

## **Appendix C**

### **Other Planning Documents**

- Regional Planning Requirements Summary
- Elbert County Community Wildfire Protection Program Summary
- Elbert County Fire Insurance Study

# Regional Planning Requirements Summary

## CHAPTER 110-12-6-.01 PURPOSE & APPLICABILITY

### 110-12-6-.01 Purpose & Applicability

**(I) Purpose.** The purpose of the regional planning requirements is to provide a framework for preparation of regional plans that will:

- involve all segments of the region in developing a vision for the future of the region;
- generate pride and enthusiasm about the future of the region;
- engage the interest of regional policy makers and stakeholders in implementing the plan; and
- provide a guide to everyday decision-making for use by government officials and other regional leaders.

To this end, the planning requirements emphasize involvement of stakeholders and the general public in preparation of plans that include an exciting, well-conceived, and achievable vision for the future of the region. When implemented, the resulting plan will help the region address critical issues and opportunities while moving toward realization of its unique vision for the region's future.

The planning requirements also provide technical guidance to Regional Commissions (for advancing the state's planning goals of:

- a growing and balanced economy;
- protection of environmental, natural and cultural resources;
- provision of infrastructure and services to support efficient growth and development patterns;
- access to adequate and affordable housing for all residents;
- coordination of land use planning and transportation planning to support sustainable economic development, protection of natural and cultural resources and provision of adequate and affordable housing; and
- coordination of local planning efforts with other local service providers

and authorities, neighboring communities and state and regional plans.

The state goals are further elaborated in the Department's Quality Community Objectives (section 110-12-6-.06(3)), which provide a starting point for communities to assess compatibility of their existing development patterns and policies with these planning goals. The Quality Community Objectives may also be employed to evaluate the region's vision for the future for consistency with state planning goals.

## I. OBJECTIVES

The mission of the following report is to set clear priorities for the implementation of wildfire mitigation in Elbert County. The plan includes prioritized recommendations for the appropriate types and methods of fuel reduction and structure ignitability reduction that will protect this community and its essential infrastructure. It also includes a plan for wildfire suppression. Specifically, the plan includes community-centered actions that will:

- Educate citizens on wildfire, its risks, and ways to protect lives and properties,
- Support fire rescue and suppression entities,
- Focus on collaborative decision-making and citizen participation,
- Develop and implement effective mitigation strategies, and
- Develop and implement effective community ordinances and codes.

## II. COMMUNITY COLLABORATION

The core team convened on Oct 15<sup>th</sup>, 2009 to assess risks and develop the Community Wildfire Protection Plan. The group is comprised of representatives from local government, local fire authorities, federal and state agencies responsible for forest management. Below are the groups included in the task force:

Elbert County Government

*Elbert County Fire Department*

*Emergency Management Agency*

*Emergency Services*

City of Elberton

*Elberton Fire Department*

US Army Corps of Engineers

Georgia Forestry Commission

It was decided to conduct community assessments on the basis of the individual fire districts in the county. The chiefs of the fire departments in the county assessed their districts and reconvened on Dec. 3<sup>rd</sup>, 2009 for the purpose of completing the following:

Risk Assessment	Assessed wildfire hazard risks and prioritized mitigation actions.
Fuels Reduction	Identified strategies for coordinating fuels treatment projects.
Structure Ignitability	Identified strategies for reducing the ignitability of structures within the Wildland interface.
Emergency Management	Forged relationships among local government and fire districts and developed/refined a pre-suppression plan.

Education and Outreach    Developed strategies for increasing citizen awareness and action and to conduct homeowner and community leader workshops.

### **III. COMMUNITY BACKGROUND AND EXISTING SITUATION**

#### **Background**

In the northeast Georgia Piedmont, between the Savannah and Broad rivers, lies Elbert County. The area was originally settled before the American Revolution (1775-83) by pioneers filtering into the region from Virginia and the Carolinas. The legal occupation of the lands that would later become Elbert County took place on June 1, 1773, when Georgia's colonial governor, James Wright, negotiated a land cession with local Creek and Cherokee leaders. The cession, known as the New Purchase, contained about 2 million acres north of Augusta and was originally designated as Wilkes County.

