 1989 Duluth was named Tree City for its dedication to preserving green space. Now Duluth is recognized as a model city for Gwinnett County. It is the second largest city in Gwinnett County and is noted first in financial stability throughout the State of Georgia. Despite its phenomenal growth, Duluth has retained its small-town character.

## Significant Characteristics

The Southeastern Railway Museum preserves, restores and operates historical railway equipment.

The Duluth History Museum is open for individual or group tours.

The Red Clay Theatre is a new playhouse featuring state of the art sound, lighting and multi-media projection technology. It has stadium style seating for 280 people, making it perfect for small and mid-scale theatrical productions, as well as corporate events and presentations.

Duluth is also home to the Gwinnett Center and Arena. Along with the arena the facility includes a Performing Arts Center and a Convention Center. The arena seats 11,500 people for hockey; 12,750 for basketball; and 13,100 for major concerts. The Gwinnett Center is located at 6400 Sugarloaf Parkway, Duluth, GA 30097.

## Section 6

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Duluth's historic downtown is also home to many shops and restaurants.

### Population and Demographics

As of the 2000 census, there were 22,122 people; 8,735 households; and 5,642 families residing in the City. The population density was 2,512.3 people per square mile (969.5/km<sup>2</sup>). There were 9,061 housing units at an average density of 1,029.0 housing units per square mile (397.1/km<sup>2</sup>). The racial makeup of the City was 68.65 percent White, 11.86 percent African American, 9.05 percent Hispanic or Latino (of any race), 0.33 percent Native American, 12.89 percent Asian, 0.04 percent Pacific Islander, 3.83 percent from other races, and 2.41 percent from two or more races.

There were 8,735 households, of which 35.4 percent included children under the age of 18, 50.8 percent were married couples living together, 10.6 percent had a female head of house with no husband present, and 35.4 percent were non-families. Approximately 27.2 percent of all households were made up of individuals, while 2.9 percent had someone living alone who was 65 or older. The average household size was 2.53, and the average family size was 3.10.

The median age of a Duluth resident is 32.9 years old. In the City the population was spread out, with 24.6 percent under the age of 18, 6.4 percent from 20 to 24, 21.2 percent from 25 to 34, 20.6 percent from 35 to 44, 13.9 percent from 45 to 54, 6.0 percent from 55 to 64 and 4.9 percent who were 65 or older. For every 100 females age 18 and over, there were 94.5 males.

The City's population has grown more than 18.1 percent since 2000.

**Table 1**  
**City of Duluth Population Since 1970**

| Year       | 1970  | 1980  | 1990  | 2000   |
|------------|-------|-------|-------|--------|
| Population | 1,810 | 2,956 | 9,029 | 22,122 |

### Economy

The median income for a household in the City is \$60,088, while the median income for a family is \$69,437. Males have a median income of \$46,683 versus \$34,334 for females. The per capita income for the City is \$29,185. About 3.0 percent of families and 4.4 percent of the population are below the poverty line, including 4.8 percent of individuals under age 18 and 3.2 percent age 65 or over.

Duluth is poised with a perfect blend of small businesses, entrepreneurial enterprise, major corporations and visionary developers. More than 1,600 businesses are located within the City limits.

The most common industries for males are construction (11 percent); professional, scientific and technical services (11 percent); administrative and support and waste

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

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management services (6 percent); accommodation and food services (5 percent); broadcasting and telecommunications (5 percent); finance and insurance (5 percent); and computer and electronic products (4 percent).

The most common industries for females are educational services (10 percent); accommodation and food services (9 percent); health care (8 percent); finance and insurance (6 percent); professional, scientific and technical services (5 percent); social assistance (5 percent); and personal and laundry services (4 percent).

Duluth-area historical tornado activity is slightly above the Georgia state average. It is 98 percent greater than the overall U.S. average.

On November 22, 1992, an F4 tornado with maximum wind speeds of 207-260 miles per hour (mph) struck 29.2 miles away from the City center, injuring 46 people and causing between \$5 million and \$50 million in damages.

On April 3, 1974, an F4 tornado struck 34.7 miles away from the City center, killing six people and injuring 30 others. Damages were estimated between \$500,000 and \$5 million in damages.

**Table 2**  
**Single-Family New House Construction Building Permits**

| Year | Permits | Average Cost |
|------|---------|--------------|
| 1996 | 355     | \$116,400    |
| 1997 | 385     | \$88,500     |
| 1998 | 255     | \$101,800    |
| 1999 | 169     | \$131,700    |
| 2000 | 118     | \$120,500    |
| 2001 | 187     | \$95,400     |
| 2002 | 193     | \$108,500    |
| 2003 | 93      | \$161,100    |
| 2004 | 138     | \$137,600    |
| 2005 | 517     | \$83,300     |
| 2006 | 117     | \$153,100    |
| 2007 | 66      | \$168,300    |
| 2008 | 42      | \$161,300    |

## Infrastructure

The City of Duluth Police Department consists of 78 well-trained and professional officers. The department is organized in the following four divisions: Community Oriented Policing, Criminal Investigations, Support Services, and Uniform.

Fire services are provided to the City of Duluth by the Gwinnett County Department of Fire and Emergency Services.

The Duluth school system consists of the following:

**Table 3  
Duluth School Infrastructure**

| School                                                 | Type              | Enrollment |
|--------------------------------------------------------|-------------------|------------|
| Berkeley Lake                                          | Elementary        | 1,082      |
| Charles Brant Chesney                                  | Elementary        | 821        |
| Harris                                                 | Elementary        | 720        |
| M.H. Mason                                             | Elementary        | 1,409      |
| Monarch                                                | Special Education | 133        |
| Duluth                                                 | Middle            | 1,861      |
| Hull                                                   | Middle            | 2,283      |
| Louise Radloff                                         | Middle            | 1,073      |
| Duluth                                                 | High              | 2,127      |
| Gwinnett School of Mathematics, Science and Technology | High              | 173        |

## Land Usage

The City has a total area of 10.0 square miles (25.9 km<sup>2</sup>), of which 9.9 square miles (25.6 km<sup>2</sup>) is land and 0.1 square miles (0.3 km<sup>2</sup>) is water.

## Legal and Regulatory Capabilities

The Legal and Regulatory Capability survey documents authorities available to the jurisdiction and/or enabling legislation at the state level affecting planning and land management tools that support local hazard mitigation planning efforts. The identified planning and land management tools are typically used by states and local and tribal jurisdictions to implement hazard mitigation activities.

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

**Table 4  
Legal and Regulatory Capability**

| Regulatory Tools/Plans                                            | Regulatory Type:<br>Ordinance<br>Resolution<br>Codes<br>Plans, Etc. | Reference<br>Number                      | Date<br>Adopted | Local Authority | State Prohibited | Higher Authority |
|-------------------------------------------------------------------|---------------------------------------------------------------------|------------------------------------------|-----------------|-----------------|------------------|------------------|
| Building Codes                                                    | Code of Ordinances                                                  | Chapter 5                                |                 | Y               | N                | N                |
| Capital Improvements Plan                                         | Referenced in the Code of Ordinances                                | Part I - Article VI                      |                 | Y               | N                | N                |
| Comprehensive Plan                                                | 2030 Comprehensive Plan                                             |                                          | November 2008   | Y               | N                | N                |
| Continuity of Operations/Continuity of Government (COOP/COG) Plan | County COOP/COG Plan                                                |                                          |                 | N               | N                | Y                |
| Community Rating System                                           | County Rating                                                       |                                          |                 | N               | N                | Y                |
| Economic Development Plan                                         | County Plan and Referenced in the 2030 Comprehensive Plan           | Chapter 14                               |                 | N               | N                | Y                |
| Emergency Management Accreditation Program Certified              |                                                                     |                                          |                 | N               | N                | Y                |
| Emergency Response Plan                                           | County Emergency Operations Plan (EOP)                              |                                          |                 | N               | N                | Y                |
| Flood Management Plan                                             | Referenced in the Code of Ordinances                                | Chapter 16 - Article VII<br>Article VIII |                 | Y               | N                | N                |
| Growth Control Ordinance                                          | Code of Ordinances and Referenced in the 2030 Comprehensive Plan    | Chapter 5 - Article IV                   |                 | Y               | N                | N                |
| Hazard Setback Regulations                                        |                                                                     |                                          |                 |                 |                  |                  |
| Hillside Ordinance                                                |                                                                     |                                          |                 |                 |                  |                  |
| Historic Ordinance                                                | Referenced in the 2030 Comprehensive Plan                           | Chapter 5                                |                 | Y               | N                | N                |
| National Flood Insurance Program (NFIP) Participant               | Participates in NFIP                                                |                                          |                 | N               | N                | Y                |
| Post-Disaster Ordinance                                           |                                                                     |                                          |                 |                 |                  |                  |
| Post-Disaster Recovery Plan                                       | County EOP                                                          |                                          |                 | N               | N                | Y                |

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| Regulatory Tools/Plans  | Regulatory Type:<br>Ordinance<br>Resolution<br>Codes<br>Plans, Etc. | Reference<br>Number                                                                                                                | Date<br>Adopted | Local Authority | State Prohibited | Higher Authority |
|-------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|------------------|------------------|
| Real Estate Disclosure  | Real Estate Commission                                              |                                                                                                                                    |                 | N               | N                | Y                |
| Site Plan Requirements  | Code of Ordinances                                                  | Chapter 12<br>Chapter 14 -<br>Article II<br>Chapter 16 -<br>Article III<br>Article IV<br>Article VI<br>Article VII<br>Article VIII |                 | Y               | N                | N                |
| Subdivision Regulations | Code of Ordinances                                                  | Chapter 5 -<br>Article IV<br>Chapter 6 -<br>Article I<br>Chapter 14 -<br>Article II<br>Chapter 16 -<br>Article VII<br>Article VIII |                 | Y               | N                | N                |
| Wildfire Ordinance      |                                                                     |                                                                                                                                    |                 |                 |                  |                  |
| Zoning Ordinances       | Code of Ordinances                                                  | Chapter 17                                                                                                                         |                 | Y               | N                | N                |

## Administrative and Technical Capabilities

The City of Duluth has a number of administrative and technical capabilities. City departments include Administration, Clerk, Human Resources, Main Street, Municipal Court, Parks and Recreation, Planning and Development, Police Department, Public Information and Marketing, and Public Works. The City government includes a Mayor and five Council Members. The administrative functions of the City are managed by the City Administrator.

## Mitigation Actions

Each jurisdiction participating in this Plan is responsible for implementing specific mitigation actions as prescribed in the adopted mitigation action plan. In each mitigation action plan, every proposed action is assigned to a specific local department or agency in order to assign responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

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jurisdictions to update their unique mitigation strategy as needed without altering the broader focus of the countywide Plan. The separate adoption of locally specific actions also ensures that each jurisdiction is not held responsible for monitoring and implementing the actions of other jurisdictions involved in the planning process. A complete list of countywide mitigation strategies is provided in Section 5 of the Gwinnett County Hazard Mitigation Plan.

**Table 5  
Mitigation Actions**

| Goal 13: Improve Gwinnett County's capability to reduce risk and vulnerability to all-hazards events    |                                                                         |                                                                                                          |                |                |                   |                           |           |        |
|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|----------------|----------------|-------------------|---------------------------|-----------|--------|
| Objective 13.1: Improve Gwinnett County's information distribution and warning capabilities to citizens |                                                                         |                                                                                                          |                |                |                   |                           |           |        |
| Action                                                                                                  | Action/Project Description                                              | Jurisdiction                                                                                             | Responsible    | Estimated Cost | Estimated Benefit | Funding Sources           | Timeframe | Status |
| 13.1.10                                                                                                 | Develop and distribute multi-lingual all-hazards preparedness materials | City of Buford, City of Grayson, City of Norcross, City of Duluth, City of Sugar Hill, Town of Braselton | City Officials |                |                   | City Budget, FEMA, Grants | 2010-2012 | New    |

## Section 6

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# CITY OF GRAYSON, GEORGIA MITIGATION ACTION PLAN

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## Geography/History

The City of Grayson (City) is located at 33°53'36"N, 83°57'20"W (33.893306, -83.955420). According to the U.S. Census Bureau, the City has a total area of 1.8 square miles (4.6 km<sup>2</sup>), all of which is land.

The City of Grayson has experienced many name changes over the years. It was first called Trip based on a suggestion given by a leading merchant and public figure at Lawrenceville. Later, John Jacobs, Grayson's first mayor and postmaster, wrote to change the name to Berkeley. The name was approved in 1901; however, Jacobs was later notified that there was already a Berkeley, Georgia. The name Grayson was suggested after Jacobs received a letter from his wife, who was visiting Grayson County in Texas.

In 1820 the first settlers came to Grayson; however, it wasn't founded until 1879, when James Patterson McConnell purchased 80 acres. Grayson grew quickly and attracted merchants, a railway, more settlers, educators and religious leaders. Because of the increase, schools and churches were established in order to better serve the community.

On December 1, 1898, the L&L Railroad came to Grayson. The train completed two roundtrips through the City each day, carrying mail, freight and passengers. While it ran from 1898 to 1932, the train became a huge part of life for Grayson and its economy.

The great grandchildren of Grayson's founding fathers are still around the City of Grayson and continue to play vital roles in the current businesses, worship, politics and social events.

## Significant Characteristics

Tribble Mill Park is a 700 acre park with a playground and two lakes. The park includes areas for fishing and trails for walking, jogging, mountain biking and horseback riding. It also has many pavilions and spaces that can be rented for large festivals.

Bay Creek Park is a 153 acre park that houses Gwinnett County's first special-needs ball field and playground which are accessible to those in wheelchairs. This park also has a second playground and seven baseball/softball fields with a lighted walking track.

Grayson Park is a smaller park that offers pavilions in various sizes.

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The Grayson Arts and History Center promotes the collection and display of memorabilia that pertains to the history of Grayson, in addition to serving as an outlet to showcase the local arts of the community.

### Population and Demographics

As of the 2000 census, there are 765 people, 276 households and 226 families residing in the City. The population density is 435.8 people per square mile (167.8/km<sup>2</sup>). There are 288 housing units at an average density of 164.1 housing units per square mile (63.2/km<sup>2</sup>). The racial makeup of the City is 94.77 percent White, 3.53 percent African American, 0.92 percent Hispanic or Latino (of any race), 0.65 percent Pacific Islander, 0.39 percent Asian, 0.39 percent from two or more races, and 0.26 percent from other races.

There are 276 households, of which 44.6 percent include children under the age of 18, 68.1 percent are married couples living together, 9.1 percent have a female head of house with no husband present, and 17.8 percent are non-families. Approximately 15.2 percent of all households are made up of individuals, while 7.6 percent have someone living alone who is 65 or older. The average household size is 2.77, and the average family size is 3.02.

The median age of a Grayson resident is 35 years old. In the City the population is spread out, with 29.5 percent under the age of 18, 4.6 percent from 18 to 24, 34.0 percent from 25 to 44, 22.5 percent from 45 to 64, and 9.4 percent who are 65 or older. For every 100 females, there are 99.7 males. For every 100 females age 18 and over, there are 91.8 males.

According to the U.S. Census Bureau, the City's population has grown by about 35.1 percent since 1990.

**Table 1**  
**City of Grayson Population Since 1990**

| Year       | 1990 | 2000 | 2008  |
|------------|------|------|-------|
| Population | 529  | 765  | 1,507 |

### Economy

The median income for a household in the City is \$51,750, while the median income for a family is \$61,618. Males have a median income of \$37,500 versus \$36,250 for females. The per capita income for the City is \$22,695. About 6.3 percent of families and 8.2 percent of the population are below the poverty line, including 5.2 percent of individuals under the age of 18 and 13.6 percent age 65 or over.

The most common industries for males are construction (12 percent); professional, scientific and technical services (7 percent); public administration (7 percent); utilities

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

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(7 percent); metal and metal products (6 percent); accommodation and food services (5 percent); and florists (5 percent).

The most common industries for females are educational services (24 percent); health care (20 percent); public administration (7 percent); accommodation and food services (4 percent); department and other general merchandise stores (4 percent); florists (4 percent); and real estate and rental and leasing (4 percent).

Grayson-area historical tornado activity is slightly above the Georgia state average. It is 95 percent greater than the overall U.S. average.

On November 22, 1992, an F4 tornado with maximum wind speeds of 207-260 miles per hour (mph) struck 39.3 miles away from the City center, injuring 46 people and causing between \$5 million and \$50 million in damages.

On April 3, 1974, an F4 tornado struck 33.3 miles away from the City center, killing six people and injuring 30 others. Damages were estimated between \$500,000 and \$5 million.

**Table 2**  
**New Houses Built from 1939-2000**

| Year               | Permits |
|--------------------|---------|
| 1939 or Earlier    | 14      |
| 1940 to 1949       | 14      |
| 1950 to 1959       | 25      |
| 1960 to 1969       | 34      |
| 1970 to 1979       | 30      |
| 1980 to 1989       | 115     |
| 1990 to 1994       | 33      |
| 1995 to 1998       | 36      |
| 1999 to March 2000 | 0       |

## Infrastructure

The South and East Precincts of the Gwinnett County Police Department serve Grayson.

Fire services are provided to Grayson by the Gwinnett County Department of Fire and Emergency Services.

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The Grayson school system consists of the following:

**Table 3**  
**Grayson School Infrastructure**

| School         | Type       | Enrollment |
|----------------|------------|------------|
| Grayson        | Elementary | 1,580      |
| Cooper         | Elementary | 1,146      |
| Trip           | Elementary | 794        |
| Starling       | Elementary |            |
| Pharr          | Elementary | 1,161      |
| J.P. McConnell | Middle     | 2,520      |
| Bay Creek      | Middle     |            |
| Couch          | Middle     |            |
| Grayson        | High       | 3,336      |
| Archer         | High       | 1,221      |

## Land Usage

The City has a total area of 1.8 square miles (4.6 km<sup>2</sup>), all of which is land.

## Legal and Regulatory Capabilities

The Legal and Regulatory Capability survey documents authorities available to the jurisdiction and/or enabling legislation at the state level affecting planning and land management tools that support local hazard mitigation planning efforts. The identified planning and land management tools are typically used by states and local and tribal jurisdictions to implement hazard mitigation activities.

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

**Table 4  
Legal and Regulatory Capability**

| Regulatory Tools/Plans                                            | Regulatory Type:<br>Ordinance<br>Resolution<br>Codes<br>Plans, Etc. | Reference<br>Number     | Date<br>Adopted | Local<br>Authority | State<br>Prohibited | Higher<br>Authority |
|-------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------|-----------------|--------------------|---------------------|---------------------|
| Building Codes                                                    | Code of Ordinances and City Zoning Ordinance                        | Chapter 18              |                 | Y                  | N                   | N                   |
| Capital Improvements Plan                                         | Referenced in the 2030 Comprehensive Plan                           |                         |                 | Y                  | N                   | N                   |
| Comprehensive Plan                                                | 2030 Comprehensive Plan                                             |                         | October 2008    | Y                  | N                   | N                   |
| Continuity of Operations/Continuity of Government (COOP/COG) Plan | County COOP/COG Plan                                                |                         |                 | N                  | N                   | Y                   |
| Community Rating System                                           | County Rating                                                       |                         |                 | N                  | N                   | Y                   |
| Economic Development Plan                                         | Referenced in the 2030 Comprehensive Plan                           |                         |                 | N                  | N                   | Y                   |
| Emergency Management Accreditation Program Certified              |                                                                     |                         |                 | N                  | N                   | Y                   |
| Emergency Response Plan                                           | County Emergency Operations Plan (EOP)                              |                         |                 | N                  | N                   | Y                   |
| Flood Management Plan                                             | Referenced in the 2030 Comprehensive Plan                           |                         |                 | Y                  | N                   | N                   |
| Growth Control Ordinance                                          | Referenced in the 2030 Comprehensive Plan                           |                         |                 | Y                  | N                   | N                   |
| Hazard Setback Regulations                                        |                                                                     |                         |                 |                    |                     |                     |
| Hillside Ordinance                                                |                                                                     |                         |                 |                    |                     |                     |
| Historic Ordinance                                                | Code of Ordinances and Referenced in the 2030 Comprehensive Plan    | Chapter 18 - Article IV |                 | Y                  | N                   | N                   |
| National Flood Insurance Program (NFIP) Participant               | Participate in NFIP                                                 |                         |                 | N                  | N                   | Y                   |
| Post-Disaster Ordinance                                           |                                                                     |                         |                 |                    |                     |                     |
| Post-Disaster Recovery Plan                                       | County EOP                                                          |                         |                 | N                  | N                   | Y                   |
| Real Estate Disclosure                                            | Real Estate Commission                                              |                         |                 | N                  | N                   | Y                   |
| Site Plan Requirements                                            | City Zoning Ordinance                                               |                         | December 2007   | Y                  | N                   | N                   |
| Subdivision Regulations                                           | City Zoning Ordinance                                               |                         | December 2007   | Y                  | N                   | N                   |

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| Regulatory Tools/Plans | Regulatory Type:<br>Ordinance<br>Resolution<br>Codes<br>Plans, Etc. | Reference<br>Number | Date<br>Adopted  | Local Authority | State Prohibited | Higher Authority |
|------------------------|---------------------------------------------------------------------|---------------------|------------------|-----------------|------------------|------------------|
| Wildfire Ordinance     |                                                                     |                     |                  |                 |                  |                  |
| Zoning Ordinances      | City Zoning Ordinance                                               |                     | December<br>2007 | Y               | N                | N                |

## Administrative and Technical Capabilities

The City of Grayson has a number of administrative and technical capabilities. City departments include the Planning and Zoning Commission, Zoning Board of Appeals, and the Code Enforcement Board. The City government includes a Mayor and four City Council Members.

## Mitigation Actions

Each jurisdiction participating in this Plan is responsible for implementing specific mitigation actions as prescribed in the adopted mitigation action plan. In each mitigation action plan, every proposed action is assigned to a specific local department or agency in order to assign responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual jurisdictions to update their unique mitigation strategy as needed without altering the broader focus of the countywide Plan. The separate adoption of locally specific actions also ensures that each jurisdiction is not held responsible for monitoring and implementing the actions of other jurisdictions involved in the planning process. A complete list of countywide mitigation strategies is provided in Section 5 of the Gwinnett County Hazard Mitigation Plan.

**Table 5  
Mitigation Actions**

| Goal 13: Improve Gwinnett County's capability to reduce risk and vulnerability to all-hazards events    |                                                                         |                                                                                                          |                |                |                   |                                                          |           |        |
|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|----------------|----------------|-------------------|----------------------------------------------------------|-----------|--------|
| Objective 13.1: Improve Gwinnett County's information distribution and warning capabilities to citizens |                                                                         |                                                                                                          |                |                |                   |                                                          |           |        |
| Action                                                                                                  | Action/Project Description                                              | Jurisdiction                                                                                             | Responsible    | Estimated Cost | Estimated Benefit | Funding Sources                                          | Timeframe | Status |
| 13.1.10                                                                                                 | Develop and distribute multi-lingual all-hazards preparedness materials | City of Buford, City of Grayson, City of Norcross, City of Duluth, City of Sugar Hill, Town of Braselton | City Officials |                |                   | City Budget, Federal Emergency Management Agency, Grants | 2010-2012 | New    |

# CITY OF LAWRENCEVILLE, GEORGIA

## MITIGATION ACTION PLAN

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### Geography/History

The City of Lawrenceville (City) is located at 33°57'11"N, 83°59'33"W (33.953052, -83.992469). According to the U.S. Census Bureau, the City has a total area of 13.1 square miles (33.8 km), of which 13 square miles (33.6 km) is land and 0.1 square miles (0.2 km or 0.46 percent) is water.

The City of Lawrenceville, which is the county seat of Gwinnett, was incorporated on December 15, 1821. Also known as the second oldest city in the Greater Atlanta area, the City is named after Captain James Lawrence, a naval commander in the War of 1812.

In its early years, the City was a thriving farming community. The downtown area became known for retail and business, as locals would come to town to sell and trade produce and livestock and also purchase dry goods.

The original City courthouse was destroyed by fire in 1871. The building that replaced it served as the official county courthouse until the Gwinnett Justice and Administration Center was completed in 1988.

For several years, the City's primary industry was cotton farming. The Lawrenceville Manufacturing Company, one of the very first cotton factories, made goods for the Confederate Army during the Civil War. Also supporting the City's rural economy was the sale of corn, brick manufacturing, lumber and livestock.

Around the turn of the century, a modern railroad system was built in Lawrenceville, although most residents continued to utilize mules as their primary mode of transportation. U.S. Highway 29, the City's first paved road, arrived in 1929.

### Significant Characteristics

Rhodes Jordan Park, located off of Crogan Street, is a 162 acre park featuring a 22 acre lake, a multipurpose recreational trail, a playground, baseball fields and a large community center.

Gwinnett County's only professional theatre, the Aurora Theatre, has found a home in downtown Lawrenceville on Pike Street. This venue features live performances throughout the year. The theatre also boasts a children's playhouse, educational seminars, and a "ghost tour" through downtown Lawrenceville hosted by professional storytellers.

One of the premier hospitals in the region, Gwinnett Medical Center, is located in Lawrenceville. The Gwinnett Medical Center is a non-profit, 500-bed health care network comprised of two hospitals, plus several supporting medical facilities, with

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more than 4,300 employees and more than 800 affiliated physicians. The main campus is located near the intersection of Highway 316 and Duluth Highway 120.

Recently the Gwinnett Braves, the Triple-A affiliate of the Atlanta Braves, moved from Richmond, Virginia to Gwinnett County to play in the newly opened Gwinnett Stadium. The stadium is a state of the art facility that maintains the historic look and feel of Gwinnett County and more specifically the City of Lawrenceville. The stadium is located on a 44 acre site that was previously farmland and forest. In 2009 the land surrounding the stadium was rezoned for mixed use. The stadium is located along Georgia State Route 20, approximately two miles east of the Mall of Georgia, between Interstate 85 and Georgia 316. The stadium's address is One Braves Avenue, Lawrenceville, GA 30043.

## Population and Demographics

As of the 2000 census, there are 22,397 people; 7,484 households; and 5,313 families residing in the City. The population density is 1,723.9 people per square mile (426.6/km). There are 7,484 housing units at an average density of 591.5 housing units per square mile (228.4/km). The racial makeup of the City is 48.04 percent White, 40.61 percent Black or African American, 15.14 percent Hispanic or Latino (of any race), 0.22 percent Native American, 1.17 percent Asian, 0.10 percent Pacific Islander, and 2.41 percent from two or more races.

There are 7,484 households, of which 39.4 percent include children under the age of 18, 52.7 percent are married couples living together, 13.3 percent have a female head of house with no husband present, and 29.0 percent are non-families. Approximately 23.0 percent of all households are made up of individuals, while 8.5 percent have someone living alone who is 65 or older. The average household size is 2.77, and the average family size is 3.24.

The median age of a Lawrenceville resident is 32 years old. In the City the population is spread out, with 26.4 percent under the age of 18, 11.0 percent from 18 to 24, 35.3 percent from 25 to 44, 18.2 percent from 45 to 64, and 9.1 percent who are 65 or older. For every 100 females, there are 105.1 males. For every 100 females age 18 and over, there are 103.9 males.

## Economy

The median income for a household in the City is \$43,299, while the median income for a family is \$48,557. Males have a median income of \$34,263 versus \$26,903 for females. The per capita income for the City is \$19,649. About 11.7 percent of families and 24.5 percent of the population are below the poverty line, including 16.0 percent of individuals under the age of 18 and 11.9 percent age 65 or over.

The most common industries for males are construction (21 percent); professional, scientific and technical services (7 percent); administrative and support and waste management services (6 percent); accommodation and food services (4 percent); food

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

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and beverage stores (4 percent); public administration (4 percent); and finance and insurance (3 percent).

The most common industries for females are educational services (12 percent); health care (12 percent); accommodation and food services (9 percent); finance and insurance (6 percent); professional, scientific and technical services (5 percent); social assistance (5 percent); and personal and laundry services (4 percent).

Lawrenceville-area historical tornado activity is slightly above the Georgia state average. It is 98 percent greater than the overall U.S. average.

On November 22, 1992, an F4 tornado with maximum wind speeds of 207-260 miles per hour (mph) struck 29.2 miles away from the City center, injuring 46 people and causing between \$5 million and \$50 million in damages.

On April 3, 1974, an F4 tornado struck 34.7 miles away from the City center, killing six people and injuring 30 others. Damages were estimated between \$500,000 and \$5 million.

**Table 1**  
**Single-Family New House Construction Building Permits**

| Year | Permits | Average Cost |
|------|---------|--------------|
| 1996 | 101     | \$83,500     |
| 1997 | 97      | \$83,600     |
| 1998 | 74      | \$74,900     |
| 1999 | 126     | \$102,800    |
| 2000 | 273     | \$94,800     |
| 2001 | 200     | \$91,500     |
| 2002 | 260     | \$79,800     |
| 2003 | 111     | \$110,900    |
| 2004 | 124     | \$125,200    |
| 2005 | 134     | \$117,800    |
| 2006 | 109     | \$127,700    |
| 2007 | 89      | \$137,400    |
| 2008 | 17      | \$122,500    |

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### Infrastructure

Law enforcement for the City of Lawrenceville is provided by the Lawrenceville Police Department, which offers excellent coverage from well-trained and professional officers. The police department is divided into four divisions, including the following:

- Executive Staff – Consists of the Chief of Police and Assistant Chief
- Uniform Services – Consists of Uniform Patrol and Special Operations
- Administrative Services – Consists of Investigations, Gang Intelligence, Crime Prevention, and Property/Evidence
- Support Services – Consists of Communications and Records

Fire protection and emergency medical services for the City of Lawrenceville are provided by the Gwinnett County Fire and Rescue Department.

The Lawrenceville school system consists of the following:

**Table 2**  
**Lawrenceville School Infrastructure**

| School                     | Type       | Enrollment |
|----------------------------|------------|------------|
| Cedar Hill                 | Elementary | 1396       |
| Lawrenceville              | Elementary | 974        |
| Simonton                   | Elementary | 1551       |
| Margaret Winn Holt         | Elementary | 1577       |
| Woodward Mill              | Elementary | -          |
| Lovin Elementary           | Elementary | 504        |
| Benefield Elementary       | Elementary | 1228       |
| Bethesda Elementary School | Elementary | 1151       |
| Corley Elementary          | Elementary | 1241       |
| Craig Elementary           | Elementary | 1252       |
| Dyer Elementary            | Elementary | 651        |
| Freeman's Mill Elementary  | Elementary | 1156       |
| Gwin Oaks Elementary       | Elementary | 1010       |
| J.A. Alford Elementary     | Elementary | 951        |

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

| School                                             | Type              | Enrollment |
|----------------------------------------------------|-------------------|------------|
| Jackson Elementary                                 | Elementary        | 1793       |
| Kanotuda Elementary                                | Elementary        | 1183       |
| Lovin Elementary                                   | Elementary        | 504        |
| McKendru Elementary                                | Elementary        | 1101       |
| Rock Springs Elementary                            | Elementary        | 1136       |
| Taylor Elementary                                  | Elementary        | 1109       |
| Central Gwinnett                                   | High              | 2624       |
| Phoenix                                            | High              | 396        |
| Mountain View                                      | High              | -          |
| Oakland Meadow School                              | High              | 128        |
| J.E. Richards                                      | Middle            | 2467       |
| Alton C. Crews Middle School                       | Middle            | 1333       |
| Creekland Middle School                            | Middle            | 2820       |
| Five Forks Middle School                           | Middle            | 1150       |
| Sweetwater Middle School                           | Middle            | 1750       |
| T. Carl Buice School                               | Special Education | 234        |
| Gwinnett InterVention Education (GIVE) Center East | Alternative       | 275        |
| Hooper Renwick School                              | Alternative       | -          |

## Land Usage

Lawrenceville has a total area of 13.1 square miles (33.8 km), of which 13 square miles (33.6 km) is land and 0.1 square miles (0.2 km or 0.46 percent) is water.

## Legal and Regulatory Capabilities

The Legal and Regulatory Capability survey documents authorities available to the jurisdiction and/or enabling legislation at the state level affecting planning and land management tools that support local hazard mitigation planning efforts. The identified planning and land management tools are typically used by states and local and tribal jurisdictions to implement hazard mitigation activities.

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**Table 3**  
**Legal and Regulatory Capability**

| Regulatory Tools/Plans                                            | Regulatory Type: Ordinance Resolution Codes Plans, Etc.               | Reference Number | Date Adopted | Local Authority | State Prohibited | Higher Authority |
|-------------------------------------------------------------------|-----------------------------------------------------------------------|------------------|--------------|-----------------|------------------|------------------|
| Building Codes                                                    | Development Regulations                                               | Article VII      | 2/5/07       | Y               | N                | N                |
| Capital Improvements Plan                                         |                                                                       |                  |              | Y               | N                | N                |
| Comprehensive Plan                                                | 2030 Comprehensive Plan                                               |                  | 10/6/08      | Y               | N                | N                |
| Continuity of Operations/Continuity of Government (COOP/COG) Plan | County COOP/COG Plan                                                  |                  |              | N               | N                | Y                |
| Community Rating System                                           | County Rating                                                         |                  |              | N               | N                | Y                |
| Economic Development Plan                                         | County Plan and Referenced in the 2030 Comprehensive Plan             |                  |              | N               | N                | Y                |
| Emergency Management Accreditation Program Certified              |                                                                       |                  |              | N               | N                | Y                |
| Emergency Response Plan                                           | County Emergency Operations Plan (EOP)                                |                  |              | N               | N                | Y                |
| Flood Management Plan                                             | Development Regulations                                               | Article VIII     | 9/12/05      | Y               | N                | N                |
| Growth Control Ordinance                                          | Development Regulations and Referenced in the 2030 Comprehensive Plan | Article XVI      | 2/5/07       | Y               | N                | N                |
| Hazard Setback Regulations                                        |                                                                       |                  |              |                 |                  |                  |
| Hillside Ordinance                                                |                                                                       |                  |              |                 |                  |                  |
| Historic Ordinance                                                | Referenced in the 2030 Comprehensive Plan                             | Chapter 3.4      | 10/6/08      | Y               | N                | N                |
| National Flood Insurance Program Participant                      |                                                                       |                  |              | N               | N                | Y                |
| Post-Disaster Ordinance                                           | City Code of Ordinances                                               | Chapter 16       | 9/12/05      |                 |                  |                  |
| Post-Disaster Recovery Plan                                       | County EOP                                                            |                  |              | N               | N                | Y                |
| Real Estate Disclosure                                            | Real Estate Commission                                                |                  |              | N               | N                | Y                |

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

| Regulatory Tools/Plans  | Regulatory Type:<br>Ordinance<br>Resolution<br>Codes<br>Plans, Etc. | Reference Number | Date Adopted | Local Authority | State Prohibited | Higher Authority |
|-------------------------|---------------------------------------------------------------------|------------------|--------------|-----------------|------------------|------------------|
| Site Plan Requirements  |                                                                     |                  |              | Y               | N                | N                |
| Subdivision Regulations | Development Regulations                                             | Article IV       | 4/5/09       | Y               | N                | N                |
| Wildfire Ordinance      |                                                                     |                  |              |                 |                  |                  |
| Zoning Ordinances       | Planning and Zoning Code of Ordinances                              |                  |              | Y               | N                | N                |

### Administrative and Technical Capabilities

The City of Lawrenceville has a number of administrative and technical capabilities. City departments include Utilities, Public Safety, Taxes, Licenses and Permits, Planning and Zoning, and the Municipal Court, as well as a number of Boards and Commissions. The City government includes a Mayor, four Council Members and a City Clerk.

