

Wheeler County, Georgia

Hazard Mitigation Plan Update

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Chapter 1 – Introduction to the Planning Process

Table 1.1 provides a brief description of each section in this chapter and a summary of the changes that have been made to the Wheeler County Hazard Mitigation Plan.

Chapter 1 Section	Updates to Section
I. Purpose and need of the plan, authority & statement of problem	<ul style="list-style-type: none"> Includes information regarding authority of federal and state regulations
II. Local methodology, brief description of plan update process, Participants in update process	<ul style="list-style-type: none"> Section updated to include list of participants, new participants, committee organization, and other planning mechanisms
III. Description of how each section of the original plan was reviewed and analyzed and whether it was revised	<ul style="list-style-type: none"> Section updated with narrative on plan development process
IV. Organization of the plan	<ul style="list-style-type: none"> Text revised, content updated from previous plan to reflect new template
V. Local Hazard, Risk, and Vulnerability (HRV) summary, local mitigation goals and objectives	<ul style="list-style-type: none"> Section revised to summarize updates to HRV, and local mitigation goals and objectives
VI. Multi-Jurisdictional special considerations (HRV, goals, special needs)	<ul style="list-style-type: none"> Updated to include multi-jurisdictional considerations
VII. Adoption, implementation, monitoring and evaluation (a general description of the processes)	<ul style="list-style-type: none"> Text revised, content updated from previous plan
VIII. Description of public participation in planning process	<ul style="list-style-type: none"> Section added to describe enhanced public notification procedures
IX. Community Data (demographics, census, commerce, history, etc.)	<ul style="list-style-type: none"> Updated to include current information

Table 1.1: Overview of updates to Chapter 1: Introduction to the Planning Process

I. Purpose and Need of the Plan, Authority & Statement of Problem

The Wheeler County Hazard Mitigation Plan is the official update to the plan submitted to and approved by the Federal Emergency Management Agency (FEMA) Region IV in July, 2008. The information that is contained within this document is intended to provide the framework for hazard mitigation goals and objectives that are to be implemented by the local governments within Wheeler County. The intent of achieving the set goals and objectives is to reduce the risk and damage associated with the identified hazards. The

implementation of this plan is designed to better prepare Wheeler County for these hazards and in doing so help ensure the safety of all of its residents.

The Hazard Mitigation Plan Update will meet the requirements of the Disaster Mitigation Act of 2000 Public Law 106-390, October 30, 2000, as stipulated in the Interim Final Rule 44 CFR 201.4 Standard State Plan criteria, published on February 26, 2002. Meeting these regulations will allow Wheeler County to maintain eligibility and qualify for all federally declared disaster assistance, including certain types of Public Assistance and hazard mitigation grants available through the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288, as amended). These forms of assistance will further the county's ability to provide for the safety and well-being of its citizens.

The Wheeler County Pre-Disaster Mitigation Plan was created through the combined efforts of the Wheeler County Board of Commissioners and the Cities of Glenwood, and Alamo. With this plan, Wheeler County is continuing its commitment to protecting the health, life, property, and overall well-being of its citizens. In order to meet these obligations the mitigation plan committee examined which natural disasters posed the greatest threat within the county and then outlining the potential steps that can be implemented in order to minimize the devastation that may occur. The individuals involved in the preparation of this plan feel that this plan accurately reflects the potential hazards faced by the county and outlines preemptive measures that address these areas. By identifying risks and areas of vulnerability the county will be able to make further preparations to minimize the impact of the hazards.

This document is intended to serve as a reference for elected officials and agency representatives who are responsible for making the critical decisions necessary to ensure the protection of the citizens of Wheeler County. The updated Hazard Mitigation plan is to be utilized as a current guide for Wheeler County and its' municipalities in order to implement future hazard policies, programs, and projects that adhere to the goals of the plan. In addition to the creation of preemptive measures designed to reduce the damage of a disaster, by meeting the mandated requirements the county enables itself to qualify for federal post-disaster assistance.

Authority:

The Disaster Mitigation Act of 2000 (DMA 2000)

In the past, federal legislation has provided funding for disaster relief, recovery, and some hazard mitigation planning. DMA 2000 is the latest legislation to improve the planning aspect of that process. The Act reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. The Act establishes a pre-disaster hazard mitigation program and designates new requirements for the national post-disaster Hazard Mitigation Grant Program (HMGP). Section 322 of the Act identifies the new requirements for planning activities and increases the amount of HMGP funds available to states that have developed a comprehensive mitigation plan prior to disaster.

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

Failure to meet the new criteria will make state and local governments ineligible for Stafford Assistance, and thus forfeit certain types of emergency assistance. The following section describes the existing state planning initiatives and mitigation programs.

Georgia Planning Act

The Georgia General Assembly adopted the Georgia Planning Act in 1989 as a means to encourage better management of growth in previously developed and developing areas of the State while encouraging smart development in less prosperous areas. Although supporting development, the legislature still strives for the conservation and protection of natural and historic resources, protection and promotion of quality of life through proper land use planning, and protection of community facilities. The cornerstone of the coordinated planning program is the preparation of a long-range comprehensive plan by each local government. This plan is intended to highlight community goals and objectives as well as determine how the government proposes to achieve those goals and objectives. With the passage of the Georgia Planning Act of 1989, all of Georgia's 159 counties and 529 cities were designated "Qualified Local Governments". Each of these local governments must maintain their status in order to remain eligible for a range of state and federal assistance programs. Continuing efforts strive for integrating the local hazard mitigation planning with the local comprehensive planning process.

Erosion and Sedimentation Control

OCGA 12-7-1

The Georgia Erosion and Sedimentation Act requires that each county or municipality adopt a comprehensive ordinance establishing procedures governing land-disturbing activities based on the minimum requirements established by the act. The Erosion and Sedimentation Act is administered by the EPD of the Georgia DNR and local governments. Permits are required for specified land-disturbing activities, including the construction or modification of manufacturing facilities, construction activities, some activities related to transportation facilities, activities on marsh hammocks, and others.

River Corridor Protection

OCGA 12-2-1

The statute informally known as the Mountain and Corridor Protection Act authorizes DNR to develop minimum standards for the protection of river corridors (and mountains, watersheds, and wetlands) that can be adopted by local governments. The EPD

administers the act. All rivers in Georgia with an average annual flow of 400 cubic feet per second are covered by the act, except those within the jurisdiction of the Coastal Marshlands Protection Act. Some of the major provisions of the act include: requirements for a 100-foot vegetative buffer on both sides of rivers, consistency with the Georgia Erosion and Sedimentation Act, and local governments' identification of river corridors in land-use plans developed under their respective comprehensive planning acts.

The **Watershed and Flood Prevention Act**, PL 83-566, August 4, 1954 (16 U.S.C. 1001-1008) authorized the establishment of programs to aid in protecting the lives and property threatened by natural disasters related to watersheds (such as flooding and erosion). Prior to fiscal year 1996, separate programs addressed small watershed planning activities and cooperative river basin surveys and investigations. After the 1996 appropriations act, the activities specified under the Watershed and Flood Prevention Act were combined into the single program known as the Emergency Watershed Protection (EWP) program. The purpose of the EWP program is to assist federal, state, and local agencies and tribal governments to protect watersheds from damage caused by erosion, floodwater, and sediment as well as to conserve and develop water and land resources. Resource concerns addressed by the program include water quality, water conservation, wetland protection and restoration, water storage capacity, agricultural drought problems, rural development, municipal and industrial water needs, upstream flood damages, and water needs for wildlife and forest-based industries. Methods of planning and surveying addressed by the program include specific watershed plans, river basin surveys, flood hazard analyses, and floodplain management assistance. The purpose of the plans and surveys is to identify solutions that use land treatment and nonstructural measures to resolve resource problems.

Federal Hazard Mitigation Programs

Because GEMA administers federal hazard mitigation programs for Georgia, GEMA's planning process is inherently integrated into these federal programs, specifically the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Program (PDM), the National Flood Insurance Program (NFIP), the Community Rating System (CRS), Flood Mitigation Assistance Program (FMA), the Map Modernization Project, Repetitive Flood Claims Program (RFC) and Severe Repetitive Loss Program (SRL). The Hazard Mitigation Grant Program (HMGP), authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration in order to reduce the loss of life and property due to hazard events and to enable the implementation of mitigation measures during the immediate recovery period.

The **Repetitive Flood Claims** (RFC) grant program was authorized by the Bunning-Bereuter- Blumenauer Flood Insurance Reform Act of 2004 (P.L. 108-264), which amended the National Flood Insurance Act (NFIA) of 1968 (42 U.S.C. 4001, et al). The RFC program provides funds to assist States and communities in reducing flood damages to insured properties that have had one or more claims to the National Flood Insurance (NFIP) Fund. RFC grants are to be awarded on a competitive basis and without reference

to state allocations, quotas, or other formula-based allocation of funds. Georgia has utilized project grants in the first two years of this program's existence to permanently mitigate NFIP insured structures through property acquisition.

II. **Local Methodology and Brief Description of the Plan Update Process**

The 2012 Wheeler County Hazard Mitigation Plan Update process began with the development of a planning committee, which would provide input and guidance throughout the initiative. This committee consisted of representatives from the County, the Cities of Glenwood, Alamo, and other local and regional agencies. In order to ensure participation and meet federal requirements a list was compiled of local and regional individuals and organizations that were essential to the success of the plan. These individuals were invited to attend and participate in the planning process. This included sending a draft of portions of the plan to neighboring communities for their review and comments. (An example of this letter can be found in Appendix E)

Furthermore, the Wheeler County Board of Commissioners contracted with the Heart of Georgia Altamaha Regional Commission to provide consultation, meeting facilitation, data collection and plan development services.

The Agencies represented in the Hazard Mitigation Update process included:

- Wheeler County EMA
- Laurens County EMA
- Wheeler County Volunteer Fire Departments
- Little Ocmulgee Electrical Membership Corporation
- City of Alamo City Council/City Administration
- City of Glenwood City Council/Administration
- Wheeler County Commission/County Administration
- Wheeler County University of Georgia Cooperative Extension Office
- Wheeler County EMS
- Wheeler County Health Department
- Glenwood Telephone Company

(For a list of individuals participating please see the meeting "Sign In Sheets" located in Appendix E, I)

The plan update process consisted of holding monthly meetings to review the data that was collected and utilized in the 2008 plan, including hazard event data, original goals and objectives as well as other community profile data. In addition, various existing planning mechanisms were reviewed and incorporated into the plan. (A list can be found below) Employees and officials from the County, as well as the Cities of Glenwood, and Alamo worked outside of meetings to conduct the research necessary to determine what objectives had been reached and to verify the accuracy of the hazard data. Representatives from the Heart of Georgia Altamaha Regional Commission provided brief updates were given at several City Council Meetings in order to keep all council members and the public who attended those meetings informed on the progress being made. Updates were also provided at Wheeler County Commission meeting. (For copies of agendas please view Appendix E, III) Since both of these monthly meetings are open to and attended by the public they gave multiple opportunities for comment on the process.

The Plan Update Process began with an initial public hearing on September 7th, 2011. Additionally, the public was also invited to participate in the draft review process prior to submission to GEMA and FEMA on August 12, 2014. Both public meetings were advertised in the local newspaper. Copies of the draft were available from the County and the Cities of Glenwood, and Alamo as well as the office of the Heart of Georgia Altamaha Regional Commission. Public comments were also accepted by phone, email and written letter. All comments received were reviewed at the public hearing on August 12, 2014. Changes to the document were incorporated as recommended. Additionally, the public will be able to provide comments during the plan adoption process.

Record of Review

Existing planning mechanisms	Reviewed? (Yes/No)	Method of use in Hazard Mitigation Plan
2009 Comprehensive Plan Update (multi-jurisdictional)	Yes	Development trends, capability assessment, mitigation strategies
Local Emergency Operations Plan	Yes	Identifying hazards; Assessing vulnerabilities
Storm Water Management / Flood Damage Protection Ordinance	Yes	Mitigation strategies, capability assessment
Building and Zoning Codes and Ordinances	Yes	Development trends; Future growth, capability assessment, mitigation strategies
Mutual Aid Agreements	Yes	Assessing vulnerabilities
State Hazard Mitigation Plan	Yes	Risk assessment
Land Use Maps	Yes	Assessing vulnerabilities; Development trends; Future growth

Critical Facilities Maps	Yes	Locations, Assessing Vulnerabilities
County Flood Plain Maps	Yes	Locations
2012 Community Wildfire Protection Plan	Yes	Mitigation strategies, risk assessment
2010 Flood Insurance Study	Yes	Mitigation Strategies, Risk Assessment
US Army Corps of Engineers: Dam Inventory Maps	Yes	Risk Assessment, Assessing Vulnerabilities

III. Plan Review, Analysis and Revision

The contracted planner with the Heart of Georgia Altamaha Regional Commission had the primary responsibility for collecting updated information and presenting data to the committee. Formal meetings of the Plan Update Committee were held monthly. Throughout the update process, sections of the approved 2008 plan were provided to committee members as each respective issue was discussed. Additionally, the entire document was available at the Glenwood, and Alamo city hall and the County Courthouse for public review. Each chapter was reviewed chronologically with relevant data and information brought in for comparison and consideration by the committee. In addition, FEMA worksheets and supporting documents were used when possible. The committee made updates to the plan through group discussion and pragmatic decision making. Irregularly attending participants were kept informed with monthly emails containing minutes and relevant documents from the previous meeting.

In order to properly evaluate and update the “Hazard Identification and Risk Assessment” portion of the 2008 plan, data from the National Climatic Data Center and the Georgia Forestry Commission’s “Wheeler County Community Wildfire Protection Plan” was presented to the committee. The committee then had an open discussion of the hazards and the threats they present to the county. The decision was made to include all nine hazards from the original plan. Additionally, to help assess the risk associated with each hazard a worksheet developed from the “FEMA Mitigation Plan Review Reference Manual” was used. The worksheet asked committee members to rate each hazard based upon several characteristics; Historical Occurrence, Probability, Vulnerability, Maximum Threat, Severity of Impact, and Speed of Onset. (Appendix E, I) These ratings provided and detailed assessment and a prioritization of each hazard. In addition, current critical facility location data was reviewed for accuracy and updated as needed. This involved the update committee reviewing the addresses of the facilities and verifying their locations using GIS Software.

In order to update the Goals, Objectives and Action Plans included in the 2008 plan each was individually assessed on whether efforts had been made in the last five years to accomplish it. This allowed the committee to get an accurate understanding of what had been achieved since the adoption of the 2008 plan and make decisions on what should be included in the 2013 plan. Decisions to add or delete portions of this section were made through small group discussion and

committee recommendations. The “Plan Integration and Maintenance” section was also reviewed in a similar manner with several changes being made to the system used for the 2008 plan.

Each section of the 2008 plan has been revised to some degree. Therefore, the first section of each chapter will list those changes in a tabular format.

IV. Organization of the Plan

The Hazard Mitigation Plan Update is organized to incorporate the requirements listed in the Interim Final Rule 44 CFR 201.4 Standard State Plan criteria in several chapters. This chapter includes an overview of the plan update document, an overview of the various state and federal authorizing authorities, information detailing the planning process the goals of the plan, multi-jurisdictional special considerations, the public participation involved in the process and a brief background of the community in order to be in complete compliance with Interim Final Rule 44 CFR 201.4(c)(1).

Chapter 2 identifies current hazards, outlines the history of hazards in terms of events and losses, assesses each jurisdiction’s risks and vulnerabilities, and changes in development related to hazard vulnerability, as stipulated by Interim Final Rule 44 CFR 201.4(c)(2).

Chapter 3 outlines the county and city’s mitigation strategy, including changes in priorities, a capability assessment, the impact of existing policies, regulations, and community factors, hazard mitigation goals and objectives, mitigation actions and activities and specific contributions, funding sources, and changes in action steps as stipulated by Interim Final Rule 44 CFR 201.4(c)(3).

Chapter 4 outlines the process of plan integration and maintenance, including how the plan will be incorporated into other planning mechanisms, strategies for monitoring the implementation of mitigation efforts, the methods and schedule of updates, and reviewing progress of achieving the goals outlined in Chapter Four, as well as a description of approaches used to encourage public involvement as stipulated by Interim Final Rule 44 CFR 201.4(c) (4).

Finally, the Appendices provide reference material used for the update process.

The summary of changes is included in the overview section of every chapter as a table that details each section and the changes that have occurred within the section since the last approval (2008).

V. Local Hazard, Risk, and Vulnerability (HRV) Summary

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

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

(1) Hazard Identification: Maps and historical data sources were studied and reviewed in order to identify the geographic extent, intensity, and probability of occurrence for various hazard events. FEMA Worksheet #1 (Identify the Hazard) was used in this process. A copy of this worksheet is provided in Appendix D, III.

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

- Flooding
- Tornado
- Hurricane
- Winter Storm
- Thunderstorm/Windstorm
- Hailstorms
- Wildfire
- Drought
- Extreme Heat

A comprehensive history of events for each hazard for Wheeler County is provided in Appendix A.

(2) Hazard Event Profiling: Past hazard event data were collected through an extensive process that utilized input from Wheeler County Hazard Mitigation Plan Update Committee members, research on past disaster declarations in the County, information provided from the National Climatic Data Center and the National Weather Service, a review of current Flood Insurance Rate Maps (FIRM) and internet and newspaper data searches. This source data was used to complete a Hazard Frequency Table for committee analysis purposes. A copy of the Hazard Frequency Table is provided in Appendix D, II.

The committee analyzed the causes and characteristics of each hazard, how the hazard had affected Wheeler County in the past, and what part of Wheeler County’s population and infrastructure had historically been vulnerable to each specific hazard. FEMA Worksheet #2 (Profiling Past Hazards) was used to complete this process. A profile of each hazard discussed in this plan is provided in Chapter 2. A copy of Worksheet #2 is provided in Appendix D, II.

Additionally, to help assess the risk associated with each hazard a worksheet developed from the “FEMA Mitigation Plan Review Reference Manual” was used. The worksheet asked committee members to rate each hazard based upon several characteristics; Historical Occurrence, Probability, Vulnerability, Maximum Threat, Severity of Impact, and Speed of Onset. These ratings provided a detailed assessment and a prioritization of each hazard. A copy of this worksheet can be found in Appendix D, I.

In regards to hazard probability, an informal measurement scale was developed based on historical occurrence data to gauge the probability of future occurrences. The scale can be seen below.

Occurrence Probability in Years	Likelihood of Future Occurrence
1-10	“Highly Likely”
10-25	“Likely”
25-50	“Unlikely”
50 or greater	“Highly Unlikely”

(3) Vulnerability Assessment: The asset inventory component of the HRV assessment data included the development of a database that provides county infrastructure and critical facilities data as well as estimated structure dollar values for loss estimates. This critical facilities database was developed by the Heart of Georgia Altamaha Regional Commission, in conjunction with the Emergency Management Agency office and the tax assessor’s office. Information collected includes structure location, value, contact information and facility type. This database was also presented to the update committee for revisions and additions to further ensure its accuracy.

A critical facility, for the purposes of this plan, is defined as a facility in either the public or private sector that provides essential products and services to the general public, is otherwise necessary to preserve the welfare and quality of life in the County, or fulfills important public safety, emergency response and/or disaster recovery functions. The critical facilities identified by the committee in the County include governmental services facilities; water and waste water treatment plants and lift stations; electric and communication utilities; hazardous waste sites; schools; public safety facilities; healthcare facilities; and essential roadways and bridges.

A community’s vulnerability can be described in terms of the assets located within the extent of a hazard event and the potential losses if such an event occurs. Therefore, the vulnerability assessment was accomplished by comparing each previously identified hazard with the inventory

of affected critical facilities and population exposed to each hazard. GEMA Worksheet # 3a, provided in Appendix D, III outlines this step of the HRV assessment.

Assessing vulnerability, for the purposes of this plan, also included a review of the Wheeler County Joint Comprehensive Plan to assess general land use patterns and development trends. This review can be found in Appendix B.

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

The number and type of structures in the County have been determined for potential loss estimations. The source of the information was the County Tax Assessor's Office. Additional information can be found in Appendix D, III.

The Wheeler County Hazard Mitigation Plan Update Committee used the results of the Hazard, Risk and Vulnerability assessment, as well as the reported accomplishments to identify and prioritize appropriate further mitigation goals, objectives and related actions. The Planning Committee identified mitigation strategies over the course of three formal meetings.