During the American Revolution Wilkes County became the scene of severe partisan fighting among Tories, patriots, and Indians. One of the Revolution's most famous heroines, Nancy Hart, lived in a log cabin along the Broad River and earned a place in history by single-handedly defeating a party of Tories who had invaded her home.

After 1783 the area's population steadily increased. Many of the newcomers were veterans of the Revolution who had been awarded land grants in the region for their service to their country. On December 10, 1790, Elbert County was split from Wilkes County by an act of the state legislature and thus became Georgia's thirteenth county. It was named in honor of Samuel Elbert, who was a commander of Georgia's militia and Continental forces during the Revolution. Elbert later served as Georgia's governor from 1785 to 1786.

After the Revolution the most important town to emerge in the county was Petersburg, located at the fork of the Broad and Savannah rivers. From the 1790s through the 1830s Petersburg flourished as a commercial center serving Elbert County and the Goose Pond community along the Broad River.

Petersburg's prosperity was initially based on the tobacco trade, and a warehouse was set up in the town to inspect the staple crop before it was floated down the river on flat-bottomed "Petersburg boats" to Augusta. Petersburg's decline came gradually after the War of 1812 (1812-15) as many of its most prominent citizens moved west to newly opened lands. Tobacco became less important, too, and most of the area's farmers turned to the cultivation of cotton, which, unlike tobacco, did not have to be inspected. Railroads completely bypassed the town, hastening its demise. A series of floods and malaria outbreaks sealed the town's fate. Petersburg was virtually abandoned by the eve of the Civil War (1861-65).

Elberton, the county seat, was incorporated in 1803 near what was known as the old town spring, although people had been living at the site since the 1790s. Initially surpassed in

importance by Petersburg, Elberton became, by the 1840s, the county's most important town. During this time the county boasted several other communities, including Ruckersville, the home of Joseph Rucker, one of Georgia's first millionaires, and Edinburg (Edinborough), a small hamlet founded by Scottish immigrants at the fork of Cold Water Creek and the Savannah River.

Elbert County was swept up in the sectional turbulence that gripped the nation during the 1850s, and as a slaveholding community primarily based on the production of cotton, it heavily endorsed secession. During the Civil War many of the county's men joined the Confederate army. Portions of the Fifteenth, Thirty-seventh, and Thirty-eighth Georgia Infantry Regiments included companies that were raised in Elbert County. Also, one company of the Seventh Georgia Cavalry came from Elbert County. Fortunately, General William T. Sherman's armies bypassed Elbert County during their march to the sea, sparing its citizens from the destruction and devastation visited upon other towns and communities in the state.

After the war Elbert County remained wedded to the cotton industry and existed as a rural, agricultural community. This began to change in 1882, when the first granite quarry was opened near the north fork of the Broad River to provide stone for railroad and home construction. By the 1920s Elberton's granite industry had become firmly established and had overtaken agriculture as the economic centerpiece of the county. Many immigrants, particularly Italians, who had historical roots in the granite trade, came to Elbert County between 1900 and 1930. During the Great Depression of the 1930s the industry not only survived but also expanded, justifying the town's boast that it was the "granite capital of the world."

Elbert remains primarily a rural county of agricultural fields and timberland, but its economy is firmly rooted in the granite industry. According to the 2000 U.S. census, the population was 20,511 (66.9 percent white, 30.9 percent black, and 2.4 percent Hispanic).

Two U.S. Army Corps of Engineers lakes lie on its eastern border with the Savannah River, making the county a prime destination for water-recreational activities. Clarks Hill Lake (also known as J. Strom Thurmond Lake), completed in the early 1950s, is located on the southern tip of the county, while just above it is Russell Lake, completed in the 1980s. Two state parks are located in Elbert County: Bobby Brown State Park, marking the site of the old town of Petersburg, which is under the waters of Clarks Hill Lake, and Richard B. Russell State Park on Russell Lake.