### Mitigation Actions

Each jurisdiction participating in this Plan is responsible for implementing specific mitigation actions as prescribed in the adopted mitigation action plan. In each mitigation action plan, every proposed action is assigned to a specific local department or agency in order to assign responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual jurisdictions to update their unique mitigation strategy as needed without altering the broader focus of the countywide Plan. The separate adoption of locally specific actions also ensures that each jurisdiction is not held responsible for monitoring and implementing the actions of other jurisdictions involved in the planning process. A complete list of countywide mitigation strategies is provided in Section 5 of the Gwinnett County Hazard Mitigation Plan.

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**Table 4**  
**Mitigation Actions**

| Goal 13: Improve Gwinnett County's capability to reduce risk and vulnerability to all-hazards events                |                                                                                                         |                       |                                   |                |                   |                                                          |           |        |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-----------------------|-----------------------------------|----------------|-------------------|----------------------------------------------------------|-----------|--------|
| Objective 13.3: Improve Gwinnett County's capability to prepare for, respond to and recover from all-hazards events |                                                                                                         |                       |                                   |                |                   |                                                          |           |        |
| Action                                                                                                              | Action/Project Description                                                                              | Jurisdiction          | Responsible                       | Estimated Cost | Estimated Benefit | Funding Sources                                          | Timeframe | Status |
| 13.3.8                                                                                                              | Acquire a generator large enough to provide backup power for all of the Lawrenceville Police Department | City of Lawrenceville | City Officials, Police Department |                |                   | City Budget, Federal Emergency Management Agency, Grants | 2011      | New    |

# CITY OF LILBURN, GEORGIA MITIGATION ACTION PLAN

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## Geography/History

The City of Lilburn (City) is located at 33°53'20"N, 84°8'27"W (33.888853, -84.140897). According to the U.S. Census Bureau, the City has a total area of 6.2 square miles (16.1 km<sup>2</sup>), of which 6.2 square miles (15.9 km<sup>2</sup>) is land and 0.1 square miles (0.1 km<sup>2</sup> or 0.81 percent) of it is water.

The City of Lilburn was won in a land lottery by William McDaniel. Around 1890 the Georgia Carolina and Northern Railroad began purchasing property for tracks, including McDaniel's portion of what is present day Lilburn. The City was originally named McDaniel after William. During the construction phase of the railways, Seaboard Airline Railway purchased the Georgia Carolina and Northern Railroad. On April 24, 1882, the first train with passengers came through. During that period, Lilburn had a depot, telegraph office and several mercantile businesses; however, cotton was the base of the local economy, with a cotton gin built along Railroad Avenue.

Around 1900, the name was changed to Lilburn after Lilburn Trigg Myers, who at the time was the general superintendent for the Seaboard Airline Railway. The City of Lilburn was incorporated in 1910, and by 1919 the town had grown to include a bank, school, auto dealer, two doctors and about nine merchants.

A disastrous fire ruined the business section of Lilburn in 1920. The town was rebuilt, but the cotton crops were attacked by boll weevils, destroying the crops. Because the cotton crop was what stimulated the economy, the destruction of it resulted in the destruction of the town's economic support. The Great Depression of 1929 also hurt Lilburn, and the town and the government gradually died.

The town gradually relocated along Highway 29 with the help of automobiles. This created an Old and New Lilburn. The need for a water line in 1955 helped with the creation of a new city government, and the town began to grow again. In 1975 a new city hall was built, helping to create the growth that is now present.

## Significant Characteristics

Lilburn City Park is a 10 acre park that has been newly renovated. This park features a walking/jogging path, an open field area, children's playground, and tennis courts, plenty of public restrooms, a rental pavilion and a bandstand.

Camp Creek Greenway Trail is a trail that allows people and pets to enjoy the outdoors. The trail includes bridges, rest areas, boardwalks, trail access from neighborhoods, and parks.

## Section 6

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Lilburn Daze is an Arts and Crafts festival celebrated every second Saturday in October, featuring over 400 vendors.

Yellow River Game Ranch sits on 24 wooded acres that house many highly sociable birds and animals indigenous to Georgia. There is a mile long trail and an area for people of any age to pet and feed animals. The Yellow Game Ranch specializes in “people-friendly” wildlife.

## Population and Demographics

As of the 2000 census, there are 11,307 people; 3,943 households; and 2,835 families residing in the City. The population density is 1,837.6 people per square mile (709.9/km<sup>2</sup>). There are 4,049 housing units at an average density of 658.0 housing units per square mile (254.2/km<sup>2</sup>). The racial makeup of the City is 69.09 percent White, 13.22 percent Hispanic or Latino (of any race), 11.93 percent African American, 0.34 percent Native American, 11.69 percent Asian, 0.03 percent Pacific Islander, 4.81 percent from other races, and 2.11 percent from two or more races.

There are 3,943 households, of which 38.1 percent include children under the age of 18, 57.1 percent are married couples living together, 11.1 percent have a female head of house with no husband present, and 28.1 percent are non-families. Approximately 22.4 percent of all households are made up of individuals, while 6.3 percent have someone living alone who is 65 or older. The average household size is 2.80, and the average family size is 3.28.

The median age of a Lilburn resident is 35 years old. In the City the population is spread out, with 25.7 percent under the age of 18, 9.1 percent from 18 to 24, 33.7 percent from 25 to 44, 23.3 percent from 45 to 64, and 8.3 percent who are 65 or older. For every 100 females, there are 97.1 males. For every 100 females age 18 and over, there are 92.5 males.

The City’s population has grown more than 2.6 percent since 2000.

## Economy

The median income for a household in the City is \$53,707, while the median income for a family is \$62,563. Males have a median income of \$38,289 versus \$28,996 for females. The per capita income for the City is \$22,503. About 4.7 percent of families and 6.1 percent of the population are below the poverty line, including 7.1 percent of individuals under the age of 18 and 10.7 percent age 65 or over.

The most common industries for males are construction (15 percent); professional, scientific and technical services (8 percent); accommodation and food services (5 percent); administrative and support and waste management services (5 percent); repair and maintenance (5 percent); finance and insurance (4 percent); and educational services (3 percent).

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

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The most common industries for females are educational services (12 percent); health care (12 percent); finance and insurance (9 percent); professional, scientific and technical services (9 percent); accommodation and food services (7 percent); broadcasting and telecommunications (5 percent); and religious, grant making, civic, professional and similar organizations (5 percent).

Lilburn-area historical tornado activity is above the Georgia state average. It is 103 percent greater than the overall U.S. average.

On November 22, 1992, an F4 tornado with maximum wind speeds of 207-260 miles per hour (mph) struck 25.5 miles away from the City center, injuring 46 people and causing between \$5 million and \$50 million in damages.

On March 24, 1975, an F3 tornado with maximum wind speeds of 158-206 mph struck 10.9 miles away from the City center, killing three people and injuring 152 people. Damages were estimated between \$50 million and \$500 million.

**Table 1**  
**Single-Family New House Construction Building Permits**

| Year | Permits | Average Cost |
|------|---------|--------------|
| 1996 | 59      | \$97,600     |
| 1997 | 27      | \$99,600     |
| 1998 | 73      | \$104,500    |
| 1999 | 67      | \$111,000    |
| 2000 | 81      | \$114,900    |
| 2001 | 9       | \$118,300    |
| 2002 | 19      | \$126,100    |
| 2003 | 11      | \$129,600    |
| 2004 | 21      | \$136,700    |
| 2005 | 25      | \$142,800    |
| 2006 | 20      | \$152,200    |
| 2007 | 43      | \$157,800    |
| 2008 | 4       | \$176,400    |

## Infrastructure

The Lilburn Police Department consists of 13 uniform officers who patrol the City under the supervision of four sergeants, two lieutenants and the police captain. The

## Section 6

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department is open 24 hours a day, 365 days a year responding to emergency and non-emergency calls.

Fire services are provided to Lilburn by the Gwinnett County Department of Fire and Emergency Services.

The Lilburn school system consists of the following:

**Table 2**  
**Lilburn School Infrastructure**

| School        | Type       | Enrollment |
|---------------|------------|------------|
| Arcado        | Elementary | 894        |
| Camp Creek    | Elementary | 1,026      |
| Head          | Elementary | 649        |
| Hopkins       | Elementary | 1,765      |
| Knight        | Elementary | 706        |
| Lilburn       | Elementary | 1,315      |
| Minor         | Elementary | 1,171      |
| Mountain Park | Elementary | 651        |
| Berkmar       | Middle     | 992        |
| Lilburn       | Middle     | 1,192      |
| Trickum       | Middle     | 1,892      |
| Berkmar       | High       | 2,937      |

## Land Usage

The City has a total area of 6.2 square miles (16.1 km<sup>2</sup>), of which 6.2 square miles (15.9 km<sup>2</sup>) is land and 0.1 square miles (0.1 km<sup>2</sup> or 0.81 percent) is water.

## Legal and Regulatory Capabilities

The Legal and Regulatory Capability survey documents authorities available to the jurisdiction and/or enabling legislation at the state level affecting planning and land management tools that support local hazard mitigation planning efforts. The identified planning and land management tools are typically used by states and local and tribal jurisdictions to implement hazard mitigation activities.

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

**Table 3  
Legal and Regulatory Capability**

| Regulatory Tools/Plans                                                     | Regulatory Type:<br>Ordinance Resolution<br>Codes Plans, Etc.      | Reference<br>Number                        | Date<br>Adopted | Local<br>Authority | State<br>Prohibited | Higher<br>Authority |
|----------------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------|-----------------|--------------------|---------------------|---------------------|
| Building Codes                                                             | City Code                                                          | Chapter 105<br>Appendix A<br>Appendix B    |                 | Y                  | N                   | N                   |
| Capital Improvements<br>Plan                                               | Referenced in the City Code<br>and the Five Year Financial<br>Plan | Subpart A -<br>Article VI                  |                 | Y                  | N                   | N                   |
| Comprehensive Plan                                                         | 2030 Comprehensive Plan                                            |                                            | 2008            | Y                  | N                   | N                   |
| Continuity of<br>Operations/Continuity of<br>Government<br>(COOP/COG) Plan | County COOP/COG Plan                                               |                                            |                 | N                  | N                   | Y                   |
| Community Rating<br>System                                                 | County Rating                                                      |                                            |                 | N                  | N                   | Y                   |
| Economic Development<br>Plan                                               | County Plan and<br>Referenced in the 2030<br>Comprehensive Plan    |                                            |                 | N                  | N                   | Y                   |
| Emergency Management<br>Accreditation Program<br>Certified                 |                                                                    |                                            |                 | N                  | N                   | Y                   |
| Emergency Response<br>Plan                                                 | County Emergency<br>Operations Plan (EOP)                          |                                            |                 | N                  | N                   | Y                   |
| Flood Management Plan                                                      | Referenced in the City Code                                        | Chapter 109 -<br>Article III               |                 | Y                  | N                   | N                   |
| Growth Control Ordinance                                                   | 2030 Comprehensive Plan                                            |                                            |                 | Y                  | N                   | N                   |
| Hazard Setback<br>Regulations                                              |                                                                    |                                            |                 |                    |                     |                     |
| Hillside Ordinance                                                         |                                                                    |                                            |                 |                    |                     |                     |
| Historic Ordinance                                                         | City Code and<br>Referenced in the 2030<br>Comprehensive Plan      | Chapter 109 -<br>Article III<br>Appendix A |                 | Y                  | N                   | N                   |
| National Flood Insurance<br>Program Participant                            |                                                                    |                                            |                 | N                  | N                   | Y                   |
| Post-Disaster Ordinance                                                    |                                                                    |                                            |                 |                    |                     |                     |
| Post-Disaster Recovery<br>Plan                                             | County EOP                                                         |                                            |                 | N                  | N                   | Y                   |
| Real Estate Disclosure                                                     | Real Estate Commission                                             |                                            |                 | N                  | N                   | Y                   |

## Section 6

| Regulatory Tools/Plans  | Regulatory Type:<br>Ordinance Resolution<br>Codes Plans, Etc. | Reference<br>Number      | Date<br>Adopted | Local<br>Authority | State<br>Prohibited | Higher<br>Authority |
|-------------------------|---------------------------------------------------------------|--------------------------|-----------------|--------------------|---------------------|---------------------|
| Site Plan Requirements  | City Code                                                     | Appendix A<br>Appendix B |                 | Y                  | N                   | N                   |
| Subdivision Regulations | City Code                                                     | Appendix A<br>Appendix B |                 | Y                  | N                   | N                   |
| Wildfire Ordinance      |                                                               |                          |                 |                    |                     |                     |
| Zoning Ordinances       | City Code                                                     | Appendix A               |                 | Y                  | N                   | N                   |

## Administrative and Technical Capabilities

The City of Lilburn has a number of administrative and technical capabilities. City departments include Administration, Police, Planning and Development, Code Enforcement, Public Works, Parks and Recreations, and Courts, as well as other Boards and Commissions. The City government includes a Mayor and four Council Members. The administrative functions of the City are managed by the City Manager and administrative staff.

## Mitigation Actions

Each jurisdiction participating in this Plan is responsible for implementing specific mitigation actions as prescribed in the adopted mitigation action plan. In each mitigation action plan, every proposed action is assigned to a specific local department or agency in order to assign responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual jurisdictions to update their unique mitigation strategy as needed without altering the broader focus of the countywide Plan. The separate adoption of locally specific actions also ensures that each jurisdiction is not held responsible for monitoring and implementing the actions of other jurisdictions involved in the planning process. A complete list of countywide mitigation strategies is provided in Section 5 of the Gwinnett County Hazard Mitigation Plan.

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

**Table 4  
Mitigation Actions**

| Goal 1: Reduce Gwinnett County's risk and vulnerability to severe winter storms                                      |                                                                                                                                     |                                           |                                 |                |                   |                                                                         |           |        |
|----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|---------------------------------|----------------|-------------------|-------------------------------------------------------------------------|-----------|--------|
| Objective 1.3: Improve Gwinnett County's capability to prepare for, respond to and recover from severe winter storms |                                                                                                                                     |                                           |                                 |                |                   |                                                                         |           |        |
| Action                                                                                                               | Action/Project Description                                                                                                          | Jurisdiction                              | Responsible                     | Estimated Cost | Estimated Benefit | Funding Sources                                                         | Timeframe | Status |
| 1.3.6                                                                                                                | Identify and bury utility lines in densely populated and commercial areas in the City of Lilburn                                    | City of Lilburn                           | City Officials,<br>Public Works |                |                   | City Budget,<br>Grants                                                  | 2011-2012 | New    |
| Goal 13: Improve Gwinnett County's capability to reduce risk and vulnerability to all-hazards events                 |                                                                                                                                     |                                           |                                 |                |                   |                                                                         |           |        |
| Objective 13.1: Improve Gwinnett County's information distribution and warning capabilities to citizens              |                                                                                                                                     |                                           |                                 |                |                   |                                                                         |           |        |
| Action                                                                                                               | Action/Project Description                                                                                                          | Jurisdiction                              | Responsible                     | Estimated Cost | Estimated Benefit | Funding Sources                                                         | Timeframe | Status |
| 13.1.9                                                                                                               | Implement an all-hazards notification system for the City of Lilburn                                                                | City of Lilburn                           | City Officials                  |                |                   | City Budget,<br>Federal<br>Emergency<br>Management<br>Agency,<br>Grants | 2010-2012 | New    |
| Objective 13.3: Improve Gwinnett County's capability to prepare for, respond to and recover from all-hazards events  |                                                                                                                                     |                                           |                                 |                |                   |                                                                         |           |        |
| 13.3.11                                                                                                              | Coordinate with the City of Snellville to execute a mutual aid agreement for relocation space for the Lilburn Communications Center | City of Lilburn,<br>City of<br>Snellville | City Officials                  |                |                   | City<br>Budget(s)                                                       | 2010-2011 | New    |

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# CITY OF NORCROSS, GEORGIA MITIGATION ACTION PLAN

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## Geography and History

The City of Norcross (City) is located at 33°56'19"N, 84°12'31"W (33.938551, -84.208630). According to the U.S. Census Bureau, the City has a total area of 4.1 square miles (10.6 km<sup>2</sup>), of which 4.1 square miles (10.6 km<sup>2</sup>) is land and 0.24 percent of it is water.

The City of Norcross was founded by J.J. Thrasher and named after his good friend, Jonathan Norcross, who happened to be a former Mayor of Atlanta. It was incorporated on October 26, 1870, making it Gwinnett County's second oldest city.

With the creation of the Richmond-Danville Railroad and the help of John J. Thrasher, Norcross was born. With the building of the Brunswick Hotel in 1856, Norcross became known as a resort-like area. People from all over migrated to the area in order to be near the railroad and to build houses, churches and schools.

Norcross still preserves its historic center as a nineteenth century railroad town, but it is on the upswing as new restaurants and shops move downtown and as a new generation of citizens join.

## Significant Characteristics

Norcross Baseball Hall of Fame has a great display of local baseball memorabilia, including a vintage uniform, autographed baseballs and bats, trophies and more. Visitors can also see the original playing field, now called Lillian Webb Field.

Lionheart Theater Company is a community theater where professionals and talented amateurs provide affordable quality entertainment.

The City of Norcross also maintains the following city parks: Rossie Brundage Park, Tharsher Park, South Point Park, Barton Street Greenspace and Fickling Property Greenspace test.

## Population and Demographics

As of the 2000 census, there are 8,410 people; 2,644 households; and 1,768 families residing in the City. The population density is 2,050.4 people per square mile (792.0/km<sup>2</sup>). There are 2,750 housing units at an average density of 670.5 housing units per square mile (259.0/km<sup>2</sup>). The racial makeup of the City is 53.50 percent White, 40.93 percent Hispanic or Latino (of any race), 20.82 percent African American, 0.54 percent Native American, 6.10 percent Asian, 0.04 percent Pacific Islander, 15.39 percent from other races, and 3.63 percent from two or more races.

## Section 6

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There are 2,644 households, of which 33.6 percent include children under the age of 18, 45.3 percent are married couples living together, 13.2 percent have a female head of house with no husband present, and 33.1 percent are non-families. Approximately 22.2 percent of all households are made up of individuals, while 8.5 percent have someone living alone who is 65 or older. The average household size is 3.04, and the average family size is 3.35.

The median age of a Lawrenceville resident is 30 years old. In the City the population is spread out, with 22.7 percent under the age of 18, 14.8 percent from 18 to 24, 40.9 percent from 25 to 44, 15.5 percent from 45 to 64, and 6.1 percent who are 65 or older. For every 100 females, there are 130.7 males. For every 100 females age 18 and over, there are 134.8 males.

The City's population has grown more than 27.7 percent since 2000.

## Economy

The median income for a household in the City is \$44,728, while the median income for a family is \$42,893. Males have a median income of \$26,485 versus \$27,347 for females. The per capita income for the City is \$18,573. About 11.8 percent of families and 17.9 percent of the population are below the poverty line, including 20.0 percent of individuals under the age of 18 and 17.2 percent age 65 or over.

Some of the local companies in Norcross include Rock-Tenn, Digitrax, Unisource, Institute of Industrial Engineers, Salwa, Reddy US Therapeutics, Avalon International, Hitachi Koki USA, Ltd., The Athlete's Foot, Woody's Halfpipe, CheckFree, EMS Technologies, FineLine Technologies, Visix, and American Megatrends.

The most common industries for males are construction (30 percent); administrative and support and waste management services (14 percent); accommodation and food services (9 percent); professional, scientific and technical services (3 percent); electrical equipment, appliances and components (2 percent); health care (2 percent); and miscellaneous manufacturing (2 percent).

The most common industries for females are accommodation and food services (14 percent); finance and insurance (10 percent); administrative and support and waste management services (6 percent); health care (6 percent); professional, scientific and technical services (6 percent); educational services (5 percent); and broadcasting and telecommunications (4 percent).

Norcross-area historical tornado activity is above the Georgia state average. It is 108 percent greater than the overall U.S. average.

On November 22, 1992, an F4 tornado with maximum wind speeds of 207-260 miles per hour (mph) struck 20.4 miles away from the City center, injuring 46 people and causing between \$5 million and \$50 million in damages.

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

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On April 3, 1974, an F4 tornado struck 30.6 miles away from the City center, killing six people and injuring 30 others. Damages were estimated between \$500,000 and \$5 million.

**Table 1**  
**Single-Family New House Construction Building Permits**

| Year | Permits | Average Cost |
|------|---------|--------------|
| 1996 | 3       | \$70,000     |
| 1997 | 163     | \$71,900     |
| 1998 | 119     | \$80,400     |
| 1999 | 8       | \$167,200    |
| 2000 | 27      | \$152,900    |
| 2001 | 121     | \$114,400    |
| 2002 | 45      | \$124,700    |
| 2003 | 67      | \$95,200     |
| 2004 | 138     | \$94,100     |
| 2005 | 61      | \$145,500    |
| 2006 | 119     | \$145,900    |
| 2007 | 79      | \$117,700    |
| 2008 | 19      | \$108,700    |

## Infrastructure

The Norcross Police Department covers an area of 4.5 square miles and consists of 37 sworn officers and 11 full-time civilian employees.

Fire services are provided to Norcross by the Gwinnett County Department of Fire and Emergency Services.

The Norcross school system consists of the following:

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**Table 2**  
**Norcross School Infrastructure**

| School                                      | Type           | Enrollment |
|---------------------------------------------|----------------|------------|
| Beaver Ridge                                | Elementary     | 1,089      |
| Meadowcreek                                 | Elementary     | 1,028      |
| Norcross                                    | Elementary     | 996        |
| Peachtree                                   | Elementary     | 1,424      |
| Rockbridge                                  | Elementary     | 881        |
| Simpson                                     | Elementary     | 946        |
| Susan Stripling                             | Elementary     | 946        |
| Pinckneyville                               | Middle         | 1,248      |
| Summerour                                   | Middle         | 1,049      |
| Meadowcreek                                 | High           | 2,220      |
| Norcross                                    | High           | 2,813      |
| Gwinnett Intervention Education Center West | Alternate 6-12 | 309        |

## Land Usage

The City has a total area of 4.1 square miles (10.6 km<sup>2</sup>), of which 4.1 square miles (10.6 km<sup>2</sup>) is land and 0.24 percent is water.

## Legal and Regulatory Capabilities

The Legal and Regulatory Capability survey documents authorities available to the jurisdiction and/or enabling legislation at the state level affecting planning and land management tools that support local hazard mitigation planning efforts. The identified planning and land management tools are typically used by states and local and tribal jurisdictions to implement hazard mitigation activities.

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

**Table 3  
Legal and Regulatory Capability**

| Regulatory Tools/Plans                                            | Regulatory Type:<br>Ordinance Resolution<br>Codes Plans, Etc. | Reference<br>Number                               | Date<br>Adopted | Local Authority | State Prohibited | Higher Authority |
|-------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------|-----------------|-----------------|------------------|------------------|
| Building Codes                                                    | City Code and the Development Regulations                     | Chapter 103 Article VII                           | 2/5/07          | Y               | N                | N                |
| Capital Improvements Plan                                         | Referenced in City Code                                       | Chapter 2 - Article VI<br>Chapter 16 - Article II |                 | Y               | N                | N                |
| Comprehensive Plan                                                | 2030 Comprehensive Plan                                       |                                                   | 10/6/08         | Y               | N                | N                |
| Continuity of Operations/Continuity of Government (COOP/COG) Plan | County COOP/COG Plan                                          |                                                   |                 | N               | N                | Y                |
| Community Rating System                                           | County Rating                                                 |                                                   |                 | N               | N                | Y                |
| Economic Development Plan                                         | County Plan                                                   |                                                   |                 | N               | N                | Y                |
| Emergency Management Accreditation Program Certified              |                                                               |                                                   |                 | N               | N                | Y                |
| Emergency Response Plan                                           | County Emergency Operations Plan (EOP)                        |                                                   |                 | N               | N                | Y                |
| Flood Management Plan                                             | City Code and the Development Regulations                     | Chapter 107 Article VIII                          | 9/12/05         | Y               | N                | N                |
| Growth Control Ordinance                                          | Development Regulations                                       | Article XVI                                       | 2/5/07          | Y               | N                | N                |
| Hazard Setback Regulations                                        |                                                               |                                                   |                 |                 |                  |                  |
| Hillside Ordinance                                                |                                                               |                                                   |                 |                 |                  |                  |
| Historic Ordinance                                                | City Code                                                     | Chapter 115 - Article III                         |                 | Y               | N                | N                |
| National Flood Insurance Program Participant                      |                                                               |                                                   |                 | N               | N                | Y                |
| Post-Disaster Ordinance                                           | City Code of Ordinances                                       | Chapter 16                                        | 9/12/05         |                 |                  |                  |
| Post-Disaster Recovery Plan                                       | County EOP                                                    |                                                   |                 | N               | N                | Y                |
| Real Estate Disclosure                                            | Real Estate Commission                                        |                                                   |                 | N               | N                | Y                |

## Section 6

| Regulatory Tools/Plans  | Regulatory Type:<br>Ordinance Resolution<br>Codes Plans, Etc.  | Reference<br>Number                                                                        | Date<br>Adopted | Local Authority | State Prohibited | Higher Authority |
|-------------------------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------|-----------------|------------------|------------------|
| Site Plan Requirements  | City Code                                                      | Chapter 103 -<br>Article IV<br>Chapter 107 -<br>Article II<br>Chapter 115 -<br>Article III |                 | Y               | N                | N                |
| Subdivision Regulations | City Code,<br>Development Regulations                          | Chapter 115 -<br>Article III<br>Article IV                                                 | 4/5/09          | Y               | N                | N                |
| Wildfire Ordinance      |                                                                |                                                                                            |                 |                 |                  |                  |
| Zoning Ordinances       | City Code and the<br>Planning and Zoning Code<br>of Ordinances | Chapter 115                                                                                |                 | Y               | N                | N                |

## Administrative and Technical Capabilities

The City of Norcross has a number of administrative and technical capabilities. City departments include Economic Development, City Clerk, Community Development, Downtown Development Authority, Court Services, Information Technology, Police, Public Works, and Utilities. The City government includes a Mayor and five Council Members. The administrative functions of the City are managed by the City Manager and City Clerk.

## Mitigation Actions

Each jurisdiction participating in this Plan is responsible for implementing specific mitigation actions as prescribed in the adopted mitigation action plan. In each mitigation action plan, every proposed action is assigned to a specific local department or agency in order to assign responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual jurisdictions to update their unique mitigation strategy as needed without altering the broader focus of the countywide Plan. The separate adoption of locally specific actions also ensures that each jurisdiction is not held responsible for monitoring and implementing the actions of other jurisdictions involved in the planning process. A complete list of countywide mitigation strategies is provided in Section 5 of the Gwinnett County Hazard Mitigation Plan.

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

**Table 4  
Mitigation Actions**

| Goal 1: Reduce Gwinnett County's risk and vulnerability to severe winter storms                                      |                                                                                                   |                  |                              |                |                   |                     |           |        |
|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------------|------------------------------|----------------|-------------------|---------------------|-----------|--------|
| Objective 1.3: Improve Gwinnett County's capability to prepare for, respond to and recover from severe winter storms |                                                                                                   |                  |                              |                |                   |                     |           |        |
| Action                                                                                                               | Action/Project Description                                                                        | Jurisdiction     | Responsible                  | Estimated Cost | Estimated Benefit | Funding Sources     | Timeframe | Status |
| 1.3.5                                                                                                                | Identify and bury utility lines in densely populated and commercial areas in the City of Norcross | City of Norcross | City Officials, Public Works |                |                   | City Budget, Grants | 2011-2012 | New    |

| Goal 13: Improve Gwinnett County's capability to reduce risk and vulnerability to all-hazards events    |                                                                         |                                                                                                          |                |                |                   |                                                          |           |        |
|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|----------------|----------------|-------------------|----------------------------------------------------------|-----------|--------|
| Objective 13.1: Improve Gwinnett County's information distribution and warning capabilities to citizens |                                                                         |                                                                                                          |                |                |                   |                                                          |           |        |
| Action                                                                                                  | Action/Project Description                                              | Jurisdiction                                                                                             | Responsible    | Estimated Cost | Estimated Benefit | Funding Sources                                          | Timeframe | Status |
| 13.1.10                                                                                                 | Develop and distribute multi-lingual all-hazards preparedness materials | City of Buford, City of Grayson, City of Norcross, City of Duluth, City of Sugar Hill, Town of Braselton | City Officials |                |                   | City Budget, Federal Emergency Management Agency, Grants | 2010-2012 | New    |

## Section 6

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# CITY OF SNELLVILLE, GEORGIA MITIGATION ACTION PLAN

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## Geography and History

The City of Snellville (City) is located at 33°51'30"N, 84°0'23"W (33.858439, -84.006324). According to the U.S. Census Bureau, the City has a total area of 9.7 square miles (25.1 km<sup>2</sup>), of which 9.7 square miles (25.0 km<sup>2</sup>) is land and 0.04 square miles (0.1 km<sup>2</sup> or 0.41 percent) is water.

The City of Snellville began when two friends, James Sawyer and Thomas Snell, settled there from London, England. Commerce in Snellville was born when they built a small wood framed building and started a business that sold things that local farmers couldn't make or borrow from their neighbors. The store became prosperous, attracting people from neighboring towns. Originally named New London, it is uncertain when the City's name was changed to Snellville; however, Snell and Sawyer identified their store's location as Snellville.

The religious community grew as commerce did, with several churches beginning during that time. All of the original churches are still in existence in Snellville, all with their original structures. Despite the growth of the religious community and commerce, Snellville's growth was slow in its early days due to the fact that it was not located on any navigable body of water and was bypassed by the railroads.

Snellville was incorporated in 1923 and its city limits enlarged to a one-mile radius from the center of town. The growth remained slow until the 1960s, when suburban development patterns of segregated uses and automobiles became commonplace. Snellville continues to be one of the most successful cities in the Atlanta region.

## Significant Characteristics

Thomas W. Briscoe Park is an 87 developed acre park full activities for all ages, including ball fields, eight soccer fields, basketball courts, swimming pool, trails, a sand volleyball court, picnic areas, playgrounds, a gazebo and plenty more.

Lenora Park and Disc Golf Course encompasses 112 acres of land, including a paved trail, water park, gymnasium, fishing lake, playgrounds, baseball fields, softball fields and a large disc golf course.

Snellville is known for having the fourth largest shopping area in Gwinnett County.

Emory Eastside Medical Center is a major hospital in Snellville serving the southern Gwinnett County Region.

# Population and Demographics

As of the 2000 census, there are 15,351 people; 5,256 households; and 4,315 families residing in the City. The population density is 1,589.1 people per square mile (613.6/km<sup>2</sup>). There are 5,391 housing units at an average density of 558.1 housing units per square mile (215.5/km<sup>2</sup>). The racial makeup of the City is 89.64 percent White, 5.39 percent, 4.09 percent is Hispanic or Latino (of any race), African American, 0.25 percent Native American, 2.03 percent Asian, 0.02 percent Pacific Islander, 1.58 percent from other races, and 1.09 percent from two or more races.

There are 5,256 households, of which 38.2 percent include children under the age of 18, 70.3 percent are married couples living together, 9.0 percent have a female head of house with no husband present, and 17.9 percent are non-families. Approximately 15.0 percent of all households are made up of individuals, while 7.2 percent have someone living alone who is 65 or older. The average household size is 2.87, and the average family size is 3.18.

The median age of a Snellville resident is 39 years old. In the City the population is spread out, with 26.6 percent under the age of 18, 7.3 percent from 18 to 24, 27.4 percent from 25 to 44, 26.5 percent from 45 to 64, and 12.3 percent who are 65 or older. For every 100 females, there are 91.5 males. For every 100 females age 18 and over, there are 89.2 males.

# Economy

The median income for a household in the City is \$67,715, while the median income for a family is \$74,077. Males have a median income of \$50,861,263 versus \$31,972 for females. The per capita income for the City is \$25,992. About 2.1 percent of families and 3.0 percent of the population are below the poverty line, including 3.3 percent of individuals under the age of 18 and 5.0 percent age 65 or over.

Over 1,150 businesses operate in Snellville, bringing in more than \$1 billion in revenue yearly. The most common industries for males are construction (13 percent); professional, scientific and technical services (8 percent); administrative and support and waste management services (5 percent); broadcasting and telecommunications (5 percent); educational services (4 percent); finance and insurance (4 percent); and public administration (4 percent).