After ensuring that all interested persons had been given ample opportunity to contribute to strategy development, mitigation action steps were next given priority status by committee members. To evaluate priorities, committee members used as a guide a planning tool prepared by FEMA known as STAPLEE (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) criteria. Each mitigation strategy step was evaluated using STAPLEE criteria as the guiding principle to identify those steps best for Wheeler County. Steps were ranked as high priority, medium priority, or low priority. Past occurrences of disasters and historical trend data aided committee members in assigning priorities.

VI. Multi-Jurisdictional Special Considerations -

The Cities of Glenwood, and Alamo as well as the unincorporated portions of Wheeler County, were active participants in the planning process. Primarily, the goals and action steps apply to all jurisdictions, however, there are a few mitigation goals identified in this plan update which may apply to certain jurisdictions. These steps are identified in the appropriate sections. The Wheeler County Emergency Management Agency (EMA) Director will coordinate with the respective city officials from the Cities of Glenwood, and Alamo in order to execute any and all multi-jurisdictional steps. The EMA Director does not have the authority to implement items within the municipalities, however, the committee has chosen to coordinate communication efforts to implement and document progress towards goals with the EMA Director.

VII. Adoption, Implementation, Monitoring and Evaluation

Upon final approval by GEMA and FEMA Region IV, the Wheeler County Board of Commissioners and the Glenwood, and Alamo city councils formally adopted the Wheeler County Hazard Mitigation Plan. Documentation of these adoption decisions is included in Appendix E.

Wheeler County currently utilizes comprehensive land use planning and building codes to guide and control development in the county. The Wheeler County Hazard Mitigation Plan will be presented to the Committees and persons responsible for updating Comprehensive Plans and Capitol Improvement plans, for their use in incorporating the Hazard Mitigation goals and objectives. In addition, the County Commission, Glenwood, and Alamo City Councils will ensure that the local authorities responsible for the Local Emergency Operations Plan (LEOP) and other multi-jurisdictional plans utilize guidance from the Hazard Mitigation Plan.

The Emergency Management Agency Director will convene the committee in January of each year. Committee members will be responsible for evaluating the progress of the mitigation strategies in the Plan. The committee will review each goal, objective, and action step to determine relevance to changing situations in the county and municipalities, as well as changes in state and federal policy, and to ensure that the plan is addressing current and expected conditions as needed. The committee will also review the risk assessment portion of the Plan to determine if this information should be updated or modified.

The Plan Review Committee will prepare a report for the County Commission and Municipal Authorities. Through public invitation at the County Commission meeting held in March of each year, the County Commissioners will evaluate and update the Plan to ensure mitigation action steps are being established and that existing programs are utilizing the guidance provided by the Hazard Mitigation Plan. The EMA Director will then forward any changes to Georgia Emergency Management Agency's Hazard Mitigation Officer.

The parties responsible for the various implementation actions will provide a project status report and will include which implementation processes worked well, any difficulties encountered, how coordination efforts were proceeding, and which strategies should be revised.

Wheeler County is dedicated to involving the public directly in the continual reshaping and updating of the Hazard Mitigation Plan. The Plan Review Committee is responsible for the biennial review and update of the Plan. Although they will represent the public to some extent, the public will also be able to directly comment on and provide feedback about the Plan.

Copies of the Plan will be available at the Wheeler County EMA office, City Hall, and the County Commissioner's Office. The existence and location of these copies will be publicized in the local newspaper. All comments and questions will be directed to the local Emergency Management Agency Director for follow-up. The publicly declared County Commission meeting

to evaluate and update the Plan will provide the public an additional forum for which they can express concerns, opinions, or ideas about the Plan.

VIII. Public Participation

The planning committee attempted to facilitate public involvement throughout the planning process. As required, two public hearings were held in order to allow citizens to provide input and ask questions about the planning process and to view a draft of the plan itself. The first public hearing was held September, 7th, 2011. Prior to the meeting a notice was placed in the local newspaper, *Wheeler County Eagle*, which is the primary printed news source for the county. A copy can be found in Appendix E, III. The advertisement was repeated on August 8th, 2014 for a hearing allowing the public to view a completed draft of the plan on draft review process prior to submission to GEMA and FEMA.

In order to further inform the public and allow them to become involved in the process copies of the draft updated plan as well as the original 2008 plan were made available at the Glenwood, and Alamo City Hall, the Wheeler County Courthouse, as well as the office of the Heart of Georgia Altamaha Regional Commission. Throughout the process public comments were also accepted by phone, email and written letter. All comments received were reviewed at the second public hearing August 12, 2014. Changes to the document were incorporated as recommended.

Overall, these efforts resulted in at least one private citizen in attendance at every update committee meeting. This provided the committee with citizen insight and participation throughout every step of the process.

This commitment to facilitating public involvement is an extension of efforts that were made during the five year period between the development of the 2008 and 2013 Hazard Mitigation Plans. During this period copies of the 2008 plan have been available for public viewing at the Glenwood, and Alamo City Halls, the Wheeler County Courthouse, as well as the office of the Heart of Georgia Altamaha. Portions of the plan were consulted in the development of other planning documents including the Multi-Jurisdictional Comprehensive Plan, Local Emergency Operation Plan and The Georgia Forestry Commission's Community Wildfire Protection Plan.

IX. Community Data

History

Georgia's 148th county, Wheeler County, located in the central part of the state, was created from Montgomery County in 1912. The 298-square-mile county is named after Joseph Wheeler, a general who served in the Confederate cavalry during the Civil War (1861-65) and later in the Spanish-American War (1898). The area's first inhabitants were Indians of the Lower Creek Nation. Most of the first white settlers to the region came shortly after the end of the American

Revolution (1775-83); many were from North Carolina. Wheeler County is located in the "three rivers" area, framed on the west by the Little Ocmulgee River, on the east by the Oconee River, and on the south by the Ocmulgee River.

The county seat is Alamo, which established its post office in 1890. It was incorporated in 1909. The name, honoring the Alamo mission in Texas, was suggested by Christina McCrae Brightto, daughter of Judge John McCrae, a prominent local landowner and future state senator. Alamo is Spanish for cottonwood or poplar. The first mayor of Alamo was J. M. Fordham.

The first location for Wheeler County's court sessions is unknown. The first official courthouse was built in 1914. It burned down in 1916 and was replaced a year later by the current courthouse, which was completely restored in 1961. The only other incorporated town in the county is Glenwood, incorporated in 1908.

Railroad service came to the area in 1890, when the Savannah, Americus, and Montgomery Railroad (later the Seaboard Air Line Railway) extended its line from Abbeville to Lyons, traversing what became Wheeler County. Alamo developed around a railroad depot on this line, and the growth of both Alamo and Glenwood led inhabitants to petition for the division from Montgomery County, which led to the new county.

Government and Municipalities

Wheeler County is governed by a three person commission. The county is part of the Georgia Middle Judicial Circuit. The county population as of 2010 was 7,421. It is made up of 300 square miles and includes two municipalities Alamo, and Glenwood. Each municipality has a Mayor and City Council.

The county seat of Alamo was incorporated in 1909, as a station for the SAM (Savannah, Americus, Montgomery) railroad. Land around the station was acquired by the Americus Investment Company and a town plan was soon drawn up. The city encompasses 1.9 square miles with a population of 2,797.

The City of Glenwood was incorporated in 1908. Glenwood incorporates 3.2 square miles with a city population of 747.

Economy

From its earliest days, sawmilling and the production of naval stores were principal economic mainstays in Wheeler County, which remains covered with forest. In 2005 nearly 60 percent of the county's employed residents worked outside the county. Those who work in the county are chiefly employed in the educational, health, and social services sector. According to the 2000

U.S. census, the population of Wheeler County is 6,179 (64.6 percent white, 33.2 percent black, and 3.5 percent Hispanic). The population increased 26 percent since 1990.

The county's current large employers include Wheeler Correctional Facility, Premier Heating & Air, Inc., Lower Oconee Community Hospital, Little Ocmulgee Electric Membership Corporation, Heartland EMS, Inc., Glenwood Healthcare, LLC, G & A Logging, Inc., Carey Locke Logging Co, Inc., B.P. Timber Company, LLC, and Wheeler County State Bank.

Chapter 2 - Local Natural Hazard, Risk and Vulnerability (HRV).

The Hazard, Risk and Vulnerability assessment of the Wheeler County Hazard Mitigation Plan Update provides the basis upon which the subsequent goals, objectives and action plan are based. The plan update committee reviewed the hazards identified in the original plan as being capable of potentially affecting the county and municipalities. This involved reviewing FEMA worksheets #1 (Identify the Hazards), #2 (Profile Hazard Events) and #3 (Inventory of Assets). As well as introducing updated hazard data obtained from the National Climatic Data Center, that was then used to create a Hazard Frequency Table.

Additionally, to help assess the risk associated with each hazard a worksheet developed from the “FEMA Mitigation Plan Review Reference Manual” was used. The worksheet asked committee members to rate each hazard based upon several characteristics; Historical Occurrence, Probability, Vulnerability, Maximum Threat, Severity of Impact, and Speed of Onset. These ratings provided a detailed assessment and a prioritization of each hazard. The hazards identified in this chapter are listed in order of their perceived threat, with number one being the greatest. A copy of this worksheet can be found in Appendix D, III.

This combination of reviewing material from the original plan and updated hazard data allowed the committee to narrow the list to include only the hazards that were most likely to negatively impact the county. The committee concluded that all nine of the hazards included in the original plan still pose a direct, measurable threat to Wheeler County. Of these, seven of the nine hazards pose threats to the entire county. Tornados, hurricanes, severe winter storms, thunderstorm/windstorms, hailstorms, extreme heat and drought are all potential threats to the entire community. These hazards are non-spatially defined and have an equal probability of occurring anywhere in the county. Therefore, the locations of past occurrences will have no relation to the location of future events.

The remaining two identified hazards, flooding, and wildfire on the other hand, are isolated to select areas of the county. The probability of occurrence for flooding and wildfire is directly related to specific locations within the county; flood plains, and forested terrain. Each potential hazard is addressed individually with relevant supporting data. Additionally, the committee determined that no other hazards needed to be added.

Table 2.1 provides a brief description of each section in this chapter and a summary of the changes that have been made.

Chapter 2 Section	Updates to Section
I. Natural Hazard Flood	<ul style="list-style-type: none"> Updated data research;
II. Natural Hazard Tornado	<ul style="list-style-type: none"> Updated data research;
III. Natural Hazard Hurricane	<ul style="list-style-type: none"> Updated data research;
IV. Natural Hazard Winter Storm	<ul style="list-style-type: none"> Updated data research;
V. Natural Hazard Thunderstorms/Windstorms	<ul style="list-style-type: none"> Updated data research;

VI. Natural Hazard Hailstorm	<ul style="list-style-type: none"> • Updated data research;
VII. Natural Hazard Wildfire	<ul style="list-style-type: none"> • Updated data research;
VIII. Natural Hazard Drought	<ul style="list-style-type: none"> • Updated data research;
IX. Natural Hazard Extreme Heat	<ul style="list-style-type: none"> • Updated data research;

Table 2.1: Overview of updates to Chapter 2: Local Natural Hazard, Risk and Vulnerability (HRV)

I. Flooding

A. Hazard Identification

A flood is a natural event for rivers and streams. Excess water from rainfall or storm surge accumulates and overflows onto the banks and adjacent floodplains. Floodplains are considered lowlands, adjacent to rivers and oceans that are subject to recurring floods. Adverse impacts may include structural damages, temporary backwater effects in sewers and drainage systems, and unsanitary conditions by deposition of materials during recession.

There are generally considered to be two types of flooding, Coastal and Riverine. Since Wheeler County does not border an ocean coast it is only susceptible to riverine flooding. Riverine flooding occurs from inland water bodies such as streams and rivers. Riverine flooding is often classified based on rate of onset, and is typically slow to rise, overflow, and recede; which often allows an adequate amount of time to evacuate the area. The likelihood of a stream or river flooding is dependent upon several factors including topography, ground saturation, the intensity and duration of rainfall, soil type, drainage, erosion and vegetation. In recent years, Floods, and the damage they cause have remained a threat to areas of Wheeler County.

Flooding has occurred in different locations throughout Wheeler County. There are many creeks that flow throughout the county that have the potential to flood. Localized flooding in low lying areas of Glenwood and Alamo have also occurred in the past.

B. Profile Flooding Events

Location

The majority of flooding that occurs within the county is localized and largely caused by periods of prolonged rainfall. Flooding has occurred in different locations throughout Wheeler County. There are many creeks and streams that flow throughout the county that pose a potential threat of flooding. Many of these areas contain various agricultural, industrial and commercial resources that can suffer water damage. The Maps of these areas can be found in Appendix A, I.

There are several flood zones in Wheeler County with the largest area found along the Ocmulgee and Oconee Rivers, located on the entire southern and eastern borders of the county. Minimal development is present in this portion of the county. In addition, the Little Ocmulgee River, Alligator Creek, Ochwalkee Creek, Peterson Creek along with several other creeks in the unincorporated areas of the county, including tributaries to the Altamaha River, are capable of

flooding, as noted on the flood map. This area has a GMIS System hazard score of 3. (Appendix A I) Additionally, the GMIS System classifies the Cities of Glenwood, Alamo and 30 critical facilities with a Hazard Score of one. The remaining portions of the county, including the 32 remaining critical facilities, have a score of zero.

Extent

In order to provide a measurement of extent for flood events in Wheeler County, HAZUS Software was used to create a flood depth grid for the county. A flood depth grid allows us to estimate the height that flood waters would reach. The flood depth grid was generated based on a 100 year flood scenario. The depths ranged from a Low of approximately 0 ft. to a High of 63.26 ft. The deepest areas were found in the unincorporated portions of the county, especially along the Oconee River where there is minimal development. Within the Cities of Glenwood and Alamo, the highest projected level is approximately 5 feet and is located in an area of the city with very few structures. Throughout the rest of the city depth varies zero to one foot. Although a flood of this height could cause some structure and property damage the majority of city would most likely be unaffected. (To view the Flood Depth Grid, please see Appendix A, I)

Historical Occurrence

The impact of these events occurring has been minimal in Wheeler County over the last fifty years. As pointed out in the National Climatic Data Center (NCDC) statistics that can be found in Appendix A, I, in the past fifty years, floods were recorded six times. Because the NCDC has only recently begun to record the number of flood occurrences at the local level, the true number of floods that have occurred in the past fifty years is unknown. According to NCDC data, in the years of 1997, and 2005 a flood occurrence was recorded only once per year. Two floods were recorded in 2008 and 2009. There have been two floods recorded in Wheeler County since the previous Hazard Mitigation Plan was completed in 2008. These floods occurred April 2nd and December 14th 2009.

The recorded floods have resulted in a total of 53 thousand dollars in property damage. However, only five of the six events have resulted in any reported damage. The most recent flood that occurred on December 14th 2009 for which the Wheeler County Emergency Management Director reported minor flooding of some roads and property across the county, mostly adjacent to overflowing creeks and streams. Two dirt roads, one near Higgston and another near Alston, were closed because of high water. Monetary damage was confined to minor debris removal in these areas. In total, \$3,000 in property damage resulted from this flood event. Additionally no lives have been lost due to floods, nor have there been any injuries. Emergency response teams including the sheriff's department, police, fire and rescue, EMS, and EMA have been utilized during these events.

Probability

As stated above, in the last fifty five years there have been seven recorded occurrences of Flooding. The current chance per year that a flood can occur is .09, as noted in the Hazard Frequency Table (Appendix D, I). Additionally, the annual frequency for the last ten and twenty

years are .3 and .3, respectively. Finally, keeping in mind that the older the data the more incomplete it is, we can see that the annual frequency for the last fifty years is .12, with a historical recurrence interval of 10.67 years. Based on the historical occurrence data it is “Highly Likely” to assume that a flood will occur within the next ten years.

Occurrence Probability in Years	Likelihood of Future Occurrence
1-10	“Highly Likely”
10-25	“Likely”
25-50	“Unlikely”
50 or greater	“Highly Unlikely”

C. Inventory Assets and Potential Losses

Through the use of updated FEMA flood maps and housing formation obtained from the Wheeler County 911 office, the determination was made that 38.5% (2,415) of all structures in the county are within flood zones, as noted on Worksheet 3A (Appendix D, III). Of the structures in located in the flood zones; there are 1250 residential (31.2%), 115 commercial (54.2%), 1 industrial (20%), 978 agricultural (55.4%), 15 religious/non-profit (16.3%), 29 government (19.8%), 12 education (50%), and 15 utilities (51.7%). In terms of the number of people residing or working within the flood zones the estimated numbers are as follows; 2,320 residential (31%), 456 commercial (54%), 235 Agricultural (55%), 15 religious/non-profit (16%), 59 government (20%), 78 education (50%), and 16 utilities (52%). Please view on Worksheet 3A (Appendix D, III). To address specific critical facilities and infrastructure, each facility was examined on an individual basis, entered into the GEMA database, and located on maps, both which are in Appendix A, I. Of the county’s 62 critical facilities, 30 are exposed or at risk within designated flood zones with a hazard score of 1. The remaining 32 critical facilities received a hazard score of 0, meaning minimal flood risk. Also, Wheeler County has one reported NFIP repetitive loss property. After two losses to the property, the total NFIP dollar figure is \$16,981.97. The location of this property was updated in the GMIS database.

The total value of all structures within flood zones is estimated to be \$80,772,508 or 45.3% of the total value of structures in the county. The value of structure within flood zones by category are; \$16,731,045 residential, \$30,958,758 commercial, \$435,460 industrial, \$17,338,944 agricultural, \$375,442 religious/non-profit, \$985,774 government, \$104,500 and \$13,842,586 utilities.

D. Development Trends

There are several areas of potential development. They include: residential, commercial, industrial, public/institutional, transportation/communications/utilities, park/recreation/conservation, agriculture, and forestry. Commercial and industrial growth has been minimal in Wheeler County with a reliance upon the region’s natural resources and agriculture. New residential structures have primarily been located in areas outside of the city

limits but in close proximity to the city. Any future growth in Wheeler County will most likely be located away from flood prone areas near the cities.

The county has no basic zoning of land use regulations for the unincorporated areas. This could influence the type and extent of all forms of development in those areas. This also limits the ability to protect the environmental resources in those areas, which could make them more vulnerable to damage from a flood. However, since flooding is a spatial hazard future land use maps can address the threat of flooding in areas and help reduce the exposure of new development. The cities of Glenwood and Alamo do have zoning and land use regulations. Though flooding potential it is not great, there is a threat of flooding in portions of Glenwood and Alamo. Regulations will help in the monitoring and prevention of future damage caused by flooding. Wheeler County and the Cities of Glenwood and Alamo will utilize the maps in the flood plan to locate future structures out of localized flood prone areas if possible.

E. Multijurisdictional Concerns

Since Wheeler County has two municipalities in close proximity to each other and the majority of potential flood sources fall within the unincorporated areas there are several differences between jurisdictions. However, there are portions of the City of Glenwood and Alamo that fall within a flood zone as indicated on the Flood Map in Appendix A, I. There are several areas within the city limits and immediately outside the city limits that are considered flood zones. Additionally, in the incorporated areas there is a greater chance that a flood could cause damage to residential, commercial and infrastructure. Wheeler County, Glenwood and Alamo are each members of the National Flood Insurance Program (NFIP).

In the unincorporated areas of Wheeler County, more areas are prone to flooding because of the lack of drainage, additional bodies of water, and other characteristics that increase the possibility of flooding. Development in these areas is scarcer, with very few structures found within the larger flood zones located in the southeast corner of the county.

Wheeler County does not have any floodplain ordinances in place beyond NFIP regulations, but it is in compliance with the NFIP regulations. The current Flood Insurance Rate Map (FIRM) for the entire county, including Glenwood and Alamo, was adopted on August, 19th, 2010. Additionally, a Flood Insurance Study (FIS) of the incorporated and unincorporated areas of the county was conducted by FEMA in 2010. Portions of study were consulted for the purposes of this plan.

F. Hazard Summary

Through examination of the updated flood related data and maps, the committee has determined that the occurrence of floods remain a threat to the county, including the portions of Glenwood and Alamo. Though the potential for property damage is greatest within the incorporated areas of the county, these areas are not as prone to floods as the unincorporated portions of the county. The committee reviewed previous flood mitigation action steps proposed in the approved 2008 plan. Addressing these issues will be an ongoing task for both county and city officials. Through a concerted effort between Wheeler County, the Cities of Glenwood, Alamo, and the Pre-Disaster Mitigation Planning Committee, measures will be taken, when feasible, to ensure that future

development is conducted in areas where the threat of flooding is minimal. Through future land use regulations and the implementation of the actions included in this plan overall flood damage should continue to decrease.