(Courtesy Clay Ouzts, *New Georgia Encyclopedia*)

### **Existing Situation**

Elbert County located on the Savannah River in northeast Georgia, despite its agricultural presence and large reservoirs, is still almost 51% forested. Along with growing recreational and second home development along Lake Russell, there are homes and communities scattered throughout the county. The risks and hazards from the wildland urban interface are fairly general and substantial throughout the county even on the edges of the incorporated towns such as Elberton and Bowman.

Elbert County is protected by organized fire departments in Elberton and Bowman along with eight stations within the unincorporated areas, Headquarters, Fortsonia, Rock Branch, Longstreet, Deep Creek, Centerville, Wyche and Petersburg. The Georgia Forestry Commission maintains a county protection unit located on GA Hwy 72 four miles west of Elberton to respond to wildfires throughout the county. The two incorporated cities and the adjacent areas of the county are serviced by a pressurized water system with well placed hydrants throughout.

Over the past fifty years, Elbert County has averaged 48 reported wildland fires per year. The occurrence of these fires shows a pronounced peak in the months of March and April, but is pretty even the remainder of the year. These fires have burned an average of 153 acres annually. The monthly acreage burned fairly well corresponds with the number of fires. Using more recent data, over the past 20 years the annual numbers of fires and acres burned have dropped significantly to 36 fires burning an average of 81 acres a year. This reduction in wildfires is perhaps the result of better response and equipment from both the Georgia Forestry Commission and the increased presence of rural fire departments. Despite this welcome trend in fire behavior, as more homes are being built outside of traditional communities into the wildland urban interface the risk from wildfire will increase.

The leading causes of these fires over the past 20 years was debris burning and causing 46% of the fires and 48% of the acres burned. Over the past six years records show that over 63% of the debris fires originated from residential burning.

Georgia Forestry Commission Wildfire Records show that in the past six years, four homes have been lost or damaged by wildfire in Elbert County resulting in estimated losses of \$14,800 along with two non residential buildings valued at \$25,800. According to reports during this period 90 homes have been directly or indirectly threatened by these fires. Additionally five vehicles valued at \$31,000 and three other pieces of mechanized equipment valued at \$27,500 were lost. This is a substantial loss of non timber property attributed to wildfires in Elbert County.

## VIII. ACTION PLAN

### ***Roles and Responsibilities***

The following roles and responsibilities have been developed to implement the action plan:

Role	Responsibility
Hazardous Fuels and Structural Ignitability Reduction	
Elbert County WUI Fire Council	Create this informal team or council comprised of residents, GFC and USACE officials, Elbert County Fire department officials, representatives from the city and county government and the EMA Director for Elbert County. Meet periodically to review progress towards mitigation goals, appoint and delegate special activities, work with federal, state, and local officials to assess progress and develop future goals and action plans. Work with residents to implement projects and firewise activities.
Key Messages to focus on	<ol style="list-style-type: none"> <li>1 Defensible Space and Firewise Landscaping</li> <li>2 Debris Burning Safety</li> <li>3 Firewise information for homeowners</li> <li>4 Prescribed burning benefits</li> </ol>
Communications objectives	<ol style="list-style-type: none"> <li>1 Create public awareness for fire danger and defensible space issues</li> <li>2 Identify most significant human cause fire issues</li> <li>3 Enlist public support to help prevent these causes</li> <li>4 Encourage people to employ fire prevention and defensible spaces in their communities.</li> </ol>
Target Audiences	<ol style="list-style-type: none"> <li>1 Homeowners</li> <li>2 Forest Landowners and users</li> <li>3 Civic Groups</li> <li>4 School Groups</li> </ol>
Methods	<ol style="list-style-type: none"> <li>1 News Releases</li> <li>2 Radio and TV PSAs</li> <li>3 Personal Contacts</li> <li>4 Key messages and prevention tips</li> <li>5 Visuals such as signs, brochures and posters</li> </ol>