The most common industries for females are health care (16 percent); educational services (14 percent); professional, scientific and technical services (7 percent); finance and insurance (6 percent); social assistance (5 percent); accommodation and food services (4 percent); and administrative and support and waste management services (4 percent).

Snellville-area historical tornado activity is slightly above the Georgia state average. It is 96 percent greater than the overall U.S. average.

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

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On November 22, 1992, an F4 tornado with maximum wind speeds of 207-260 miles per hour (mph) struck 32.5 miles away from the City center, injuring 46 people and causing between \$5 million and \$50 million in damages.

On March 24, 1975, an F3 tornado with maximum wind speeds of 158-206 mph struck 18.8 miles away from the City center, killing three people and injuring 152 people. Damages were estimated between \$50 million and \$500 million.

**Table 1**  
**Single-Family New House Construction Building Permits**

| Year | Permits | Average Cost |
|------|---------|--------------|
| 1996 | 103     | \$78,100     |
| 1997 | 53      | \$85,200     |
| 1998 | 127     | \$121,700    |
| 1999 | 98      | \$124,700    |
| 2000 | 75      | \$155,600    |
| 2001 | 146     | \$141,500    |
| 2002 | 208     | \$106,900    |
| 2003 | 273     | \$106,600    |
| 2004 | 243     | \$110,400    |
| 2005 | 202     | \$135,300    |
| 2006 | 112     | \$251,500    |
| 2007 | 42      | \$208,900    |
| 2008 | 15      | \$178,100    |

## Infrastructure

The South Precinct of the Gwinnett County Police Department, which covers 116 square miles in the southwest corner of Gwinnett County, serves Snellville.

Fire services are provided to Snellville by the Gwinnett County Department of Fire and Emergency Services.

The Snellville school system consists of the following:

## Section 6

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**Table 2**  
**Snellville School Infrastructure**

| School         | Type       | Enrollment |
|----------------|------------|------------|
| Annistown      | Elementary | 558        |
| Britt          | Elementary | 978        |
| Brookwood      | Elementary | 1,073      |
| Centerville    | Elementary | 833        |
| Norton         | Elementary | 2,019      |
| Partee         | Elementary | 722        |
| Pharr          | Elementary | 1,389      |
| Shiloh         | Elementary | 793        |
| Shiloh         | Middle     | 1,645      |
| Snellville     | Middle     | 2,257      |
| Brookwood      | High       | 3,415      |
| Shiloh         | High       | 1,970      |
| South Gwinnett | High       | 2,681      |

## Land Usage

The City has a total area of 9.7 square miles (25.1 km<sup>2</sup>), of which 9.7 square miles (25.0 km<sup>2</sup>) is land and 0.04 square miles (0.1 km<sup>2</sup> or 0.41 percent) is water.

## Legal and Regulatory Capabilities

The Legal and Regulatory Capability survey documents authorities available to the jurisdiction and/or enabling legislation at the state level affecting planning and land management tools that support local hazard mitigation planning efforts. The identified planning and land management tools are typically used by states and local and tribal jurisdictions to implement hazard mitigation activities.

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

**Table 3  
Legal and Regulatory Capability**

| Regulatory Tools/Plans                                            | Regulatory Type:<br>Ordinance Resolution<br>Codes Plans, Etc. | Reference<br>Number                | Date<br>Adopted | Local<br>Authority | State<br>Prohibited | Higher<br>Authority |
|-------------------------------------------------------------------|---------------------------------------------------------------|------------------------------------|-----------------|--------------------|---------------------|---------------------|
| Building Codes                                                    | City Code                                                     | Chapter 18                         |                 | Y                  | N                   | N                   |
| Capital Improvements Plan                                         | Referenced in the City Code                                   | Part I - Article III<br>Article VI |                 | Y                  | N                   | N                   |
| Comprehensive Plan                                                | 2030 Comprehensive Plan                                       |                                    | 2/9/09          | Y                  | N                   | N                   |
| Continuity of Operations/Continuity of Government (COOP/COG) Plan | County COOP/COG Plan                                          |                                    |                 | N                  | N                   | Y                   |
| Community Rating System                                           | County Rating                                                 |                                    |                 | N                  | N                   | Y                   |
| Economic Development Plan                                         | County Plan and Referenced in the 2030 Comprehensive Plan     |                                    |                 | N                  | N                   | Y                   |
| Emergency Management Accreditation Program Certified              |                                                               |                                    |                 | N                  | N                   | Y                   |
| Emergency Response Plan                                           | County Emergency Operations Plan (EOP)                        |                                    |                 | N                  | N                   | Y                   |
| Flood Management Plan                                             | City Code                                                     | Chapter 30                         |                 | Y                  | N                   | N                   |
| Growth Control Ordinance                                          | 2030 Comprehensive Plan                                       |                                    |                 | Y                  | N                   | N                   |
| Hazard Setback Regulations                                        |                                                               |                                    |                 |                    |                     |                     |
| Hillside Ordinance                                                |                                                               |                                    |                 |                    |                     |                     |
| Historic Ordinance                                                | City Code                                                     | Article 5                          |                 | Y                  | N                   | N                   |
| National Flood Insurance Program Participant                      |                                                               |                                    |                 | N                  | N                   | Y                   |
| Post-Disaster Ordinance                                           |                                                               |                                    |                 |                    |                     |                     |
| Post-Disaster Recovery Plan                                       | County Plan                                                   |                                    |                 | N                  | N                   | Y                   |
| Real Estate Disclosure                                            | Real Estate Commission                                        |                                    |                 | N                  | N                   | Y                   |

## Section 6

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| Regulatory Tools/Plans  | Regulatory Type:<br>Ordinance Resolution<br>Codes Plans, Etc. | Reference<br>Number                       | Date<br>Adopted | Local<br>Authority | State<br>Prohibited | Higher<br>Authority |
|-------------------------|---------------------------------------------------------------|-------------------------------------------|-----------------|--------------------|---------------------|---------------------|
| Site Plan Requirements  | City Code                                                     | Chapter 30 -<br>Article III<br>Appendix A |                 | Y                  | N                   | N                   |
| Subdivision Regulations | City Code                                                     | Appendix A                                |                 | Y                  | N                   | N                   |
| Wildfire Ordinance      |                                                               |                                           |                 |                    |                     |                     |
| Zoning Ordinances       | City Code                                                     | Appendix B                                |                 | Y                  | N                   | N                   |

## Administrative and Technical Capabilities

The City of Snellville has a number of administrative and technical capabilities. City departments include Administration, Parks and Recreation, Planning and Development, Public Safety, and Public Works. The City government includes a Mayor and four Council Members. The administrative functions of the City are managed by the City Manager. Other key administrative personnel include the City Clerk, Executive Assistant, Personnel Officer, Controller/Financial Analyst, Information Technology Administrator, Facilities Coordinator and two Receptionists.

## Mitigation Actions

Each jurisdiction participating in this Plan is responsible for implementing specific mitigation actions as prescribed in the adopted mitigation action plan. In each mitigation action plan, every proposed action is assigned to a specific local department or agency in order to assign responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual jurisdictions to update their unique mitigation strategy as needed without altering the broader focus of the countywide Plan. The separate adoption of locally specific actions also ensures that each jurisdiction is not held responsible for monitoring and implementing the actions of other jurisdictions involved in the planning process. A complete list of countywide mitigation strategies is provided in Section 5 of the Gwinnett County Hazard Mitigation Plan.

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

**Table 4  
Mitigation Actions**

| Goal 1: Reduce Gwinnett County's risk and vulnerability to severe winter storms                                      |                                                                                                     |                    |                                 |                |                   |                        |           |        |
|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------|---------------------------------|----------------|-------------------|------------------------|-----------|--------|
| Objective 1.3: Improve Gwinnett County's capability to prepare for, respond to and recover from severe winter storms |                                                                                                     |                    |                                 |                |                   |                        |           |        |
| Action                                                                                                               | Action/Project Description                                                                          | Jurisdiction       | Responsible                     | Estimated Cost | Estimated Benefit | Funding Sources        | Timeframe | Status |
| 1.3.4                                                                                                                | Identify and bury utility lines in densely populated and commercial areas in the City of Snellville | City of Snellville | City Officials,<br>Public Works |                |                   | City Budget,<br>Grants | 2011-2012 | New    |

| Goal 13: Improve Gwinnett County's capability to reduce risk and vulnerability to all-hazards events    |                                                                                                                                |                    |                |                |                   |                                                                                   |           |        |
|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------|----------------|-------------------|-----------------------------------------------------------------------------------|-----------|--------|
| Objective 13.1: Improve Gwinnett County's information distribution and warning capabilities to citizens |                                                                                                                                |                    |                |                |                   |                                                                                   |           |        |
| Action                                                                                                  | Action/Project Description                                                                                                     | Jurisdiction       | Responsible    | Estimated Cost | Estimated Benefit | Funding Sources                                                                   | Timeframe | Status |
| 13.1.8                                                                                                  | Implement an all-hazards notification system for the City of Snellville                                                        | City of Snellville | City Officials |                |                   | City Budget,<br>Federal<br>Emergency<br>Management<br>Agency<br>(FEMA),<br>Grants | 2010-2012 | New    |
| 13.1.11                                                                                                 | Acquire and implement a high-speed internet-based mass emergency notification system such as CodeRED in the City of Snellville | City of Snellville | City Officials |                |                   | City Budget,<br>FEMA, Grants                                                      | 2010-2012 | New    |

## Section 6

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# CITY OF SUGAR HILL, GEORGIA MITIGATION ACTION PLAN

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## Geography and History

The City of Sugar Hill (City) is located at 34°6'8"N, 84°2'39"W (34.102123, -84.044094). According to the U.S. Census Bureau, the City has a total area of 9.2 square miles (23.7 km<sup>2</sup>), all of which is land.

The City of Sugar Hill is rumored to receive its name from an incident in which a heavily loaded freight wagon lost its wheel on a high hill and spilled a part of its load. Included in the load that fell were several large bags of sugar. The wheel was repaired and the wagon was reloaded; however, the only thing that wasn't reloaded onto the wagon were the bags of sugar, which had broken open and spilled onto the hill. The area became known as "the hill where the sugar spilled," which was eventually shortened to Sugar Hill. It existed as part of the Georgia Militia District for many years, until it was charted as a city on March 24, 1939.

## Significant Characteristics

Sugar Hill Golf Club opened in 1992 and has become one of the most beautiful and artfully laid out golf courses of the North Georgia Mountains. It offers trees, traps, moguls and Bermuda 419 fairways.

Sugar Hill Community Center is a newly renovated facility that families can reserve for a variety of occasions.

E.E. Robinson Park is a 54 acre park that has two of each of the following: softball fields, pavilions, tennis courts, basketball courts, beach volleyball courts and concession stands. The park also features a soccer field, jogging trail, playgrounds and much more.

Gary Pirkle Park is a 35 acre park for passive recreation like walking or jogging, and a 14 acre sports complex for basketball, racquetball, exercise rooms and more.

## Population and Demographics

As of the 2000 census, there are 11,399 people; 4,004 households; and 3,139 families residing in the City. The population density is 1,244.3 people per square mile (480.5/km<sup>2</sup>). There are 4,115 housing units at an average density of 449.2 housing units per square mile (173.5/km<sup>2</sup>). The racial makeup of the City is 87.71 percent White, 9.11 percent Hispanic or Latino (of any race), 4.68 percent African American, 0.17 percent Native American, 1.66 percent Asian, 0.02 percent Pacific Islander, 4.04 percent from other races, and 1.73 percent from two or more races.

## Section 6

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There are 4,004 households, of which 44.1 percent include children under the age of 18, 64.7 percent are married couples living together, 9.5 percent have a female head of house with no husband present, and 21.6 percent were non-families. Approximately 16.6 percent of all households are made up of individuals, while 3.3 percent have someone living alone who is 65 or older. The average household size is 2.85, and the average family size is 3.20.

The median age of a Sugar Hill resident is 32 years old. In the City the population is spread out, with 29.2 percent under the age of 18, 7.3 percent from 18 to 24, 39.9 percent from 25 to 44, 18.2 percent from 45 to 64, and 5.4 percent who are 65 or older. For every 100 females, there are 99.7 males. For every 100 females age 18 and over, there are 97.4 males.

The City's population has grown more than 50.9 percent since 2000.

## Economy

The median income for a household in the City is \$59,489, while the median income for a family is \$63,003. Males had a median income of \$42,141 versus \$29,428 for females. The per capita income for the City is \$23,198. About 2.3 percent of families and 3.2 percent of the population are below the poverty line, including 3.5 percent of individuals under the age of 18 and 2.2 percent age 65 or over.

The most common industries for males are construction (16 percent); professional, scientific and technical services (10 percent); computer and electronic products (5 percent); accommodation and food services (4 percent); broadcasting and telecommunications (4 percent); motor vehicle and parts dealer (4 percent); and educational services (3 percent).

The most common industries for females are health care (12 percent); finance and insurance (10 percent); educational services (9 percent); professional, scientific and technical services (6 percent); social assistance (6 percent); accommodation and food services (5 percent); and food and beverage stores (4 percent).

Sugar Hill-area historical tornado activity is above the Georgia state average. It is 103 percent greater than the overall U.S. average.

On November 22, 1992, an F4 tornado with maximum wind speeds of 207-260 miles per hour (mph) struck 22.6 miles away from the City center, injuring 46 people and causing between \$5 million and \$50 million in damages.

On April 3, 1974, an F4 tornado struck 24.7 miles away from the City center, killing six people and injuring 30 others. Damages were estimated between \$500,000 and \$5 million.

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

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**Table 1**  
**Single-Family New House Construction Building Permits**

| Year | Permits | Average Cost |
|------|---------|--------------|
| 1996 | 323     | \$76,700     |
| 1997 | 325     | \$79,400     |
| 1998 | 348     | \$87,600     |
| 1999 | 351     | \$103,100    |
| 2000 | 297     | \$118,000    |
| 2001 | 384     | \$147,400    |
| 2002 | 256     | \$151,300    |
| 2003 | 410     | \$147,600    |
| 2004 | 163     | \$173,200    |
| 2005 | 160     | \$161,500    |
| 2006 | 262     | \$180,000    |
| 2007 | 192     | \$168,600    |
| 2008 | 77      | \$175,800    |

## Infrastructure

The North Precinct of the Gwinnett County Police Department, which covers an area of 87 square miles in north Gwinnett County, serves Sugar Hill.

Fire services are provided to Sugar Hill by the Gwinnett County Department of Fire and Emergency Services.

The Sugar Hill school system consists of the following:

**Table 2**  
**Sugar Hill School Infrastructure**

| School       | Type       | Enrollment |
|--------------|------------|------------|
| Buice School | Preschool  | 172        |
| Sycamore     | Elementary | 1,343      |
| Riverside    | Elementary | 1,553      |

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| School         | Type       | Enrollment |
|----------------|------------|------------|
| Suwannee       | Elementary | 978        |
| Sugar Hill     | Elementary | 1,148      |
| Level Creek    | Elementary | 1,097      |
| Lanier         | Middle     | 2,733      |
| North Gwinnett | High       | 3,206      |

## Land Usage

The City has a total area of 9.2 square miles (23.7 km<sup>2</sup>), all of which is land.

## Legal and Regulatory Capabilities

The Legal and Regulatory Capability survey documents authorities available to the jurisdiction and/or enabling legislation at the state level affecting planning and land management tools that support local hazard mitigation planning efforts. The identified planning and land management tools are typically used by states and local and tribal jurisdictions to implement hazard mitigation activities.

**Table 3**  
**Legal and Regulatory Capability**

| Regulatory Tools/Plans                                            | Regulatory Type: Ordinance Resolution Codes Plans, Etc. | Reference Number | Date Adopted | Local Authority | State Prohibited | Higher Authority |
|-------------------------------------------------------------------|---------------------------------------------------------|------------------|--------------|-----------------|------------------|------------------|
| Building Codes                                                    | City Code and 2002 Development Regulations              | Chapter 14       |              | Y               | N                | N                |
| Capital Improvements Plan                                         | Referenced in the City Code                             | Article VI       |              | Y               | N                | N                |
| Comprehensive Plan                                                | 2009 Comprehensive Plan                                 |                  | 2009         | Y               | N                | N                |
| Continuity of Operations/Continuity of Government (COOP/COG) Plan | County COOP/COG Plan                                    |                  |              | N               | N                | Y                |
| Community Rating System                                           | County Rating                                           |                  |              | N               | N                | Y                |
| Economic Development Plan                                         | County Plan and the 2009 Comprehensive Plan             |                  |              | N               | N                | Y                |

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

| Regulatory Tools/Plans                               | Regulatory Type:<br>Ordinance Resolution<br>Codes Plans, Etc. | Reference<br>Number                      | Date<br>Adopted | Local<br>Authority | State<br>Prohibited | Higher<br>Authority |
|------------------------------------------------------|---------------------------------------------------------------|------------------------------------------|-----------------|--------------------|---------------------|---------------------|
| Emergency Management Accreditation Program Certified |                                                               |                                          |                 | N                  | N                   | Y                   |
| Emergency Response Plan                              | County Emergency Operations Plan (EOP)                        |                                          |                 | N                  | N                   | Y                   |
| Flood Management Plan                                | City Code and the Flood Plain Management Ordinance            | Chapter 34                               |                 | Y                  | N                   | N                   |
| Growth Control Ordinance                             | 2002 Development Regulations and the 2009 Comprehensive Plan  |                                          |                 | Y                  | N                   | N                   |
| Hazard Setback Regulations                           |                                                               |                                          |                 |                    |                     |                     |
| Hillside Ordinance                                   |                                                               |                                          |                 |                    |                     |                     |
| Historic Ordinance                                   | City Code and the 2009 Comprehensive Plan                     | Article II                               |                 | Y                  | N                   | N                   |
| National Flood Insurance Program (NFIP) Participant  | Participate in NFIP                                           |                                          |                 | N                  | N                   | Y                   |
| Post-Disaster Ordinance                              |                                                               |                                          |                 |                    |                     |                     |
| Post-Disaster Recovery Plan                          | County EOP                                                    |                                          |                 | N                  | N                   | Y                   |
| Real Estate Disclosure                               | Real Estate Commission                                        |                                          |                 | N                  | N                   | Y                   |
| Site Plan Requirements                               | City Code                                                     | Article II                               |                 | Y                  | N                   | N                   |
| Subdivision Regulations                              | City Code & the 2002 Development Regulations                  | Article II<br>Chapter 56,<br>Article III |                 | Y                  | N                   | N                   |
| Wildfire Ordinance                                   |                                                               |                                          |                 |                    |                     |                     |
| Zoning Ordinances                                    | City Code and the 2002 Development Regulations                | Article III                              |                 | Y                  | N                   | N                   |

## Administrative and Technical Capabilities

The City of Sugar Hill has a number of administrative and technical capabilities. City departments include the City Clerk, City Manager, Community Relations, Gas Utility, Parks and Recreation, Planning and Development, Public Works, Storm Water Utility, Public Safety and the Municipal Court. The City government includes a Mayor and

## Section 6

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five Council Members. The administrative functions of the City are managed by the City Manager.

### Mitigation Actions

Each jurisdiction participating in this Plan is responsible for implementing specific mitigation actions as prescribed in the adopted mitigation action plan. In each mitigation action plan, every proposed action is assigned to a specific local department or agency in order to assign responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual jurisdictions to update their unique mitigation strategy as needed without altering the broader focus of the countywide Plan. The separate adoption of locally specific actions also ensures that each jurisdiction is not held responsible for monitoring and implementing the actions of other jurisdictions involved in the planning process. A complete list of countywide mitigation strategies is provided in Section 5 of the Gwinnett County Hazard Mitigation Plan.

**Table 4  
Mitigation Actions**

| Goal 13: Improve Gwinnett County's capability to reduce risk and vulnerability to all-hazards events    |                                                                         |                                                                                                          |                |                |                   |                                                          |           |        |
|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|----------------|----------------|-------------------|----------------------------------------------------------|-----------|--------|
| Objective 13.1: Improve Gwinnett County's information distribution and warning capabilities to citizens |                                                                         |                                                                                                          |                |                |                   |                                                          |           |        |
| Action                                                                                                  | Action/Project Description                                              | Jurisdiction                                                                                             | Responsible    | Estimated Cost | Estimated Benefit | Funding Sources                                          | Timeframe | Status |
| 13.1.10                                                                                                 | Develop and distribute multi-lingual all-hazards preparedness materials | City of Buford, City of Grayson, City of Norcross, City of Duluth, City of Sugar Hill, Town of Braselton | City Officials |                |                   | City Budget, Federal Emergency Management Agency, Grants | 2010-2012 | New    |

# CITY OF SUWANEE, GEORGIA

## MITIGATION ACTION PLAN

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### Geography and History

The City of Suwanee (City) is located at 34°3'5"N, 84°4'22"W (34.051447, -84.072893). According to the U.S. Census Bureau, the City has a total area of 9.9 square miles (25.6 km<sup>2</sup>), of which 9.8 square miles (25.4 km<sup>2</sup>) is land and 0.1 square miles (0.2 km<sup>2</sup> or 0.71 percent) is water.

The City of Suwanee has various accounts as to how the City's received its name. One account cites the Indian word meaning "echo" as the origin of the City's name, while another points to the Creek word for "Shawnee." The final account posits that the City's name was derived from the way in which early white settlers pronounced "Shawnee." Regardless of which account is correct, the name appears to be closely tied with the city's Native American heritage. Suwanee began as an Indian village to the Shawnee, Creek and Cherokee Indians. White settlers moved in, and Suwanee was recognized as a town when the first Post Office was established in 1838.

Suwanee's growth is attributed to the evolution of transportation. The Southern Railroad and Depot created a station in Suwanee, as did the Richmond & Danville Railroad. Suwanee became a connecting station as people transferred between the two lines.

The City's economic foundation was cotton, which was grown by the majority of farmers until 1830. The first cotton gin house was built between 1872 and 1875. Suwanee wasn't incorporated until 1949 and remained a small agricultural based community into the 1970s, when the growth of the highway system spurred more development.

### Significant Characteristics

Town Center Park is a 10 acre open space where visitors can walk, jog or bike with friends or pets. Amenities include pathways and sidewalks, garden areas, park benches, a big splash interactive water fountain, and an amphitheater with seating for 1,000. Most community gatherings are held at Town Center Park.

Suwanee Creek Greenway is a multipurpose trail that heads through almost 400 acres of parkland, residential and commercial areas.

Suwanee Creek Park is an 85 acre park for passive recreation and is ideal for family picnics or reunions. This park features hard and soft surface trails, pavilions, picnic tables, grills and restrooms.

PlayTown Suwanee is a huge children's playground featuring slides, swing sets, bridges, rock climbing, log cabin, boats and more.

## Section 6

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Sims Lake Park is Suwanee's newest park. At 62 acres, the park features a seven acre lake, trails, a playground, restrooms, pavilions and play meadows.

City Hall Park offers covered picnic areas and play equipment

George Pierce Park is a 300 acre park that offers many recreational facilities, stocked fishing pond, nature trails and more.

## Population and Demographics

As of the 2000 census, there were 8,725 people; 2,947 households; and 2,375 families residing in the City. The population density was 889.5 people per square mile (343.4/km<sup>2</sup>). There were 3,144 housing units at an average density of 320.5 housing units per square mile (123.7/km<sup>2</sup>). The racial makeup of the City was 84.49 percent White, 6.38 percent African American, 3.16 percent Hispanic or Latino (of any race), 0.13 percent Native American, 6.84 percent Asian, 0.01 percent Pacific Islander, 0.72 percent from other races, and 1.42 percent from two or more races.

There were 2,947 households, of which 46.8 percent included children under the age of 18, 71.8 percent were married couples living together, 6.0 percent had a female head of house with no husband present, and 19.4 percent were non-families. Approximately 14.5 percent of all households were made up of individuals, while 1.9 percent had someone living alone who was 65 or older. The average household size was 2.89, and the average family size was 3.23.

The median age of a Suwanee resident is 34 years old. In the City the population was spread out, with 29.5 percent under the age of 18, 6.1 percent from 18 to 24, 39.3 percent from 25 to 44, 20.7 percent from 45 to 64, and 4.3 percent who were 65 or older. For every 100 females, there were 102.2 males. For every 100 females age 18 and over, there were 101.8 males.

## Economy

The median income for a household in the City was \$84,038, while the median income for a family was \$91,519. Males had a median income of \$60,147 versus \$40,650 for females. The per capita income for the City was \$29,712. About 1.5 percent of families and 2.2 percent of the population were below the poverty line, including 1.2 percent of individuals under the age of 18 and 4.4 percent age 65 or over.

The most common industries for males are professional, scientific and technical services (9 percent); broadcasting and telecommunications (8 percent); construction (7 percent); accommodation and food services (5 percent); finance and insurance (5 percent); computer and electronic products (4 percent); and motor vehicle and parts dealers (4 percent).

The most common industries for females are educational services (12 percent); health care (10 percent); professional, scientific and technical services (9 percent); finance and insurance (7 percent); accommodation and food services (5 percent); public

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

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administration (5 percent); and administrative and support and waste management services (4 percent).

Suwanee-area historical tornado activity is above the Georgia state average. It is 104 percent greater than the overall U.S. average.

On November 22, 1992, an F4 tornado with maximum wind speeds of 207-260 miles per hour (mph) struck 22.0 miles away from the City center, injuring 46 people and causing between \$5 million and \$50 million in damages.

On April 3, 1974, an F4 tornado struck 26.5 miles away from the City center, killing six people and injuring 30 others. Damages were estimated between \$500,000 and \$5 million.

**Table 1**  
**Single-Family New House Construction Building Permits**

| Year | Permits | Average Cost |
|------|---------|--------------|
| 1996 | 225     | \$105,800    |
| 1997 | 257     | \$102,700    |
| 1998 | 220     | \$106,000    |
| 1999 | 161     | \$114,300    |
| 2000 | 160     | \$115,000    |
| 2001 | 87      | \$179,800    |
| 2002 | 82      | \$190,500    |
| 2003 | 133     | \$116,800    |
| 2004 | 288     | \$226,500    |
| 2005 | 650     | \$222,400    |
| 2006 | 364     | \$140,600    |
| 2007 | 152     | \$175,300    |
| 2008 | 76      | \$217,400    |

## Infrastructure

The Suwanee Police Department consists of 44 employees who serve the City of Suwanee.

Fire services are provided to Sugar Hill by the Gwinnett County Department of Fire and Emergency Services.

## Section 6

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The Suwanee school system consists of the following:

**Table 2**  
**Suwanee School Infrastructure**

| School          | Type       | Enrollment |
|-----------------|------------|------------|
| Johns Creek     | Elementary | 1,029      |
| Level Creek     | Elementary | 1,148      |
| Parsons         | Elementary | 1,149      |
| Riverside       | Elementary | 1,484      |
| Settles Bridge  | Elementary | 1,077      |
| Sharon          | Elementary | 1,104      |
| Suwanee         | Elementary | 964        |
| Walnut Grove    | Elementary | 999        |
| Riverwatch      | Middle     | 1,005      |
| Collins         | High       | 3,610      |
| North Gwinnett  | High       | 2,953      |
| Peachtree Ridge | High       | 3,045      |

## Land Usage

The City has a total area of 9.9 square miles (25.6 km<sup>2</sup>), of which 9.8 square miles (25.4 km<sup>2</sup>) is land and 0.1 square miles (0.2 km<sup>2</sup> or 0.71 percent) is water.

## Legal and Regulatory Capabilities

The Legal and Regulatory Capability survey documents authorities available to the jurisdiction and/or enabling legislation at the state level affecting planning and land management tools that support local hazard mitigation planning efforts. The identified planning and land management tools are typically used by states and local and tribal jurisdictions to implement hazard mitigation activities.

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

**Table 3  
Legal and Regulatory Capability**

| Regulatory Tools/Plans                                            | Regulatory Type: Ordinance Resolution Codes Plans, Etc.                          | Reference Number | Date Adopted | Local Authority | State Prohibited | Higher Authority |
|-------------------------------------------------------------------|----------------------------------------------------------------------------------|------------------|--------------|-----------------|------------------|------------------|
| Building Codes                                                    | Code of Ordinances                                                               | Chapter 18       |              | Y               | N                | N                |
| Capital Improvements Plan                                         | Referenced in the 2030 Comprehensive Town Master Plan                            |                  |              | Y               | N                | N                |
| Comprehensive Plan                                                | 2030 Comprehensive Town Master Plan                                              |                  | January 2009 | Y               | N                | N                |
| Continuity of Operations/Continuity of Government (COOP/COG) Plan | County COOP/COG Plan                                                             |                  |              | N               | N                | Y                |
| Community Rating System                                           | County Rating                                                                    |                  |              | N               | N                | Y                |
| Economic Development Plan                                         | County Plan and the 2030 Comprehensive Town Master Plan                          |                  |              | N               | N                | Y                |
| Emergency Management Accreditation Program Certified              |                                                                                  |                  |              | N               | N                | Y                |
| Emergency Response Plan                                           | County Emergency Operations Plan (EOP)                                           |                  |              | N               | N                | Y                |
| Flood Management Plan                                             | Code of Ordinances                                                               | Chapter 38       |              | Y               | N                | N                |
| Growth Control Ordinance                                          | Referenced in the Code of Ordinances and the 2030 Comprehensive Town Master Plan | Chapter 46       |              | Y               | N                | N                |
| Hazard Setback Regulations                                        |                                                                                  |                  |              |                 |                  |                  |
| Hillside Ordinance                                                |                                                                                  |                  |              |                 |                  |                  |

## Section 6

| Regulatory Tools/Plans                       | Regulatory Type: Ordinance Resolution Codes Plans, Etc.                          | Reference Number        | Date Adopted | Local Authority | State Prohibited | Higher Authority |
|----------------------------------------------|----------------------------------------------------------------------------------|-------------------------|--------------|-----------------|------------------|------------------|
| Historic Ordinance                           | Referenced in the Code of Ordinances and the 2030 Comprehensive Town Master Plan | Chapter 38              |              | Y               | N                | N                |
| National Flood Insurance Program Participant |                                                                                  |                         |              | N               | N                | Y                |
| Post-Disaster Ordinance                      |                                                                                  |                         |              |                 |                  |                  |
| Post-Disaster Recovery Plan                  | County EOP                                                                       |                         |              | N               | N                | Y                |
| Real Estate Disclosure                       | Real Estate Commission                                                           |                         |              | N               | N                | Y                |
| Site Plan Requirements                       | Code of Ordinances                                                               | Chapter 46 - Article IV |              | Y               | N                | N                |
| Subdivision Regulations                      | Code of Ordinances and the 2030 Comprehensive Town Master Plan                   | Chapter 46 - Article IV |              | Y               | N                | N                |
| Wildfire Ordinance                           |                                                                                  |                         |              |                 |                  |                  |
| Zoning Ordinances                            | Code of Ordinances and the 2030 Comprehensive Town Master Plan                   | Appendix A              |              | Y               | N                | N                |

## Administrative and Technical Capabilities

The City of Suwanee has a number of administrative and technical capabilities. City departments include Administrative Services, Economic and Community Development, Financial Services, Planning, Police, Public Works, and Planning and Zoning Board. The City government includes a Mayor and five Council Members. The administrative functions of the City are managed by the City Manager. Other key administrative personnel include the Assistant to the City Manager, Administrative Services Director, Economic and Community Development Director, Financial Services Director, Planning and Inspections Director, Police Chief, Public Works Director, Accounting Manager, Accounting Analyst, Court Clerk, Court Services Administrator, Development Coordinator, Downtown Suwanee Manager, Economic and Community Development Special Projects Coordinator, Events Coordinator,

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

Financial Services Special Projects Analyst, Human Resources Manager, Planning Division Manager, Public Information Officer, Public Works Administrative Assistant, Public Works Assistant to the Director, and Senior Environmental Planner.

### Mitigation Actions

Each jurisdiction participating in this Plan is responsible for implementing specific mitigation actions as prescribed in the adopted mitigation action plan. In each mitigation action plan, every proposed action is assigned to a specific local department or agency in order to assign responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual jurisdictions to update their unique mitigation strategy as needed without altering the broader focus of the countywide Plan. The separate adoption of locally specific actions also ensures that each jurisdiction is not held responsible for monitoring and implementing the actions of other jurisdictions involved in the planning process. A complete list of countywide mitigation strategies is provided in Section 5 of the Gwinnett County Hazard Mitigation Plan.

**Table 4  
Mitigation Actions**

| Goal 1: Reduce Gwinnett County's risk and vulnerability to severe winter storms                                      |                                                                                                                                                             |                 |                              |                |                   |                                                          |           |        |
|----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------------|----------------|-------------------|----------------------------------------------------------|-----------|--------|
| Objective 1.3: Improve Gwinnett County's capability to prepare for, respond to and recover from severe winter storms |                                                                                                                                                             |                 |                              |                |                   |                                                          |           |        |
| Action                                                                                                               | Action/Project Description                                                                                                                                  | Jurisdiction    | Responsible                  | Estimated Cost | Estimated Benefit | Funding Sources                                          | Timeframe | Status |
| 1.3.8                                                                                                                | Identify and bury utility lines in densely populated and commercial areas including Main Street, Martin Farm Road and Buford Highway in the City of Suwanee | City of Suwanee | City Officials, Public Works |                |                   | City Budget, Grants                                      | 2011-2012 | New    |
| Goal 13: Improve Gwinnett County's capability to reduce risk and vulnerability to all-hazards events                 |                                                                                                                                                             |                 |                              |                |                   |                                                          |           |        |
| Objective 13.1: Improve Gwinnett County's information distribution and warning capabilities to citizens              |                                                                                                                                                             |                 |                              |                |                   |                                                          |           |        |
| Action                                                                                                               | Action/Project Description                                                                                                                                  | Jurisdiction    | Responsible                  | Estimated Cost | Estimated Benefit | Funding Sources                                          | Timeframe | Status |
| 13.1.7                                                                                                               | Implement an all-hazards notification system for the City of Suwanee                                                                                        | City of Suwanee | City Officials               |                |                   | City Budget, Federal Emergency Management Agency, Grants | 2010-2012 | New    |

## Section 6

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# TOWN OF BRASELTON, GEORGIA MITIGATION ACTION PLAN

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## Geography and History

The Town of Braselton (Town) is located at 34°5'56"N, 83°47'52"W (34.098764, -83.797814). According to the U.S. Census Bureau, the Town has a total area of 7.2 square miles (18.6 km<sup>2</sup>), all of which is land.