II. Tornado

A. Hazard Identification

Wheeler County also faces threats from several non-spatial hazards as well, including tornados. A tornado is a violently rotating column of air extending from a thunderstorm to the ground. The most violent tornados 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. Although Tornadoes can occur in any state they occur most frequently in the Midwest, Southeast and Southwest regions. Tornado Season is considered to be between March and August, but can occur at any time, which makes them even more unpredictable.

B. Profile Tornado Events

Location

Since Tornados are non-spatial entities they have the potential to occur anywhere within Wheeler County. Therefore all parts of the county could be subject to a Tornado and there is no specific area that would necessarily be more likely to have one.

Extent

The potential damage to structures resulting from tornadoes can range from minor damage to incredible damage. They also can cause a great deal of damage to agriculture and natural resources. This damage range is classified in the following chart which shows the Enhanced Fujita (EF) Scale:

Enhanced Fujita Scale		
Category	Wind Speed	Potential Damage
EF0	105–137 km/h 65–85 mph	Light damage. Peels surface off roofs; some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; mobile homes pushed off foundations or overturned; sign boards damaged.
EF1	138–179 km/h 86–110 mph	Moderate damage. Roofs torn off frame houses; windows and glass doors broken; moving autos blown off roads; mobile homes demolished; boxcars overturned.
EF2	180–217 km/h 111–135 mph	Considerable damage. Roofs torn off well-constructed houses; foundations of frame homes shifted; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF3	218–266 km/h 136–165 mph	Severe damage. Some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
EF4	267–324 km/h 166–200 mph	Devastating damage. Well-constructed houses and whole frame houses completely leveled; structures with weak foundations blown away some distance; trees debarked; cars thrown and small missiles generated.
EF5	>324 km/h >200 mph	Incredible damage. Strong frame houses leveled off foundations and swept away; with strongest winds, brick houses completely wiped off foundations; automobile-sized missiles fly through the air in excess of 100 m (109 yd); cars thrown and large missiles generated; incredible phenomena will occur.

The most severe category of Tornado recorded in Wheeler County is an EF1, occurring six times between 1975 and 2013. One injury was reported as a result of Tornado events in Wheeler County. Total damage estimates for the six tornado events reached \$5,750,000.

History

As noted in the NCDC statistics that can be found in Appendix A II, tornadoes have occurred in Wheeler County six times in the last fifty years. The county is located in Wind Zone III as noted on the Wind Map, Appendix A, II. Through the years of 1956-1985, in Wheeler County, there were three records of tornado occurrences with a total estimate of \$750,000 in property damage. Each tornado was classified as an EF1 and occurred on May 3rd 1975, May 3rd, 1984, and June 6th, 1985. Each Tornado resulted in over \$25,000 in property damage. One injury was a result of the May 3rd, 1975 tornado. From 1986 to 2013 in Wheeler County, the NCDC recorded three occurrences of tornados with \$5 million in damages. One notable occurrence was on January 8th 1993. Although no deaths or injuries were reported, \$5 million in property damage resulted from this tornado event.

Overall, Tornados have a remained a moderate threat for Wheeler County. Though, there have been no recorded deaths caused by a tornado, there have been multiple injuries and several hundred thousand dollars in property damage.

Probability

As stated above, in the last fifty five years there have been six recorded occurrences of Tornados. The current chance per year that a tornado can occur is .16, as noted in the Hazard Frequency Table (Appendix D, I). Additionally, the annual frequency for the last ten and twenty years are .2 and .15, respectively. Finally, keeping in mind that the older the data the more incomplete it is, we can see that the annual frequency for the last fifty years is .14, with a historical recurrence interval of 6.38 years. Although tornados may not occur on a yearly basis, it still “Highly Likely” that there will be an occurrence in the next ten years.

Occurrence Probability in Years	Likelihood of Future Occurrence
1-10	“Highly Likely”
10-25	“Likely”
25-50	“Unlikely”
50 or greater	“Highly Unlikely”

C. Inventory Assets and Potential Losses

Since Tornados are a non-spatial hazard they have the potential to damage 100% of the structures in the county as noted on Worksheet 3A (Appendix D, II). In Wheeler County, there are 3,998 residential structures, 212 commercial structures, 5 industrial facilities in Wheeler County, 1,764 agricultural structures, 92 religious/non-profit structures; 146 government facilities, 24 educational structures, and 29 utility structures. All of these structures are equally

exposed to a Tornado. To address specific critical facilities and infrastructure, each facility was examined on an individual basis, entered into the GEMA database, and located on maps, both of which are in Appendix A, II. Each of the county's 62 identified critical facilities on the GEMA Wind Hazard Report received a hazard score of two.

Estimating the potential losses caused by a tornado is large dependent upon where it touches down within the county. A tornado that stays within the unincorporated portions of Wheeler County, which constitutes the majority of the county, will cause far less property damage than one that occurs in downtown Alamo or Glenwood. If a tornado that occurs within a residential area or touches down at an industrial site the potential property damage and loss of life will be significant. At this time, there are no known future buildings, infrastructure or critical facilities to be built requiring special mitigation strategies.

The total built structures, including critical facilities, of Wheeler County have an estimated replacement value of \$178,272,497. The total value of all residential structures in Wheeler County is \$53,512,573. The value of commercial structures in Wheeler County is \$57,071,798. Industrial facilities in Wheeler County have a value of \$2,177,300. The value of agricultural structures in Wheeler County is \$31,273,923. Religious/non-profit structures in Wheeler County are valued at \$2,302,710. Government facilities in Wheeler County are valued at \$4,962,860. The educational facilities in Wheeler County are valued at \$209,000. Finally, the value of utility structures in Wheeler County is \$26,762,333. At this time, there are no known future buildings, infrastructure or critical facilities to be located in the county requiring special mitigation strategies. It is impossible to accurately estimate the potential losses suffered from a Tornado since it would be largely influenced by the category of Tornado and the location that it touches down. Additionally, with 7,421 residents in Wheeler County, any number could be affected by a Tornado.

D. Development Trends

A review of the county comprehensive plan illustrates that the county currently has no land use or development trends specifically related to tornados. In Wheeler County, future land use maps cannot address the threat of natural non-spatial occurrences such as tornados. Therefore, there is no way to tell whether new development is in a hazard prone area since all areas are equally vulnerable. In the future, any number of structures (commercial, industrial, public/institutional, residential), critical facilities, and infrastructure, in any part of the county, could potentially be damaged by a tornado.

E. Multi-Jurisdictional Concerns

In the incorporated and unincorporated areas of Wheeler County (including Glenwood, and Alamo), the threat of natural non-spatial occurrences including tornados is equally applicable. All areas of the county are susceptible to non-spatial threats. However, the amount of damage caused by a tornado occurring within the city limits would most likely be greater than one that occurs in the unincorporated area, due to the differences in amount of development and population density.

F. Hazard Summary

Through examination of the hazard occurrence data and historical trends the committee has determined that tornados remain a threat to the county, including the Cities of Glenwood and Alamo. Even though the frequency of occurrences is small, the impact from one tornado has the potential to destroy numerous properties and cause harm to residents. Emergency response teams including the sheriff's department, police, fire and rescue, EMS, and EMA have been utilized during these events along with the county road department. In the future, measures suggested in this plan need to be enacted to limit the amount of impact a tornado can have on Wheeler County. The committee reviewed previous Tornado mitigation action steps proposed in the approved 2008 plan. Continuing to address these issues will be an ongoing task for both county and city officials.

III. Hurricanes

A. Hazard Identification

A hurricane is a category of tropical storm of wind speeds greater than 74 or more miles per hour. Hurricanes develop over warm waters and are caused by the atmospheric instability created by the collision of warm air with cooler air originating in the tropical regions of the Atlantic Ocean or Caribbean Sea. They then travel north, northwest, or northeast from its point of origin, and they usually involve heavy rains. Hurricanes are characterized by a large spiral of wind around a calmer center called the eye of the storm, which has the potential to be 20-30 miles wide. When a hurricane hits land, it may cause devastating rains, winds, and flooding. The hurricane season for the Atlantic coast lasts from June to November, but could occur outside of periods. Though each may not be considered significant, on average, five hurricanes strike the United States every year. Because hurricanes are large moving storm systems, they can affect entire states or entire coastlines.

B. Profile Hurricane Events

Location

Since Hurricanes are non-spatial entities they have the potential to occur anywhere within Wheeler County and will be a countywide weather hazard event. Therefore all parts of the county could be subject to Hurricanes and the effects stemming from the weather event. There is no specific area that would necessarily be more likely to have one.

Extent

The extent of a hurricane can range from very mild damage to extreme devastation. The National Weather Service measures the extent of a hurricane using the Saffir-Simpson Hurricane Wind Scale. The Saffir-Simpson Hurricane Wind Scale is a 1 to 5 rating based on a hurricane's sustained wind speed. This scale also estimates potential property damage. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage. However, Category 1 and 2 storms still have the potential to cause a large amount of damage to property and infrastructure.

Wheeler County has experienced two hurricane events since 1950, each occurring in 2005.

Saffir-Simpson Hurricane Wind Scale		
Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74-95 mph 64-82 kt 119-153 km/h	Very dangerous winds will produce some damage: Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96-110 mph 83-95 kt 154-177 km/h	Extremely dangerous winds will cause extensive damage: Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3 (major)	111-129 mph 96-112 kt 178-208 km/h	Devastating damage will occur: Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4 (major)	130-156 mph 113-136 kt 209-251 km/h	Catastrophic damage will occur: Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5 (major)	157 mph or higher 137 kt or higher 252 km/h or higher	Catastrophic damage will occur: A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

History

The threat of hurricanes in Wheeler County is minimal. According to NCDC data over the past fifty-two years, there have been two occurrences of hurricanes in Wheeler County, as noted in the Hazard Frequency Table (Appendix D, III). The impact of these events occurring has been minimal in Wheeler County over the past fifty years. The past recorded events have resulted in zero dollars in property damage, in addition no lives have been lost due to hurricanes. Hurricane Dennis was the first hurricane to impact Wheeler County on July 10th, 2005. After making landfall near Pensacola Florida, the category one storm tracked northeast into Georgia. Total damages throughout Georgia were \$12,000,000; a majority of the damages occurred from heavy rain. While the county received several inches of rainfall, Wheeler County recorded minimal damages from Hurricane Dennis.

The second recorded hurricane event was August 29-30, 2005. This event was occurred from the remnants of a major category 4 storm which made landfall at New Orleans, LA. Hurricane Katrina resulted in millions of dollars in damages across the southeastern United States. As the storm tracked eastward into Georgia, strong thunderstorms with damaging winds were also reported in several counties that did not experience any tornadoes. Overall damage associated with Katrina in north and central Georgia was approximately \$14,000,000.

Because of the distance of the core of Hurricane Katrina from Georgia, rainfall problems were minor, mostly isolated reports of street flooding. Unlike Tropical Storm Cindy and Hurricane Dennis, which affected the same areas during early July, no flash flooding in north or central Georgia during Katrina. Gusty west winds developed on August 30th as Katrina was dissipating over the Tennessee and Ohio Valley. However, wind gusts were mostly in the 20-30 mph range, which resulted in just isolated incidents of downed trees and power lines throughout the day across north and west Georgia.

While Wheeler County will not receive the initial storm surge from a hurricane, the county has received large amounts of rain and wind coming from hurricanes along the Gulf and Atlantic coasts. Also, Wheeler County is on a route for evacuees from coastal Georgia and Florida to come to in the event of a hurricane. US Interstate 16, north of Wheeler County running east to west, and US Highway 280, running east to west, are utilized as major evacuation routes for the Atlantic Coast of Georgia. For Hurricane Floyd in 1999, U.S. 441, 1 and I-16 were considered major corridors for evacuees attempting to escape the hurricane's path. Evacuees were traveling from as far south as Daytona Beach Florida to locations above Macon and Dublin Georgia. This large amount of evacuees, many seeking shelter in the counties along I-16 and above, placed a great deal of strain upon communities that were not prepared to accommodate them. In order to be better prepared for a similar situation in the future the county has included goals and objectives that they feel will help address these issues.

Probability

Based upon the frequency of historical occurrences obtained from the National Climatic Data Center the probability that a hurricane would occur in Wheeler County is extremely low. With two hurricane occurrences in Wheeler County throughout a six decade time period, a

reoccurrence rate of 31.5 years is calculated. It is “Unlikely” that a Hurricane will occur within the 2013-2018 planning period.

Occurrence Probability in Years	Likelihood of Future Occurrence
1-10	“Highly Likely”
10-25	“Likely”
25-50	“Unlikely”
50 or greater	“Highly Unlikely”

C. Inventory Assets and Potential Losses

Since Hurricanes are a non-spatial hazard they have the potential to damage 100% of the structures in the county as noted on Worksheet 3A (Appendix D, II). In Wheeler County, there are 3,998 residential structures, 212 commercial structures, 5 industrial facilities in Wheeler County, 1,764 agricultural structures, 92 religious/non-profit structures; 146 government facilities, 24 educational structures, and 29 utility structures. All of these structures are equally exposed to a Hurricane. To address specific critical facilities and infrastructure, each facility was examined on an individual basis, entered into the GEMA database, and located on maps, both of which are in Appendix A, III. Each of the county’s 62 identified critical facilities on the GEMA Wind Hazard Report received a hazard score of two.

The total built structures, including critical facilities, of Wheeler County have an estimated replacement value of \$178,272,497. The total value of all residential structures in Wheeler County is \$53,512,573. The value of commercial structures in Wheeler County is \$57,071,798. Industrial facilities in Wheeler County have a value of \$2,177,300. The value of agricultural structures in Wheeler County is \$31,273,923. Religious/non-profit structures in Wheeler County are valued at \$2,302,710. Government facilities in Wheeler County are valued at \$4,962,860. The educational facilities in Wheeler County are valued at \$209,000. Finally, the value of utility structures in Wheeler County is \$26,762,333. At this time, there are no known future buildings, infrastructure or critical facilities to be located in the county requiring special mitigation strategies. It is impossible to accurately estimate the potential losses suffered from a Hurricane since it would be largely influenced by the category of Hurricane and duration. Additionally, with 7,421 residents in Wheeler County, any number could be affected by a Hurricane.

D. Development Trends

The county currently has no land use or development trends specifically related to Hurricanes. The largest concerns during a hurricane event for Wheeler County would result from the large amount of rainfall that could cause flooding in the incorporated and unincorporated parts of the county. Increased enforcement of building codes related to flooding and the continuing efforts to improve drainage throughout the county will serve the community well in the event of a hurricane.

E. Multi-Jurisdictional Concerns

Due to the non-spatial nature of a hurricane, any part of Wheeler County could potentially be affected by its' occurrence. However, in regards to the possible flooding caused by the heavy rains from a hurricane, the most structural damage is likely to occur within the city limits of Glenwood or Alamo. The unincorporated portions of the county that fall within flood zones are largely undeveloped, therefore there is less possibility of damage occurring.

F. Hazard Summary

As pointed out in the NCDC statistics, in the past fifty years two hurricanes have been recorded in Wheeler County. This largely due to the county's' inland location and distance from the coast. The past recorded events have resulted in zero dollars in property damage. Additionally, no lives have been lost due to hurricanes.

However, the hazard mitigation plan update committee made the decision to include hurricanes in their list of hazards because of the severe direct and indirect effects that an occurrence could have. This includes localized flooding, fallen trees, utility damage, and destruction of property. Additionally, the occurrence of a hurricane in a different part of the state has the potential to affect the county, due the presence of a major evacuation route U.S. 280 and a short distance from I-16. The measures put into place by this plan are intended to decrease or eliminate these negative effects.

All areas of the county are susceptible to non-spatial threats. In the incorporated and unincorporated areas of Wheeler County (including Glenwood and Alamo), the threat of natural non-spatial occurrences including hurricanes is equally applicable. Therefore, any mitigation steps take related to Hurricanes should be applied to the entire county, including each municipality.

IV. Severe Winter Storms

A. Hazard Identification

Winter storms are non-spatial hazards that for Wheeler County bring the threat of freezing rain and ice storms. A heavy accumulation of ice, especially when accompanied by high winds, devastates trees and power lines, which affect structures, and infrastructures. Direct effects to residences and commercial buildings can include loss of utilities, roof damage and busted water pipes. Additionally, sidewalks, streets, and highways can become extremely hazardous to pedestrians and motorists, resulting in injury or loss of life.

B. Profile Hazard Event

Location

Since Winter Storms are non-spatial entities they have the potential to occur anywhere within Wheeler County. Therefore all parts of the county could be potentially subject to Winter Storms and there is no specific area that would necessarily be more likely to have one.

Extent

The extent of winter storms in Wheeler County is best measured by viewing the amount of ice and sleet accumulation, since there is rarely any actual snowfall. Past winter storms have resulted in ice accumulation of up to .5 in. and sleet measuring .10. But due to a limited amount of records it is impossible to completely predict the potential extent of future winter storms.

History

The occurrence of severe winter storms in Wheeler County in the past ten years has posed a minimal threat to the citizens. According to NCDC statistics in over seventeen years there has been only one recorded winter storms, occurring in 2005. It is important to remember that the NCDC has only recently been keeping up with the number of severe winter storms occurrences at the local level, so the true number of severe winter storms that have occurred in the past fifty years is unknown.

The January 28th, 2005 winter storm resulted in no property damage, injuries or deaths. A significant and fairly prolonged winter storm/ice storm affected nearly all of North and Central Georgia from the evening of Friday January 28th to late morning on Sunday January 30th. The winter storm was a result of a very strong and very cold Arctic surface high pressure system located across the Mid-Atlantic States and an upper-level disturbance moving across the region from the west. A majority of the frozen precipitation fell as freezing rain, with 1/4 to 1/2 inch accumulations of glaze ice common as far south as McRae, Abbeville, and Americus. In the southern areas, however, the ice accumulations were generally confined to trees, power lines, and other exposed objects with little or no accumulation of ice on the ground. For Wheeler County there was a reportable glaze of ice accumulation. Additionally, temperatures in the county were reported reaching the teens and single digits. However no property damage, injuries or deaths were reported.

Even though the frequency of winter storm occurrences is small, the impact from a severe winter storm has the potential to damage numerous properties (buildings, structures, crops, etc.) and endanger the lives of its citizens.

Probability

Due to the fact that NCDC data shows only had one winter storms in the last seventeen years, the frequency of occurrence per year is projected at .06. Additionally, the annual frequency for the last ten and twenty years are .1 and .05 respectively. Finally, keeping in mind that the older the data the more incomplete it is, we can see that the annual frequency for the last fifty years is .02, with a historical recurrence interval of 17.0 years. The probability that winter storms will occur within the next 20 years is "Likely."

Occurrence Probability in Years	Likelihood of Future Occurrence
1-10	"Highly Likely"
10-25	"Likely"
25-50	"Unlikely"

50 or greater	“Highly Unlikely”
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C. Inventory Assets and Potential Losses

Since severe winter storms are a non-spatial hazard they have the potential to damage 100% of the structures in the county as noted on Worksheet 3A (Appendix D, IV). In Wheeler County, there are 3,998 residential structures, 212 commercial structures, 5 industrial facilities in Wheeler County, 1,764 agricultural structures, 92 religious/non-profit structures; 146 government facilities, 24 educational structures, and 29 utility structures. All of these structures are equally exposed to a severe winter storm. To address specific critical facilities and infrastructure, each facility was examined on an individual basis, entered into the GEMA database, and located on maps, both of which are in Appendix A, IV. Each of the county’s 62 identified critical facilities on the GEMA Wind Hazard Report received a hazard score of two.

The total built structures, including critical facilities, of Wheeler County have an estimated replacement value of \$178,272,497. The total value of all residential structures in Wheeler County is \$53,512,573. The value of commercial structures in Wheeler County is \$57,071,798. Industrial facilities in Wheeler County have a value of \$2,177,300. The value of agricultural structures in Wheeler County is \$31,273,923. Religious/non-profit structures in Wheeler County are valued at \$2,302,710. Government facilities in Wheeler County are valued at \$4,962,860. The educational facilities in Wheeler County are valued at \$209,000. Finally, the value of utility structures in Wheeler County is \$26,762,333. At this time, there are no known future buildings, infrastructure or critical facilities to be located in the county requiring special mitigation strategies. It is impossible to accurately estimate the potential losses suffered from a severe winter storm since it would be largely influenced by the duration, amount of ice accumulation, wind and temperature. Additionally, with 7,421 residents in Wheeler County, any number could be affected by a severe winter storm.

D. Development Trends

Wheeler County currently has no land use or development trends specifically related to winter storms in the comprehensive plan.