<b>Spring Clean-up Day</b>	
Event Coordinator	Coordinate day's events and schedule, catering for cookout, guest attendance, and moderate activities the day of the day of the event.
Event Treasurer	Collect funds from residents to cover food, equipment rentals, and supplies.
Publicity Coordinator	Advertise event through neighborhood newsletter, letters to officials, and public service announcements (PSAs) for local media outlets. Publicize post-event through local paper and radio PSAs.
Work Supervisor	Develop volunteer labor force of community residents; develop labor/advisory force from Georgia Forestry Commission, Elbert County Fire Departments, and Emergency Management Agency. Procure needed equipment and supplies. In cooperation with local city and county officials, develop safety protocol. Supervise work and monitor activities for safety the day of the event.

***Funding Needs***

The following funding is needed to implement the action plan:

Project	Estimated Cost	Potential Funding Source(s)
1. Create a minimum of 30 feet of defensible space around structures	Varies	Residents will supply labor and fund required work on their own properties.
2. Reduce structural ignitability by cleaning flammable vegetation from roofs and gutters; appropriately storing firewood, installing skirting around raised structures, storing water hoses for ready access, replacing pine needles and mulch around plantings with less flammable material.	Varies	Residents will supply labor and fund required work on their own properties.
3. Amend codes and ordinances to provide better driveway access, increased visibility of house numbers, properly stored firewood, minimum defensible space brush clearance, required Class A roofing materials and skirting around raised structures, planned maintenance of community lots.	No Cost	To be adopted by city and county government.
4. Spring Cleanup Day	Varies	Community Business Donations.
5. Fuel Reduction Activities	\$35 / acre	FEMA & USFS Grants

POTENTIAL FUNDING SOURCES:

As funding is questionable in these times of tight government budgets and economic uncertainty, unconventional means should be identified whereby the need for funding can be reduced or eliminated.

Publications / Brochures –

- FIREWISE materials are available for cost of shipping only at [www.firewise.org](http://www.firewise.org).
- Another source of mitigation information can be found at [www.nfpa.org](http://www.nfpa.org).
- Access to reduced cost or free of charge copy services should be sought whereby publications can be reproduced.
- Free of charge public meeting areas should be identified where communities could gather to be educated regarding prevention and firewise principles.

Mitigation –

- Community Protection Grant:
  - USFS sponsored prescribed burn program. Communities with at risk properties that lie within 3 miles of the USFS border may apply with the GFC to have their forest land prescribed burned free of charge.
- FEMA Mitigation Policy MRR-2-08-01: through GEMA - Hazard Mitigation Grant Program (HMGP) and Pre Disaster Mitigation (PDM)
  - To provide technical and financial assistance to local governments to assist in the implementation of long term cost effective hazard mitigation measures.
  - This policy addresses wildfire mitigation for the purpose of reducing the threat to all-risk structures through creating defensible space, structural protection through the application of ignition resistant construction, and limited hazardous fuels reduction to protect life and property.
  - With a complete and registered plan (addendum to the State plan) counties can apply for pre- mitigation funding. They will also be eligible for HMGP if the county is declared under a wildfire disaster.
- GFC - Plowing and burning assistance can be provided through the Georgia Forestry Commission as a low cost option for mitigation efforts.
- Individual Homeowners –
  - In most cases of structural protection ultimately falls on the responsibility of the community and the homeowner. They will bear the cost; yet they will reap the benefit from properly implemented mitigation efforts.
  - GEMA Grant - PDM (See above)

Ultimately it is our goal to help the communities by identifying the communities threatened with a high

risk to wildfire and educate those communities on methods to implement on reducing those risks.