The Town of Braselton is located in not only Jackson County, but spans into three additional counties—including Hall, Gwinnett, and Barrow—giving Braselton a rich heritage. The portions of Braselton that fall under Gwinnett and Barrow Counties are part of the Atlanta-Sandy Springs-Marietta, GA-AL Metropolitan Statistical Area. The portion that is in Hall County is part of the Gainesville, GA Metropolitan Statistical Area. The remaining portion that falls under Jackson County is not part of any Core-Based Statistical Area.

The name Braselton comes from the Braselton family, who has lived in the area for some time. In 1989, the town was bought by the Ameritech Pension fund and actress Kim Basinger for \$20 million. The goal for the Basinger-Braselton partnership was to establish it as a tourist attraction with movie studios and a film festival. Later Basinger sold her portion of Braselton to the Ameritech Fund. Now, much of Braselton's property is under the ownership of developer Wayne Mason.

## Significant Characteristics

As the largest winery in Georgia, the Chateau Elan Winery and Resort attracts more than half a million visitors each year. The wines there have won many regional awards, including 19 from the Atlanta International Wine Festival, two from the Dallas Morning News Wine Competition, and numerous from Florida State Fair awards.

Historical Braselton-Stover House is located in downtown Braselton. It was built in 1916 by Green Braselton. Green was also the second son of the Town's founder, William Harrison Braselton. In December 2000, the house was purchased by Mary and Marvin Stover, who have restored its beauty. This house now has a 6000 square foot banquet facility that can be used for weddings or business functions.

The Lanier National Speedway is also located in Braselton. Its doors opened in 1982 as a dirt facility, but soon became known as a racing showplace. A few years after it opened they paved a track and began holding events; it is now known as Georgia's only NASCAR home track. It offers a great family atmosphere, including many activities for its guests as well as amenities such as RV and large truck parking, concessions, playground for kids and restrooms.

## Section 6

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The Mulberry Riverwalk is an outdoor area that has trails, picnic areas and a view of the falls.

Braselton is also the headquarters of the American Junior Golf Association, the Panoz Motor Sports Group, and the International Motor Sports Association.

## Population and Demographics

As of the 2000 census, there are 1,206 people; 459 households; and 360 families residing in the Town. The population density is 167.4 people per square mile (64.7/km<sup>2</sup>). There are 491 housing units at an average density of 68.5 housing units per square mile (26.3/km<sup>2</sup>). The racial makeup of the town is 91.38 percent White, 1.33 percent African American, 5.56 percent Asian, 0.17 percent Pacific Islander, 3.32 percent Hispanic or Latino (of any race), 0.58 percent from other races, and 1.00 percent from two or more races.

There are 459 households, of which 32.0 percent include children under the age of 18, 68.6 percent are married couples living together, 7.0 percent have a female head of house with no husband present, and 21.4 percent are non-families. Approximately 18.3 percent of all households are made up of individuals, while 6.5 percent have someone living alone who is 65 or older. The average household size is 2.63, and the average family size is 2.96.

The median age of a Braselton resident is 40 years old. In the Town the population is spread out, with 25.7 percent under the age of 18, 5.0 percent from 18 to 24, 28.0 percent from 25 to 44, 31.3 percent from 45 to 64, and 10.0 percent who are 65 or older. For every 100 females, there are 98.7 males. For every 100 females age 18 and over, there are 90.6 males.

The Town's growth has been rapid within the last decade, with the population increasing by 284 percent between 1990 and 2000.

## Economy

The median income for a household in the Town is \$56,563, while the median income for a family is \$64,667. Males have a median income of \$46,477 versus \$27,292 for females. The per capita income for the Town is \$39,135. About 4.1 percent of families and 3.3 percent of the population are below the poverty line, including 6.9 percent of individuals under the age of 18 and 12.6 percent age 65 or over.

Major employers in the Town include distribution warehouses for Sears Appliance Division, Year One, Tractor Supply, Haverty's Furniture and Home Depot. The most common industries for males are construction (9 percent); finance and insurance (8 percent); accommodation and food services (6 percent); administrative and support and waste management services (5 percent); public administration (5 percent); professional, scientific and technical services (4 percent); and truck transportation (4 percent).

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

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The most common industries for females are educational services (13 percent); health care (11 percent); finance and insurance (9 percent); professional, scientific and technical services (8 percent); computer and electronic products (7 percent); public administration (4 percent); and transportation equipment (3 percent).

Braselton-area historical tornado activity is slightly above the Georgia state average. It is 92 percent greater than the overall U.S. average.

On April 3, 1974, an F4 tornado with maximum wind speeds of 207-260 miles per hour (mph) struck 35.0 miles away from the Town center, injuring 30 people and causing between \$500,000 and \$5 million in damages.

On December 13, 1973, an F3 tornado with maximum wind speeds of 158-206 mph struck 14.5 miles away from the Town center, injuring 21 people and causing between \$500,000 and \$5 million in damages.

**Table 1**  
**Single-Family New House Construction Building Permits**

| Year | Permits | Average Cost |
|------|---------|--------------|
| 1998 | 59      | \$326,900    |
| 1999 | 58      | \$383,800    |
| 2000 | 46      | \$520,300    |
| 2001 | 44      | \$378,200    |
| 2002 | 82      | \$310,800    |
| 2003 | 79      | \$321,000    |
| 2004 | 95      | \$318,300    |
| 2005 | 107     | \$318,300    |
| 2006 | 102     | \$318,300    |
| 2007 | 85      | \$318,300    |
| 2008 | 103     | \$220,400    |

## Infrastructure

The Braselton Police Department is located next to Town Hall and has about 12 police officers. An officer is on duty 24 hours each day.

## Section 6

The West Jackson Fire Department serves the Town of Braselton and is staffed by about 30 personnel, all of which work 24 hours on duty with 48 hours off, seven days a week. Volunteers are on-call 24 hours a day.

The Braselton school system consists of the following:

**Table 2**  
**Braselton School Infrastructure**

| School                   | Type         | Enrollment |
|--------------------------|--------------|------------|
| West Jackson             | Primary      | 724        |
| North Jackson            | Elementary   |            |
| West Jackson             | Intermediate |            |
| West Jackson             | Middle       |            |
| Jackson Co Comprehensive | High         |            |

## Land Usage

The Town has a total area of 7.2 square miles (18.6 km<sup>2</sup>), all of which is land.

## Legal and Regulatory Capabilities

The Legal and Regulatory Capability survey documents authorities available to the jurisdiction and/or enabling legislation at the state level affecting planning and land management tools that support local hazard mitigation planning efforts. The identified planning and land management tools are typically used by states and local and tribal jurisdictions to implement hazard mitigation activities.

**Table 3**  
**Legal and Regulatory Capability**

| Regulatory Tools/Plans       | Regulatory Type:<br>Ordinance Resolution<br>Codes Plans, Etc. | Reference<br>Number | Date Adopted | Local Authority | State Prohibited | Higher Authority |
|------------------------------|---------------------------------------------------------------|---------------------|--------------|-----------------|------------------|------------------|
| Building Codes               |                                                               |                     |              | Y               | N                | N                |
| Capital Improvements<br>Plan |                                                               |                     |              | Y               | N                | N                |
| Comprehensive Plan           | 2030 Comprehensive<br>Plan                                    |                     |              | Y               | N                | N                |

## INDIVIDUAL JURISDICTION MITIGATION ACTION PLANS

| Regulatory Tools/Plans                                            | Regulatory Type:<br>Ordinance Resolution<br>Codes Plans, Etc. | Reference<br>Number | Date Adopted | Local Authority | State Prohibited | Higher Authority |
|-------------------------------------------------------------------|---------------------------------------------------------------|---------------------|--------------|-----------------|------------------|------------------|
| Continuity of Operations/Continuity of Government (COOP/COG) Plan | County COOP/COG Plan                                          |                     |              | N               | N                | Y                |
| Community Rating System                                           | County Rating                                                 |                     |              | N               | N                | Y                |
| Economic Development Plan                                         | County Plan                                                   |                     |              | N               | N                | Y                |
| Emergency Management Accreditation Program Certified              |                                                               |                     |              | N               | N                | Y                |
| Emergency Response Plan                                           | County Emergency Operations Plan (EOP)                        |                     |              | N               | N                | Y                |
| Flood Management Plan                                             |                                                               |                     |              | Y               | N                | N                |
| Growth Control Ordinance                                          |                                                               |                     |              | Y               | N                | N                |
| Hazard Setback Regulations                                        |                                                               |                     |              |                 |                  |                  |
| Hillside Ordinance                                                |                                                               |                     |              |                 |                  |                  |
| Historic Ordinance                                                |                                                               |                     |              | Y               | N                | N                |
| National Flood Insurance Program (NFIP) Participant               | Participates in NFIP                                          |                     |              | N               | N                | Y                |
| Post-Disaster Ordinance                                           |                                                               |                     |              |                 |                  |                  |
| Post-Disaster Recovery Plan                                       | County EOP                                                    |                     |              | N               | N                | Y                |
| Real Estate Disclosure                                            | Real Estate Commission                                        |                     |              | N               | N                | Y                |
| Site Plan Requirements                                            |                                                               |                     |              | Y               | N                | N                |
| Subdivision Regulations                                           |                                                               |                     |              | Y               | N                | N                |
| Wildfire Ordinance                                                |                                                               |                     |              |                 |                  |                  |
| Zoning Ordinances                                                 |                                                               |                     |              | Y               | N                | N                |

## **Administrative and Technical Capabilities**

The Town of Braselton has a number of administrative and technical capabilities. Town departments include Police, Planning, Finance, Public Works, Wastewater, and the Zoning Board of Appeals. The Town government includes a Mayor and four Council Members. The administrative functions of the town are managed by the Town Manager/Clerk. Other key personnel include the Police Chief, Planning Director, Finance Director, Director of Public Works, Water Superintendent, Wastewater Superintendent and the Planning Commission.

## **Mitigation Actions**

Each jurisdiction participating in this Plan is responsible for implementing specific mitigation actions as prescribed in the adopted mitigation action plan. In each mitigation action plan, every proposed action is assigned to a specific local department or agency in order to assign responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual jurisdictions to update their unique mitigation strategy as needed without altering the broader focus of the countywide Plan. The separate adoption of locally specific actions also ensures that each jurisdiction is not held responsible for monitoring and implementing the actions of other jurisdictions involved in the planning process. A complete list of countywide mitigation strategies is provided in Section 5 of the Gwinnett County Hazard Mitigation Plan.

**Table 4  
Mitigation Actions**

| <b>Goal 13: Improve Gwinnett County's capability to reduce risk and vulnerability to all-hazards events</b>    |                                                                         |                                                                                                                         |                    |                       |                          |                                                                         |                  |               |
|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------|--------------------------|-------------------------------------------------------------------------|------------------|---------------|
| <b>Objective 13.1: Improve Gwinnett County's information distribution and warning capabilities to citizens</b> |                                                                         |                                                                                                                         |                    |                       |                          |                                                                         |                  |               |
| <b>Action</b>                                                                                                  | <b>Action/Project Description</b>                                       | <b>Jurisdiction</b>                                                                                                     | <b>Responsible</b> | <b>Estimated Cost</b> | <b>Estimated Benefit</b> | <b>Funding Sources</b>                                                  | <b>Timeframe</b> | <b>Status</b> |
| 13.1.10                                                                                                        | Develop and distribute multi-lingual all-hazards preparedness materials | City of Buford,<br>City of Grayson,<br>City of Norcross,<br>City of Duluth,<br>City of Sugar Hill,<br>Town of Braselton | City Officials     |                       |                          | City Budget,<br>Federal<br>Emergency<br>Management<br>Agency,<br>Grants | 2010-2012        | New           |

# Appendix A

## HAZARD VULNERABILITY ASSESSMENT DATA

**Table A-1  
Winter Storm Events**

|    | Location or County | Date     | Time | Type               | Mag  | Dth | Inj | PrD                 |
|----|--------------------|----------|------|--------------------|------|-----|-----|---------------------|
| 1  | Gwinnett           | 2/23/99  | 1100 | Snow               | N/A  | 0   | 0   | 0                   |
| 2  | Gwinnett           | 1/22/00  | 1300 | Ice Storm          | N/A  | 0   | 1   | \$48 M Statewide    |
| 3  | Gwinnett           | 1/28/00  | 1900 | Ice Storm          | N/A. | 0   | 0   | \$ 2 M Statewide    |
| 4  | Gwinnett           | 12/17/00 | 1930 | Winter Storm       | N/A  | 0   | 0   | 0                   |
| 5  | Gwinnett           | 12/21/00 | 1530 | Winter Storm       | N/A  | 0   | 0   | 0                   |
| 6  | Gwinnett           | 1/02/02  | 0600 | Heavy Snow         | N/A  | 0   | 0   | 0                   |
| 7  | Gwinnett           | 12/04/02 | 1400 | Ice Storm          | N/A  | 0   | 0   | \$ 50,000 Statewide |
| 8  | Gwinnett           | 1/23/03  | 1200 | Snow               | N/A  | 0   | 0   | 0                   |
| 9  | Gwinnett           | 1/25/04  | 0500 | Ice Storm          | N/A  | 0   | 1   | \$925,000 Statewide |
| 10 | Gwinnett           | 2/26/04  | 1200 | Winter Storm       | N/A  | 0   | 0   | 0                   |
| 11 | Gwinnett           | 1/28/05  | 2000 | Winter Storm       | N/A  | 0   | 0   | \$9.8 M Statewide   |
| 12 | Gwinnett           | 4/02/05  | 1000 | Winter Weather/Mix | N/A  | 0   | 0   | 0                   |
| 13 | Gwinnett           | 12/15/05 | 1200 | Ice Storm          | N/A  | 0   | 0   | \$953,000 Statewide |
| 14 | Gwinnett           | 2/06/06  | 0400 | Winter Weather     | N/A  | 0   | 0   | 0                   |
| 15 | Gwinnett           | 1/19/08  | 2430 | Winter Weather     | N/A  | 0   | 0   | 0                   |
| 16 | Gwinnett           | 3/01/09  | 1200 | Heavy Snow         | N/A  | 0   | 0   | \$25,000 Statewide  |
| 17 | Gwinnett           | 3/01/09  | 1200 | Winter Weather     | N/A  | 0   | 0   | 0                   |

**Table A-2  
Thunderstorms and High Winds**

|   | Location or County | Date    | Time | Type      | Mag     | Dth | Inj | PrD |
|---|--------------------|---------|------|-----------|---------|-----|-----|-----|
| 1 | Gwinnett           | 7/15/56 | 1530 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 2 | Gwinnett           | 8/13/63 | 1505 | Tstm Wind | 50 kts. | 0   | 0   | 0   |
| 3 | Gwinnett           | 8/24/68 | 1500 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |

## Appendix A

|    | Location or County | Date     | Time | Type      | Mag     | Dth | Inj | PrD |
|----|--------------------|----------|------|-----------|---------|-----|-----|-----|
| 4  | Gwinnett           | 9/27/72  | 1527 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 5  | Gwinnett           | 3/30/74  | 105  | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 6  | Gwinnett           | 1/10/75  | 1915 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 7  | Gwinnett           | 3/7/75   | 1615 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 8  | Gwinnett           | 3/13/75  | 1940 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 9  | Gwinnett           | 5/18/81  | 2204 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 10 | Gwinnett           | 6/10/81  | 2000 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 11 | Gwinnett           | 5/3/84   | 1400 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 12 | Gwinnett           | 7/16/84  | 1430 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 13 | Gwinnett           | 11/10/84 | 1740 | Tstm Wind | 0 kts.  | 0   | 3   | 0   |
| 14 | Gwinnett           | 11/10/84 | 1800 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 15 | Gwinnett           | 4/5/85   | 1930 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 16 | Gwinnett           | 7/21/86  | 1545 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 17 | Gwinnett           | 7/27/86  | 1145 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 18 | Gwinnett           | 7/27/86  | 1205 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 19 | Gwinnett           | 8/16/86  | 1730 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 20 | Gwinnett           | 8/16/86  | 1800 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 21 | Gwinnett           | 11/20/86 | 825  | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 22 | Gwinnett           | 6/3/87   | 1655 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 23 | Gwinnett           | 7/26/87  | 1430 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 24 | Gwinnett           | 8/8/87   | 1400 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 25 | Gwinnett           | 4/4/89   | 1415 | Tstm Wind | 52 kts. | 0   | 0   | 0   |
| 26 | Gwinnett           | 5/5/89   | 1355 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 27 | Gwinnett           | 6/13/89  | 730  | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 28 | Gwinnett           | 6/14/89  | 1650 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 29 | Gwinnett           | 6/22/89  | 1200 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |
| 30 | Gwinnett           | 7/16/89  | 1330 | Tstm Wind | 0 kts.  | 0   | 0   | 0   |

## HAZARD VULNERABILITY ASSESSMENT DATA

|    | Location or County | Date     | Time | Type               | Mag    | Dth | Inj | PrD |
|----|--------------------|----------|------|--------------------|--------|-----|-----|-----|
| 31 | Gwinnett           | 7/19/89  | 1800 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 32 | Gwinnett           | 7/21/89  | 1215 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 33 | Gwinnett           | 7/21/89  | 1300 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 34 | Gwinnett           | 8/26/89  | 1748 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 35 | Gwinnett           | 11/15/89 | 1930 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 36 | Gwinnett           | 2/10/90  | 500  | Tstm Wind          | 0 kts. | 1   | 0   | 0   |
| 37 | Gwinnett           | 2/10/90  | 530  | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 38 | Gwinnett           | 5/20/90  | 1345 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 39 | Gwinnett           | 5/20/90  | 1430 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 40 | Gwinnett           | 8/2/90   | 1255 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 41 | Gwinnett           | 8/21/90  | 1720 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 42 | Gwinnett           | 8/22/90  | 1755 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 43 | Gwinnett           | 8/22/90  | 2015 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 44 | Gwinnett           | 3/29/91  | 840  | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 45 | Gwinnett           | 4/27/91  | 1715 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 46 | Gwinnett           | 4/29/91  | 1250 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 47 | Gwinnett           | 4/29/91  | 1325 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 48 | Gwinnett           | 5/5/91   | 1639 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 49 | Gwinnett           | 7/24/91  | 1500 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 50 | Gwinnett           | 6/30/92  | 1454 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 51 | Gwinnett           | 6/30/92  | 1535 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 52 | Gwinnett           | 7/1/92   | 1454 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 53 | Gwinnett           | 7/1/92   | 1535 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 54 | Gwinnett           | 7/5/92   | 1545 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 55 | Gwinnett           | 7/5/92   | 1605 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 56 | Gwinnett           | 8/10/92  | 1635 | Tstm Wind          | 0 kts. | 0   | 0   | 0   |
| 57 | Duluth             | 5/13/93  | 1130 | Thunderstorm Winds | 0 kts. | 0   | 0   | 50K |

## Appendix A

|    | Location or County                                                                     | Date     | Time | Type               | Mag     | Dth | Inj | PrD  |
|----|----------------------------------------------------------------------------------------|----------|------|--------------------|---------|-----|-----|------|
| 58 | GAZ001>065                                                                             | 12/11/93 | 1000 | High Winds         | 0 kts.  | 0   | 0   | 500K |
| 59 | Snellville                                                                             | 5/21/94  | 1600 | Thunderstorm Winds | 0 kts.  | 0   | 0   | 50K  |
| 60 | Gwinnett                                                                               | 7/4/94   | 2100 | High Winds         | 0 kts.  | 0   | 0   | 0K   |
| 61 | Lawrenceville                                                                          | 6/10/95  | 1726 | Thunderstorm Winds | 0 kts.  | 0   | 0   | 1K   |
| 62 | Lilburn                                                                                | 6/10/95  | 1726 | Thunderstorm Winds | 0 kts.  | 0   | 0   | 1K   |
| 63 | Snellville                                                                             | 7/21/95  | 1235 | Thunderstorm Winds | 0 kts.  | 0   | 0   | 1K   |
| 64 | Grayson                                                                                | 9/14/95  | 930  | Thunderstorm Winds | 0 kts.  | 0   | 0   | 20K  |
| 65 | GAZ001>17<br>19>23>30>34<br>>41>46>52>57<br>66>70>78>80<br>89>93<br>102>106 120<br>122 | 10/5/95  | 600  | Thunderstorm Winds | 0 kts.  | 0   | 7   | 0    |
| 66 | Lawrenceville                                                                          | 3/6/96   | 0730 | Tstm Wind          | 0 kts.  | 0   | 0   | 5K   |
| 67 | Lilburn                                                                                | 8/23/96  | 1759 | Tstm Wind          | 0 kts.  | 0   | 0   | 20K  |
| 68 | Lawrenceville                                                                          | 8/24/96  | 1600 | Tstm Wind          | 0 kts.  | 0   | 0   | 2K   |
| 69 | Duluth                                                                                 | 3/5/97   | 1640 | Tstm Wind          | 60 kts. | 0   | 0   | 1K   |
| 70 | Lawrenceville                                                                          | 3/5/97   | 1900 | Tstm Wind          | 0 kts.  | 0   | 0   | 2K   |
| 71 | Norcross                                                                               | 4/28/97  | 1530 | Tstm Wind          | 0 kts.  | 0   | 0   | 2K   |
| 72 | Buford                                                                                 | 6/14/97  | 1530 | Tstm Wind          | 0 kts.  | 0   | 0   | 2K   |
| 73 | Lawrenceville                                                                          | 6/25/97  | 2010 | Tstm Wind          | 0 kts.  | 0   | 0   | 2K   |
| 74 | Lilburn                                                                                | 7/28/97  | 1750 | Tstm Wind          | 50 kts. | 0   | 0   | 6K   |
| 75 | Lawrenceville                                                                          | 7/28/97  | 1755 | Tstm Wind          | 50 kts. | 0   | 0   | 2K   |
| 76 | Buford                                                                                 | 7/28/97  | 1830 | Tstm Wind          | 50 kts. | 0   | 0   | 4K   |
| 77 | Stone Mtn                                                                              | 7/28/97  | 1830 | Tstm Wind          | 50 kts. | 0   | 0   | 3K   |
| 78 | GAZ013>014<br>– 020>025 –<br>027 –<br>031>037 –<br>042>043 –<br>043>047                | 2/3/98   | 1000 | Strong Wind        | 0 kts.  | 0   | 0   | 100K |
| 79 | Norcross                                                                               | 4/9/98   | 1245 | Tstm Wind          | 0 kts.  | 0   | 0   | 15K  |

## HAZARD VULNERABILITY ASSESSMENT DATA

|     | Location or County                                                                                                                     | Date    | Time | Type      | Mag     | Dth | Inj | PrD  |
|-----|----------------------------------------------------------------------------------------------------------------------------------------|---------|------|-----------|---------|-----|-----|------|
| 80  | Grayson                                                                                                                                | 5/3/98  | 2010 | Tstm Wind | 0 kts.  | 0   | 0   | 1K   |
| 81  | Suwanee                                                                                                                                | 6/5/98  | 1900 | Tstm Wind | 0 kts.  | 0   | 0   | 5K   |
| 82  | Norcross                                                                                                                               | 6/16/98 | 1225 | Tstm Wind | 0 kts.  | 0   | 0   | 5K   |
| 83  | Norcross                                                                                                                               | 6/19/98 | 1110 | Tstm Wind | 0 kts.  | 0   | 0   | 20K  |
| 84  | Suwanee                                                                                                                                | 6/30/98 | 1920 | Tstm Wind | 52 kts. | 0   | 0   | 3K   |
| 85  | Duluth                                                                                                                                 | 7/20/98 | 1555 | Tstm Wind | 0 kts.  | 0   | 0   | 1K   |
| 86  | Lilburn                                                                                                                                | 2/27/99 | 2315 | Tstm Wind | 0 kts.  | 0   | 0   | 10K  |
| 87  | Lilburn                                                                                                                                | 7/10/99 | 1730 | Tstm Wind | 0 kts.  | 0   | 0   | 1K   |
| 88  | Lawrenceville                                                                                                                          | 7/24/99 | 1302 | Tstm Wind | 0 kts.  | 0   | 0   | 0K   |
| 89  | Centerville                                                                                                                            | 7/24/99 | 1532 | Tstm Wind | 0 kts.  | 0   | 0   | 1K   |
| 90  | Norcross                                                                                                                               | 9/21/99 | 1345 | Tstm Wind | 0 kts.  | 0   | 0   | 1K   |
| 91  | Dacula                                                                                                                                 | 5/25/00 | 1715 | Tstm Wind | 0 kts.  | 0   | 0   | 0K   |
| 92  | Norcross                                                                                                                               | 7/11/00 | 2000 | Tstm Wind | 0 kts.  | 0   | 0   | 5K   |
| 93  | Snellville                                                                                                                             | 7/23/00 | 1355 | Tstm Wind | 50 kts. | 0   | 0   | 3K   |
| 94  | Duluth                                                                                                                                 | 7/30/00 | 1725 | Tstm Wind | 0 kts.  | 0   | 0   | 3K   |
| 95  | Duluth                                                                                                                                 | 9/4/00  | 2022 | Tstm Wind | 0 kts.  | 0   | 0   | 2K   |
| 96  | Countywide                                                                                                                             | 2/16/01 | 1838 | Tstm Wind | 0 kts.  | 0   | 0   | 5K   |
| 97  | GAZ006>009<br>– 013>016 –<br>021>025 –<br>027 –<br>032>038 –<br>043>050 –<br>053>055 –<br>057>061 –<br>066 –<br>072>073 –<br>078 – 082 | 3/20/01 | 0600 | High Wind | 0 kts.  | 0   | 0   | 1.5M |
| 98  | Lawrenceville                                                                                                                          | 7/2/01  | 1915 | Tstm Wind | 0 kts.  | 0   | 0   | 2K   |
| 99  | Centerville                                                                                                                            | 3/31/02 | 1430 | Tstm Wind | 0 kts.  | 0   | 0   | 2K   |
| 100 | Lawrenceville                                                                                                                          | 4/28/02 | 2135 | Tstm Wind | 0 kts.  | 0   | 0   | 2K   |
| 101 | Snellville                                                                                                                             | 5/13/02 | 1500 | Tstm Wind | 0 kts.  | 0   | 0   | 3K   |

## Appendix A

|     | Location or County                                                                                         | Date     | Time | Type           | Mag     | Dth | Inj | PrD  |
|-----|------------------------------------------------------------------------------------------------------------|----------|------|----------------|---------|-----|-----|------|
| 102 | Suwanee                                                                                                    | 7/1/02   | 1740 | Tstm Wind      | 0 kts.  | 0   | 0   | 2K   |
| 103 | Suwanee                                                                                                    | 7/1/02   | 1615 | Tstm Wind      | 0 kts.  | 0   | 0   | 0K   |
| 104 | Duluth                                                                                                     | 7/31/02  | 1610 | Tstm Wind      | 0 kts.  | 0   | 0   | 1K   |
| 105 | Suwanee                                                                                                    | 8/2/02   | 1915 | Tstm Wind/hail | 0 kts.  | 0   | 0   | 0K   |
| 106 | Lilburn                                                                                                    | 8/19/02  | 1646 | Tstm Wind      | 0 kts.  | 0   | 0   | 15K  |
| 107 | Lilburn                                                                                                    | 8/20/02  | 1815 | Tstm Wind/hail | 0 kts.  | 0   | 0   | 0    |
| 108 | GAZ001>009<br>– 011>016 –<br>019>022 –<br>024 –<br>030>034 –<br>041>045 –<br>052>053 –<br>066>067 –<br>078 | 9/26/02  | 1800 | Strong Wind    | 0 kts.  | 0   | 0   | 22K  |
| 109 | GAZ001>009<br>– 011>016 –<br>019>024 –<br>030>034 –<br>041>045 –<br>052>053 –<br>066>067 –<br>078          | 9/27/02  | 0300 | Strong Wind    | 0 kts.  | 0   | 0   | 32K  |
| 110 | Duluth                                                                                                     | 10/28/02 | 1450 | Tstm Wind      | 0 kts.  | 0   | 0   | 75K  |
| 111 | Lawrenceville                                                                                              | 10/28/02 | 1515 | Tstm Wind      | 0 kts.  | 0   | 0   | 100K |
| 112 | Duluth                                                                                                     | 11/11/02 | 0327 | Tstm Wind      | 0 kts.  | 0   | 0   | 15K  |
| 113 | GAZ023>024<br>– 034>037 –<br>047 – 049                                                                     | 12/13/02 | 0630 | High Wind      | 0 kts.  | 0   | 0   | 554K |
| 114 | Snellville                                                                                                 | 2/22/03  | 0530 | Tstm Wind      | 50 kts. | 0   | 0   | 2K   |
| 115 | Grayson                                                                                                    | 5/2/03   | 1740 | Tstm Wind      | 50 kts. | 0   | 0   | 3K   |
| 116 | Buford                                                                                                     | 6/16/03  | 2205 | Tstm Wind      | 52 kts. | 0   | 0   | 0    |
| 117 | Countywide                                                                                                 | 7/13/03  | 2100 | Tstm Wind      | 50 kts. | 0   | 0   | 5K   |
| 118 | Suwanee                                                                                                    | 7/22/03  | 1310 | Tstm Wind      | 50 kts. | 0   | 2   | 75K  |
| 119 | Duluth                                                                                                     | 7/22/03  | 1220 | Tstm Wind      | 50 kts. | 0   | 0   | 3K   |
| 120 | Lawrenceville                                                                                              | 8/28/03  | 1630 | Tstm Wind      | 50 kts. | 0   | 0   | 5K   |
| 121 | GAZ001>009<br>– 011>016 –                                                                                  | 2/25/04  | 2130 | Strong Wind    | 39 kts. | 0   | 0   | 170K |

## HAZARD VULNERABILITY ASSESSMENT DATA

|     | Location or County                                                                                                                                                                                          | Date    | Time | Type        | Mag     | Dth | Inj | PrD   |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|------|-------------|---------|-----|-----|-------|
|     | 019>025 –<br>027 –<br>030>039 –<br>041>060 –<br>066>073 –<br>078 – 082 –<br>089>090                                                                                                                         |         |      |             |         |     |     |       |
| 122 | Norcross                                                                                                                                                                                                    | 5/22/04 | 1221 | Tstm Wind   | 39 kts. | 0   | 3   | 0     |
| 123 | Lawrenceville                                                                                                                                                                                               | 6/23/04 | 1700 | Tstm Wind   | 39 kts. | 0   | 0   | 2K    |
| 124 | Dacula                                                                                                                                                                                                      | 6/23/04 | 1720 | Tstm Wind   | 39 kts. | 0   | 0   | 0K    |
| 125 | Centerville                                                                                                                                                                                                 | 7/9/04  | 1530 | Tstm Wind   | 52 kts. | 0   | 0   | 500K  |
| 126 | GAZ021>023 –<br>032>036 –<br>045>046 –<br>048>050 –<br>052>060 –<br>066>073 –<br>075 –<br>079>085 –<br>091>098 –<br>104>113                                                                                 | 9/6/04  | 1630 | High Wind   | 36 kts. | 0   | 0   | 14.0M |
| 127 | GAZ001>002 –<br>006>009 –<br>011 –<br>013>016 –<br>019>025 –<br>030>038 –<br>041>047 –<br>049 – 049 –<br>053>056 –<br>066 –<br>068>069 –<br>071 – 089                                                       | 9/16/04 | 1000 | High Wind   | 65 kts. | 0   | 2   | 14.3M |
| 128 | GAZ008 –<br>014 – 016 –<br>022>025 –<br>027 –<br>033>039 –<br>043>045 –<br>047>051 –<br>053>055 –<br>055>060 –<br>062 – 067 –<br>069 – 071 –<br>073>076 –<br>080 – 084 –<br>086 –<br>091>095 –<br>107>110 – | 9/27/04 | 0530 | Strong Wind | 30 kts. | 0   | 0   | 758K  |

## Appendix A

|     | Location or County                                                                                                                   | Date     | Time | Type        | Mag     | Dth | Inj | PrD  |
|-----|--------------------------------------------------------------------------------------------------------------------------------------|----------|------|-------------|---------|-----|-----|------|
|     | 112>113                                                                                                                              |          |      |             |         |     |     |      |
| 129 | Lawrenceville                                                                                                                        | 11/24/04 | 1055 | Tstm Wind   | 50 kts. | 0   | 1   | 100K |
| 130 | Snellville                                                                                                                           | 12/9/04  | 2150 | Tstm Wind   | 50 kts. | 0   | 0   | 1K   |
| 131 | GAZ002>009<br>– 012>016 –<br>019>024 –<br>030>034 –<br>041 – 043 –<br>054 – 082 –<br>097                                             | 1/22/05  | 1900 | Strong Wind | 33 kts. | 0   | 0   | 148K |
| 132 | GAZ030 –<br>034 – 037                                                                                                                | 3/8/05   | 0330 | Strong Wind | 31 kts. | 0   | 0   | 6K   |
| 133 | GAZ001>004<br>– 008 – 012 –<br>014>016 –<br>019 –<br>022>025 –<br>027 – 030 –<br>032>039 –<br>045>047 –<br>050 –<br>053>060 –<br>076 | 4/2/05   | 0600 | Strong Wind | 36 kts. | 0   | 2   | 271K |
| 134 | Buford                                                                                                                               | 6/6/05   | 1815 | Tstm Wind   | 54 kts. | 0   | 0   | 0    |
| 135 | Dacula                                                                                                                               | 6/6/05   | 1835 | Tstm Wind   | 39 kts. | 0   | 0   | 1K   |
| 136 | GAZ001>008<br>– 011>015 –<br>019>023 –<br>030>035 –<br>041>049 –<br>052>058 –<br>066>070 –<br>078>080 –<br>089>093 –<br>102>104      | 7/10/05  | 1500 | Strong Wind | 34 kts. | 0   | 0   | 246K |
| 137 | Lilburn                                                                                                                              | 8/4/05   | 2145 | Tstm Wind   | 35 kts. | 0   | 0   | 1K   |
| 138 | Countywide                                                                                                                           | 8/29/05  | 1638 | Tstm Wind   | 34 kts. | 0   | 1   | 5K   |
| 139 | Lilburn                                                                                                                              | 8/29/05  | 1839 | Tstm Wind   | 32 kts. | 0   | 0   | 1K   |
| 140 | GAZ006 –<br>033>034 –<br>043>046 –<br>048                                                                                            | 8/30/05  | 0300 | Strong Wind | 32 kts. | 0   | 0   | 19K  |
| 141 | Lilburn                                                                                                                              | 4/8/06   | 0332 | Tstm Wind   | 52 kts. | 0   | 0   | 150K |
| 142 | Lawrenceville                                                                                                                        | 5/18/06  | 1626 | Tstm Wind   | 39 kts. | 0   | 0   | 30K  |