E. Multi-Jurisdictional Hazard

In the incorporated and unincorporated areas of Wheeler County (including Glenwood, and Alamo), the threat of natural non-spatial occurrences including severe winter storms is equally applicable. All areas of the county are susceptible to non-spatial threats. There is not a specific map for this hazard. Therefore, any mitigation steps taken related to winter storms should be applied to the entire county, including the cities of Glenwood, and Alamo.

F. Summary

Winter storms in Wheeler County, though low in occurrence, can cause a significant amount of property damage and pose a threat to personal safety. Ice and freezing rain can damage infrastructure, while also making roads hazardous. They have the potential of occurring anytime during the winter months and are equally hazardous for all portions of the county. The amount of

damage that they cause is dependent upon the extent and severity of the hazard. The mitigation action steps that have been included in this document are focused upon reducing the impact that a winter storm would cause to the property and residents of Wheeler County.

V. Thunderstorms/Windstorms

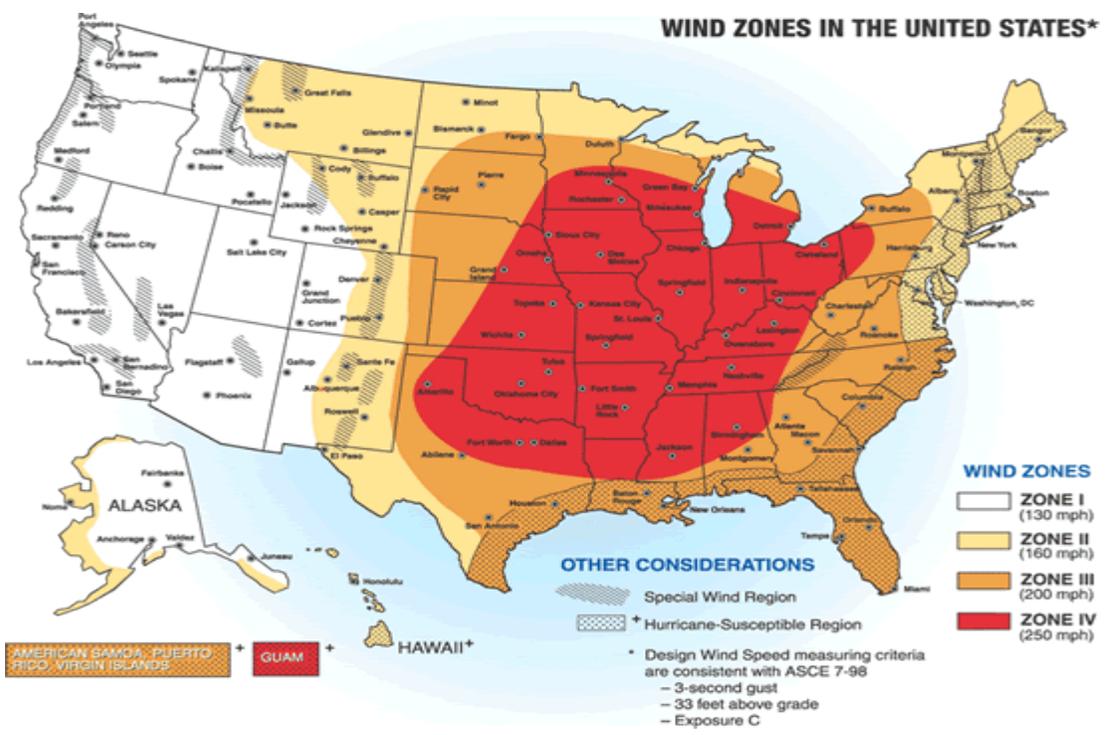
A. Hazard Identification

For the purpose of analysis, the two hazards of thunderstorms and windstorms have been consolidated. A thunderstorm is formed as a result of a combination of warm air rising, moisture, and a force capable from a combination of moisture, rapidly rising warm air, and a force capable of lifting air such as a warm and cold front, a sea breeze or a mountain. All thunderstorms contain lightning. Thunderstorms may occur alone, in clusters or in lines. Thus, it is possible for several thunderstorms to affect one location in the course of a few hours. Some of the most severe weather occurs when a single thunderstorm affects one location for an extended time. 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. Lightning is particularly dangerous to people, since although the bolt normally travels directly from cloud to the ground, it can also occur at angles away from the storm, and at a great distance.

B. Hazard Profile

Location

Since Thunderstorms/Windstorms are non-spatial entities they have the potential to occur anywhere within Wheeler County. Therefore all parts of the county could be potentially subject to this hazard and there is no specific area that would necessarily be more likely to have one.



Extent

NOAA (The National Oceanic and Atmospheric Administration) defines a “severe thunderstorm” as one that has winds in excess of 50 knots and/or hail of .75. Thunderstorm winds as recorded in the NCDC database range from 0 to 60 knots. In addition, the Beaufort wind scale designates categories based on wind speed and appearance. The scale can be viewed below. This is most often used as the measurement of extent for a Thunderstorm/Windstorm.

Specifications and equivalent speeds									
Beaufort wind scale	Mean Wind Speed		Limits of wind speed		Wind descriptive terms	Probable wave height in metres*	Probable maximum wave height in metres*	Seastate	Sea descriptive terms
	Knots	m/s	Knots	m/s					
0	0	0	<1	0-0.2	Calm	-	-	0	Calm (glassy)
1	2	0.8	1-3	0.3-1.5	Light air	0.1	0.1	1	Calm (rippled)
2	5	2.4	4-6	1.6-3.3	Light breeze	0.2	0.3	2	Smooth (wavelets)
3	9	4.3	7-10	3.4-5.4	Gentle breeze	0.6	1.0	3	Slight
4	13	6.7	11-16	5.5-7.9	Moderate breeze	1.0	1.5	3-4	Slight-Moderate
5	19	9.3	17-21	8.0-10.7	Fresh breeze	2.0	2.5	4	Moderate
6	24	12.3	22-27	10.8-13.8	Strong breeze	3.0	4.0	5	Rough
7	30	15.5	28-33	13.9-17.1	Near gale	4.0	5.5	5-6	Rough-Very rough
8	37	18.9	34-40	17.2-20.7	Gale	5.5	7.5	6-7	Very rough-High
9	44	22.6	41-47	20.8-24.4	Severe gale	7.0	10.0	7	High
10	52	26.4	48-55	24.5-28.4	Storm	9.0	12.5	8	Very High
11	60	30.5	56-63	28.5-32.6	Violent storm	11.5	16.0	8	Very High
12	-	-	64+	32.7+	Hurricane	14+	-	9	Phenomenal

History

Since 1976 there have been a total of thirty three recorded thunderstorm-windstorms in Wheeler County. This number of course does not include all of the thunderstorms/windstorms during this time period due to the great degree of difficulty in reporting every event that occurs. However it does portray the high probability of occurrence that this hazard presents. The severity of the storms can obviously vary with many causing little or no damage at all, which helps explain why many go unreported or underreported. None the less, these events have a total property and crop damage amount of \$ 98,000.00. It should also be noted that there is a lack of records for property and crop damage incurred before 1994. There have been no recorded injuries during this period resulting from thunderstorms. These figures illustrate the serious threat posed by Thunderstorms/Windstorms to the citizens and property of Wheeler County.

We can also see that in the last five years since the development of the previous plan Wheeler County has had thirteen thunderstorms/windstorms. Nine of these were classified as “severe” thunderstorms with wind gusts of at least 50 knots.

One of these events occurred on May 24th, 2008 when winds reaching up to 56 knots downed trees and power lines throughout the county. The Wheeler County 911 Center reported that dozens of trees and power lines were blown down across the northern and central part of the county, including Alamo and Erik. At least eight roads were blocked and closed from downed trees. Though no one was hurt as a result of the storm, \$25,000 in property damage was reported.

Another recent event occurred on December 17th, 2012 when widespread showers and a few thunderstorms developed ahead of a strong front across central Georgia on the afternoon of the 17th. Wind speeds during this storm reached 70 knots, also Three weak tornadoes developed on the leading edge of the thunderstorms. A National Weather Service survey team determined that a thunderstorm downburst uprooted and snapped several trees. This downburst was most likely from a rear-flank downdraft associated with the brief EF1 tornado that occurred nearby. The event resulted in mainly tree damage in Wheeler and Telfair Counties. Wheeler County Emergency Management reported a total of \$5,000 in property damage. Fortunately there were no reported injuries or deaths.

Currently, Wheeler County and the Cities of Glenwood and Alamo do not have any building codes that pertain to wind speeds.

Probability

As stated above, in the last thirty three years there have been thirty seven recorded occurrences of Thunderstorm-Windstorms. The current chance per year that a thunderstorm/windstorm can occur is .89, as noted in the Hazard Frequency Table (Appendix D, V). Additionally, the annual frequency for the last ten and twenty years are 1.9 and 1.55, respectively. Finally, keeping in mind that the older the data the more incomplete it is, we can see that the annual frequency for the last fifty years is .02, with a historical recurrence interval of 1.12 years. The probability is “Highly Likely” that Wheeler County will continue to experience severe thunderstorm/windstorms multiple times a year.

Occurrence Probability in Years	Likelihood of Future Occurrence
1-10	“Highly Likely”
10-25	“Likely”
25-50	“Unlikely”
50 or greater	“Highly Unlikely”

C. Inventory Assets and Potential Losses

Since thunderstorms and windstorms are a non-spatial hazard they have the potential to damage 100% of the structures in the county as noted on Worksheet 3A (Appendix D, V). In Wheeler County, there are 3,998 residential structures, 212 commercial structures, 5 industrial facilities in Wheeler County, 1,764 agricultural structures, 92 religious/non-profit structures; 146 government facilities, 24 educational structures, and 29 utility structures. All of these structures are equally exposed to a thunderstorm or windstorm. To address specific critical facilities and infrastructure, each facility was examined on an individual basis, entered into the GEMA database, and located on maps, both of which are in Appendix A, V. Each of the county’s 62 identified critical facilities on the GEMA Wind Hazard Report received a hazard score of two.

The total built structures, including critical facilities, of Wheeler County have an estimated replacement value of \$178,272,497. The total value of all residential structures in Wheeler County is \$53,512,573. The value of commercial structures in Wheeler County is \$57,071,798.

Industrial facilities in Wheeler County have a value of \$2,177,300. The value of agricultural structures in Wheeler County is \$31,273,923. Religious/non-profit structures in Wheeler County are valued at \$2,302,710. Government facilities in Wheeler County are valued at \$4,962,860. The educational facilities in Wheeler County are valued at \$209,000. Finally, the value of utility structures in Wheeler County is \$26,762,333. At this time, there are no known future buildings, infrastructure or critical facilities to be located in the county requiring special mitigation strategies. It is impossible to accurately estimate the potential losses suffered from a thunder storm or windstorm since it would be largely influenced by the duration, amount of rain, and wind intensity. Additionally, with 7,421 residents in Wheeler County, any number could be affected by a thunderstorm/windstorm.

D. Development Trends

There are no specific trends concerning thunderstorms/windstorms in the comprehensive plan. In the future, any number of structures (commercial, industrial, public/institutional, residential), critical facilities, and infrastructure will be vulnerable to thunderstorms/windstorms because they are a non-spatial hazard.

E. Multi-Jurisdictional Concerns

In the incorporated and unincorporated areas of Wheeler County, the threat of natural non-spatial occurrences including thunderstorms/windstorms is equally applicable. All areas of the county are susceptible to non-spatial threats. The county is located in Wind Zone III as noted on the Wind Map above. However, as mentioned earlier the potential for damage is greater within the Cities of Glenwood and Alamo than it is in the unincorporated portions of the county, due to the larger amount of development.

To address specific critical facilities and infrastructure, each facility was examined on an individual basis, entered into the GEMA database, and located on maps, please see Appendix A, V.

F. Summary

Overall, thunderstorm winds do pose a great threat to Wheeler County, specifically in terms of property damage. Though severe storms do not occur frequently, each one has the ability to inflict a great amount of damage and do so anywhere in the county. Since the creation of the 2008 Hazard Mitigation Plan very little has changed in regards to the vulnerability of the county to thunderstorms. They have continued to destroy property and natural resources throughout the county and its' municipalities. However, through a concerted effort between the local municipalities and the Pre-Disaster Mitigation Planning Committee, measures will be taken to help reduce the impact of a thunderstorm upon the residents and property of Wheeler County.

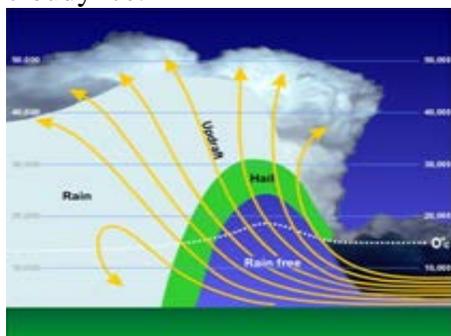
VI. Hailstorms

A. Hazard Identification

Hail is precipitation that is formed when updrafts in thunderstorms carry raindrops upward into extremely cold areas of the atmosphere. Hail can damage aircraft, homes and cars, and can be deadly to livestock and people.

Hailstones grow by collision with super cooled water drops. (Super cooled drops are liquid drops surrounded by air that is below freezing which is a common occurrence in thunderstorms.) There are two methods by which the hailstone grows, wet growth and dry growth, and which produce the "layered look" of hail.

In wet growth, the hailstone nucleus (a tiny piece of ice) is in a region where the air temperature is below freezing, but not super cold. Upon colliding with a super cooled drop the water does not immediately freeze around the nucleus. Instead liquid water spreads across tumbling hailstones and slowly freezes. Since the process is slow, air bubbles can escape resulting in a layer of clear ice. With dry growth, the air temperature is well below freezing and the water droplet immediately freezes as it collides with the nucleus. The air bubbles are "frozen" in place, leaving cloudy ice.



B. Hazard Profile

Location

Since Hailstorms are non-spatial entities they have the potential to occur anywhere within Wheeler County. Therefore all parts of the county could be potentially subject to this hazard and there is no specific area that would necessarily be more likely to have one.

Extent

The extent of a hailstorm is measured by the Hailstorm Intensity Scale (TORRO), which can be viewed below. The scale ranges from H0 to H10 and includes descriptions of the size of the hail, and the extent of the damage it could potentially cause. In the five years since the original plan was adopted hailstorms in Wheeler County have produced hail ranging in size from .75 in to 1.75in, as recorded by the NCDC. Using the TORRO we can see that the intensity of the hail in Wheeler County has ranged between a H2 and an H4.

Hailstorm Intensity Scale (TORRO)				
	Intensity Category	Typical Hail Diameter (mm)*	Probable Kinetic Energy, J-m²	Typical Damage Impacts
H0	Hard Hail	5	0-20	No damage
H1	Potentially Damaging	5-15	>20	Slight general damage to plants, crops
H2	Significant	10-20	>100	Significant damage to fruit, crops, vegetation
H3	Severe	20-30	>300	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	25-40	>500	Widespread glass damage, vehicle bodywork damage
H5	Destructive	30-50	>800	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	40-60		Bodywork of grounded aircraft dented, brick walls pitted
H7	Destructive	50-75		Severe roof damage, risk of serious injuries
H8	Destructive	60-90		(Severest recorded in the British Isles) Severe damage to aircraft bodywork
H9	Super Hailstorms	75-100		Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	>100		Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

History

The NCDC reports that since 1980 there have been ten recorded hailstorms in Wheeler County. However, the actual number of occurrences and the amount of property damage is likely unknown. Seven of these have occurred since the previous plan was adopted.

One notable storm occurred on March 26th, 2011. The public reported that quarter sized hail fell in Alamo for ten to fifteen minutes. Another hail storm was reported on March 24th 2013, with hail measuring an inch in size. Fortunately these events did not result in any reported property or crop damage.

Probability

As stated above, in the last thirty-three years there have been ten recorded occurrences of Hailstorms. The current chance per year that a hailstorm can occur is .30, as noted in the Hazard Frequency Table (Appendix D, II). Additionally, the annual frequency for the last ten and twenty years are .4 and .3, respectively. Finally, keeping in mind that the older the data the more incomplete it is, we can see that the annual frequency for the last fifty years is .20, with a historical recurrence interval of 3.30 years. The probability that hailstorms will continue to occur every couple of years is “Highly Likely.”

Occurrence Probability in Years	Likelihood of Future Occurrence
1-10	“Highly Likely”
10-25	“Likely”
25-50	“Unlikely”
50 or greater	“Highly Unlikely”

C. Inventory Assets and Potential Losses

Since hailstorms are a non-spatial hazard they have the potential to damage 100% of the structures in the county as noted on Worksheet 3A (Appendix D, V). In Wheeler County, there are 3,998 residential structures, 212 commercial structures, 5 industrial facilities in Wheeler County, 1,764 agricultural structures, 92 religious/non-profit structures; 146 government facilities, 24 educational structures, and 29 utility structures. All of these structures are equally exposed to a hailstorm. To address specific critical facilities and infrastructure, each facility was examined on an individual basis, entered into the GEMA database, and located on maps, both of which are in Appendix A, VI. Each of the county’s 62 identified critical facilities on the GEMA Wind Hazard Report received a hazard score of two.

Though not necessarily directly life threatening, all of the county’s 7,421 residents could potentially be affected by a hailstorm through hazardous road conditions, power outages, and property damage.

The total built structures, including critical facilities, of Wheeler County have an estimated replacement value of \$178,272,497. The total value of all residential structures in Wheeler County is \$53,512,573. The value of commercial structures in Wheeler County is \$57,071,798. Industrial facilities in Wheeler County have a value of \$2,177,300. The value of agricultural structures in Wheeler County is \$31,273,923. Religious/non-profit structures in Wheeler County are valued at \$2,302,710. Government facilities in Wheeler County are valued at \$4,962,860. The educational facilities in Wheeler County are valued at \$209,000. Finally, the value of utility

structures in Wheeler County is \$26,762,333. At this time, there are no known future buildings, infrastructure or critical facilities to be located in the county requiring special mitigation strategies. It is impossible to accurately estimate the potential losses suffered from a hailstorm since it would be largely influenced by the location, duration, and wind intensity.

In addition to the potential damage to structures, crop damage as a result of hail could have a severe impact upon the county's local economy and food supply. Crop sales totaled \$5,880,000 in 2007.

D. Land Use and Development Trends

Wheeler County and the Cities of Glenwood and Alamo currently have no land use or development trends related to hailstorms in the comprehensive plan. In the future, any number of structures (commercial, industrial, public/institutional, residential), critical facilities, and infrastructure will be vulnerable to thunderstorms because they are a non-spatial hazard.

E. Multi-Jurisdictional Concerns

In the incorporated and unincorporated areas of Wheeler County (including municipalities), the threat of natural non-spatial occurrences including Hailstorms is equally applicable. All areas of the county are susceptible to non-spatial threats. However, due to the greater amount of development and structures within the Cities of Glenwood and Alamo than in the unincorporated portions, there is a higher potential for property damage inside the city limits. There is not a specific map for this hazard.

F. Hazard Summary

Due to their lack of frequency Hailstorms present a minimal threat to the county. None the less, there is still the potential for damage to be cause by hailstorms and the hazard cannot be ignored. The mitigation action steps that have been included in this plan are focused upon reducing the impact that a hailstorm would cause to the property and residents of Wheeler County.

VII. Wildfires

A. Hazard Identification

A wildfire is an uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures. Wildfires often begin unnoticed and spread quickly and are usually signaled by dense smoke that fills the area for miles. Naturally occurring and non-native species of grasses, brush and trees fuel wildfires.

When talking about a natural occurring wildfire, caused by natural sources such as lightning strikes, a combination of available fuel, weather and topography work together to determine when a wildfire will ignite, how quickly it will travel and the intensity of the fire. These factors are also relevant when looking at wildfires that occur as a result of human interaction with the

environment, including campfires, cigarettes, debris burning, etc. Additionally, communities with a large amount of wooded or grassy areas are at greater risk. Prolonged drought or periods of extreme heat can also increase the likelihood of wildfire.

When looking at wildfire risks for a Community Wildfire Protection Plan, the Georgia Forestry Commission takes into consideration the Wildland-Urban Interface. A wildland-urban interface is an area where structures and other human development meet or intermingles with undeveloped wildland or vegetative fuels.

There are three major categories of wildland-urban interface. First, boundary wildland-urban interface is characterized by areas of development where homes, especially new subdivisions, press against public and private wildlands, such as commercial forests or public parks. Second, intermix wildland-urban interface occurs in areas where improved property and/or structures are scattered and interspersed in wildland areas. Finally, island wildland-urban interface, also known as occluded interface, is an area of wildland within predominantly urban or suburban areas.