***Assessment Strategy***

To accurately assess progress and effectiveness for the action plan, the Elbert County WUI Fire Council will implement the following:

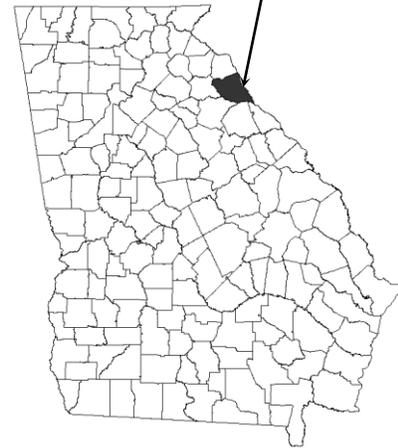
- Annual wildfire risk assessment will be conducted to re-assess wildfire hazards and prioritize needed actions.
- Mitigation efforts that are recurring (such as mowing, burning, and clearing of defensible space) will be incorporated into an annual renewal of the original action plan.
- Mitigation efforts that could not be funded in the requested year will be incorporated into the annual renewal of the original action plan.
- Continuing educational and outreach programs will be conducted and assessed for effectiveness. Workshops will be evaluated based on attendance and post surveys that are distributed by mail 1 month and 6 months following workshop date.
- The Elbert County WUI Council will publish an annual report detailing mitigation projects initiated and completed, progress for ongoing actions, funds received, funds spent, and in-kind services utilized. The report will include a “state of the community” section that critically evaluates mitigation progress and identifies areas for improvement. Recommendations will be incorporated into the annual renewal of the action plan.
- An annual survey will be distributed to residents soliciting information on individual mitigation efforts on their own property (e.g., defensible space). Responses will be tallied and reviewed at the next Elbert County WUI Council meeting. Needed actions will be discussed and delegated.

# FLOOD INSURANCE STUDY



## ELBERT COUNTY, GEORGIA AND INCORPORATED AREAS

Elbert County



COMMUNITY NAME	COMMUNITY NUMBER
BOWMAN, CITY OF	130428
ELBERT COUNTY (UNINCORPORATED AREAS)	135264
ELBERTON, CITY OF	130077

EFFECTIVE:

July 6, 2010



Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER  
13105CV000A

NOTICE TO  
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) report may not contain all data available within the Community Map Repository. Please contact the Community Map Repository for any additional data.

The Federal Emergency Management Agency (FEMA) may revise and republish part or all of this FIS report at any time. In addition, FEMA may revise part of this FIS report by the Letter of Map Revision process, which does not involve republication or redistribution of the FIS report. Therefore, users should consult with community officials and check the Community Map Repository to obtain the most current FIS report components.

Selected Flood Insurance Rate Map panels for this community contain information that was previously shown separately on the corresponding Flood Boundary and Floodway Map panels (e.g., floodways, cross sections). In addition, former flood hazard zone designations have been changed as follows:

<u>Old Zone(s)</u>	<u>New Zone</u>
C	X

Initial Countywide FIS Effective Date: July 6, 2010

## TABLE OF CONTENTS

	<u>Page</u>
1.0 <u>INTRODUCTION</u>	1
1.1 Purpose of Study	1
1.2 Authority and Acknowledgments	1
1.3 Coordination	2
2.0 <u>AREA STUDIED</u>	2
2.1 Scope of Study	2
2.2 Community Description	3
2.3 Principal Flood Problems	3
2.4 Flood Protection Measures	3
3.0 <u>ENGINEERING METHODS</u>	3
3.1 Hydrologic Analyses	4
3.2 Hydraulic Analyses	4
3.3 Vertical Datum	5
4.0 <u>FLOODPLAIN MANAGEMENT APPLICATIONS</u>	6
4.1 Floodplain Boundaries	6
4.2 Floodways	6
5.0 <u>INSURANCE APPLICATIONS</u>	6
6.0 <u>FLOOD INSURANCE RATE MAP</u>	7
7.0 <u>OTHER STUDIES</u>	7
8.0 <u>LOCATION OF DATA</u>	7
9.0 <u>BIBLIOGRAPHY AND REFERENCES</u>	9