## HAZARD VULNERABILITY ASSESSMENT DATA

|     | Location or County | Date    | Time | Type              | Mag     | Dth       | Inj       | PrD             |
|-----|--------------------|---------|------|-------------------|---------|-----------|-----------|-----------------|
| 143 | Suwanee            | 6/7/06  | 1745 | Tstm Wind         | 35 kts. | 0         | 0         | 25K             |
| 144 | Sugar Hill         | 7/15/06 | 1536 | Tstm Wind         | 35 kts. | 0         | 0         | 1K              |
| 145 | Buford             | 7/22/06 | 1745 | Tstm Wind         | 51 kts. | 0         | 0         | 1K              |
| 146 | Snellville         | 8/5/06  | 1715 | Tstm Wind         | 50 kts. | 0         | 0         | 4K              |
| 147 | Duluth             | 8/7/06  | 2121 | Tstm Wind         | 50 kts. | 0         | 0         | 250K            |
| 148 | Suwanee            | 1/5/07  | 1154 | Thunderstorm Wind | 52 kts. | 0         | 0         | 75K             |
| 149 | Buford             | 4/4/07  | 0128 | Thunderstorm Wind | 52 kts. | 0         | 0         | 350K            |
| 150 | Hog Mtn            | 6/5/07  | 1448 | Thunderstorm Wind | 43 kts. | 0         | 0         | 1K              |
| 151 | Norcross           | 7/10/07 | 1255 | Thunderstorm Wind | 35 kts. | 0         | 0         | 30K             |
| 152 | Snellville         | 8/23/07 | 1900 | Thunderstorm Wind | 35 kts. | 0         | 0         | 1K              |
| 153 | Duluth             | 2/26/08 | 0639 | Thunderstorm Wind | 52 kts. | 0         | 0         | 1.0M            |
| 154 | GAZ034 – 035       | 5/11/08 | 1300 | Strong Wind       | 39 kts. | 1         | 0         | 10K             |
| 155 | Lawrenceville      | 7/8/08  | 1847 | Thunderstorm Wind | 45 kts. | 0         | 1         | 25K             |
| 156 | Dacula             | 7/22/08 | 1745 | Thunderstorm Wind | 37 kts. | 0         | 0         | 5K              |
| 157 | Duluth             | 7/22/08 | 1800 | Thunderstorm Wind | 50 kts. | 0         | 0         | 25K             |
|     | <b>TOTALS:</b>     |         |      |                   |         | <b>12</b> | <b>24</b> | <b>110.722M</b> |

**Table A-3  
Lightning 1/01/1950 thru 03/31/2009**

|   | Location or County | Date    | Time | Type      | Magnitude | Death | Injuries | Property Damage |
|---|--------------------|---------|------|-----------|-----------|-------|----------|-----------------|
| 1 | Lilburn            | 6/8/94  | 1600 | Lightning | N/A       | 0     | 0        | 50K             |
| 2 | Norcross           | 6/8/94  | 1615 | Lightning | N/A       | 0     | 0        | 5K              |
| 3 | Lawrenceville      | 4/22/95 | 1114 | Lightning | N/A       | 0     | 0        | 2K              |
| 4 | Lilburn            | 4/22/95 | 1117 | Lightning | N/A       | 0     | 0        | 1K              |
| 5 | Buford             | 5/14/95 | 1400 | Lightning | N/A       | 0     | 4        | 0               |
| 6 | Lilburn            | 7/28/97 | 1820 | Lightning | N/A       | 0     | 0        | 80K             |
| 7 | Lilburn            | 9/10/97 | 1730 | Lightning | N/A       | 1     | 1        | 0               |
| 8 | Lawrenceville      | 5/30/98 | 0845 | Lightning | N/A       | 0     | 0        | 75K             |

## Appendix A

|    | Location or County | Date     | Time | Type      | Magnitude | Death | Injuries | Property Damage |
|----|--------------------|----------|------|-----------|-----------|-------|----------|-----------------|
| 9  | Dacula             | 6/10/98  | 1700 | Lightning | N/A       | 0     | 0        | 10K             |
| 10 | Lawrenceville      | 5/6/99   | 0800 | Lightning | N/A       | 0     | 0        | 10K             |
| 11 | Centerville        | 5/7/99   | 0500 | Lightning | N/A       | 0     | 0        | 10K             |
| 12 | Duluth             | 7/6/99   | 1630 | Lightning | N/A       | 0     | 0        | 200K            |
| 13 | Buford             | 7/10/99  | 1730 | Lightning | N/A       | 0     | 0        | 30K             |
| 14 | Norcross           | 8/8/99   | 1800 | Lightning | N/A       | 0     | 0        | 10K             |
| 15 | Countywide         | 7/11/00  | 1915 | Lightning | N/A       | 0     | 0        | 75K             |
| 16 | Sugar Hill         | 8/11/00  | 1255 | Lightning | N/A       | 0     | 0        | 25K             |
| 17 | Countywide         | 9/21/00  | 0600 | Lightning | N/A       | 0     | 2        | 625K            |
| 18 | Snellville         | 9/25/00  | 2000 | Lightning | N/A       | 0     | 0        | 275K            |
| 19 | Lawrenceville      | 1/19/01  | 1305 | Lightning | N/A       | 0     | 0        | 325K            |
| 20 | Snellville         | 5/19/01  | 1500 | Lightning | N/A       | 0     | 0        | 25K             |
| 21 | Suwanee            | 1/22/02  | 1920 | Lightning | N/A       | 0     | 0        | 200K            |
| 22 | Lilburn            | 4/28/02  | 2106 | Lightning | N/A       | 0     | 0        | 50K             |
| 23 | Lilburn            | 5/3/02   | 0745 | Lightning | N/A       | 0     | 0        | 1K              |
| 24 | Dacula             | 6/6/02   | 1645 | Lightning | N/A       | 0     | 0        | 25K             |
| 25 | Duluth             | 6/6/02   | 1820 | Lightning | N/A       | 0     | 0        | 50K             |
| 26 | Snellville         | 6/6/02   | 1900 | Lightning | N/A       | 0     | 0        | 10K             |
| 27 | Lawrenceville      | 6/30/02  | 2340 | Lightning | N/A       | 0     | 0        | 10K             |
| 28 | Duluth             | 7/23/02  | 1700 | Lightning | N/A       | 0     | 0        | 550K            |
| 29 | Snellville         | 8/17/02  | 1830 | Lightning | N/A       | 0     | 0        | 30K             |
| 30 | Lawrenceville      | 12/24/02 | 0856 | Lightning | N/A       | 0     | 0        | 25K             |
| 31 | Lawrenceville      | 4/21/03  | 1123 | Lightning | N/A       | 0     | 0        | 5K              |
| 32 | Countywide         | 5/2/03   | 1925 | Lightning | N/A       | 0     | 1        | 250K            |
| 33 | Lawrenceville      | 6/13/03  | 1630 | Lightning | N/A       | 0     | 0        | 5K              |
| 34 | Dacula             | 6/17/03  | 1220 | Lightning | N/A       | 0     | 0        | 1K              |
| 35 | Lawrenceville      | 7/4/03   | 1400 | Lightning | N/A       | 0     | 0        | 15K             |

## HAZARD VULNERABILITY ASSESSMENT DATA

|    | Location or County | Date    | Time | Type      | Magnitude | Death | Injuries | Property Damage |
|----|--------------------|---------|------|-----------|-----------|-------|----------|-----------------|
| 36 | Suwanee            | 7/4/03  | 1410 | Lightning | N/A       | 0     | 0        | 1K              |
| 37 | Snellville         | 7/21/03 | 1730 | Lightning | N/A       | 1     | 0        | 0               |
| 38 | Lawrenceville      | 5/22/04 | 1221 | Lightning | N/A       | 0     | 0        | 50K             |
| 39 | Sugar Hill         | 6/27/04 | 1400 | Lightning | N/A       | 3     | 6        | 50K             |
| 40 | Lilburn            | 7/4/04  | 1537 | Lightning | N/A       | 0     | 0        | 275K            |
| 41 | Suwanee            | 3/22/05 | 1313 | Lightning | N/A       | 0     | 0        | 375K            |
| 42 | Duluth             | 3/22/05 | 1452 | Lightning | N/A       | 0     | 0        | 30K             |
| 43 | Norcross           | 3/31/05 | 0720 | Lightning | N/A       | 0     | 0        | 225K            |
| 44 | Buford             | 7/19/05 | 1338 | Lightning | N/A       | 0     | 0        | 132K            |
| 45 | Norcross           | 8/5/05  | 1530 | Lightning | N/A       | 0     | 0        | 150K            |
| 46 | Snellville         | 8/29/05 | 1608 | Lightning | N/A       | 0     | 0        | 50K             |
| 47 | Lawrenceville      | 4/20/06 | 2007 | Lightning | N/A       | 0     | 0        | 10K             |
| 48 | Buford             | 5/3/06  | 0252 | Lightning | N/A       | 0     | 0        | 2K              |
| 49 | Buford             | 5/25/06 | 1626 | Lightning | N/A       | 0     | 0        | 3K              |
| 50 | Lawrenceville      | 5/25/06 | 1638 | Lightning | N/A       | 0     | 0        | 5K              |
| 51 | Grayson            | 5/25/06 | 1651 | Lightning | N/A       | 0     | 0        | 7K              |
| 52 | Lilburn            | 6/7/06  | 1800 | Lightning | N/A       | 0     | 0        | 200K            |
| 53 | Duluth             | 6/22/06 | 1710 | Lightning | N/A       | 0     | 0        | 550K            |
| 54 | Suwanee            | 8/4/06  | 1933 | Lightning | N/A       | 0     | 0        | 150K            |
| 55 | Buford             | 8/4/06  | 2026 | Lightning | N/A       | 0     | 0        | 100K            |
| 56 | Lawrenceville      | 8/10/06 | 1526 | Lightning | N/A       | 0     | 0        | 200K            |
| 57 | Lilburn            | 3/1/07  | 0700 | Lightning | N/A       | 0     | 0        | 150K            |
| 58 | Lawrenceville      | 5/12/07 | 1600 | Lightning | N/A       | 0     | 0        | 50K             |
| 59 | Dacula             | 6/5/07  | 1520 | Lightning | N/A       | 0     | 0        | 25K             |
| 60 | Dacula             | 6/5/07  | 1322 | Lightning | N/A       | 0     | 0        | 250K            |
| 61 | Grayson            | 6/5/07  | 1600 | Lightning | N/A       | 0     | 0        | 100K            |

## Appendix A

|                | Location or County | Date    | Time | Type      | Magnitude | Death    | Injuries  | Property Damage |
|----------------|--------------------|---------|------|-----------|-----------|----------|-----------|-----------------|
| 62             | Lawrenceville      | 6/12/07 | 1831 | Lightning | N/A       | 0        | 0         | 150K            |
| 63             | Lawrenceville      | 6/12/07 | 1909 | Lightning | N/A       | 0        | 0         | 50K             |
| 64             | Lilburn            | 6/25/07 | 1500 | Lightning | N/A       | 0        | 0         | 150K            |
| 65             | Snellville         | 6/28/07 | 2030 | Lightning | N/A       | 0        | 0         | 150K            |
| 66             | Suwanee            | 7/10/07 | 1326 | Lightning | N/A       | 0        | 0         | 175K            |
| 67             | Lawrenceville      | 7/25/07 | 2030 | Lightning | N/A       | 0        | 0         | 200K            |
| 68             | Dacula             | 8/24/07 | 1656 | Lightning | N/A       | 0        | 0         | 150K            |
| 69             | Lawrenceville      | 8/24/07 | 1710 | Lightning | N/A       | 0        | 0         | 150K            |
| 70             | Norcross           | 8/24/07 | 1715 | Lightning | N/A       | 0        | 0         | 200K            |
| 71             | Snellville         | 9/11/07 | 1630 | Lightning | N/A       | 0        | 0         | 50K             |
| 72             | Duluth             | 10/9/07 | 1450 | Lightning | N/A       | 0        | 0         | 5K              |
| 73             | Lawrenceville      | 5/11/08 | 0225 | Lightning | N/A       | 0        | 0         | 100K            |
| 74             | Lilburn            | 6/26/08 | 1650 | Lightning | N/A       | 0        | 0         | 350K            |
| 75             | Suwanee            | 6/26/08 | 1650 | Lightning | N/A       | 0        | 0         | 125K            |
| 76             | Dacula             | 7/9/08  | 1504 | Lightning | N/A       | 0        | 0         | 15K             |
| 77             | Dacula             | 7/9/08  | 1513 | Lightning | N/A       | 0        | 1         | 0K              |
| 78             | Duluth             | 7/22/08 | 1730 | Lightning | N/A       | 0        | 0         | 250K            |
| 79             | Dacula             | 7/22/08 | 1745 | Lightning | N/A       | 0        | 0         | 100K            |
| 80             | Buford             | 7/29/08 | 1645 | Lightning | N/A       | 0        | 0         | 250K            |
| <b>TOTALS:</b> |                    |         |      |           |           | <b>5</b> | <b>15</b> | <b>8.820M</b>   |

**Table A-4  
Tropical Storms/ Hurricanes**

|   | Location or County | Date    | Time | Type                | Mag | Dth | Inj | PrD |
|---|--------------------|---------|------|---------------------|-----|-----|-----|-----|
| 1 | Gwinnett           | 9/14/02 | 1100 | Tropical Storm      | N/A | 0   | 0   | 0   |
| 2 | Gwinnett           | 7/01/03 | 2400 | Tropical Depression | N/A | 0   | 0   | 0   |
| 3 | Gwinnett           | 9/06/04 | 1200 | Tropical Storm      | N/A | 0   | 0   | 0   |
| 4 | Gwinnett           | 9/16/04 | 2400 | Tropical Storm      | N/A | 0   | 0   | 0   |

## HAZARD VULNERABILITY ASSESSMENT DATA

|    | Location or County | Date     | Time | Type           | Mag | Dth | Inj | PrD                  |
|----|--------------------|----------|------|----------------|-----|-----|-----|----------------------|
| 5  | Gwinnett           | 09/26/04 | 1200 | Tropical Storm | N/A | 0   | 0   | 0                    |
| 6  | Gwinnett           | 06/12/05 | 1200 | Tropical Storm | N/A | 0   | 0   | 0                    |
| 7  | Gwinnett           | 7/06/05  | 1500 | Tropical Storm | N/A | 0   | 0   | 0                    |
| 8  | Gwinnett           | 7/10/05  | 1000 | Hurricane      | N/A | 0   | 0   | 0                    |
| 9  | Gwinnett           | 08/29/05 | 1100 | Hurricane      | N/A | 0   | 0   | 0                    |
| 10 | Gwinnett           | 10/05/05 | 0400 | Tropical Storm | N/A | 0   | 0   | 0                    |
| 11 | Gwinnett           | 9/14/07  | 0000 | Hurricane      | N/A | 0   | 0   | 0                    |
| 12 | Gwinnett           | 8/21/08  | 1200 | Tropical Storm | N/A | 0   | 0   | \$1.9 M<br>Statewide |

**Table A-5  
Confirmed Tornadoes**

|    | Location or County | Date     | Type    | Magnitude | Death | Injuries | Property Damage |
|----|--------------------|----------|---------|-----------|-------|----------|-----------------|
| 1  | Gwinnett           | 5/25/61  | Tornado | F1        | 0     | 0        | \$ 3,000        |
| 2  | Gwinnett           | 5/16/69  | Tornado | F1        | 0     | 0        | \$ 3,000        |
| 3  | Gwinnett           | 1/29/70  | Tornado | F2        | 0     | 0        | \$25,000        |
| 4  | Gwinnett           | 4/23/71  | Tornado | F1        | 0     | 0        | \$ 3,000        |
| 5  | Gwinnett           | 5/28/76  | Tornado | F2        | 0     | 0        | \$25,000        |
| 6  | Gwinnett           | 11/10/84 | Tornado | F2        | 0     | 8        | \$ 2.5 M        |
| 7  | Gwinnett           | 2/10/90  | Tornado | F1        | 0     | 0        | \$ 2.5 M        |
| 8  | Grayson            | 6/27/94  | Tornado | F2        | 1     | 0        | \$5.0 M         |
| 9  | Norcross           | 4/08/98  | Tornado | F2        | 0     | 10       | \$ 50.0 M       |
| 10 | Lawrenceville      | 4/03/00  | Tornado | F1        | 0     | 0        | \$ 1.5 M        |

**Table A-6  
Significant Flood Events in Gwinnett County**

|   | Location or County | Date     | Type                 | Magnitude | Death | Injuries | Property Damage |
|---|--------------------|----------|----------------------|-----------|-------|----------|-----------------|
| 1 | Gwinnett           | 10/04/95 | Flash Flood          | N/A       | 0     | 0        | 0               |
| 2 | Gwinnett           | 2/03/98  | Flood                | N/A       | 0     | 0        | 0               |
| 3 | Lilburn            | 7/31/00  | Urban/sml stream fld | N/A       | 0     | 0        | 0               |

## Appendix A

|    | Location or County | Date     | Type                 | Magnitude | Death | Injuries     | Property Damage    |
|----|--------------------|----------|----------------------|-----------|-------|--------------|--------------------|
| 4  | Gwinnett           | 7/25/01  | Urban/sml stream fld | N/A       | 0     | 0            | 0                  |
| 5  | Norcross           | 3/31/02  | Urban/sml stream fld | N/A       | 0     | 0            | 0                  |
| 6  | Lilburn            | 7/02/02  | Urban/sml stream fld | N/A       | 0     | 0            | 0                  |
| 7  | Dacula             | 9/21/02  | Urban/sml stream fld | N/A       | 0     | 0            | 0                  |
| 8  | Duluth             | 11/11/02 | Urban/sml stream fld | N/A       | 0     | 0            | 0                  |
| 9  | Gwinnett           | 5/06/03  | Flash Flood          | N/A       | 0     | 0            | \$ 10,000          |
| 10 | Gwinnett           | 6/16/03  | Flash Flood          | N/A       | 0     | 0            | \$ 500,000         |
| 11 | Gwinnett           | 7/01/03  | Flash Flood          | N/A       | 0     | 0            | 0                  |
| 12 | North Portion      | 7/13/03  | Flash Flood          | N/A       | 0     | 0            | 0                  |
| 13 | Gwinnett           | 9/16/04  | Flood                | N/A       | 0     | 0            | \$ 5.5 M statewide |
| 14 | South Portion      | 9/16/04  | Flash Flood          | N/A       | 0     | 0            | \$ 10,000          |
| 15 | Norcross           | 1/02/06  | Flash Flood          | N/A       | 0     | 0            | 0                  |
| 16 | Norcross           | 1/23/06  | Flash Flood          | N/A       | 0     | 0            | 0                  |
| 17 | Dacula             | 3/27/09  | Flash Flood          | N/A       | 0     | 0            | \$ 1,000           |
| 18 | Gwinnett           | 9/20/09  | Flood                | 500 Year  | 1     |              | \$ 7 M             |
|    |                    |          |                      |           |       | <b>TOTAL</b> | <b>\$ 13.21 M</b>  |

**Table A-7  
Culverts**

| CIP No | Water_Body             | Road Name          | ES Desc                | ES Notes                                                                | Ps_Desc             |
|--------|------------------------|--------------------|------------------------|-------------------------------------------------------------------------|---------------------|
| 8      | Yellow River           | Azalea Drive       | 2-4.5' Diameter CMPs   | The structure and top of road is completely submerged by the tail water | Double 8' x 6' RCB  |
| 9      | Yellow River Tributary | Fork Creek Parkway | 6 - 5.5' Diameter CMPs | The structure and top of road is completely submerged by the tail water | Quad - 10' x 9' RCB |
| 11     | Yellow River Tributary | Paden Drive        | 2-8' x 5.3' RCBs       | The structure and top of road is completely submerged by the tail water | Quad 10' x 7' RCB   |

## HAZARD VULNERABILITY ASSESSMENT DATA

| CIP No | Water_Body             | Road Name                     | ES Desc               | ES Notes                                                                | Ps_Desc                                        |
|--------|------------------------|-------------------------------|-----------------------|-------------------------------------------------------------------------|------------------------------------------------|
| 12     | Yellow River Tributary | Creekview Drive               | 2- 5' Diameter CMPs   | The structure and top of road is completely submerged by the tail water | Triple - 10' x 5' RCB                          |
| 13     | Yellow River Tributary | Shannon Way                   | 1- 4.5' Diameter CMP  | The structure and top of road is completely submerged by the tail water | Double - 10' x 5' RCB                          |
| 14     | Yellow River Tributary | Oak Road                      | 3- 10' x 10' RCB      | The structure and top of road is partially submerged by the tail water  | Triple 10' x 10' RCB                           |
| 16     | Yellow River Tributary | Webb Gin House Road           | 3-10' x 8' RCBs       | The structure and top of road is partially submerged by the tail water  | Quad 10' x 8' RCB                              |
| 17     | Yellow River Tributary | Innsfail Drive                | 2-10' x 5' RCBs       | The structure and top of road is completely submerged by the tail water | Triple 10' x 8' RCB                            |
| 18     | Yellow River Tributary | Plantation Road               | 2- 8' x 8' RCBs       | The structure and top of road is completely submerged by the tail water | Quad 8' x 8' RCB                               |
| 19     | Yellow River Tributary | Five Forks Trickum Road       | 3- 9' x 9' RCBs       | The structure and top of road is partially submerged by the tail water  | Proposed 85' Bridge (2 rows of piers, 4 piers) |
| 23     | Wolf Creek             | Tab Roberts Road              | 2- 10' x 8' RCBs      | The structure and top of road is completely submerged by the tail water | Quad 10' x9' RCB                               |
| 27     | Pew Creek              | Johnson Road                  | 2- 10' x 9' RCBs      | The structure and top of road is completely submerged by the tail water | Quad 10' x 9' RCB                              |
| 29     | Pew Creek              | Stone Mountain Street         | 1- 9' x 4' RCB        | The structure and top of road is completely submerged by the tail water | Double 10' x 5' RCB                            |
| 30     | Pew Creek Tributary 1  | Stone Mountain Street         | 1- 8' x 6' RCB        | The structure and top of road is completely submerged by the tail water | Triple 8' x 6' RCB                             |
| 34     | Little Suwanee Creek   | Old Peachtree Road - Crossing | 3- 8' x 7' RCBs       | The structure and top of road is completely submerged by the tail water | Triple 10' x 10' RCB                           |
| 35     | Little suwanee Creek   | Old Peachtree Road - Crossing | 3- 8' x 7' RCBs       | The structure and top of road is partially submerged by the tail water  | Triple 8' x 7' RCB                             |
| 38     | Sweetwater Creek       | Breckenridge Boulevard        | 7- 10' x 10' RCBs     | The structure and top of road is partially submerged by the tail water  | Seven - 10' x 10' RCB                          |
| 40     | Sweetwater Creek       | Cardinal Lake Circle          | 1- 6' x 6' RCB        | The structure and top of road is completely submerged by the tail water | Quad 10' x 7' RCB                              |
| 41     | Sweetwater Creek Tribu | Martin Heights Drive          | 2-6' x 4' Arched CMPs | The structure and top of road is completely submerged by the tail water | Quad 10' x 6' RCB                              |
| 42     | Sweetwater Creek Tribu | Cruse Road (#2)               | 1-5' x 5' RCB         | The structure and top of road is completely submerged by the tail water | Double 10' x 6' RCB                            |

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| CIP No | Water_Body             | Road Name                | ES Desc                     | ES Notes                                                                          | Ps_Desc                                         |
|--------|------------------------|--------------------------|-----------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------|
| 43     | Sweetwater Creek Tribu | Cruse Road (#1) West     | 11' X 8' Arched CMP         | The structure and top of road is completely submerged by the tail water           | Quad 10' x 7' RCB                               |
| 45     | Lee Daniel Creek       | Satellite Boulevard      | 3- 8' x 6' RCBs             | The structure and top of road is partially submerged by the tail water            | Quad 10' x 7'                                   |
| 46     | Lee Daniel Creek       | Boggs Road               | 4-10' x 10' RCBs            | The structure and top of road is completely submerged by the tail water           | Proposed 120' Bridge (2 rows of piers, 6 piers) |
| 48     | Lee Daniel Creek Trib  | Oakland Road             | 3- 10' x 6' RCBs            | The structure and top of road is completely submerged by the tail water           | Quad 10' x 9' RCB                               |
| 53     | Beaver Ruin Creek      | Mitchell Road            | 3- 5' CMPs                  | The structure and top of road is completely submerged by the tail water           | 180' Bridge (2 rows of piers)                   |
| 54     | Beaver Ruin Creek      | Everglades Trail         | Double 5.5' CMPs            | The structure and top of road is completely submerged by the tail water           | Quad 10' x 9' RCB                               |
| 55     | Beaver Ruin Creek, Tri | Oakbrook Parkway         | Three single 6' CMP's       | The structure and top of road is partially submerged by the tail water            | Double 10' x 8' RCB, Double 8' x 7' RCB         |
| 56     | Beaver Ruin Creek, Tri | Pirkle Road              | Single 12' CMP              | The structure and top of road is completely submerged by the tail water           | Double 9' x 8' RCB                              |
| 57     | Beaver Ruin Creek, Tri | Live Oak Parkway         | Single 8' CMP               | The structure and top of road is completely submerged by the tail water           | Double 8' x 8' RCB                              |
| 58     | Beaver Ruin Creek, Tri | Anamanda Close           | Triple 5.5' CMPs            | The structure and top of road is completely submerged by the tail water           | Quad 10' x 7' RCB                               |
| 59     | Beaver Ruin Creek, Tri | Norcross - Tucker Road   | Single 4.5' CMP             | The structure and top of road is completely submerged by the tail water           | Triple 8' x 5' RCB                              |
| 60     | Bromolow Creek         | Steve Reynolds Boulevard | Quad 10' x 10' RCB          | The structure and top of road is partially submerged by the tail water            | Additional 10' x 10' Barrel                     |
| 62     | Bromolow Creek         | Satellite Boulevard      | Double 9' x 8' RCB          | The structure and top of road is partially submerged by the tail water            | 170' Bridge (4 rows of Piers)                   |
| 63     | Bromolow Creek         | Berkeley Creek Road      | Triple 10' x 9' RCB         | The structure and top of road is partially submerged by the tail water            | Triple 10' x 9' RCB                             |
| 64     | Bromolow Creek Trib 1  | Satellite Boulevard      | Double 10' x 10' RCB        | The structure and top of road is partially submerged by the tail water            | Double 10' x 10' RCB                            |
| 67     | Bromolow Creek Trib 1  | Old Norcross Road        | Single 16' x 4' RCB, Single | The existing top of road from the topo of the road and model shows a 12' differen | 200' Bridge (4 rows of piers)                   |
| 68     | Bromolow Creek Trib 1  | Pittman Circle           | Triple 3' CMPs              | The structure and top of road is completely submerged by                          | 200' Bridge (4 rows of piers)                   |

## HAZARD VULNERABILITY ASSESSMENT DATA

| CIP No | Water_Body             | Road Name                      | ES Desc                      | ES Notes                                                                | Ps_Desc               |
|--------|------------------------|--------------------------------|------------------------------|-------------------------------------------------------------------------|-----------------------|
|        |                        |                                |                              | the tail water                                                          |                       |
| 69     | Bromolow Creek Trib 1. | Apaloosa Trail                 | Triple 5' Concrete Pipe      | The structure and top of road is completely submerged by the tail water | Triple 9' x 7' RCB    |
| 70     | Bromolow Creek Trib 1. | Bailey Drive                   | Double 6' CMPs               |                                                                         | Double 10' x 8' RCB   |
| 71     | Unnamed Trib of Bromol | Millstream Trail               | Five 5' CMPs                 | The structure and top of road is completely submerged by the tail water | Quad 10' x 7' RCB     |
| 73     | Unnamed Trib of Bromol | Shackleford Road               | Triple 5.5' CMPs             | The structure and top of road is completely submerged by the tail water | Double 9' x 6' RCB    |
| 74     | Shetley Creek          | Old Norcross Road              | 15' x 10.5' CM-Arch          | The structure and top of road is completely submerged by the tail water | Double 10' x 10' RCB  |
| 78     | Alcovy River           | Hood Road                      | 90" CMP                      | The structure and top of road is completely submerged by the tail water | Double 10' x 10' Box  |
| 79     | Alcovy River Trib A    | Callie Still Road              | Double 10' x 8' Box          | The structure and top of road is completely submerged by the tail water | Triple 10' x 8' Box   |
| 81     | Bay Creek              | Briscoe Road                   | Double 10' x 6' Box          | The structure and top of road is completely submerged by the tail water | Quadruple 10' x 11'   |
| 83     | Cedar Creek S.E.       | New Hope Road                  | Double 54" CMP               | The structure and top of road is completely submerged by the tail water | Double 6' x 6' Box    |
| 84     | Hopkins Creek          | Fence Road                     | 72" CMP                      | The structure and top of road is completely submerged by the tail water | Double 10' x 8' Box   |
| 86     | Palm Creek Trib. A     | Luke Edwards Road              | Double 60" CMP               | The structure and top of road is completely submerged by the tail water | Double 10' x 8' Box   |
| 87     | Palm Creek Trib A      | Brooks Road                    | Double 72" CMP               | The structure and top of road is completely submerged by the tail water | Double 10' x 8' Box   |
| 89     | Shoal Creek            | Simonton Mill Road             | Quadruple 10' x 8' Box Culve | The structure and top of road is completely submerged by the tail water | 108' Bridge           |
| 91     | Tribble Creek          | Tribble Mill (Callie Still) Ro | Double 10' x 10' Box         | The structure and top of road is completely submerged by the tail water | 120' Bridge (3 piers) |
|        | Tribble Creek          | Grayson New Hope Road          | Triple 10' x 7' Box          | The structure and top of road is completely submerged by the tail water | 120' Bridge (2 piers) |
| 93     | Tribble Creek          | Chandler Road                  | Double 84" CMP               | The structure and top of road is completely submerged by the tail water | Quad 10' x 9' Box     |
| 94     | Big Haynes Creek       | Pate Road                      | Quad 10' x 9' Box            | The structure and top of road is completely submerged by the tail water | 152' Bridge           |

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| CIP No | Water_Body              | Road Name             | ES Desc                      | ES Notes                                                                | Ps_Desc                                         |
|--------|-------------------------|-----------------------|------------------------------|-------------------------------------------------------------------------|-------------------------------------------------|
| 95     | Big Haynes Creek        | Hillside Drive        | Double 60" CMP               | The structure and top of road is completely submerged by the tail water | Triple 10' x 7' Box                             |
| 97     | Big Haynes Creek        | Temple Johnson Road   | Quad 10' x 8' Box Culverts   | The structure and top of road is completely submerged by the tail water | 120' Bridge (3 piers)                           |
| 101    | Brushy Fork Creek       | Rosebud Road          | Triple 10' x 8' Box          | The structure and top of road is completely submerged by the tail water | 42' x 12' CONSPAN Arch                          |
| 102    | Brushy Fork Creek       | Old Loganville Road   | Double 10' x 8' Box          | The structure and top of road is partially submerged by the tail water  | Triple 10' x 10' Box                            |
| 103    | Brushy Fork Creek       | Lake Carlton Road     | 42" CMP, 24" CMP             | The structure and top of road is partially submerged by the tail water  | Double 6' x 6' Box                              |
| 104    | Brushy Fork Creek       | Midway Road           | Double 72" CMPs              | The structure and top of road is completely submerged by the tail water | Double 10' x 9' Box Culverts                    |
| 105    | Bromolow Creek          | Liddell Road          | 12.6' x 7.2' and 12.4' x 7.9 | The structure and top of road is partially submerged by the tail water  | 140' Bridge (2 rows of piers)                   |
| 107    | Sweetwater Creek        | Old Norcross Road     | Quad 10' X 9' RCB            | The structure and top of road is completely submerged by the tail water | Proposed 120' Bridge (2 rows of piers, 8 piers) |
| 108    | Unnamed Trib of Bromol  | Club Drive            | Double 7' x 5' RCB           | The structure and top of road is completely submerged by the tail water | Quad 8' x 6' RCB                                |
| 109    | Alcovy River Trib. B    | Hood Road             | Double 66" CMP               | The structure and top of road is completely submerged by the tail water | Double 10' x 8' Box                             |
| 110    | Hopkins Creek           | Stanley Road          | Wooden Bridge                | The structure and top of road is completely submerged by the tail water | Quadruple 10' x 10' Box                         |
| 111    | Palm Creek              | Brooks Road           | 10' x 8' Box                 | The structure and top of road is completely submerged by the tail water | Double 10' x 8' Box                             |
| 112    | Shoal Creek             | Bramlett Shoals Road  | Triple 10' x 10' Box Culvert | The structure and top of road is completely submerged by the tail water | 100' Bridge                                     |
| 115    | Jackson Creek           | Britt Road            | 96" CMP                      | The structure and top of road is completely submerged by the tail water | 4 barrel 10' x 10' box                          |
| 116    | Jackson Creek           | Dickens Road          | 4 barrel 11' x 6' box        | The structure and top of road is completely submerged by the tail water | 6 barrel 11' x 6' box                           |
| 120    | Jackson Creek Tributary | Button Gwinnett Place | Double 7' x 6' Box           | The structure and top of road is partially submerged by the tail water  | Triple 7' x 6' Box                              |
| 122    | Jackson Creek Tributary | Meadowbrook Drive     | 60" CMP                      | The structure and top of road is completely submerged by the tail water | 10' x 7' Box                                    |