B. Profile Hazard Event

Location

Due to the large amount of wooded and undeveloped land in Wheeler County wildfires have the potential to occur almost anywhere in the county outside of the city limits of Glenwood and Alamo. Though there is the potential for a wildfire to spread into the city limits, the highest area of concern remains in the unincorporated portions. In the unincorporated areas of Wheeler County, the fuel load is moderate or in many places heavy along the Ocmulgee and Oconee Rivers. These fuel load areas significantly increase the threat of wildfires. Maps depicting areas of fire susceptibility, occurrence, and level of concern throughout the county can be found in Appendix A, VII.

Extent

The most appropriate measurement of the extent of a Wildfire is the total acres burned. This illustrates the amount of area the wildfire encompassed and provides the opportunity to compare one event to another. Using more recent figures over the past 20 years, this number has remained somewhat steady at an average of 60 fires per year burning on average 138 acres annually. The occurrence of these fires during this later period shows a pronounced peak during the months of January, February, March and April accounting for 48% of the annual fires and 62% of the average acreage burned. There is a significant decrease during the remainder of the year, particularly during the summer months.

History

Wheeler County has dealt with a number of wildfire incidences and is particularly concerned with issues related to the wildland-urban interface, due to the rural nature of the county. The occurrences of wildfires pose a serious threat to much of Wheeler County. Wildfires occur in the forest areas of the county and reach to where the forest meets the boundaries of the cities. The

wildland urban interfaces found in Wheeler County generate significant risks to property and individuals. Wheeler County is protected by organized fire departments within the cities of Alamo and Glenwood, along with three volunteer departments in the unincorporated areas, Springhill, Crossroads and Stuckey. The Georgia Forestry Commission maintains a county protection unit located two and a half miles east of Alamo on US Hwy 280 to respond to wildfires throughout the county. The cities of Alamo and Glenwood are serviced by pressurized water systems with hydrants available.

Over the past forty three years, Wheeler County has averaged 63 reported wildland fires per year, burning an average of 255 acres per years. Using more recent figures over the past 20 years, this number has remained somewhat steady at an average of 60 fires per year burning on average 138 acres annually. The occurrence of these fires during this later period shows a pronounced peak during the months of January, February, March and April accounting for 48% of the annual fires and 62% of the average acreage burned. There is a significant decrease during the remainder of the year, particularly during the summer months.

Over the past 20 years, the leading causes of these fires, was debris burning and machinery use causing 42% and 27% respectively of the fires and 51% and 19% respectively of the acres burned. Over the past six years records show that over 25% of the debris fires originated from residential burning.

Georgia Forestry Commission Wildfire Records show that in the past ten years, one home has been lost or damaged by wildfire in Wheeler County resulting in estimated loss of \$5,000 along with seven outbuildings valued at \$11,600. According to reports during this period eight homes have been directly or indirectly threatened by these fires. Additionally six vehicles valued at \$21,800 and three other pieces of mechanized equipment valued at \$700 were lost. This is a significant loss of non-timber property attributed to wildfires in Wheeler County.

Over the past fifty years, Wheeler County has averaged 93 reported wildland fires per year. The occurrence of these fires shows a peak in the five months from December through April and a slight decrease during the late summer months. These fires have burned an average of 477 acres annually. The monthly acreage burned corresponds with the number of fires. Between the years of 2009 to 2013, 299 fires were recorded by the Georgia Forestry Commission. A total of 649 acres were burned as a result of these fires. The leading causes of these fires was debris burning and arson causing 40% and 29% respectively of the fires and 33% and 43% respectively of the acres burned. The impact of these events occurring has been prevalent in Wheeler County over the past fifty years. However, the exact amount of occurrences and damage is unknown due to a lack of reporting.

A wildfire risk assessment conducted in 2011 by the Wheeler County Fire Departments produced an average score of “82” placing the county in the “high” hazard range on the “Hazard and Wildfire Risk Assessment Checklist”. The risk assessment instrument used to evaluate wildfire hazards to Wheeler County’s WUI was the Hazard and Wildfire Risk Assessment Checklist. The instrument takes into consideration accessibility, vegetation (based on fuel models), roofing assembly, building construction, and availability of fire protection resources, placement of gas and electric utilities, and additional rating factors. Maps depicting areas of fire susceptibility, occurrence, and level of concern throughout the county can be found in Appendix A, VII.

Firebreaks and other local methods of fire protection attempt to protect the areas where the forest meets subdivisions throughout the county.

Probability

Based on historical occurrence data obtained from the Georgia Forestry commission the probability of wildfire occurrence in Wheeler County is “Highly Likely.” As mentioned earlier the data for wildfire occurrences is limited. However, the Georgia Forestry commission reported that Wheeler County over a five year period from 2009 to 2013 had an average of 59.8 wild-land fires per year burning an average of 129.8 acres.

Occurrence Probability in Years	Likelihood of Future Occurrence
1-10	“Highly Likely”
10-25	“Likely”
25-50	“Unlikely”
50 or greater	“Highly Unlikely”

C. Inventory Assets and Potential Losses

Through housing formation obtained from the Wheeler County 911 office and the County Tax Assessor, the determination was made that 41.78% (2,620) of all structures in the county are within the wildfire hazard area, as noted on Worksheet 3A (Appendix D, III). Of the structures located in the wildfire hazard area; there are 1,872 residential (46.82%), 104 commercial (49.1%), 3 industrial (60%), 547 Agricultural (31.01%), 24 religious/nonprofit (26.1%), 43 Government (29.5%), 13 Education (54.1%) and 14 Utility (48.2%). In terms of the number of people residing or working within the wildfire hazard area the estimated numbers are as follows; 3,475 residential (47%), 412 commercial (49%), 18 industrial (60%), 235 agricultural (31%), 25 religious/nonprofit, 88 government (29%), 84 education (54%) and 14 utility (48%). Please view on Worksheet 3A (Appendix D, III). To address specific critical facilities and infrastructure, each facility was examined on an individual basis, entered into the GEMA database, and located on maps, please view Appendix A, VII. Of the county’s 62 critical facilities, 1 received a wildfire hazard of 2, 32 received a wildfire hazard of 1. The remaining 29 facilities are at no reportable risk of wildfire hazard.

The total value of all structures within the wildfire zones is estimated to be \$79,153,357 or 44.4% of the total value of structures in the county. The value of structure within the wildfire hazard area by category are; \$25,056,412 residential, \$27,997,486 commercial, \$1,306,380 industrial, \$9,697,753 agricultural, \$600,707 religious/nonprofit, \$1,461,664 government, \$113,208 education and \$12,919,747 Utility.

D. Development Trends

There are several development trends that are related to wildfire occurrence and loss vulnerability. Although Wheeler County is has not experienced a significant amount of

residential development in its' unincorporated areas, housing trends in the county have shifted to building outside of the city limits. These houses are being built within the wild land urban interface and increase the risk of a wildfire resulting in property damage or loss of life. The Georgia Forestry Commission has directly identified several communities within the county that contributed to the county being awarded a "high risk" hazard range on the "Hazard and Wildfire Risk Assessment Checklist". These communities share characteristics that make them high risk areas; Narrow/Dead End Roads, limited street signs, thick forest and flammable vegetation surrounding homes, large distance from fire stations, wood siding homes, undeveloped lots and non-pressurized water systems. Continued growth in these current communities or the development of other similar communities in the county increases the risk of wildfire occurrence and property. However, since the adoption of the last Hazard Mitigation Plan in 2008 there has been a concerted effort by the local Georgia Forestry Commission office and the county fire departments to educate citizens on wildfire issues, in order to help offset the risk posed by additional development.

E. Multi-Jurisdictional Concerns

As described earlier there are significant differences between the incorporated and unincorporated portions of Wheeler County in regards to wildfire vulnerability. Due to large amount of undeveloped forests in the unincorporated parts of the county the opportunity for a wildfire is very present. However, due to the wild land urban interface the municipalities and developed residential communities are not entirely immune to the possibility of a fire spreading into their boundaries. In the incorporated areas of Wheeler County, the threat of wildfires is low due to moderate fuel load levels present within these municipalities. However, in the unincorporated areas, including the wild land interface, the threat of wildfires is much higher.

According to the Georgia Mitigation Information System, portions of Wheeler County have Wildfire Hazard Scores ranging from 0-2. A vast majority of the unincorporated part of the county is located in zone zero to 1. However, there are areas scattered throughout the county that have scores of one to two. Areas located inside the cities of Glenwood and Alamo fall within the zero zone, the outer portions of cities include a higher fuel load and has a Hazard score of 1. This area also contains several critical facilities. Please see Appendix A, VII to examine these areas. In the unincorporated areas of Wheeler County, the fuel load is moderate or in many places heavy, especially in the northwestern and southern portions of the county which are heavily forested. The area located along the Little Ocmulgee, Ocmulgee and Oconee Rivers have a wildfire hazard of 1 to 2. These fuel load areas significantly increase the threat of wildfires.

F. Hazard Summary

Due to the large amount of forest and the growing wildland interface in Wheeler County, wildfire remains a significant threat to the lives and property of its citizens. Given the quick onset and destructive nature of wildfires, the update committee feels that the mitigation strategies included in this plan for reducing the impact of wildfire are extremely critical to the protecting the county. As a result of wildfire, properties are severely damaged or lost, natural resources are destroyed, evacuations are sometimes necessary, residents may become displaced, and at its

extreme a wildfire can cause a loss of life. However, through future land use regulations and through the future actions implemented with this plan, the threat of wildfires in the future should continue to decrease.

VIII. Drought

A. Hazard Identification

According to the National Oceanic and Atmospheric Administration, drought is a deficiency of moisture that results in adverse impacts on people, animals, or vegetation over a sizeable area.

The 2008 *Georgia Hazard Mitigation Plan Standard and Enhanced* points out that one of the most important characteristics of drought conditions is the length of time that a drought persists. Droughts lasting 1 to 3 months are considered short term, while droughts lasting 4 to 6 months are considered intermediate and droughts lasting longer than 6 months are long term.

Drought is also a key factor in wildfire development, establishing the dry conditions necessary to make natural fuels, such as grass, brush, trees and dead vegetation, more fire-prone.

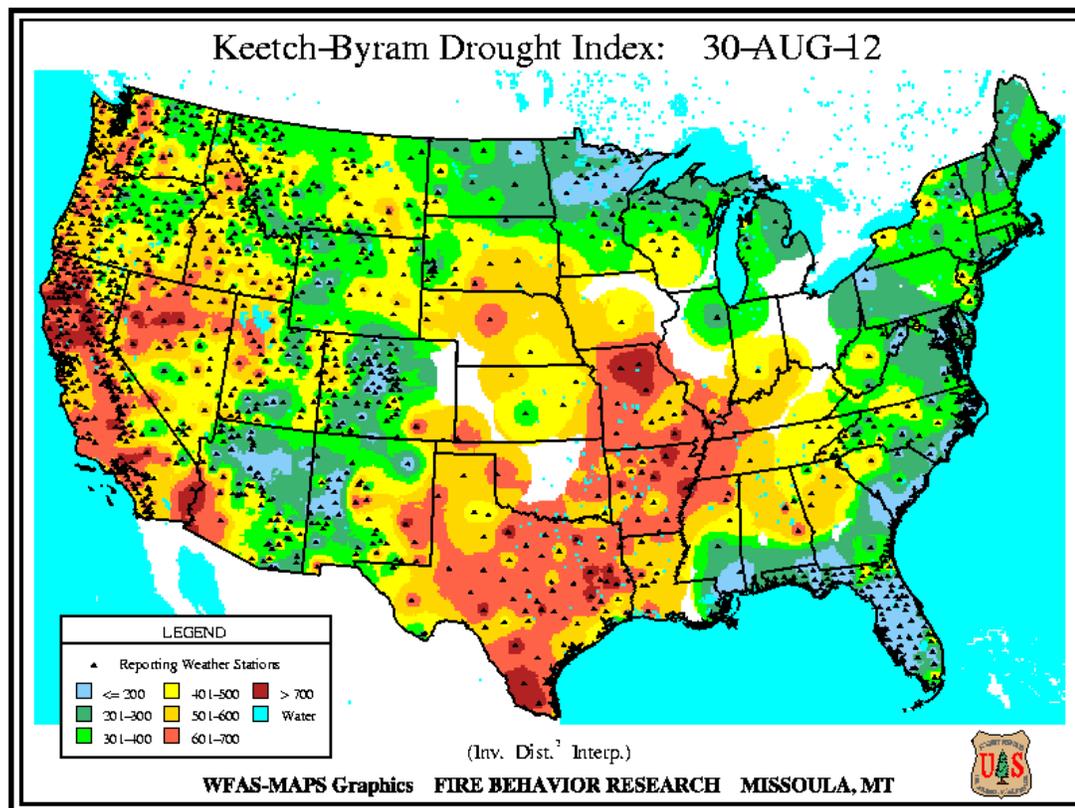
B. Profile Hazard Event

Location

Due to the fact that Drought is a non-spatial hazard and has the potential to effect the entire county it constitutes a significant threat to the prosperity and safety of the residents of Wheeler County. The presence of a drought affects the county in several different ways, the destruction of agriculture, depleted drinking water supply, and increasing the potential of wildfires. Much of Wheeler County is made up of forest, agriculture and woodlands which are all directly impacted by drought conditions. The adverse effects of an extended period of drought can affect all portions of the county and municipalities.

Extent

The Keetch and Byram drought index (KBDI) is intended to measure the risk of wildfires occurring in a drought stricken area and in doing so provides a measurement of the extent of a drought. The KBDI attempts to gauge the precipitation needed in order for the soil to return to full moisture capacity. The number represents the net effect of evapotranspiration (the combined amount of evaporation and transpiration) and precipitation in producing cumulative moisture deficiency in upper soil layers. Zero is the point of no moisture deficiency and 800 is the maximum drought that is possible. The higher the number the worse drought and the higher risk of wildfire. Along the scale, the index numbers provide the amount of net rainfall that is required to reduce the index to zero, or saturation conditions. Therefore, Wheeler County could fall anywhere on the index between 200 and 800 KBDI.



History

Since the adoption of the prior Hazard Mitigation Plan the occurrence of drought has remained a serious threat to the citizens of Wheeler County. As pointed out in the NCDC statistics, in the past sixteen years, droughts were recorded twenty-two times. Because the NCDC has only recently begun keeping up with the number of drought occurrences at the local level and no other accurate record is available, the true number of droughts that have occurred in the past fifty years is unknown, but can be assumed to be significantly higher.

Through the examination of recent known occurrences, specifically those occurring in the last five years, we can see that drought has had a consistently negative impact on the county. In 2007, the NCDC reports there having been drought conditions throughout the majority of the year, recording five separate occurrences; May, September, October, November, and December; data can be viewed as one continuous state of drought. During this time much of the state was similarly afflicted, with 74 Georgia counties classified as being in extreme drought, 79 in severe drought, and six in moderate drought. Wheeler County was classified as being in a severe drought. Many local lakes, wells and streams were at noticeably low water levels. In addition, the damage to summer and early fall crops was devastating. Though local crop damage numbers are unavailable the state as a whole suffered \$787.2 Million in losses. Approximately 44% of these losses occurred within the Peachtree City, Georgia Weather Forecast Office (WFO) County

Warning Area (CWA) that Wheeler County is a part of. The impact of the drought is apparent when considering that the county has 143 farms with a total area of 57,175 acres.

See the National Climatic Data Center (NCDC) table in Appendix A, VIII for additional details regarding past hazard events in Wheeler County.

Probability

As stated above, in the last sixteen years there have been twenty-two recorded occurrences of drought. The current chance per year that a drought can occur is 1.38, as noted in the Hazard Frequency Table (Appendix D, II). Additionally, the annual frequency for the last ten and twenty years are .8 and 1.1, respectively. Finally, keeping in mind that the older the data the more incomplete it is, we can see that the annual frequency for the last fifty years is .44, with a historical recurrence interval of .73 years. Since, all twenty-two recorded droughts have occurred in the last twenty years it is reasonable to assume that the number of actual occurrences in the last fifty years is actually quite higher. None the less, based off of the available data the conclusion can still be drawn that the likelihood of droughts occurring on an annual or biannual basis is “Highly Likely”

Occurrence Probability in Years	Likelihood of Future Occurrence
1-10	“Highly Likely”
10-25	“Likely”
25-50	“Unlikely”
50 or greater	“Highly Unlikely”

C. Inventory Assets and Potential Losses

The Wheeler County Joint Hazard Mitigation Plan Update Committee concluded that drought, in itself, presents no direct threat to the critical facilities. However, Wildfire, as a result of drought, was considered, and the Committee determined that in this manner the hazard poses a significant threat to the county.

In addition, it is important to consider that drought impacts residents, public health, and agriculture. A drought reduces the amount of available water in area and since the majority of homes and businesses draw from underground water sources they are dependent upon it’s’ availability. Therefore all of the residents of Wheeler County, 7,421 are at risk from the impact of a drought. (See Worksheet 3A in Appendix VIII).

For an estimate of potential losses due to drought it seems most appropriate to focus upon agriculture. To see an estimate of potential losses from a wildfire please refer to Section VII of this chapter. In the 2007 Census of Agriculture, Wheeler County had a total of 143 farms, with 57,175 acres of farm land in use. (Appendix C).The total market value of products sold for 2007 was \$5,880,000. Crop sales made up 90% (\$5,304,000) of this total and livestock sales the remaining 10 % (\$576,000).

D. Development Trends

There are no specific trends concerning drought in the county comprehensive plan. Future land use maps cannot address the threat of natural non-spatial occurrences including drought. However, the addition or growth of any new structures that is agricultural related, has the potential of being vulnerable to and affected by drought.

E Multi-Jurisdictional Concerns

All of Wheeler County could potentially be affected by drought conditions, due to its' effect on the water supply and wildfire conditions. However, since most of the county farms and agriculture is located outside the city boundaries there is the greater risk for crop damage and direct economic loss in those areas. Additionally, the potential for wildfires is greater in the unincorporated parts of the county (see Appendix A, VII to examine the county).

F. Hazard Summary

Drought has the potential to cause great economic damage to both Wheeler County and the state as a whole. In addition to the threat to economic interests, droughts can cause increased wildfires, public health issues, and reduce the water quality/supply. In the future, the update committee and its' partners will make a concerted effort to implement the actions included in this plan in order to lessen the impact of drought on the county's resources and residents.

IX. Extreme Heat

A. Hazard Identification

Excessive Heat Watch - Conditions are favorable for an excessive heat event to meet or exceed local Excessive Heat Warning criteria in the next 24 to 72 hours.

Excessive Heat Warning - Heat Index values are forecast to meet or exceed locally defined warning criteria for at least 2 days (daytime highs=105-110° Fahrenheit).

Heat Advisory - Heat Index values are forecast to meet locally defined advisory criteria for 1 to 2 days (daytime highs=100-105° Fahrenheit).

Temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks are defined as Excessive Heat. Humid or muggy conditions, which add to the discomfort of high temperatures, occur when a "dome" of high atmospheric pressure traps hazy, damp air near the ground. Excessively dry and hot conditions can provoke dust storms and low visibility. Droughts occur when a long period passes without substantial rainfall. A heat wave combined with a drought is a very dangerous situation. (Droughts are addressed in Section VIII)

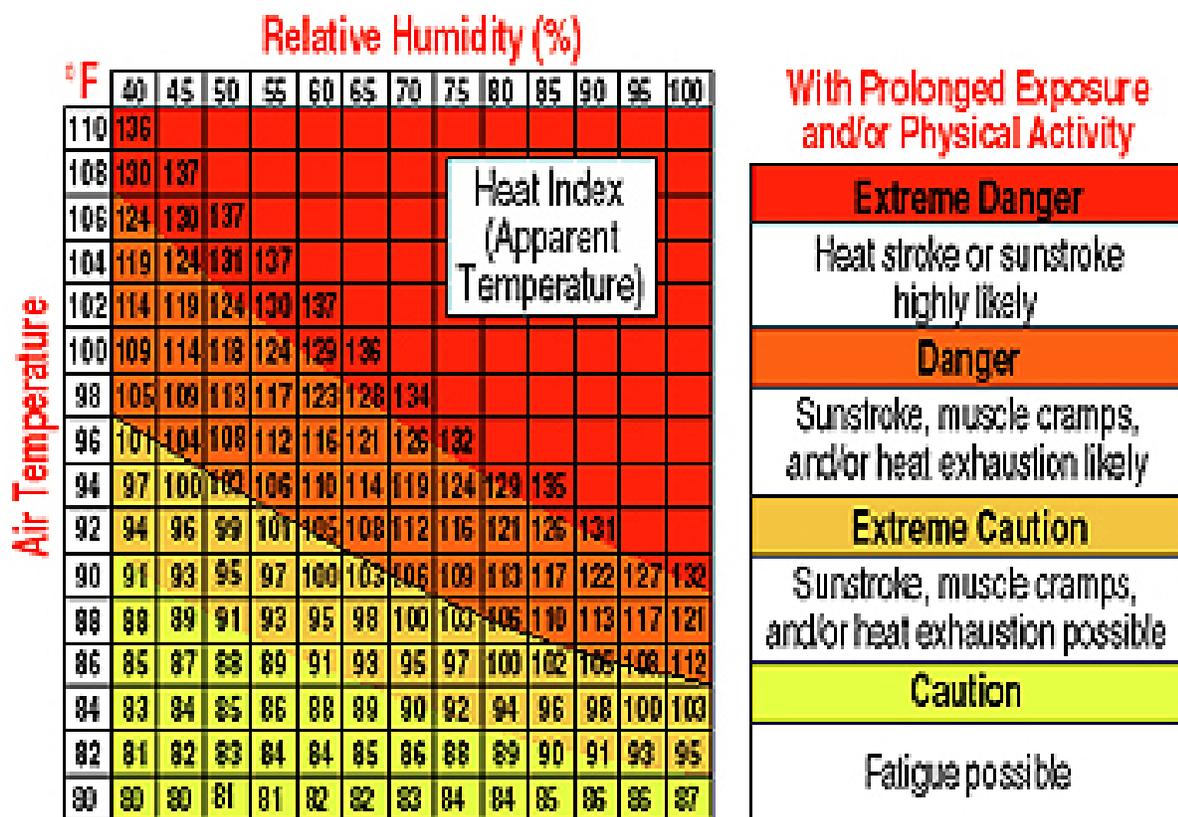
B. Hazard Profile

Location

Excessive Heat within the region could potentially affect the entire county equally. Therefore all parts of the county could be potentially subject to this hazard and there is no specific area that it would be more likely to occur.

Extent

In order to measure the extent of Excessive Heat the National Weather Service, uses the Heat Index (HI), a chart that accurately measures the apparent temperature of the air as it increases with the relative humidity. The Heat Index can be used to determine what effects the temperature and humidity can have on the population. To determine the Heat Index, you need the temperature and the relative humidity. Once both values are known, the Heat Index will be the corresponding number with both values. That number provides how it really feels. It is important to know that the Heat Index (HI) values are devised for shady, light wind conditions. Exposure to full sunshine can increase HI values by up to 15 degrees. Also, strong winds, particularly with very hot, dry-air can be extremely hazardous to individuals. (The Heat Index can be found below) Outside temperatures during the summer months in this region of Georgia often exceed 100 degrees, and combined with high humidity levels, have the potential to pose a "Danger" or "Extreme Danger" to the public.



History

There have been multiple documented periods of Excessive Heat in the Wheeler County weather zone of impact including the surrounding counties, according to the National Climatic Data Center, local news stations and other sources. Although these events occurred in the last ten years, it is important to keep in mind that data for this hazard has only recently been recorded. Therefore the number of occurrences is assumed to be much higher.

One of the recorded instances of Excessive Heat occurred in September 2002. A strong ridge of high pressure aloft stagnated over the southeastern U.S. for several days during the first 11 days of September. Consequently, temperatures were unseasonably warm during the first part of September. Temperatures soared into the 90s across nearly all of north and central Georgia during this period. The hottest weather was broken into two periods, one from September 3rd to September 6th, and the second from September 9th through September 12th. Additionally, this period of excessive heat coincided with a drought for Wheeler County and the region.

Five years later in August of 2007 the county experienced another period of excessive heat, while also undergoing a drought. The temperature during this period regularly reached or exceeded 100 degrees Fahrenheit. The two remaining occurrences were in June and July of 2012. The record-breaking heat wave that started across Georgia in late June continued into the beginning of July. This was one of the hottest events in Georgia state history, with multiple all-time heat records tied or broken in the months of July, August and September.

A future occurrence of Excessive Heat could cause crops to be damaged or lost, restrictions on water use, the drying up of wells, and a generally negative affect on the county's well-being, in some cases Excessive Heat can even result in a loss of life. In the future, the measures put forth in this plan need to be enacted to limit the amount of impact Excessive Heat can have on Wheeler County.

Probability

As stated above, in the last fifty five years there have been unofficial recorded occurrences Excessive Heat. Though there is not a large amount of occurrence it is important to keep in mind these occurrences have officially occurred four times since 2002. Based off data since 2002, the current chance per year that a drought can occur is .33, as noted in the Hazard Frequency Table (Appendix D, II). Additionally, the annual frequency for the last ten and twenty years are .3 and .2, respectively. Finally, keeping in mind that the older the data the more incomplete it is, we can see that the annual frequency for the last fifty years is .08, with a historical recurrence interval of 3 years. Since, all four recorded excessive heat events have occurred in the last twenty years it is reasonable to assume that the number of actual occurrences in the last fifty years is actually quite higher. None the less, based off of the available data the conclusion can still be drawn that the likelihood of droughts occurring on an annual or biannual basis is "Highly Likely."

Occurrence Probability in Years	Likelihood of Future Occurrence
1-10	"Highly Likely"
10-25	"Likely"
25-50	"Unlikely"
50 or greater	"Highly Unlikely"

C. Inventory Assets and Potential Losses

The Wheeler County Joint Hazard Mitigation Plan Update Committee concluded that Excessive Heat, in itself, presents no direct threat to structures or critical facilities. However, Wildfire, and Drought, which can result from conditions of Excessive Heat were considered. Additionally, as a result of Excessive Heat, crops are damaged or loss, water use is restricted, wells become dry, nature is affected by a minimal water supply, and at its extreme, Excessive Heat can cause a loss of life.

Although the entire population of Wheeler County (7,421) is at risk to the effects of Excessive Heat (see Worksheet 3A in Appendix A IX), the elderly and very low income populations are most likely to not have air conditioning and be more vulnerable to Excessive Heat and high humidity. According to the 2010 U.S. Census, 882 persons (11.8%) in Wheeler County were aged 65 or higher and 1,929 individuals (26%) were living below the poverty line.

D. Development Trends

There are no specific trends concerning Excessive Heat in the county comprehensive plan. Future land use maps cannot address the threat of natural non-spatial occurrences.

E Multi-Jurisdictional Concerns

All of Wheeler County could potentially be affected by Excessive Heat conditions. All areas of the county are susceptible to non-spatial threats. There is not a specific impact map for this hazard. Please see Appendix A, IX to examine the county land use map.

F. Summary

The multiple recorded occurrences of Excessive Heat demonstrates potential threat this hazard poses to the county. Each occurrence has the potential to affect the county's economy, natural resources and population. Additionally, when an event coincides with a drought it will greatly increase the likelihood of wildfires. The potential devastation of these three hazards when occurring in conjunction illustrates the need for mitigation activities designed to lessen the impact of occurrences.

Chapter 3 – Local Natural Hazard Mitigation Goals & Objectives

Chapter 3 Section	Updates to Section
I. Introduction	<ul style="list-style-type: none"> • Priorities Altered, Capability Assessment updated.
II. Natural Hazard Flood	<ul style="list-style-type: none"> • Goal text revised, content unchanged from previous plan. Revision of objectives, tasks, and actions steps to meet recommendations of committee
III. Natural Hazard Tornado Wildfire	<ul style="list-style-type: none"> • Goal text revised, content unchanged from previous plan. Revision of objectives, tasks, and actions steps to meet recommendations of committee
IV. Natural Hazard Hurricane	<ul style="list-style-type: none"> • Goal text revised, content unchanged from previous plan. Revision of objectives, tasks, and actions steps to meet recommendations of committee
V. Natural Hazard Winter storm	<ul style="list-style-type: none"> • Goal text revised, content unchanged from previous plan. Revision of objectives, tasks, and actions steps to meet recommendations of committee
VI. Natural Hazard Thunderstorms/Windstorms	<ul style="list-style-type: none"> • Goal text revised, content unchanged from previous plan. Revision of objectives, tasks, and actions steps to meet recommendations of committee
VII. Natural Hazard Hailstorm	<ul style="list-style-type: none"> • Goal text revised, content unchanged from previous plan. Revision of objectives, tasks, and actions steps to meet recommendations of committee
VIII. Natural Hazard Wildfire	<ul style="list-style-type: none"> • Goal text revised, content unchanged from previous plan. Revision of objectives, tasks, and actions steps to meet recommendations of committee
IX. Natural Hazard Drought	<ul style="list-style-type: none"> • Goal text revised, content unchanged from previous plan. Revision of objectives, tasks, and actions steps to meet recommendations of committee
X. Natural Hazard Extreme Heat	<ul style="list-style-type: none"> • Goal text revised, content unchanged from previous plan. Revision of objectives, tasks, and actions steps to meet recommendations of committee

I. Introduction to Mitigation Strategy

A. Priority Changes

Goals and objective statements have been updated from the 2008 Plan to reflect the progress that Wheeler County has made, as well as to reflect any new developments related to mitigation actions. The county has taken steps to implement many of the previously identified mitigation strategies, achieving successes in several of the objective areas. The update committee felt that the majority of the actions steps still felt to be relevant from the previously approved plan remain the same, as the committee still feels that they hold relevance to the community. Financial difficulties experienced by the county, similar to those felt throughout the entire nation, limited Wheeler County's ability to achieve more of their goals and objectives. Overall there have not been any major developments that have altered the prioritization of objectives or goals. However, in reviewing each of the action steps the committee made decisions to change the assigned priority level of certain actions based upon a variety of factors. Changes in priority levels have been noted next to each action. A more detailed description of the process used to determine prioritization can be found in Section C, IV.

B. Capability Assessment

The Wheeler County Emergency Management Agency (EMA) Director will coordinate with the appropriate city agency personnel in order to execute any and all multi-jurisdictional steps. The EMA Director will function as the coordinator of the Hazard Mitigation action plan implementation efforts. The director will work with the appropriate county and municipality officials, boards and committees on the various aspects of the plan.

Wheeler County currently utilizes comprehensive land use planning and building codes to guide and control development in the city and county. The current land use regulations and building codes will provide the basis for additions and revisions that are related to hazard mitigation. In addition, the city and county have designated officials responsible for development and building code-related issues, including the creation of additional regulations.

The City Fire Departments of Alamo and Glenwood and Wheeler County volunteer fire departments provide an excellent resource for achieving many of the outline hazard mitigation actions. Coordination between the departments will provide a unified approach to mitigation initiatives. Members of all departments are continuously obtaining additional training and certifications in order to increase the overall safety of the county. These departments are also regularly applying for and receiving grants to increase their capabilities and effectiveness.

County officials regularly coordinate and cooperate with the efforts of the local offices of both the Georgia Forestry Commission and the UGA Cooperative Extension Agency. Both of these organizations provide excellent partners for implementing many of the Hazard Mitigation Actions related to drought and wildfire.

The Wheeler County Hazard Mitigation Plan will be presented to the committees and persons responsible for updating Comprehensive Plans and Capitol Improvement plans, for their use in

incorporating the Hazard Mitigation goals and objectives. A copy will also be given to Wheeler County Community Wildfire Protection Plan Committee, who works with the Georgia Forestry Commission to update the Community Wildfire Protection Plan. This provides an additional resource for Wildfire mitigation actions. Resources and personnel that are already in place will be utilized for these efforts.

Other officials and organizations to be involved in the implementation of the mitigation actions include; Alamo Police Department, Glenwood Police Department, Wheeler County public works, Alamo Fire Department, Glenwood Fire Department, Wheeler County Sheriff's Office, Wheeler County Health Department, Alamo City Council, the Glenwood City Council, and the Wheeler County Commission.

C. Community Mitigation Goals

In order to develop the mitigation goals the Update Committee analyzed the updated risk assessment data, and reviewed the implementation status of the 2008 goals. From this they were able to determine the relevancy and importance of each goal. After open discussion and deliberation a decision was made to maintain the goals included in the original plan. Additionally, no new goals were added.

The goals are listed below. The order in which they placed reflect the overall perceived threat that each hazard poses to Wheeler County, as decided by the update committee.

Goal 1: Reduce flood damage in Wheeler County.

Goal 2: Reduce damage caused by severe storms and high winds that result from tornadoes in Wheeler County.

Goal 3: Reduce damage caused by the high winds that occur during hurricanes in Wheeler County.

Goal 4: Reduce damage resulting from ice, sleet, and snow during severe winter storms in Wheeler County.

Goal 5: Reduce damage caused by severe storms and high winds that result from windstorms in Wheeler County.

Goal 6: Reduce damage caused by ice during hailstorms in Wheeler County.

Goal 7: Prevent damage caused by wildfire in Wheeler County.

Goal 8: Reduce the economic impact of drought in Wheeler County.

Goal 9: Prevent loss of life and health of residents from threat of extreme heat.**D. Identification & Analysis of Range of Mitigation Options****1. Structural and Non-Structural Mitigation**

The committee identified structural and non-structural mitigation measures to ensure that the community addresses issues related to this hazard. Structural goals include retrofitting critical facilities, adopting/enforcing building codes, notifying new builders if they are in a floodplain, adding additional storm drainage in throughout each municipality, repairing existing irrigation ponds and development of community safe shelter. The non-structural measures include acquiring additional firefighting equipment, increasing citizen preparedness, and regular training of emergency response members.

2. Existing Policies, Regulations, Ordinances and Land Use

The land use policies, regulations and building ordinances were reviewed. The committee made the recommendation to continue seeking the inclusion of more thorough policies to address appropriate hazards. Existing FEMA Firm maps have been recently updated. Wheeler County, Glenwood and Alamo are members of the National Flood Insurance Program. This will be addressed in the mitigation action plan for Floods. The Cities of Glenwood and Alamo currently have building and zoning regulations within the city limits, but the unincorporated portions of the county do not. The County and Cities will continue to adopt and implement policies, regulations and ordinances related to hazard mitigation.

3. Community values, historic & special considerations

The mitigation strategies pose no threat to historical properties or any facility that requires special consideration. Community values are reflected in the proposed measures, as reflected in concerns expressed in the Wheeler County Joint Comprehensive Plan. The strategies will preserve the rural/agrarian culture and community values of Wheeler County, protecting the hometown feel of each jurisdiction while increasing each municipality's preparedness for this type of event.

4. Prioritization of Actions

To evaluate action step priorities, committee members used the STAPLEE (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) criteria provided by FEMA as a guide. Each mitigation strategy step was evaluated using STAPLEE criteria to identify those steps most relevant to Wheeler County. (Appendix D III) Based on these considerations, steps were ranked as high priority, medium priority, or low priority. Past occurrences of disasters and local expertise aided committee members in assigning priorities. The ranking of each step is listed under the appropriate section for that strategy.

II. Flooding

I. Goal 1: Reduce flood damage in Wheeler County.

Reduce damage caused by severe storms and high winds that result from windstorms in Wheeler County.

Objective 1.1: Minimize losses to existing and future structures, especially critical facilities, due to flooding.

- **Action 1.1** Enforce building regulations and improve floodplain and zoning regulations in the City of Alamo – **L**

Responsible Org.(s)	City of Alamo (Mayor)
Coordinating Org.(s)	City of Alamo (Mayor)
Timeline	5 Years
Cost	\$30,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund

- **Action 1.2** Enforce building regulations and improve floodplain, and zoning regulations in the City of Glenwood – **H**

Responsible Org.(s)	City of Glenwood (Mayor)
Coordinating Org.(s)	City of Glenwood (Mayor)
Timeline	1-2 Years
Cost	\$30,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund

- **Action 1.3** Improve building, floodplain, and zoning regulations in the unincorporated areas of Wheeler County – **H**

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County (Co. Adm.)
Timeline	5 Years
Cost	\$30,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund

- **Action 1.4** Seek funding to add additional storm drainage where practical – **H**

Responsible Org.(s)	Wheeler County (Co. Adm.), Cities of Alamo (Mayor), Glenwood (Mayor)
Coordinating Org.(s)	Wheeler County (Co. Adm.), Cities of Alamo (Mayor), Glenwood (Mayor)
Timeline	5 Years
Cost	\$100,000.00 (Staff Time/Drainage Materials)
Funding Source(s)	General Fund/GEMA/CDBG

- **Action 1.5** Improve a floodplain management program as digital FEMA Firm Maps are acquired – **L**

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County (Co. Adm.)
Timeline	5 Years
Cost	\$30,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/GEMA

- **Action 1.6** Train additional building inspectors knowledgeable on flood plain management in the City of Alamo & Glenwood once FEMA Digital Firm Maps are constructed and approved – **M**

Responsible Org.(s)	City of Alamo (Mayor)
Coordinating Org.(s)	City of Alamo (Mayor)
Timeline	5 Years
Cost	\$60,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/GEMA

- **Action 1.7** Train additional building inspectors knowledgeable on flood plain management in Wheeler County once FEMA Digital Firm Maps are constructed and approved – **M**

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County (Co. Adm.)
Timeline	5 Years
Cost	\$60,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/GEMA

- **Action 1.8** Seek funding to establish new drainage ditches along public roads – **H**

Responsible Org.(s)	Wheeler County (Co. Adm.), Cities of Alamo (Mayor), Glenwood (Mayor)
Coordinating Org.(s)	Wheeler County (Co. Adm.), Cities of Alamo (Mayor), Glenwood (Mayor)
Timeline	5 Years
Cost	\$200,000.00 (Staff Time & Materials)
Funding Source(s)	General Fund/GEMA

- **Action 1.9** Seek funding to purchase generators – **H**

Responsible Org.(s)	Wheeler County
Coordinating Org.(s)	Wheeler County-EMA Director
Timeline	5 Years
Cost	\$30,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/GEMA

- **Action 1.10** Seek funding to place larger pipes under unpaved roads in the unincorporated areas of Wheeler County – **H**

Responsible Org.(s)	Wheeler County
Coordinating Org.(s)	Wheeler County-EMA Director
Timeline	5 Years
Cost	\$100,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/GEMA

- **Action 1.11** Seek funding to update and upgrade the sewerage systems in the cities of Alamo and Glenwood - **H**

Responsible Org.(s)	Wheeler County (Co. Adm.), Cities of Alamo (Mayor), Glenwood (Mayor)
Coordinating Org.(s)	Wheeler County (Co. Adm.), Cities of Alamo (Mayor), Glenwood (Mayor)
Timeline	5 Years
Cost	\$250,000.00 (Staff Time & Materials)
Funding Source(s)	General Fund/GEMA

II. **Future Building and Infrastructure-**

The update committee discussed development trends and the impact that flood occurrence could have upon future structures. The mitigation steps included above are intended to apply to both new and existing structures. The update committee discussed in detail the need to ensure that future property owners and builders are made aware if they are in a floodplain. All new buildings and infrastructure will be required to comply with any flood related building codes or ordinances, where applicable.

III. **Existing Buildings and Infrastructure**

Existing buildings and infrastructure located in or adjacent to floodplains will be impacted by changes to floodplain management, storm water run-off and drainage improvements. These measures are designed to improve conditions and prevent relief from flooding issues. Property owners located in a floodplain area will be notified. All existing buildings and infrastructure will be required to comply with any flood related building codes or ordinances, where applicable.

IV. **Special Multi-Jurisdictional Strategy and Considerations**

In the unincorporated areas of Wheeler County, more areas are prone to flooding because of the lack of drainage, bodies of water, and other measures that increase the possibility of flooding. Much of the Ocmulgee and Oconee Rivers area located on the southern and eastern borders of the county are classified as flood zone three.

In the incorporated area of Wheeler County, the threat of flooding is still present within the city limits of Glenwood and Alamo in low-lying areas. Additionally, in the incorporated areas there is a greater chance that a flood could cause damage to residential, commercial and infrastructure. The Cities of Glenwood and Alamo are located in zone one. The remainder of the county, with exception of the Ocmulgee and Oconee River areas, is located in zone zero.

Wheeler County, Glenwood and Alamo are each members of the National Flood Insurance Program (NFIP). Wheeler County does not have any floodplain ordinances in place beyond NFIP regulations, but it is in compliance with the NFIP regulations. The current Flood Insurance Rate Map (FIRM) for the entire county, including Glenwood and Alamo, was adopted on August, 19th, 2010. Additionally, a Flood Insurance Study (FIS) of the incorporated and unincorporated areas of the county was conducted by FEMA in 2010. Portions of study were consulted for the purposes of this plan. (Appendix C) In the future the county will continue to improve and maintain their flood maps. They will also continue to comply with all NFIP requirements and find areas where feasible to exceed requirements, in an effort to increase the overall wellbeing of the citizens of the county.