TABLE OF CONTENTS - continued

Page

TABLES

Table 1 - Community Map History

8

EXHIBITS

Exhibit 1 - Flood Insurance Rate Map Index  
Flood Insurance Rate Map

FLOOD INSURANCE STUDY  
ELBERT COUNTY, GEORGIA AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study (FIS) revises and updates information on the existence and severity of flood hazards in the geographic area of Elbert County, Georgia including the Cities of Bowman and Elberton; and the unincorporated areas of Elbert County (referred to collectively herein as Elbert County), and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood-risk data for various areas of the community that will be used to establish actuarial flood insurance rates and to assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

The Digital Flood Insurance Rate Map (DFIRM) and FIS report for this countywide study have been produced in digital format. Flood hazard information was converted to meet the Federal Emergency Management Agency (FEMA) DFIRM database specifications and Geographic Information System (GIS) format requirements. The flood hazard information was created and is provided in a digital format so that it can be incorporated into a local GIS and be accessed more easily by the community.

1.2 Authority and Acknowledgments

The sources of authority for this FIS are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

No previous FIS reports were prepared for the Cities of Bowman and Elberton and the unincorporated areas of Elbert County.

The hydrologic and hydraulic analyses for this study were performed by Dewberry & Davis LLC, for FEMA, under Contract No. EMA-2008-CA-5870. This work was completed in June 2009.

Base map information shown on the Flood Insurance Rate Map (FIRM) was derived from digital orthoimagery produced by Sanborn at a scale of 1:1,200 and 1:2,400, from Elbert County dated between February 6 and February 20, 2009. The projection used in the preparation of this map is Georgia State Plane East

FIPS Zone 1001 (feet), and the horizontal datum used is North American Datum 1983, GRS80 spheroid.

### 1.3 Coordination

An initial meeting is held with representatives from FEMA, the community, and the study contractor to explain the nature and purpose of a FIS, and to identify the streams to be studied or restudied. A final meeting is held with representatives from FEMA, the community, and the study contractor to review the results of the study.

The initial meeting was held on July 16, 2008, and attended by representatives of the Georgia Department of Natural Resources – Environmental Protection Division, Elbert County, the City of Elberton, FEMA, and the study contractor.

The results of the study were reviewed at the final meeting held on September 29, 2009, and attended by representatives of the Georgia Department of Natural Resources – Environmental Protection Division, Elbert County, the City of Elberton, the City of Bowman the Natural Resources Conservation Service, FEMA, and the study contractor. All problems raised at that meeting have been addressed.

## 2.0 AREA STUDIED

### 2.1 Scope of Study

This FIS covers the geographic area of Elbert County, Georgia, including the incorporated communities listed in Section 1.1.

For this countywide FIS, the FIRM was converted to countywide format, and the flooding information for the entire county, including both incorporated and unincorporated areas, is shown. Also, the vertical datum was converted from the National Geodetic Vertical Datum of 1929 (NGVD 29) to the North American Vertical Datum of 1988 (NAVD 88). In addition, the Transverse Mercator projection, State Plane coordinates, previously referenced to the North American Datum of 1927, are now referenced to the North American Datum of 1983.

All or portions of numerous flooding sources in the county were studied by approximate methods. Approximate analyses were used to study those areas having low development potential or minimal flood hazards. No detailed analyses were performed. The scope and methods of study were proposed to and agreed upon by FEMA and Elbert County.

No Letters of Map Change (LOMCs) were recorded for this countywide study.

## 2.2 Community Description

Elbert County, encompassing approximately 369 square miles, is located in northeastern Georgia, approximately 96 miles northeast of the City of Atlanta. The county is bordered on the north by Hart County; on the south by Oglethorpe, Wilkes and Lincoln Counties; on the east by Anderson, Abbeville, and McCormack Counties, South Carolina; and on the west by Madison County. Major transportation routes that serve Elbert County include State Highways 17, 72, 77, 79, 172, and 368.