## HAZARD VULNERABILITY ASSESSMENT DATA

| CIP No | Water_Body              | Road Name                | ES Desc                      | ES Notes                                                                | Ps_Desc                                         |
|--------|-------------------------|--------------------------|------------------------------|-------------------------------------------------------------------------|-------------------------------------------------|
| 123    | Jackson Creek Tributary | Williams Road            | 54" and 72" CMP              | The structure and top of road is completely submerged by the tail water | Double barrel 9' x 6' box                       |
| 124    | Jackson Creek Tributary | Pebble Creek Drive       | 72" CMP                      | The structure and top of road is completely submerged by the tail water | Double barrel 10' x 6' Box                      |
| 125    | Lucky Shoals Creek      | Old Norcross Tucker Road | 66" and 30" CMP pipe culvert | The structure and top of road is completely submerged by the tail water | Triple barrel 8' x 8' and 10' x 8' box, respec  |
| 126    | Camp Creek              | Harmony Grove Road       | 2-barrel 10' x 10' box       | The structure and top of road is completely submerged by the tail water | 5-barrel 10' x 10' box                          |
| 127    | Camp Creek              | Camp Creek Road          | 4-barrel 10' x 10' box       | The structure and top of road is partially submerged by the tail water  | 6-barrel 10' x 10' box                          |
| 128    | Camp Creek Tributary 1  | Harmony Grove Road       | 72" CMP                      | The structure and top of road is partially submerged by the tail water  | Double 54" RCP culvert                          |
| 129    | Stream 1                | Allenhurst Drive         | 3- 48" RCP culverts          | The structure and top of road is completely submerged by the tail water | New headwall/wing wall and 60 LF of 60" RCP     |
| 130    | Camp Creek Tributary 1  | Fern Creek Drive         | Double 66" CMP pipe culvert  | The structure and top of road is partially submerged by the tail water  | Triple-barrel 8' x 6' box                       |
| 133    | Stream 4                | Avala Park               | 1- 72" CMP culvert           | The structure and top of road is partially submerged by the tail water  | New headwall/wing wall and 1 - 180 LF of 72" RC |
| 134    | Stream 4                | Young Arthur Terrace     | 1- 72" CMP culvert           | The structure and top of road is completely submerged by the tail water | New headwall/wing wall and 1 - 60 LF of 72" RCT |
| 135    | Stream 5                | Bush Road                | 1- 8' x 6' concrete box culv | The structure and top of road is partially submerged by the tail water  | New headwall/wing wall and 80 LF of 60" RCP     |
| 137    | Mill Creek Tributary    | North Berkley Lake Road  | 1- 48" RCP culvert           | The structure and top of road is partially submerged by the tail water  | New headwall/wing wall and 90 LF of 42" RCP cul |
| 143    | Stream 7 Trib-Swillin   | Whippoorwill Drive       | 1- 72" CMP arch              | The structure and top of road is completely submerged by the tail water | New headwall/wing wall and 37 LF of 72" RCP arc |
| 150    | Little Mulberry River   | Hog Mountain Road        | 1-60" DIA CMP culvert        | The structure and top of road is completely submerged by the tail water | Remove existing, install 3-                     |

## Appendix A

| CIP No | Water_Body            | Road Name              | ES Desc                      | ES Notes                                                                | Ps_Desc                                        |
|--------|-----------------------|------------------------|------------------------------|-------------------------------------------------------------------------|------------------------------------------------|
|        |                       |                        |                              |                                                                         | 10'x10' concrete b                             |
| 152    | Little Mulberry River | Mineral Springs Road   | 1-8'w x 6'h concrete box arc | The structure and top of road is completely submerged by the tail water | Add 1- 7'3"w x 5'3"h conspan arch              |
| 153    | Little Mulberry River | Hog Mountain Road      | 1-60" CMP culvert            | The structure and top of road is partially submerged by the tail water  | Remove culvert, add 1-10'w x 10'h concrete box |
| 155    | Duncan Creek          | East Rock Quarry Road  | 2-6'x3.5' concrete ellipse c | The structure and top of road is completely submerged by the tail water | Replace existing w/3-12'x6' concrete box culve |
| 156    | Duncan Creek          | Hamilton Parc Lane     | 3-30" DIA CMP culverts       | The structure and top of road is completely submerged by the tail water | Replace existing w 3-14'2"x9'10" conspan arche |
| 162    | Mitchell Creek        | South Puckett Lane     | 1-48" CMP culvert            | The structure and top of road is partially submerged by the tail water  | Replace existing with 2-72" DIA RCP culverts   |
| 163    | Mitchell Creek        | Thompson Mill Road     | 1-5'x5' concrete box culvert | The structure and top of road is partially submerged by the tail water  | Install additional 5'x5' concrete box culvert  |
| 164    | Rock Creek            | Bailey Road            | 1-66" DIA CMP culvert, 1-72" | The structure and top of road is completely submerged by the tail water | Remove existing, install 4-12'10"x8'4" conspan |
| 165    | Sherwood Creek        | Old Thompson Mill Road | 2-9'x8' concrete box culvert | The structure and top of road is completely submerged by the tail water | Add 3-18'1" x11'10" conspan arches             |
| 236    | Garner Creek          | Rocky Hill Dr          | 5- 72" CMPs                  | The structure and top of road is completely submerged by the tail water | 82' Span Bridge                                |
| 241    | Garner Creek Trib1    | Breathitt Dr           | 1-42" CMPs                   | The structure and top of road is completely submerged by the tail water | Single-9'x3.5' Bottomless Conspan Arch culvert |
| 242    | Hale Trib             | Baltimore Ave          | 2- 60" CMPs                  | The structure and top of road is completely submerged by the tail water | Doulbe 5'x8' Box culverts                      |
| 245    | Hale Creek            | Lake Front Court       | 4- 72" CMPs                  | The structure and top of road is completely submerged by the tail water | 100' Span Bridge                               |
| 246    | Hale Creek            | Lilburn Stone Mountain | 2- 72" CMPs                  | The structure and top of road is completely submerged by the tail water | Double-8'x6' box culverts                      |

## HAZARD VULNERABILITY ASSESSMENT DATA

| CIP No | Water_Body             | Road Name           | ES Desc                      | ES Notes                                                                | Ps_Desc                                        |
|--------|------------------------|---------------------|------------------------------|-------------------------------------------------------------------------|------------------------------------------------|
| 251    | Pounds Creek           | Eldonlas Ct.        | 2-42" CMPs                   | The structure and top of road is completely submerged by the tail water | 150' Span Bridge                               |
| 254    | Pounds Creek           | Brownlee Road       | 1-36" CMP and 1-60" CMP      | The structure and top of road is completely submerged by the tail water | 1-17'x7' and 1-15'x5' Bottomless Conspan Arch  |
| 255    | Pounds Creek           | Pounds Road         | 1-25'x7' Arch Culvert        | The structure and top of road is completely submerged by the tail water | 210' Span Bridge                               |
| 171    | Doc Moore Branch       | Brittan Glade Trail | Single 6' RCP                | The structure and top of road is completely submerged by the tail water | Double 5'x5' RCBs                              |
|        | Do Little Creek        | Mink Livsey Road    | 3 CMPs (3.5', 4', 4.3')      | The structure and top of road is completely submerged by the tail water | Quad 7'x7' reinforced concrete boxes           |
| 175    | No Business Creek Trib | Greenvalley Road    | Double 5.6' CMPs             |                                                                         | Double 7'x7' RCBs                              |
| 177    | Suwanne Creek          | Thompson Mill Road  | 2-10'x8' Concrete Box Culver | The structure and top of road is completely submerged by the tail water | 4-10'x8' RCBs                                  |
| 180    | Suwanne Creek          | Woodward Mill Road  | 8-10'x8' Concrete Box Culver |                                                                         |                                                |
| 187    | Ivy Creek              | Thompson Mill Road  | 2-11'x7' RCB Culverts        | The structure and top of road is completely submerged by the tail water | Triple 10'x7' RCBs                             |
| 189    | Ivy Creek              | Kilgore Road        | 4-10'x9'                     | The structure and top of road is completely submerged by the tail water | Install 1-50'x20.5' conspan arches and raise r |
| 196    | Little Ivy Creek       | Ivy Lake Dr         | 1- 90" CMP Culvert           | The structure and top of road is completely submerged by the tail water | Install 1-16'x8' conspan arches and raise road |
| 197    | Little Ivy Creek       | Puckett Mill Rd     | 2-72" CMP Culverts           | The structure and top of road is completely submerged by the tail water | Install 1-26'x10' conspan arches and raise roa |
| 200    | Little Ivy Creek       | Sunny Hill Road     | 2- 10'x10' RCB Culverts      | The structure and top of road is completely submerged by the tail water | 100' Span Bridge                               |
| 203    | Little Ivy Creek Trib  | Camp Branch Road    | 3-42" CMP Culverts           | The structure and top of road is partially submerged by the tail water  | 100' Span Bridge                               |
| 214    | Centerville Creek      | Mountain Way Cove   | 1-108" CMP                   | The structure and top of road is completely submerged by the tail water | Remove existing culvert , install 2- 12'x9' bo |

## Appendix A

| CIP No | Water_Body   | Road Name                 | ES Desc                       | ES Notes                                                                | Ps_Desc                   |
|--------|--------------|---------------------------|-------------------------------|-------------------------------------------------------------------------|---------------------------|
| 215    | Jacks Creek  | Parkwood Road             | 2- 54" CMP                    | The structure and top of road is completely submerged by the tail water | 4- 6'x4.5' Box culverts   |
| 217    | Jacks Creek  | Quail Rd                  | 1-60" CMP and 2- 72" CMP      | The structure and top of road is completely submerged by the tail water | 148' Span Bridge          |
| 218    | Jacks Creek  | Everson Rd                | 1-60" CMP and 1- 3'x5' Ellips | The structure and top of road is completely submerged by the tail water | 188' Span Bridge          |
| 223    | Jacks Creek  | Ross Rd                   | 3- 10'x7' RCB                 | The structure and top of road is completely submerged by the tail water | 320' Span Bridge          |
| 226    | Watson Creek | Bruckner Blvd.            | 3-8'x5' Box Culverts          | The structure and top of road is completely submerged by the tail water | 220' Span Bridge          |
| 227    | Watson Creek | Highpoint Road            | 2-81" CMP Culverts            | The structure and top of road is completely submerged by the tail water | 220' Span Bridge          |
| 228    | Watson Creek | Hewatt Road               | 4-10'x6' Box Culverts         | The structure and top of road is completely submerged by the tail water | 194' Span Bridge          |
| 229    | Watson Creek | Rivermist Drive           | 2-108" CMP Culverts           | The structure and top of road is completely submerged by the tail water | 116' Span Bridge          |
| 230    | Turkey Creek | Highpoint Rd              | 2- 60" CMP                    | The structure and top of road is completely submerged by the tail water | 82' Span Bridge           |
| 233    | Garner Creek | Lilburn Stone Mountain Rd | 2- 60" RCPs                   | The structure and top of road is completely submerged by the tail water | Double 8'X5' Box culverts |
| 234    | Garner Creek | Rockbridge Rd             | 2 -60" CMPs                   | The structure and top of road is completely submerged by the tail water | 240' Span Bridge          |
|        |              | Tuggle Road @ Phillips    |                               |                                                                         |                           |
|        |              | Old Thompson Mill Road    | Double 4' RCPs                |                                                                         |                           |

**Table A-8  
Gwinnett County Dams**

\*Source – Georgia Safe Dams Database

| Dam Name             | Classification | State ID #    | Latitude DD | Longitude DD  | Dam Height | Maximum Storage | Owner         |
|----------------------|----------------|---------------|-------------|---------------|------------|-----------------|---------------|
| Alpha Kappa Lake Dam | II             | 067-55-00605  | 33.97833333 | - 84.14166667 | 30         | 190             | PSI Building  |
| Arnold Dam           | II             | 067-040-00658 | 33.91305556 | - 83.95555556 | 22.8       | 115             | Ball Walsh    |
| Ashley Lake Dam      | II             | 067-003-00007 | 33.95277778 | - 84.25972222 | 30         | 120             | Ball Walsh    |
| Ashmore Lake Dam     | E              | 068-000-00000 | 34.01222222 | - 84.02777778 | 21.6       | 17              | Walter B. III |

## HAZARD VULNERABILITY ASSESSMENT DATA

| Dam Name                                             | Classification | State ID #    | Latitude DD | Longitude DD | Dam Height | Maximum Storage | Owner                                |
|------------------------------------------------------|----------------|---------------|-------------|--------------|------------|-----------------|--------------------------------------|
| Atlanta Automotive Distribution Center Detention Dam | II             | 067-121-04744 | 33.98138889 | -83.94444444 | 48.4       | 22.3            | Transdevelopment                     |
| Berkeley Lake Dam                                    | I              | 067.007-00156 | 33.98833333 | -84.1875     | 78.4       | 2028            | Berkeley Manor Homeowners Assoc      |
| Berry Lake Dam                                       | II             | 067-059-00608 | 34.03472222 | -84.07333333 | 21.9       | 106             | Suwanee, Inc.                        |
| Bird Lake                                            | II             | 067-125-04837 | 33.89777778 | -84.15416667 | 30.8       | 49.5            | Gwinnett Co. Parks and Recreation    |
| Black Lake Dam                                       | II             | 067-048-00628 | 33.99527778 | -84.215      | 16         | 86              | Ralph E. Black                       |
| Bona Allen Lake Dam                                  | II             | 067-036-00602 | 34.11305556 | -83.99138889 | 17.3       | 216             | Bricton Properties                   |
| Brook Hollow                                         | II             | 067-101-04247 | 33.92111111 | -84.18527778 | 34.2       | 56              | Vantage SE Property Co.              |
| Burns Lake Dam                                       | II             | 067-053-00550 | 33.87861111 | -84.20638889 | 24.8       | 80              | Sanford Burns                        |
| Bushy Hayes Creek W/S Str#21                         | I              | 067-018-00687 | 33.85083333 | -83.94444444 | 32.2       | 416             | Gwinnett Co. S&WCI                   |
| Byrnes Lake Dam                                      | II             | 067-066-01014 | 34.06083333 | -83.92166667 | 39.6       | 53              | John Byrnes                          |
| Cardinal Lake Dam                                    | II             | 067-008-00207 | 33.975      | -84.13       | 27.2       | 380             | Cardinal Lake Beach Association      |
| Casteel Lake Dam                                     | E              | 067-050-00548 | 34.06055556 | -84.13       | 27.2       | 380             | Annie Mae Casteel                    |
| Chelton Dam                                          | II             | 067-045-00544 | 33.88416667 | -83.9875     | 24         | 113             | Lewis Guy Chelton III                |
| Lawrenceville Lake Dam                               | I              | 067-001-00010 | 33.95833333 | -83.96666667 | 29         | 200             | City of Lawrenceville                |
| Cooper's Pond                                        | I              | 067-068-00630 | 33.905      | -84.05416667 | 31         | 49              | Coopers Pond Homeowners Assoc., Inc. |
| Crowe Lake Dam No. 3                                 | I              | 067-034-00541 | 34.02944444 | -83.95138889 | 30         | 100             | G. S. Crowe                          |
| Dove Dam                                             | EH             | 067-039-00652 | 33.88666667 | -83.95333333 | 22         | 99              | Donald V. Dove                       |
| Dover Dam                                            | II             | 067-073-00656 | 34.10194444 | -83.9175     | 27.8       | 88              | Harold J. Harrison                   |
| Edwards Cove Lake West Dam                           | II             | 067-027-00600 | 33.84361111 | -84.08       | 40         | 123             | Edwards Cove Home Owners Association |
| Fontaine-Stemler Lake Dam                            | II             | 067-062-00611 | 34.105      | -84.1        | 24.8       | 137             | Jean Fontaine                        |

## Appendix A

| Dam Name                             | Classification | State ID #    | Latitude DD | Longitude DD  | Dam Height | Maximum Storage | Owner                                               |
|--------------------------------------|----------------|---------------|-------------|---------------|------------|-----------------|-----------------------------------------------------|
| Freeman Lake Dam                     | II             | 067-054-00604 | 33.92138889 | - 84.14083333 | 9.8        | 300             | Park Corporation                                    |
| Gwinnett Progress Center No. 1       | II             | 067-108-04540 | 33.98611111 | - 83.95555556 | 212        | 192             | Gwinnett Progress Center                            |
| Gwinnett Place Retention Dam         | E              | 067-098-04161 | 33.95472222 | - 84.12916667 | 23.4       | 53              | Cadillac Fairview Shopping Center LTD.              |
| Hayes Cr-Bushy Fork Watershed Dam #3 | II             | 067-006-00820 | 33.89444444 | - 83.98333333 | 33         | 551             | Atlanta Service Development                         |
| Hayes Creek-Bushy Fork Stream 25     | II             | 067-420-00397 | 33.86583333 | - 83.97638889 | 36.2       | 359             | Dew Upper                                           |
| Hayes Creek-Brushy Fork W/S Dam 22   | I              | 067-019-00396 | 33.85861111 | - 83.91861111 | 25.8       | 290             | Ocmulgee River Soil and Water Conservation District |
| Hogans Lake Dam                      | I              | 067-031-00601 | 34.00166667 | - 83.96666667 | 32.1       | 132.2           | Raji Rajjani                                        |
| Hughes Lake Dam                      | II             | 067-047-00546 | 33.95722222 | - 84.07222222 | 32.8       | 100             | Hayes Holding Company                               |
| Inverness Lake Dam                   | I              | 067-057-00659 | 33.96611111 | - 84.16388889 | 36.4       | 108             | Lakeside at Berkely Manor                           |
| Lake at Riverbrooke Dam              | II             | 067-124-04802 | 34.02361111 | - 84.13222222 | 28.2       | 191.25          | NA                                                  |
| Lake at Stoneridge Dam (Proposed)    | II             | 067-129-04949 | 34.05583333 | - 84.08444444 | 34         | 98              | Everett Major, Jr.                                  |
| Lake Carlton Dam                     | ND             | 067-002-00015 | 0           | 0             |            |                 | Lake Carlton, Inc.                                  |
| Lake Louella Dam                     | II             | 067-065-00614 | 34.0175     | - 84.08555556 | 26.4       | 101             | Eugene B. Baynes                                    |
| Lake Matthews Dam                    | I              | 067-038-00671 | 33.88805556 | - 84.03777778 | 23.2       | 272             | Beaulieu of America                                 |
| Lake Windsor Dam                     | EH             | 067-005-00098 | 34.91388889 | -84.25        | 22.4       | 53.7            | Gwinnett County                                     |
| Lake Zora Dam                        | E              | 067-037-00543 | 33.89166667 | - 84.02583333 | 17.6       | 96              | Eugene L. Argo                                      |
| Lazy C Lake Dam                      | E              | 067-092-04088 | 33.87361111 | -83.955       | 13         | 57              | J. W. Crider                                        |
| Lionel Lake Dam                      | II             | 067-046-05450 | 33.95194444 | - 84.03919444 | 2727.1     | 49              | Lionel K. Hamilton, Sr.                             |
| Lockwolde Dam                        | II             | 067-051-00549 | 33.80666667 | - 84.02583333 | 34.2       | 102             | Lockwolde Homeowners                                |

## HAZARD VULNERABILITY ASSESSMENT DATA

| Dam Name                                | Classification | State ID #    | Latitude DD | Longitude DD  | Dam Height | Maximum Storage | Owner                                 |
|-----------------------------------------|----------------|---------------|-------------|---------------|------------|-----------------|---------------------------------------|
|                                         |                |               |             |               |            |                 | Association                           |
| McClure Lake Dam                        | ND             | 067-070-00689 | 33.88388889 | - 84.11666667 | 29         | 71              | Robert McClure                        |
| Mesh Lake Dam                           | E              | 067-004-00043 | 33.94583333 | - 84.26305556 | 28.6       | 14              | Laurinthia Mesh                       |
| Moon's Lake Dam                         | II             | 067-078-01058 | 33.85416667 | - 83.98666667 | 25.4       | 53              | Raymond L. Moon Jr.                   |
| Mulberry Lake Dam                       | I              | 067-134-05199 | 34.04555556 | - 83.89805556 | 85         | 946             | SMG Development                       |
| Mulberry River W/S #7                   | I              | 067-000-00012 | 0           | 0             |            |                 | Gwinnett County                       |
| No Gate Lake Dam                        | II             | 067-060-00609 | 34.07416667 | - 84.07638889 | 28.2       | 74              | Rae Howell                            |
| Norman Lake Dam                         | I              | 067-049-00547 | 33.99388889 | - 84.13138889 | 32.8       | 194             | Norman Downes Home Owners Association |
| Oakbrook Industrial Park Retention Dam  | II             | 067-087-03422 | 33.91472222 | - 84.18555556 | 35.8       | 64              | Morprop, Inc.                         |
| Opossum Lake Dam                        | II             | 067-029-00460 | 33.83111111 | - 84.09027778 | 19.4       | 150             | Gwinnett County                       |
| Perkins Lake Dam                        | II             | 067-058-00607 | 34.035      | - 83.91944444 | 25         | 20              | Willo D. Perkins                      |
| Pleasant Hill Road Lake                 | E              | 067-075-00688 | 33.99166667 | - 84.06055556 | 24.4       | 57              | Gwinnett County                       |
| Powell Dam (Proposed)                   |                | 067-041-00563 | 33.96       | - 83.96166667 | 0          | 59              | R. Powell                             |
| Rivergreen at Sugar Hill Lake Dam No. 2 | II             | 067-128-04936 | 34.1125     | - 84.09888889 | 19         | 104             | MECA Associates                       |
| Pylant Dam                              | II             | 067-028-00402 | 33.84333333 | -84.075       | 30.6       | 70              | N. A. Pylant                          |
| No Business Creek No. 1                 | I              | 067-021-00370 | 33.82       | - 84.02361111 | 44.7       | 1279            | Gwinnett County                       |
| RCD Dam Y3                              | I              | 067-043-00657 | 33.90972222 | - 83.99638889 | 35         | NA              | Gwinnett County                       |
| Rivergreen at Sugar Lake Dam No. 1      | E              | 067-127-04955 | 34.12333333 | - 84.08416667 | 21.5       | 32              | MECA Association                      |
| Sims Lake Dam                           | I              | 067-061-00610 | 34.07972222 | - 84.07222222 | 18.4       | 68              | Jesse Sims                            |
| Smoketree Lake Dam                      | EH             | 067-077-01057 | 33.88472222 | - 84.19833333 | 22.2       | 66              | Marett Association, Inc.              |
| Sosebee Lake Dam                        |                | 067-044-00565 | 33.89666667 | - 83.96666667 | 0          | 51              | Ray Sosebee                           |
| Spalding Triangle Lake                  | II             | 067-096-04128 | 33.97416667 | - 84.22138889 | 30.8       | 46              | Gwinnett County                       |

## Appendix A

| Dam Name                          | Classification | State ID #    | Latitude DD | Longitude DD  | Dam Height | Maximum Storage | Owner                                                |
|-----------------------------------|----------------|---------------|-------------|---------------|------------|-----------------|------------------------------------------------------|
| Dam A (Upper)                     |                |               |             |               |            |                 |                                                      |
| Sturdivant Lake Dam               | II             | 068-000-00000 | 34.01222222 | - 84.02777778 | 0          | 76              | Roddy Sturdivant                                     |
| SugarLoaf # 2B                    | II             | 067-012-00203 | 33.99611111 | - 84.10722222 | 25         | 44              | NA                                                   |
| SugarLoaf Dam #3B                 | E              | 067-011-00202 | 33.99805556 | - 84.10805556 | 23.2       | 77.5            | National Bank of North Carolina                      |
| SugarLoaf Lake Dam                | I              | 067-133-05159 | 33.98916667 | - 84.10694444 | 34.5       | 719             | SugarLoaf Properties, Inc.                           |
| Summit Chase No. 1 Dam (Upstream) | II             | 067-023-00651 | 33.85416667 | - 83.97027778 | 22         | 239             | Summit Chase Homes, Inc.                             |
| Summit Chase No. 2                | II             | 067-024-00399 | 33.85388889 | - 83.97277778 | 21         | 85              | Summit Chase Home Owners Association                 |
| Technology Park Lake Dam          | II             | 067-076-01056 | 33.96027778 | - 84.22222222 | 25.4       | 71              | Technology Park Atlanta, Inc.                        |
| Tribble Mill RC and D Lake Dam    | II             | 067-126-04912 | 33.9125     | - 83.90138889 | 36         | 2106            | NA                                                   |
| Upper Mulberry River W/S 11       | I              | 067-017-00243 | 34.05361111 | - 83.87916667 | 48         | 1990            | Gwinnett County                                      |
| Willowrun Lake Dam                | II             | 067-085-02469 | 33.9375     | - 84.10833333 | 10.6       | 100             | Gwinnett County                                      |
| Wind Water Dam                    | II             | 067-022-00398 | 33.8175     | - 84.99305556 | 26         | 202             | Wind water Homeowners Association                    |
| Yellow River RC&D Y-14            | I              | 067-016-00201 | 34.01222222 | - 84.02833333 | 39         | 915             | Gwinnett County                                      |
| Yellow River RC&D Y-15            | I              | 067-010-00199 | 33.98611111 | - 84.00805556 | 41         | 1528            | Gwinnett County                                      |
| Yellow River RC&D Y-16            | I              | 067-016-00201 | 34.01222222 | - 84.02833333 | 33.6       | 704             | Gwinnett County                                      |
| Yellow River RC&D Y-17            | I              | 067-015-00200 | 34.02111111 | - 84.01277778 | 30         | 975             | Upper Ocmulgee River Soil & Water Conservation Dist. |
| Pond "A" Dam                      | I              | 067-140-05439 | 0           | 0             | 26         | 198             | NA                                                   |
| Lakeview Plantation Dam           | I              | 067-138-05370 | 0           | 0             | 27.4       | 66.5            | NA                                                   |
| Scott Candler Reservoir No. 3     | I              | 067-137-05351 | 0           | 0             | 85         | 1118            | Dekalb County                                        |

Category I (High Hazard)

## HAZARD VULNERABILITY ASSESSMENT DATA

Category II (Low Hazard)  
 E = Exempt  
 EH = Exempt High Hazard  
 TBS = To be Studied  
 ND = Breached

**Table A-9  
 Hazardous Materials Facilities**

| Facility Name                       | Address                       | City          | Zip Code |
|-------------------------------------|-------------------------------|---------------|----------|
| 3M Company - Atlanta                | 2860 Bankers Industrial Drive | Atlanta       |          |
| A. J. Oster Company                 | 2925 Shawnee Industrial Way   | Suwanee       | 30024    |
| Access Business Group LLC           | 6450 Jimmy Carter Blvd.       | Norcross      | 30071    |
| Allied Diagnostic Imaging Resources | 5440 Oakbrook Parkway         | Norcross      | 30093    |
| Allied Systems                      | 1500 Winder Highway 8         | Dacula        | 30019    |
| Allied Waste of Lawrenceville       | 75 Curtis Road                | Lawrenceville | 30045    |
| Alt. Coca Cola Bottling Company CCE | 250 Ind Park Circle           | Lawrenceville | 30045    |
| American Coach Lines of Atlanta     | 705 Lively Ave.               | Norcross      | 30071    |
| Anitox Corp                         | 1055 Progress Circle          | Lawrenceville | 30043    |
| AT&T Telephone Facility             | 5856 BUFORD HWY               | NORCROSS      | 30071    |
| Atlanta Toyota                      | 2345 Pleasant Hill Rd.        | Duluth        | 30096    |
| BELLSOUTH - F0126                   | 5622 Harbins Road             | Lilburn       | 30093    |
| BELLSOUTH - F0381                   | 2845 Bethany Church Rd SW     | Snellville    | 30039    |
| BELLSOUTH - F0382                   | 3356 Everson Rd Rt 4126A      | Snellville    | 30039    |
| BELLSOUTH - F0520                   | 1131 Bailing Dr NW            | Lawrenceville | 30043    |
| BELLSOUTH - F1633                   | 5560 Spalding Drive RT 1202A  | Norcross      | 30071    |
| BELLSOUTH - F2873                   | 443 Johnson Road              | Lawrenceville | 30045    |
| BELLSOUTH - F5119                   | 3400 Summitt Ridge Pkwy NW    | Duluth        | 30136    |
| BELLSOUTH - F5215                   | 3394 Howell Street            | Duluth        | 30136    |
| BELLSOUTH - F5501                   | 377 Killian Hill Road         | Lilburn       | 30247    |
| BELLSOUTH - F5530                   | 2744 Main Street              | Snellville    | 30278    |
| BELLSOUTH - F5546                   | 5866 Buford Highway           | Norcross      | 30071    |

## Appendix A

| Facility Name                         | Address                      | City          | Zip Code |
|---------------------------------------|------------------------------|---------------|----------|
| BELLSOUTH - F5602                     | 2010 Hwy. 23                 | Buford        | 30518    |
| BELLSOUTH - F5618                     | 305 Oak Street               | Lawrenceville | 30245    |
| BELLSOUTH - F8964                     | 2047 Cruse Rd/RT 7245A       | Lawrenceville | 30044    |
| BELLSOUTH - FAP79                     | 2064 Killian Hill Road       | Snellville    | 30047    |
| BELLSOUTH - FJ044                     | 3594 Stone Mountain Hwy      | Snellville    | 30278    |
| BELLSOUTH - R03KH                     | 1120 Tech Center Drive       | Lawrenceville | 30043    |
| BELLSOUTH - RDM78                     | 592 Arnold Rd                | Snellville    | 30044    |
| BELLSOUTH - RDN20                     | 895 Dickens Road             | Lilburn       | 30047    |
| BELLSOUTH - RDR59                     | 1412 Buford Drive            | Lawrenceville | 30043    |
| BELLSOUTH - RDR71                     | 3272 Westbrook Trace         | Snellville    | 30278    |
| BELLSOUTH - RDV55                     | 3825 Medlock Bridge Road NW  | Norcross      | 30071    |
| BELLSOUTH - RDV58                     | 2548 Pond Rd                 | Norcross      | 30096    |
| BELLSOUTH - RDV77                     | 2340 Lawrenceville Hwy NW    | Lawrenceville | 30045    |
| BELLSOUTH - RDZ93                     | Prestwyck at Collins Hill Rd | Lawrenceville | 30043    |
| BELLSOUTH - REA85                     | 2047 Cruse Road NW           | Lawrenceville | 30045    |
| Birchwood Foods                       | 6009 Goshen Springs Rd       | Norcross      | 30071    |
| BJ Transfer Station                   | 6461 Corley Road             | Norcross      | 30071    |
| Block USA- Lawrenceville Plant        |                              | Lawrenceville |          |
| BlueLinx Corp.                        | 200 Hosea Road               | Lawrenceville | 30045    |
| Buckeye Cleaning Center - Atlanta     | 5901 - C Goshen Springs Road | Norcross      | 30071    |
| Buford                                | 1330 Appling Road            | Sugar Hill    | 30518    |
| Builders FirstSource - Atlantic Group | 6870 Mimms Drive             | Doraville     | 30340    |
| Burkett Oil Company                   | 6788 Best Friend Road        | Norcross      | 30071    |
| C. W. Matthews Contracting Co.        | 3561 Peachtree Parkway       | Norcross      | 30092    |
| C. W. Matthews Contracting Co.        | 1301 Hill Crest Road         | Norcross      | 30093    |
| Call Center                           | 3100 Avalon Ridge Place      | Norcross      | 30071    |
| Cardinal Health                       | 6154 Atlantic Blvd.          | Norcross      | 30071    |

## HAZARD VULNERABILITY ASSESSMENT DATA

| Facility Name                         | Address                       | City          | Zip Code |
|---------------------------------------|-------------------------------|---------------|----------|
| CarMax #7104 Norcross                 | 1975 Beaver Ruin Road         | Norcross      | 30071    |
| Chemcentral Atlanta                   | 1 Alchemy Place               | Doraville     | 30360    |
| Cintas Corporation                    | 1055 Progress Industrial Blvd | Lawrenceville | 30043    |
| CMC Rebar Georgia                     | 251 Hosea Road                | Lawrenceville | 30045    |
| Comcast of Georgia                    | 2775 Northwoods Drive         | Norcross      | 30071    |
| Conway Freight Southern Lawrenceville | 1449 Oakland rd               | Lawrenceville | 30045    |
| Costco Wholesale #187                 | 3980 Venture Drive            | Duluth        | 30136    |
| Costco Wholesale #366                 | 1550 Mall of Georgia          | Buford        | 30519    |
| Crooked Creek W.R.F.                  | 6557 Plant Drive              | Norcross      | 30092    |
| DanFoss Commercial Compressors        | 1775-G McLeod Dr.             | Lawrenceville | 30043    |
| Delta Colours                         | 6369 Peachtree St NE          | NORCROSS      | 30071    |
| Distribution Services Of Atlanta      | 3312 North Berkeley Lake Rd   | Duluth        | 30096    |
| Distribution Services Of Atlanta Inc. | 4505 Newpoint Place           | Lawrenceville | 30043    |
| Dolco Packaging                       | 252 Hosea Road                | Lawrenceville | 30045    |
| Duluth                                | 3573 Ridgeway Drive           | Duluth        | 30096    |
| Duluth MTSO (Sugarloaf)               | 2349 Meadow Church Way        | Duluth        | 30097    |
| Eastman Kodak Company                 | 2225 Cedars Road              | Lawrenceville | 30043    |
| Elesys North America Inc.             | 70 Crestridge Drive Suite 150 | Suwanee       | 30024    |
| EnerSys                               | 1826 Doan Way                 | Norcross      | 30093    |
| Ernst Concrete of Georgia             | 540 Seaboard Industrial Dr.   | Lawrenceville | 30046    |
| FedEx Express - MGEA                  | 6650 Corners Industrial Ct    | Norcross      | 30092    |
| FedEx Freight East- NEA               | 2495 MILL CENTER PKWY         | Buford        | 305180   |
| FinishMaster                          | 6325 Regency Parkway          | Norcross      | 30071    |
| Flowers Bakery of Suwanee             | 2900 Rolling Pin Lane         | Suwanee       | 30024    |
| Fujifilm Graphic Systems U.S.A.       | 850 Central Ave               | Suwanee       | 30024    |
| Gas Incorporated                      | 321 East Pike Street          | Lawrenceville | 30045    |
| GE Energy Airfoils                    | 2100 Boggs Road               | Duluth        | 30096    |