V. Completed and deleted action steps from original plan.

- **Completed:**

Develop and acquire local FEMA Firm Maps for Wheeler County, the City of Alamo, and the City of Glenwood – L

Responsible Org.(s)	Wheeler County (Co. Adm.), Cities of Alamo (Mayor), Glenwood (Mayor)
Coordinating Org.(s)	Wheeler County (Co. Adm.), Cities of Alamo (Mayor), Glenwood (Mayor)
Timeline	5 Years
Cost	\$2,000.00 (Staff Time)
Funding Source(s)	General Fund

Deleted: None

VI. Changed/Unchanged action steps:

The action steps for flooding remain unchanged in scope, however the committee updated various portions of action steps 1.3, 1.4, 1.6, 1.7, 1.8, 1.9, 1.10, and 1.11. The Wheeler County Hazard Mitigation Update Committee reviewed the STAPLEE criteria for this hazard and feels that these action steps remain pertinent for preparing the community for possible disaster situations. Action 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, and 1.11 timeline was amended to 5 years. Action 1.6 now includes the City of Glenwood and remains a medium priority. 1.8 and 1.11 cost figures were amended to include staff time and materials; the cost estimate for 1.11 was increased to \$250,000.

III. Tornado

I. Goal 2: Reduce damage caused by strong storms and high winds in Wheeler County.

Objective 2.1: Protect life, health and property of residents from force of tornadoes.

- **Action 2.1** Seek funding to establish shelter locations in Wheeler County that will adhere to the American Red Cross guidelines – H

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director
Timeline	5 Years
Cost	\$100,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/GEMA

- **Action 2.2** Seek funding to enhance shelter locations once they are approved by the American Red Cross – H

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director
Timeline	5 Years
Cost	\$150,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/GEMA

- **Action 2.3** Construct a Community Safe Shelter that could also jointly or separately serve as a public safety building to house communications and equipment for local emergency operations – M

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director
Timeline	5 Years
Cost	\$250,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/GEMA

- **Action 2.4** Increase public awareness of emergency topics by publishing articles in the local newspaper, holding town hall meetings, and providing bulletins to local churches and the schools (i.e., NOAA Weather Radio Systems, emergency plan and survival kit, Local Emergency Shelters, individual safe rooms, National Weather Service Operations, Local Emergency Plans, and the Local Emergency Management Agency, etc.) – H

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director
Timeline	3-4 Years
Cost	\$5,000.00 (Staff Time/News Articles/Town Hall Meetings)
Funding Source(s)	General Fund/GEMA

- **Action 2.5** Seek funding to retrofit public buildings to reinforce windows, roofs and doors – M

Responsible Org.(s)	Wheeler County (Co. Adm.), Cities of Alamo (Mayor), Glenwood (Mayor)
Coordinating Org.(s)	Wheeler County (Co. Adm.), Cities of Alamo (Mayor), Glenwood (Mayor)
Timeline	5 Years
Cost	\$50,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/GEMA

- **Action 2.6** Continue to update all Emergency Response Plans – L

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director
Timeline	5 Years
Cost	\$5,000.00 (Staff Time)
Funding Source(s)	General Fund

- **Action 2.7** Seek funding to enhance and make E-911 System capable of locating cellular phones throughout the County by utilizing GPS (Phase II) – L

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County (Co. Adm.)
Timeline	5 Years
Cost	\$100,000.00 (Staff Time/System Materials)
Funding Source(s)	General Fund/GEMA

- **Action 2.8** Seek funding to purchase generators and retrofit buildings to install generators in critical buildings needed in emergency response situations – H

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director
Timeline	3 Years
Cost	\$100,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/GEMA

- **Action 2.9** Seek funding to acquire and distribute NOAA Weather Radio Systems throughout Wheeler County – L

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director
Timeline	3 Years
Cost	\$25,000.00 (Staff Time/News Articles/Town Hall Meetings)
Funding Source(s)	General Fund/GEMA

II. Future Building and Infrastructure

The update committee discussed development trends and the impact that a tornado occurrence could have upon future structures. The mitigation steps included above are intended to apply to both new and existing structures. All new buildings and infrastructure will be required to comply to new codes and ordinances, where applicable.

III. Existing Buildings and Infrastructure

The mitigation steps included above are intended to apply to both new and existing structures. Existing buildings and infrastructure will be subject to any changes in building, fire and safety codes.

IV. Special Multi-Jurisdictional Strategy and Considerations

All structures and facilities within Wheeler County could be damaged by a tornado. The Cities of Glenwood, Alamo and the unincorporated portions of the county are both equally at risk to damage from a Tornado. The update committee stressed the need for cooperation and inter-
coordination between the Cities and County in mitigation and response efforts.

V. Completed and deleted action steps from original plan.

- **Completed: Action 2.10** Support efforts of the City of Alamo in adopting a NIMS resolution – M
A countywide NIMS resolution was passed since the 2008 plan was adopted. Alamo now has NIMS guidelines in place.

Deleted: None

VI. Unchanged action steps:

The action steps remain unchanged in scope and priority. Each action step has been revised to exhibit new cost estimates and timelines. The Wheeler County Hazard Mitigation Update Committee reviewed the STAPLEE criteria for this hazard and feels that these action steps remain pertinent for preparing the community for possible disaster situations. Many of the actions are considered ongoing efforts including those related to public awareness, firefighter training and enforcing related codes. These actions have allowed for progress to be made in mitigating wildfire occurrence and will be continued as necessary.

Additionally, several actions were unable to be completed due to budgetary constraints. However the county has deemed these as still relevant and will continue to attempt to implement them. These include Actions; 2.1, 2.3, and 2.5.

VII. New Action Step: None

IV. Hurricanes

I. Goal 3: Reduce damage caused by the high winds that occur during hurricanes in Wheeler County.

Objective 3.1: Protect life, health and property of residents from high winds from hurricanes.

- **Action 3.1** Seek funding to purchase generators and retrofit buildings to install generators in critical buildings needed in emergency response situations – H

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director
Timeline	3-4 Years
Cost	\$100,000.00 (Materials)
Funding Source(s)	General Fund/GEMA

- **Action 3.2** Seek funding to purchase port-a-jons – L

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director
Timeline	3 Years
Cost	\$15,000.00 (Materials)
Funding Source(s)	General Fund/GEMA

- **Action 3.3** Seek funding to purchase portable lighting – M

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director
Timeline	3-4 Years
Cost	\$15,000.00 (Materials)
Funding Source(s)	General Fund/GEMA

- **Action 3.4** Increase public awareness of emergency topics by publishing articles in the local newspaper, holding town hall meetings, and providing bulletins to local churches and the schools (i.e., NOAA Weather Radio Systems, emergency plan and survival kit, Local Emergency Shelters, individual safe rooms, National Weather Service Operations, Local Emergency Plans, and the Local Emergency Management Agency, etc.) – H

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director
Timeline	3-4 Years
Cost	\$5,000.00 (Staff Time/News Articles/Town Hall Meetings)
Funding Source(s)	General Fund/GEMA

- **Action 3.5** Seek funding to update and upgrade the sewerage systems in the cities of Alamo and Glenwood – M

Responsible Org.(s)	Wheeler County (Co. Adm.), Cities of Alamo (Mayor), Glenwood (Mayor)
Coordinating Org.(s)	Wheeler County (Co. Adm.), Cities of Alamo (Mayor), Glenwood (Mayor)

Timeline	5 Years
Cost	\$250,000.00 (Staff Time & Materials)
Funding Source(s)	General Fund/GEMA/ CDBG

- **Action 3.6** Seek funding to retrofit buildings to reinforce windows, roofs and doors – M

Responsible Org.(s)	Wheeler County (Co. Adm.), Cities of Alamo (Mayor), Glenwood (Mayor)
Coordinating Org.(s)	Wheeler County (Co. Adm.), Cities of Alamo (Mayor), Glenwood (Mayor)
Timeline	3-4 Years
Cost	\$100,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/GEMA

II. Future Building and Infrastructure

The update committee discussed development trends and the impact that a Hurricane occurrence could have upon future structures. The mitigation steps included above are intended to apply to both new and existing structures. The update committee also discussed in detail the need to ensure that future property owners and builders are made aware if they are in a floodplain. All new buildings and infrastructure will be required to comply with any flood related building codes or ordinances, where applicable.

III. Existing Buildings and Infrastructure

Existing buildings and infrastructure located in or adjacent to floodplains will be impacted by changes to floodplain management, storm water run-off and drainage improvements. These measures are designed to improve conditions and prevent relief from potential flooding issues caused by a hurricane. Property owners located in a floodplain area will be notified. All existing buildings and infrastructure will be required to comply with any flood related building codes or ordinances, where applicable.

IV. Special Multi-Jurisdictional Strategy and Considerations

The effect of a Hurricane occurring along the Georgia coast has the potential to affect the entire county. The resulting flooding and strong winds could impact low lying incorporated and the unincorporated portions of the county. Also a Hurricane has the potential to create a large amount traffic as a result of evacuees. An event causing a mass evacuation of the Georgia Coastal and Florida Atlantic counties would likely result in many people traveling on U.S. Highway 280, 441 and nearby U.S. Interstate 16. Therefore, the city and county will coordinate together and with the state to address mitigation actions related to Hurricanes.

V. Completed and deleted action steps from original plan.

Completed: None

Deleted: None

VI. Unchanged action steps:

The action steps remain unchanged except for the timelines and cost estimates. The Wheeler County Hazard Mitigation Update Committee reviewed the STAPLEE criteria for this hazard and feels that these action steps remain pertinent for preparing the community for possible disaster situations. Cost estimates and timelines for action steps 3.1, 3.2, 3.3, 3.4, and 3.5 were revised to indicate current costs and timelines. Action 3.4 is considered ongoing to increase the knowledge and preparedness of the public.

VII. New Action Step:

New: None

V. Severe Winter Storms

I. Goal 4: Reduce damage resulting from ice, sleet, and snow during severe winter storms in Wheeler County.

Objective 4.1: Protect life, health and property of residents from high winds from severe winter storms.

- **Action 4.1** - Seek funding to purchase generators and retrofit buildings to install generators in critical buildings needed in emergency response situations – H

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director
Timeline	3-5 Years
Cost	\$100,000.00 (Materials & Labor)
Funding Source(s)	General Fund/GEMA

II. Future Building and Infrastructure

The update committee discussed development trends and the impact that Winter Storm occurrence could have upon future structures. The mitigation step included above are intended to apply to both new and existing structures.

III. Existing Buildings and Infrastructure

All existing buildings and infrastructure will be required to comply with any building codes or ordinances, where applicable.

IV. Special Multi-Jurisdictional Strategy and Considerations

Winter Storms have the potential to equally affect the entire county, including each municipality. The occurrence of this event is unpredictable; therefore, all considerations and strategies apply equally to each jurisdiction.

V. Completed and deleted action steps from original plan.

Completed: None

Deleted: None

VI. Unchanged action steps:

Action step 4.1 was changed to reflect an updated cost estimate and timeline for completing the action step. The Wheeler County Hazard Mitigation Update Committee reviewed the STAPLEE criteria for this hazard and feels that this action step remains pertinent for preparing the community for possible disaster situations. The update committee still views this action step listed as essential to mitigation efforts for this hazard.

VII. New Action Step:

New: None

VI. Thunderstorm/Windstorm

Goal 5: Reduce damage caused by severe storms and high winds that result from thunderstorms and windstorms in Wheeler County.

Objective 5.1: Protect life, health and property of residents from high winds from windstorms.

- **Action 5.1** Seek funding to retrofit public buildings to reinforce windows, roofs and doors
– M

Responsible Org.(s)	Wheeler County (Co. Adm.), Cities of Alamo (Mayor), Glenwood (Mayor)
Coordinating Org.(s)	Wheeler County (Co. Adm.), Cities of Alamo (Mayor), Glenwood (Mayor)
Timeline	3-4 Years
Cost	\$100,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/GEMA

- **Action 5.2** Increase public awareness of emergency topics by publishing articles in the local newspaper, holding town hall meetings, and providing bulletins to local churches and the schools (i.e., NOAA Weather Radio Systems, emergency plan and survival kit, Local Emergency Shelters, individual safe rooms, National Weather Service Operations, Local Emergency Plans, and the Local Emergency Management Agency, etc.) – H

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director
Timeline	3-5 Years
Cost	\$5,000.00 (Staff Time/News Articles/Town Hall Meetings)
Funding Source(s)	General Fund/GEMA

II. **Future Building and Infrastructure**

The update committee discussed development trends and the impact that thunderstorm/windstorm occurrence could have upon future structures. The mitigation steps included above are intended to apply to both new and existing structures. Specifically, new builders will be encouraged to remove hazardous trees on their property. All new buildings and infrastructure will be required to comply, where applicable.

III. **Existing Buildings and Infrastructure**

The mitigation steps included above are intended to apply to both new and existing structures. Existing buildings and infrastructure will be included in recommendations to retrofit to withstand wind and storm conditions. Additionally current property owners will be encouraged to remove hazardous trees as needed.

IV. **Special Multi-Jurisdictional Strategy and Considerations**

Due to the fact that this is a non-spatial hazard, the threat is present in both the incorporated and un-incorporated parts of Wheeler County. The occurrence of this event is unpredictable; therefore, all considerations and strategies apply equally to each jurisdiction.

V. **Completed and deleted action steps from original plan.**

- **Completed:** None
- **Deleted:** None

VI. **Unchanged action steps:**

With exception to a change in timeline and cost estimates, the action steps remain unchanged. Action 5.1 was updated to a cost of \$100,000 rather than \$50,000. The timeline for completing action 5.2 is now 3-5 years and an updated cost of \$5,000. The Wheeler County Hazard Mitigation Update Committee reviewed the STAPLEE criteria for this hazard and feels that these action steps remain pertinent for preparing the community for possible disaster situations.

VII. **New Action Step:**

New: None

VII. Hailstorms

Goal 6: Reduce damage caused by ice during hailstorms in Wheeler

County.

Objective 6.1: Protect life, health and property of residents from damage and high winds from hail.

- **Action 6.1** Seek funding to retrofit public buildings to reinforce windows, roofs and doors – M

Responsible Org.(s)	Wheeler County (Co. Adm.), Cities of Alamo (Mayor), Glenwood (Mayor)
Coordinating Org.(s)	Wheeler County (Co. Adm.), Cities of Alamo (Mayor), Glenwood (Mayor)
Timeline	3-4 Years
Cost	\$100,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/GEMA

- **Action 6.2** Increase public awareness of emergency topics by publishing articles in the local newspaper, holding town hall meetings, and providing bulletins to local churches and the schools (i.e., NOAA Weather Radio Systems, emergency plan and survival kit, Local Emergency Shelters, individual safe rooms, National Weather Service Operations, Local Emergency Plans, and the Local Emergency Management Agency, etc.) – H

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director
Timeline	3-5 Years
Cost	\$5,000.00 (Staff Time/News Articles/Town Hall Meetings)
Funding Source(s)	General Fund/GEMA

- **Action 6.3** Seek funding to purchase generators and retrofit buildings to install generators in critical buildings needed in emergency response situations – H

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director
Timeline	3-5 Years
Cost	\$100,000.00 (Materials)
Funding Source(s)	General Fund/GEMA

II. **Future Building and Infrastructure**

The update committee discussed development trends and the impact that hailstorm occurrence could have upon future structures. The mitigation steps included above are intended to apply to both new and existing structures.

III. **Existing Buildings and Infrastructure**

All existing buildings and infrastructure will be required to comply with future building codes or ordinances, where applicable.

IV. **Special Multi-Jurisdictional Strategy and Considerations**

Hailstorms have the potential to equally affect all of Wheeler County, including the Cities of Glenwood, and Alamo. The occurrence of this event is unpredictable; therefore, all considerations and strategies apply equally to each jurisdiction.

V. **Completed and deleted action steps from original plan.**

Completed: None

Deleted: None

VI. **Unchanged action steps:**

The action steps remain unchanged except timelines and costs. The committee discussed updated cost estimates of each action. As a result, the committee determined 6.1 and 6.3 should each have an increased cost of \$100,000. The Wheeler County Hazard Mitigation Update Committee reviewed the STAPLEE criteria for these hazards and feels that these action steps remain pertinent for preparing the community for possible disaster situations. Each of the action steps are ongoing efforts as funding sources become available.

VII. **New Action Step:**

New: None

VIII. **Wildfire**

Goal 7: Prevent damage caused by wildfire in Wheeler County.

Objective 7.1: Prevent destruction of forests and structures.

- **Action 7.1.1** Seek state and federal grants to acquire better firefighting equipment – **H**

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-Volunteer Fire Depts./Chiefs
Timeline	3-5 Years
Cost	\$600,000.00 (Staff Time/Vehicles, etc.)
Funding Source(s)	General Fund/FEMA

- **Action 7.1.2** Continue wild land training at the local fire department level – **M**

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-Volunteer Fire Depts./Chiefs
Timeline	1-2 Years

Cost	\$10,000.00 (Materials)
Funding Source(s)	General Fund/FEMA

- **Action 7.1.3** Improve public awareness of wildfire techniques such as putting out small fires with garden hose and the importance of fire buffers around the home by publishing articles in the local newspaper, holding town hall meetings, radio announcements and providing bulletins to local churches and schools – **M**

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-Volunteer Fire Depts./Chiefs
Timeline	3-4 Years
Cost	\$5,000.00 (Materials/ News Articles/Town Hall Meetings)
Funding Source(s)	General Fund/FEMA

- **Action 7.1.4** Develop building, fire and safety codes throughout Wheeler County – **M**

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County (Co. Adm.)
Timeline	3-4 Years
Cost	\$5,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund

- **Action 7.1.5** Investigate methods to provide landowners an incentive to prescribe burn timberland thereby minimizing heavy fuel loads – **M**

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-Volunteer Fire Depts./Chiefs, Ga Forestry Commission
Timeline	3-4 Years
Cost	\$10,000.00 (Staff Time)
Funding Source(s)	General Fund/GEMA

Objective 7.2: Reduce threat of wildfire occurrence during periods of drought.

- **Action 7.2.1** Seek funding to acquire more fire tankers (2000 to 3000 gallons) and floater pumps for local fire departments – **H**

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-Volunteer Fire Depts./Chiefs
Timeline	3-4 Years
Cost	\$600,000.00 (Staff Time/Vehicles, etc.)
Funding Source(s)	General Fund/FEMA

- **Action 7.2.2** Increase public awareness of wildfire dangers around the home and community, such as lighted matches, cigarettes, trash, and the process for obtaining burn permits by publishing articles in the local newspaper, holding town hall meetings, radio announcements and providing bulletins to local churches and schools – **M**

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-Volunteer Fire Depts./Chiefs
Timeline	3-4 Years
Cost	\$5,000.00 (Materials/ News Articles/Town Hall Meetings)

Funding Source(s)	General Fund/FEMA
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- **Action 7.2.3** Seek funding to locate (GPS) and ensure operability of large irrigation wells throughout Wheeler County – **M**

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director & Volunteer Fire Depts./Chiefs
Timeline	3-4 Years
Cost	\$10,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/FEMA

Objective 7.3: Protect life and health of residents from threat of wildfire.

- **Action 7.3.1** Seek grants to train firefighters on wildfire tactics and equipment – **M**

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director & Volunteer Fire Depts./Chiefs
Timeline	3-4 Years
Cost	\$10,000.00 (Materials)
Funding Source(s)	General Fund/FEMA

- **Action 7.3.2** Seek state and federal grants to acquire better firefighting equipment – **H**

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director & Volunteer Fire Depts./Chiefs
Timeline	3-4 Years
Cost	\$600,000.00 (Staff Time/Vehicles, etc.)
Funding Source(s)	General Fund/FEMA

- **Action 7.3.3** Increase public awareness of wild land fire interface issues – **H**

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director & Volunteer Fire Depts./Chiefs
Timeline	1-2 Years
Cost	\$2,000.00 (News Articles/Town Hall Meetings)
Funding Source(s)	General Fund/GEMA

- **Action 7.3.4** Construct 3 fire departments/stations in the county: Locations include northwest unincorporated area of Wheeler County, Intersection of Hope Church Road & Highway 19, and intersection of St. Paul Chapel Road and Highway 19 – **M**

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County Administration/Board of Commissioners
Timeline	1-2 Years
Cost	\$300,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/FEMA

- **Action 7.3.5** Seek funding for firefighting equipment to be placed in new fire stations: Locations include northwest unincorporated area of Wheeler County, Intersection of Hope Church Road & Highway 19, and intersection of St. Paul Chapel Road and Highway 19 – **M**

Responsible Org.(s)	Wheeler County (Co. Adm.)
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Coordinating Org.(s)	Wheeler County Administration/Board of Commissioners
Timeline	1-2 Years
Cost	\$150,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/FEMA

II. Future Building and Infrastructure

The update committee discussed development trends and the impact that wildfire occurrence could have upon future structures. The mitigation steps included above are intended to apply to both new and existing structures. All new buildings and infrastructure will be required to comply to new building codes and ordinances, where applicable. The construction of new buildings and development was specifically examined in regards to developing and implementing building, fire and safety codes, as well as addressing growing urban interface issues.