According to the U.S. Census Bureau, in 2008 the population estimate for Elbert County was 20,494 (U.S. Census Bureau, 2009).

Elbert County's moderate climate consists of mild winters and warm summers. The average annual rainfall is 50 inches. The wettest month is March while the driest months are September and October (National Weather Service, 2009).

## 2.3 Principal Flood Problems

The low-lying areas of Elbert County adjacent to the major streams are subject to the periodic flooding that accompanies major storms.

## 2.4 Flood Protection Measures

No major structural flood protection measures exist or are planned for Elbert County.

## 3.0 ENGINEERING METHODS

For the flooding sources studied in the county, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 1-percent-annual-chance (100-year) flood in any 50-year period is approximately 40 percent (4 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps will be amended periodically to reflect future changes.

### 3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish peak discharge-frequency relationships for each flooding source studied affecting the community.

Discharges for approximate study streams were developed using regression equations for rural areas in Georgia contained in the U.S. Geological Survey (USGS) report and available USGS gage record data (where applicable) (Stamey and Hess, 1993). Drainage areas were developed from USGS 10-meter Digital Elevation Models (DEMs) (USGS, 2009).

### 3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

For the streams studied by approximate methods, cross-section data was obtained from the USGS 10-meter DEMs (USGS, 2009). Hydraulically significant roads were modeled as bridges, with opening data approximated from available inventory data or approximated from the imagery. Top of road elevations were estimated from the best available topography. The approximate studied streams were modeled using HEC-RAS version 4.0 (Hydrologic Engineering Center, 2008).

Floodplains were delineated using the computer 1-percent annual-chance water-surface elevations and the USGS 10-meter DEMs (USGS, 2009).

The hydraulic analyses for this study were based on unobstructed flow. The flood delineations are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

Qualifying bench marks within a given jurisdiction that are cataloged by the National Geodetic Survey (NGS) and entered into the National Spatial Reference System (NSRS) as First or Second Order Vertical and have a vertical stability classification of A, B, or C are shown and labeled on the FIRM with their 6-character NSRS Permanent Identifier.

Bench marks cataloged by the NGS and entered into the NSRS vary widely in vertical stability classification. NSRS vertical stability classifications are as follows:

- Stability A: Monuments of the most reliable nature, expected to hold position/elevation well (e.g., mounted in bedrock)
- Stability B: Monuments which generally hold their position/elevation well (e.g., concrete bridge abutment)

- Stability C: Monuments which may be affected by surface ground movements (e.g., concrete monument below frost line)
- Stability D: Mark of questionable or unknown vertical stability (e.g., concrete monument above frost line, or steel witness post)

In addition to NSRS bench marks, the FIRM may also show vertical control monuments established by a local jurisdiction; these monuments will be shown on the FIRM with the appropriate designations. Local monuments will only be placed on the FIRM if the community has requested that they be included, and if the monuments meet the aforementioned NSRS inclusion criteria.

To obtain current elevation, description, and/or location information for bench marks shown on the FIRM for this jurisdiction, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their Web site at <http://www.ngs.noaa.gov>.

It is important to note that temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the Technical Support Data Notebook associated with this FIS and FIRM. Interested individuals may contact FEMA to access this data.

### 3.3 Vertical Datum

All FIS reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum in use for newly created or revised FIS reports and FIRMs was NGVD 29. With the finalization of NAVD 88, many FIS reports and FIRMs are being prepared using NAVD 88 as the referenced vertical datum.

All models created for this FIS report are referenced to NAVD 88. Structure and ground elevations in the community must, therefore, be referenced to NAVD 88. It is important to note that adjacent communities may be referenced to NGVD 29.