## Appendix A

| Facility Name                                                   | Address                        | City           | Zip Code   |
|-----------------------------------------------------------------|--------------------------------|----------------|------------|
| General Dynamics Whse. (Network Warehouse)                      | 5075 Buford Highway Suite 200  | Norcross       | 30071      |
| Georgia Masonry Supply Co. Inc.                                 | 125 Industrial Park Circle     | Lawrenceville  | 30045      |
| Georgia Power Company - Duluth Operating Headquarters           | 3825 Rogers Bridge Road        | Duluth         | 30136      |
| Georgia Power Company - Lawrenceville Operating Headquarters    | 1453 Highway 120               | Lawrenceville  | 30043      |
| Harimatec Inc.                                                  | 1965 Evergreen Blvd Suite 400  | Duluth         | 30096      |
| Heatcraft Refrigeration Products                                | 2175 West Park Place Blvd      | Stone Mountain | 30087      |
| Helena Chemical Company                                         | 3211 Shawnee Industrial Way    | Suwanee        | 30024      |
| Heraeus Tenevo                                                  | 100 Heraeus Blvd.              | Buford         | 30518      |
| Hertz Duluth                                                    | 3050 Satellite Blvd            | Duluth         | 30096      |
| HOME DEPOT-105-Duluth                                           | 3755 Shackelford Parkway       | DULUTH         | 30096      |
| HOME DEPOT-110-Lilburn                                          | 4121 Highway 78                | Lilburn        | 30047      |
| HOME DEPOT-126-Lawrenceville                                    | 875 Lawrenceville Suwanne Road | Lawrenceville  | 30043      |
| HOME DEPOT-131-Duluth                                           | 5950 State Bridge Road         | Duluth         | 30097      |
| HOME DEPOT-144-Snellville                                       | 1670 Scenic Highway            | Snellville     | 30019      |
| HOME DEPOT-161-Dacula                                           | 2120 Hamilton Creek Parkway    | Dacula         | 30019      |
| Hussmann Corporation                                            | 2700 Crestridge Court          | Suwanee        | 30024      |
| I.V.C. South                                                    | 875 Progress Center            | Lawrenceville  | 30043      |
| International Paint LLC Atlanta Distribution                    | 3312 North Berkeley Lake Rd    | Duluth         | 30096      |
| Jackson Emc (Lawrenceville Office)                              | 461 Swanson Drive              | Lawrenceville  | 30043      |
| Kraft Foods Global                                              | 6205 Best Friend Rd.           | Norcross       | 30071      |
| Landmark Aviation                                               | 850 Airpot Road                | Lawrenceville  | 30045      |
| Lanier Filter Plant - Gwinnett County Dept. of Public Utilities | 2601 Buford Dam Rd.            | Buford         | 30518      |
| Lanier Project Management Office                                | Buford Dam Road                | Buford         | 30518-0567 |
| Lawrenceville Freight                                           | 775 Marathon Parkway           | Lawrenceville  | 30045      |
| Lawrenceville Transfer Station                                  | 350 Maltbie Industrial Drive   | Lawrenceville  | 30045      |
| Lehigh Technologies of Georgia                                  | 120 Royal Woods Ct             | Tucker         | 30084      |
| Leisure Lawn                                                    | 4698 South Old Peachtree Road  | Norcross       | 30091      |

## HAZARD VULNERABILITY ASSESSMENT DATA

| Facility Name                                                        | Address                             | City          | Zip Code |
|----------------------------------------------------------------------|-------------------------------------|---------------|----------|
| Level 3 Communications - DRVLGA1W - Doraville / Norcross             | 6855 Crescent Drive                 | Doraville     | 30340    |
| Level 3 Communications -LRVLGA1T (Includes LRVLGA2T) - Lawrenceville | 790 Mccart Road                     | Lawrenceville | 30045    |
| Linde Gas - LifeGas - Norcross                                       | 2883 Simpson Circle NW              | Norcross      | 30071    |
| Linde Gas - Norcross                                                 | 1500 Indian Trail Rd Suite C        | Norcross      | 30093    |
| Lund International                                                   | 655 Raco Drive                      | Lawrenceville | 30045    |
| LZU ASR                                                              | 2724 W. Rock Quarry Rd. NE          | Buford        | 30045    |
| Masonite Corporation                                                 | 4005 Newpoint Place                 | Lawrenceville | 30043    |
| MCI - NHYTGA                                                         | 2836 Peterson Place                 | Norcross      | 30071    |
| Merck and Company                                                    | 1645 Satellite Blvd                 | Duluth        | 30097    |
| Merck and Company                                                    | 1645 Satellite Blvd                 | Duluth        | 30097    |
| MIZUNO USA                                                           | 4925 Avalon Ridge Parkway           | Norcross      | 30071    |
| Motorola                                                             | 1700 Belle Meade Court              | Lawrenceville | 30043    |
| Namasco Corporation - Suwanee                                        | 3775 Namasco Dr                     | Suwanee       | 30024    |
| NAPA Distribution Center                                             | 5420 Peachtree Industrial Boulevard | Norcross      | 30071    |
| National Gypsum Company                                              | 4125 Buford Highway                 | Duluth        | 30096    |
| Nazdar Atlanta                                                       | 4260 Peachtree Industrial Blvd.     | Norcross      | 30071    |
| Norcross                                                             | 2844 Jones Mill Road                | Norcross      | 30091    |
| Norcross BSC 01 and Cows                                             | 3060 North Woods Circle             | Norcross      | 30071    |
| Nordic Cold Storage                                                  | 4300 Pleasantdale Rd                | Atlanta       | 30340    |
| North Atlanta Ready Mix - Grayson Plant                              | 1125 Ozora Road                     | Grayson       | 30017    |
| North Atlanta Ready Mix-Lawrenceville Plant                          | 383 Maltbie Street                  | Lawrenceville | 30045    |
| North Star Foodservice Norcross Division                             | 6685 Crescent Dr                    | Norcross      | 30071    |
| Northeast Atlanta DC                                                 | 725 Progress Ind Blvd               | Lawrenceville | 30043    |
| Northeast Sales Distributing Company                                 | 1400 Beaver Ruin Road               | Norcross      | 30093    |
| OFS Fitel                                                            | 2000 Northeast Expressway           | Norcross      | 30071    |
| Panasonic                                                            | 1225 Northbrook Parkway             | Suwanee       | 30024    |

## Appendix A

| Facility Name                                                        | Address                         | City          | Zip Code |
|----------------------------------------------------------------------|---------------------------------|---------------|----------|
| Penske Truck Leasing Co.                                             | 1655 Distribution Drive         | Duluth        | 30097    |
| Penske Truck Leasing Co.                                             | 2300 Weaver Way                 | Norcross      | 30071    |
| Praxair Distribution Inc.                                            | 4090 Steve Reynolds Blvd        | Norcross      | 30093    |
| Price Industries                                                     | 2975 Shawnee Ridge Court        | Suwanee       | 30024    |
| Purafil                                                              | 2654 Weaver Way                 | Doraville     | 30340    |
| Rental Service Corporation #486                                      | 229 Hurricane Shoals Road       | Lawrenceville | 30045    |
| Rock Tenn Company                                                    | 4444 South Old Peachtree Road   | Norcross      | 30071    |
| Rock Tenn Company                                                    | 4464 South Old Peachtree Road   | Norcross      | 30071    |
| Ryder Transportation Services #0021A                                 | 4091 Blue Ridge Industrial Pkwy | Duluth        | 30071    |
| Ryder Transportation Services #0154A                                 | 6600 Button Gwinnett Drive      | Doraville     | 30340    |
| Ryder Transportation Services #2291                                  | 3759 Blue Ridge Drive           | Buford        | 30519    |
| Ryerson                                                              | 4400 Peachtree Industrial Blvd  | Norcross      | 30071    |
| Safety-Kleen Systems                                                 | 4800 South Old Peachtree Road   | Norcross      | 30071    |
| SamÆs Club #4739                                                     | 1520 Scenic Highway             | Snellville    | 30078    |
| SamÆs Club #4780                                                     | 3383 Buford Drive               | Buford        | 30519    |
| SamÆs Club #8166                                                     | 3450 Steve Reynolds Blvd        | Duluth        | 30096    |
| Sara                                                                 | 2000 Newpoint Parkway Suite 200 | Lawrenceville | 30043    |
| Schering Plough                                                      | 20 Crestridge Drive             | Suwanee       | 30024    |
| Schwan's Global Supply Chain                                         | 2900 Rolling Pin Lane           | Suwanee       | 30024    |
| Scotts Lawn Service #922                                             | 4575 S. Old Peachtree Road      | Norcross      | 30071    |
| SCP Distributors                                                     | 5815 Brook Hollow Pkwy Suite A  | Norcross      | 30071    |
| SECHEM                                                               | 4580 South Berkely Lake Road    | Norcross      | 30071    |
| Sherwin-Williams Lawrenceville                                       | 725 Raco Drive                  | Lawrenceville | 30045    |
| Shoal Creek Filter Plant - Gwinnett County Dept. of Public Utilities | 1755 Buford Dam Rd.             | Buford        | 30518    |
| Snellville                                                           | 2289 Scenic Drive               | Snellville    | 30078    |
| SourceOne Healthcare Technologies - Duluth                           | 2625 North Berkeley Lake Rd     | Duluth        | 30096    |
| Southeast Dist. Center                                               | 2775 Horizon Ridge Court        | Suwanee       | 30024    |

## HAZARD VULNERABILITY ASSESSMENT DATA

| Facility Name                                        | Address                              | City          | Zip Code   |
|------------------------------------------------------|--------------------------------------|---------------|------------|
| Steelcraft                                           | 2700 Crestridge Courtrf              | Suwanee       | 30024      |
| Superior Pool Products                               | 605 Best Friend Court Suite 680      | Norcross      | 30071      |
| Suzanna's Kitchen Inc.                               | 4025 Buford Hwy                      | Duluth        | 30096      |
| Suzanna's Kitchen Inc.                               | 4101 Blue Ridge Industrial Parkway   | Duluth        | 30097      |
| T-Mobile USA                                         | 5855 Peachtree Corners E             | Norcross      | 30092      |
| Taylor Industrial Chemical                           | 1025 Progress Circle                 | Lawrenceville | 30043      |
| TCI Warehouse                                        | 1295 Progress Industrial Blvd.       | Lawrenceville | 30043      |
| TCSC Lawrenceville DC                                | 4005 Newpoint Place Suite 200        | Lawrenceville | 30043      |
| The Chamberlain Group                                | 505 Best Friend Court                | Norcross      | 30071      |
| The Home Depot Supply                                | 1950 North Norcross Tucker Road      | Norcross      | 30071      |
| Thomas Concrete - Doraville B - Portable Plant #2400 | 2825 Humphries Way                   | Doraville     | 30360      |
| Thomas Concrete Doraville Plant # 1500               | 2725 Jones Mill Road                 | Doraville     | 30360      |
| Thomas Concrete Lawrenceville Plant #1200            | 455 Maltbie Street                   | Lawrenceville | 30245      |
| Thomas Concrete Lilburn Plant #1700                  | 4428 Lilburn Industrial Blvd.        | Lilburn       | 30047      |
| Thomas Concrete Suwanee Plant # 1400                 | 450 Woodward Way                     | Suwanee       | 30024      |
| Tomco Equipment Company                              | 3340 Rosebud Road                    | Loganville    | 30052      |
| TruGreen ChemLawn - Suwanee                          | 3630 Swiftwater Park Drive           | Suwanee       | 30024      |
| Trugreen Landcare - Lilburn                          | 4425 Lilburn Industrial Way          | Lilburn       | 30047      |
| Tucker Concrete Co.                                  | 1095 Ozora Road                      | Loganville    | 30052      |
| Tyco Valves & Controls LLP                           | 6185-F Jimmy Carter Blvd             | Norcross      | 30071      |
| United BMW Duluth                                    | 3264 Commerce Ave.                   | Duluth        | 30096      |
| Univar USA Inc - Norcross                            | 2145 Skyland Court                   | Norcross      | 30071      |
| UPS Ground Freight                                   | 775 Marathon Parkway                 | Lawrenceville | 30045      |
| Victaulic Depend-O-Lok                               | 2681 Pleasantdale Road               | Atlanta       | 30340      |
| Vistar                                               | 375 Satellite Blvd Suite 300 and 200 | Suwanee       | 30024      |
| Volvo Cars North America                             | 1125B Northbrook Parkway             | Suwanee       | 30024-3562 |

## Appendix A

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| Facility Name                      | Address                           | City          | Zip Code |
|------------------------------------|-----------------------------------|---------------|----------|
| Volvo Parts North America          | 3020 Evergreen Drive              | Duluth        | 30096    |
| Waste Management of Atlanta        | 1243 Beaver Ruin Road             | Norcross      | 30093    |
| WIKA Instrument Corporation        | 1000 Wiegand Blvd                 | Lawrenceville | 30043    |
| Williams Bros. #1 (Duluth)         | 3165 Pleasant Hill Rd.            | Duluth        | 30096    |
| Williams Bros. #7 (Norcross Truss) | 4094 Blueridge Industrial Parkway | Norcross      | 30071    |
| Wilson Trucking Corporation        | 2100 Royal Palm Court             | Norcross      | 30071    |
| Yancey Bros. Co.-Gwinnett          | 335 Hurricane Trail               | Dacula        | 30019    |

# Appendix B

## SUPPORTING DOCUMENTATION

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### **PUBLIC SERVICE ANNOUNCEMENT FOR PUBLIC MEETING #1**

**Story Contact:** Greg Swanson  
Gwinnett Homeland Security/Emergency Management  
(770) 513-5060  
gregory.swanson@gwinnettcountry.com

### **EMERGENCY MANAGERS SEEK INPUT ON HAZARDS**

(Lawrenceville, Ga., April 27, 2009) – The public is invited to help plan ways to respond to both natural and man-made hazards in the Gwinnett area. A public meeting at 7 p.m. on Wednesday, May 6, will offer an overview of the planning process and give the public an opportunity to offer recommendations.

Emergency Services Coordinator Greg Swanson said, “This will be a multi-jurisdictional plan to identify local hazards, assess the risks and plan ways to reduce loss of life and property damage in emergency situations. We welcome any and all input from our residents to help keep everyone safe.”

The final plan will eventually be submitted to the Federal Emergency Management Agency (FEMA) for review and approval. The public meeting will be held in Conference Room C on the second floor of the Gwinnett Justice and Administration Center at 75 Langley Drive in Lawrenceville. For more information, please call (770) 513-5060.

**GWINNETT COUNTY, GA  
HAZARD MITIGATION PLAN  
PUBLIC MEETING #1  
MINUTES**

**May 6, 2009**

The Gwinnett County, GA Hazard Mitigation Plan Public Meeting #1 was held on Wednesday, May 6, 2009. Mr. Greg Swanson, Gwinnett County Emergency Services Coordinator, and Mrs. Lisa Danner of Beck Disaster Recovery, Inc. conducted the public meeting at the Gwinnett County Justice and Administration Center in Lawrenceville, GA. The only attendees at the public meeting were Greg Swanson and Lisa Danner.

The public meeting concluded at 7:45 pm.

**PUBLIC SERVICE ANNOUNCEMENT FOR PUBLIC MEETING #2**

**Emergency Managers Seek Input On Hazards**

(Lawrenceville, Ga., June 9, 2009) - The public is invited to help plan ways to respond to both natural and man-made hazards in the Gwinnett area. A public meeting at 6 p.m. on Monday, June 15, will offer an overview of the planning process and give the public an opportunity to offer recommendations.

Emergency Services Coordinator Greg Swanson said, "This will be a multi-jurisdictional plan to identify local hazards, assess the risks and plan ways to reduce loss of life and property damage in emergency situations. We welcome any and all input from our residents to help keep everyone safe."

The final plan will eventually be submitted to the Federal Emergency Management Agency (FEMA) for review and approval. The public meeting will be held in Conference Room C on the second floor of the Gwinnett Justice and Administration Center at 75 Langley Drive in Lawrenceville. For more information, please call (770) 513-5060.

**GWINNETT COUNTY, GA  
HAZARD MITIGATION PLAN  
PUBLIC MEETING #2  
MINUTES**

**June 15, 2009**

The Gwinnett County, GA Hazard Mitigation Plan Public Meeting #2 was held on Monday, June 15, 2009 from 6:00 p.m. to 8:00 p.m. Mr. Greg Swanson, Gwinnett County Emergency Services Coordinator, and Mrs. Lisa Danner of Beck Disaster Recovery, Inc. (BDR) conducted the public meeting at the Gwinnett County Justice and Administration Center in Lawrenceville, GA. The following people were in attendance:

Bill Cherepy  
Erin Hays  
Eric Horne  
Jim Weed

ARES/RACES  
Beck Disaster Recovery, Inc.  
Hazard Mitigation Steering Committee  
Civil Air Patrol

The meeting began at 6:05 p.m. with introductions being made by Lisa Danner, BDR. Mrs. Danner began the meeting with an overview of the hazard mitigation project and the phases remaining in the project. Mrs. Danner presented to the public the list of identified hazards and risk assessment for each of the hazards identified in the risk assessment and vulnerability analysis. Discussion followed concerning the identified list of hazards (natural and technological) and the risk assessment for each of the hazards identified.

Housing of evacuated people from other states and/or locations was discussed to be added to the hazard mitigation plan. After Hurricane Katrina, Gwinnett has received evacuated residents and feels that this is going to be an issue for future events. Discussion followed concerning involvement of the local Amateur Radio and Civil Air Patrol personnel/volunteers with Gwinnett County Emergency Management and other Gwinnett agencies/departments.

Discussion followed concerning the identified list of hazards, the risk assessment and vulnerability analysis portion of the hazard mitigation plan.

The public meeting concluded at 7:30 pm.

### **PUBLIC SERVICE ANNOUNCEMENT FOR PUBLIC MEETING #3**

#### **Emergency Managers Seek Input On Hazards**

(Lawrenceville, Ga., July 9, 2009) - The public is invited to help identify mitigation strategies for both natural and man-made hazards in the Gwinnett area. A public meeting at 6 p.m. on Monday, July 27, will offer an overview of the planning process and give the public an opportunity to offer recommendations for mitigation strategies.

Emergency Services Coordinator Greg Swanson said, "This will be a multi-jurisdictional plan to identify local hazards, assess the risks and plan ways to reduce loss of life and property damage in emergency situations. We welcome any and all input from our residents to help keep everyone safe."

The final plan will eventually be submitted to the Federal Emergency Management Agency (FEMA) for review and approval. The public meeting will be held in Conference Room C on the second floor of the Gwinnett Justice and Administration Center at 75 Langley Drive in Lawrenceville. For more information, please call (770) 513-5060.

#### **GWINNETT COUNTY, GA HAZARD MITIGATION PLAN PUBLIC MEETING #3 MINUTES**

**July 27, 2009**

The Gwinnett County, GA Hazard Mitigation Plan Public Meeting #3 was held on Monday, July 27, 2009. Mr. Greg Swanson, Gwinnett County Emergency Services Coordinator, Erin Hays and Mrs. Lisa Danner of BDR, Inc. conducted the public meeting at the Gwinnett County Justice and Administration Center in Lawrenceville, GA. The only attendees at the public meeting were Greg Swanson, Erin Hays and Lisa Danner.

The public meeting concluded at 7:45 p.m.

**GWINNETT COUNTY, GA  
HAZARD MITIGATION PLAN  
HMSC WORKSHOP MEETING  
MINUTES**

**October 27, 2009**

The Gwinnett County Hazard Mitigation Steering Committee (HMSC) conducted a workshop on October 27, 2009 to review final draft versions of the Gwinnett County Hazard Mitigation Plan. The workshop began at 9:00 and was conducted by Greg Swanson, Gwinnett County Office of Emergency Management, and Lisa Danner, Beck Disaster Recovery, Inc. The meeting was attended by the following:

|                   |                                                |
|-------------------|------------------------------------------------|
| Greg Swanson      | Gwinnett County Office of Emergency Management |
| Lisa Danner       | Beck Disaster Recovery, Inc.                   |
| Charles Wells     | Gwinnett County Fire & Emergency Services      |
| Jim, Osborn       | Gwinnett Municipal Association                 |
| Eric Horne        | Gwinnett Parks & Recreation                    |
| Larry Dancy       | Gwinnett Planning & Development                |
| Lt. Tom Srtwarzer | Gwinnett Public Schools                        |
| Neal Strickland   | Gwinnett Department of Water Resources         |

The HMSC discussed the HMP and updates that had been made to the document. After much discussion, the HMSC was given until Friday, November 6, 2009 to send any revisions to either Greg Swanson or Lisa Danner so the revisions could be included into the updated HMP before send to GEMA and FEMA.

The workshop was adjourned at 10:30 am.



**Appendix C**

**INDIVIDUAL JURISDICTION PARTICIPATION  
RESOLUTION**

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**RESOLUTION  
TO INCLUDE MUNICIPAL BOUNDARIES  
AS PART OF THE GWINNETT COUNTY MULTI-JURISDICTIONAL  
HAZARD MITIGATION PLAN**

**WHEREAS**, the **(INSERT JURISDICTION NAME)**, Georgia, understands the need to develop a multi-jurisdictional hazard mitigation plan in order for the City to comprehend its vulnerability to natural and man-made hazards, and the actions needed to reduce or eliminate those risks.

**WHEREAS**, the **(INSERT JURISDICTION NAME)**, Georgia, realizes the development of such a plan is vital to the protection, health, safety and welfare of its citizens as well as its visitors.

**WHEREAS**, the **(INSERT JURISDICTION NAME)**, Georgia, understands that in order for the City to receive mitigation funding from the Federal Emergency Management Agency (FEMA), it must have a mitigation plan in place at the time of submitting a proposal.

**NOW THEREFORE, BE IT RESOLVED BY THE (INSERT NAME OF JURISDICTION), GEORGIA, THAT THE CITY WILL WORK WITH GWINNETT COUNTY TO INCLUDE ITS MUNICIPAL BOUNDARIES AS PART OF GWINNETT COUNTY'S MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN.**

**PASSED AND ADOPTED**, this the \_\_\_\_\_ day of \_\_\_\_\_, 2009 by the Mayor and Governing Board of **(INSERT JURISDICTION NAME)**, Georgia, assembled in regular session.

**BY:** \_\_\_\_\_  
**MAYOR**

**ATTESTED:**

**BY:** \_\_\_\_\_



**INSTRUCTIONS FOR USING THE PLAN REVIEW CROSSWALK FOR REVIEW OF LOCAL MITIGATION PLANS**

Attached is a Plan Review Crosswalk based on the **Local Multi-Hazard Mitigation Planning Guidance**, published by FEMA in July, 2008. This Plan Review Crosswalk is consistent with the *Robert T. Stafford Disaster Relief and Emergency Assistance Act* (Stafford Act), as amended by Section 322 of the *Disaster Mitigation Act of 2000* (P.L. 106-390), the *National Flood Insurance Act of 1968*, as amended by the *National Flood Insurance Reform Act of 2004* (P.L. 108-264) and *44 Code of Federal Regulations (CFR) Part 201 – Mitigation Planning*, inclusive of all amendments through October 31, 2007.

**SCORING SYSTEM**

**N – Needs Improvement:** The plan does not meet the minimum for the requirement. Reviewer’s comments must be provided.

**S – Satisfactory:** The plan meets the minimum for the requirement. Reviewer’s comments are encouraged, but not required.

Each requirement includes separate elements. All elements of a requirement must be rated “Satisfactory” in order for the requirement to be fulfilled and receive a summary score of “Satisfactory.” A “Needs Improvement” score on elements shaded in gray (recommended but not required) will not preclude the plan from passing.

When reviewing single jurisdiction plans, reviewers may want to put an N/A in the boxes for multi-jurisdictional plan requirements. When reviewing multi-jurisdictional plans, however, all elements apply. States that have additional requirements can add them in the appropriate sections of the *Local Multi-Hazard Mitigation Planning Guidance* or create a new section and modify this Plan Review Crosswalk to record the score for those requirements. Optional matrices for assisting in the review of sections on profiling hazards, assessing vulnerability, and identifying and analyzing mitigation actions are found at the end of the Plan Review Crosswalk.

**The example below illustrates how to fill in the Plan Review Crosswalk.:**

|                                                                                                                                                                                                                                                                                               |              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Assessing Vulnerability: Overview</b>                                                                                                                                                                                                                                                      |              |
| <i>Requirement §201.6(c)(2)(ii): [The risk assessment shall include a] description of the jurisdiction’s vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.</i> |              |
| <b>Location in the</b>                                                                                                                                                                                                                                                                        | <b>SCORE</b> |

## Appendix B

| Element                                                                                                                                         | Plan (section or annex and page #) | Reviewer's Comments                                                                                                                                                                                                                                                                                                                                                            |                          |                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|
|                                                                                                                                                 |                                    |                                                                                                                                                                                                                                                                                                                                                                                | N                        | S                        |
| A. Does the <b>new or updated</b> plan include an <b>overall summary</b> description of the jurisdiction's <b>vulnerability</b> to each hazard? | Section II, pp. 4-10               | The plan describes the types of assets that are located within geographically defined hazard areas as well as those that would be affected by winter storms.                                                                                                                                                                                                                   |                          | <input type="checkbox"/> |
| B. Does the <b>new or updated</b> plan address the <b>impact</b> of each hazard on the jurisdiction?                                            | Section II, pp. 10-20              | The plan does not address the impact of two of the five hazards addressed in the plan.<br><b>Required Revisions:</b><br><ul style="list-style-type: none"> <li>• Include a description of the impact of floods and earthquakes on the assets.</li> </ul> <b>Recommended Revisions:</b><br>This information can be presented in terms of dollar value or percentages of damage. | <input type="checkbox"/> |                          |
| <b>SUMMARY SCORE</b>                                                                                                                            |                                    |                                                                                                                                                                                                                                                                                                                                                                                | <input type="checkbox"/> |                          |

# LOCAL MITIGATION PLAN REVIEW CROSSWALK

## LOCAL MITIGATION PLAN REVIEW SUMMARY

The plan cannot be approved if the plan has not been formally adopted. Each requirement includes separate elements. All elements of the requirement must be rated "Satisfactory" in order for the requirement to be fulfilled and receive a score of "Satisfactory." Elements of each requirement are listed on the following pages of the Plan Review Crosswalk. A "Needs Improvement" score on elements shaded in gray (recommended but not required) will not preclude the plan from passing. Reviewer's comments must be provided for requirements receiving a "Needs Improvement" score.

| Prerequisite(s) (Check Applicable Box)                                                                           | NOT MET                  | MET                      |
|------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|
| 1. Adoption by the Local Governing Body: §201.6(c)(5) OR                                                         | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Multi-Jurisdictional Plan Adoption: §201.6(c)(5)<br>AND                                                       | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Multi-Jurisdictional Planning Participation: §201.6(a)(3)                                                     | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>Planning Process</b>                                                                                          | <b>N</b>                 | <b>S</b>                 |
| 4. Documentation of the Planning Process: §201.6(b) and §201.6(c)(1)                                             | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>Risk Assessment</b>                                                                                           | <b>N</b>                 | <b>S</b>                 |
| 5. Identifying Hazards: §201.6(c)(2)(i)                                                                          | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Profiling Hazards: §201.6(c)(2)(i)                                                                            | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Assessing Vulnerability: Overview: §201.6(c)(2)(ii)                                                           | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>8. Assessing Vulnerability: Addressing Repetitive Loss Properties. §201.6(c)(2)(ii)</b>                       | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Assessing Vulnerability: Identifying Structures, Infrastructure, and Critical Facilities: §201.6(c)(2)(ii)(B) | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Assessing Vulnerability: Estimating Potential Losses: §201.6(c)(2)(ii)(B)                                    | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Assessing Vulnerability: Analyzing Development Trends: §201.6(c)(2)(ii)(C)                                   | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Multi-Jurisdictional Risk Assessment: §201.6(c)(2)(iii)                                                      | <input type="checkbox"/> | <input type="checkbox"/> |

\*States that have additional requirements can add them in the appropriate sections of the *Local Multi-Hazard Mitigation Planning Guidance* or create a new section and modify this Plan Review Crosswalk to record the score for those requirements.

## SCORING SYSTEM

Please check one of the following for each requirement.

**N – Needs Improvement:** The plan does not meet the minimum for the requirement. Reviewer's comments must be provided.

**S – Satisfactory:** The plan meets the minimum for the requirement. Reviewer's comments are encouraged, but not required.

### Mitigation Strategy

- 13. Local Hazard Mitigation Goals: §201.6(c)(3)(i)
- 14. Identification and Analysis of Mitigation Actions: §201.6(c)(3)(ii)
- 15. Identification and Analysis of Mitigation Actions: NFIP Compliance. §201.6(c)(3)(ii)**
- 16. Implementation of Mitigation Actions: §201.6(c)(3)(iii)
- 17. Multi-Jurisdictional Mitigation Actions: §201.6(c)(3)(iv)

|                                                                                                 | N                        | S                        |
|-------------------------------------------------------------------------------------------------|--------------------------|--------------------------|
| 13. Local Hazard Mitigation Goals: §201.6(c)(3)(i)                                              | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. Identification and Analysis of Mitigation Actions: §201.6(c)(3)(ii)                         | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>15. Identification and Analysis of Mitigation Actions: NFIP Compliance. §201.6(c)(3)(ii)</b> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. Implementation of Mitigation Actions: §201.6(c)(3)(iii)                                     | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. Multi-Jurisdictional Mitigation Actions: §201.6(c)(3)(iv)                                   | <input type="checkbox"/> | <input type="checkbox"/> |

### Plan Maintenance Process

- 18. Monitoring, Evaluating, and Updating the Plan: §201.6(c)(4)(i)
- 19. Incorporation into Existing Planning Mechanisms: §201.6(c)(4)(ii)
- 20. Continued Public Involvement: §201.6(c)(4)(iii)

|                                                                       | N                        | S                        |
|-----------------------------------------------------------------------|--------------------------|--------------------------|
| 18. Monitoring, Evaluating, and Updating the Plan: §201.6(c)(4)(i)    | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. Incorporation into Existing Planning Mechanisms: §201.6(c)(4)(ii) | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. Continued Public Involvement: §201.6(c)(4)(iii)                   | <input type="checkbox"/> | <input type="checkbox"/> |

### Additional State Requirements\*

- Insert State Requirement
- Insert State Requirement
- Insert State Requirement

|                          | N                        | S                        |
|--------------------------|--------------------------|--------------------------|
| Insert State Requirement | <input type="checkbox"/> | <input type="checkbox"/> |
| Insert State Requirement | <input type="checkbox"/> | <input type="checkbox"/> |
| Insert State Requirement | <input type="checkbox"/> | <input type="checkbox"/> |

**Appendix B**

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**LOCAL MITIGATION PLAN APPROVAL STATUS**

**PLAN NOT APPROVED**

**See Reviewer's Comments**

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**PLAN APPROVED**

**LOCAL MITIGATION PLAN REVIEW CROSSWALK**

**Local Mitigation Plan Review and Approval Status**

|                                                                  |                                                                                      |                                 |
|------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------|
| <b>Jurisdiction:</b><br>Gwinnett County, GA                      | <b>Title of Plan:</b><br>Gwinnett County Multi-Jurisdictional Hazard Mitigation Plan | <b>Date of Plan:</b> 12/29/2004 |
| <b>Local Point of Contact:</b><br>Gregory Swanson                | <b>Address:</b><br>770 Hi-Hope Road<br>P.O. Box 602<br>Lawrenceville, GA 30046       |                                 |
| <b>Title:</b><br>Interim Emergency Management Director           |                                                                                      |                                 |
| <b>Agency:</b><br>Gwinnett County Office of Emergency Management |                                                                                      |                                 |
| <b>Phone Number:</b><br>(770) 513-5060                           | <b>E-Mail:</b><br>Gregory.swanson@gwinnettcountry.com                                |                                 |

|                        |               |              |
|------------------------|---------------|--------------|
| <b>State Reviewer:</b> | <b>Title:</b> | <b>Date:</b> |
|------------------------|---------------|--------------|

|  |                                                                                  |               |              |
|--|----------------------------------------------------------------------------------|---------------|--------------|
|  | <b>Section 7</b><br>FEMA<br>Reviewer:<br>_____                                   | <b>Title:</b> | <b>Date:</b> |
|  | <b>Section 8</b><br>Date<br>Received<br>in FEMA<br>Region<br>[Insert #]<br>_____ |               |              |
|  | <b>Section 9</b><br>Plan<br>Not<br>Approved<br>_____                             |               |              |
|  | <b>Plan Approved</b>                                                             |               |              |

# Appendix B

Date Approved

| Jurisdiction:                                     | Date Approved |             | Y | N | N/A | CRS Class |
|---------------------------------------------------|---------------|-------------|---|---|-----|-----------|
|                                                   | In Plan       | NOT in Plan |   |   |     |           |
| 1.                                                |               |             |   |   |     |           |
| 2.                                                |               |             |   |   |     |           |
| 3.                                                |               |             |   |   |     |           |
| 4.                                                |               |             |   |   |     |           |
| 5. [ATTACH PAGE(S) WITH ADDITIONAL JURISDICTIONS] |               |             |   |   |     |           |

\* Notes:

Y = Participating

N = Not Participating

N/A = Not Mapped

11.1.1.1 PREREQUISITE(S)

**1. Adoption by the Local Governing Body**

**Requirement §201.6(c)(5):** [The local hazard mitigation plan **shall** include] documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council).

| Element                                                             | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE    |     |
|---------------------------------------------------------------------|----------------------------------------------------|---------------------|----------|-----|
|                                                                     |                                                    |                     | NO T MET | MET |
| A. Has the local governing body adopted <b>new or updated</b> plan? | In progress, will complete upon plan approval      |                     |          |     |
| B. Is supporting documentation, such as a resolution, included?     | In progress, will complete upon plan approval      |                     |          |     |
| <b>SUMMARY SCORE</b>                                                |                                                    |                     |          |     |

**2. Multi-Jurisdictional Plan Adoption**

**Requirement §201.6(c)(5):** For multi-jurisdictional plans, each jurisdiction requesting approval of the plan **must** document that it has been formally adopted.