III. Existing Buildings and Infrastructure

All existing buildings and infrastructure will be required to comply with future building codes or ordinances, where applicable.

IV. Special Multi-Jurisdictional Strategy and Considerations

In the incorporated areas of Wheeler County, the threat of wildfires is low to moderate due to the relatively low fuel load that is present within the Glenwood and Alamo city limits. However, in the unincorporated areas of Wheeler County, the threat of wildfires is much higher due to the moderate to high fuel loads that exist in the more rural locations. These fuel load areas significantly increase the threat of wildfires, especially during drought conditions when all of the existing vegetation is drier. While the unincorporated areas are at greater risk, wind direction and fuel loads can quickly push a fire toward the City of Glenwood or Alamo. As such, the mitigation measures should be applied across each jurisdiction within Wheeler County. The update committee stressed the need for cooperation and inter-coordination between the Cities and County, as well as with local Georgia Forestry Commission efforts. Detailed jurisdictional information and mitigation efforts are addressed in the Wheeler County Community Wildfire Protection Plan, which was consulted by the update committee in the development of the Hazard Mitigation Plan.

V. Completed and deleted action steps from original plan.

Completed: None

- **Deleted: Action-** Enforce the ordinance to enforce burn permits – L

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County (Co. Adm.)
Timeline	5 Years
Cost	\$10,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/FEMA

Action step was deleted due to the lack of a local burn ordinance. The committee discussed the procedure for burning in Wheeler County and it was determined all landowners would follow the procedure set forth by the State of Georgia and the Georgia Forestry Commission.

The Georgia Forestry Commission is the responsible organization to issue, cite and enforce all applicable permits and authority.

VI. **Changed/Unchanged Action Steps:**

Actions 7.1.2, 7.1.4, 7.1.5, 7.2.1, and 7.3.4 were adjusted to reflect cost and timeline changes for the five year period. The Wheeler County Hazard Mitigation Update Committee reviewed the STAPLEE criteria for these hazards and feels that these action steps remain pertinent for preparing the community for possible disaster situations. Each of the action steps are ongoing efforts. Actions 7.3.4 and 7.3.5 are largely dependent upon available funding and will be pursued when possible.

VII. **New Action Step:**

- **Action 7.3.5** Seek funding for firefighting equipment to be placed in new fire stations: Locations include northwest unincorporated area of Wheeler County, Intersection of Hope Church Road & Highway 19, and intersection of St. Paul Chapel Road and Highway 19

IX. Drought

Goal 8: Reduce the economic impact of drought in Wheeler County.

Objective 8.1: Minimize economic impact of drought.

- **Action 8.1** Promote more efficient use of surface irrigation – M

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-Extension Service Agent/ NRCS
Timeline	5 Years
Cost	\$5,000.00 (Staff Time/News Articles/Town Hall Meetings)
Funding Source(s)	General Fund/USDA

- **Action 8.2** Promote construction of farm ponds for irrigation – M

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-Extension Service Agent/ NRCS
Timeline	3-4 Years
Cost	\$10,000.00 (Staff Time/News Articles/Town Hall Meetings)
Funding Source(s)	General Fund/USDA

- **Action 8.3** Seek funds to repair existing ponds – M

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-Extension Service Agent/ NRCS
Timeline	3-4 Years

Cost	\$50,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/USDA

- **Action 8.4** Implement a support system through FFA and USDA – M

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-Extension Service Agent
Timeline	3-4 Years
Cost	\$0.00
Funding Source(s)	N/A

- **Action 8.5** Locate unused irrigation wells for nonpotable water use during times of drought – M

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-Extension Service Agent/ EMA Director/ Wheeler County Fire Dept.
Timeline	5 Years
Cost	\$5,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/USDA

II. Future Building and Infrastructure

New buildings and infrastructure will not be impacted by these proposed measures.

III. Existing Buildings and Infrastructure

Existing buildings and infrastructure will not be impacted by these proposed measures.

IV. Special Multi-Jurisdictional Strategy and Considerations

Drought has the potential to affect the entire county, including the cities of Glenwood, and Alamo. The agricultural damage and reduction in drinking water will impact both the incorporated and unincorporated portions of the county. However, the committee's greatest concern is potential for the threat of wildfire resulting from extreme drought. As addressed earlier in the action plan for Wildfire occurrence, though the potential for a wildfire is greater in the unincorporated portions of the county it could easily spread to the city limits. Detailed jurisdictional information and mitigation efforts are addressed in the Community Wildfire Protection Plan, which was consulted by the update committee in the development of the Hazard Mitigation Plan.

V. Completed and deleted action steps from original plan.

- **Completed:** None
- **Deleted:** None

VI. Unchanged action steps:

Actions 8.1, 8.2, and 8.5 were adjusted to reflect cost and timeline changes for the five year period. Actions 8.2 and 8.3 were updated with an additional coordinating agency. The Wheeler County Hazard Mitigation Update Committee reviewed the STAPLEE criteria for this hazard and feels that these action steps remain pertinent for preparing the community for possible disaster situations. As indicated, many of the actions are considered ongoing efforts including those related to public awareness and the designation of additional water sources. Several others were deferred or removed for several reasons, including lack of funding. However the update committee still views the action steps listed as valid.

VII. New Action Step:

New: None

X. Extreme Heat

Goal 9: Prevent loss of life caused by extreme heat in Wheeler County.

Objective 9.1: Protect life and health of residents from threat of extreme heat.

- Educate citizens on proper procedures and preventative measures to help alleviate heat related issues in and outside of the home – **M**

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director
Timeline	3-4 Years
Cost	\$2,000.00 (Staff Time/News Articles/Town Hall Meetings)
Funding Source(s)	General Fund/GEMA

- Seek funding for supplies to assist in cooling the inside of a home (i.e., fans, air condition window units) - **M**

Responsible Org.(s)	Wheeler County (Co. Adm.)
Coordinating Org.(s)	Wheeler County-EMA Director
Timeline	3-5 Years
Cost	\$50,000.00 (Staff Time/Materials)
Funding Source(s)	General Fund/GEMA

II. Future Building and Infrastructure-

The update committee discussed development trends and the impact that excessive heat occurrence could have upon future structures. The mitigation steps included above are intended to apply to both new and existing structures. All new buildings and infrastructure will be required to comply to new building codes and ordinances, where applicable. The construction of new buildings and development was specifically examined in regards to developing and implementing building, fire and safety codes.

III. Existing Buildings and Infrastructure

The mitigation steps included above are intended to apply to both new and existing structures. Existing buildings and infrastructure will be subject to any changes in building, fire and safety codes.

IV. Special Multi-Jurisdictional Strategy and Considerations

The non-spatial nature of an excessive heat event would likely effect everyone in Wheeler County. These mitigation actions steps were designed for all citizens of the county regardless of municipality. The update committee stressed the need for cooperation and interagency-coordination between the Cities and County when determining the proper actions in an excessive heat event. With these steps identified, each jurisdiction can apply them equally to the population and work together to alleviate the effects of an excessive heat event.

V. Completed and deleted action steps from original plan.

Completed: None

Deleted: None

VI. Unchanged action steps: Action step 9.1 was updated with a timeline of completion 3-5 years with an increased cost estimate of \$50,000.

V. New Action Step: None

Chapter 4 – Plan Implementation

Chapter Four	Updates to Section
I. Integration into Local Planning Mechanisms	Section Revised and reduced
II. Monitoring, Evaluation, Updating	Section Revised and reduced. Additional description of Monitoring, Evaluation and Updating process.
III. Conclusion	Section Revised and Reduced
IV. References	Section Revised

I. Integration into Local Planning Mechanisms

A. Incorporation into Future Local Planning Mechanisms

This plan will be presented to the county commissioners and city councils to ensure its inclusion in their planning documents, as well as any other ordinances, capital improvement projects etc., that they may undertake in regards to hazard mitigation. The Wheeler County EMA Director will serve as a facilitator to help incorporate appropriate portions of the plan into other documents.

The plan will also be presented to the committee(s) responsible for updating the comprehensive plan. The Wheeler County Joint Comprehensive Plan was previously updated in 2009. The comprehensive plan provides an excellent tool for guiding the growth of Wheeler County and the Cities of Glenwood, and Alamo. The continued incorporation of portions of the Hazard Mitigation Plan into the comprehensive planning process will ensure the inclusion of importation mitigation issues. Though the entire Hazard Mitigation plan will be made available to the comprehensive plan committee, the “Risk Assessment and “Mitigation Strategy” will specifically be focused upon. These two sections are the most directly tied to future development, since they highlight key risks and strategies that will need to be considered by the committee.

Some key areas of overlap between the two plans include; the need for additional zoning regulations and building codes, increasing public safety, street/drainage improvements, and future residential development in the unincorporated portions of the county. These issues among others will be addressed in the comprehensive plans’ “Community Issues and Opportunities Section” and “Implementation Program” section. An evaluation and assessment of mitigation actions will also be included the Comprehensive Plan and the Short Term Work Program upon their revision.

In addition, the County Commission and city administrators will ensure that the local authorities responsible for the Local Emergency Operations Plan (LEOP) and other plans, including the development of goals established in the local comprehensive plan, utilize them as they relate to

the Pre-disaster Mitigation Plan. A copy will also be given to the Georgia Forestry Commission and incorporated into their Community Wildfire Protection Plan updates.

B. Previous Plan Incorporation into Local Planning Mechanisms

The original Wheeler county Hazard Mitigation Plan was regularly incorporated into other planning mechanisms in the five years since it's' adoption. The plan has been made available to key individuals and groups involved in the development of these other planning documents. The Wheeler County Joint Comprehensive Plan was fully updated in 2009. Many of the mitigation strategies from the original Hazard Mitigation Plan were incorporated into the comprehensive plan update. These included building code improvements, seeking additional equipment and training for emergency response personnel, and adding additional fire stations in the county.

The development of the Local Emergency Operations Plan has also included portions of the original Hazard Mitigation plan. The data and maps included in the Hazard mitigation plan have provided additional tools in the development of other documents. Incorporation efforts have also included also included the county commission and municipal governing bodies using the plan as a guide in related capital improvement plans and general decision making in regards to hazard mitigation activities

II. Monitoring, Evaluation, Updating

A. Original Plan Monitoring, Evaluation, Updating

The original Wheeler County Hazard Mitigation Plan included a detailed process for monitoring, evaluating and updating the plan in a five year period. This plan was largely dependent upon the coordination of the overall process by the county EMA Director. The implementation process was envisioned as being directed and initiated by the EMA office, with appropriate organizations and entities being responsible for specific mitigation actions. Each municipality delegated responsibility for implementation of actions to the appropriate city department or employee. For example, the city Fire Chief and his staff were tasked with seeking funding for additional fire equipment. Similarly, county departments and staff were given duties based upon the mitigation actions that were applicable. For actions that involved city and county cooperation, the EMA director was the primary coordinator. The EMA director was also in charge of monitoring progress and obtaining updates from the other city and county departments involved in implementation.

The original plan also outlined an evaluation strategy of holding a hazard mitigation review committee meeting in January of every odd numbered year. It was envisioned that at these meetings that representatives from all of the implementation departments and agencies would reconvene to discuss progress, obstacles and changes. This would also be an opportunity to make any needed changes to the mitigation action plan and to develop solutions to any problems. A report was to be developed from this meeting and presented at a county commissioners meeting and a city council meeting, which would allow the opportunity for public comment. Unfortunately, these formal evaluation meetings did not occur. This could be attributed to several causes, including changes in key city and county leadership positions. Instead, evaluation

was less structured and more pragmatic, with city and county employees reporting progress to their respective elected officials. Additionally, the EMA director kept informed on progress and changes made through discussion with stakeholders.

A strategy for updating the original plan was also outlined. This included incorporating in to the plan the changes discussed at the meetings held in January of each odd numbered year. However, formal changes made to the plan did not occur until the Heart of Georgia Altamaha Regional Commission was contracted to facilitate the mandatory five year update process. This process was described in more detail in Chapter One, Section II-III.

Due to issues with the feasibility and effectiveness of the original Monitoring, Evaluation and Update strategy the decision was made to make a couple important adjustments. These changes include altering the time line for the review committee meeting that was originally scheduled for January of every odd numbered year. The review committee will now reconvene in January of each year. The update committee felt that by meeting annually enable to more efficiently update and evaluate the progress being made with the mitigation actions. This meeting will be advertised to the public in advance and a report will be made to the each city council and Wheeler County Commissioner. Any changes made to the Hazard Mitigation Plan at the committee meetings will be incorporated into the next mandatory five year update. A more detailed description of the Monitoring, Evaluations, and Update strategy can be found in sections B, C and D.

B. Monitoring Strategy

i. Method:

The primary method used to monitor the implementation of the update will be to observe the progress made towards achieving specific mitigation actions. City employees and officials directly involved in implementing the actions will be responsible for providing the City Managers with regular updates, who will inform the County EMA Director. Likewise, county employees and officials will report to the EMA Director about progress made. By monitoring the status of the mitigation action plan as it is being implemented, the EMA Director will be able to remain informed and involved.

ii. Responsibility

The Wheeler County Emergency Management Agency Director is the primary individual responsible for the monitoring of the plan. It is his/her responsibility to coordinate with the city and county departments' responsibility for implementing the different portions of the plan. Through regular discussions and personal involvement, the EMA director will be able to properly monitor the progress. The EMA Director will also actively seek public comment and involvement.

For the municipalities, responsibility falls upon the city administrators to monitor progress for city implemented portions of the plan and to provide updates to the EMA director. Furthermore,

all department heads, as well as any officials, that are involved in the implementation process, will have the responsibility to help monitor and provide updates to the EMA Director.

iii. Timeframe

The monitoring process will be ongoing throughout the five years that the plan is valid. The annual meeting of the update committee will convene in January of each year. This meeting will provide an additional opportunity for the EMA director to stay up to date on progress being made.

C. Evaluation Strategy

i. Method:

In order to properly evaluate the plan and implementation of its action strategy two major factors will be considered. The first being whether or not the mitigation action has actually been implemented, taking into consideration that some actions are ongoing. Secondly, whether or not the action appears to be successful in helping to reach the overall objective it is intended to. This will include utilizing a checklist to determine what mitigation actions have been undertaken or accomplished, the completion date (if applicable), the cost associated with each completed action, and whether actions are deemed successful.

ii. Responsibility

The Hazard Mitigation Plan review committee will hold the primary duty of evaluating the success of the plan. The committee will be able to properly evaluate the plan through their involvement in its implementation. The EMA Director and representatives will be tasked with presenting a summary of the evaluation at the county commission and city council meetings, respectively. Additionally, public input will also be sought for the evaluation of strategies. The public provides an excellent source for measuring the successfulness of mitigation actions.

iii. Timeframe

The formal evaluation of the mitigation action plan will occur at the committee meeting each January. At this time the Mitigation strategy should be reviewed with status reports given by the members of the committee upon whether each action has been implemented and whether or not it has been successful. The checklist used for this evaluation will then be developed into a summary to be presented for the County Commission and City Councils once the plan has been evaluated. This summary will be given at the February commission and council meetings. Both the county commission and city council meetings are publically advertised, providing an opportunity for public comment on the plan evaluation and any changes made.

D. Updating

i. Method

Due to the requirements set forth in the Disaster Mitigation Act of 2000, Wheeler County is required to formally update and revise the plan every five years. The EMA Director, as well as any organization or individual contracted to help facilitate the update process, will reconvene the review committee on a monthly basis prior to the expiration date of the current plan. The EMA Director will ensure that the committee consists of representatives from the appropriate organizations and if needed invite new members. Efforts will also be made to again obtain the involvement of the public in the update process.

In the update process the committee will review the mitigation goals, objectives and action items to determine their relevance to changing situations in the county, as well as changes in State or Federal policy, and to ensure they are addressing current and expected conditions. The committee will also review the risk assessment portion of the plan to determine if this information should be updated or modified, given any new available data. The list of critical facilities for the county should also be reexamined for accuracy and modified as needed.

Through the use of the monitoring and evaluation strategies outlined in sections II B and II C, the committee should already have an up to date record of the implementation and success of the plan. This record will greatly aid the review committee in their preparation of the 2018 Hazard Mitigation Plan.

The plan update will be submitted to Georgia Emergency Management Agency and the Federal Emergency Management Agency for their review and approval.

Updates of the plan will be presented to the Wheeler County Commission and each City Council for approval.

ii. Responsibility

The Wheeler County Emergency Management Agency Director is responsible for the ensuring that the Pre-Disaster Hazard Mitigation Plan is updated. He/she will coordinate the process and reconvene the review committee. If an individual or organization is contracted to aide in the update process then they will share in the responsibility for the update process with the EMA Director. All city and county employees/officials are responsible for aiding in the update process as determined by the EMA Director.

iii. Timeframe

In order to update the plan in the five-year period the EMA director will reconvene the review committee at least one year in advance of the plan expiration date. They will meet on a monthly basis, or as decided by the committee, and continue until the update of the plan has been completed. These meetings will be in addition to the annual January meeting.

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

E. Public Involvement

Wheeler County is dedicated to involving the public directly in the continual monitoring, evaluating and updating of the Hazard Mitigation Plan. In order to help ensure public participation during the monitoring and evaluation process the annual meeting will be announced at a city council and county commissioner meeting prior to the date. Additionally the EMA Director and City administrators will make reports to the county commission and city councils after each annual meeting. This will give the public an opportunity to comment and ask questions about the ongoing implementation of the mitigation actions. Moreover, many of the mitigation actions taken by the city or the county will be discussed at their monthly meetings, such as capital projects, grant awards etc.

Public Involvement will also be sought during the five year update process. Public notice of at least two of the update meetings will be published in the local newspaper. Although the Plan Review Committee will represent the public to some extent, the public will be invited to participate with the plan review committee to directly comment on and provide feedback about the Plan. In addition regular reports will be made at each City Council and Wheeler County Commissioners' Meetings. All city and county officials, as well as any employees, will be encouraged to notify citizens of meetings and any changes being made.

An updated copy of the plan will be available at the Wheeler County EMA office, Glenwood, and Alamo City Hall and the County Commissioner's Office. The existence and location of these copies will be publicized in the local newspaper. All comments and questions will be directed to the local EMA office for follow-up.

III. Conclusion

A. Conclusion Summary

Because of the time and effort put into the hazard mitigation update process, Wheeler County officials and employees have obtained a great deal of information and knowledge regarding the County's disaster history, the presence of natural hazards, the likelihood of each of these hazards occurring within the county, and the potential impacts and challenges these hazards present to the community.

The mission of the Wheeler County Hazard Mitigation Update Committee is: To make the citizens, businesses, communities and local governments of Wheeler County less vulnerable to the effects of natural hazards through the effective study of hazard mitigation, hazard risk assessments, wise flood plain management, and a coordinated approach to mitigation policy through federal, state, regional, and local planning activities.

The Committee feels that this plan, when implemented, will help to make all of Wheeler County a safer place to live and work for all of its citizens.

IV. References

A. Publications

FEMA Pre-Disaster Mitigation How-to Guides #1, 2, 3, 4, 5, 6, 7, 8, 9
(FEMA)

GEMA Supplements to FEMA Pre-Disaster Mitigation How-to Guides
(GEMA)

2008 Georgia Hazard Mitigation Strategy Standard and Enhanced

2011 Wheeler County Comprehensive Plan

The Georgia County Guide 2009

USGS Droughts in Georgia

2010 U.S. Census

Wheeler County Community Wildfire Protection Plan

2007 USDA Wheeler County Census of Agriculture

B. Web Sites

FEMA (www.fema.gov)

GEMA (www.gema.state.ga.us)

National Climatic Data Center (www.ncdc.noaa.gov)

US Army Corps of Engineers (www.geo.usace.army.mil)

University of South Carolina Weather Database: SHIELDUS
(<http://webra.cas.sc.edu/hvri/products/sheldus.aspx>)

C. Other

American Red Cross

Wheeler County Tax Assessor

Forest Inventory and Analysis

Georgia Department of Natural Resources

Georgia Forestry Commission

United States Department of Agriculture

United States Geological Survey