For additional information regarding conversion between NGVD 29 and NAVD 88, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov>, or contact the National Geodetic Survey at the following address:

NGS Information Services  
NOAA, N/NGS12  
National Geodetic Survey  
SSMC-3, #9202  
1315 East-West Highway  
Silver Spring, Maryland 20910-3282  
(301) 713-3242

#### 4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. To assist in this endeavor, each FIS provides 1-percent-annual-chance floodplain data, which may include a combination of the following: 10-, 2-, 1-, and 0.2-percent-annual-chance flood elevations; delineations of the 1- and 0.2-percent-annual-chance floodplains; and 1-percent-annual-chance floodway. This information is presented on the FIRM and in many components of the FIS, including Flood Profiles, Floodway Data tables, and Summary of Stillwater Elevation tables. Users should reference the data presented in the FIS as well as additional information that may be available at the local community map repository before making flood elevation and/or floodplain boundary determinations.

##### 4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent-annual-chance flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent-annual-chance flood is employed to indicate additional areas of flood risk in the community, although none were mapped for this study.

For the streams studied by approximate methods the boundaries were delineated using the USGS 10-meter DEMs (USGS, 2009).

For the streams studied by approximate methods, only the 1-percent-annual-chance floodplain boundary is shown on the FIRM (Exhibit 1).

##### 4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 1-percent-annual-chance floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 1-percent-annual-chance flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1 foot, provided that hazardous velocities are not produced.

No floodways have been computed for Elbert County.

#### 5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

## Zone A

Zone A is the flood insurance risk zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the FIS by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no BFEs or base flood depths are shown within this zone.

## Zone X

Zone X is the flood insurance risk zone that corresponds to areas outside the 0.2-percent-annual-chance floodplain, areas within the 0.2-percent-annual-chance floodplain, areas of 1-percent-annual-chance flooding where average depths are less than 1 foot, areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent-annual-chance flood by levees. No BFEs or base flood depths are shown within this zone.

## 6.0 FLOOD INSURANCE RATE MAP

The FIRM is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance risk zones as described in Section 5.0. Insurance agents use the zones in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 1-percent-annual-chance floodplain.

The countywide FIRM presents flooding information for the entire geographic area of Elbert County. Previously, FIRMs were prepared for each incorporated community identified as flood-prone. Historical data relating to the maps prepared for each community are presented in Table 1, "Community Map History".

## 7.0 OTHER STUDIES

Information pertaining to flood hazards for each jurisdiction within Elbert County has been compiled into this FIS. Therefore, this FIS supersedes all previously printed FHBMs and FIRMs for the Cities of Bowman and Elberton and should be considered authoritative for purposes of the NFIP.

## 8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting FEMA, Federal Insurance and Mitigation Division, Koger Center – Rutgers Building, 3003 Chamblee Tucker Road, Atlanta, Georgia 30341.

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Bowman, City of	April 4, 1975	None	July 6, 2010	None
Elberton, City of	June 21, 1974	January 16, 1976	April 15, 1986	None
Elbert County (Unincorporated Areas)	July 6, 2010	N/A	July 6, 2010	None

**TABLE 1**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ELBERT COUNTY, GA  
AND INCORPORATED AREAS**

**COMMUNITY MAP HISTORY**

## 9.0 BIBLIOGRAPHY AND REFERENCES

Hydrologic Engineering Center. (March 2008). HEC-RAS River Analysis System, Version 4.0.0. U.S. Army Corps of Engineers. Davis, California.

National Weather Service. (Accessed March 19, 2009). 2005 Georgia's Climatology – <http://www.srh.noaa.gov/>.

Stamey, T.C. and G. W. Hess. (1993). Techniques for Estimating Magnitude and Frequency of Floods in Rural Basins of Georgia, Water Resources Investigation Report 93-4016. U.S. Geological Survey.

U.S. Census Bureau. (Accessed March 27, 2009). 2008 Population Estimate – <http://www.census.gov/>.

U.S. Geological Survey. (Downloaded March 2009). Seamless Data Distribution System – 10 meter Digital Elevation Model, <http://seamless.usgs.gov/>.