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE    |     |
|---------|----------------------------------------------------|---------------------|----------|-----|
|         |                                                    |                     | NO T MET | MET |
|         |                                                    |                     |          |     |

## Appendix B

|                                                                                                     |                                               |  |  |
|-----------------------------------------------------------------------------------------------------|-----------------------------------------------|--|--|
| A. Does the <b>new or updated</b> plan indicate the specific jurisdictions represented in the plan? | Executive Summary, p. 3                       |  |  |
| B. For each jurisdiction, has the local governing body adopted the <b>new or updated</b> plan?      | In progress, will complete upon plan approval |  |  |
| C. Is supporting documentation, such as a resolution, included for each participating jurisdiction? | In progress, will complete upon plan approval |  |  |

**SUMMARY SCORE**

### 3. Multi-Jurisdictional Planning Participation

**Requirement §201.6(a)(3):** *Multi-jurisdictional plans (e.g., watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process ... Statewide plans will not be accepted as multi-jurisdictional plans.*

| Element                                                                                                                                                     | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE    |     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------|----------|-----|
|                                                                                                                                                             |                                                    |                     | NO T MET | MET |
| A. Does the <b>new or updated</b> plan describe <b>how</b> each jurisdiction participated in the plan's development?                                        | Section 1, pp. 4-10; Table 1-3                     |                     |          |     |
| B. Does the updated plan identify all participating jurisdictions, including new, continuing, and the jurisdictions that no longer participate in the plan? | Section 1, p. 7-10; Table 1-3                      |                     |          |     |

**SUMMARY SCORE**

## LOCAL MITIGATION PLAN REVIEW CROSSWALK

**PLANNING PROCESS:** §201.6(b): *An open public involvement process is essential to the development of an effective plan.*

### 4. Documentation of the Planning Process

**Requirement §201.6(b):** *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process **shall** include:*

- (1) *An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;*
- (2) *An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and*
- (3) *Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

**Requirement §201.6(c)(1):** *[The plan **shall** document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.*

| Element                                                                                                                                                                                                                                                                                                               | Location in the Plan (section or annex and page #)                      | Reviewer's Comments | SCORE |   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|---------------------|-------|---|
|                                                                                                                                                                                                                                                                                                                       |                                                                         |                     | N     | S |
| A. Does the plan provide a narrative description of the process followed to prepare the <b>new or updated</b> plan?                                                                                                                                                                                                   | Section 1, pp. 4 - 10                                                   |                     |       |   |
| B. Does the <b>new or updated</b> plan indicate who was involved in the <b>current</b> planning process? (For example, who led the development at the staff level and were there any external contributors such as contractors? Who participated on the plan committee, provided information, reviewed drafts, etc.?) | Executive Summary, pp. 2 – 3; Section 1, pp. 4-10; Table 1-2; Table 1-3 |                     |       |   |
| C. Does the <b>new or updated</b> plan indicate how the public was involved? (Was the public provided an opportunity to comment on the plan during the drafting stage and prior to the plan approval?)                                                                                                                | Section 1, p. 9; Appendix B                                             |                     |       |   |
| D. Does the <b>new or updated</b> plan discuss the                                                                                                                                                                                                                                                                    | Section 1, pp.                                                          |                     |       |   |

**4. Documentation of the Planning Process**

**Requirement §201.6(b):** *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:*

- (1) *An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;*
- (2) *An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and*
- (3) *Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

**Requirement §201.6(c)(1):** *[The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.*

| Location in the                                                                                                                                                            |                                                      |  | SCORE |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|--|-------|--|
| opportunity for neighboring communities, agencies, businesses, academia, nonprofits, and other interested parties to be involved in the planning process?                  | 4-10                                                 |  |       |  |
| E. Does the planning process describe the review and incorporation, if appropriate, of existing plans, studies, reports, and technical information?                        | Section 1, pp. 3 - 4                                 |  |       |  |
| F. Does the updated plan document how the planning team reviewed and analyzed each section of the plan and whether each section was revised as part of the update process? | Section 1, pp. 4-10; Table 1-1; Table 1-2; Table 1-3 |  |       |  |
| <b>SUMMARY SCORE</b>                                                                                                                                                       |                                                      |  |       |  |

## LOCAL MITIGATION PLAN REVIEW CROSSWALK

**RISK ASSESSMENT:** §201.6(c)(2): *The plan shall include a risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.*

### 5. Identifying Hazards

**Requirement §201.6(c)(2)(i):** *[The risk assessment shall include a] description of the type ... of all natural hazards that can affect the jurisdiction.*

| Element                                                                                                                                      | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------|-------|---|
|                                                                                                                                              |                                                    |                     | N     | S |
| A. Does the <b>new or updated</b> plan include a <b>description</b> of the types of <b>all natural hazards</b> that affect the jurisdiction? | Section 3, pp. 1 - 100                             |                     |       |   |
| <b>SUMMARY SCORE</b>                                                                                                                         |                                                    |                     |       |   |

### 6. Profiling Hazards

**Requirement §201.6(c)(2)(i):** *[The risk assessment shall include a] description of the ... location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.*

| Element                                                                                                                                                                | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------|-------|---|
|                                                                                                                                                                        |                                                    |                     | N     | S |
| A. Does the risk assessment identify the <b>location</b> ( <i>i.e.</i> , geographic area affected) of each natural hazard addressed in the <b>new or updated</b> plan? | Section 3, pp. 1 - 100                             |                     |       |   |
| B. Does the risk assessment identify the <b>extent</b> ( <i>i.e.</i> , magnitude or severity) of each hazard addressed in the <b>new or updated</b> plan?              | Section 3, pp. 1 - 100                             |                     |       |   |

## Appendix B

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|                                                                                                                                                                     |                                       |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|--|--|--|
| C. Does the plan provide information on <b>previous occurrences</b> of each hazard addressed in the <b>new or updated</b> plan?                                     | Section 3, pp. 1 – 100;<br>Appendix A |  |  |  |
| D. Does the plan include the <b>probability of future events</b> ( <i>i.e.</i> , chance of occurrence) for each hazard addressed in the <b>new or updated</b> plan? | Section 3, pp. 1 - 100                |  |  |  |
| <b>SUMMARY SCORE</b>                                                                                                                                                |                                       |  |  |  |

**LOCAL MITIGATION PLAN REVIEW CROSSWALK**

**7. Assessing Vulnerability: Overview**

**Requirement §201.6(c)(2)(ii):** [The risk assessment **shall** include a] description of the jurisdiction’s vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description **shall** include an overall summary of each hazard and its impact on the community.

| Element                                                                                                                                         | Location in the Plan (section or annex and page #) | Reviewer’s Comments | SCORE |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------|-------|---|
|                                                                                                                                                 |                                                    |                     | N     | S |
| A. Does the <b>new or updated</b> plan include an <b>overall summary</b> description of the jurisdiction’s <b>vulnerability</b> to each hazard? | Section 3, pp. 1 - 100                             |                     |       |   |
| B. Does the <b>new or updated</b> plan address the <b>impact</b> of each hazard on the jurisdiction?                                            | Section 3, pp. 1 - 100                             |                     |       |   |
| <b>SUMMARY SCORE</b>                                                                                                                            |                                                    |                     |       |   |

**8. Assessing Vulnerability: Addressing Repetitive Loss Properties**

**Requirement §201.6(c)(2)(ii):** [The risk assessment] **must** also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged floods.

| Element                                                                                                                                                               | Location in the Plan (section or annex and page #) | Reviewer’s Comments                                                                                 | SCORE |   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------|---|
|                                                                                                                                                                       |                                                    |                                                                                                     | N     | S |
| A. Does the new or updated plan describe vulnerability in terms of the types and numbers of <i>repetitive loss properties</i> located in the identified hazard areas? | Section 3, pp. 24-25                               | <b>Note: This requirement becomes effective for all local plans approved after October 1, 2008.</b> |       |   |
| <b>SUMMARY SCORE</b>                                                                                                                                                  |                                                    |                                                                                                     |       |   |

**9. Assessing Vulnerability: Identifying Structures**

**Requirement §201.6(c)(2)(ii)(A):** The plan **should** describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area ... .

| Location in the | SCORE |
|-----------------|-------|
|                 |       |

## Appendix B

| Element                                                                                                                                                                                                              | Plan (section or annex and page #) | Reviewer's Comments                                                                                   | N | S |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------|---|---|
| A. Does the <b>new or updated</b> plan describe vulnerability in terms of the <b>types and numbers</b> of <b>existing</b> buildings, infrastructure, and critical facilities located in the identified hazard areas? | Section 3, p. 6                    | <i>Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.</i> |   |   |
| B. Does the <b>new or updated</b> plan describe vulnerability in terms of the <b>types and numbers</b> of <b>future</b> buildings, infrastructure, and critical facilities located in the identified hazard areas?   | Section 3                          | <i>Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.</i> |   |   |
| <b>SUMMARY SCORE</b>                                                                                                                                                                                                 |                                    |                                                                                                       |   |   |

**LOCAL MITIGATION PLAN REVIEW CROSSWALK**

**10. Assessing Vulnerability: Estimating Potential Losses**

**Requirement §201.6(c)(2)(ii)(B):** *[The plan **should** describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate . . . .*

| Element                                                                                                  | Location in the Plan (section or annex and page #) | Reviewer's Comments                                                                                   | SCORE |   |
|----------------------------------------------------------------------------------------------------------|----------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------|---|
|                                                                                                          |                                                    |                                                                                                       | N     | S |
| A. Does the <b>new or updated</b> plan estimate <b>potential dollar losses</b> to vulnerable structures? | Section 3, p. 6                                    | <i>Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.</i> |       |   |
| B. Does the <b>new or updated</b> plan describe the <b>methodology</b> used to prepare the estimate?     | Section 3, p. 6                                    | <i>Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.</i> |       |   |
| <b>SUMMARY SCORE</b>                                                                                     |                                                    |                                                                                                       |       |   |

**11. Assessing Vulnerability: Analyzing Development Trends**

**Requirement §201.6(c)(2)(ii)(C):** *[The plan **should** describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.*

| Element                                                                           | Location in the Plan (section or annex and page #) | Reviewer's Comments                                                                                   | SCORE |   |
|-----------------------------------------------------------------------------------|----------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------|---|
|                                                                                   |                                                    |                                                                                                       | N     | S |
| A. Does the <b>new or updated</b> plan describe land uses and development trends? | Section 3, pp. 1 - 100                             | <i>Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.</i> |       |   |
| <b>SUMMARY SCORE</b>                                                              |                                                    |                                                                                                       |       |   |

**12. Multi-Jurisdictional Risk Assessment**

**Requirement §201.6(c)(2)(iii):** *For multi-jurisdictional plans, the risk assessment **must** assess each jurisdiction's risks where they vary from the risks facing the entire planning area.*

| Element                                               | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|-------------------------------------------------------|----------------------------------------------------|---------------------|-------|---|
|                                                       |                                                    |                     | N     | S |
| A. Does the <b>new or updated</b> plan include a risk | Section 3, pp.                                     |                     |       |   |

## Appendix B

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|                                                                                             |                                   |  |  |  |
|---------------------------------------------------------------------------------------------|-----------------------------------|--|--|--|
| assessment for each participating jurisdiction as needed to reflect unique or varied risks? | 1 – 100;<br>Section 6 pp.<br>1-96 |  |  |  |
| <b>SUMMARY SCORE</b>                                                                        |                                   |  |  |  |

## LOCAL MITIGATION PLAN REVIEW CROSSWALK

**MITIGATION STRATEGY:** §201.6(c)(3): *The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.*

### 13. Local Hazard Mitigation Goals

**Requirement §201.6(c)(3)(i):** *[The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.*

| Element                                                                                                                                                        | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------|-------|---|
|                                                                                                                                                                |                                                    |                     | N     | S |
| A Does the <b>new or updated</b> plan include a description of mitigation <b>goals</b> to reduce or avoid long-term vulnerabilities to the identified hazards? | Section 5, pp. 1 - 12                              |                     |       |   |
| <b>SUMMARY SCORE</b>                                                                                                                                           |                                                    |                     |       |   |

### 14. Identification and Analysis of Mitigation Actions

**Requirement §201.6(c)(3)(ii):** *[The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.*

| Element                                                                                                                                               | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------|-------|---|
|                                                                                                                                                       |                                                    |                     | N     | S |
| A. Does the <b>new or updated</b> plan identify and analyze a <b>comprehensive range</b> of specific mitigation actions and projects for each hazard? | Section 5, pp. 1 - 12                              |                     |       |   |
| B Do the identified actions and projects address reducing the effects of hazards on <b>new</b> buildings and infrastructure?                          | Section 5, pp. 1 - 12                              |                     |       |   |

## Appendix B

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|                                                                                                                                    |                       |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--|--|--|
| C. Do the identified actions and projects address reducing the effects of hazards on <b>existing</b> buildings and infrastructure? | Section 5, pp. 1 - 12 |  |  |  |
| <b>SUMMARY SCORE</b>                                                                                                               |                       |  |  |  |

**LOCAL MITIGATION PLAN REVIEW CROSSWALK**

**15. Identification and Analysis of Mitigation Actions: National Flood Insurance Program (NFIP) Compliance**

**Requirement: §201.6(c)(3)(ii):** [The mitigation strategy] must also address the jurisdiction’s participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.

| Element                                                                                                                 | Location in the Plan (section or annex and page #) | Reviewer’s Comments                                                                                            | SCORE |   |
|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------|-------|---|
|                                                                                                                         |                                                    |                                                                                                                | N     | S |
| A. Does the new or updated plan describe the jurisdiction (s) participation in the NFIP?                                | Section 3, pp. 24-25                               | <i>Note: This requirement becomes effective for all local mitigation plans approved after October 1, 2008.</i> |       |   |
| B. Does the mitigation strategy identify, analyze and prioritize actions related to continued compliance with the NFIP? | Section 5, pp. 5-6                                 | <i>Note: This requirement becomes effective for all local mitigation plans approved after October 1, 2008.</i> |       |   |
| <b>SUMMARY SCORE</b>                                                                                                    |                                                    |                                                                                                                |       |   |

**16. Implementation of Mitigation Actions**

**Requirement: §201.6(c)(3)(iii):** [The mitigation strategy section **shall** include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization **shall** include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

| Element                                                                                                                                                                       | Location in the Plan (section or annex and page #) | Reviewer’s Comments | SCORE |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------|-------|---|
|                                                                                                                                                                               |                                                    |                     | N     | S |
| A. Does the <b>new or updated</b> mitigation strategy include how the actions are <b>prioritized</b> ? (For example, is there a discussion of the process and criteria used?) | Section 5, p. 1                                    |                     |       |   |
| B. Does the <b>new or updated</b> mitigation strategy address how the actions will be implemented                                                                             | Section 5, pp. 1 - 12                              |                     |       |   |

## Appendix B

|                                                                                                                                                                                                                                                |                       |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--|--|--|
| and administered, including the responsible department, existing and potential resources and the timeframe to complete each action?                                                                                                            |                       |  |  |  |
| C. Does the <b>new or updated</b> prioritization process include an emphasis on the use of a <b>cost-benefit review</b> to maximize benefits?                                                                                                  | Section 5, pp. 1 - 12 |  |  |  |
| D. Does the <b>updated</b> plan identify the completed, deleted or deferred mitigation actions as a benchmark for progress, and if activities are unchanged ( <i>i.e.</i> , deferred), does the updated plan describe why no changes occurred? | Section 5, pp 1 - 12  |  |  |  |
| <b>SUMMARY SCORE</b>                                                                                                                                                                                                                           |                       |  |  |  |

## LOCAL MITIGATION PLAN REVIEW CROSSWALK

### 17. Multi-Jurisdictional Mitigation Actions

**Requirement §201.6(c)(3)(iv):** For multi-jurisdictional plans, there **must** be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.

| Element                                                                                                                                                                                                                                        | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------|-------|---|
|                                                                                                                                                                                                                                                |                                                    |                     | N     | S |
| A. Does the <b>new or updated</b> plan include identifiable <b>action items</b> for each jurisdiction requesting FEMA approval of the plan?                                                                                                    | Section 5, pp. 1 - 12                              |                     |       |   |
| B. Does the <b>updated</b> plan identify the completed, deleted or deferred mitigation actions as a benchmark for progress, and if activities are unchanged ( <i>i.e.</i> , deferred), does the updated plan describe why no changes occurred? | Section 5, pp. 1 - 12                              |                     |       |   |
| <b>SUMMARY SCORE</b>                                                                                                                                                                                                                           |                                                    |                     |       |   |

### PLAN MAINTENANCE PROCESS

### 18. Monitoring, Evaluating, and Updating the Plan

**Requirement §201.6(c)(4)(i):** [The plan maintenance process **shall** include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

| Element                                                                                                                                       | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------|-------|---|
|                                                                                                                                               |                                                    |                     | N     | S |
| A. Does the <b>new or updated</b> plan describe the method and schedule for <b>monitoring</b> the plan, including the responsible department? | Section 1, p. 10; Table 1-4                        |                     |       |   |
| B. Does the <b>new or updated</b> plan describe the method and schedule for <b>evaluating</b> the plan, including how, when and by            | Section 1, p. 10;                                  |                     |       |   |

## Appendix B

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|                                                                                                                                  |                                |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--|--|--|
| whom ( <i>i.e.</i> the responsible department)?                                                                                  | Table 1-4                      |  |  |  |
| C. Does the <b>new or updated</b> plan describe the method and schedule for <b>updating</b> the plan within the five-year cycle? | Section 1, p. 10;<br>Table 1-4 |  |  |  |
| <b>SUMMARY SCORE</b>                                                                                                             |                                |  |  |  |

**LOCAL MITIGATION PLAN REVIEW CROSSWALK**

**19. Incorporation into Existing Planning Mechanisms**

**Requirement §201.6(c)(4)(ii):** [The plan **shall** include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

| Element                                                                                                                                                                                                                                               | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------|-------|---|
|                                                                                                                                                                                                                                                       |                                                    |                     | N     | S |
| A. Does the <b>new or updated</b> plan identify other local planning mechanisms available for incorporating the mitigation requirements of the mitigation plan?                                                                                       | Section 1, p. 3-4                                  |                     |       |   |
| B. Does the <b>new or updated</b> plan include a process by which the local government will incorporate the mitigation strategy and other information contained in the plan (e.g., risk assessment) into other planning mechanisms, when appropriate? | Section 1, p. 3-4                                  |                     |       |   |
| C. Does the <b>updated</b> plan explain how the local government incorporated the mitigation strategy and other information contained in the plan (e.g., risk assessment) into other planning mechanisms, when appropriate?                           | Section 1, p. 3-4                                  |                     |       |   |
| <b>SUMMARY SCORE</b>                                                                                                                                                                                                                                  |                                                    |                     |       |   |

**Continued Public Involvement**

**Requirement §201.6(c)(4)(iii):** [The plan maintenance process **shall** include a] discussion on how the community will continue public participation in the plan maintenance process.

| Element                                                                                                                                                                                                                                     | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE |   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------|-------|---|
|                                                                                                                                                                                                                                             |                                                    |                     | N     | S |
| A. Does the <b>new or updated</b> plan explain how <b>continued public participation</b> will be obtained? (For example, will there be public notices, an on-going mitigation plan committee, or annual review meetings with stakeholders?) | Section 1, pp. 4-10                                |                     |       |   |

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**SUMMARY SCORE**

|  |  |
|--|--|
|  |  |
|--|--|

# LOCAL MITIGATION PLAN REVIEW CROSSWALK

## MATRIX A: PROFILING HAZARDS

This matrix can assist FEMA and the State in scoring each hazard. Local jurisdictions may find the matrix useful to ensure that their plan addresses each natural hazard that can affect the jurisdiction. **Completing the matrix is not required.**

*Note: First, check which hazards are identified in requirement §201.6(c)(2)(i). Then, place a checkmark in either the N or S box for each applicable hazard. An “N” for any element of any identified hazard will result in a “Needs Improvement” score for this requirement. List the hazard and its related shortcoming in the comments section of the Plan Review Crosswalk.*

| Hazard Type         | Hazards Identified Per Requirement §201.6(c)(2)(i) | A. Location              |                          | B. Extent                |                          | C. Previous Occurrences  |                          | D. Probability of Future Events |                          |
|---------------------|----------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---------------------------------|--------------------------|
|                     | Yes                                                | N                        | S                        | N                        | S                        | N                        | S                        | N                               | S                        |
| Avalanche           | <input type="checkbox"/>                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>        | <input type="checkbox"/> |
| Coastal Erosion     | <input type="checkbox"/>                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>        | <input type="checkbox"/> |
| Coastal Storm       | <input type="checkbox"/>                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>        | <input type="checkbox"/> |
| Dam Failure         | <input checked="" type="checkbox"/>                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>        | <input type="checkbox"/> |
| Drought             | <input checked="" type="checkbox"/>                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>        | <input type="checkbox"/> |
| Earthquake          | <input checked="" type="checkbox"/>                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>        | <input type="checkbox"/> |
| Expansive Soils     | <input type="checkbox"/>                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>        | <input type="checkbox"/> |
| Levee Failure       | <input checked="" type="checkbox"/>                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>        | <input type="checkbox"/> |
| Flood               | <input checked="" type="checkbox"/>                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>        | <input type="checkbox"/> |
| Hailstorm           | <input checked="" type="checkbox"/>                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>        | <input type="checkbox"/> |
| Hurricane           | <input checked="" type="checkbox"/>                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>        | <input type="checkbox"/> |
| Land Subsidence     | <input checked="" type="checkbox"/>                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>        | <input type="checkbox"/> |
| Landslide           | <input type="checkbox"/>                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>        | <input type="checkbox"/> |
| Severe Winter Storm | <input checked="" type="checkbox"/>                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>        | <input type="checkbox"/> |
| Tornado             | <input checked="" type="checkbox"/>                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>        | <input type="checkbox"/> |
| Tsunami             | <input type="checkbox"/>                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>        | <input type="checkbox"/> |
| Volcano             | <input type="checkbox"/>                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>        | <input type="checkbox"/> |
| Wildfire            | <input checked="" type="checkbox"/>                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>        | <input type="checkbox"/> |

To check boxes, double click on the box and change the default value to “checked.”

# Appendix B

|             |                                     |                          |                          |                          |                          |                          |                          |                          |                          |
|-------------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Windstorm   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Other _____ | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other _____ | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other _____ | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Legend:**

§201.6(c)(2)(i) Profiling Hazards

- A. Does the risk assessment identify the location (*i.e.*, geographic area affected) of each hazard addressed in the **new or updated** plan?
- B. Does the risk assessment identify the extent (*i.e.*, magnitude or severity) of each hazard addressed in the **new or updated** plan?
- C. Does the plan provide information on previous occurrences of each natural hazard addressed in the **new or updated** plan?
- D. Does the plan include the probability of future events (*i.e.*, chance of occurrence) for each hazard addressed in the plan?

## MATRIX B: ASSESSING VULNERABILITY

This matrix can assist FEMA and the State in scoring each hazard. Local jurisdictions may find the matrix useful to ensure that the new or updated plan addresses each requirement. **Completing the matrix is not required.**

*Note: First, check which hazards are identified in requirement §201.6(c)(2)(i). Then, place a checkmark in either the N or S box for each applicable hazard. An “N” for any element of any identified hazard will result in a “Needs Improvement” score for this requirement. List the hazard and its related shortcoming in the comments section of the Plan Review Crosswalk. Note: Receiving an N in the shaded columns will not preclude the plan from passing.*

| Hazard Type     | Hazards Identified Per Requirement §201.6(c)(2)(i) | §201.6(c)(2)(ii) Assessing Vulnerability: Overview | A. Overall Summary Description of Vulnerability |                          | B. Hazard Impact         |                          | §201.6(c)(2)(ii) Assessing Vulnerability: Identifying Structures | A. Types and Number of Existing Structures in Hazard Area (Estimate) |                          | B. Types and Number of Future Structures in Hazard Area (Estimate) |                          | §201.6(c)(2)(ii) Assessing Vulnerability: Estimating Potential Losses | A. Loss Estimate         |                          | B. Methodology           |                          |
|-----------------|----------------------------------------------------|----------------------------------------------------|-------------------------------------------------|--------------------------|--------------------------|--------------------------|------------------------------------------------------------------|----------------------------------------------------------------------|--------------------------|--------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|                 | Yes                                                |                                                    | N                                               | S                        | N                        | S                        |                                                                  | N                                                                    | S                        | N                                                                  | S                        |                                                                       | N                        | S                        | N                        | S                        |
|                 | Avalanche                                          |                                                    | <input type="checkbox"/>                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |                                                                  | <input type="checkbox"/>                                             | <input type="checkbox"/> | <input type="checkbox"/>                                           | <input type="checkbox"/> |                                                                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Coastal Erosion | <input type="checkbox"/>                           | <input type="checkbox"/>                           | <input type="checkbox"/>                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                                         | <input type="checkbox"/>                                             | <input type="checkbox"/> | <input type="checkbox"/>                                           | <input type="checkbox"/> | <input type="checkbox"/>                                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Coastal Storm   | <input type="checkbox"/>                           | <input type="checkbox"/>                           | <input type="checkbox"/>                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                                         | <input type="checkbox"/>                                             | <input type="checkbox"/> | <input type="checkbox"/>                                           | <input type="checkbox"/> | <input type="checkbox"/>                                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Dam Failure     | <input checked="" type="checkbox"/>                | <input type="checkbox"/>                           | <input type="checkbox"/>                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                                         | <input type="checkbox"/>                                             | <input type="checkbox"/> | <input type="checkbox"/>                                           | <input type="checkbox"/> | <input type="checkbox"/>                                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Drought         | <input checked="" type="checkbox"/>                | <input type="checkbox"/>                           | <input type="checkbox"/>                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                                         | <input type="checkbox"/>                                             | <input type="checkbox"/> | <input type="checkbox"/>                                           | <input type="checkbox"/> | <input type="checkbox"/>                                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Earthquake      | <input checked="" type="checkbox"/>                | <input type="checkbox"/>                           | <input type="checkbox"/>                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                                         | <input type="checkbox"/>                                             | <input type="checkbox"/> | <input type="checkbox"/>                                           | <input type="checkbox"/> | <input type="checkbox"/>                                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Expansive Soils | <input type="checkbox"/>                           | <input type="checkbox"/>                           | <input type="checkbox"/>                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                                         | <input type="checkbox"/>                                             | <input type="checkbox"/> | <input type="checkbox"/>                                           | <input type="checkbox"/> | <input type="checkbox"/>                                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Levee Failure   | <input checked="" type="checkbox"/>                | <input type="checkbox"/>                           | <input type="checkbox"/>                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                                         | <input type="checkbox"/>                                             | <input type="checkbox"/> | <input type="checkbox"/>                                           | <input type="checkbox"/> | <input type="checkbox"/>                                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Flood           | <input checked="" type="checkbox"/>                | <input type="checkbox"/>                           | <input type="checkbox"/>                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                                         | <input type="checkbox"/>                                             | <input type="checkbox"/> | <input type="checkbox"/>                                           | <input type="checkbox"/> | <input type="checkbox"/>                                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Hailstorm       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>                           | <input type="checkbox"/>                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                                         | <input type="checkbox"/>                                             | <input type="checkbox"/> | <input type="checkbox"/>                                           | <input type="checkbox"/> | <input type="checkbox"/>                                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Hurricane       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>                           | <input type="checkbox"/>                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                                         | <input type="checkbox"/>                                             | <input type="checkbox"/> | <input type="checkbox"/>                                           | <input type="checkbox"/> | <input type="checkbox"/>                                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

*To check boxes, double click on the box and change the default value to “checked.”*

# LOCAL MITIGATION PLAN REVIEW CROSSWALK

|                     |                                     |  |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |                          |
|---------------------|-------------------------------------|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Land Subsidence     | <input checked="" type="checkbox"/> |  | <input type="checkbox"/> |
| Landslide           | <input type="checkbox"/>            |  | <input type="checkbox"/> |
| Severe Winter Storm | <input checked="" type="checkbox"/> |  | <input type="checkbox"/> |
| Tornado             | <input checked="" type="checkbox"/> |  | <input type="checkbox"/> |
| Tsunami             | <input type="checkbox"/>            |  | <input type="checkbox"/> |
| Volcano             | <input type="checkbox"/>            |  | <input type="checkbox"/> |
| Wildfire            | <input checked="" type="checkbox"/> |  | <input type="checkbox"/> |
| Windstorm           | <input checked="" type="checkbox"/> |  | <input type="checkbox"/> |
| Other _____         | <input type="checkbox"/>            |  | <input type="checkbox"/> |
| Other _____         | <input type="checkbox"/>            |  | <input type="checkbox"/> |
| Other _____         | <input type="checkbox"/>            |  | <input type="checkbox"/> |

**Legend:**

§201.6(c)(2)(ii) Assessing Vulnerability: Overview

- A. Does the **new or updated** plan include an overall summary description of the jurisdiction’s vulnerability to each hazard?
- B. Does the **new or updated** plan address the impact of each hazard on the jurisdiction?

- B. Does the **new or updated** plan describe vulnerability in terms of the types and numbers of future buildings, infrastructure, and critical facilities located in the identified hazard areas?

§201.6(c)(2)(ii)(A) Assessing Vulnerability: Identifying Structures

- A. Does the **new or updated** plan describe vulnerability in terms of the types and numbers of existing buildings, infrastructure, and critical facilities located in the identified hazard areas?

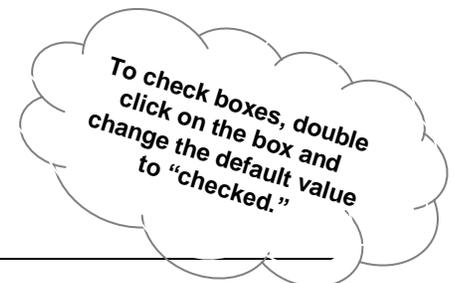
§201.6(c)(2)(ii)(B) Assessing Vulnerability: Estimating Potential Losses

- A. Does the **new or updated** plan estimate potential dollar losses to vulnerable structures?
- B. Does the **new or updated** plan describe the methodology used to prepare the estimate?

**MATRIX C: IDENTIFICATION AND ANALYSIS OF MITIGATION ACTIONS**

This matrix can assist FEMA and the State in scoring each hazard. Local jurisdictions may find the matrix useful to ensure consideration of a range of actions for each hazard. **Completing the matrix is not required.**

*Note: First, check which hazards are identified in requirement §201.6(c)(2)(i). Then, place a checkmark in either the N or S box for each **applicable** hazard. An “N” for any identified hazard will result in a “Needs Improvement” score for this requirement. List the hazard and its related shortcoming in the comments section of the Plan Review Crosswalk.*



# Appendix B

| Hazard Type         | Hazards Identified Per Requirement §201.6(c)(2)(i) | A. Comprehensive Range of Actions and Projects |                          |
|---------------------|----------------------------------------------------|------------------------------------------------|--------------------------|
|                     | Yes                                                | N                                              | S                        |
| Avalanche           | <input type="checkbox"/>                           | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Coastal Erosion     | <input type="checkbox"/>                           | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Coastal Storm       | <input type="checkbox"/>                           | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Dam Failure         | <input checked="" type="checkbox"/>                | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Drought             | <input checked="" type="checkbox"/>                | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Earthquake          | <input checked="" type="checkbox"/>                | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Expansive Soils     | <input type="checkbox"/>                           | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Levee Failure       | <input checked="" type="checkbox"/>                | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Flood               | <input checked="" type="checkbox"/>                | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Hailstorm           | <input checked="" type="checkbox"/>                | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Hurricane           | <input checked="" type="checkbox"/>                | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Land Subsidence     | <input type="checkbox"/>                           | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Landslide           | <input type="checkbox"/>                           | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Severe Winter Storm | <input checked="" type="checkbox"/>                | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Tornado             | <input checked="" type="checkbox"/>                | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Tsunami             | <input type="checkbox"/>                           | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Volcano             | <input type="checkbox"/>                           | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Wildfire            | <input checked="" type="checkbox"/>                | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Windstorm           | <input checked="" type="checkbox"/>                | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Other _____         | <input type="checkbox"/>                           | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Other _____         | <input type="checkbox"/>                           | <input type="checkbox"/>                       | <input type="checkbox"/> |
| Other _____         | <input type="checkbox"/>                           | <input type="checkbox"/>                       | <input type="checkbox"/> |

**Legend:**

§201.6(c)(3)(ii) Identification and Analysis of Mitigation Actions

A. Does the **new or updated** plan identify and analyze a comprehensive range of specific mitigation actions and projects for each hazard?

